US007844603B2

(12) **United States Patent**
Lucovsky et al.

(10) **Patent No.: US 7,844,603 B2**
(45) **Date of Patent: *Nov. 30, 2010**

(54) **SHARING USER DISTRIBUTED SEARCH RESULTS**

(75) Inventors: **Mark Lucovsky**, Montecito, CA (US); **Derek L. Collison**, Foster City, CA (US); **Carl P. Sjogreen**, San Francisco, CA (US)

(73) Assignee: **Google Inc.**, Mountain View, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **11/420,966**

(22) Filed: **May 30, 2006**

(65) **Prior Publication Data**

US 2007/0198500 A1 Aug. 23, 2007

Related U.S. Application Data

(63) Continuation-in-part of application No. 11/366,466, filed on Mar. 3, 2006.

(60) Provisional application No. 60/774,198, filed on Feb. 17, 2006.

(51) **Int. Cl.**
G06F 17/30 (2006.01)

(52) **U.S. Cl.** **707/728**; 707/732; 707/922; 705/14.49

(58) **Field of Classification Search** ..... None
See application file for complete search history.

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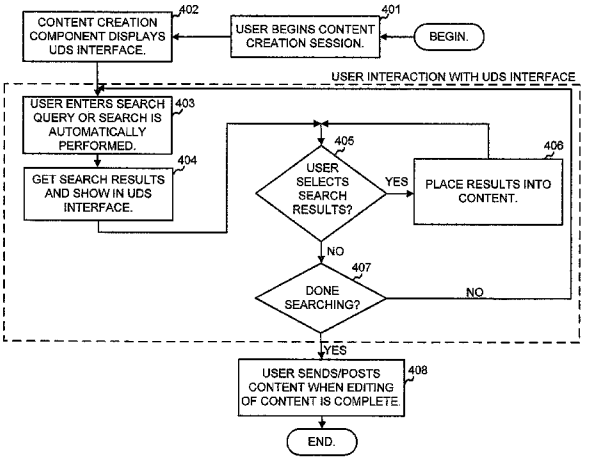
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Primary Examiner—Pierre M Vital
Assistant Examiner—Christopher P Nofal
(74) *Attorney, Agent, or Firm*—Harrity & Harrity, LLP

(57) **ABSTRACT**

A universal distributed search system allows users to find and distribute search results (possibly including advertisements) to those with whom they communicate. The search results can be easily distributed by the user via a simple interface that allows the search results to be easily added to the user's content. Search queries entered by the user or search results received from search components may be automatically refined by the system.

17 Claims, 16 Drawing Sheets



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EX 1015

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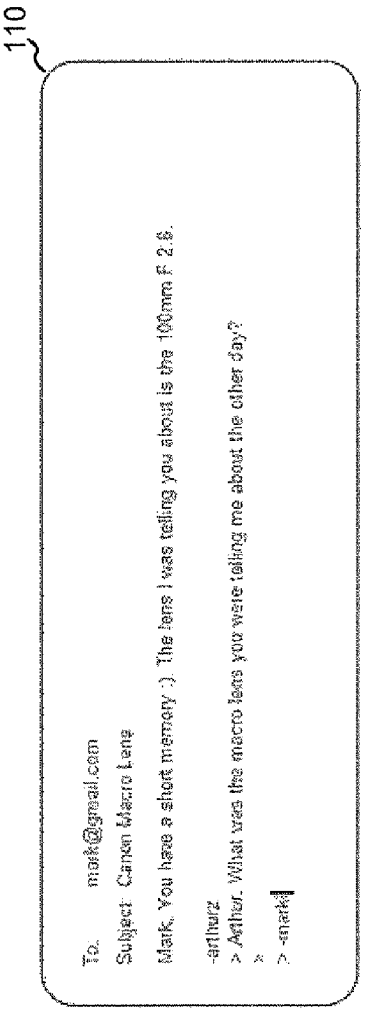


Fig. 1A

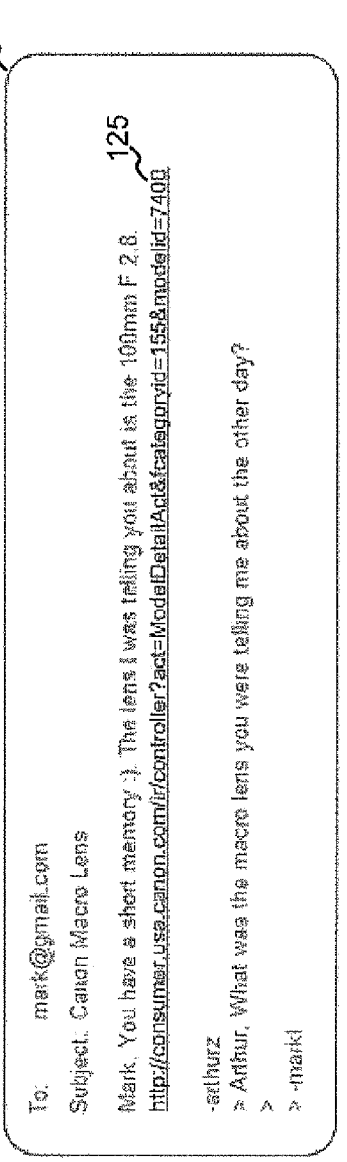


Fig. 1B

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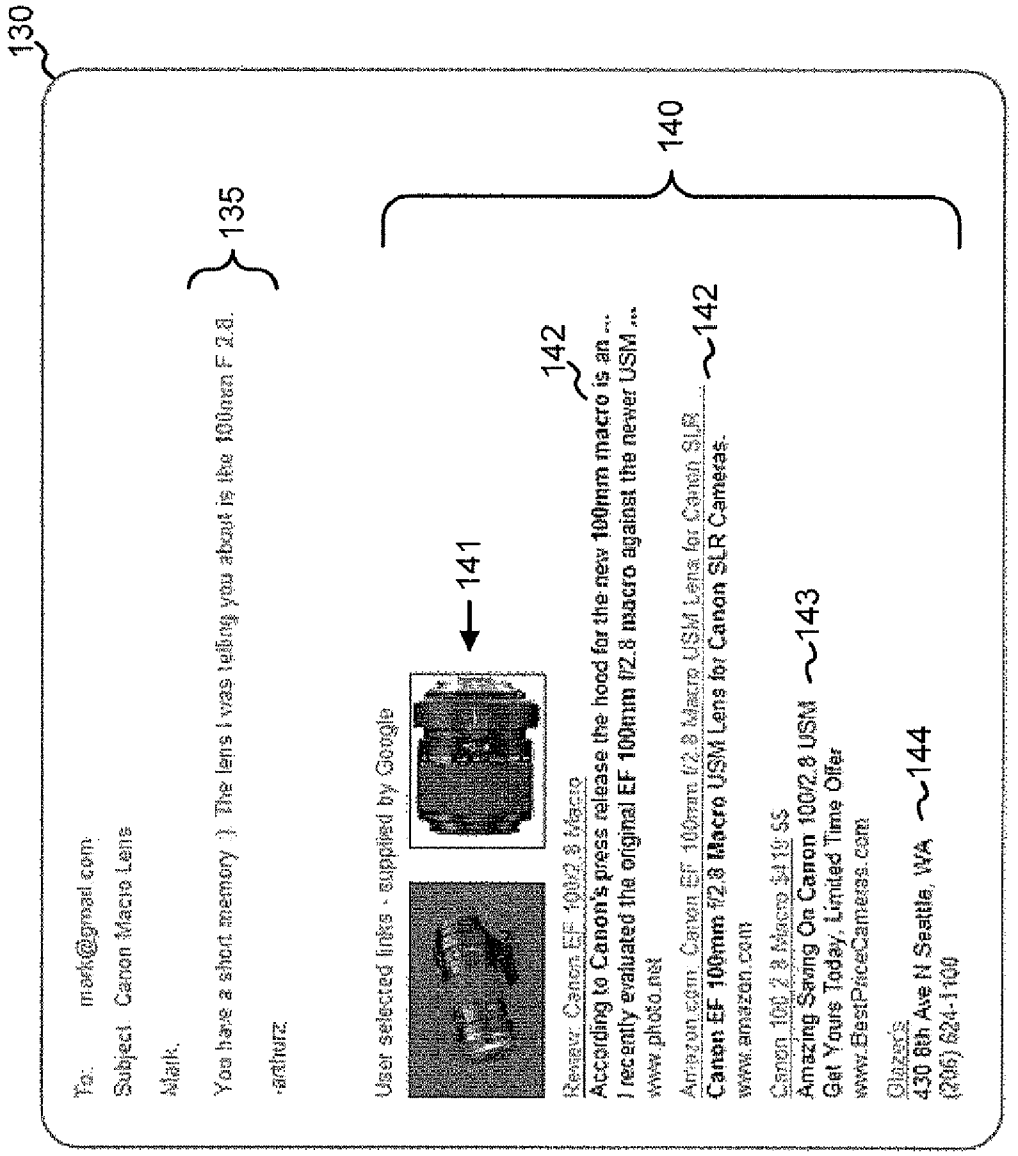


Fig. 1C

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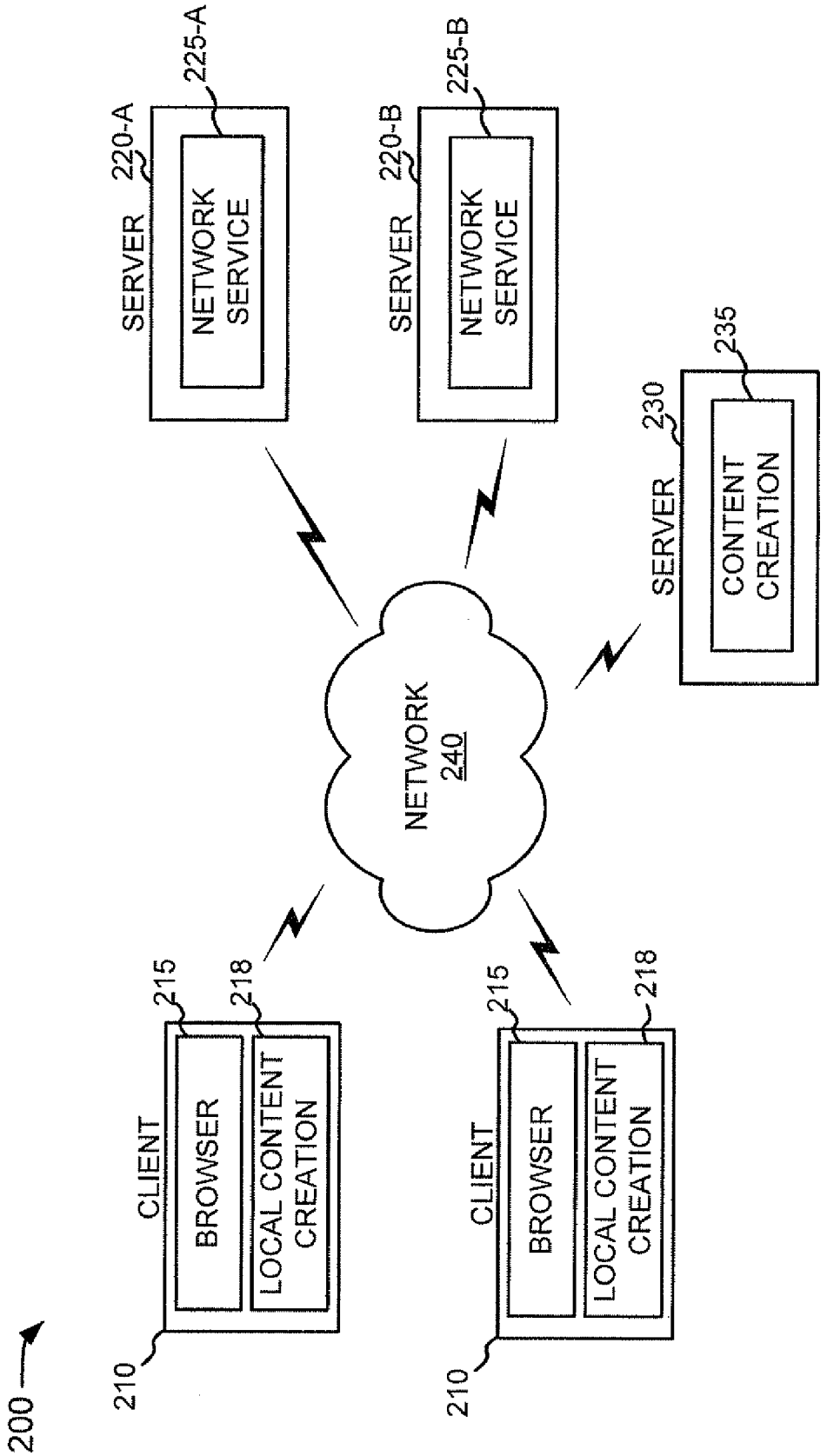


