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PART 1 OF 3

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FILING DATE: 10/08/96
CLASS: 727
SUBCLASS: 501
GROUP ART UNIT: 2796
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SUBCLASS: 501
GROUP ART UNIT: 2796
EXAMINER: HONG

APPLICANTS: GILBERT BORMAN, BLOOMFIELD HILLS, MI; RAJAT BHATNAGAR, STAMFORD, CT; ARUL SEBASTIAN, STAMFORD, CT; ANUP MATHUR, SUNNYVALE, CA; VINAY WADHWA, NEW DELHI, INDIA; MUKESH KUMAR, PASADENA, CA; C. VINAY KUMAR SINGH, GURAGON, INDIA.

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FOREIGN/PCT APPLICATIONS
VERIFIED
NONE-SSH

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CHARLES C CARY
WILSON SONSINI GOODRICH & ROSATI
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TITLE: INTERNET SEARCH TOOLS METHOD AND APPARATUS FOR RETRIEVING DATA FROM A NETWORK USING LOCATION IDENTIFIERS

U.S. DEPT. OF COMM./PAT. & TM—PTO-436L (Rev.12-9)

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PATENT APPLICATION



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Date Entered or Counted	Description	Date Received or Mailed
	1. Application <u>14</u> papers.	
	2. Drawings fee & seal	
	3. Examiner's Report, Enclosures, etc. in Exhibit	3-12-97
2-24-98	4. <u>Key (Bros)</u>	3-3-98
	5. <u>Interview Summary</u>	JUN 08 1998
	6. <u>Amend A w/ Appendices A-D</u>	6-8-98
8-27-98	7. <u>Notice of Allowance</u>	AUG 31 1998
12/7/98	8. <u>Drawings (14 sheets) set 1</u>	11/17/98
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US005890172A

United States Patent [19]

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Borman et al.

[45] **Date of Patent:** Mar. 30, 1999

[54] **METHOD AND APPARATUS FOR RETRIEVING DATA FROM A NETWORK USING LOCATION IDENTIFIERS**

[75] **Inventors:** Gilbert Borman, Bloomfield Hills, Mich.; Rajat Bhatnagar; Arul Sebastian, both of Stamford, Conn.; Anup Mathur, Sunnyvale, Calif.; Vinay Wadhwa, New Delhi, India; Mukesh Kumar, Pasadena, Calif.; C. Vinay Kumar Singh, Guragon, India

[73] **Assignee:** Tenretnl Dynamics, Inc., Southfield, Mich.

[21] **Appl. No.:** 727,085

[22] **Filed:** Oct. 8, 1996

[51] **Int. Cl.⁶** G06F 15/16

[52] **U.S. Cl.** 707/501; 707/513; 345/339

[58] **Field of Search** 707/501, 513, 707/514, 10, 102, 104; 345/329, 333, 335, 338, 339, 340, 346

[56] **References Cited**
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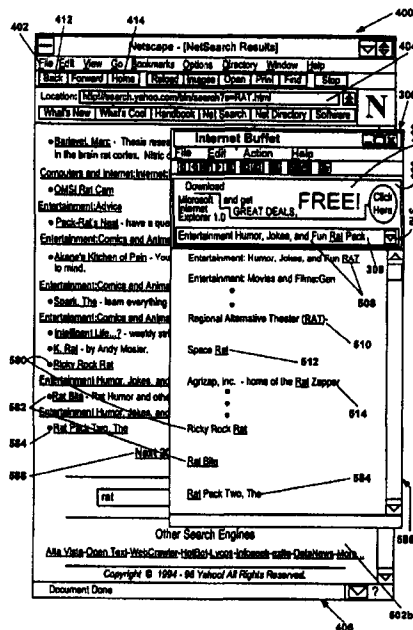
AltaVista, "http://www.altavista.com", Feb. 20, 1998, screen printouts pp. 1-2.

Primary Examiner—Stephen S. Hong
Attorney, Agent, or Firm—Wilson Sonsini Goodrich & Rosati; Paul Davis; Charles C. Cary

[57] **ABSTRACT**

A computer implemented method and system for retrieving information through a browser connected to a network. A first file of information is received which includes a first mark-up language to identify contents of the information, which contents include site identifiers. The site identifiers corresponding for example to file locations on the Internet. The first file is displayed in a browser window. Responsive to receiving the first file of information by the browser, the first file of information is parsed by a jumper to generate a list of site identifiers. This list of site identifiers is then stored by the jumper and displayed in a jumper window. Responsive to an activation by the user, a computer is directed to perform the following steps. The jumper determines which of the stored site identifiers is currently selected and automatically selects the next. Next the jumper directs the browser to access the file at the site corresponding to automatically selected site identifier. Finally, the browser is directed to display the file the browser has retrieved in the browser window.

18 Claims, 14 Drawing Sheets



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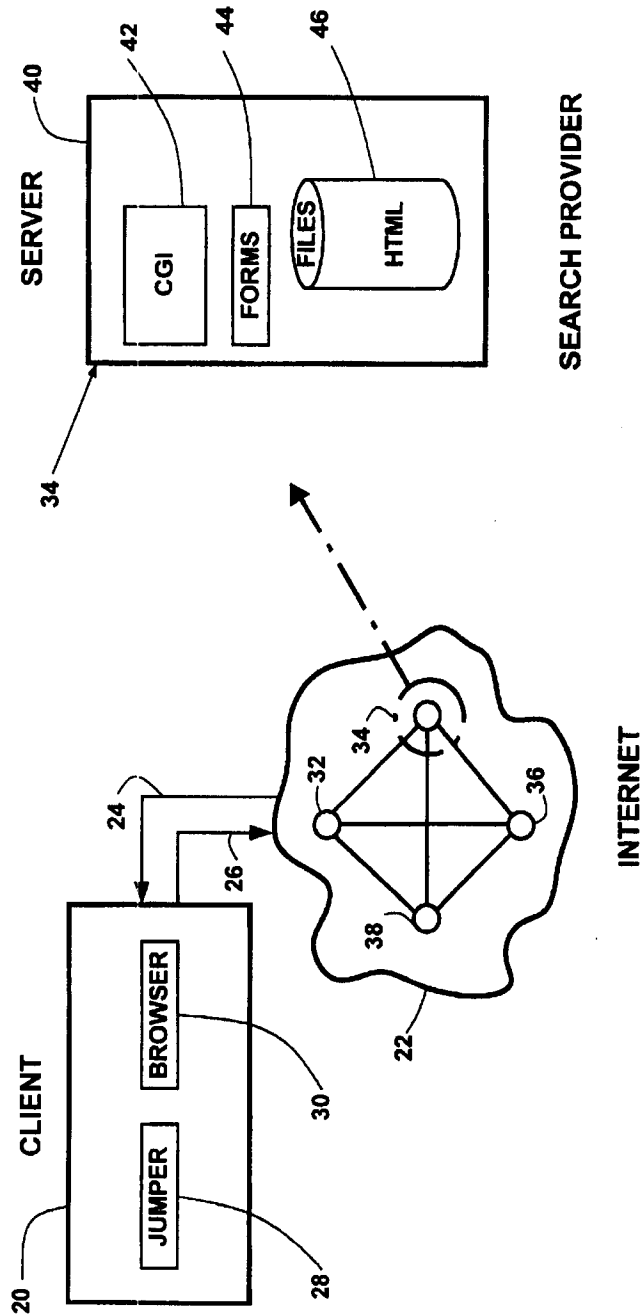


FIG. 1

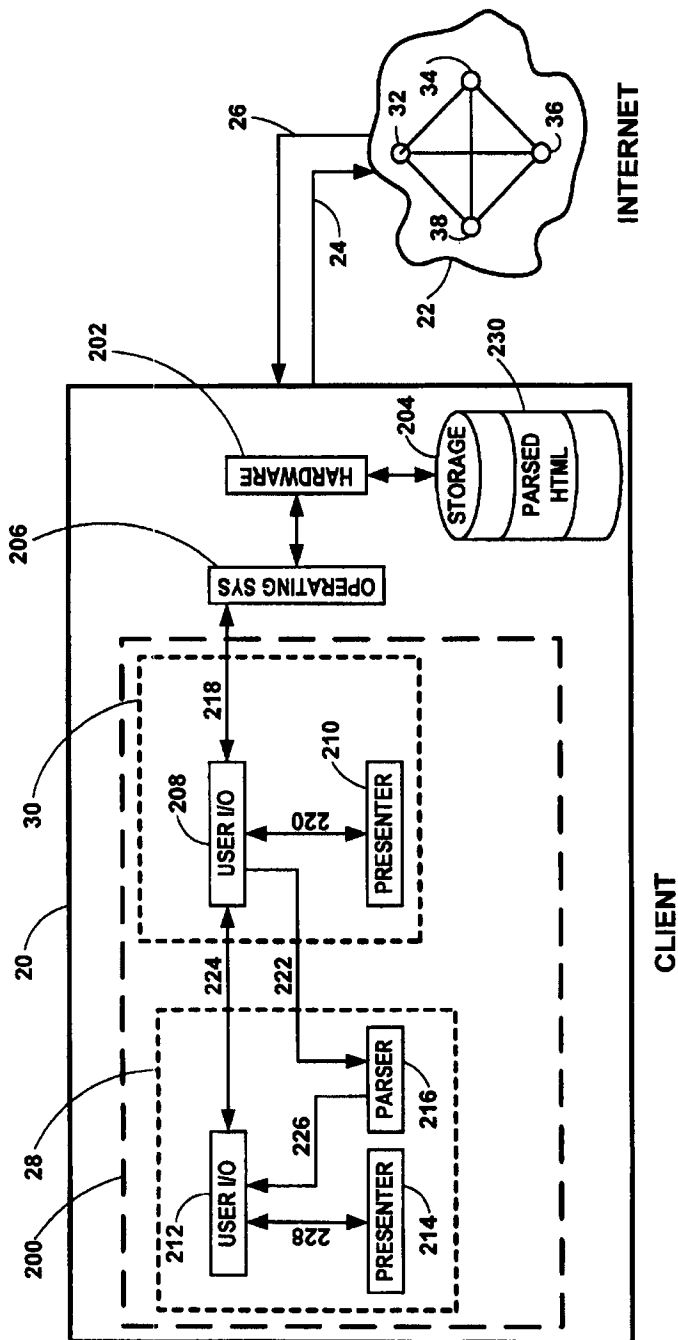


FIG. 2

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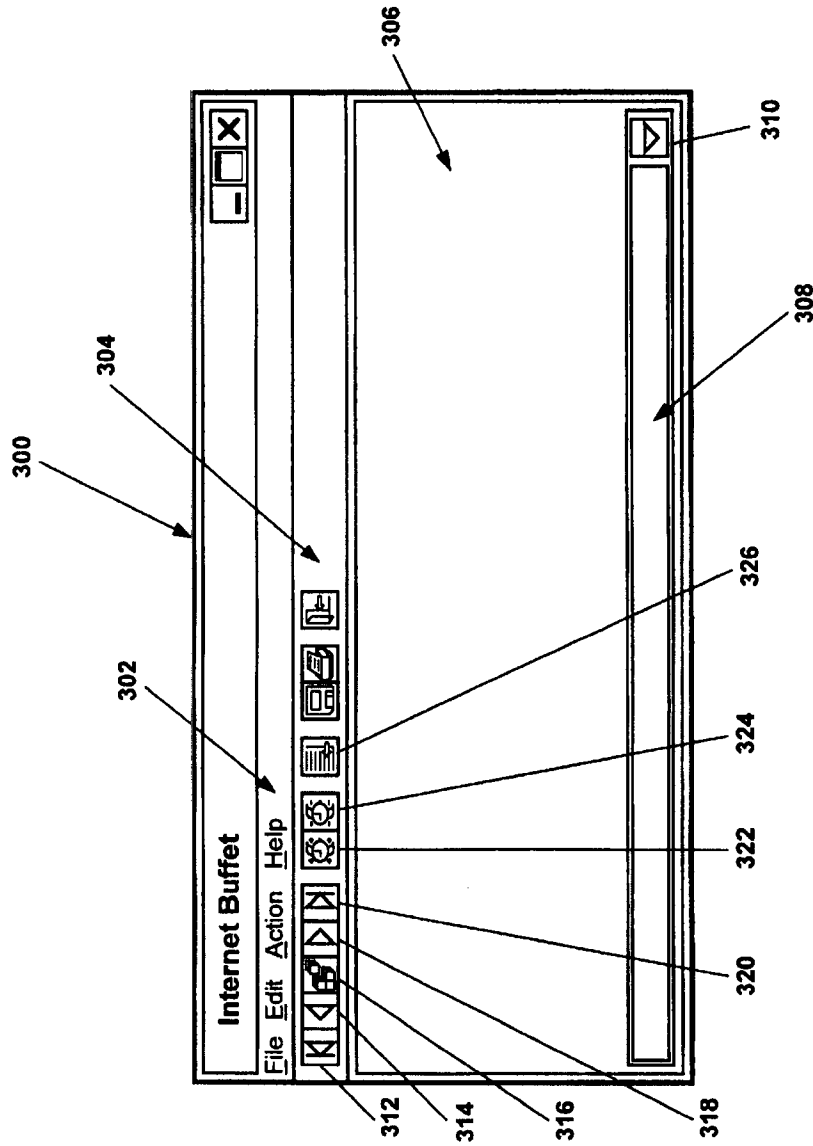
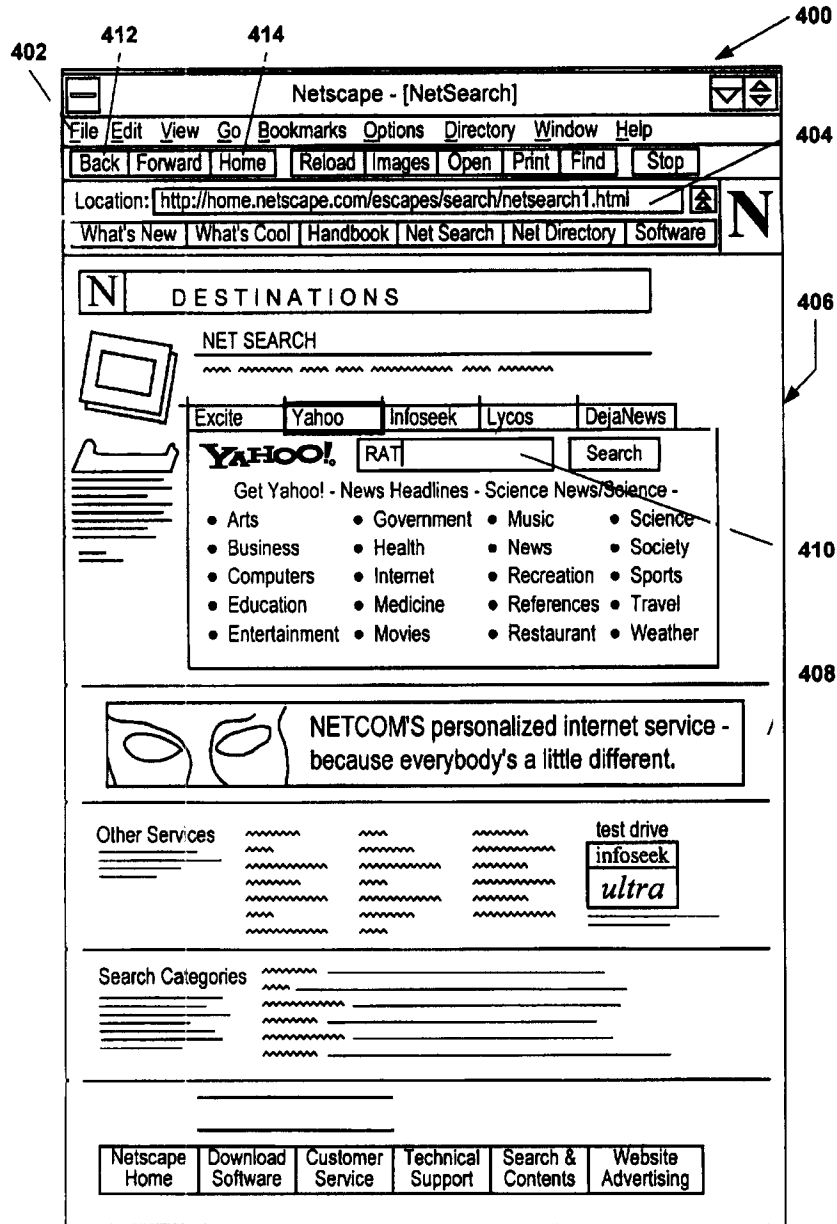


