

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
7 December 2000 (07.12.2000)

PCT

(10) International Publication Number
WO 00/74335 A2

- (51) International Patent Classification⁷: **H04L 29/00** CA 92120 (US). **JACOBS, Paul, L.**; 1114 East 6th Street, National City, CA 91950 (US).
- (21) International Application Number: PCT/US00/14844
- (22) International Filing Date: 26 May 2000 (26.05.2000)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/137,133 28 May 1999 (28.05.1999) US
- (74) Agents: **ZIMMER, Kevin, J.**; Cooley Godward LLP, Five Palo Alto Square, 3000 El Camino Real, Palo Alto, CA 94306-2155 et al. (US).
- (81) Designated States (*national*): AU, CA, IN, JP.
- (84) Designated States (*regional*): European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).
- (71) Applicant: **4HITS.COM, INC.** [US/US]; 590 Laguna Drive, Carlsbad, CA 92008 (US). **Published:**
— *Without international search report and to be republished upon receipt of that report.*
- (72) Inventors: **KNOWLES, Jeffrey, W.**; 590 Laguna Drive, Carlsbad, CA 92008 (US). **DEL SOL, Robert, E.**; 4221 Bonita Road, Unit 13, Bonita, CA 91902 (US). **McCULLOUGH, James, B.**; 7737 Margerum #208, San Diego, *For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*



WO 00/74335 A2

(54) Title: METHOD AND APPARATUS FOR REDIRECTING USERS FROM VIRTUAL LOCATIONS ON THE WORLD WIDE WEB TO OTHER ASSOCIATED WEB LOCATIONS

(57) Abstract: A web server for redirecting requested URLs from clients to customer-specified web pages is disclosed herein. The web server and the clients are connected to a communications network, and the web server includes a communication interface for receiving requested URLs from the clients. A first database containing customer URLs for web pages which have been assigned to at least certain of the requested URLs is also provided. Each of such web pages is stored on a computer connected to the communications network. The web server determines whether a first requested URL received at the communication interface from a first client corresponds to a first customer URL, and if so establishes a first session connection between the web page for the first customer URL and the first client.

5 **METHOD AND APPARATUS FOR REDIRECTING USERS FROM VIRTUAL
LOCATIONS ON THE WORLD WIDE WEB TO OTHER ASSOCIATED WEB
LOCATIONS**

10 **FIELD OF THE INVENTION**

This invention relates generally to a method and apparatus for redirecting users on the World Wide Web (the "Web"), and, more particularly, to a method and system for redirecting users from a set of dynamically created, ephemeral web locations to associated actual Web locations.

15 **BACKGROUND OF THE INVENTION**

Use of the global network known as the Internet has dramatically increased. Advertisers often feature their respective Internet addresses in television, billboard and magazine advertisements. The Internet may be accessed by consumers having access to a remote computer using client software known as a browser. The Web is one portion of
20 the Internet experiencing extremely high growth and change.

The Web is a collection of millions of files or "web pages" of text, graphics and other media, which are connected by hyper-links to other web pages. Web pages are dispersed over millions of different computer systems all over the world and each is identified using a Universal Resource Locator ("URL"). A URL identifies a domain, a
25 host within that domain, and sometimes a resource or file within a directory structure on the host computer. Domains can be thought of as a group of computers, such as all computers on a company's network. For example, the domain "ibm.com" identifies a domain for the commercial company IBM, which may include thousands of individual computers. Typically the URL identifies only those computers which are servers on the
30 Web by prefixing the domain with a host name. Thus the URL "http://www.ibm.com" identifies an individual host computer within the ibm.com domain which operates as a world-wide-web server for IBM. "HTTP" tells the host to use the hyper-text transfer protocol while delivering files over the Internet. The files delivered can be from resources such as database queries, can arise from execution of scripts by the host, or can
35 simply be traditional files.

A Web server site may contain thousands of individual Web pages. The location of the file or resource containing a desired page is identified by appending a directory-

5 path file name to the host and domain names in the basic URL to form a new URL. Thus
the URL "http://www.ibm.com/dira/dirb/dirc/intro.html" identifies a hyper-text markup-
language (HTML) file called "intro.html" which resides on a host named "www" within
the ibm.com domain. The file resides in the dira directory and the dirb/dirc subdirectory.
Often this HTML file contains references to other files, which are loaded automatically
10 by the client's browser.

While the URL is used to locate a file on a host within a domain, it does not
contain a physical address for the host computer. Addresses of computer machines on the
Internet are specified using a 32-bit numeric identifier known as the Internet-Protocol
(IP) address. Each computer is typically assigned a different IP address so that no two
15 machines have the same IP address. The IP address is often written as four decimal
numbers separated by periods. Each decimal number represents an 8-bit binary number,
from zero to 255 in decimal notation. Thus a computer in IBM's domain might have the
IP address 209.180.55.2 while another computer in that domain might have the address
209.180.55.103.

20 It is well known that users of the Web constantly desire to locate specific pages
containing information of interest. The pages can be expressed in any number of
different character sets such as English, French, German, Spanish, Cyrillic, Kanakata,
and Mandarin. In addition, the pages can include specialized components, such as
embedded "forms," executable programs, JAVA applets, and hypertext.

25 The process of indexing the vast number of Web pages has been complicated by
the fact that there do not exist common standards for indexing the content of Web pages.
This has led commercial entities such as Yahoo, Lycos and Excite to develop specialized
techniques for locating desired information on the Web. The "search engines" developed
by these and other entities match user-supplied keywords with related or similar words in
30 the index of the Web. As usage of the Web has grown, it has become increasingly
important for commercial Web sites to be ranked as highly relevant by the most popular
search engines. This has prompted intense jockeying among competing Web sites to
achieve such high relevancy rankings. In order to minimize the extent to which
operators of Web sites can achieve consistently high rankings by tailoring the content of
35 their sites based upon the indexing criteria of popular search engines, the indexing
algorithms employed by such search engines are frequently modified. This is intended to

5 prevent commercial entities from being highly ranked by a given search engine for extended periods of time.

SUMMARY OF THE INVENTION

10 In general terms, the system of the present invention includes a web server for redirecting requested URLs from clients to customer-specified web pages. The web server and the clients are connected to a communications network, and the web server includes a communication interface for receiving requested URLs from the clients. A first database containing customer URLs for web pages which have been assigned to at least certain of the requested URLs is also provided. Each of such web pages is stored
15 on a computer connected to the communications network. The web server determines whether a first requested URL received at the communication interface from a first client corresponds to a first customer URL, and if so establishes a first session connection between the web page for the first customer URL and the first client.

In another aspect, the present invention relates to a method for providing web
20 page content associated with a set of one or more URLs to Web page indexers. The inventive method includes the step of compiling a database containing information facilitating dynamic generation of dynamic web pages, wherein a first plurality of the dynamic web pages are associated with a first URL of the set of URLs. One of the first plurality of dynamic web pages is generated and provided to a first of the Web page
25 indexers. In addition, another of the first plurality of the dynamic web pages is generated and provided to a second Web page indexer. This process may be continued by generating one of a second plurality of the dynamic web pages and providing it to the first or second Web page indexer, wherein the second plurality of dynamic web pages is a associated with a second URL within the set of URLs.

30

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows a distributed computer system in which the present invention may be embodied.

FIG. 2 is a signal flow diagram representative of the manner in which a
35 Redirecting Site executing on a redirecting server redirects hits on Designated URLs to the Web sites of third party purchasers.

5 FIG. 3 is an illustrative three-dimensional representation of a URL database maintained within each the Web servers of the present invention.

FIG. 4 represents exemplary portions of several records included within an exemplary slab of a URL database.

FIG. 5 illustratively represents the manner in which Dynamic Web Pages can provide "virtual doors" to a Redirecting Site hosted by a redirecting server as a means of
10 facilitating favorable indexing of the Designated URLs by various search engines.

FIG. 6 provides an illustrative representation of a Dynamic Web Page created by a Web server on the basis of a default record within a URL database.

FIG. 7 is a flowchart representative of the processing performed by the
15 redirection routine of the present invention in response to receipt at the redirecting server of click-throughs for Designated URLs.

FIG. 8 is a flowchart representative of a process for identifying Designated URLs likely to be ranked highly by search engines in response to specified user queries.

