Exhibit 3

US007165119B2

(12) **United States Patent**
Fish

(10) **Patent No.: US 7,165,119 B2**
(45) **Date of Patent: Jan. 16, 2007**

(54) **SEARCH ENHANCEMENT SYSTEM AND METHOD HAVING RANKINGS, EXPLICITLY SPECIFIED BY THE USER, BASED UPON APPLICABILITY AND VALIDITY OF SEARCH PARAMETERS IN REGARD TO A SUBJECT MATTER**

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(73) Assignee: **America Online, Inc.**, Dulles, VA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 280 days.

(21) Appl. No.: **10/685,749**

(22) Filed: **Oct. 14, 2003**

(65) **Prior Publication Data**

US 2005/0097188 A1 May 5, 2005

(51) **Int. Cl.**
G06F 15/16 (2006.01)

(52) **U.S. Cl.** **709/246**; 709/203; 709/219; 709/228

(58) **Field of Classification Search** 709/203, 709/218, 219, 225; 707/3, 225
See application file for complete search history.

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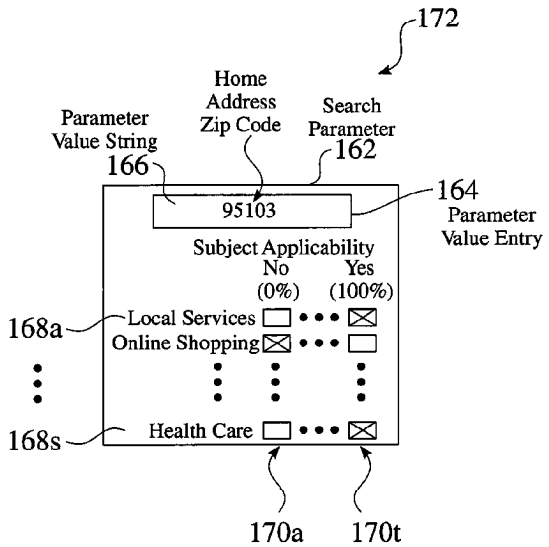
(74) *Attorney, Agent, or Firm*—Michael A. Glenn; Glenn Patent Group

(57) **ABSTRACT**

The system and method comprises enhancement of results for a search engine, wherein the results from the search engine are refined or reorganized, based upon information from an identified secondary source. The results obtained using a conventional search are compared against the identified secondary source, e.g. a ratings service, and are filtered and/or sorted appropriately. In some embodiments, identification of the secondary source, such as a ratings service comprising information which may supplement the subject of a search query, is based upon information entered by the user. In alternate embodiments, the secondary source is associated with a user, as part of general user-specified search parameters, wherein one or more parameters are consulted automatically for searches for appropriate subject matter.

51 Claims, 15 Drawing Sheets



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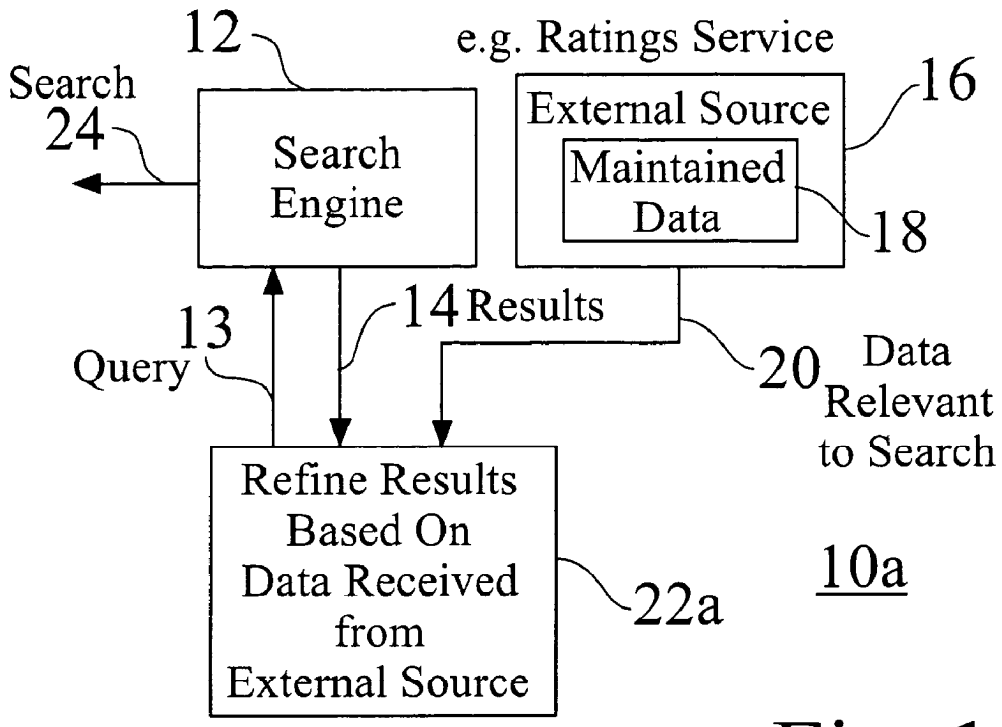

12
e.g. Ratings Service
Search
24
Search Engine
External Source
Maintained Data
16
18
13
Query
14 Results
20
Data Relevant to Search
Refine Results Based On Data Received from External Source
22a
10a

Fig. 1

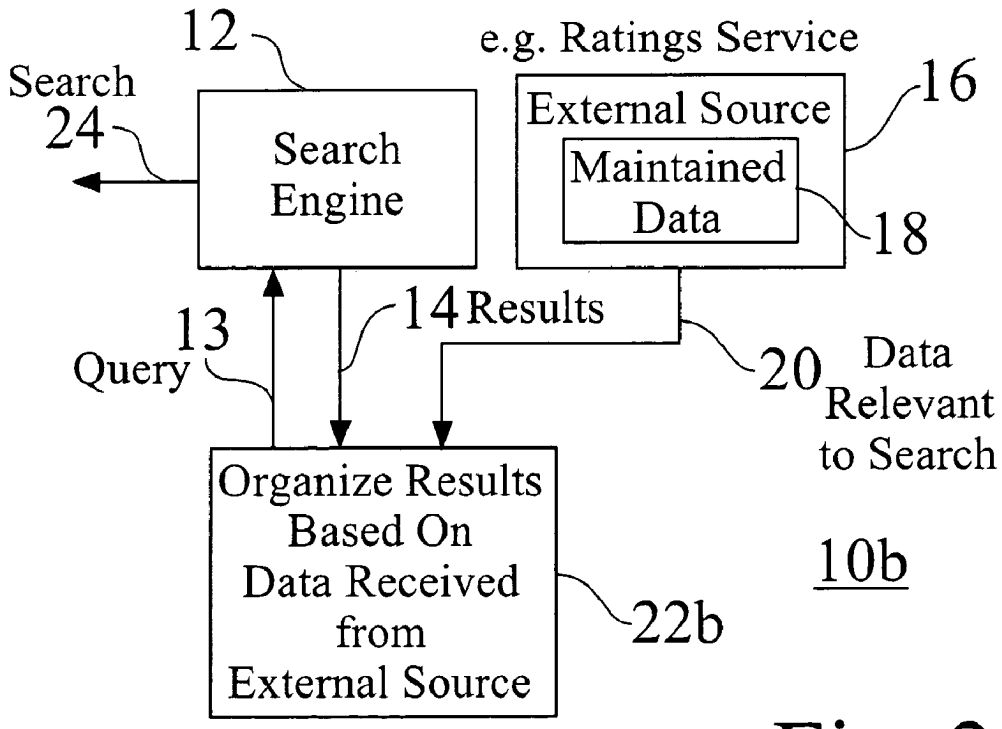

12
e.g. Ratings Service
Search
24
Search Engine
External Source
Maintained Data
16
18
13
Query
14 Results
20
Data Relevant to Search
Organize Results Based On Data Received from External Source
22b
10b

Fig. 2

User
USR
Recipient
RCP
32
32
Terminal
Terminal
33
41a
41b
34
36
Identification
of Source
based on User Input
18
External Source
Maintained
Data
16
38
Refine or Organize Results
Based On
Data Received
from
External Source
22
10
Query
13
Search
Engine
12
30
14 Results
24
41
Delivery of
Enhanced Results
40
Enhanced
Results

Fig. 3

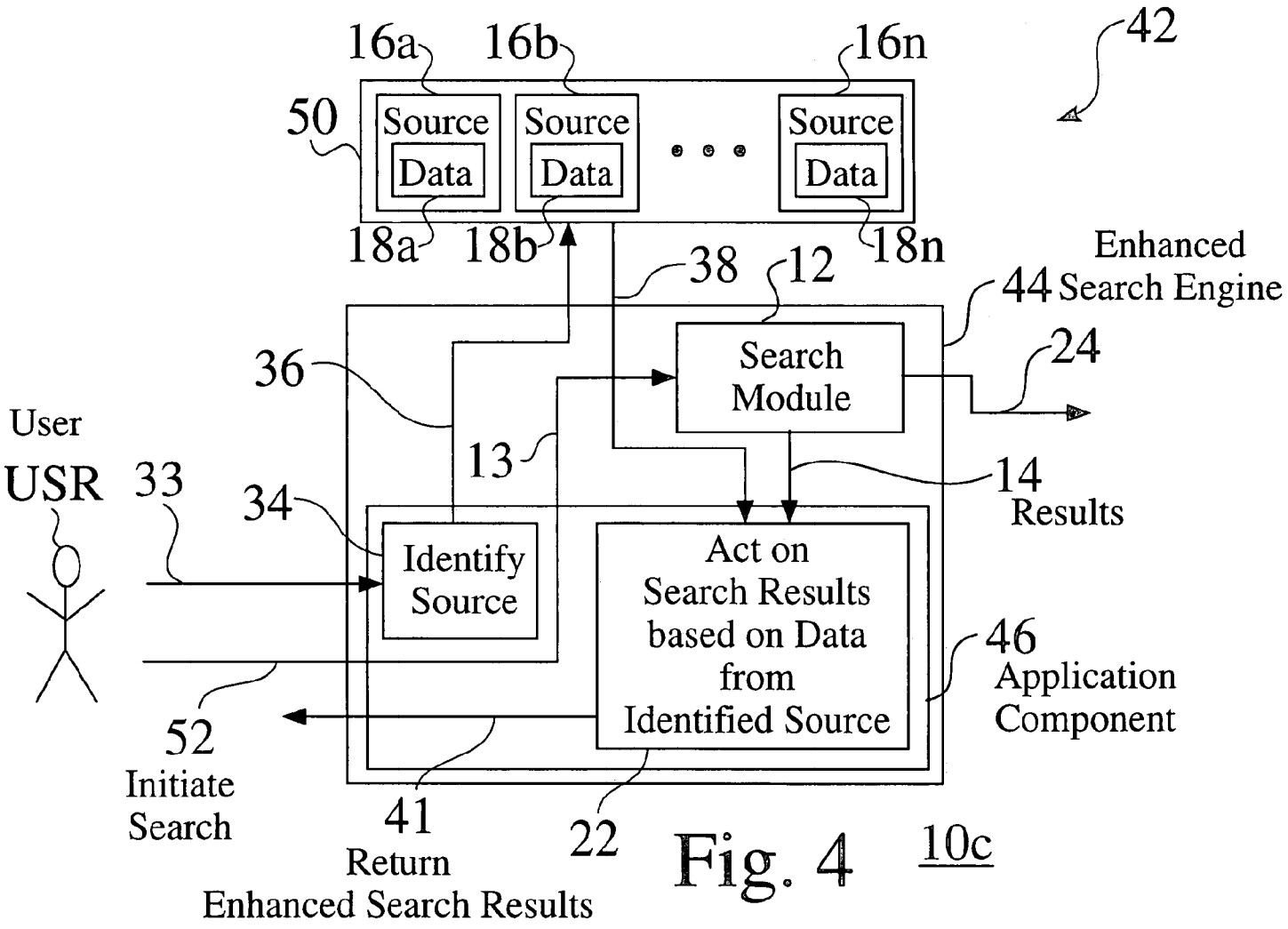

16a
16b
16n
42
50
Source
Data
Source
Data
Source
Data
18a
18b
18n
38
12
Enhanced
Search Engine
44
36
Search
Module
24
User
USR
33
13
14
Results
34
Identify
Source
Act on
Search Results
based on Data
from
Identified Source
46
Application
Component
52
Initiate
Search
41
Return
Enhanced Search Results
22

Fig. 4 10c

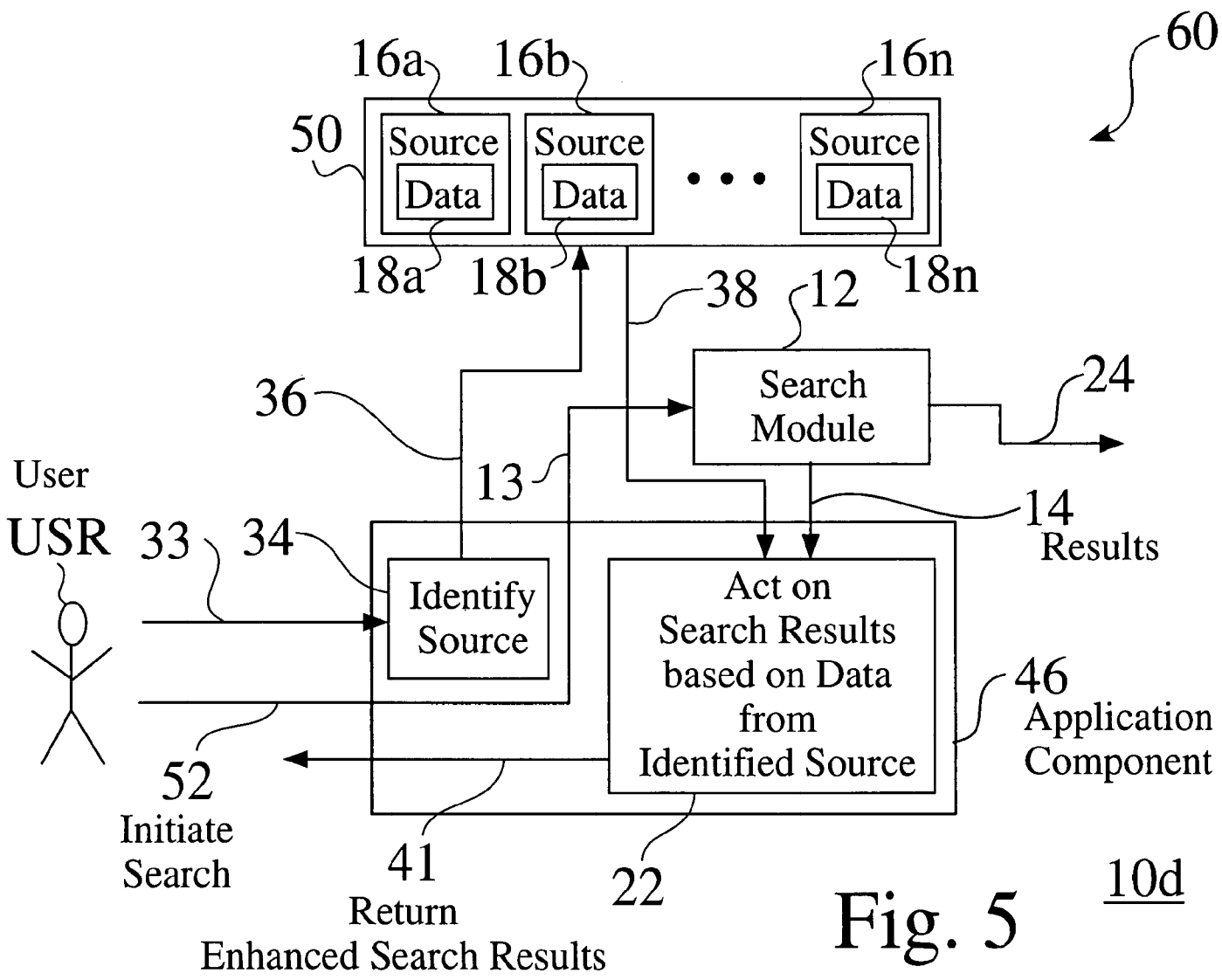

60
16a
16b
16n
50
Source
Data
Source
Data
Source
Data
18a
18b
18n
38
12
Search
Module
24
36
13
User
USR
33
34
14
Results
Identify
Source
Act on
Search Results
based on Data
from
Identified Source
46
Application
Component
52
Initiate
Search
41
Return
Enhanced Search Results
22
10d