FIG. 3



(PRIOR ART)
FIG. 4

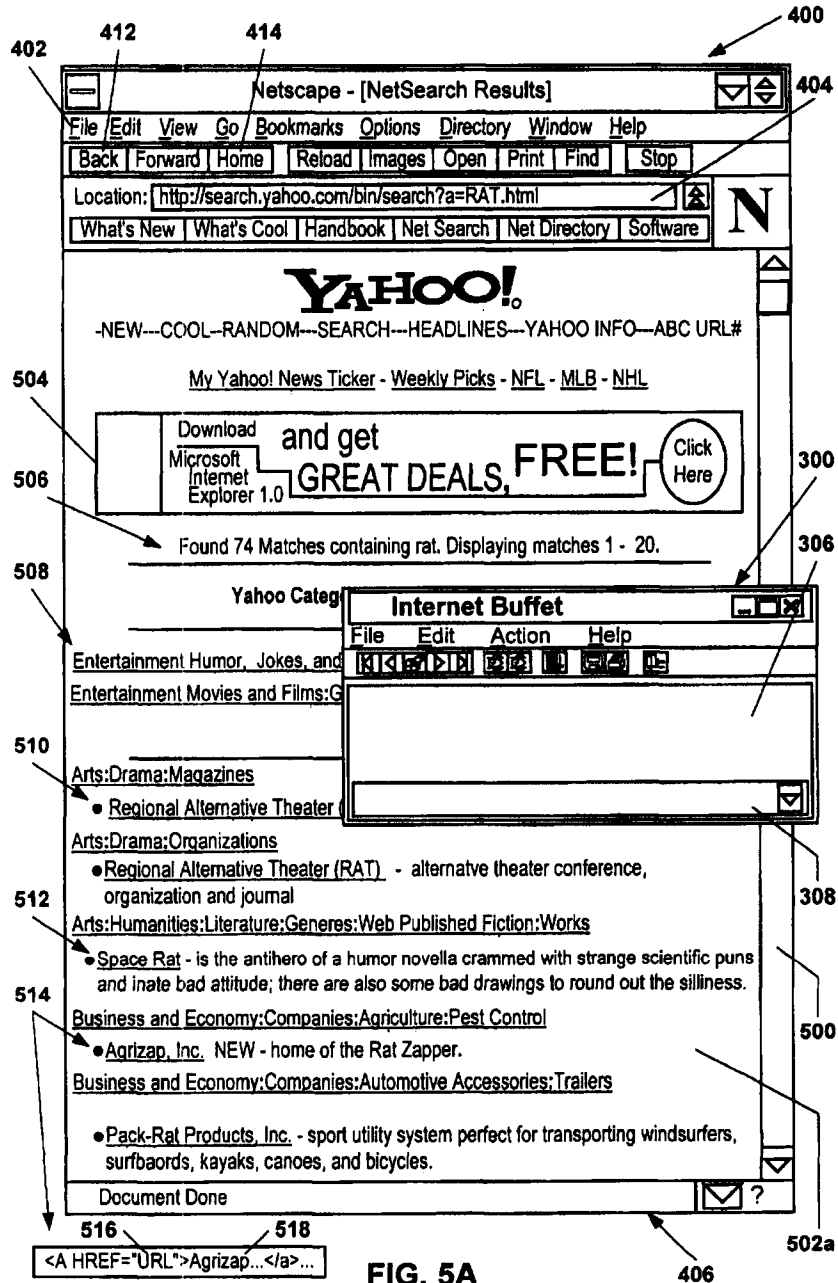


FIG. 5A

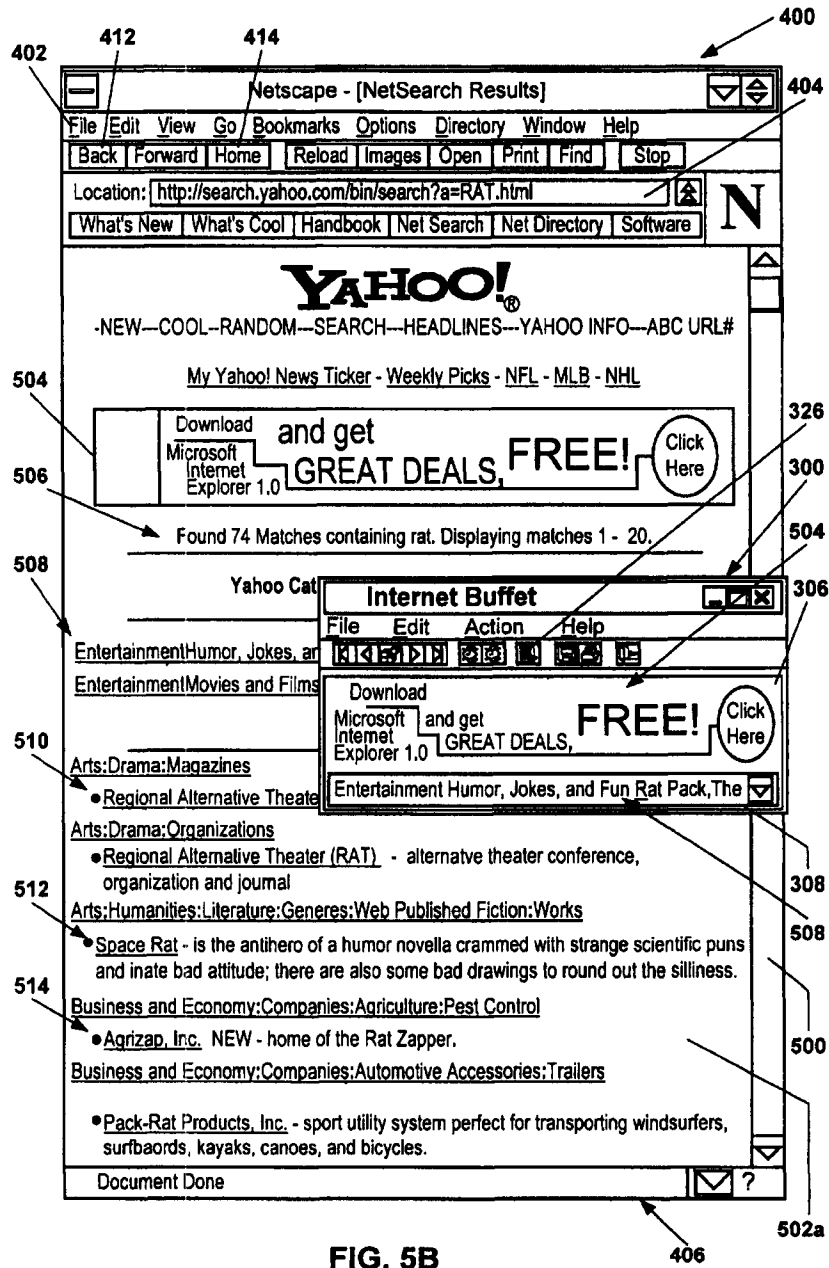


FIG. 5B

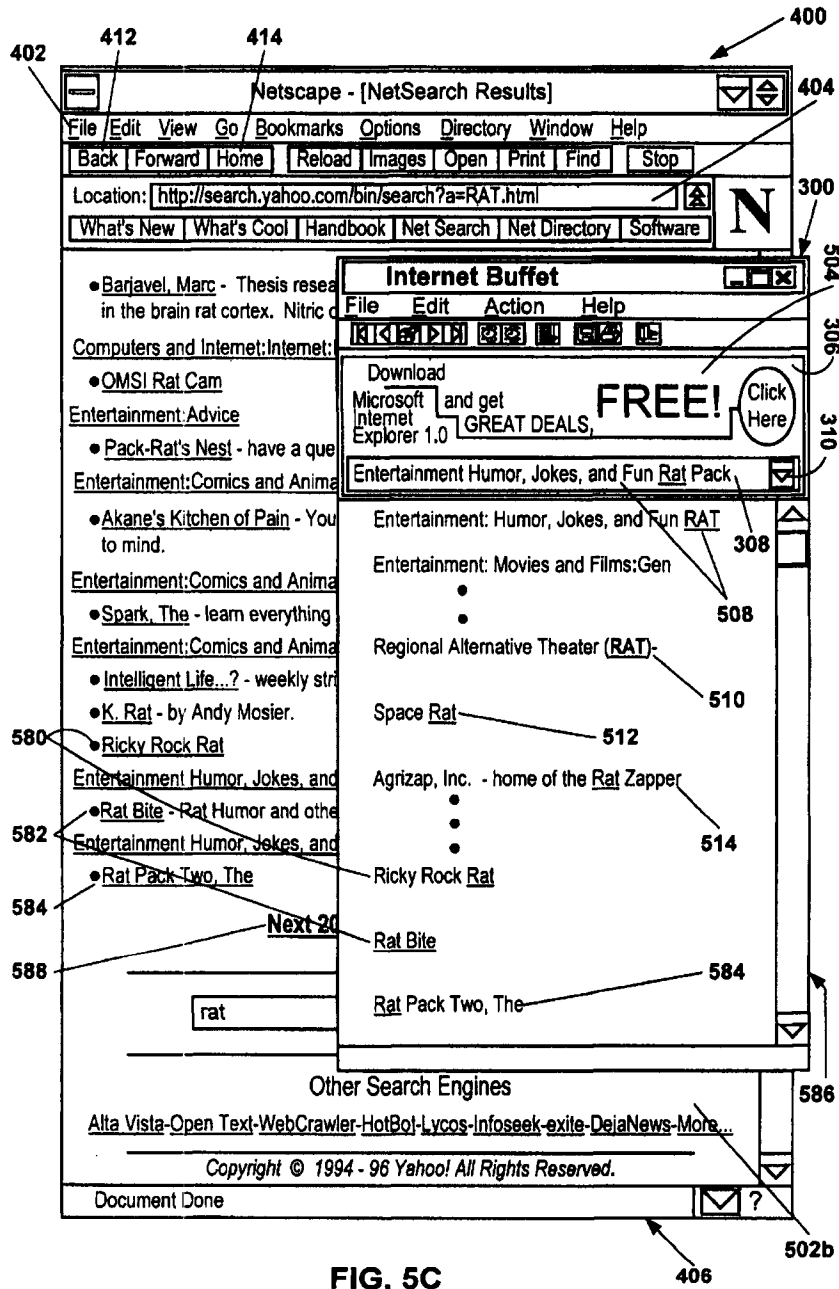


FIG. 5C

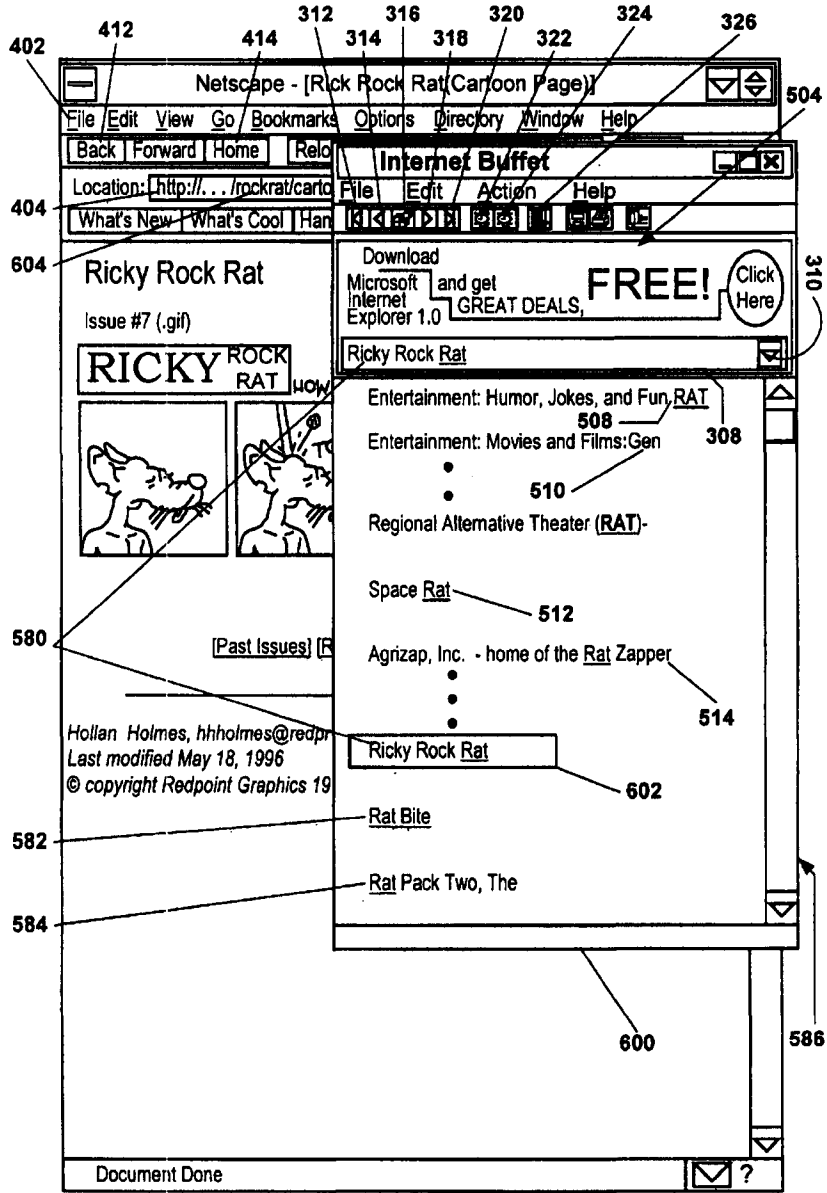


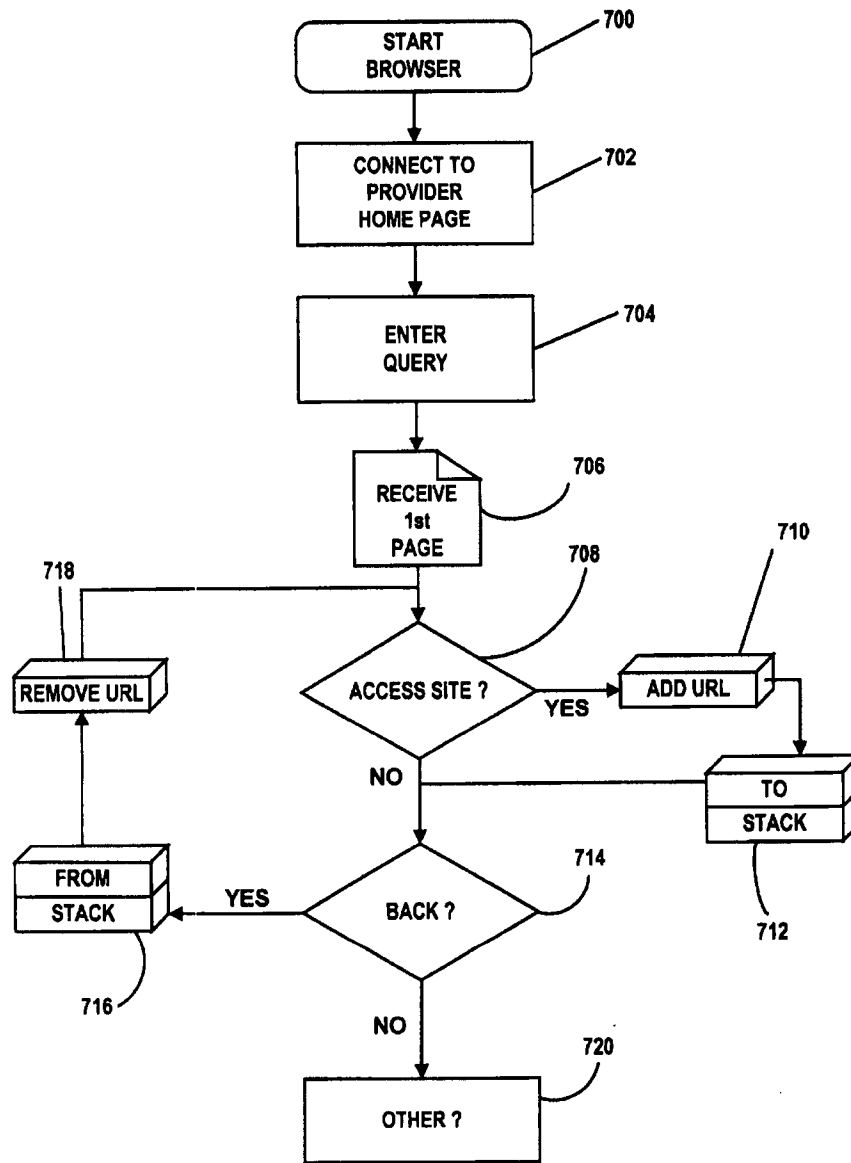
FIG. 6

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(Prior Art)
FIG. 7

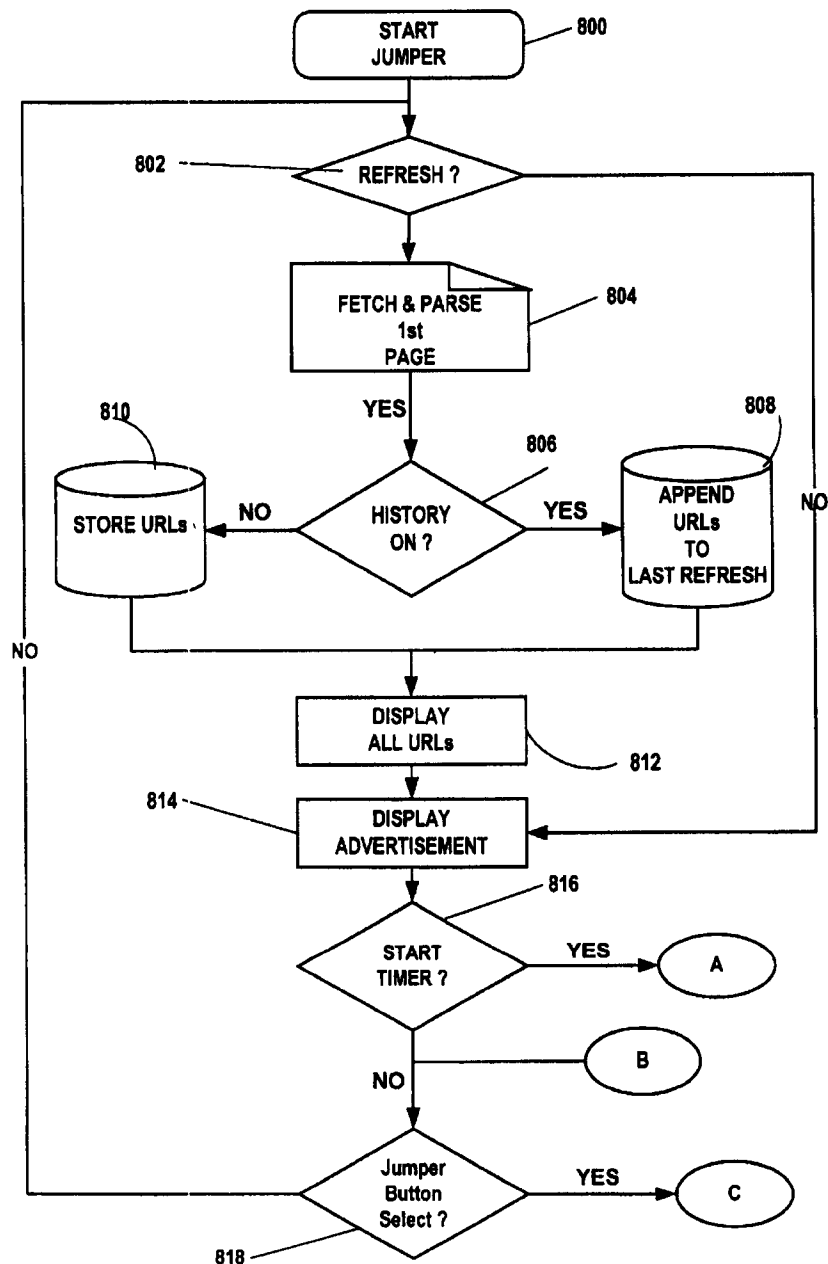


FIG. 8A

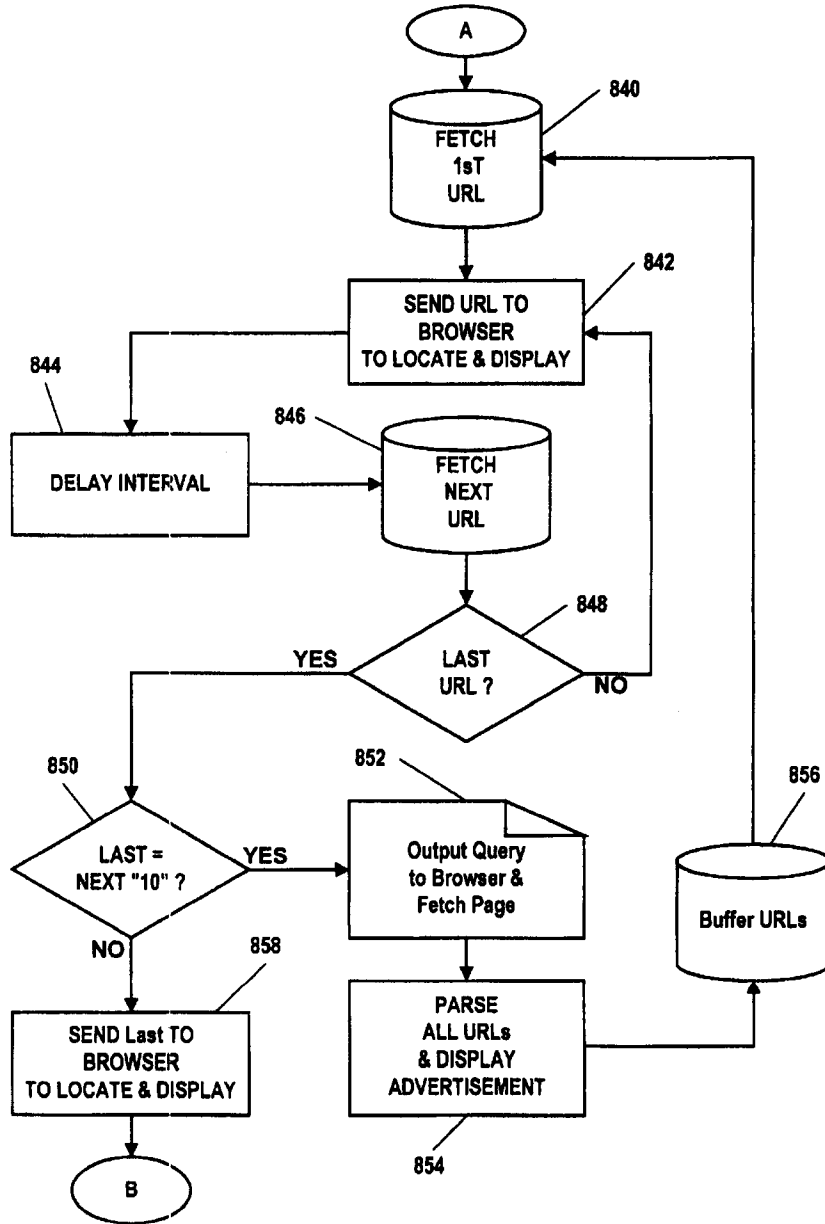


FIG. 8B

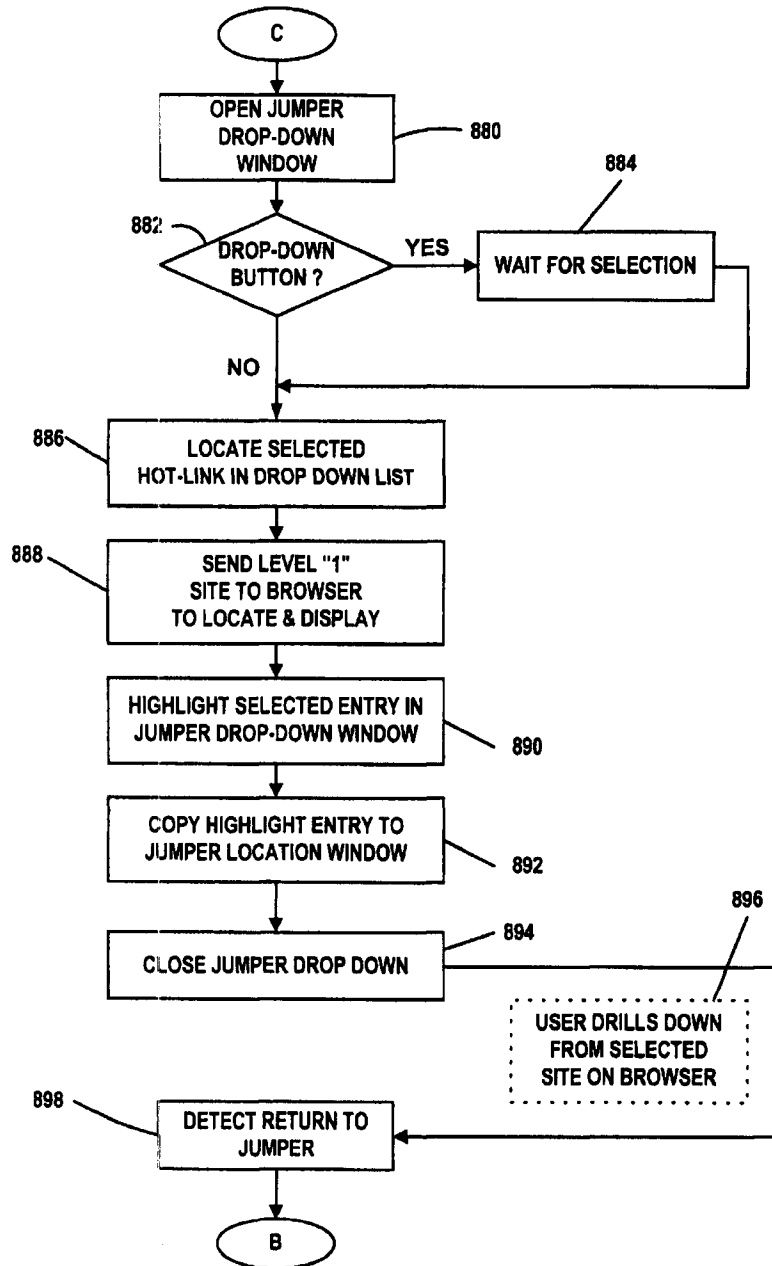


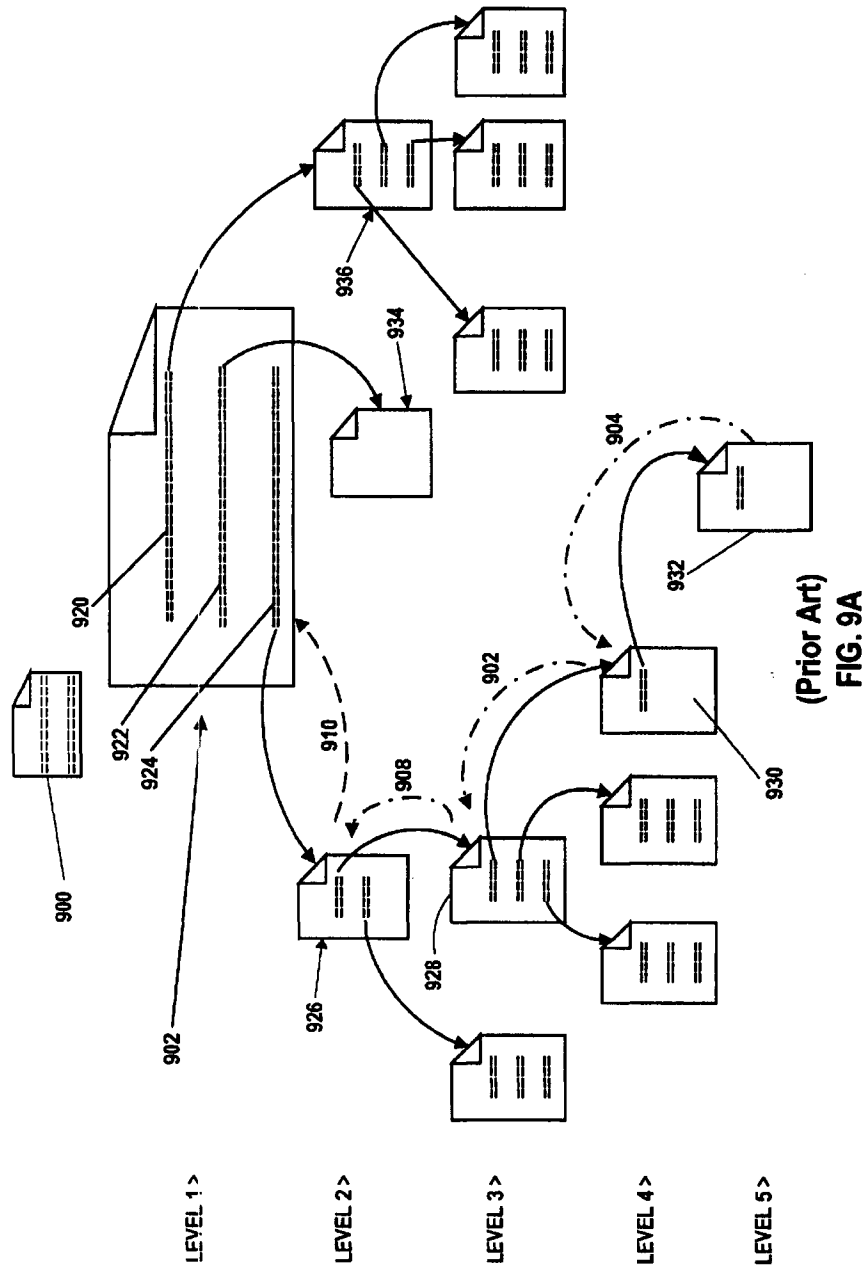
FIG. 8C

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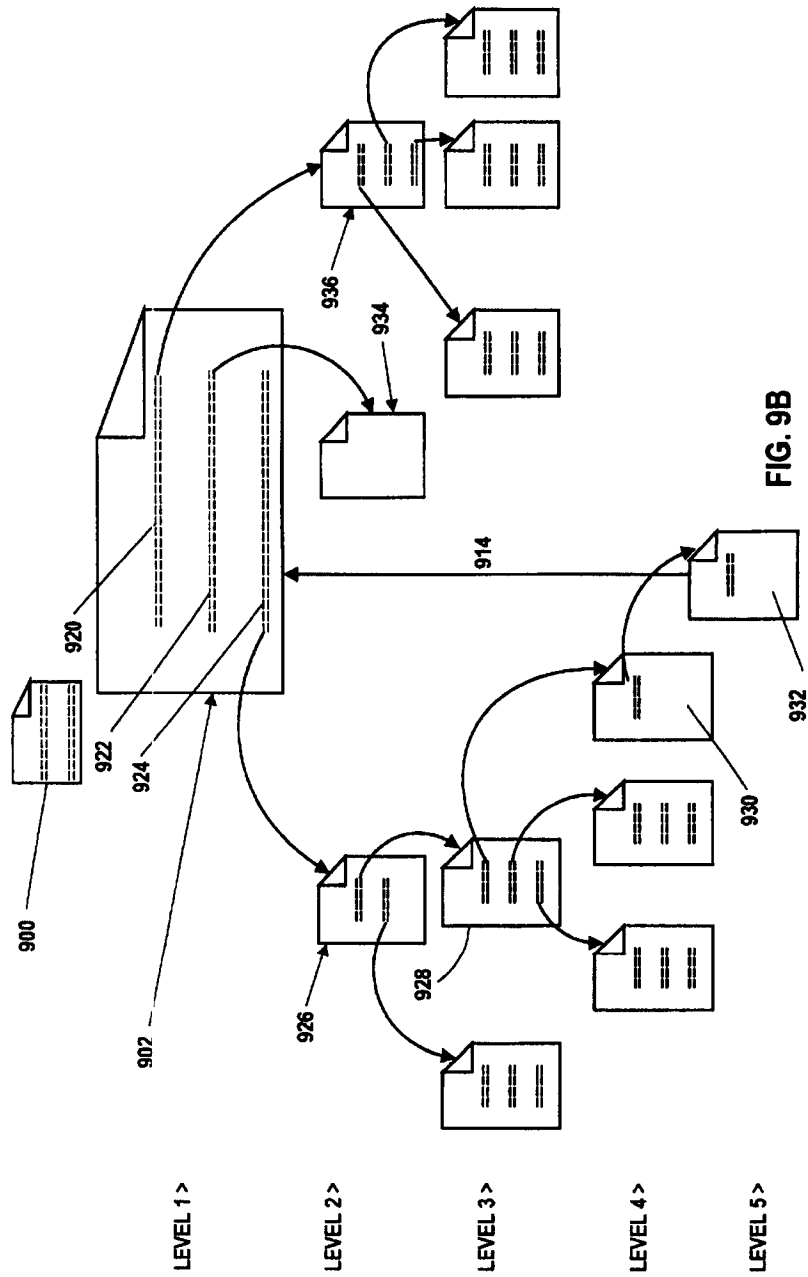


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METHOD AND APPARATUS FOR RETRIEVING DATA FROM A NETWORK USING LOCATION IDENTIFIERS

BACKGROUND OF THE INVENTION

FIELD OF THE INVENTION

The present invention relates to information retrieval. More specifically, the invention relates to tools for traversing hypertext data.

BACKGROUND INFORMATION

The development of computerized information resources such as the Internet and various on-line services, such as CompuServe™, America On-Line™, Prodigy™ and other services has led to a proliferation of electronically-available information. This electronic information is increasingly displacing more conventional means of information transmission, such as newspapers, magazines and even television.

The largest information resource in existence today is the Internet. The Internet is a group of client and server computers linked one to another and each having a unique identifier, DNS (distributed network server), assigned by the Internet authority in Cambridge, Mass. and Geneva, Switzerland. In order for information to be found on the Internet every file is given a specific address by which it may be located. To access the Internet a user employs what is called a browser. Currently the most popular browser is Netscape Navigator™ browser developed by Netscape Communications Corporation of Mountain View, Calif. A wide array of browsers is available for just about every platform. The browser's job is twofold. First, given a pointer to a piece of information on the net it has to be able to access the information or operate in some way based on the contents of that pointer. Second, if the document/file (hereinafter file) is encoded the browser has to translate that to a suitable format for display to the user. The display may include multimedia effects, e.g. sound and animation.

The most popular encoding of Internet files communicated between client and server is the HTML (hypertext markup language). The WWW (World Wide Web) or simply the "Web" includes all the servers adhering to this standard. Each page loaded from the Internet is a single file encoded in HTML. HTML describes the structure of a file. The structure of the file includes title, paragraphs, images and any pointers to other files.

The pointer to a specific site is called an URL (Uniform Resource Locator). The URL provides a universal, consistent method for finding and accessing information for a Web browser. The URL comprises a file type, a server I.D. (DNS), one or more directories and subdirectories, and a file name. URLs are also used as part of a hypertext link within a file to another file. These URLs then provide the browser with a way to navigate the Web. URLs contain information about a file: including file type (FTP, Gopher, HTTP), the Internet server on which the file is located (WWW.NCSA.UTUC.EDU, or FDP.APPLE.COM, or Net Com 16.Net.Com, and so on), the directory of the file, and the file name.

In order to speed the process of finding relevant information on the Internet several servers on the Internet provide an index to the Internet and a search engine. These information indexers such as Yahoo™, Excite™, Lycos™, Inktomi™, and Alta Vista™ perform two valuable functions. First, using their own Internet links, they continually search the

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Internet and index all files on the Internet into subject categories and store this index on their own database. The information indexers also allow a client to connect to their server and enter a search query. In response the information indexer provides a list of all files on the web that meet the search criteria. Therefore, the information indexer such as Yahoo™ not only updates and maintains a topical index for all files on the web, but also makes that index searchable by a client. It should be noted that the information that is retrieved from Yahoo™ contains only a general topic identifier and the file location on the Internet for that specific topic.

It would indeed be a cumbersome process for the client seeking specific information if the indexes that were retrieved from Yahoo™ only told the searcher where to look. If this were the case, the considerable task remaining to the client would be to manually enter the network address, URL, of each file and the go through the process of retrieving that file. To overcome this problem, the search result retrieved by Yahoo™ is encoded in HTML as a hot-link which makes every "footnote" an active rather than a passive reference. These hot-links appear to the user in the browser window as bold face text which is easily distinguished from the other text based information in the file. A hot-link comprises a text description and a corresponding URL. When the user selects a hot-link the browser detects that selection and outputs the URL on the Internet to retrieve the file corresponding to that URL and display it to the user. Therefore, by merely selecting with a mouse a specific footnote in a file encoded in a markup language, a client is immediately given access to the remote web server that contains the specific file referred to in the footnote.

With a markup language such as HTML (hypertext markup language) both amateurs and professionals become authors and the footnotes on the printed page become the hypertext of the electronic page. What was a passive reference now becomes an accessible link to a related file. A markup language describes the structure of a file including headings, paragraphs, images and what are called hot-links. A hot-link displays at the user level as text or graphic and is processed for communication purposes as an URL. It is these hot-links which provide the interactive footnotes described above.

Even with the indexing provided by Yahoo™, Lycos™, Excite™, Inktomi™, Alta Vista™, etc., the process of finding the exact topic is still extremely time consuming and can involve visiting literally hundreds of Web Sites. Typically, a user will retrieve a file from an information indexer and will not only look at the files retrieved by selecting the indexer's hot-links, but will also select other hot-links in the retrieved documents. This process of starting a search that begins with an initial hot-link and following a search trail that leads to successive files each increasingly displaced from the starting point is known as a drill-down. The problem with current browsers is that when a user has drilled-down through many levels of sites, the only way to return to the original HTML file is to hit the browser's back key which moves the user up one level at a time through the original search tree back to level "1." Only then can the user access other hot-links retrieved in the original search.

What is needed is a more efficient way to conduct a search.

SUMMARY

A first object of the invention is to provide operational controls for simplified Internet navigation from various sites and back again.

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A second object of the invention is to save users time and effort in finding information on the Internet.

A third object of the invention is to enable the publication of a new format for on-line magazines, called Netazines, which allow publishers to leverage the navigational controls provided in the invention product to foster a new paradigm for browsing magazine style information on the Internet.

A computer implemented method and system for retrieving information from a network. In a first embodiment a first file of information is received which may include a first mark-up language to identify contents of the information, which contents include site identifiers. The site identifiers corresponding for example to file locations on the Internet. The first file is displayed in a browser window. Responsive to receiving the first file of information by the browser, the first file of information is parsed by a jumper to generate a list of site identifiers. This list of site identifiers is then stored by the jumper and displayed in a jumper window. Responsive to an activation by the user, a computer is directed to determine which of the stored site identifiers is currently selected and automatically selects an other. The other includes the first, the prior, the next, or the last on the list.

In a second preferred embodiment a first file of information in a hypertext markup language is received and displayed in the browser window. The first file of information also contains site identifiers and other information. The first file is displayed in the browser and is parsed, and the site identifiers from that file are stored by the jumper in a list. The stored list of site identifiers is displayed in the jumper window. Responsive to a selection by a user of automatic mode, a computer is directed to perform the following steps. The jumper selects a first site identifier from the stored list of site identifiers. The jumper directs the browser to access the file at the site corresponding to the automatically selected site identifier. The browser, is directed by the jumper, to display the file in the browser window. Then the jumper initiates a delay of a predetermined interval. At the end of the interval the jumper selects the next site identifier from the stored list of site identifiers. The jumper directs the browser to access the file at the site corresponding to the automatically selected next site identifier. The browser, is then directed by the jumper, to display that file in the browser window. The jumper continues to repeat this animation loop from one site identifier in the stored list of site identifiers to the next, until either the entire list of site identifiers has been sent to the browser and displayed, or until the user terminates the process. In this manner, an animated tour of all files having site identifiers parsed from the first file is displayed in the browser window under the direction of the jumper.

In a third embodiment, a first file of information in a hypertext markup language is received and displayed in a browser window. The first file of information also contains a site identifier and other information. The first file of information is displayed by the browser in the browser window. Responsive to receiving the first file of information, the jumper parses the first file and extracts and stores a list comprised of first file site identifiers. The stored list of site identifiers is then displayed in the jumper window. The user is allowed to select from the browser window a specific site identifier, known as a search level "1" site identifier, and responsive thereto to cause the browser to access and display a second file retrieved from the site corresponding to the selected level "1" site identifier. This second file includes a hypertext markup language and site identifiers. The user is again allowed to select from the browser window a specific site identifier and responsive thereto causes the browser to

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access and display a third file retrieved from the site corresponding to the selected site identifier. This process can be repeated in the browser, until the user has completed their search, or drill-down.