FIG. 9 is a flowchart representative of a process for identifying Designated URLs
20 contained within various categories of interest to potential purchasers of hits on Designated URLs.

DETAILED DESCRIPTION OF THE INVENTION

The system of the present invention enhances the likelihood that one or more of
25 URLs within a predefined group will rank highly in the results produced by search engines in response to various user queries. This is partially effected by selecting the content of the Web pages associated with the predefined group of URLs ("Designated URLs") on the basis of the indexing algorithms employed by the search engines of interest. As is described in detail below, each of the Designated URLs has associated
30 therewith a set of dynamically-generated Web pages ("Dynamic Web Page"). Each such Dynamic Web Page is constructed based upon the nature of the indexing algorithm employed by a particular search engine, and is submitted to such search engine to be indexed. In this way the likelihood is increased that each Designated URL will rank highly in the results of those search engines for which Dynamic Web Pages are created.

35 In a preferred implementation the Designated URLs are associated with a particular Web site (the "Redirecting Site") maintained by a host redirecting server. When one of the Designated URLs is selected from the results produced by a search

5 engine in response to a user query, the selection (i.e., “hit”) may be redirected to the Web site of a third party who has contracted with the Redirecting Site to receive a specified number of the hits for such Designated URL. For example, if the Designated URL is “www.shoestor.com”, the proprietor of a Web site offering shoes (e.g., www.webshoes.com) may purchase a selected number of hits to www.shoestor.com
10 from the Redirecting Site. Although hits to www.shoestor.com are initially transmitted to the Redirecting Site, the hits are then seamlessly transferred to www.webshoes.com. That is, the user selecting www.shoestor.com “sees” only Web pages hosted by www.webshoes.com, rather than pages generated by the Redirecting Site executing on the redirecting server. The number of hits to www.shoestor.com which are redirected to
15 www.webshoes.com is tracked by the Redirecting Site, and such redirection ceases when the purchased number of hits have been redirected. Subsequent hits to www.shoestor.com are directed to the Redirecting Site, which in response may generate a default Web page indicating the manner in which subsequent hits to www.shoestor.com may be purchased for redirection.

20 FIG. 1 shows a distributed computer system 100 in which the present invention may be embodied. The computer system 100 includes client computers 110 connected to server computers (sites) 120 via a network 130. The network 130 can use Internet communications protocols (IP) to allow the clients 110 to communicate with the servers 120 and a redirecting server 132.

25 The client computers 110 can be PCs, workstations, or larger or smaller computer systems. Each client 110 typically includes one or more processors, memories, and input/output devices. The servers 120 can be similarly configured. However, in many instances server sites 120 include many computers, perhaps connected by a separate private network. During operation of the distributed system 100, users of the clients 110
30 desire to access information records 122 stored by the servers 120 using, for example, the Web. The records of information 122 can be in the form of Web pages 200. The pages 200 can be data records including as content plain textual information, or more complex digitally encoded multimedia content, such as software programs, graphics, audio signals, videos, and so forth. The clients 110 can execute Web browser programs
35 112, such as NAVIGATOR or INTERNET EXPLORER to locate the pages or records 200. The browser programs 112 allow the users to enter addresses of specific Web pages 200 to be retrieved. Typically, the address of a Web page is specified as a URL.

5 In order to identify pages of interest among the millions of pages which are available on the Web, a search engine 140 is provided. The search engine 140 includes means for parsing the pages, means for indexing the parsed pages, means for searching the index, and means for presenting information about the pages 200 located.

10 Users interact with the search engine 140 by providing queries. Users can be located remotely or locally with respect to the search engine 140. The terms of a query can include words and phrases, e.g., multiple words enclosed in quotation marks (""). The terms can be related by Boolean operators such as OR, AND, and NOT to form expressions. The queries may also include terms which express ranges of values, or approximate locations of words to each other.

15 Upon receiving a query, the search engine 140 applies the query to the internal index which it has previously compiled. This process produces URLs for Web pages deemed by the index to be relevant to the expression defined by the query. The search engine will also typically provide summary information about the Web pages associated with the URLs. Using the summary information, the users can access the identified
20 pages with Web browsing software, or other techniques.

FIG. 2 is a signal flow diagram representative of the manner in which the Redirecting Site executing on the redirecting server 132 redirects hits on Designated URLs to the Web sites of third party purchasers. As used herein, the term "hit" or "click-through" refers to user selection of a Designated URL from a client browser (e.g.,
25 selection from search engine results). As is indicated by FIG. 2, the redirecting server 132 includes a plurality of networked server units. In particular, the redirecting server 132 contains a plurality DNS servers 150 and a plurality of Web servers 152. The redirecting server also includes an inbound Internet router 156 and an outbound Internet router 158.

30 In accordance with the invention, the Designated URLs are each assigned the same IP address; namely, the IP address of inbound Internet router 156. The Designated URLs may include very large numbers of URLs, conceivably thousands, each having a unique domain name and the same IP address. For example, the Designated URLs may include URLs having the domain names www.shoesor.com and www.drugstor.com and
35 the identical IP address 207.239.204.122 (i.e., the physical address of router 156). As is described below, third parties may purchase predetermined numbers of hits to one or more of these Designated URLs through the Redirecting Site. Upon receiving a click-

5 through from a search engine or the like which corresponds to one of the Designated URLs, the inbound Internet router 156 routes the click-through to one of the DNS servers 150. This routing is done in a round-robin fashion, i.e., the first click-through received by the router 156 is routed to the DNS server 150a, the second received click-through is routed to DNS server 150b, and so on until a click through is provided to the DNS server 10 150k. The next received click-through is then provided to the DNS server 150a and the process repeated

Each DNS server 150 comprises a computer having an assigned IP address and memory for storing the domain names for all of the Designated URLs. In the event that the redirecting server 132 becomes served by a different Internet service provider 15 ("ISP"), the common IP address for the Designated URLs would also change. Advantageously, this change may be effected relatively easily relative to the case in which a different IP address is assigned to each Designated URL. Corresponding changes in IP address would be made to the DNS servers of the Internet in the conventional manner.

20 As is described in additional detail below, redirection to third parties of click-through from Designated URLs is effected by the redirecting server 132. When a third party purchases or is otherwise allocated a prescribed number of hits to a Designated URL, an IP address for such third party is associated with the Designated URL within each DNS server 150. Upon receiving a click-through on the Designated URL, one of 25 the DNS servers 150 provides the third party's address to an available one of the Web servers 152. The receiving Web server sends, via the outbound router 158, the third party's IP address to the client browser originating the click-through. This establishes a session between the client browser originating the click-through and a Web site at the location of the third party's IP address. The redirecting server 132 tracks the number of 30 click-throughs redirected to the third party's IP address, and ceases such redirection after the purchased number of click-throughs have been redirected.

FIG. 3 is an illustrative three-dimensional representation of a URL database 200 maintained within each of the Web servers 152. The URL database 200 contains the information to generate the set of Dynamic Web Pages associated with each Designated 35 URL. As mentioned above, each Dynamic Web Page associated with a Designated URL is designed to be favorably indexed by a particular search engine. As is well known, search engines may index a Web site by actively gathering information from the

5 site (i.e., by “spidering” the site), or by receiving one or Web pages submitted by the site. The content of each Dynamic Web Page is selected and arranged to increase the likelihood that the associated Designated URL will be ranked highly by at least one search engine in response to various search queries. For example, a Dynamic Web Page for a Designated URL “www.shoestor.com” would be configured such that queries likely
10 to be submitted to the Lycos search engine by a purchaser seeking shoes (e.g., shoe, boot, sandal) would result in www.shoestor.com being highly ranked by the Lycos search engine in response to such queries. Other dynamic web pages associated with www.shoestor.com would be configured differently in order to achieve high rankings in response to similar queries made to other search engines.

15 Referring to FIG. 3, each “slab” 204 of the URL database 200 comprises a set of records 208 capable of defining, for a particular search engine, the Dynamic Web Pages of each Designated URL. For example, slab 204(1) could contain a set of records 208 for defining the Dynamic Web Pages presented to the Lycos search engine during the process of indexing the Designated URLs. Similarly, slab 204(2) could contain the set of
20 records used to define the Dynamic Web Page associated with each Designated URL in connection with indexing performed by another search engine.