Fig. 5

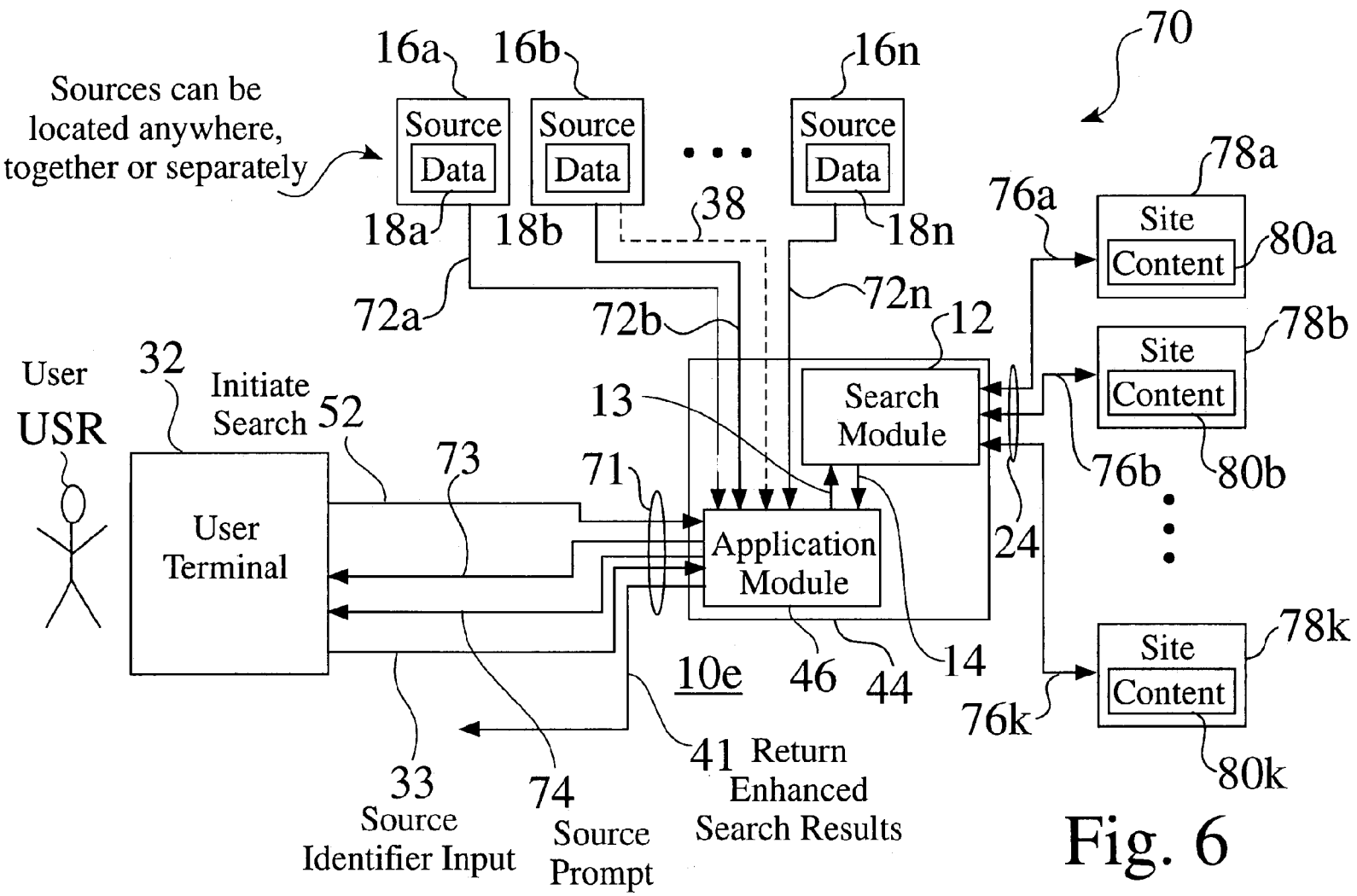

Sources can be located anywhere, together or separately
16a
16b
16n
70
Source
Data
Source
Data
Source
Data
78a
76a
Site
Content
80a
18a
18b
38
18n
72a
72b
72n
12
78b
Site
Content
80b
User
32
Initiate Search
52
USR
13
Search Module
73
71
76b
User Terminal
Application Module
24
10e
46
44
14
78k
Site
Content
80k
76k
33
Source Identifier Input
74
Source Prompt
41
Return Enhanced Search Results

Fig. 6

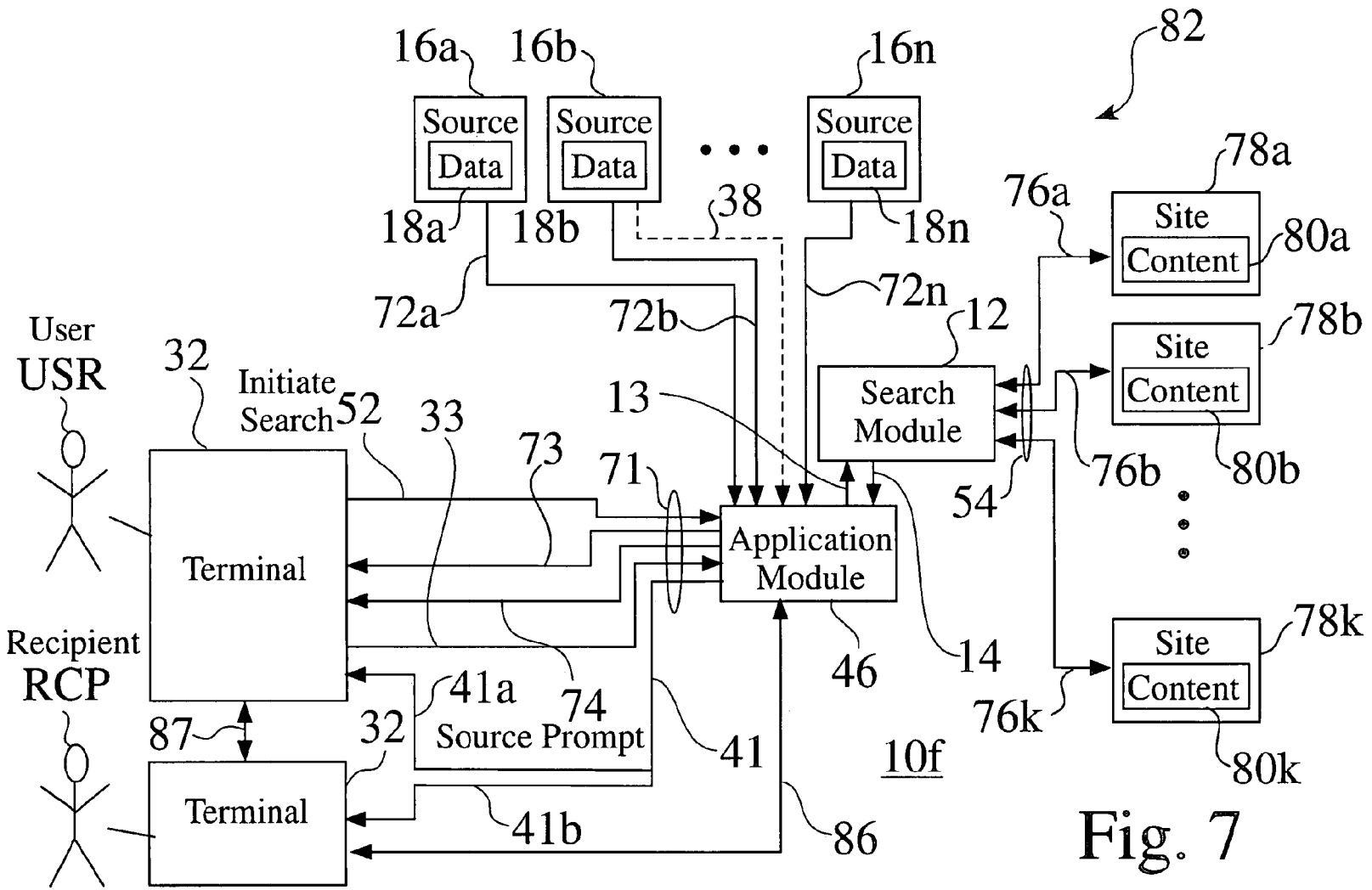

16a
16b
16n
82
Source
Data
Source
Data
Source
Data
78a
76a
Site
Content
80a
38
18a
18b
18n
72a
72b
72n
12
78b
User
USR
32
Initiate
Search
52
33
13
Search
Module
Site
Content
73
71
76b
80b
54
Application
Module
Terminal
Recipient
RCP
46
14
78k
Site
Content
41a
74
76k
87
32
Source Prompt
41
10f
80k
Terminal
41b
86

Fig. 7

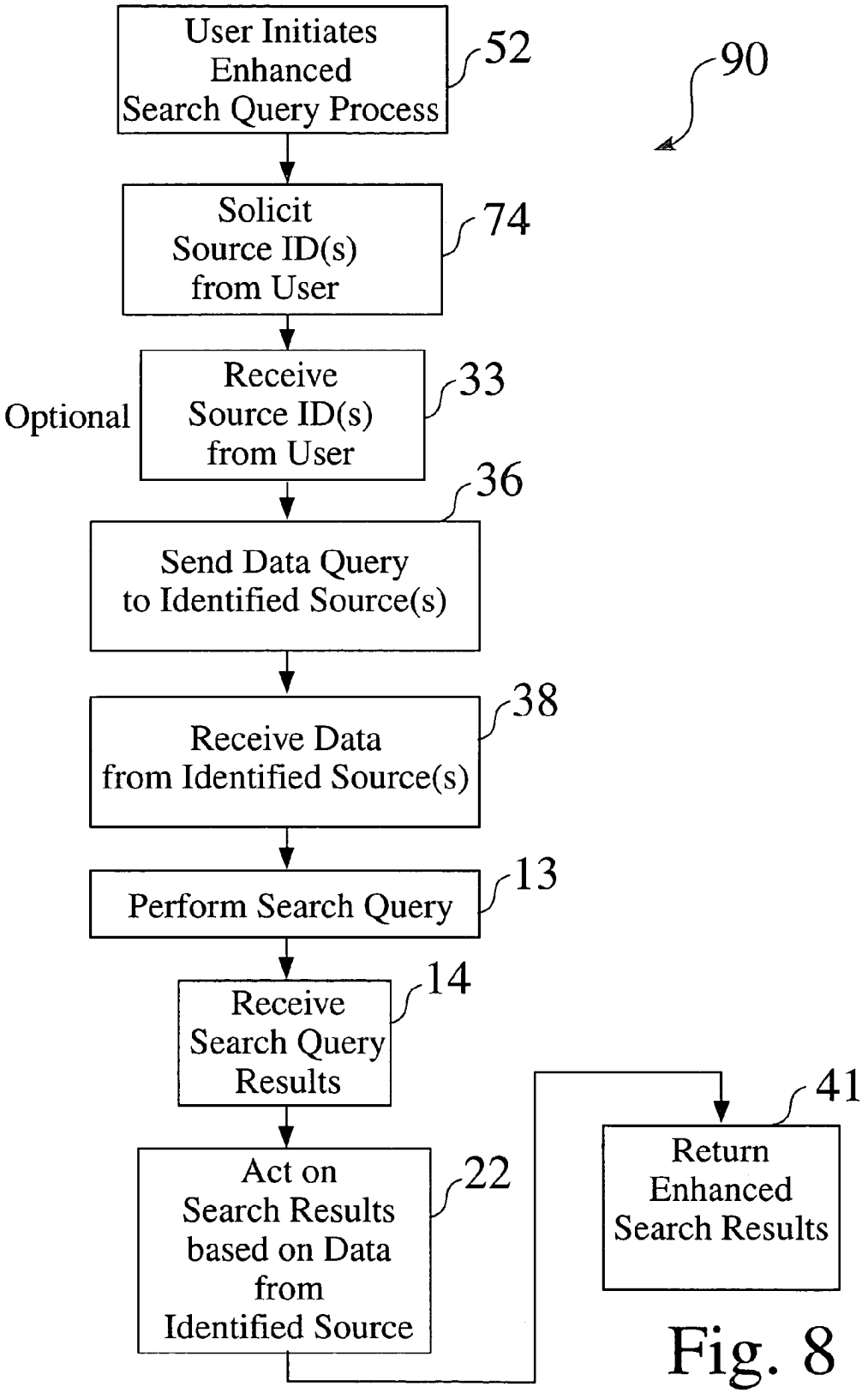

User Initiates Enhanced Search Query Process
52
90
Solicit Source ID(s) from User
74
Optional
Receive Source ID(s) from User
33
36
Send Data Query to Identified Source(s)
Receive Data from Identified Source(s)
38
Perform Search Query
13
Receive Search Query Results
14
Act on Search Results based on Data from Identified Source
22
Return Enhanced Search Results
41

Fig. 8

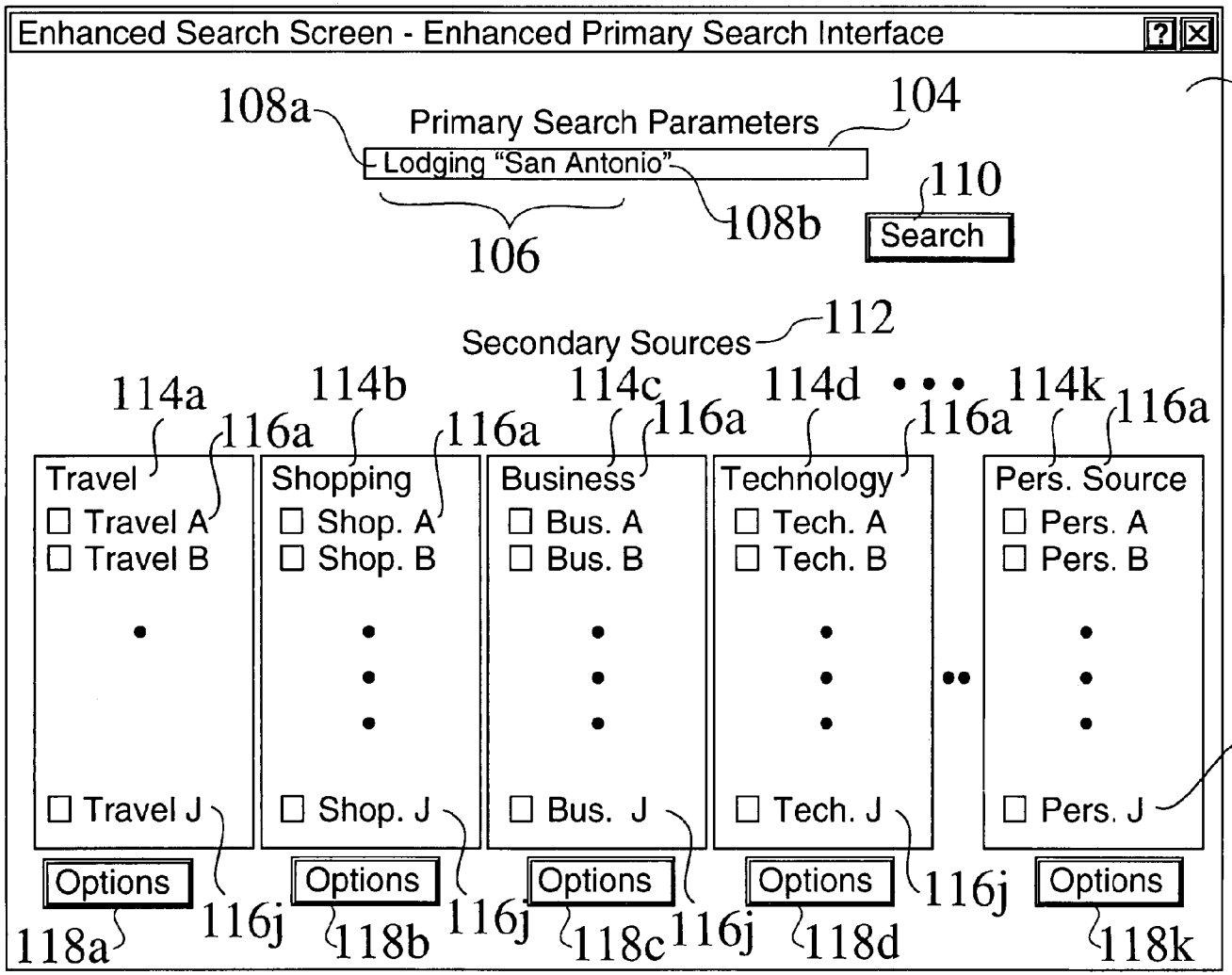

Enhanced Search Screen - Enhanced Primary Search Interface
102
108a
Primary Search Parameters
104
Lodging "San Antonio"
108b
110
Search
106
Secondary Sources
112
114a
114b
114c
114d
114k
116a
Travel
Travel A
Travel B
Travel J
Shopping
Shop. A
Shop. B
Shop. J
Business
Bus. A
Bus. B
Bus. J
Technology
Tech. A
Tech. B
Tech. J
Pers. Source
Pers. A
Pers. B
Pers. J
116j
Options
118a
118b
118c
118d
118k
100

