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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 11/502,202		Filing Date 08/10/2006		☐ To be Mailed				
APPLICATION AS FILED – PART I													
(Column 1)			(Column 2)		SMALL ENTITY ☐		OR		OTHER THAN SMALL ENTITY				
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)	RATE (\$)	FEE (\$)	RATE (\$)	FEE (\$)	RATE (\$)	FEE (\$)			
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A		N/A		N/A		N/A				
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A		N/A		N/A		N/A				
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A		N/A		N/A		N/A				
TOTAL CLAIMS (37 CFR 1.16(j))	minus 20 =	*	X \$	=	OR	X \$	=	X \$	=	X \$			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$	=	OR	X \$	=	X \$	=	X \$			
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).												
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))													
* If the difference in column 1 is less than zero, enter "0" in column 2.													
APPLICATION AS AMENDED – PART II													
(Column 1)			(Column 2)		(Column 3)		SMALL ENTITY		OR		OTHER THAN SMALL ENTITY		
10/08/2000	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	RATE (\$)	ADDITIONAL FEE (\$)	RATE (\$)	ADDITIONAL FEE (\$)	RATE (\$)	ADDITIONAL FEE (\$)		
Total (37 CFR 1.16(o))	* 19	Minus	** 20	= 0	X \$	=	OR	X \$18=	0	X \$	=		
Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X \$	=	OR	X \$80=	0	X \$	=		
☐ Application Size Fee (37 CFR 1.16(s))													
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))													
TOTAL ADD'L FEE						OR						TOTAL ADD'L FEE	
												0	
(Column 1)			(Column 2)		(Column 3)		SMALL ENTITY		OR		OTHER THAN SMALL ENTITY		
AMENDMENT	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	RATE (\$)	ADDITIONAL FEE (\$)	RATE (\$)	ADDITIONAL FEE (\$)	RATE (\$)	ADDITIONAL FEE (\$)		
Total (37 CFR 1.16(o))	*	Minus	**	=	X \$	=	OR	X \$	=	X \$	=		
Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$	=	OR	X \$	=	X \$	=		
☐ Application Size Fee (37 CFR 1.16(s))													
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))													
TOTAL ADD'L FEE						OR						TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.													
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".													
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".													
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.													

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

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

Legal Instrument Examiner:
/Susan K. Ford/

081006

In Application of: Deepa Joshi
 For: Method and Apparatus for Reconstructing a Search Query
 Attorney Docket No: 12729/180
 "Express Mail" mailing label number: EV 653878732 US
 Date of Deposit: August 10, 2006

BRINKS
HOFFER
GILSON
& LIONE

UTILITY PATENT APPLICATION TRANSMITTAL

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

112955 U.S. PTO
 11/502202

081006

Transmitted herewith is a new application under 37 C.F.R. § 1.53(b), including the following elements and other papers:

1. Application including: ☐ Application Data Sheet. See 37 CFR § 1.76.
 - ☒ Title page
 - ☒ Specification, including claims and Abstract (13 pages)
 - ☒ Drawings (7 sheet(s))
 - ☐ Appendices:
 - ☒ Declaration (2 pages; ☒ Executed ☐ Unexecuted)
 - ☐ Combined Declaration and Power of Attorney (____ pages; ☐ Executed ☐ Unexecuted)
2. ☐ Information Disclosure Statement, including Form PTO-1449 (____ sheets), and any required copies
3. ☒ Assignment Recordation Cover Sheet, with fee and attached assignment to: Yahoo! Inc.
4. ☒ Power of Attorney (1 pages; ☐ by inventor ☒ by Assignee identified in item #3 above)
5. ☐ Nonpublication Request under 35 USC § 122(b)(2)(B)(i)
6. ☒ Other: Statement under 37 CFR 3.73(b) and copy of assignment
7. ☒ Return Postcard
8. Fee calculation:
 - ☐ Applicant is a Small Entity.

