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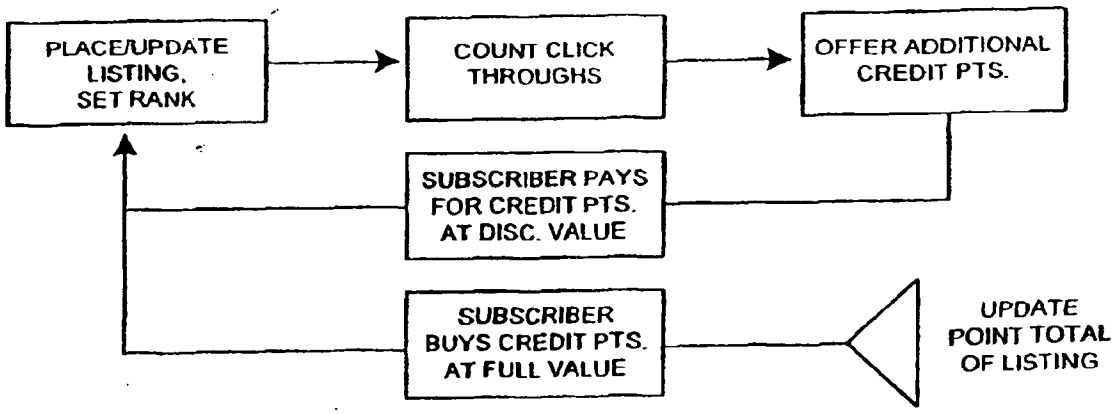

(57) Abstract

A system of network site searching and listing employs a server which maintains a listings database containing site listings, provided by subscribers, each of which includes a title or description of the content of the respective site, a network address at which the site can be accessed, and a denominated value to be paid by the subscriber as a subscription fee for the site listing (5). In response to search queries, the server provides a search report of listings ranked according to the subscription fees paid by the subscribers (6) (4B). The higher the amount paid for a given subscription period in relation to other listers, the higher the site's ranking on the service's search reports (4B). The service provides immediate placement control for subscribers, without high transaction costs or delays, based on a ranking system determined by monetary value rather than arbitrary relevancy factors (2B).

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INTERNET SITE SEARCHING AND LISTING SERVICE BASED ON MONETARY RANKING OF SITE LISTINGS

SPECIFICATION

Field of the Invention

This invention relates to an Internet site searching and listing system, and in particular, to a system which is based on ranking of site listings based on monetary value.

Background Art

The Internet is a vast, global network of countless computers, networks, routers and data lines. It was created for the U.S. Department of Defense (DoD) in the 1970's. The Department of Defense needed to establish a research network to link computers in universities, research labs and government centers across the country. The DoD network was opened to the public in the 1980's when the National Science Foundation (NSF) established its own network, the NSFNET, based on the existing network structure. Administration of the backbone structure for the Internet and domain name registrations was eventually transferred to private companies, as the Internet was opened to commercial usage in the 1990's.

Since 1995, the growth of the Internet has been phenomenal. The Internet connects users with the plethora of sites on the network having information content principally by a system of site addressing using Universal Resource Locators (URLs), known as the World Wide Web (WWW). As the number of sites have grown exponentially, search services have arisen as the key entry points to the Internet for the millions of users searching for content among hundreds of millions of sites on the Web. The number of search services has expanded from a handful in 1995 to over 500 in 1998.

Search services distinguish themselves by the extent of sites that they have indexed and by the efficiency with which they can find and list relevant sites for a user in response to a search query.

There are two general types of search methodologies that have evolved: the index or Boolean search, and the category or directory search.

The index or Boolean search allows the user to enter one or more keywords, which may be qualified by Boolean operators, in order to locate relevant content by matching the keywords with those appearing in the content. Because the total data volume of content is prohibitively large, search services will maintain listings of summaries of content provided by the content providers themselves and/or will generate abstracts of content using automated "spiders" or "robots" which systematically search through the Internet for content. The latter type of utility program is designed to jump from one Internet site address to another collecting information on the data it encounters.

An advantage of the index or Boolean search is the ability to find relevant content using a Boolean syntax to help narrow the search. This type of search is beneficial when locating content that can be pinpointed by keywords. The downside of this method is the potential number of items that may be found if the search parameters are not sufficiently narrowed. To reduce confusion from overly large search finds, some index search services have developed methods for ranking the search "hits" based upon various types of relevancy indicators.

No two index search services are the same. How they search for content with the use of spiders or robots and how their listings are compiled in their database can be vastly different. Some services consider words in a Web site's "title" and "description" and "keyword" meta tags of primary relevance in finding a match. Other search services may disregard meta tags and focus on the content of information in the Web site itself. Generally, they will grab a page or two of text and rank the content based on the occurrence of specific words that appear in the content. For example, a Web page which mentions "koa wood" multiple times may be indexed or ranked high for relevancy in a search for "koa wood".

A relevancy ranking may be quantified by some services in terms of percentages, with listings rated with higher percentages listed higher in a search report than those assigned lower percentages. This provides the user with a scale of relative measurement. However, it can result in a Web site assigned a low ranking receiving little or no visits. Index search services can also access listings from multiple databases in cooperation with it and combine the results together in a single search report as if from a single large database. An example of a system for combining the search results of multiple databases is described in U.S. Patent 5,659,732 in the name of S.T. Kirsch, assigned to Infoseek Corporation, Santa Clara, California.

Some search services also take into consideration the number of other links pointing at

a particular site in determining its importance. Two Web sites with generally the same frequency of the words "koa wood" might be ranked differently by some search services based on the number of other Web sites which make reference to the site's URL address. Such services assume that if a site has several referral links pointing to it, it probably contains relevant information and is of higher value. An example of a system for ranking site listings by how often it is referenced by other sites is described in U.S. Patent 5,748,954 in the name of M.L. Maudlin, assigned to Carnegie Mellon University, Pittsburgh, Pennsylvania.

Other factors used to consider a Web site's ranking include verification of matches between the keyword meta tag data and the actual content in a Web site's document. If there is no clear association between the hidden keyword meta tag data and the content data, a site might be marked irrelevant and ranked low in a search. Another negative factor might be the overuse of certain keywords in a Web site. Repeating "koa wood" multiple times in either the keyword meta tag or in the document itself can be considered "spamming", i.e., the repeated use of words in a frequency that the spider or robot identifies as overly repetitive. If a robot or spider detects blatant "spamming", the search service may penalize the Web site by giving it a lower relevance value in search results or even remove the Web site from its database. For Web site designers and publishers, it is critical to present site content in a manner that would increase the likelihood that it will receive a high ranking in a search, while at the same time avoid the kind of over-manipulation of content that may be rejected.

In contrast to index search services, category or directory search services group Web site content into specific categories, like an encyclopedia. Instead of typing in keywords to locate specific information, the user selects a category of interest from a list. Finer-grained levels of subcategories in a hierarchy may be assigned in order to break down the listings in large categories into more manageable lists for the user. The definitions of categories and subcategories are chosen by each search service and is to a large extent arbitrary. The category search service collects information on Web site listings supplied by human editors, which is reviewed and placed into the appropriate categories. This is a time consuming task considering that there are often thousands of new Web site entries per day handled by major search services. The heavy volume of Web site listings has caused most category search services to take weeks, months and even years to list a robust enough set of available Web site entries.

When a Web site is placed in a category, it is usually sorted with the other listings in alphabetical order. This can be an advantage or a disadvantage, depending upon a Web site's alphabetical title position. Because category services rely on human entry of Web site listings, there is usually no automatic review of a Web sites for current status or relevance, and many sites can become defunct or not be updated for years. Some category services have recently combined the category method with a ranking system to assign a highlighted mark, higher position or relevancy measure to Web sites deemed to be of higher value. A Web site having a title late in the alphabet and without a highlighted

status will be relegated to a lower portion of the list and will be less attractive and more difficult to locate than others. Having the search service determine what should be highlighted can lead to arbitrary rankings and takes the success of a Web site's to visitors out of their own hands.

Currently, most major search services combine some form of both the index and the category methods to meet user preferences. This allows each type of service to keep or attract new users who might otherwise prefer a different service for a more targeted search function. As a result, users generally find that the benefits and disadvantages of both types of services to be about the same. For the subscriber, each type of service entails some degree of arbitrariness, either in the factors selected to compute a relevancy ranking or in the subjective determination of a site's relevancy.

How high or prominently a Web site is ranked by a search service is directly related to the frequency of visits or "hits" it receives from a search. Generally, the more hits a site has, the more potential inquiries or transactions will occur. In order to achieve positive search results with well over 100 million publicly available Web pages currently, Web site developers need to pay constant attention to the content as well as to the structure and frequency of their Web site submissions. It is not uncommon for Web sites to spend hundreds of dollars to promote their site to search services. Thus, the Internet searching and indexing industry at present is characterized by high opportunity and maintenance costs for results that are arbitrary or uncertain for the subscriber. These conditions may become increasingly unacceptable as the volume or Web sites, number of subscribers, level of commerce, and the costs involved continue to increase.

Summary of the Invention

It is therefore a principal object of the present invention to devise a method and system for Internet searching and indexing in which Web site owners can determine for themselves the rankings that their information or services should receive in competition with others, and not through computation of a ranking based on arbitrary factors or subjective determination by a search service. It is a further object that the Web site owners be able to readily upgrade or downgrade their rankings based upon their assessment of market factors on an on-going basis. It is also desirable that this system be readily implemented at manageable cost and readily understood by users without having to accept a new search orthodoxy or unfamiliar change of search usage.

In accordance with the present invention, a method and system of network site searching and listing comprises a listing server connected to a network accessible by a plurality of users, having a site listings database containing a plurality of site listings, each of which is provided by a site listing

subscriber and includes a title or description of the content of the respective site, a network address at which the site can be accessed on the network, and a denominated value to be paid by the subscriber associated with the site listing while it is maintained on the listing server, wherein said listing server provides a search report of listings relevant to a search inquiry from a user in which the listings are ranked in order according to the denominated values associated with the listings.

In the preferred embodiment, subscribers pay a monetary amount of their own choosing as a subscription fee to list a site with the listing service for a defined subscription period. The higher the amount paid for a given subscription period in relation to other listers, the higher the site's ranking on the service's search reports. Subscribers can monitor the ranking of their listings in relation to others, and can modify their rankings by raising or lowering their subscription fees, through a subscription monitoring interface provided with the listing server. Changes to the subscription fees, and consequently to the rankings, may be handled by the listing service at defined adjustment intervals, such as daily, weekly, monthly, etc. The denominated value may be based upon a monetary value, or even a credit or point system, depending upon the type of subscriber base being solicited by the listing service.

The denominated-value approach to rankings may also be used in conjunction with the index search method or the category search method. In the first case, an index search of the listing service's database is performed using keywords, and the resulting listings found are ranked according to their subscription fee values. In the second case, the subscribers' listings are assigned to appropriate categories, then when the user inputs a selection of categories of interest, the resulting listings found are ranked according to their subscription fee values.

The denominated-value listing server's database may also be linked to other search services, and the denominated-values or rankings of the listings can be converted into percentages or other relevancy rankings used by the other search services simply by computing a numerical equivalent of the denominated-value ranking, or a ratio of the subscription fee paid for a listing in relation to a benchmark value for all related listings, such as a highest fee paid, a normalized average of fees paid, a weighted composite of fees paid, etc.

The present invention allows an individual to create a listings management account through the listing service's monitoring interface, called URL POSITION MANAGER™, for one or more Web site submissions. The subscriber enters detailed information for each Web site submission in each appropriate category. While the subscriber pays for or renews their subscription service on a periodic basis, the account management interface allows the subscriber to constantly monitor, update, and/or reposition their listing, depending upon the economic factors that justify their advertisement costs for the Web site.

The subscriber for a Web site thus has the opportunity to determine in competitive monetary terms where their site appears in the search results. This eliminates the use of arbitrary factors to compute a relevancy ranking, or a subjective determination of value by the search service, and instead allows the subscriber direct control over their site listing. Generally, the more substantial and popular the Web site, the larger the interest in having positive search listing results. The freedom to make spontaneous modifications to their search rankings provides the subscriber with a more rational and responsive search service than exists currently.

Description of the Drawings

FIG. 1A is a diagram of the methodology of a conventional index search service, and **FIG. 1B** is a diagram of the methodology of a conventional category search service.

FIG. 2A is a diagram of functions performed for listings account management in the denominated-value search service of the present invention, and **FIG. 2B** shows a listings update interface.

FIG. 3 illustrates an user interface for conventional index and category searches, as used with the denominated-value search service of the present invention.

FIG. 4A is a diagram of the results of the denominated-value search service following an index search query, and **FIG. 4B** is a diagram of the results of the denominated-value search service following a category search query.

FIG. 5 is a diagram of the denominated-value search service of the present invention in relation to conventional search services in the Internet environment.

FIG. 6 is a diagram illustrating a denominated-value search service of the present invention which uses a credit point total to set the rankings of search listings.

Detailed Description of the Invention

Referring first to **FIG. 5**, the Internet is depicted as an infinite universe populated by users and information content connected by computers, networks, servers, and data lines. Information content can reside as a file or host of files anywhere on any computer. Users are connected by the Internet, often

referred to as "the network of networks", for access to information content. The system for addressing content on the Internet employs Universal Resource Locators (URLs), which are numerical addresses for information content sites on computers on the Internet. The totality of URL-addressable space is often referred to as the World Wide Web, or "the Web" colloquially.

To keep track of the plethora of information content sites, search services assemble databases of descriptive listings for the sites. As previously mentioned, the two general types of search methodologies that have evolved are the index search, which automatedly searches out content on the Web and indexes them according to certain targeted keywords and other factors, and the category search, in which site listing submissions are reviewed and assigned to selected categories. By entering one or more keywords with or without Boolean operators, a user ABE@netA can query an index search service (indicated by the numeral 20 in the figure), and receives targeted listings in a search report. The search report may rate the listings by a relevancy ranking, computed on the basis of certain relevancy factors selected by the search service. Alternatively, a user BCF@netB can query a category search service (indicated by the numeral 30 in the figure) by categories, and receive listings of sites assigned to those categories. The index and category methods may be combined, as indicated by the bar in the figure.

In the present invention, a denominated-value search service (indicated by the numeral 40 in the figure) provides a search report in response to user query in which the listings are ranked by value ($) as paid by the listing subscriber. The denominated-value ranking may be preceded by an index search 20 and/or a category search 30 to locate a subset of targeted or categorized listings. The index or category search is performed on the denominated-value service's database of listings. Each listing includes a title or description of the content of the respective site, a network address at which the site can be accessed on the network, and a denominated value to be paid by the subscriber associated with the site listing while it is maintained on the listing server. As described further below, the denominated-value search report may also be provided to other search services and converted to their rating systems for inclusion in their search reports.

There are two primary levels of function handled by the denominated-value search service in accordance with the invention: the retrieval of information for users, and the management of Web site listings for subscribers. For the retrieval of information, the service can offer index and category search options. With reference to **FIG. 1A**, the index type of search begins with the entry of keywords in block 1. The keywords are searched in the database with the results either being positive in block 2 or negative in block 4. Positive results are sorted and displayed by denominated value (dollar amounts paid for subscription fees) in block 3. The results are displayed, as shown in **FIG. 4A**, with a display 1a of the keyword or Boolean search syntax, the denominated values 2a ordered from highest to lowest, the Web site titles 3a (which are also the hyperlinks to the sites), the site descriptions 4a, and the URLs and

category locations 5a. Negative query results transfer back from block 4 to block 1. If the user selects a site listed in 3a, the user is transferred to the web site location as indicated at block 5. If there are no URLs of interest, the user is transferred from block 6 to block 1.

Referring to **FIG, 1B**, the retrieval by category search begins with a main category menu indicated at block 10, and user input to select a category from the menu at block 11. Input to a subcategory menu is indicated at block 12, resulting in the subcategory list of listings being displayed. As shown in **FIG. 4B**, the display includes the category title 11a, subcategories 12a, further subcategories 13a - 13f, denominated values 14a ordered from highest to lowest, Web site titles 15a (as hyperlinks), and site descriptions 16a. If no category selection was made at block 11, then the user returns to block 10 via branch 13. If no sub-category selection was made at block 12, then the user returns to block 10 via branch 15. If the user selects a listed site in block 12, then the user is transferred to the Web site location via link 14.

Referring to **FIG. 2A**, the second level of listings management functions for the subscriber is depicted in a preferred example. Entry to this function level requires an input and and password to log-in at log-in screen 21. If the subscriber is new and has not created an account, they will be transferred to the Create New Account procedure at block 10. After completing the necessary information they will be sent an email in block 11, containing their password to log-in at block 1. If the subscriber does not remember their password in block 3, they will be transferred to block 31 where an email message and password will be sent, to allow return to the log-in at block 21. Once the correct ID and password have been entered, the subscriber is transferred to the listings management program, referred to as "URL POSITION MANAGER™" at block 22. From here they have access to the Remove URL command at block 29, Change Password or Personal Identification at block 28, Update URL information at block 27, and Add New URL at block 25. All of these routines are updated automatically through the URL POSITION MANAGER™.

Referring to **FIG. 2B**, an interface to the URL POSITION MANAGER™ is shown displaying a link 41 to change the password or personal information of the subscriber account holder, then a listing of all sites maintained in the account, referenced by the current rank 42 within the particular category/subcategory, the denominated values (fees paid) 43 for the listings, the URL addresses 44 for the sites, the category locations 45, the expiration dates 46 for the site listings, listings update buttons 47, listings removal buttons 48, and an Add New URL button 49. The Add New URL feature offers the user the ability to enter a new listing and select the main category and subcategory deemed most appropriate. Once the user completes the necessary information, they are returned to the URL POSITION MANAGER™ menu at block 22.

With the use of the URL POSITION MANAGER™ interface, a URL may be automatically

added to the Internet search service database. By logging in with the correct identification, a subscriber may add one or more URLs to the database, update the subscriber's account including any of the listed URL addresses, titles, descriptions, keywords, IDs, and subscription fees. The subscriber can use the REMOVE link to remove a URL, the UPDATE link to change their URL information, and the MODIFY USER ACCOUNT link to change their password, email address and personal information. A subscriber may also control the URLs active or inactive listing status, in case the URL is under construction and needs to hide its visibility until completion.

If a new subscriber logs on, the system checks their status as New Members, and allows the new subscriber to enter their personal information in order to establish a new account. A password is assigned and automatically sent by e-mail to the suscriber's address. Thus, the New Member can be promptly cleared to commence new listings transactions.

When a subscriber is ready to make payment of the amount or increment to the subscription fee, the system can automatically execute a credit card payment transaction. Once payment is validated, the system will automatically update the database and begin listing the URLs in the appropriate categories and rankings in response to new search queries. Because the positions of the listings are based on objective criteria, i.e., the denominated value paid by the subscriber, the subscriber can pay an increment to improve a listing's position relative to other URLs within the service, and have the new position immediately reflected in the search database. This eliminates the long delays and arbitrary results offered by conventional search services which must evaluate content or classification before adding or updating a listing.

Given the above description of an overall approach to the denominated-value search service of the present invention, specific examples of different types of service configurations and feature variations will now be described.

Example I:

In this example, each new web site being added to the system is entered with required information such as email address, password, personal and web site data. The subscriber will enter their email address and a password to control access to the URL POSITION MANAGER™ database. The subscriber selects the appropriate categories for each web site they wish to add. They can enter as many web sites as they choose. The service reserves the option to verify that the category preference indicated matches the general content of the site. The subscriber can select any subscription fee they choose, which is good for a one year subscription period. The subscription fee may be zero to any amount in U.S. $10 increments. At prescribed adjustment periods, such as weekly, the subscriber may log on to the

listings management program, and adjust the subscription fee upward if maintenance of a desired position against competitors or a higher position is desired. The original expiration date of one year remains regardless of any change to subscription fees. At the end of the original expiration date, the user has the option of renewing the subscription at the current fee or any other fee desired. All subscription fees are paid in advance and no refunds are given.

The web site listings in index or category search results are displayed in fee order from highest to lowest. Listings at the same fee level are displayed on a first come, first served basis. Free web site submissions will be reviewed prior to database placement. Fee-based submissions will be added to the database immediately and reviewed at a later date. This will allow the subscriber to obtain an immediate Web site placement for as little as $10. If the indicated category is incorrect, the listing will be moved to a more appropriate category or removed from the database.

In effect, this exemplary type of service allows a subscriber to chose the rank of their listing by selecting an appropriate initial fee followed by any necessary adjustments to maintain or increase its ranking. The transaction can be completed in a few minutes on-line with a credit card payment or other credit given, thus avoiding high transaction costs and delays for content review. Following the close of the time for adjustment, the rankings are locked in for the duration of the adjustment period, but may thereafter be further adjusted. The amount paid is based purely on economic considerations, and not arbitrary factors. There is no alphabetical ordering that places titles late in the alphabet at an arbitrary disadvantage. Also, search services can reduce their liability to subscriber disappointment since rational monetary factors rather than arbitrary factors are used in determining a listing's rank.

Example II:

In this example, the denominated-value search and listing service lists URLs on a credit point system. Credit points may be purchased at stated dollar values, e.g., 10 points per $1, and/or awarded as described further herein. A listing may be added to the database for free, but the subscriber must use credit points to increase the listing's rank. Search results are displayed ranked in order of the total of credit points allotted to the listing. The listing may be valid for a predetermined subscription period. Alternatively, the listing may have no expiration date in the circumstance where the credit point totals are allowed to cumulate to higher and higher totals over time.

Referring to FIG. 6, the value methodology of another version of the denominated-value listing service is illustrated. The service can award a credit point each time a user clicks on a listing reported in a search in order to link to the listed Web site. At periodic intervals, the system tallies up the total number of "click throughs" in the current period, and notifies the subscriber by e-mail offering to add the credit points to their total for the listing and to bill the subscriber's account a discounted amount for

the credit points, e.g., 20 points per $1. The discounted purchase price rewards the subscriber for having a listing deemed to be of value to users, and provides an advantage over a subscriber who adds to the credit point total by purchasing the credit points.

The subscriber is then given a period of time to accept or reject the additional points. If the subscriber accepts and makes payment or has an established credit agreement with the service, the additional credit points are added to the listing's total, and the rank of the listing may be improved immediately to reflect the additional points. Improved ranking is likely to lead to more click throughs, so that the subscriber can gradually improve the value of the listing commensurate with the actual response level of users to the listing. If the subscriber declines, then the point total for the listing stays the same. Over time, the ranking of a listing which the subscriber does not add to the point total will decrease relative to other listings.

Example III:

The denominated-value search database can be linked to other search databases using different site relevancy measures. If a query is forwarded from another search service, the denominated-value service can conduct its usual index/category search followed by denominated-value ordering. The denominated-value rankings can then be converted into a relevancy measure consistent with the requesting search service. For example, if the requesting search service uses a percentage relevancy measure, the denominated-value ranking can be converted to a percentage equivalent according to the position of its rank, or by computing the ratio of the fee paid for a listing in relation to a benchmark value for all related listings. The benchmark value can be the highest fee paid for a listing in that search result, or by a Bell-curve percentage for the normalized average of fees paid, or by a weighted composite of fees paid, etc.

The cross-database communication of queries and search results can be handled by a standard protocol for directory queries, such as the Lightweight Directory Access Protocol (LDAP) developed at the University of Michigan. The LDAP protocol is being supported by a wide range of public and private groups as a proposed open standard for accessing on-line directory services over the TCP/IP network protocol. Techniques also exist for combining search reports queried from multiple databases in a single search report, as described for example in U.S. Patent 5,659,732 in the name of S.T. Kirsch, assigned to Infoseek Corporation, Santa Clara, California. The linking to other search services allows the denominated-value database to be accessed by a much wider base of users of the other search services, and at the same time return results consistent with the requesting service's relevancy measure and accurately reflecting the relevancy measure of the denominated-value database.

It is understood that many modifications and variations may be devised given the above

description of the principles of the invention. It is intended that all such modifications and variations be considered as within the spirit and scope of this invention, as it is defined in the following claims.

CLAIMS

1. A system of network site searching and listing comprising:

a listing server connected to a network accessible by a plurality of users, having a site listings database containing a plurality of site listings, each of which is provided by a site listing subscriber and includes a title or description of the content of the respective site, a network address at which the site can be accessed on the network, and a denominated value to be paid by the subscriber associated with the site listing while it is maintained on the listing server,

wherein said listing server provides a search report of listings relevant to a search inquiry from a user in which the listings are assigned a rank in order according to the denominated values associated with the listings.

2. A system according to Claim 1, wherein the denominated value to be paid by the subscriber is a subscription fee of an initially entered amount which may be adjusted during a defined adjustment period.

3. A system according to Claim 1, wherein said listing server includes an account interface to the network accessible to subscribers having means for allowing a subscriber to enter information to set the subscription fee for a respective listing in order to obtain a desired rank for the listing.

4. A system according to Claim 3, wherein said interface includes means for allowing the subscriber to maintain a plurality of site listings in a listings account accessible through said account interface.

5. A system according to Claim 1, wherein said listing server includes search means for conducting a search of its site listings database according to search parameters provided with the search inquiry from a user.

6. A system according to Claim 5, wherein said search means conducts an index search of the site listings database based upon keywords provided with the search inquiry from a user.

7. A system according to Claim 5, wherein said search means conducts a category search of the site listings database based upon a selected category provided with the search inquiry from a user.

8. A system according to Claim 1, wherein the denominated value is a credit point amount applied by the subscriber to the respective listing.

9. A system according to Claim 8, wherein credit points applied by the subscriber to the respective listing are obtained in accordance with a number of click-throughs for the listing obtained in searches of the listings database.

10. A system according to Claim 5, wherein said listing server is linked to respond to search inquiries from other search servers, and includes relevancy measure conversion means for converting its search report of listings by rank according to denominated values into other relevancy measures used by the other search services.

11. A system according to Claim 10, wherein the relevancy measure used by another server is a relevancy percentage, and said relevancy measure conversion means converts the search report's ranks of listings based on denominated values into relevancy percentages.

12. A system of network site searching and listing comprising:

a listing server connected to a network accessible by a plurality of users, having a site listings database containing a plurality of site listings, each of which is provided by a site listing subscriber and includes a title or description of the content of the respective site, a network address at which the site can be accessed on the network, and a denominated value associated with the site listing while it is maintained on the listing server,

wherein said listing server provides a search report of listings relevant to a search inquiry from a user in which the listings are assigned a rank in order according to the denominated values associated with the listings, and

wherein said listing server includes an account interface to the network accessible to subscribers having means for allowing a subscriber to enter information to set the subscription fee for the respective listing.

13. A system according to Claim 12, wherein said account interface has update means for automatically updating the listings database with subscription fee information entered by subscribers, so that searches of said listings database reflect rankings for the listings in accordance with the updated subscription fee information.

14. A system according to Claim 12, wherein said account means has payment processing means for automatically executing payment transactions in accordance with subscription fee information entered by subscribers.

15. A method of network site searching and listing comprising:

providing network site listings to be maintained in a a site listings database of a listing server connected to a network accessible by a plurality of users, each site listing being provided by a site listing subscriber and having a title or description of the content of the respective site, a network address at which the site can be accessed on the network, and a denominated value to be paid by the subscriber associated with the site listing, and

obtaining a search report from said listing server of listings relevant to a search inquiry from a user in which the listings are assigned a rank in order according to the denominated values associated with the listings.

16. A method according to Claim 15, wherein the denominated value to be paid by the subscriber is a subscription fee of an initially entered amount which may be adjusted during a defined adjustment period.

17. A method according to Claim 15, further comprising the step of accessing said listing server by subscribers through the network in order to enter information to set the subscription fee for a respective listing.

18. A method according to Claim 15, wherein the denominated value is a credit point amount applied by the subscriber to the respective listing.

19. A method according to Claim 15, further comprising the step of linking the listing server to respond to search inquiries from other search servers, and converting its search report of listings by rank according to denominated values into other relevancy measures used by the other search services.

20. A method according to Claim 19, wherein the relevancy measure used by another server is a relevancy percentage, and said search report's ranks of listings based on denominated values are converted into relevancy percentages.

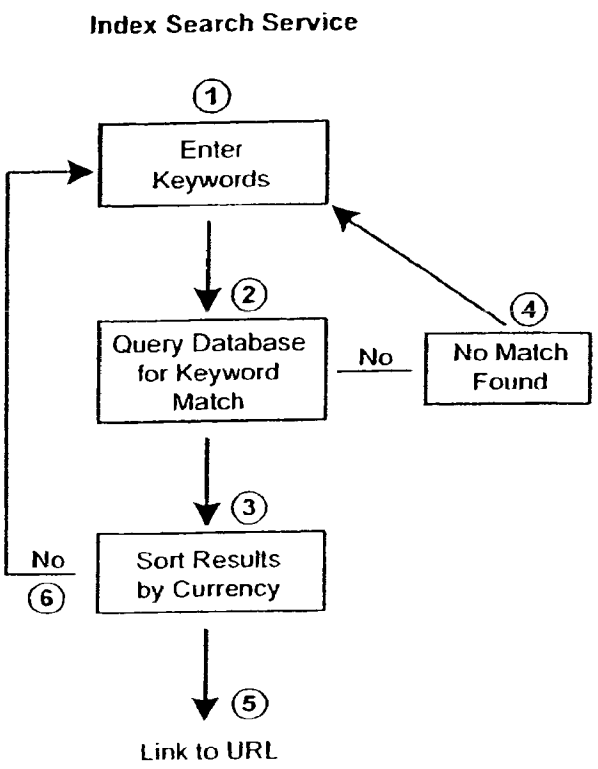
Index Search Service
1
Enter Keywords
2
Query Database for Keyword Match
No
4
No Match Found
3
Sort Results by Currency
No
6
5
Link to URL

FIG. 1A

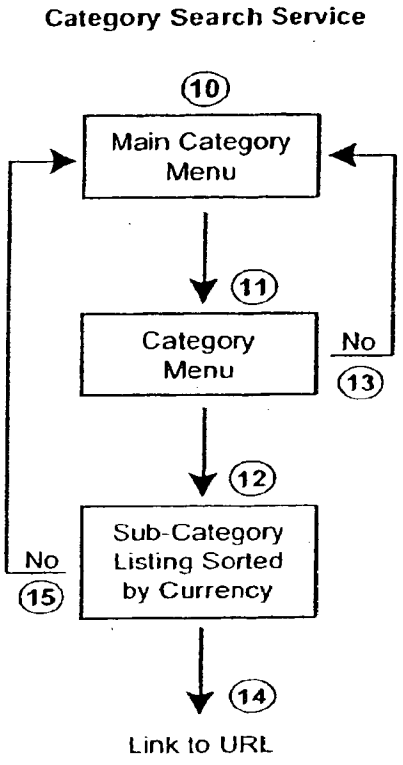
Category Search Service
10
Main Category Menu
11
Category Menu
No
13
12
Sub-Category Listing Sorted by Currency
No
15
14
Link to URL

FIG. 1B

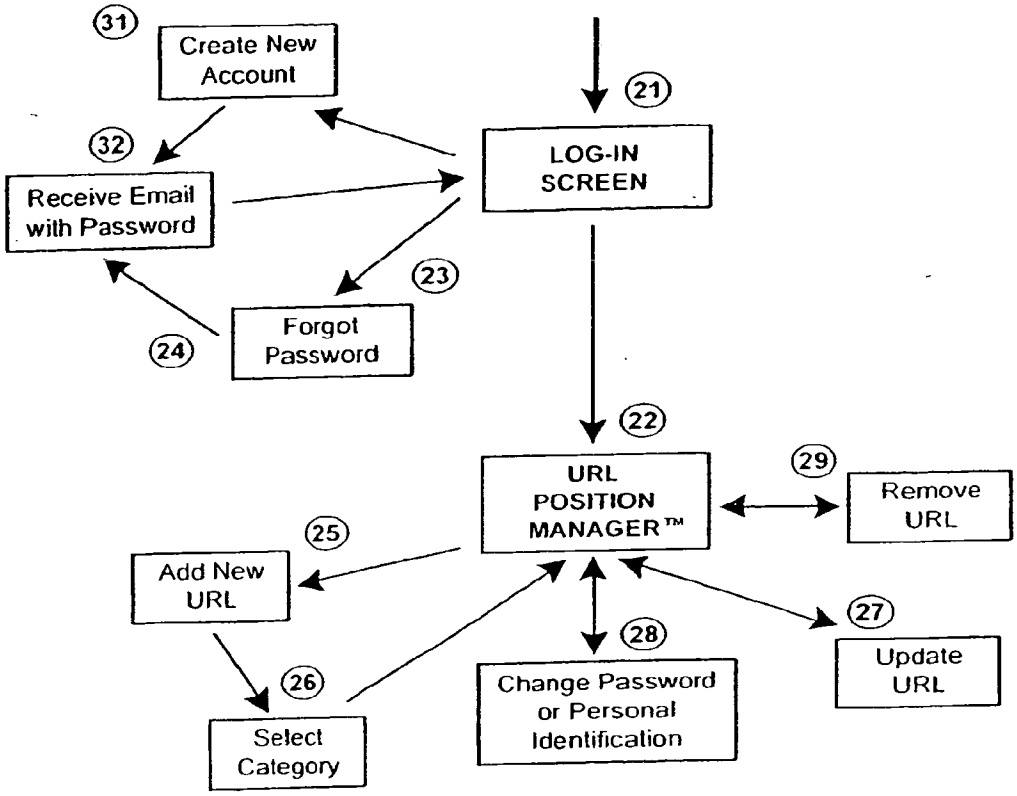
31
Create New Account
21
32
LOG-IN SCREEN
Receive Email with Password
23
24
Forgot Password
22
URL POSITION MANAGER™
29
Remove URL
25
Add New URL
27
28
Update URL
26
Change Password or Personal Identification
Select Category

FIG. 2A

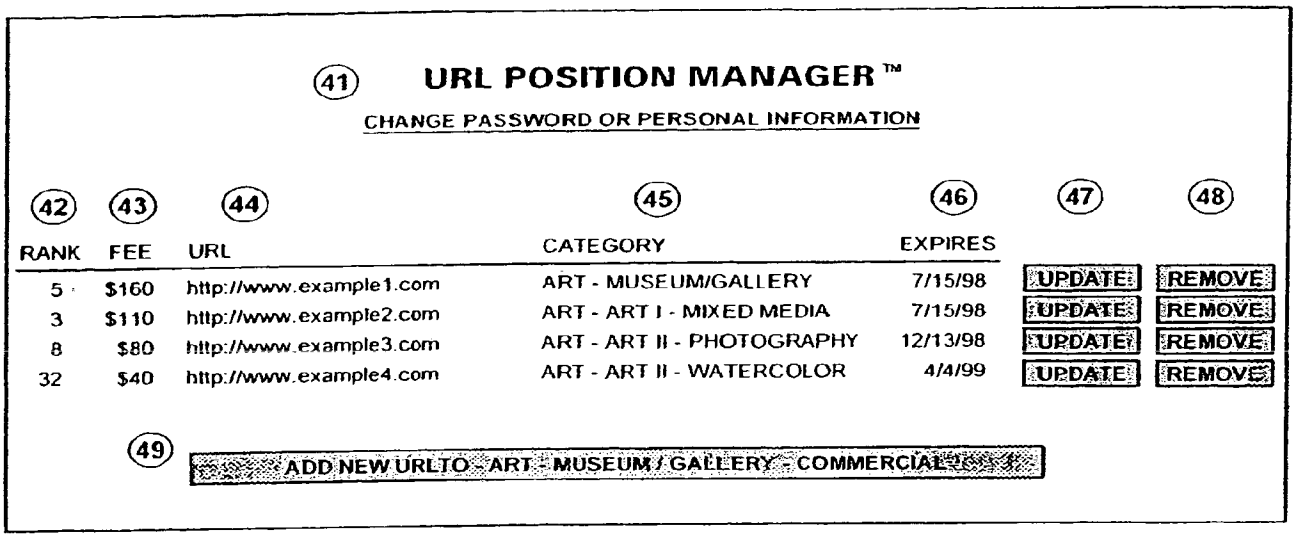
41
URL POSITION MANAGER™
CHANGE PASSWORD OR PERSONAL INFORMATION
42
43
44
45
46
47
48
RANK
FEE
URL
CATEGORY
EXPIRES
5
$160
http://www.example1.com
ART - MUSEUM/GALLERY
7/15/98
UPDATE
REMOVE
3
$110
http://www.example2.com
ART - ART I - MIXED MEDIA
7/15/98
UPDATE
REMOVE
8
$80
http://www.example3.com
ART - ART II - PHOTOGRAPHY
12/13/98
UPDATE
REMOVE
32
$40
http://www.example4.com
ART - ART II - WATERCOLOR
4/4/99
UPDATE
REMOVE
49
ADD NEW URL TO ART - MUSEUM / GALLERY - COMMERCIAL

FIG. 2B

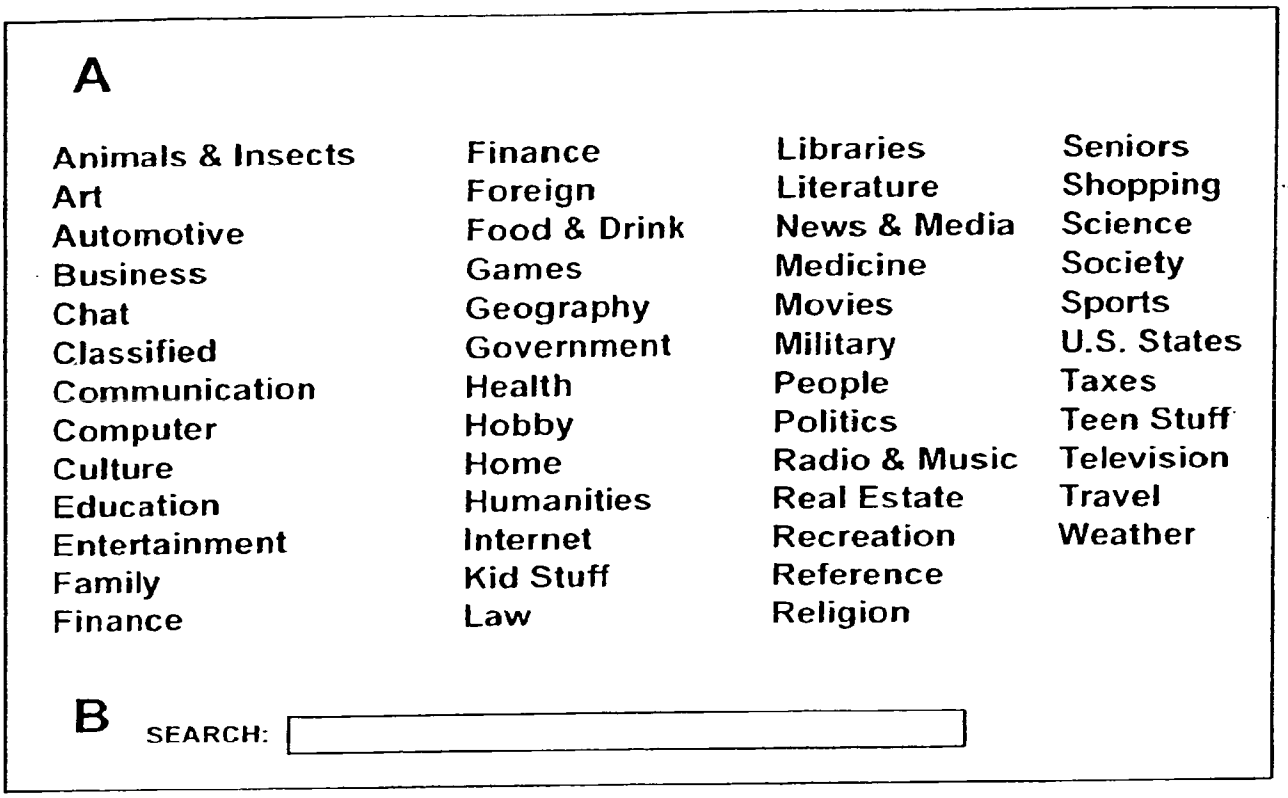
A
Animals & Insects
Art
Automotive
Business
Chat
Classified
Communication
Computer
Culture
Education
Entertainment
Family
Finance
Finance
Foreign
Food & Drink
Games
Geography
Government
Health
Hobby
Home
Humanities
Internet
Kid Stuff
Law
Libraries
Literature
News & Media
Medicine
Movies
Military
People
Politics
Radio & Music
Real Estate
Recreation
Reference
Religion
Seniors
Shopping
Science
Society
Sports
U.S. States
Taxes
Teen Stuff
Television
Travel
Weather
B
SEARCH:

FIG. 3

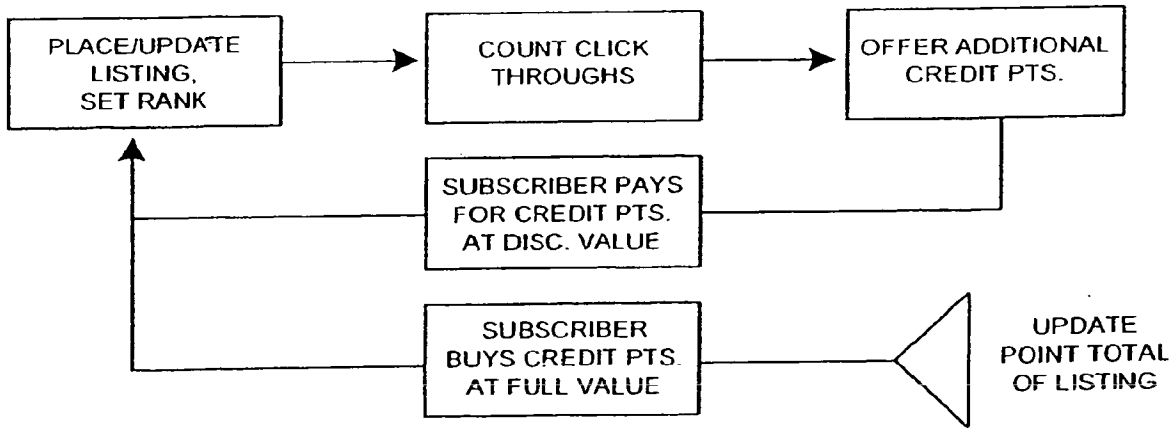
PLACE/UPDATE LISTING, SET RANK
COUNT CLICK THROUGHS
OFFER ADDITIONAL CREDIT PTS.
SUBSCRIBER PAYS FOR CREDIT PTS. AT DISC. VALUE
SUBSCRIBER BUYS CREDIT PTS. AT FULL VALUE
UPDATE POINT TOTAL OF LISTING

FIG. 6

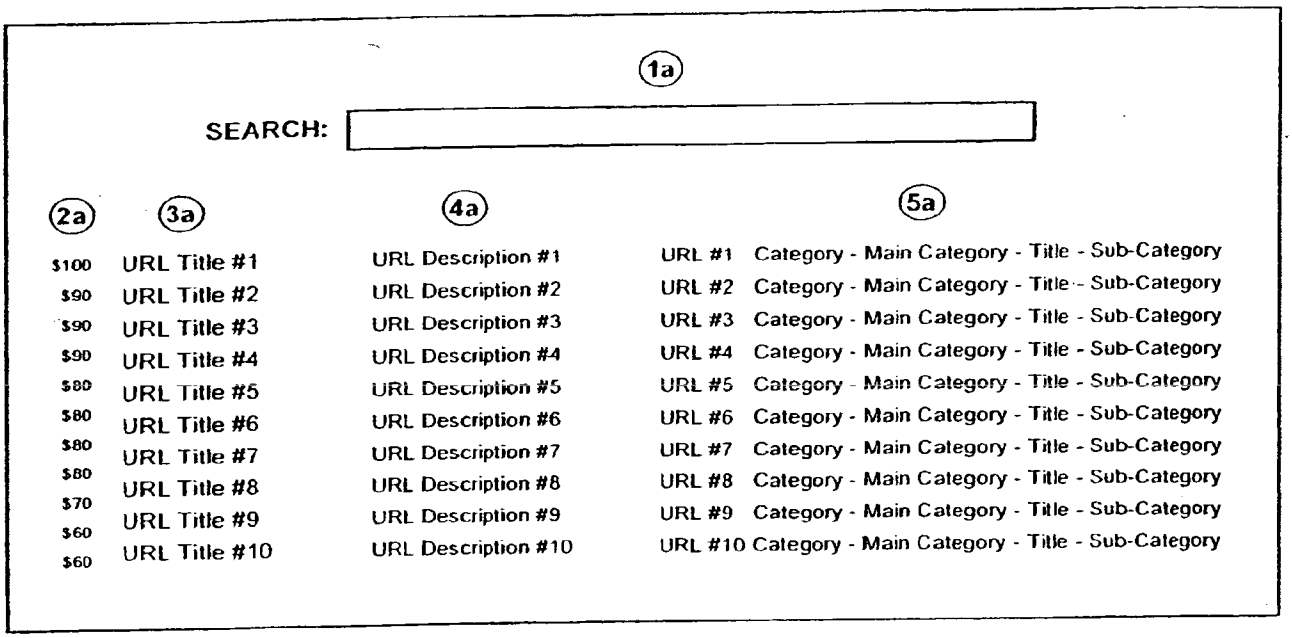
1a
SEARCH:
2a
3a
4a
5a
$100 URL Title #1 URL Description #1 URL #1 Category - Main Category - Title - Sub-Category
$90 URL Title #2 URL Description #2 URL #2 Category - Main Category - Title - Sub-Category
$90 URL Title #3 URL Description #3 URL #3 Category - Main Category - Title - Sub-Category
$90 URL Title #4 URL Description #4 URL #4 Category - Main Category - Title - Sub-Category
$80 URL Title #5 URL Description #5 URL #5 Category - Main Category - Title - Sub-Category
$80 URL Title #6 URL Description #6 URL #6 Category - Main Category - Title - Sub-Category
$80 URL Title #7 URL Description #7 URL #7 Category - Main Category - Title - Sub-Category
$80 URL Title #8 URL Description #8 URL #8 Category - Main Category - Title - Sub-Category
$70 URL Title #9 URL Description #9 URL #9 Category - Main Category - Title - Sub-Category
$60 URL Title #10 URL Description #10 URL #10 Category - Main Category - Title - Sub-Category

FIG. 4A

(11a) CATEGORY: ART - MUSEUM/GALLERY - COMMERCIAL

(12a)	(13a)	(13b)	(13c)	(13d)	(13e)	(13f)
Animation	Cartonists	Comic Book	Computer	Other		
Architecture	Exhibits	Firms	Landscape	Other		
Art I	Acrylic	Drawing	Fashion	Furniture	Masters	Mixed-Media
Art II	Oils	Photography	Sculptures	Watercolor	Other	
Computer Art	3D Art	Companies	Other			
Graphic Design	Commercial	Other				
Museum/Gallery	Commercial	Events	Exhibits	History	University	Other
Performing	Actor/Actress	Companies	Dancers	Magicians	Musicians	Other

(14a)	(15a)	(16a)
$100	URL Title #1	URL Description #1
$90	URL Title #2	URL Description #2
$90	URL Title #3	URL Description #3
$90	URL Title #4	URL Description #4
$80	URL Title #5	URL Description #5
$80	URL Title #6	URL Description #6
$80	URL Title #7	URL Description #7
$80	URL Title #8	URL Description #8
$70	URL Title #9	URL Description #9
$60	URL Title #10	URL Description #10
$60	URL Title #11	URL Description #11
$50	URL Title #12	URL Description #12
$50	URL Title #13	URL Description #13
$50	URL Title #14	URL Description #14
$40	URL Title #15	URL Description #15
$30	URL Title #16	URL Description #16
$30	URL Title #17	URL Description #17
$30	URL Title #18	URL Description #18
$20	URL Title #19	URL Description #19
$20	URL Title #20	URL Description #20
$10	URL Title #21	URL Description #21
$10	URL Title #22	URL Description #22
$10	URL Title #23	URL Description #23
$10	URL Title #24	URL Description #24
$0	URL Title #25	URL Description #25
$0	URL Title #26	URL Description #26
$0	URL Title #27	URL Description #27

FIG. 4B

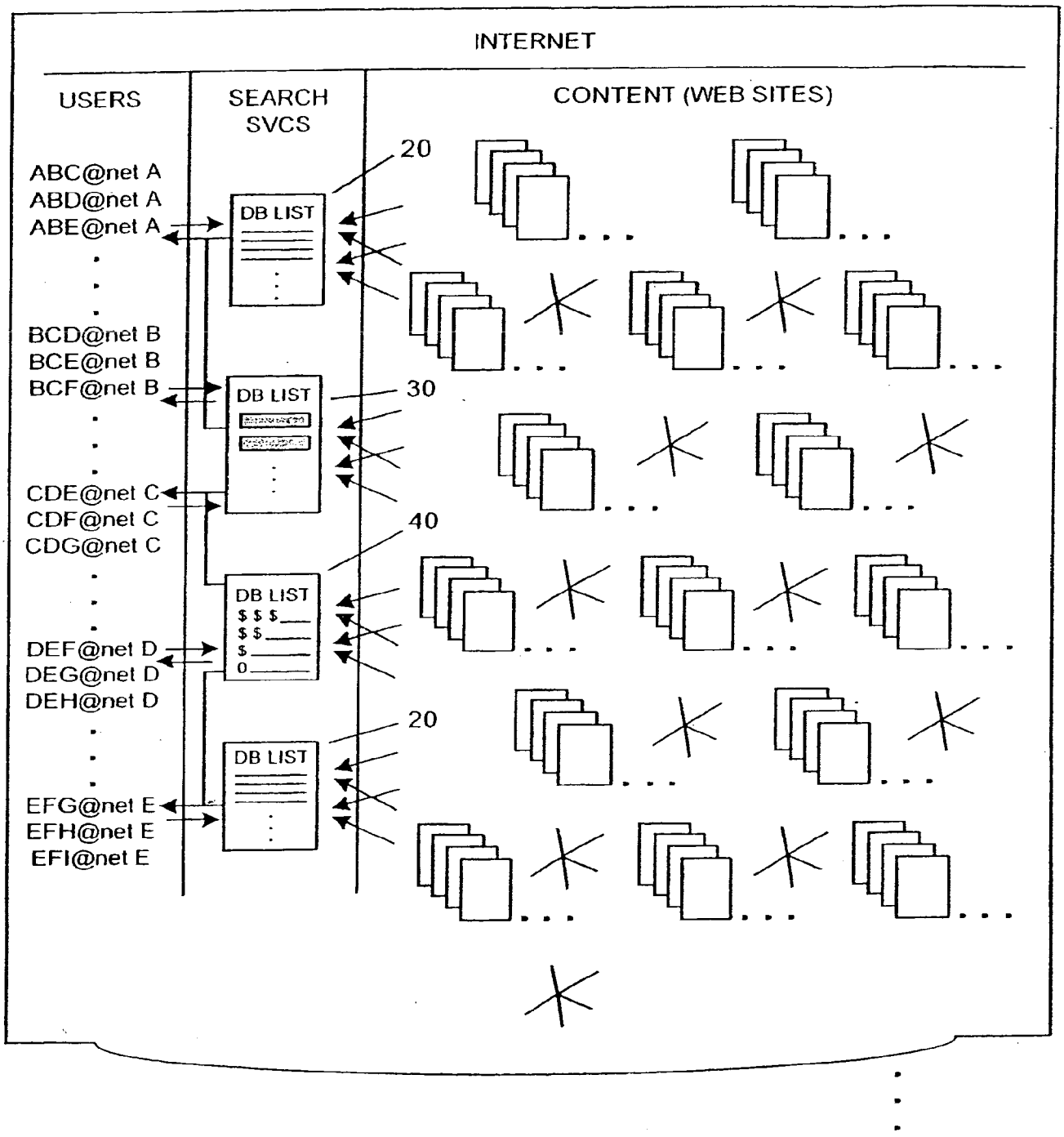
INTERNET
USERS
SEARCH SVCS
CONTENT (WEB SITES)
ABC@net A
ABD@net A
ABE@net A
BCD@net B
BCE@net B
BCF@net B
CDE@net C
CDF@net C
CDG@net C
DEF@net D
DEG@net D
DEH@net D
EFG@net E
EFH@net E
EFI@net E
DB LIST
DB LIST
DB LIST
DB LIST
20
30
40
20

FIG. 5

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US99/20486

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : G06F 17/30

US CL : 707/9, 10, 4, 104, 709/202

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 707/9, 10, 4, 104, 709/202

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Please See Extra Sheet.

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EAST, DIALOG

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X, Y	Anonymous. Engine Search Report. Article. 3 Mar 1998	1-20
X, Y	Anonymous. Engine sells results, draws fire. Article. 21 Jun. 1996.	1-20

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier document published on or after the international filing date	"Y"	document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search	Date of mailing of the international search report
02 DECEMBER 1999	19 JAN 2000

Name and mailing address of the ISA/US	Authorized officer
Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	MARK TERRY
Facsimile No. (703) 305-3230	Telephone No. (703) 306-5644

Form PCT/ISA/210 (second sheet)(July 1992) *

B. FIELDS SEARCHED
Documentation other than minimum documentation that are included in the fields searched:

Article, Mar. 3, 1998, from "The Search Engine Report" http://www.searchenginewatch.com/serepon/9803-goto-html,"Go To Sells Positions".

Article, Jun. 21, 1996, crom CNET news, http://www.nees.com/News?Item/0,4,1635,00.html, "Engine Sells Results, Draws Fire".

PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : G06F 17/30 — A1

(11) International Publication Number: **WO 00/16218**

(43) International Publication Date: 23 March 2000 (23.03.00)

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(22) International Filing Date: 10 September 1999 (10.09.99)

(30) Priority Data:
09/153,151 14 September 1998 (14.09.98) US

(71) Applicant: SEARCHUP, INC. [US/US]; 6009 Kalanianaole Highway, Honolulu, HI 96821 (US).

(72) Inventors: BUCK, Bryan, J.; 635 Kuliouou Place, Honolulu, HI 96821 (US). MELCHER, Michael, J.; 6009 Kalanianaole Highway, Honolulu, HI 96821 (US).

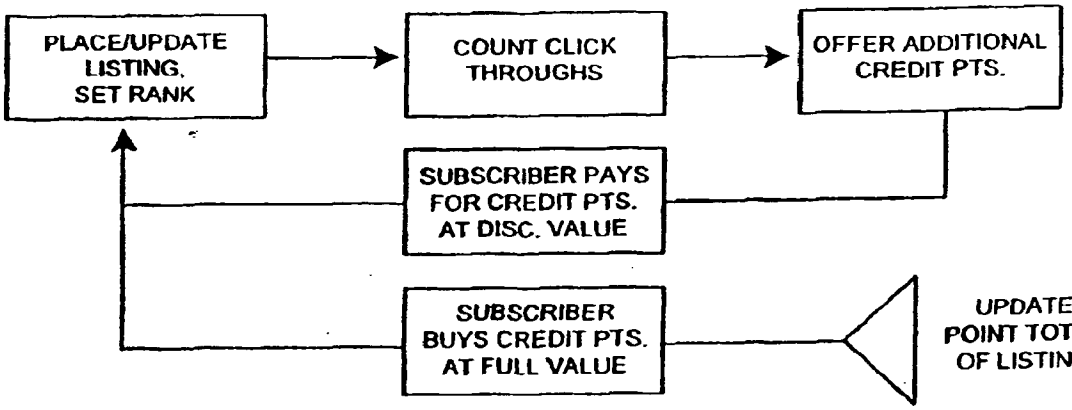
(74) Agent: CHONG, Leighton, K.; Ostrager Chong Flaherty & Onofrio, Suite 1200, 841 Bishop Street, Honolulu, HI 96813-3908 (US).

(81) Designated States: AU, CA, JP, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).

Published
With international search report.
With amended claims.