Fig. 2

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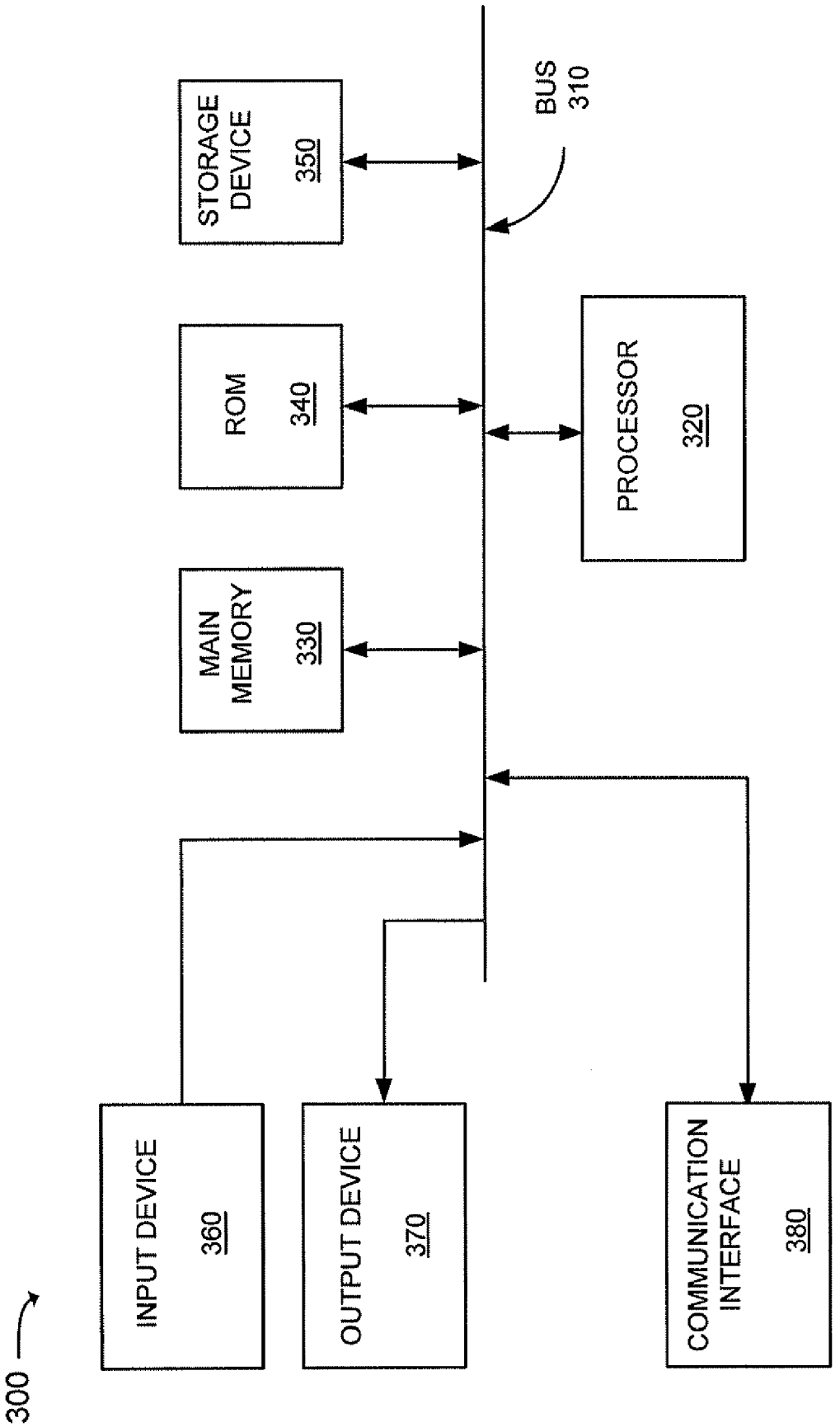


Fig. 3

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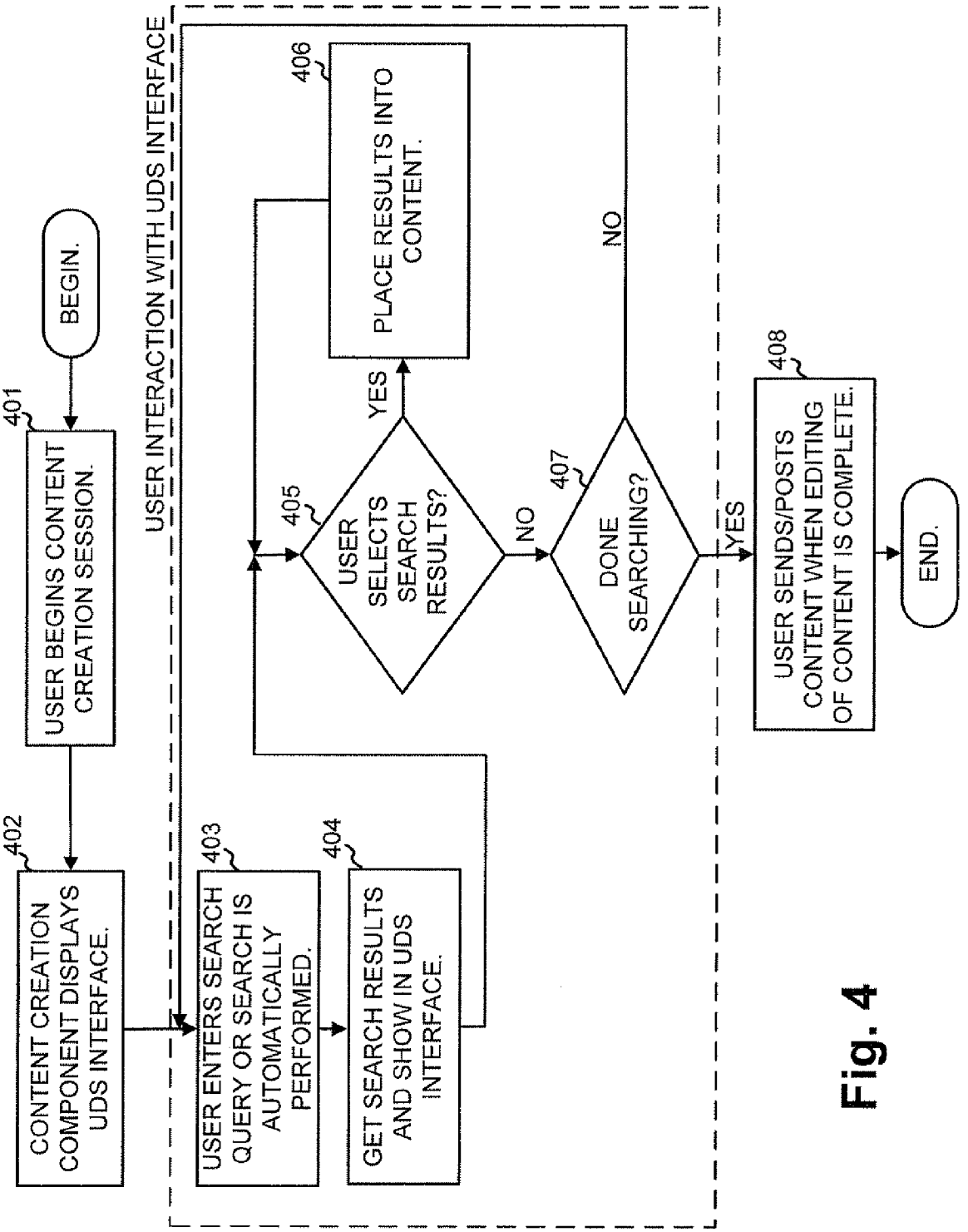


Fig. 4

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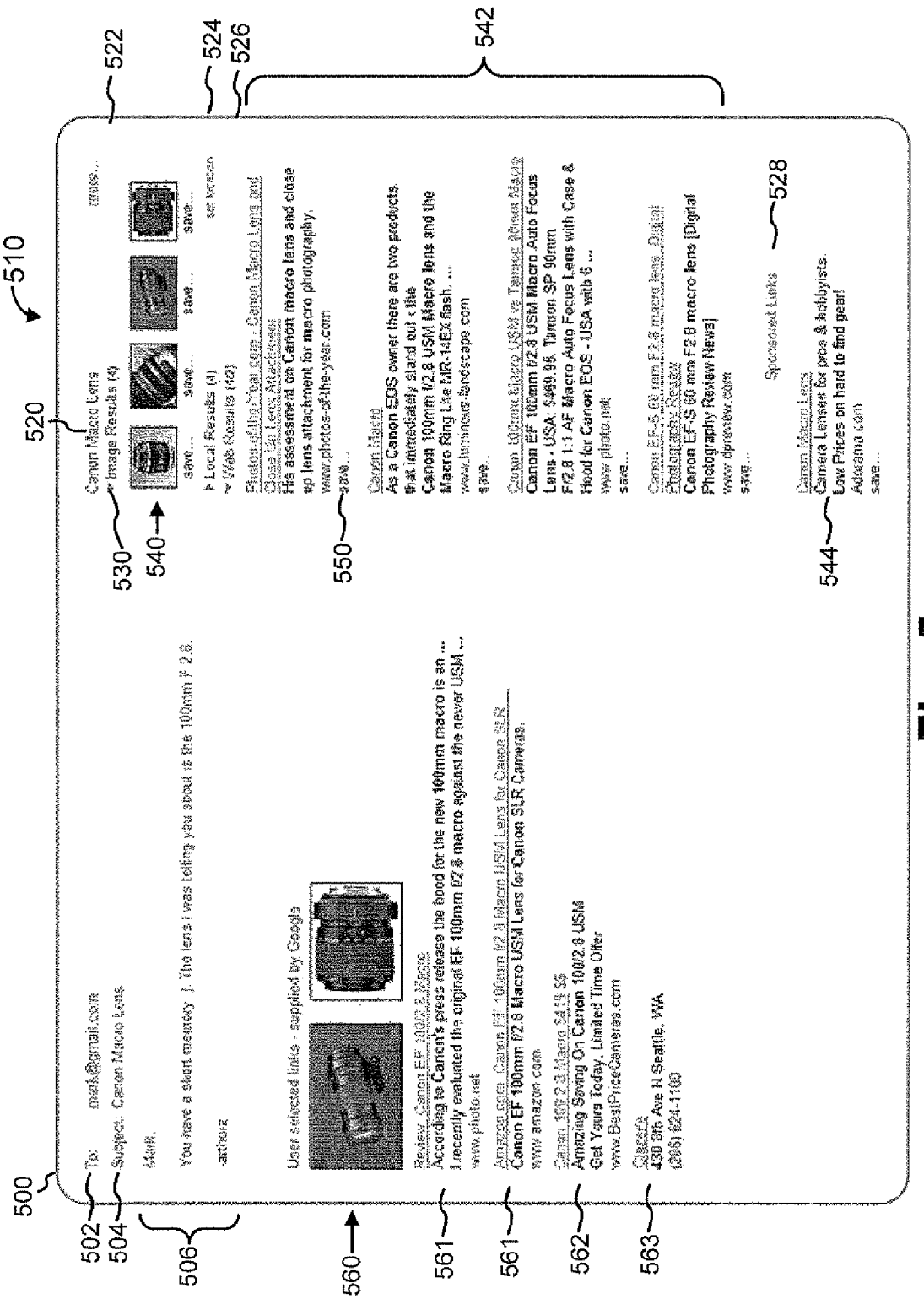


Fig. 5

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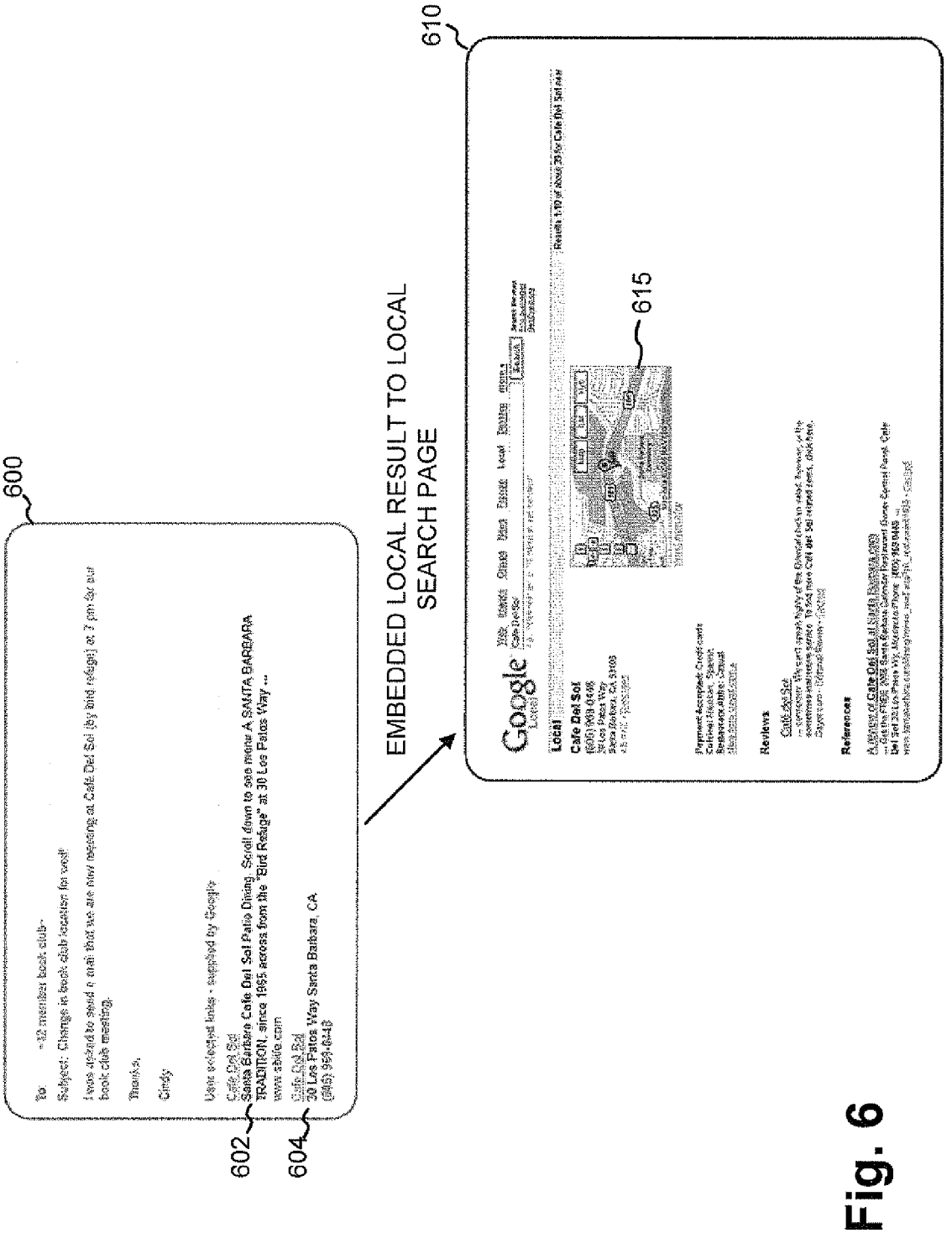