FIG. 4 represents exemplary portions of several records 208’ included within slab 204(K) of the URL database 200. Each record 208’ is compiled to facilitate definition of a Dynamic Web Page disposed to rank highly in response to certain queries made to a
25 Kth search engine (e.g., Excite) associated with slab 204(K). For example, records 208j’, 208k’, and 208l’ contain information for defining Dynamic Web Pages associated with the Designated URLs www.shoestor.com, www.shoestor.org, and www.shoestor.net, respectively. Each of the records 208j’, 208k’, and 208l’ is designed to enable definition of a Dynamic Web Page which would be favorably indexed by the
30 Kth search engine with respect to queries likely to be submitted by potential purchasers of footwear. Similarly, records 208m, 208n, and 208o contain information for defining Dynamic Web Pages associated with the Designated URLs www.bikestor.com, www.bikestor.org, and www.bikestor.net, respectively. Each of these records is designed facilitate generation of a Dynamic Web Page which would be favorably
35 indexed by the Kth search engine in connection with queries likely submitted by potential purchasers of bicycles or motorcycles

5 As is indicated by FIG. 4, each record 208 includes a *Category* field. As is discussed below, the *Category* field assists potential purchasers of hits to Designated URLs in identifying those URLs of potential interest. For example, owners of retail establishment offering clothes, shoes, cosmetics or other personal items could search for relevant Designated URLs within the *Category* identified as “Personal”.

10 As is known, a search engine receives an input in the form of a text string and attempts to match it to data which it has already indexed. A search engine can be designed to yield entirely different matches depending upon the desired effect. For example, a literal string such as “weight room” might return a list of documents from one search engine dealing primarily with health clubs. In contrast, another search engine
15 might separate the terms “weight” and “room”, and return documents containing a string with either word present (e.g., “weight-loss clinic, “room for rent”). A third search engine might require that the document reference both “weight” and “room”, but not necessarily together in a concatenated string. Accordingly, the records 208j’ – 208o’ are compiled in light of the particular indexing scheme employed by the Kth search engine.

20 Referring again to FIG. 4, each of the records includes a plurality of *meta* fields 212. A *meta* is a word or phrase that is used by an Internet search engine to index a Web page or other document. *Metas* are typically among the most significant information taken into consideration by search engines during indexing of Web pages. Since a *meta* is not necessarily also included in the portion of a Web page visible to users via a
25 browser, *metas* can be selected solely on the basis of their impact on the indexing process. For example, a Web page advertising pricing for cellular phone service may include the apparently unrelated term “professional basketball” within its list of *metas* in an effort to improve ranking of the page in response to queries related to basketball.

The content of each *meta* field 212 is preferably selected based upon the indexing
30 characteristics of the Kth search engine. For example, the content of the meta fields 212 within records 208j’ – 208l’ are chosen to enhance the likelihood that www.shoestor.com; www.shoestor.org, and www.shoestor.net, respectively, will tend to be highly ranked in response to queries submitted to the Kth search engine by potential footwear purchasers. Since there is unlikely to be a single optimal arrangement of *metas*
35 within a Web page resulting in disposed to produce high rankings in response to such queries, the *meta* fields 212 of the records 208j’ – 208l’ contain differing content.

5 Accordingly, while the content of field 212(1) within each record 208j' – 208l' is identical, different terms are included within the fields 212(2) of these records.

FIG. 5 illustratively represents the manner in which Dynamic Web Pages can provide “virtual doors” to the Redirecting Site hosted by redirecting server 132 as means of facilitating favorable indexing of the Designated URLs by various search engines. Conventionally, traffic related to the indexing process effected by search engines is directed to the “front” or home page of a particular location. In the context of FIG. 5, such traffic would conventionally interface only with the home page of the Redirecting Site hosted by the redirecting server 132. Although, the home page of the Redirecting Site may be created in such a way as to rank highly in certain search engines, it will likely rank poorly in many others.

In accordance with one aspect of the invention, each Dynamic Web Page 220 provides an alternate avenue, or “virtual door”, through which search engine traffic may interact with the Redirecting Site. Since each Dynamic Web Page can be tailored to be indexed favorably by a particular search engine, the likelihood is increased that each Designated URL will be indexed favorably by multiple search engines. For example, in FIG. 5 the virtual door comprising “Dynamic Web Page 1” could be generated using an arrangement of *metas* favoring “Search Engine 2”. Similarly, “Dynamic Web Page 2” could be created so as to include text in its *Description* field likely to be favorably indexed by “Search Engine 4”.

FIG. 6 provides an illustrative representation of a Dynamic Web Page 220 created by a Web server 152 on the basis of a default record 228 within the URL database 200. A Dynamic Web page is created each time a click-through for a Designated URL is received by the redirecting server 132. In particular, the DNS server 150 which receives the click-through from router 140 requests that an available Web server 152 return a default page for the Designated URL associated with the click-through. The Web server then creates the requested default page associated with the applicable Designated URL by using information in the default record 228 corresponding to the requested default page. In a preferred implementation a separate default record 228 is created for each Designated URL.

As an initial step in the process of creating a requested default page, a template default page is defined by using variables to represent the content associated with various standard HTML elements. Information extracted from the applicable default record 228

5 is then substituted for each variable in the template default page in order to generate the requested default page. An exemplary template default page is set forth below:

TEMPLATE DEFAULT PAGE

1. <HTML>
2. <TITLE>#Title#</TITLE>
- 10 3. <H1> #Header# </H1>
4. <META>
5. <Body>#Redirect#
6. [If hits are purchased for this site and counter is less than or equal to the number of hits purchased then
- 15 7. Execute the appropriate redirect code for this purchaser.
8. Counter=Counter+1
9. Otherwise
10. Direct to 4hits.com web page (default) Reset counter to zero and change status to available]
- 20 11. </body>
12. </HTML>

The requested default page is generated from a template such as the above by a routine executing on an available one of the Web servers 152 (hereinafter, a “redirection routine”). Referring to the template default page above, values for the variables such as

25 *Title*, *Header* and *Redirect* are obtained from the retrieved record 228. Upon purchasing hits to a Designated URL, the purchasing entity provides information which is substituted into the applicable record 228 as values for such variables. For example, a purchaser of hits to www.shoestor.com could provide information indicating the value for the variable *Title* should be “The greatest shoestore on earth!”, and that the value for

30 the variable *Header* should be “Your one-stop family shoestore”. The purchaser would also specify the URL of the Web site to which the hits are to be redirected (“Redirect URL”), and this would be stored in the applicable record using the variable *Redirect*.

When a call is made to a Web server 152 requesting a default page for a Designated URL, the redirection routine retrieves the associated default record 228. For purposes of

35 example, assume that the default page for the Designated URL www.shoestor.com has been requested. When the redirection routine encounters the string “#Title#”, it interprets this as a variable and proceeds to read the information in the *Title* field 234

5 (e.g., “The greatest shoestore on earth!”) of the default record 228 for www.shoestor.com. The redirection routine then retrieves this text and substitutes it for the “#Title#” variable in the template default page. Next, the redirection routine substitutes the information within the *Header* field 236 of default record 228 for the variable “#Header#” in the template default page. This process is repeated until all
10 variables in the template default page are replaced with the contents of corresponding fields of the default record 228. This results in creation of the following exemplary code could for the default page 228 corresponding to www.shoestor.com:

DEFAULT PAGE FOR WWW.SHOESTOR.COM

15 1. <HTML>
2. <TITLE> The greatest shoestore on earth!</TITLE>
3. <H1> Your one-stop family shoestore </H1>
4. <META>
5. <Body> #Redirect#
20 6. [If hits are purchased for this site and counter is less than the number of hits purchased then
7. Execute the appropriate redirect code for this purchaser.
8. Counter=Counter+1
9. Otherwise
25 10. Direct to 4hits.com web page (default) Reset counter to zero and change status to available]
11. </body>
12. </HTML>

30 As mentioned above, a Redirect URL is supplied by a purchaser of hits for a Designated URL (e.g., www.shoestor.com) and is entered into the *Redirect* field 238 of record 228 for www.shoestor.com at the time of purchase. Again, the Redirect URL identifies the location, or “target” to which the purchased number of clickthroughs associated with www.shoestor.com are redirected. The target may consist of a “home
35 page” or any other Web page identified by the purchaser. The bracketed text of lines 6-10 is psuedocode representative of actual HTML code for redirecting hits to a URL specified by a purchaser. This redirect operation results in creation of a new instance at

5 the DNS server 150 from which the request for a default page (e.g., for www.shoestor.com) was issued. In particular, the redirect instruction from the applicable Web server 152 directs the DNS server 150 to find the IP address of the Redirect URL. The DNS server 150 effectively initiates a process of “reverse DNS resolution” by transmitting the Redirect URL to the Internet DNS (not shown) and requesting it to
10 obtain the IP address of the Redirect URL. The Internet DNS completes the redirection process by routing the request to the target, thereby redirecting the initial click-through on the Designated URL (e.g., www.shoestor.com) to the target.