Date of publication of the amended claims:
4 May 2000 (04.05.00)

(54) Title: INTERNET SITE SEARCHING AND LISTING SERVICE BASED ON MONETARY RANKING OF SITE LISTINGS



(57) Abstract

A system of network site searching and listing employs a server which maintains a listings database containing site listings, provided by subscribers, each of which includes a title or description of the content of the respective site, a network address at which the site can be accessed, and a denominated value to be paid by the subscriber as a subscription fee for the site listing (5). In response to search queries, the server provides a search report of listings ranked according to the subscription fees paid by the subscribers (6) (4B). The higher the amount paid for a given subscription period in relation to other listers, the higher the site's ranking on the service's search reports (4B). The service provides immediate placement control for subscribers, without high transaction costs or delays, based on a ranking system determined by monetary value rather than arbitrary relevancy factors (2B).

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

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CH	Switzerland	KG	Kyrgyzstan	NO	Norway	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	NZ	New Zealand		
CM	Cameroon			PL	Poland		
CN	China	KR	Republic of Korea	PT	Portugal		
CU	Cuba	KZ	Kazakstan	RO	Romania		
CZ	Czech Republic	LC	Saint Lucia	RU	Russian Federation		
DE	Germany	LI	Liechtenstein	SD	Sudan		
DK	Denmark	LK	Sri Lanka	SE	Sweden		
EE	Estonia	LR	Liberia	SG	Singapore		

AMENDED CLAIMS
[received by the International Bureau on 6 March 2000 (06.03.00);
original claims 1-20 replaced by new claims 1-23 (4 pages)]

1. A system of network site searching and listing comprising a listing server connected to a network accessible by a plurality of users, having a site listings database (20) containing a plurality of site listings, each of which is provided by a site listing subscriber and includes a title or description of the content of the respective site, and a network address at which the site can be accessed on the network, characterized by:

each of said site listings including a denominated value bid by the subscriber for the site listing while it is maintained on the listing server,

server search program for searching the site listings database for site listings having titles or descriptions of content that match a given search inquiry from a user and for ordering the site listings found in the search in order of their denominated values, wherein said listing server provides a search report of the denominated-value-ordered site listings relevant to the search inquiry to the user in order according to the denominated values bid by the subscribers for the found site listings, and

bid management program including a subscriber account interface for allowing a subscriber to connect online with the listing server and to automatically enter a new denominated value bid for said subscriber's site listing into the site listings database,

wherein said server search program of said listing server thereupon conducts searches of the site listings database for site listings in response to search inquiries from users by automatically taking into account the new denominated value bid entered by the subscriber for the subscriber's site listing.

2. A system according to Claim 1, wherein the denominated value to be paid by the subscriber is a subscription fee of an initially entered amount which may be adjusted during a defined adjustment period.

3. A system according to Claim 1, wherein said listing server includes an account interface to the network accessible to subscribers having means for allowing a subscriber to enter information to set the subscription fee for a respective listing in order to obtain a desired rank for the listing.

4. A system according to Claim 3, wherein said interface includes means for allowing the subscriber to maintain a plurality of site listings in a listings account accessible through said account interface.

5. A system according to Claim 1, wherein said listing server includes search means for conducting a search of its site listings database according to search parameters provided with the search

inquiry from a user.

6. A system according to Claim 5, wherein said search means conducts an index search of the site listings database based upon keywords provided with the search inquiry from a user.

7. A system according to Claim 5, wherein said search means conducts a category search of the site listings database based upon a selected category provided with the search inquiry from a user.

8. A system according to Claim 1, wherein the denominated value is a credit point amount applied by the subscriber to the respective listing.

9. A system according to Claim 8, wherein credit points applied by the subscriber to the respective listing are obtained in accordance with a number of click-throughs for the listing obtained in searches of the listings database.

10. A system according to Claim 5, wherein said listing server is linked to respond to search inquiries from other search servers, and includes relevancy measure conversion means for converting its search report of listings by rank according to denominated values into other relevancy measures used by the other search services.

11. A system according to Claim 10, wherein the relevancy measure used by another server is a relevancy percentage, and said relevancy measure conversion means converts the search report's ranks of listings based on denominated values into relevancy percentages.

12. A system of network site searching and listing comprising a listing server connected to a network accessible by a plurality of users, having a site listings database (20) containing a plurality of site listings, each of which is provided by a site listing subscriber and includes a title or description of the content of the respective site, and a network address at which the site can be accessed on the network, characterized by:

each of said site listings including a denominated value bid by the subscriber for the site listing while it is maintained on the listing server,

server search program for searching the site listings database for site listings having titles or descriptions of content that match a given search inquiry from a user and for ordering the site listings found in the search in order of their denominated values, wherein said listing server provides a search report of the denominated-value-ordered site listings relevant to a search inquiry to a user in which the listings are in order according to the denominated values bid by the subscribers for the listings, and

bid management program including a subscriber account interface for allowing a subscriber to connect online with the listing server and to automatically enter a new denominated value bid for said subscriber's site listing into the site listings database.

13. A system according to Claim 12, wherein said account interface has update means for automatically updating the listings database with subscription fee information entered by subscribers, so that searches of said listings database reflect rankings for the listings in accordance with the updated subscription fee information.

14. A system according to Claim 12, wherein said account means has payment processing means for automatically executing payment transactions in accordance with subscription fee information entered by subscribers.

15. A method of network site searching and listing comprising the steps of providing network site listings to be maintained in a a site listings database (20) of a listing server connected to a network accessible by a plurality of users, each site listing being provided by a site listing subscriber and having a title or description of the content of the respective site, and a network address at which the site can be accessed on the network, characterized by:

each of said site listings including a denominated value bid by the subscriber for the site listing, and

searching the site listings database for site listings having titles or descriptions of content that match a given search inquiry from a user and ordering the site listings found in the search in order of their denominated values, and

allowing a subscriber to connect online with the listing server and to automatically enter a new denominated value bid for said subscriber's site listing into the site listings database.

16. A method according to Claim 15, wherein the denominated value to be paid by the subscriber is a subscription fee of an initially entered amount which may be adjusted during a defined adjustment period.

17. A method according to Claim 15, further comprising the step of accessing said listing server by subscribers through the network in order to enter information to set the subscription fee for a respective listing.

18. A method according to Claim 15, wherein the denominated value is a credit point amount applied by the subscriber to the respective listing.

19. A method according to Claim 15, further comprising the step of linking the listing server to respond to search inquiries from other search servers, and converting its search report of listings by rank according to denominated values into other relevancy measures used by the other search services.

20. A method according to Claim 19, wherein the relevancy measure used by another server is a relevancy percentage, and said search report's ranks of listings based on denominated values are converted into relevancy percentages.

21. A system according to Claim 1, wherein said subscriber account interface allows a subscriber to search and view the subscriber's previously entered site listing ranked in comparison to the denominated values of other site listings entered by other subscribers, and to enter a new denominated value bid in order to change the ranking of said subscriber's site listing relative to those of the other subscribers.

22. A system according to Claim 12, wherein said subscriber account interface allows a subscriber to search and view the subscriber's previously entered site listing ranked in comparison to the denominated values of other site listings entered by other subscribers, and to enter a new denominated value bid in order to change the ranking of said subscriber's site listing relative to those of the other subscribers.

23. A method according to Claim 15, wherein said step of allowing a subscriber to connect online includes the substep of allowing the subscriber to search and view the subscriber's previously entered site listing ranked in comparison to the denominated values of other site listings entered by other subscribers, and to enter a new denominated value bid in order to change the ranking of said subscriber's site listing relative to those of the other subscribers.

PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 2001

Application or Docket Number
~~9623/378~~ 10/020,712

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	65	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	65 minus 20=	* 45
INDEPENDENT CLAIMS	10 minus 3 =	* 7
MULTIPLE DEPENDENT CLAIM PRESENT	☐	

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE ☐		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
BASIC FEE	370.00	OR	BASIC FEE	740.00
X$ 9=	405	OR	X$18=	
X42=	294	OR	X84=	
+140=		OR	+280=	
TOTAL	1069	OR	TOTAL	

CLAIMS AS AMENDED - PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	* 64	Minus	** 65	= 0
Independent	* 10	Minus	*** 10	= 0
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM	☐			

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM	☐			

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT C

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM	☐			

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Freeform Search

Database: US Pre-Grant Publication Full-Text Database
US Patents Full-Text Database
US OCR Full-Text Database
EPO Abstracts Database
JPO Abstracts Database
Derwent World Patents Index
IBM Technical Disclosure Bulletins

Term: L12 and (list$3 near3 search near3 term)

Display: 50 **Documents in Display Format:** - **Starting with Number** 1

Generate: ○ Hit List ◉ Hit Count ○ Side by Side ○ Image

Search Clear Interrupt

Search History

DATE: Thursday, January 06, 2005 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=PGPB,USPT; PLUR=YES; OP=ADJ			
L13	L12 and (list$3 near3 search near3 term)	1	L13
L12	('6269361' |'6078866')!.PN.	2	L12
L11	L10 and search$3	3	L11
L10	5724424.pn. or 6269361.pn. or 6078866.pn.	3	L10
L9	L6 and (additional near3 search near3 term)	1	L9
L8	L6 and (candidate near3 search near3 term)	1	L8
L7	L6 and (list near3 search near3 term)	1	L7
L6	10/020712	1	L6
L5	5724424.pn.	1	L5
L4	6269361.pn.	1	L4
L3	5867799.pn.	1	L3
L2	5836241.pn.	1	L2
L1	6078866.pn.	1	L1

END OF SEARCH HISTORY

Freeform Search

Database: US Pre-Grant Publication Full-Text Database; US Patents Full-Text Database; US OCR Full-Text Database; EPO Abstracts Database; JPO Abstracts Database; Derwent World Patents Index; IBM Technical Disclosure Bulletins

Term: search near3 term near3 advertiser

Display: 50 **Documents in Display Format:** - **Starting with Number** 1

Generate: ○ Hit List ◉ Hit Count ○ Side by Side ○ Image

Search Clear Interrupt

Search History

DATE: Thursday, January 06, 2005 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=PGPB,USPT; PLUR=YES; OP=ADJ			
L20	search near3 term near3 advertiser	33	L20
L19	L18 same L16	7	L19
L18	purchas$3	174763	L18
L17	L16 and @ad<19990528	120	L17
L16	list$3 near3 search$3 near3 term	433	L16
L15	L14 and additional	1	L15
L14	6269361.pn.	1	L14
L13	L12 and (list$3 near3 search near3 term)	1	L13
L12	('6269361'|'6078866')!.PN.	2	L12
L11	L10 and search$3	3	L11
L10	5724424.pn. or 6269361.pn. or 6078866.pn.	3	L10
L9	L6 and (additional near3 search near3 term)	1	L9
L8	L6 and (candidate near3 search near3 term)	1	L8
L7	L6 and (list near3 search near3 term)	1	L7
L6	10/020712	1	L6
L5	5724424.pn.	1	L5

L4	6269361.pn.	1	L4
L3	5867799.pn.	1	L3
L2	5836241.pn.	1	L2
L1	6078866.pn.	1	L1

END OF SEARCH HISTORY

Freeform Search

Database: US Pre-Grant Publication Full-Text Database
US Patents Full-Text Database
US OCR Full-Text Database
EPO Abstracts Database
JPO Abstracts Database
Derwent World Patents Index
IBM Technical Disclosure Bulletins

Term: ('6252869' |'6078866' |'5999940')!.PN.

Display: 50 **Documents in Display Format:** - **Starting with Number** 1

Generate: ○ Hit List ◉ Hit Count ○ Side by Side ○ Image

Search Clear Interrupt

Search History

DATE: Friday, January 07, 2005 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=PGPB,USPT; PLUR=YES; OP=ADJ			
L21	('6252869' |'6078866' |'5999940')!.PN.	3	L21
L20	L19 and @ad<19990528	32	L20
L19	(paying or paid) near3 (search or searching)	150	L19
L18	L3 and @ad<19990101	3748	L18
L17	L16 and pa$4	1	L17
L16	6178411.pn.	1	L16
L15	L10 and @ad<19990101	23	L15
L14	L13 and search$3	1	L14
L13	('6178411')!.PN.	1	L13
L12	L11 and advertiser	61	L12
L11	L10 and additional	109	L11
L10	L9 and term	128	L10
L9	L8 or L7	156	L9
L8	paid near3 search$3	105	L8
L7	paying near3 search$3	54	L7
L6	L5 or L4	8	L6

L5	paid near3 search near3 term	6	L5
L4	paying near3 search near3 term	2	L4
L3	pa$4 near3 search$3	11103	L3
L2	L1 and @ad<19990101	5790	L2
L1	pa$4 near6 search$3	16708	L1

END OF SEARCH HISTORY

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,712	12/11/2001	Mark Paine	9623/378	1404

757 7590 01/19/2005

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EXAMINER	
LEROUX, ETIENNE PIERRE	
ART UNIT	**PAPER NUMBER**
2161	

DATE MAILED: 01/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/020,712	PAINE ET AL.	
	Examin r	Art Unit	
	Etienne P LeRoux	2161	

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 August 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-64* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-64* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/4/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Status:

Claims 1-64 are pending. Claim 65 has been cancelled. Claims 1-64 are rejected as detailed below.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-4 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 1 recites "determining candidate search terms based on search terms of other advertisers on the database system." The specification does not contain a clear and concise computer-implemented method of choosing candidate search terms based on search terms of other advertisers such that the skilled artisan can make and use the invention.

Claim 1 recites "recommending the additional search terms from among the candidate search terms. The specification does not include a clear and concise computer-implemented method of recommending additional search terms selected from the candidate search terms such that the skilled artisan can make and use the invention. For purposes of this Office Action,

examiner will assume that there exists no difference between candidate search terms and additional search terms.

Claims 2-4 are rejected for being dependent from a rejected base claim.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the following:

- receiving a list of search terms associated with an advertiser
- a plurality of search listings which are associated with an advertiser
- at least one search term
- determining candidate search terms based on search terms of other advertisers
- recommending additional search terms from among the candidate search terms

The scope of the invention cannot be determined because the relationship between above search terms/listings is difficult to determine. For purposes of this Office Action, examiner will assume that a first list of search terms drawn from a first web site is compared with a second list of search terms which are derived from web sites other than the first web site.

Claims 2-4 are rejected for being dependent from a rejected base claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-13, 15, 16, 18, 19, 21-43, 45-49 and 51-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat No 6,078,916 to Culliss (hereafter Culliss) in view of US Pat No 6,314,420 to Lang et al (hereafter Lang)

Claims 1, 41, 46 and 59:

Culliss discloses:

- receiving a list of search terms [key words, col 17, line 45, col 5, lines 32-35] associated with an advertiser [col 17, lines 43-48] on the database search system, the database search system including a database having stored therein a plurality of search listings [key words, col 17, line 45] which are associated with an advertiser, at least one search term

[key word col 17, line 45], a money amount [col 17, line 46] and a computer network location [col 4, line 65 – col 5, line 10]

Culliss discloses the essential elements of the claimed invention as noted above except for determining candidate search terms based on search terms of other advertisers on the database search system and recommending the additional search terms from among the candidate search terms. Lang discloses determining candidate search terms based on search terms of other advertisers on the database search system [spider scanning + content filter, col 1, lines 23-26] and recommending the additional search terms from among the candidate search terms [collaborative filtering, col 1, lines 40-45]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Culliss to include determining candidate search terms based on search terms of other advertisers on the database search system and recommending the additional search terms from among the candidate search terms as taught by Lang for the purpose of providing better search responses to user queries [Lang, col 1, lines 10-16].

Claim 2:

The combination of Culliss and Lang discloses the elements of claim 1 as noted above.

The combination of Culliss and Lang discloses assigning ratings to search terms, computing a correlation between the advertiser and one or more of the other advertisers, using the assigned ratings of advertiser search terms [Lang, informons compared to individual user's query, informons are ranked, col 1, line 65 – col 2, line 3]

Claim 3:

The combination of Culliss and Lang discloses the elements of claims 1 and 2 as noted above and furthermore discloses predicting a likelihood that a candidate search term will be relevant to the advertiser [Lang, Fig 1, 33]

Claim 4:

The combination of Culliss and Lang discloses the elements of claims 1-3 as noted above and furthermore discloses determining a quality metric for the candidate search terms and predicting relevance of candidate search terms based on the quality metric [Lang, ranking col 1, line 65 – col 2, line 4]

Claim 5:

Culliss discloses maintaining a database of search listings, each search listing being associated with an advertiser and including associated search terms[col 17, line 45, col 5, lines 32-35], a money amount [col 17, line 46] and a computer network location [col 4, line 65 – col 5, line 10], receiving a list of search terms associated with an advertiser [key words, col 17, line 45, col 5, lines 32-35]

Culliss discloses the essential elements of the claimed invention as noted above except for computing ratings for search terms and recommending additional search terms to the advertiser based on the computed ratings. Lang discloses computing ratings for search terms and recommending additional search terms to the advertiser based on the computed ratings [col 1, line 65 – col 2, line 3]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Culliss to include computing ratings for search terms and recommending additional search terms to the advertiser based on the computed ratings as taught

by Lang for the purpose of providing better search responses to user queries [Lang, col 1, lines 10-16].

Claim 6 and 47:

The combination of Culliss and Lang discloses the elements of claims 5 and 46 as noted above and furthermore assigning ratings to search terms [Lang, col 1, line 65 – col 2, line 3]

Claims 7 and 48:

The combination of Culliss and Lang discloses the elements of claims 5 and 46 as noted above and furthermore predicting ratings for search terms [Lang, col 1, line 65 – col 2, line 3]

Claim 8:

The combination of Culliss and Lang discloses the elements of claim 8 as noted above and furthermore receiving a list of initial search terms from the advertiser [Lang, col 17, line 45]

Claim 9:

The combination of Culliss and Lang discloses identifying an existing advertiser on the database search system and forming the list of search terms from search terms of the existing advertiser [Lang, col 17, line 45].

Claim 10:

The combination of Culliss and Lang discloses the essential elements of claim 5 and receiving a website URL [Culliss, col 29, lines 30-45].

Claim 11:

The combination of Culliss and Lang discloses the essential elements of claim 5 and receiving data from pages of the website [Lang, col 1, lines 10-15], recording candidate search

terms from the data [Lang spider scanning + content filter, col 1, lines 23-26], and determining a quality metric for each search term [Lang, ranking, col 1, line 65 – col 2, line 4]

Claims 12:

The combination of Culliss and Lang discloses the elements of claims 5, 10 and 11 and sorting the candidate search terms according to the quality metric and recommending only candidate search terms having a quality metric exceeding a threshold [Lang, col 9, lines 1-15]

Claim 13:

The combination of Culliss and Lang discloses the elements of claims 5 and 10 as noted above Lang discloses receiving data from one or more pages of the site and examining text from the one or more pages for candidate search terms [Lang, col 1, lines 10-16]

Claim 15:

The combination of Culliss and Lang discloses the elements of claims 5, 10 and 13 as noted above and furthermore, receiving the advertiser's URL as the web site URL [Culliss, col 29, lines 30-45].

Claim 16:

The combination of Culliss and Lang discloses the elements of claims 5, 10 and 13 as noted above and furthermore, receiving the web site URL from the advertiser [Culliss, col 29, lines 30-45].

Claim 18:

Culliss discloses a database of search terms, each search term being associated with one or more advertisers, a money amount and a computer network location, the search terms being searchable in response to a query from a user to identify search terms which match the query, matching search listings being returnable to the user in a search result list in which the matching search listings are ordered using the money amounts for the respective matching search listings [key words, col 17, line 45, col 17, lines 43-48]. Culliss discloses the essential elements of the claimed invention as noted above except for program code configured to recommend additional search terms for an advertiser based on search terms in the database program code configured to recommend additional search terms for an advertiser based on search terms in the database [inherent in Fig 1]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Culliss to include program code configured to recommend additional search terms for an advertiser based on search terms in the database as taught by Lang for the purpose of providing better search responses to user queries [Lang, col 1, lines 10-16].

Claim 19:

The combination of Culliss and Lang discloses the elements of claim 18 as noted above and furthermore discloses collaborative filtering code configured to recommend the additional search terms based on search terms associated with other advertisers of the database search system [Lang, Fig 4, 260].

Claim 21:

The combination of Culliss and Lang discloses the elements of claims 18 and 19 as noted above and furthermore the program code comprises a program loop [Lang, Fig 4].

Claim 22:

The combination of Culliss and Lang discloses the elements of claims 18, 19 and 21 as noted above and furthermore, code to accept indications or reject indications from the advertiser before repeating the program loop [Lang Fig 3, step 115].

Claim 23:

The combination of Culliss and Lang discloses the elements of claims 18 as noted above and furthermore, spidering code to recommend the additional search terms [Lang, col 1, lines 60-65]

Claim 24:

The combination of Culliss and Lang discloses the elements of claim 18 as noted above and furthermore, spidering code to find initially accepted search terms in a web site; and collaborative filtering code to provide the recommended additional search terms [receiving a data stream from a computer network, [Lang col 1, line 45 – col 2, line 3].

Claim 25:

The combination of Culliss and Lang discloses the elements of claims 18 and 24 as noted above and furthermore, wherein the spidering code is configured to spider a web site of the advertiser [Lang col 1, line 45 – col 2, line 3].

Claim 26:

The combination of Culliss and Lang discloses the elements of claims 18 and 23 as noted above and furthermore, wherein the spidering code is configured to spider a web site specified by the advertiser [Lang, col 1, line 45 – col 2, line 3].

Claim 27:

The combination of Culliss and Lang discloses the elements of claims 18 as noted above and furthermore, filtering code to filter candidate search terms according to a quality metric to produce the recommended additional search terms [Lang, Fig 6, 427, 430 432].

Claim 28:

The combination of Culliss and Lang discloses the elements of claims 5, 10, 13 and 15 as noted above and furthermore, search engine program code configured to search the database in response to a search query from a user [Lang, information filtering per col 8, lines 4-13].

Claim 29:

The combination of Culliss and Lang discloses spidering a specified web site to obtain an initial list of advertiser search terms for an advertiser [Lang col 1, line 45 – col 2, line 3], filtering the initial list of advertiser search terms using search terms of other advertisers [Lang col 1, line 45 – col 2, line 3], storing in a search listing database search listings for the advertiser [Lang, Fig 1, 31], the search listings formed with the filtered search terms [Lang col 1, line 45 – col 2, line 3], the search listing database being searchable by a search engine web server which identifies listings having a search term matching a search query entered by a user [Lang, Fig 3], orders the identified listings using advertiser bid amounts associated with the search term

in the search listing and generates a result list including at least some of the ordered listings [Culliss col 17, lines 43-48]

Claim 30:

The combination of Culliss and Lang discloses the elements of claim 29 as noted above and furthermore, wherein the specified web site comprises an advertiser specified website [Lang, col 2, lines 20-27, web sites are inherently advertiser web sites]

Claim 31:

The combination of Culliss and Lang discloses the elements of claim 29 as noted above and furthermore, wherein the specified web site comprises a web site specified by the database search system [Lang, col 2, lines 20-27].

Claim 32:

The combination of Culliss and Lang discloses the elements of claim 29 as noted above and furthermore, assigning ratings to search terms and computing a correlation between the advertiser and one or more of the other advertisers and using the assigned ratings of advertiser search terms [Lang, informons compared to individual user's query, informons are ranked, col 1, line 65 – col 2, line 3]

Claim 33:

The combination of Culliss and Lang discloses the elements of claims 29 and 32 as noted above and furthermore, predicting a likelihood that a search term will be relevant to the advertiser [Lang , Fig 1, 33]

Claim 34:

The combination of Culliss and Lang discloses the elements of claims 29, 32 and 33 as noted above and furthermore, determining a quality metric for candidate search terms and predicting a relevance of candidate search terms based on the quality metric [Lang, ranking col 1, line 65 – col 2, line 4]

Claim 35:

The combination of Culliss and Lang discloses the elements of claims 29 as noted above and furthermore, wherein spidering the specified web site comprises: receiving data from pages of the specified website [Lang, inherently disclosed in internet connections of claim 88]; recording candidate search terms from the data [Lang, information filtering per col 8, lines 4-13]; and determining a quality metric for each candidate search term [Lang, Fig 6, 427, 430, 432].

Claim 36:

The combination of Culliss and Lang discloses he elements of claims 29 and 35 as noted above and furthermore, sorting the candidate search terms according to the quality metric and recommending only candidate search terms having a quality metric exceeding a threshold [Lang, col 9, lines 1-15].

Claim 37:

The combination of Culliss and Lang discloses the elements of claims 29 as noted above and furthermore, determining a correlation between a web site of the advertiser and web sites of other advertisers on the database system [Lang, Fig 4, 260], using the correlation [Lang, Fig 4, 260], determining ratings for each advertiser search term in the initial list of the advertiser search terms and organizing search terms of the initial list of advertiser search terms according to the ratings [Lang, Fig 6, 427, 430 and 432].

Claims 38 and 39:

The combination of Culliss and Lang discloses the elements of claims 29 as noted above and furthermore, presenting the organized search terms to the advertiser and receiving advertiser acceptance indications for the organized search terms [Lang, presenting the proposed informon to the user, col 4, lines 43-63], adjusting the list of advertiser search terms according to the acceptance indications, filtering the adjusted list [Lang, adapting the content profile per col 4, lines 43-63].

Claim 40:

The combination of Culliss and Lang discloses the elements of claims 29 and 38 as noted above and furthermore, receiving a search query from a user [Lang, col 1, lines 10-15], searching for matching search terms in the search listing database [col 1, lines 15-33] , preparing search results by formatting search terms according to advertiser bid amounts associated with the matching search listings [Culliss, col 17, lines 43-48], communicating the search results to the user [Fig 2, 64b]

Claim 42:

The combination of Culliss and Lang discloses the elements of claim 41 as noted below and furthermore, matching one or more text strings from the received search term with a database of search terms [Lang, Fig 3]

Claim 43:

The combination of Culliss and Lang discloses the elements of claims 38 and 29 as noted above and furthermore, matching one or more text strings from the received term with a thesaurus [Lang, col 13, lines 35-50]

Claim 45:

The combination of Culliss and Lang discloses entering the selected search term as a default value in each of the one or more search listings [Lang, user profile per col 7, lines 31-54].

Claim 49:

The combination of Culliss and Lang discloses the elements of claim 46 as noted above and furthermore, computing correlations for the advertiser and the other advertisers based on the information describing the advertiser and information describing the other advertisers [Lang, Fig 6, 432], and recommending search terms based at least in part on the correlations [Lang, Fig 6, 432]

Claims 51-55:

The combination of Culliss and Lang discloses downloading web pages rooted at a specified uniform resource locator (URL) [Culliss col 29, lines 30-45] and recommending to an

advertiser who maintains search listings in the pay for placement market system search terms that appear in the body text of the web pages [Lang col 1, line 45 – col 2, line 3]

Claim 56:

The combination of Culliss and Lang discloses calculating a quality metric for candidate search terms, the quality metric for a respective candidate search term being a function of the respective search term's web frequency and a function of a search term's search frequency [Lang, col 10, lines 20-45] and recommending search terms for which the calculated quality metric exceeds a threshold [Lang, col 9, lines 1-15] .

Claim 57:

The combination of Culliss and Lang discloses the elements of claim 56 as noted above and furthermore, a second metric [Lang, collaborative filtering, col 2, lines 5-20].

Claim 58:

The combination of Culliss and Lang discloses the elements of claim 56 as noted above and furthermore, automatically calibrating the quality threshold [col 9, lines 1-20].

Claim 60:

The combination of Culliss and Lang discloses the elements of claim 59 as noted above and furthermore, determining candidate search terms by collaborative filtering and recommending search terms from the candidate search terms [Lang, col 1, line 45 – col 2, line 3]

Claims 61 and 62:

The combination of Culliss and Lang discloses the elements of claim 59 as noted above and furthermore, downloading web pages rooted at a uniform resource locator and recommending the search terms based on terms that appear in body text of the web pages [Culliss col 29, lines 30-45]

Claim 63:

The combination of Culliss and Lang discloses the elements of claims 59 and 63 and furthermore, calculating a quality metric for candidate search terms, the quality metric for a respective candidate search term being a function of the respective search term's web frequency and a function of a search term's search frequency, and recommending the search terms based on search terms for which the calculated quality metric exceeds a quality threshold [Lang, col 9, lines 1-21]

Claim 64:

The combination of Culliss and Lang discloses the elements of claim 59 as noted above and furthermore, receiving feedback from the advertiser on the recommended search terms; and changing the recommended search terms based on the feedback [Lang, col 4, lines 55-60].

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Lang and Culliss and further in view of US Pat No 6,141,010 to Hoyle (hereafter Hoyle).

Claim 14:

The combination of Lang and Culliss discloses the elements of claims 5, 10 and 13 as noted above but fails to disclose examining meta tags from the one or more pages. Hoyle discloses examining meta tags from the one or more pages [col 15, line 54 through col 16, line 8]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Lang and Culliss to include examining meta tags from the one or more pages as taught by Hoyle. The ordinarily skilled artisan would have been motivated to modify the combination of Lang and Culliss per the above for the purpose of obtaining key words which are embedded in a web page.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Lang and Culliss in view of US Pat No 6,078,866 issued to Buck et al (hereafter (Buck).

Claim 17:

The combination of Lang and Culliss discloses the elements of claim 5 as noted above. The combination of Lang and Culliss fails to disclose preparing search results by formatting matching search terms according to advertiser bid amounts associated with the search listings; and communicating the search results to the user. Buck discloses preparing search results by formatting matching search terms according to advertiser bid amounts associated with the search listings; and communicating the search results to the user [claim1]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Culliss and Lang to include preparing search results by formatting matching search terms according to advertiser bid amounts associated with the search listings; and communicating the

search results to the user as taught by Buck. The ordinarily skilled artisan would have been motivated to modify the combination of Culliss and Lang per the above for the purpose of providing a means for generating revenue for the internet service provider.

Claims 20 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Culliss and Lang in view of US Pat No 5,872,850 to Klein et al (hereafter Klein).

Claim 20:

The combination of Culliss and Lang discloses the essential elements of the claimed invention as noted above in claims 18, 19 and except for assigning ratings to search terms and computing a correlation between the advertiser and one or more of the other advertisers using the assigned ratings of advertiser search terms. Klein discloses assigning ratings to search terms and computing a correlation between the advertiser and one or more of the other advertisers using the assigned ratings of advertiser search terms [col 10, lines 9-34]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Culliss and Lang to include assigning ratings to search terms and computing a correlation between the advertiser and one or more of the other advertisers using the assigned ratings of advertiser search terms as taught by Klein for the purpose of determining a similarity factor between two users [col 10, lines 9-13].

Claim 50:

The combination of Lang and Culliss discloses the elements of claims 18, 19, 46 and 49 as noted above. The combination of Lang and Culliss fails to disclose wherein the collaborative filtering code comprises Pearson correlation code. Klein discloses wherein the collaborative filtering code comprises Pearson correlation code [col 10, lines 9-34]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Culliss and Lang to include wherein the collaborative filtering code comprises Pearson correlation code as taught by Klein. The ordinarily skilled artisan would have been motivated to modify the combination of Culliss and Lang per the above for the purpose of determining a similarity factor between two users [col 10, lines 9-13].

Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Lang and Culliss in view of US Pat No 5,799,268 to Boguraev.

Claim 44:

The combination of Lang and Culliss discloses the elements of claim 41 as noted above. The combination of Lang and Culliss fails to disclose displaying a form for entering one or more search listings for a selected search term. Boguraev discloses displaying a form for entering one or more search listings for a selected search term [Fig 1]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Culliss and Lang to include displaying a form for entering one or more search listings for a selected search term as taught by Boguraev. The ordinarily skilled artisan would have been motivated to

modify Lang per the above for the purpose of providing a convenient means of inputting user data.

Response to Arguments

Applicant's arguments filed 8/4/2004 with respect to claims 1-64 have been considered but are moot in view of above new ground(s) of rejection necessitated by applicant's amendment. Nevertheless, it is expedient to consider the gist of applicant's comments.

Applicant Argues:

Applicant states in the third paragraph on page 15 "Lang is completely unrelated to a pay for placement marketplace. Lang actually relates to information filtering in a computer system receiving a data stream from a computer network. Entities of information relevant to a user, called 'informons,' are extracted from the data stream. Column 6, line 66 – column 7, line 4. Lang does not disclose any features of a pay for placement marketplace, such as advertisers, bid amounts, search listings, etc.

Examiner Responds:

Examiner is nt persuaded. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., pay for placement marketplace and bid amounts) are not recited in the amended claim 1. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant Argues:

Applicant states in the third paragraph on page 16 "Thus, unlike the method and apparatus of amended claims 1-64 which relate to a pay for placement system relying on bid amounts chargeable to the system operator for an event such as a clickthrough, Buck instead discloses a subscription service."

Examiner Responds:

Examiner is not persuaded. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a pay for placement system relying on bid amounts chargeable to the system operator for an event such as a clickthrough) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Consider the following claim 1 limitation "at least one search term, a money amount and a computer network" in light of Buck's disclosure, col3, line 52 through column 4, line 39 which is reproduced as following:

> It is therefore a principal object of the present invention to devise a method and system for **Internet searching and indexing in which Web site owners can determine for themselves the rankings that their information or services should receive in competition with others**, and not through computation of a ranking based on arbitrary factors or subjective determination by a search service. It is a further object that the Web site owners be able to readily upgrade or downgrade their rankings based upon their assessment of market factors on an on-going basis. It is also desirable that this system be readily implemented at manageable cost and readily understood by users without having to accept a new search orthodoxy or unfamiliar change of search usage.
>
> 20
>
> In accordance with the present invention, a method and system of network site searching and listing comprises a listing server connected to a network accessible by a plurality of users, having a site listings database containing a plurality of site listings, each of which is provided by a site listing subscriber and includes a title or description of the content of the respective site, a network address at which the site can be accessed on the network, **and a denominated value to be paid by the subscriber associated with the site listing while it is maintained on the listing server, wherein said listing server provides a search report of listings relevant to a search inquiry from a user in which the listings are ranked in order according to the denominated values associated with the listings.**
>
> 21

> In the preferred embodiment, subscribers pay a **monetary amount of their own choosing as a subscription fee to list a site with the listing service for a defined subscription period. The higher the amount paid for a given subscription period in relation to other listers, the higher the site's ranking on the service's search reports.** Subscribers can monitor the ranking of their listings in relation to others, and can modify their rankings by raising or lowering their subscription fees, through a subscription monitoring interface provided with the listing server. Changes to the subscription fees, and consequently to the rankings, may be handled by the listing service at defined adjustment intervals, such as daily, weekly, monthly, etc. The denominated value may be based upon a monetary value, or even a credit or point system, depending upon the type of subscriber base being solicited by the listing service.

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> **The denominated-value approach to rankings may also be used in conjunction with the index search method or the category search method. In the first case, an index search of the listing service's database is performed using keywords, and the resulting listings found are ranked according to their subscription fee values.** In the second case, the subscribers' listings are assigned to appropriate categories, then when the user inputs a selection of categories of interest, the resulting listings found are ranked according to their subscription fee values.

Examiner maintains that above disclosure by Buck reads on the claims 1 limitation "at least one search term, a money amount and a computer network location."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1. US Pub No 2003/0088554 to Ryan et al discloses content providers bidding for different keywords and profile types.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Etienne LeRoux whose telephone number is (571) 272-4022. The examiner can normally be reached on Monday – Friday from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic, can be reached on (571) 272-4023.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2100.

Patent related correspondence can be forwarded via the following FAX number (703) 872-9306

Etienne LeRoux

1/10/2005

SAFET METJAHIC
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

OIPE JUL 13 2004 PATENT & TRADEMARK OFFICE
OIPE AUG 04 2004 PATENT & TRADEMARK OFFICE

FORM PTO-1449	SERIAL NO. 10/020,712	CASE NO. 9623/378
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT	FILING DATE December 11, 2001	GROUP ART UNIT ~~2171~~ 2161
(use several sheets if necessary)	APPLICANT(S): Mark Paine et al.	

REFERENCE DESIGNATION U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER Number-Kind Code (if known)	DATE	NAME	CLASS/ SUBCLASS	FILING DATE
EKR	D1	5,794,210	8/11/1998	Goldhaber et al.		
	D2	5,931,907	8/03/1999	Davies et al.		
	D3	6,085,186	7/04/2000	Christianson et al.		
	D4	US 2001/0047354 A1	11/29/2001	Davis et al.		
V	D5	US 6,421,675 B1	07/16/2002	Ryan, et al.		

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FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER Number-Kind Code (if known)	DATE	COUNTRY	CLASS/ SUBCLASS	TRANSLATION YES OR NO
EKR	D6	WO 97/22066 A	06/19/1997	WIPO		
EKR	D7	WO 00/16218 A	03/23/2000	WIPO		

EXAMINER INITIAL		OTHER ART – NON PATENT LITERATURE DOCUMENTS (Include name of author, title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date page(s), volume-issue number(s), publisher, city and/or country where published.
EKR	D8	European Patent Office Search Report for corresponding application No. EP 0 25 8082.3, dated April 6, 2004, 3 pages.
	D9	Preliminary Search Report for corresponding application No. FR 0215627, dated March 31, 2004, 2 pages.
	D10	Cho, Junghoo et al., "Efficient crawling through URL ordering", *Computer Networks and ISDN Systems*, 1998, pp. 161-172.
V	D11	Cohen, William W. et al., "Web-collaborating filtering: recommending music by crawling the Web", *Computer Networks 33*, 2000, pp. 685-698.

EXAMINER EP LeRoux	DATE CONSIDERED 1/10/2005

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-1449	SERIAL NO. 10/020,712	CASE NO. 9623/378
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT	FILING DATE December 11, 2001	GROUP ART UNIT 2171
(use several sheets if necessary)	APPLICANT(S): Mark Paine et al.	

EXAMINER INITIAL	OTHER ART – NON PATENT LITERATURE DOCUMENTS (Include name of author, title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date page(s), volume-issue number(s), publisher, city and/or country where published.	
E.Ah	D12	Supplementary Search Report for corresponding European Patent Application No. EP 00 936393, dated February 20, 2004, 3 pages.
	D13	Brin, Sergey et al., "The Anatomy of a Large Scale Hypertextual Web Search Engine", *Computer Networks and ISDN Systems,* North Holland Publishing, Amsterdam, NL, dated April 14, 1998, pp. 1-20.
	D14	Doran, David, "Search Engines....Their popularity, their secrets, their flaws", *Entrepreneur,* July 1998, page 18.
	D15	Glaser, Ken, "Who Will GoTo.com?", *OnlinePress.com,* dated February 20, 1998, 2 pages.
	D16	Kramer, Ralf et al., "Thesaurus federations: loosely integrated thesauri for document retrieval in networks based on Internet technologies", *Int. J. Digit Libr,* 1997, pp. 122-131.
	D17	Sullivan, Danny, "GoTo Sells Positions", *The Search Engine Report,* dated March 3, 1998, 4 pages.
	D18	"GoTo.com Announces First Round of Financing, Totaling More Than $6 Million, Led by Draper Fisher Jurvetson", *Business Wire,* dated May 19, 1998, printed from Dialog Gale Group New products, 2 pages.
	D19	"New Service Puts Ad Auction, Search Engine Under One Roof", *Electronic Advertising & Marketplace Report,* dated April 28, 1998, Vol. 12, Issue 8, 2 pages.

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EXAMINER E P Ulhouse	DATE CONSIDERED 1/10/2005

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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Notice of References Cited	Application/Control No. 10/020,712	Applicant(s)/Patent Under Reexamination PAINE ET AL.	
	Examiner Etienne P LeRoux	Art Unit 2171	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-6,314,420	11-2001	Lang et al.	707/3
	B	US-6,078,916	06-2000	Culliss, Gary	707/5
	C	US-2003/0088554	05-2003	Ryan et al.	707/3
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes

Application No.	Applicant(s)	
10/020,712	PAINE ET AL.	
Examin r	Art Unit	
Etienne P LeRoux	2161	

SEARCHED			
Class	Subclass	Date	Examiner
707	3	1/10/05	EPLK
↓	5	↓	↓

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)	DATE	EXMR
consulted w Bookbinder	1/6/05	EPLK
searched WEST search notes included	↓	↓

Index of Claims

Application No.	Applicant(s)	
10/020,712	PAINE ET AL.	
Examiner	**Art Unit**	
Etienne P LeRoux	2161	

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

Claim		Date	Claim		Date	Claim		Date
Final	Original	1/05	Final	Original	1/05	Final	Original	
	1	✓		51	✓		101	
	2	|		52	|		102	
	3	|		53	|		103	
	4	|		54	|		104	
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of:	Paine, Mark et al.
Appln. No.:	10/020,712
Filed:	December 11, 2001
For:	RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING
Attorney Docket No:	9623/378

Examiner: Leroux, Etienne Pierre

Art Unit: 2161

Mail Stop RCE
Commissioner for Patents
U.S. Patent and Trademark Office
P. O. Box 1450
Alexandria, VA 22313-1450

REQUEST FOR CONTINUED EXAMINATION (37 C.F.R. § 1.114)

Sir:

Applicant(s) requests continued examination of the above-identified application under 37 C.F.R. §1.114.

☒ Submission under 37 CFR 1.114 (*check at least one of the following*):

- ☐ Previously submitted:
  - ☐ Applicant(s) requests nonentry of any previously-filed unentered amendments.
  - ☐ Please enter and consider the Amendment After Final Under 37 C.F.R. §1.116 previously filed on_____
  - ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
  - ☐ Other: _____
- ☒ Attached is/are:
  - ☒ An Information Disclosure Statement
  - ☒ An Amendment to the written description, claims, or drawings
  - ☐ New Arguments and/or New Evidence in support of Patentability
  - ☐ Other: _____

07/15/2005 WABDELR1 00000078 10020712
01 FC:1801 790.00 OP

☐ Request for suspension of action:

Applicant(s) hereby request suspension of action on the above-identified application under 37 C.F.R. §1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; requires Processing Fee under 37 C.F.R. §1.17(i)).

☐ Small Entity Status:

- ☐ Applicant hereby asserts entitlement to claim small entity status under 37 CFR §§ 1.9 and 1.27.
- ☐ A small entity statement or assertion of entitlement to claim small entity status was filed in prior application no._____/_____ and such status is still proper and desired.
- ☐ Is no longer desired.

☒ Applicant(s) calculate the following fees to be due in connection with this Request:

- ☒ A Request fee of $790 under 37 C.F.R. §1.17(e).
- ☐ A suspension processing fee of $_____ under 37 C.F.R. §1.17(i).
- ☐ An additional filing fee of $_____ under 37 C.F.R. §1.16 (_____ additional independent claims and/or _____ additional total claims).
- ☒ An extension fee of $1020 under 37 C.F.R. §1.17(a) for a three-month extension of time.

☒ Fee payment to cover the above-enumerated fee(s):

- ☒ Checks in the amount of $790 and $1020 are enclosed.
- ☐ Please charge Deposit Account No. 23-1925 (BRINKS HOFER GILSON & LIONE) in the amount of $_____. A copy of this Request is enclosed for this purpose.
- ☐ A payment by credit card in the amount of $_____ (Form PTO-2038 is attached).
- ☒ The Commissioner is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this paper (including any extension fee required to ensure that this paper is timely filed), or to credit any overpayment, to Deposit Account No. 23-1925 (BRINKS HOFER GILSON & LIONE). A copy of this Request is enclosed for this purpose.

Respectfully submitted,

7/13/05
Date

John G. Rauch (Reg. No. 37,218)

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OIPE JUL 13 2005 PATENT & TRADEMARK OFFICE

Our Case No. 9623/378

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Paine, Mark et al.

Serial No. 10/020,712

Filing Date: December 11, 2001

For RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING

Examiner Leroux, Etienne Pierre

Group Art Unit No. 2161

AMENDMENT

Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This amendment is submitted in conjunction with a Request for Continued Examination under 37 C.F.R. § 1.114. Please amend the application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 7.

Amendments to the Claims

Please cancel claims 1-64.

Please add new claim 66-83 as shown below.

Listing of Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Claims 1-65 (Cancelled)

66. (New) A method for recommending search terms in a computer network search apparatus for generating a result list of items representing a match with information entered by a user through an input device connected to the computer network, the search apparatus including a computer system operatively connected to the computer network and a plurality of items stored in a database, each item including information to be communicated to a user and having associated with it at least one search term, an information provider and a bid amount, the method comprising:

(a) obtaining a set of potential search terms for acceptance by a new information provider who is adding items to the database;

(b) computing correlations between the potential search terms for the new information provider and search terms of other information providers stored in the database;

(c) computing an estimated rating for the each potential search term for the new information provider;

(d) sorting the potential search terms according to the computed estimated ratings;

(e) presenting to the new information provider on an output device the sorted potential search terms;

(f) receiving from the new information provider at an input device an indication of accepted search terms;

(g) repeating (b) through (e) until a completion indication is received from the new information provider.

67. (New) The method of claim 66 wherein obtaining a set of potential search terms comprises:

receiving from the new information provider a website uniform resource locator (URL); and

spidering the website associated with the website URL to obtain search terms for the set of potential search terms.

68. (New) The method of claim 67 wherein spidering the website comprises:

receiving data from pages of the website;

recording potential search terms from the data; and

determining a quality metric for each candidate search term.

69. (New) The method of claim 67 wherein computing an estimated rating comprises:

combining a rating based on the computed correlations and a rating based on the quality metric determined for each candidate search term.

70. (New) The method of claim 68 further comprising:

sorting the candidate search terms according to the quality metric; and

adding to the set of potential search terms only candidate search terms having a quality metric exceeding a threshold.

71. (New) The method of claim 66 wherein spidering comprises:

receiving data from one or more pages of the website; and

examining text from the one or more pages for candidate search terms.

72. (New) The method of claim 71 wherein examining text comprises:
examining substantially all text from the one or more pages; and
examining meta tags from the one or more pages.

73. (New) The method of claim 71 wherein receiving a website URL comprises:
receiving the advertiser's URL as the web site URL.

74. (New) The method of claim 71 wherein receiving a website URL comprises:
receiving the web site URL from the advertiser.

75. (New) The method of claim 66 wherein computing correlations comprises:
assigning ratings to search terms; and
computing a correlation between the advertiser and one or more of the other advertisers using the assigned ratings of advertiser search terms.

76. (New) The method of claim 75 wherein computing an estimated rating comprises:
predicting a likelihood that a search term will be relevant to the advertiser.

77. (New) The method of claim 76 wherein predicting comprises:
determining a quality metric for candidate search terms; and
predicting relevance of candidate search terms based on the quality metric.

78. (New) The method of claim 66 wherein presenting the sorted potential search terms to the new information provider comprises sending the sorted potential search terms with a web page to the output device.

79. (New) A computer network search engine apparatus which includes a database having stored therein a plurality of search listings, each search listing being associated with an information provider, at least one keyword, a money amount, and a computer network location and a search engine to identify search listings having a keyword matching a keyword entered by

a searcher, to order the identified listings using the money amounts for the respective identified listings, and to generate a result list including at least some of the ordered listings, the apparatus comprising:

an account management server including a processing system which is operative in conjunction with program code to recommend potential search terms to a new information provider adding search listings to the database;

collaborative filtering code operable in conjunction with the processing system to compute correlations between potential search terms for the new information provider and search terms of other information providers stored in the database and to compute an estimated rating for the each potential search term for the new information provider;

sorting code operable in conjunction with the processing system and configured to sort the potential search terms according to the computed estimated ratings;

an output device configured to provide the sorted potential search terms to the new information provider for review; and

an input device configured to receive from the new information provider an indication of accepted search terms.

80. (New) The computer network search engine apparatus further comprising:

spidering code operable in conjunction with the processing system to find initially accepted search terms in a web site by spidering the web site and to include the initially accepted search terms among the sorted potential search terms provided to the new information provider for review.

81. (New) The computer network search engine apparatus of claim 80 wherein the spidering code is configured to spider a web site of the new information provider.

82. (New) The computer network search engine apparatus of claim 80 wherein the spidering code is configured to spider a web site specified by the new information provider.

83. (New) The computer network search engine apparatus of claim 80 wherein the spidering code is configured to retrieve pages from the web site of the new information provider, record terms contained in the retrieved pages and score the terms according to a quality metric.

84. (New) The computer network search engine apparatus of claim 83 wherein the spidering code is configured to include terms scoring above a threshold score among the sorted potential search terms

REMARKS

This amendment is submitted in conjunction with a Request for Continued Examination. In response to the final office action dated January 19, 2005, claims 1-64 have been cancelled and new claims 66-83 are submitted. No new matter is added by these amendments, which find support throughout the application, particularly in FIGS. 10-20 and the associated text. Reconsideration of the application is respectfully requested.

In the final office action, claims were rejected over two cited references, U.S. patent number 6,078,916 to Culliss and U.S. patent number 6,314,420 to Lang. New claims 66-83 have been added to better define the subject matter defined by the present application. Culliss relates to a search system which receives a search query and identifies matching items or articles. In addition, the system provides for displaying advertising banners in response to certain paid-for key words entered by the user. Lang discloses a search system including collaborative filtering.

New claims 66-83 define an invention not disclosed or suggested by these references. The present invention defined by claims 66-83 relates to a method and apparatus for making search term recommendations to an information provider or advertiser in a *pay for placement market system* such as is described in conjunction with FIGS. 1-9 of the present application. The method for making search term recommendations is particularly described in conjunction with figures 10-20 of the application. Two particular techniques for identifying search terms to recommend are spidering (see, e.g., FIG. 11) and collaborative filtering (see, e.g., FIG. 12).

A pay for placement market system generally includes a database of search listings (such as databases 38, 40, of the present application). Stored on the database is a plurality of search listings such as search listing 344. Information providers who wish to display their search listings to users of the database enter and maintain search listings in the database. Each information provider specifies a "keyword" or search term that is compared with a search term received by the database as part of a search query from a user. If the information provider's search listing includes the received search term, information from the information provider's search listing is returned to the user with other search results that matched the search query. The information provider pays a money amount (sometimes referred to as a bid or bid amount) to the

operator of the pay for placement market system upon occurrence of a predetermined event, such as selection ("clickthrough") by the user. The information provider can thus use the pay for placement market system to advertise his web site and drive potential customers to his web site.

In the pay for placement marketplace, the information providers can control the positioning of their search listings in the search results. This is done by adjusting the bid amount of a search listing. The search listing can include a number of components or fields, including the keyword or search term (352) and bid amount (358). When a search query is received, the search results that match the query are ordered according to bid amount, so that the search listings with the highest bid amounts appear highest in the search result list, where they are most likely to be seen by the user. By adjusting the bid amount of his search listing in relation to the bid amounts of other information providers in the pay-for-placement marketplace system, the information provider can control where in the search result list his search listing will appear. If a searcher clicks on the information provider's search listing, his account with the marketplace operator is chargeable by a money amount corresponding to the bid amount for the search listing. Thus, the advertiser "pays for the placement" of his advertisement or search listing in the search result list.

The information providers may choose any search listings to bid upon, and they are generally related in some way to the product or service offered by the information provider. The present invention defined by claims 66-83 provides a method and apparatus for recommending search terms to an information provider on a pay-for-placement search system. The method and apparatus make search term recommendations based on the contents of the information provider's web site and by comparing the advertiser to other similar information providers and recommending search terms they have chosen. In this manner, the system recommends good search terms, or terms having a relation to the advertiser's web site or its content, while avoiding bad search terms which have no such relation. The system is interactive with the information provider, allowing him to decide when the set of search terms is sufficient for his requirements. However, the process of identifying and ranking search terms is automated and is based on actual pages of the advertiser's web site and by comparisons to other information providers.

Thus, the Culliss reference, which discloses a search system including banner advertisements, is quite different from the presently claimed system. Culliss fails to disclose a

pay for placement market system having the features of independent method claim 66 and independent apparatus claim 79. Lang does not provide the missing teaching.

Accordingly, consideration of claim 66-83 and allowance of the application are respectfully requested.

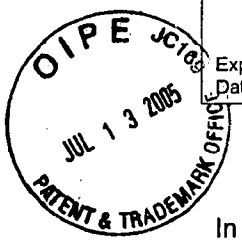
With this response, the application is believed to be in condition for allowance. Should the examiner deem a telephone conference to be of assistance in advancing the application to allowance, the examiner is invited to call the undersigned attorney at the telephone number below.

Respectfully submitted,

John G. Rauch
Registration No. 37,218
Attorney for Applicant

July 13, 2005
BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, ILLINOIS 60610
(312) 321-4200

RCE
ZZW
$



U.S.P.S. EXPRESS MAIL "POST OFFICE TO ADDRESSEE" SERVICE
DEPOSIT INFORMATION

Express Mail Label No.: EV 655029654 US
Date of Deposit: July 13, 2005

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OIPE JC169
JUL 13 2005
PATENT & TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: Paine, Mark ET AL.

Appln. No.: 10/020,712

Filed: December 11, 2001

For: RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING

Attorney Docket No: 9623/378

Examiner: Leroux, Etienne Pierre

Art Unit: 2161

Mail Stop RCE
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL

Sir:

Attached is/are:

☒ Checks for $790 and $1020; Request for Continued Examination (37 CFR Section 1.114), in duplicate; Petition and Fee for Extension of Time (37 CFR Section 1.136(a)), in duplicate; Amendment; Information Disclosure Statement Accompanying Request for Continued Examination; PTO-1449 (one sheet); copies of references E1-E2

☒ Return Receipt Postcard

Fee calculation:

☒ No additional fee is required.

☒ An extension fee in an amount of $1020 for a three-month extension of time under 37 C.F.R. § 1.136(a).

☐ A petition or processing fee in an amount of $_____ under 37 C.F.R. § 1.17(_____).

☐ An additional filing fee has been calculated as shown below:

	Claims Remaining After Amendment		Highest No. Previously Paid For	Present Extra		Small Entity Rate	Small Entity Add'l Fee	or	Not a Small Entity Rate	Not a Small Entity Add'l Fee
Total	19	Minus	64	0		x $25=			x $50=	0
Indep.	3	Minus	10	0		X100=			x $200=	0
First Presentation of Multiple Dep. Claim						+$180=			+ $360=	
						Total	$		Total	$0

Fee payment:

☒ Checks in the amount of $970 and 1020 are enclosed.

☐ Please charge Deposit Account No. 23-1925 in the amount of $. A copy of this Transmittal is enclosed for this purpose.

☒ The Director is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this paper (including any extension fee required to ensure that this paper is timely filed), or to credit any overpayment, to Deposit Account No. 23-1925.

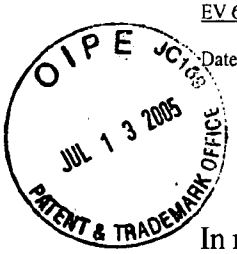
Respectfully submitted,

7/13/05
Date

John G. Rauch (Reg. No. 37,218)

"Express Mail" mailing label number
EV 655029654 US

Date of Deposit: July 13, 2005



Case No. 9623/378

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Paine, Mark et al.

Serial No: 10/020,712

Examiner: Leroux, Etienne Pierre

Filed: December 11, 2001

Group Art Unit: 2161

For: RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING

PETITION AND FEE FOR EXTENSION OF TIME (37 CFR § 1.136(a))

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This is a petition for an extension of the time to respond to the final office action dated January 19, 2005 for a period of three month(s).

☒ Applicant:

☐ claims small entity status. See 37 C.F.R. §1.27.

☒ is other than small entity

	Extension Months	Other Than Small Entity	Small Entity
☐	One Month	$120.00	$60.00
☐	Two Months	$450.00	$225.00
☒	Three Months	$1,020.00	$510.00
☐	Four Months	$1,590.00	$795.00
☐	Five Months	$2,160.00	$1,080.00

07/15/2005 WABDELR1 00000078 10020712
02 FC:1253 1020.00 OP

Fee Payment

☒ Attached is a check for $1020 for the Petition fee.