600
602
604
610
615
EMBEDDED LOCAL RESULT TO LOCAL SEARCH PAGE

Fig. 6

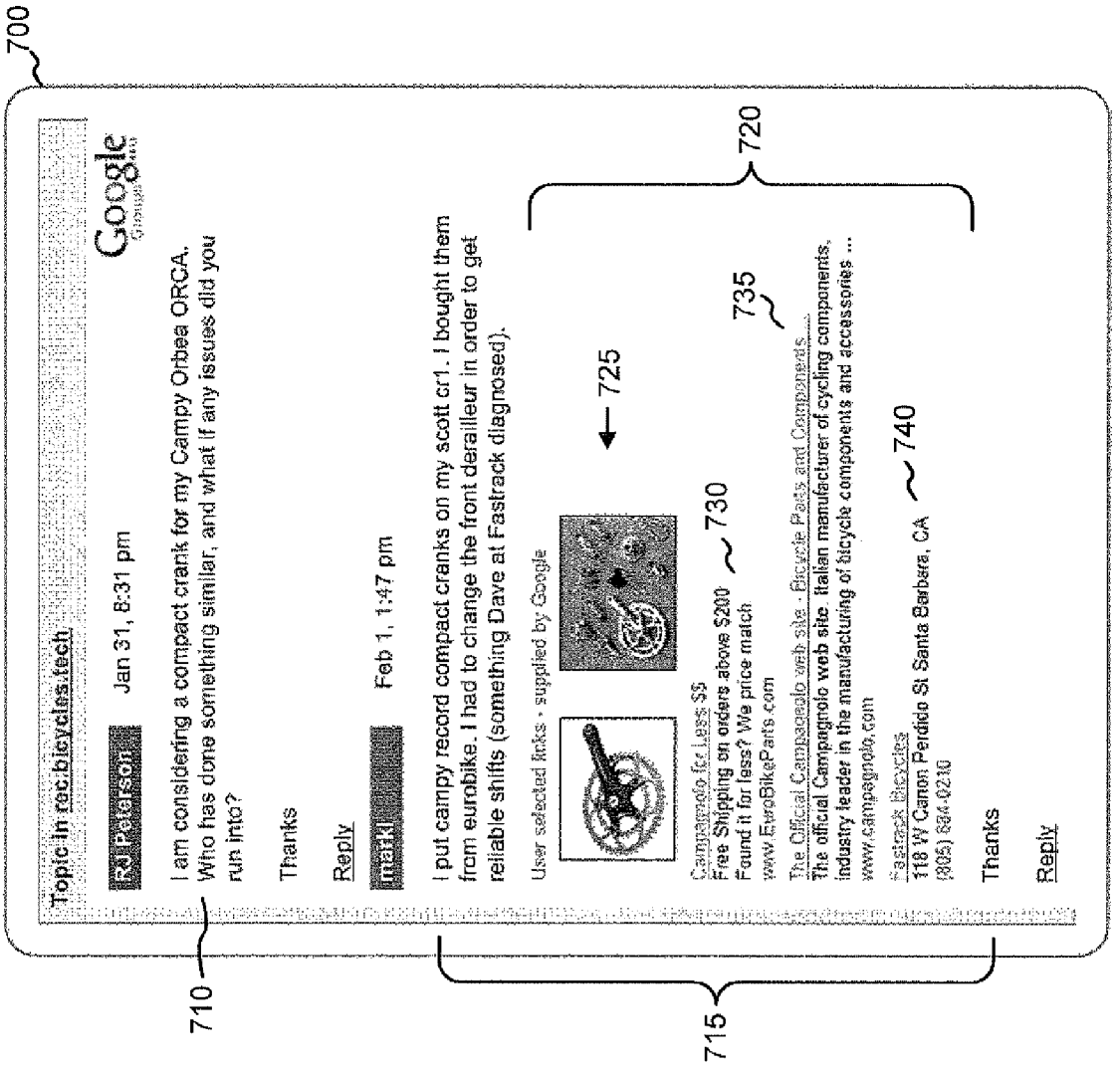

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Google
CJ Peterson
Jan 31, 8:31 pm
I am considering a compact crank for my Campy Orbea ORCA. Who has done something similar, and what if any issues did you run into?
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mark
Feb 1, 1:47 pm
I put campy record compact cranks on my scott cr1. I bought them from eurobike. I had to change the front derailleur in order to get reliable shifts (something Dave at Fastrack diagnosed).
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720
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Fig. 7

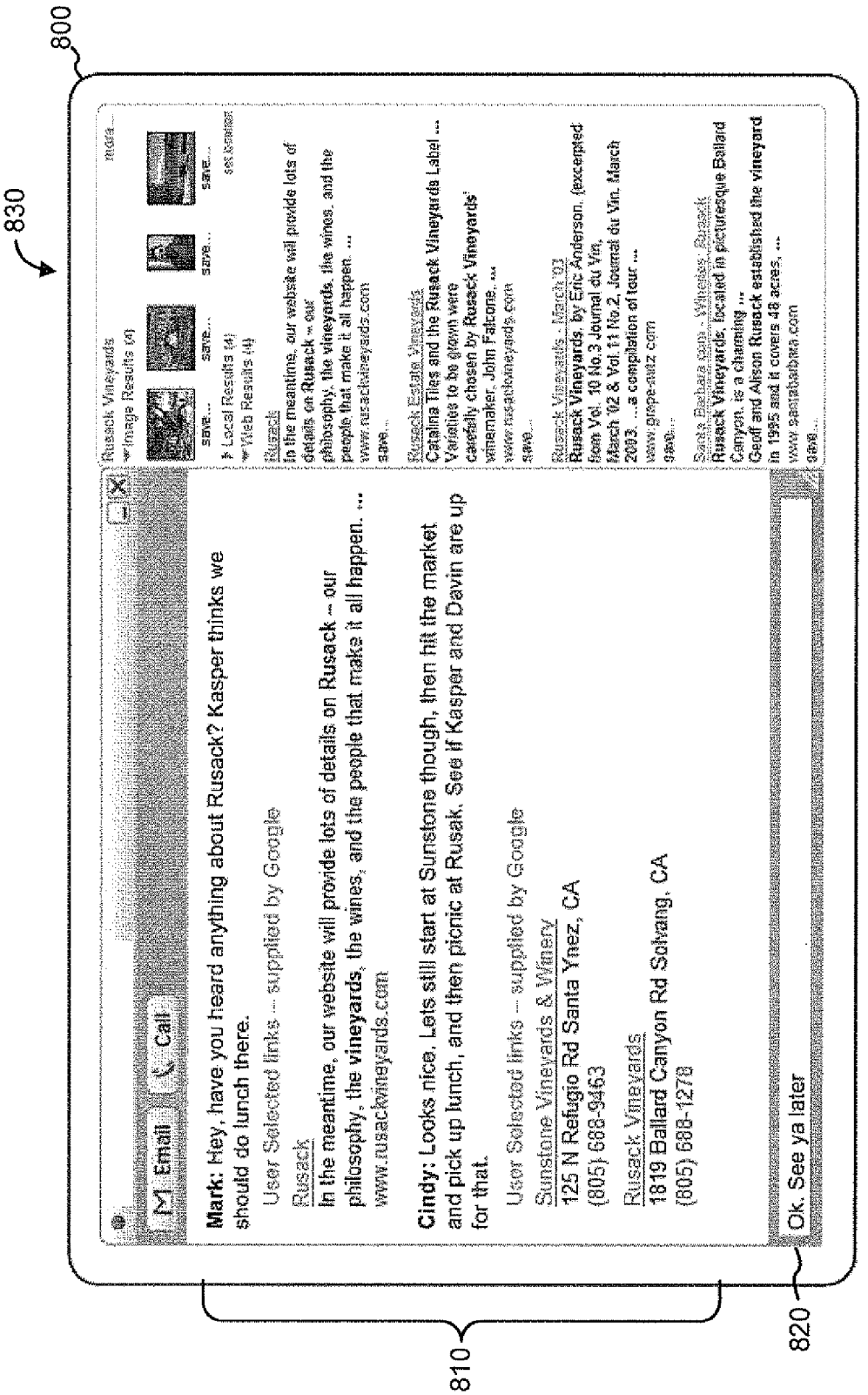


Fig. 8

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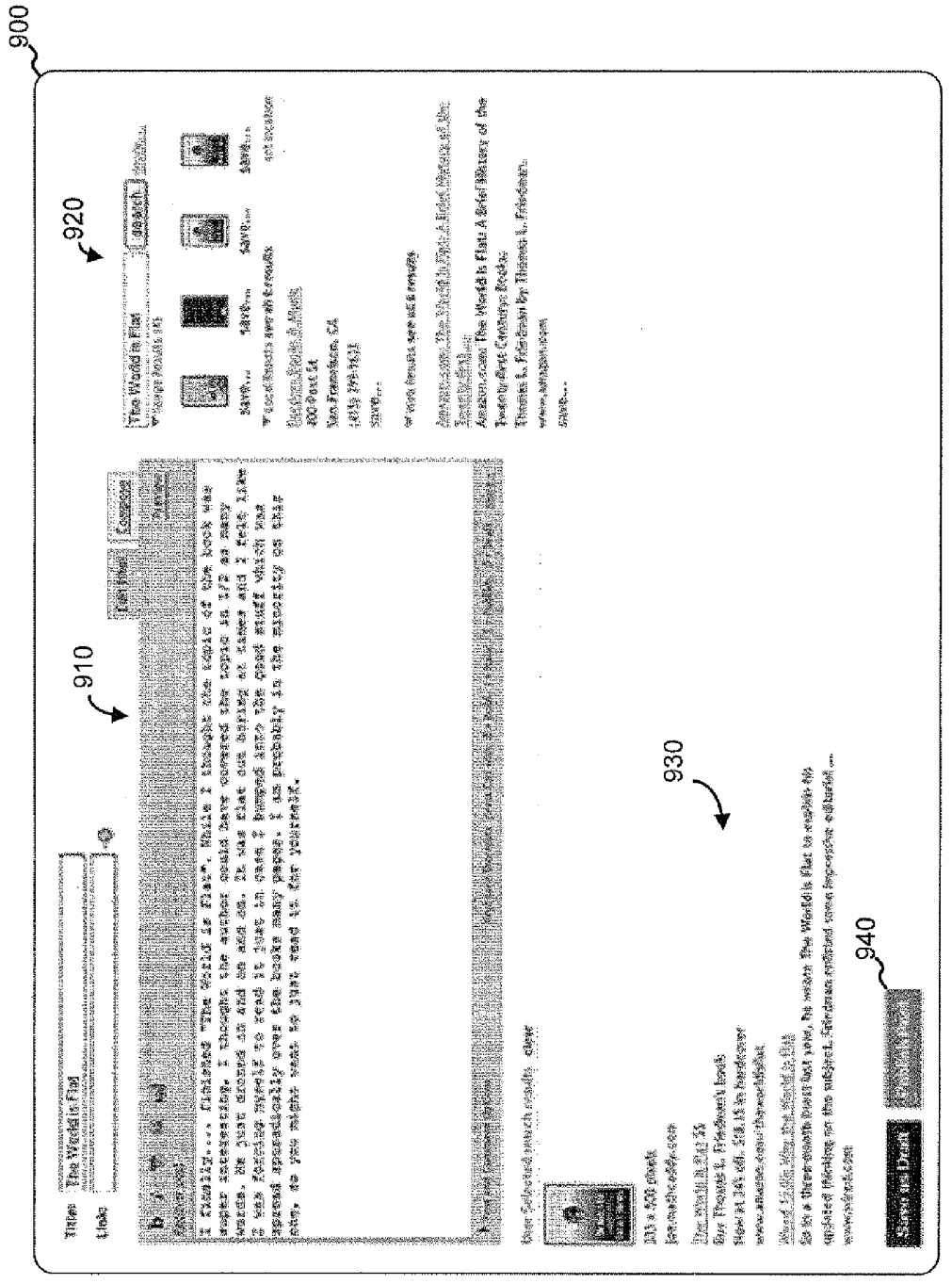