FIG. 7 is a flowchart representative of the processing performed by the redirection routine in response to receipt at the redirecting server 132 of click-throughs
15 for Designated URLs. In a step 280, a counter associated with a given Designated URL is set to zero upon the purchase of hits for the Designated URL, and the number of hits purchased is recorded within a *Purchased* field 240 of the applicable default record 228. The redirection routine then enters a wait state until a click-through for the Designated URL is received at the server 132 (step 282). Upon receipt of such a click-through, the
20 redirecting routine requests a Web server 152 to generate a default page for the Designated URL (step 284). When a Web server 152 receives a request for a default page for a Designated URL, the redirection routine inspects the applicable record 228 to determine whether hits have been purchased for the Designated URL (step 286). If not, the click-through is passed to a home Web page of the Redirecting Site containing
25 information describing the manner in which hits may be purchased for the Designated URL corresponding to the click-through (step 287). If hits have been purchased, it is determined whether the value of the counter associated with the Designated URL indicates that the purchased number of hits have already been redirected. This is done by computing the difference between the entry in the *Purchased* field 240 of the applicable
30 default record 228 and the value of the associated counter (step 288). If this difference is positive, the counter is reset to zero, a field within the applicable default record is set to indicate that hits for the Designated URL are available for purchase (step 290), and the click-through is passed to the home page of the Redirecting Site (step 287).

If the difference computed in step 288 is less than or equal to zero (i.e., the value
35 of the counter exceeds the value within the *Purchased* field 240), then the corresponding default page is generated based upon the entries within the applicable default record 228 (step 292). The redirection routine then effects the redirection process described above

5 and the incident click-through on the applicable Designated URL is forwarded to the target (step 294). In addition, the counter for the applicable Designated URL is incremented by one (step 296), and the redirection routine again enters the wait state (step 282).

In accordance with the invention, the process of redirecting hits on Designated
10 URLs to targets has been designed to be substantially transparent to end users. Upon clicking on a Designated URL displayed by a browser for which hits have been purchased, the end user may witness a brief “flash” from the browser display during the process of being redirected to the target. Upon being redirected to the target, the location box of the user’s browser will register the Redirect URL of the target. For example, if
15 Nike, Inc. has purchased hits for www.shoestor.com and specifies a Redirect URL of www.nike.com, then after clicking upon www.shoestor.com a user will observe www.nike.com in the location of box of the user’s browser. As discussed previously, after the purchased number of hits have been redirected to a specified target, subsequent hits on the applicable Designated URL becomes available for purchase. Assume in the
20 above example that Adidas purchases hits to www.shoestor.com after the purchased number of redirections to www.nike.com have been executed. Users clicking on www.shoestor.com will then be forwarded to the Redirect URL specified by Adidas (e.g., www.adidas.com).

FIG. 8 is a flowchart representative of a process for identifying Designated URLs
25 likely to be ranked highly by search engines in response to specified user queries. This process is initiated, typically by a potential purchaser of hits on one or more Designated URLs, by entering a keyword into a search box displayed by the home page of the Redirecting Site (step 302). As an example, a proprietor of a Web site offering shoes for sale may enter the keyword “shoes” in an effort to ascertain which, if any, of the
30 Designated URLs are likely to be ranked highly in connection with a search involving this query. The entered keyword is passed to the URL database 200 (step 304), and it is attempted to identify any Designated URLs having *metas* matching the keyword (step 306). If no *metas* exist which match the entered keyword (step 308), the potential purchaser is provided with the opportunity to enter a different keyword (return to step
35 302). If a *meta* for one or more Designated URLs matches the keyword, any such Designated URLs are displayed via the Redirecting Site in “clickable” form to the potential purchaser (step 310).

5 The potential purchaser may then select (e.g., via “clicking”) any of the displayed Designated URLs of interest. If a displayed Designated URL is so selected, it is determined whether hits on the Designated URL are available for purchase (step 312). Simply because hits are currently being redirected to the Web site of a prior purchaser will not necessarily render the Designated URL unavailable. Rather, in certain
10 implementations the Redirecting Site will allow purchase of a set of hits on the Designated URL occurring immediately after the purchased number of hits have been redirected to the currently effective Redirect URL. When the Designated URL is deemed unavailable, the potential purchaser is notified (step 314) and offered the opportunity to purchase hits on a different displayed Designated URL (return to step
15 310). Alternately, the potential purchaser may return to the home page of the Redirecting Site (step 316).

 If a displayed Designated URL is selected and is determined to be available (step 312), the potential purchaser is given the option of adding it to a shopping cart or the equivalent (step 320). If the potential purchaser declines, the Designated URLs
20 identified during the search are redisplayed (step 310). If a selected Designated URL is added to the shopping cart, it is reserved (step 326) and a registration process initiated (step 328).

 FIG. 9 is a flowchart representative of a process for identifying Designated URLs contained within various categories of interest to potential purchasers of hits on
25 Designated URLs. This process is initiated by selecting a category search operation from the home page of the Redirecting Site (step 350). A category is selected (step 352) and is passed to the URL database 200. In a preferred implementation each record 208 within the URL database 200 includes a *Category* field for indicating to which predefined category the Designated URL has been assigned. All Designated URLs
30 within the selected category are identified (step 354), and are then selected and alphabetically sorted (step 356). The Designated URLs are then displayed via the Redirecting Site in “clickable” form to the potential purchaser (step 358).

 The potential purchaser may then select (e.g., via “clicking”) any of the displayed Designated URLs of interest. If a displayed Designated URL is so selected, it is
35 determined whether hits on the Designated URL are available for purchase (step 360). If a displayed Designated URL is selected and is determined to be available, the potential purchaser is informed of the procedures involving in purchasing or leasing hits on the

- 5 desired Designated URL (step 364). The potential purchaser is then offered the opportunity to purchase hits on these terms (step 366), and then either accepts or declines the offered terms (step 368). If the potential purchaser declines, the potential purchaser is directed back to the home page of the Redirecting Site (step 370). If the offer terms are accepted, a registration process is initiated (step 372).
- 10 Although the above application has been described primarily in terms of particular techniques and implementations for redirecting hits on specified URLs, those skilled in the art will be able to develop analogous techniques based upon the teachings herein. Thus the application is meant only to be limited by the scope of the appended claims.

5

What is claimed is:

1. A web server for redirecting requested URLs from clients, the web server and the clients being connected to a communications network, the web server comprising:

a communication interface for receiving said requested URLs from said clients;

10

a first database containing customer URLs for web pages which have been assigned to at least certain of said requested URLs, each of said web pages being stored on a computer connected to said communications network; and

means for determining that a first requested URL received at said communication interface from a first client corresponds to a first customer URLs, and for establishing a first session connection between the web page for said first customer URL and said first client.

15

2. The web server of claim 1 further including:

means for determining that said first database does not contain a customer URL assigned to a second requested URL received at said communication interface from a second client;

20

means for generating an internal web page; and

means for establishing a second session connection between said internal web page and said second client.

25

3. The web server of claim 2 wherein said internal web page is configured to accept a request from said second client that said second requested URL be assigned to a specified customer URL associated with said second client, said web server including means for storing said specified customer URL in said first database.

30

4. The web server of claim 1 further including:

a second database containing information facilitating dynamic generation of dynamic web pages, each of said dynamic web pages being associated with one of said requested URLs; and

35

means for generating a first dynamic web page in response to receipt of a first search engine query at said communication interface, said first dynamic web page being associated with said first requested URL.

5

5. The web server of claim 1 further including means for directing said first search engine query to said first dynamic web page.

10

6. The web server of claim 4 further including means for generating a second dynamic web page in response to receipt of a second search engine query at said communication interface, said second Dynamic Web Page being associated with said first requested URL.