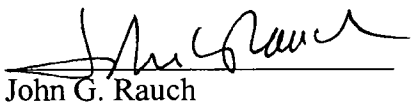
☐ Attached is a credit card authorization form for $_____ for the Petition fee.

☐ Charge Petition fee to Deposit Account No. 23-1925. A duplicate copy of this Petition is attached.

☒ Charge any additional fee required or credit for any excess fee paid to Deposit Account No. 23-1925. A duplicate copy of this Petition is attached.

Respectfully submitted,

Dated: July 13, 2005

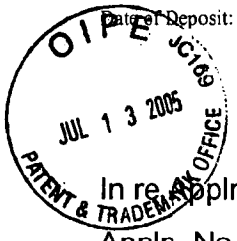


John G. Rauch
Registration No. 37,218
Attorney for Applicant

BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, IL 60610
(312)321-4200

"Express Mail" mailing label number EV 655029654 US

Date of Deposit: July 13, 2005



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of:	Paine, Mark ET AL.	
Appln. No.:	10/020,712	Examiner: Leroux, Etienne Pierre
Filed:	December 11, 2001	Art Unit: 2161
For:	RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING	
Attorney Docket No:	9623/378	

INFORMATION DISCLOSURE STATEMENT
ACCOMPANYING REQUEST FOR CONTINUED EXAMINATION

Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with the duty of disclosure under 37 C.F.R. §1.56 and §§1.97-1.98, and more particularly in accordance with 37 C.F.R. §1.97(b), Applicants hereby cite the following reference(s):

McCallum, A.; Nigam, K.; Rennie, J.; and Seymore, K, Building Domain-Specific Search Engines with Machine Learning Techniques, 1999. Proc. AAAI-99 Spring Symposium on Intelligent Agents in Cyberspace
Maltz, D., and Ehrlich, K., Pointing The Way: Active Collaborative Filtering, 1995. Proc. ACM SIGCHI Conference, Published in the Proceedings of the CHI '95, May 1995.

Applicants are enclosing Form PTO-1449 (one sheet), along with a copy of each listed reference for which a copy is required under 37 C.F.R. §1.98(a)(2). As each of

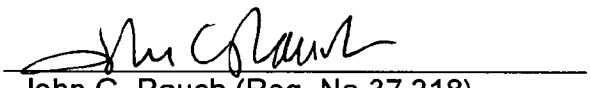
the listed references is in English, no further commentary is believed to be necessary, 37 C.F.R §1.98(a)(3). Applicants respectfully request that the citation(s) be placed into the file wrapper of the application.

By submitting this Statement, Applicants are attempting to fully comply with the duty of candor and good faith mandated by 37 C.F.R. §1.56. As such, this Statement is not intended to constitute an admission that any of the enclosed references, or other information referred to therein, constitutes "prior art" or is otherwise "material to patentability," as that phrase is defined in 37 C.F.R. §1.56(a).

Applicants have calculated no fee to be due in connection with the filing of this Statement. However, the Director is authorized to charge any fee deficiency associated with the filing of this Statement to a deposit account, as authorized in the Transmittal accompanying this Statement.

Respectfully submitted,

July 13, 2005
Date



John G. Rauch (Reg. No.37,218)

OIPE JC189 JUL 13 2005 PATENT & TRADEMARK OFFICE

FORM PTO-1449	SERIAL NO. 10/020,712	CASE NO. 9623/378
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT	FILING DATE December 11, 2001	GROUP ART UNIT 2171
(use several sheets if necessary)	APPLICANT(S): Mark Paine, et al.	

REFERENCE DESIGNATION **U.S. PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER Number-Kind Code (if known)	DATE	NAME	CLASS/ SUBCLASS	FILING DATE

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER Number-Kind Code (if known)	DATE	COUNTRY	CLASS/ SUBCLASS	TRANSLATION YES OR NO

EXAMINER INITIAL		OTHER ART – NON PATENT LITERATURE DOCUMENTS (Include name of author, title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date page(s), volume-issue number(s), publisher, city and/or country where published.
	E1	McCallum, A.; Nigam, K.; Rennie, J.; and Seymore, K, Building Domain-Specific Search Engines with Machine Learning Techniques, 1999. Proc. AAAI-99 Spring Symposium on Intelligent Agents in Cyberspace
	E2	Maltz, D., and Ehrlich, K., Pointing The Way: Active Collaborative Filtering, 1995. Proc. ACM SIGCHI Conference, Published in the Proceedings of the CHI '95, May 1995.

EXAMINER	DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 2001

Application or Docket Number: ~~9623/378~~ 10/020,712

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	65	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	65 minus 20=	* 45
INDEPENDENT CLAIMS	10 minus 3 =	* 7
MULTIPLE DEPENDENT CLAIM PRESENT	☐	

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE ☐		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
BASIC FEE	370.00	OR	BASIC FEE	740.00
X$ 9=	405	OR	X$18=	
X42=	294	OR	X84=	
+140=		OR	+280=	
TOTAL	1069	OR	TOTAL	

CLAIMS AS AMENDED - PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	* 64	Minus	** 65	= 0
Independent	* 10	Minus	*** 10	= 0
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM	☐			

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

7/13/05

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	* 19	Minus	**	=
Independent	* 4	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM	☐			

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT C

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM	☐			

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

FORM PTO-875 (Rev. 8/01) — Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,712	12/11/2001	Mark Paine	9623/378	1404

757 7590 08/24/2005

BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, IL 60610

EXAMINER	
LEROUX, ETIENNE PIERRE	
ART UNIT	**PAPER NUMBER**
2161	

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/020,712	PAINE ET AL.	
	Examiner	Art Unit	
	Etienne P LeRoux	2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *66-84* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *66, 67, 69, 71-76 and 78-84* is/are rejected.

7)☐ Claim(s) *68, 70 and 77* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/13/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continued Examination

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/13/2005 has been entered.

Claim Status:

Claims 66-84 are pending; claims 1-65 have been cancelled. Claims 68, 70 and 77 are objected to and claims 66, 67, 69, 71-76 and 78-84 are rejected as detailed below.

Specification

The attempt to claim priority by reference to application serial No 09/911,674 filed July 24, 2001 and application serial No. 09/322,677 filed on May 28, 1999 is improper because the above applications do not support the limitations of the newly revised claims.

The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01. At least paragraphs 6, 8 and 99 include an embedded hyperlink.

Claim Objection

Claims 68, 70 and 77 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 68 recites "determining a quality metric for each candidate search term." Each candidate search term does not further limit any of the elements of claim 66.

Claim 70 is objected to for being dependent from a rejected claim.

Claim 77 recites "determining a quality metric for candidate search terms and predicting relevance of candidate search terms based on the quality metric." Candidate search terms does not further limit any of the elements of claim 76.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 66-84 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 66 recites "obtaining a set of potential search terms." The specification does not contain a clear and concise description of the claimed computer-implemented method of obtaining a set of potential search terms such that the skilled artisan can make and use the invention.

Claim 66 recites "other information providers." The specification does not contain a clear and concise description of other information providers such that the skilled artisan can make and use the invention.

Claim 66 recites "a new information provider." The specification does not contain a clear and precise description of a new information provider such that a skilled technician can make and use the invention." In particular, paragraph 31 of the specification indicates that a server acts as an information provider; paragraph 35 includes various network providers such as account management server 22, search engine server 24, advertising server 14 and paragraph 39 states that client computers 12 may be network information providers such as advertising web site promoters or owners having advertiser web pages 30 located on web server 14. The skilled technician would not be able to make and use the invention because it is unclear which one of the above plurality of servers is the "new information provider."

Claim 66 recites "receiving from the new information provider at an input device an indication of accepted search terms." The specification does not contain a clear and concise description of the claimed computer-implemented method of receiving accepted search terms from the new information provider such that the skilled artisan can make and use the invention.

Claim 66 recites repeating (b) through (e) until a completion indication is received from the new information provider." The specification does not contain a clear and concise

description of the claimed computer-implemented method of receiving a completion indication such that a skilled artisan can make and use the invention.

Claim 66 recites "sorting the potential search terms according to the computed estimated ratings." The specification does not contain a clear and concise description of the claimed computer-implemented method of "sorting the potential search terms" such that a skilled artisan can make and use the invention.

Claim 79 is rejected on a basis similar to claim 66

Claims 67-78 and 80-84 are rejected for being dependent from a rejected base claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 66, 71, 75, 76, 78, 79, 83 and 84 are rejected under 35 U.S.C. 102(e) as being anticipated by US Pat No 6,314,420 issued to Lang et al (hereafter Lang), as best examiner is able to ascertain.

Claims 66 and 75:

Lang discloses:

(a) obtaining search terms [user enters query, col 1, lines 17-25, col 1, lines 55-60]

(b) computing correlations between the search terms and search terms in a database [query is profiled in storage on a content basis and adaptively updated over time, col 1, lines 56-60]

(c) computing an estimated rating for the search terms [informons[1] are compared to the query profile by relevancy ranking, col 1, lines 55-60, col 23, lines 33-38, col 1, lines 40-45]

(d) sorting the search terms [Figs 1-7 and col 24, lines 49-60]

(e) presenting the search terms [col 1, line 65 – col 2, line 3]

(f) receiving accepted search terms [col 2, lines 5-20]

(g) completing receiving accepted search terms [col 2, lines 5-20]

Claims 71, 78 and 83:

Lang discloses receiving data from one or more pages of the website and examining text from the one or more pages for candidate search terms [col 4, lines 23-30].

Claim 76:

Lang discloses predicting a likelihood that a search term will be relevant to the advertiser [col 2, lines 5-20].

Claim 79:

Lang discloses

an account management server including a processing system which is operative in conjunction with program code to recommend potential search terms to a new information

[1] Informons read on search terms because Lang discloses in column 1 lines 23-27 that "the search site typically employs a spider scanning system and a content based filter in a search engine to search the internet and find information which match the query. This process is basically a pre-search process in which matching informons are found at the time of initiating a search for the user's query, by comparing informons in an informon data base to the user's query." This is in line with applicant's Abstract which states that a first technique involves looking for search terms directly on an advertiser's web site.

provider adding search listings to the database [spider plus content-based filter, col 1, lines 20-25];

collaborative filtering code operable in conjunction with the processing system to compute correlations between potential search terms for the new information provider and search terms of other information providers stored in the database and to compute an estimated rating for the each potential search term for the new information provider [col 1, lines 45-65],

sorting code operable in conjunction with the processing system and configured to sort the potential search terms according to the computed estimated ratings [col 1, line 65 through col 2, line 5];

an output device configured to provide the sorted potential search terms to the new information provider for review [Fig 9, search return processor 48C, col 26, lines 1-8]; and

an input device configured to receive from the new information provider an indication of accepted search terms [Fig 9, 34C, col 25, lines 5-20, col 26, lines 1-8]

Claim 84:

Lang discloses wherein the spidering code is configured to include terms scoring above a threshold score among the sorted potential search terms [Abstract].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 67, 72-74 and 80-82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lang as noted above in claims 66 and 79 in view of US Pat No 6,078,916 to Culliss (hereafter Culliss), as best examiner is able to ascertain.

Claims 67, 69, 73, 74, 80, 81 and 82:

Lang discloses the essential elements of the claimed invention as noted above and furthermore, Lang discloses spidering the website to obtain search terms for the set of potential search terms [col 1, lines 20-25] but does not disclose receiving from the new information provider a website uniform resource locator (URL). Culliss discloses receiving from the new information provider a website uniform resource locator (URL) [col 29, lines 30-45]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lang to include receiving from the new information provider a website uniform resource locator (URL) as taught by Culliss for the purpose of adopting the well-known means of accessing a website such that information can be down-loaded from the website.

Claim 69:

The combination of Lang and Culliss discloses the elements of claims 66 and 67 as noted above and furthermore, Lang discloses combining a rating based on the computed correlations and a rating based on the quality metric determined for each candidate search term [col 1, lines 40-45].

Claim 72:

Lang discloses the elements of claims 66 and 71 as noted above and furthermore Lang discloses examining substantially all text from the one or more pages and Culliss discloses examining meta tags from the one or more pages [col 5, lines 15-20].

Response to Arguments

Applicant's arguments filed 7/13/2005 with respect to claims 66-84 have been considered but are moot in view of above new ground(s) of rejection necessitated by applicant's amendment. Nevertheless, it is expedient to consider the gist of applicant's comments.

Applicant Argues:

Applicant states in the paragraph joining pages 8 and 9 "Culliss fails to disclose a pay for placement market system having the features of independent claim 66 and independent apparatus claim 79. Lang does not provide the missing teaching."

Examiner Responds:

Examiner is nt persuaded. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., pay for placement market system) are not recited in the amended claims 66 and 79. Although the claims are interpreted in light of the specification, limitations from the specification

are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Etienne P. LeRoux whose telephone number is (571) 272-4022. The examiner can normally be reached Monday trough Friday between 8:00 am and 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on (571) 272-4023. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Etienne LeRoux

8/11/2005

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FORM PTO-1449	SERIAL NO. 10/020,712	CASE NO. 9623/378
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT	FILING DATE December 11, 2001	GROUP ART UNIT 2171
(use several sheets if necessary)	APPLICANT(S): Mark Paine, et al.	

REFERENCE DESIGNATION **U.S. PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER Number-Kind Code (if known)	DATE	NAME	CLASS/ SUBCLASS.	FILING DATE

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER Number-Kind Code (if known)	DATE	COUNTRY	CLASS/ SUBCLASS	TRANSLATION YES OR NO

EXAMINER INITIAL		OTHER ART – NON PATENT LITERATURE DOCUMENTS (Include name of author, title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date page(s), volume-issue number(s), publisher, city and/or country where published.
Elch	E1	McCallum, A.; Nigam, K.; Rennie, J.; and Seymore, K, Building Domain-Specific Search Engines with Machine Learning Techniques, 1999. Proc. AAAI-99 Spring Symposium on Intelligent Agents in Cyberspace
Elch	E2	Maltz, D., and Ehrlich, K., Pointing The Way: Active Collaborative Filtering, 1995. Proc. ACM SIGCHI Conference, Published in the Proceedings of the CHI '95, May 1995.

EXAMINER E P Alkhouse	DATE CONSIDERED 8/11/05

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

OIPE JAN 15 2004
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FORM PTO-1449	SERIAL NO. 10/020,712	CASE NO. 9623/378
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT	FILING DATE Dec. 11, 2011	GROUP ART UNIT 2171
(use several sheets if necessary)	APPLICANT(S): Mark paine et al.	

REFERENCE DESIGNATION **U.S. PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER Number-Kind Code (if known)	DATE	NAME	CLASS/ SUBCLASS	FILING DATE
EKR	C1	US 2001/0047354 A1	11/29/2001	Davis et al.		
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EKR	C2	WO 02/03303 A1	01/10/2002	WIPO		
	C					
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EXAMINER INITIAL		OTHER ART – NON PATENT LITERATURE DOCUMENTS (Include name of author, title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date page(s), volume-issue number(s), publisher, city and/or country where published.
EKR	C3	Great Britain Search Report for corresponding patent application No. GB 0227454.6, dated May 6, 2003, 1 page.
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In accordance with 37 C.F.R. § 1.97(g),(h), this Information Disclosure Statement is not to be construed as a representation that a search has been made and is not to be construed to be an admission that the information cited is, or is considered to be, material to patentability as defined in 37 C.F.R. § 1.56(b).

This Information Disclosure Statement is being filed prior to the receipt of the first Official Action reflecting an examination on the merits and hence is believed to be timely filed in accordance with 37 C.F.R. § 1.97(b). No fees are believed to be due in connection with filing of this Information Disclosure Statement, however, should any fees under 37 C.F.R. §§ 1.16 to 1.21 be deemed necessary for any reason relating to these material, the Commissioner is hereby authorized to deduct said fees from Brinks Hofer Gilson & Lione's deposit account number 23-1925.

This application is a continuation-in-part application of U.S. Serial No. 09/911,674, filed July 24, 2001 which a continuation of 09/322,677, filed May 28, 1999, now issued US Patent No. 6,269,361 and is relied upon for an earlier filing date under

The references now cited are the following:

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OTHER RELATED DOCUMENT

Great Britain Search Report for corresponding patent application No. GB 0227454.6, dated May 6, 2003, 1 page.

In accordance with 37 C.F.R. § 1.97(g),(h), this Second Supplemental Information Disclosure Statement is not to be construed as a representation that a search has been made and is not to be construed to be an admission that the information cited is, or is considered to be, material to patentability as defined in 37 C.F.R. § 1.56(b).

This Second Supplemental Information Disclosure Statement is being filed prior to the receipt of the first Official Action reflecting an examination on the merits and hence is believed to be timely filed in accordance with 37 C.F.R. § 1.97(b). No fees are believed to be due in connection with filing of this Second Supplemental Information Disclosure Statement. However, should any fees under 37 C.F.R. §§ 1.16 to 1.21 be deemed necessary for any reason relating to these materials, the Commissioner is hereby authorized to deduct said fees from Brinks Hofer Gilson & Lione Deposit Account No. 23-1925.

E P Lehouse 8/11/05

The references now cited are the following:

US PATENT

DOCUMENT NUMBER Number-Kind Code (if known)	DATE	NAME
5,931,907	8/03/1999	Davies et al.
6,085,186	07/04/2000	Christianson et al.
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US 6,421,675 B1	07/16/2002	Ryan, et al.

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DOCUMENT NUMBER Number-Kind Code (if known)	DATE	COUNTRY
WO 97/22066 A	06/19/1997	WIPO
WO 00/16218 A	03/23/2000	WIPO

OTHER ART REFERENCES

European Patent Office Search Report for corresponding application No. EP 0 25 8082.3, dated April 6, 2004, 3 pages.
Preliminary Search Report for corresponding application No. FR 0215627, dated March 31, 2004, 2 pages.
Cho, Junghoo et al., "Efficient crawling through URL ordering", *Computer Networks and ISDN Systems*, 1998, pp. 161-172,
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Brin, Sergey et al., "The Anatomy of a Large Scale Hypertextual Web Search Engine", *Computer Networks and ISDN Systems*, North Holland Publishing, Amsterdam, NL, dated April 14, 1998, pp. 1-20.
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Kramer, Ralf et al., "Thesaurus federations: loosely integrated thesauri for document retrieval in networks based on Internet technologies", *Int. J. Digit Libr*, 1997, pp. 122-131.
Sullivan, Danny, "GoTo Sells Positions", *The Search Engine Report*, dated March 3, 1998, 4 pages.
"GoTo.com Announces First Round of Financing, Totaling More Than $6 Million, Led by Draper Fisher Jurvetson", *Business Wire*, dated May 19, 1998, printed from Dialog Gale Group New products, 2 pages.

EP Whoerse 8/11/05

Index of Claims

Application No.	Applicant(s)	
10/020,712	PAINE ET AL.	
Examiner	**Art Unit**	
Etienne P LeRoux	2161	

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
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Claim		Date								
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Search Notes	Application No.	Applicant(s)	
	10/020,712	PAINE ET AL.	
	Examiner	Art Unit	
	Etienne P LeRoux	2161	

SEARCHED			
Class	Subclass	Date	Examiner
707	1	1/10/2005	EPL
707	2	1/10/2005	EPL
707	5	1/10/2005	EPL
707	10	1/10/2005	EPL

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
searched WEST, search notes included	1/10/2005	EPL

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www.uspto.gov

APPLICATION NUMBER	PATENT NUMBER	GROUP ART UNIT	FILE WRAPPER LOCATION
10/020,712		2161	37M1

Correspondence Address / Fee Address Change

The following fields have been set to Customer Number 56020 on 09/09/2005

- Correspondence Address
- Maintenance Fee Address

The address of record for Customer Number 56020 is:
BRINKS HOFER GIBSON & LIONE / YAHOO! OVERTURE
P.O. BOX 10395
CHICAGO,IL 60610

OIPE
NOV 23 2005
PATENT & TRADEMARK OFFICE

IFW 2161

CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8
I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, with sufficient postage, in an envelope addressed to: Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450, on the below date:
Date: November 21, 2005 Name: John G. Rauch Signature: John G. Rauch

BRINKS HOFER GILSON & LIONE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: Paine, Mark et al.

Appln. No.: 10/020,712

Examiner: Leroux, Etienne Pierre

Filed: December 11, 2001

Art Unit: 2161

For: RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING

Attorney Docket No: 9623/378

Mail Stop Amendment
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL

Sir:

Attached is/are:

☒ Amendment (18 pages)

☒ Return Receipt Postcard

Fee calculation:

☒ No additional fee is required.

☐ Small Entity.

☐ An extension fee in an amount of $_____ for a _____-month extension of time under 37 C.F.R. § 1.136(a).

☐ A petition or processing fee in an amount of $_____ under 37 C.F.R. § 1.17(_____).

☐ An additional filing fee has been calculated as shown below:

					Small Entity			Not a Small Entity	
	Claims Remaining After Amendment		Highest No. Previously Paid For	Present Extra	Rate	Add'l Fee	or	Rate	Add'l Fee
Total	19	Minus	64	0	x $25=			x $50=	0
Indep.	3	Minus	10	0	x 100=			x $200=	0
First Presentation of Multiple Dep. Claim					+$180=			+ $360=	
					Total	$		Total	$0

Fee payment:

☐ A check in the amount of $_____ is enclosed.

☐ Please charge Deposit Account No. 23-1925 in the amount of $. A copy of this Transmittal is enclosed for this purpose.

☒ The Director is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this paper (including any extension fee required to ensure that this paper is timely filed), or to credit any overpayment, to Deposit Account No. 23-1925.

Respectfully submitted,

November 21, 2005
Date

John G. Rauch (Reg. No. 37,218)

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NOV 23 2005
PATENT & TRADEMARK OFFICE

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Date: November 21, 2005 Name: John G. Rauch Signature: _____

Our Case No. 9623/378

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Paine, Mark et al.

Serial No. 10/020,712

Filing Date: December 11, 2001

For RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING

Examiner Leroux, Etienne Pierre

Group Art Unit No. 2161

AMENDMENT

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This amendment is submitted in response to the Office Action mailed August 24, 2005. Please amend the application as follows:

Amendments to the Specification begin on page 2 of this paper.

Amendments to the Claims are reflected in the listing of claims which begins on page 6 of this paper.

Remarks begin on page 11.

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IFW 2161

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Date: November 21, 2005 Name: John G. Rauch Signature: John G. Rauch

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HOFER
GILSON
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: Paine, Mark et al.

Appln. No.: 10/020,712

Examiner: Leroux, Etienne Pierre

Filed: December 11, 2001

Art Unit: 2161

For: RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING

Attorney Docket No: 9623/378

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Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

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First Presentation of Multiple Dep. Claim					+$180=			+ $360=	
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Fee payment:

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☐ Please charge Deposit Account No. 23-1925 in the amount of $. A copy of this Transmittal is enclosed for this purpose.

☒ The Director is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this paper (including any extension fee required to ensure that this paper is timely filed), or to credit any overpayment, to Deposit Account No. 23-1925.

Respectfully submitted,

November 21, 2005
Date

John G. Rauch (Reg. No. 37,218)

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Our Case No. 9623/378

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Amendments to the Claims are reflected in the listing of claims which begins on page 6 of this paper.

Remarks begin on page 11.

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Amendments to the Specification

1. Please replace the paragraph beginning at page 2, line 29, with the following rewritten paragraph:

Unfortunately, few advertisers understand how to create a good list of search terms, and right now there are only limited tools to help them. The typical state of the art is the Search Term Suggestion Tool (STST) provided by Overture Services, Inc., located on the Internet at an internal page of overture.com ~~http://inventory.overture.com~~. STST provides suggestions based on string matching. Given a word, STST returns a sorted list of all the search terms that contain that word. This list is sorted by how often users have searched for the terms in the past month. In the seafood example, if the advertiser enters the word "fish", his results will include terms like "fresh fish," "fish market," "tropical fish," and "fish bait," but not words like "tuna" or "halibut" because they do not contain the string "fish." To create his initial list of search terms, a new advertiser will often enter a few words into STST and then bid on all of the terms that it returns.

2. Please replace the paragraph beginning at page 3, line 22, with the following rewritten paragraph:

An improved version of STST is the GoTo Super Term Finder (STF) which may be found at an internal web page of idealab.com, users.idealab.com/~charlie/advertisers/start.html ~~http://users.idealab.com/~charlie/advertisers/start.html~~. This tool keeps track of two lists: an accept list of good words for an advertiser's site, and a reject list of bad words or words that have no relation to the advertiser's site or its content. STF displays a sorted list of all the search terms that contain a word in the first list, but not in the second list. As with STST, the result list is sorted by how often users have searched for the terms in the past month. In the seafood example, if the accept list contains the words "fish," and the reject list contains the word "bait," then the

output will display terms like "fresh fish" and "tropical fish" but not "fish bait." An advertiser can use this output to refine his accept and reject lists in an iterative process.

3. Please replace the paragraph beginning at page 4, line 16, with the following rewritten paragraph:

A system that finds semantically related terms is Wordtracker, which may be found at wordtracker.com ~~http://www.wordtracker.com~~. Given a search term, Wordtracker recommends new terms in two ways. First, Wordtracker recommends words by looking them up in a thesaurus. Second, Wordtracker recommends words by searching for them using an algorithm called *lateral search.* Lateral search runs the original search term through two popular web search engines. It then downloads the top 200 web page results, extracts all the terms from the KEYWORD and DESCRIPTION meta tags for the pages and returns a list sorted by how frequently each term appears in these tags.

4. Please replace the paragraph beginning at page 9, line 30, with the following rewritten paragraph:

The second server type contemplated is a search engine web server 24. A search engine program permits network users, upon navigating to the search engine web server URL or sites on other web servers capable of submitting queries to the search engine web server 24 through their browser program 16, to type keyword queries to identify pages of interest among the millions of pages available on the World Wide Web. In a preferred embodiment of the present invention, the search engine web server 24 generates a search result list that includes, at least in part, relevant entries obtained from and formatted by the results of the bidding process conducted by the account management server 22. The search engine web server 24 generates a list of hypertext links to documents that contain information relevant to search terms entered by the user at the client computer 12. The search engine web server transmits this list, in the form of a web page, to the network user, where it is displayed on the browser 16 running on the client computer 12. A presently preferred embodiment of the search engine web server may be found

by navigating to the web page at URL goto.com ~~http://www.goto.com/~~. In addition, the search result list web page, an example of which is presented in FIG. 7, will be discussed below in further detail.

5. Please replace the paragraph beginning at page 33, line 28, with the following rewritten paragraph:

Spidering is a simple technology for downloading a web site rooted at a uniform resource locator (URL). A program downloads the home page given by the URL, then scans it for hyperlinks to other pages and downloads them. The spidering process continues until the program reaches a predefined link depth, downloads a predetermined number of pages, or reaches some other stopping criterion. The order in which pages are downloaded can be either breadth-first or depth-first. In breadth-first spidering, the program adds new URL's to the end of its list of pages to download; in depth-first spidering, it adds them to the beginning. These algorithms are straightforward and well known to engineers skilled in the state of the art. Further information about these techniques may be found by consulting Cho, Molina, and Page, "Efficient Crawling through URL Ordering", available from ResearchIndex, ~~http://citeseer.nj.nec.com~~ on the Internet at citeseer.nj.nec.com or Nilsson, *Principles of Artificial Intelligence*, ISBN 0934613109.

6. Please replace the paragraph beginning at page 37, line 9, with the following rewritten paragraph:

These formulas provide a straightforward technique for calculating ratings based on similarity. There are many similar formulas and variations. For example, when making predictions it is usually better not to take a weighted average over all advertisers, but just over the 10-20 most highly correlated ones. There are also techniques for improving the efficiency of the calculations, or for doing collaborative filtering without using correlations or distance metrics. These variations are readily found in the literature on collaborative

filtering, and the current embodiments are not constrained to any one of them. More details on the advantages and disadvantages of different collaborative filtering algorithms can be found at the GroupLens web site at www.cs.umn.edu/Research/GroupLens ~~http://www.cs.umn.edu/Research/GroupLens~~.

Amendments to the Claims

Please amend claims 66, 68, 77 and 79 as shown below.

Listing of Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Claims 1-65 (Cancelled)

66. (Currently amended) A method for recommending search terms in a computer network search apparatus for generating a result list of items representing a match with information entered by a user through an input device connected to the computer network, the search apparatus including a computer system operatively connected to the computer network and a plurality of items stored in a database, each item including information to be communicated to a user and having associated with it at least one search term, an information provider and a bid amount, the method comprising:

(a) obtaining a set of potential search terms for acceptance by a new information provider who is adding items to the database;

(b) computing correlations between the potential search terms for the new information provider and search terms of other information providers stored in the database;

(c) computing an estimated rating for the each potential search term for the new information provider;

(d) sorting the potential search terms according to the computed estimated ratings;

(e) presenting to the new information provider on an output device the sorted potential search terms;

(f) receiving from the new information provider at an input device an indication of accepted search terms;

(g) repeating (b) through (e) until a completion indication is received from the new information provider; and

(h) storing the accepted search terms in the database for the new information provider upon receipt of the completion indication.

67. (Previously presented) The method of claim 66 wherein obtaining a set of potential search terms comprises:

receiving from the new information provider a website uniform resource locator (URL); and

spidering the website associated with the website URL to obtain search terms for the set of potential search terms.

68. (Currently amended) The method of claim 67 wherein spidering the website comprises:

receiving data from pages of the website;

recording potential search terms from the data; and

determining a quality metric for each potential ~~candidate~~ search term.

69. (Previously presented) The method of claim 67 wherein computing an estimated rating comprises:

combining a rating based on the computed correlations and a rating based on the quality metric determined for each candidate search term.

70. (Previously presented) The method of claim 68 further comprising:

sorting the candidate search terms according to the quality metric; and

adding to the set of potential search terms only candidate search terms having a quality metric exceeding a threshold.

71. (Previously presented) The method of claim 66 wherein spidering comprises:

receiving data from one or more pages of the website; and

examining text from the one or more pages for candidate search terms.

72. (Previously presented) The method of claim 71 wherein examining text comprises:

examining substantially all text from the one or more pages; and

examining meta tags from the one or more pages.

73. (Previously presented) The method of claim 71 wherein receiving a website URL comprises:

receiving the advertiser's URL as the web site URL.

74. (Previously presented) The method of claim 71 wherein receiving a website URL comprises:

receiving the web site URL from the advertiser.

75. (Previously presented) The method of claim 66 wherein computing correlations comprises:

assigning ratings to search terms; and

computing a correlation between the advertiser and one or more of the other advertisers using the assigned ratings of advertiser search terms.

76. (Previously presented) The method of claim 75 wherein computing an estimated rating comprises:

predicting a likelihood that a search term will be relevant to the advertiser.

77. (Currently amended) The method of claim 76 wherein predicting comprises:

determining a quality metric for potential ~~candidate~~ search terms; and

predicting relevance of the potential ~~candidate~~ search terms based on the quality metric.

78. (Previously presented) The method of claim 66 wherein presenting the sorted potential search terms to the new information provider comprises sending the sorted potential search terms with a web page to the output device.

79. (Currently amended) A computer network search engine apparatus which includes a database having stored therein a plurality of search listings, each search listing being associated

with an information provider, at least one keyword, a money amount, and a computer network location and a search engine to identify search listings having a keyword matching a keyword entered by a searcher, to order the identified listings using the money amounts for the respective identified listings, and to generate a result list including at least some of the ordered listings, the apparatus comprising:

an account management server including a processing system which is operative in conjunction with program code to recommend potential search terms to a new information provider adding search listings to the database;

collaborative filtering code operable in conjunction with the processing system to compute correlations between potential search terms for the new information provider and search terms of other information providers stored in the database and to compute an estimated rating for the each potential search term for the new information provider;

sorting code operable in conjunction with the processing system and configured to sort the potential search terms according to the computed estimated ratings;

an output device configured to provide the sorted potential search terms to the new information provider for review; and

an input device configured to receive from the new information provider an indication of accepted search terms, the accepted search terms being stored in the database in association with the new information provider upon receipt of the indication from the new information provider.

80. (Previously presented) The computer network search engine apparatus further comprising:

spidering code operable in conjunction with the processing system to find initially accepted search terms in a web site by spidering the web site and to include the initially accepted search terms among the sorted potential search terms provided to the new information provider for review.

81. (Previously presented) The computer network search engine apparatus of claim 80 wherein the spidering code is configured to spider a web site of the new information provider.

82. (Previously presented) The computer network search engine apparatus of claim 80 wherein the spidering code is configured to spider a web site specified by the new information provider.

83. (Previously presented) The computer network search engine apparatus of claim 80 wherein the spidering code is configured to retrieve pages from the web site of the new information provider, record terms contained in the retrieved pages and score the terms according to a quality metric.

84. (Previously presented) The computer network search engine apparatus of claim 83 wherein the spidering code is configured to include terms scoring above a threshold score among the sorted potential search terms

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REMARKS

Claims 66-84 are pending in the application. By this paper, claims 66, 68, 77 and 79 have been amended. Reconsideration and allowance of claims 66-84 are respectfully requested.

Objections to the Specification

Claim to priority

The specification stands objected to based on the claim to priority of earlier-filed applications. According to the office action, "the attempt to claim priority by reference to application to serial no. 09/911,674 filed July 24, 2001 and application serial no. 09/322,677 filed on May 28, 1999 is improper because the above applications do not support the limitations of the newly revised claims.

Withdrawal of this objection is respectfully requested. It is submitted that the claim for priority included at page 1 of the present application states that "this application is a continuation in part" of the noted applications. "A continuation-in-part is an application filed during the lifetime of an earlier nonprovisional application, repeating some substantial portion or all of the earlier nonprovisional application and *adding matter not disclosed* in the said earlier nonprovisional application." MPEP 201.08. Support for the limitations of the claims of this application is found throughout the application, including in material of the parent applications and in the added matter not disclosed in the earlier applications. Moreover, "an alleged continuation-in-part application should be permitted to claim the benefit of the filing date of an earlier non-provisional application if the alleged continuation-in-part application complies with the following formal requirements of 35 U.S.C. § 120:

"(A) The first application and the alleged continuation-in-part application were filed with at least one common inventor;

"(B) The alleged continuation-in-part application was 'filed before the patenting or abandonment of ...the first application or an application similarly entitled to the benefit of the filing date of the first application'; and

"(C) The alleged continuation-in-part application 'contains ... a specific reference to the earlier filed application.'"

Each of these requirements is fulfilled in the present application. With respect to requirement (A), inventor Darren J. Davis is common to the present application and the two parent applications. With respect to requirement (B), the present application was filed on December 11, 2001 and the immediate parent application, serial number 09/911,674, is still pending as of November 21, 2005. With respect to requirement (C), the application was filed with the required reference beginning at page 1, line 4. Accordingly, it is submitted that the claim for priority is properly made. Withdrawal of the objection to the specification and acknowledgement of the claim to priority is respectfully requested.

Embedded Hyperlinks

The disclosure is further objected to as containing an embedded hyperlink in paragraphs 6, 8, and 99. Deletion of the embedded hyperlink is required.

By this paper, the specification has been amended at several places to delete the embedded hyperlinks. No new matter is added by these amendments. Withdrawal of the objection to the disclosure is respectfully requested.

Claim Objections

Claims 68, 70 and 77 stand objected to under 37 C.F.R. § 1.75(c) as being of independent form. Claim 68 recites "determining a quality metric for each candidate search term." According to the office action, "each candidate search term" does not further limit any elements of claim 66.

Claim 68 has been amended so that it now recites "determining a quality metric for each potential search term" *(emphasis added)*, referring back to the potential search terms recited in claims 66 and 67. It is submitted that as amended, claim 68 properly limits claim 66 and withdrawal of the objection to claim 68 is respectfully requested.

Claim 70 stands "objected to for being dependent from a rejected claim." For reasons stated elsewhere in this paper, it is submitted that claim 68 is allowable. Withdrawal of the objection to claim 70 is respectfully requested.

Claim 77 also stand objected to. According to the office action, "claim 77 recites 'determining a quality metric for candidate search terms; and predicting relevance of candidate search terms based on the quality metric.'" Further according to the office action, "Candidate search term does not further limit any elements of claim 76."

Claim 77 has been amended so that it now recites "... potential search terms..." *(emphasis added)* in place of the reference to "candidate search terms". It is submitted that as amended, claim 77 properly limits claim 66 and withdrawal of the objection to claim 77 is respectfully requested.

Claim rejections under 35 U.S.C. § 112

Claims 66-84 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. According to the office action, the claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors had possession of the claimed invention.

According to the office action, claim 66 recites "obtaining a set of potential search terms," which was not clearly and concisely contained in the specification. However, the published patent application no 2003/0055816 at paragraph [00107], beginning at page 37, line 19 of the application as filed, recites

> The technique gets its initial list of accepted terms in one of three ways: either directly from the advertiser, or from an existing advertiser's bid list, or from the list of recommendations returned by running the web spider on the new advertiser's web site.

In claim 66, the terminology "potential search term" is used to emphasize that the search term is to be provided or offered to the information provider for acceptance as a search term to be associated with him and stored in the database—it is at this point just a *potential* search term of the advertiser. It is respectfully submitted that this clearly shows how the claimed method may "obtain[] a set of potential search terms."

Further according to the office action, claim 66 recites "other information providers," which is considered to be absent from the specification. However, as noted above, the published patent application no 2003/0055816 at paragraph [00107], beginning at page 37, line 19 of the

application as filed, recites "[t]he technique gets its initial list of accepted terms in one of three ways: either directly from the advertiser, or from an existing advertiser's bid list...." *(emphasis added)*. This is illustrated at, for example, block 1012 of FIG. 10 of the application as filed. As used in the present application, "information provider" is generally synonymous with "advertiser," as explained a paragraph [0039], the paragraph beginning at page 10, line 24, of the application as filed.

Further according to the office action, claim 66 recites "a new information provider," which is considered unsupported in the specification as filed. However, the published patent application no 2003/0055816 at paragraph [00108], beginning at page 38, line 4 of the application as filed, recites

> In typical use, a new advertiser will start with the URL of his web site and go through 3-5 iterations of accepting and rejecting terms. As long as his web site is similar to those of existing advertisers, the system will quickly identify them and make high quality recommendations.

As noted above, as used in the present application, "information provider" is generally synonymous with "advertiser," as explained a paragraph [0039]. The invention defined by claim 66 recites "obtaining a set of potential search terms for acceptance by a new information provider who is adding items to the database." Thus, in the context of claim 66, it is presumed that there are *preexisting advertisers* or information providers who already have search terms stored on the database. Claim 66 relates to adding a new advertiser and his associated search terms to the database.

Further according to the office action, claim 66 recites "receiving from the new information provider at an input device an indication of accepted search terms," which is considered unsupported in the specification as filed. However, published patent application no 2003/0055816 at paragraph [00112], beginning at page 39, line 12 of the application as filed, recites

> The advertiser accepts and rejects terms by clicking on suitable check boxes next to the terms. When he is done making his changes, he clicks a button to transmit the page of data to the server and rerun the collaborative filtering algorithm. The advertiser can continue through as many iterations as he likes, repeating the loop, block 1014, until he is satisfied with the terms he has accepted. He then clicks a final button to exit the loop, block 1020, and store or print out his selected search terms. *(emphasis added)*

It is respectfully submitted that this clearly shows how the claimed method may "receiv[e] from the new information provider at an input device an indication of accepted search terms."

Further according to the office action, claim 66 recites "repeating (b) through (e) until a completion indication is received from the new information provider," which is considered unsupported in the specification as filed. However, published patent application no 2003/0055816 at paragraph [00112], beginning at page 39, line 20 of the application as filed, recites

> The advertiser can continue through as many iterations as he likes, repeating the loop, block 1014, until he is satisfied with the terms he has accepted. He then clicks a final button to exit the loop, block 1020, and store or print out his selected search terms. *(emphasis added)*

It is respectfully submitted that this clearly shows how the claimed method may "repeat[e] (b) through (e) until a completion indication is received from the new information provider."

Further according to the office action, claim 66 recites "sorting the potential search terms according to the computed estimated rating," which is alleged to lack support in the specification as filed. However, published patent application no 2003/0055816 at paragraphs [00104] – [0105, beginning at page 35, line 19 through page 37, line 8 of the application as filed, recites

> Quantitatively, collaborative filtering computes the Pearson correlation between the new advertiser and all of the existing advertisers. To calculate this correlation, a numeric rating is assigned to each entry in the advertiser/term table.... The output of the collaborative filter is the list of search terms sorted by their estimated ratings.

Further, at paragraphs [00118], beginning at page 35, line 19 through page 37, line 8, the application as filed recites

> After processing all search terms, the loop is exited at block 1210. At the end of the algorithm terms are sorted by their predicted ratings, block 1212. The method returns the final list as its ranked list of recommendations and then ends at block 1214.

It is respectfully submitted that this clearly shows how the claimed method may "sort[] the potential search terms according to the computed estimated ratings."

According to the office action, claim 79 stands rejected on a similar basis as claim 66. Independent claim 79 recites a computer network search engine apparatus. It is submitted that

support for limitations of claim 79 is found throughout the application as filed, including at the locations noted above for the limitations of claim 66. Withdrawal of the rejection to the claims under 35 U.S.C. § 112 is respectfully requested.

Prior art rejections

Claims 66, 71, 75, 76, 78, 79, 83 and 84 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. patent number 6,314,420 to Lang, et al. ("Lang"). Claims 67 72-74 and 80-82 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lang in view of U.S. patent no. 6,078,916 to Culliss ("Culliss").

The present invention defined by claims 66-83 relates to a method and apparatus for making search term recommendations to an information provider in a computer network search apparatus. In the particular network search apparatus of claim 66, items stored in a database "hav[e] associated with [them] at least one search term, an information provider and a bid amount," as recited in the preamble of claim 66. Thus, there is an association between the items or search listings and the information provider. The present invention defined by claims 66-83 provides a method and apparatus for recommending search terms to a new information provider, i.e., one who has not previously stored search terms on the database or associated search terms with himself. Because the advertiser or information provider may not know what search terms to specify, or may wish to have a broader range of search terms than he can think up spontaneously, the advertiser may seek recommendations of other search terms. The claimed method and apparatus make search term recommendations based on the contents of the information provider's own web site and by comparing the advertiser to other similar information providers and recommending search terms they have chosen.

The method acts of claim 66 define how search terms are recommended to one such information provider, particularly a "new information provider" who is establishing search listings on the computer network search apparatus. Generally, according to the method, a set of potential search terms is obtained, computations are done including an estimated rating for each potential new search term, the potential search terms are sorted and presented to the new information provider who provides an indication of which are accepted search terms. Claim 66 has been amended to clarify that, upon receipt of the indication, the search terms which have

been accepted by the new information provider are stored. Thus, the claimed method provides an way in which a new information provider can establish search listings in a search system database by making suggestions of possible search terms to the advertiser.

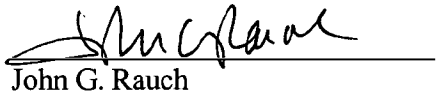
In contrast, Lang actually relates to a search engine system which employs a content-based filtering system for receiving informons from a network on a continuing basis and for filtering the informons for relevancy to a wire or demand query from a user (Summary). Lang fails to disclose "a method for recommending search terms" to an information provider who is associated with items such as search terms stored in the database. Lang is related to a search engine system, but it is not of the type in which stored items are "associated with at least one search term, an information provider and a bid amount." These are features of a *pay for placement* database search system and are nowhere shown, described or suggested by Lang.

Culliss does not provide the missing teaching. As noted in the Amendment filed July 13, 2005, the Culliss reference discloses a search system including banner advertisements which is quite different from the presently claimed system. Culliss discloses a system in which search activity of a user is monitored and used to organize articles displayed in search results (Summary, pages 2-3). As users enter search queries and select articles, the scores of the articles are altered and then used in subsequent searches to organize articles matching a search query. Culliss thus fails to disclose a search system in which items in a database are associated with an advertiser or information provider--a pay for placement market system

Claim 79 has been amended along with claim 66, to distinguish the cited references. No new matter is added by this amendment, which finds support throughout the application and particularly at page 39, lines 12-26, paragraph [0112] of U.S. patent publication number 2003/0055816. Thus, independent claims 66 and 79 each recite limitations nowhere shown, described or in any way suggested by Lang. Accordingly, each of these independent claims is patentable over this reference. Claims 67-78 and 68-84 are dependent from claims 66 and 79, respectively, and each is therefore allowable for the same reasons. Accordingly, reconsideration and allowance of claims 66-84 are respectfully requested.

With this response, the application is believed to be in condition for allowance. Should the examiner deem a telephone conference to be of assistance in advancing the application to allowance, the examiner is invited to call the undersigned attorney at the telephone number below.

Respectfully submitted,



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PTO/SB/06 (12-04)
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PATENT APPLICATION FEE DETERMINATION RECORD
Substitute for Form PTO-875

Application or Docket Number: 10-020,718

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))							
SEARCH FEE (37 CFR 1.16(k), (l), or (m))							
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))							
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	x =		OR	x =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	x =			x =	
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT A	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))							OR		
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

11/23/05

AMENDMENT B	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 19	Minus	** 65	= —	x =		OR	x =	
Independent (37 CFR 1.16(h))	* 3	Minus	*** 10	= —	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))							OR		
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Refine Search

Search Results -

Term	Documents
BID	9312
BIDS	3964
PAY	61497
PAYS	18658
(15 AND (BID OR PAY)).PGPB,USPT.	1
(L15 AND (BID OR PAY)).PGPB,USPT.	1

Database:
US Pre-Grant Publication Full-Text Database
US Patents Full-Text Database
US OCR Full-Text Database
EPO Abstracts Database
JPO Abstracts Database
Derwent World Patents Index
IBM Technical Disclosure Bulletins

Search: L16

Refine Search | Recall Text | Clear | Interrupt

Search History

DATE: Friday, January 13, 2006 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=PGPB,USPT; PLUR=YES; OP=ADJ			
L16	L15 and (bid or pay)	1	L16
L15	('6421675')!.PN.	1	L15
L14	L13 and @ad<19990101	64	L14
L13	(bid or pay) adj2 (term or search or keyword)	499	L13
L12	L10 and @ad<19990501	57	L12
L11	6269361.pn.	1	L11
L10	(bid or pay) near3 (search or keyword)	527	L10
L9	L8 and search term	66	L9
L8	pay near3 plac$5	1155	L8

L7	monotonic near memory	5	L7
L6	monotonic near6 memory near6 (token or string)	0	L6
L5	monotonic near6 memory near6 token	0	L5
L4	monotonic near3 memory near3 token	0	L4
L3	monotonic near3 memory	23	L3
L2	monotonic near6 memory	65	L2
L1	monotonic nondecreasing	7	L1

END OF SEARCH HISTORY

Freeform Search

Database: US Pre-Grant Publication Full-Text Database; US Patents Full-Text Database; US OCR Full-Text Database; EPO Abstracts Database; JPO Abstracts Database; Derwent World Patents Index; IBM Technical Disclosure Bulletins

Term: 20030088554

Display: 50 **Documents in Display Format:** - **Starting with Number** 1

Generate: ○ Hit List ◉ Hit Count ○ Side by Side ○ Image

Search Clear Interrupt

Search History

DATE: Thursday, January 19, 2006 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=PGPB,USPT; PLUR=YES; OP=ADJ			
L12	20030088554	1	L12
L11	L10 and (meta tag or metatag)	1	L11
L10	6078916.pn.	1	L10
L9	L7 and meta tag	1	L9
L8	L7 and quality metric	1	L8
L7	20030055816	1	L7
L6	L4 and craw$4	1	L6
L5	L4 and craw4	0	L5
L4	6421675.pn.	1	L4
L3	L1 and craw$	0	L3
L2	L1 and craw$3	0	L2
L1	6289341.pn.	1	L1

END OF SEARCH HISTORY

HN

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,712	12/11/2001	Mark Paine	9623/378	1404

56020 7590 01/23/2006

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EXAMINER	
LEROUX, ETIENNE PIERRE	
ART UNIT	**PAPER NUMBER**
2161	

DATE MAILED: 01/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)	
	10/020,712	PAINE ET AL.	
	Examiner	Art Unit	
	Etienne P LeRoux	2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 November 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *66-84* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *66-84* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Status:

Claims 66-84 are pending; claims 1-65 have been cancelled. Claims 66-84 are rejected as detailed below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 66-71 and 73-84 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat No 6,421,675 issued to Ryan et al (hereafter Ryan) in view of US Pat No 6,289,341 issued to Barney (hereafter Barney).

Claims 66, 79 and 80:

Ryan discloses::

(a) obtaining a set of potential search terms for acceptance by a new information provider who is adding items to the database [keyword 52, Fig 2, col 5, line 13]

(c) computing an estimated rating for the each potential search term for the new information provider [Crawler key-word list, col 7, line 63-col 8, line 5]

(d) sorting the potential search terms according to the computed estimated ratings[

(e) presenting to the new information provider on an output device the sorted potential search terms [Crawler key-word list, col 7, line 63-col 8, line 5]

(f) receiving from the new information provider at an input device an indication of accepted search terms [Surfer keyword list col 8, lines 15-20]

(g) repeating (b) through (e) until completion indication is received from the new information provider [successive surfer key-word lists, col 8, line 30]

(h) storing the accepted search terms in the database for the new information provider upon receipt of the completion indicator [keyword table, 164, Fig 4, col 11, lines 20-40].

Ryan discloses the elements of the claimed invention as noted above but does not disclose (b) computing correlations between the potential search terms for the new information provider and search terms of other information providers stored in the database. Barney discloses (b) computing correlations between the potential search terms for the new information provider and search terms of other information providers stored in the database [col 5, lines 20-35]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ryan to include (b) computing correlations between the potential search terms for the new information provider and search terms of other information providers stored in the

database as taught by Barney for the purpose of making a statistical comparison between the potential search terms and the database comprising keywords generated from existing websites.

Claims 67, 81 and 82:

The combination of Ryan and Barney discloses the elements of claim 66 as noted above and furthermore, Ryan disclose receiving from the new information provider a website uniform resource locator and spidering the website [col 7, lines 60-65] associated with the website URL [col 6, lines 35-30] to obtain search terms for the set of potential search terms.

Claim 68 and 83:

The combination of Ryan and Barney discloses the elements of claims 66 and 67 as noted above and furthermore, Ryan discloses receiving data from pages of the website, recording potential search terms from the data and determining a quality metric for each potential search term [Surfer keyword list col 8, lines 15-20]

Claim 69

The combination of Ryan and Barney discloses the elements of claims 66 and 67 as noted above and furthermore discloses combining a rating based on the computed correlations and a rating based on the quality metric determined for each candidate search term [Barney, col 5, lines 20-35, Ryan Surfer keyword list col 8, lines 15-20]

Claim 70 and 84:

The combination of Ryan and Barney discloses the elements of claims 66-68 as noted above and furthermore, Ryan discloses sorting the candidate search terms according to a quality metric and adding the set of potential search terms only candidate search terms having a quality metric exceeding a threshold [key-word suggester, col 8, line 28]

Claim 71:

The combination of Ryan and Barney discloses the elements of claims 66 as noted above and furthermore, Ryan discloses receiving data from one or more pages of the website and examining text from the one or more pages for candidate search terms [Crawler key-word list, col 7, line 63-col 8, line 5]

Claim 73:

The combination of Ryan and Barney discloses the elements of claims 66 and 71 as noted above and furthermore, Ryan discloses receiving a website URL comprises receiving the advertiser's URL as the web site URL [col 6, lines 35-30]

Claim 74:

The combination of Ryan and Barney discloses the elements of claims 66 and 71 as noted above and furthermore, Ryan discloses receiving the website from the advertiser [col 6, lines 35-30].

Claim 75:

The combination of Ryan discloses the elements of claim 66 as noted above and furthermore, discloses assigning ratings to search terms and computing a correlation between the advertiser and one or more of the other advertisers using the assigned ratings of advertiser search terms [Barney, [col 5, lines 20-35].

Claim 76:

The combination of Ryan and Barney discloses the elements of claims 66 and 75 as noted above and furthermore, Ryan discloses predicting a likelihood that a search term will be relevant to the advertiser [col 8, lines 25-30]

Claim 77:

The combination of Ryan and Barney discloses the elements of claims 66, 75 and 76 as noted above and furthermore, Ryan discloses determining a quality metric for potential search terms and predicting relevance of the potential search terms based on the quality metric [Surfer keyword list col 8, lines 15-20]

Claim 78:

The combination of Ryan and Barney discloses the elements of claim 66 as noted above and furthermore, Ryan discloses wherein presenting the sorted potential search terms to the new information provider comprises sending the sorted potential search terms with a web page to the output device [Fig 1A, 38]

Claims 67, 72-74 and 80-82 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Ryan and Barney and further in view of US Pat No 6,078,916 to Culliss (hereafter Culliss).

Claim 72:

The combination of Ryan and Barney discloses the elements of claims 66 and 71 as noted above and furthermore, Ryan discloses examining substantially all text from the one or more pages but does not disclose examining meta tags from the one or more pages. Culliss discloses examining meta tags from the one or more pages [col 5, lines 15-20]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the

combination of Ryan and Barney to include examining meta tags from the one or more pages as taught by Culliss for the purpose of attaching scores to each article.

Response to Arguments

Applicant's arguments filed 11/23/2005 with respect to claims 66-84 have been considered and found partially persuasive but are now moot in view of above new ground(s) of rejection.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Etienne P. LeRoux whose telephone number is (571) 272-4022. The examiner can normally be reached Monday trough Friday between 8:00 am and 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on (571) 272-4023. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Etienne LeRoux

1/19/2005

Notice of References Cited	Application/Control No. 10/020,712	Applicant(s)/Patent Under Reexamination PAINE ET AL.	
	Examiner Etienne P LeRoux	Art Unit 2161	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-6,421,675	07-2002	Ryan et al.	707/3
	B	US-6,289,341	09-2001	Barney, Matthew F.	707/6
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims

Application No.	Applicant(s)	
10/020,712	PAINE ET AL.	
Examiner	**Art Unit**	
Etienne P LeRoux	2161	

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	+	Restricted	I	Interference	O	Objected

Claim		Date								
Final	Original	1/19/06								
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Search Notes

Application No.	Applicant(s)	
10/020,712	PAINE ET AL.	
Examiner	**Art Unit**	
Etienne P LeRoux	2161	

SEARCHED			
Class	Subclass	Date	Examiner
707	1	1/19/2006	EPL
707	2	1/19/2006	EPL
707	5	1/19/2006	EPL
707	10	1/19/2006	EPL

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
searched WEST, search notes included	1/19/2006	EPL

OIPE IAP2
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PATENT & TRADEMARK OFFICE

216 TKW

CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, with sufficient postage, in an envelope addressed to: Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450, on the below date:

Date: April 24, 2006 Name: John G. Rauch Signature: John G. Rauch

BRINKS HOFER GILSON &LIONE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: Paine, Mark et al

Appln. No.: 10/020,712

Filed: December 11, 2001

For: RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING

Attorney Docket No: 9623/378

Examiner: Leroux, Etienne Pierre

Art Unit: 2161

Mail Stop Amendment
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL

Sir:

Attached is/are:

☒ Amendment (10 pages)

☒ Return Receipt Postcard

Fee calculation:

☐ No additional fee is required.

☐ Small Entity.

☐ An extension fee in an amount of $_____ for a _____-month extension of time under 37 C.F.R. § 1.136(a).

☐ A petition or processing fee in an amount of $_____ under 37 C.F.R. § 1.17(_____).

☐ An additional filing fee has been calculated as shown below:

					Small Entity			Not a Small Entity	
	Claims Remaining After Amendment		Highest No. Previously Paid For	Present Extra	Rate	Add'l Fee	or	Rate	Add'l Fee
Total		Minus		0	x $25=	0		x $50=	0
Indep.		Minus		0	x 100=			x $200=	0
First Presentation of Multiple Dep. Claim					+$180=			+ $360=	0
					Total	$0		Total	$0

Fee payment:

☐ A check in the amount of $_____ is enclosed.