Fig. 9

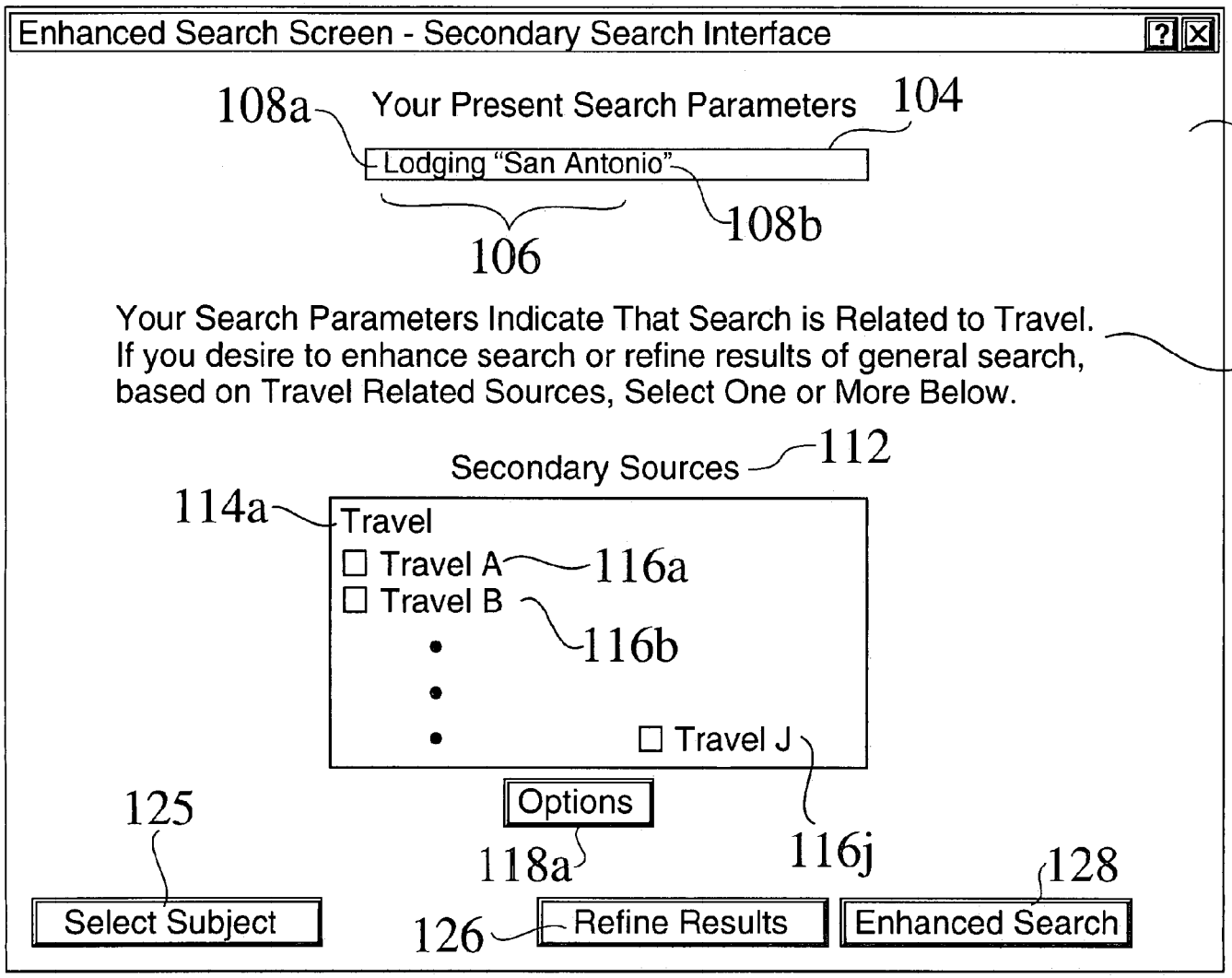

Enhanced Search Screen - Secondary Search Interface
108a
Your Present Search Parameters
104
122
Lodging "San Antonio"
108b
106
Your Search Parameters Indicate That Search is Related to Travel.
If you desire to enhance search or refine results of general search,
based on Travel Related Sources, Select One or More Below.
124
Secondary Sources
112
114a
Travel
Travel A
116a
Travel B
116b
Travel J
125
Options
118a
116j
128
120
Select Subject
126
Refine Results
Enhanced Search

Fig. 10

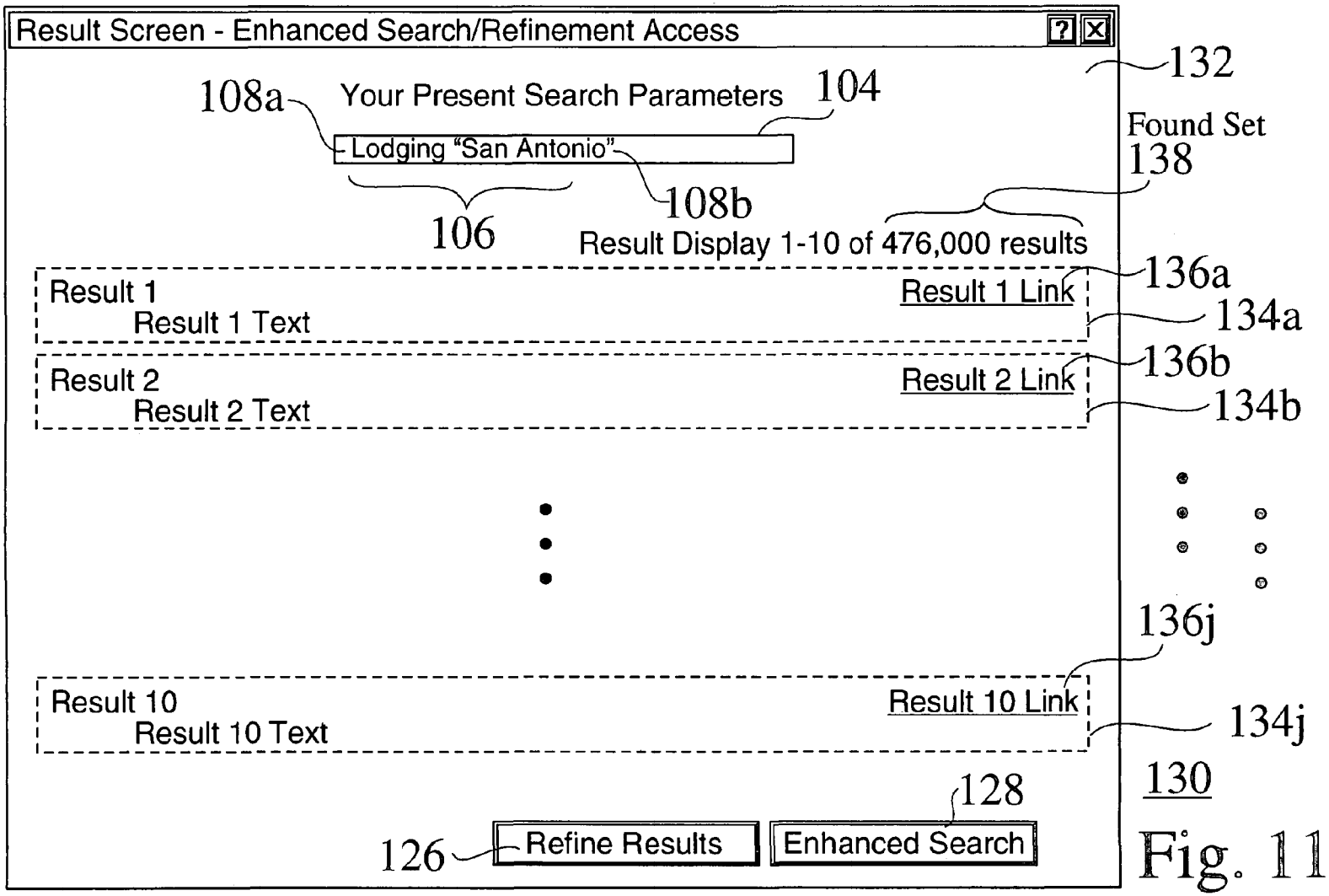

Result Screen - Enhanced Search/Refinement Access
132
108a
Your Present Search Parameters
104
Found Set
138
Lodging "San Antonio"
108b
106
Result Display 1-10 of 476,000 results
Result 1
Result 1 Link
136a
Result 1 Text
134a
Result 2
Result 2 Link
136b
Result 2 Text
134b
136j
Result 10
Result 10 Link
Result 10 Text
134j
130
128
126
Refine Results
Enhanced Search

Fig. 11

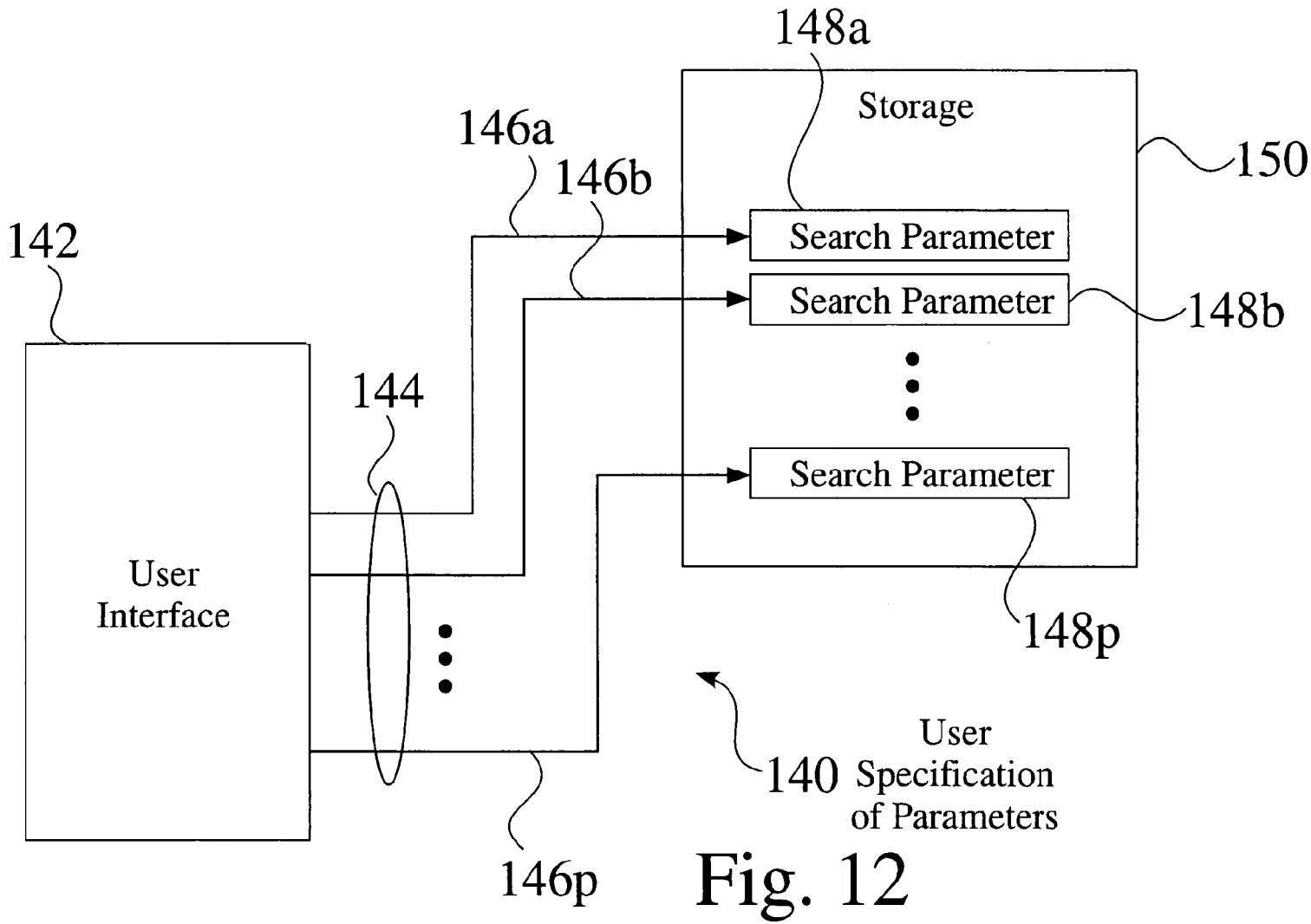
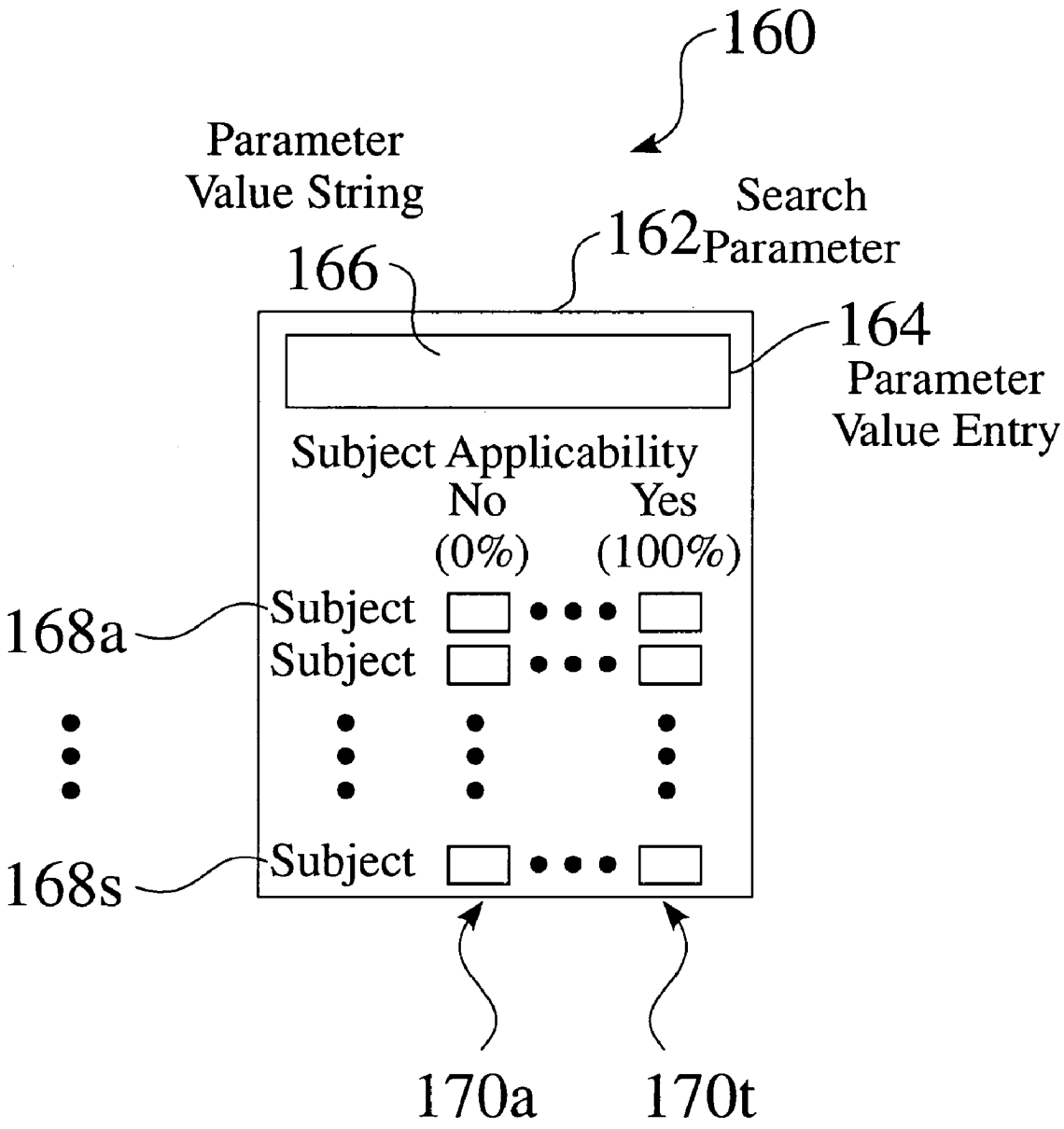

148a
Storage
150
146a
146b
142
Search Parameter
Search Parameter
148b
144
User
Interface
Search Parameter
148p
User
Specification
of Parameters
140
146p

Fig. 12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Parameter
Value String
166
162
Search
Parameter
164
Parameter
Value Entry
Subject Applicability
No
(0%)
Yes
(100%)
168a
Subject
Subject
168s
Subject
170a
170t