Responsive to the completion of the drill-down in the browser, as indicated to the jumper by receipt of a single jump selection from the user, the computer is directed to perform the following steps. The jumper determines which of the stored level "1" site identifiers is currently selected and automatically selects the single jump level "1" site identifier. Next the jumper directs the browser to access the file at the site corresponding to the single jump selected level "1" site identifier. Finally, the browser is directed to display the file the browser has retrieved in the browser window. This allows the user to return to the files pointed to by the original level "1" site identifiers without having to traverse in reverse serial order the site identifiers selected in the drill-down.

BRIEF DESCRIPTIONS OF DRAWINGS

The present invention is illustrated by way of example and not limitation in the figures in which like references indicate like elements and in which:

FIG. 1 shows a client server system including embodiments of the jumper invention.

FIG. 2. shows a more detailed view of the client server system illustrated in FIG. 1.

FIG. 3. shows a preferred embodiment of the screen interface and tool bar of the jumper.

FIG. 4 shows a prior art browser user interface, and the query form of an information index provider.

FIGS. 5A-C shows a the initial stages of a search session utilizing a prior art browser and the jumper.

FIG. 6. shows a later stage in the search session of FIGS. 5A-C.

FIG. 7. shows the steps in the search process in prior art browsers.

FIGS. 8A-C shows the processes of a search session on the jumper.

FIGS. 9A-B show the search traversal patterns of a prior art browser and the jumper.

DETAILED DESCRIPTION

One embodiment of the invention is a method and apparatus for retrieving information through a browser connected to a network, and providing the information to a user. Although the following will be described with reference to certain particular embodiments, including data structures, flow of steps, hardware configurations, menu configurations, etc . . . , implementation of the invention can be practiced without these specific details.

One embodiment of the invention allows a search to be conducted in non-linear order. This may be done in either single jump or automatic jump mode utilizing a jumper. A search tree does not therefore need to be traversed in reverse serial order after a drill-down as is required utilizing prior art browsers. The invention allows a searcher to jump across multiple levels at a time.

Search Levels:

The operation of prior art browsers is best described by reference to FIG. 9A. FIG. 9A shows a series of hypertext files. The files may be resident on a hard drive, a local network, a wide area network or the Internet. Three hot-links are shown 920, 922, 924 on file 902. Hot-link 924 is shown

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as linked to four levels of files. Selecting hot-link 924 causes the browser to access file 926, which is a level 2 file. Selecting the first hot-link on file 926 causes the browser to access file 928, which is a level 3 file. Selecting the first hot-link on file 928 causes the browser to access file 930, which is a level 4 file. Finally, selecting the first hot-link on file 930 causes the browser to access file 932, which is a level 5 file. Selecting hot-link 922 causes the browser to access file 934, which is a level 2 file. Selecting hot-link 920 causes the browser to access file 936, which is a level 2 file.

The traversal steps from hot-link 924 through 926, 928, 930 and 932 constitute a drill-down from level 1 to level 5. Prior art browsers require that the user, in order to return to the original file 902, must traverse the search tree in reverse serial order. As shown serial return 904 traverses from 932 to 930, serial return 906 traverses from 930 to 928, serial return 908 traverses from 928 to 926, and finally serial return 910 traverses from 926 to 902, the initial starting point. This requires the needless steps of visiting each of the branches traversed in the drill-down. This process is unnecessarily time consuming when compared with the capabilities of the current jumper invention.

FIG. 9B shows the same tree structures as does FIG. 9A. FIG. 9B shows the use of one embodiment of the invention to traverse many levels at a time in either single jump or automatic jump mode. In the single jump mode when the searcher has reached level 5 file 932. If the user wants to return to level 1 they do not need to do so in reverse serial order, as is required by prior art browsers. Instead, the user directs the jumper to access the next level 1 hot-link. In response, the jumper returns the user in a single jump 914 from level 5 file 932 to the level 2 files pointed to by the hot-links in the level 1 file 902. Much time is saved and the user can proceed to search other level 1 hot-links. In automatic jump mode, the user instructs the jumper to access all hot-links on the level 1 file 902. In response, the jumper directs the browser to access and display in the browser window each of level 2 files 926, 934 and 936. These files are accessed by the browser in response to the jumper sending at timed intervals each of hot-links 924, 922, and 920 from a parsed hot-link list to the browser. The browser accesses each of the files 926, 934, and 936 to which hot-links 924, 922, and 920 respectively point. This allows the user to see an animation in the browser window for a timed interval.

Hardware:

In order to better understand the operation of a jumper, it is necessary to first understand an environment in which the jumper is practiced. FIGS. 1-2, show the hardware environment in which the jumper operates. As shown in FIG. 1, an Internet 22 is connected to client 20 by an incoming Internet line 24 and an outgoing Internet line 26. Jumper 28 and browser 30 are part of client 20. Internet 22 comprises servers 32, 34, 36, and 38. Each server contains HTML files. The client and all servers are linked electronically. Server 34 is shown as the server of an information indexer. The server comprises a CGI 42 (common gateway interface), forms 44 on which a user query is entered, and storage containing an updated topical index 46 of all files on the web. To access a specific site on the network, browser 30 outputs an URL across outgoing Internet line 26. Routers on the Internet establish an electronic link between the client 20 and the appropriate server 32-38. Communications with the Internet are received on incoming Internet line 24.

The client hardware architecture for both the browser and the jumper is shown in greater detail in FIG. 2. The client 20 contains storage 204, computational hardware 202, operat-

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ing system 206, and GUI (Graphical User Interface) 200. The storage 204 contains a storage segment 230 in which the jumper stores parsed HTML files. Hardware 202 comprises a microprocessor, an I/O interface, a display and a bus connection to storage 204. The operating system 206 may comprise a bios and an operating environment such as System 7™, Unix™ or Windows™. The GUI 200 comprises jumper 28 and browser 30. Browser 30 comprises user I/O 208 and presenter 210. The jumper 28 comprises user I/O 212, presenter 214, and parser 216.

The operation of hardware 202 is controlled by the operating system 206. The operating system and graphical user interface (GUI) 200, create the local environment in which the jumper 28 and browser 30 exist. The browser user I/O 208 handles the tasks of sending and retrieving communications 218 via the operating system 206 and hardware 202 to the Internet 22. The browser handles Internet communications for the jumper. The browser user I/O communicates with the jumper user I/O 212 via jumper-parser I/O protocol 224. The browser user I/O also handles the task of translating files received from the Internet, e.g., HTML encoded files, to the presenter 210 via presenter protocol 220. Additionally, browser user I/O uploads at the direction of jumper user I/O 212, HTML encoded files to parser 216 via browser I/O-jumper parser protocol 222.

Jumper parser 216 handles the task of converting an HTML encoded file uploaded from browser user I/O 208 into a format suitable for a single jump or automatic jump mode search, as discussed above in connection with FIG. 9B. The parser extracts from the HTML file: an advertisement, a plurality of URLs and topic descriptors corresponding to each URL. The parser passes these via jumper-parser I/O protocol 226 to jumper user I/O 212. Jumper user I/O 212 communicates with jumper presenter 214 via jumper I/O-presenter protocol 228 to display to the user available jump sites and to provide a user interface by which the user may input commands. Jumper user I/O also communicates with browser I/O 208 via browser I/O-jumper I/O protocol 224.

User interface:

An embodiment of the jumper user interface is shown in FIG. 3. This interface allows the user to see all the hot-links on a given level and to select a hot link in either single jump or automatic jump mode as described above in connection with FIG. 9B. The jumper thus enhances the search capabilities of the browser.

Jumper window 300 comprises a menu bar 302, a button bar 304, an advertisement area 306, a jump site window 308, and a drop-down list button 310. The jumper menu bar contains file, edit, action, and help items. Jumper button bar contains a first entry button 312, a previous entry button 314, a random jump button 316, a next entry button 318, a last entry button 320, a start timer button 322, a stop timer button 324 and a refresh/update button 326.

The jump site window 308 has an associated drop down list accessible by selecting drop-down button 310. This list comprises parsed hot-links. These hot-links are extracted from a file initially retrieved by the browser. Any one of the hot-links in the parsed list can be selected by the user with a mouse. This drop-down list provides one method for selecting a specific Internet site to jump to. Advertisement area 306 contains an advertisement parsed from an HTML page received by the browser. Button bar 304 provides controls for single jump and automatic jump mode. All buttons relate to the hot-links in the jumpers parsed list regardless of how far the user has drilled-down in the browser. All buttons return the user to at least one of the

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hot-links on the list and direct the browser 30 shown in FIGS. 1-2 to retrieve a file from the site corresponding to the URL associated with the hot-link and further direct the browser to display that file to the user.

First entry button 312 allows the user to return from a drill-down to the first entry on parsed list. Previous entry button 314 returns the user to the prior hot-link on the list. Random jump button 316 returns the user to a randomly selected hot-link on the parsed list. Next entry button 318 selects the next hot-link on the list, and last entry button 320 accesses the last entry on the list. Start timer button 322 initiates the automatic and successive selection of every hot-link on the parsed list and the browser responsive thereto, displays for the user a file retrieved from the URL corresponding to each hot-link. The animation initiated by start timer button is terminated by stop timer button 324. Refresh/update button 326 causes all hot-links in a file which the browser has retrieved to be parsed and uploaded and displayed in the drop-down list of jumper window 300. Additionally, this parsed list is stored in HTML storage segment 230 as shown in FIG. 2.

In alternate embodiments the jumper window may take any of several forms. The user interface may include popup or persistent window, a toolbar, a menu modification of the browser window, a toolbar modification of the browser window, or the use of accelerator keys on the keyboard.

FIG. 4 shows a prior art browser user interface and a query form of an information index provider. This interface allows the user to access web files and also displays the file contents to the user. The browser interface 400 is that of Netscape Navigator™. The browser interface includes a browser menu bar 402, a site window 404, and a window 406 for viewing a file. The browser menu bar includes a back button 412 and a home button 414. The file shown in the view window is the query form 408 of Yahoo™. The query form has a query field 410.

The browser menu bar 402 generally provides for editing and saving files. Back button 412 allows the user to move back a search tree in reverse serial order as shown in FIG. 9A. Home button 414 allows the user to return to their home page 900 in the browser window. The browser site window 404 displays the URL corresponding to the file currently being displayed, in this case the query form 408 of Yahoo™. The query form is encoded in a markup language and contains a query field 410 in which the user may enter the search topic for which a topical of the web is desired. In this case, the search topic is "Rat." When the search topic is entered, it is sent by the browser over the web to Server 34 owned by Yahoo™ 40 and shown in FIG. 1.

Conducting a search:
FIGS. 5A-C show the initial stages of a search session conducted with the jumper and browser. A browser interface 400, a file retrieved by the browser, and a jumper window 300 are shown. These are the basic tools for the demonstrative search. The initial file retrieved from Yahoo™ in response to the query "Rat" is shown as an upper page portion 502a and a lower page portion 502b in FIGS. 5A-B and 5C, respectively. These are accessed by scrollable window bar 500. The retrieved file contains an advertisement 504, a search result summary 506, a plurality of hot-links of which 508-514 and 580-584 are referenced. A representative hot-link 514, is shown to contain both an URL 516 and a text portion 518. In FIG. 5C a jumper drop down list 586 is shown. In addition, the retrieved file also contains a next feature 588.

In response to the entry of the query "Rat" as shown on FIG. 4, the query is sent by browser to Yahoo™. The topical

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index 46 at Yahoo™, shown in FIG. 1, is searched and the file 502a-b containing all related level 1 hot-links and other information is returned to the client 20 and displayed to the user by the browser as 502a-b. Page 502a is captioned with an advertisement 504. Immediately below the advertisement is a search result summary 506, which indicates 74 matches pertaining to the word "Rat" and display of the first 20 hot links for those matches. Various hot-links with subject descriptions appear on the page in bold text with underlining. These are, for example, 508, "Entertainment, Humor . . .", 510, "Regional Alternative Theater . . .", 512, "Space RAT . . .", 514, "Agrizap, Inc . . .".

Each hot-link as discussed above is an active reference. For example the hot-link 514 comprises a hypertext identifier "<A", an URL 516, a text portion 518 and a closing identifier. The browser displays to the user only text portion 518 and any images that may accompany it. These are highlighted and underlined on the user display to indicate to the user that when they are selected with a mouse a corresponding URL will be sent by the browser to the Internet to access the specific file referred to by the URL.

As shown in FIG. 5B, jumper window 300 has been refreshed via refresh/update button 326, discussed above in connection with FIG. 3. Responsive to selection of refresh/update button 326, the file 502a-b is passed from the browser 30 to the jumper parser 216 as shown in FIG. 2. All hot-links including the referenced hot-links 508-514 and 580-584 are extracted and passed to jumper user I/O 212. These are passed to jumper presenter 214 and displayed in the jumper window 300. Specifically the advertisement 504 is displayed in jumper advertisement area 306, and all hot-links 508-514 and 580-584 are put in the jumper drop down list. The first of these hot-links 508 is displayed in the jumper site window 308.

In FIG. 5C, the lower portion 502b of the retrieved HTML page is shown. It contains hot-links 580, 582, 584. In jumper window 300 and specifically jumper site window 308 thereof, the jumper drop-down window, 586, is shown. This window has been accessed by the user's selection of jumper drop-down list button 310. The drop-down list contains all hot-links that were obtained from the original file 502a-b including the referenced hot-links 508-514 and 580-584.

Now, by reference to FIG. 6, a later stage of the search session is shown. FIG. 6 shows a file 600 in browser view window 406, an URL corresponding to file 600 in browser site window 404, and a highlight 602 around hot-link 580 in both the jumper drop-down list window 586 and the jumper site window 308. The file 600 was obtained in a drill-down conducted in the browser window 406. The steps in that drill-down intervening between FIG. 5C and FIG. 6 have not been shown. The drill-down however resembles that shown and discussed above in connection with FIG. 9A. The file 600, shown in browser window 406 is four levels removed from the initial level 1 hot-link 580. The drill-down was conducted on the browser view screen by selecting the hot-links presented in the files retrieved by the browser. If the user desires to return to the other hot-link from the level 1 file, shown as 502a-b in FIGS. 5A-C, from this file 600, they could use the browser menu bar to do so but it would be slow. They would have to select back button 412 four times to return them one level at a time in reverse serial order through their entire search back to the level 1 file. The process is time consuming. Alternately, if they selected the browser home key 414 they would return to their home page and lose the level 1 search results. Neither of these alternatives is acceptable. Both of these alternatives are cumbersome.

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If the jumper product is utilized instead, the user has several options. As a first option, the user may select one of jumper buttons 312, 314, 316, 318 or 320 to return to respectively: a first, a previous, a random, a next, or a last of the hot-links shown in FIG. 6 in jumper drop-down list window 586. In response to user selection, the file corresponding to the selected hot-link will be retrieved and displayed in the browser window 406. As a second option, the user may select start timer button 322 to initiate the automatic and successive selection at a timed interval of every hot-link on the parsed list. In response to the automatic jump mode selection, each file corresponding to the selected hot-link will be retrieved and displayed by the browser for the timed interval. As a third option, the user may select drop-down window button 310 and select a given entry from the drop down list by clicking on it with a mouse. In response to their selection the file corresponding to the selected hot-link will be retrieved and displayed in the browser window 406. Alternately, another instance of browser can be opened to display the selected file. All of these choices enhance the search, and none require multiple reverse serial order steps to return to the level 1 hot-links. Process Flow:

FIG. 7 shows the process connected with conducting a search utilizing a prior art browser. Commencing with start process 700, a connection process 702 results in Yahoo's™ home page 408 and query form being displayed in browser window 406, as shown in FIG. 4. Then in query process 704, the user enters a search topic, e.g., "Rat", in information indexer query field 410. In response to the entry of that search topic, the browser sends the query to server 34 of the search index provider, e.g., Yahoo™, the relevant topical identifiers and URLs are uploaded on an HTML encoded file/page and presented to the user in page receipt process 706. Subsequently, when a user utilizing a mouse selects one of the hot-links shown on that page, e.g., 302a-b, then that selection is detected in site access decision 708. The URL corresponding to the last selected hot-link is output over the Internet to access the file indicated by that URL and that file is uploaded and displayed in access process 710 to the user. Subsequently, in history creation process 712, that URL is added to a stack comprising in LIFO order the most recently accessed files, including the complete URL for those files. Control is then returned to back-one decision 714 which decision is also reached if a negative determination is made in site access decision 708. In back-one decision 714, a determination is made as to whether the user has selected back button 412 on the browser menu 402. If that selection has been made, then control is passed to repeat history process 716 in which the previous site visited is popped from the history stack and in access process 718 the browser accesses the site and file indicated by the prior URL and presents that in its view window to the user. Control is subsequently returned to site access decision 708.

Alternately, if in back-one decision 714 a negative determination is reached the browser awaits the next user command 720.

In FIGS. 8A-C the process connected with one embodiment of the current invention is shown. It contrasts with the prior art process, in that the user may return to the level of files pointed to by any level one hot-link immediately. The cumbersome process and many steps of reverse serial order traversal discussed above in FIG. 7, are not therefore necessary. FIG. 8A is an overall view of the process connected with either the single jump or automatic jump mode. FIG. 8B details the specific steps connected with the automatic jump mode. FIG. 8C details the specific steps connected with the single jump mode.

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Commencing with FIG. 8A and start jumper process 800 control is passed to refresh decision 802. In the event, a determination is made that refresh/update button 326 shown in FIG. 3 has been selected, then control is passed to fetch and parse process 804 in which an HTML encoded page displayed in the browser view window is uploaded and parsed into an advertisement and hot-links. These are displayed in the jumper advertisement area 306 and the jumper drop-down window 586, respectively. Then in history decision 806, the determination is made as to whether the jumper history maintain option has been selected. This option is found under the edit portion of the menu bar 302. In the event that this option has been selected, then control is passed to append and store process 808 in which the hot-links extracted in fetch and parse process 804 are appended and stored with previous hot-links in the parsed HTML files in storage segment 230 shown in FIG. 2. Control is then passed to display URL process 812. Alternately, if a negative determination is made in history decision 806, then control is passed to store process 810 in which the hot-links from the fetch and parse process 804 replace any existing stored hot-links. Subsequent control also is passed to display URL process 812. In display URL process 812, the hot-links are displayed in the jumper drop-down window 586 as shown in FIG. 6. Control subsequently passes to display advertisement process 814 in which an image corresponding to an advertisement parsed from the browser page is placed in the jumper advertisement area 306.

As discussed above in connection with refresh decision 802, if a negative determination is made that the refresh button has not been pressed, then control passes also to display advertisement process 814 in which the advertisement from the page currently displayed on browser window 406 is uploaded and displayed in the jumper advertisement area 306. Control subsequently passes to start timer decision 816. If the user has selected start timer button 322 from the jumper menu bar, then automatic jump mode commences in a manner set forth in FIG. 8B. Alternately, if a negative determination is reached, then control is passed to jumper button select decision 818. A determination is made as to whether the user has selected any one of buttons 310-320 in the jumper window 300. In this event, control is passed to processes set forth on FIG. 8C and corresponding to single jump mode. The return from either the automatic jump or single jump process is via splice block B to jumper button select decision 818. Finally, when a negative determination is reached in jumper button select decision, control returns to refresh decision 802. This completes the overall processing connected with the jumpers tree traversal.

In FIG. 8B, the automatic jump mode of the search process is shown in greater detail. This process allows a user to view an animated tour of the level 2 files pointed to by the level 1 hot links in the browser window. Commencing with splice block A, control passes to memory fetch process 840 in which the first URL, of the hot-links in storage segment 230 shown in FIG. 2, is fetched by the jumper. In the next process, jumper-browser process 842 the first URL is sent to the browser, user I/O 208 caused the browser to access the specific site and file on the site, to upload the file and to display the file in the browser window 406. In one embodiment, if the browser is still loading a previous file when the jumper-browser process 842 is reached, then sending the browser the URL interrupts the loading of the previous file. In another embodiment, the jumper-browser process 842 does not interrupt the loading of the previous file. In a third embodiment, whether the jumper-browser

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process 842 interrupts the loading of the previous file is a user configurable option.

Control is then passed to delay process 844 in which a user selectable display interval causes the page image to be displayed on browser window 406 for the selected time interval. At the end of that time interval, control is passed to memory fetch process 846 in which the next URL in the parsed HTML file is uploaded and in last of list decision 848 a determination is made as to whether that URL is the last among the stored URLs. In the event that determination is in the negative, control returns to jumper-browser process 842 for the timed display of the next accessed URL. This loop from jumper-browser process 842 through last of list decision 848 constitutes a user configurable animation, in which a set of URLs which have been parsed and stored are now used to drive an automatic retrieval and display process.

Alternately, in last URL decision 848, if a determination is made in the affirmative, control is passed to "next" link decision, 850. In next link decision 850 a determination is made as to whether the last URL also includes a query for the next 10 entries corresponding to the example shown in FIG. 5C and indicated by 588. In the event that determination is in the affirmative, control is passed to jumper-browser-jumper process 852. In process 852 the query for the next 10 hot-links is sent to Yahoo™. In response the next HTML encoded page containing the 10 hot-links is retrieved. Control is passed to parse process 854 in which all the URLs and corresponding text identifiers are parsed along with the image corresponding to the advertisement. Then in buffer process 856, the parser output is stored for this session. Control then passes to memory fetch process 840 for automatic retrieval and display. Alternately, if in "next" link decision 850, a negative determination is made, then in jumper-browser process 858, the last URL is sent to the browser to both access and display the file corresponding to the last URL. Subsequently, control is passed to splice block B for a return to hot-link select decision 818.

The process corresponding to the single jump mode is shown in FIG. 8C. This process allows the user to select a specific level 1 hot-link and have the browser retrieve and display the level 2 file corresponding to the selected level 1 hot-link. In window process 880, the jumper drop-down window 586 is automatically opened, as is shown in FIG. 5C. Then in drop-down button process 882 a determination is made as to whether the button selected by the user and detected in jumper button select decision 818, was the drop-down list button 310. If the user did select button 310 then the user has not yet selected a specific hot-link from the parsed hot-links in the jumper drop-down window 586. Control is then passed to wait process 884. When the user selects a specific entry from the drop-down list control passes to locate select process 886. Alternately, if a negative determination is reached in jumper button select decision 818 then control is passed directly to locate select process 886. A negative determination in jumper select decision 818 means that one of jumper buttons 312, 314, 316, 318 or 320, was selected thereby indicating a specific user choice for the single jump location. These buttons were discussed above in connection with FIG. 3.

In locate select process 886 a determination is made as to which of the hot-links in the jumper drop-down window was selected. If, for example, first entry button 312 were selected then the first of the hot-links in the list is selected. Alternately, if the user selected drop-down window button 310 and then mouse selected an entry e.g. the fourth entry on the drop-down list, then that entry would be highlighted. In the example shown in FIG. 6 the user has selected hot-link

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580 and that selection, the "Ricky Rock Rat" hot-link is detected by the jumper.

Subsequent to selection detection, control is passed to jumper-browser process 888. The URL corresponding to the selected hot-link is passed by the jumper to the browser causing the browser to locate and subsequently display a file corresponding to that URL. The jumper continues to display all level "1" sites as hot-links. In the next step highlight process 890 the selected hot-link is highlighted, as shown for example in FIG. 6 as highlight 602 around selected hot-link 580, "Ricky Rock Rat". After the highlight process, the selected hot-link on the drop-down list is copied to the jumper site window 308 in copy process 892. Subsequently, in process 894 the jumper drop-down window is closed.

When the browser displays the above mentioned file, the user may conduct a drill-down on the hot-links in that file in the browser window. In that case, the browser window is active and the jumper window is inactive. When the drill-down is complete and the user reactivates the jumper window by mouse clicking on it, that reactivation is detected in process 898 and control is passed to jumper select decision 818 via the splice block B, shown in FIG. 8A.

The following describes additional embodiments of the invention. Except where stated in alternative form, each of these embodiments include features that can be combined with the features discussed above.

Some alternative embodiments provide better integration of the jumper's functions and the browsers functions. In one embodiment of the invention, when a user initiates a search in the browser, the jumper automatically starts and begins parsing the results of the search. This saves the user from having to start the jumper separately from the browser. In another embodiment, the jumper functions are built directly into the browser. In a different embodiment, the jumper is implemented as an application, such as an applet, which is sent to the browser by the search engine. All of these embodiments provide a more integrated jumper/browser environment for the user.

Some alternative embodiments provide the user with more powerful tools for traversing the search results. In one embodiment, the categories in the search results are specially tagged (e.g., with a previously unused HTML tag) to indicate category fields as opposed to simple URLs. Alternately, the categories can be parsed given their location in the search result (e.g., not indented). In an embodiment that includes category identification, the jumper includes functions for jumping from one category to the next category, in addition to being able to jump from one site identifier to the site identifier. As an enhancement to this embodiment, the user is presented with additional buttons for jumping from category to category. In another embodiment, the user can define how many site identifiers should be parsed from the search results. For example, if the search results provide twenty site identifiers, but the user may only want the first five identifiers, the user can specify that only the first five identifiers be provided. Similarly, in another embodiment, the user can specify what types of results should be parsed (e.g., only categories). Alternately, in another embodiment, the jumper parses all the site identifiers, but the user specifies how many or what type to display.

In another embodiment, the user will be able to invoke the product from within their electronic e-mail box simply by double-clicking on attached files. These files may be encoded in markup language. In another embodiment, the HTML parsed files for both transmission and receipt by users would be able to be compressed and decompressed by

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users with simple click commands common to normal software operations. In another embodiment, the product will not require an additional instance of the presenter to be invoked upon return to the original home page. In still another embodiment of the product, the list box will contain a drag and drop user interface which will allow the user to cut and paste URLs from one list to another and compile their own individual lists to their preferred selection and taste. In still one more embodiment of the product, the user will be able to adjust and modify the overall interface of various URLs, hot-links and other files viewable within the presenter to both highlight the various objects mentioned previously for marking the users place in the list that they are working from, and similarly be able to change the nature of the highlight of such previously mentioned item to be noted as important by a permanent highlighting of the particular object.

Thus, a method and apparatus for retrieving information has been described. Note that though the foregoing has particular utility and has been described with reference to certain specific embodiments in the figures and the text, that one may practice the present invention without implementing all of these specific details. Thus, the figures and the text are to be viewed in an illustrative sense only, and not limit the present invention. The present invention is only to be limited by the appended claims which follow.

DEFINITIONS

1. NETWORK: A network is a hard drive, a local network, a wide area network, an intranet, the internet or any series or combination of computers or computing hardware.
2. FILE: A file is a collection of data that may be coded or unencoded. Coded files may contain the HTML, SGML or other mark up language. Unencoded files comprise; audio, visual, graphics, and/or video. Files may be encrypted or unencrypted during transmission. An electronic mail message is also considered to be a file. In addition, attachments to electronic mail are also considered files.
3. PRESENTER: A presenter is an interactive information media either visual or audio, animated or static, graphical or textual, audio or silent.
4. SITE IDENTIFIER: A site identifier is a pointer to a file.

What is claimed is:

1. A computer implemented method for searching on a local computer a network of nodes with data files stored at corresponding ones of the nodes and each of the data files identifiable by a location identifier and several of the data files containing location identifiers for others of the data files, and the method for searching comprising the acts performed on the local computer of:
 - constructing a search window on a display screen of the local computer;
 - displaying a first and a second icon separate from the search window on said display screen;
 - retrieving an initial data file from the network together with displaying the initial data file in the search window, and the initial data file including location identifiers;
 - parsing the location identifiers from the initial data file to form an initial list of location identifiers together with storing the initial list, responsive to a selection of the first icon; and
 - retrieving a first data file corresponding to a selected one of the location identifiers in the stored initial list together with displaying the first data file in the search window, responsive to a selection of the second icon.

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2. The computer implemented method of claim 1 wherein; said initial data file comprises information in a markup language; and

said location identifiers comprise URLs.

3. The computer implemented method of claim 1 wherein: said initial file and said first data file comprise information in a markup language; and

said location identifiers comprise URLs.

4. The computer implemented method of claim 1 wherein said retrieving act further comprises;

retrieving the first data file corresponding to the one of the location identifiers in the stored initial list selected from a group consisting of: a next location identifier, a prior location identifier, a first location identifier and a last location identifier, together with displaying the first data file in the search window, responsive to a selection of the second icon.