Fig. 9

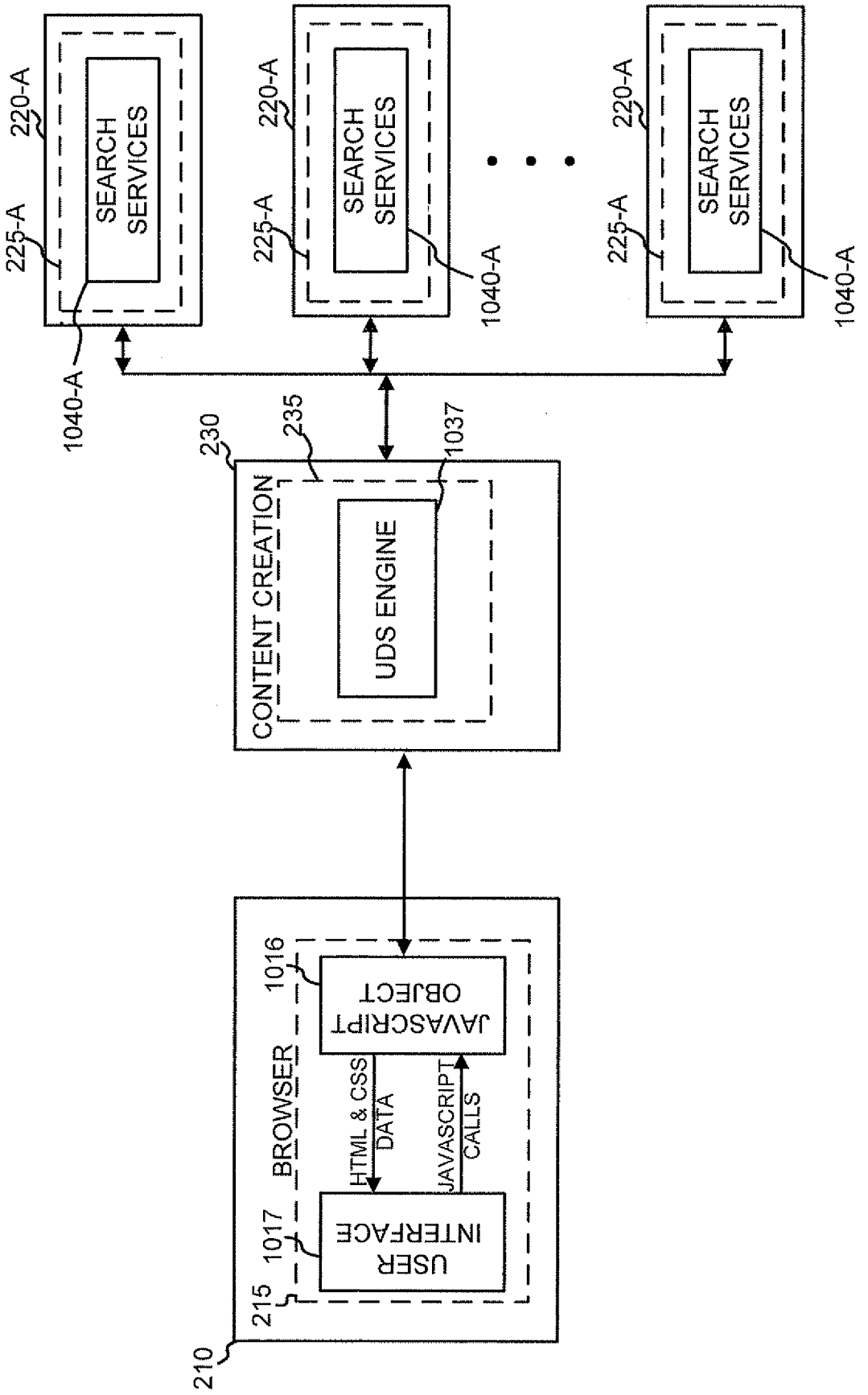


Fig. 10

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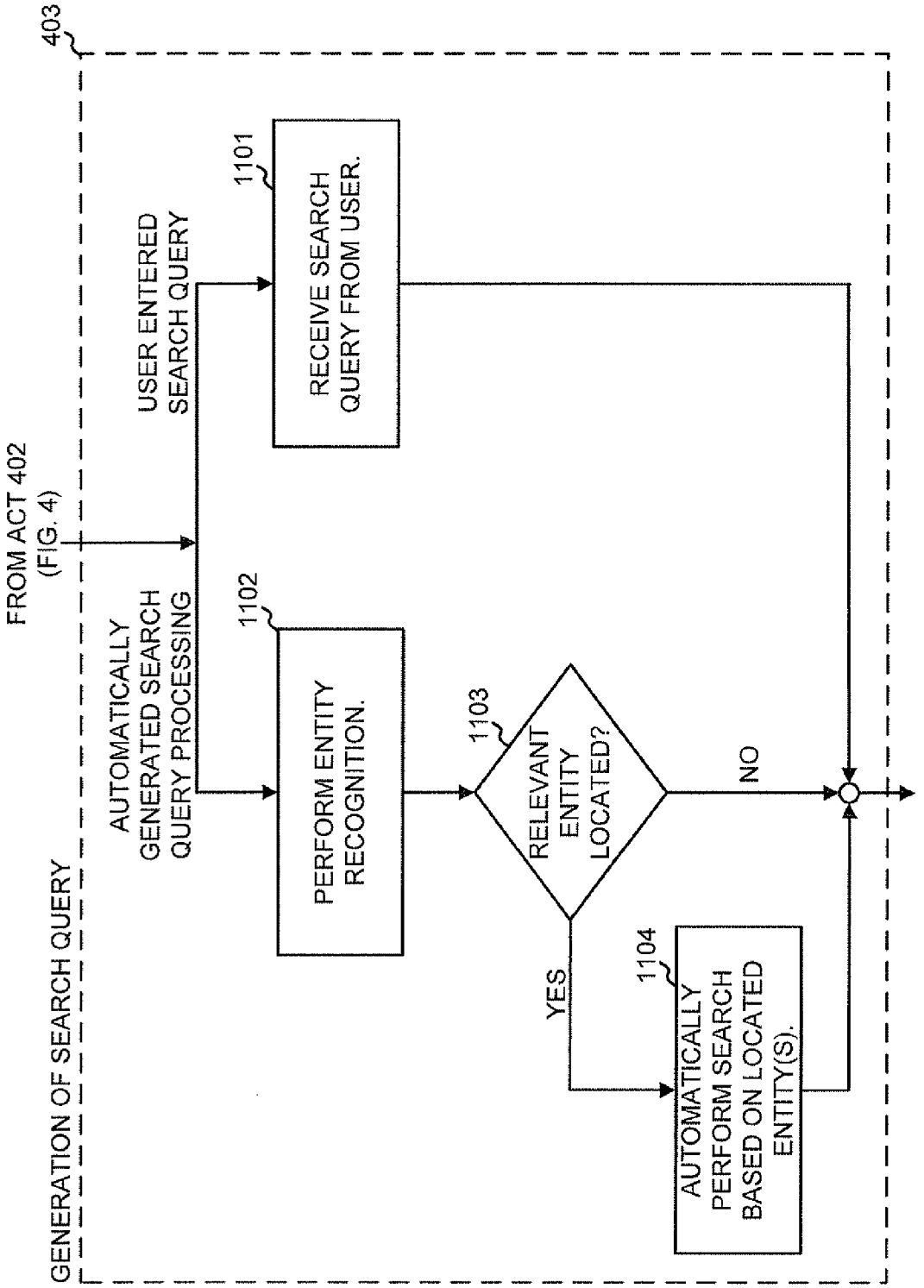


Fig. 11

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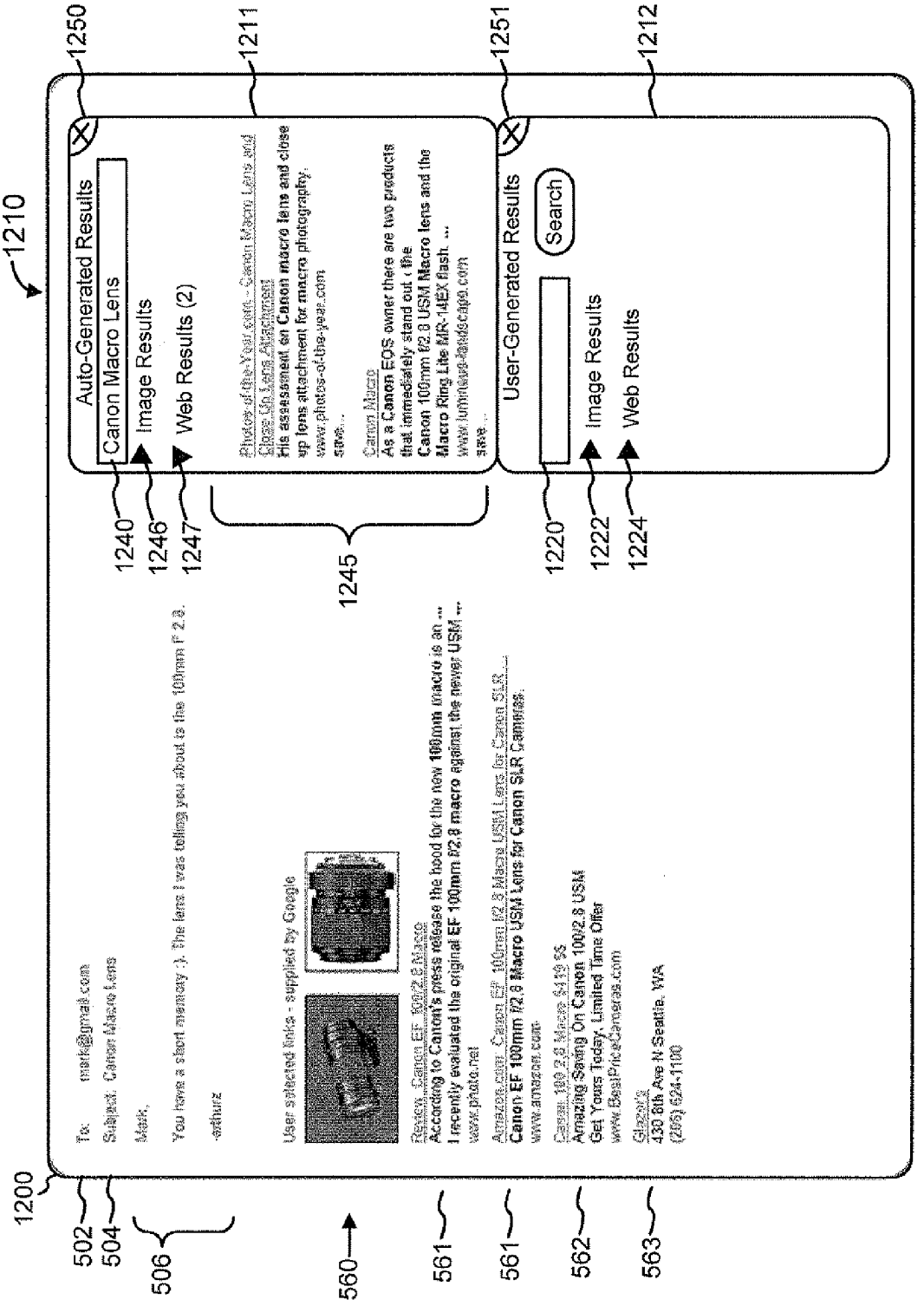