Fig. 13

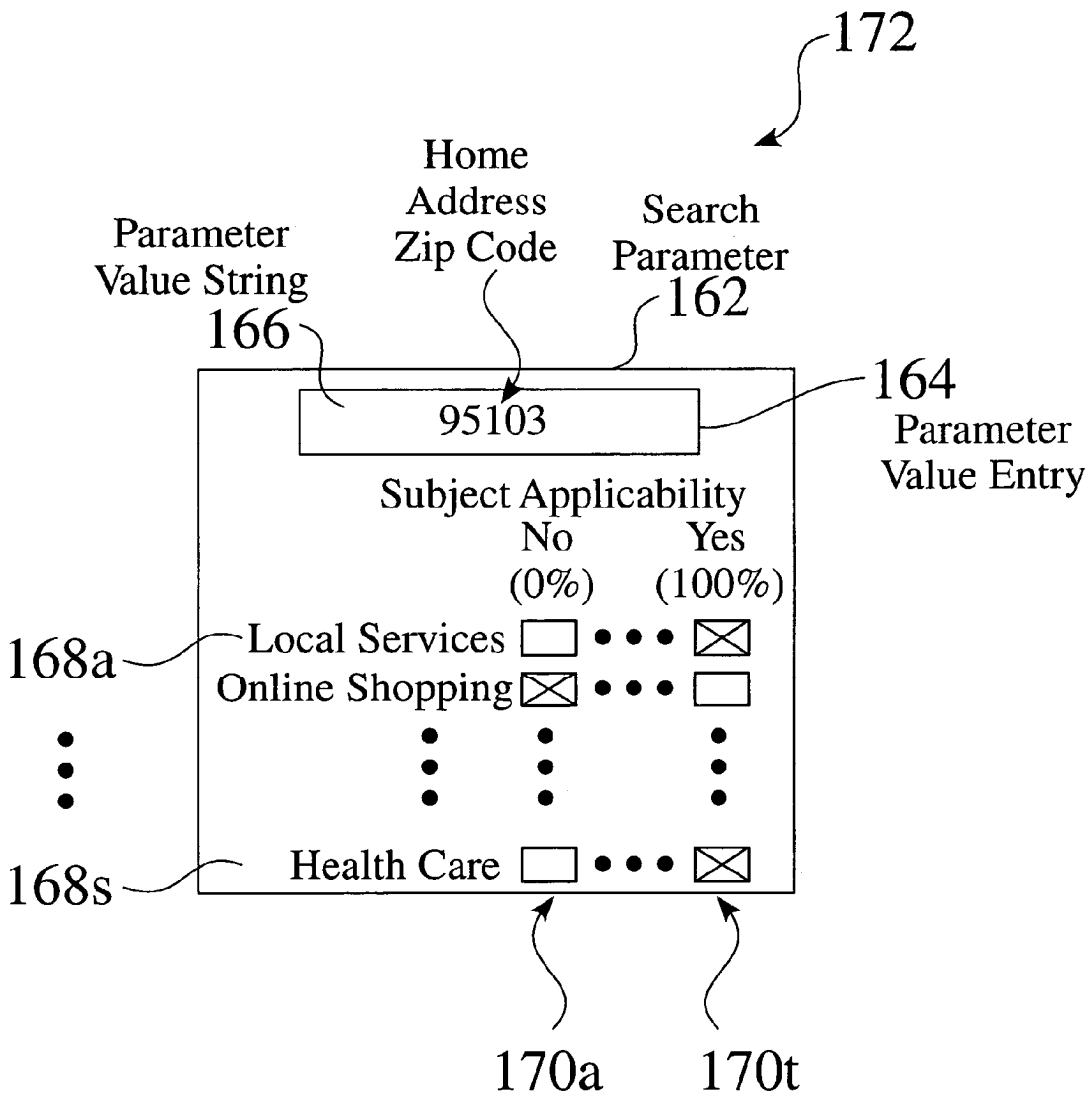

172
Home
Address
Zip Code
Search
Parameter
162
Parameter
Value String
166
95103
164
Parameter
Value Entry
Subject Applicability
No
(0%)
Yes
(100%)
168a
Local Services
Online Shopping
168s
Health Care
170a
170t

Fig. 14

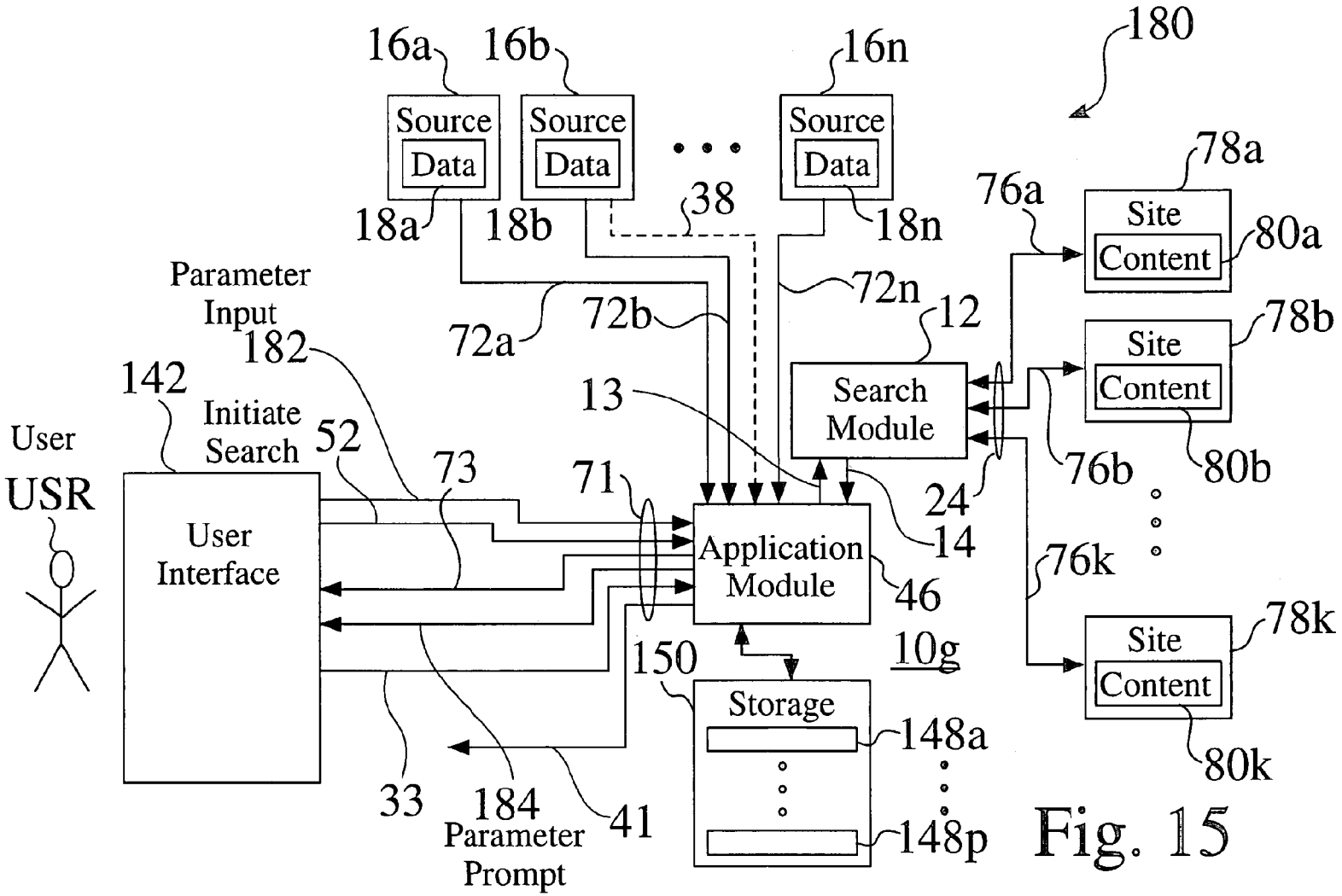

16a
16b
16n
180
Source
Data
Source
Data
Source
Data
78a
76a
Site
Content
80a
18a
18b
38
18n
Parameter
Input
72n
72b
12
78b
72a
182
142
Search
Module
Site
Content
13
User
Initiate
Search
52
73
71
76b
80b
24
USR
User
Interface
Application
Module
14
76k
46
78k
Site
Content
150
10g
Storage
148a
80k
33
184
41
148p
Parameter
Prompt

Fig. 15

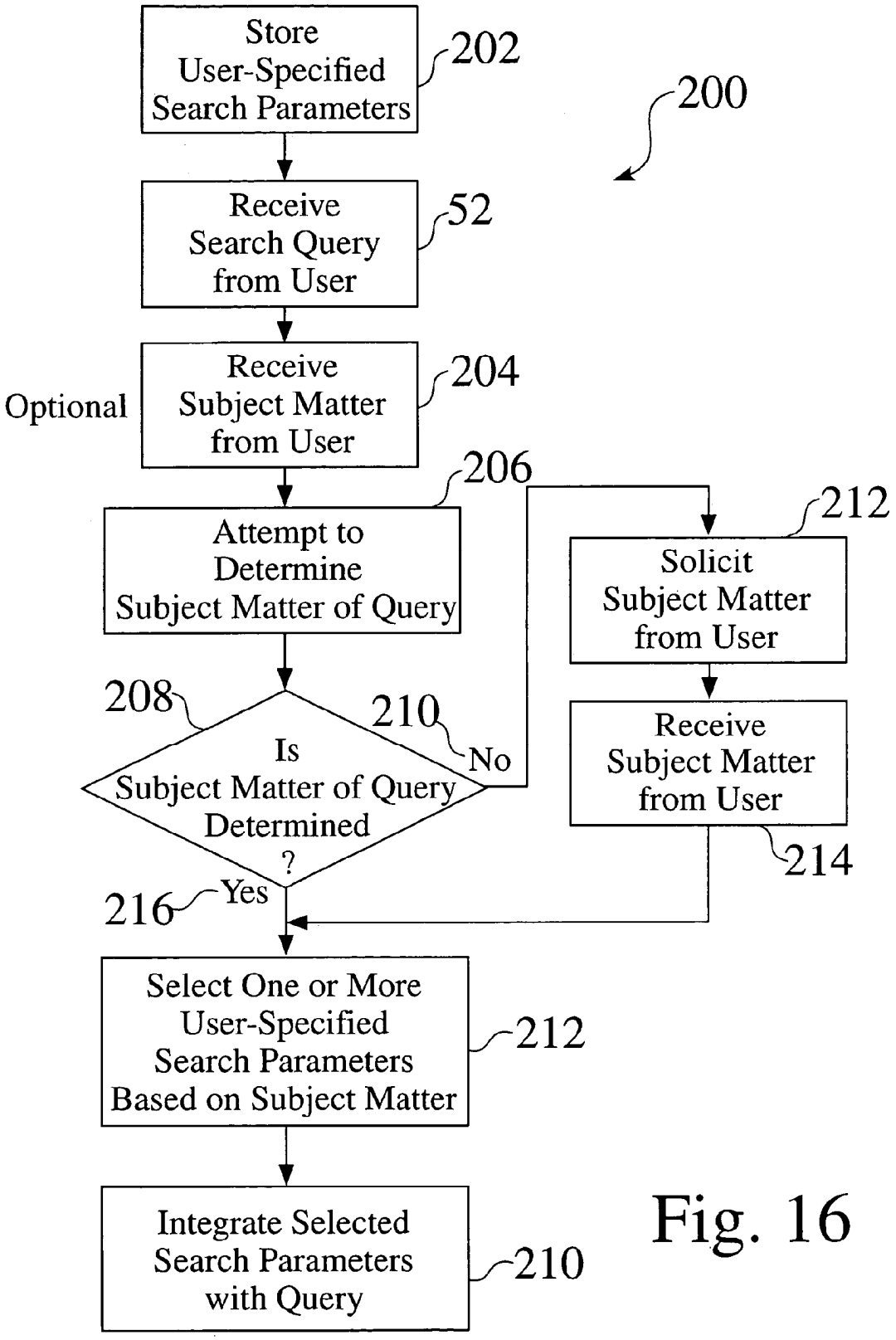

Store User-Specified Search Parameters
202
200
Receive Search Query from User
52
Optional
Receive Subject Matter from User
204
206
Attempt to Determine Subject Matter of Query
212
Solicit Subject Matter from User
208
210
Is Subject Matter of Query Determined ?
No
Receive Subject Matter from User
214
216
Yes
Select One or More User-Specified Search Parameters Based on Subject Matter
212
Integrate Selected Search Parameters with Query
210

Fig. 16

SEARCH ENHANCEMENT SYSTEM AND METHOD HAVING RANKINGS, EXPLICITLY SPECIFIED BY THE USER, BASED UPON APPLICABILITY AND VALIDITY OF SEARCH PARAMETERS IN REGARD TO A SUBJECT MATTER

CROSS REFERENCE TO RELATED APPLICATION

This Application is related to Edmund J. Fish, U.S. application Ser. No. 10/685,747, entitled Search Enhancement System with Information from a Selected Source, filed 14 Oct. 2003.

FIELD OF THE INVENTION

The invention relates to the search and retrieval of information or content in a network environment. More particularly, the invention relates to the enhancement of search results, based upon information received from a user and/or an external source.

BACKGROUND OF THE INVENTION

Conventional search engines compare input search terms against metadata, to identify displayable results. Some search processes also allow for refined searching in input terms, against particular identified types of metadata. For example, during a search query at a search engine, a user may be able to enter either a word string, e.g. "serial number", or a corresponding abbreviation, e.g. "SN", to indicate that subsequent search terms should be applied against serial number metadata. Furthermore, some conventional search engines permit comparison of input search terms against full or partial text.

When applying conventional search technology, users typically obtain several pages of search results for any given search query, necessitating an extended period of review. For example, a common problem which is often encountered with conventional search queries is that the found set of matching sites or information sources, or documents is often too large, i.e. too broad, such as if too few search terms are entered within a search string, or if the search terms are too general. A user must often either manually browse through a large number of found sources to find relevant sites, or must perform a different search, typically having different terms and/or additional terms, in the hopes of more accurately finding the desired sites and/or information.

A similar problem that is also encountered with conventional search inquires is that the found set of matching sites, information sources, or documents is often too small, i.e. too narrow, such as if too many search terms are entered within a string, or if the search terms are too narrow in scope. A user is then typically required to perform one or more subsequent searches, typically having different terms and/or fewer terms, in the hopes of finding a larger found set of desired sites and information.

Several structures and methods have been described for the searching and retrieval of information in a network environment.

J. Breese and C. Kadie, Methods and Apparatus for Tuning a Match Between Entities Having Attributes, U.S. Pat. No. 6,144,964, describe a matching of "entities having attributes, some of which have associated values. The values of the attributes may be adjusted based on number of entities that have values for a particular attribute so that the values decrease as the number increases. The attributes of the entities may be harmonized and provided with default values so that entities being matched have common attributes defined by the union of the attributes of the entities being matched. The attributes of the entities may be expanded and provided with default values so that the entities being matched have attributes that neither had originally. Match values may be normalized to provide a weight value which may be used to predict an attribute value of a new entity based on known attribute values of known entities. The weight values may be tuned such that relatively high weights are amplified and relatively low weights are suppressed."

B. Hazlehurst, S. Burke, and K. Nybakken, Intelligent Query System for Automatically Indexing in a Database and Automatically Categorizing Users, U.S. Pat. No. 6,289,353 B1, describe a system which "develops multiple information spaces in which different types of real-world objects (e.g., documents, users, products) can be represented. Machine learning techniques are used to facilitate automated emergence of information spaces in which objects are represented as vectors of real numbers. The system then delivers information to users based upon similarity measures applied to the representation of the objects in these information spaces. The system simultaneously classifies documents, users, products, and other objects. Documents are managed by collators that act as classifiers of overlapping portions of the database of documents. Collators evolve to meet the demands for information delivery expressed by user feedback. Liaisons act on the behalf of users to elicit information from the population of collators. This information is then presented to users upon logging into the system via Internet or another communication channel. Mites handle incoming documents from multiple information sources (e.g., in-house editorial staff, third-party news feeds, large databases, World Wide Web spiders) and feed documents to those collators which provide a good fit for the new documents."

V. Berstis and H. Rodriguez, Blocking Saves to Web Browser Cache Based on Content Rating, U.S. Pat. No. 6,510,458 B1, describe a process in which a "user sets preference parameters that filter web page contents from being stored in the cache. The preferences relate to the web page's contents and attributes. Before caching the web page, the contents and attributes of the web page are filtered solely as a function of the web browser. Cache filters take a variety of forms, such as ratings filters, web page identifier filters, and key word filters, which scan accessed contents of a web page for user selected terms. The filtered web page is then blocked from entry in the browser's cache based on the filtering process. Conversely, a user sets preference parameters that filter web page contents to override the block from cache preferences. The browser responds by storing the filtered web pages that were previously designated as web pages not to be cached."

Other structures and methods for the searching and retrieval of information include: Y. Freund et al., *An Efficient Boosting Algorithm for Combining Preferences*, AT&T Labs, MIT Laboratory for Computer Science; J. Shavilk et al., *Building Intelligent Agents for Web-Based Tasks: A Theory-Refinement Approach*, University of Wisconsin-Madison; and J. Shavlik, et al., *Intelligent Agents for Web-based Tasks: An Advice-Taking Approach*, University of Wisconsin-Madison.