15

7. The web server of claim 4 wherein said second database includes a plurality of Dynamic Web Page records, each of said Dynamic Web Page records being associated with a search engine and with one of said requested URLs, said web server further including means for generating ones of said Dynamic Web Pages in response to search engine queries using corresponding ones of said Dynamic Web Page records.

20

8. A method for providing web page content associated with one or more URLs to Web page indexers, said method comprising the steps of:

compiling a database containing information facilitating dynamic generation of dynamic web pages wherein a first plurality of said dynamic web pages are associated with a first URL of said set of URLs;

25

generating one of said first plurality of said dynamic web pages, and providing said one of said first plurality of said dynamic web pages to a first Web page indexer; and

30

generating another of said first plurality of said dynamic web pages, and providing said another of said first plurality of said dynamic web pages to a second Web page indexer.

35

9. The method of claim 8 further including the steps of:

generating one of a second plurality of said dynamic web pages, said second plurality of dynamic web pages being associated with a second URL within said set of URLs; and

providing said one of said second plurality of said dynamic web pages to said first Web page indexer.

- 5 10. The method of claim 9 further including the step of providing another of said second plurality of said dynamic web pages to said second Web page indexer.

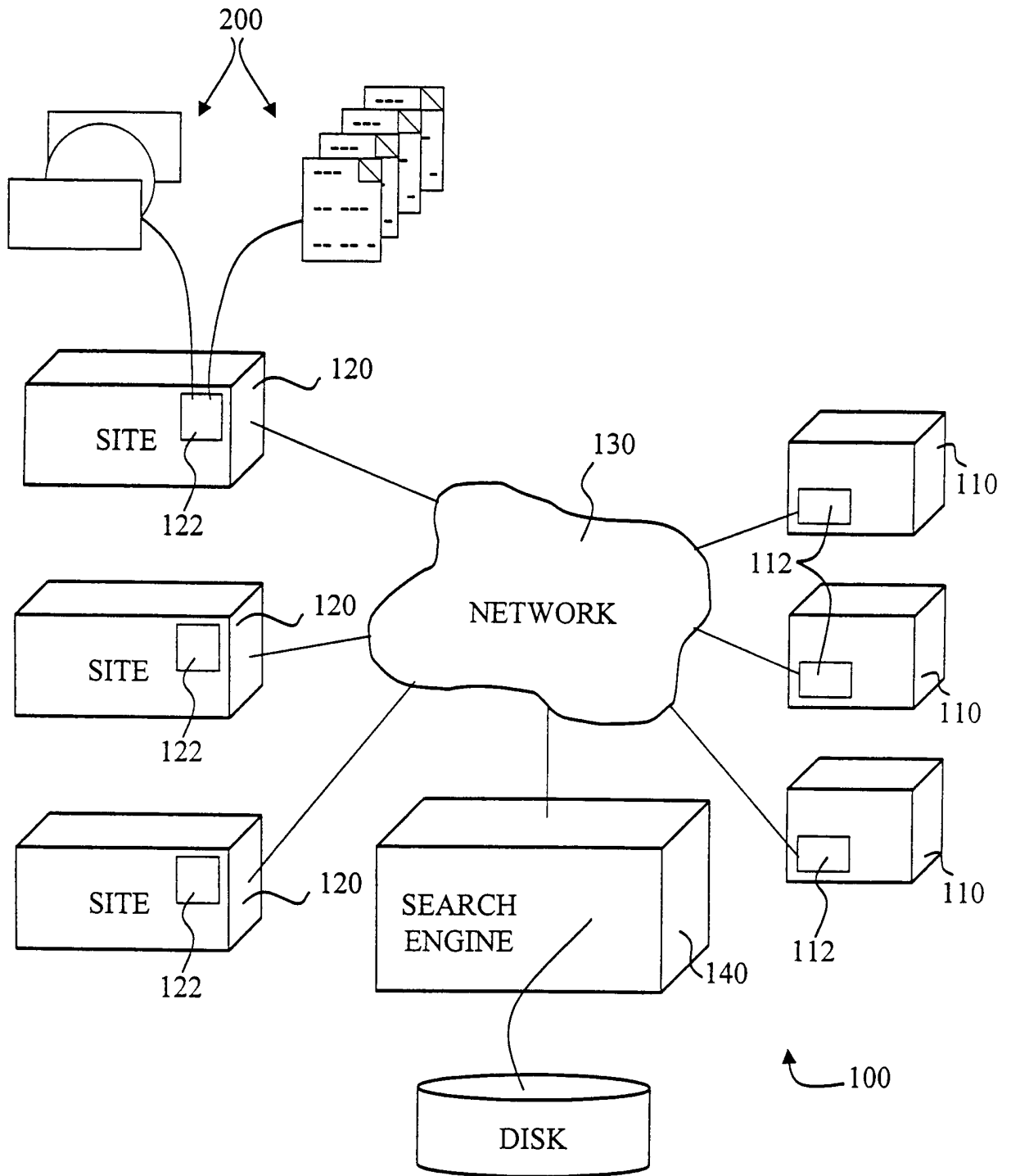


FIG. 1

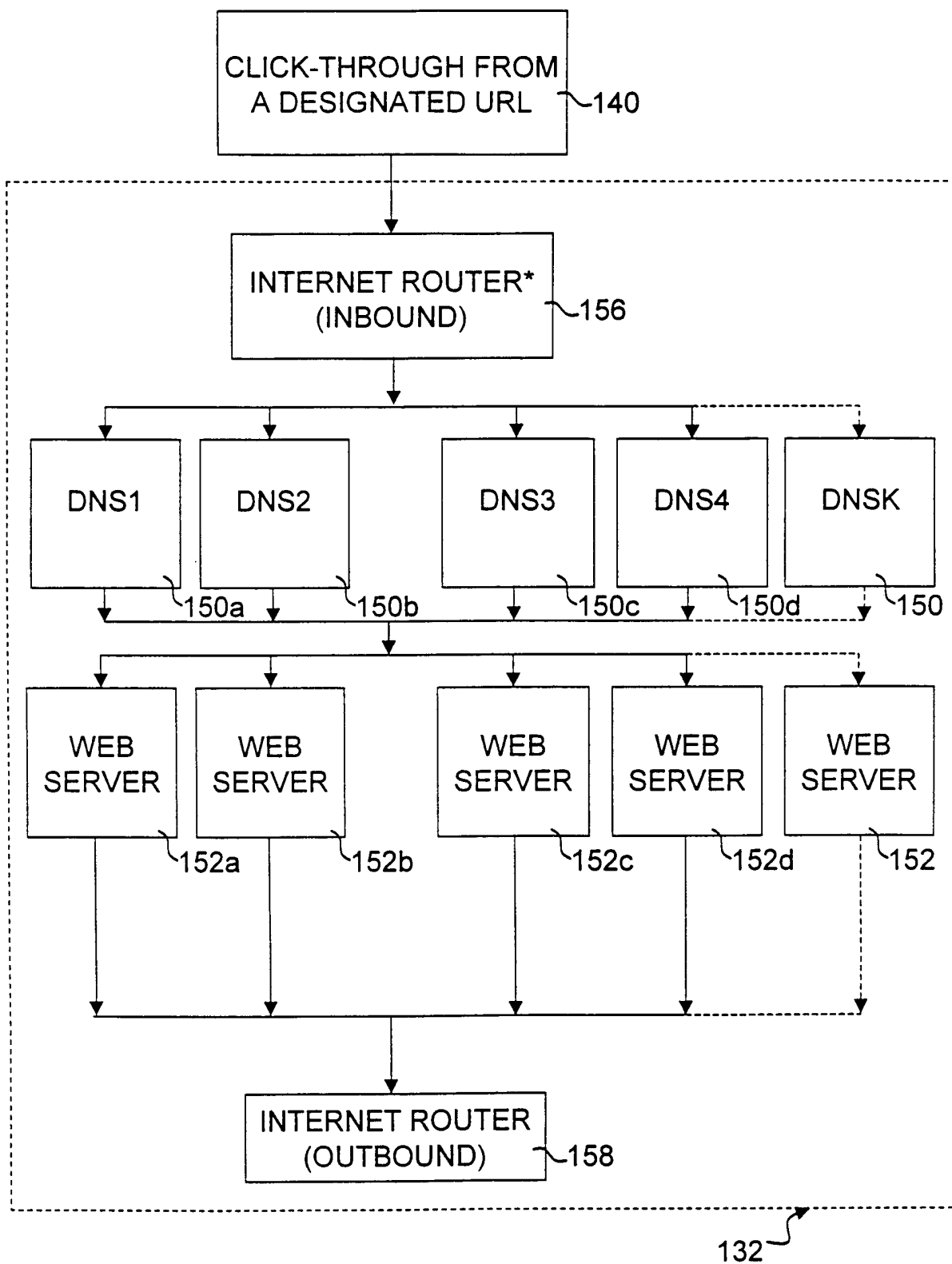


FIG. 2

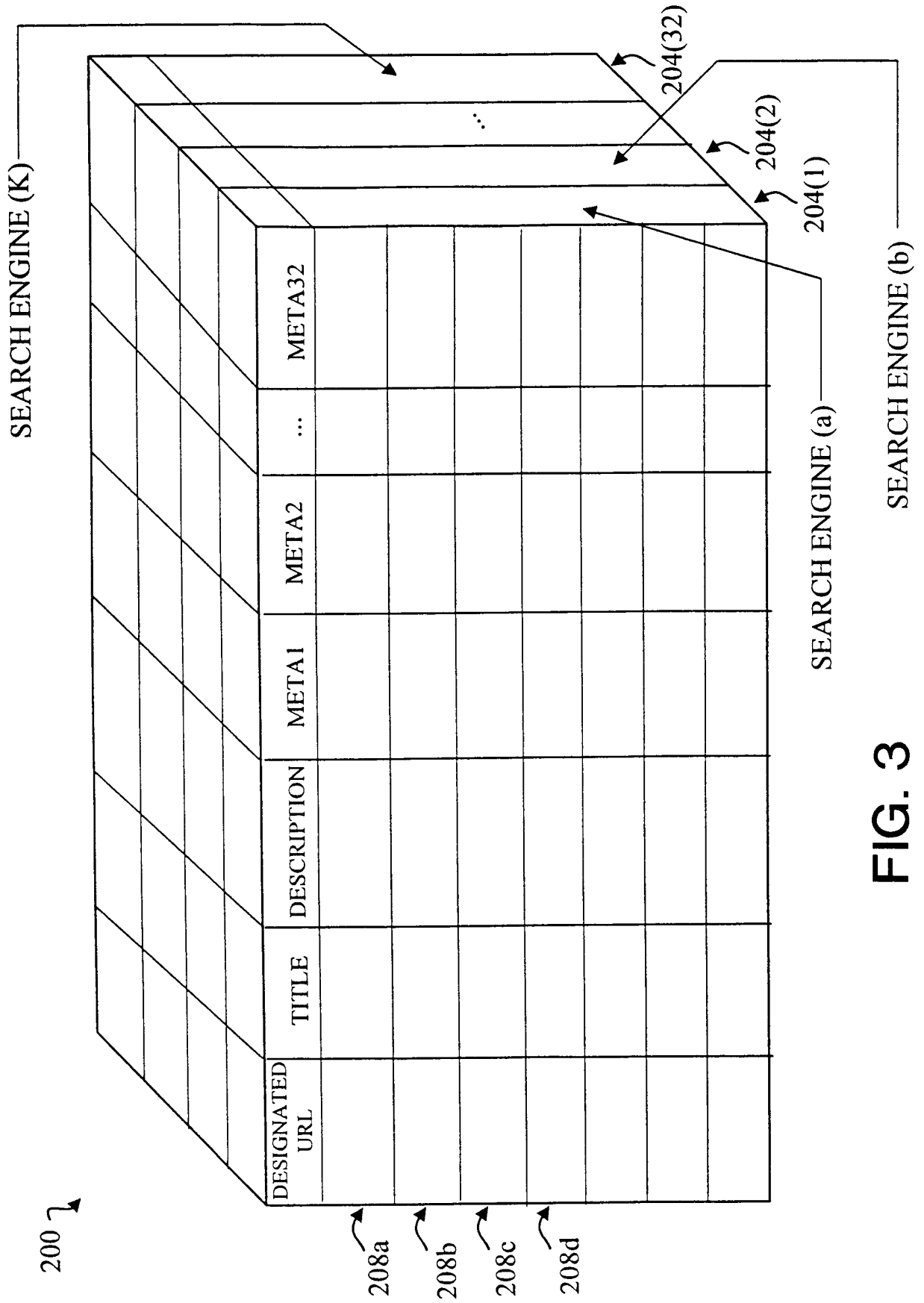


FIG. 3

SEARCH ENGINE (K)

URL	CATEGORY	TITLE	AUTHOR	META1	META2	...	META32	FORWARD TO
Shoestor.com	Personal	Shoes for Every Style, Every Taste	NETPACQ Int. Systems	shoes	boots	...	fabric	____.com
Shoestor.org	Personal	Get Your Shoe Needs at the Shoes...	NETPACQ Int. Systems	shoes	socks	...	casual	____.com
Shoestor.net	Personal	Get all your Needs for Shoes at the Shoest...	NETPACQ Internet Systems	shoes	running	...	pumps	____.com
Bikestor.net	Personal	Yikes! All about bikes	NETPACQ Int. Systems	bike	bicycle	...	parking	____.com
Bikestor.org	Personal	Bike everywhere on a...	NETPACQ Int. Systems	bike	10 speed	...	ramp	____.com
Bikestor.com	Personal	Bike Come see us at the Bike	NETPACQ Int. Systems	bike	bicycle	...	cash	____.com

204(K)

212(1) 212(2) 212(32)

FIG. 4

208j', 208k', 208l', 208m, 208n', 208o'