Fig. 12

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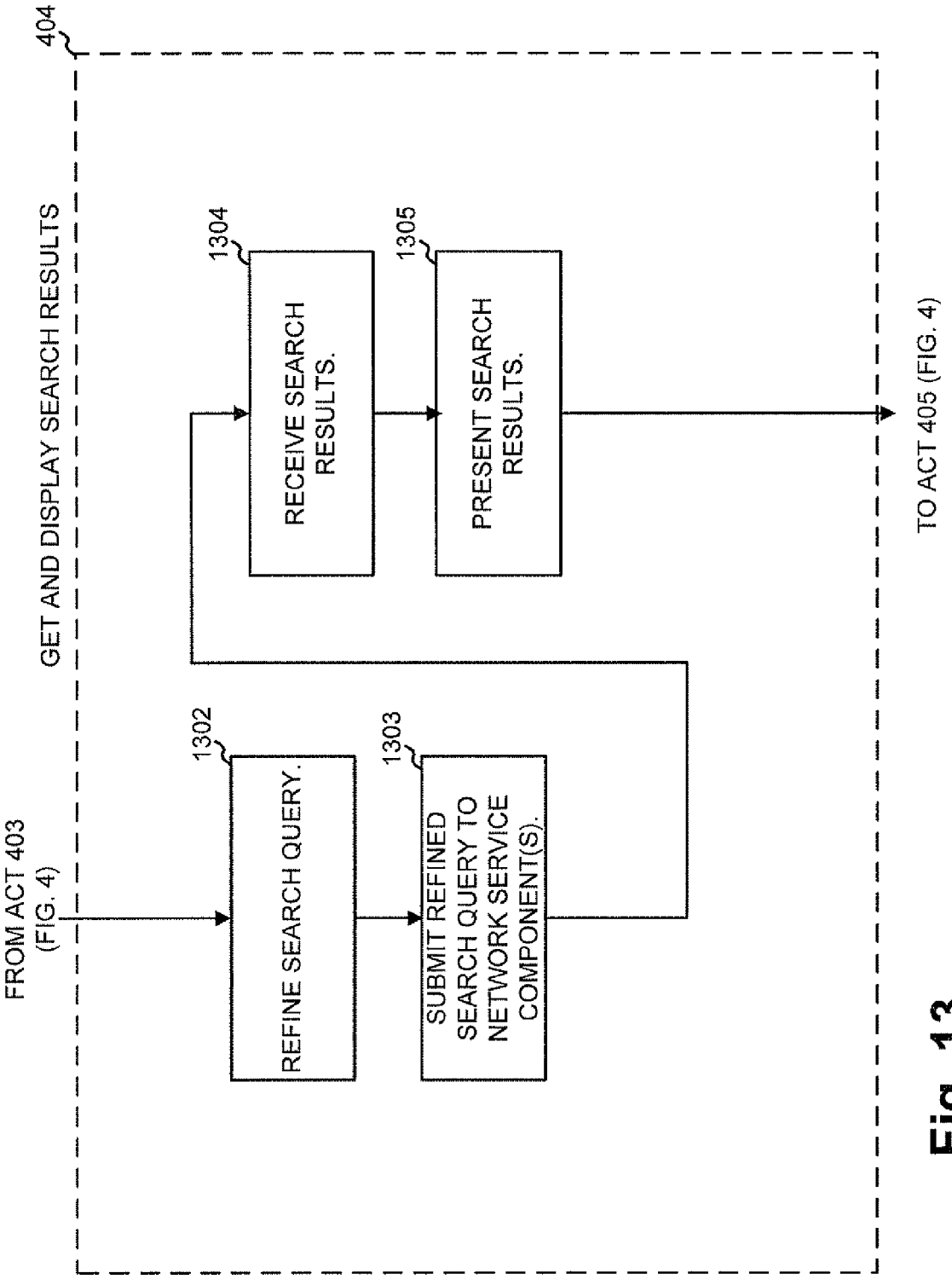


Fig. 13

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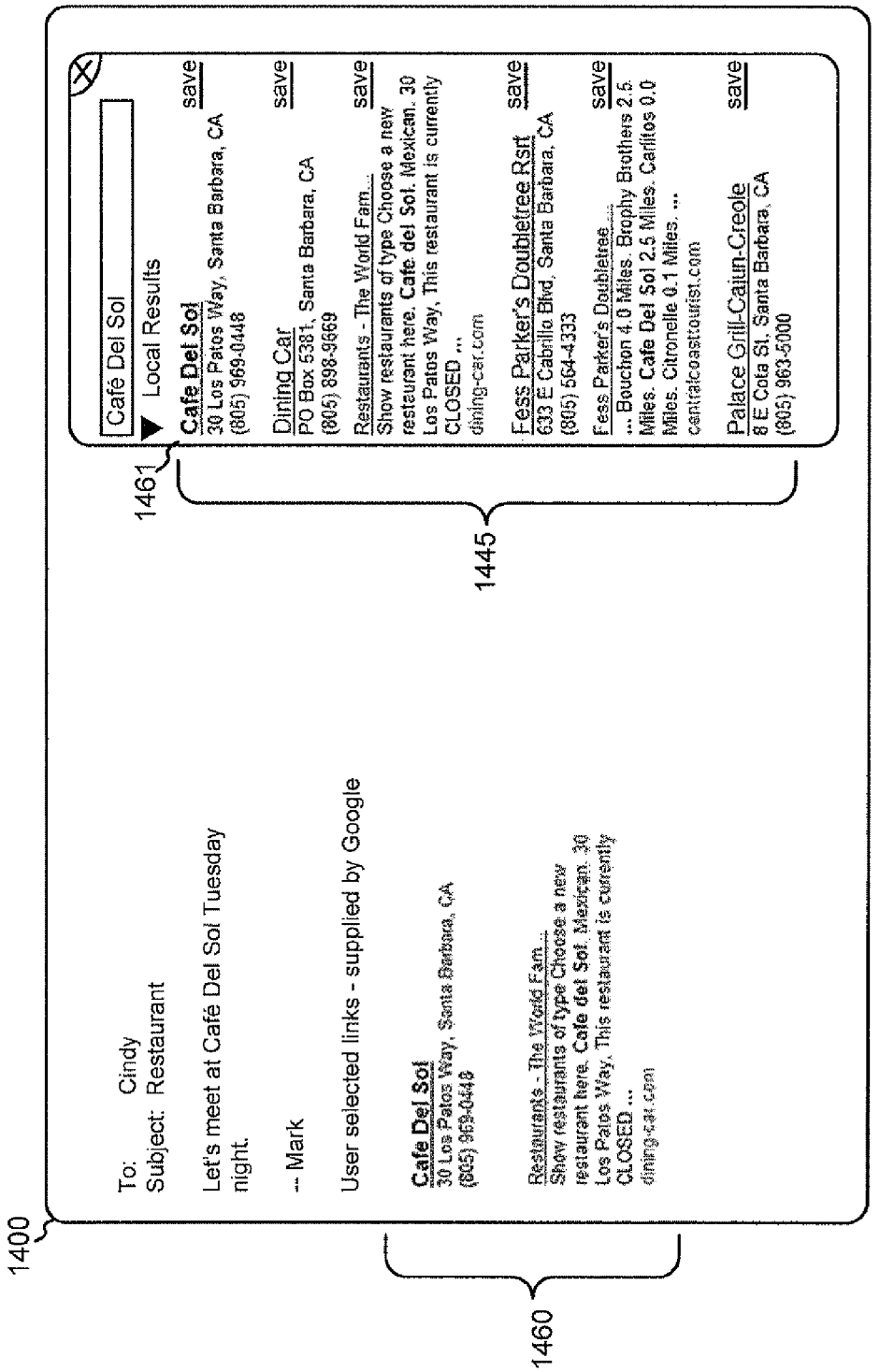


Fig. 14

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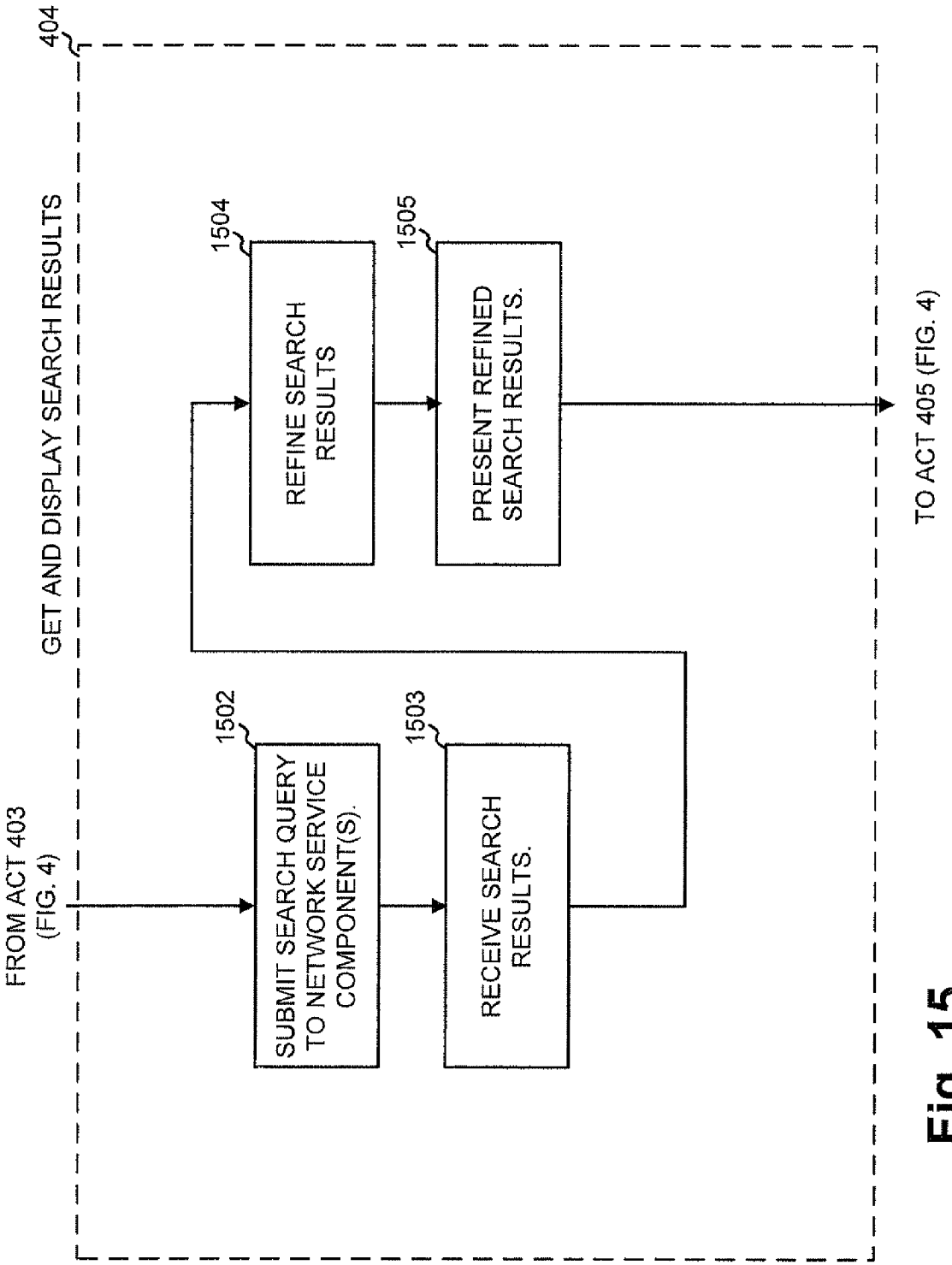


Fig. 15

IPR2024-01304
EX 1015

SHARING USER DISTRIBUTED SEARCH RESULTS

RELATED APPLICATIONS

This application claims priority under 35 U.S.C. §119 based on U.S. Provisional Application Ser. No. 60/774,198, filed Feb. 17, 2006, the disclosure of which is incorporated herein by reference. This application is also a continuation-in-part (CIP) under 37 C.F.R. §1.53(b) of application Ser. No. 11/366,466, filed Mar. 3, 2006, the entire contents of which are incorporated herein by reference.

BACKGROUND

A. Field of the Disclosure

The present disclosure relates generally to content creation, and more specifically, to the enhancement of user created content with search results.

B. Description of the Related Art

In an increasingly networked world, users frequently use online sources to create and exchange information. Email, instant messaging (IM), message boards, websites, and blogs are all existing communication technologies through which users can create and distribute content to other users. Frequently, in creating such content, a user may wish to reference other online information sources. For example, a user authoring an email may use a browser to navigate to a web page that the user would like to reference in the email, copy the link (e.g., the uniform resource locator (URL)) from the browser to a "clipboard," and then paste the link from the clipboard into the email. In this manner, the user can create an email message that contains links that are accessible by an eventual reader of the email.

Search engines are a popular tool through which users enter a search query describing information of interest and receive back documents or links to documents that relate to the search query. Frequently, when "researching" content for an email message, IM message, message board post, website post, or blog post, the user may perform one or more searches using one or more search engines to locate online documents relevant to the content. The user may then copy a link into the document using the above-described method of copying and pasting a link to the document. This process for annotating user created content can be tedious, difficult to perform for average users, and often results in textual links in the final content that can be difficult to read.

Accordingly, it would be desirable to improve the above-described content creation process.

SUMMARY

In one aspect, a content creation application includes a first interface configured to facilitate composition of a message by a user and a second interface configured to receive a search query. The content creation application additionally includes logic to automatically refine a search query. The content creation application additionally includes logic to display search results relating to the search query, and to receive selections of the search results from the user, the content creation application automatically incorporating, in response to the selections, the selected ones of the search results into the message in the first interface.

In another aspect, a content creation application includes a first interface configured to facilitate composition of a message by a user and a second interface configured to receive a search query. The content creation application additionally includes logic to receive search results based on the search query; and logic to automatically refine the received search results. The content creation application additionally includes logic to display the refined search results, and to receive selections of the refined search results from the user, the content creation application automatically incorporating, in response to the selections, the selected ones of the search results into the message in the first interface.

In yet another aspect, a method includes providing an interface configured to facilitate composition of text by a user; receiving a search query from the user; automatically refining the search query from the user; initiating a search based on the refined search query; receiving results of the search; displaying the results of the search in the interface, the displayed results of the search each including a selection object; receiving selections of the selection objects from the user; and associating the results of the search that correspond to the selected ones of the selection objects with the text in the interface.