Several other structures and methods provide background information in regard to the search and retrieval of information, such as: European Patent Application No. EP 1 288 795 A1, Query systems; D. Reed, P. Heymann, S. Mushero, K. Jones, J. Oberlander, and D. Banay, Computer-Based

Communication System and Method Using Metadata Defining a Control Structure, U.S. Pat. No. 5,862,325; B. Hazlehurst, S. Burke, and K. Nybakken, Intelligent Query System for Automatically Indexing Information in a Database and Automatically Categorizing Users, U.S. Pat. No. 5,974,412; J. Breese and C. Kadie, Methods and Apparatus for Matching Entities and for Predicting an Attribute of an Entity Based on an Attribute Frequency Value, U.S. Pat. No. 6,018,738; D. Donoho, D. Hindawi, and L. Lippincott, Method and Apparatus for Computed Relevance Messaging, U.S. Pat. No. 6,256,664 B1; D. Donoho, D. Hindawi, and L. Lippincott, Inspector for Computed Relevance Messaging, U.S. Pat. No. 6,263,362 B1; A. Lang and D. Kosak, Integrated Collaborative/Content-Based Filter Structure Employing Selectively Shared, Content-Based Profile Data to Evaluate Information Entities in a Massive Information Network, U.S. Pat. No. 6,308,175 B1, A. Lang and D. Kosak, Collaborative/Adaptive Search Engine, U.S. Pat. No. 6,314,420 B1; J. Breese and C. Kadie, Methods and Apparatus, Using Expansion Attributes Having Default, Values, for Matching Entities and Predicting an Attribute of an Entity, U.S. Pat. No. 6,345,264 B1; D. Reed, P. Heymann, S. Mushero, K. Jones, J. Oberlander, and D. Banay, Computer-Based Communication System and Method Using Metadata Defining a Control-Structure, U.S. Pat. No. 6,345,288 B1; J. Breese and C. Kadie, Method and Apparatus, Using Attribute Set Harmonization and Default Attribute Values, for Matching Entities and Predicting an Attribute of an Entity, U.S. Pat. No. 6,353,813 B1; D. Donoho, D. Hindawi, and L. Lippincott, Relevance Clause for Computed Relevance Messaging, U.S. Pat. No. 6,356,936 B1; E. Steeg, Coincidence Detection Method, Products and Apparatus, U.S. Pat. No. 6,493,637 B1; System and Method for Data Collection, Evaluation Information Generation, And Presentation, U.S. Pat. No. 6,539,392 B1; Baudisch, P.; *The Profile Editor: Designing a Direct Manipulative Tool for Assembling Profiles*; Institute for Integrated Information and Publication Systems IPSI, German National Research Center for Information Technology GMD, Germany; J. Budzik et al.; *User Interactions with Everyday Applications as Context for Just-in-time Information Access*; Intelligent Information Laboratory, Northwestern University; J. Budzik et al.; Watson: *Anticipating and Contextualizing Information Needs*; Northwestern University; E. Glover et al.; *Improving Category Specific Web Search by Learning Query Modifications*; NEC Research Institute, Princeton, N.J., EECS Department, University of Michigan, Ann Arbor, Mich., Information Sciences and Technology, Pennsylvania State University; Pazzani et al., *A Framework for Collaborative. Content-Based and Demographic Filtering*; Department of Information and Computer Science, University of California, Irvine; T. Bauer et al.; *Real Time User Context Modeling for Information Retrieval Agents*, Computer Science Department, Indiana University; J. Shavlik et al.; *An Instructable, Adaptive Interface for Discovery and Monitoring Information on the World-Wide Web*; University of Wisconsin-Madison; J. Budzik et al.; Watson; *An Infrastructure for Providing Task-Relevant, Just-In-Time Information; Department of Computer Science*, Northwestern University; and D. Nahl, *Ethnography Of Novices' First Use Of Web Search Engines*: Affective Control In Cognitive Processing; Internet Reference Services Quarterly, vol. 3, no. 2, p. 51–72, 1998.

It would be advantageous to provide a system and an associated method which provides an enhancement to a search system, wherein the results from the search engine are refined or reorganized, based upon information from an identified secondary source. The development of such a search enhancement system would constitute a major technological advance.

It would also be advantageous to provide a system and an associated method which provides an enhancement to a search system, wherein information from an identified secondary source is integrated with a search query, such that results from the search engine are refined or organized, based upon the information from the identified secondary source. The development of such a search enhancement system would constitute a major technological advance.

In addition to search parameters which may be unique to a particular search, there are often parameters that are commonly relevant for a plurality of searches, such as relating to personalized information regarding the user or to similarities between the subject matter of a search. A user is often required to repeatedly input such parameters, along with other parameters that are unique to search.

Several structures and methods-have been described for the searching and sorting of information, based on relevance, personal information, or profiles.

J. Driscoll, Method and System for Searching for Relevant Documents from a Text Database Collection, Using Statistical Ranking, Relevancy Feedback and Small Pieces of Text, U.S. Pat. No. 5,642,502, describes a search system and method for retrieving relevant documents from a text data base collection comprised of patents, medical and legal documents, journals, news stories and the like. Each small piece of text within the documents such as a sentence, phrase and semantic unit in the data base is treated as a document. Natural language queries are used to search for relevant documents from the data base. A first search query creates a selected group of documents. Each word in both the search query and in the documents are given weighted values. Combining the weighted values creates similarity values for each document which are then ranked according to their relevant importance to the search query. A user reading and passing through this ranked list checks off which documents are relevant or not. Then the system automatically causes the original search query to be updated into a second search query which can include the same words, less words or different words than the first search query. Words in the second search query can have the same or different weights compared to the first search query. The system automatically searches the text data base and creates a second group of documents, which as a minimum does not include at least one of the documents found in the first group. The second group can also be comprised of additional documents not found in the first group. The ranking of documents in the second group is different than the first ranking such that the more relevant documents are found closer to the top of the list."

T. Gerace, Method and Apparatus for Determining Behavioral Profile of a Computer User, U.S. Pat. No. 5,848,396, describes a computer network method and apparatus which "provides targeting of appropriate audience based on psychographic or behavioral profiles of end users. The psychographic profile is formed by recording computer activity and viewing habits of the end user. Content of categories of interest and display format in each category are revealed by the psychographic profile, based on user viewing of agate information. Using the profile (with or without additional user demographics), advertisements are displayed to appropriately selected users. Based on regression analysis of recorded responses of a first set of users viewing the advertisements, the target user profile is refined. Viewing by and regression analysis of recorded responses of subsequent

sets of users continually auto-targets and customizes ads for the optimal end user audience."

F. Herz, System for Customized Electronic Identification of Desirable Objects, U.S. Pat. No. 6,029,195, describes "customized electronic identification of desirable objects, such as news articles, in an electronic media environment, and in particular to a system that automatically constructs both a "target profile" for each target object in the electronic media based, for example, on the frequency with which each word appears in an artide relative to its overall frequency of use in all articles, as well as a "target profile interest summary" for each user, which target profile interest summary describes the user's interest level in various types of target objects. The system then evaluates the target profiles against the users' target profile interest summaries to generate a user-customized rank ordered listing of target objects most likely to be of interest to each user so that the user can select from among these potentially relevant target objects, which were automatically selected by this system from the plethora of target objects that are profiled on the electronic media. Users' target profile interest summaries can be used to efficiently organize the distribution of information in a large scale system consisting of many users interconnected by means of a communication network. Additionally, a cryptographically-based pseudonym proxy server is provided to ensure the privacy of a user's target profile interest summary, by giving the user control over the ability of third parties to access this summary and to identify or contact the user."

A. Lang and D. Kosak, Collaborative/Adaptive Search Engine, U.S. Pat. No. 6,314,420 B1, describe a search engine system "for a portal site on the internet. The search engine system employs a regular search engine to make one-shot or demand searches for information entities which provide at least threshold matches to user queries. The search engine system also employs a collaborative/content-based filter to make continuing searches for information entities which match existing wire queries and are ranked and stored over time in user-accessible, system wires corresponding to the respective queries. A user feedback system provides collaborative feedback data for integration with content profile data in the operation of the collaborative/content-based filter. A query processor determines whether a demand search or a wire search is made for an input query."

D. Kravets, L. Chiriac, J. Esakov, and S. Wan, Search Data Processor, U.S. Pat. No. 6,363,377 B1, describe a "tool to be used with a search engine for a information management system includes methods for refining, filtering, and organizing search queries and search results. A query tuner in the tool allows a user to automatically reformulate a query in order to find a reasonable number of matching documents from the search engine by selectively modifying individual search terms to be weaker or stronger and concurrently requesting a plurality of searches, each with a respectively different modified query. The tool also uses a dynamic filter which employs a dynamic set of record tokens to restrict the results of an arbitrary search query to selectively include or exclude records which correspond to the set of record tokens. The tool also includes a results organizer which aids the user in understanding and visualizing a large number of matching documents returned in response to a search query by clustering like items returned from the search. The query tuner, dynamic filter and results organizer may be used individually or in conjunction. The searched information management system may be consolidated or distributed and may span a global information network such as the Internet."

P. Biffar, Self-Leaming and Self-Personalizing Knowledge Search Engine That Delivers Holistic Results, U.S. Pat. No. 6,397,212 B1, describes a search engine which "provides intelligent multi-dimensional searches, in which the search engine always presents a complete, holistic result, and in which the search engine presents knowledge (i.e. linked facts) and not just information (i.e. facts). The search engine is adaptive, such that the search results improve over time as the system learns about the user and develops a user profile. Thus, the search engine is self personalizing, i.e. it collects and analyzes the user history, and/or it has the user react to solutions and learns from such user reactions. The search engine generates profiles, e.g. it learns from all searches of all users and combines the user profiles and patterns of similar users. The search engine accepts direct user feedback to improve the next search iteration One feature of the invention is locking/unlocking, where a user may select specific attributes that are to remain locked while the search engine matches these locked attributes to all unlocked attributes. The user may also specify details about characteristics, provide and/or receive qualitative ratings of an overall result, and introduce additional criteria to the search strategy or select a search algorithm. Additionally, the system can be set up such that it does not require a keyboard and/or mouse interface, e.g. it can operate with a television remote control or other such human interface."

G. Cullis, Personalized Search Methods, U.S. Pat. No. 6,539,377 B1, describes a "method of organizing information in which the search activity of previous users is monitored and such activity is used to organize articles for future users. Personal data about future users can be used to provide different artide rankings depending on the search activity and personal data of the previous users."

Other structures and methods have been described which provide background information regarding the searching and sorting of information, based on relevance, personal information, or profiles, such as: J. Pitkow et al.; *Personalized Search*, Communications of the ACM, vol. 45, no. 9, p. 50–5, September 2002; J. McGowan et al., *Who Do You Want To Be Today? Web Personae for Personalised Information Access*; Adaptive Hypermedia and Adaptive Web-Based Systems. Second International Conference, AH 2002. Proceedings (Lecture Notes in Computer Science Vol. 2347), p. 514–17, 2002; S. Kalajdziski et al.; *Intelligent Recommendation in Digital Library*, Proceedings of the IASTED International Conference Intelligent Systems and Control, p. 408–12, ACTA Press, Anaheim, Calif., USA, 2001; L. Kerschberg et al., *A Semantic Taxonomy-Based Personalizable Meta-Search Agent*, Proceedings of the Second International Conference on Web Information Systems Engineering, vol. 1, p. 41–50; IEEE Comput. Soc., Los Alamitos, Calif., USA, 2002; C. Dichev, *A Framework for Context-Driven Web Resource Discovery*, Modeling and Using Context, Third International and Interdisciplinary Conference, Context 2001, Proceedings (Lecture Notes in Artificial Intelligence, vol. 2116), p. 433–6, Springer-Verlag, Berlin, Germany, 2001; X. Meng et al., *Feasibility of Adding Filtering Process in Web Browser to Improve Web Search Accuracy*, Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications, PDPTA '2000, vol. 4, p. 1809–15, CSREA Press, Athens, Ga., USA, 2000; K. Kim et al., *Development of a Personalized Link-Based Search Engine Using Fuzzy Concept Network*, Journal of KISS: Computing Practices, vol. 7, no. 3, p. 211–19, Korea Inf. Sci. Soc., June 2001; C. Yang et al., *A Hybrid Document Clustering for a Web Agent*, Journal of KISS: Software and Applications, vol. 28, no. 5,

p. 422–30, Korea Inf. Sci. Soc., May 2001; K. Kim et al.; *A Personalized Web Search Engine Using Fuzzy Concept Network with Link Structure*; Proceedings Joint 9th IFSA World Congress and 20th NAFIPS International Conference (Cat. No. 01TH8569), vol. 1, p. 81–6; IEEE Piscataway, N.J., USA; 2001; A. Scime et al.; *WebSifter: An Ontology-Based Personalizable Search Agent for the Web*; Proceedings 2000 Kyoto International Conference on Digital Libraries: Research and Practice, p. 203–10; IEEE Comput. Soc., Los Alamitos, Calif., USA; 2000; Z. Wei-Feng et al., *Personalizing Search Result Using Agent*, Mini-Micro Systems, vol. 22, no. 6, p. 724–7, Mini-Micro Syst., China, June 2001; P. Chen et al., *An Information Retrieval System Based on a User Profile*, Journal of Systems and Software, vol. 54, no. 1, p. 3"8, Elsevier, Sep. 30, 2000; X. Meng et al., *Personalize Web Search Using Information On Client's Side*, Fifth International Conference for Young Computer Scientists, ICYCS'99, Advances in Computer Science and Technology, vol. 2, p. 985–92; Int. Acad. Publishers, Beijing, China, 1999; P. Chen et al.; *A Personalized Information Retrieval System: Computational Intelligence for Modelling*, Control and Automation, Intelligent Image Processing, Data Analysis and Information Retrieval (Concurrent Systems Engineering Series, vol. 56), p. 247–53, IOS Press, Amsterdam, Netherlands, 1999; S. Laine-Cruzel et al., *Improving Information Retrieval by Combining User Profile and Document Segmentation*, Information Processing & Management, vol. 32, no. 3, p. 305–15; Elsevier, May 1996; D. Boley et al., *Document Categorization and Query Generation on the World Wide Web Using WebACE*: Department of Computer Science and Engineering, University of Minnesota; and A. Pretschner, *Ontology Based Personalized Search*, Dipl.-Inform., RWTH Aachen, Germany, 1998.