5. A computer usable medium having computer readable program code means embodied therein for searching on a local computer a network of nodes with data files stored at corresponding ones of the nodes and each of the data files identifiable by a location identifier and several of the data files containing location identifiers for others of the data files, the computer readable program code means in said article of manufacture comprising:

computer readable program code means for causing a computer to construct a search window on a display screen of the local computer;

computer readable program code means for causing a computer to display a first and a second icon separate from the search window on said display screen;

computer readable program code means for causing a computer to retrieve an initial data file from the network and displaying the initial data file in the search window, and the initial data file including location identifiers;

computer readable program code means for causing a computer to parse the location identifiers from the initial data file to form an initial list of location identifiers together with storing the initial list, responsive to a selection of the first icon; and

computer readable program code means for causing a computer to retrieve a first data file corresponding to a selected one of the location identifiers in the stored initial list together with displaying the first data file in the search window, responsive to a selection of the second icon.

6. The computer readable program code means in said article of manufacture of claim 5 comprising:

computer readable program code means for causing a computer to retrieve the initial data file, wherein said initial data file, comprises information in a markup language and said location identifiers comprise URLs.

7. The computer readable program code means in said article of manufacture of claim 5 comprising:

computer readable program code means for causing a computer to retrieve the initial data file and the first data file, wherein each of said initial and said first data files, comprise information in a markup language and said location identifiers comprise URLs.

8. The computer readable program code means in said article of manufacture of claim 5 comprising:

computer readable program code means for causing a computer to retrieve the first data file corresponding to the one of the location identifiers in the stored initial list

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selected from a group consisting of: a next location identifier, a prior location identifier, a first location identifier and a last location identifier together with displaying the first data file in the search window, responsive to a selection of the second icon.

9. A computer implemented method for searching on a local computer a network of nodes with data files stored at corresponding ones of the nodes and each of the data files identifiable by a location identifier and several of the data files containing location identifiers for others of the data files, and the method for searching, comprising the acts performed on the local computer of:

constructing a search window on a display screen of the local computer;

displaying a first and a second icon separate from the search window on said display screen;

retrieving an initial data file from the network together with displaying the initial data file in the search window, and the initial data file including location identifiers;

parsing the location identifiers from the initial data file to form an initial list of location identifiers together with storing the initial list, responsive to a selection of the first icon; and

automatically retrieving at a predefined time interval data files corresponding to each of the location identifiers in the stored initial list, together with successively displaying the data files in the search window, responsive to a single selection of the second icon.

10. The computer implemented method of claim 9 wherein:

said initial data file comprises information in a markup language; and

said location identifiers comprise URLs.

11. The computer implemented method of claim 9 wherein:

said initial data file and said first data file comprise information in a markup language; and

said location identifiers comprise URLs.

12. A computer usable medium having computer readable program code means embodied therein for searching on a local computer a network of nodes with data files stored at corresponding ones of the nodes and each of the data files identifiable by a location identifier and several of the data files containing location identifiers for others of the data files, and the computer readable program code means in said article of manufacture comprising:

computer readable program code means for causing a computer to construct a search window on a display screen of the local computer;

computer readable program code means for causing a computer to display a first and a second icon separate from the search window on said display screen;

computer readable program code means for causing a computer to retrieve an initial data file from the network together with displaying the initial data file in the search window, and the initial data file including location identifiers;

computer readable program code means for causing a computer to parse said initial data file to form an initial list of location identifiers together with storing the initial list, responsive to a selection of the first icon;

computer readable program code means for causing a computer to automatically retrieve at a predefined time interval data files corresponding to each of the location

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identifiers in the stored initial list, together with successively displaying the data files in the search window, responsive to a single selection of the second icon.

13. The computer readable program code means in said article of manufacture of claim 12 comprising:

computer readable program code means for causing a computer to receive said initial data file, wherein said initial data file, comprises information in a markup language and said location identifiers comprise URLs.

14. The computer readable program code means in said article of manufacture of claim 12 comprising:

computer readable program code means for causing a computer to receive said initial data file and said first data file, wherein said initial data file and said first data file, comprise information in a markup language and said location identifiers comprise URLs.

15. A computer-implemented method for searching on a local computer a network of nodes with data files stored at corresponding ones of the nodes and each of the data files identifiable by a location identifier and several of the data files containing location identifiers for others of the data files, and the method for searching comprising the acts performed on the local computer of:

constructing a browser window on a display screen of the local computer;

displaying a first icon and a list window separate from the browser window on said display screen;

retrieving into the browser window an initial data file from the network together with displaying the initial data file in the browser window, and the initial data file including location identifiers;

parsing the location identifiers from the initial data file to form an initial list of location identifiers together with storing and displaying the initial list in the list window, responsive to a selection of the first icon; and

retrieving a first data file corresponding to a one of the location identifiers displayed in the list window together with displaying the first data file in the browser window, responsive to a selection of the corresponding one of the location identifiers displayed in the list window.

16. A computer-implemented method of of claim 15, wherein:

wherein said initial data file and said first data file comprise information in a markup language and said location identifiers comprise URLs.

17. A computer usable medium having computer readable program code means embodied therein for searching on a local computer a network of nodes with data files stored at corresponding ones of the nodes and each of the data files identifiable by a location identifier and several of the data files containing location identifiers for others of the data files, the computer readable program code means in said article of manufacture comprising:

computer readable program code means for constructing a browser window on a display screen of the local computer; computer readable program code means for displaying a first icon and a list window separate from the browser window on said display screen;

computer readable program code means for retrieving into the browser window an initial data file from the network together with displaying the initial data file in the browser window, and the initial data file including location identifiers;

computer readable program code means for parsing the location identifiers from the initial data file to form an

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initial list of location identifiers together with storing and displaying the initial list in the list window, responsive to a selection of the first icon; and
computer readable program code means for retrieving a first data file corresponding to a one of the location identifiers displayed in the list window together with displaying the first data file in the browser window, responsive to a selection of the corresponding one of the location identifiers displayed in the list window.

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18. The computer readable program code means in said article of manufacture of claim 17 comprising:
computer readable program code means to retrieve said initial data file of information, wherein said initial data file, comprises information in a markup language and said location identifiers comprise URLs.

* * * * *



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"Express Mail" Mailing Label No. EM432433030US.
Date of Deposit: October 8, 1996. I hereby certify that
this paper or fee is being deposited with sufficient postage with the
United States Postal Services "Express Mail Post Office to Addressee"
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Naomi Lindborg
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Naomi Lindborg 10/8/96
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PATENT
Attorney Docket No. 18041.701

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

UTILITY PATENT
APPLICATION TRANSMITTAL LETTER

Box Patent Application
Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Enclosed for filing is an original patent application or, a continuation-in-part
patent application, by *et al*
Gilbert Borman, Rajat Bhatnagar, Arul Sebastian, Anup Mathur,
Vinay Wadhwa, and Mukesh Kimar, for INTERNET SEARCH TOOLS.

Also enclosed are:

- 14 sheet(s) of formal informal drawing(s);
- a claim for foreign priority under 35 U.S.C. §§ 119 and/or 365 in
 a separate document the declaration;
- a certified copy of the priority document;
- an Associate Power of Attorney;
- verified statement(s) claiming small entity status; and
- an Assignment document and form PTO-1595.

The declaration of the inventor(s) also is enclosed will follow.

Attorney Docket No. 18041.701

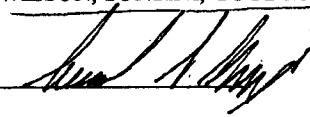
The fee has been calculated as follows:

CLAIMS					
	NO. OF CLAIMS		EXTRA CLAIMS	RATE	FEE
Basic Application Fee					\$770.00
Total Claims	26	MINUS 20	6	\$22.00=	\$132.00
Independent Claims	6	MINUS 3 =	3	\$80.00=	\$240.00
If multiple dependent claims are presented, add \$260.00					-0-
If verified statement claiming small entity status is enclosed, subtract 50% of Total Application Fee					-0-
Add Recording Fee of \$40.00 if Assignment document is enclosed					-0-
TOTAL APPLICATION FEE DUE					\$1142.00

- A check in the amount of \$___ is enclosed.
- Charge \$_____ to Deposit Account No. 23-2415.
- The fees will be paid with the response to Notice of Missing Parts of Application.

Respectfully submitted,

WILSON, SONSINI, GOODRICH & ROSATI

By: 

Registration No. 36,764

~~650 Page Mill Road~~
~~Palo Alto, CA 94304-1050~~
 (415) 493-9300

Date: October 8, 1996

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PATENT
Attorney Docket No. 18041.701

INTERNET SEARCH TOOLS

Inventors: Gilbert Borman
Rajat Bhatnagar
Arul Sebastian
Anup Mathur
Vinay Wadhwa
Mukesh Kumar

BACKGROUND OF THE INVENTION

Field of the invention

The present invention relates to information retrieval. More specifically, the invention relates to tools for traversing hypertext data.

Background Information

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The development of computerized information resources such as the Internet and various on-line services, such as CompuServe™, America On-Line™, Prodigy™ and other services has lead to a proliferation of electronically-available information. This electronic information is increasingly displacing more conventional means of information transmission, such as newspapers, magazines and even television.

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The largest information resource in existence today is the Internet. The Internet is a group of client and server computers linked one to another and each having a unique identifier, DNS (distributed network server), assigned by the Internet authority in Cambridge, Mass. and Geneva, Switzerland. In order for information to be found on the Internet every file is given a specific address by which it may be located. To access the Internet a

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user employs what is called a browser. Currently the most popular browser is Netscape Navigator™ browser developed by Netscape Communications Corporation of Mountain View, California. A wide array of browsers is available for just about every platform. The browser's job is twofold. First, given a pointer to a piece of information on the net it has to be able to access the information or operate in some way based on the contents of that pointer. Second, if the document/file (hereinafter file) is encoded the browser has to translate that to a suitable format for display to the user. The display may include multimedia effects, e.g. sound and animation.

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The most popular encoding of Internet files communicated between client and server is the HTML (hypertext markup language). The WWW (World Wide Web) or simply the "Web" includes all the servers adhering to this standard. Each page loaded from the Internet is a single file encoded in HTML. HTML describes the structure of a file. The structure of the file includes title, paragraphs, images and any pointers to other files.

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The pointer to a specific site is called an URL (Uniform Resource Locator). The URL provides a universal, consistent method for finding and accessing information for a Web browser. The URL comprises a file type, a server I.D. (DNS), one or more directories and subdirectories, and a file name. URLs are also used as part of a hypertext link within a file to another file. These URLs then provide the browser with a way to navigate the Web. URLs contain information about a file: including file type (FTP, Gopher, HTTP), the Internet server on which the file is located (WWW.NCSA.UIUC.EDU, or FDP.APPLE.COM, or Net Com 16.Net.Com, and so on), the directory of the file, and the file name.

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In order to speed the process of finding relevant information on the Internet several servers on the Internet provide an index to the Internet and a search engine. These information indexers such as Yahoo™, Excite™, Lycos™, Inktomi™, and Alta Vista™ perform two valuable functions. First,

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using their own Internet links, they continually search the Internet and index all files on the Internet into subject categories and store this index on their own database. The information indexers also allow a client to connect to their server and enter a search query. In response the information indexer provides a list of all files on the web that meet the search criteria. Therefore, the information indexer such as Yahoo™ not only updates and maintains a topical index for all files on the web, but also makes that index searchable by a client. It should be noted that the information that is retrieved from Yahoo™ contains only a general topic identifier and the file location on the Internet for that specific topic.

It would indeed be a cumbersome process for the client seeking specific information if the indexes that were retrieved from Yahoo™ only told the searcher where to look. If this were the case, the considerable task remaining to the client would be to manually enter the network address, URL, of each file and then go through the process of retrieving that file. To overcome this problem, the search result retrieved by Yahoo™ is encoded in HTML as a hot-link which makes every "footnote" an active rather than a passive reference. These hot-links appear to the user in the browser window as bold face text which is easily distinguished from the other text based information in the file. A hot-link comprises a text description and a corresponding URL. When the user selects a hot-link the browser detects that selection and outputs the URL on the Internet to retrieve the file corresponding to that URL and display it to the user. Therefore, by merely selecting with a mouse a specific footnote in a file encoded in a markup language, a client is immediately given access to the remote web server that contains the specific file referred to in the footnote.

With a markup language such as HTML (hypertext markup language) both amateurs and professionals become authors and the footnotes on the printed page become the hypertext of the electronic page. What was a passive reference now becomes an accessible link to a related file. A markup

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language describes the structure of a file including headings, paragraphs, images and what are called hot-links. A hot-link displays at the user level as text or graphic and is processed for communication purposes as an URL. It is these hot-links which provide the interactive footnotes described above.

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Even with the indexing provided by Yahoo™, Lycos™, Excite™, Inktomi™, Alta Vista™, etc., the process of finding the exact topic is still extremely time consuming and can involve visiting literally hundreds of Web Sites. Typically, a user will retrieve a file from an information indexer and will not only look at the files retrieved by selecting the indexer's hot-links, but will also select other hot-links in the retrieved documents. This process of starting a search that begins with an initial hot-link and following a search trail that leads to successive files each increasingly displaced from the starting point is known as a drill-down. The problem with current browsers is that when a user has drilled-down through many levels of sites, the only way to return to the original HTML file is to hit the browser's back key which moves the user up one level at a time through the original search tree back to level "1." Only then can the user access other hot-links retrieved in the original search.

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What is needed is a more efficient way to conduct a search.

SUMMARY

A first object of the invention is to provide operational controls for simplified Internet navigation from various sites and back again.

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A second object of the invention is to save users time and effort in finding information on the Internet.

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A third object of the invention is to enable the publication of a new format for on-line magazines, called Netazines, which allow publishers to leverage the navigational controls provided in the invention product to foster a new paradigm for browsing magazine style information on the Internet.

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A computer implemented method and system for retrieving information from a network. In a first embodiment a first file of information is received which may include a first mark-up language to identify contents of the information, which contents include site identifiers. The site identifiers

5 corresponding for example to file locations on the Internet. The first file is displayed in a browser window. Responsive to receiving the first file of information by the browser, the first file of information is parsed by a jumper to generate a list of site identifiers. This list of site identifiers is then stored by the jumper and displayed in a jumper window. Responsive to an activation by

10 the user, a computer is directed to determine which of the stored site identifiers is currently selected and automatically selects an other. The other includes the first, the prior, the next, or the last on the list.

In a second preferred embodiment a first file of information in a

15 hypertext markup language is received and displayed in the browser window. The first file of information also contains site identifiers and other information. The first file is displayed in the browser and is parsed, and the site identifiers from that file are stored by the jumper in a list. The stored list of site identifiers is displayed in the jumper window. Responsive to a selection by a user of

20 automatic mode, a computer is directed to perform the following steps. The jumper selects a first site identifier from the stored list of site identifiers. The jumper directs the browser to access the file at the site corresponding to the automatically selected site identifier. The browser, is directed by the jumper, to display the file in the browser window. Then the jumper initiates a delay of a

25 predetermined interval. At the end of the interval the jumper selects the next site identifier from the stored list of site identifiers. The jumper directs the browser to access the file at the site corresponding to the automatically selected next site identifier. The browser, is then directed by the jumper, to display that file in the browser window. The jumper continues to repeat this

30 animation loop from one site identifier in the stored list of site identifiers to the next, until either the entire list of site identifiers has been sent to the browser and displayed, or until the user terminates the process. In this manner, an

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animated tour of all files having site identifiers parsed from the first file is displayed in the browser window under the direction of the jumper.

In a third embodiment, a first file of information in a hypertext markup language is received and displayed in a browser window. The first file of information also contains a site identifier and other information. The first file of information is displayed by the browser in the browser window. Responsive to receiving the first file of information, the jumper parses the first file and extracts and stores a list comprised of first file site identifiers. The stored list of site identifiers is then displayed in the jumper window. The user is allowed to select from the browser window a specific site identifier, known as a search level "1" site identifier, and responsive thereto to cause the browser to access and display a second file retrieved from the site corresponding to the selected level "1" site identifier. This second file includes a hypertext markup language and site identifiers. The user is again allowed to select from the browser window a specific site identifier and responsive thereto causes the browser to access and display a third file retrieved from the site corresponding to the selected site identifier. This process can be repeated in the browser, until the user has completed their search, or drill-down.

Responsive to the completion of the drill-down in the browser, as indicated to the jumper by receipt of a single jump selection from the user, the computer is directed to perform the following steps. The jumper determines which of the stored level "1" site identifiers is currently selected and automatically selects the single jump level "1" site identifier. Next the jumper directs the browser to access the file at the site corresponding to the single jump selected level "1" site identifier. Finally, the browser is directed to display the file the browser has retrieved in the browser window. This allows the user to return to the files pointed to by the original level "1" site identifiers without having to traverse in reverse serial order the site identifiers selected in the drill-down.

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BRIEF DESCRIPTIONS OF DRAWINGS

The present invention is illustrated by way of example and not limitation in the figures in which like references indicate like elements and in which:

5 Fig. 1 shows a client server system including embodiments of the jumper invention.

Fig. 2. shows a more detailed view of the client server system illustrated in Fig. 1.

10 Fig. 3. shows a preferred embodiment of the screen interface and tool bar of the jumper.

15 Fig. 4 shows a prior art browser user interface, and the query form of an information index provider.

Figs. 5A-C shows a the initial stages of a search session utilizing a prior art browser and the jumper.

20 Fig. 6 shows a later stage in the search session of Figs. 5A-C.

Fig. 7 shows the steps in the search process in prior art browsers.

25 Figs. 8A-C shows the processes of a search session on the jumper.

Figs. 9A-B show the search traversal patterns of a prior art browser and the jumper.

DETAILED DESCRIPTION

30 One embodiment of the invention is a method and apparatus for retrieving information through a browser connected to a network, and providing the information to a user. Although the following will be described with

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reference to certain particular embodiments, including data structures, flow of steps, hardware configurations, menu configurations, etc..., implementation of the invention can be practiced without these specific details.

5 One embodiment of the invention allows a search to be conducted in non-linear order. This may be done in either single jump or automatic jump mode utilizing a jumper. A search tree does not therefore need to be traversed in reverse serial order after a drill-down as is required utilizing prior art browsers. The invention allows a searcher to jump across multiple levels at a
10 time.

Search Levels:

The operation of prior art browsers is best described by reference to Fig. 9A. Fig. 9A shows a series of hypertext files. The files may be resident
15 on a hard drive, a local network, a wide area network or the Internet. Three hot-links are shown 920, 922, 924 on file 902. Hot-link 924 is shown as linked to four levels of files. Selecting hot-link 924 causes the browser to access file 926, which is a level 2 file. Selecting the first hot-link on file 926 causes the browser to access file 928, which is a level 3 file. Selecting the first hot-link on
20 file 928 causes the browser to access file 930, which is a level 4 file. Finally, selecting the first hot-link on file 930 causes the browser to access file 932, which is a level 5 file. Selecting hot-link 922 causes the browser to access file 934, which is a level 2 file. Selecting hot-link 920 causes the browser to access file 936, which is a level 2 file.

25 The traversal steps from hot-link 924 through 926, 928, 930 and 932 constitute a drill-down from level 1 to level 5. Prior art browsers require that the user, in order to return to the original file 902, must traverse the search tree in reverse serial order. As shown serial return 904 traverses from 932 to
30 930, serial return 906 traverses from 930 to 928, serial return 908 traverses from 928 to 926, and finally serial return 910 traverses from 926 to 902, the initial starting point. This requires the needless steps of visiting each of the

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branches traversed in the drill-down. This process is unnecessarily time consuming when compared with the capabilities of the current jumper invention.

5 Fig. 9B shows the same tree structures as does Fig. 9A. Fig. 9B shows the use of one embodiment of the invention to traverse many levels at a time in either single jump or automatic jump mode. In the single jump mode when the searcher has reached level 5 file 932. If the user wants to return to level 1 they do not need to do so in reverse serial order, as is required by prior art browsers. Instead, the user directs the jumper to access the next level 1 hot-link. In response, the jumper returns the user in a single jump 914 from level 5 file 932 to the level 2 files pointed to by the hot-links in the level 1 file 902. Much time is saved and the user can proceed to search other level 1 hot-links. In automatic jump mode, the user instructs the jumper to access all hot-links on the level 1 file 902. In response, the jumper directs the browser to access and display in the browser window each of level 2 files 926, 934 and 936. These files are accessed by the browser in response to the jumper sending at timed intervals each of hot-links 924, 922, and 920 from a parsed hot-link list to the browser. The browser accesses each of the files 926, 934, and 936 to which hot-links 924, 922, and 920 respectively point. This allows the user to see an animation in the browser window for a timed interval.

Hardware:

25 In order to better understand the operation of a jumper, it is necessary to first understand an environment in which the jumper is practiced. Figs. 1-2, show the hardware environment in which the jumper operates. As shown in Fig. 1, an Internet 22 is connected to client 20 by an incoming Internet line 24 and an outgoing Internet line 26. Jumper 28 and browser 30 are part of client 20. Internet 22 comprises servers 32, 34, 36, and 38. Each server contains HTML files. The client and all servers are linked electronically. Server 34 is shown as the server of an information indexer. The server comprises a CGI 42 (common gateway interface), forms 44 on which a user query is entered,

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and storage containing an updated topical index 46 of all files on the web. To access a specific site on the network, browser 30 outputs an URL across outgoing Internet line 26. Routers on the Internet establish an electronic link between the client 20 and the appropriate server 32-38. Communications with the Internet are received on incoming Internet line 24.

The client hardware architecture for both the browser and the jumper is shown in greater detail in Fig. 2. The client 20 contains storage 204, computational hardware 202, operating system 206, and GUI (Graphical User Interface) 200. The storage 204 contains a storage segment 230 in which the jumper stores parsed HTML files. Hardware 202 comprises a microprocessor, an I/O interface, a display and a bus connection to storage 204. The operating system 206 may comprise a bios and an operating environment such as System 7™, Unix™ or Windows™. The GUI 200 comprises jumper 28 and browser 30. Browser 30 comprises user I/O 208 and presenter 210. The jumper 28 comprises user I/O 212, presenter 214, and parser 216.

The operation of hardware 202 is controlled by the operating system 206. The operating system and graphical user interface (GUI) 200, create the local environment in which the jumper 28 and browser 30 exist. The browser user I/O 208 handles the tasks of sending and retrieving communications 218 via the operating system 206 and hardware 202 to the Internet 22. The browser handles Internet communications for the jumper. The browser user I/O communicates with the jumper user I/O 212 via jumper-parser I/O protocol 224. The browser user I/O also handles the task of translating files received from the Internet, e.g., HTML encoded files, to the presenter 210 via presenter protocol 220. Additionally, browser user I/O uploads at the direction of jumper user I/O 212, HTML encoded files to parser 216 via browser I/O-jumper parser protocol 222.

Jumper parser 216 handles the task of converting an HTML encoded file uploaded from browser user I/O 208 into a format suitable for a single jump

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or automatic jump mode search, as discussed above in connection with Fig. 9B. The parser extracts from the HTML file: an advertisement, a plurality of URLs and topic descriptors corresponding to each URL. The parser passes these via jumper-parser I/O protocol 226 to jumper user I/O 212. Jumper user I/O 212 communicates with jumper presenter 214 via jumper I/O -presenter protocol 228 to display to the user available jump sites and to provide a user interface by which the user may input commands. Jumper user I/O also communicates with browser I/O 208 via browser I/O- jumper I/O protocol 224.

10 User interface:

An embodiment of the jumper user interface is shown in Fig. 3. This interface allows the user to see all the hot-links on a given level and to select a hot link in either single jump or automatic jump mode as described above in connection with Fig. 9B. The jumper thus enhances the search capabilities of the browser.

Jumper window 300 comprises a menu bar 302, a button bar 304, an advertisement area 306, a jump site window 308, and a drop-down list button 310. The jumper menu bar contains file, edit, action, and help items. Jumper button bar contains a first entry button 312, a previous entry button 314, a random jump button 316, a next entry button 318, a last entry button 320, a start timer button 322, a stop timer button 324 and a refresh/update button 326.

The jump site window 308 has an associated drop down list accessible by selecting drop-down-down list button 310. This list comprises parsed hot-links. These hot-links are extracted from a file initially retrieved by the browser. Any one of the hot-links in the parsed list can be selected by the user with a mouse. This drop-down list provides one method for selecting a specific Internet site to jump to. Advertisement area 306 contains an advertisement parsed from an HTML page received by the browser. Button bar 304 provides controls for single jump and automatic jump mode. All

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buttons relate to the hot-links in the jumper's parsed list regardless of how far the user has drilled-down in the browser. All buttons return the user to at least one of the hot-links on the list and direct the browser 30 shown in Figs. 1-2 to retrieve a file from the site corresponding to the URL associated with the hot-link and further direct the browser to display that file to the user.

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First entry button 312 allows the user to return from a drill-down to the first entry on parsed list. Previous entry button 314 returns the user to the prior hot-link on the list. Random jump button 316 returns the user to a randomly selected hot-link on the parsed list. Next entry button 318 selects the next hot-link on the list, and last entry button 320 accesses the last entry on the list. Start timer button 322 initiates the automatic and successive selection of every hot-link on the parsed list and the browser responsive thereto, displays for the user a file retrieved from the URL corresponding to each hot-link. The animation initiated by start timer button is terminated by stop timer button 324. Refresh/update button 326 causes all hot-links in a file which the browser has retrieved to be parsed and uploaded and displayed in the drop-down list of jumper window 300. Additionally, this parsed list is stored in HTML storage segment 230 as shown in Fig. 2.

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In alternate embodiments the jumper window may take any of several forms. The user interface may include popup or persistent window, a toolbar, a menu modification of the browser window, a toolbar modification of the browser window, or the use of accelerator keys on the keyboard.

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Fig. 4 shows a prior art browser user interface and a query form of an information index provider. This interface allows the user to access web files and also displays the file contents to the user. The browser interface 400 is that of Netscape Navigator™. The browser interface includes a browser menu bar 402, a site window 404, and a window 406 for viewing a file. The browser menu bar includes a back button 412 and a home button 414. The

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file shown in the view window is the query form 408 of Yahoo™. The query form has a query field 410.

5 The browser menu bar 402 generally provides for editing and saving files. Back button 412 allows the user to move back a search tree in reverse serial order as shown in Fig. 9A. Home button 414 allows the user to return to their home page 900 in the browser window. The browser site window 404 displays the URL corresponding to the file currently being displayed, in this case the query form 408 of Yahoo™. The query form is encoded in a markup
10 language and contains a query field 410 in which the user may enter the search topic for which a topical of the web is desired. In this case, the search topic is "Rat." When the search topic is entered, it is sent by the browser over the web to Server 34 owned by Yahoo™ 40 and shown in Fig. 1.

15 Conducting a search:

Figs. 5A-C show the initial stages of a search session conducted with the jumper and browser. A browser interface 400, a file retrieved by the browser, and a jumper window 300 are shown. These are the basic tools for the demonstrative search. The initial file retrieved from Yahoo™ in response
20 to the query "Rat" is shown as an upper page portion 502a and a lower page portion 502b in Figs 5A-B and 5C, respectively. These are accessed by scrollable window bar 500. The retrieved file contains an advertisement 504, a search result summary 506, a plurality of hot-links of which 508-514 and 580-584 are referenced. A representative hot-link 514, is shown to contain
25 both an URL 516 and a text portion 518. In Fig. 5C a jumper drop down list 586 is shown. In addition, the retrieved file also contains a next feature 588.

In response to the entry of the query "Rat" as shown on Fig. 4, the query is sent by browser to Yahoo™. The topical index 46 at Yahoo™, shown
30 in Fig. 1, is searched and the file 502a-b containing all related level 1 hot-links and other information is returned to the client 20 and displayed to the user by the browser as 502a-b. Page 502a is captioned with an advertisement 504.

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Immediately below the advertisement is a search result summary 506, which indicates 74 matches pertaining to the word "Rat" and display of the first 20 hot links for those matches. Various hot-links with subject descriptions appear on the page in bold text with underlining. These are, for example, 508,
 5 "Entertainment, Humor. . .", 510, "Regional Alternative Theater. . .", 512, "Space RAT. . .", 514, "Agrizap, Inc. . .".

Each hot-link as discussed above is an active reference. For example the hot-link 514 comprises a hypertext identifier "<A", an URL 516, a text
 10 portion 518 and a closing identifier. The browser displays to the user only text portion 518 and any images that may accompany it. These are highlighted and underlined on the user display to indicate to the user that when they are selected with a mouse a corresponding URL will be sent by the browser to the Internet to access the specific file referred to by the URL.