In yet another aspect, a method includes providing an interface configured to facilitate composition of text by a user; receiving a search query from the user; initiating a search based on the search query; receiving results of the search; automatically refining the results of the search; displaying the results of the search in the interface, the displayed results of the search each including a selection object; receiving selections of the selection objects from the user; and associating the results of the search that correspond to the selected ones of the selection objects with the text in the interface.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate one or more embodiments of the invention and, together with the description, explain the invention. In the drawings,

FIGS. **1**A-**1**C are diagrams providing a conceptual overview of concepts relating to user distributed search results;

FIG. **2** is a diagram of an exemplary system in which concepts consistent with the principles of the invention may be implemented;

FIG. **3** is an exemplary diagram of a client or server illustrated in FIG. **2**;

FIG. **4** is a flow chart illustrating exemplary operations consistent with user distributed search;

FIG. **5** is a diagram of an exemplary email interface;

FIG. **6** is a diagram illustrating an exemplary email message that was annotated to include a search result from a local search engine;

FIG. **7** is an exemplary interface illustrating application of user distributed search to a message board environment;

FIG. **8** is an exemplary interface illustrating application of user distributed search to an instant messaging conversation;

FIG. **9** is an exemplary interface illustrating application of user distributed search to a blog authoring tool;

FIG. **10** is a diagram illustrating exemplary components in a user distributed search system.

FIG. **11** is a flow chart illustrating additional exemplary operations consistent with user distributed search; and

FIG. **12** is an exemplary interface illustrating application of user distributed search in which search results are automatically obtained;

FIG. **13** is a flow chart illustrating additional exemplary operations consistent with user distributed search;

FIG. **14** is an exemplary email interface illustrating refinement of search queries; and

FIG. **15** is a flow chart illustrating additional exemplary operations consistent with user distributed search.

DETAILED DESCRIPTION

The following detailed description refers to the accompanying drawings. The detailed description does not limit the invention.

Overview

Implementations consistent with the principles of the invention relate to allowing users to distribute search results (possibly including advertisements) to those with whom they communicate. The search results can be easily distributed by the user via a simple interface that allows the search results to be added to the user's content with a single mouse click (or other intuitive gestures or commands). In some implementations, the search results may be automatically formatted when being included into the user's content to create a high quality link within the content.

FIGS. **1A-1C** are diagrams providing a conceptual overview of concepts described herein. In this example, assume that a user ("Arthur") is responding to an email from a friend ("Mark") requesting information about a camera lens. FIG. **1A** is a diagram illustrating an exemplary email **110** in which Arthur responds with a short text message informing Mark that the lens he was telling Mark about is the "100 mm F 2.8." Email **110** exemplifies a typical user email responding to a question. FIG. **1B** is a diagram illustrating an another exemplary email, labeled as email **120**, in which Arthur responds with the same message informing Mark of the lens about which he was telling Mark. Additionally, in email **120**, Arthur pastes a link **125** into email **120** that references a review of the lens. As can be seem by the text of link **125**, link **125** is a textually long link that contains a number of terms that convey little information and are probably meaningless to Mark. Email **120** exemplifies a another typical user email responding to a question.

FIG. **1C** is a diagram illustrating an exemplary email **130** in which Arthur responds to Mark's email using tools described herein. In contrast to emails **110** and **120**, email **130** may include, in addition to the same textual response **135** from Arthur to Mark, a number of links and/or content **140** that were inserted by Arthur when creating the email. Links/content **140** may be information that was automatically generated by the email program used by Arthur in response to Arthur entering a search query such as "Canon 100 mm macro lens." As shown, links/content **140** include two images **141**, two links **142** returned from a general web search engine, an advertisement **143** returned from an advertisement search engine, and a link **144** to a local company that was generated in response to a search performed by a local search engine. Arthur may have chosen to use each of links/content **140** by, for example, a single mouse click on a graphical button associated with each of the results of the search query.

As can be appreciated from FIGS. **1A-1C**, the workflow illustrated by emails **110** and **120** is sub-optimal for both the reader and the email author. In contrast, email **130** (FIG. **1C**) would likely be considered a "higher fidelity" communication than either email **110** or **120**. Email **130** includes a number of links to documents that are themselves easily read and that were explicitly selected by the author of the email.

System Overview

FIG. **2** is a diagram of an exemplary system **200** in which concepts consistent with the principles of the invention may be implemented. System **200** may include multiple clients **210** that can connect to servers, such as servers **220**-A, **220**-B or **230**, via a network **240**. Network **240** may include a local area network (LAN), a wide area network (WAN), a telephone network, such as the Public Switched Telephone Network (PSTN), an intranet, the Internet, or a combination of networks. Two clients **210** and three servers **220**-A, **220**-B and **230** are illustrated as connected to network **240** for simplicity. In practice, there may be more clients and/or servers. Also, in some instances, a client may perform one or more functions of a server and a server may perform one or more functions of a client.

A client **210** may include a device, such as a personal computer, a lap top computer, a wireless telephone, a personal digital assistant (PDA), or another type of computation or communication device. Users of clients **210** may access or receive information from servers **220**-A, **220**-B or **230**.

Clients **210** may include software, such as a web browser **215**, for interacting with network **240**. Browser programs are well known and are widely available in the art. When browsers or browser programs are discussed herein, these terms are intended to refer to any program that allows a user to browse documents (e.g., web documents), regardless of whether the browser program is a stand alone program or an embedded program, such as a browser program included as part of an operating system.

Clients **210** may also include a local content creation component **218**. Local content creation component **218** may include one or more software applications designed to assist the user in generating content. For example, in the context of email, local content creation component **218** may include an email application for composing, sending, and reading email. In the context of instant messaging, local content creation component **218** may include a client IM program for composing, sending, and reading instant messages. In alternate implementations, local content creation component **218** may be embodied as other content creation applications, such as applications designed to assist users in creating blog posts, designing or editing web sites, or posting to message boards.

In some situations, users of clients **210** may create content using networked applications using server **230** in place of or as a supplement to using local content creation components **218**. More particularly, server **230** may include content creation component **235**, which may provide content creation services to clients **210**. For example, server **230** may provide email services to clients **210**, such as by providing a web interface through which users of clients **210** can compose, send, and read email messages using browsers **215**. In the context of instant messaging, content creation component **235** may be a server side portion of the IM application and may interact with a client-side IM application embodied by local content creation component **218**. In alternate implementations, content creation component **235** may be embodied as other network-based content creation applications, such as applications designed to assist users in creating blog posts, designing or editing web sites, or posting to message boards.

In the implementation shown, servers **220**-A and **220**-B may generally provide network services, such as search services, to clients **210** or to server **230** via network service components **225**-A and **225**-B. For example, network service component **225**-A may include a search engine designed to index documents, such as web pages, connected to network **240**. In this implementation, in response to search queries received from clients or other servers in system **200**, network service component **225**-A may return links to documents determined by network service component **225**-A to be relevant to the search query. Network service components **225**,

as well as being general web search engines, may be specialized web search engines, such as, for example, search engines that return general web search results, image search results, video search results, local search results, geographic search results, product search results, listing search results, email search results, blog search results, message group search results, news search results, digitized content search results, local network search results (e.g. desktop search or corporate network search), or advertisements. The operation of search engines are known in the art and will not be described further herein. Additionally, in some implementations, the search results may include a history of previous search results viewed by the user. In other words, a user may select to see a history of his/her search results.

In some implementations, one or more of network service components **225** may provide advertisements. For example, assume that network service component **225**-B of server **220**-B is an advertisement server. Server **220**-B may receive requests from other servers or from clients for advertisements. The advertisements returned by server **220**-B to the requesting server or client may be advertisements that are relevant to a search query, document, or other data.

Although illustrated as single devices in FIG. **2**, each of servers **220**-A, **220**-B and **230** may be implemented as, for example, a single computing device or as multiple distributed computing devices. Also, in some implementations, the functionality of multiple servers, such as servers **220**-B and **230**, may be combined as a single server or a single group of distributed computing devices.

Exemplary Computing Device Architecture

FIG. **3** is an exemplary diagram of a computing device **300**, such as one of clients **210** or servers **220** or **230**. Computing device **300** may include a bus **310**, a processor **320**, a main memory **330**, a read only memory (ROM) **340**, a storage device **350**, an input device **360**, an output device **370**, and a communication interface **380**. Bus **310** may include a path that permits communication among the components of computing device **300**.

Processor **320** may include any type of processor, microprocessor, or processing logic that interprets and executes instructions. Main memory **330** may include a random access memory (RAM) or another type of dynamic storage device that may store information and instructions for execution by processor **320**. ROM **340** may include a ROM device or another type of static storage device that may store static information and instructions for use by processor **320**. Storage device **350** may include a magnetic and/or optical recording medium and its corresponding drive.

Input device **360** may include a mechanism that permits a user to input information to computing device **300**, such as a keyboard, a mouse, a pen, voice recognition and/or biometric mechanisms, etc. Output device **370** may include a conventional mechanism that outputs information to the user, including a display, a printer, a speaker, etc. Communication interface **380** may include any transceiver-like mechanism that enables computing device **300** to communicate with other devices and/or systems. For example, communication interface **380** may include mechanisms for communicating with another device or system via a network, such as network **240**.

Network service components **225** and content creation component **235** in servers **220**-A, **220**-B and **230**, respectively, may be implemented in software and stored in a computer-readable medium, such as memory **330**. A computer-readable medium may be defined as one or more physical or logical memory devices and/or carrier waves.

The software instructions defining network service components **225** and content creation component **235** may be read into memory **330** from another computer-readable medium, such as data storage device **350**, or from another device via communication interface **380**. The software instructions contained in memory **330** cause processor **320** to perform processes that will be described later. Alternatively, hardwired circuitry may be used in place of or in combination with software instructions to implement processes consistent with the present invention. Thus, implementations consistent with the principles of the invention are not limited to any specific combination of hardware circuitry and software.

User Distributed Search Results

Consistent with an aspect of the invention, users generating content, such as content created with one or both of content creation component **235** or local content creation component **218**, may easily incorporate search results and/or advertisements into their content creation workflow. Incorporation of search results and/or advertisements in the manner described herein will be referred to as user distributed search (UDS).

FIG. **4** is a flow chart illustrating exemplary operations consistent with UDS. A user may begin by opening a content creation application for the type of content that the user desires to create (act **401**). For the exemplary operations shown in FIG. **4**, assume that the user is composing an email using a web-based email application. That is, assume content creation component **235** provides web-based email services to the user via a browser **215**.

Content creation component **235** may provide a graphical interface that includes a UDS section (act **402**). FIG. **5** is a diagram of an exemplary email interface **500**. Email interface **500** may include fields such as "To:" field **502**, "Subject:" field **504**, and message field **506** in which the user may compose an email message in a typical manner. Additionally, in this implementation, interface **500** includes a UDS sidebar **510**. In some implementations, UDS sidebar **510** may be presented as a graphical window, toolbar, or other element of interface **500** that the user can selectably display or hide from view. As shown, UDS sidebar **510** includes a search query field **520** and a number of search result sections **522**-**528**. In this example, search result sections **522**-**528** include: image result section **522**, local search result section **524**, general web search result section **526**, and advertisement result section **528**. A selectable graphical button, such as arrows **530** may allow the user to hide or view each of search result sections **522**-**528**. As shown, results in local search result section **524** ("local results") are hidden while search result sections **522**, **526**, and **528** are selected to show search results. In some implementations, the user of the email application may be able to customize which of the search results sections are shown in UDS sidebar **510**.

The user may, at some point while composing the email, enter a search query into search query field **520** (act **403**). In some implementations, instead of the user manually entering a search, search queries may be automatically generated and/or executed, such as by generating search queries based on content entered by the user, or semi-automatically generated and/or executed, such as by allowing searches to be performed when a user "hovers" over a word or selection with a graphical pointing device (act **403**). In response, content creation component **235** may transmit the search query to each of the appropriate network service components **235**. In this example, content creation component **235** may transmit the search query to three network service components **235**, respectively implementing an image search engine, a local

web search engine, and a general web search engine. Content creation component **235** may also transmit the search query to another network search component **235** that implements an advertisement server. The search results returned from each of these four "search objects" may then be shown to the user (act **404**). In some implementations, the user may select one of the search results to view the underlying document in a separate browser window.

As illustrated in the example of FIG. **5**, the user entered the search query "Canon Macro Lens" into search query field **520**. The returned search results include a number of images **540** related to this search, a number of relevant web sites **542** related to the search, and an advertisement **544** related to the search. Each of the returned search results may include a link or other graphical selection object that allows the user to select the search result for inclusion in to the message being composed. In this implementation, a "save" link **550** is shown below each of the search results.

The user may decide to include one or more of the search results in the email (act **405**). The user may do so by simply selecting the appropriate save link **550**, which causes content creation component **235** to copy the corresponding search result into the email. In response, content creation component **235** may write the selected results to the email, such as to the message field **506** of the email (act **406**). As shown, in this example, the user has selected two images **560**, two general web results **561**, an advertisement **562**, and a local search result **563**, for inclusion in the email being composed. In one implementation, the results may be automatically placed below message field **506** in the email. In other implementations, content creation component **235** may allow the user to control the placement of the results in the email, such as by graphically dragging different results to different positions in the email. For example, a user may, by dragging a search result over an image or other portion of text, cause the image or other portion of text to become anchor text for the link that refers to the search results. Content creation component **235** may allow the user to implement other editorial controls, such as providing the user with the ability to annotate search results or to add an indication of the search query that was used to generate the search result.

In some implementations, in addition to content creation component **235** writing the selected results to the email, the content creation component may additionally copy the selected results to other locations, such as an operating system's "clipboard." Whether results are also copied to the clipboard may be a user selectable option, The user may then, if desired, paste the results into other applications.