Other documents provide background information regarding advancements in search engine structures and processes, such as: European Patent Application No. EP 1 072 982 A2, Method and System for Similar Word Extraction And Document Retrieval; European Patent Specification No. EP 1 095 326 B1, A Search System and Method for Retrieval of Data, and the Use Thereof in a Search Engine; European Patent Application No. EP 1 284 461 A1, Meta-Document Management System With User Definable Personalities; European Patent Application No. EP 1 288 795 A1, Query systems; A. Lang and D. Kosak, System and Method Employing Individual User Content-Based Data and User Collaborative Feedback Data to Evaluate the Content of an Information Entity in a Large Information Communication Network, U.S. Pat. No. 5,983,214; A. Lang and D. Kosak, Multi-Level Mindpool System Especially Adapted to Provide Collaborative Filter Data for a Large Scale Information Filtering System, U.S. Pat. No. 6,029,161; M. Tso, D. Romrell, And D. Gillespie, System for Distributing Electronic Information to a Targeted Group of Users, U.S. Pat. No. 6,047,327; G. Culliss, Personalized Search Methods, U.S. Pat. No. 6,182,068 B1; A. Lang and D. Kosak, Integrated Collaborativel Content-Based Fifter Structure Employing Selectively Shared, Content-Based Profile Data to Evaluate Information Entities in a Massive Information Network, U.S. Pat. No. 6,308,175 B1; D. Chen, Cooperative Topical Servers With Automatic Prefiltering and Routing, U.S. Pat. No. 6,349,307 B1; D. Judd, P. Gauthier, and J. Baldeschwieler, Method and Apparatus for Retrieving Documents Based on Information other than Document Content, U.S. Pat. No. 6,360,215 B1; K. Risvik, Search System and Method for Retrieval of Data, and the Use Thereof in a Search Engine, U.S. Pat. No. 6,377,945 B1; E. Marwell and R. Pines, Personalized Assistance System and Method, U.S. Pat. No. 6,404,884 B1; A. Weissman and G. Elbaz, Meaning-Based Information Organization and Retrieval, U.S. Pat. No. 6,453,315 B1; J. Lee, L. Morgenstern, M. Pedlaseck, E. Schonberg, and D. Wood, System and Method for Collecting and Analyzing Information About Content Requested in a Network (World Wide Web) Environment, U.S. Pat. No. 6,466,970 B1; S. Edlund, M. Emens, R. Kraft, and P. Yim, Labeling and Describing Search Queries for Reuse, U.S. Pat. No. 6,484,162 B1; J. Zhang and M. Ott, Method and Apparatus for Active Information Discovery and Retrieval, U.S. Pat. No. 6,498,795 B1; L. Nikolovska, J. Martino, and A. Camplin, Search User Interface with Enhanced Accessibility and Ease-Of-Use Features Based on Visual Metaphors, U.S. Pat. No. 6,505, 194 B1; M. Bowman-Amuah, Piecemeal Retrieval in an Information Services Patterns Environment, U.S. Pat. No. 6,550,057 B1; Callan, J. et al.; *Document Filtering with Inference Networks*; Computer Science Department, University of Massachusetts; Goker, A.; *Capturing Information Need by Learning User Context*; School of Computer and Mathematical Sciences; The Robert Gordon University; Chen, L. et al.; *WebMate: A Personal Agent for Browsing and Searching*; The Robotics Institute, Carnegie Mellon Institute; Sep. 30, 1997; Cooley, R. et al.; *Web Mining: Information and Pattern Discovery on the World Wide Web*, Department of Computer Science and Engineering, University of Minnesota; Simons, J.; *Using a Semantic User Model to Filter the World Wide Web Proactively*; Nijmegen Institute for Cognition and Information, University of Nijmegen, The Netherlands; Tanudjaja, F. et al.; *Persona: A Contextualized and Personalized Web Search*; Laboratory of Computer Science at MIT, Cambridge, Mass.; Jun. 1, 2001; Yan, T. et al.; SIFT—*A Tool for Wide-Area Information Dissemination*; Department of Computer Science, Stanford University, Feb. 16, 1995; Bianchi-Berthouze, N.; *Mining Multimedia Subjective Feedback*; Journal of Intelligent Information Systems: Integrating Artificial Intelligence and Database Technologies, vol. 19, no. 1, p. 43–59; Kluwer Academic Publishers; July 2002; Widyantoro, D. H. et al.; *A fuzzy Ontology-Based Abstract Search Engine and Its User Studies;* 10th IEEE International Conference on Fuzzy Systems. (Cat. No.01CH37297), vol. 2, p. 1291–4; IEEE, Piscataway, N.J., USA; 2001; Tanudjaja, F. et al.; Persona: *A Contextualized and Personalized Web Search*; Proceedings of the 35th Annual Hawaii International Conference on System Sciences, p. 1232–40; IEEE Comput. Soc, Los Alamitos, Calif., USA; 2002; Widyantoro, D. H. et al.; *Using Fuzzy Ontology for Query Refinement in a Personalized Abstract Search Engine*; Proceedings Joint 9th IFSA World Congress and 20th NAFIPS Internatonal Conference (Cat. No. 01TH8569), vol. 1, p. 610–15; IEEE, Piscataway, N.J., USA; 2001; Ho, M. et al.; *A GA-Based Dynamic Personalized Filtering for Internet Search Service on Multi-Search Engine*; Canadian Conference on Electrical and Computer Engineering 2001, Conference Proceedings (Cat. No.01TH8555) vol. 1, p. 271–6; IEEE, Piscataway, N.J., USA; 2001; Pogaenik, M. et al.; *Layered Agent System Architecture for Personalized Retrieval of Information from Internet*; Signal Processing X Theories and Applications. Proceedings of EUSIPCO 2000. Tenth European Signal Processing Conference, vol. 1, p. 421–4; Tampere Univ. Technology, Tampere, Finland; 2000; Ho, M. et al.; *An Agent-Based Personalized Search on a Multi-Search Engine Based on Internet Search Service*; Intelligent Data Engineering and Automated—IDEAL 2000, Data Mining, Financial Engineering, and Intelligent Agents, Second International Conference, Proceedings (Lecture Notes in Computer Sci-

ence Vol.1983), p. 404–9; Springer-Verlag, Berlin, Germany; 2000; Wei-Feng, Z. et al.; *Personalizing Search Result Using Agent*; Mini-Micro Systems, vol. 22, no. 6, p. 724–7; Mini-Micro Syst., China; Overmeer, M. A. C. J.; *My Personal Search Engine*; Computer Networks, vol. 31, no. 21, p. 2271–9; Elsevier, Nov. 10, 1999; Pretschner, A. et al.; *Ontology Based Personalized Search*; Proceedings 11th International Conference on Tools with Artificial Intelligence, p. 391–8; IEEE Comput. Soc., Los Alamitos, Calif., USA, 1999; Lee, E. S. et al.; *Agent-Based Support for Personalized Information with Web Search Engines*; Design of Computing Systems: Cognitive Considerations. Proceedings of the Seventh International Conference on Human-Computer Interaction (HCI International '97), vol. 2, p. 783–6; Elsevier, Amsterdam, Netherlands, 1997; and Berger, F. C. et al., *Personalized Search Support for Networked Document Retrieval Using Link Inference*, Database and Expert Systems Applications. 7th International Conference, DEXA '96 Proceedings, p. 802–11, Springer-Verlag, Berlin, Germany, 1996.

It would be advantageous to provide a system and an associated method which provides an enhancement to a search system, wherein a user may specify one or more search parameters, and wherein the user-specified search parameters are integrated into a search query, based on the subject matter of that query. The development of such a search enhancement system would constitute a major technological advance.

As well, it would be advantageous to provide a system and an associated method which provides an enhancement to a search system, wherein a user may specify one or more search parameters, and wherein the user-specified search parameters are integrated into a search query, based on the subject matter of that query, in which the subject matter is either explicitly determined or is implicitly determined, based upon user input. The development of such a search enhancement system would constitute a further technological advance.

Furthermore, it would be advantageous to provide a system and an associated method which provides an enhancement to a search system, in which general search parameters are solicited from a user before a particularized search, and wherein the solicited search parameters are associated with the user and are available for automatic integration into future particularized searches initiated by the user. The development of such a search enhancement system would constitute a further technological advance.

In addition, it would be advantageous to provide a system and an associated method which provides an enhancement to a search system, in which general search parameters are solicited from a user before or after a particularized search, and wherein the solicited search parameters are associated with user selectable editorial content, such as for delivery to the user and/or to other recipients, and are available for automatic integration into future particularized searches, such as initiated by the user or by other recipients that are associated with the user USR, such as a network of friends, family, peers, students, neighbors, people or entities within a zip code region, and/or business associates. The development of such a search enhancement system would constitute a further technological advance.

SUMMARY OF THE INVENTION

The system and method comprises enhancement of results for a search engine, wherein the results from the search engine are refined or reorganized, based upon information from an identified secondary source. The results obtained using a conventional search are compared against the identified secondary source, e.g. a ratings service, and are filtered and/or sorted appropriately. In some embodiments, identification of the secondary source, such as a ratings service comprising information which may supplement the subject of a search query, is based upon information entered by the user. In alternate embodiments, the secondary source is associated with a user, as part of general user-specified search parameters, wherein one or more parameters are consulted automatically for searches for appropriate subject matter.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a schematic view of a system for customizing results received from a search engine, wherein the customization comprises refinement of the search results based upon information received from an external source;

FIG. **2** is a schematic view of an alternate system for customizing results received from a search engine, wherein the customization comprises an organization of the search results based upon information received from an external source;

FIG. **3** is a schematic diagram of user identification, i.e. selection, of an external source within a system for further acting upon results received from a search engine;

FIG. **4** is a schematic view of a system for acting upon results received from a search engine implemented within an integrated application;

FIG. **5** is a schematic view of an alternate modular system for customizing results received from a search engine implemented in conjunction with a conventional search engine;

FIG. **6** is a functional block diagram of operation within a system for customizing results received from a search engine implemented within an integrated application;

FIG. **7** is a functional block diagram of operation within an alternate modular system for customizing results received from a search engine implemented in conjunction with a conventional search engine;

FIG. **8** is a flowchart showing a process for identification of one or more external sources, and for refining search results based upon information received from the identified sources;

FIG. **9** is a schematic diagram of an enhanced primary search input screen;

FIG. **10** is a schematic diagram of an enhanced search system source selection screen;

FIG. **11** is a schematic diagram of a primary search result screen further comprising enhanced source solicitation control;

FIG. **12** shows user specification of secondary search parameters;

FIG. **13** is a schematic diagram of an enhanced search parameter and subject validities;

FIG. **14** is a detailed schematic diagram of an exemplary enhanced search parameter and subject validities;

FIG. **15** is a functional block diagram of an enhanced search system comprising personal search parameters; and

FIG. **16** is a flow chart of an enhanced search process comprising personal search parameters.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

FIG. **1** is a schematic view of a system **10***a* for acting upon, i.e. enhancing or customizing **22** (FIG. **3**), results **14**

received from a search engine **12**, wherein the customization **22** comprises refinement **22***a* of the search results **14** based upon information **18** received **20** from an external source **16**.

FIG. **2** is a schematic view of an alternate system **10***b* for customizing **22** results received from a search engine **14**, wherein the customization **22** comprises an organization, i.e. ranking **22***b*, of the search results **14**, based upon information **18** received **20** from an external source **16**.

The search enhancement system **10** improves current search methodologies, by refining **22***a* and/or organizing **22***b* the results **14** of a search engine **12**, in compliance with information **18** from one or more sources **16**. In a typical system embodiment **10**, a user USR (FIG. **3**) selects **33** (FIG. **3**) an information source **16** to be consulted by a search application **12**, in the process of performing a search **24**.

In some system embodiments **10**, the results **14** of a search **24** are further refined **22***a* and/or organized **22***b*, based upon information **18** received from an external source **16**. For example, in a user-initiated search **13** for lodging in Austin, Tex., a user specified source **16** may preferably comprise rating information **18** of lodgings, e.g. such as available through American Automobile Association, Inc. (AAA). The rating information **18**, from the external source **16**, e.g. AAA, is then used to refine **22***a* and/or organize **22***b* the results **14** of a general search **24** for any lodging that otherwise meets the search parameters **106**,**108**, e.g. **108***a*, **108***b* (FIG. **9**, FIG. **10**, FIG. **11**) within a search query **13**. Results from a conventional search engine **12** may therefore be refined **22***a* and/or reorganized **22***b*, based on data **18** independently maintained by a ratings service **16**.

In alternate system embodiments **10**, information **18** received from an external source **16** is integrated within a search query **13**, such that the search **24** is enhanced by the information **18**, whereby the results **14** of the search **24** may be inherently refined **22***a* and/or organized **22***b* as a function of the information **18** received from an external source **16**. For example, information **18** received from a user-selected source **16** may be consulted when performing a search **24**, such that a set of one or more search results **14** complies with a search query **13** comprising both search parameters **108**, **106** entered by a user USR, in addition to meeting parameters imposed by the information **18** received from the external source **16**.

For example, in a similar user-initiated search **13** for lodging in Austin, Tex., a user specified source **16** which comprises rating information **18** of lodgings can alternately be included in the search **24**, i.e. to refine or organize the search results **14**, whereby the results of the general search **24** meet the user-specified search parameters **108**,**106**, and also comply with rating information **18** provided by a selected ratings service **16**.

In some system embodiments **10**, the external information **18** can be combined with other external information **18**. In the above example, in a user-initiated search **13***a* for lodging in Austin, Tex., wherein a user specified source **16** comprises rating information **18** of lodgings, the rating information **18** can be combined with policy information **18**, such as to further refine or organize the search results **14**, to lodging which is approved by a secondary external source **16**, e.g. an accounting department, associated with the user USR, to be within a specified cost per diem amount.

Supplementary external information **18** may also correspond to people or entities which are associated with the user USR, e.g. such as a network of friends, family, peers, students, neighbors, people or entities with a zip code region, and/or business associates. For example a user USR may be interested in the enhanced results **40** based on ranking information **18** from:

- Expert entities, e.g. Zagats, AAA, or a movie critic;
- Celebrities, e.g. Michael Jordan, John Cusack, or Sarah Michelle Gellar; or
- People similar to the user USR, i.e. "people like me", such as local people of a similar age and/or education level, immediate friends or friends of friends.

In system embodiments **10** in which information **18** from an external source **16** is combined with information **18** from one or more other external sources **16**, the enhanced search results **40** preferably yield a composite refinement or ranking **22**, for a user USR. For example, in a search for local services or people, e.g. a roofing contractor, a user USR can combine a general search for local contractors within a desired area, e.g. within a city, county, or zip code, and can rank the results based on information from a ratings service **18**, and/or with information **18** from other external sources **16**, such as review information from people, e.g. such as neighbors who have used roofing contractors, other users USR, recipients RCP (FIG. **3**), and/or experts.

FIG. **3** is a schematic diagram **30** of user identification, i.e. selection **33** of an external source **16** within a system **10** for further acting **22** upon results **14** received from a search engine **12**. A user USR typically interacts with the system **10** through a terminal **32**, such as a personal computer, laptop computer, or other networked device, such as a personal digital assistant, a network enabled portable phone, or other wired or wireless device.

Through user identifier input **33**, the system **10** determines, i.e. identifies **34** one or more selected external sources **16**, either directly, e.g. through explicit entry **33** of the identity of a source **16**, or indirectly, e.g. through an implicit determination of an identity of a source **16**, such as through the determination of subject matter of a search query **13**, and a determination of one or more sources **16** that have information **18** which pertains to the determined subject matter.

The system **10** retrieves information **38** from an external source **16**, such as though a an information query **36**. Based upon data received **38** from a selected source **16**, the system **10** returns **41** enhanced search results **40**, e.g. such as by returning **41***a* to the user USR, through the terminal **32**, and/or by delivering results **41***b* to one or more recipients RICP, such as through terminals **32**.

In some system embodiments **10**, recipients RCP are explicitly determined by the user USR. In other system embodiments **10**, recipients RCP may be inferentially determined by the user USR, such as comprising one or more recipients RCP that are associated with the user USR, e.g. such as a network of friends, family, peers, students, neighbors, people or entities with a zip code region, and/or business associates. For example, a query **13** from a user USR regarding museums in Paris, France may be refined **22***a* or ranked **22***b*, and then may be forwarded **40***b* to recipients RCP, such as to recipients RCP that choose **86** (FIG. **7**) to receive **41***b*, or are chosen to receive **41***b*, the information.

In some system embodiments **10**, recipients RCP may be inferentially determined by the search parameters or search results, such as comprising a one or more recipients RCP for which editorially ranked **22***a* or sorted **22***b* content **40** is determined to be valid. For example, a query **13** from a user USR regarding museums in Paris may be refined **22***a* or ranked **22***b*, and then may be forwarded **40***b* to recipients

RCP, such as to recipients RCP that have expressed interest in art, and/or France, such as through recipient input **86** (FIG. **7**).

The search enhancement system **10** may therefore be preferably used to provide editorially refined **22***a* or ranked **22***b* results, as a result of a user selectable editorial search **13**,**22**, for delivery to the user USR and/or to one or more recipients RCP.

As discussed above, in some system embodiments **10**, the results **14** of a general search query **13** are acted upon **22** by the information **18** from the selected source **16**, while in alternate system embodiments **10**, the information **18** from the selected source **16** is integrated within the query **13**, to provide search results **14** that correspond to both the general search parameters **108**,**106**, as well as to the supplemental information **18** from the selected source **16**.

User Source Selection and Delivery of Enhanced Search Query Results. FIG. **4** is a schematic view **42** of a system **10***c* for acting upon results **14** received from a search engine **12** implemented within an integrated search structure **44**, i.e. an enhanced search engine **44**. FIG. **5** is a schematic view **60** of an alternate modular system **10***d* for customizing results **14** received from a search engine **12** implemented in conjunction with a modular application component **46**.

As seen in FIG. **4**, system source identification **34** and information processing **22** in a system **10***c* are readily implemented within an application component **46** which is integrated **44** with a search engine **12**. When a user USR initiates **52** a search **24**, the application component **46** shown in FIG. **4** provides source identification **34**, based upon user selection **33**, and either acts **22** upon the results **14** of a general query **13** that meets user search criteria **106**,**108** (FIG. **9**), or alternately modifies the query **13**, based upon information **18**, e.g. **18***b*, from one or more selected sources **16**, e.g. **16***b*.

As seen in FIG. **5**, the system source identification **34** and information processing **22** in a system **10***d* are implemented within a modular, i.e. distinct, application component **46** which is in associated with a discrete search engine **12**. For example, an application component **46** for source identification **34** and information processing **22** may operate as a separate component in relation with an existing search engine **12**, whereby information **18** from a selected source **16** is either integrated into a search query **13**, e.g. such as through additional Boolean string elements, or is used to process **22** the results **14** of a query **13**.

System Operation. FIG. **6** is a functional block diagram **70** of operation within a system **10***e* for acting upon results **14** received from a search engine **12** implemented within an integrated search structure **44**. FIG. **7** is a functional block diagram **82** of operation within an alternate modular system **10***f* for customizing results **14** received from a search engine **12** implemented in conjunction with a modular application component **46**.

FIG. **8** is a flowchart showing an exemplary process **90** for an enhanced search system **10**, comprising identification **33** of one or more external sources **16**, and the enhancement **22** of search results **14** based upon information **18** received from one or more identified sources **18**.