As shown in Fig. 5B, jumper window 300 has been refreshed via refresh/update button 326, discussed above in connection with Fig. 3. Responsive to selection of refresh/update button 326, the file 502a-b is passed from the browser 30 to the jumper parser 216 as shown in Fig. 2. All
 20 hot-links including the referenced hot-links 508-514 and 580-584 are extracted and passed to jumper user I/O 212. These are passed to jumper presenter 214 and displayed in the jumper window 300. Specifically the advertisement 504 is displayed in jumper advertisement area 306, and all hot-links 508-514 and 580-584 are put in the jumper drop down list. The first of these hot-links
 25 508 is displayed in the jumper site window 308.

In Fig. 5C, the lower portion 502b of the retrieved HTML page is shown. It contains hot-links 580, 582, 584. In jumper window 300 and specifically jumper site window 308 thereof, the jumper drop-down window,
 30 586, is shown. This window has been accessed by the user's selection of jumper drop-down list button 310. The drop-down list contains all hot-links

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that were obtained from the original file 502a-b including the referenced hot-links 508-514 and 580-584.

5 Now, by reference to Fig. 6, a later stage of the search session is shown. Fig. 6 shows a file 600 in browser view window 406, an URL corresponding to file 600 in browser site window 404, and a highlight 602 around hot-link 580 in both the jumper drop-down list window 586 and the jumper site window 308. The file 600 was obtained in a drill-down conducted in the browser window 406. The steps in that drill-down intervening between

10 Fig. 5C and Fig. 6 have not been shown. The drill-down however resembles that shown and discussed above in connection with Fig. 9A. The file 600, shown in browser window 406 is four levels removed from the initial level 1 hot-link 580. The drill-down was conducted on the browser view screen by selecting the hot-links presented in the files retrieved by the browser. If the

15 user desires to return to the an other hot-link from the level 1 file, shown as 502a-b in Figs. 5A-C, from this file 600, they could use the browser menu bar to do so but it would be slow. They would have to select back button 412 four times to return them one level at a time in reverse serial order through their entire search back to the level 1 file. The process is time consuming.

20 Alternately, if they selected the browser home key 414 they would return to their home page and lose the level 1 search results. Neither of these alternatives is acceptable. Both of these alternatives are cumbersome.

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25 If the jumper product is utilized instead, the user has several options. As a first option, the user may select one of jumper buttons 312, 314, 316, 318 or 320 to return to respectively: a first, a previous, a random, a next, or a last of the hot-links shown in Fig. 6 in jumper drop-down list window 586. In response to user selection, the file corresponding to the selected hot-link will be retrieved and displayed in the browser window 406. As a second option,

30 the user may select start timer button 322 to initiate the automatic and successive selection at a timed interval of every hot-link on the parsed list. In response to the automatic jump mode selection, each file corresponding to the

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selected hot-link will be retrieved and displayed by the browser for the timed interval. As a third option, the user may select drop-down window button 310 and select a given entry from the drop down list by clicking on it with a mouse. In response to their selection the file corresponding to the selected hot-link will be retrieved and displayed in the browser window 406. Alternately, another instance of browser can be opened to display the selected file. All of these choices enhance the search, and none require multiple reverse serial order steps to return to the level 1 hot-links.

10 Process Flow:

Fig. 7 shows the process connected with conducting a search utilizing a prior art browser. Commencing with start process 700, a connection process 702 results in Yahoo's™ home page 408 and query form being displayed in browser window 406, as shown in Fig. 4. Then in query process 704, the user enters a search topic, e.g., "Rat", in information indexer query field 410. In response to the entry of that search topic, the browser sends the query to server 34 of the search index provider, e.g., Yahoo™, the relevant topical identifiers and URLs are uploaded on an HTML encoded file/page and presented to the user in page receipt process 706. Subsequently, when a user utilizing a mouse selects one of the hot-links shown on that page, e.g., 502a-b, then that selection is detected in site access decision 708. The URL corresponding to the last selected hot-link is output over the Internet to access the file indicated by that URL and that file is uploaded and displayed in access process 710 to the user. Subsequently, in history creation process 712, that URL is added to a stack comprising in LIFO order the most recently accessed files, including the complete URL for those files. Control is then returned to back-one decision 714 which decision is also reached if a negative determination is made in site access decision 708. In back-one decision 714, a determination is made as to whether the user has selected back button 412 on the browser menu 402. If that selection has been made, then control is passed to repeat history process 716 in which the previous site visited is popped from the history stack and in access process 718 the browser

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accesses the site and file indicated by the prior URL and presents that in its view window to the user. Control is subsequently returned to site access decision 708.

5 Alternately, if in back-one decision 714 a negative determination is reached the browser awaits the next user command 720.

10 In Figs. 8A-C the process connected with one embodiment of the current invention is shown. It contrasts with the prior art process, in that the user may return to the level of files pointed to by any level one hot-link immediately. The cumbersome process and many steps of reverse serial order traversal discussed above in Fig. 7, are not therefore necessary. Fig. 8A is an overall view of the process connected with either the single jump or automatic jump mode. Fig. 8B details the specific steps connected with the automatic jump mode. Fig. 8C details the specific steps connected with the single jump mode.

15 Commencing with Fig. 8A and start jumper process 800 control is passed to refresh decision 802. In the event, a determination is made that refresh/update button 326 shown in Fig. 3 has been selected, then control is passed to fetch and parse process 804 in which an HTML encoded page displayed in the browser view window is uploaded and parsed into an advertisement and hot-links. These are displayed in the jumper advertisement area 306 and the jumper drop-down window 586, respectively. Then in history decision 806, the determination is made as to whether the jumper history maintain option has been selected. This option is found under the edit portion of the menu bar 302. In the event that this option has been selected, then control is passed to append and store process 808 in which the hot-links extracted in fetch and parse process 804 are appended and stored with previous hot-links in the parsed HTML files in storage segment 230 shown on Fig. 2. Control is then passed to display URL process 812. Alternately, if a negative determination is made in history decision 806, then control is passed

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to store process 810 in which the hot-links from the fetch and parse process 804 replace any existing stored hot-links. Subsequent control also is passed to display URL process 812. In display URL process 812, the hot-links are displayed in the jumper drop-down window 586 as shown in Fig. 6. Control subsequently passes to display advertisement process 814 in which an image corresponding to an advertisement parsed from the browser page is placed in the jumper advertisement area 306.

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As discussed above in connection with refresh decision 802, if a negative determination is made that the refresh button has not been pressed, then control passes also to display advertisement process 814 in which the advertisement from the page currently displayed on browser window 406 is uploaded and displayed in the jumper advertisement area 306. Control subsequently passes to start timer decision 816. If the user has selected start timer button 322 from the jumper menu bar, then automatic jump mode commences in a manner set forth in Fig. 8B. Alternately, if a negative determination is reached, then control is passed to jumper button select decision 818. A determination is made as to whether the user has selected any one of buttons 310-320 in the jumper window 300. In this event, control is passed to processes set forth on Fig. 8C and corresponding to single jump mode. The return from either the automatic jump or single jump process is via splice block B to jumper button select decision 818. Finally, when a negative determination is reached in jumper button select decision, control returns to refresh decision 802. This completes the overall processing connected with the jumpers tree traversal.

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In Fig. 8B, the automatic jump mode of the search process is shown in greater detail. This process allows a user to view an animated tour of the level 2 files pointed to by the level 1 hot links in the browser window. Commencing with splice block A, control passes to memory fetch process 840 in which the first URL, of the hot-links in storage segment 230 shown in Fig. 2, is fetched by the jumper. In the next process, jumper-browser process 842 the

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5 first URL is sent to the browser, user I/O 208 caused the browser to access the specific site and file on the site, to upload the file and to display the file in the browser window 406. In one embodiment, if the browser is still loading a previous file when the jumper-browser process 842 is reached, then sending the browser the URL interrupts the loading of the previous file. In another embodiment, the jumper-browser process 842 does not interrupt the loading of the previous file. In a third embodiment, whether the jumper-browser process 842 interrupts the loading of the previous file is a user configurable option.

10 Control is then passed to delay process 844 in which a user selectable display interval causes the page image to be displayed on browser window 406 for the selected time interval. At the end of that time interval, control is passed to memory fetch process 846 in which the next URL in the parsed HTML file is uploaded and in last of list decision 848 a determination is made
 15 as to whether that URL is the last among the stored URLs. In the event that determination is in the negative, control returns to jumper-browser process 842 for the timed display of the next accessed URL. This loop from jumper-browser process 842 through last of list decision 848 constitutes a user configurable animation, in which a set of URLs which have been parsed and
 20 stored are now used to drive an automatic retrieval and display process.

25 Alternately, in last URL decision 848, if a determination is made in the affirmative, control is passed to "next" link decision, 850. In next link decision 850 a determination is made as to whether the last URL also includes a query for the next 10 entries corresponding to the example shown in Fig. 5C and indicated by 588. In the event that determination is in the affirmative, control is passed to jumper-browser-jumper process 852. In process 852 the query for the next 10 hot-links is sent to Yahoo™. In response the next HTML encoded page containing the 10 hot-links is retrieved. Control is passed to parse
 30 process 854 in which all the URLs and corresponding text identifiers are parsed along with the image corresponding to the advertisement. Then in buffer process 856, the parser output is stored for this session. Control then

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passes to memory fetch process 840 for automatic retrieval and display.
 Alternately, if in "next" link decision 850, a negative determination is made,
 then in jumper-browser process 858, the last URL is sent to the browser to
 both access and display the file corresponding to the last URL. Subsequently,
 5 control is passed to splice block B for a return to hot-link select decision 818.

The process corresponding to the single jump mode is shown in
 Fig. 8C. This process allows the user to select a specific level 1 hot-link and
 have the browser retrieve and display the level 2 file corresponding to the
 10 selected level 1 hot-link. In window process 880, the jumper drop-down
 window 586 is automatically opened, as is shown in Fig. 5C. Then in drop-
 down button process 882 a determination is made as to whether the button
 selected by the user and detected in jumper button select decision 818, was
 the drop-down list button 310. If the user did select button 310 then the user
 15 has not yet selected a specific hot-link from the parsed hot-links in the jumper
 drop-down window 586. Control is then passed to wait process 884. When the
 user selects a specific entry from the drop-down list control passes to locate
 select process 886. Alternately, if a negative determination is reached in
 jumper button select decision 818 then control is passed directly to locate
 20 select process 886. A negative determination in jumper select decision 818
 means that one of jumper buttons 312, 314, 316, 318 or 320, was selected
 thereby indicating a specific user choice for the single jump location. These
 buttons were discussed above in connection with Fig. 3.

In locate select process 886 a determination is made as to which of the
 25 hot-links in the jumper drop-down window was selected. If, for example, first
 entry button 312 were selected then the first of the hot-links in the list is
 selected. Alternately, if the user selected drop-down window button 310 and
 then mouse selected an entry e.g. the fourth entry on the drop-down list, then
 30 that entry would be highlighted. In the example shown in Fig. 6 the user has
 selected hot-link 580 and that selection, the "Ricky Rock Rat" hot-link is
 detected by the jumper.

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Subsequent to selection detection, control is passed to jumper-browser process 888. The URL corresponding to the selected hot-link is passed by the jumper to the browser causing the browser to locate and subsequently display a file corresponding to that URL. The jumper continues to display all level "1" sites as hot-links. In the next step highlight process 890 the selected hot-link is highlighted, as shown for example in Fig. 6 as highlight 602 around selected hot-link 580, "Ricky Rock Rat". After the highlight process, the selected hot-link on the drop-down list is copied to the jumper site window 308 in copy process 892. Subsequently, in process 894 the jumper drop-down window is closed.

When the browser displays the above mentioned file, the user may conduct a drill-down on the hot-links in that file in the browser window. In that case, the browser window is active and the jumper window is inactive. When the drill-down is complete and the user reactivates the jumper window by mouse clicking on it, that reactivation is detected in process 898 and control is passed to jumper select decision 818 via the splice block B, shown in Fig. 8A.

The following describes additional embodiments of the invention. Except where stated in alternative form, each of these embodiments include features that can be combined with the features discussed above.

Some alternative embodiments provide better integration of the jumper's functions and the browser's functions. In one embodiment of the invention, when a user initiates a search in the browser, the jumper automatically starts and begins parsing the results of the search. This saves the user from having to start the jumper separately from the browser. In another embodiment, the jumper functions are built directly into the browser. In a different embodiment, the jumper is implemented as an application, such as an apple, which is sent to the browser by the search engine. All of these

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embodiments provide a more integrated jumper/browser environment for the user.

5 Some alternative embodiments provide the user with more powerful tools for traversing the search results. In one embodiment, the categories in the search results are specially tagged (e.g., with a previously unused HTML tag) to indicate category fields as opposed to simple URLs. Alternatively, the categories can be parsed given their location in the search result (e.g., not indented). In an embodiment that includes category identification, the jumper includes functions for jumping from one category to the next category, in addition to being able to jump from one site identifier to the site identifier. As an enhancement to this embodiment, the user is presented with additional buttons for jumping from category to category. In another embodiment, the user can define how many site identifiers should be parsed from the search results. For example, if the search results provide twenty site identifiers, but the user may only want the first five identifiers, the user can specify that only the first five identifiers be provided. Similarly, in another embodiment, the user can specify what types of results should be parsed (e.g., only categories). Alternatively, in another embodiment, the jumper parses all the site identifiers, but the user specifies how many or what type to display.

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In another embodiment, the user will be able to invoke the product from within their electronic e-mail box simply by double-clicking on attached files. These files may be encoded in markup language. In another embodiment, the HTML parsed files for both transmission and receipt by users would be able to be compressed and decompressed by users with simple click commands common to normal software operations. In another embodiment, the product will not require an additional instance of the presenter to be invoked upon return to the original home page. In still another embodiment of the product, the list box will contain a drag and drop user interface which will allow the user to cut and paste URLs from one list to another and compile their own individual lists to their preferred selection and taste. In still one more

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embodiment of the product, the user will be able to adjust and modify the overall interface of various URLs, hot-links and other files viewable within the presenter to both highlight the various objects mentioned previously for marking the users place in the list that they are working from, and similarly be

5 able to change the nature of the highlight of such previously mentioned item to be noted as important by a permanent highlighting of the particular object.

Thus, a method and apparatus for retrieving information has been described. Note that though the foregoing has particular utility and has been

10 described with reference to certain specific embodiments in the figures and the text, that one may practice the present invention without implementing all of these specific details. Thus, the figures and the text are to be viewed in an illustrative sense only, and not limit the present invention. The present invention is only to be limited by the appended claims which follow.

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DEFINITIONS

1. NETWORK: A network is a hard drive, a local network, a wide area network, an intranet, the internet or any series or combination of computers or computing hardware.
- 5
2. FILE: A file is a collection of data that may be coded or uncoded. Coded files may contain the HTML, SGML or other mark up language. Unencoded files comprise; audio, visual, graphics, and/or video. Files may be encrypted or unencrypted during transmission. An electronic mail message is also considered to be a file. In addition, attachments to electronic mail are also considered files.
- 10
3. PRESENTER: A presenter is an interactive information media either visual or audio, animated or static, graphical or textual, audio or silent.
- 15
4. SITE IDENTIFIER: A site identifier is a pointer to a file.

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What is claimed is:

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1. A computer implemented method and system for retrieving information from a network comprising the following steps;

2. receiving a 1st file of information which includes site identifiers and other information;

3. parsing said 1st file of information to extract a list comprising site identifiers; and

4. responsive to a jump command, determining which of the list of site identifiers is currently selected and automatically selecting an other of said site identifiers from said list.

2. The computer implemented method of claim 1 wherein said responsive step further comprises;

3. accessing a 2nd file at a site corresponding to said automatically selected other site identifier from said list.

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3. The computer implemented method of claim 2 wherein said responsive step further comprises;

4. displaying said 2nd file.

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4. The computer implemented method of claim 1 wherein;

5. said 1st file comprises information in a markup language; and

6. said site identifiers comprise URLs.

5. The computer implemented method of claim 3 wherein:

6. said 1st file and said 2nd file comprise information in a markup language; and

7. said site identifiers comprise URLs.

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1 6. The computer implemented method of claim 5 wherein said responsive
2 step further comprises;

3 automatically selecting from a group consisting of: a next site
4 identifier, a prior site identifier, a first site identifier and a last site identifier,
5 said other of said site identifiers from said list.

1 7. A computer usable medium having computer readable program code
2 means embodied therein for causing a retrieval of information from a network,
3 the computer readable program code means in said article of manufacture
4 comprising:

5 computer readable program code means for causing a computer to
6 receive a 1st file of information which includes site identifiers and other
7 information;

8 computer readable program code means for causing a computer to
9 parse said 1st file of information to extract a list comprising site identifiers;

10 computer readable program code means for causing a computer
11 responsive to a jump command, to determine which of the list of site identifiers
12 is currently selected and to automatically select an other of said site identifiers
13 from said list.

1 8. The computer readable program code means in said article of
2 manufacture of claim 7 comprising:

3 computer readable program code means for causing a computer
4 responsive to said jump command, to access a 2nd file at a site corresponding
5 to said automatically selected other site identifier from said list.

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1 9. The computer readable program code means in said article of
2 manufacture of claim 8 comprising:

3 computer readable program code means for causing a computer
4 responsive to said jump command, to display said 2nd file.

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- 10. The computer readable program code means in said article of manufacture of claim 7 comprising:
 - computer readable program code means for causing a computer to receive said 1st file of information, wherein said 1st file, comprises information in a markup language and said site identifiers comprise URLs.

- 11. The computer readable program code means in said article of manufacture of claim 9 comprising:
 - computer readable program code means for causing a computer to receive a 1st file of information and to access a 2nd file, wherein each of said 1st and said 2nd files, comprise information in a markup language and said site identifiers comprise URLs.

- 12. The computer readable program code means in said article of manufacture of claim 11 comprising:
 - computer readable program code means for causing a computer to automatically select said other of said site identifiers from said list from a group consisting of: a next site identifier, a prior site identifier, a first site identifier and a last site identifier.

- 13. A computer implemented method of retrieving information from a network comprising the following steps:
 - receiving a 1st file of information which includes site identifiers and other information;
 - parsing said 1st file of information to extract a list comprising site identifiers;
 - automatically sending a plurality of jump commands to the browser wherein each of said jump commands includes a one of said site identifiers from said list comprising site identifiers, and wherein further responsive to said plurality of jump commands a site corresponding to each of said site identifiers is accessed.

1 14. The computer implemented method of claim 13 wherein said step of
 2 automatically sending further comprises;
 3 retrieving a file from each of said accessed sites corresponding to each
 4 of said site identifiers.

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1 15. The computer implemented method of claim 14 wherein said step of
 2 automatically sending further comprises;
 3 displaying each of said retrieved files.

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1 16. The computer implemented method of claim 13 wherein:
 2 said 1st file comprises information in a markup language; and
 3 said site identifiers comprise URLs.

1 17. The computer implemented method of claim 15 wherein:
 2 said 1st file comprises information in a markup language; and
 3 said site identifiers comprise URLs.

1 18. A computer usable medium having computer readable program code
 2 means embodied therein for causing a retrieval of information from the
 3 computer readable program code means in said article of manufacture
 4 comprising:
 5 computer readable program code means for causing a computer to
 6 receive a 1st file of information which includes site identifiers and other
 7 information;
 8 computer readable program code means for causing a computer to
 9 parse said 1st file of information to extract a list comprising site identifiers;
 10 computer readable program code means for causing a computer to
 11 automatically send a plurality of jump commands wherein each of said jump
 12 commands includes a one of said site identifiers from said list comprising site
 13 identifiers, and wherein further responsive to said plurality of jump commands,
 14 a site corresponding to each of said site identifiers is accessed.

1 19. The computer readable program code means in said article of
 2 manufacture of claim 18 comprising:
 3 computer readable program code means for causing a computer
 4 responsive to said automatically sending a plurality of jump commands to
 5 retrieve a file from each of said accessed sites corresponding to each of said
 6 site identifiers.

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1 20. The computer readable program code means in said article of
 2 manufacture of claim 19 comprising:
 3 computer readable program code means for causing a computer
 4 responsive to said automatically sending a plurality of jump commands, to
 5 display each of said retrieved files.

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1 21. The computer readable program code means in said article of
 2 manufacture of claim 18 comprising:
 3 computer readable program code means for causing a computer to
 4 receive said 1st file of information, wherein said 1st file, comprises
 5 information in a markup language and said site identifiers comprise URLs.

1 22. The computer readable program code means in said article of
 2 manufacture of claim 20 comprising:
 3 computer readable program code means for causing a computer to
 4 receive said 1st file of information, wherein said 1st file, comprises
 5 information in a markup language and said site identifiers comprise URLs.

1 23. A computer-implemented method of retrieving information network
 2 comprising the following steps:
 3 receiving into a browser window a 1st file of information which
 4 includes site identifiers and other information;
 5 parsing said 1st file of information to extract a list comprised of said 1st
 6 file site identifiers;

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1 displaying a jumper window;
 2 receiving into said jumper window said set of 1st file site identifiers;
 3 selecting a one of said 1st file site identifiers from said browser
 4 window, wherein the browser accesses a location corresponding to said one
 5 selected and retrieves from said location a 2nd file which includes site
 6 identifiers and other information;
 7 receiving into said browser window said 2nd file of information;
 8 selecting another of said 1st file site identifier from said jumper
 9 window, wherein the browser accesses a location corresponding to said other
 10 selected site identifier and retrieves from said location a 3rd file; and
 11 receiving into said browser said 3rd file.

1 24. A computer-implemented method of retrieving information through a
 2 browser according to claim 23, wherein:
 3 wherein said 1st file and said 2nd file comprise information in a markup
 4 language and said site identifiers comprise URLs.

1 25. A computer usable medium having computer readable program code
 2 means embodied therein for causing a retrieval of information from a network,
 3 the computer readable program code means in said article of manufacture
 4 comprising:
 5 computer readable program code means for causing a computer to
 6 receive into a browser window a 1st file of information which includes site
 7 identifiers and other information;
 8 computer readable program code means for causing a computer to
 9 parse said 1st file of information to extract a list comprised of said 1st file site
 10 identifiers;
 11 computer readable program code means for causing a computer to
 12 display a jumper window;
 13 computer readable program code means for causing a computer to
 14 receive into said jumper window said set of 1st file site identifiers;

15 computer readable program code means for causing a computer to
16 select a one of said 1st file site identifiers from said browser window, wherein
17 the browser accesses a location corresponding to said one selected and
18 retrieves from said location a 2nd file which includes site identifiers and other
19 information;

20 computer readable program code means for causing a computer to
21 receive into said browser window said 2nd file of information;

22 computer readable program code means for causing a computer to
23 select an other of said 1st file site identifier from said jumper window, wherein
24 the browser accesses a location corresponding to said other selected and
25 retrieves from said location a 3rd file; and

26 computer readable program code means for causing a computer to
27 receive into said browser said 3rd file.

1 26. The computer readable program code means in said article of
2 manufacture of claim 25 comprising:

3 computer readable program code means for causing a computer to
4 receive said 1st file of information, wherein said 1st file, comprises
5 information in a markup language and said site identifiers comprise URLs.

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ABSTRACT

A computer implemented method and system for retrieving information through a browser connected to a network. A first file of information is received which includes a first mark-up language to identify contents of the information, which contents include site identifiers. The site identifiers corresponding for example to file locations on the Internet. The first file is displayed in a browser window. Responsive to receiving the first file of information by the browser, the first file of information is parsed by a jumper to generate a list of site identifiers. This list of site identifiers is then stored by the jumper and displayed in a jumper window. Responsive to an activation by the user, a computer is directed to perform the following steps. The jumper determines which of the stored site identifiers is currently selected and automatically selects the next. Next the jumper directs the browser to access the file at the site corresponding to automatically selected site identifier. Finally, the browser is directed to display the file the browser has retrieved in the browser window.

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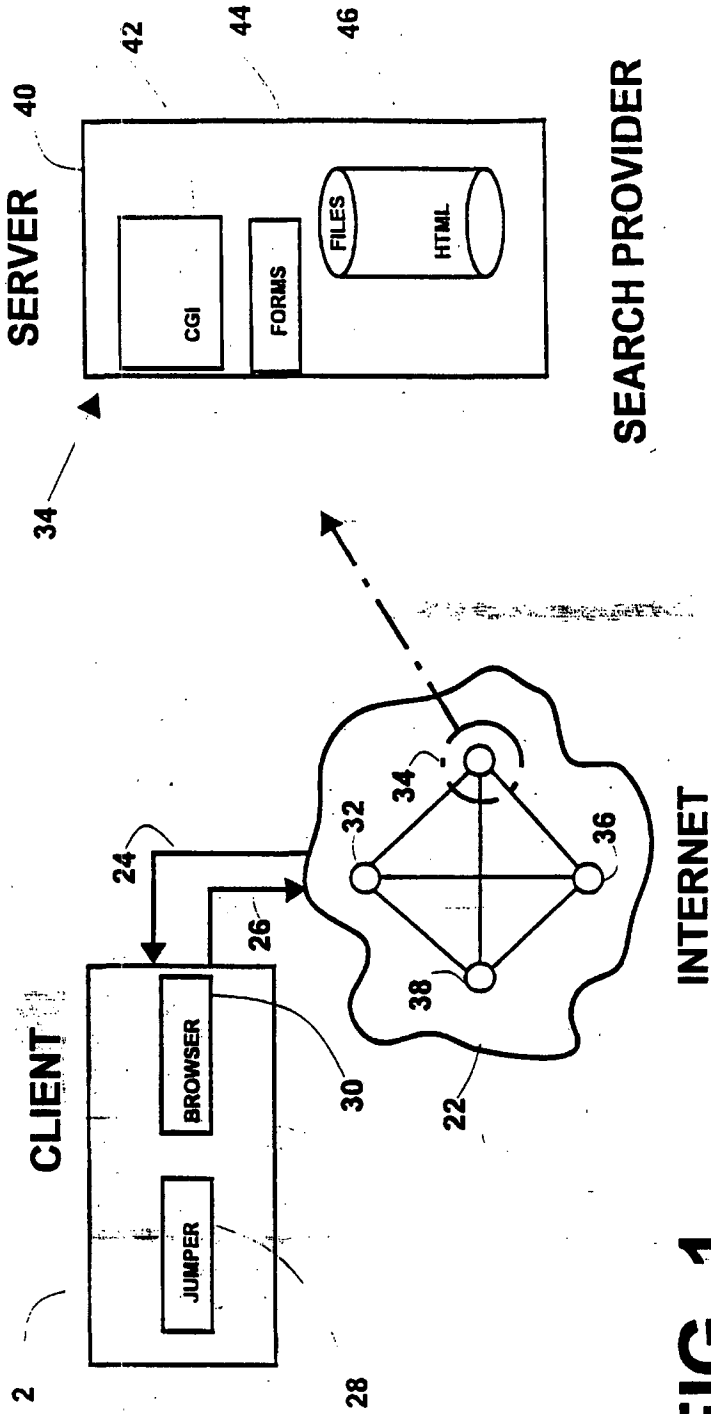