☐ Please charge Deposit Account No. 23-1925 in the amount of $. A copy of this Transmittal is enclosed for this purpose.

☐ Payment by credit card in the amount of $_____ (Form PTO-2038 is attached).

☒ The Director is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this paper (including any extension fee required to ensure that this paper is timely filed), or to credit any overpayment, to Deposit Account No. 23-1925.

Respectfully submitted,

4/24/06
Date

John G. Rauch (Reg. No. 37,218)

CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, with sufficient postage, in an envelope addressed to: Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450, on the below date:

Date: April 24, 2006 Name: John G. Rauch Signature:

OIPE IAP2 APR 27 2006 PATENT & TRADEMARK OFFICE

Our Case No. 9623/378

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Paine, Mark et al.

Serial No. 10/020,712

Filing Date: December 11, 2001

For RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING

Examiner Leroux, Etienne Pierre

Group Art Unit No. 2161

AMENDMENT

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This amendment is submitted in response to the Office Action mailed January 23, 2006. Please amend the application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 7.

Amendments to the Claims

Please amend claims 80 as shown below.

Listing of Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Claims 1-65 (Cancelled)

66. (Previously Presented) A method for recommending search terms in a computer network search apparatus for generating a result list of items representing a match with information entered by a user through an input device connected to the computer network, the search apparatus including a computer system operatively connected to the computer network and a plurality of items stored in a database, each item including information to be communicated to a user and having associated with it at least one search term, an information provider and a bid amount, the method comprising:

(a) obtaining a set of potential search terms for acceptance by a new information provider who is adding items to the database;

(b) computing correlations between the potential search terms for the new information provider and search terms of other information providers stored in the database;

(c) computing an estimated rating for the each potential search term for the new information provider;

(d) sorting the potential search terms according to the computed estimated ratings;

(e) presenting to the new information provider on an output device the sorted potential search terms;

(f) receiving from the new information provider at an input device an indication of accepted search terms;

(g) repeating (b) through (e) until a completion indication is received from the new information provider; and

(h) storing the accepted search terms in the database for the new information provider upon receipt of the completion indication.

67. (Previously presented) The method of claim 66 wherein obtaining a set of potential search terms comprises:

receiving from the new information provider a website uniform resource locator (URL); and

spidering the website associated with the website URL to obtain search terms for the set of potential search terms.

68. (Previously presented) The method of claim 67 wherein spidering the website comprises:

receiving data from pages of the website;

recording potential search terms from the data; and

determining a quality metric for each potential search term.

69. (Previously presented) The method of claim 67 wherein computing an estimated rating comprises:

combining a rating based on the computed correlations and a rating based on the quality metric determined for each candidate search term.

70. (Previously presented) The method of claim 68 further comprising:

sorting the candidate search terms according to the quality metric; and

adding to the set of potential search terms only candidate search terms having a quality metric exceeding a threshold.

71. (Previously presented) The method of claim 66 wherein spidering comprises:

receiving data from one or more pages of the website; and

examining text from the one or more pages for candidate search terms.

72. (Previously presented) The method of claim 71 wherein examining text comprises:

examining substantially all text from the one or more pages; and

examining meta tags from the one or more pages.

73. (Previously presented) The method of claim 71 wherein receiving a website URL comprises:

receiving the advertiser's URL as the web site URL.

74. (Previously presented) The method of claim 71 wherein receiving a website URL comprises:

receiving the web site URL from the advertiser.

75. (Previously presented) The method of claim 66 wherein computing correlations comprises:

assigning ratings to search terms; and

computing a correlation between the advertiser and one or more of the other advertisers using the assigned ratings of advertiser search terms.

76. (Previously presented) The method of claim 75 wherein computing an estimated rating comprises:

predicting a likelihood that a search term will be relevant to the advertiser.

77. (Previously presented) The method of claim 76 wherein predicting comprises:

determining a quality metric for potential search terms; and

predicting relevance of the potential search terms based on the quality metric.

78. (Previously presented) The method of claim 66 wherein presenting the sorted potential search terms to the new information provider comprises sending the sorted potential search terms with a web page to the output device.

79. (Previously presented) A computer network search engine apparatus which includes a database having stored therein a plurality of search listings, each search listing being associated

with an information provider, at least one keyword, a money amount, and a computer network location and a search engine to identify search listings having a keyword matching a keyword entered by a searcher, to order the identified listings using the money amounts for the respective identified listings, and to generate a result list including at least some of the ordered listings, the apparatus comprising:

an account management server including a processing system which is operative in conjunction with program code to recommend potential search terms to a new information provider adding search listings to the database;

collaborative filtering code operable in conjunction with the processing system to compute correlations between potential search terms for the new information provider and search terms of other information providers stored in the database and to compute an estimated rating for the each potential search term for the new information provider;

sorting code operable in conjunction with the processing system and configured to sort the potential search terms according to the computed estimated ratings;

an output device configured to provide the sorted potential search terms to the new information provider for review; and

an input device configured to receive from the new information provider an indication of accepted search terms, the accepted search terms being stored in the database in association with the new information provider upon receipt of the indication from the new information provider.

80. (Currently amended) The computer network search engine apparatus of claim 79 further comprising:

spidering code operable in conjunction with the processing system to find initially accepted search terms in a web site by spidering the web site and to include the initially accepted search terms among the sorted potential search terms provided to the new information provider for review.

81. (Previously presented) The computer network search engine apparatus of claim 80 wherein the spidering code is configured to spider a web site of the new information provider.

82. (Previously presented) The computer network search engine apparatus of claim 80 wherein the spidering code is configured to spider a web site specified by the new information provider.

83. (Previously presented) The computer network search engine apparatus of claim 80 wherein the spidering code is configured to retrieve pages from the web site of the new information provider, record terms contained in the retrieved pages and score the terms according to a quality metric.

84. (Previously presented) The computer network search engine apparatus of claim 83 wherein the spidering code is configured to include terms scoring above a threshold score among the sorted potential search terms.

REMARKS

Claims 66-84 are pending in the application. Reconsideration and allowance of claims 66-84 are respectfully requested.

Prior art rejections

Claims 66-71 and 73-84 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. patent number 6,421,675 to Ryan, et al. ("Ryan") in view of U.S. patent number 6,289,341 to Barney ("Barney"). Claims 67, 72-74 and 80-82 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ryan and Barney and further in view of U.S. patent no. 6,078,916 to Culliss ("Culliss").

The present invention defined by claims 66-84 relates to a method and apparatus for making search term recommendations to an information provider in a computer network search apparatus. In the particular network search apparatus of claim 66, items stored in a database "hav[e] associated with [them] at least one search term, an information provider and a bid amount," as recited in the preamble of claim 66. Thus, there is an association between the items or search listings and the information provider. The present invention defined by claims 66-83 provides a method and apparatus for recommending search terms to a new information provider, i.e., one who has not previously stored search terms on the database or associated search terms with himself. Because the advertiser or information provider may not know what search terms to specify, or may wish to have a broader range of search terms than he can think up spontaneously, the advertiser may seek recommendations of other search terms. The claimed method and apparatus make search term recommendations based on the contents of the information provider's own web site and by comparing the advertiser to other similar information providers and recommending search terms they have chosen.

The method acts of claim 66 define how search terms are recommended to one such information provider, particularly a "new information provider" who is establishing search listings on the computer network search apparatus. Generally, according to the method, a set of potential search terms is obtained, computations are done including an estimated rating for each potential new search term, the potential search terms are sorted and presented to the new

information provider who provides an indication of which are accepted search terms. Thus, the claimed method provides a way in which a new information provider can establish search listings in a search system database by making suggestions of possible search terms to the advertiser.

Ryan actually relates to a search system which provides keyword suggestion to a user of the search system. From column 5, line 13, a keyword is "the word or phrase that the user enters to find a list of web pages." The search process is described at column 4, lines 30-40. The system suggests keywords to the user, based on a keyword that the user entered. Column 7, lines 63-66; column 8, lines 28-32.

Since the keywords are suggested to the user, Ryan fails to disclose the present invention of claims 66-84 which relates to suggesting keywords to an information provider. Information providers are present in the system disclosed by Ryan, e.g., FIG. 1B "Developer site/computer" 104A, B; column 4, lines 3-11. However, Ryan's keyword suggestion feature serves the user who submits search requests, not the developer who provides content and other information.

Accordingly, Ryan fails to disclose many limitations of the present claims. Ryan is not related to a system and method for suggesting keywords to an information provider and therefore can't show, describe or suggest the features of the presently claimed invention. For example, claim 66 recites "obtaining a set of potential search terms for acceptance by a new information provider who is adding items to the database." Ryan does not relate to a new information provider or potential search terms for acceptance by such an information provider. Ryan is instead directed to another party in the search system, the user or searcher. Further, as another example, claim 66 recites "presenting to the new information provider on an output device the sorted potential search terms." For this limitation, the office action refers to Ryan's Surfer keyword list at column 8, lines 15-20. However, the Surfer keyword list is described as "a data set comprised of a list of key-words that the individual user found useful after the keyword was selected" *(emphasis added)*. Thus, in accordance with the fundamental distinction between Ryan and the presently claimed invention, the Surfer keyword list is a user feature, not a list presented to the new information provider. Ryan just doesn't relate to the problem solved by the claimed invention.

The office action relies on Barney as disclosing (in claim 66) step (b) "computing correlations." However, Barney describes a "site examiner" which traverses web sites of others and makes comparisons between web site data and "IP indicia," or information about an owners intellectual property. The site examiner may user correlations for this comparison. However, Barney does not show or suggest "computing correlations between the potential search terms for the new information provider and search terms of other information providers stored in the database" as recited by claim 66. First, Barney is not related to potential search terms of a new information provider. Second, in the limitation of claim 66, relevant information is stored in "a database" and the correlations are computed on data stored in the database. Barney teaches crawling others' web sites and performing correlations on the crawled data.

Accordingly, Barney does not provide the missing teaching. Barney is even more remote from the present invention defined by claims 66-84.

Moreover, the keyword suggestion techniques of Ryan, for suggesting keywords to a user or searcher, can not be properly extended to a keyword suggestion device and method for an information provider, such as the method and apparatus in accordance with claims 66-84. The new information provider may not know what search terms to specify, or may wish to have a broader range of search terms than he can think up spontaneously, and therefore the information provider may seek recommendations of other search terms.

In contrast, a user generally seeks a narrower, more focused range of results when he enters a search terms, as Ryan explains at column 1, lines 41-58. Ryan's device then provides

> a method of updating an internet search engine database with the results of a user's selection of specific web page lists from the general web page listing provided to the user as a result of his initial keyword search entry. *By updating the database with the selections of many different users*, the database can be updated to prioritize those web listings that have been selected the most with respect to a given keyword, and hereby presenting first the most popular web page listings in a subsequent search using the same keyword search entry *(emphasis added)*.

Ryan, column 2, lines 27-36.

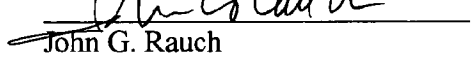
Accordingly, even though both Ryan and the presently claimed invention broadly provide "keyword suggestion," it is not proper to extend Ryan's device to the problem of keyword

suggestion for information providers. And even if this extension is made, Ryan simply operates differently to provide keywords to users. The claimed method and apparatus make search term recommendations based on the contents *of the information provider's own web site* and by comparing the advertiser *to other similar information providers* and recommending search terms they have chosen. Ryan is not related to this process. Accordingly, it is submitted that claim 66 is allowable over the cited references.

While only claim 66 has been discussed in detail herein, it is submitted that independent claim 79 includes similar limitations and is allowable for the same reasons. Withdrawal of the rejections of claims 66-84 is respectfully requested.

With this response, the application is believed to be in condition for allowance. Should the examiner deem a telephone conference to be of assistance in advancing the application to allowance, the examiner is invited to call the undersigned attorney at the telephone number below.

Respectfully submitted,



John G. Rauch
Registration No. 37,218
Attorney for Applicant

April 24, 2006
BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, ILLINOIS 60610
(312) 321-4200

OIPE
JUN 07 2006
PATENT & TRADEMARK OFFICE

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Date: June 5, 2006 Name: John G. Rauch Signature:

BRINKS HOFER GILSON & LIONE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: Paine, Mark et al

Appln. No.: 10/020,712

Examiner: Leroux, Etienne Pierre

Filed: December 11, 2001

Art Unit: 2161

For: RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING

Attorney Docket No: 9623/378

Mail Stop Amendment
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL

Sir:

Attached is/are:

☒ Check for $180; Fifth Supplemental Information Disclosure Statement (2 pages); PTO-1449 (1 page); copies of references F2-F4

☒ Return Receipt Postcard

Fee calculation:

☐ No additional fee is required.

☐ Small Entity.

☐ An extension fee in an amount of $_____ for a _____-month extension of time under 37 C.F.R. § 1.136(a).

☐ A petition or processing fee in an amount of $_____ under 37 C.F.R. § 1.17(_____).

☐ An additional filing fee has been calculated as shown below:

					Small Entity			Not a Small Entity	
	Claims Remaining After Amendment		Highest No. Previously Paid For	Present Extra	Rate	Add'l Fee	or	Rate	Add'l Fee
Total		Minus		0	x $25=	0		x $50=	0
Indep.		Minus		0	x 100=			x $200=	0
First Presentation of Multiple Dep. Claim					+$180=			+ $360=	0
					Total	$0		Total	$0

Fee payment:

☒ A check in the amount of $180 is enclosed to cover the Information Disclosure Statement processing fee.

☐ Please charge Deposit Account No. 23-1925 in the amount of $. A copy of this Transmittal is enclosed for this purpose.

☒ The Director is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this paper (including any extension fee required to ensure that this paper is timely filed), or to credit any overpayment, to Deposit Account No. 23-1925.

Respectfully submitted,

June 5, 2006
Date

John G. Rauch (Reg. No. 37,218)

2161 2200

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of:	Paine, Mark, et al. ET AL.	
Appln. No.:	10/020,712	Examiner: Leroux, Etienne Pierre
Filed:	December 11, 2001	Art Unit: 2161
	RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING	
Attorney Docket No:	9623/378	

OIPE For IAP2
JUN 07 2006
PATENT & TRADEMARK OFFICE

FIFTH SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

In accordance with the duty of disclosure under 37 C.F.R. §1.56 and §§1.97-1.98, and more particularly in accordance with 37 C.F.R. §1.97(c), Applicants hereby cite the following reference(s):

No.	Date of Publication	Patentee/Applicant/Assignee
2002/0169875 A1	11/14/2002	Furui, et al.
2000132559 A	05/12/2000	Yasutsugu, et al.
2001014349 A	01/19/2001	Takashi
WO 01/46856 A1	06/28/2001	Steele, et al.

Applicants are enclosing Form PTO-1449 (one sheet), along with a copy of each listed reference for which a copy is required under 37 C.F.R. §1.98(a)(2). As each of the listed references is in English, no further commentary is believed to be necessary, 37 C.F.R §1.98(a)(3). Applicants respectfully request the Examiner's consideration of the above reference(s) and entry thereof into the record of this application.

By submitting this Statement, Applicants are attempting to fully comply with the duty of candor and good faith mandated by 37 C.F.R. §1.56. As such, this Statement is not intended to constitute an admission that any of the enclosed references, or other information referred to therein, constitutes "prior art" or is otherwise "material to patentability," as that phrase is defined in 37 C.F.R. §1.56(a).

06/08/2006 HAHNED1 00000045 10020712
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BRINKS HOFER GILSON &LIONE

Applicants have calculated a processing fee in the amount of $180.00 to be due under 37 C.F.R. §1.17(p) in connection with the filing of this Statement. Applicants have enclosed a check covering this fee, or authorized charging the fee to a deposit account or credit card, as indicated in the Transmittal accompanying this Statement.

Respectfully submitted,

June 5, 2006
Date

John G. Rauch (Reg. No.37,218)

OIPE IAP2 JUN 07 2006 PATENT & TRADEMARK OFFICE

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	F1	US 2002/0169875 A1	11/14/2002	Furui, et al.	709/225	5/14/2001

FOREIGN PATENT DOCUMENTS

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	F2	2000132559 A	05/12/2000	Japan	G06F 17/30	No
	F3	2001014349 A	01/19/2001	Japan	G06F 17/30	No
	F4	WO 01/46856 A1	06/28/2001	WIPO	G06F 17/30	No

EXAMINER INITIAL		OTHER ART – NON PATENT LITERATURE DOCUMENTS (Include name of author, title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date page(s), volume-issue number(s), publisher, city and/or country where published.

EXAMINER	DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

(19) JAPANESE PATENT OFFICE

PATENT ABSTRACTS OF JAPAN

(11) Publication number: **2000132559 A**

(43) Date of publication of application: **12.05.00**

(54) **INFORMATION FILTERING SYSTEM AND PROFILE UPDATING METHOD IN THE SAME**

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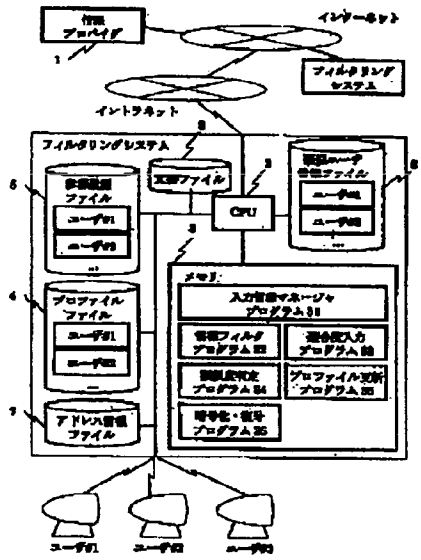
(57) Abstract:

PROBLEM TO BE SOLVED: To make improvable the precision of its own profile by specifying one of other profiles storing the reference history information that has the higher degree of similarity to the reference history information than a prescribed level and updating its own profile based on the specified profile.

SOLUTION: A reference history file 5 stores the result of goodness of fit that is judged for the documents to which every user referred in the past as a reference history. An information filter program 32 compares the profile set for every user with the delivered documents and designates the documents having high degrees of coincidence with the set profile as the documents to be distributed. A degree of similarity judging program 34 compares the reference histories of users with each other and detects the users having the similar reference histories. A profile updating program 35 refers to the profiles of similar users extracted by the program 34 and updates the profile of each user.



(51) Int. Cl **G06F 17/30**

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(71) Applicant: **HITACHI LTD**

(72) Inventor: **MORIMOTO YASUTSUGU**
MISHINA YUSUKE
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PATENT ABSTRACTS OF JAPAN

(11) Publication number: **2001014349 A**

(43) Date of publication of application: **19.01.01**

(54) RATING SYSTEM FOR COLLABORATION INFORMATION FILTERING

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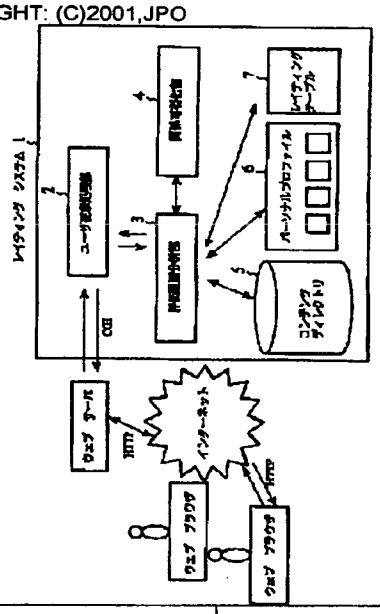
(57) Abstract:

PROBLEM TO BE SOLVED: To provide a rating system for collaboration information filtering with a high function that a user easily can use.

SOLUTION: The system has a function of reflecting the user's viewpoint of values, automatically specifying similar users from many aspects of view, and displaying the evaluation so that the user easily can see. According to a viewpoint that a request user specifies, the scoring history of the user as to an object item to be evaluated in a personal profile 6 is analyzed to calculate the similarity of the user, and according to the similarity, an item suitable for the request user is recommended. The viewpoint of the request user is specified with a viewpoint vector showing the evaluation object item that the request user regards as an important item and automatically extracted. On the basis of the similarity, users similar to the request user are automatically determined.



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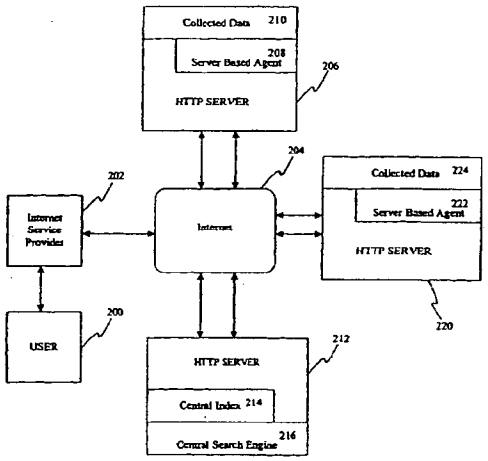
(54) Title: AN INDEXING SYSTEM AND METHOD



(57) Abstract: A method for generating an index of data available from a server, including processing data on the server to access data items for a central index, the data items including network addresses and terms, compiling an index file including the data items, and transmitting the index file to the central index. The processing may include locating database query statements in the data, and the data items then include input tuples for the statements. The index is accessible from servers, and includes page entries including a program address for a program for generating a dynamic page and input tuples for submission to the program to generate the page, and search entries identifying the dynamic pages and identifying the tuples corresponding to search terms. A search engine operable on the index, is able to access the search entries to identify dynamic pages corresponding to search terms of a search query, and access the page entries to generate addresses for the dynamic pages identified, the addresses being generated on the basis of the program address and the tuples.

WO 01/46856 A1

AN INDEXING SYSTEM AND METHOD

FIELD OF THE INVENTION

The present invention relates to a method and system for generating an index of data accessible from a server and, in particular, for producing an index for information contained on the Internet.

BACKGROUND OF THE INVENTION

One of the features of a distributed communications network, such as the Internet, is that it provides largely unrestricted access to and freedom to publish data on the network. Yet as the network grows it becomes extremely difficult for users to locate required data, and even more difficult to maintain a comprehensible or useful index or portal to the data. The data may include text, graphics, video, audio, and program data or code. The growth of the Internet, which has effectively no central controlling authority, has been such that locating required data is now sometimes akin to locating a needle in a hay stack. Nevertheless, a number of companies maintain search engines and portals to Internet data, particularly the data published on the World Wide Web.

Most search engines rely on an index of web pages that the engine is able to search on the basis of query terms, such as key words. The index is normally provided by a database of web addresses, ie universal resource locators (URLs), and terms of text information are used to represent each page of text placed on the web.

Most search engines, such as Lycos, Hotbot, and the like, acquire an index using a spidering program to retrieve a web page, typically through the usual HTTP protocol, and extract the data from this page that is to be indexed. At the same time, links to other pages are noted, and the process is then repeated for the newly discovered links. This is performed automatically, and so no co-operation is required from the administrator or author of the web-site visited. However, the pages are all brought to a central site for

processing, and due to the volume of data to be processed it is common that a new or modified page will wait for several months before being processed.

Distributed indexers are available, such as Aliweb. In this system, the indexing information is manually entered into templates by the system administrator or the author of the page. The pages are then available to a spidering program for retrieval. Since the information about a page is generated by a human, the information about page content is usually very accurate. However, many administrators and authors are not prepared to provide such information, and those that are often do not spend sufficient time to complete the template, and so the index is frequently incomplete, and out of date.

In another type of search engine, such as that originally provided by Yahoo, the index is constructed by a manual inspection of pages by humans. Since the inspection is manual, the categorization of web pages under particular topics is generally fairly accurate, as are the ratings of the quality of the pages. However, the limited number of people available limits the extent to which the web is covered, and the rate at which new and modified web pages are reviewed.

Client based search engines, such as Fish, are based at individual searchers or web users. They offer greater scope for an agreeable user interface, and for personalized searching. However, they have the potential for wasting large amounts of bandwidth if independently searching a substantial portion of the web.

Some search engines, for example MetaCrawler and Dogpile, upon receiving a search request, search the search sites of other search engines, receive the results from these and consolidate the results for display to the user (this is known as a metasearch). This leads to better coverage of the web, since some search engines include data from sites not visited by other search engines. However, this is an inefficient approach, since there is considerable overlap between different search indices, there is also an additional delay in returning the results to the user, and methods available for ranking the results in a relevant order are limited.

Another type of distributed search engine, such as Harvest, has units, called Gatherers, at different web servers to look through the site, index its contents and place them in a file that is stored at the site. These index files can be retrieved by programs known as Brokers, which are activated by users for a particular search. This approach saves on bandwidth use, but a spider still has to visit the site on a regular basis to ensure that the index stored at the server is regularly updated.

Indexing of web pages available on the Internet poses a number of difficulties. These include the dynamism of the Internet itself, and the dynamism of the information on the Internet. This results in a situation where there are no completely up-to-date and complete indices for the web.

Another significant problem is that most of the information on the Internet (estimated at more than 90%) is located in databases which are used as the basis for dynamic pages. Dynamic pages are those that are not written by hand in html, but rather the html that constitutes them is made by a program or script "dynamically", or information is presented in some other way, eg using Java. These pages are constructed by a program at the time at which the user submits a query. Current indexing methods such as spidering are not able to index dynamic pages, nor the databases used for creating dynamic pages.

SUMMARY OF THE INVENTION

In accordance with the present invention, there is provided a method for generating an index of data accessible from a server, including:

processing data on said server to access data items for a central index, said data items including network addresses and terms;

compiling an index file including said data items; and

transmitting said index file to said central index.

The present invention also provides an agent having components for executing the steps of the method.

Preferably the method further includes:

receiving said index file at said central index, which has an index database; and

maintaining said index database on the basis of entries in said index file, said index database being adapted for use by a search engine

The present invention also provides an index of data accessible from servers, including:

page entries including a program address for a program for generating a dynamic page and input tuples for submission to the program to generate the page; and

search entries identifying the dynamic pages and identifying the tuples corresponding to search terms..

The present invention also provides a search engine operable on the index, including:

means for accessing the search entries to identify dynamic pages corresponding to search terms of a search query; and

means for accessing the page entries to generate addresses for the dynamic pages identified, said addresses being generated on the basis of said program address and said tuples.

The present invention also provides an indexing system including the agent, the index and the search engine.

The present invention also provides an indexing system, including:

a server for providing access to at least one site;

a server agent for creating an index file of data relating to the site; and

a central index for storing index information from the index file, wherein the server agent initiates communication with the central index for transfer of the index file.

The present invention also provides a method of indexing, including:

providing a server agent for indexing sites provided by a server;

compiling an index file representing site data of the sites; and

transmitting the file to a central index, wherein the server agent initiates communication with the central index for transfer of the index file.

The present invention also provides a method for indexing dynamic pages including:

identifying at least one database accessed in producing a dynamic page;

determining the parameters and environment variables of the database;

determining a relationship between input fields of the page and the database;

identifying columns of the database that correspond to inputs; and

storing data of the rows of the database that can be accessed via the inputs in an index file.

The present invention also provides a browser agent, executable on a user computer system, having means for communicating with an index of an indexing system to determine a change in a network address stored on said user computer system

BRIEF DESCRIPTION OF THE DRAWINGS

Preferred embodiments of the present invention are hereinafter described, by way of example only, with reference to the accompanying drawings, wherein:

FIG. 1 is a schematic diagram of a computer system suitable for connection to the Internet;

FIG. 2 is a schematic diagram of a preferred embodiment of an indexing system connected to the Internet;

FIG. 3 is a flow diagram of the basic method for handling stale links of the indexing system;

FIG. 4 is a schematic illustrating an example of three web servers with server-based agents of the indexing system connected to the Internet;

FIG. 5 is a schematic illustrating an example of three web servers with server-based agents and a central index of the indexing system;

FIG. 6 is a flow diagram of the response of a server-based agent to receiving information that a document linked to one on another web sever has changed;

FIG. 7 is a flow diagram of a server-based agent notifying a web author that a document linked to on another web server has changed or moved;

FIG. 8 is a flow diagram of how a web browser may check with the central index to update changes to it's bookmarks;

FIG. 9A is an example of a web page with a form input for entry of a stock code and stockbroker's name;

FIG. 9B is the same example as FIG. 9A with entries made in the form input fields;

FIG. 9C shows the web page that is returned when the submit button in FIG. 9B is pressed;

FIG. 10 is a schematic illustrating how a dynamic page is created by entering data into a form page;

FIG. 11 is a schematic illustrating a web server with a server-based agent, static pages, and a database and from handling programs which create dynamic pages on request;

FIG. 12 is a flow diagram of a server-based agent process for indexing dynamic pages;

FIG. 13 is a block diagram of the central index;

FIG. 14 is a flow diagram of a process executed by the central index;

FIG. 15 is a flow diagram of a process executed by a central search engine of the indexing system for dynamic page indexing;

FIG. 16 is a flow diagram of a process executed by server-based agents for dynamic page indexing;

FIG. 17 is a diagram showing an example structure for static page index entries in the forward and inverted indexes of the central index;

FIG. 18 is a diagram showing an example structure for dynamic page index entries in the forward and inverted indexes of the central index;

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS OF THE INVENTION

An indexing system for the Internet is described hereinafter that reviews and collates indexing data in a distributed manner, but which centrally stores the indexing data for access by a user, although this central storage can be distributed or mirrored in a standard manner. The indexing system includes a number of server based agents (SBAs) 208, 222 as shown in Figure 2, that communicate with a central index (CI) 214 that provides the central storage. The system also includes a central search engine (CSE) 216 that uses the central index when processing search requests. An agent 208, 222 can be included with each hypertext transfer protocol (HTTP) server distributed by a server manufacturer. The agent periodically checks for changes made to the data on its local server, such as new sites/pages added, old pages deleted, or old pages modified. The modification noted may include the deletion, creation or modification of a link, a static page or a dynamic page. If there have been any changes, the agent generates an index delta file and reports the relevant indexing changes to a central indexing database of the CI. The central indexing database is a comprehensive and up-to-date indexing database for a search engine available on-line, such as the CSE.

It will be apparent from the following description that the indexing system is able to:

(i) maintain an up-to-date index
(ii) create an index that covers most of the Internet
(iii) manage and update stale links
(iv) index dynamically created pages
(v) collect detailed statistical information on individual web sites
(vi) create an e-commerce portal with sophisticated comparison shopping capabilities.

Figure 1 shows a diagram of a typical computer system 200 suitable for a user to use to retrieve data using the indexing system. The computer 200 may include a system of one or more central processing units (CPUs) 102, a memory system 104, an input/output (I/O) adapter 106, a secondary storage 108, a network interface 110, a user interface adapter

114, and a display adapter 112. All of the computer components are connected by a system bus 115. The display adapter 112 may be connected to a display 116 for displaying a recommendation to a user. The user interface adapter 114 may be connected to a user input device 118. The user may be connected to the Internet through the network interface, 110. The user may also be connected to the Internet through an Internet interface 120, for example a connection through a modem to a service provider such as America Online ®, or through a cable connection to an Internet Service Provider.

In Figure 2, a user 200 is connected to an Internet service provider (ISP) 202 , who is coupled to the Internet 204. Also coupled to the Internet 204 is a first server, typically an HTTP Server (HS) 206 that implements and provides access to one or more sites which may contain, for example, html pages and other documents and scripts. The HS server 206 includes a server-based agent (SBA) 208 that carries out data collection activities from documents on the first HS server 206. The SBA 208 may operate at all times, or may run for intervals interspersed with periods of inactivity. The SBA 208 examines all documents located on the HS server 206 to create a listing of all document updates, stored in the collected data block 210. The SBA 208 transmits the listing of document updates in the form of an index file or index delta file to the central index (CI) 214, that can be provided by software executed on an index server 212. An index file is a file of data that provides information on what is contained on various locations on the network, such as what is contained on various web pages, together with addresses for locations of the data. The file may have a complex structure and be distributed over a number of files and/or servers. The reference to an index file may also include a reference to an index delta file, which is a file that simply contains changes that need to be made to an existing index file in view of changes to the data on the network. It will be apparent to those skilled in the art that an efficient implementation of the indexing system is to provide a software implementation of the SBAs and the CI and CSE, as described below, with the CI having the architecture described below with reference to Figure 13. It will also be apparent to those skilled in the art that a number of the components can be distributed in a communications network, such as the Internet, and also that a number of the software components can be substituted by

hardware circuits, such as ASICs, that execute the same processes as the software components.

The CI 214 receives updates from numerous other servers, for example the second server 220, that also has an SBA 222 and a selection of collected data 224, collected from the web pages on the second server 220 by the SBA 222. The CI 214 updates its contents to incorporate the updates received from the various servers, such as the first HS 206 and the second HS 220. The index server 212 may also be provided with the CSE 216. The interface of the search engine 216 may be located at some URL. When requested to perform a search, the search engine 216 may search through the entries of the CI 214 before forming a response. The central search engine (CSE) 216 need not, however, be located on the same server 212 as the CI 214.

The function of the CI 214 may also be applied to a number of regional indexes, which perform a similar function to the CI 214, but for a specified region or for a specified domain. These regional indexes may provide the CI 214 with regional index information so that the CI 214 maintains indexing information for all servers.

1.1 Server-Based Agent (SBA)

The SBA is a program on a server that autonomously searches for data on that server. It can be part of the web server or it can be separate. The SBA is typically reactive to situations encountered, and may run for long periods of time. It is able to send information to the CI that allows the search engines to search both static and dynamic web pages that are available at the web server's site. It is also able to notice when pages are moved or deleted so as to deal with stale links and it can collect web page usage data for each web server, which can be used to improve the ranking of search engine results.

The basic actions carried out by the basic SBA are as follows:

(a) **update_local ()** -- makes note of changes in the data on the local server, and constructs a local_index file and an index_delta file.

(b) **report (CI_address, index_delta)** – makes a report to the CI, at address CI_address, transmitting the index_delta file that describes the local changes detected in the update operation.

The SBA 208 performs two basic indexing functions, namely updating its own index and the index_delta file, and reporting the index_delta file to the CI 214. These two basic indexing functions may operate with the same frequency. For example, the SBA 208 may have a timer that prompts the agent 208 into operation at regular intervals, e.g. every 24 hours. While not active, the SBA 208 maintains its index entries for all documents on the server from the previous active period. When the SBA 208 is awoken by its timer, it may check for changes in the directory tree of the server site, or if any individual files have been changed. Any changes that are detected are stored and then reported to the CI 214. Where there are no changes, the SBA 208 may be programmed not to send an index_delta file to the CI 214, so as to preserve bandwidth. The SBA 208 also updates its local index files for the documents at that server site.

Instead of updating at regular scheduled intervals, the SBA 208 may update whenever a page on the website is changed. In this case, the SBA 208 may offer to the author of the change (or to the website administrator) to submit the change to the CI 214 immediately. The SBA 208 may also prompt the author, in the same dialogue, to enter, or update, any subject keywords that the author feels reflects the page. These keywords may then be submitted to the CI 214 in the index_delta file. Of course, the author may simply ignore the option to enter keywords.

The time between report operations may be set at a fixed interval, or may be dynamically altered to fit the nature or needs of the local server 206 or the index server 212.

As part of the update operation, the SBA 208 may review hypertext links in the pages on the local server 206. The reviewed links are then compared with a link list formed during the previous update operation to determine whether links have been added or subtracted. The SBA 208 includes the list of changed links in the index_delta file transferred to the CI

214. This information may then be used by the CI 214 to remove references to stale links using one or more of a number of methods described more fully hereinbelow.

The SBA 208 also may be configured to collect statistical information about the local server 206, such as the number of times a page has been accessed by users of the Internet and the time spent at that page, the page that these users came from immediately before visiting the site, bandwidth statistics about the site and what connections were made since the last update operation. Such information may be useful to the website administrator or author to assist with optimising the design and layout of the site. Such information, when collated in a central repository, may provide useful data for identifying where extra infrastructure needs to be added to the Internet, or as supporting information when determining the relevancy ranking of pages in a set of search results.

The SBA is able to index dynamic pages, as described below, which provides an opportunity to create special purpose indexes for specific applications. One example of this is an e-commerce index which forms the basis for an e-commerce portal site which provides information on other e-commerce sites which have an SBA installed.

Another example of a special purpose SBA is an application involving proxy servers.

1.2 Central Index (CI)

The CI 214 acts as a server to corresponding SBAs 208 and 222 in that the SBAs 208 and 222 connect to the CI 214 when they have an index_delta to report. The CI 214 is typically interfaced to the Internet through an HTTP Server 212, or index server.

When the CI 214 receives an index_delta file from a particular server, the CI 214 updates its index database accordingly. The new data in the index database is immediately available to the CSE 216 for use by Internet searchers. There are a number of options for the way in which data may be transferred between a SBA and the CI including:

(i) an SBA sending an index file to the CI based on its own parameter settings

(ii) an SBA sending an index_delta file to the CI based on its own parameter settings

(iii) an SBA sending a short message to the CI indicating that a change has occurred, so that the CI may retrieve the changes later in any manner which it chooses, including but not limited to sending a spider for indexing by existing methods, or for retrieving the index or index_delta file

(iv) an SBA sending a short message or an index or index_delta file to a regional index rather than to the CI

The CI 214 may also accumulate statistics relating to the load at local servers, in addition to accumulating indexing data.

The CI 214 may also have a list of construction and modification dates for all Internet documents. This date list may be helpful in searching, and allow a useful facility for obtaining the most up-to-date information on a topic. The CI 214 may also evaluate whether a site is one which is no longer maintained, based on information in the date list.

2.1 Stale Links

The CI maintains in the index database an index for each URL that lists the URLs of pages that include a link to it or reference it. This is a library of URLs that relates each subject URL to other URLs that have a page linking to the subject URL. When index information is reported to the CI indicating that a particular URL has been deleted or moved, the CI may search the URL index to determine which URLs contain links to the deleted URL, and then send notification to the SBA at each of the referring servers. The local SBA may then take some action in response to such notification. For example, the SBA may notify the authors of the referring page, or the website administrator, that the link has been deleted or moved. The SBA may also be programmed to take automatic action. One example of automatic action that the SBA may take in view of a deleted or moved link is to add a warning to the html code of the referring page to indicate that the marked link is no longer valid. Another example is that the SBA may replace the link with a link to the root directory of the site to which the URL had hitherto been referring, if possible. Where the

CI is notified that the URL has been moved, rather than deleted, the SBA at the referring site may be configured to update the link to the new URL.

Stale links occur when a link in an existing html document on a server is changed in some way. The change may be that the page referred to in the link, also known as the target page, has been deleted, been moved (for example, its URL changed), or its contents modified. The changes are communicated, so that a user who loads or looks at the referring page is not led, for example, to an empty target page or to a target page that no longer contains the information that the author of the original link was relying on when forming the link.

A common syntax for forming a link in an html document is:

<A href = "www.server.com/linkto_doc.html" > link phrase </A>

where "**href**" is the html attribute used to create a hyperlink to another document, "**www.server.com/linkto_doc.html**" is the Internet address of the document being linked to, otherwise known as the target document, and "link phrase" is the phrase in the html document that the user clicks on to follow the link to **linkto_doc.html**. Other attributes may be used to form a link, in addition to the "**href**" attribute, to another point within the same document.

For stale links that occur within the same website, the SBA may be setup to automatically update these, or alternatively it could inform the website administrator so that they could decide whether to implement the changes manually or automatically by using the SBA.

An SBA, as shown in Figure 3, scans the first html document on the server for links by searching for anchor tags, at step 302. The SBA forms a list of the links found in the document, at step 304. The list may, for example, include a number of tuples in the form (**link_from**, **link_to**), where **link_from** designates the source html document and **link_to** designates the target html document (i.e. the document to which the link points).

The SBA then identifies changes in links that have occurred since the previous link scan, at step 306. Those link tuples that relate to changed links are then stored in the **linkchange_list** file, at step 308. The SBA then proceeds to scan the remaining html documents on the server, at step 310, so that **linkchange_list** contains all changes in links contained in all the documents on the server.

The SBA may then proceed along different paths or may proceed along parallel paths. One option for proceeding, at step 312, is for the SBA to transmit to other servers the relevant changes contained in **linkchange_list**. This approach is illustrated in Figure 4, which shows three servers 410, 420 and 430 in communication through the Internet 440. The first server 410, having the server name **http: //www.server1.com**, has an SBA 412, entitled **SBA_server1**. An html document 414, entitled **doc1.html** is present on the first server 410. The second server 420 has the address **http: //www.server2.com** and also has an SBA 422 called **SBA_server2**. The second server 420 has two html documents, **doc2.html** 424 and **ref1.html** 425. The third server 430 has the address **http: //www.server3.com**. The third server 430 has an SBA 432 called **SBA_server3**. The third server 430 has an html document 435 entitled **ref2.html**.

The html document **doc1.html** 414 on the first server 410 includes a number of links, including a link to **ref1.html** 425 on the second server 420 and **ref2.html** 435 on the third server 430. The SBAs on each server, as described above at step 304, create a list of tuples of source and target documents. Therefore, the **linkto_list** file 416 created by the first SBA 412 includes at least the two tuples illustrated, i.e.,
(www.server1.com/doc1.html, www.server2.com/ref1.html) and
(www. server1.com/doc1.html, www.server3.com/ref2.html).

Likewise, the second server 420 also contains a **linkto_list** file 426 that lists tuples of source and target documents, where the source documents are html documents on the second server 420 and the target documents are documents referred to by links in the source documents and that are stored on other servers. In the illustrated example, **doc2.html** 424 includes a link to **ref2.html** 435 on the third server. Accordingly, the

linkto_list file 426 includes the tuple (**www.server2.com/doc2.html, www.server3.com/ref2.html**). The servers 410, 420 and 430 may contain additional documents that have links to documents on other servers.

Referring back to FIG. 3, at step 312 the SBA 412 transmits relevant changes in **linkchange_list** to the servers where the target documents are located. For example, any changes in the links from **doc1.html** are reported to the relevant server containing a target document. Thus if **doc1.html** is changed to include a link to **ref2.html**, then this new link is included in **linkchange_list**, and this tuple is transmitted to server 420. Server 420 receives the information from server 410 and assembles a second list, **linkfrom_list** 428, from the information received from the first server 410 and other servers. The **linkfrom_list** file 428 is a list of documents contained on the second server 420 that are linked to by other documents.

In a similar manner, **ref2.html**, on the third server 430, is linked to by two different documents, **doc1.html** 414 on the first server 410, and **doc2.html** 424 on the second server 420. The third server 430 receives information from both the first and second servers 410 and 420 that **ref2.html** is linked to by **doc1.html** and **doc2.html**, and that information is assembled in the **linkfrom_list** 438.

Under this protocol, each SBA assembles a **linkto_list** file that indicates for all links the source file and the target file, where the source is contained on that server. The SBA also assembles **linkfrom_list** from information received from other servers that indicates which documents on other servers have links connecting to the documents contained on that server. Each SBA periodically scans the documents contained on its server for links and identifies changes in links, as illustrated in the steps shown in FIG. 3. This may occur, for example, every 24 hours or once a week, or at some other regular time interval selected by the server administrator according to the expected frequency of modifications made to the html pages stored on the server. This ensures that each SBA can assemble a **linkfrom_list** file that is reasonably up-to-date.

The SBA then, at step 316, may transmit changes that have been detected in target html documents on that server, to those servers that contain the source html documents, i.e., those documents that include links to the current server. This permits servers of source, or **link_to**, documents to adapt the links in the source documents according to the changes in the target document. This is explained further below.

Another protocol for maintaining updated links, and avoiding stale links, includes the step 318 of transmitting the changes in the links to the CI. The CI maintains a list of all links between documents and informs source documents of changes in a target document when changes in the target document are received.

This is explained further with reference to FIG. 5, which illustrates first, second and third HTTP servers 510, 520 and 530 that contain html documents, and are connected via the Internet 540. The first server 510 includes an SBA 512 called **SBA_server1**, and the second and third servers, 520 and 530 also include respective SBAs 522 and 532. Each SBA assembles a **linkto_list** file 516, 526 and 536 in a manner according to step 304. The first, second and third servers 510, 520 and 530 are connected to a central index server 550, whose address is, for example, **http://www.ci.com**. The CI server 550 includes the CI 552. The CI contains indexing information received from the attached servers in a manner as described above.

The first SBA 512 transmits changes in links to the CI, at step 318. The CI 552 maintains a **link_list** 554 that is a listing of all links between documents. Therefore, since **doc1.html** 514 on the first server 510 includes links to **ref1.html** and **ref2.html**, **link_list** includes the tuple (**www.server1.com/doc1.html, www.server2.com/ref1.html**) and the tuple (**www.server1.com/doc1.html, www.server3.com/ref2.html**). Additionally, **doc2.html** 524 on the second server 520 includes a link to **ref2.html** 535 on the third server 530. Therefore, the file **link_list** 554 also includes the tuple (**server2.com/doc2.html, server3.com/ref2.html**). Since the CI 552 includes all link information, there is no requirement in this protocol to maintain a **linkfrom_list** file at each server.

FIG. 6 shows the process executed by an SBA in response to receiving information that a target document on another server has been changed. The local SBA, at step 602, receives notice of the change in the target (link_to) document, together with an indication of the type of change. The SBA then determines whether the target document has been deleted.

Upon determining that the target document has been deleted or otherwise removed, the SBA may take one or more of the following actions. First, the SBA may transmit a message to the server administrator, at step 606, notifying the administrator of the change of the target document. The administrator may also be informed as to which source document or documents on the server contain a link to the target document in question. If authorized or configured to do so, the SBA may automatically amend the source document, for example, by inserting a mark in the source document to indicate that the link is invalid, in step 608. Additionally, the SBA may be authorized or configured to remove the link from the source document, at step 610. Furthermore, the SBA may be authorized or configured to replace the link to the current subject document with a new link to an alternative target document, at step 612.

One possible way of determining an alternative document would be to find one with the same words and with similar word frequencies for these words. The CI could do a search for all documents that have the 10 most frequent words from the deleted document. Of these set of documents, it can look for those which have the closest relative word frequencies to those of the deleted document. This will involve looking in the forward index, which shows the frequencies for words in the documents.

When the SBA determines that the URL of the target document has been changed, step 614, then the SBA may provide a notice to the server administrator of the change in URL, step 616. The SBA may also be authorized or configured to amend the URL of the target document in the anchor tag of the source document, at step 618.

If the SBA determines that the target document has not been deleted, nor been moved, the SBA then determines whether the contents of the target document have changed, at step 620.

One way to determine if the contents of the page have changed significantly is to check whether the title of the page has changed significantly. This involves comparing two small pieces of text. If substrings of the previous title remain, then the page has probably not significantly changed. If all the words are different, and there are no semantic links between the old and new words (a semantic dictionary such as wordNet can be used) then it can be concluded that the content has significantly changed.

Once the SBA has determined that the change in the contents of the target document is sufficiently important, at step 622, the SBA may then proceed in one or more different ways. For example, the SBA may simply inform the server administrator, at step 623, of the change in the contents of the target page. The administrator may then inform the author of the source page so that the author may make a manual determination as to whether the target page is still worthy of maintaining the link from the source page. The SBA may also be authorized or configured to remove the link in the source document, at step 624 or may be authorized to replace the link to the target document with a new link to an alternative target document, at step 626.

The method of choosing an alternative document is the same as for above case where a document has been deleted.

The SBA may also determine that the server on which the target document is located is no longer available, at step 628. If so, then the SBA may take one or more of the following steps. The SBA may inform the server administrator that the server containing the target document is no longer available, at step 630. The SBA may, if authorized or configured to do so, amend the source document, at step 632 with a mark indicating that the target document is no longer available. The SBA may also, if authorized or configured to do so,

simply erase the link in the source document, at step 634. Also, the SBA may replace the link in the source document, at step 636 with a new link to an alternative target document.

The SBA of the server of a target document may also take steps to warn a user that the target document has changed or moved, as illustrated in FIG. 7. Once the SBA has detected that there is a change in an html document to which source documents on other servers have links, step 702, the SBA then determines whether the change in the target document is sufficiently important that a user should be warned of the change, in step 704.

If the SBA determines that a user should be notified of the change to the document, the SBA then determines whether the document has been removed, at step 706. If the target document has been removed, then the SBA may be authorized or configured to form a new html document that informs a user that a target document has been deleted, in step 708, or may make a new html document that notifies a user of an alternative page to view instead of the target page that had been deleted, at step 710.

If the SBA determines that the URL of the target document has been changed, at step 712, the SBA may then make a new page at the old URL that notifies the user of the new URL, at step 714. This new page may even include a hypertext link to the target document at the new URL.

The SBA may be configured to post the new page for a limited time. The length of time for which the new page is displayed may be set according to whether there remain any further links to the old URL. The SBA maintains a current **link_from** list indicating which source documents link to the old URL. Once it is determined that there remain no more links to the old URL, at step 716, then the new redirecting page may be removed, at step 718. In addition, the SBA may be programmed to remove the new page of the old URL after a predetermined length of time has passed, for example, six months, at step 720.

To ensure that a user's browser does not contain bookmarks that direct the user to sites that have changed or changed or are no longer available, reference can be had to the database

maintained by the central index. The browser can be provided with an agent that periodically checks with the central index to ensure that the bookmarked pages are still available, at step 802 in FIG. 8. If the browser agent determines, at step 804, that the bookmark has disappeared, the browser agent may mark the bookmark as being invalid, step 806. If the browser agent determines from the central index that a bookmark has changed its URL, at step 808, then the browser agent may be configured to change the bookmark to reflect a new URL, at step 810. If the browser agent determines, at step 812, that the contents of the page located at the bookmark have been changed, the browser agent may recommend to the user an alternative bookmark, at step 814.

2.2 Dynamic Pages and Generated Static Pages

Dynamic pages are web pages that are not written by hand in html, typically the html that constitutes them is made by a program "dynamically". These pages are constructed by a program at the time at which, for example, an html form query is submitted by a user. Most dynamic pages use data from a database in their construction. Other kinds of dynamic pages (eg charts) are constructed by Java or Javascript programs or scripts. A dynamic page can be considered to be a web page that is generated by a program or script each time its URL is requested by a browser, and it is not stored on the web server. Most dynamic pages are generated from a backend database. Some pages may be generated in advance from a database and stored as static pages, and references to dynamic pages should usually be taken to include generated or pre-generated static pages. An input tuple is used to send inputs that results in the return of a valid dynamic page.

Some sites with information in databases do not create dynamic pages on request, but use a script to generate a large number of static pages which are updated periodically. These pages have similar characteristics to dynamic pages, in that in general there are unlikely to be links to them from anywhere else. Hence, conventional indexing methods such as spidering may not find these pages, because spiders find web pages via links. These generated static pages may be caches of frequently accessed dynamic pages rather than comprehensive sets of all possible pages. A generated static page or pre-generated static

page can be considered to be a web page that is stored as a static page to speed access to information in a database (eg by generating all or a subset of the possible pages, or by caching dynamic pages as they are retrieved). These may be captured in the same way as any other static page, but may be more efficiently indexed by recognizing the connections with a dynamic page or database, and references to dynamic pages should usually be taken to include generated or pre-generated static pages. Indexing of dynamic pages and these generated static pages is described below.

As will be apparent from the detailed description below, the generation of pre-generated static pages is similar to a method (Case 2.3 described below) by which an SBA generates and indexes dynamic pages, but does not store them, while the generated static page sites generate the pages and store them as static pages for fast access. Therefore, the generated static pages could be indexed by the SBA like any other static page, however, a tuple representation is the most compact way for a SBA to represent all these created pages, and the scripts that generate these pages can be used by the SBA when indexing. Hence, these static pages are handled by a dynamic page tuple indexing method (Case 2.1 described below) except that static links are generated on the search results page by the CSE rather than dynamic links.

A html form is a construct in html that allows a viewer of a web page to submit information to the web site that they are currently accessing. For example, when using a search engine such as Lycos, the user submits one or more keywords by typing them into a portion of the screen currently being viewed, and then initiates transfer of the keywords by clicking on a button on the screen such as "search". The keywords are then received at the web site currently being accessed.

The html form construct names a program that handles the words or inputs submitted by the user. This is the program that creates the dynamic page. Such a program in many cases would be a cgi script (cgi means “common gateway interface”). The cgi script receives the information sent by the user, and interprets the information as a request for a piece of information from a local or remote database and generates a query, such as an

SQL query, to the database. The cgi script then retrieves the requested data from the database, builds a page using this data and returns the dynamic page to the user. There are programs other than cgi scripts used to create dynamic pages, and any reference to a form handling program herein should be interpreted to mean any script or executable file of any kind or in any language, whether interpreted or compiled to machine code or intermediate or virtual machine code (including Java servlets and Remote Methods) that can be used to generate a dynamic page. A form page can be considered to be a web page that contains fields, menus and/or other means for a user to specify inputs, and is most often a static page, although the term also includes dynamic pages that contain fields to allow the user to initiate a new search, and other means of collecting inputs such as Java windows. An example illustrating how form pages are used to generate dynamic pages is described below with reference to Figures 9 to 10, when illustrating how the SBA operates on a server 206 as shown in Figure 11.

2.2.1 Overview of Indexing of Dynamic and Generated Static Pages

2.2.1.1 Operation of the SBA

The general steps executed by an SBA to index dynamic pages is shown in Figure 12. During installation, the SBA may be configured to suit the needs of the web site administrator, at step 1202. For example, the SBA may be configured with a number of parameters, including:

(i) how often the SBA checks the website for changes

(ii) automatic updating of stale links, or alerts only to the website administrator with suggested updates

(iii) restrictions on pages which are not to be indexed

(iv) restrictions on data (eg a column) in any database(s) which is not to be indexed (eg confidential information, information that is not important or not useful, or information that is only to be displayed if other information is provided by a user - an example of this last point is where a user may enter a person's name, and the phone number will be returned, and this is not to occur the other way around.

(v) option for the SBA to automatically update indexing information when changes are made to a database which has been set to be indexed ('database triggers')

Once configured, the SBA scrutinizes the local website and finds the database(s) used in the generation of dynamic pages, at step 1204. The SBA then determines further information about each database such as the type, query language used, username and password, and access methods (this information may either be provided manually by the website administrator, or determined automatically by the SBA), so that the SBA is able to connect and retrieve data from each database, at step 1206. The SBA then extracts indexing information from the relevant database(s), using one of the methods described below, and this information, which may be in a compressed format, is sent to the CI, using one of the methods described below, at step 1208. If configured to do so, the SBA installs triggers which automatically detect when a change is made to a database that is being indexed, at step 1210. The SBA then waits for a predefined period (at step 1212) which may be set during the installation process or thereafter, before checking the website for any changes that may have occurred, at step 1214. If the site has changed (step 1216), the SBA sends the relevant index information to the CI, at step 1218.

2.2.1.2 Operation of the CI

Figure 13 shows the structure of the CI 214 and its relationship to the CSE 216. When indexing information is received from the many SBAs, the CI indexer 1300 first constructs forward index entries 1302 and 1304 for this information. It then makes use of the information in the forward index entries to update the inverted index 1306. The forward index entries for static pages 1304 may then be deleted, unless the SBA and CI are going to communicate with deltas, ie index delta files, in which case those forward index entries should remain. Deleting them will significantly reduce the storage at the CI required for static pages. The forward index entries for the dynamic pages 1302 can generally not be deleted. It should be noted that there are a number of alternative approaches to the way in which the forward and inverted indexes may be structured, including one in which the inverted index shares tables from the forward index. A lexicon 1308 of query terms is

maintained that can comprise a dictionary and/or thesaurus of indexed terms of the inverted index 1306. It will be apparent to those skilled in the art, that the functions of the lexicon 1308 could be integrated into the inverted index 1306.