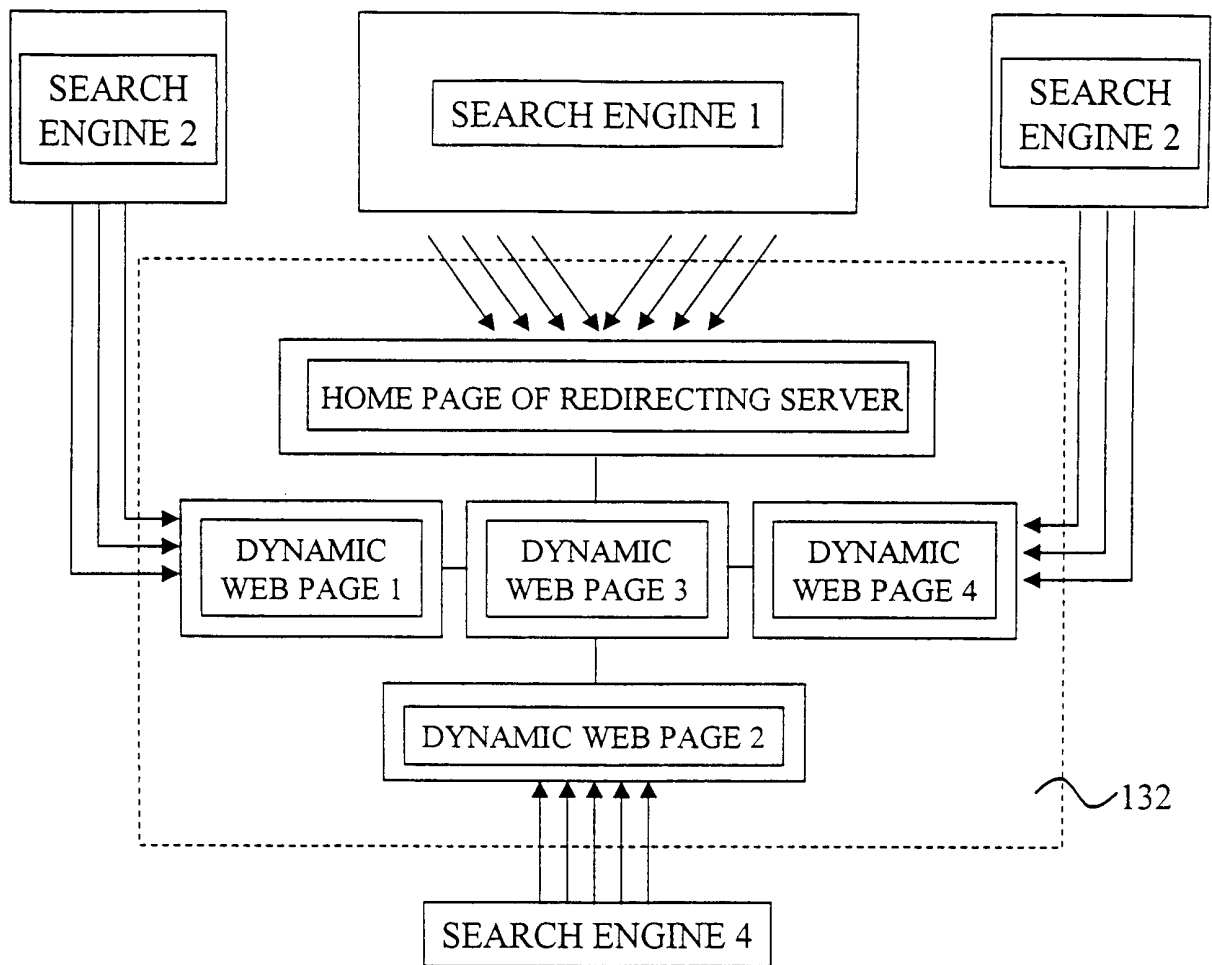


FIG. 5

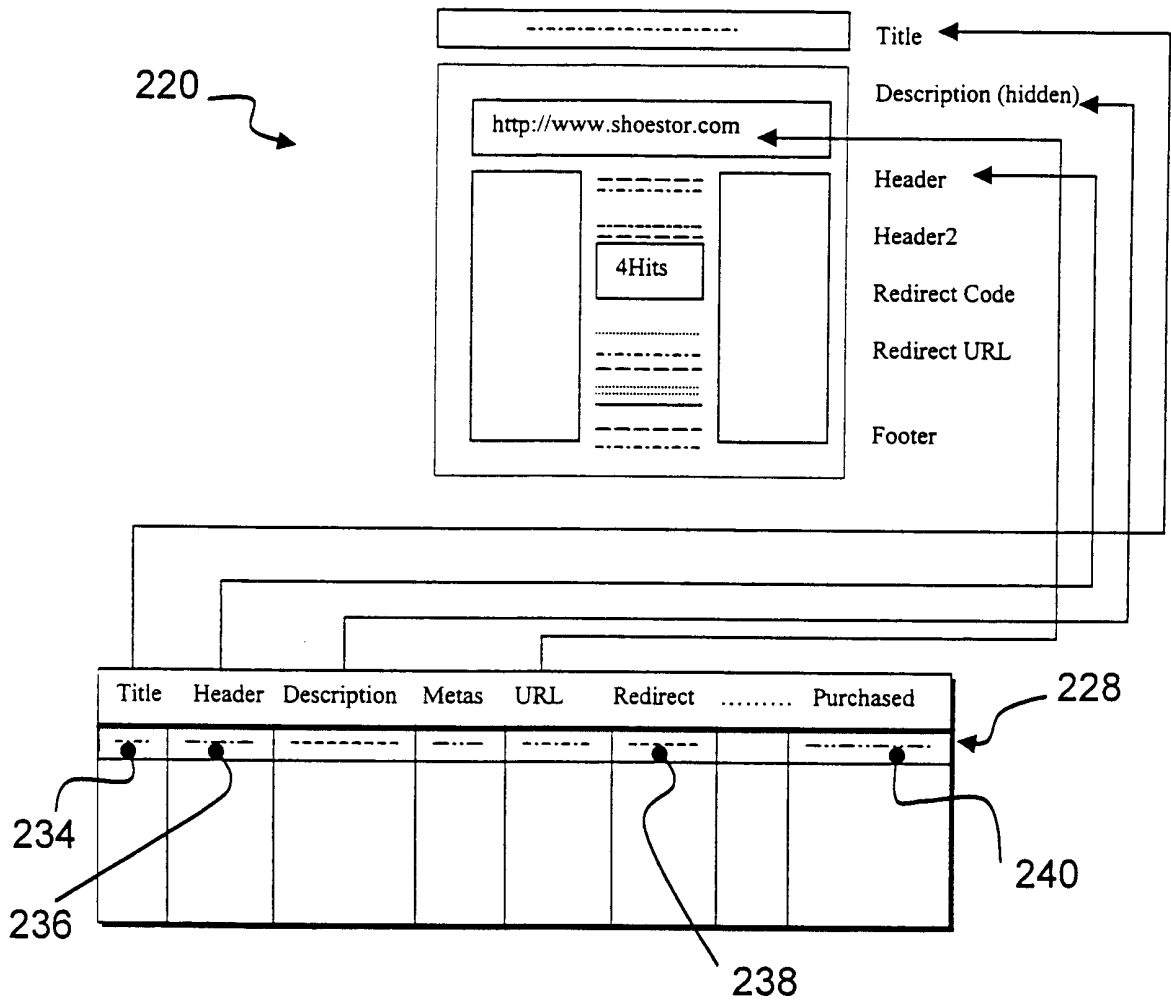


FIG. 6

7/9

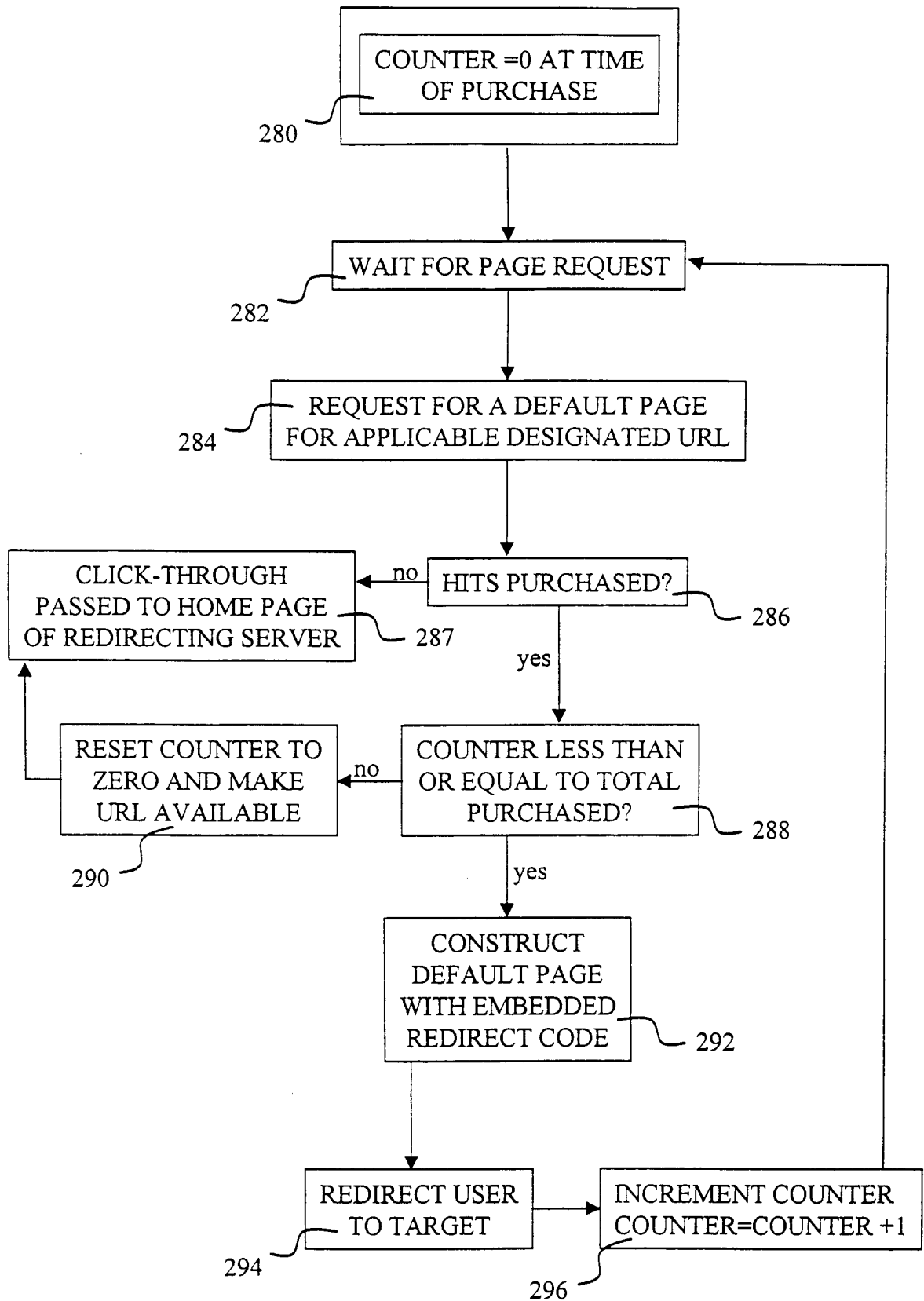