FIG. 1

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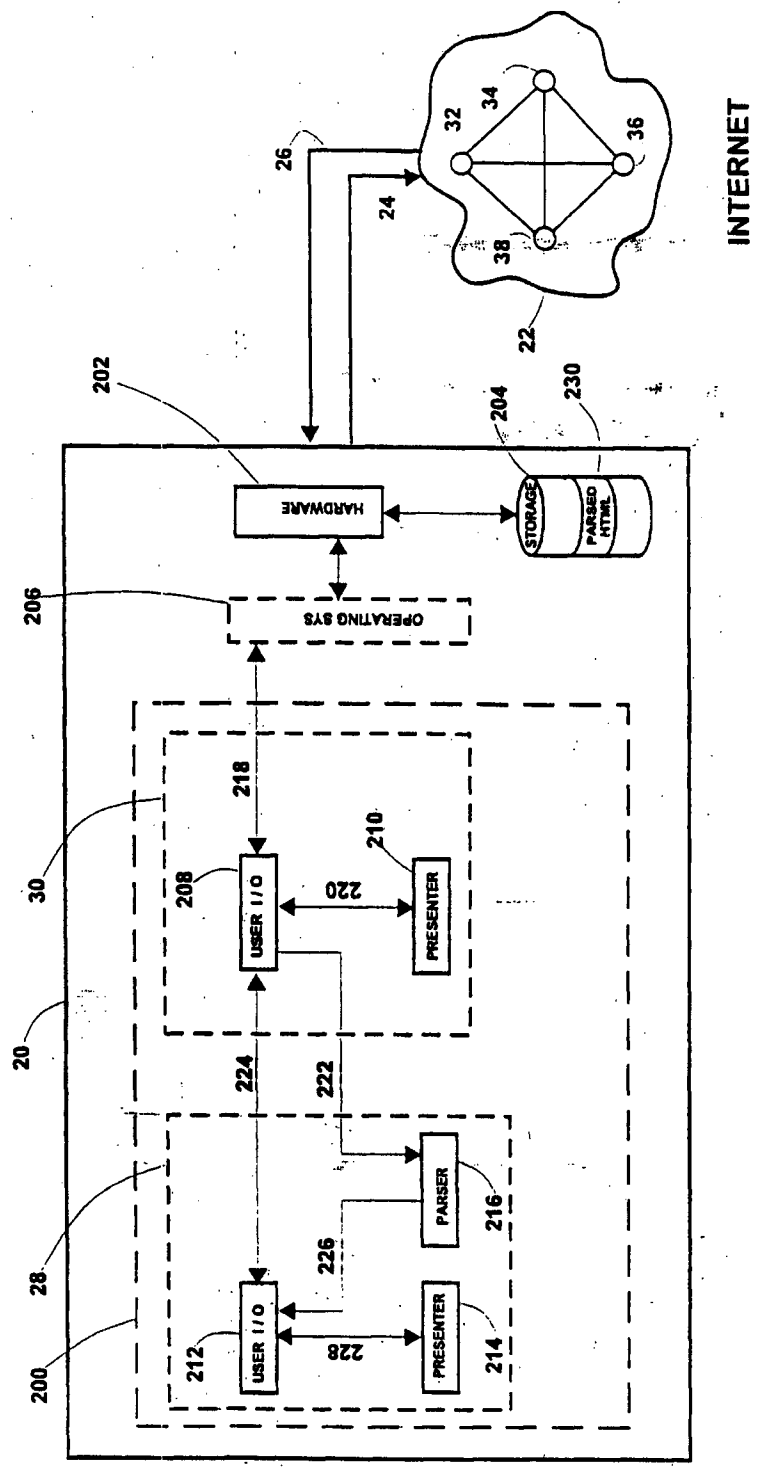


FIG. 2

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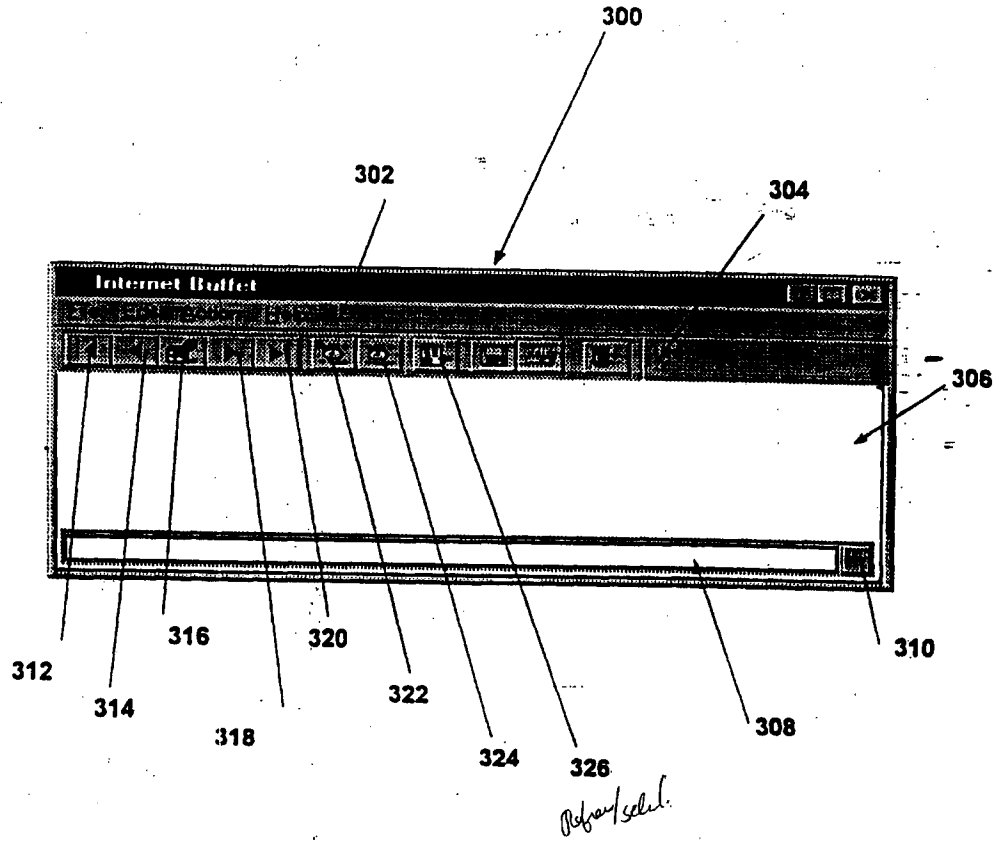


FIG. 3

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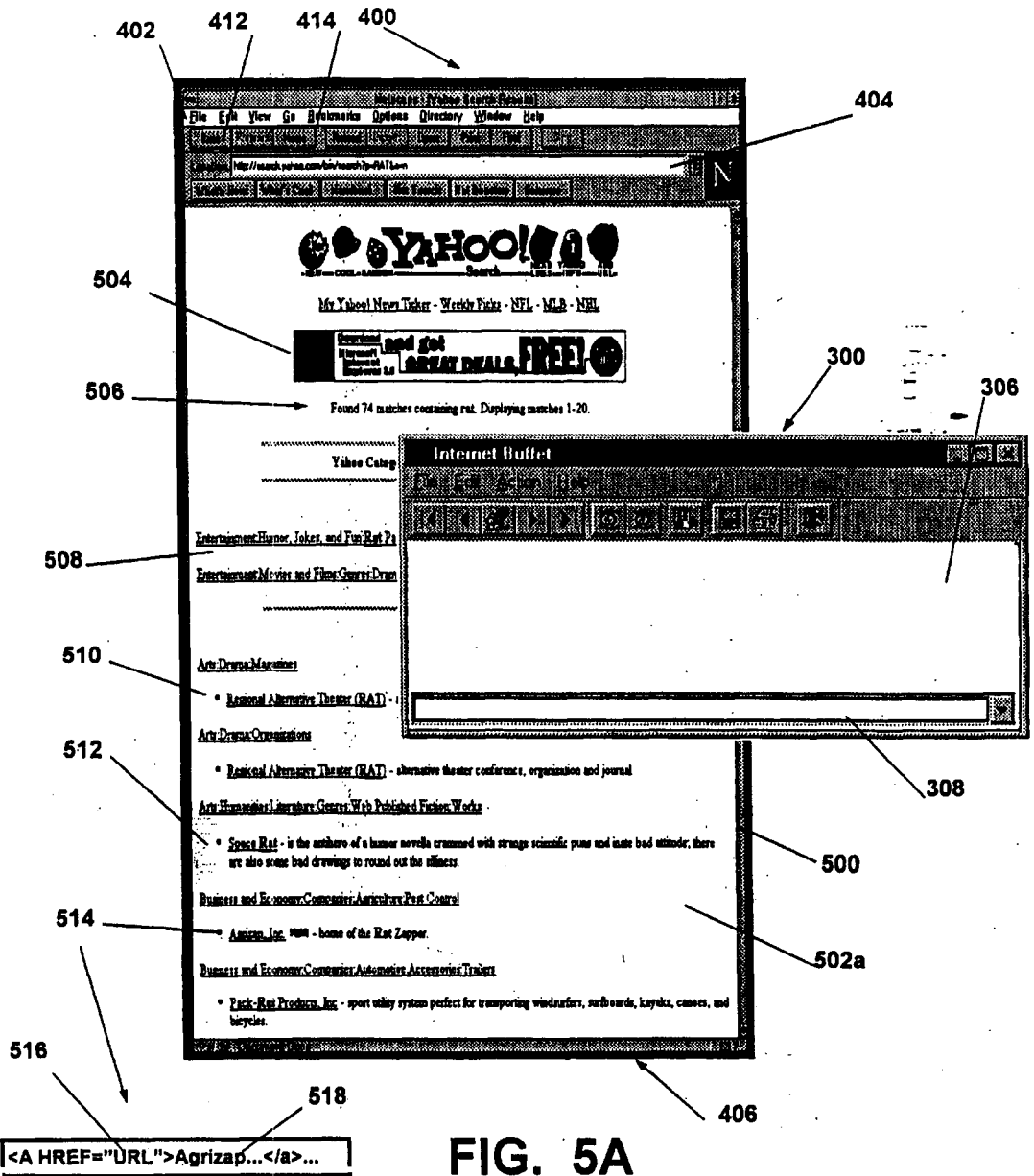


FIG. 5A

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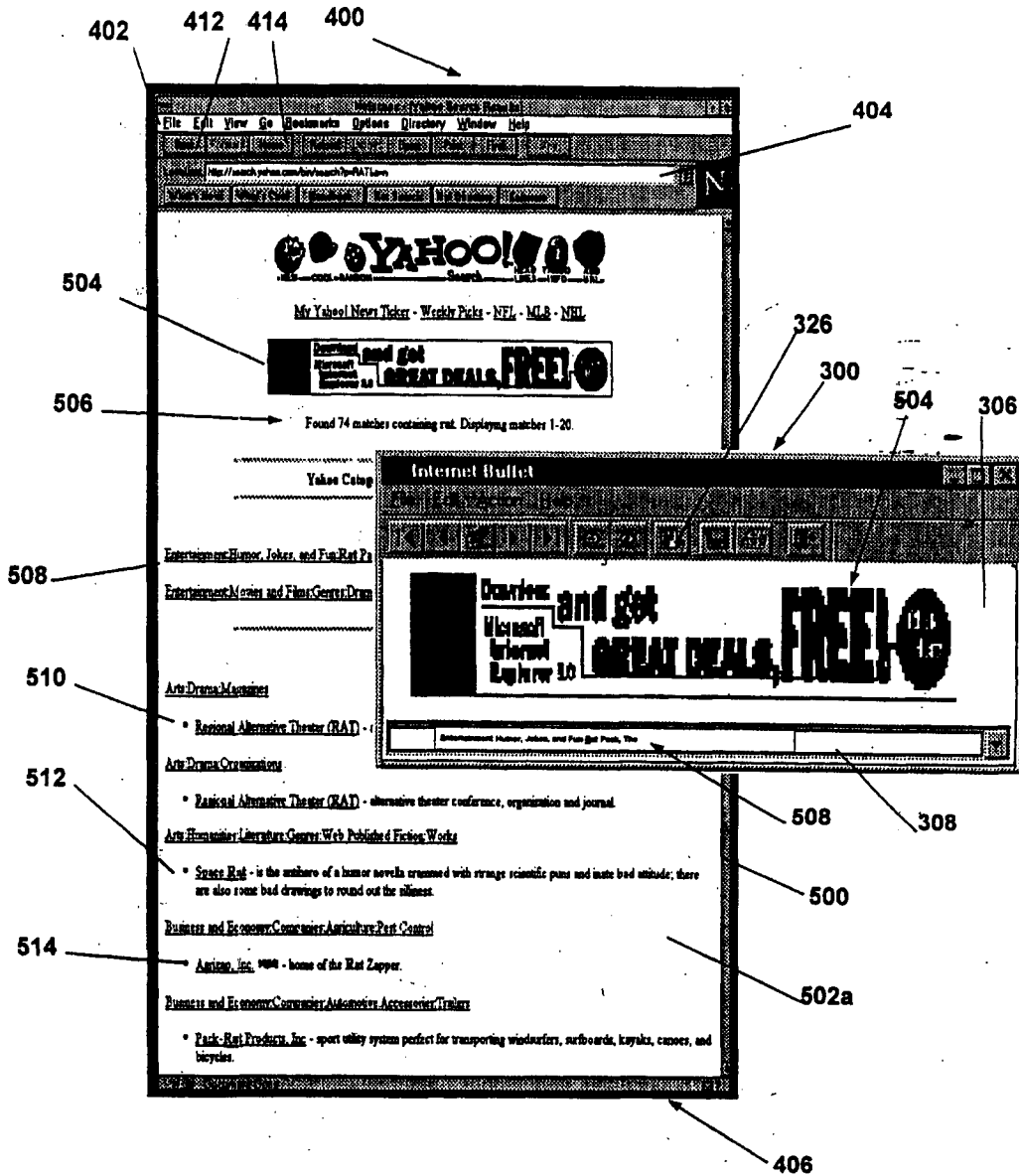


FIG. 5B

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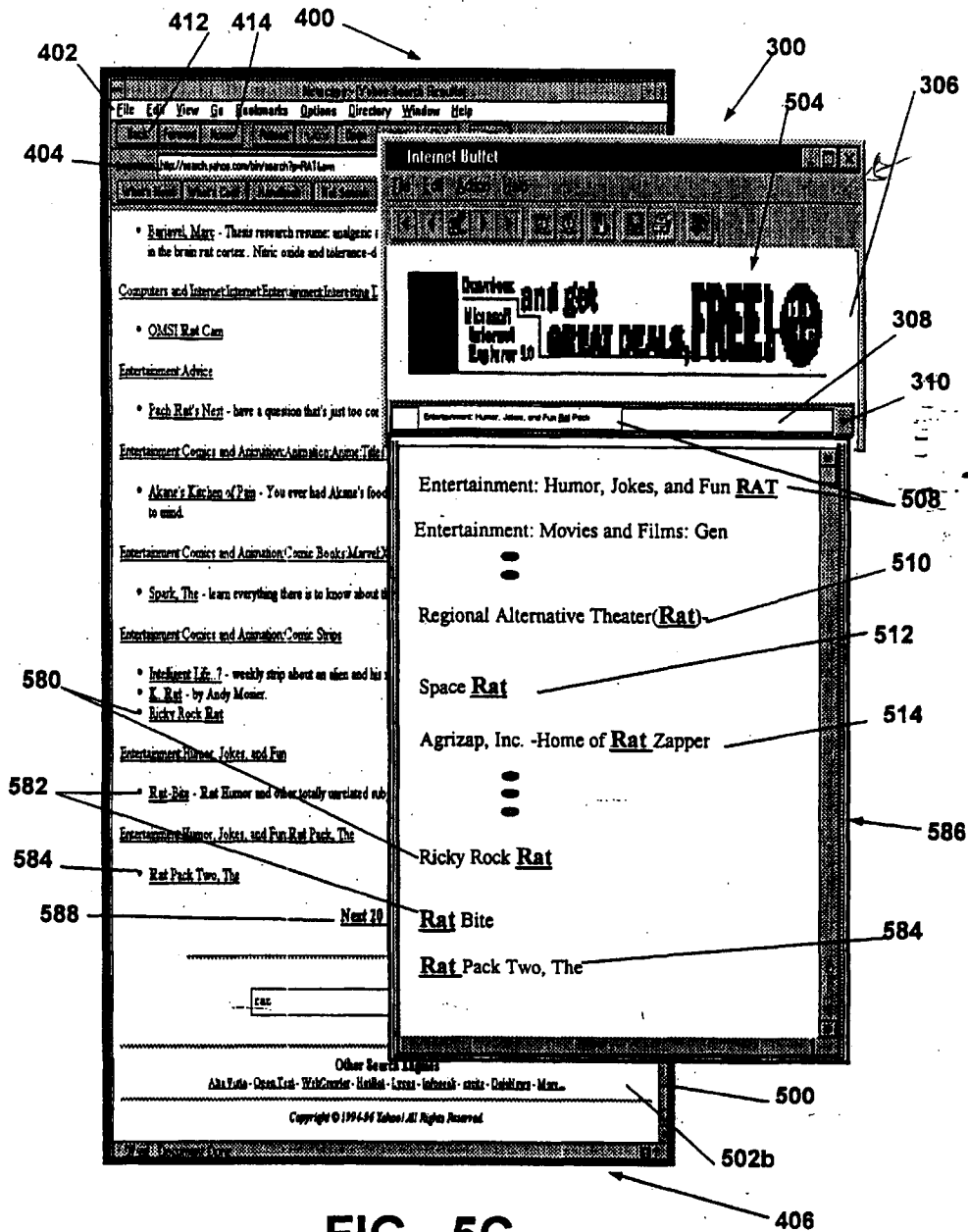


FIG. 5C

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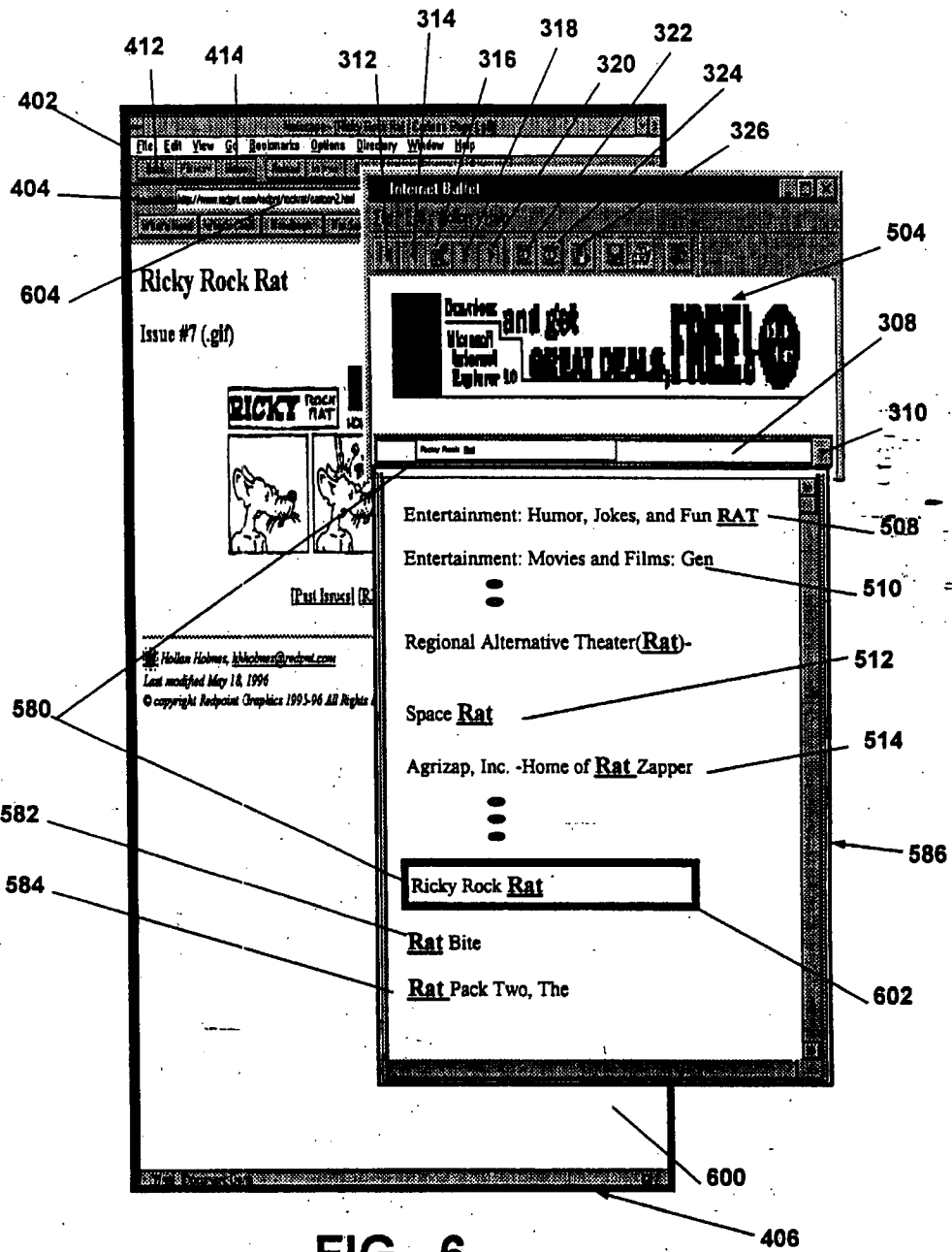


FIG. 6

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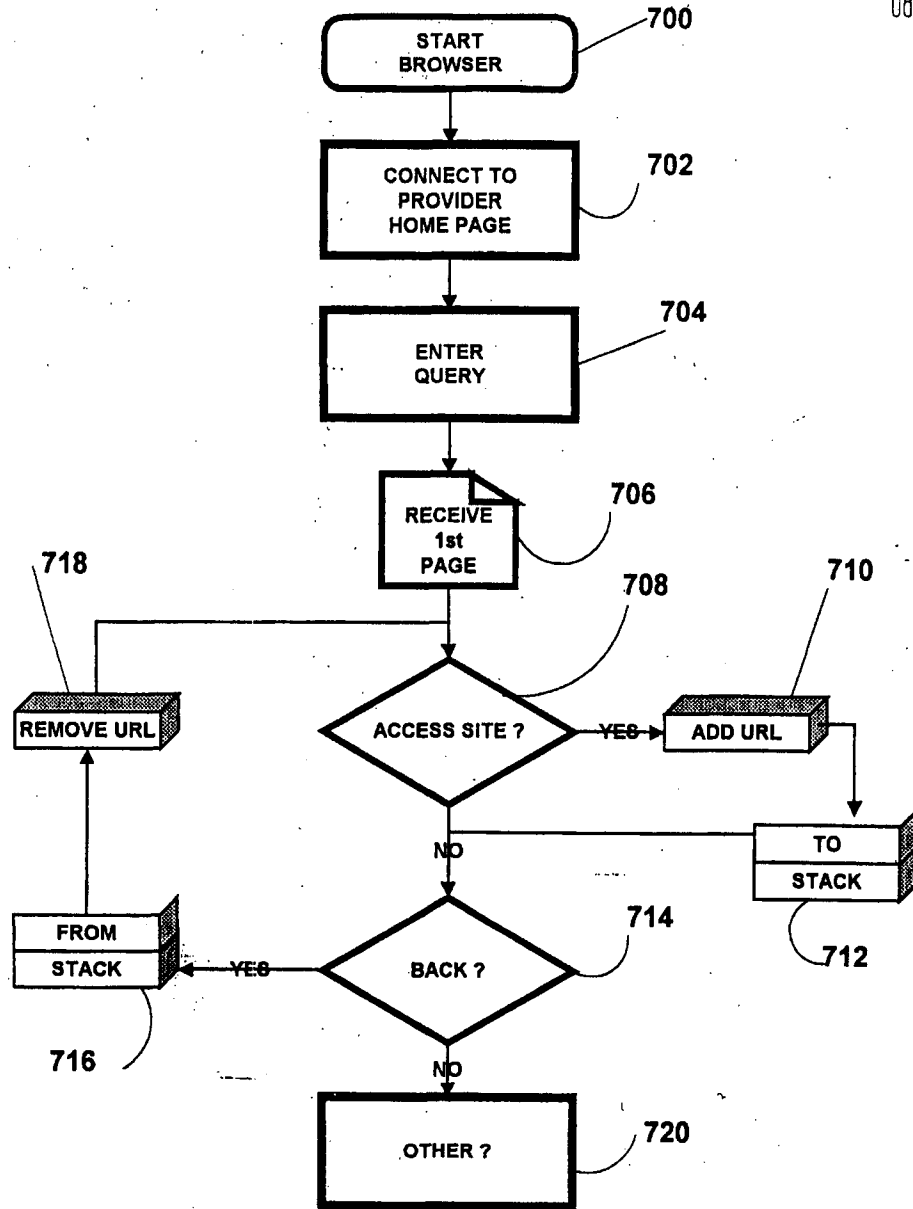
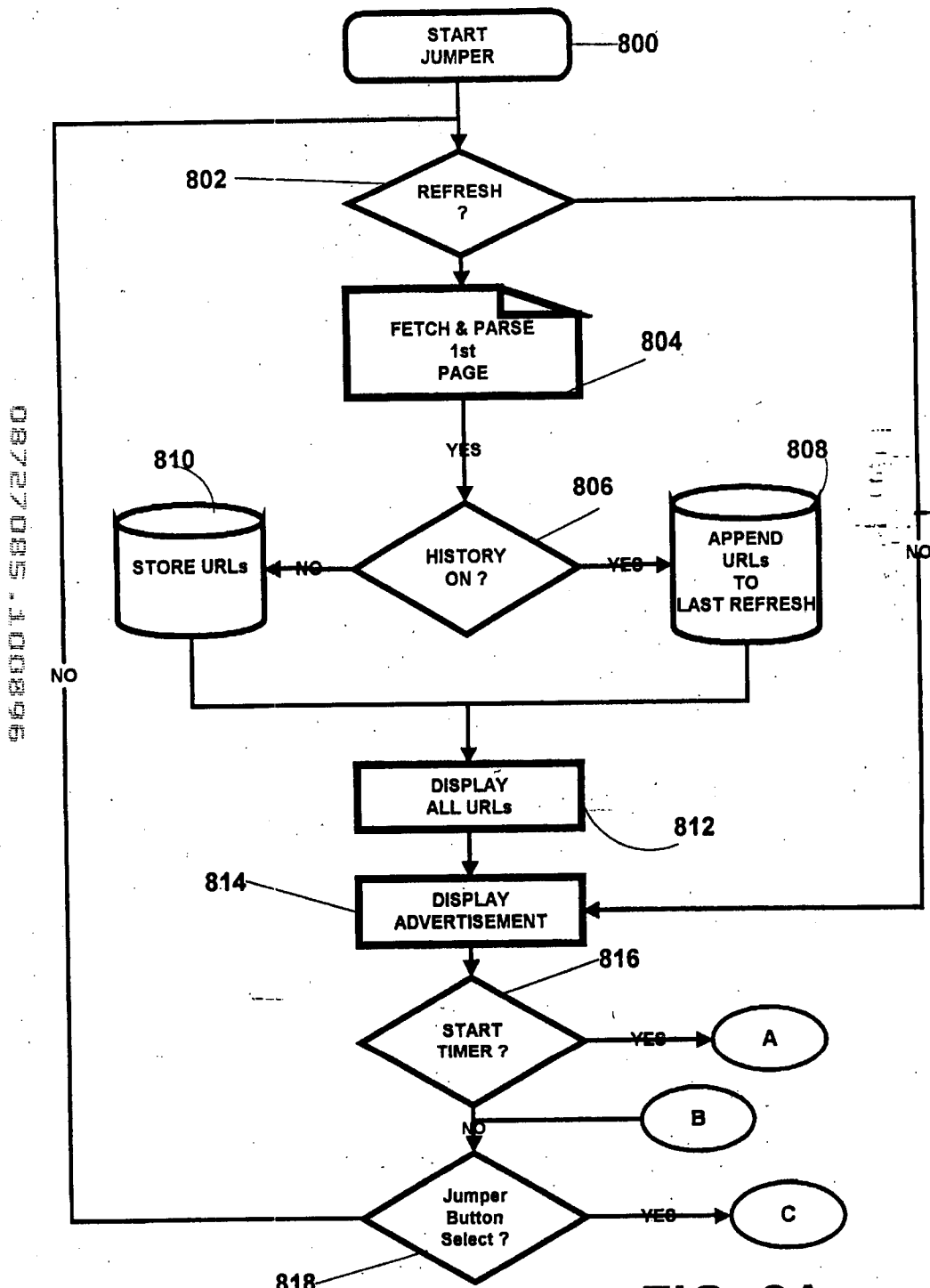


FIG. 7
(Prior Art)