The lexicon 1308 provides word, or term, to wordID mapping, the inverted index 1306 provides wordID to docID mapping, and the forward index 1302, 1304 provides docID to URL mapping. When a searcher provides one or more query terms for which to search, the lexicon 1308 is consulted to determine whether or not the terms exist in the index, and if they do, their corresponding wordID. The inverted index is then searched to find all docIDs for the wordIDs, representing the complete set of documents that contain the searcher's query terms.

Information stored in the inverted index 1306 may include:

(i) whether the docID corresponds to a static or dynamic page;

(ii) whether the query terms are found in an important field (such as a title) or the body of the text;

(iii) whether the query terms are closely located (and hence possibly related) within a given document, or apparently unrelated; and

(iv) whether the document contains all, or only some, of the query terms.

This information is used to order the list of docIDs such that those documents most likely to be relevant to the user's query are at the head of the list. Then for each docID, the forward index is consulted to determine the URL through which the original document can be retrieved. In the case of a dynamic page, this involves reconstructing the URL from the form handling program URL, method, input fields and input tuple. The forward index content may also be used to confirm the presence of exact phrases that the searcher may have specified, and to provide short extracts of the relevant content that the searcher may review when considering which results to pursue.

With reference to Figure 14, the CI waits to receive a message from an SBA at step 1402. When the CI receives a message, it then adds new indexing information and modifies existing indexing information in its forward index 1302, 1304, at step 1404. The CI then

adds new indexing information and modifies existing indexing information in its reverse index 1306, at step 1406. The CI then waits for further messages from SBAs.

2.2.1.3 Operation of the CSE

With reference to Figure 15, the CSE waits for a user to request information on a search topic, at step 1502. The CSE receives a query by a user entering appropriate search information (eg keywords) through a browser and hitting a submit or search button on the search engine web page, at step 1504. The CSE examines the CI's inverted index 1306 to form a list of dynamic pages creation points that match each keyword, at step 1506. The CSE then merges the lists for the keywords to find dynamic page creation points that match all query words, resulting in a pre-results list, at step 1508. The items in the pre-results list are checked to see if there is a valid dynamic page containing this information, at steps 1510 and 1512. If not, the item is removed from the list (at step 1514) and the next item is checked. If there is a valid dynamic page containing this information, the inputs that produce this page are noted and placed in a results list, and the entry is removed from the pre-results list, at step 1516. Each item is checked in the pre-results list (if any are left, the CSE goes back to step 1510), until none are left, at step 1518. Using the inputs determined at step 1516, the URL is constructed for each dynamic page in the results list, at step 1520. The set of static pages that contain the given keywords is determined at step 1521. The associated URLs are added to the results list to form a combined results list for static and dynamic pages. The results are then ranked in order of relevance to the query, at step 1522 (there are standard techniques for doing this). The CSE then produces an html results page and returns it to the requesting browser, at step 1524. Typically, this results page will contain links to both dynamic and static pages, based on the keywords entered by the user. If the user of the CSE clicks on a link to a dynamic page, they go directly to the dynamic page that is formed from the database information based on the URL that has been constructed by the CSE.

2.2.2 Indexing of Dynamic Pages

2.2.2.1 Stockadvice Example

The indexing of dynamic pages is described below with reference to a stockadvice example whereby dynamic pages can be generated, as shown in Figures 9A to 9C, in order to provide recommendations from stockbrokers on companies listed on various stock exchanges. The form page is shown in Figure 9A, and the form page with a query entered by the inclusion of specific inputs is shown in Figure 9B. The resulting dynamic page is then generated and sent to a user's browser as shown in Figure 9C with the highlighted entries 900 representing the data extracted from the database 1002 of a web server 206, as shown in Figure 10. Figure 10 illustrates the message flow whereby the form page 1004 sent to a user's browser 1006 can be used to return a http request to a form handling program 1008 that receives, with the request, data entered in input fields 1010 of the page 1004. The program 1008 generates an SQL query to the relational database 1002 in order to return a result to the program 1008 that can then be used to generate a http response back to the user's browser. The response includes the code defining the dynamic page generated by the program 1008, and the response causes display of the dynamic page, as shown, in Figure 9C on the user's browser.

More specifically, the URL for the form page of Figure 9A is:

http://www.stockadvice.com/broker.html

One input field is for a stock code and the other input field is for the name of a broker. The name of the form input for stock code is 'scode', and the name of the form input for broker name is 'bname'.

An example of a HTML form tag on broker.html could be:

<FORM ACTION = "http://www.stockadvice.com/cgi-bin/brokerdata"

METHOD = "GET">
Stock code eg AOL <INPUT TYPE = "text" NAME = "scode" SIZE = 10>
Stock broker <INPUT TYPE = "text" NAME = "bname" SIZE = 10>
<INPUT TYPE = "submit" VALUE="Submit">

An example URL for the form handling program is:

http://www.stockadvice.com/cgi-bin/brokerdata

In this example, information is stored in an Oracle™ database 1002.

The dynamic page that is created contains the broker's rating for the stock – buy, sell etc. The example table that contains these ratings is as follows:

stock_rating table

STOCK_CODE	NAME	RATING
AOL	smith	hold
AOL	jackson	buy
AOL	andrews	buy
MSFT	smith	hold
MSFT	jackson	hold
YHOO	jackson	sell
YHOO	andrews	sell
CNN	andrews	hold

Another table is called **stock_info**. It is also indexed by **stock_code**. It has two other columns, **exchange**, the stock exchange the company is listed at, and the other, **stock_name**, that contains the name of the company.

stock_info table

STOCK_CODE	EXCHANGE	STOCK_NAME
AOL	NY	America Online
MSFT	NASDAQ	Microsoft Corp
YHOO	NASDAQ	Yahoo
CNN	NY	CNN

A third table, **stock_brokers**, has the columns **name** (the primary key), **phone_no** and **email**.

stock_brokers table

NAME	PHONE_NO	EMAIL
smith	712349876	smith@aol.com
jackson	598765432	jackson@aol.com
andrews	124683579	andrews@aol.com

The cgi-script of the program 1008 generates the following SQL query, when a user enters 'YHOO' and 'jackson' into the respective from fields, and then hits the submit button:

```
select rating, stock_name, email
from stock_info, stock_rating, stock_brokers
where
        stock_info.stock_code='AOL' and
        stock_brokers.name='jackson' and
        stock_info.stock_code= stock_rating.stock_code and
 stock_brokers.name = stock_rating.name;
```

The cgi-script displays on the dynamic page the rating of a particular stock from a particular broker and also the stock's name and the email address of the broker (refer to FIG. 9C).

2.2.2.2 The Server Based Agent

Many of the details given for the SBA in this section are under the assumption that the backend data source is an SQL database. The basic technique with some alterations will also be applicable to the indexing of dynamic pages that are created from backend databases that use query languages other than SQL, and to other backend data sources. As mentioned previously, the SBA may be implemented as a stand-alone software module or may be included in the HTTP Server (HS), or may be included in some other larger software module.

For many commercially available databases, the connection to the database does not need to be from the same computer that hosts the database (DB) 1008. This means that the DB can be on a different computer to the server 206 that stores the HTTP Server Directory Tree (HSDT).

The SBA can be installed on the same computer as the HSDT, or on a computer that allows viewing of all files that are part of the HSDT. This could be done via the computer hosting the SBA and the computer hosting the HSDT, being part of a common network file system. There are also other possible ways for the SBA on a remote machine to view the HSDT hosted on another computer.

With reference to Figure 16, when the SBA is installed (at step 1602), it may be notified of the location of the HSDT manually by a computer administrator (at step 1604), or it can automatically deduce this location (at step 1606). The latter option, which is not the preferred method, requires the SBA to search the entire network file system, or the local file system, for the HSDT. One way of accomplishing this is by locating html files.

The SBA also needs to determine the location of the Web Site (WS) (ie the actual files that can be served to browsers). This may be provided manually by a computer administrator at step 1608, or the SBA can automatically deduce this at step 1610. One way of accomplishing this is for the SBA to look through the HSDT to find a sub-tree of this which contains html files.

The SBA then looks at each page in the WS to determine if it can possibly be used for making dynamic pages, at step 1612. The SBA makes a list, **dyn_list** of those pages that could make a dynamic page. One way of determining this is by identifying the presence of an html form in the page. In our Stockadvice example, the SBA would look at the file "broker.html" and would recognize that it has a form tag in it. It would then add this file to **dyn_list**.

The SBA then creates a new list called **dyndb_list**, at step 1614. The list **dyndb_list** generally will contain the same number or less items than **dyn_list**, because **dyndb_list** only contains a list of those pages that can create dynamic pages via accessing a database. For pages in **dyn_list**, the SBA looks at the file that is named as the form action file, **act_file**. If **act_file** is a binary (compiled to native machine code or some form of interpreted byte code, eg for the Java Virtual Machine), then the SBA extracts a list of strings, **str_list**, out of it. A string is a sequence of bytes found in a binary that correspond to values that represent characters such as letters, digits and punctuation. So **str_list** will typically be a list of readable words and names or terms. If **act_file** is not a binary, then the strings are readily visible. The SBA then looks through the members of **str_list** to find a string that is an SQL statement. In particular the SBA will be looking for an SQL select statement. An SQL select statement is used for querying a database. These pages whose **act_files** contain an SQL select statement will be assumed to be those that access a database to construct dynamic pages. These pages will be recorded in **dyndb_list**, and the names of their action files stored in **dbact_list**. In the Stockadvice example, **act_file** is cgi-bin/brokerdata. As this form handling program contains an SQL select statement, the file broker.html will also be in **dyndb_list**.

At this point the SBA has determined which pages and their associated form handling programs make dynamic pages by accessing a database. For each page in **dyndb_list**, the database's name, its username, its password, and its network address must also be identified. The database type accessed by each page in **dyndb_list** may be supplied manually by the system administrator of the web-site, at step 1616. Alternatively, the SBA may automatically deduce these parameters at steps 1618 through 1622.

The database type and other database access parameters may be automatically deduced by collecting evidence from the set of environment variables made visible to the cgi scripts, and from the content of the scripts themselves, at step 1618. Environment variables are named values from outside a program that the running program can check the value of. There are at least two ways of determining the environment variables visible to the cgi scripts. A non-cross HS approach is to determine for each particular type of HS, where in the HSDT, is the list of environment variables that the HS imports to the environment of its cgi scripts. For example, with the Apache HTTP Server this occurs in the conf/httpd.conf file in its HTTP Server Directory Tree. The other cross-server method for determining the environment variables visible to the cgi scripts is for the SBA to temporarily install a simple script in the WS, that simply lists the environment variables. The SBA then executes an HTTP GET request on this installed script which shows the values and names of all the environment variables.

Once all the environment variables that are visible to the HS's cgi-scripts are known, at step 1620 the SBA looks through them for known standard environment variables of the database types that it knows about, which are stored in a list **knowndb_list**. For example, if an Oracle database is being used, then environment variables such as ORACLE_BASE, ORACLE_HOME and ORACLE_SID will be present. In the Stockadvice example, these are the environment variables that will be detected because cgi-bin/brokerdata accesses an Oracle database. This check will be made for all databases in the SBA's **knowndb_list**. This list may include environment variables used by many different types of databases, to ensure that the vast majority of websites may be covered.

The SBA deduces which vendor's database is being accessed by each entry of **dyndb_list**, at step 1622. Usually only one database will be visible to cgi-scripts at the WS, but not necessarily. If there is only one database, then it is known that each page in **dyndb_list** accesses it. If there is more than one database, then the SBA determines which pages from **dyndb_list** access which database. To determine this the SBA uses heuristics for how certain cgi scripts connect to particular databases. For example, if a cgi script is compiled C, and it accesses an Oracle database, then one of the strings extracted from the cgi script will contain the library name, "sqlca". Once the match from cgi script to database is made, the SBA can proceed to identify the database name, the username and password for the database, and its network address if that is required.

The SBA now determines the name of the database and the username and password for the database, if these are required. At steps 1624 and 1628 this may be performed manually by the site administrator entering these details. Alternatively, the SBA can automatically determine these at steps 1626 and 1630. The database name is generally included in an environment variable for the database being accessed, or may be found in the cgi-script itself, or in some other system information source. For example, with Oracle, if the ORACLE_SID environment variable is set, it will contain the database name. If not, it is likely to be at the end of the username string. The SBA uses heuristics for each combination of database type and cgi-script type to look for the database name. For the Stockadvice example the database name will be found in ORACLE_SID, since cgi-bin/brokerdata accesses an Oracle database.

The SBA uses similar heuristics to look for the username and password for the database, at step 1630. These will also be in environment variables, in the script itself, or in some system information source. The SBA uses heuristics for each combination of database type and cgi-script type. For the Stockadvice example the username and password are contained in the text of the form handling program cgi-bin/brokerdata, and the SBA would identify which strings in the program are most likely to be a username and password, and it would then try them to confirm that they were correct.

Now the database type, database name, username and password are known for a cgi-script the SBA can make a connection to the database. If the SBA is implemented in the programming language Java, this could conveniently be done with JDBC. JDBC is a library of pre-written code (API) that provides a uniform SQL interface to many different types of database.

Considering the Stockadvice example, the database that contains the stock information is an Oracle database called **stock_db** with username "admin" and password "boggle". Also the remote database management system (RDBMS) for the database is running on a host server achilles.stockadvice.com, listening at port 1500. In this case, example Java code to make a connection to this database could be:

```
Class.forName ("oracle.jdbc.driver.OracleDriver").newInstance();

        String url = "jdbc:oracle:thin:@achilles.stockadvice.com:1500:stock_db";

Connection con = DriverManager.getConnection(url, "admin", "boggle");
```

The SBA now determines the relationship between form input fields and the database columns with which they correspond. There are a number of techniques for determining this. In one approach, the SBA deduces the relationship between form inputs and the SQL query by examining the form handling program, at step 1632.

If there is only one form input field, finding the relationship between form input fields and database columns is trivial. The location of a variable in the SQL statement is matched to the one form input field. Consider a simple example, with a single input field, as follows:

The form tag text is:

```
<FORM ACTION = "http://www.stockadvice.com/cgi-bin/stocks"
METHOD = "GET">
```

Enter code: <INPUT TYPE = "text" NAME = "code" SIZE = 10>
<INPUT TYPE = "submit" VALUE="Get quote!">

The query is:

```
select stock_name, close
from stock_info, stock_prices
where
 stock_info.stock_code = :code_that_was_input and
 stock_info.stock_code = stock_prices.stock_code
```

This assumes the cgi-script is compiled C – :code_that_was_input appears to be a program variable and this would match to the input field called "code". This shows that this input field corresponds to the database column stock_info.stock_code. This database column contains the set of all possible inputs to the form.

If there is more than one input field, matching input fields to database columns is more difficult. This matching may be achieved by the SBA making a request to the cgi-script (in the process specifying values for each form input field) and observing the resultant input to the database. This observation may be carried out in a number of different ways. One way is for the SBA to install an Open Database Connectivity (ODBC) sniffer or some other method, as shown at step 1634. This will detect and log queries being sent to a particular database. There are other methods that will work for a broader range of operating systems or cgi-script types. Step 1636, one of these alternatives, involves the SBA altering the form handling script (if in uncompiled form) or providing a wrapper (if compiled) so that it informs the SBA of SQL queries that it carries out.

After the SBA has monitored SQL queries (step 1634 or 1636), it then determines the relationship between form inputs and database columns by one of two methods. At step 1638, the SBA makes queries to the form interface for each page, observes the resultant SQL query and notes which form inputs match which entries in which database column.

Alternatively, at step 1640, the SBA observes and notes the form inputs and SQL queries resulting from human searchers.

Next, there are a number of alternatives for the method that the SBA uses to index the dynamic pages and the information that needs to be sent to the CI in each of these cases. The method to be used may be set by the site administrator at step 1642.

At the three decision points, steps 1644, 1646 and 1656 the decisions on which indexing method to be used are shown. Four main approaches have been outlined. For Cases 1 and 2, two methods have been given. The methods given in 1.1 and 2.1 are generally the ones preferred. For certain databases in which information is stored in multiple databases and is relatively independent, certain queries (eg joins) will result in an explosion of tuples. Using other methods such as 1.2 and 2.2 will minimize the amount of data transmitted from the SBA to the CI in these cases. This tradeoff may be determined automatically by the SBA at the time of analyzing the database and SQL queries.

2.2.2.3.1 Taxonomy of Indexing Methods

When considering the indexing methods, there are a number of alternatives which may be used for different databases and in different circumstances. For some databases it is appropriate to restrict indexing to terms that may be searched for using the interface (eg forms, Java, etc) - Cases 1 and 3. For other databases, it may be appropriate to index on all information that is stored in the database, thus allowing the retrieval of pages that would not normally be retrievable using just the information supplied by the searcher - Cases 2 and 4. In some cases, it may be expedient to analyse the database and index all inputs and/or outputs in the database (Cases 1 and 2), whilst in other cases, it may be necessary to limit indexing to those pages that have actually been retrieved by users (Cases 3 and 4).

There are two basic approaches to indexing dynamic pages, namely, to index the actual page that has been or can be generated (Cases 2.3 and 4.2), or to send the information in a form that is similar to the way that it is stored in the database (Cases 1.2 and 2.2). A third

approach is a variant of this latter alternative, namely, to send tuples of information extracted from a database (Cases 1.1, 2.1, 3.1 and 4.1). This "tuple method" is very generally applicable, and is useable even when there is no direct access to the database, although in the rare case of joins of independent tables Cases 1.2 or 2.2 will be more efficient, as discussed previously, and may be automatically selected by the SBA.

The different methods are summarised as follows:

Case 1: Index the inputs of all possible dynamic pages

- Case 1.1: The SBA determines and sends all possible input tuples (step 1658)
- Case 1.2: The SBA sends all database columns used by the form handling program to extract data from the database used to create the dynamic page (eg SQL "where" clause (step 1660))

Case 2: Index the full-text of all possible dynamic pages

- Case 2.1: The SBA determines and sends the static text and all possible input/output tuples (step 1662)
- Case 2.2: The SBA sends the static text and all database columns that:
  - (i) are used by the form handling program to extract data from the database used to create the dynamic page, and
  - (ii) are output columns, (step 1664)
- Case 2.3: The SBA generates an index of all possible dynamic pages as if they were static pages

Case 3: Index the inputs of pages that have been retrieved by human searchers (step 1648)

- Case 3.1: The SBA observes user inputs entered by human searchers and sends input tuples

Case 4: Index the full-text of pages that have been retrieved by human searchers (step 1650)

Case 4.1: The SBA observes user inputs entered by human searchers and resulting outputs and sends these as input/output tuples

Case 4.2: The SBA indexes the retrieved dynamic pages as if they were static pages

Case 1 is a subset of Case 2. Case 1 involves sending data that allows searching on form inputs only, as shown in steps 1658 and 1660. Case 2 involves sending data that allows searching on full-text. Hence, Case 1 is the same as Case 2 except that no outputs are indexed.

Case 2 is very similar to Case 1. However, the SBA also sends the columns that are selected by the SQL query in the form-handling program. The SBA also sends static text, including the word positions of this text and also the word position of database entries that appear on the dynamic page, to allow phrase searching. Steps 1662 and 1664 are the options for dynamic page indexing corresponding to Case 2.

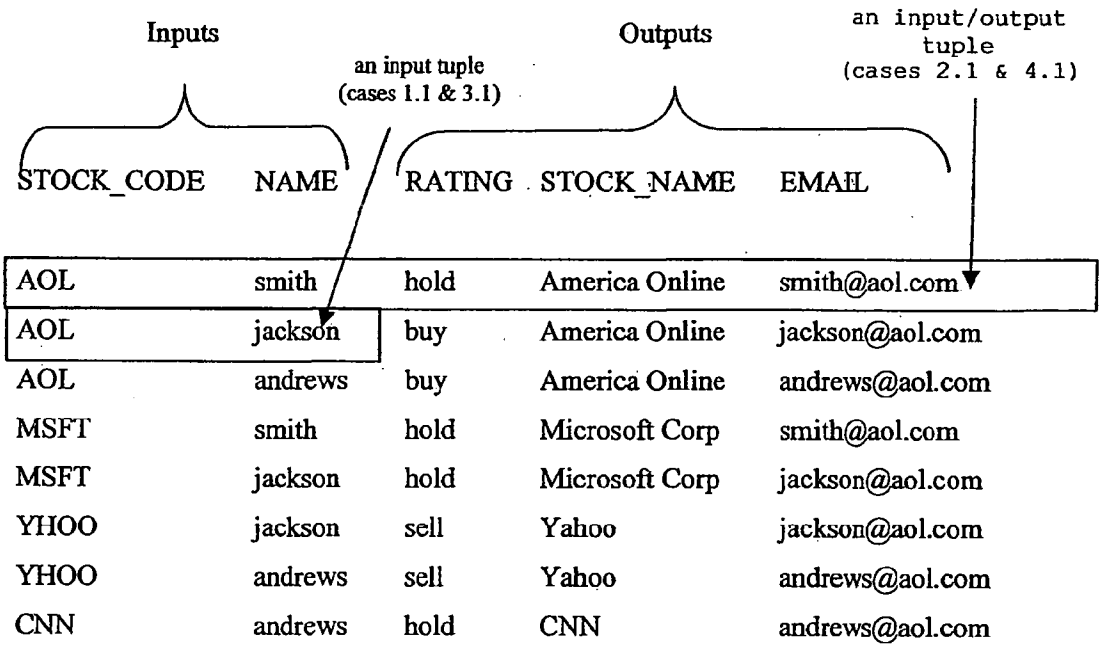
Case 2.1

This scenario corresponds to step 1662. All possible pages have been chosen to be indexed (at step 1644) and the full-text of them is to be indexed (step 1656). It can be seen in our Stockadvice example that the set of all inputs and outputs are listed by the query that the SBA carries out. This means that a user of the search engine can search upon the form inputs or the words that appear on the dynamic page. For the latter, the corresponding inputs are those that are contained in the same tuple.

In the example the query that must be executed by the SBA is:

```
select stock_info.stock_code, stock_brokers.name, rating, stock_name, email
from stock_info, stock_rating, stock_brokers
where
 stock_info.stock_code= stock_rating.stock_code and
 stock_brokers.name = stock_rating.name;
```

giving the following input/output tuples:



STOCK_CODE	NAME	RATING	STOCK_NAME	EMAIL
AOL	smith	hold	America Online	smith@aol.com
AOL	jackson	buy	America Online	jackson@aol.com
AOL	andrews	buy	America Online	andrews@aol.com
MSFT	smith	hold	Microsoft Corp	smith@aol.com
MSFT	jackson	hold	Microsoft Corp	jackson@aol.com
YHOO	jackson	sell	Yahoo	jackson@aol.com
YHOO	andrews	sell	Yahoo	andrews@aol.com
CNN	andrews	hold	CNN	andrews@aol.com

Any static text that is put on the dynamic page by the form handling program is noted at step 1666. These will generally be the same and thus may be sent once for the whole set of dynamic pages from a dynamic page creation point. Searches may also be performed on these words. The static text, the above database content (ie input/output tuples) and information such as the URL of the form-handling program are sent to the CI at step 1668.

In some sites there will be static pages that have been pre-generated from a database to speed up access by avoiding database retrieval when the page is requested. These static pages should not be indexed separately, but rather the SBA indexes them using the tuple method in the same way as for dynamic pages.

The generation of these pages is similar to SBA indexing Case 2.3. The difference is that Case 2.3 generates and indexes dynamic pages, but does not store them, while the above sites generate the pages and store them as static pages for fast access. Therefore, these

generated static pages could be indexed by the SBA like any other static page, however, the tuple representation is the most compact way for a SBA to represent all these created pages, and the scripts that generate these pages can be used by the SBA when indexing. Hence, these static pages should be handled by the dynamic page tuple method (ie Case 2.1) except that static links would be generated on the search results page rather than dynamic links. Where the generated static pages are redundant with dynamic pages (ie they are a cached version of frequently accessed dynamic pages), the static version of the URL is returned by the central search engine rather than the dynamic version of the URL. The SBA determines that it is dealing with generated static pages back at step 1614. For example, the SBA may find Javascript or similar that constructs a static URL from a form input and/or discover a generating script for some subset of the dynamic pages at step 1632.

Case 2.2

This option corresponds to step 1664. In this case the CSE carries out SQL (like) queries at the time a user makes a search engine query. This is done to verify that a dynamic page specified by a particular combination of inputs results in a dynamic page with useful content.

In this method the SBA sends all database columns that:

(i) are used by the form handling program to extract data from the database used to create the dynamic page, and

(ii) are output columns.

At step 1668 the columns of the database, the static words and information such as the URL of the form handling program are sent to the CI.

Case 3.1

This case corresponds to steps 1648 and 1652. This approach is substantially different. It does not involve querying the database to extract all possible pieces of data that can be used in the construction of a dynamic page. Rather, the SBA just makes a note of the

queries that are made to the form interface at step 1648. For efficiency reasons the SBA only sends the observed input tuples after it has observed a number of them. This is done at step 1652.

The advantage of this approach is that the information being indexed at the CI is being filtered for its usefulness – it will only be indexed if it is being used.

One approach is where the SBA installs an ODBC sniffer (earlier steps have possibly already required its installation). This ODBC sniffer watches the inputs coming into a backend database from a form handling program. Earlier upon inspecting the form handling program, the SBA will have seen the words in the SQL query, so that it will be able to recognize it again. The SBA will have also worked out the mapping from form input fields to variable slots in the SQL query. This means when the SBA sees the SQL query at runtime it will be able to recognize what values were placed into form inputs.

In addition, the SBA extracts static text that appears on the dynamic pages. The SBA may also send the word positions of these words and also the word position at which words extracted from the database are inserted, to allow phrase searching.

The SBA then needs to check that the query returns a non-empty result set, by re-executing the query itself or some other method. If the result set was non-empty the SBA can report this input tuple to the CI.

The SBA may keep just a list of queries, and only send the top few, above a threshold, to the CI. Alternatively, the SBA may report a query to the CI after its incidence passes a certain preset threshold.

Case 4.1

This case is implemented in steps 1650 and 1654. This case is very similar to Case 3.1. The only difference is that the SBA, upon seeing a user query to the form interface, also

notes the values returned by the SQL query. This may be done by the SBA repeating the query itself or by some other method.

The SBA can now send the whole input/output tuple to the CI. Once again dynamic pages will be indexed at the CI according to their usefulness.

In addition, the SBA extracts static text that appears on the dynamic pages. The SBA sends the word positions of these words and also the word position at which words extracted from the database are inserted, to allow phrase searching.

Cases 2.3 and 4.2

In these cases the SBA generates an index of all possible dynamic pages as if they were static pages. Hence the detailed methods discussed for indexing dynamic pages do not apply in these cases.

2.2.2.4 CI Storage Requirements

Cases 1 and 2 will generally require more storage at the CI than Cases 3 and 4. This is because the first two cases attempt to index all possible dynamic pages at a site. The second two cases attempt to index just the most popular dynamic pages at a site.

2.2.2.5 Database Triggers

Step 1668 marks the end of the indexing that is performed directly after installation of the SBA. From step 1670 onwards the problem of sending changes to the database is addressed.

A significant problem with any search engine index is maintaining the currency of the information in it. Given the large stores of information in backend databases it is important that the central search engine is up-to-date.

One method for achieving this is by using database triggers. The SBA may install database triggers that communicate with it when columns which affect the indexing information of dynamic pages change.

A typical database allows only one trigger of a particular type per database table. For this reason it is convenient for the SBA to construct a single trigger per table that notifies the SBA of changes relevant to any dynamic page creation points that make use of that table, at step 1670. At step 1672, the SBA installs triggers that have been constructed in all databases used by entries in **dyndb_list**.

The following is an example trigger that might be installed on the **stock_info** database table in the Stockadvice example. This would be the trigger used if full-text indexing was being used (ie Cases 2 and 4). If just inputs were being indexed then only the **stock_code** column would need to be checked. There is also a need for triggers on the other database tables in the Stockadvice example.

```
CREATE or REPLACE TRIGGER sender0
AFTER INSERT or UPDATE OF  stock_code, stock_name
ON  stock_info
FOR EACH ROW
DECLARE
 Msg       varchar(30);
 PipeName   varchar(30);
 LastStatus  integer;
 TraceMode  varchar(30);
BEGIN
 PipeName  := 'Slavko';
 LastStatus := 0;
 if (:new.stock_code is not null) then
    Msg := Msg ||':stock_info:'||'stock_code:'|| :new.stock_code;
 end if;
```

```
if (:new.surname is not null) then
  Msg := Msg ||':stock_info:'||'stock_name:'|| :new.surname;
end if;
DBMS_PIPE.pack_message(Msg);
LastStatus := DBMS_PIPE.send_message(PipeName);
DBMS_OUTPUT.put_line('message sent');
END;
```

This trigger will notify the SBA of changes to the relevant database columns when they occur, by using database pipes. When the SBA learns of a change it informs the CI, at step 1678. It can do this immediately or can wait until a batch of updates has accumulated.

If the indexing information is being sent as the database columns this is trivial. If a row is inserted then the SBA sends this new row to the CI. The CI adds it into the forward index entry, and puts the words from it into the inverted index. If a row has been deleted, it identifies which row number. The SBA tells the CI and it removes the row from the forward index. It looks through the inverted index and removes the old words also. If a row has been updated then the row number is known. The CI takes this row and changes the values appropriately. Any new words are added to the inverted index. The words that have been deleted are removed from their inverted index entries.

If the indexing information is being sent as tuples, after a change is made to a database row, the SBA can carry out a query that selects the tuples affected by this change. For example if the broker called 'jackson' changes his name to 'stevens', the search to detect the changed tuples for the example could be:

```
select stock_info.stock_code, rating, stock_name, email
from stock_info, stock_rating, stock_brokers
where
 stock_brokers.name='stevens' and
 stock_info.stock_code= stock_rating.stock_code and
```

stock_brokers.name = stock_rating.name;

giving the result:

STOCK_CODE	RATING	STOCK_NAME	EMAIL
AOL	buy	America Online	jackson@aol.com
MSFT	hold	Microsoft Corp	jackson@aol.com
YHOO	sell	Yahoo	jackson@aol.com

The SBA calculates affected tuples for all form handling programs that access the particular database column that is changed. The CI locates all the old tuples and removes or updates them.

2.2.2.6 Structure of the CI 214 and behaviour of the CSE 216

The basic structure of the CI includes a forward index and an inverted index. For static pages, information is stored in these indexes using established techniques as used by existing search engines. Examples of forward index entries 1702 and inverted index entries 1704 for static pages are shown in Figure 17, together with example entries 1706 for the Lexicon (the notation "field:x" denotes x bits for the field). The format of the hits may comprise 16 bits, with 12 bits for the position of a word or term in the documents and 4 bits for other information, such as text capitalisation. The structure used by the CI for forward index entries 1802 for dynamic page creation points, involving the storage of tuples, as in Cases 2.1 and 4.1, is shown in Figure 18, with inverted index entries 1804 for Cases 2.1 and 4.1, and Lexicon entries 1806 used with the inverted index. In this case, the format for a hit is simply the tuple number, which may be stored using 16 bits.

Figure 18 is an example of a CI structure using forward and inverted index entries for indexing dynamic pages. The forward index contains blocks of information about whole dynamic page creation points. Each of these blocks is indexed with a number (dynID).

Within these blocks the tuples or columns of information sent by the SBAs are stored, as described previously.

In addition to the columns or tuples there are a number of other pieces of information related to the dynamic page creation point that will have been sent by an SBA. These include the URL of the form page (fURL in Fig. 18), the URL of the form handling program (fhpURL in Fig. 18), the method of the form (GET or POST) (method in Fig. 18), the number of form input fields (nfields in Fig. 18), their names (field1 field2 in Fig 18) and the database columns they correspond to. There will also be meta-information such as the title of the form page (title in Fig. 18), the initial text from the form page and a list of static words that occur on the dynamic pages.

For Case 1.2 or Case 2.2 the SQL query used by the form handling program will also be stored in the forward index entry. Also, instead of tuples being stored one after the other, the database columns mentioned in the SQL query will be stored. Note, as an alternative to storing the database columns in the forward index they can be stored in a standard database. This will allow easier execution of the SQL query.

The inverted index contain blocks of information on a particular word, indexed by a wordID. These blocks of information will consist of a list of dynIDs, each dynID followed by a list of occurrences of the word, 'hits', for that dynamic page creation point. The dynID refers to the ID number for a dynamic page creation point. The actual nature of the hits depends on the indexing method that has been used for a dynamic page creation point. The dynID also points to information connecting inputs and outputs to static word positions on the dynamic page to allow phrase searching.

2.2.2.7 Description of Hits

A hit in the inverted index for Cases 1.1, 2.1, 3.1 and 4.1 is simply the number of the tuple in which the word occurs. The tuple number refers to the position of the tuple in the list of tuples for that dynID in the forward index, as shown in Figure 18.

For Cases 1.2 and 2.2 a hit in the inverted index refers to the column and row in which the word occurs in the forward index.

A hit for a static page, or the static text on a dynamic page as in cases 2.3 or 4.2, is simply its word position on the page, plus other information like text attributes, as shown in Figure 17.

2.2.2.8 Interaction Between the CSE and CI for the Stockadvice Example

The data that is sent to the CI in the Stockadvice example for Case 2.1 or 4.1 has the following tuples:

STOCK_CODE	NAME	RATING	STOCK_NAME	EMAIL
AOL	smith	hold	America Online	smith@aol.com
AOL	jackson	buy	America Online	jackson@aol.com
AOL	andrews	buy	America Online	andrews@aol.com
MSFT	smith	hold	Microsoft Corp	smith@aol.com
MSFT	jackson	hold	Microsoft Corp	jackson@aol.com
YHOO	jackson	sell	Yahoo	jackson@aol.com
YHOO	andrews	sell	Yahoo	andrews@aol.com
CNN	andrews	hold	CNN	andrews@aol.com

All the tuples will be stored as they are in the forward index. The CSE notes which of the columns in the tuples correspond to form inputs – the first two in the case of the Stockadvice example.

A user is able to perform a search for 'jackson' AND 'Yahoo' (where AND is a boolean operator). The CSE recognizes from its inverted index entry, the tuples in which at least one of these words occur. A pre-results list contains all dynIDs that have any tuples

matching one of the search words. The list will have a pre-results entry for the broker.html dynamic page creation point that contain three tuple numbers for tuples that contain the word 'jackson' and two tuple numbers for tuples that contain the word 'Yahoo'.

The CSE then identifies those dynIDs that have tuples that contain both of the search words (since the user requested an AND search) and the tuple numbers of these tuples. In the Stockadvice example there is one tuple that contains both search words, hence the dynID for broker.html is returned.

The CSE then looks at the inputs for the tuple number returned, ie tuple 5, to create the query string. In this case the inputs are the first two columns of the tuples. In tuple 5 the values are 'YHOO' and 'jackson'. As the form field names are also stored in the forward index entry the CSE is able to construct the query string, which is:

scode=YHOO&bname=jackson.

The CSE also checks the URL of the form handling program (also stored in the forward index) – in this case it is:

http://www.stockadvice.com/cgi-bin/brokerdata

The CSE then puts these together to construct the overall URL of the dynamic page as follows:

http://www.stockadvice.com/cgi-bin/brokerdata?scode=YHOO&bname=jackson.

A search may also include other words that appear on the dynamic page. With reference to the Stockadvice example and Figure 9C in particular, the word 'broker' appears on all the dynamic pages. In this case there would be a hit in the inverted index, with dynID 5000 as well. It would be marked as a hit on a static word.

2.3 Indexing Applet Pages

Applets are another method commonly used to access databases. An applet is a small program written in Java. An applet can be named in the html code of a web page, and when a user views that web page, the applet, along with the web page are downloaded to the user's computer. The applet program is then automatically run. The applet can present boxes for entering text on the web page, and buttons to click to submit this text. Upon submission, the applet can generate a change in appearance on the page, to show the results of the query.

These pages are not dynamic pages in the sense discussed previously, but they do have the feature of being able to accept user input and then display results drawn from a backend database.

There are two main ways that a database may be accessed from an applet. First, the applet may contain the statements for connecting to a database itself. The other main option is that the applet does Remote Method Invocation on another Java class which in turn carries out the database access.

2.3.1 Server Based Agent for Applets

When the SBA is first installed it looks though the web site's directory tree, checking each html page. As described previously, an SBA is able to identify pages that contain a form tag. In this case, it also looks for pages that contain an applet tag.

To narrow these pages to applets that only access databases, the SBA looks at the ascii strings from the Java binary, and identifies an SQL query. If the applet itself accesses the database the SBA should find an SQL query in the strings from the applet. If an SQL statement is found, then this page is considered to be one whose output involves accessing a database.

The other case is that the applet may call, using Remote Method Invocation, a class that does the database query. This Java class called by the applet must be in the same directory as the applet code. Also, the names of any classes called by the applet will occur in the list of strings for the applet. Therefore, the SBA checks through the strings extracted from each class that is named in the applet code, and occurs in the applet's directory on the machine hosting the web site directory tree. If any of these contain SQL statements, then the original page that contained the applet tag is considered to be a page that accesses a backend database.

The determination of username and password occurs in a similar way to form handling programs, as described previously. The strings in the binary are identified. The username and password are specified in a Java Database Connectivity (JDBC) connection statement. Further to connecting to the database, the SBA needs to determine the information for the JDBC URL. In the case of the applet, the JDBC URL will already be present – so the SBA has direct access to it.

This case involves indexing applet pages that use text field inputs to access a backend database. The SBA then determines the names of the text field inputs used to access the database. This is equivalent to the names of the form input fields discussed earlier. The SBA achieves this by making a subclass of the applet, which looks at the names of the applet's fields.

```
class Extract extends OriginalApplet{

 public static void main(String[] argv){
  Field[] fds = OriginalApplet.getFields();
 }

 }
```

The SBA then considers the SQL query used by the applet, as this was found earlier to verify that the applet accesses a backend database.

The process of matching text fields to database columns is the same as for form handling programs. The SBA installs an ODBC sniffer, which monitors queries sent to the backend database. The SBA then sends a query to the applet and monitors the SQL query that is produced.

The structure of the CI and the information sent to the CI from the SBA is generally the same as for the dynamic page case. This information includes the input tuples or database columns corresponding to text field inputs.

In order to create a clickable link on the search engine's results page, the SBA installs a new applet at its site that is a subclass of the original applet. The SBA also installs a new page that includes the new applet.

The link that appears on the search engine's results page will be to another script installed by the SBA. This script reads the query string sent by the search engine, and alters the applet tag on the page that includes the new applet by including the query string that has been sent by the search engine as a parameter. The script then redirects to the page that includes the new applet. The new applet is a subclass of the original. In its init() method it will read in the query string, set the text in the text fields accordingly and mimic the clicking of the submit button. An example of part of this code follows:

```
public class ResultApplet extends DBApplet{

 Button submit = new Button("Enter");

 public void init(){
  super.init();
  field1.setText( "sometext");
```

```
SubmitActionListener sal = new SubmitActionListener(this);
submit.addActionListener(sal);
sal.actionPerformed(null);

}

}
```

2.3 Web Server Statistics

An SBA may also collect useful statistical information about its local server. There are a number of ways in which an SBA may collect this information including:

(i) accessing log files produced by the local server

(ii) monitoring HTTP connections directly

(iii) in the case of an SBA that is integrated with the server, by accessing internal data structures.

The statistics that may be collected by the SBA are numerous, and include:

(i) the number of hits to a page or site

(ii) the page that was linked from (ie the page from which the user came from to reach this page, and this can include the search engine keywords used (obtainable from the URL of the search) if the user came from a search query page

(iii) the amount of time spent at a page, page set or web-site

(iv) demographic information about the users such as their address, location, etc

(v) bandwidth statistics of the server, including time between packets of a single page, and time between page elements (eg images, applets, sounds, etc).

This information collected by the SBA may be sent to the CI in a similar manner to other information. It may be used to:

(i) tailor search results to the demographic profile of an individual search engine user

(ii) direct users to the site which should give the fastest response (eg mirror sites, etc)

(iii) rank search engine results according to average time users spend on a page, demographic profile of the user, and/or keywords used in previous searches which found a particular page.

2.4 E-Commerce Applications

E-commerce is a specialist application of an SBA providing indexing information on dynamic pages. A CI may be used to provide an e-commerce portal for SBAs installed at shopping sites. Information that may be indexed includes:

(i) product name/model/manufacturer etc
(ii) price, including quantity pricing and discounts, taxes, etc
(iii) location
(iv) delivery time and freight cost options
(v) quality and reviews
(vi) picture of the product
(vii) warranty information
(viii) payment options, loyalty programs, etc

The E-commerce portal may also provide searching based on one or a combination of criteria, such as price including freight, delivery time, warranty period and location, quality and reviews and payment requirements.

Purchases may occur either through the CI's portal or a user may be directed to the relevant e-commerce site.

The CI's e-commerce portal may perform total cost calculations to identify an optimal cost based on the location of the buyer and the physical location of the product (freight costs), sales tax and duty issues, etc.

The SBAs may include an e-commerce package for building an e-commerce site, and options exist for payment and freight to occur either through the CI's e-commerce portal or the local site.

Throughout the specification reference has been made to use of the indexing system in relation to the Internet, with web servers, in association with web sites in the form of html pages. However it should be appreciated that the invention is also applicable to any form of server that provides access to data that may be indexed for searching purposes.

Many modifications will be apparent to those skilled in the art without departing from the scope of the present invention as hereinbefore described with reference to the accompanying drawings.

CLAIMS:

1. A method for generating an index of data available from a server, including:

processing data on said server to access data items for a central index, said data items including network addresses and terms;

compiling an index file including said data items; and

transmitting said index file to said central index.

2. A method as claimed in claim 1, wherein said processing includes determining changes in said data items, and said index file is an index delta file comprising said changes in said data items.

3. A method as claimed in claim 1, wherein said processing includes locating database query statements in said data and said data items include input tuples for said statements.

4. A method as claimed in claim 3, wherein said data items include additional data for accessing a database corresponding to said statements.

5. A method as claimed in claim 4, wherein said additional data includes the network address of a form handling program.

6. A method as claimed in claim 5, wherein the additional data includes the network address of a form page, and details on the input fields for the tuples and columns of the database.

7. A method as claimed in claim 6, wherein the additional data includes terms from the form page and terms from dynamic pages generated by the form handling program in response to tuples submitted on the form page.

8. A method as claimed in claim 6, wherein said additional data includes additional details for accessing the database, such as database type and name, and any authentication data for access, such as a username and password.

9. A method as claimed in claim 3, wherein said processing includes processing data requests received at said server to extract said tuples.

10. A method as claimed in claim 3, wherein said data items include output tuples.

11. A method as claimed in claim 10, wherein said processing includes processing data requests received and responses generated at said server to extract said tuples.

12. A method as claimed in claim 3, wherein said processing includes generating dynamic pages using said statements and said input tuples, and said data items include terms of said dynamic pages.

13. A method as claimed in claim 1, wherein said processing includes processing dynamic pages transmitted from said server in response to data requests and said data items include terms of said dynamic pages.

14. A method as claimed in claim 3, wherein said processing includes identifying dynamic pages on the basis of tags associated with said query statements.

15. A method as claimed in claim 14, wherein said tags are form tags.

16. A method as claimed in claim 14, wherein said tags are applet tags, and said compiling includes generating a submit applet to submit said input tuples to an applet identified by an applet tag, and said data items include a network address for the submit applet.

17. A method as claimed in claim 2, wherein said determining includes installing database triggers to detect changes in columns of a database accessible by query statements in said data, said changes including said changes in said columns.

18. A method as claimed in claim 2, wherein said processing includes generating link pairs from said data, said link pairs including a source network address and target network address and said data items include said pairs.

19. A method as claimed in claim 18, including detecting a change in at least one of said pairs, and sending a change notification to a location corresponding to said source address of said pair.

20. A method as claimed in claim 19, including receiving said change notification and adjusting said data associated with said source address on the basis of said change.

21. A method as claimed in claim 20, wherein said adjusting includes replacing tags with said target address with tags to a new target address.

22. A method as claimed in claim 18, including detecting a change in at least one of said pairs, and sending a change notification to a location corresponding to said target address.

23. A method as claimed in claim 22, including receiving said change notification and establishing a link referral page on the basis of said change at a server associated with said target address.

24. A method as claimed in claim 1, wherein said processing includes accessing statistical data on said server, such as relating to data requests received at said server and data responses sent from said server, and said data items include statistical data.

25. A method as claimed in any one of the preceding claims, wherein said method is executed by an agent for said central index.

26. A method as claimed in claim 25, wherein said agent is on said server.

27. An agent having components for executing the steps of the method as claimed in any one of claim 1 to 24.

28. A method as claimed in any one of claims 1 to 24, including:

receiving said index file at said central index, which has an index database; and

maintaining said index database on the basis of entries in said index file, said index database being adapted for use by a search engine.

29. A method as claimed in claim 28, wherein said index database includes index entries of said data items, said entries of said index file and said index database correspond to pages of data having said data items.

30. A method as claimed in claim 29, wherein said index database includes a lexicon of terms of said data items, and said index database is accessible by said search engine to construct network addresses to generate dynamic pages on the basis of said data items, in response to a search engine query received by said search engine.

31. An indexing system having components for executing the steps of the method as claimed in any one of claims 1 to 24 and 28 to 30.

32. An index of data accessible from servers, including:

page entries including a program address for a program for generating a dynamic page and input tuples for submission to the program to generate the page; and

search entries identifying the dynamic pages and identifying the tuples corresponding to search terms.

33. A search engine operable on the index claimed in claim 32, including:

means for accessing the search entries to identify dynamic pages corresponding to search terms of a search query; and

means for accessing the page entries to generate addresses for the dynamic pages identified, said addresses being generated on the basis of said program address and said tuples.

34. An indexing system including:

an agent as claimed in claim 27;

an index as claimed in claim 32; and

a search engine as claimed in claim 33.

35. An indexing system, including:

a server for providing access to at least one site;

a server agent for creating an index file of data relating to the site; and

a central index for storing index information from the index file, wherein the server agent initiates communication with the central index for transfer of the index file.

36. An indexing system as claimed in claim 35, wherein the server agent is adapted to review the at least one site and compile an index delta file, representing changes to the at least one site, the delta file being transmitted to the central index for updating the index information.

37. An indexing system as claimed in claim 36, including a plurality of servers and associated server agents arranged to transmit a respective index file and/or index delta file to the central index.

38. An indexing system as claimed in claim 37, wherein each delta file includes information on any change affecting the validity of links in the sites of the respective servers.

39. An indexing system as claimed in claim 38, wherein the server agents, upon identifying said change, are arranged to transmit notification of the change to a corresponding server associated with another site that includes an invalidated link resulting from the change.

40. An indexing system as claimed in claim 39, wherein the central index is adapted to identify a site affected by the change and to transmit notification to a corresponding server associated with that site.

41. An indexing system as claimed in claim 40, wherein the notification is transmitted to the respective server agent of the corresponding server which, upon receipt of the notification, is adapted to effect action to update information on the corresponding server and/or relevant site.

42. An indexing system as claimed in claim 40, wherein the notification is transmitted to an administrator of the corresponding server and, upon receipt of the notification, the administrator is able to effect action to update information on the corresponding server and/or relevant site.

43. An indexing system as claimed in claim 37, wherein at least one of the sites serves a dynamic page which is created by access to a database and the index file for dynamic pages includes possible inputs that will generate a valid page by a corresponding form handling program.

44. An indexing system as claimed in claim 43, wherein the index file further includes possible outputs and text of the dynamic page.

45. An indexing system as claimed in claim 43, wherein the server agent associated with the dynamic page is adapted to access the databases and include one or more columns of the database in the index file.

46. An indexing system as claimed in claim 43, wherein the server agent associated with the dynamic page introduces a trigger in the database to identify any changes in the database, the changes being included in the index delta file associated with the dynamic page.

47. An indexing system as claimed in claim 43, wherein the index file associated with the dynamic page includes a record of inputs of pages previously retrieved therefrom by users.

48. An indexing system as claimed in claim 43, wherein the index file associated with the dynamic pages includes an index of the full text pages of the dynamic pages, previously retrieved by users.

49. An indexing system as claimed in claim 43, wherein the index file associated with each dynamic page for which input/output tuples or row/column indexing is stored further includes an identifier for identifying the form handling program and text associated with the page.

50. An indexing system as claimed in claim 43, including a server for accessing the central index in response to search queries.

51. A method of indexing, including:

providing a server agent for indexing sites provided by a server;

compiling an index file representing site data of the sites; and

transmitting the file to a central index, wherein the server agent initiates communication with the central index for transfer of the index file.

52. A method of indexing as claimed in claim 51, wherein the server agent processes the sites and compiles an index delta file, representing changes to the one or more sites, the delta file being transmitted to the central index for updating index information held by the central index.

53. A method of indexing as claimed in claim 52, wherein the server agent records link information on the sites and any change affecting the validity of the link information is recorded in the delta file.

54. A method of indexing as claimed in claim 53, including identifying said change at one of a plurality of servers with associated server agents and transmitting, from a respective server agent, notification of the change to a corresponding server associated with another site of that link.

55. A method of indexing as claimed in claim 53, wherein the central index has a list of site addresses and, upon receipt of a delta function indicating said change, an associated site affected by the change is identified and notification is sent to the corresponding server of the affected site.

56. A method of indexing as claimed in claim 54 or 55, wherein the notification is transmitted to a relevant server agent of the corresponding server which, upon receipt of said notification, effects action to update information on the corresponding server and/or relevant site.

57. A method of indexing as claimed in claim 54 or 55, wherein the notification is transmitted to an administrator of the corresponding server and, upon receipt of the notification, the administrator is able to effect action to update information on the corresponding server and/or relevant site.

58. A method of indexing as claimed in claim 51, wherein the index file includes information relating to dynamic pages of the sites.

59. A method of indexing as claimed in claim 58, wherein the index file includes possible inputs to generate the dynamic pages.

60. A method of indexing as claimed in claim 59, wherein an index file includes possible outputs used to generate the dynamic pages.

61. A method of indexing as claimed in claim 58, wherein the server agent associated with a dynamic page identifies at least one database used to create the dynamic page, and extracts the text and input tuples for inclusion in the index file.

62. A method of indexing as claimed in claim 61, wherein the server agent extracts output tuples associated with said input tuples.

63. A method of indexing as claimed in 62, wherein said server agent extracts input and/or output columns of the database for inclusion in the index file.

64. A method of indexing as claimed in claim 61, wherein the server agent introduces a trigger in the database to report to the server agent when changes occur in the database, the changes being included in an index delta file.

65. A method of indexing as claimed in claim 58, wherein the index file includes a record of inputs and/or outputs used to generate previously retrieved dynamic pages.

66. A method of indexing as claimed in claim 58, wherein the index file includes an index of the text of dynamic pages previously retrieved by users.

67. A method for indexing dynamic pages including:
identifying at least one database accessed in producing a dynamic page;
determining the parameters and environment variables of the database;
determining a relationship between input fields of the page and the database;
identifying columns of the database that correspond to inputs; and
storing data of the columns in an index file.

68. A method as claimed in claim 18, including detecting a change in at least one of said pairs and adjusting at least one network address stored in a user's system on the basis of said change.

69. A method as claimed in claim 18, including detecting a change in at least one of said pairs and adjusting at least one network address stored as a bookmark for a browser.

70. A browser agent, executable on a user computer system, having means for communicating with an index of an indexing system to determine a change in a network address stored on said user computer system.