As seen in FIG. **6** and FIG. **7**, a user USR interacts **71** with the enhanced search system **10**, typically between a user terminal **32** and an application module **46**. Typical interactions **71** between a user terminal **32** and the application module **46** comprise search initiation **52**, the return of standard, i.e. non-enhanced, search results **73**, source prompts **74**, source identification inputs **33**, and/or the return **41***a* (FIG. **3**) of enhanced results **40**.

In some embodiments of the enhanced search system **10**, as seen in FIG. **7**, one or more recipients RCP at terminals **32** may also interact **86** with the application module **46**. Typical interactions **86** between a recipient terminal **32** and the application module **46** comprise establishment of relationships **87**, e.g. such as between users USR and recipients RCP, and/or an input of preferences or interest in the receipt **41***b* of enhanced system content **40**.

The application module **46** has access **72**, e.g. **72***a*–**72***n*, to one or more sources **16**, e.g. **16***a*–**16***n*, having associated data **18**, e.g. **18***a*–**18***n*. The sources **16***a*–**16***n* are typically accessible across a network, e.g. such as but not limited to the Internet. In some system applications **10**, the associated data **18** is sent **72** to the application module **46** before source identification **33** from a user USR, such that information **18** associated with a source **16** is internally available within the application module **46**. In other system applications, the associated data **18** is sent **72** to the application module **46** upon source identification **33** from a user USR, wherein information associated with a source **16** is typically queried **36** (FIG. **5**) and retrieved **38** by the application module **46**.

As seen in FIG. **6** and FIG. **7**, a search engine **12** is associated with application module **46**. The search engine **12** has access **76**, e.g. **76***a*–**76***k*, to one or more external sites, sources or documents **78**, e.g. **78***a*–**78***k*, having associated content **80**, e.g. **80***a*–**80***k*. The search engine **12** typically retrieves information content **80** that corresponds to a search query **13**.

In the exemplary process **90** shown in FIG. **8**, when a user USR initiates a search query process **52**, the application module **46** typically solicits **74** the identification **33** of one or more sources **16** comprising data **18** which may be used to enhance the value of a search **24**, e.g. to improve the quality and/or ordering of search results **14**. In some system embodiments **10**, a source solicitation **74** comprises a choice of one or more selectable sources **16**, typically comprising sources **16** that are either explicitly available to the user USR, or are implicitly determined, e.g. such as travel related sources **16** if a search query **13** comprises one or more search parameters **108** within a search string **106** (FIG. **9** to FIG. **11**), which indicate that the user USR is searching for lodging or travel accommodations.

Upon a receipt **33** of source identification from a user USR, the application module **46** typically sends a data query **36** to any identified sources **16**, **1***f* the available data **18** from an identified source **16** is not yet available. Upon a data query **36**, the data **18** is sent from an identified source **16**, either to be included in a search query **13**, or to be used in the processing **22** of search results **14**. The application module **46** produces **22** the enhanced results **40**, which are then sent **41***a* to the user terminal **32**, and/or sent **41***b* to recipients RCP.

Conventional search engines typically compare input search terms **108** against content or metadata **80**, to identify displayable results. Some search processes also allow for refined searching in input terms **108**, against particular identified types of content or metadata **80**. For example, when performing a patent search, a user USR is able to enter "SN" to indicate that subsequent search terms **108** should be applied against serial number metadata. Furthermore, some of the conventional search engines permit comparison of input search terms against full or partial text.

When applying conventional search technology, users USR typically obtain several pages of search results for any given search query, necessitating an extended period of review. For example, a common problem which is often encountered with conventional search queries is that the

found set **138** (FIG. **11**) of matching sites or information sources **78** is often too large, e.g. such as if too few search terms **108** (FIG. **11**) are entered within a string **106** (FIG. **11**), or if the search terms **108** are too general. A user USR must often either manually browse through a large number of found content **80** to find relevant sites **78**, or must perform a different search **24**, typically having different terms **108** and/or additional terms **108**, in the hopes of more accurately finding the desired sites **78** and information **80**.

A similar problem that is also encountered with conventional search inquires is that the found set **138** of matching sites or information sources **78** is often too small, e.g. such as if too many search terms **108** are entered within a string **106**, or if the search terms **108** are too narrow in scope. A user USR then is typically required to perform another search, typically having different terms **108** and/or less terms **108**, in the hopes of finding a larger found set **138** of desired sites **78** and information **80**.

FIG. **9** is a schematic view **100** of an enhanced primary search user entry screen **102** for a search engine **12**, in which a user USR may preferably select one or more sources **16** at the same time as primary search parameters **108**, e.g. **108***a*–**108***b*, are entered. As seen in FIG. **9**, an input screen **102** comprises a parameter input window **104**, wherein a user USR can input one or more search parameters **108**, e.g. **108***a*, **108***b*, such as within a Boolean string format **106**. If a primary search **24** is desired, i.e. without a selection of secondary sources **16**, a search control **110** may preferably be activated, such that the primary search **24** is based only upon the primary search parameters **108**, e.g. **108***a*,**108***b*, such as within a search string **106**.

The enhanced primary search user entry screen **102** shown in FIG. **9** also comprises secondary source selection **112**, comprising one or more subject sources **116***a*–**116***j* within one or more search subject groups **114***a*–**114***k*. For example, within a travel subject group **114***a*, one or more travel subject sources **116***a*–**116***j* are selectable by the user USR, such that corresponding sources **16** are referenced in association with a search **24** corresponding to the primary search parameters **108**. A search subject group **114** may comprise any of a wide variety of selectable subjects **114**, such as but not limited to travel, shopping, business, technology, or personal sources **114**. The displayed selection of subjects **114** and subject sources may reflect general subject areas, i.e. for general user audiences, or may alternately reflect more specialized professional or personal interests, such as internet-based opinion, review, and/or ratings sources **16**.

The search subject groups **114***a*–**114***k* shown in FIG. **9** also comprise corresponding options control **118***a*–**118***k*, such as to add or subtract desired source choices **116**, and/or to select options based upon a source **16**, such as to select a desired rating level of lodging, e.g. 4 stars, based upon a selected source **16**.

As seen in FIG. **9**, the source selectors **116** allow selection of one or more secondary sources **16**. In some system embodiments **10**, information **18** associated with a source selection **116** accompanies the general search parameters **106**,**108** during a search **24**. In alternate system embodiments **10**, information **18** associated with a source selection **116** is used to enhance **22** the results **20** of a general search **24** that is based upon the parameters **106**,**108**.

In some system embodiments, preliminary source selectors **116** comprise selectable choices of external sources **16**, such as ranking sources **16**, such as a ratings service **16** for restaurants, e.g. zagats.com, available through Zagat Survey LLC, of New York, N.Y. When searching for a restaurant using a search engine **12**, a user USR may find it helpful to filter **22***a* or sort **22***b* results based on a rating from a ratings service **16**. More specifically, the user USR can search for and display only restaurants with a Zagats rating higher than two, or the user USR may search for all restaurants meeting a specified criteria, and sort all restaurant hits based on the Zagats rating. Similarly, when searching for lodging using a search engine **12**, a user USR may find it helpful to filter **22***a* or sort **22***b* results based on a rating from a travel related ratings service **16**, e.g. such as ratings provided by American Automobile Association, Inc. (AAA).

Some system embodiments **10** allow express entry by the user USR of information in a search string, such as within the primary input window **104**, to enable identification of such a source. In an alternative implementation, a source, e.g. Zagats or AAA, and an appropriate rating for a source **16**, e.g. a Zagats rating equal to 2, may be associated with a user USR as a part of general user-specified search parameters **148**, e.g. **148***a* (FIG. **12**), in which one or more user-specified parameters **148** may be consulted automatically for searches of appropriate subject matter. In alternate system embodiments **10**, the preliminary source selectors **116** comprise selectable choices of user-defined sources **16**, such as to include one or more-user-selected parameters **148** (FIG. **12**).

In some embodiments, the selected **116** external sources **16** are included along with the primary search parameters **108**. In alternate embodiments, selected external sources **16** are referenced to refine **22***a* and/or reorganize **22***b* results **14** of a search **24** based upon the primary search parameters **108** within the search string **106**, i.e. the search engine **12** conducts a search **24**, based upon parameters **106**,**108**, wherein the results of a search **24** typically include all sites or sources **78** which meet the search parameter set.

FIG. **10** is a schematic diagram **120** of an enhanced search system source selection screen **122**. As described above, a user USR may initiate **52** a search **24**, such as based upon one or more search parameters **108** within a search string **106**. In some embodiments of an enhanced search system **10**, a solicitation, i.e. source prompt **74** may be made, such that a user USR can select one or more sources **16** which can be used to refine **22***a* and/or organize **22***b* the results of a search **24**.

As seen in FIG. **10**, the enhanced search system source selection screen **120** preferably displays entered search parameters **106**,**108**, and may also display a search subject **124**, e.g. such as but not limited to travel, cuisine, technical, biographical, cultural, or business subjects. The search subject **124** may be determined either explicitly or implicitly from the search parameters **106**,**108**, or may otherwise be selected or determined, such as by user subject selection control **125**. The system source selection screen **122** shown in FIG. **10** also comprises a secondary source selection **112**, from which one or more subject selections **116***a*—**116***j* may be made by a user USR. The exemplary subject selection option **114***a* shown in FIG. **10** corresponds to one or more travel related source selections **116**, e.g. **116***a*–**116***j*, based on the determined subject **124**. The enhanced search system source selection screen **120** also comprises a refine results control **126** and an enhanced search control **128**, whereby a user USR can control search refinement or organization **22**, based upon source selections **116**.

The secondary source selection **112**, as shown in FIG. **10**, may alternately correspond to people or entities which are associated with the user USR, e.g. such as a network of friends, family, peers, students, neighbors, people or entities with a zip code region, and/or business associates. For

example, the secondary source selection **112** may provide system access to external information or input **18** from one or more recipients RCP that are associated with the user USR. In another example, the secondary source selection **112** may provide system access to external information or input **18** from:

- Expert entities, e.g. Zagats, M A, or a movie critic;
- Celebrities, e.g. Michael Jordan, John Cusack, or Sarah Michelle Gellar; and/or
- People similar to the user USR, i.e. "people like me", such as local people of a similar age and/or education level, immediate friends or friends of friends.

FIG. **11** is a schematic diagram **130** of a primary search result screen **132** further comprising enhanced source solicitation control **126**,**128**. As described above, a search **24** which comprises only primary search parameters **108**, e.g. **108**,**108***b*, such as within a search string **106**, may often yield a large found set **138** of results **134**, e.g. **134***a*–**134***j*. In some embodiments of the enhanced search system **10**, such as integrated with a conventional search engine **12**, an enhancement of a search **24** may comprise processing **22**, e.g. refinement **22***a* and/or organization **22***b*, of a found set **138** from a search **24**. The enhanced source solicitation control **126**,**128** shown in the primary search result screen **132** allows a user USR to operate **22** on the results of a search **24**, such as by navigation to a enhanced search system source selection screen **120**, as seen in FIG. **10**.

The source solicitation screen **132** may alternately comprise a selection sources **16** which are implicitly determined, such as based on entered search parameters **108**. For example, in a user USR entered search string **106** which includes a term lodging, a choice of travel specific sources **16** may be provided for the user USR, such as to refine a search based upon ratings from one or more travel-related sources **16**.

The search enhancement system **10** is readily implemented to provide a great value for a user USR, in which information from one or more secondary sources **16** can be explicitly or implicitly accessed and integrated to refine or organize the results of a search. The search enhancement system **10** improves current search methodologies, since a user USR can specify one or more user-selected information sources to be consulted by a search application module **46** when performing a search. Results **14** from a conventional search engine **12** may be refined or re-organized based on data independently maintained by a selected source **16**, such as a ratings service **16**.

In either case, the results obtained using a conventional search may be compared against the identified source ratings service **16** and filtered **22***a* and/or sorted **22***b* appropriately. System functions may be performed by an integrated search engine **44**, or alternatively, by an application module **44** associated with a search engine **12**, such that no modification is necessary to the conventional search engine **12**.

Since conventional search engines **12** allow only explicit entry of search terms **106**, **108**, such as within a search string interface **104**, a user USR is typically required to repeat searches using a plurality of combinations of search parameters **108** and search strings **106**, in order to receive an acceptable quality and quantity of search results, i.e. hits.

The enhanced search system **10** provides structures and associated processes which allow a user USR to enhance either the search or the results of a search, based upon information from one or more selected sources. A wide variety of selectable sources **16**, from which supplementary information **18** is accessed, may be used, such as external services **16**, e.g. ratings services, or user-specified sources, e.g. such as user-defined ratings or search parameters.

Enhanced Search System having Personal Search Parameters. Some preferred embodiments of the enhanced search system **10**, such as log (FIG. **15**), comprise the selection **33** of one or more user-specified search parameters **148**, e.g. **148***a* (FIG. **12**).

Some embodiments of the enhanced search system **10** having personal search parameters **148** comprise a solicitation of general search parameters **148** from a user USR, before a particularized search **24** is initiated **52**. The solicited search parameters **148** are thereafter associated with the user USR, such that parameters **148** are available for automatic integration into future particularized searches initiated **52** by the user USR.

FIG. **12** is a schematic diagram **140** which shows user specification **146***a*–**146***p* of one or more secondary search parameters **148***a*–**148***p*, such as through a user interface **142**. The specified parameters **148***a*–**148***p* are typically stored **150**, such as at one or more locations, which can be located at a wide variety of locations within an enhanced search system **10**, such as within a user terminal **32**, at an enhanced search application module **46**, in combination with a search engine **12**, or at one or more locations throughout the system, such as at a service provider or a personal web site.

The generalized search parameters **148** may pertain to a variety of different subject matters **168** (FIG. **13**), and represent information useful in enhancing a search for a user USR and/or other recipients RCP, such as by filtering, further filtering, or sorting search results obtained when performing searches **54**. For example, generalized search parameters **148** may include the user's address and health insurance carrier, such that future particularized searches for medical care providers may be automatically refined or organized based on proximity and eligibility.

In a conventional search environment, a user USR must often enter detailed personal search parameters within a search string, if personal criteria are to be considered at the time of a search. Therefore, a user USR is often required to understand the search engine, and to remember the parameters at the time of the search.

The use of user specified generalized search parameters **148** readily provides an improved search environment, since a user USR is not required to manually manipulate a conventional search engine **12**, through the entry of detailed search parameters **108**, to consider personal criteria at the time of a particularized search. As well, a user USR is not required to understand the detailed string parameter format **106** of a search engine **12**, nor is a user USR required to remember and enter personalized parameters **148** at the time of a search.

The use of generalized search parameters **148** relieves the user USR of the burden of sifting through pages of search results that are not relevant or customized to their needs, for instance, medical care providers the are not proximate to their home or eligible under their insurance in the example above.

FIG. **13** is a schematic diagram **160** of an user-specified search parameter **148** and subject validities, i.e. rankings **170**. A search parameter **148** typically comprises a parameter value **166** entered by a user USR, such as within a parameter value entry window **164** within a user interface **142** (FIG. **12**).

A search parameter **148** may also preferably comprise an entered or determined ranking **170** for one or more subjects **168**, e.g. **168***a*–**168***s*, such that an applicability or validity of the parameter **148** can be explicitly or implicitly determined,

i.e. such as in a determination of inclusion within a an enhanced search **24**, or within search result refinement **22***a* and or sorting **22***b*. The search parameter **148** shown in FIG. **13** comprises applicability rankings **170**, e.g. **170***a*–**170***t* for at least one subject matter **168**. An exemplary quantized ranking **170** may be ranked as Yes or No, one or more divisions between 0% to 100%, a numeric value of 1 to 5, or another rating value scale **170**. A ranking **170** is preferably associated with each of the generalized search parameters **148** for a particular subject matter **168**, so that results satisfying several of the criteria may be appropriately sorted.

Based upon the determined subject matter **168** of a search query **13**, a user specified parameter **148** having a rankings **170** which is determined to be applicable to the search may either be used in conjunction with primary search terms, i.e. to further limit search results, or may be used to sort the results of a query based upon primary search criteria, wherein the sort is based upon the applicability ranking **170** of one or more generalized search parameters **148**.

FIG. **14** is a detailed schematic diagram **172** of an exemplary enhanced search parameter **148**, having a parameter value **166** of "95103" for a home address zip code, along with subject validities, i.e. rankings **170** for a plurality of subjects **168**, such as local services **168***a*, online shopping **168***b*, and health care **168***s*. As seen in FIG. **14**, a ranking **170***t* of 100 percent applicability is associated with local services **168***a*, such that a search for a local service may preferably include the home address parameter **166** of the user USR.