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FIG. 8A

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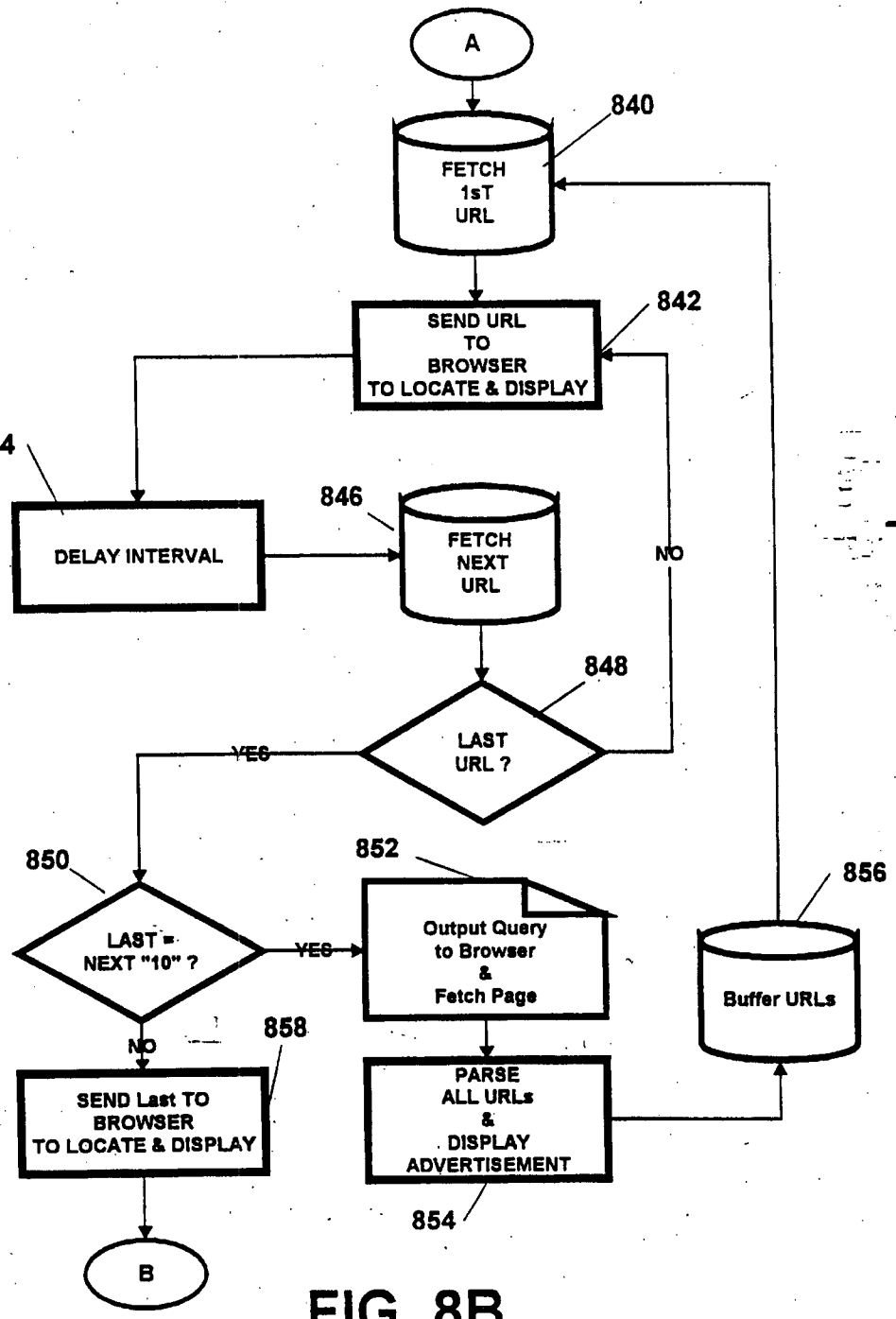


FIG. 8B

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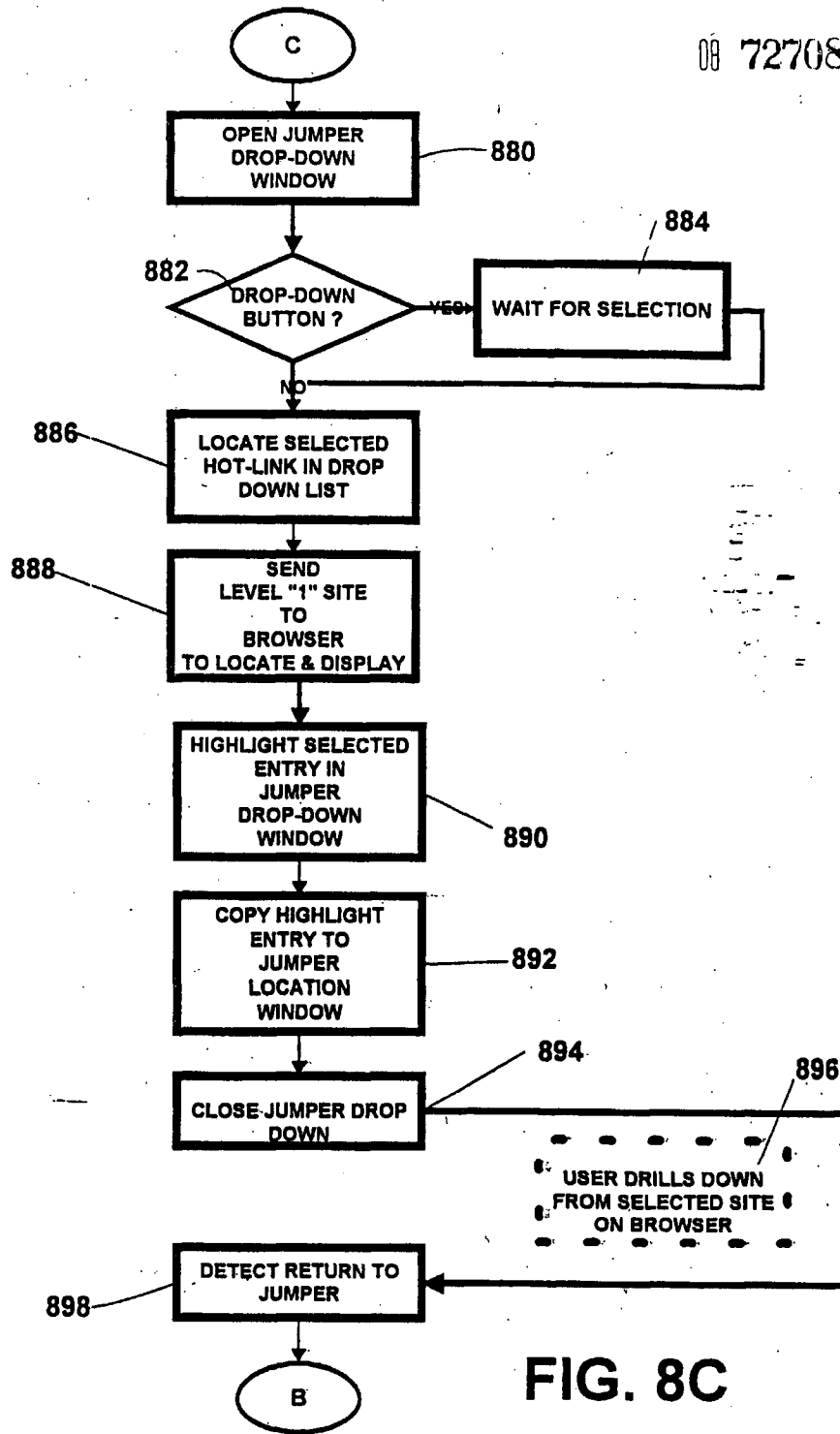


FIG. 8C

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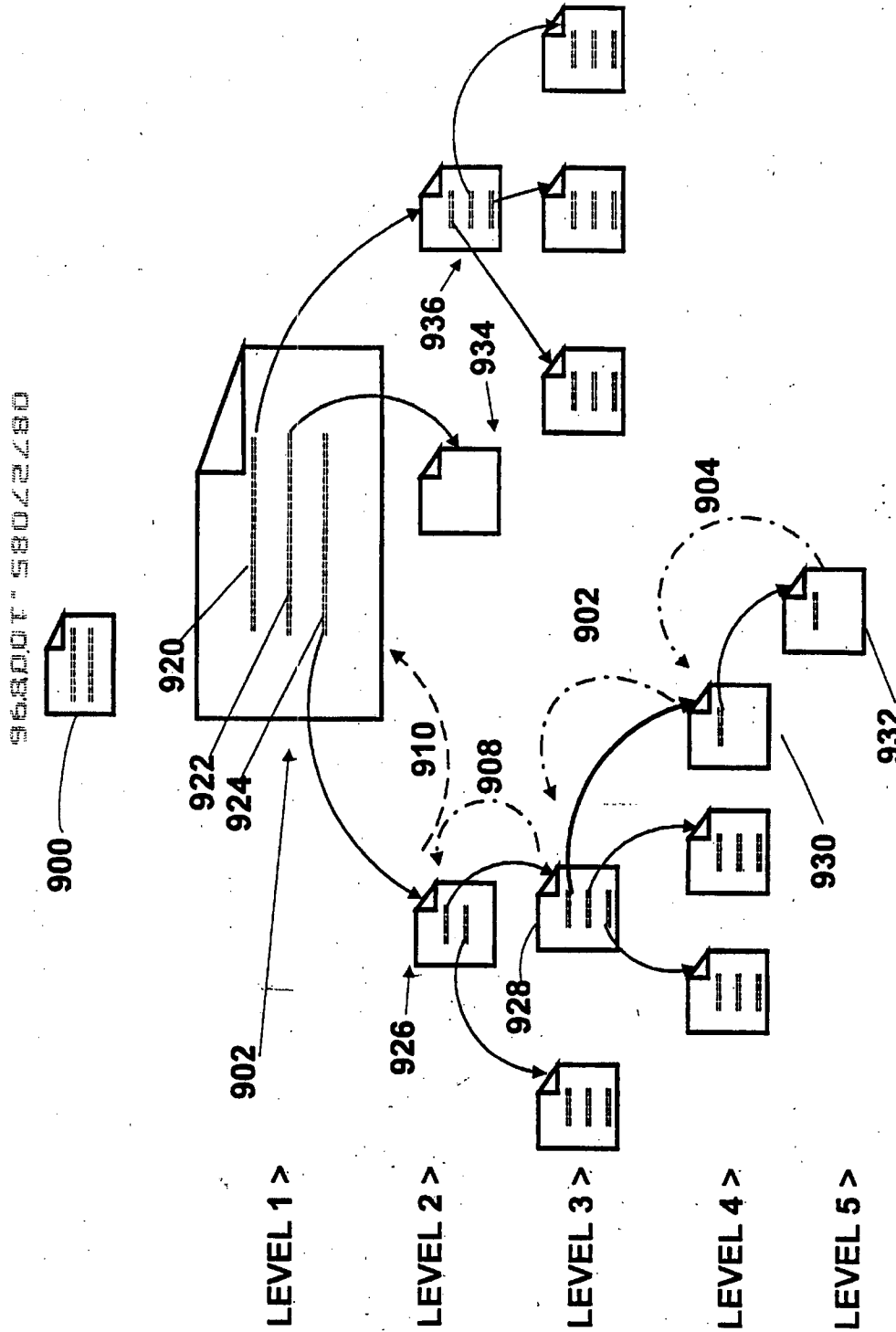


FIG. 9A
(Prior Art)

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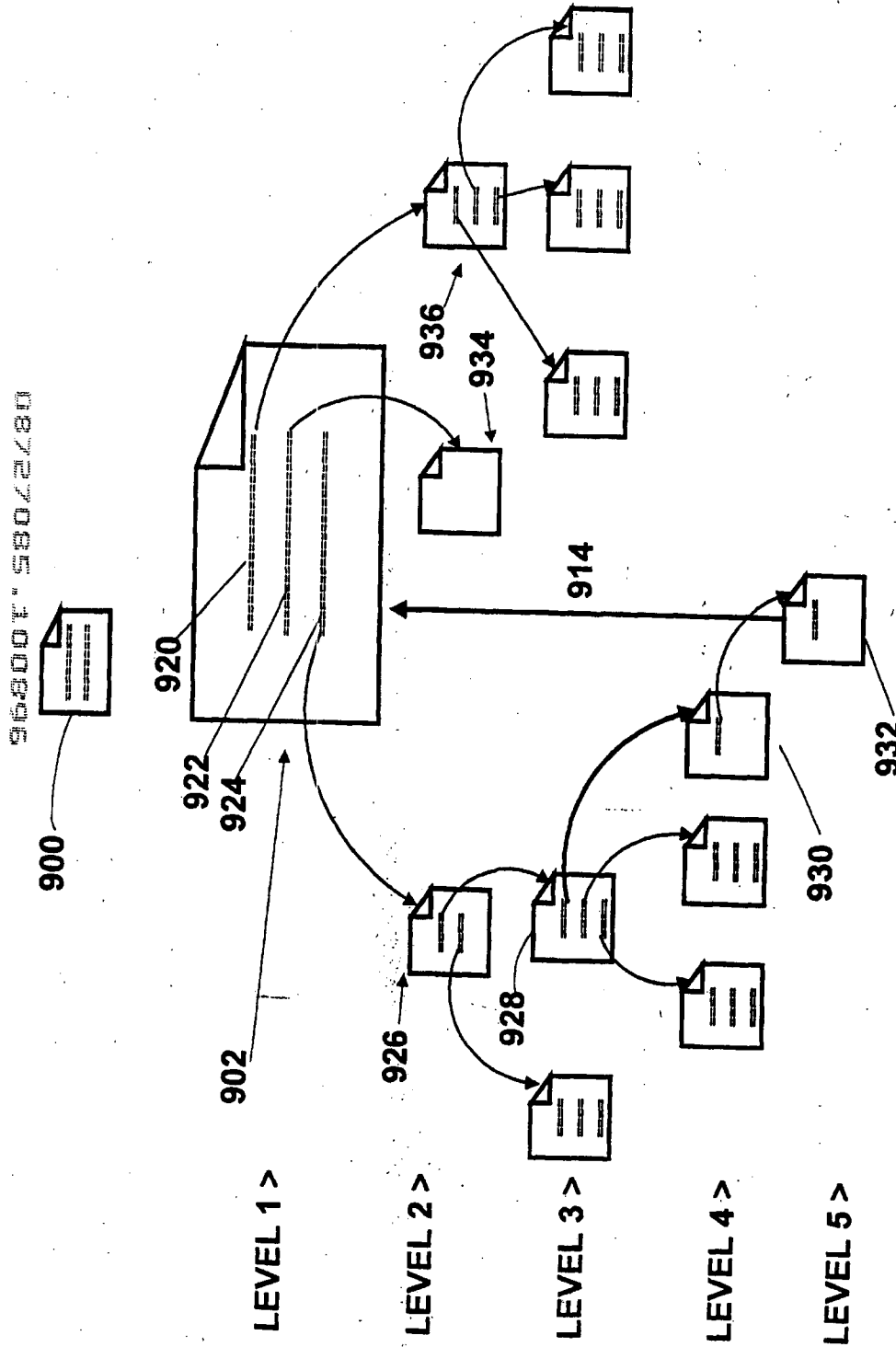


FIG. 9B



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
 Address: COMMISSIONER OF PATENTS AND TRADEMARKS
 Washington, D.C. 20231

#12

APPLICATION NUMBER	FILING/RECEIPT DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO./TITLE
08/727,085	10/08/96	BORMAN	G 18041.701

0262/1206
 WILSON SONSINI GOODRICH & ROSATI
 650 PAGE MILL ROAD
 PALO ALTO CA

DATE MAILED: 0000

12/06/96

NOTICE TO FILE MISSING PARTS OF APPLICATION
Filing Date Granted

An Application Number and Filing Date have been assigned to this application. However, the items indicated below are missing. The required items and fees identified below must be timely submitted ALONG WITH THE PAYMENT OF A SURCHARGE for items 1 and 3-6 only of \$ 120.00 for a large entity small entity in compliance with 37 CFR 1.27. The surcharge is set forth in 37 CFR 1.18(e). Applicant is given TWO MONTHS FROM THE DATE OF THIS NOTICE within which to file all required items and pay any fees required above to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

If all required items on this form are filed within the period set above, the total amount owed by applicant as a large entity small entity (verified statement filed), is \$ 1,272.

- 1. The statutory basic filing fee is:
 - missing.
 - insufficient.
 - Applicant must submit \$ 770.00 to complete the basic filing fee and/or file a verified small entity statement claiming such status (37 CFR 1.27).
- 2. Additional claim fees of \$ 372.00, including any multiple dependent claim fees, are required. Applicant must either submit the additional claim fees or cancel additional claims for which fees are due.
- 3. The oath or declaration:
 - is missing.
 - does not cover the newly submitted items.
 - does not identify the application to which it applies.
 - does not include the city and state or foreign country of applicant's residence.
 - An oath or declaration in compliance with 37 CFR 1.63, including residence information and identifying the application by the above Application Number and Filing Date is required.
- 4. The signature(s) to the oath or declaration is/are:
 - missing.
 - by a person other than inventor or person qualified under 37 CFR 1.42, 1.43, or 1.47.
 - A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.
- 5. The signature of the following joint inventor(s) is missing from the oath or declaration:

An oath or declaration listing the names of all inventors and signed by the omitted inventor(s), identifying this application by the above Application Number and Filing Date, is required.
- 6. A \$ _____ processing fee is required since your check was returned without payment (37 CFR 1.21(m)).
- 7. Your filing receipt was mailed in error because your check was returned without payment.
- 8. The application does not comply with the Sequence Rules.
 See attached "Notice to Comply with Sequence Rules 37 CFR 1.821-1.825."
- 9. OTHER:

Direct the response and any questions about this notice to "Attention: Box Missing Parts."

A copy of this notice MUST be returned with the response.

Caron M. Allwood TC
 Customer Service Center
 Initial Patent Examination Division (703) 308-1202



Attorney Docket No.: 18041-701

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application	)	<u>PATENT APPLICATION</u>
Inventor(s): Gilbert Borman, et al.)	
Application No.: 08/727,825-085	)	Group Art Unit: Not Yet Assigned
Filed: October 8, 1996	)	Examiner: Not Yet Assigned
Title: INTERNET SEARCH TOOLS)	

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8
I hereby certify that this correspondence is being deposited in the United States Postal Service with sufficient postage as first class mail in an envelope addressed to Commissioner of Patents and Trademarks, Washington, D.C. 20231, on March 5, 1997.

Annette Granados
Annette Granados

RESPONSE TO NOTICE TO FILE MISSING PARTS OF APPLICATION

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

In response to the Notice to File Missing Parts of Application - Filing Date Granted, dated December 6, 1996, enclosed are the following documents in connection with the above-identified application:

- Copy of Notice to File Missing Parts -- Filing Date Granted
- Combined Declaration and Power of Attorney for Utility Patent Application
- Revocation and New Power of Attorney by Assignee of Entire Interest
- Power of Attorney by Assignee
- Verified statement(s) of small entity status -Small Business Concern
- Petition for an Extension of Time pursuant to 37 C.F.R. §1.136(a) for responding to the Notice to File Missing Parts
- Information Disclosure Statement under 37 C.F.R. §1.56
- Preliminary Amendment

Patent Application Filing Fee

The patent application filing fee (if applicable) is calculated as shown below:

CLAIMS					
	NO. OF CLAIMS		EXTRA CLAIMS	RATE	FEE
Basic Application Fee					\$ 770.00
Total Claims	26	MINUS 20=	6	x \$22 =	\$132.00
Independent Claims	6	MINUS 3 =	3	x \$80 =	\$240.00
If multiple dependent claims are presented, add \$250.00					\$00.00
Total Application Fee (LARGE ENTITY)					\$1,142.00
If verified statement claiming small entity status is enclosed, subtract 50% of Total Application Fee					\$571.00
PATENT APPLICATION FILING FEE					\$571.00

Total Fee

The Total Fee associated with this communication has been calculated as shown below:

<input checked="" type="checkbox"/>	Patent application filing fee	\$ 571.00
<input checked="" type="checkbox"/>	Net fee for extension of time	\$ 195.00
<input checked="" type="checkbox"/>	Surcharge under 37 C.F.R. §1.16(e) for late filing of oath or declaration	
<input type="checkbox"/>	Large Entity	\$ 130.00
<input checked="" type="checkbox"/>	Small Entity	\$ 65.00
	TOTAL FEE DUE:	\$ 831.00

Method of Payment of Fees

The Commissioner is hereby authorized to charge underpayment of any additional fees associated with this communication or credit any overpayment to Deposit Account No. 23-2415 (Atty. Docket No. 18041-701). A duplicate copy of this authorization is enclosed.

Respectfully submitted,

Date: March 5, 1997

By: David J. Weitz
David J. Weitz
Reg. No.: 38,362

WILSON SONSINI GOODRICH & ROSATI
650 Page Mill Road
Palo Alto, CA 94304-1505
(415)493-9300

RECEIVED

DEC 13 1996

WILSON, SONSINI,
GOODRICH & ROSATI



030 18041-701
CC7 Tenretni
#3

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NUMBER	FILING/RECEIPT DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO./TITLE
08/727,085	10/08/96	BORNAN	G 18041,701

0262/1206
WILSON SONSINI GOODRICH & ROSATI
650 PAGE MILL ROAD
PALO ALTO CA

DATE MAILED: 0000

12/06/96

NOTICE-TO-FILE MISSING PARTS OF APPLICATION
Filing Date Granted

An Application Number and Filing Date have been assigned to this application. However, the items indicated below are missing. The required items and fees identified below must be timely submitted ALONG WITH THE PAYMENT OF A SURCHARGE for items 1 and 3-6 only of \$ 120.00 for a large entity small entity in compliance with 37 CFR 1.27. The surcharge is set forth in 37 CFR 1.16(e). Applicant is given TWO MONTHS FROM THE DATE OF THIS NOTICE within which to file all required items and pay any fees required above to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

If all required items on this form are filed within the period set above, the total amount owed by applicant as a

large entity small entity (verified statement filed), is \$ 120.00

1. The statutory basic filing fee is:

- missing.
- insufficient.

Applicant must submit \$ 770.00 to complete the basic filing fee and/or file a verified small entity statement claiming such status (37 CFR 1.27).

2. Additional claim fees of \$ 372.00, including any multiple dependent claim fees, are required.

Applicant must either submit the additional claim fees or cancel additional claims for which fees are due.

3. The oath or declaration:

- is missing.
- does not cover the newly submitted items.
- does not identify the application to which it applies.
- does not include the city and state or foreign country of applicant's residence.

An oath or declaration in compliance with 37 CFR 1.63, including residence information and identifying the application by the above Application Number and Filing Date is required.

4. The signature(s) to the oath or declaration is/are:

- missing.
- by a person other than inventor or person qualified under 37 CFR 1.42, 1.43, or 1.47.

A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.

5. The signature of the following joint inventor(s) is missing from the oath or declaration:

34127 201	385.00CH
34129 204	66.00CH
34129 204	120.00CH

An oath or declaration listing the names of all inventors and signed by the omitted inventor(s), identifying this application by the above Application Number and Filing Date, is required.

6. A \$ _____ processing fee is required since your check was returned without payment (37 CFR 1.21(m)).

7. Your filing receipt was mailed in error because your check was returned without payment.

8. The application does not comply with the Sequence Rules.

See attached "Notice to Comply with Sequence Rules" 37 CFR 1.821-1.825.

9. OTHER:

Direct the response and any questions about this notice to "Attention: Box Missing Parts"

A copy of this notice MUST be returned with the response. DUE DATES:

Customer Service Center
Initial Patent Examination Division (703) 308-1202

WSGR PATENT DOCKET	
U.S.:	<input checked="" type="checkbox"/> FOREIGN:
DOCKETED:	12-13-96 BY: ACW
ACTION:	US-Missing Parts
First Extension:	2/16/97
Final Day:	5/16/97
ATTY:	CC7 CM #: 18041-701



PATENT
Attorney Docket No. 18041.701

**COMBINED DECLARATION AND POWER OF ATTORNEY
FOR UTILITY PATENT APPLICATION**

As a below-named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

INTERNET SEARCH TOOLS

the specification of which

 is attached hereto.

 X was filed on October 8, 1996, as Application Serial No. 08/727,085
and was amended on _____
(If Applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a) which states in relevant part: "Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section.... The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§ 1.97(b)-(d) and 1.98."

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate as indicated below and have also identified below any foreign application for patent or inventor's certificate on this invention having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)		Priority Claimed	
(Number)	(Country)	(Day/Month/Year Filed)	Yes No
_____	_____	_____	_____

Attorney Docket No. 18041.701

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulation, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)	(Filing Date)	(Patented, Pending, Abandoned)
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David J. Weitz	38,362
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Michael J. Murphy	37,404
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Charles C. Cary	36,764

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 650 Page Mill Road
 Palo Alto, CA 94304

Direct all telephone calls to Charles C. Cary at (415) 493-9300.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Title 18, United States Code, §1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Attorney Docket No. 18041.701

Full name of fifth joint inventor, if any: Vinay Wadhwa
Inventor's signature: _____
Date: _____
Citizenship: India
Residence: C2150 Vasant Kunj, New Delhi, India 110070
Post Office Address: Same as above.

Full name of sixth joint inventor, if any: Mukesh Kumar
Inventor's signature: _____
Date: _____
Citizenship: India
Residence: A4C - 117, Janakpuri, New Delhi India 110058
Post Office Address: Same as above.

Full name of seventh joint inventor, if any: C. Vinay Kumar Singh
Inventor's signature: _____
Date: _____
Citizenship: India
Residence: A-502, Rail Vihar, Sector 15 phase II, Guragon, India
Post Office Address: Same as above.



PATENT
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(Number)	(Country)	(Day/Month/Year Filed)	Yes No

Attorney Docket No. 18041.701

Full name of sole or first inventor: Gilbert Borman
Inventor's signature: _____
Date: _____
Citizenship: U.S.A.
Residence: 554 Bennington, Bloomfield Hills, MI 48304
Post Office Address: Same as above.

Full name of second joint inventor, if any: Rajat Bhatnagar
Inventor's signature: [Signature]
Date: 1/15/97
Citizenship: India
Residence: 1435 Bedford Street, #5C, Stamford, CT 06905
Post Office Address: Same as above.

Full name of third joint inventor, if any: Arul Sebastian
Inventor's signature: [Signature]
Date: 1/20/97
Citizenship: India
Residence: 60 Strawberry Hill Ave., #816, Stamford, CT 06902
Post Office Address: Same as above.

Full name of fourth joint inventor, if any: Anup Mathur
Inventor's signature: _____
Date: _____
Citizenship: India
Residence: 870 E. El Camino Real, #521, Sunnyvale, CA 94087
Post Office Address: Same as above.

Attorney Docket No. 18041.701

Full name of fifth joint inventor, if any: Vinay Wadhwa
Inventor's signature: _____
Date: _____
Citizenship: India
Residence: C2150 Vasant Kunj, New Delhi, India 110070
Post Office Address: Same as above.

Full name of sixth joint inventor, if any: Mukesh Kumar
Inventor's signature: _____
Date: _____
Citizenship: India
Residence: A4C - 117, Janakpuri, New Delhi India 110058
Post Office Address: Same as above.

Full name of seventh joint inventor, if any: C. Vinay Kumar Singh
Inventor's signature: _____
Date: _____
Citizenship: India
Residence: A-502, Rail Vihar, Sector 15 phase II, Guragon, India
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PATENT
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Date: _____
Citizenship: India
Residence: 60 Strawberry Hill Ave., #816, Stamford, CT 06902
Post Office Address: Same as above

Full name of fourth joint inventor, if any: Anup Mathur
Inventor's signature: Anup Kumar Mathur
Date: 2/5/97
Citizenship: India
Residence: 870 E. El Camino Real, #521, Sunnyvale, CA 94087
Post Office Address: Same as above

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Attorney Docket No. 18041.701

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Citizenship: India
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Date: _____
Citizenship: India
Residence: 60 Strawberry Hill Ave, #816, Stamford, CT 06902
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Inventor's signature: _____
Date: _____
Citizenship: India
Residence: 870 E. El Camino Real, #521, Sunnyvale, CA 94087
Post Office Address: Same as above.

Attorney Docket No. 18041.701

Full name of fifth joint inventor, if any: Vinay Wadhwa
Inventor's signature: _____
Date: _____
Citizenship: India
Residence: C2150 Vasant Kunj, New Delhi, India 110070
Post Office Address: Same as above.

Full name of sixth joint inventor, if any: Mukesh Kumar
Inventor's signature: Mkumar
Date: Feb. 04, 1997
Citizenship: India
Residence: 285 E. Del Mar, Apt. 5, Pasadena, CA 91101
Post Office Address: Same as above.

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PATENT
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 Palo Alto, CA 94304

Direct all telephone calls to Charles C. Cary at (415) 493-9300.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Title 18, United States Code, §1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Attorney Docket No. 18041.701

Full name of sole or first inventor: Gilbert Borman
Inventor's signature: _____
Date: _____
Citizenship: U.S.A.
Residence: 554 Bennington, Bloomfield Hills, MI 48304
Post Office Address: Same as above.

Full name of second joint inventor, if any: Rajat Bhatnagar
Inventor's signature: _____
Date: _____
Citizenship: India
Residence: 1435 Bedford Street, #5C, Stamford, CT 06905
Post Office Address: Same as above.

Full name of third joint inventor, if any: Arul Sebastian
Inventor's signature: _____
Date: _____
Citizenship: India
Residence: 60 Strawberry Hill Ave., #816, Stamford, CT 06902
Post Office Address: Same as above.

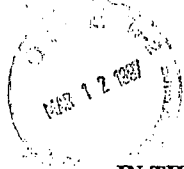
Full name of fourth joint inventor, if any: Anup Mathur
Inventor's signature: _____
Date: _____
Citizenship: India
Residence: 870 E. El Camino Real, #521, Sunnyvale, CA 94087
Post Office Address: Same as above.