71. A browser agent as claimed in claim 70, wherein said indexing system is as claimed in anyone of claims 34 to 50.

72. A browser agent as claimed in claim 70, wherein said index is as claimed in claim 32

73. A browser agent as claimed in claim 70, wherein said network address is a URL stored as a bookmark.

74. A browser agent as claimed in claim 70, having means for adjusting said network address on the basis of said change.

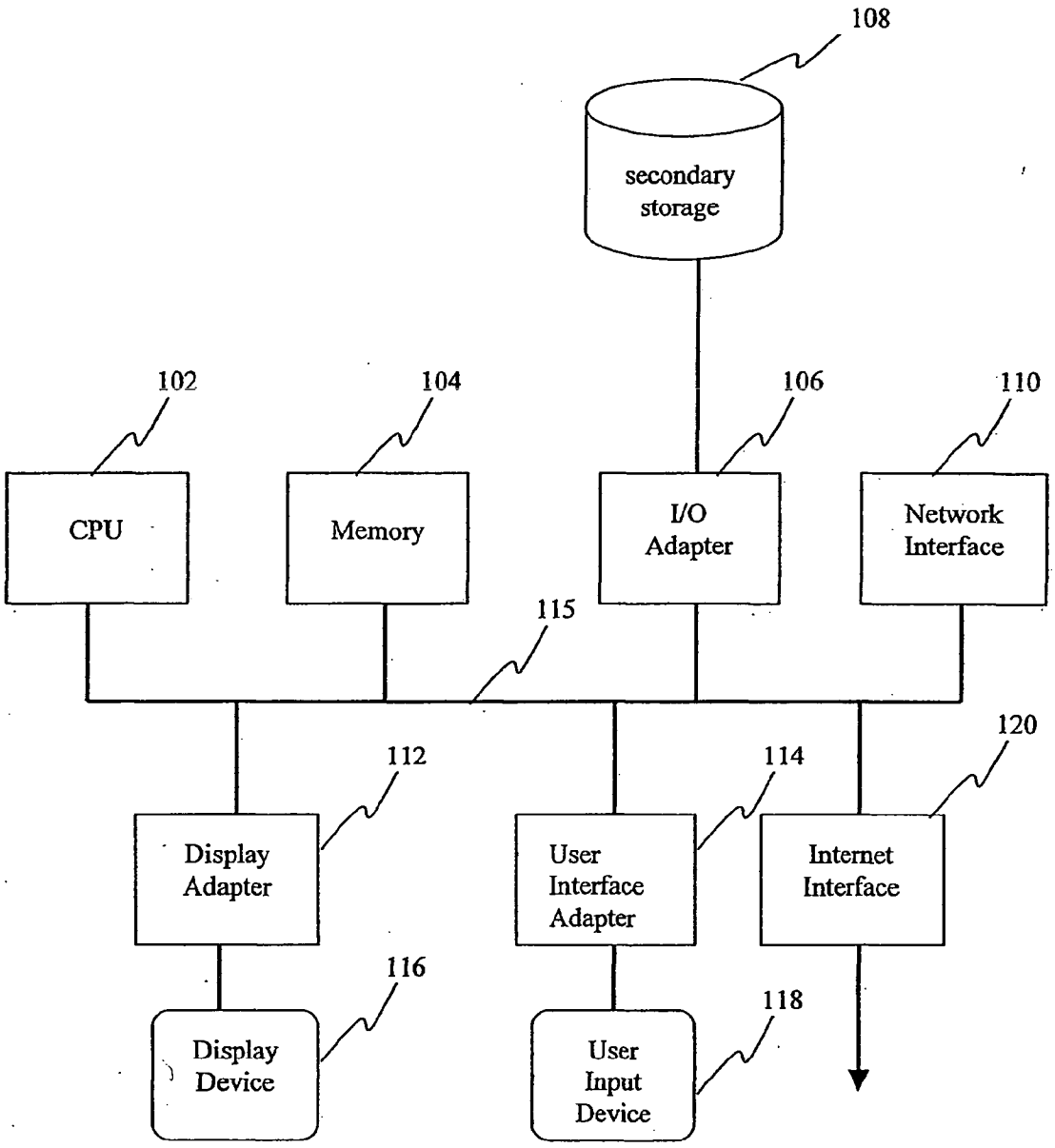


FIG. 1

IPE 0003712

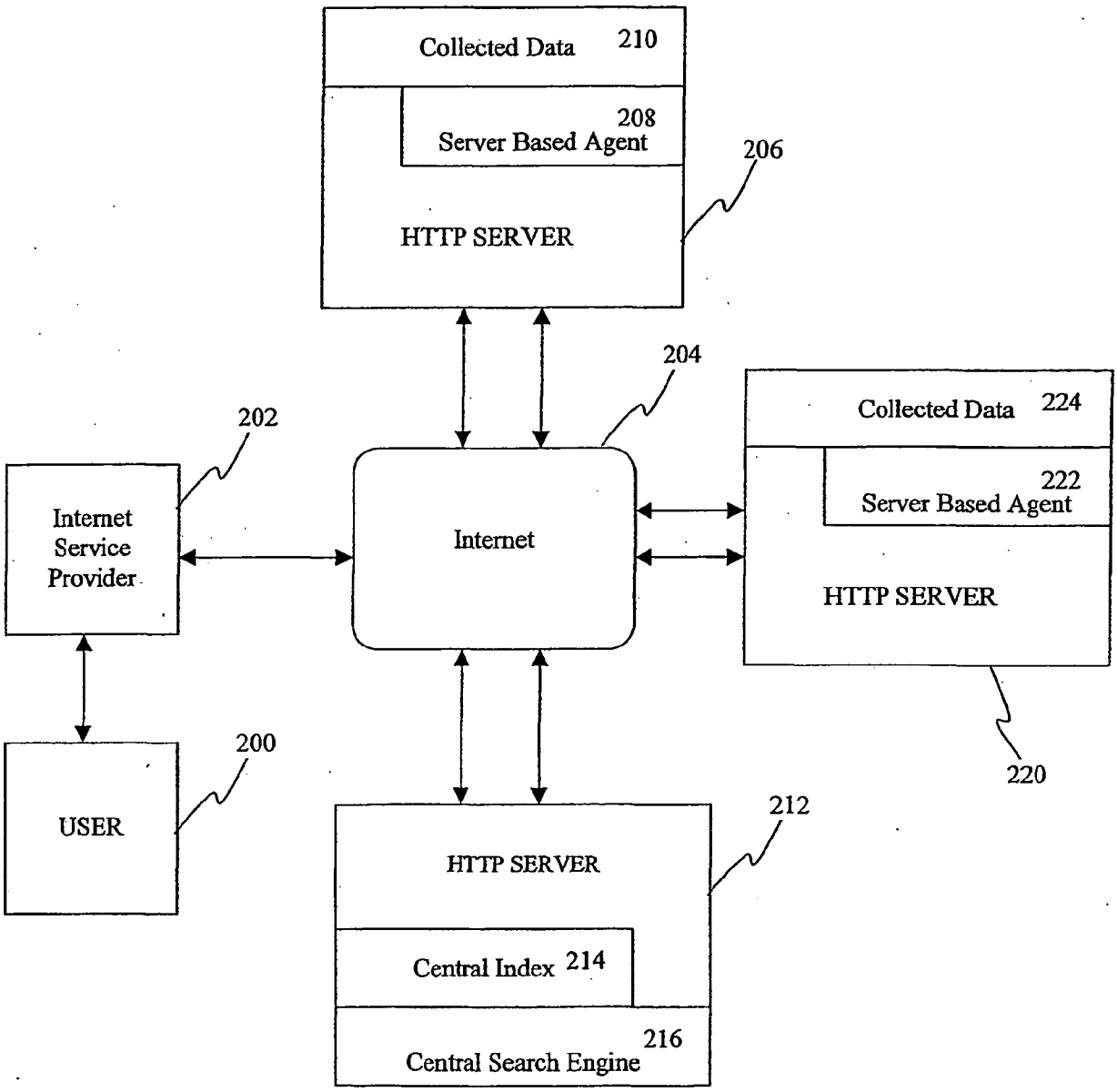
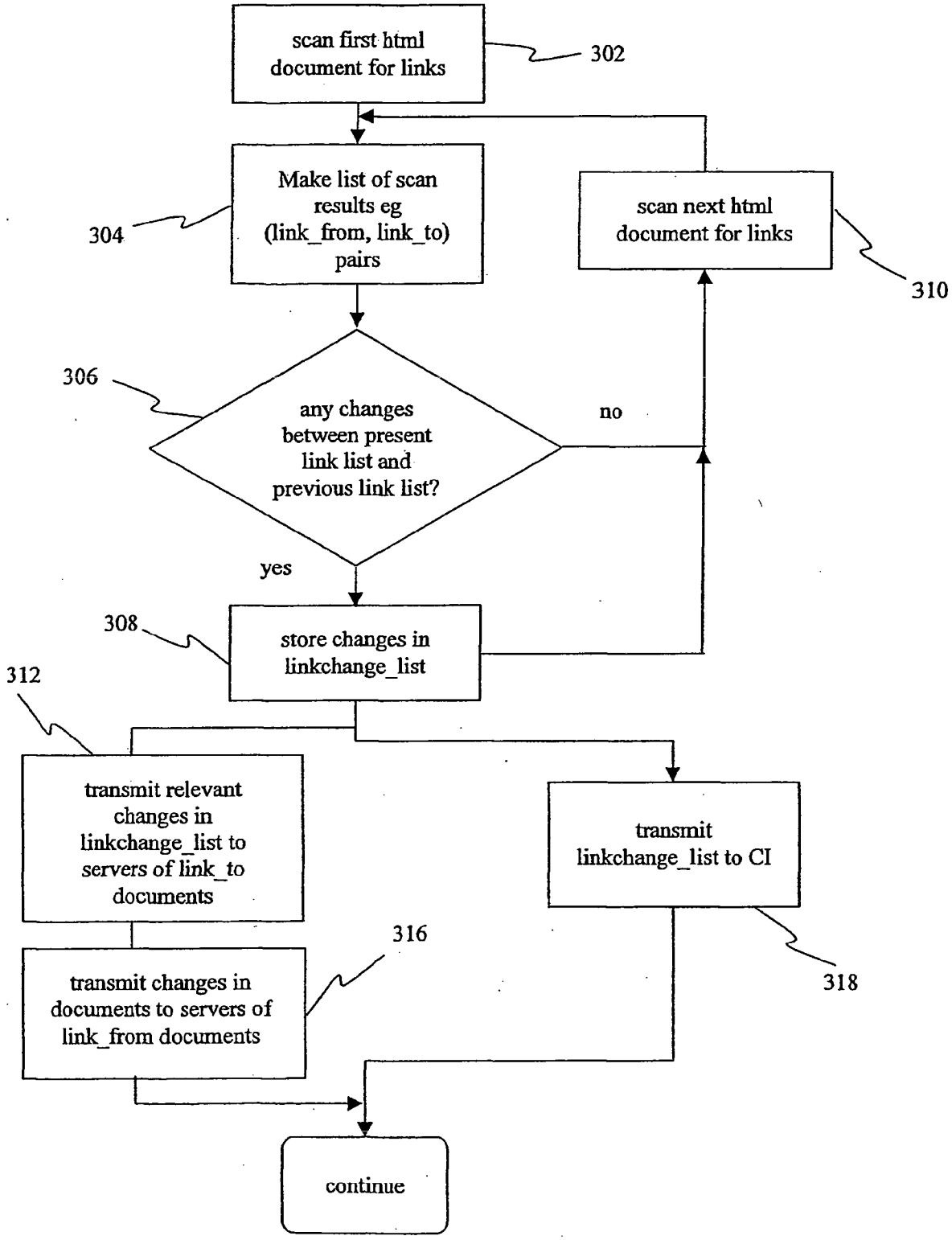


FIG. 2

IPE 0003713


scan first html document for links
302
Make list of scan results eg (link_from, link_to) pairs
304
scan next html document for links
310
306
any changes between present link list and previous link list?
no
yes
308
store changes in linkchange_list
312
transmit relevant changes in linkchange_list to servers of link_to documents
transmit linkchange_list to CI
316
transmit changes in documents to servers of link_from documents
318
continue

IPE 0003714

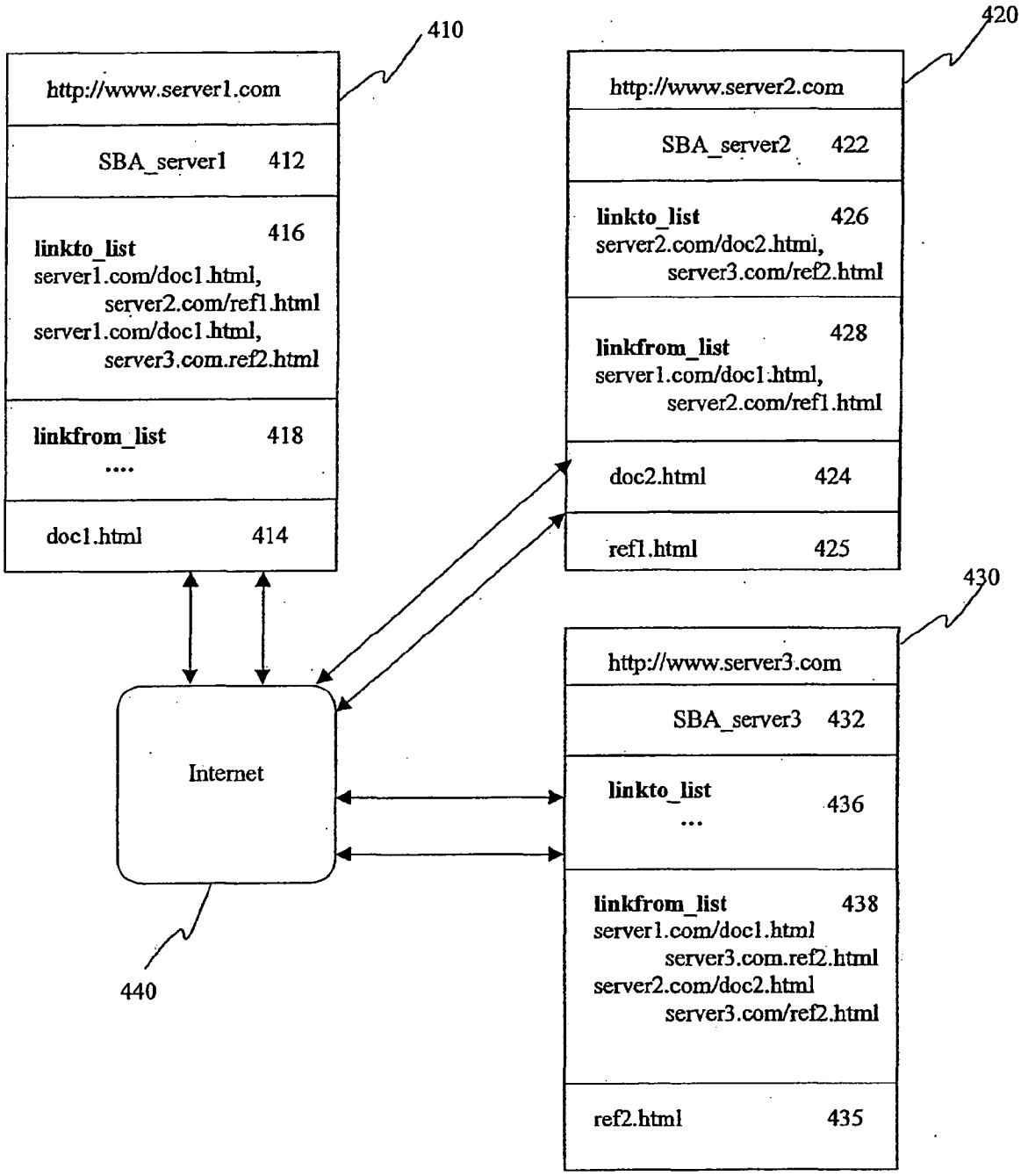
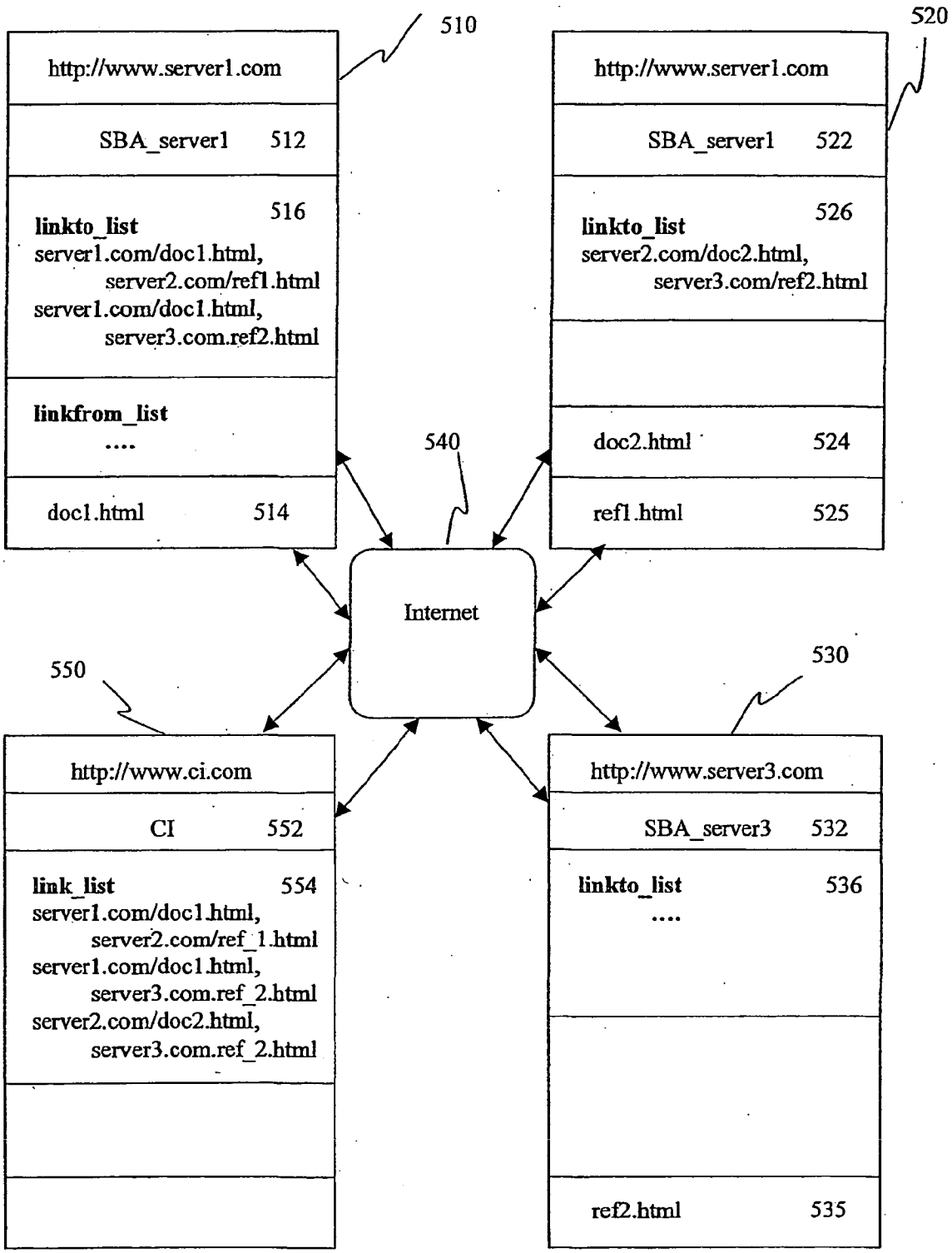

410
http://www.server1.com
SBA_server1 412
416
linkto_list
server1.com/doc1.html,
server2.com/ref1.html
server1.com/doc1.html,
server3.com.ref2.html
linkfrom_list 418
....
doc1.html 414
420
http://www.server2.com
SBA_server2 422
linkto_list 426
server2.com/doc2.html,
server3.com/ref2.html
428
linkfrom_list
server1.com/doc1.html,
server2.com/ref1.html
doc2.html 424
ref1.html 425
430
http://www.server3.com
SBA_server3 432
linkto_list 436
...
linkfrom_list 438
server1.com/doc1.html
server3.com.ref2.html
server2.com/doc2.html
server3.com/ref2.html
ref2.html 435
Internet
440

FIG. 4


510
http://www.server1.com
SBA_server1 512
516
linkto_list
server1.com/doc1.html,
server2.com/ref1.html
server1.com/doc1.html,
server3.com.ref2.html
linkfrom_list
....
doc1.html 514
520
http://www.server1.com
SBA_server1 522
526
linkto_list
server2.com/doc2.html,
server3.com/ref2.html
doc2.html 524
ref1.html 525
540
Internet
550
http://www.ci.com
CI 552
link_list 554
server1.com/doc1.html,
server2.com/ref_1.html
server1.com/doc1.html,
server3.com.ref_2.html
server2.com/doc2.html,
server3.com.ref_2.html
530
http://www.server3.com
SBA_server3 532
linkto_list 536
....
ref2.html 535

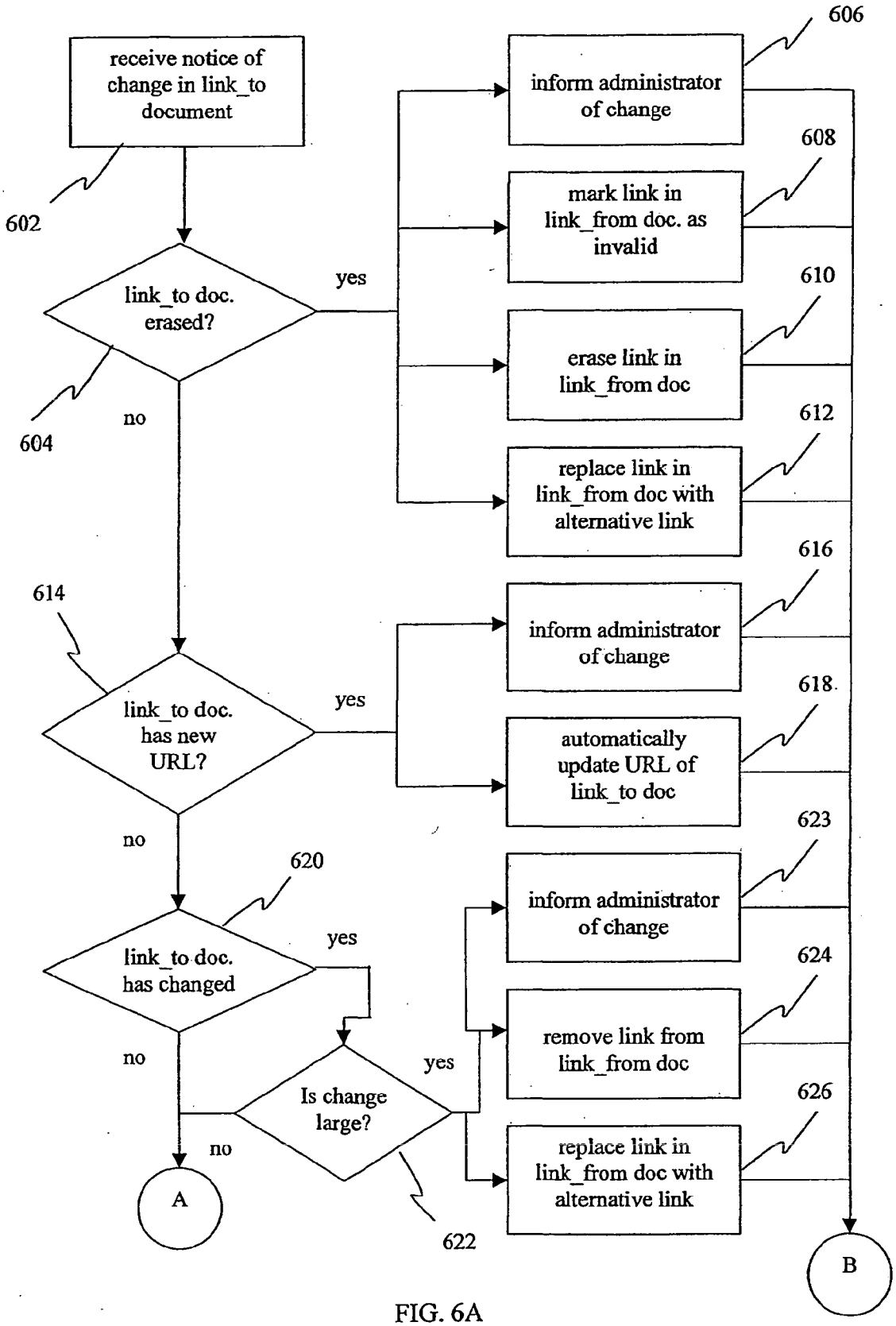

receive notice of change in link_to document
602
link_to doc. erased?
yes
no
604
606
inform administrator of change
608
mark link in link_from doc. as invalid
610
erase link in link_from doc
612
replace link in link_from doc with alternative link
614
link_to doc. has new URL?
yes
no
616
inform administrator of change
618
automatically update URL of link_to doc
620
link_to doc. has changed
yes
no
623
inform administrator of change
624
remove link from link_from doc
Is change large?
yes
no
626
replace link in link_from doc with alternative link
622
A
B

FIG. 6A

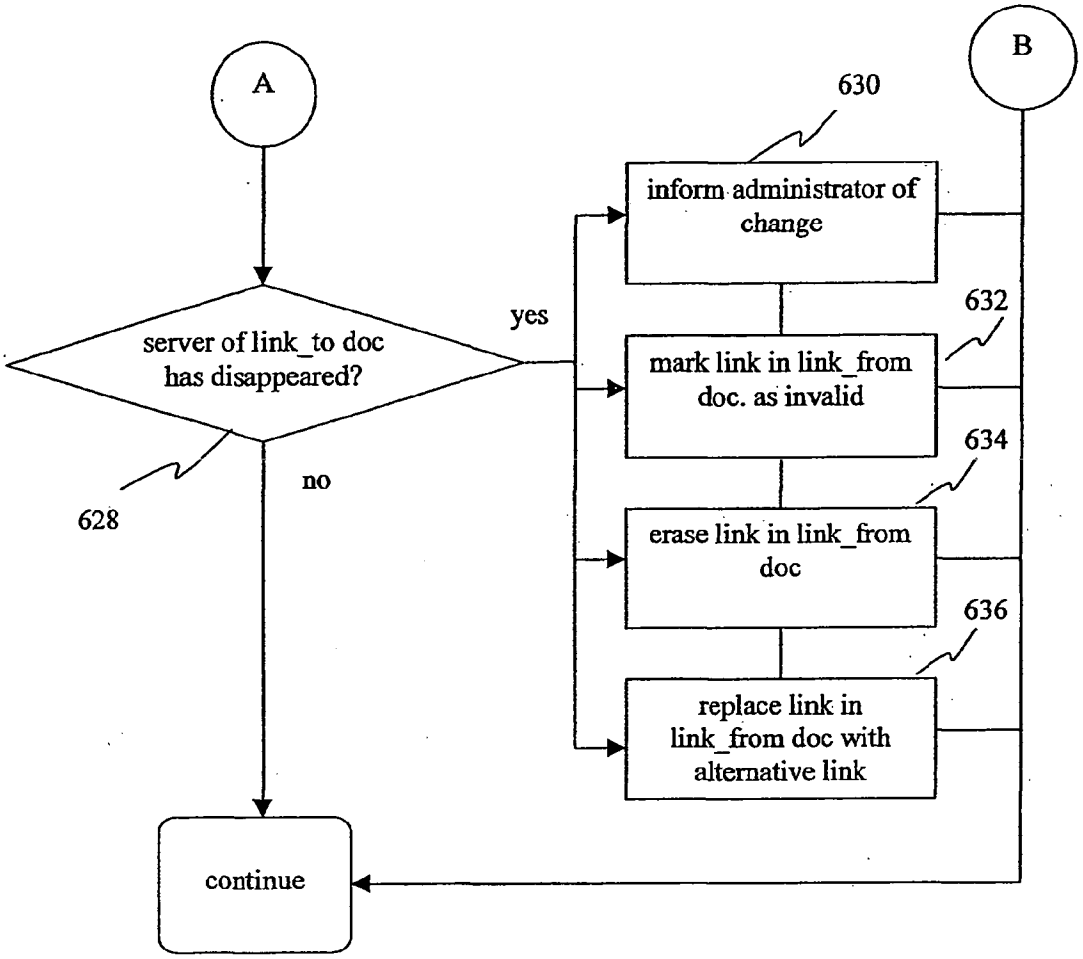

A
B
630
inform administrator of change
server of link_to doc has disappeared?
yes
632
mark link in link_from doc. as invalid
634
erase link in link_from doc
636
replace link in link_from doc with alternative link
no
628
continue

FIG. 6B

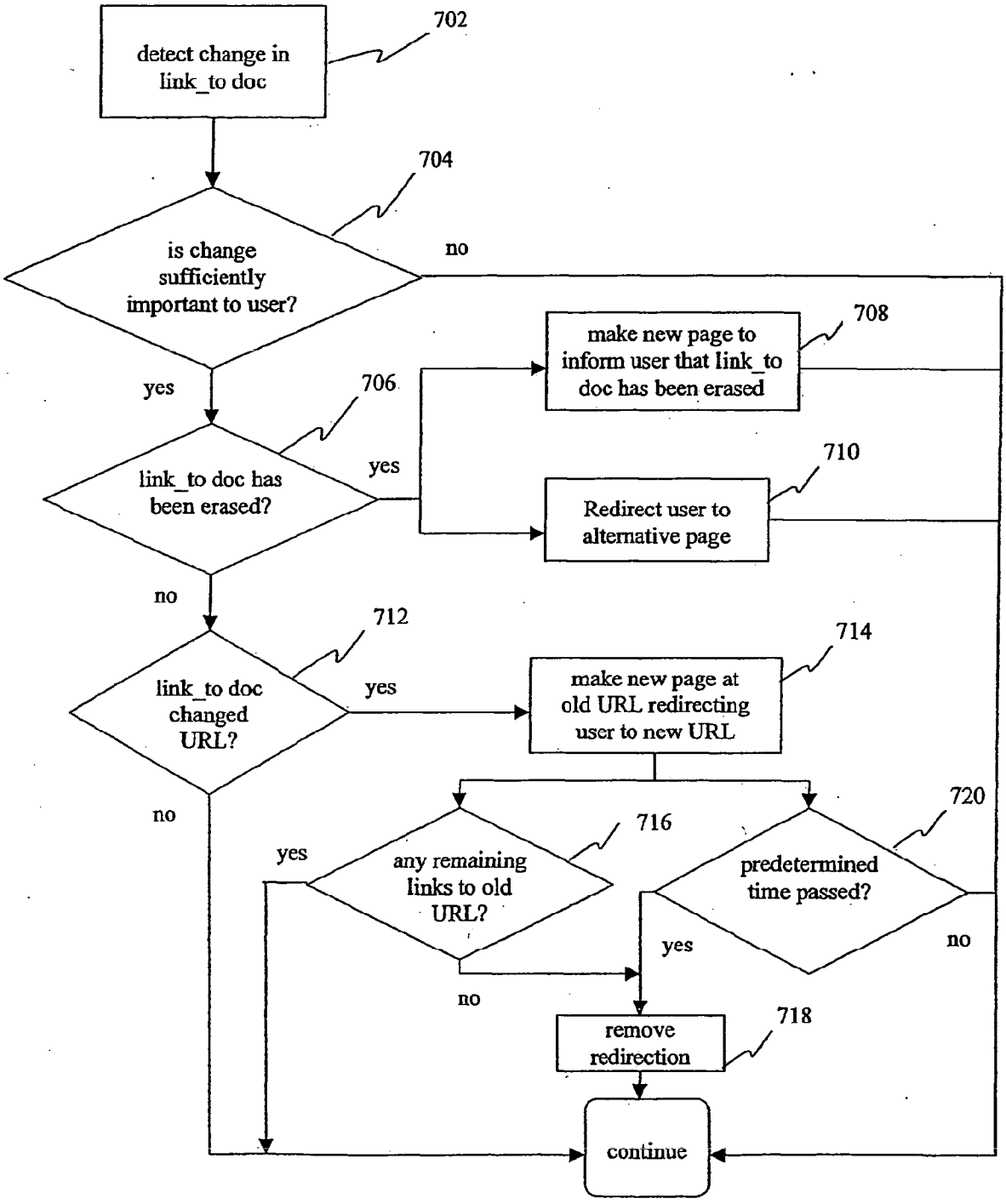

detect change in link_to doc
702
is change sufficiently important to user?
704
no
yes
link_to doc has been erased?
706
yes
make new page to inform user that link_to doc has been erased
708
Redirect user to alternative page
710
no
link_to doc changed URL?
712
yes
make new page at old URL redirecting user to new URL
714
no
any remaining links to old URL?
716
yes
no
predetermined time passed?
720
yes
no
remove redirection
718
continue

FIG. 7

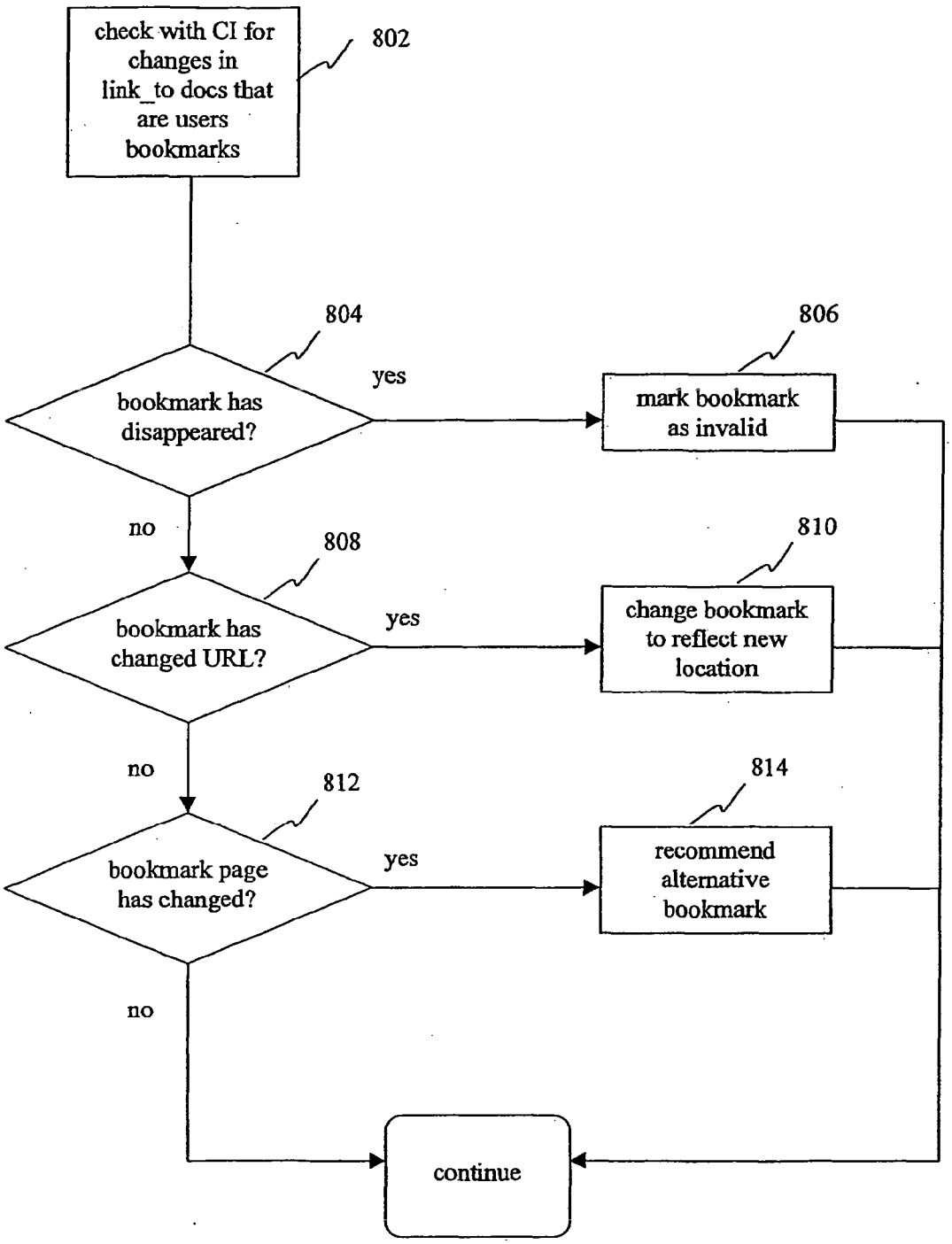

check with CI for changes in link_to docs that are users bookmarks
802
804
bookmark has disappeared?
yes
806
mark bookmark as invalid
no
808
bookmark has changed URL?
yes
810
change bookmark to reflect new location
no
812
bookmark page has changed?
yes
814
recommend alternative bookmark
no
continue

FIG. 8

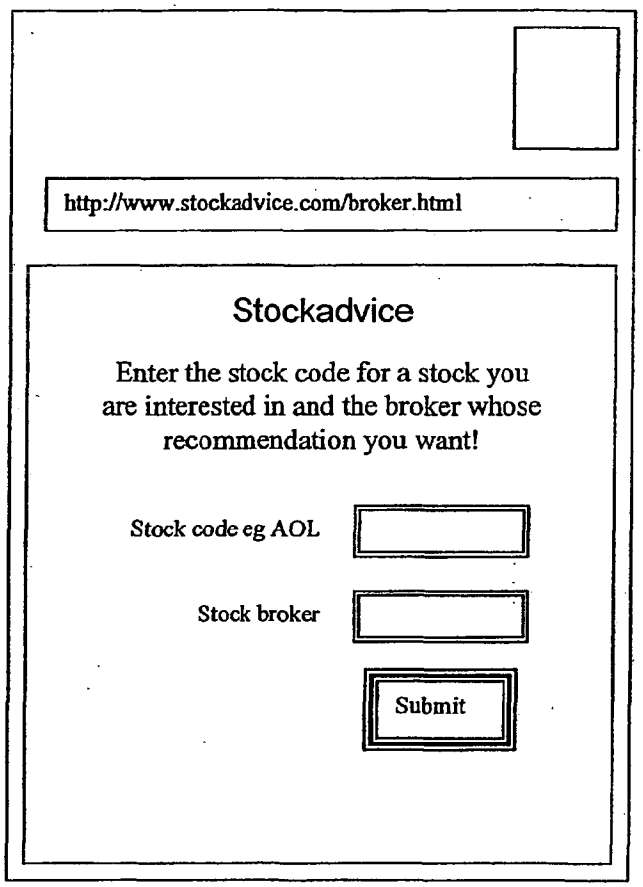

http://www.stockadvice.com/broker.html
Stockadvice
Enter the stock code for a stock you are interested in and the broker whose recommendation you want!
Stock code eg AOL
Stock broker
Submit

FIG. 9A

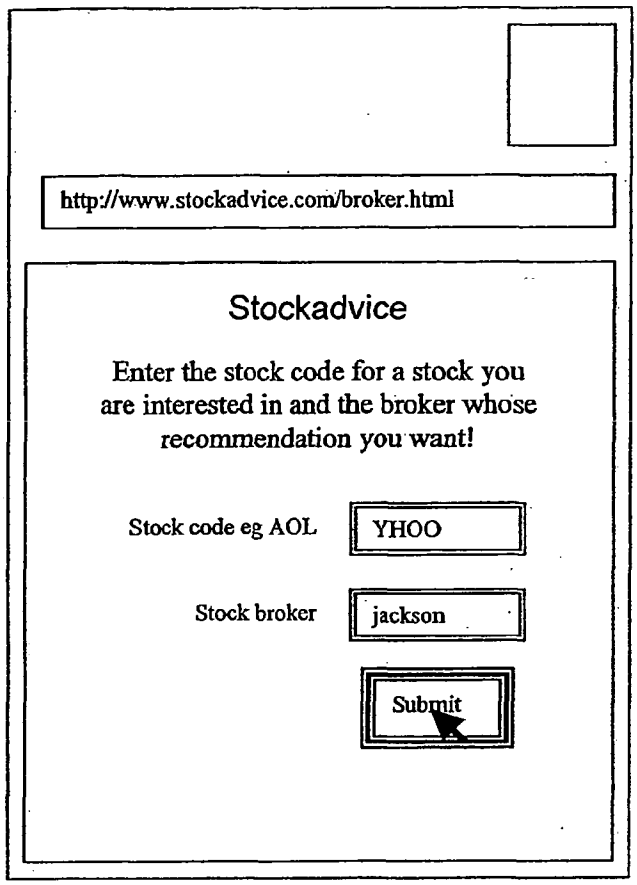


FIG. 9B

IPE 0003722

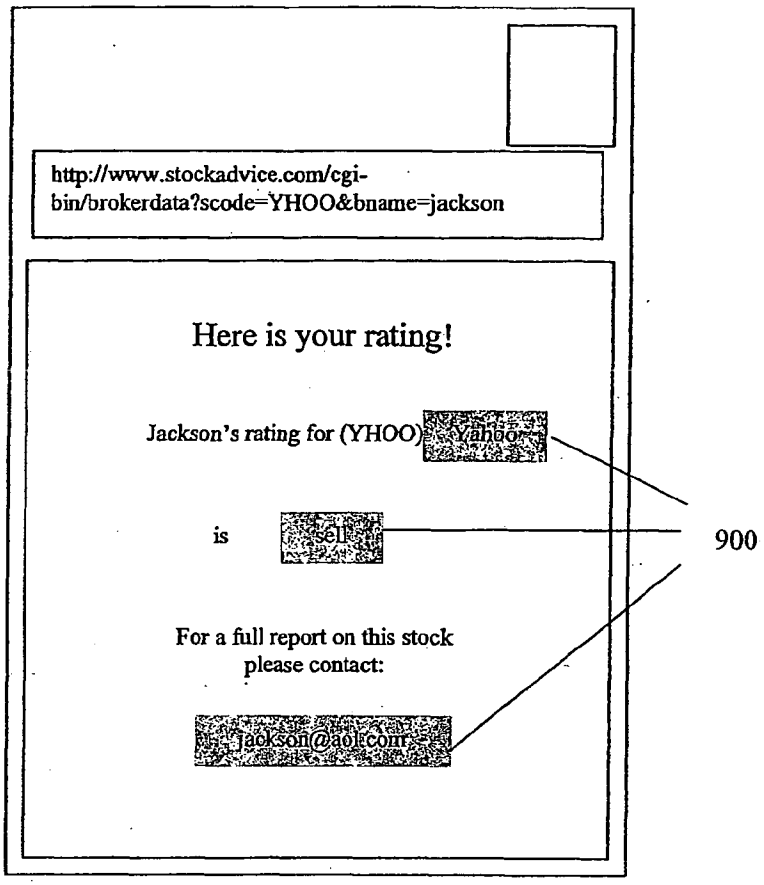

http://www.stockadvice.com/cgi-bin/brokerdata?scode=YHOO&bname=jackson
Here is your rating!
Jackson's rating for (YHOO) Yahoo
is sell
900
For a full report on this stock please contact:
jackson@aol.com

FIG. 9C

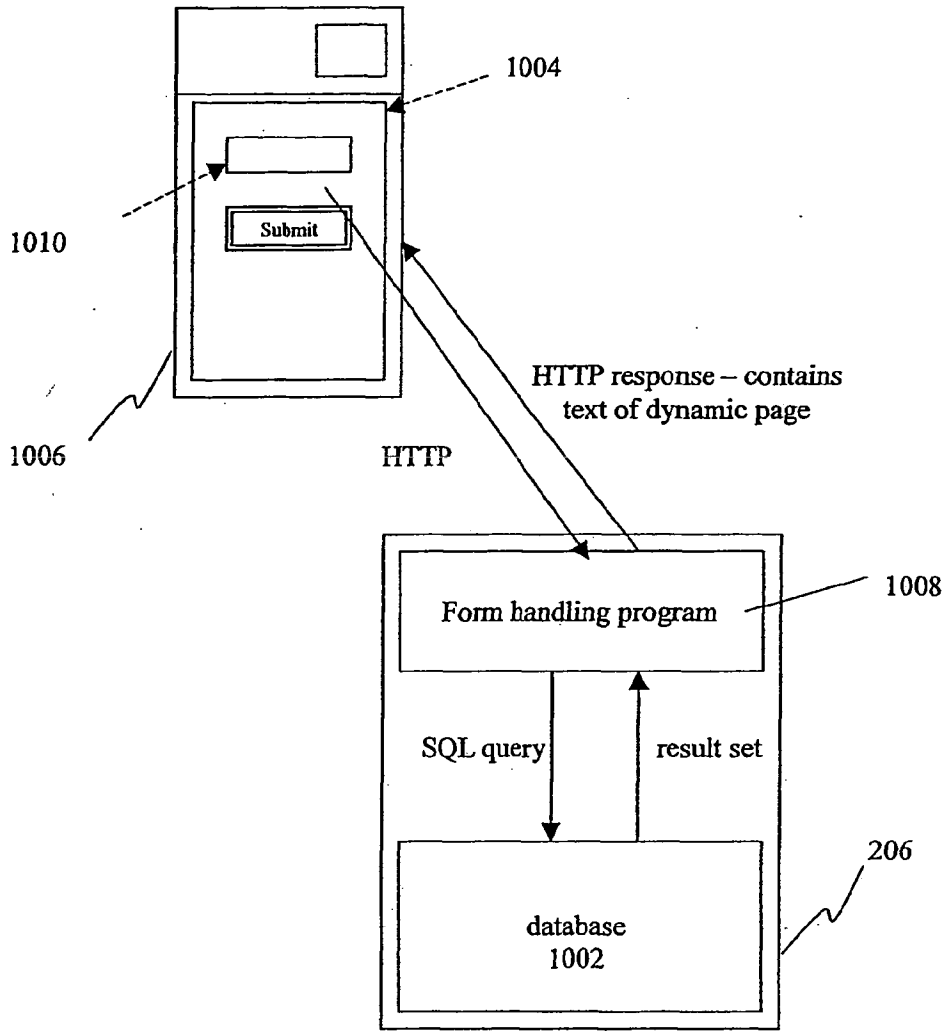

1004
1010
Submit
1006
HTTP response – contains text of dynamic page
HTTP
Form handling program
1008
SQL query
result set
206
database 1002

FIG. 10

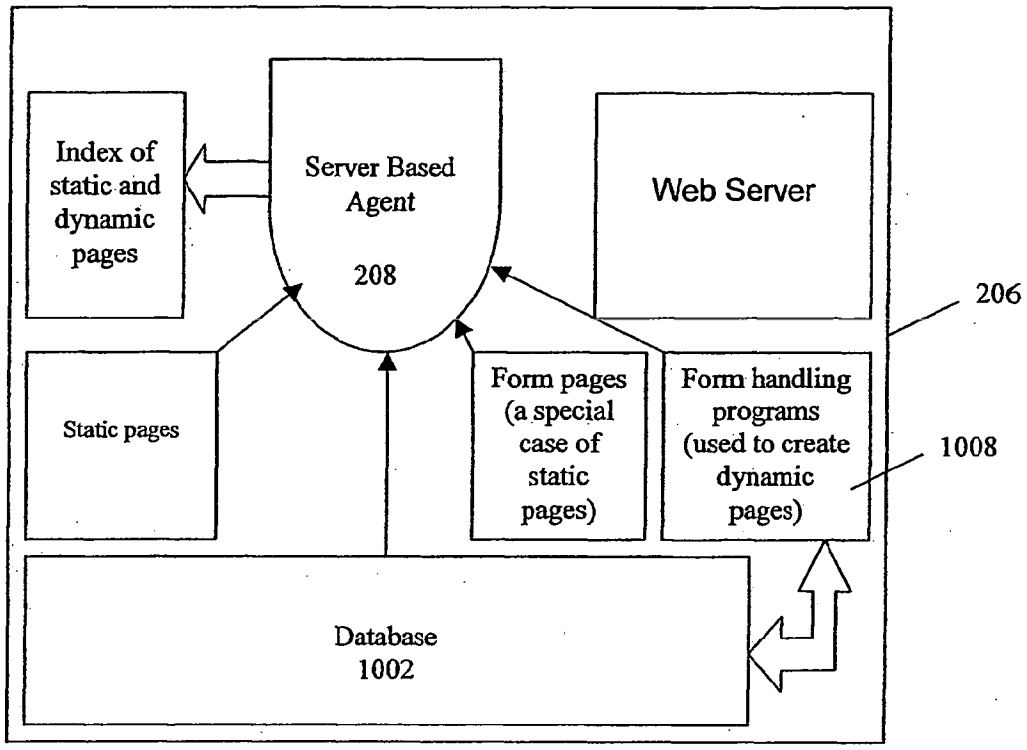


FIG. 11

IPE 0003725

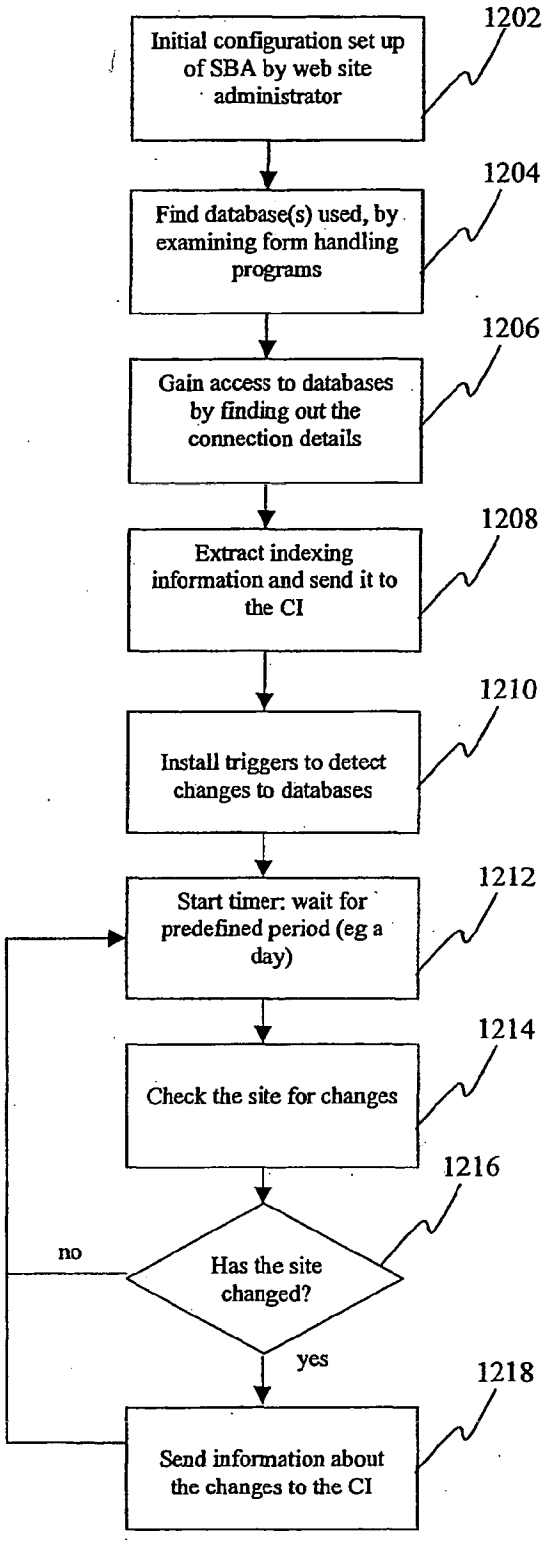

Initial configuration set up of SBA by web site administrator
1202
Find database(s) used, by examining form handling programs
1204
Gain access to databases by finding out the connection details
1206
Extract indexing information and send it to the CI
1208
Install triggers to detect changes to databases
1210
Start timer: wait for predefined period (eg a day)
1212
Check the site for changes
1214
Has the site changed?
1216
no
yes
Send information about the changes to the CI
1218

FIG 12.

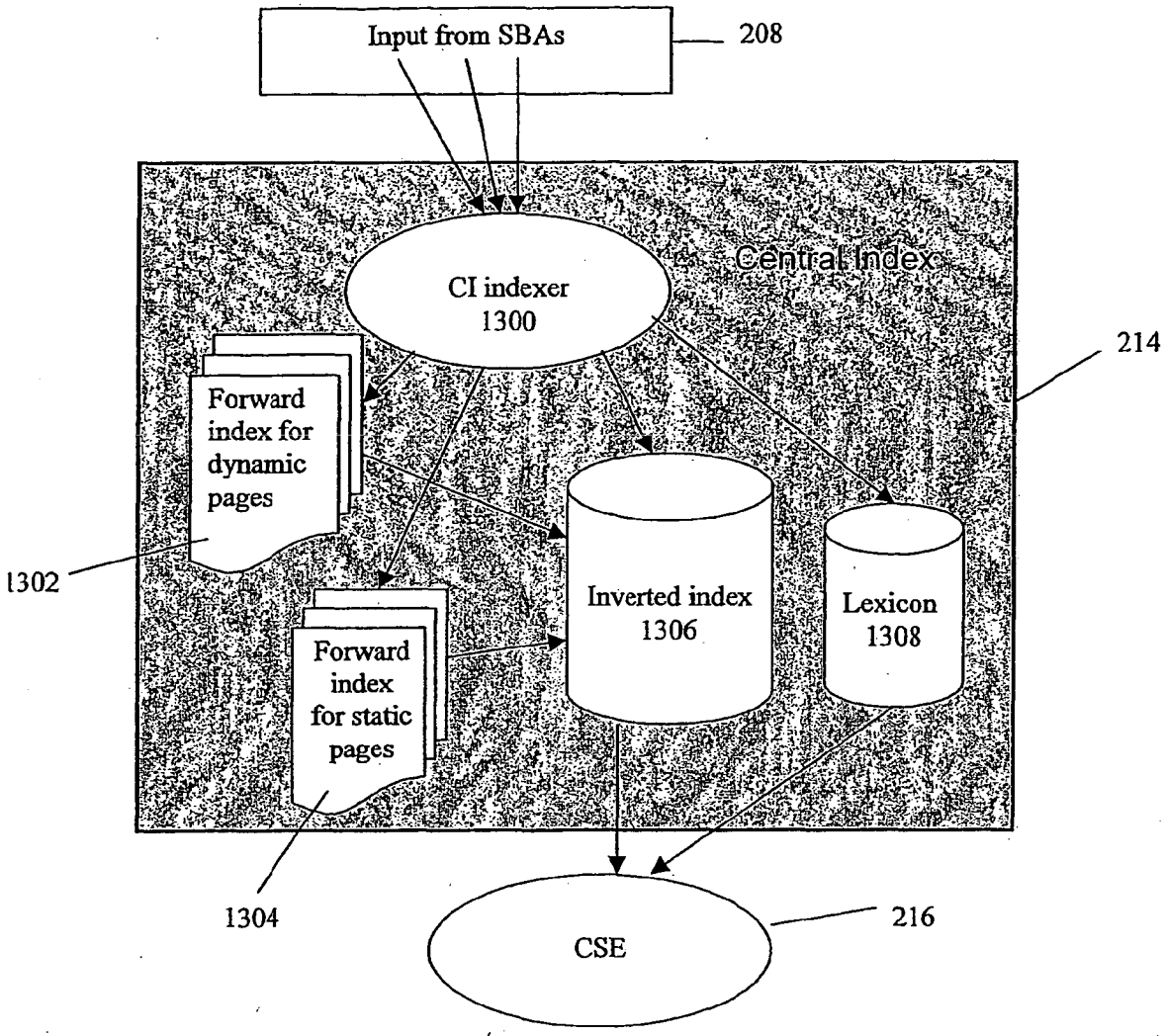

Input from SBAs
208
Central Index
CI indexer
1300
214
Forward
index for
dynamic
pages
1302
Inverted index
1306
Lexicon
1308
Forward
index
for static
pages
1304
CSE
216

Fig. 13

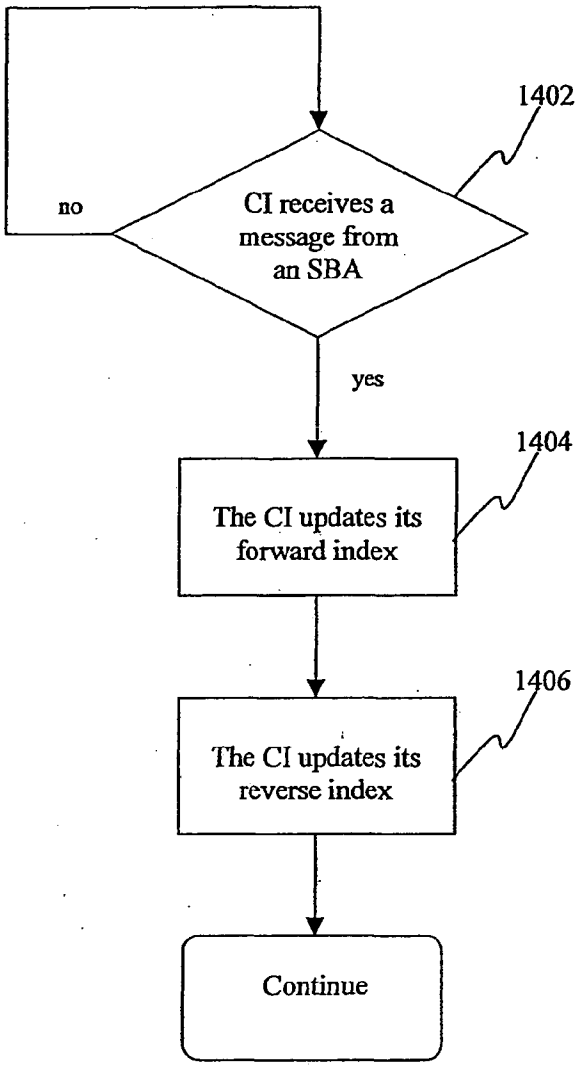

1402
CI receives a message from an SBA
no
yes
1404
The CI updates its forward index
1406
The CI updates its reverse index
Continue

FIG. 14 CI

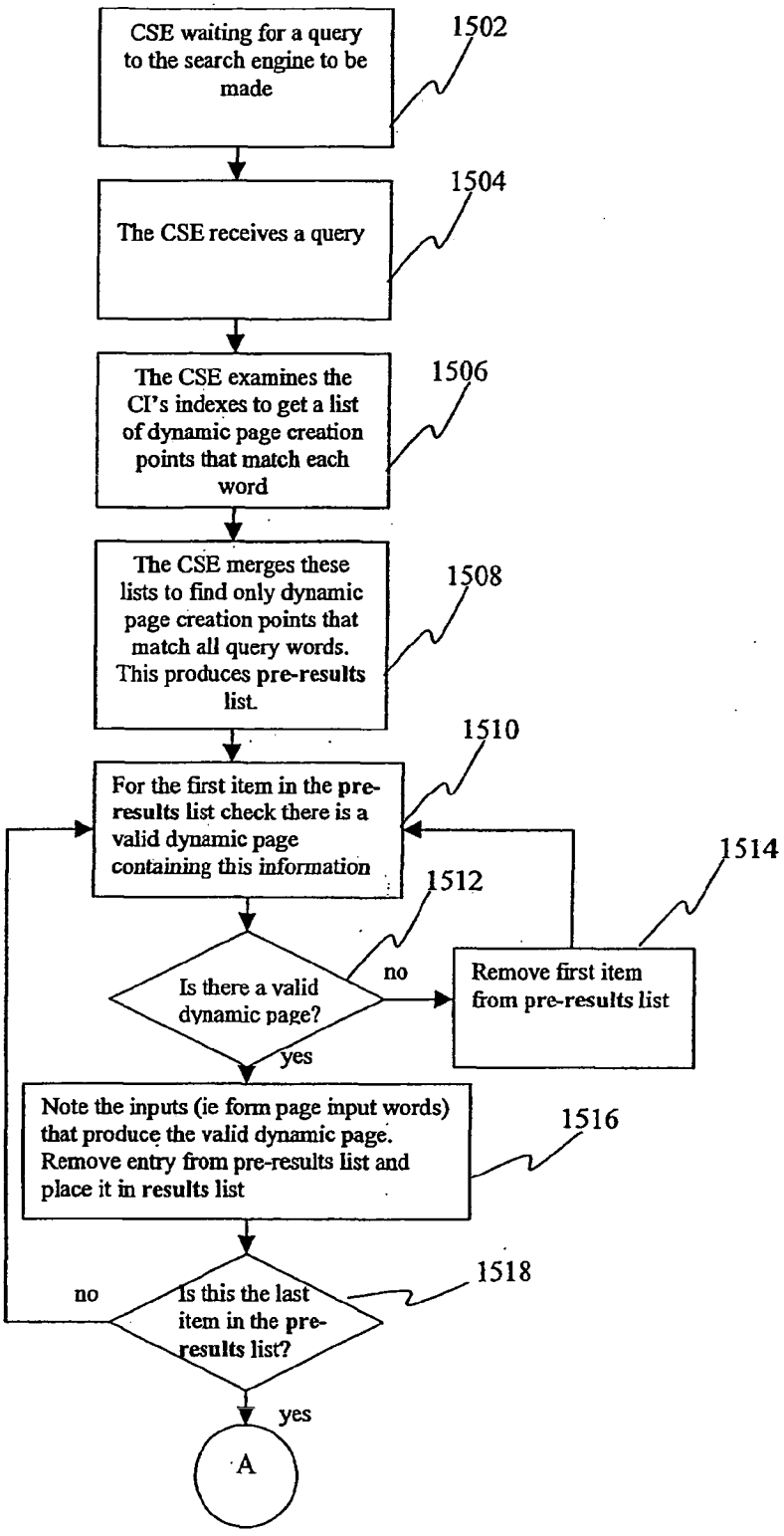

CSE waiting for a query to the search engine to be made
1502
The CSE receives a query
1504
The CSE examines the CI's indexes to get a list of dynamic page creation points that match each word
1506
The CSE merges these lists to find only dynamic page creation points that match all query words. This produces pre-results list.
1508
For the first item in the pre-results list check there is a valid dynamic page containing this information
1510
Is there a valid dynamic page?
1512
no
Remove first item from pre-results list
1514
yes
Note the inputs (ie form page input words) that produce the valid dynamic page. Remove entry from pre-results list and place it in results list
1516
Is this the last item in the pre-results list?
1518
no
yes
A