The user may continue to edit the content, enter or refine search queries, and select results for the content until the user is ready to send or post the content (acts **407** and **408**). In the example, of FIG. **5**, the user may enter a "send email" command when the user is ready to send the email. The email, when received by the recipient, may appear as email **130** (FIG. **1**C). The recipient of the email may be able to conveniently view the web pages corresponding to the links by selecting the links. The links underlying the image search results, in particular, may take the user to the web page at which the image is hosted.

As can be seen from FIG. **5**, the selected results **560**-**563**, in contrast to links that are typically pasted into emails between users, such as link **125** (FIG. **1**B), are formatted in a visually appealing manner and thus provide a higher quality content than typical links that a user would normally paste into content (e.g., such as link **125** of FIG. **1**B). More specifically, the links relating to the search results may, as shown in FIGS. **1**C and **5**, include the actual link to the search result, a short snippet of text that may be selected based on terms in the search query, and the domain corresponding to the returned result. Additionally, the user may select chosen results via a simple process, such as by a single mouse click on a link **550** or by a "drag and drop" selection operation associated with link **550**, thus providing even relatively unsophisticated computer users with the ability to enhance their content with search results.

FIG. **6** is a diagram illustrating an exemplary email message that was annotated using UDS to include a search result to a local search engine. In this example, email message **600** is an email message relating to a book club meeting. The sender of the email message is informing the other members of the book club that the meeting location has changed to a local restaurant ("CaféDel Sol.") To support this message, the sender has added two search results from a local search engine. The first, result **602**, refers to a web page that discusses the restaurant. The second, result **604**, links to a local search engine result web page **610** that includes a map **615** showing the location of the restaurant. As illustrated in this example, a user can quickly add links to valuable information to an email, such as a link to a map of a location referred to in the email. In some implementations, instead of a search result being a link to a map, the search result may be a map image that is sent inline with the email message, another type of image, an address, a phone number, or a price of a product that is sent inline with the email message.

Advertisements

In some implementations, content creators that place advertisement links in their content may be given some form of credit if the reader of the advertisement selects the advertisement link. The credit can be monetary or take some other form. Because of the high likelihood that an advertisement incorporated by a content creator into their content is relevant and/or likely to be viewed by the reader, a number of different business models are possible. For example, advertisers may be charged a premium or charged based on a different rate scale for advertisements distributed via UDS.

Additional Exemplary Implementations of UDS

The above description of UDS was primarily in the context of sending email content. As previously mentioned, UDS can be applied equally well to other forms of content creation. FIGS. **7**-**9** illustrate other additional applications of UDS.

FIG. **7** is an exemplary interface illustrating application of UDS to a message board environment. A web message board can generally be defined as a facility on the web for holding discussions. Message boards are typically organized into topics in which users post messages relating to the appropriate topic.

In FIG. **7**, an exemplary message board interface **700** is presented to a user, such as an interface presented through a browser **215**. As shown in interface **700**, a first user has posted a message **710** asking for advice relating to a crank for a bicycle. A second user responds with a message **715**. Through UDS, the poster supplements message **715** with a number of search results **720**. The search results **720** include images **725** of the cranks under discussion, an advertisement **730** for a bicycle store mentioned in message **715**, a link **735** to a web site of the company that produces the cranks, and a link **740** pointing to a local distributor of the cranks. Through UDS, the user responding to message **710** was able to effectively supplement the text of message **715** with links that he specifically selected as being relevant to the topic under discussion.

FIG. **8** is an exemplary interface illustrating application of UDS to an instant messaging conversation. Instant messaging can generally be defined as the act of instantly communicating between two or more people over a network such as the Internet.

In FIG. **8**, an exemplary instant messaging interface **800** is presented to a user, such as an interface presented by a local content creation component **218** (e.g., an IM client) executing at a client **210**. Instant messaging interface **800** includes a message display portion **810** through which transmitted instant messages are displayed, a messaging area **820** in which users may enter messages that they are going to transmit, and UDS interface **830**. In this example, the two participants in the conversation (Mark and Cindy) are discussing possible vineyards to visit. Through UDS, each user has selectively augmented their messages with links relating to the particular vineyard under discussion. In this manner, UDS interface **830** can enhance the quality of the instant messaging conversation by, for example, allowing users to both search from within IM interface **800** and easily share selected links from the search with other users.

FIG. **9** is an exemplary interface illustrating application of UDS to a blog authoring tool. A blog (shortened form of weblog or web log) is a website in which items are posted on a regular basis and generally displayed in reverse chronological order.

In FIG. **9**, an exemplary interface **900** of a blog authoring tool presented to a user, such as a web based blog authoring tool implemented by content creation component **235** or a locally executed blog authoring tool implemented by local content creation component **218**. Interface **900** may include a blog authoring section **910** in which a blogger may enter and edit blog posts. UDS interface **920** allows the blogger to enter search queries and receive search results in a manner similar to UDS sidebar **510** (FIG. **5**). Search results selected by the blogger may be displayed in result section **930** of interface **900**. When the blogger is ready to publish the post, "publish post" button **940** may cause the text entered by the blogger in section **910** and the search results selected by the blogger in result section **930** to both be published as a single blog post to the blogger's blog.

Additional Details of an Exemplary Implementation of the UDS

It can be recognized that the UDS described above can be implemented using a number of different programming and hardware technologies. A high-level description of one exemplary implementation will now be given.

FIG. **10** is a diagram illustrating exemplary components in a UDS system. As shown in FIG. **10**, a client **210** communicates with UDS engine **1037** at application server **230**, which may in turn communicate with search services **1040**-A through **1040**-N at one or more servers **220**. In this implementation, portions of the content application, such as an email application, may be a web-based application that is transmitted to browser **215** on an on-demand basis. At browser **215**, the email application may include, for example, a JavaScript object **1016** that interfaces with a user interface portion **1017** to provide the final user interface that is displayed in browser **215** based on, for example, HTML (hypertext markup language) and CSS (cascading style sheets) data supplied from JavaScript application **1016**.

User interface portion **1017** and JavaScript object **1016** together act to reduce the start-stop start-stop nature of traditional browser-based web applications, as JavaScript object **1016** adds a client-side layer that can handle many of the user interactions with user interface portion **1017**. Instead of loading a web page at the start of a user session, browser **215** may load JavaScript application **1016** from server **230** (or, alternatively, from a local cache). JavaScript object **1016** may be responsible for both rendering the interface the user sees and communicating with content creation component of server **230** on the user's behalf.

JavaScript object **1016** may be a dynamically configured object that allows for dynamic selection of which network services, such as which search services **1040**, to use. JavaScript object **1016** may implement a number of different functions at client **210**. For example, JavaScript object **1016** may allow the interface to be positioned where desired in the client display. Additionally, JavaScript object **1016** may implement a search control object that limits search results to a small number of highly relevant results per search. The search control object may annotate each search result with an element that, when clicked, allows the user to save the search result to the content creation interface.

In some implementations, JavaScript object **1016** may be an object that is designed to be easily integrated into existing web-based JavaScript applications, thus providing a convenient application programming interface (API) through which programmers can incorporate UDS into their programs.

UDS engine **1037** may provide an interface with JavaScript object **1016**. In response to JavaScript object **1016**, UDS interface may annotate search requests, perform searches through appropriate search services **1040**-A through **1040**-N, and serialize results of the searches. Search services **1040**-A through **1040**-N may return search results, such as general web-based search results, image results, etc., or return relevant advertisements, in response to requests from UDS engine **1037**.

Automated Generation of Search Results

In the UDS described above, search results were primarily described as being obtained based on a search query entered by the user. In alternate implementations, the UDS may automatically generate search queries and perform potential searches using automatically generated search queries.

Referring back to FIG. **4**, in act **403**, a search query may be entered by a user or automatically generated. FIG. **11** is a diagram illustrating additional details that may be associated with act **403**. In particular, as shown in FIG. **11**, a search query may be generated based on a search query received from a user (act **1101**) or based on the automatic generation of a search query (acts **1102**-**1104**).

In act **1101**, a search query may be received from a user. As previously mentioned, this act may be based on a user typing a search query into a search query field, such as search query field **520**. Alternatively, In some implementations, instead of the user typing a search query, the user may select search terms in other ways, such as by "hovering" over a word or selection with a graphical pointing device

Instead of waiting for a user to provide a search query, the UDS may automatically generate search queries based on, for example, entity recognition techniques performed using the content entered by the user or content otherwise associated with content creation application **218**/**235** (act **1102**). Entity recognition techniques are generally known in the art, and may include, for example, techniques designed to recognize entities such as products, places, organizations, or any other entities that tend to be subjects of searches. The entity recognition techniques can be based on linguistic grammar models or statistical models. In one possible implementation, the

entity recognition techniques may be particularly adopted to locate terms that correspond to commercial products or terms that define an address, such as a postal address.

If an entity is recognized in act **1102** that is determined to be relevant enough for a search to be executed, the entity may be submitted as a search query to the appropriate network service components **225** (acts **1103** and **1104**). In some implementations, if multiple entities are received they may be combined and submitted as a single search query, submitted as multiple separate search queries, or filtered to remove less relevant entities before combining the remaining entities as a search query. In some implementations, the UDS system may only submit the determined entity to certain ones of the network service components **225** based on the type of entity. For example, an address may be submitted to a mapping or local search network service component, while a commercial product may be submitted to a shopping network service component and an advertisement network service component. Referring back to FIG. **4**, the returned search results may then be shown in the UDS interface and, as previously described, potentially selected by the user and incorporated into the content being created by the user (acts **405-407**).

In some implementations, the entity recognition techniques may additionally take into account context relating to the particular content creation component **218/235** or state of the content creation component **218/235** that is being used by the user. For example, entity recognition techniques applied to a message board content creation component may be biased to look for terms in the content that relate to the topic of the message board. As another example, entity recognition techniques applied to a blog authoring tool may be biased to look for terms in the content that relate to the general topic of the blog (e.g., if the blog is a computer software blog, the entity recognition techniques may be biased to locate terms relating to computer software).

Acts **1102-1104** may be performed in real-time (or near real-time) as the user is typing or otherwise editing content. In this way, potentially relevant search results can be dynamically updated and shown to the user without interrupting the workflow of the user.

FIG. **12** is an exemplary interface **1200** illustrating application of user distributed search in which search results are automatically obtained. Interface **1200** is an email interface that is similar to email interface **500** (FIG. **5**). In particular, interface **1200** may include "To:" field **502**, "Subject:" field **504**, and message field **506** in which the user may compose an email message in a typical manner. Additionally, interface **1200** may include selected search results **560** through **563**, as described previously.

In contrast to the example shown in FIG. **5**, however, in which UDS sidebar **510** provides user-selectable search results, UDS sidebar **1210** may include multiple sidebars, shown in interface **1200** as an auto-generated results section (sidebar) **1211** and a user-generated results section (sidebar) **1212**. User-generated results section **1212** may function similarly to UDS sidebar **510**. That is, a user may enter search queries in search box **1220** and view results of the search in one or more search results sections **1222** and **1224**.

Auto-generated results section **1211** may include search results that are generated automatically by the UDS (acts **1102-1104**). The results may be generated in-real time or in near real-time by the UDS system as the user creates content (e.g., by typing content). Auto-generated results section **1211** may include a search query section **1240**, in which the search query that was automatically generated by the UDS (act **1102**) is shown, and a search result portion **1245**, Search result portion **1245** may include search results for the automatically generated query that is shown in search query section **1240**. In this example, search result portion **1245** includes an image result section **1246** and general web search result section **1247**. Graphical arrow buttons may allow the user to hide or view each of the search result sections. As shown, results in image result section **1246** ("image results") are hidden while general web search result section **1247** is selected to show search results.

Whether auto-generated search results section **1211** and/or user-generated search results section **1212** is displayed in interface **1200** may be configurable by the user. In the example of interface **1200**, search results sections **1211** and **1212** include "close" buttons **1250** and **1251**, respectively, which may operate to remove the respective results sections **1211** or **1212** from the UDS interface. With these buttons, the user may disable auto-generation of search queries.

Search results sections **1211** and **1212**, in addition to being closeable by the user, may include an option to allow the search results sections to be detached from interface **1200**. In other words, the user may be able to cause search results sections **1211** and **1212** to become a separate window within a graphical interface.

In alternate implementations, instead of presenting an interface to the user that includes multiple sidebars as shown in interface **1200**, the UDS may present a single sidebar to the user through which both manually entered search queries and automatically generated search queries are shown to the user. For example, the UDS system may automatically generate search queries and display the results to the user as long as the user does not manually enter a search query. When the user manually enters a search query, the system may refrain from automatically generating further search queries. Also, the user may be able to disable the automated portion of the search generation.

Further, in some alternate implementations, the UDS may automatically generate search queries as described above but may not automatically submit the search queries to network service components **325**. Instead, the UDS may, for example, display the search queries in search query section **1240**, The user, if interested in the automatically generated search query, may submit it to one or more of the network service components **225**.

Refinement of UDS Search Results

With the UDS system described above, search results were presented to the user based on a search query entered by the user or automatically generated based on entity recognition techniques. In alternate implementations, the search results or search queries may be further refined by the UDS system before being shown to the user.