Attorney Docket No. 18041.701

Full name of fifth joint inventor, if any: Vinay Wadhwa
Inventor's signature: *Vinay Wadhwa*
Date: January 17th, 1997
Citizenship: India
Residence: C2150 Vasant Kunj, New Delhi, India 110070
Post Office Address: Same as above.

Full name of sixth joint inventor, if any: Mukesh Kumar
Inventor's signature: _____
Date: _____
Citizenship: India
Residence: A4C - 117, Janakpuri, New Delhi India 110058
Post Office Address: Same as above.

Full name of seventh joint inventor, if any: C. Vinay Kumar Singh
Inventor's signature: *Vinay*
Date: January 17th, 1997
Citizenship: India
Residence: A-502, Rail Vihar, Sector 15 phase II, Guragon, India
Post Office Address: Same as above.



PATENT
Attorney Docket No. 18041.701

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of)	
	)	Examiner: Unknown
Gilbert Borman et al.)	
	)	Group Art Unit: Unknown
Serial No. 08/727,025 025 085)	
)	
Filed: October 8, 1996)	
)	
For: Internet Search Tools)	

**REVOCATION AND NEW POWER OF ATTORNEY
BY ASSIGNEE OF ENTIRE INTEREST**

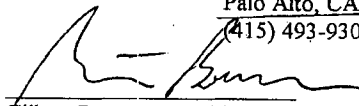
Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

As the Assignee of the entire interest in the above-identified application, all powers of attorney previously given are hereby revoked, Paul Davis, Registration No. 29,294; Mark A. Haynes, Registration No. 30,846; Michael Hetherington, Registration No. 32,357; Charles D. Holland, Registration No. 35,196; Hark C. Chan, Registration No. 35,477; Charles C. Cary, Registration No. 36,764; Michael J. Panepucci, Registration No. 37,203; Michael J. Murphy, Registration No. 37,404; David J. Weitz, Registration No. 38,362; and Kent R. Richardson, Registration No. 39,443, are hereby appointed to prosecute and transact all business in the U.S. Patent and Trademark Office connected with the above-identified application.

Please direct all telephone calls and correspondence to:

Charles C. Cary
Wilson, Sonsini, Goodrich & Rosati
650 Page Mill Road
Palo Alto, CA 94304-1050
(415) 493-9300

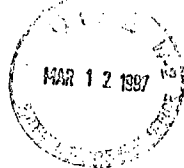
By: 
Gilbert Borman, President
Tenretni Dynamics, Inc.

Date: 2/12/97

08727085-100896

02/18/97 14:42 WILSON SONSINI + 8103530383

NO. 074 P002/003



Patent Attorney Docket No. 18041.701

Applicant or Patentee: Gilbert Borman et al.
Serial or Patent No.: 08/727,085
Filed or Issued: October 8, 1996
For: Internet Search Tools

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS (37 CFR 1.90(f) and 1.27(c) - SMALL BUSINESS CONCERN

I hereby declare that I am
 the owner of the small business concern identified below:
 an official of the small business concern empowered to act on behalf of the concern identified below:

Name of Concern: Tenrelni Dynamics, Inc.
Address of Concern: 1 Oakland Towne Square, Suite 1690, Southfield, Michigan 48076

I hereby declare that the above identified small business concern qualifies as a small business concern as defined in 13 CFR 121.3-18, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees under Section 41(n) and (b) of Title 35, United States Code, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third-party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed, to and remain with the small business concern identified above with regard to the invention, entitled

INTERNET SEARCH TOOLS

by inventors Gilbert Borman, Rajat Bhatnagar, Arul Sebastian, Anup Mathur, Vinny Wadhwa, Mukesh Kumar and C. Vinay Kumar Singh, described in

the specification filed herewith
 Application Serial No. 08/727,085, filed October 8, 1996
 Patent No. _____, issued _____

If the rights held by the above identified small business concern are not exclusive, each individual, concern or organization having rights to the invention is listed below* and no rights to the invention are held by any person, other than the inventor, who could not qualify as a small business concern under 37 CFR 1.9(d) or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Name: Gilbert Borman
Address: 1 OAKLAND TOWNE SQUARE
SUITE 1690
SOUTHFIELD, MI 48076

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earlier of the issue fee or any maintenance fee due after the date on which status as a small business entity is no longer appropriate. (37 CFR 1.28(b)).

08727085-100896

02/18/97 14:43 WILSON-FONSINI → 8103530383


NO. 074 P003/003

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which the verified statement is directed.

Name of Person Signing: Gilbert Borman

Title of Person Other Than Owner: President

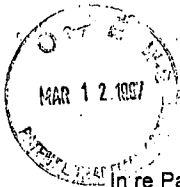
Address of Person Signing: 1 Oakland Towne Square, Suite 1690, Southfield, Michigan 48076

Signature: 

Date: 2-28-97

08727085.100896

0300



Attorney Docket No.: 18041-701

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of	)	PATENT APPLICATION
Gilbert Borman, et al.)	
Application No.: 08/727,325 083	)	Examiner: Not Yet Assigned
Filed: October 8, 1996	)	Group Art Unit: Not Yet Assigned
Title: INTERNET SEARCH TOOLS)	

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8 - FIRST CLASS MAIL
I hereby certify that this correspondence is being deposited postage prepaid, with the United States Postal Service as "First Class Mail" in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231 on March 5, 1997.

Annette Granados (Signature)
Annette Granados

PETITION FOR EXTENSION OF TIME

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Pursuant to 37 C.F.R. §1.136(a), an extension of time of:

	<u>Large Entity</u>	<u>Small Entity</u>
Two Months	<input type="checkbox"/> \$ 390.00	<input checked="" type="checkbox"/> \$195.00

and at least up to and including the filing date of the present paper is hereby requested to respond to the Official Action mailed December 6, 1996.

PAYMENT OF FEES

The full fee due in connection with this Petition is \$195.00, and is provided as follows:

The fee is provided as set forth in the accompanying paper entitled RESPONSE TO NOTICE TO FILE MISSING PARTS OF APPLICATION.

Respectfully submitted,

Date: March 5, 1997

By: David J. Weitz

David J. Weitz
Registration No. 38,362 23-2435 03/31/97 08737205
11131 216 171.350H

WILSON SONSINI GOODRICH & ROSATI
650 Page Mill Road
Palo Alto, CA 94304-1505
(415)493-9300

H:\PRIVATE\H&D\INRENTN\701\EXT TIME.MST



PATENT
Attorney Docket No. 18041.704

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)	
Gilbert Borman et al.	)	Examiner: Unknown
Application No. 08/727,825)	
Filed: October 8, 1996	)	Group Art Unit: Unknown
For: Internet Search Tools)	

RECEIVED
AUG 15 97
GROUP 2600

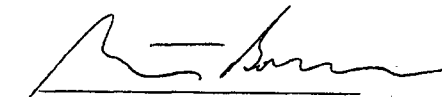
CONSENT OF ASSIGNEE

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Tenretni Dynamics, Inc., is the sole assignee of record for the above-referenced application. As the sole assignee, Tenretni Dynamics, Inc. hereby consents to the addition of C. Vinay Kumar Singh as a joint inventor of the above-referenced application.

Executed this 12th day of February, 1997 at
Southfield Michigan, Michigan



Gilbert Borman, President



Cap 251 #3 1/2
230

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on March 5, 1997.

Annette Granados
Annette Granados

24/12

PATENT
Attorney Docket No. 18041.701

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
Gilbert Borman et al.)
Application No. 08/727,825)
Filed: October 8, 1996)
For: Internet Search Tools)

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APR 02 1997
GROUP 2500
RECEIVED
AUG 15 97

PETITION TO CHANGE INVENTORSHIP UNDER 37 C.F.R. 1.48(a)

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

This Petition is submitted under 37 CFR 1.48(a) to correct inventorship in the above-referenced application.

It is hereby requested that C. Vinay Kumar Singh be added as an additional inventor in this application.

This petition is accompanied by:

- (a) A declaration, including Verified Statement of Facts and Consent of Change of Inventorship Under 37 C.F.R. 1.48(a) by the original named inventors establishing when the error without deceptive intent was discovered and how it occurred;
- (b) A declaration of omitted inventor, C. Vinay Kumar Singh;
- (c) A copy of the combined declaration and power of attorney signed by each of the actual inventors as required under 37 C.F.R. 1.63. The original Declaration was filed with the U.S. Patent and Trademark Office in a response to the Notice to File Missing Parts dated December 6, 1996;

Missing Parts dated December 6, 1996 ;
23132 122 130.00CH

PC Docs 123081

Application No. 08/727,075
Page 2

(d) Consent of Assignee; and

(e) The commissioner is authorized to withdraw from Deposit Account No. 23-2415

(Docket No. 18041.701) the fee of \$65.00 to cover the cost of this petition as well as any additional fee or credit for overpayment as deemed appropriate. A duplicate of this paper is enclosed.

The above-identified application was filed on October 8, 1996, and C. Vinay Kumar Singh was inadvertently omitted as an inventor.

In October 1996 of this year, I was involved in the preparation and filing of the above-mentioned application. At the time this application was being prepared and filed, I did not realize that the claims as filed included contributions for which C. Vinay Kumar Singh should be named as a co-inventor. Less than a month after filing the patent application, the originally named inventors had occasion to carefully review the patent claims. At that time, it was brought to my attention that C. Vinay Kumar Singh should be named as a co-inventor. I then promptly prepared this petition to add Mr. Singh as a co-inventor.

The omission of C. Vinay Kumar Singh as a joint inventor of the above-referenced patent application was done with no deceptive intent.

For these reasons, favorable action on this petition is respectfully solicited.

Respectfully submitted,

WILSON SONSINI GOODRICH & ROSATI

By: David Weitz
David Weitz
Registration No. 38,362

650 Page Mill Road
Palo Alto, California 94304
(415) 493-9300

Date: March 5, 1997

PC Docs 123081

G 000176



PATENT
Attorney Docket No. 18041.701

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
Inventors: Gilbert Borman et al.)
Application No. 08/727,825)
Filed: October 8, 1996)
For: Internet Search Tools)

VERIFIED STATEMENT OF FACTS AND CONSENT OF CHANGE OF INVENTORSHIP BY GILBERT BORMAN ET AL. UNDER 37 C.F.R. 1.48(a)

1. We, Gilbert Borman, Rajat Bhatnagar, Arul Sebastian, Anup Mathur, Vinay Wadhwa and Mukesh Kumar are the originally named inventors of the above mentioned application filed on October 8, 1996, and assigned application number 08/727,085. Gilbert Borman is President of Tenretni Dynamics. Rajat Bhatnagar, Arul Sebastian, Anup Mathur are employees of HCL America where we hold positions as Engineers. Vinay Wadhwa and Mukesh Kumar are employees of HCL Consulting where we hold positions as Engineers.

2. Gilbert Borman contacted HCL America to discuss certain difficulties associated with conducting Internet searches. The originally named inventors, along with C. Vinay Kumar Singh, an engineer employed by HCL Consulting, worked on solutions to some of these difficulties which are described in the above mentioned application.

3. Around October 1996, Gilbert Borman, Rajat Bhatnagar and Charles C. Cary, patent counsel, were involved in preparing and filing the above-mentioned application. Due to the fact Mr. Singh was in India, he did not participate in the preparation of the application. At the time the application was filed, we did not realize that C. Vinay Kumar Singh had not been named as a co-inventor. Less than a month after filing the patent application, we had occasion to carefully review the patent claims and realized that C. Vinay Kumar Singh had not been named as a co-inventor.

PC Docs 123066


Attorney Docket No. 18041.701

Page 2

4. The omission of C. Vinay Kumar Singh as a joint inventor of the above-referenced patent application was done with no deceptive intent. Once we learned that C. Vinay Kumar Singh had been omitted as an inventor we promptly contacted Charles C. Cary, patent counsel, to have Mr. Singh added as an inventor.

5. We make this verification with the full knowledge that willful false statements are punishable by fine or imprisonment or both (18 U.S.C. § 1001) and may jeopardize the validity of the patent above referenced. All statements made herein of my own knowledge are true. All statements made herein on information and belief, are believed to be true.

Executed this 7th day of January, 1997, at
Bloomfield Hills, Michigan.



Gilbert Borman

Executed this _____ day of _____, 1997, at
_____, Connecticut.

Rajat Bhatnagar

Executed this _____ day of _____, 1997, at
_____, Connecticut.

Arul Sebastian

Attorney Docket No. 18041.701
Page 3

Executed this _____ day of _____, 1997, at
_____, California.

Anup Mathur

Executed this _____ day of _____, 1997, at
_____, India.

Vinay Wadhwa

Executed this _____ day of _____, 1997, at
_____, India.

Mukesh Kumar



PATENT
Attorney Docket No. 18041.701

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
Inventors: Gilbert Borman et al.)
Application No. 08/727,825)
Filed: October 8, 1995)
For: Internet Search Tools)

RECEIVED
AUG 15 97
GROUP 2600

VERIFIED STATEMENT OF FACTS AND CONSENT OF CHANGE OF INVENTORSHIP BY GILBERT BORMAN ET AL. UNDER 37 C.F.R. 1.48(a)

1. We, Gilbert Borman, Rajat Bhatnagar, Arul Sebastian, Anup Mathur, Vinay Wadhwa and Mukesh Kumar are the originally named inventors of the above mentioned application filed on October 8, 1996, and assigned application number 08/727,085. Gilbert Borman is President of Tenretni Dynamics. Rajat Bhatnagar, Arul Sebastian, Anup Mathur are employees of HCL America where we hold positions as Engineers. Vinay Wadhwa and Mukesh Kumar are employees of HCL Consulting where we hold positions as Engineers.

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PC Docs 123066

Attorney Docket No. 18041.701

Page 2

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Executed this _____ day of _____, 1997, at
_____, Michigan.

Gilbert Borman

Executed this _____ day of _____, 1997, at
_____, Connecticut.

Rajat Bhatnagar

Executed this _____ day of _____, 1997, at
_____, Connecticut.

Arul Sebastian

Attorney Docket No. 18041.701
Page 3

Executed this _____ day of _____, 1997, at
_____, California.

Anup Mathur

Executed this 30th day of January, 1997, at
New Delhi, India.

Vinay Wadhwa

Vinay Wadhwa

Executed this _____ day of _____, 1997, at
_____, India.

Mukesh Kumar



PATENT
Attorney Docket No. 18041.701

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
)
Inventors: Gilbert Borman et al.)
)
Application No. 08/727,825)
)
Filed: October 8, 1996)
)
For: Internet Search Tools)

VERIFIED STATEMENT OF FACTS AND CONSENT OF CHANGE OF INVENTORSHIP BY GILBERT BORMAN ET AL. UNDER 37 C.F.R. 1.48(a)

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PC Docs 123066

Attorney Docket No. 18041.701
Page 2

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Executed this _____ day of _____, 1997, at
_____, Michigan.

Gilbert Borman

Executed this 15 day of Jan, 1997, at
Stamford, Connecticut.

Rajat Bhatnagar Colfax D1 A8625865 5/2/99 2/26/01

Executed this 20 day of Jan, 1997, at

Stamford, Connecticut.

Arul Sebastian
Arul Sebastian

Attorney Docket No. 18041.701
Page 3

Executed this _____ day of _____, 1997, at
_____, California.

Anup Mathur

Executed this _____ day of _____, 1997, at
_____, India.

Vinay Wadhwa

Executed this _____ day of _____, 1997, at
_____, India.

Mukesh Kumar

PC Does 123066

G 000185



PATENT
Attorney Docket No. 18041.701

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
Inventors: Gilbert Borman et al.)
Application No. 08/727,825)
Filed: October 8, 1996)
For: Internet Search Tools)

VERIFIED STATEMENT OF FACTS AND CONSENT OF CHANGE OF INVENTORSHIP BY GILBERT BORMAN ET AL. UNDER 37 C.F.R. 1.48(a)

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was made.
M. Gupta
01/31/97

2. Gilbert Borman contacted HCL America to discuss certain difficulties associated with conducting Internet searches. The originally named inventors, along with C. Vinay Kumar Singh, an engineer employed by HCL Consulting, worked on solutions to some of these difficulties which are described in the above mentioned application.

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PC Docs 123066

Attorney Docket No. 18041.701

Page 2

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Executed this _____ day of _____, 1997, at
_____, Michigan.

Gilbert Borman

Executed this _____ day of _____, 1997, at
_____, Connecticut.

Rajat Bhatnagar

Executed this _____ day of _____, 1997, at
_____, Connecticut.

Arul Sebastian

Attorney Docket No. 18041.701
Page 3

Executed this _____ day of _____, 1997, at
_____, California.

Anup Mathur

Executed this _____ day of _____, 1997, at
_____, India.

Vinay Wadhwa

Executed this 31 day of January, 1997, at
285. E. DEL MAR, APTS, India Pasadena, California - 91101

Mkupta
1/31/97 _____
Mukesh Kumar



PATENT
Attorney Docket No. 18041.701

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
Inventors: Gilbert Borman et al.)
Application No. 08/727,825)
Filed: October 8, 1996)
For: Internet Search Tools)

VERIFIED STATEMENT OF FACTS AND CONSENT OF CHANGE OF INVENTORSHIP BY GILBERT BORMAN ET AL. UNDER 37 C.F.R. 1.48(a)

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PC Docs 123066

Attorney Docket No. 18041.701
Page 2

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Executed this _____ day of _____, 1997, at
_____, Michigan.

Gilbert Borman

Executed this _____ day of _____, 1997, at
_____, Connecticut.

Rajat Bhatnagar

Executed this _____ day of _____, 1997, at
_____, Connecticut.

Arul Sebastian

Attorney Docket No. 18041.701
Page 3

Executed this 6th day of February, 1997, at
Sunnyvale, California.

Anup Kumar Mathur
Anup Mathur

Executed this _____ day of _____, 1997, at
_____, India.

Vinay Wadhwa

Executed this _____ day of _____, 1997, at
_____, India.

Mukesh Kumar



PATENT
Attorney Docket No. 18041.701

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
Inventors: Gilbert Borman et al.)
Application No. 08/727,825)
Filed: October 8, 1996)
For: Internet Search Tools)

DECLARATION OF: C. VINAY KUMAR SINGH

Assistant Commissioner for Patents
Washington, D.C. 20231
ATTN: BOX DAC

Sir:

I, C. Vinay Kumar Singh, declare that the following is true and correct:

1. I have worked at HCL Consulting since 8th June 1995 (Date) and presently hold the position of Project leader (Title).

2. Upon my review of the claims presently pending in the above-referenced patent application, it is my belief that I am a co-inventor of subject matter claimed in at least one of the pending claims.

3. Gilbert Borman contacted HCL America to discuss certain difficulties associated with conducting Internet searches. I worked with the named inventors on solutions to these difficulties which are described in the above-mentioned application.

4. Around October 1996, the above-mentioned U.S. patent application was prepared and filed. I was aware that the above-referenced application was being prepared and filed, but did not participate in its preparation. Less than a month after filing the patent application, it was realized

PC Docs 123370

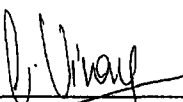
USSN 08/727,825
Page 2

that I was not named as a co-inventor. Once this error was realized, I understand that patent counsel was promptly requested to add me as a co-inventor.

5. I believe that the omission of my name as an inventor in the above-referenced patent application was inadvertent and was not done with any deceptive intent.

6. I make this declaration with the knowledge that willful false statements and the like are punishable by fine or imprisonment or both (18 U.S.C. § 1001) and may jeopardize the validity of the patent. All statements of my own knowledge are true. I believe all statements made herein on information and belief to be true.

Executed this 17th day of January 1997 at
New Delhi, India.



C. Vinay Kumar Singh



PATENT
Attorney Docket No. 18041.701

**COMBINED DECLARATION AND POWER OF ATTORNEY
FOR UTILITY PATENT APPLICATION**

As a below-named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

INTERNET SEARCH TOOLS

the specification of which

_____ is attached hereto.

was filed on October 8, 1996, as Application Serial No. 08/727,085
and was amended on _____

(If Applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a) which states in relevant part: "Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section....The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§ 1.97(b)-(d) and 1.98."

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate as indicated below and have also identified below any foreign application for patent or inventor's certificate on this invention having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)		Priority Claimed	
(Number)	(Country)	(Day/Month/Year Filed)	Yes No

Attorney Docket No. 18041.701

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulation, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)	(Filing Date)	(Patented, Pending, Abandoned)
(Application Serial No.)	(Filing Date)	(Patented, Pending, Abandoned)

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith, and to file, prosecute and to transact all business in connection with international applications directed to said invention:

Stephen C. Durant	31,506
Mark A. Haynes	30,846
Paul Davis	29,294
Michael Hetherington	32,357
Hark C. Chan	35,477
Charles D. Holland	35,196
David J. Weitz	38,362
Michael J. Panepucci	37,203
Michael J. Murphy	37,404
Kent R. Richardson	39,443
Charles C. Cary	36,764

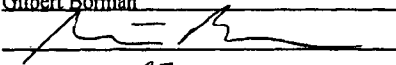
Address all correspondence to:

Wilson, Sonsini, Goodrich & Rosati
 650 Page Mill Road
 Palo Alto, CA 94304

Direct all telephone calls to Charles C. Cary at (415) 493-9300.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Title 18, United States Code, §1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Attorney Docket No. 18041.701

Full name of sole or first inventor: Gilbert Borman
Inventor's signature: 
Date: 1-7-97
Citizenship: U.S.A.
Residence: 554 Bennington, Bloomfield Hills, MI 48304
Post Office Address: Same as above.

Full name of second joint inventor, if any: Rajat Bhatnagar
Inventor's signature: _____
Date: _____
Citizenship: India
Residence: 1435 Bedford Street, #5C, Stamford, CT 06905
Post Office Address: Same as above.

Full name of third joint inventor, if any: Arul Sebastian
Inventor's signature: _____
Date: _____
Citizenship: India
Residence: 60 Strawberry Hill Ave., #816, Stamford, CT 06902
Post Office Address: Same as above.

Full name of fourth joint inventor, if any: Anup Mathur
Inventor's signature: _____
Date: _____
Citizenship: India
Residence: 870 E. El Camino Real, #521, Sunnyvale, CA 94087
Post Office Address: Same as above.

Attorney Docket No. 18041.701

Full name of fifth joint inventor, if any: Vinay Wadhwa
Inventor's signature: _____
Date: _____
Citizenship: India
Residence: C2150 Vasant Kunj, New Delhi, India 110070
Post Office Address: Same as above.

Full name of sixth joint inventor, if any: Mukesh Kumar
Inventor's signature: _____
Date: _____
Citizenship: India
Residence: A4C - 117, Janakpuri, New Delhi India 110058
Post Office Address: Same as above.

Full name of seventh joint inventor, if any: C. Vinay Kumar Singh
Inventor's signature: _____
Date: _____
Citizenship: India
Residence: A-502, Rail Vihar, Sector 15 phase II, Guragon, India
Post Office Address: Same as above.



PATENT
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Prior Foreign Application(s)			Priority Claimed	
(Number)	(Country)	(Day/Month/Year Filed)	Yes	No

08727085-100896

Attorney Docket No. 18041.701

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulation, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)	(Filing Date)	(Patented, Pending, Abandoned)

(Application Serial No.)	(Filing Date)	(Patented, Pending, Abandoned)

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith, and to file, prosecute and to transact all business in connection with international applications directed to said invention:

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Stephen C. Durant	31,506
Mark A. Haynes	30,846
Paul Davis	29,294
Michael Hetherington	32,357
Hark C. Chan	35,477
Charles D. Holland	35,196
David J. Weitz	38,362
Michael J. Panepucci	37,203
Michael J. Murphy	37,404
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Charles C. Cary	36,764

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Attorney Docket No. 18041.701

100

Full name of sole or first inventor: Gilbert Borman
 Inventor's signature: [Signature]
 Date: 1-7-97
 Citizenship: U.S.A.
 Residence: 554 Bennington, Bloomfield Hills, MI 48304 *MI*
 Post Office Address: Same as above.

Full name of second joint inventor, if any: Rajat Bhatnagar
 Inventor's signature: _____
 Date: _____
 Citizenship: India
 Residence: 1435 Bedford Street, #5C, Stamford, CT 06905
 Post Office Address: Same as above.

Full name of third joint inventor, if any: Arul Sebastian
 Inventor's signature: _____
 Date: _____
 Citizenship: India
 Residence: 60 Strawberry Hill Ave., #816, Stamford, CT 06902
 Post Office Address: Same as above.

Full name of fourth joint inventor, if any: Anup Mathur
 Inventor's signature: _____
 Date: _____
 Citizenship: India
 Residence: 870 E. El Camino Real, #521, Sunnyvale, CA 94087
 Post Office Address: Same as above.

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Attorney Docket No. 18041.701

Full name of sole or first inventor: Gilbert Borman
 Inventor's signature: _____
 Date: _____
 Citizenship: U.S.A.
 Residence: 554 Bennington, Bloomfield Hills, MI 48304
 Post Office Address: Same as above.

2nd
 Full name of second joint inventor, if any: Rajat Bhatnagar
 Inventor's signature: [Signature]
 Date: 1/15/97
 Citizenship: India
 Residence: 1435 Bedford Street, #5C, Stamford, CT 06905 CT
 Post Office Address: Same as above.

3rd
 Full name of third joint inventor, if any: Arul Sebastian
 Inventor's signature: [Signature]
 Date: 1/20/97
 Citizenship: India
 Residence: 60 Strawberry Hill Ave., #816, Stamford, CT 06902 CT
 Post Office Address: Same as above.

Full name of fourth joint inventor, if any: Anup Mathur
 Inventor's signature: _____
 Date: _____
 Citizenship: India
 Residence: 870 E. El Camino Real, #521, Sunnyvale, CA 94087
 Post Office Address: Same as above.

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Attorney Docket No. 18041.701

Full name of sole or first inventor: Gilbert Borman
 Inventor's signature: _____
 Date: _____
 Citizenship: U.S.A.
 Residence: 554 Bennington, Bloomfield Hills, MI 48304
 Post Office Address: Same as above.

Full name of second joint inventor, if any: Rajat Bhatnagar
 Inventor's signature: _____
 Date: _____
 Citizenship: India
 Residence: 1435 Bedford Street, #5C, Stamford, CT 06905
 Post Office Address: Same as above.

Full name of third joint inventor, if any: Arul Sebastian
 Inventor's signature: _____
 Date: _____
 Citizenship: India
 Residence: 60 Strawberry Hill Ave., #816, Stamford, CT 06902
 Post Office Address: Same as above.

400
 Full name of fourth joint inventor, if any: Anup Mathur
 Inventor's signature: Anup Kumar Mathur
 Date: 3/5/97
 Citizenship: India
 Residence: 870 E. El Camino Real, #521, Sunnyvale, CA 94087 CA
 Post Office Address: Same as above.

08727085, 100896

Attorney Docket No. 18041.701

500

Full name of fifth joint inventor, if any: Vinay Wadhwa
 Inventor's signature: Vinay Wadhwa
 Date: January 17th, 1997
 Citizenship: India
 Residence: C2150 Vasant Kunj, New Delhi, India 110070 INX
 Post Office Address: Same as above.

Full name of sixth joint inventor, if any: Mukesh Kumar
 Inventor's signature: _____
 Date: _____
 Citizenship: India
 Residence: A4C - 117, Janakpuri, New Delhi India 110058
 Post Office Address: Same as above.

700

Full name of seventh joint inventor, if any: C. Vinay Kumar Singh
 Inventor's signature: Vinay
 Date: January 17th, 1997
 Citizenship: India
 Residence: A-502, Rail Vihar, Sector 15 phase II, Gurugram, India INX
 Post Office Address: Same as above.

08727085.100896

Attorney Docket No. 18041.701

Full name of fifth joint inventor, if any: Vinay Wadhwa
 Inventor's signature: _____
 Date: _____
 Citizenship: India
 Residence: C2150 Vasant Kunj, New Delhi, India 110070
 Post Office Address: Same as above.

600
 Full name of sixth joint inventor, if any: Mukesh Kumar
 Inventor's signature: Mkumar
 Date: Feb. 04, 1997
 Citizenship: India
 Residence: 285 E. Del Mar, Apt. 5, Pasadena, CA 91101 @14
 Post Office Address: Same as above.

Full name of seventh joint inventor, if any: C. Vinay Kumar Singh
 Inventor's signature: _____
 Date: _____
 Citizenship: India
 Residence: A-502, Rail Vihar, Sector 15 phase II, Guragon, India
 Post Office Address: Same as above.

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