Fig 15A CSE

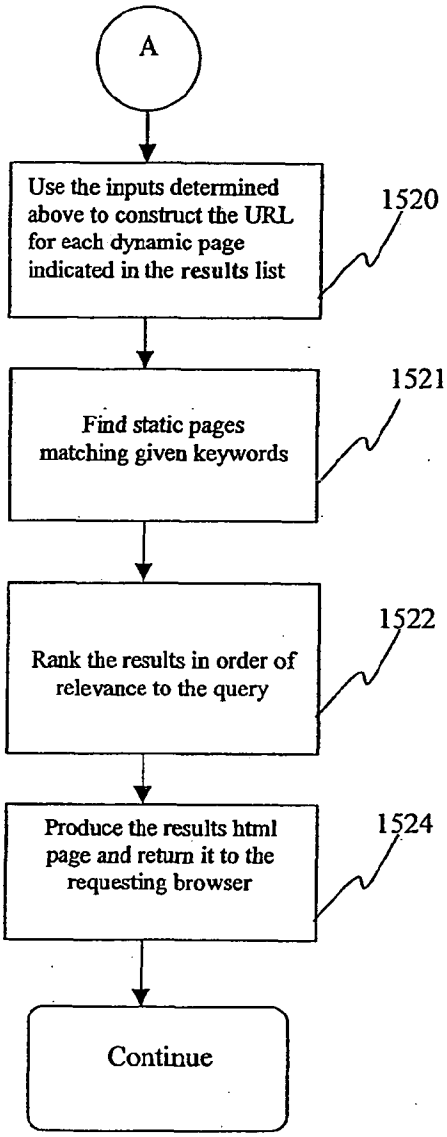


FIG. 15B

IPE 0003730

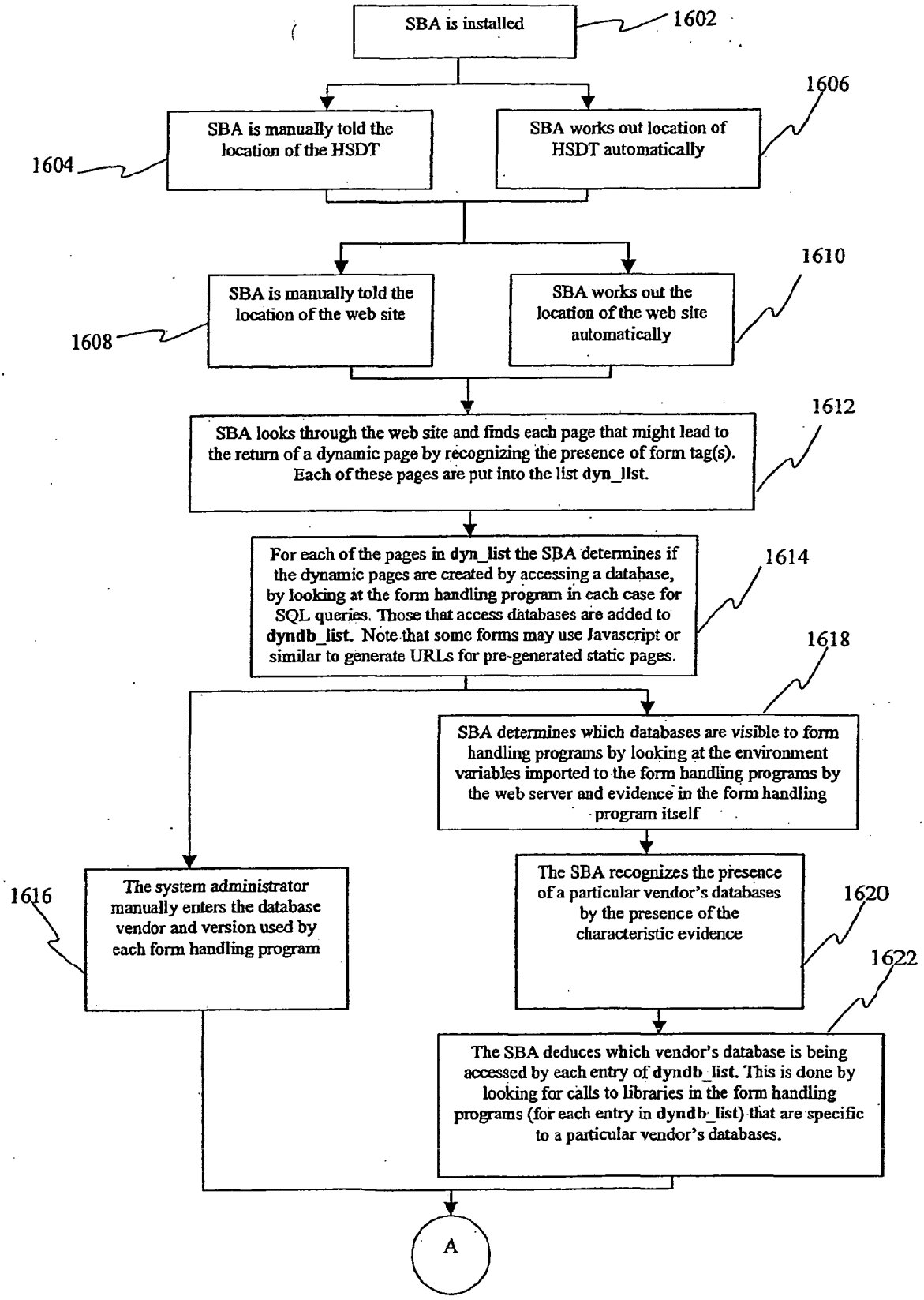

SBA is installed
1602
SBA is manually told the location of the HSDT
1604
SBA works out location of HSDT automatically
1606
SBA is manually told the location of the web site
1608
SBA works out the location of the web site automatically
1610
SBA looks through the web site and finds each page that might lead to the return of a dynamic page by recognizing the presence of form tag(s). Each of these pages are put into the list dyn_list.
1612
For each of the pages in dyn_list the SBA determines if the dynamic pages are created by accessing a database, by looking at the form handling program in each case for SQL queries. Those that access databases are added to dyndb_list. Note that some forms may use Javascript or similar to generate URLs for pre-generated static pages.
1614
SBA determines which databases are visible to form handling programs by looking at the environment variables imported to the form handling programs by the web server and evidence in the form handling program itself
1618
The system administrator manually enters the database vendor and version used by each form handling program
1616
The SBA recognizes the presence of a particular vendor's databases by the presence of the characteristic evidence
1620
The SBA deduces which vendor's database is being accessed by each entry of dyndb_list. This is done by looking for calls to libraries in the form handling programs (for each entry in dyndb_list) that are specific to a particular vendor's databases.
1622
A

Fig 16A

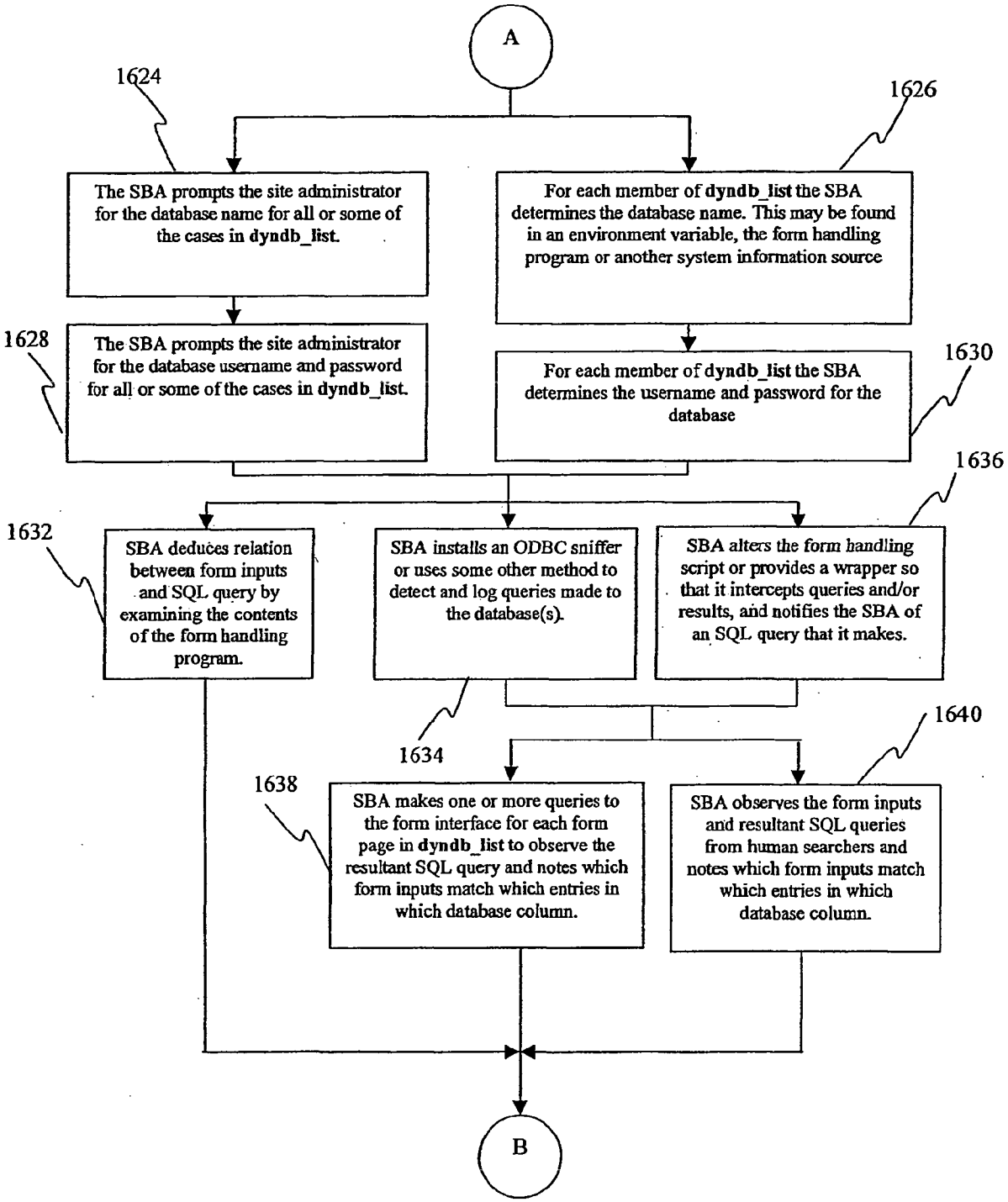

A
1624
1626
The SBA prompts the site administrator for the database name for all or some of the cases in dyndb_list.
For each member of dyndb_list the SBA determines the database name. This may be found in an environment variable, the form handling program or another system information source
1628
The SBA prompts the site administrator for the database username and password for all or some of the cases in dyndb_list.
1630
For each member of dyndb_list the SBA determines the username and password for the database
1636
1632
SBA deduces relation between form inputs and SQL query by examining the contents of the form handling program.
SBA installs an ODBC sniffer or uses some other method to detect and log queries made to the database(s).
SBA alters the form handling script or provides a wrapper so that it intercepts queries and/or results, and notifies the SBA of an SQL query that it makes.
1640
1634
1638
SBA makes one or more queries to the form interface for each form page in dyndb_list to observe the resultant SQL query and notes which form inputs match which entries in which database column.
SBA observes the form inputs and resultant SQL queries from human searchers and notes which form inputs match which entries in which database column.
B

FIG. 16B

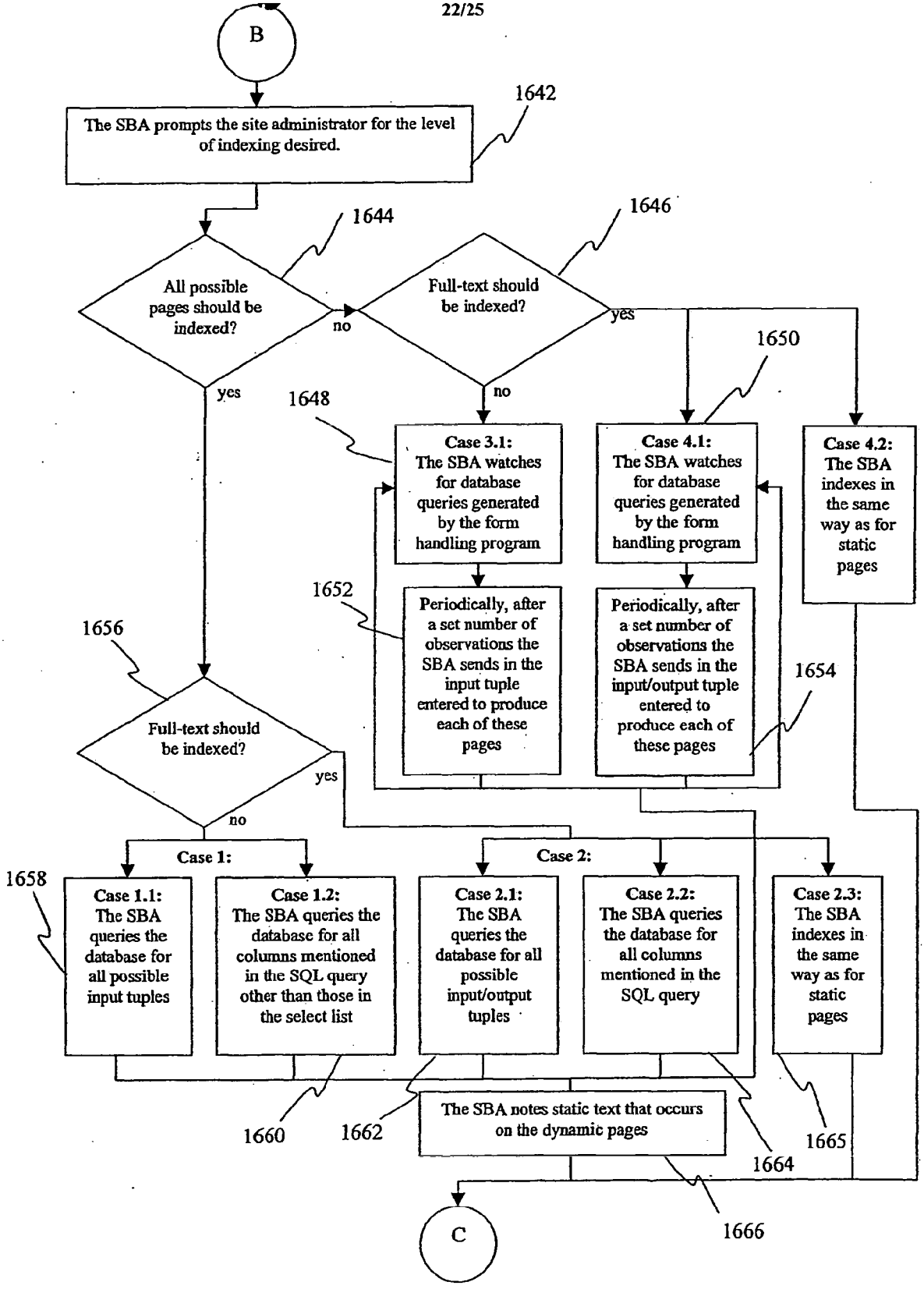


FIG. 16C

IPE 0003733

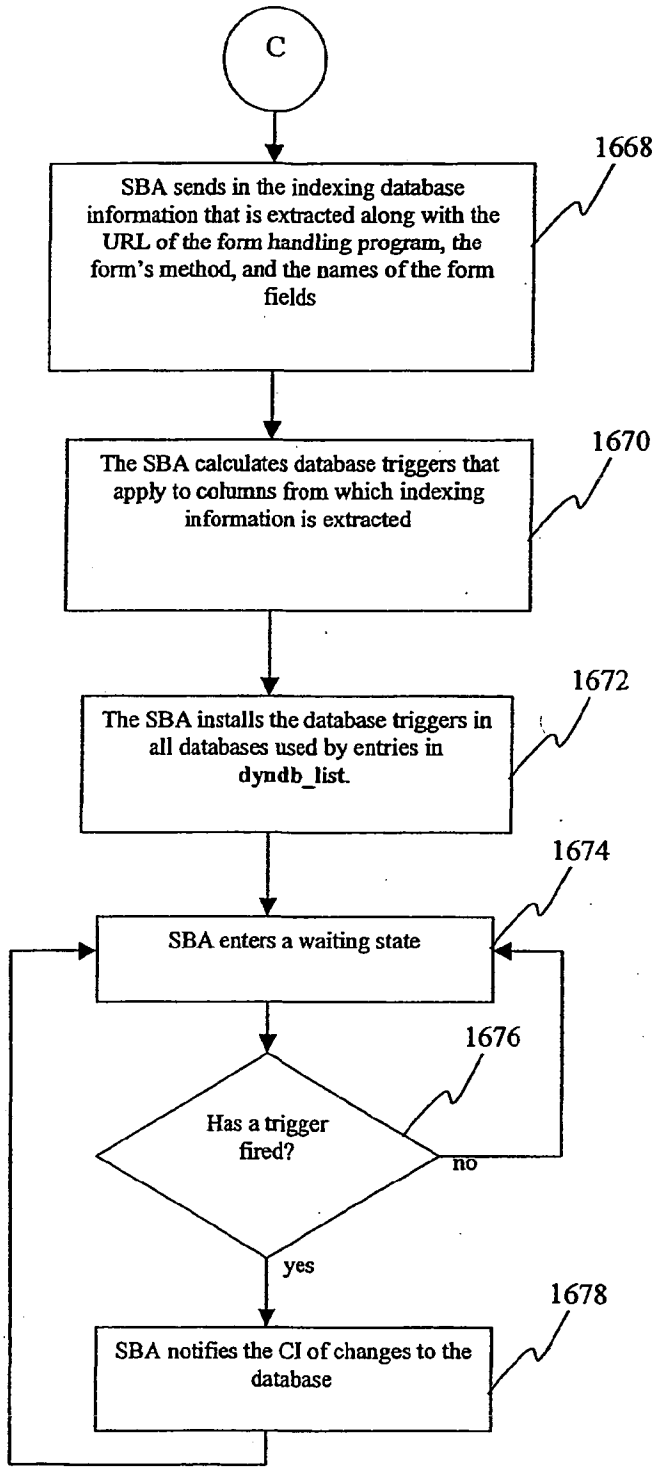

C
1668
SBA sends in the indexing database information that is extracted along with the URL of the form handling program, the form's method, and the names of the form fields
1670
The SBA calculates database triggers that apply to columns from which indexing information is extracted
1672
The SBA installs the database triggers in all databases used by entries in dyndb_list.
1674
SBA enters a waiting state
1676
Has a trigger fired?
no
yes
1678
SBA notifies the CI of changes to the database

FIG. 16D

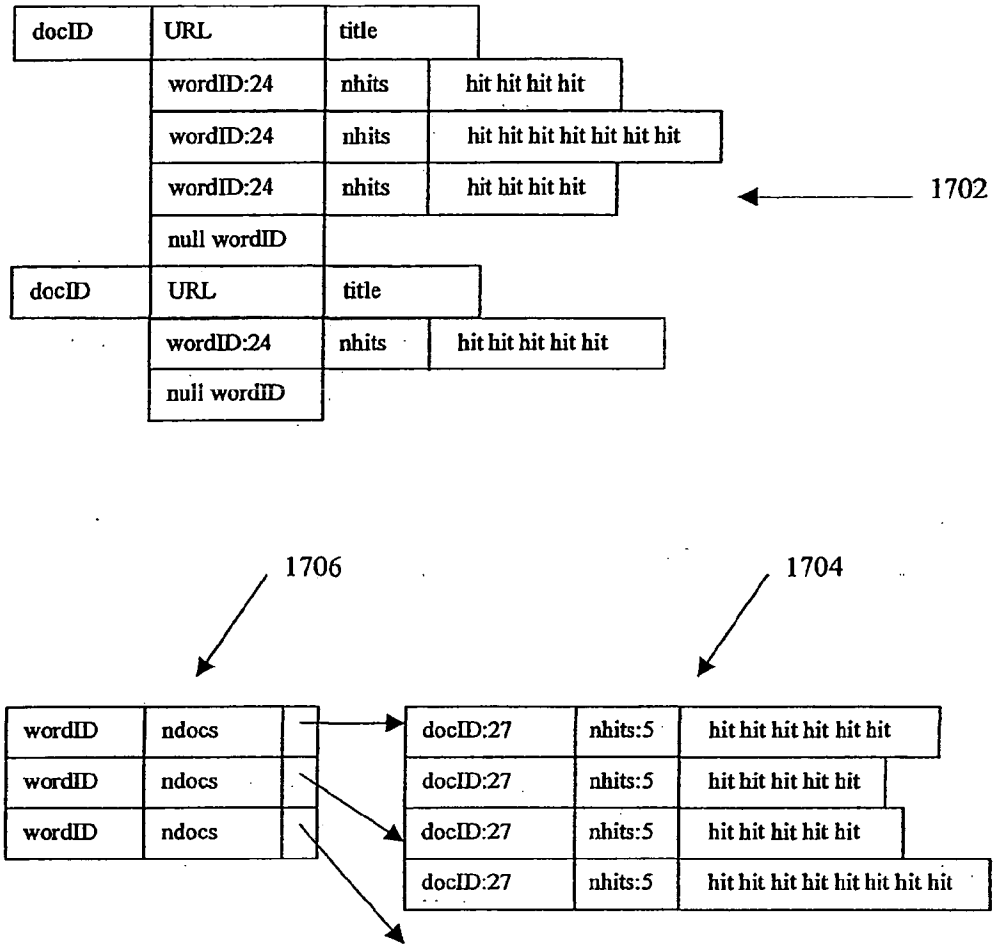


FIG. 17

IPE 0003735

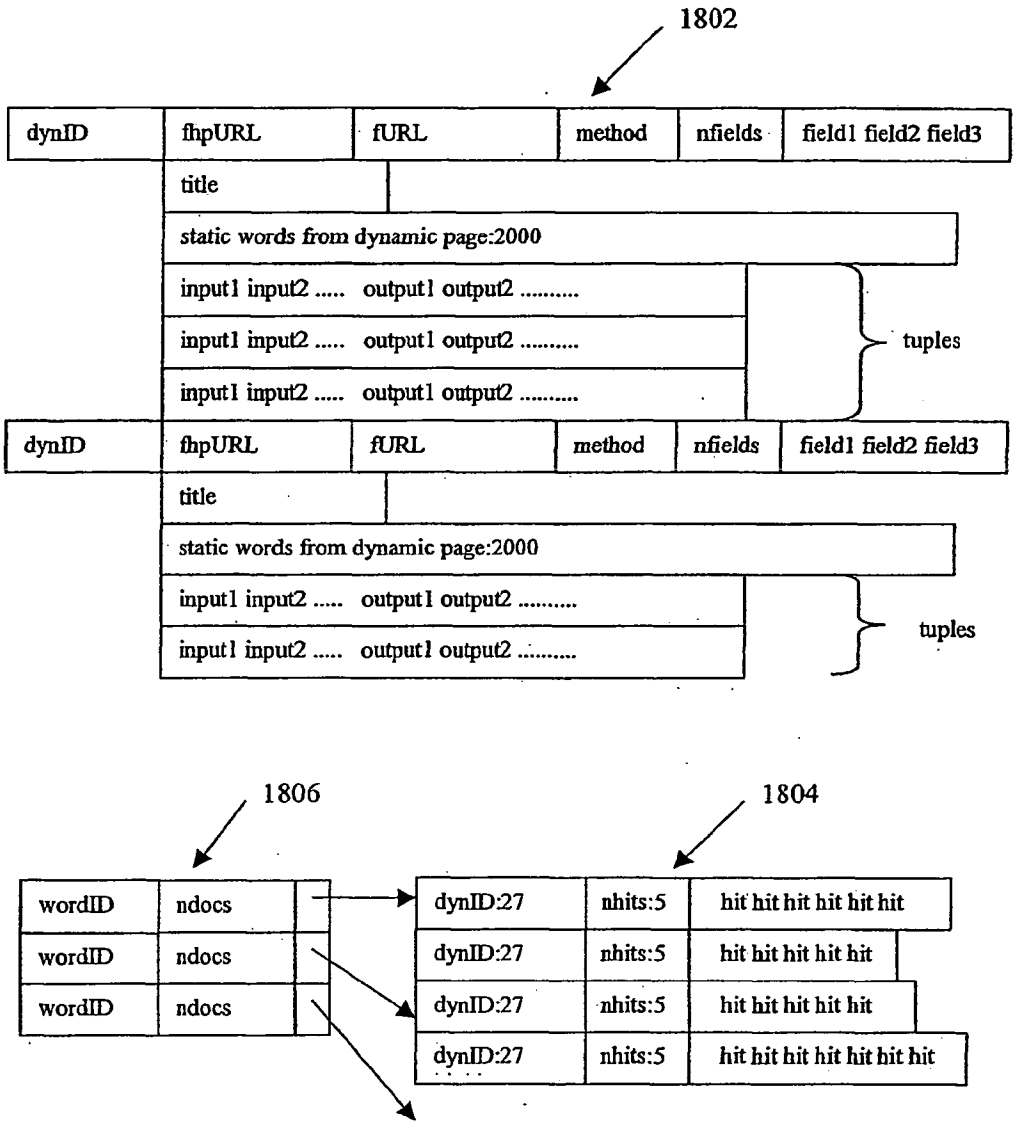


FIG. 18

IPE 0003736

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU00/01554

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. [7]: G06F 17/30

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WPAT (central, index, web, search)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 974 412 (Hazlehurst et al.) 26 October, 1999 Abstract, columns 1-2	1
Y	"A Multi-Agent System for Cooperative Document Indexing and Querying in Distributed Networked Environments" 1999 Int'l. Workshop on Parallel Processing (Linn) 21-24 September 1999, Whole document	1,70
Y	"TétraFusion : Information Discovery on the Internet" (Crimmins et al.) IEEE Intelligent Systems July/August 1999 pp 55-62 , especially Figure A.	1,70

[X] Further documents are listed in the continuation of Box C [X] See patent family annex

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
20 February 2001	22 February 2001
Name and mailing address of the ISA/AU	Authorized officer
AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. (02) 6285 3929	**DALE E. SIVER** Telephone No : (02) 6283 2196

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU00/01554

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 649 186 (Ferguson) 15 July 1997 Abstract, column 1, lines 54-58	1
A	US 5 978 799 (Hirsh) 2 November 1999 Abstract, column 1, lines 45-54, col. 2, lines 53-60, column 3, lines 5-10, column 4, lines 13-17	1
A	US 5 864 863 (Burrows) 26 January 1999 Abstract	1
A	US 5 806 063 (Lomet) 8 September 1998 Whole document	1
A	CA 2 209 265 (The Computer Group, Inc.) 27 August 1998 Abstract, figures	1

IPE 0003738

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/AU00/01554

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member	
US	5974412	NO	MEMBERS
US	5649186	NO	MEMBERS
US	5978799	NO	MEMBERS
US	5864863	US	6021409
US	5806063	NO	MEMBERS
CA	2209265	NO	MEMBERS

END OF ANNEX

IPE 0003739

PTO/SB/06 (08-03)
Approved for use through 7/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD
Substitute for Form PTO-875

Application or Docket Number: 10/020712

CLAIMS AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE	SMALL ENTITY FEE	OR	OTHER THAN SMALL ENTITY RATE	OTHER THAN SMALL ENTITY FEE
BASIC FEE (37 CFR 1.16(a))				$395.00	OR		$790.00
TOTAL CLAIMS (37 CFR 1.16(c))	minus 20 =	*	x $25 =		OR	x $50 =	
INDEPENDENT CLAIMS (37 CFR 1.16(b))	minus 3 =	*	x $100 =		OR	x $200 =	
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(d))			+ $ =		OR	+ $ =	
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL		OR	TOTAL	

CLAIMS AS AMENDED – PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE	SMALL ENTITY ADDITIONAL FEE	OR	OTHER THAN SMALL ENTITY RATE	OTHER THAN SMALL ENTITY ADDITIONAL FEE
AMENDMENT A	4/27/06									
	Total (37 CFR 1.16(c))	* 19	Minus	** 65	=	x $25 =		OR	x $50 =	
	Independent (37 CFR 1.16(b))	* 2	Minus	*** 10	=	x $100 =		OR	x $200 =	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))					+ $ =		OR	+ $ =	
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	—

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE	SMALL ENTITY ADDITIONAL FEE	OR	OTHER THAN SMALL ENTITY RATE	OTHER THAN SMALL ENTITY ADDITIONAL FEE
AMENDMENT B										
	Total (37 CFR 1.16(c))	*	Minus	**	=	x $25 =		OR	x $50 =	
	Independent (37 CFR 1.16(b))	*	Minus	***	=	x $100 =		OR	x $200 =	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))					+ $ =		OR	+ $ =	
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE	SMALL ENTITY ADDITIONAL FEE	OR	OTHER THAN SMALL ENTITY RATE	OTHER THAN SMALL ENTITY ADDITIONAL FEE
AMENDMENT C										
	Total (37 CFR 1.16(c))	*	Minus	**	=	x $25 =		OR	x $50 =	
	Independent (37 CFR 1.16(b))	*	Minus	***	=	x $100 =		OR	x $200 =	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))					+ $ =		OR	+ $ =	
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Freeform Search

Database: US Pre-Grant Publication Full-Text Database
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Derwent World Patents Index
IBM Technical Disclosure Bulletins

Term: L4 and pearson

Display: 50 **Documents in Display Format:** - **Starting with Number** 1

Generate: ○ **Hit List** ◉ **Hit Count** ○ **Side by Side** ○ **Image**

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Search History

DATE: Friday, June 30, 2006 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=PGPB,USPT; PLUR=YES; OP=ADJ			
L5	L4 and pearson	1	L5
L4	("20030055816")!.PN.	1	L4
L3	10/020712	2	L3
L2	L1 and correlat$3	1	L2
L1	6289341.pn.	1	L1

END OF SEARCH HISTORY

Refine Search

Search Results -

Term	Documents
NEW	2567238
NEWS	58015
INFORMATION	1301247
INFORMATIONS	6550
PROVIDER	90761
PROVIDERS	55442
(3 AND (PROVIDER NEAR3 (NEW NEAR3 INFORMATION))).PGPB,USPT.	0
(L3 AND (NEW NEAR3 INFORMATION NEAR3 PROVIDER)).PGPB,USPT.	0

Database:
US Pre-Grant Publication Full-Text Database
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IBM Technical Disclosure Bulletins

Search: L5

Refine Search

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Search History

DATE: Friday, June 30, 2006 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=PGPB,USPT; PLUR=YES; OP=ADJ			
L5	L3 and (new near3 information near3 provider)	0	L5
L4	L3 and (new information provider)	0	L4
L3	("20030055816")!.PN.	1	L3
L2	10/020712	2	L2
L1	6421675.pn.	1	L1

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,712	12/11/2001	Mark Paine	9623/378	1404

56020 7590 07/10/2006

BRINKS HOFER GILSON & LIONE / YAHOO! OVERTURE
P.O. BOX 10395
CHICAGO, IL 60610

EXAMINER	
LEROUX, ETIENNE PIERRE	
ART UNIT	**PAPER NUMBER**
2161	

DATE MAILED: 07/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/020,712	PAINE ET AL.	
	Examiner	Art Unit	
	Etienne P LeRoux	2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 April 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *66-84* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *66-84* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/27/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Status:

Claims 66-84 are pending; claims 1-65 have been cancelled. Claims 66-84 are rejected as detailed below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 66-71 and 73-84 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat No 6,421,675 issued to Ryan et al (hereafter Ryan) in view of US Pat No 6,289,341 issued to Barney (hereafter Barney).

Claims 66, 79 and 80:

Ryan discloses::

(a) obtaining a set of potential search terms for acceptance by a new information provider who is adding items to the database [keyword 52, Fig 2, col 5, line 13]

(c) computing an estimated rating for the each potential search term for the new information provider [Crawler key-word list, col 7, line 63-col 8, line 5]

(d) sorting the potential search terms according to the computed estimated ratings[

(e) presenting to the new information provider on an output device the sorted potential search terms [Crawler key-word list, col 7, line 63-col 8, line 5]

(f) receiving from the new information provider at an input device an indication of accepted search terms [Surfer keyword list col 8, lines 15-20]

(g) repeating (b) through (e) until completion indication is received from the new information provider [successive surfer key-word lists, col 8, line 30]

(h) storing the accepted search terms in the database for the new information provider upon receipt of the completion indicator [keyword table, 164, Fig 4, col 11, lines 20-40].

Ryan discloses the elements of the claimed invention as noted above but does not disclose (b) computing correlations between the potential search terms for the new information provider and search terms of other information providers stored in the database. Barney discloses (b) computing correlations between the potential search terms for the new information provider and search terms of other information providers stored in the database [col 5, lines 20-35]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ryan to include (b) computing correlations between the potential search terms for the new information provider and search terms of other information providers stored in the

database as taught by Barney for the purpose of making a statistical comparison between the potential search terms and the database comprising keywords generated from existing websites.

Claims 67, 81 and 82:

The combination of Ryan and Barney discloses the elements of claim 66 as noted above and furthermore, Ryan disclose receiving from the new information provider a website uniform resource locator and spidering the website [col 7, lines 60-65] associated with the website URL [col 6, lines 35-30] to obtain search terms for the set of potential search terms.

Claim 68 and 83:

The combination of Ryan and Barney discloses the elements of claims 66 and 67 as noted above and furthermore, Ryan discloses receiving data from pages of the website, recording potential search terms from the data and determining a quality metric for each potential search term [Surfer keyword list col 8, lines 15-20]

Claim 69

The combination of Ryan and Barney discloses the elements of claims 66 and 67 as noted above and furthermore discloses combining a rating based on the computed correlations and a rating based on the quality metric determined for each candidate search term [Barney, col 5, lines 20-35, Ryan Surfer keyword list col 8, lines 15-20]

Claim 70 and 84:

The combination of Ryan and Barney discloses the elements of claims 66-68 as noted above and furthermore, Ryan discloses sorting the candidate search terms according to a quality metric and adding the set of potential search terms only candidate search terms having a quality metric exceeding a threshold [key-word suggester, col 8, line 28]

Claim 71:

The combination of Ryan and Barney discloses the elements of claims 66 as noted above and furthermore, Ryan discloses receiving data from one or more pages of the website and examining text from the one or more pages for candidate search terms [Crawler key-word list, col 7, line 63-col 8, line 5]

Claim 73:

The combination of Ryan and Barney discloses the elements of claims 66 and 71 as noted above and furthermore, Ryan discloses receiving a website URL comprises receiving the advertiser's URL as the web site URL [col 6, lines 35-30]

Claim 74:

The combination of Ryan and Barney discloses the elements of claims 66 and 71 as noted above and furthermore, Ryan discloses receiving the website from the advertiser [col 6, lines 35-30].

Claim 75:

The combination of Ryan discloses the elements of claim 66 as noted above and furthermore, discloses assigning ratings to search terms and computing a correlation between the advertiser and one or more of the other advertisers using the assigned ratings of advertiser search terms [Barney, [col 5, lines 20-35].

Claim 76:

The combination of Ryan and Barney discloses the elements of claims 66 and 75 as noted above and furthermore, Ryan discloses predicting a likelihood that a search term will be relevant to the advertiser [col 8, lines 25-30]

Claim 77:

The combination of Ryan and Barney discloses the elements of claims 66, 75 and 76 as noted above and furthermore, Ryan discloses determining a quality metric for potential search terms and predicting relevance of the potential search terms based on the quality metric [Surfer keyword list col 8, lines 15-20]

Claim 78:

The combination of Ryan and Barney discloses the elements of claim 66 as noted above and furthermore, Ryan discloses wherein presenting the sorted potential search terms to the new information provider comprises sending the sorted potential search terms with a web page to the output device [Fig 1A, 38]

Claims 67, 72-74 and 80-82 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Ryan and Barney and further in view of US Pat No 6,078,916 to Culliss (hereafter Culliss).

Claim 72:

The combination of Ryan and Barney discloses the elements of claims 66 and 71 as noted above and furthermore, Ryan discloses examining substantially all text from the one or more pages but does not disclose examining meta tags from the one or more pages. Culliss discloses examining meta tags from the one or more pages [col 5, lines 15-20]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Ryan and Barney to include examining meta tags from the one or more pages as taught by Culliss for the purpose of attaching scores to each article.

Response to Arguments

Applicant's arguments filed 4/27/2006 with respect to claims 66-84 have been considered but are not persuasive for the reasons given below.

Applicant Argues:

Applicant states in the fourth paragraph on page 8 the following:

For example, claim 66 recites "obtaining a set of potential search terms for acceptance by a new information provider who is adding items to the database"

Examiner Responds:

Examiner is not persuaded. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that a "new information provider" is not described in the specification such that the claim language can be interpreted in light of the specification. Furthermore, it is noted that limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

MPEP Section 2106 requires Office personnel to give claims their broadest reasonable interpretation in light of the supporting disclosure. In re Morris, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). As pointed out above, Applicant's specification fails to support the claim limitation "new information provider" and thus examiner is unable to interpret the claim limitation in light of the supporting disclosure.

Ryan discloses in column 1, lines 5-10 the following:

The present invention relates to a method and apparatus that allows for enhanced database searching, and more particularly; for use as an internet search engine.

Regarding a search engine, a dictionary definition[1] is:

On the Internet, a program that searches for keywords I files and documents found on the World Wide Web, newsgroups, Gopher menus, and FTP archives,. Some search engines are used for a single Internet Site, such ad a dedicated search engine for a Web site. Others search across many sites, using such agents as spiders to gather lists of available files and documents and store these lists in databases that users can search by keyword.

Examiner concludes, based on the above that the search engine disclosed by Ryan reads on the claim limitation "new information provider."

Applicant Argues:

Applicant states in the fourth paragraph of page 8 the following:

Further, as another example, claim 66 recites "presenting to the new information provider on an output device the sorted potential search terms."

Examiner Responds:

Examiner is not persuaded. The disclosure of Ryan reads on the above limitation as evidenced by the following:

(1) The abstract includes providing results to the user.

(2) Fig 1A, Display Content (38)

(3) Column 30, lines 42-55.

Applicant Argues:

Applicant states in the first paragraph on page 9 the following:

[1] Microsoft Computer Dictionary, Fifth Edition

However, Barney does not show or suggest "computing correlations between the potential search terms for the new information provider and search terms of other information providers stored in the database" as recited in claim 66. First, Barney is not related to potential search terms of a new information provider. Second, in the limitation of claim 66, relevant information is stored in a database and the correlations are compared on data stored in the database. Barney teaches crawling others' web sites and performing correlations on the crawled data.

Examiner Responds:

Examiner is not persuaded. The following extract from the MPEP is relevant:

2141.01(a) [R-3] Analogous and Nonanalogous Art

>I. < TO RELY ON A REFERENCE UNDER 35 U.S.C. 103, IT MUST BE ANALOGOUS PRIOR ART

The examiner must determine what is "analogous prior art" for the purpose of analyzing the obviousness of the subject matter at issue. "In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." In re Oetiker, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992).

Examiner maintains that Barney is reasonable pertinent to the particular problem with which the inventor was concerned because both Barney and Applicant use the Pearson Correlation formula to measure the correlation between search terms.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Etienne P. LeRoux whose telephone number is (571) 272-4022. The examiner can normally be reached Monday trough Friday, 8:00 am and 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on (571) 272-4146. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Etienne LeRoux

6/29/2006

JEFFREY GAFFIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

OIPE
JUN 07 2006
PATENT & TRADEMARK OFFICE
IAP2

FORM PTO-1449	SERIAL NO. 10/020,712	CASE NO. 9623/378
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT	FILING DATE December 11, 2001	GROUP ART UNIT 2161
(use several sheets if necessary)	APPLICANT(S): Mark Paine, et al.	

REFERENCE DESIGNATION **U.S. PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER Number-Kind Code (If known)	DATE	NAME	CLASS/ SUBCLASS	FILING DATE
EPL	F1	US 2002/0169875 A1	11/14/2002	Furui, et al.	709/225	5/14/2001

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER Number-Kind Code (If known)	DATE	COUNTRY	CLASS/ SUBCLASS	TRANSLATION YES OR NO
EPL	F2	2000132559 A	05/12/2000	Japan	G06F 17/30	No
↓	F3	2001014349 A	01/19/2001	Japan	G06F 17/30	No
	F4	WO 01/46856 A1	06/28/2001	WIPO	G06F 17/30	No

EXAMINER INITIAL	OTHER ART – NON PATENT LITERATURE DOCUMENTS (Include name of author, title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date page(s), volume-issue number(s), publisher, city and/or country where published.	

EXAMINER EPL	DATE CONSIDERED 6/30/2006

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Index of Claims

Application No.	Applicant(s)	
10/020,712	PAINE ET AL.	
Examiner	**Art Unit**	
Etienne P LeRoux	2161	

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	+	Restricted	I	Interference	O	Objected

Claim		Date								
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Search Notes

Application No.	Applicant(s)	
10/020,712	PAINE ET AL.	
Examiner	**Art Unit**	
Etienne P LeRoux	2161	

SEARCHED			
Class	Subclass	Date	Examiner
707	1	6/29/2006	EPL
707	2	6/29/2006	EPL
707	5	6/29/2006	EPL
707	10	6/29/2006	EPL

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
search updated, searched WEST, search notes included	6/29/2006	EPL

PATENT APPLICATION FEE DETERMINATION RECORD
Effective December 8, 2004

Application or Docket Number: 10/620012

RCE

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS		
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	21 minus 20=	* 1
INDEPENDENT CLAIMS	3 minus 3 =	*
MULTIPLE DEPENDENT CLAIM PRESENT		☐

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE ☐			OR	OTHER THAN SMALL ENTITY	
RATE	FEE			RATE	FEE
BASIC FEE			OR	BASIC FEE	790
X$ 25=			OR	X$50=	50
X100=			OR	X200=	
+180=			OR	+360=	
TOTAL			OR	TOTAL	840

CLAIMS AS AMENDED - PART II

AMENDMENT A — 1/7/05

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	* 19	Minus	** 20	= 0
Independent	* 3	Minus	*** 3	= 0
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

SMALL ENTITY			OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE			RATE	ADDITIONAL FEE
X$ 25=			OR	X$50=	
X100=			OR	X200=	
+180=			OR	+360=	
TOTAL ADDIT. FEE			OR	TOTAL ADDIT. FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 25=		OR	X$50=	
X100=		OR	X200=	
+180=		OR	+360=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT C

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 25=		OR	X$50=	
X100=		OR	X200=	
+180=		OR	+360=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,712	12/11/2001	Mark Paine	9623/378	1404

56020 7590 09/26/2006

BRINKS HOFER GILSON & LIONE / YAHOO! OVERTURE
P.O. BOX 10395
CHICAGO, IL 60610

EXAMINER	
LEROUX, ETIENNE PIERRE	
ART UNIT	**PAPER NUMBER**
2161	

DATE MAILED: 09/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Interview Summary	Application No.	Applicant(s)	
	10/020,712	PAINE ET AL.	
	Examiner	Art Unit	
	Etienne P. LeRoux	2161	

All participants (applicant, applicant's representative, PTO personnel):

(1) *Etienne P. LeRoux*. (3)_____.

(2) *John G Rauch*. (4)_____.

Date of Interview: *19 September 2006*.

Type: a)☒ Telephonic b)☐ Video Conference
c)☐ Personal [copy given to: 1)☐ applicant 2)☐ applicant's representative]

Exhibit shown or demonstration conducted: d)☐ Yes e)☐ No.
If Yes, brief description: _____.

Claim(s) discussed: *66*.

Identification of prior art discussed: *Ryan*.

Agreement with respect to the claims f)☐ was reached. g)☐ was not reached. h)☒ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: *Applicant argued that examiner was incorrectly interpreting the claim 66 limitation "a new information provider." Examiner countered that since no explicit definition was provided in the specification, the PTO requires claim language to be given its broadest reasonable interpretation.*.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

EP LeRoux 9/20/06
Examiner's signature, if required

IPE 14AP12
OCT 13 2006
PATENT & TRADEMARK OFFICE

CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, with sufficient postage, in an envelope addressed to: Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450, on the below date:

Date: October 10, 2006 Name: John G. Rauch Signature: [signature]

Our Case No. 9623/378

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Paine, Mark et al.

Serial No. 10/020,712

Filing Date: December 11, 2001

For RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING

Examiner Leroux, Etienne Pierre

Group Art Unit No. 2161

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Applicants request review of the final rejection in the above-identified application. No amendments are being filed with this request. This request is being filed with a notice of appeal. The review is requested for the reasons stated below. No more than five (5) pages are provided.

Introduction

Claims 66-84 are pending in the application. In the final office action dated July 10, the rejection under 35 U.S.C. § 103(a) of claims 66-71 and 73-84 as being unpatentable over U.S. patent number 6,421,675 to Ryan, et al. ("Ryan") in view of U.S. patent number 6,289,341 to Barney ("Barney") was maintained. Additionally, the rejection under 35 U.S.C. § 103(a) of claims 67, 72-74 and 80-82 as being unpatentable over Ryan and Barney and further in view of U.S. patent no. 6,078,916 to Culliss ("Culliss") was also maintained. Reconsideration and allowance of claims 66-84 are respectfully requested.

Overview

The present invention defined by claims 66-84 relates to a computerized search system in which a user enters a keyword and receives matching search results in return. Items in a database are searched to find a match. The items in the database each include a search term and are associated with an information provider such as an advertiser or web site operator, and a bid amount. In an exemplary embodiment, the bid amounts are used to order the matching search results, under control by the information providers who set the bid amounts.

To put information such as advertising before users, an information provider chooses search terms to be added to the database with the goal of attracting the attention of the users. The search terms should be descriptive or related to advertising or other information of the information provider. The presently claimed invention provides for recommending search terms to a new information provider, i.e., one who has not previously stored search terms on the database or associated search terms with himself. Because the advertiser or information provider may not know what search terms to specify, or may wish to have other search terms than he can think up spontaneously, the advertiser may seek recommendations of other search terms.

The method acts of claim 66 define how search terms or keywords are recommended to one such information provider, particularly a "new information provider" who is establishing search listings on the computer network search apparatus.

The "new information provider" of claim 66 is an advertiser or other individual operating his computer system, not a search engine.

The Final Office Action has considered the claim language and Ryan and concluded that the "new information provider" recited in claim 66 reads on the search engine disclosed by Ryan. It is respectfully submitted that a "new information provider" in the context of claim 66 is an individual (and his computer system), not a search engine. The present application, at page 10, lines 24-31, explains:

> For example, one class of users located at client computers 12 may be **network information providers** such as advertising web site promoters or owners having advertiser web pages 30 located on advertiser web servers 14. These advertising web site promoters, or advertisers, may wish to access account information residing in storage 32 on account management server 22. An advertising web site promoter may, through the account residing on the account management server 22, participate in a competitive bidding process with other advertisers.

(emphasis added). Thus, the parties involved with the system recited in method claim 66 include a user who enters information through an input device and information providers which are associated with items stored in the database. A new information provider is one who has not previously stored search terms on the database. The Final Office Action asserts that "a 'new information provider' is not described in the specification such that the claim language can be interpreted in light of the specification."

As demonstrated herein, the meaning of the noted terminology is clear from the specification. Moreover, the Final Office Action asserts that "MPEP Section 2106 requires Office personnel to give claims their broadest reasonable interpretation in light of the supporting disclosure." It is respectfully submitted that interpreting the claim term "new information provider" as a search engine as disclosed in Ryan is an unreasonably broad interpretation. The specification including the quoted above makes clear that information providers are individuals (and their computer systems), not a search engine.

Once the parties are more clearly identified, it becomes apparent that Ryan actually relates to keyword suggestion for a user of the search system, not an information provider.

The cited art does not show suggesting keywords to an information provider

Ryan actually relates to a database search system which provides keyword suggestions **to a user** of the search system. Ryan's search process is described at column 4, lines 30-40. The Ryan system suggests keywords to the user based on a keyword that the user entered. Col. 7, lines 63-66; col. 8, lines 28-32.

Since the keywords are suggested to the user, Ryan cannot disclose the present invention of claims 66-84 which relates to suggesting keywords to an information provider. Information providers are present in the system disclosed by Ryan, e.g., FIG. 1B "Developer site/computer" 104A, B; column 4, lines 3-11. However, Ryan's keyword suggestion feature serves the user who submits search requests, not the developer who provides content and other information. Ryan does not even recognize the problem solved by the presently claimed invention, that an information provider might want or need some suggestion of keywords to bid upon.

Since Ryan is directed to a different problem, Ryan fails to disclose many limitations of the present claims. For example, claim 66 recites "obtaining a set of

potential search terms for acceptance by a new information provider who is adding items to the database." Ryan does not relate to a new information provider or potential search terms for acceptance by such an information provider. Further, as another example, claim 66 recites "sorting the potential search terms according to the computed estimated ratings" and "presenting to the new information provider on an output device the sorted potential search terms." For the former quoted limitation, the Final Office Action can cite no equivalent in Ryan. For the second quoted limitation, the Final Office Action refers to Ryan's Surfer keyword list at column 8, lines 15-20. However, the Surfer keyword list is described as "a data set comprised of a list of key-words that the individual user found useful after the keyword was selected" *(emphasis added)*. Thus, in accordance with the fundamental distinction between Ryan and the presently claimed invention, the Surfer keyword list is a user feature, not a list presented to the new information provider. Ryan just does not relate to the problem solved by the claimed invention. As a result, many limitations of claims 66-84 are not disclosed by Ryan.

The Final Office Action relies on Barney as disclosing claim 66, step (b) "computing correlations." However, Barney describes a "site examiner" which traverses web sites of others and makes comparisons between web site data and "IP indicia," or information about an owner's intellectual property. The site examiner may use correlations for this comparison. However, Barney does not show or suggest "computing correlations between the potential search terms for the new information provider and search terms of other information providers stored in the database" as recited by claim 66. First, Barney is not related to potential search terms of a new information provider. Second, in the limitation of claim 66, relevant information is stored in "a database" and the correlations are computed on data stored in the database. Barney teaches crawling others' web sites and performing correlations on the crawled data. Accordingly, Barney does not provide the missing teaching. Barney is even more remote than Ryan from the present invention defined by claims 66-84.

Moreover, the keyword suggestion techniques of Ryan, for suggesting keywords to a user or searcher, can not be properly extended to a keyword suggestion device and method for an information provider, such as the method and apparatus in accordance with claims 66-84. The new information provider may not know what search terms to specify,

or may wish to have a broader range of search terms than he can think up spontaneously, and therefore the information provider may seek recommendations of other search terms.

In contrast, a user generally seeks a narrower, more focused range of results when he enters a search terms, as Ryan explains at column 1, lines 41-58. Ryan's device then provides

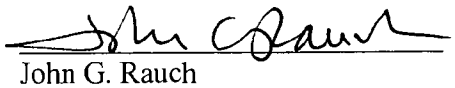
> a method of updating an internet search engine database with the results of a user's selection of specific web page lists from the general web page listing provided to the user as a result of his initial keyword search entry. *By updating the database with the selections of many different users*, the database can be updated to prioritize those web listings that have been selected the most with respect to a given keyword, and hereby presenting first the most popular web page listings in a subsequent search using the same keyword search entry *(emphasis added)*.

Ryan, column 2, lines 27-36.

Accordingly, even though both Ryan and the presently claimed invention broadly provide "keyword suggestion," it is not proper to extend Ryan's device to the problem of keyword suggestion for information providers. And even if this extension is made, Ryan simply operates differently to provide keywords to users. The claimed method and apparatus make search term recommendations based on the contents *of the information provider's own web site* and by comparing the advertiser *to other similar information providers* and recommending search terms they have chosen. Ryan is not related to this process. Accordingly, it is submitted that claim 66 is allowable over the cited references.

While only claim 66 has been discussed in detail herein, it is submitted that independent claim 79 includes similar limitations and is allowable for the same reasons. Withdrawal of the rejections of claims 66-84 and allowance of the application is respectfully requested.

Respectfully submitted,



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PTO/SB/31 (09-04)
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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

NOTICE OF APPEAL FROM THE EXAMINER TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

Docket Number (Optional): 9623/378

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" (37 CFR 1.8(a)).

On October 10, 2006

Signature: [signature]

Typed or printed Name: John G. Rauch

In re Application of: Paine, Mark et al.

Application Number	Filed
10/020,712	December 11, 2001

For: RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING

Art Unit	Examiner
2161	Leroux, Etienne Pierre

Applicant hereby appeals to the Board of Patent Appeals and Interferences from the last decision of the examiner.

The fee for this Notice of Appeal is (37 CFR 41.20(b)(1)) $__500_____

☐ Applicant claims small entity status. See 37 CFR 1.27. Therefore, the fee shown above is Reduced by half, and the resulting fee is : $__ _____

☒ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account. I have enclosed a duplicate copy of this sheet.

☐ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. _____. I have enclosed a duplicate copy of this sheet.

☐ A petition for an extension of time under 37 CFR 1.136(a) (PTO/SB/22) is enclosed.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the

☐ applicant/inventor.

☐ assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)

☒ attorney or agent of record. Registration number 37,218.

☐ attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34.__

[signature]
Signature

John G. Rauch
Typed or Printed Name

312 321 4200
Telephone number

10/13/2006 CNGUYEN 00000039 10020712
01 FC:1401 500.00 OP

October 10, 2006
Date

☒ *Total of 1 forms are submitted.

CERTIFICATE OF FACSIMILE TRANSMISSION UNDER 37 C.F.R. §1.8

I hereby certify that this correspondence, totaling 10 pages including recited attachments, is being facsimile transmitted to the United States Patent and Trademark Office at facsimile no.: 571-273-4022) on the below date:

Date: 9/18/06 Name: John G. Rauch Signature: [signature]

Our Case No. 9623/378

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	
Paine, Mark et al.	
Serial No. 10/020,712	Examiner Leroux, Etienne Pierre
Filing Date: December 11, 2001	Group Art Unit No. 2161
For RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING	

DRAFT

REQUEST FOR RECONSIDERATION

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This Request is submitted in response to the Final Office Action mailed July 10, 2006. Reconsideation of the application is respectfully requested.