Claims as Filed	Col. 1	Col. 2	Small Entity			Not a Small Entity		
For	No. Filed	No. Extra	Rate	Fee	or	Rate	Fee	
Basic Fee				\$ 150	or		\$ 300	
Total Claims	20-20	0	x\$25=	\$	or	x\$50=	\$	
Independent Claims	3-3	0	x\$100=	\$	or	x\$200=	\$	
Multiple Dependent Claims Present			+ \$180=	\$	or	+ \$360=	\$	
Utility Application Size Fee (for each additional 50 sheets that exceeds 100 sheets, including specification and drawings)			x\$125=	\$	or	X\$250=	\$	
Search Fee			+ \$250=	\$	or	+ \$500=	\$500	
Examination Fee			+ \$100=	\$	or	+ \$200=	\$200	
*If the difference in col. 1 is less than zero, enter "0" in col. 2.			Total	\$	or	Total	\$1,000	

9. Fee payment:
 - ☒ A check in the amount of \$1,000 to cover the filing fee is enclosed.
 - ☐ Please charge my Deposit Account No. 23-1925 in the amount of \$____. A copy of this Transmittal is enclosed.
 - ☒ The Director is hereby authorized to charge payment of the following fees associated with this communication, or credit any overpayment, to Deposit Account No. 23-1925:
 - ☒ Any additional filing fees required under 37 CFR § 1.16.
 - ☒ Any patent application processing fees under 37 CFR § 1.17.
10. CORRESPONDENCE ADDRESS: please recognize the correspondence address for this application as the address associated with the following Customer Number:

Customer No. 56020 - Yahoo/Overture

11. PLEASE DIRECT all telephonic communications to:
 Vincent J. Gnoffo (tel: (312) 321-4200).

Respectfully submitted,

Vincent J. Gnoffo
 Vincent J. Gnoffo (Reg. No. 44,714)

Date

Aug. 10, 2006

ABSTRACT

Methods and systems for reconstructing a full query based on a partial query are disclosed. Existing interfaces for search engines may be rigid and require users to submit full queries to perform searched. The methods and systems described herein may solve these problems by allowing a flexible way for users to submit a partial query and reconstruct a full query based on the partial query. A search may then be performed using the reconstructed query.

CLAIMS

1. A method for providing search results to a user, comprising:
receiving a first set of information indicative of a partial query;
determining a full query based on the partial query;
submitting the full query to a search engine;
receiving results from the search engine; and
presenting the results to the user.
2. The method of claim 1, further comprising determining an alternative query based on the partial query.
3. The method of claim 2, further comprising presenting the alternative query to the user.
4. The method of claim 3, where the alternative query is presented as a hyperlink.
5. The method of claim 4, where the selection of the alternative query hyperlink causes the alternative query to be submitted to the search engine.
6. The method of claim 1, further comprising present the partial query to the user.
7. The method of claim 6, where the partial query is presented as a hyperlink
8. The method of claim 7, where selection of the partial query hyperlink causes the partial query to be submitted to the search engine
9. A method for determining a full query based on a partial query, the method comprising:
receiving a first set of information indicative of a partial query;
comparing the partial query to an index of known search queries to

determine matching known queries;

determining a full query by selecting at least one of the matching known queries.

10. The method of claim 9, wherein the index includes weights for each of the known search queries.

11. The method of claim 10, where the determining the full query further comprises selecting the matching known query with the largest weight.

12. The method of claim 9, further comprising:
building the index by retrieving information indicative of previously submitted search queries.

13. The method of claim 12, where the building the index further comprises removing misspelled queries from the retrieved information.

14. The method of claim 12, where the building the index further comprises removing queries including controversial terms from the retrieved information.

15. A system for providing search results to a user, comprising:
a query reconstruction server operable to:
receive a first set of information indicative of a partial query;
determine a full query based on the partial query; and
submit the full query to a search engine;
a web server operable to receiving results from the search engine and presenting the results to the user.

16. The system of claim 15, where the query reconstruction server and the web server are different.

17. The system of claim 15, further comprising:
a query data management server operable to:

retrieve historical query data including information relating to a plurality of previously submitted search queries;
build an index of known search queries based on the historical query data; and
provide the index to the query reconstruction server, and
where the query reconstruction server is further operable to determine the full query by comparing the partial query to the index of known search queries to determine matching known queries and determining a full query by selecting at least one of the matching known queries.