FIG. 7

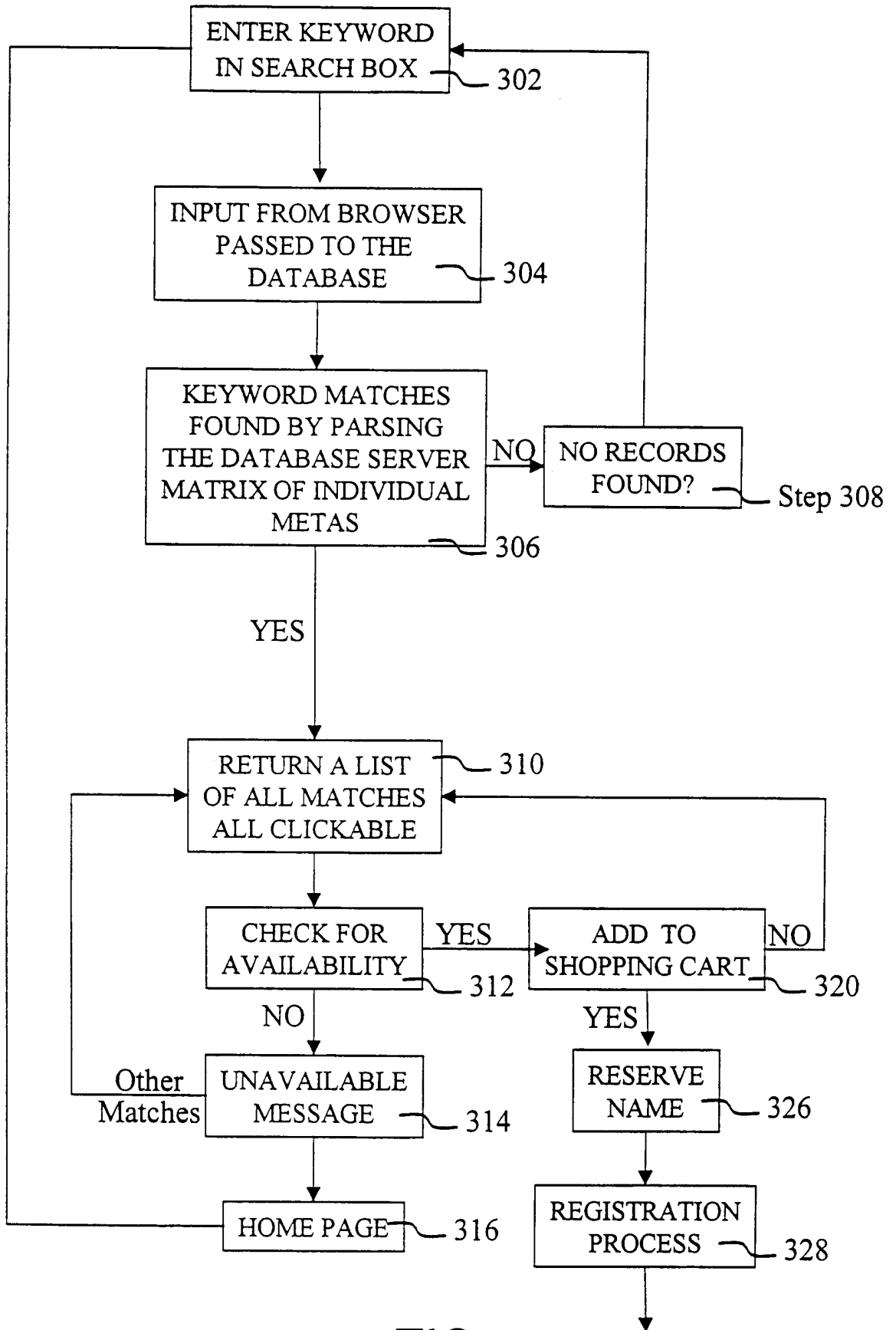


FIG. 8

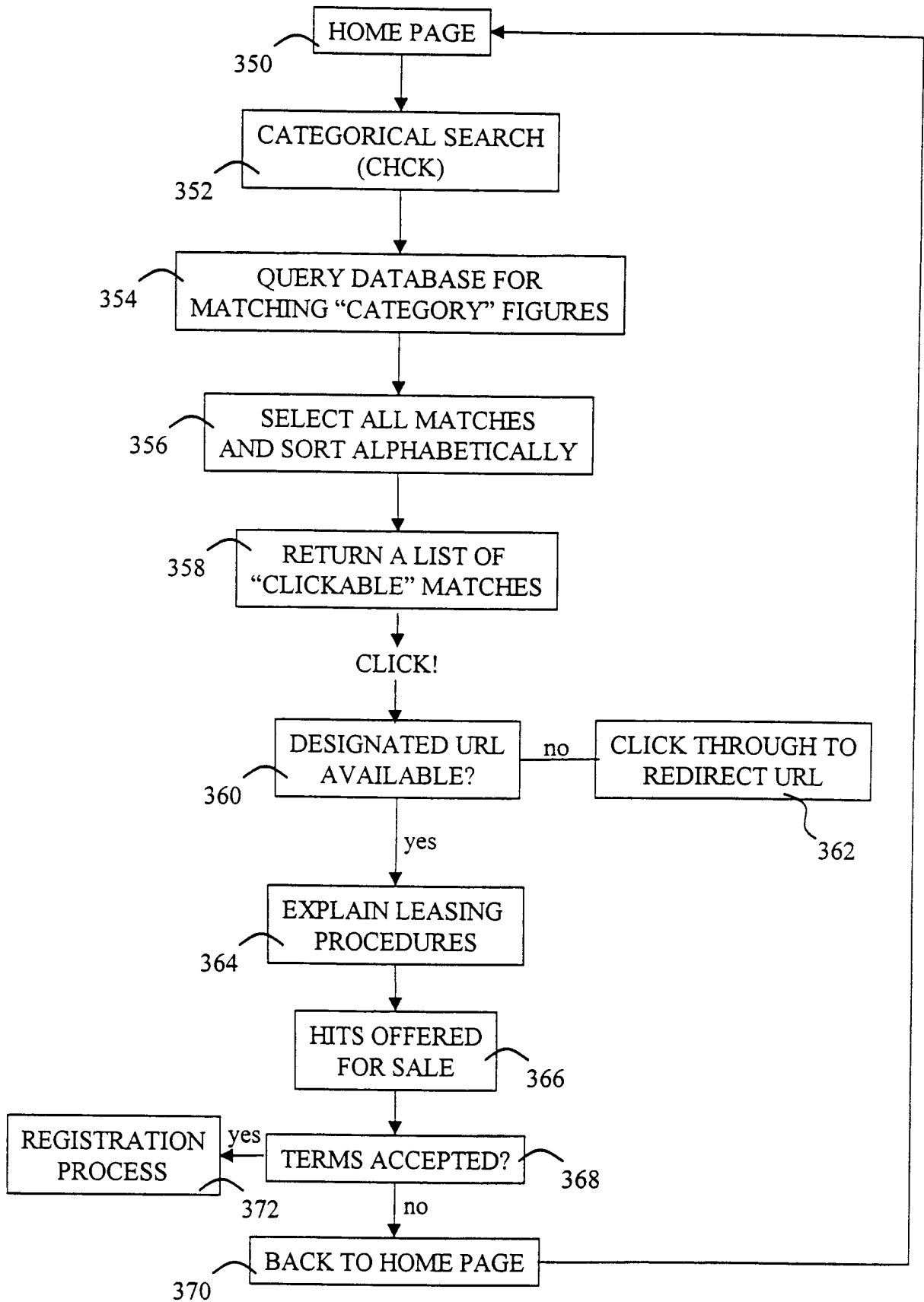


FIG. 9