Listing of the Claims begins on page 2 of this paper, for the convenience of the examiner.

Remarks begin on page 7.

Listing of Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Claims 1-65 (Cancelled)

66. (Previously Presented) A method for recommending search terms in a computer network search apparatus for generating a result list of items representing a match with information entered by a user through an input device connected to the computer network, the search apparatus including a computer system operatively connected to the computer network and a plurality of items stored in a database, each item including information to be communicated to a user and having associated with it at least one search term, an information provider and a bid amount, the method comprising:

(a) obtaining a set of potential search terms for acceptance by a new information provider who is adding items to the database;

(b) computing correlations between the potential search terms for the new information provider and search terms of other information providers stored in the database;

(c) computing an estimated rating for the each potential search term for the new information provider;

(d) sorting the potential search terms according to the computed estimated ratings;

(e) presenting to the new information provider on an output device the sorted potential search terms;

(f) receiving from the new information provider at an input device an indication of accepted search terms;

(g) repeating (b) through (e) until a completion indication is received from the new information provider; and

(h) storing the accepted search terms in the database for the new information provider upon receipt of the completion indication.

67. (Previously presented) The method of claim 66 wherein obtaining a set of potential search terms comprises:

receiving from the new information provider a website uniform resource locator (URL); and

spidering the website associated with the website URL to obtain search terms for the set of potential search terms.

68. (Previously presented) The method of claim 67 wherein spidering the website comprises:

receiving data from pages of the website;

recording potential search terms from the data; and

determining a quality metric for each potential search term.

69. (Previously presented) The method of claim 67 wherein computing an estimated rating comprises:

combining a rating based on the computed correlations and a rating based on the quality metric determined for each candidate search term.

70. (Previously presented) The method of claim 68 further comprising:

sorting the candidate search terms according to the quality metric; and

adding to the set of potential search terms only candidate search terms having a quality metric exceeding a threshold.

71. (Previously presented) The method of claim 66 wherein spidering comprises:

receiving data from one or more pages of the website; and

examining text from the one or more pages for candidate search terms.

72. (Previously presented) The method of claim 71 wherein examining text comprises:

examining substantially all text from the one or more pages; and

examining meta tags from the one or more pages.

73. (Previously presented) The method of claim 71 wherein receiving a website URL comprises:

receiving the advertiser's URL as the web site URL.

74. (Previously presented) The method of claim 71 wherein receiving a website URL comprises:

receiving the web site URL from the advertiser.

75. (Previously presented) The method of claim 66 wherein computing correlations comprises:

assigning ratings to search terms; and

computing a correlation between the advertiser and one or more of the other advertisers using the assigned ratings of advertiser search terms.

76. (Previously presented) The method of claim 75 wherein computing an estimated rating comprises:

predicting a likelihood that a search term will be relevant to the advertiser.

77. (Previously presented) The method of claim 76 wherein predicting comprises:

determining a quality metric for potential search terms; and

predicting relevance of the potential search terms based on the quality metric.

78. (Previously presented) The method of claim 66 wherein presenting the sorted potential search terms to the new information provider comprises sending the sorted potential search terms with a web page to the output device.

79. (Previously presented) A computer network search engine apparatus which includes a database having stored therein a plurality of search listings, each search listing being associated with an information provider, at least one keyword, a money amount, and a computer network location and a search engine to identify search listings having a keyword matching a keyword entered by a searcher, to order the identified listings using the money amounts for the respective

identified listings, and to generate a result list including at least some of the ordered listings, the apparatus comprising:

an account management server including a processing system which is operative in conjunction with program code to recommend potential search terms to a new information provider adding search listings to the database;

collaborative filtering code operable in conjunction with the processing system to compute correlations between potential search terms for the new information provider and search terms of other information providers stored in the database and to compute an estimated rating for the each potential search term for the new information provider;

sorting code operable in conjunction with the processing system and configured to sort the potential search terms according to the computed estimated ratings;

an output device configured to provide the sorted potential search terms to the new information provider for review; and

an input device configured to receive from the new information provider an indication of accepted search terms, the accepted search terms being stored in the database in association with the new information provider upon receipt of the indication from the new information provider.

80. (Previously presented) The computer network search engine apparatus of claim 79 further comprising:

spidering code operable in conjunction with the processing system to find initially accepted search terms in a web site by spidering the web site and to include the initially accepted search terms among the sorted potential search terms provided to the new information provider for review.

81. (Previously presented) The computer network search engine apparatus of claim 80 wherein the spidering code is configured to spider a web site of the new information provider.

82. (Previously presented) The computer network search engine apparatus of claim 80 wherein the spidering code is configured to spider a web site specified by the new information provider.

83. (Previously presented) The computer network search engine apparatus of claim 80 wherein the spidering code is configured to retrieve pages from the web site of the new information provider, record terms contained in the retrieved pages and score the terms according to a quality metric.

84. (Previously presented) The computer network search engine apparatus of claim 83 wherein the spidering code is configured to include terms scoring above a threshold score among the sorted potential search terms.

REMARKS

Claims 66-84 are pending in the application and finally rejected. Reconsideration and allowance of claims 66-84 are respectfully requested. This Draft Request for Reconsideration is submitted in preparation for a telephone call between the Examiner and the undersigned attorney scheduled for Tuesday, September 19, 2006 at 4:00 PM EDT, 3:00 PM CDT.

Prior art rejections

Claims 66-71 and 73-84 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. patent number 6,421,675 to Ryan, et al. ("Ryan") in view of U.S. patent number 6,289,341 to Barney ("Barney"). Claims 67, 72-74 and 80-82 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ryan and Barney and further in view of U.S. patent no. 6,078,916 to Culliss ("Culliss").

The claimed method and apparatus relate to recommending search terms to a new information provider

In response to Applicant's argument that "the present invention defined by claims 66-83 provides a method and apparatus for recommending search terms to a new information provider, i.e., one who has not previously stored search terms on the database or associated search terms with himself," the Examiner asserts that the term "new information provider" is not described in the specification.

Applicants acknowledge that the terminology "new information provider" is not directly in the specification. However, at page 38, lines 14-16, FIG. 10 is described as "a flow diagram illustrating a method for recommending search terms to an advertiser on a pay-for-placement search engine. On the same page at lines 24-25, it is stated that "In block 1002, the system prompts the advertiser to choose an input method to create *the initial list of accepted search terms*" *(emphasis added)*. This method is explained in light of a problem to be solved by the invention, detailed at page 2, lines 29-30: "Unfortunately, few advertisers understand *how to create a good list of search terms*, and right now there are only limited tools to help them" *(emphasis added)*

The terminology "new information provider" was added to claims 66-84 to clarify this problem and solution. The method applies to a system in a computer network search apparatus (preamble of claim 66). The apparatus includes a computer system, a database storing items of information and which are associated with a search term and an information provider (preamble of claim 66). When "a new information provider who is adding items to the database" (element (a) of claim 66) accesses the database, the method steps may be performed.

Thus, while the claim language should be interpreted in light of the specification and claim language should be given its broadest reasonable reading, when read in light of the specification including the Background defining the problem and the text describing the highest-level flow diagram (FIG. 10),. it is clear that a "new information provider is an iformation provider joining the computer network search apparatus as an information provider who has not previously stored search terms on the database or associated search terms with himself.

The "new information provider" of claim 66 is an advertiser or other individual and his computer system, not a search engine.

The Examiner has considered the claim language and Ryan and concluded that the "new information provider" recited in claim 66 reads on the search engine disclosed by Ryan. It is respectfully submitted that a new information provider in the context of claim 66 is an individual (and his computer system), not a search engine. The present application, at page 10, lines 24-31 explains:

> For example, one class of users located at client computers 12 may be **network information providers** such as advertising web site promoters or owners having advertiser web pages 30 located on advertiser web servers 14. These advertising web site promoters, or advertisers, may wish to access account information residing in storage 32 on account management server 22. An advertising web site promoter may, through the account residing on the account management server 22, participate in a competitive bidding process with other advertisers.

(emphasis added). Thus, the parties involved with the system recited in method claim 66 include a user who enters information through an input device and information providers which are

associated with items stored in the database. A new information provider is one who has not previously stored search terms on the database.

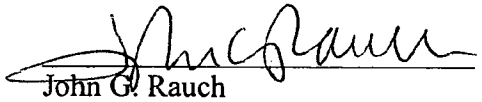
Once the parties are more clearly identified, it becomes apparent that Ryan actually relates to a search system which provides keyword suggestion to a user of the search system. From column 5, line 13, a keyword is "the word or phrase that the user enters to find a list of web pages." The search process is described at column 4, lines 30-40. The system suggests keywords to the user, based on a keyword that the user entered. Column 7, lines 63-66; column 8, lines 28-32.

Since the keywords are suggested to the user, Ryan fails to disclose the present invention of claims 66-84 which relates to suggesting keywords to an information provider, as that term is used in the present application. Information providers are present in the Ryan system, e.g., FIG. 1B "Developer site/computer" 104A, B; column 4, lines 3-11. However, Ryan's keyword suggestion feature serves the user who submits search requests, not the developer who provides content and other information.

While only portions of claim 66 have been discussed in detail herein, it is submitted that independent claim 79 includes similar limitations and is allowable for the same reasons. Withdrawal of the rejections of claims 66-84 is respectfully requested.

With this response, the application is believed to be in condition for allowance. Should the examiner deem a telephone conference to be of assistance in advancing the application to allowance, the examiner is invited to call the undersigned attorney at the telephone number below.

Respectfully submitted,



John G. Rauch
Registration No. 37,218
Attorney for Applicant

September 18, 2006
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OCT 13 2006
PATENT & TRADEMARK OFFICE

AF JPW

CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8
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Date: October 10, 2006 Name: John G. Rauch Signature:

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: Paine, Mark et al.

Appln. No.: 10/020,712 Examiner: Leroux, Etienne Pierre

Filed: December 11, 2001 Art Unit: 2161

For: RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING

Attorney Docket No: 9623/378

Mail Stop AF
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL

Sir:

Attached is/are:

☒ Check for $500; Notice of Appeal; Pre-appeal brief request for review (5 pages); Interview Summary, including attached copy of Draft Request For Reconsideration (11 pages)

☒ Return Receipt Postcard

Fee calculation:

☐ No additional fee is required.

☐ Small Entity.

☐ An extension fee in an amount of $_____ for a _____-month extension of time under 37 C.F.R. § 1.136(a).

☒ A petition or processing fee in an amount of $500 under 37 C.F.R. § 1.41.20(b1).

☐ An additional filing fee has been calculated as shown below:

					Small Entity			Not a Small Entity	
	Claims Remaining After Amendment		Highest No. Previously Paid For	Present Extra	Rate	Add'l Fee	or	Rate	Add'l Fee
Total		Minus			x $25=			x $50=	
Indep.		Minus			x 100=			x $200=	
First Presentation of Multiple Dep. Claim					+$180=			+ $360=	
					Total	$		Total	$

Fee payment:

☒ A check in the amount of $500 is enclosed.

☐ Please charge Deposit Account No. 23-1925 in the amount of $. A copy of this Transmittal is enclosed for this purpose.

☒ The Director is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this paper (including any extension fee required to ensure that this paper is timely filed), or to credit any overpayment, to Deposit Account No. 23-1925.

Respectfully submitted,

10/10/06
Date

John G. Rauch (Reg. No. 37,218)

BRINKS HOFER GILSON & LIONE
NBC Tower – Suite 3600, 455 N. Cityfront Plaza Drive, Chicago, IL 60611-5599

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Date: October 10, 2006 Name: John G. Rauch Signature:

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Our Case No. 9623/378

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	
Paine, Mark et al.	
Serial No. 10/020,712	Examiner LeRoux, Etienne Pierre
Filing Date: December 11, 2001	Group Art Unit No. 2161
For RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING	

INTERVIEW SUMMARY

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This Interview Summary summarizes the telephonic interview between Examiner LeRoux and the undersigned attorney on September 19, 2006.

The Final Office Action dated July 10, 2006, along with U.S. patent number 6,421,675 to Ryan, et al. ("Ryan"), the specification in general and claim 66 in particular were discussed. Prior to the interview, the Draft Request for Reconsideration attached hereto was sent by facsimile to the examiner for review.

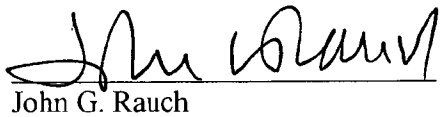
During the interview, it was explained that the invention generally relates to a keyword suggestion tool for use by advertisers with pay for placement-type database search systems. In such a system, advertisers associated with items in the database (also called search listings) bid on keywords against other advertisers. When a user submits a search query, search results are returned including bidded items, ranked according to bids.

The keyword suggestion tool provides possible keywords to an information provider. It was further explained that the terminology used in the application includes "information provider," "advertiser" and "web site promoter" to describe the individuals associated with bidded keywords and items in the database. For an information provider who needs help identifying additional keywords, the method and apparatus of the presently claimed invention uses unique features to provide potential keywords or search terms. In particular, keyword suggestion can be helpful for a new advertiser, who is just getting started with the system.

In addition to clarifying the terminology of the claims, the invention defined by claim 66 was distinguished over the Ryan reference. It was acknowledged that Ryan relates to a database search system and provides a "keyword suggester" at column 8. However, this keyword suggester is for the use of users of the database search system, not information providers. Ryan fails to disclose the present invention of claims 66-84 which relates to suggesting keywords to an information provider, as that term is used in the present application.

No agreement was reached regarding the status of the claims.

Respectfully submitted,



John G. Rauch
Registration No. 37,218
Attorney for Applicant

October 10, 2006
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,712	12/11/2001	Mark Paine	9623/378	1404

56020 7590 10/20/2006

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P.O. BOX 10395
CHICAGO, IL 60610

EXAMINER	
LEROUX, ETIENNE PIERRE	
ART UNIT	**PAPER NUMBER**
2161	

DATE MAILED: 10/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/020,712	PAINE ET AL.	
	Etienne LeRoux	Art Unit 2161	
Document Code - AP.PRE.DEF			

Notice of Panel Decision from Pre-Appeal Brief Review

This is in response to the Pre-Appeal Brief Request for Review filed 10-13-06.

1. ☒ **Improper Request** – The Request is improper and a conference will not be held for the following reason(s):

☐ The Notice of Appeal has not been filed concurrent with the Pre-Appeal Brief Request.
☐ The request does not include reasons why a review is appropriate.
☒ A proposed amendment is included with the Pre-Appeal Brief request.
☐ Other:

The time period for filing a response continues to run from the receipt date of the Notice of Appeal or from the mail date of the last Office communication, if no Notice of Appeal has been received.

2. ☐ **Proceed to Board of Patent Appeals and Interferences** – A Pre-Appeal Brief conference has been held. The application remains under appeal because there is at least one actual issue for appeal. Applicant is required to submit an appeal brief in accordance with 37 CFR 41.37. The time period for filing an appeal brief will be reset to be one month from mailing this decision, or the balance of the two-month time period running from the receipt of the notice of appeal, whichever is greater. Further, the time period for filing of the appeal brief is extendible under 37 CFR 1.136 based upon the mail date of this decision or the receipt date of the notice of appeal, as applicable.

☐ The panel has determined the status of the claim(s) is as follows:
Claim(s) allowed: _____.
Claim(s) objected to: _____.
Claim(s) rejected: _____.
Claim(s) withdrawn from consideration: _____.

3. ☐ **Allowable application** – A conference has been held. The rejection is withdrawn and a Notice of Allowance will be mailed. Prosecution on the merits remains closed. No further action is required by applicant at this time.

4. ☐ **Reopen Prosecution** – A conference has been held. The rejection is withdrawn and a new Office action will be mailed. No further action is required by applicant at this time.

All participants:

(1) *Heather R. Herndon*. Heather Herndon — Heather R. Herndon, Supervisory Patent Examiner, Technology Center 2100 — (3)_____.

(2) _____. (4)_____.

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,712	12/11/2001	Mark Paine	9623/378	1404

56020 7590 11/07/2006

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EXAMINER	
LEROUX, ETIENNE PIERRE	

ART UNIT	PAPER NUMBER
2161	

DATE MAILED: 11/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Advisory Action Before the Filing of an Appeal Brief	Application No. 10/020,712	Applicant(s) PAINE ET AL.	
	Examiner Etienne P. LeRoux	Art Unit 2161	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 13 October 2006 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:
   a) ☒ The period for reply expires 5 months from the mailing date of the final rejection.
   b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

   Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☒ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   (a) ☒ They raise new issues that would require further consideration and/or search (see NOTE below);
   (b) ☐ They raise the issue of new matter (see NOTE below);
   (c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   (d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

   NOTE: *Applicant states*. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
   The status of the claim(s) is (or will be) as follows:
   Claim(s) allowed: _____.
   Claim(s) objected to: _____.
   Claim(s) rejected: *66-84*.
   Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☐ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: _____.
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08) Paper No(s). _____
13. ☐ Other: _____.

E P LeRoux
Primary Examiner

Continuation of 13. Other: Applicant states in the third paragraph of page 9 "Since the keywords are suggested to the user, Ryan fails to disclose the present invention of claims 66-84 which relates to suggesting keywords to an information provider as that term is used in the present application." Examiner is not persuaded. Claim 66 recites a "new information provider" and NOT "an information provider." Examiner maintains applicant is attempting to improperly amend the claim(s). Furthermore, applicant on page 8 states the "new information provider" of claim 66 is an advertiser or other individual. Examiner maintains that the disclosure of Ryan reads on "other individual" .

IPE 0003783

OIPE IAP84
DEC 11 2006
PATENT & TRADEMARK OFFICE

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Date of Deposit: December 11, 2006

Our Case No. 9623/378

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Paine, Mark et al.

Serial No. 10/020,712

Filing Date: December 11, 2001

For RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING

Examiner: Leroux, Etienne Pierre

Group Art Unit No. 2161

AMENDMENT

Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Final Office Action dated July 10, 2006, please amend the application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 8 of this paper.

Amendments to the Claims

Please add new claims 85 and 86 as shown below.

Listing of Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Claims 1-65 (Cancelled)

66. (Previously Presented) A method for recommending search terms in a computer network search apparatus for generating a result list of items representing a match with information entered by a user through an input device connected to the computer network, the search apparatus including a computer system operatively connected to the computer network and a plurality of items stored in a database, each item including information to be communicated to a user and having associated with it at least one search term, an information provider and a bid amount, the method comprising:

(a) obtaining a set of potential search terms for acceptance by a new information provider who is adding items to the database;

(b) computing correlations between the potential search terms for the new information provider and search terms of other information providers stored in the database;

(c) computing an estimated rating for the each potential search term for the new information provider;

(d) sorting the potential search terms according to the computed estimated ratings;

(e) presenting to the new information provider on an output device the sorted potential search terms;

(f) receiving from the new information provider at an input device an indication of accepted search terms;

(g) repeating (b) through (e) until a completion indication is received from the new information provider; and

(h) storing the accepted search terms in the database for the new information provider upon receipt of the completion indication.

67. (Previously presented) The method of claim 66 wherein obtaining a set of potential search terms comprises:

receiving from the new information provider a website uniform resource locator (URL); and

spidering the website associated with the website URL to obtain search terms for the set of potential search terms.

68. (Previously presented) The method of claim 67 wherein spidering the website comprises:

receiving data from pages of the website;

recording potential search terms from the data; and

determining a quality metric for each potential search term.

69. (Previously presented) The method of claim 67 wherein computing an estimated rating comprises:

combining a rating based on the computed correlations and a rating based on the quality metric determined for each candidate search term.

70. (Previously presented) The method of claim 68 further comprising:

sorting the candidate search terms according to the quality metric; and

adding to the set of potential search terms only candidate search terms having a quality metric exceeding a threshold.

71. (Previously presented) The method of claim 66 wherein spidering comprises:

receiving data from one or more pages of the website; and

examining text from the one or more pages for candidate search terms.

72. (Previously presented) The method of claim 71 wherein examining text comprises:

examining substantially all text from the one or more pages; and

examining meta tags from the one or more pages.

73. (Previously presented) The method of claim 71 wherein receiving a website URL comprises:

receiving the advertiser's URL as the web site URL.

74. (Previously presented) The method of claim 71 wherein receiving a website URL comprises:

receiving the web site URL from the advertiser.

75. (Previously presented) The method of claim 66 wherein computing correlations comprises:

assigning ratings to search terms; and

computing a correlation between the advertiser and one or more of the other advertisers using the assigned ratings of advertiser search terms.

76. (Previously presented) The method of claim 75 wherein computing an estimated rating comprises:

predicting a likelihood that a search term will be relevant to the advertiser.

77. (Previously presented) The method of claim 76 wherein predicting comprises:

determining a quality metric for potential search terms; and

predicting relevance of the potential search terms based on the quality metric.

78. (Previously presented) The method of claim 66 wherein presenting the sorted potential search terms to the new information provider comprises sending the sorted potential search terms with a web page to the output device.

79. (Previously presented) A computer network search engine apparatus which includes a database having stored therein a plurality of search listings, each search listing being associated with an information provider, at least one keyword, a money amount, and a computer network location and a search engine to identify search listings having a keyword matching a keyword entered by a searcher, to order the identified listings using the money amounts for the respective identified listings, and to generate a result list including at least some of the ordered listings, the apparatus comprising:

an account management server including a processing system which is operative in conjunction with program code to recommend potential search terms to a new information provider adding search listings to the database;

collaborative filtering code operable in conjunction with the processing system to compute correlations between potential search terms for the new information provider and search terms of other information providers stored in the database and to compute an estimated rating for the each potential search term for the new information provider;

sorting code operable in conjunction with the processing system and configured to sort the potential search terms according to the computed estimated ratings;

an output device configured to provide the sorted potential search terms to the new information provider for review; and

an input device configured to receive from the new information provider an indication of accepted search terms, the accepted search terms being stored in the database in association with the new information provider upon receipt of the indication from the new information provider.

80. (Previously presented) The computer network search engine apparatus of claim 79 further comprising:

spidering code operable in conjunction with the processing system to find initially accepted search terms in a web site by spidering the web site and to include the initially accepted search terms among the sorted potential search terms provided to the new information provider for review.

81. (Previously presented) The computer network search engine apparatus of claim 80 wherein the spidering code is configured to spider a web site of the new information provider.

82. (Previously presented) The computer network search engine apparatus of claim 80 wherein the spidering code is configured to spider a web site specified by the new information provider.

83. (Previously presented) The computer network search engine apparatus of claim 80 wherein the spidering code is configured to retrieve pages from the web site of the new information provider, record terms contained in the retrieved pages and score the terms according to a quality metric.

84. (Previously presented) The computer network search engine apparatus of claim 83 wherein the spidering code is configured to include terms scoring above a threshold score among the sorted potential search terms.

85. (New) A method for making search term recommendations to an advertiser in a pay for placement market system in which search listings of advertisers may be searched by users entering search terms, the method comprising:

receiving from the advertiser a website uniform resource locator (URL);

spidering the website associated with the website URL to obtain an initial list of search terms to form a set of potential search terms for the advertiser;

computing correlations between the set of potential search terms for the advertiser and search terms of other advertisers stored in a database of the pay for placement market system;

computing an estimated rating for each potential search term for the advertiser;

sorting the potential search terms according to the estimated ratings;

providing the sorted potential search terms to the advertiser;

receiving from the advertiser the advertiser's indication of accepted search terms; and

storing the accepted search terms in the database for searching by the users.

86. (New) The method of claim 85 further comprising:

repeating the acts of computing correlations, computing an estimated rating, sorting and providing the potential search terms and receiving an indication of accepted search terms until the advertiser indicated the process is complete .

REMARKS

Claims 66-86 are pending in the application. By this paper, new claims 85 and 86 are submitted, along with previously pending claims 66-84. No new matter is added by this amendment, which is clearly supported throughout the application, including FIG. 10 and the text associated therewith.

In the Advisory Action mailed November 7, 2006, it is stated that Claim 66 recites a "new information provider" and not "an information provider. Examiner maintains that applicant is attempting to improperly amend the claim(s)." However, claims 66-84 were submitted on July 13, 2005 and were entered at that time. No objection to the amendment or the claims was raised at that time. The same claims were pending on November 21, 2005 and no objection was raised to the claims. The same claims were pending on April 24, 2006 and no objection was raised to the claims. No clear reason has been provided as to why the claims were "improperly amended." In fact, the Applicants have not sought to amend independent claims 66 and 79 so it is not clear what amendments are even referred to in the Advisory Action.

In the final office action dated July 10, 2006, the rejection under 35 U.S.C. § 103(a) of claims 66-71 and 73-84 as being unpatentable over U.S. patent number 6,421,675 to Ryan, et al. ("Ryan") in view of U.S. patent number 6,289,341 to Barney ("Barney") was maintained. Further, the rejection under 35 U.S.C. § 103(a) of claims 67, 72-74 and 80-82 as being unpatentable over Ryan and Barney and further in view of U.S. patent no. 6,078,916 to Culliss ("Culliss") was also maintained. Reconsideration and allowance of claims 66-84 are respectfully requested.

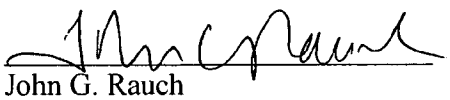
Ryan actually relates to a database search system which provides keyword suggestions **to a user** of the search system, rather than to an information provider or an advertiser. Ryan column 5, line 13 explains that, in the system of Ryan, a keyword is "the word or phrase that ***the user*** enters to find a list of web pages" *(emphasis added).* The search process is described at Ryan column 4, lines 30-40. The Ryan system suggests keywords to the user based on a keyword that **the user** entered. Col. 7, lines 63-66; col. 8, lines 28-32.

Since the keywords are suggested to the user, Ryan cannot disclose the present invention of claims 66-84 which relates to suggesting keywords to an information provider. Information providers are present in the system disclosed by Ryan, e.g., FIG. 1B "Developer site/computer" 104A, B; column 4, lines 3-11. However, Ryan's keyword suggestion feature serves the user who submits search requests, not the developer who provides content and other information. Ryan does not even recognize the problem solved by the presently claimed invention, that an information provider might want or need some suggestion of keywords to bid upon.

New claims 85 and 86 relate to a "method for making search term recommendations to an advertiser in a pay for placement market system in which search listings of advertisers may be searched by users entering search terms." For the reasons indicated above, Ryan fails to disclose recommending search terms **to an advertiser**. Further, the relation is specified in claim 85 between users, who enter search terms to search the search listings, and advertisers in the pay for placement market system. Accordingly, claims 85 and 86 are submitted to be allowable over the cited art.

With this response, the application is believed to be in condition for allowance. Should the examiner deem a telephone conference to be of assistance in advancing the application to allowance, the examiner is invited to call the undersigned attorney at the telephone number below.

Respectfully submitted,



John G. Rauch
Registration No. 37,218
Attorney for Applicants

December 11, 2006
BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, ILLINOIS 60610
(312) 321-4200

12-12-06

RCE/2161

OIPE 1AP84 DEC 11 2006 PATENT & TRADEMARK OFFICE U.S. PTO

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Date of Deposit: December 11, 2006

BRINKS HOFER GILSON & LIONE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of:	Paine, Mark et al.	
Appln. No.:	10/020,712	Examiner: Leroux, Etienne Pierre
Filed:	December 11, 2001	Art Unit: 2161
For:	RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING	
Attorney Docket No:	9623/378	

Mail Stop RCE
Commissioner for Patents
U.S. Patent and Trademark Office
P. O. Box 1450
Alexandria, VA 22313-1450

REQUEST FOR CONTINUED EXAMINATION (37 C.F.R. § 1.114)

Sir:

Applicant(s) requests continued examination of the above-identified application under 37 C.F.R. §1.114.

☒ Submission under 37 CFR 1.114 (*check at least one of the following*):

- ☐ Previously submitted:
  - ☐ Applicant(s) requests nonentry of any previously-filed unentered amendments.
  - ☐ Please enter and consider the Amendment After Final Under 37 C.F.R. §1.116 previously filed on_____
  - ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
  - ☐ Other: _____
- ☒ Attached is/are:
  - ☐ An Information Disclosure Statement
  - ☒ An Amendment to the written description, claims, or drawings
  - ☒ New Arguments and/or New Evidence in support of Patentability
  - ☐ Other: _____

12/13/2006 AWONDAF1 00000031 231925 10020712
01 FC:1801 790.00 DA
02 FC:1202 50.00 DA

☐ Request for suspension of action:

Applicant(s) hereby request suspension of action on the above-identified application under 37 C.F.R. §1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; requires Processing Fee under 37 C.F.R. §1.17(i)).

☐ Small Entity Status:

- ☐ Applicant hereby asserts entitlement to claim small entity status under 37 CFR §§ 1.9 and 1.27.
- ☐ A small entity statement or assertion of entitlement to claim small entity status was filed in prior application no._____/_____ and such status is still proper and desired.
- ☐ Is no longer desired.

☒ Applicant(s) calculate the following fees to be due in connection with this Request:

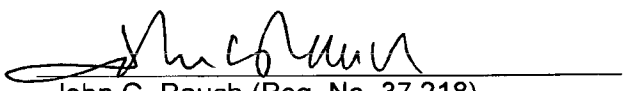
- ☒ A Request fee of $790 under 37 C.F.R. §1.17(e).
- ☐ A suspension processing fee of $_____ under 37 C.F.R. §1.17(i).
- ☒ An additional filing fee of $50 under 37 C.F.R. §1.16 (_____ additional independent claims and/or one (1) additional total claims).
- ☒ An extension fee of $450 under 37 C.F.R. §1.17(a) for a two-month extension of time.

☒ Fee payment to cover the above-enumerated fee(s):

- ☐ A check in the amount of $_____ is enclosed.
- ☒ Please charge Deposit Account No. 23-1925 (BRINKS HOFER GILSON & LIONE) in the amount of $1290 to cover the Request fee, extra claim fee and extension of time fee. A copy of this Request is enclosed for this purpose.
- ☒ The Commissioner is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this paper (including any extension fee required to ensure that this paper is timely filed), or to credit any overpayment, to Deposit Account No. 23-1925 (BRINKS HOFER GILSON & LIONE). A copy of this Request is enclosed for this purpose.

Respectfully submitted,

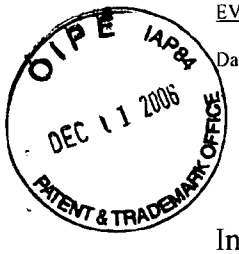
December 11, 2006
Date



John G. Rauch (Reg. No. 37,218)

"Express Mail" mailing label number
EV 316035955 US

Date of Deposit: December 11, 2006



Case No. 9623/378

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Paine, Mark et al.

Serial No: 10/020,712

Examiner: Leroux, Etienne Pierre

Filed: December 11, 2001

Group Art Unit: 2161

For: RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING

PETITION AND FEE FOR EXTENSION OF TIME (37 CFR § 1.136(a))

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This is a petition for an extension of the time to respond to the final office action dated July 10, 2006 for a period of 2 month(s).

☒ Applicant:

☐ claims small entity status. See 37 C.F.R. §1.27.

☒ is other than small entity.

	Extension Months	**Other Than Small Entity**	**Small Entity**
☐	One Month	$120.00	$60.00
☒	Two Months	$450.00	$225.00
☐	Three Months	$1,020.00	$510.00
☐	Four Months	$1,590.00	$795.00
☐	Five Months	$2,160.00	$1,080.00

12/13/2006 AWONDAF1 00000031 231925 10020712

03 FC:1252 450.00 DA

Fee Payment

☐ Attached is a check for $_____ for the Petition fee.

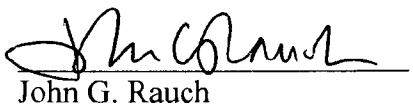
☐ Attached is a credit card authorization form for $_____ for the Petition fee.

☒ Charge Petition fee to Deposit Account No. 23-1925. A duplicate copy of this Petition is attached.

☒ Charge any additional fee required or credit for any excess fee paid to Deposit Account No. 23-1925. A duplicate copy of this Petition is attached.

Respectfully submitted,

Dated: December 11, 2006



John G. Rauch
Registration No. 37,218
Attorney for Applicant

BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, IL 60610
(312)321-4200

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BRINKS HOFER GILSON &LIONE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: Paine, Mark et al.

Appln. No.: 10/020,712

Filed: December 11, 2001

For: RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING

Examiner: Leroux, Etienne Pierre

Art Unit: 2161

Attorney Docket No: 9623/378

Mail Stop RCE
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450
Sir:

TRANSMITTAL

Attached is/are:

☒ Request For Continued Examination (37 CFR 1.114), in duplicate; Amendment; Petition and Fee for Extension of time (1.136(a)), in duplicate

☒ Return Receipt Postcard

Fee calculation:

☐ No additional fee is required.

☐ Small Entity.

☒ An extension fee in an amount of $450 for a two-month extension of time under 37 C.F.R. § 1.136(a).

☐ A petition or processing fee in an amount of $_____ under 37 C.F.R. § 1.17(_____).

☒ An additional filing fee has been calculated as shown below:

					Small Entity			Not a Small Entity	
	Claims Remaining After Amendment		Highest No. Previously Paid For	Present Extra	Rate	Add'l Fee	or	Rate	Add'l Fee
Total	21	Minus	20	1	x $25=			x $50=	50
Indep.	3	Minus	3	0	x 100=			x $200=	0
First Presentation of Multiple Dep. Claim					+$180=			+ $360=	0
					Total	$		Total	$50

Fee payment:

☐ A check in the amount of $_____ is enclosed.

☒ Please charge Deposit Account No. 23-1925 in the amount of $1290 to cover the Request fee, extension of time fee and extra claim fee. A copy of this Transmittal is enclosed for this purpose.

☒ The Director is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this paper (including any extension fee required to ensure that this paper is timely filed), or to credit any overpayment, to Deposit Account No. 23-1925.

Respectfully submitted,

December 11, 2006
Date

John G. Rauch (Reg. No. 37,218)

BRINKS HOFER GILSON & LIONE
NBC Tower – Suite 3600, 455 N. Cityfront Plaza Drive, Chicago, IL 60611-5599

BRINKS HOFER GILSON &LIONE

PATENT APPLICATION FEE DETERMINATION RECORD
Effective December 8, 2004

Application or Docket Number: 10/620012

RCE

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS		
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	21 minus 20=	* 1
INDEPENDENT CLAIMS	3 minus 3 =	*
MULTIPLE DEPENDENT CLAIM PRESENT		☐

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE ☐		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
BASIC FEE		OR	BASIC FEE	790
X$ 25=		OR	X$50=	50
X100=		OR	X200=	
+180=		OR	+360=	
TOTAL		OR	TOTAL	840

CLAIMS AS AMENDED - PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐				

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 25=		OR	X$50=	
X100=		OR	X200=	
+180=		OR	+360=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐				

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 25=		OR	X$50=	
X100=		OR	X200=	
+180=		OR	+360=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT C

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐				

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 25=		OR	X$50=	
X100=		OR	X200=	
+180=		OR	+360=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

CERTIFICATE OF FACSIMILE TRANSMISSION UNDER 37 C.F.R. §1.8

I hereby certify that this correspondence, totaling 9 pages including recited attachments, is being facsimile transmitted to the United States Patent and Trademark Office at facsimile no.: (571) 273-8022 on the below date:

Date: January 17, 2007 Name: John G. Rauch Signature:

Our Case No. 9623/378

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Paine, Mark et al.

Serial No. 10/020,712

Filing Date: December 11, 2001

For RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING

Examiner: Leroux, Etienne Pierre

Group Art Unit No. 2161

PRELIMINARY AMENDMENT

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the telephone conversation between the Examiner and Applicant's attorney on January 9, 2007, please amend the application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 8 of this paper.

CERTIFICATE OF FACSIMILE TRANSMISSION UNDER 37 C.F.R. §1.8

I hereby certify that this correspondence, totaling 8 pages including recited attachments, is being facsimile transmitted to the United States Patent and Trademark Office at facsimile no.: (571) 273-4022 on the below date:

Date: January 17, 2007 Name: John G. Rauch Signature: [signature]

BRINKS HOFER GILSON & LIONE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: Paine, Mark et al.

Appln. No.: 10/020,712

Filed: December 11, 2001

For: RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING

Examiner: Leroux, Etienne Pierre

Art Unit: 2161

Attorney Docket No: 9623/378

Mail Stop Amendment
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL

Attached is/are:

☒ Preliminary Amendment (8 pages)

☐ Return Receipt Postcard.

Fee calculation:

☒ No additional fee is required.

☐ Small Entity.

☐ An extension fee in an amount of $_____ for a _____-month extension of time under 37 C.F.R. § 1.136(a).

☐ A petition or processing fee in an amount of $_____ under 37 C.F.R. § 1.17(_____).

☐ An additional filing fee has been calculated as shown below:

					Small Entity			Not a Small Entity	
	Claims Remaining After Amendment		Highest No. Previously Paid For	Present Extra	Rate	Add'l Fee	or	Rate	Add'l Fee
Total	19	Minus	20	0	x $25=			x $50=	0
Indep.	3	Minus	3	0	x 100=			x $200=	0
First Presentation of Multiple Dep. Claim					+$180=			+ $360=	0
					Total	$		Total	$0

Fee payment:

☐ A check in the amount of $_____ is enclosed.

☐ Please charge Deposit Account No. 23-1925 in the amount of $_____. A copy of this Transmittal is enclosed for this purpose.

☒ The Director is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this paper (including any extension fee required to ensure that this paper is timely filed), or to credit any overpayment, to Deposit Account No. 23-1925.

Respectfully submitted,

[signature]

January 17, 2007
Date

John G. Rauch (Reg. No. 37,218)

Amendments to the Claims

Please cancel claims 67 and 80.

Please amend claims 66, 68, 69 and 79 as shown below.

Listing of Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Claims 1-65 (Cancelled)

66. (Currently amended) A method for recommending search terms in a computer network search apparatus for generating a result list of items representing a match with information entered by a user through an input device connected to the computer network, the search apparatus including a computer system operatively connected to the computer network and a plurality of items stored in a database, each item including information to be communicated to a user and having associated with it at least one search term, an information provider and a bid amount, the method comprising:

(a) obtaining a set of potential search terms for acceptance by a new information provider who is adding items to the database, including;

receiving from the new information provider a website uniform resource locator (URL); and

spidering the website associated with the website URL to obtain search terms for the set of potential search terms;

(b) computing correlations between the potential search terms for the new information provider and search terms of other information providers stored in the database;

(c) computing an estimated rating for the each potential search term for the new information provider;

(d) sorting the potential search terms according to the computed estimated ratings;

(e) presenting to the new information provider on an output device the sorted potential search terms;

PAGE 3/9 * RCVD AT 1/17/2007 3:50:04 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-6/27 * DNIS:2734022 * CSID:13123214299 * DURATION (mm-ss):01-42

(f) receiving from the new information provider at an input device an indication of accepted search terms;

(g) repeating (b) through (e) until a completion indication is received from the new information provider; and

(h) storing the accepted search terms in the database for the new information provider upon receipt of the completion indication.

67. (Cancelled)

68. (Currently amended) The method of claim [[67]] 66 wherein spidering the website comprises:

receiving data from pages of the website;

recording potential search terms from the data; and

determining a quality metric for each potential search term.

69. (Currently amended) The method of claim [[67]] 68 wherein computing an estimated rating comprises:

combining a rating based on the computed correlations and a rating based on the quality metric determined for each candidate search term.

70. (Previously presented) The method of claim 68 further comprising:

sorting the candidate search terms according to the quality metric; and

adding to the set of potential search terms only candidate search terms having a quality metric exceeding a threshold.

71. (Previously presented) The method of claim 66 wherein spidering comprises:

receiving data from one or more pages of the website; and

examining text from the one or more pages for candidate search terms.

72. (Previously presented) The method of claim 71 wherein examining text comprises:

examining substantially all text from the one or more pages; and

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examining meta tags from the one or more pages.

73. (Previously presented) The method of claim 71 wherein receiving a website URL comprises:

receiving the advertiser's URL as the web site URL.

74. (Previously presented) The method of claim 71 wherein receiving a website URL comprises:

receiving the web site URL from the advertiser.

75. (Previously presented) The method of claim 66 wherein computing correlations comprises:

assigning ratings to search terms; and

computing a correlation between the advertiser and one or more of the other advertisers using the assigned ratings of advertiser search terms.

76. (Previously presented) The method of claim 75 wherein computing an estimated rating comprises:

predicting a likelihood that a search term will be relevant to the advertiser.

77. (Previously presented) The method of claim 76 wherein predicting comprises:

determining a quality metric for potential search terms; and

predicting relevance of the potential search terms based on the quality metric.

78. (Previously presented) The method of claim 66 wherein presenting the sorted potential search terms to the new information provider comprises sending the sorted potential search terms with a web page to the output device.

79. (Currently amended) A computer network search engine apparatus which includes a database having stored therein a plurality of search listings, each search listing being associated with an information provider, at least one keyword, a money amount, and a computer network

location and a search engine to identify search listings having a keyword matching a keyword entered by a searcher, to order the identified listings using the money amounts for the respective identified listings, and to generate a result list including at least some of the ordered listings, the apparatus comprising:

an account management server including a processing system which is operative in conjunction with program code to recommend potential search terms to a new information provider adding search listings to the database;

collaborative filtering code operable in conjunction with the processing system to compute correlations between potential search terms for the new information provider and search terms of other information providers stored in the database and to compute an estimated rating for the each potential search term for the new information provider;

sorting code operable in conjunction with the processing system and configured to sort the potential search terms according to the computed estimated ratings;

spidering code operable in conjunction with the processing system to find initially accepted search terms in a web site by spidering the web site and to include the initially accepted search terms among the sorted potential search terms;

an output device configured to provide the sorted potential search terms to the new information provider for review; and

an input device configured to receive from the new information provider an indication of accepted search terms, the accepted search terms being stored in the database in association with the new information provider upon receipt of the indication from the new information provider.

80. (Cancelled)

81. (Previously presented) The computer network search engine apparatus of claim 80 wherein the spidering code is configured to spider a web site of the new information provider.

PAGE 6/9 * RCVD AT 1/17/2007 3:50:04 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-6/27 * DNIS:2734022 * CSID:13123214299 * DURATION (mm-ss):01-42

82. (Previously presented) The computer network search engine apparatus of claim 80 wherein the spidering code is configured to spider a web site specified by the new information provider.

83. (Previously presented) The computer network search engine apparatus of claim 80 wherein the spidering code is configured to retrieve pages from the web site of the new information provider, record terms contained in the retrieved pages and score the terms according to a quality metric.

84. (Previously presented) The computer network search engine apparatus of claim 83 wherein the spidering code is configured to include terms scoring above a threshold score among the sorted potential search terms.

85. (Previously presented) A method for making search term recommendations to an advertiser in a pay for placement market system in which search listings of advertisers may be searched by users entering search terms, the method comprising:

receiving from the advertiser a website uniform resource locator (URL);

spidering the website associated with the website URL to obtain an initial list of search terms to form a set of potential search terms for the advertiser;

computing correlations between the set of potential search terms for the advertiser and search terms of other advertisers stored in a database of the pay for placement market system;

computing an estimated rating for each potential search term for the advertiser;

sorting the potential search terms according to the estimated ratings;

providing the sorted potential search terms to the advertiser;

receiving from the advertiser the advertiser's indication of accepted search terms; and

storing the accepted search terms in the database for searching by the users.

86. (Previously presented) The method of claim 85 further comprising:

PAGE 7/9 * RCVD AT 1/17/2007 3:50:04 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-6/27 * DNIS:2734022 * CSID:13123214299 * DURATION (mm-ss):01-42

repeating the acts of computing correlations, computing an estimated rating, sorting and providing the potential search terms and receiving an indication of accepted search terms until the advertiser indicated the process is complete.

PAGE 8/9 * RCVD AT 1/17/2007 3:50:04 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-6/27 * DNIS:2734022 * CSID:13123214299 * DURATION (mm-ss):01-42

Application no. 10/020,712
Amendment dated: January 17, 2007

REMARKS

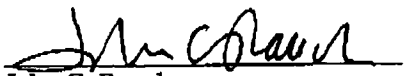
Upon entry of this preliminary amendment, claims 66, 68-79 and 81-86 are pending in the application. By this paper, claims 66, 68, 69 and 79 are amended and claims 67 and 80 are cancelled. Reconsideration of the application is respectfully requested.

During a telephone conversation with Applicant's attorney John G. Rauch on January 9, 2007, the Examiner explained that claims 85-86 are clearly allowable and that claim 66 would be allowable if rewritten to include the limitations of claim 67 and claim 79 would be allowable if rewritten to include the limitations of claim 80.

Accordingly, in order to expedite allowance of the application, the amendments proposed by the examiner have been made herein. Entry of this amendment and allowance of the application are respectfully requested.

With this response, the application is believed to be in condition for allowance. Should the examiner deem a telephone conference to be of assistance in advancing the application to allowance, the examiner is invited to call the undersigned attorney at the telephone number below.

Respectfully submitted,



John G. Rauch
Registration No. 37,218
Attorney for Applicants

January 17, 2007
BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, ILLINOIS 60610
(312) 321-4200

PAGE 9/9 * RCVD AT 1/17/2007 3:50:04 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-6/27 * DNIS:2734022 * CSID:13123214299 * DURATION (mm-ss):01-42

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NOTICE OF ALLOWANCE AND FEE(S) DUE

56020 7590 01/25/2007

BRINKS HOFER GILSON & LIONE / YAHOO! OVERTURE
P.O. BOX 10395
CHICAGO, IL 60610

EXAMINER	
LEROUX, ETIENNE PIERRE	
ART UNIT	PAPER NUMBER
2161	

DATE MAILED: 01/25/2007

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,712	12/11/2001	Mark Paine	9623/378	1404

TITLE OF INVENTION: RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1400	$300	$0	$1700	04/25/2007

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 07/06) Approved for use through 04/30/2007.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

56020 7590 01/25/2007

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P.O. BOX 10395
CHICAGO, IL 60610

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,712	12/11/2001	Mark Paine	9623/378	1404

TITLE OF INVENTION: RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1400	$300	$0	$1700	04/25/2007

EXAMINER	ART UNIT	CLASS-SUBCLASS
LEROUX, ETIENNE PIERRE	2161	707-003000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

☐ Issue Fee

☐ Publication Fee (No small entity discount permitted)

☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**

☐ A check is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

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UNITED STATES DEPARTMENT OF COMMERCE
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,712	12/11/2001	Mark Paine	9623/378	1404

56020 7590 01/25/2007

BRINKS HOFER GILSON & LIONE / YAHOO! OVERTURE
P.O. BOX 10395
CHICAGO, IL 60610

EXAMINER	
LEROUX, ETIENNE PIERRE	
ART UNIT	PAPER NUMBER
2161	

DATE MAILED: 01/25/2007

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 233 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 233 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

PTOL-85 (Rev. 07/06) Approved for use through 04/30/2007.

Notice of Allowability	Application No.	Applicant(s)	
	10/020,712	PAINE ET AL.	
	Examiner	Art Unit	
	Etienne P. LeRoux	2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *Amendment of 1/17/2007*.

2. ☒ The allowed claim(s) is/are *66, 68-79, 81-86 (renumbered 1-19)*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 6/7/2006
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Etienne P LeRoux
Primary examiner

Reason for Allowance

The prior art made of record does not teach or fairly suggest the combination of elements as recited in the independent claims. Specifically, the prior art does not teach:
receiving from the new information provider a website uniform resource locator (URL) and spidering the website associated with the website URL to obtain search terms for the set of potential search terms

The dependent claims being definite, further limiting and fully enabled by the specification are also allowed.

Examiner's Amendment

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

IN THE CLAIMS:

Claim 81:

The computer network search engine apparatus of claim [80] 79 wherein the spidering code is configured to spider a web site of the new information provider.

Claim 82:

The computer network search apparatus of claim [80] 81 wherein the spidering code is configured to spider a web site specified by the new information provider.

Claim 83:

The computer network search engine apparatus of claim [80] 79 wherein the spidering code is configured to retrieve pages from the web site of the new information provider, record terms contained in the retrieved pages and score the terms according to a quality metric.

IN THE SPECIFICATION:

Page 3, line 1:

Services, located at [http://inventory.overure.com.] inventory. overture.com. STST provides

Page 3, line 23:

may be found at [http://users.idealab.com/~charlie/advertisers/start.html.]

users.idealab.com/~charlie/advertisers/start.html . This tool

Page 4, line 17:

be found at [http://www.wordtracker.com.] www.wordtracker.com. Given a search term,

Wordtracker

Page 10, Line 14:

[http://.goto.com/.] goto.com. In addition, the search result list page, an example

Page 34, line 8:

Ordering," available from ResearchIndex, [http://citeseer.nj.nec.com] citeseer.nj.nec.com

and Nilsson,

Page 37, line 18:

found at GroupLens web site http://www.cs.umn.edu/Research/GroupLens

cs.umn.edu/Research/GroupLens

Authorization for this examiner's amendment was given in a telephone interview with Mr. John Rauch on January 18, 2006.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Etienne P. LeRoux whose telephone number is (571) 272-4022. The examiner can normally be reached Monday through Friday, 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on (571) 272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Etienne LeRoux

1/18/2007

Etienne P. LeRoux
Primary Examiner

2161 RECEIVED

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of:	Paine, Mark, et al. ET AL.	
Appln. No.:	10/020,712	Examiner: Leroux, Etienne Pierre
Filed:	December 11, 2001	Art Unit: 2161

RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING

OIPE For IAP2 JUN 07 2006 PATENT & TRADEMARK OFFICE

Attorney Docket No: 9623/378

FIFTH SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

In accordance with the duty of disclosure under 37 C.F.R. §1.56 and §§1.97-1.98, and more particularly in accordance with 37 C.F.R. §1.97(c), Applicants hereby cite the following reference(s):

No.	Date of Publication	Patentee/Applicant/Assignee
2002/0169875 A1	11/14/2002	Furui, et al.
2000132559 A	05/12/2000	Yasutsugu, et al.
2001014349 A	01/19/2001	Takashi
WO 01/46856 A1	06/28/2001	Steele, et al.

Applicants are enclosing Form PTO-1449 (one sheet), along with a copy of each listed reference for which a copy is required under 37 C.F.R. §1.98(a)(2). As each of the listed references is in English, no further commentary is believed to be necessary, 37 C.F.R §1.98(a)(3). Applicants respectfully request the Examiner's consideration of the above reference(s) and entry thereof into the record of this application.

By submitting this Statement, Applicants are attempting to fully comply with the duty of candor and good faith mandated by 37 C.F.R. §1.56. As such, this Statement is not intended to constitute an admission that any of the enclosed references, or other information referred to therein, constitutes "prior art" or is otherwise "material to patentability," as that phrase is defined in 37 C.F.R. §1.56(a).

Examiner: EP Leroux Date: 1/18/2007

06/08/2006 MAHMED1 00000045 10020712
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01 FC:1806

BRINKS HOFER GILSON &LIONE

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10020712	PAINE ET AL.
	Examiner	Art Unit
	LeRoux, Etienne P	2161

ORIGINAL		INTERNATIONAL CLASSIFICATION									
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED				
707	3	G	0	6	F	17 / 30					

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				

(Assistant Examiner) (Date)		Total Claims Allowed: 19	
(Legal Instruments Examiner) 1-22-07 (Date)	(Primary Examiner) Etienne P LeRoux 1/18/2007 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

U.S. Patent and Trademark Office

Part of Paper No. 1/18/2007

IPE 0003816

Index of Claims

Application No.	Applicant(s)	
10/020,712	PAINE ET AL.	
Examiner	**Art Unit**	
Etienne P LeRoux	2161	

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

Claim		Date								
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Search Notes	Application No.	Applicant(s)	
	10/020,712	PAINE ET AL.	
	Examiner	Art Unit	
	Etienne P LeRoux	2161	

SEARCHED			
Class	Subclass	Date	Examiner
707	1	1/17/2007	EPL
707	2	1/17/2007	EPL
707	5	1/17/2007	EPL
707	10	1/17/2007	EPL
709	226	1/17/2007	EPL

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner
707	3	1/17/2007	EPL

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
search updated, searched WEST,	1/17/2007	EPL
inventor/assignee search performed to ensure related applications do not overlap	1/17/2007	EPL

OIPE
APR 02 2007
PATENT & TRADEMARK OFFICE

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
Commissioner for Patents
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Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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56020 7590 01/25/2007

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Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

John G. Rauch	(Depositor's name)
	(Signature)
March 28, 2007	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,712	12/11/2001	Mark Paine	9623/378	1404

TITLE OF INVENTION: RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1400	$300	$0	$1700	04/25/2007

EXAMINER	ART UNIT	CLASS-SUBCLASS
LEROUX, ETIENNE PIERRE	2161	707-003000

04/03/2007 HDELETE2 00000019 10020712
01 FC:1501 1400.00 OP
02 FC:1504 300.00 OP

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
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2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Overture Services, Inc.
(B) RESIDENCE: (CITY and STATE OR COUNTRY): Pasadena, CA

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
☒ Issue Fee
☒ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
☒ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 23-1925 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date March 28, 2007

Typed or printed name John G. Rauch Registration No. 37,218

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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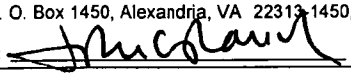
I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, with sufficient postage, in an envelope addressed to: Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450, on the below date:

Date: March 28, 2007 Name: John G. Rauch Signature: 

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: Paine, Mark et al.

Appln. No.: 10/020,712

Examiner: Leroux, Etienne Pierre

Filed: December 11, 2001

Art Unit: 2161

For: RECOMMENDING SEARCH TERMS USING COLLABORATIVE FILTERING AND WEB SPIDERING

Attorney Docket No: 9623/378

Mail Stop Issue Fee
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL

Attached is/are:

☒ Check for $1700; Fee(s) Transmittal, in duplicate

☐ Return Receipt Postcard.

Fee calculation:

☐ No additional fee is required.

☐ An extension fee in an amount of $_____ for a _____-month extension of time under 37 C.F.R. § 1.136(a).

☐ A petition or processing fee in an amount of $_____ under 37 C.F.R. § 1.17(_____).

☐ An additional filing fee has been calculated as shown below:

					Small Entity			Not a Small Entity	
	Claims Remaining After Amendment		Highest No. Previously Paid For	Present Extra	Rate	Add'l Fee	or	Rate	Add'l Fee
Total		Minus			x $25=			x $50=	
Indep.		Minus			x 100=			x $200=	
First Presentation of Multiple Dep. Claim					+$180=			+ $360=	
					Total	$		Total	$

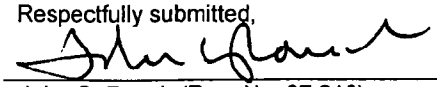
Fee payment:

☒ A check in the amount of $1700 is enclosed to cover the issue and publication fees.

☐ Please charge Deposit Account No. 23-1925 in the amount of $_____. A copy of this Transmittal is enclosed for this purpose.

☒ The Director is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this paper (including any extension fee required to ensure that this paper is timely filed), or to credit any overpayment, to Deposit Account No. 23-1925.

Respectfully submitted,



March 28, 2007
Date

John G. Rauch (Reg. No. 37,218)

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NBC Tower – Suite 3600, 455 N. Cityfront Plaza Drive, Chicago, IL 60611-5599

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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,712	05/29/2007	7225182	9623/378	1404

56020 7590 05/09/2007

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P.O. BOX 10395
CHICAGO, IL 60610

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 233 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Mark Paine, San Francisco, CA;
Winton Davies, San Francisco, CA;
Don F. Geddis, Hillsborough, CA;
Jon Dukes-Schlossberg, Palo Alto, CA;
Darren Davis, Rowland Heights, CA;