To enable automatic association of appropriate parameters with future particularized searches, generalized user-specified search terms are preferably stored or associated with a label or type. In the example above, for instance, search terms may be stored as follows:

Health Insurance Carrier: Kaiser

User's Home Address: Street Address City, State, Zip

User's Work Address: Street Address City, State, Zip

Thereafter, at the time of a particularized search by the user USR, the subject matter of the search **24** is identified or through explicit entry by the user USR, the relevant types of generalized search parameters **148** are identified based on the subject matter **124** of the search **24**. Again using the example above, if the system **10** determines that a user USR seeks to search for a medical care provider, the generalized search parameters **148** of location and medical insurance provider may preferably be identified as relevant to this particularized search **24**. Where available, user-specified information **18** related to those parameters are extracted from the general search parameters **148** associated with the user USR. Parameters **148** that are determined to be relevant can be used in any of a variety of ways, such as to return **22***a* or organize **22***b* better search results, or to perform a search **24** using the available subset of optimal parameters **148**.

In some system embodiments, the system **10** solicits the user USR to provide any missing parameters at the time of the particularized search. For example, if the user-specified parameters do not include the insurance carrier of a user USR, a exemplary search for a medical care provider may be performed by supplementing the user's input with location alone, or the user USR may be asked for their medical insurance provider at the time of the particularized search.

FIG. **15** is a functional block diagram of an enhanced search system **10***g* comprising personal search parameters **148**. FIG. **16** is a flowchart showing an exemplary process **200** for an enhanced search system **10***g*, comprising personal search parameters **148**, and the refinement **22** of search results **14** based upon one or more personal search parameters **148** which are determined to be relevant to the search.

As seen in FIG. **15**, a user USR interacts **71** with an application module **46**, typically between a user interface **142** at a user terminal **32** and the application module **46**. Typical interactions **71** between a user terminal **32** and the application module **46** comprise input and definition **182** of parameters **148**, search initiation **52**, the return of standard, i.e. non-enhanced, search results **73**, parameter prompts **184**, source identification inputs **33**, and/or the return **41***a*,**41***b* of enhanced results **40**.

Some embodiments of the enhanced search system **10**, such as the enhanced search system **10***g* shown in FIG. **15**, preferably provide user selected editorial searches, e.g. such as editorially ranked content, i.e. editorial commentary, corresponding to user input, which can then be returned **40***a* to the user USR, or sent **40***b* to recipients RCP, such as to send to selected peer recipients RCP of the user USR. In some system embodiments, the recipients RCP comprise one or members of a network of people associated with a user USR, e.g. such as node recipients RCP in a network of people with similar interests, or a chain of friends, e.g. such as established through the Internet, e.g. friendster.com.

The enhanced search system **10***g* shown in FIG. **15** may alternately provide enhanced results **40** which are filtered in part, i.e. refined **22***a* and/or organized **22***b*, based upon information **18** received from an external source **16**, such as from the most popular people and/or places in the user's personal network.

The enhanced search system log and an associated method **200** therefore provide an enhancement to a search system, in which general search parameters are solicited from a user USR, either before or after a particularized search, such as through button selection within a user interface **142**. In some system embodiments, the solicited search parameters are preferably associated with user selectable editorial content, such as for delivery to the user USR and/or to other recipients RCP, and are available for automatic integration into future particularized searches, such as initiated by the user USR or by other recipients RCP that are associated with the user USR, such as a network of friends, family, peers, students, neighbors, people or entities with a zip code region, and/or business associates.

In the exemplary process **200** shown in FIG. **16**, a user USR is preferably able to initially store **202** user-specified search parameters **148**. When a user USR initiates a search query process **52**, an identification of the subject matter may also be identified **204**, such as through explicit entry, e.g. through subject selection **125** (FIG. **10**), or through an implicit determination **206** at the application module **46**, e.g. based upon the entered search parameters **108** and parameter string **106**. If the subject matter of the query is not **210** determined, the application module **46** solicits **212** and receives **214** the subject matter from the user USR. If the subject matter of the query is **216** determined, the system **10** selects **212** one or more user-specified search parameters **148** based on the subject matter, either for refinement **22***a*, sorting **22***b* of search results **14**, or for integration **210** of the selected user-specified search parameters **148** with a query **13**.

Upon receipt **33** of source identification from a user USR, the application module **46** typically sends a data query **36** to any identified sources **16**, if the available data **18** from an identified source **16** is not yet available. Upon a data query **36**, the data **18** is sent from an identified source **16**, either to be included in a search query **13**, or to be used in the processing **22** of search results **14**. The application module

46 produces 22 the enhanced results 40, which are then sent 41, such as by returning 41*a* the enhanced results 40 to the user terminal 32, and/or by sending 41*b* the enhanced results 40 to one or more recipients RCP.

The enhanced search system 10*g* seen in FIG. 15 provides storage of a set of user-specified search parameters, and automatically integrates selected ones of the stored search parameters into a search query 13, based on the subject matter of that query 13. The subject matter of the query may be explicitly indicated by the user USR, or may be inferentially determined, based on user input.

In some embodiments of the enhanced search system 10*g*, general search parameters are typically solicited 184 from a user USR before a particularized search 13 is initiated. The solicited search parameters 148 are associated with the user USR, whereby the parameters 148 are available for automatic integration into future particularized searches initiated by the user USR.

The storage 150 of personal parameters may be located at a wide variety of locations within the system 10*g*, such as within a file stored on the user's computer 132 (FIG. 6). The general search parameters 148 may also be associated with a user's roaming profile, passport, or init packet, such that the system 10*g* may readily access personal parameters 148 for an identified user USR.

The determination and maintenance of generalized search parameters 148 can be provided by a wide variety of entities, such as but not limited to the application module 46, an independent enhancement module that works in conjunction with a conventional search engine 12 or as an application, utility, or application plug-in within a user terminal 32.

The enhanced system 10*g* is readily adapted to a wide variety of network structures, such as within an integrated search engine structure 44 (FIG. 6), or within an application module 46 which is retrofit to an existing, i.e. conventional, search engine 12. As well, the appropriate subject matter of a particularized search can be identified either at the application module 46, or even at a user terminal 32, e.g. such as for local storage or parameters 148 and refinement 22*a* and/or sorting 22*b* of search results 14.

In some system embodiments 10*g*, the user-specified search parameters are integrated into a search string and are therefore used to produce the number of resulting hits. In alternate embodiments of the enhanced search system 10*g*, user-specified parameters 148 are applied to the results of a search that is performed without their integration, such as within a system 10*g* which is retrofit to an existing search engine 12.

In some enhanced search system embodiments 10, at the time of a particularized search, an interface is presented to the user USR, which allows a customized search query, and enables the user USR to modify out-dated or unwanted search parameters.

Conventional search engines 12 typically operate in an objective manner, based upon search parameters 108 within a parameter string 106 input at the time of a search. As well, the search results of a conventional search engine are often sorted as a function of commercial or popular parameters.

The enhanced search system 10*g* and personal search parameters 148 allow the results of a search engine 12 to be enhanced 22, such as through refinement 22*a* and/or sorting 22*b*, to reflect the desired or intended focus of the user USR. Furthermore, the determined subject matter of the search allows the enhanced results 40 to reflect more subjective results than are provided in an objective search engine alone.

Although the enhanced search system and methods of use are described herein in connection with a user terminal, the apparatus and techniques can be implemented for a wide variety of electronic devices and systems, such as personal computers, mobile devices, and other microprocessor-based devices, such as portable digital assistants or network enabled cell phones, or any combination thereof, as desired.

As well, while the enhanced search system and methods of use are described herein in connection with interaction between a user terminal and an application module and search engine across a network such as the Internet, the enhanced search system and methods of use can be implemented for a wide variety of electronic devices and networks or any combination thereof, as desired.

Accordingly, although the invention has been described in detail with reference to a particular preferred embodiment, persons possessing ordinary skill in the art to which this invention pertains will appreciate that various modifications and enhancements may be made without departing from the spirit and scope of the claims that follow.

What is claimed is:

1. A process, comprising the steps of:

soliciting from a user a set of one or more general search parameters specified by the user;

soliciting from the user at least one ranking explicitly specified by the user, the rankings based on any of applicability and validity of at least one of the solicited general search parameters in regard to at least one subject matter;

associatively storing the set of solicited general search parameters and the rankings specified by the user for at least one future search initiated by the user;

receiving a search query from the user, the search query comprising one or more query parameters other than the previously solicited general search parameters;

determining the subject matter of the received search query;

selecting one or more of the associatively stored solicited general search parameters based upon any of applicability and validity of the associatively stored solicited search parameters with the determined subject matter of the received search query, wherein the selection is at least partially based on at least one of the rankings explicitly specified by the user; and

providing a refined search, wherein the refinement comprises any of

using the selected ones of the associatively stored solicited general search parameters in conjunction with the received query parameters to perform the search;

performing the search with the received query parameters and subsequently refining search results with the selected ones of the associatively stored solicited general search parameters; and

performing the search with the received query parameters and subsequently providing any of organizing and sorting of the search results with the selected ones of the associatively stored solicited general search parameters.

2. The process of claim **1**, further comprising the step of: returning results of the refined search to the user.

3. The process of claim **1**, further comprising the step of: sending results of the refined search to a recipient.

4. The process of claim **3**, wherein the recipient is selected by the user.

5. The process of claim **3**, wherein the recipient is determined based on the results of the refined search.

6. The process of claim **3**, wherein the recipient is determined based on information input by the user.

7. The process of claim 1, further comprising the steps of:
receiving information from a recipient; and
selectively sending results of the refined search to the recipient based upon any of the received information from the recipient and a selection of the recipient by the user.

8. The process of claim 7, wherein the received information comprises an interest in the results of the refined search by the recipient.

9. The process of claim 1, wherein the subject matter is explicitly indicated by the user.

10. The process of claim 1, wherein the subject matter is inferentially determined based upon user input.

11. The process of claim 1, wherein the user-specified search parameters comprise a selectable applicability based upon subject matter, further comprising the step of:
determining the selected ones of the associatively stored solicited search parameters based upon the selectable applicability.

12. The process of claim 3, wherein the recipient is any of a selected peer, a friend, a family relative, a student, a neighbor, any of a person or entity within a zip code region, and a member of a network of people associated with the user.

13. The process of claim 12, wherein the network of people comprises any of people with similar interests and a chain of friends.

14. The process of claim 1, further comprising the steps of:
soliciting the user to provide at least one parameter after receipt of the query at the time of the search.

15. The process of claim 14, wherein the solicited parameter is a missing parameter.

16. The process of claim 1, further comprising the steps of:
receiving at least one source selection from the user; and
modifying the search query based upon information from the selected source.

17. The process of claim 1, wherein the step of soliciting the general search parameters from the user occurs any of before and after a particularized search.

18. A process, comprising the steps of:
soliciting from a user at least one user-specified search parameter;
soliciting from the user at least one ranking explicitly specified by the user, the rankings based on any applicability and validity of at least one of the solicited user-specified search parameters in regard to at least one subject matter;
associating the solicited user-specified search parameters and the explicitly specified rankings with the user;
storing the associated solicited user-specified search parameters and the explicitly specified rankings for use in at least one future search initiated by the user;
receiving a search query from the user, the search query comprising one or more query parameters other than the previously solicited user-specified search parameters;
determining the subject matter of the received search query;
selecting one or more of the stored associated solicited user-specified search parameters based on any of applicability and validity of the stored associated solicited user-specified search parameters with the determined subject matter of the received search query, wherein the selection is at least partially based on at least one of the solicited user-specified search parameters having a ranking explicitly specified by the user; and
providing a refined search, wherein the refinement comprises any of
using the selected ones of the stored associated solicited user-specified search parameters in conjunction with the received query parameters to perform the search;
performing the search with the received query parameters and subsequently refining search results with the selected ones of the stored associated solicited user-specified search parameters; and
performing the search with the received query parameters and subsequently providing any of organizing and sorting of the search results with the selected ones of the stored associated solicited user-specified search parameters.

19. The process of claim 18, further comprising the step of:
returning results of the refined search to the user.

20. The process of claim 18, further comprising the step of:
sending results of the refined search to a recipient.

21. The process of claim 20, wherein the recipient is selected by the user.

22. The process of claim 20, wherein the recipient is determined based on the results of the refined search.

23. The process of claim 20, wherein the recipient is determined based on information input by the user.

24. The process of claim 18, further comprising the steps of:
receiving information from a recipient; and
selectively sending results of the refined search to the recipient based upon any of the received information from the recipient and a selection of the recipient by the user.

25. The process of claim 24, wherein the received information comprises an interest in the results of the refined search by the recipient.

26. The process of claim 18, wherein the subject matter is explicitly indicated by the user.

27. The process of claim 18, wherein the subject matter is inferentially determined based upon user input.

28. The process of claim 18, wherein the user-specified search parameters comprise a selectable applicability based upon subject matter, and further comprising the step of:
determining the selected ones of the stored associated solicited user-specified search parameters based upon the selectable applicability.

29. The process of claim 20, wherein the recipient is any of a selected peer, a friend, a family relative, a student, a neighbor, any of a person or entity within a zip code region, and a member of a network of people associated with the user.

30. The process of claim 29, wherein the network of people comprises any of people with similar interests and a chain of friends.

31. The process of claim 18, further comprising the steps of:
soliciting the user to provide at least one parameter after receipt of the query at the time of the search.

32. The process of claim 31, wherein the solicited parameter is a missing parameter.

33. The process of claim 18, further comprising the steps of:
receiving at least one source selection from the user; and

modifying the search query based upon information from the selected source.

34. The process of claim **18**, wherein the step of soliciting the user-specified search parameters from the user occurs any of before and after a particularized search.

35. A system, comprising:

means for soliciting from a user at least one user-specified search parameter;

means for soliciting from the user one or more rankings ranking explicitly specified by the user, the rankings based on any of applicability and validity of at least one of the solicited user-specified search parameters in regard to at least one subject matter;

means for associating the solicited user-specified search parameters and the explicitly specified rankings with the user;

means for storing the associated solicited user-specified search parameters and the explicitly specified rankings for use in at least one future search initiated by the user;

means for receiving an initial search query from the user, the search query comprising one or more query parameters other than the previously solicited user-specified search parameters;

means for determining the subject matter of the received initial search query;

means for selection of one or more of the stored associated solicited user-specified search parameters based on any of applicability and validity of the stored associated solicited search parameters with the determined subject matter of the received search query, wherein the selection is at least partially based on at least one of the solicited user-specified search parameters having a ranking explicitly specified by the user; and

means for providing a refined search, wherein the refinement comprises any of

means for using the selected ones of the stored associated solicited user-specified search parameters in conjunction with the received query parameters to perform the search;

means for performing the search with the received query parameters and subsequently refining search results with the selected ones of the stored associated solicited user-specified search parameters; and

means for performing the search with the received query parameters and subsequently providing any of organizing and sorting of the search results with the selected ones of the stored associated solicited user-specified search parameters.

36. The system of claim **35**, wherein results of the refined search are sent to the user.

37. The system of claim **35**, wherein results of the refined search are sent to a recipient.

38. The system of claim **37**, wherein the recipient is selectable by the user.

39. The system of claim **37**, wherein the recipient is based on the results of the refined search.

40. The system of claim **37**, wherein the recipient is based on information input by the user.

41. The system of claim **35**, further comprising:

information received from a recipient; and

a selective transmission of the results of the refined search to the recipient based upon any of the received information and a selection of the recipient by the user.

42. The system of claim **29**, wherein the received information comprises an interest in the results of the refined search.

43. The system of claim **35**, wherein the determination of the subject matter is explicitly indicated by the user.

44. The system of claim **35**, wherein the determination of the subject matter is inferentially determined based upon user input.

45. The system or claim **35**, wherein the stored associated solicited user-specified search parameters comprise a selectable applicability based upon subject matter, and wherein the means for selection is based upon the selectable applicability.

46. The system of claim **37**, wherein the recipient is any of a selected peer, a friend, a family relative, a student, a neighbor, any of a person or entity within a zip code region, and a member of a network of people associated with the user.

47. The system of claim **46**, wherein the network of people comprises any of people with similar interests and a chain of friends.

48. The system of claim **35**, further comprising:

means for soliciting the user to provide at least one additional parameter after receipt of the query at the time of the search.

49. The system of claim **48**, wherein the solicited additional parameter is a missing parameter.

50. The system of claim **35**, further comprising:

means for receiving at least one source selection from the user; and

means for modifying the search query based upon information from the selected source.

51. The system of claim **35**, wherein the means for soliciting the user-specified search parameters corresponds to any of before and after a particularized search.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 7,165,119 B2
APPLICATION NO. : 10/685749
DATED : January 16, 2007
INVENTOR(S) : Fish

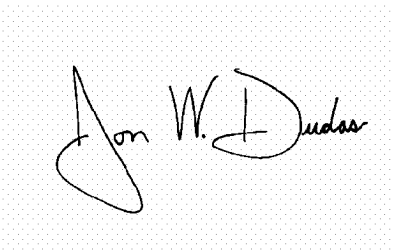
It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Front Page, Item [75] Inventor, replace, "Edmund J. Fish"

with: --Edmund J. Fish, Dulles, VA (US)
Bradley Chase Harrison, New York, NY (US)--

Signed and Sealed this

Fifteenth Day of May, 2007



JON W. DUDAS
Director of the United States Patent and Trademark Office