Referring back to FIG. **4**, in act **403**, a search query may be entered by a user or automatically generated. In response, content creation component **235** may transmit the search query to each of the appropriate network service components **235** and the search results returned from each of the network service components may then be shown to the user (act **404**).

FIG. **13** is a flow chart illustrating additional exemplary operations that may be associated with act **404**. The search query obtained in act **403** may be refined by the UDS system (act **1302**). In general, the UDS may refine the search query by modifying the search query with the goal of increasing the relevancy of the search results. Refining a search query does not necessarily imply that the search query is narrowed to return fewer search results; in some situations, a refined search query may return more search results than the original search query. In one implementation, the search query may be

refined to include additional information relating to the particular type of content creation application **218/235**. For instance, if content creation application **218/235** is an application designed to facilitate posts to a message board, content creation application **218/235** may automatically add terms to the search query that relate to the topic of the message board. When a user is adding a post to the message board "rec.bicycles.tech," for example, the UDS system may modify user entered UDS search queries (or automatically generated UDS search queries) to include terms relating to the message board, such as by adding the terms "bicycle" or "gear," etc. In some implementations, whether the UDS system adds terms to refine a search query may be based on the specificity of the received search query. For example, if the received search query contains many terms or if it contains terms that are relatively uncommon, the UDS may refrain from additionally narrowing the search query, while a search query that is determined by the UDS to be particularly broad may be refined.

In addition to refining search queries to include additional information relating to the particular type of content creation application **218/235**, search queries may be refined based on particular users of the content creation application **218/235** or based on users to whom messages are addressed that are created with content creation application **218/235** (act **1302**).

As an example of refining search queries based on the users of the content creation application **218/235** or based on users to whom messages are addressed, consider the exemplary email message illustrated in FIG. **14**. In email message **1400**, the sender of the email message is informing the recipient of the email of a local restaurant ("Café Del Sol") at which they are to meet. To support this message, the sender has added search results **1460** from a local search engine that were selected from local results **1445**. In implementations consistent with aspects of the invention, the search results may be based on search queries that were automatically refined to include references to the locations of the sender of the email message or the recipient of the email message. For example, local search result **1461** may link to a local search engine result web page that includes a map showing the location of the restaurant relative to the location of the recipient of the email message. The location of the email recipient may be known from information entered by the recipient when signing up for an email account if the recipient of the email message is using the same email platform as the sender. As another example, local search results **1445** may include search results based on multiple local searches, such as a local search refined based on the sender's location and a local search refined based on the recipient's location.

As another example of refining search queries based on the users of content creation application **218/235**, the UDS system may generate an explicit or implicit profile of the user and use the profile when refining the search results. The profile may be based on, for example, past searches by the user or explicit profile or preference information entered by the user.

As yet another example of refining search queries, the UDS system may refine search queries by modifying individual terms within the search queries, such as by adding synonyms of terms already in the search query, by stemming terms already in the search query, or by substituting or suggesting spelling corrections to terms in the search query.

The search query refined in act **1302** may be submitted to the appropriate network service components (act **1303**). The search results received back from the network search components may then be presented to the user (acts **1304** and **1305**). Certain of these search results, such as search results **1445**, for example, may be selected by the user and included in the document, as previously described.

FIG. **15** is a flow chart illustrating additional exemplary operations that may be associated with act **404** consistent with an alternative embodiment. The search query obtained in act **403** may be submitted to the appropriate network service components **225** by content creation component **218/235** (act **1502**). The search results may be received by content creation component **218/235** (act **1503**). The received search results may be refined by content creation component **218/235** by, for example, ranking the search results or filtering the search results (act **1504**). This refinement may be performed with the goal of increasing the relevancy of the search results presented to the user. In general, refining search results will refer to modifying or reevaluating the relevance order of the search results. Typically, search results that are higher in the relevance order are the results that are presented to the user first or presented most prominently to the user.

In one implementation, additional information relating to the particular type of content creation application **218/235** may be used to refine the search results. For instance, if content creation component **218/235** is an application designed to facilitate posts to a message board and the particular message board being posted-to is the message board "rec.bicycles.tech," content creation application **235** may refine the search results by ranking the results to emphasize results that are more relevant to bicycles or removing (filtering) results that are not related to bicycles.

In another possible implementation, the search results may be refined based on information relating to the user of content creation application **218/235** or based on information relating to the intended recipients of the content. As an example of this, consider a profile created by or for the user that includes areas of interest of the user. The profile may be used as a basis to re-rank the search results. In other possible implementations, other information, such as, for a message board post, geographic information that is relevant to the message board post, may be used to refine the search results.

The refined search results may then be presented to a user (act **1505**).

Additional Concepts

The user selection of search results when creating content may provide an indication that the selected search results are relevant to the search query. For example, the search results selected by a user may be used as part of a reputation network. In general, a reputation network in some way quantifies the reputation or score of users as to their expertise in certain categories or topics. In the context of UDS, if a particular user incorporates a large number of search results into content and the search results are frequently selected by readers of the content, this may be an indication that the user is an "expert" in the topic relating to the content, and his reputation score for the topic may be increased. This application may be particularly relevant to content applications such as message boards, where the message boards are typically categorized by topic.

More generally, regarding reputation, the gesture of selecting a result may be feed back into the system to impact, for example, raw result ranking, raw value of an advertisement, raw reputation of a user performing a selection, or raw reputation of an application using UDS. These raw reputation results can be used, for example, to modify a document or advertisement ranking used by the underlying search engines.

Advertisements presented through UDS may, in particular, represent advertisements that have a higher likelihood of click through and may therefore be more valuable to the

advertiser. These advertisements may, for example, cost more than or be provided on different terms than other advertisements. In some implementations, the revenue or other benefit derived from advertisements selected by the content creator may be in some way shared with the content creator. In some situations, the fact that an advertisement is selected by an end user may be used in some way to modify a reputation of the content creator that selected the advertisement.

Additionally, in some implementations, content with search results selected by a user may be additionally automatically modified or supplemented, such as by adding additional links to advertisements or products that are determined to be relevant to the selected search results. As an example of this, consider an advertisement for a merchant included in an email message by the author of the email message. It may be desirable to include an additional advertisement from the merchant in the email, such as an advertisement relating to an offer for free shipping from the merchant. These additional or follow-on advertisements may be displayed within the message itself or as advertisements presented to the user via a different channel. For example, if the recipient of the email message is viewing the email message using a web-based email application, the follow-on advertisement may be displayed outside of the message itself, such as in a portion of the browser that the web-based email application normally uses to present advertisements to its users.

Additionally, in some implementations, the UDS search query field, such as search query field **520** (FIG. **5**), instead of causing searches to be executed through network service components (e.g., network search engines), may perform other types of local or network search. For example, the search query may alternatively or additionally be submitted to a local (e.g., a desktop) search service or to a search service integrated in the content creation application. For example, a network email content creation application may include a search service that allows a user to search previously sent or received emails. In this situation, the UDS search query field may additionally use the search services of the content creation application.

CONCLUSION

The foregoing description of exemplary embodiments of the invention provides illustration and description, but is not intended to be exhaustive or to limit the invention to the precise form disclosed. Modifications and variations are possible in light of the above teachings or may be acquired from practice of the invention.

Moreover, while series of acts have been described with regard to FIGS. **4**, **11**, **13**, and **15** the order of the acts may be varied in other implementations consistent with the invention. Moreover, non-dependent acts may be implemented in parallel.

It will also be apparent to one of ordinary skill in the art that aspects of the invention, as described above, may be implemented in many different forms of software, firmware, and hardware in the implementations illustrated in the figures. The actual software code or specialized control hardware used to implement aspects consistent with the principles of the invention is not limiting of the invention. Thus, the operation and behavior of the aspects of the invention were described without reference to the specific software code—it being understood that one of ordinary skill in the art would be able to design software and control hardware to implement the aspects based on the description herein.

Further, certain portions of the invention may be implemented as "logic" or a "component" that performs one or more functions. This logic may include hardware, such as an application specific integrated circuit or a field programmable gate array, software, or a combination of hardware and software.

No element, act, or instruction used in the description of the invention should be construed as critical or essential to the invention unless explicitly described as such. Also, as used herein, the article "a" is intended to include one or more items. Where only one item is intended, the term "one" or similar language is used. Further, the phrase "based on" is intended to mean "based, at least in part, on" unless explicitly stated otherwise.

What is claimed:

1. A device comprising:

a memory to store instructions to provide, to a user, a content creation application comprising:

a first interface to edit and compose an email message by a user,

a second interface to receive a search query,

logic to modify, in response to receiving the search query, the search query by adding one or more additional search terms to the search query, where the one or more additional search terms are based on one or more parameters associated with the email message,

logic to receive search results relating to the modified search query,

logic to modify, in response to receiving the search results, a relevance order of the search results based on information relating to an intended recipient of the email message, where the information relating to the intended recipient includes information based on past searches by the intended recipient, and

logic to display, in the second interface, the modified search results and a save link associated with each of the search results,

logic to receive a selection of one or more save links, and

logic to incorporate, in response to the selection, one or more of the search results corresponding to the selected one or more save links into the email message in the first interface; and

a processor to execute the instructions.

2. The device of claim **1**, where the logic to automatically modify the search query modifies the search query based on a type of the content creation application.

3. The device of claim **1**, where the logic to automatically modify the search query modifies the search query based on information relating to a user of the content creation application.

4. The device of claim **1**, where the content creation application includes a web-based email application.

5. The device of claim **1**, where the logic to automatically modify the search query modifies the search query by including synonyms or stems of terms in the search query, suggesting spelling corrections, or suggesting alternative queries.

6. The device of claim **1**, where the content creation application additionally comprises:

logic to submit the modified search query to a network search component.

7. The device of claim **6**, where the network search component includes a web search component, an image search component, a video search component, a local search component, a geographic search component, a product search component, a listing search component, an email search component, a blog search component, a message group search component, a news search component, a digitized content search component, a desktop search component, or an advertisement search component.

8. A method performed by one or more server devices, the method comprising:

providing, by a processor associated with the one or more server devices, an interface to facilitate composition of a message by a first user and intended for a second user;

receiving, by one of the one or more server devices, a search query from the first user;

modifying, by a processor associated with the one or more server devices and in response to receiving the search query, the search query from the user by adding one or more additional search terms to the search query, where the adding one or more additional search terms is based on a type of a content creation application implemented by the interface;

initiating, by a processor associated with the one or more server devices, a search based on the modified search query;

receiving, by a processor associated with the one or more server devices, results of the search;

providing, by one of the one or more server devices, the results of the search in the interface, the displayed results of the search each including a selection object;

receiving, by one of the server devices, selections of the selection objects from the first user;

incorporating, by a processor associated with the one or more server devices and in response to receiving the selections, the results of the search that correspond to the selections of the selection objects into a content the email message in the interface;

selecting, by a processor associated with the one or more server devices, an advertisement based on the selections;

incorporating, by a processor associated with the one or more server devices, the selected advertisement into the content of the email message; and

providing, by one of the one or more server devices, the email message to the second user.

9. The method of claim 8, where automatically modifying the search query includes modifying the search query based on information relating to the first user.

10. The method of claim 8, where automatically modifying the search query includes modifying the search query based on information relating to the second user.

11. The method of claim 8, where initiating the search includes transmitting the search query to a plurality of search services, the plurality of search services returning one or more search result types.

12. The method of claim 11, where the search result types include web search results, image search results, video search results, local search results, geographic search results, product search results, listing search results, email search results, blog search results, message group search results, news search results, digitized content search results, desktop search results, or advertisements.

13. The method of claim 8, where initiating the search includes transmitting the search query to a search component implemented locally at a computer of the first user.

14. A method performed by one or more server devices, the method comprising:

providing, by a processor associated with the one or more server devices, an interface configured to facilitate composition of text by a first user;

receiving, by one of the one or more server devices, a search query from the first user;

initiating, by a processor associated with the one or more server devices, a search based on the search query;

receiving, by a processor associated with the one or more server devices, results of the search;

modifying, by a processor associated with the one or more server devices and in response to receiving the results of the search, a relevance order of the results of the search based on a type of a content creation application implemented by the interface;

providing, by one of the one or more server devices, the results of the search in the interface using the modified relevance order, the provided results of the search each including a selection object;

receiving, by one of the one or more server devices, a selection of one or more of the selection objects from the first user;

incorporating, by a processor associated with the one or more server devices and in response to receiving the selection, the results of the search, that correspond to the one or more of the selection objects, into the text in the interface;

providing, by one of the one or more server devices, the text and the incorporated results of the search to a second user;

receiving, by one of the one or more server devices, a request to access one of the incorporated results from the second user;

analyzing, by a processor associated with the one or server devices and in response to receiving the request, the request to access the one of the incorporated results from the second user; and

adjusting, by a processor associated with the one or more server devices, a reputation score of the first user based on the analyzed request from the second user.

15. The method of claim 14, where automatically modifying a relevance order of the results of the search includes modifying the relevance order of the results of the search based on information relating to the first user.

16. The method of claim 14, where automatically modifying a relevance order of the results of the search includes modifying the relevance order of the results of the search based on information relating to the second user.

17. The method of claim 14, where initiating the search includes transmitting the search query to a plurality of search services, the plurality of search services returning one or more search result types.

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