18. The system of claim 17, where the index includes weight information for the plurality of previously submitted search queries, and where the query reconstruction server determines the full query based on the weight information.

19. The system of claim 15, where the query reconstruction server is further operable to determine alternative queries based on the partial query, and where the web server is further operable to present the alternative queries to the user as hyperlinks and where the selection of the alternative query hyperlink causes the alternative query to be submitted to the search engine.

20. The system of claim 15, where the web server is further operable to present the partial query to the user as a hyperlink and where selection of the partial query hyperlink causes the partial query to be submitted to the search engine.

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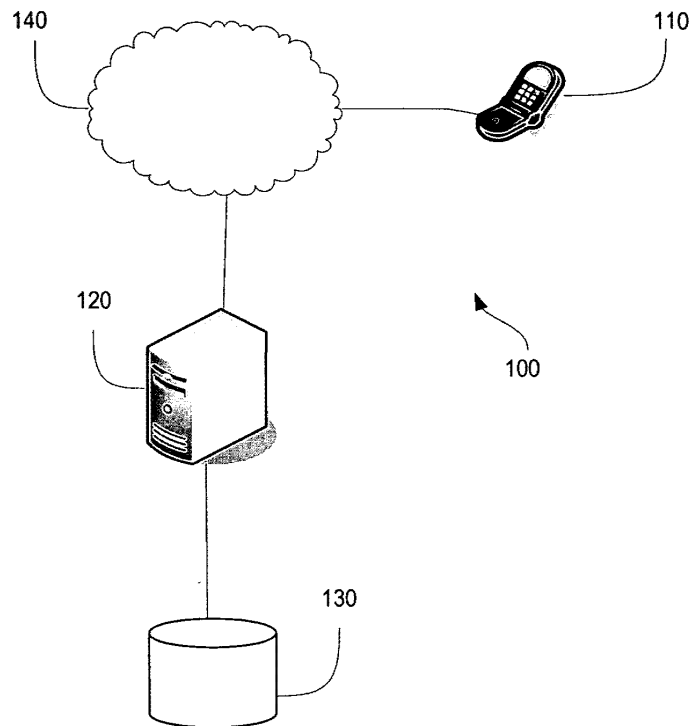


Figure 1

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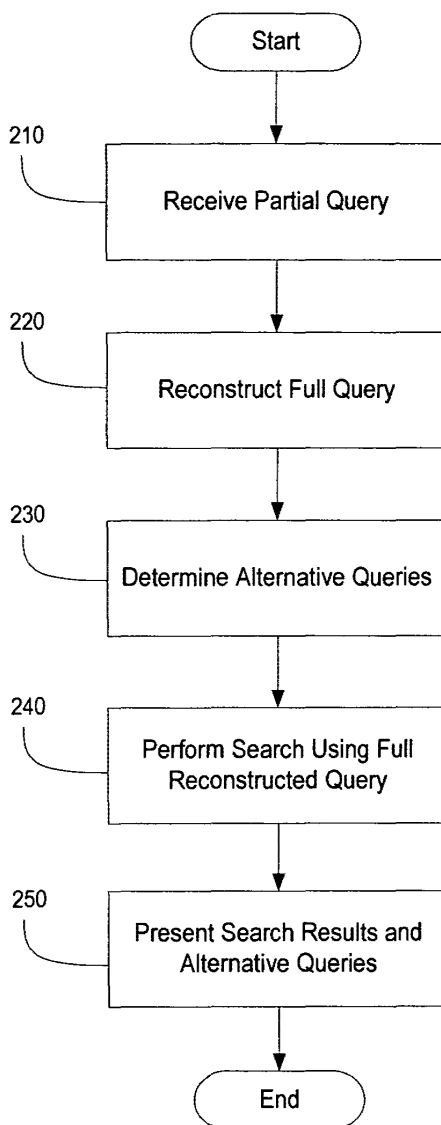


Figure 2

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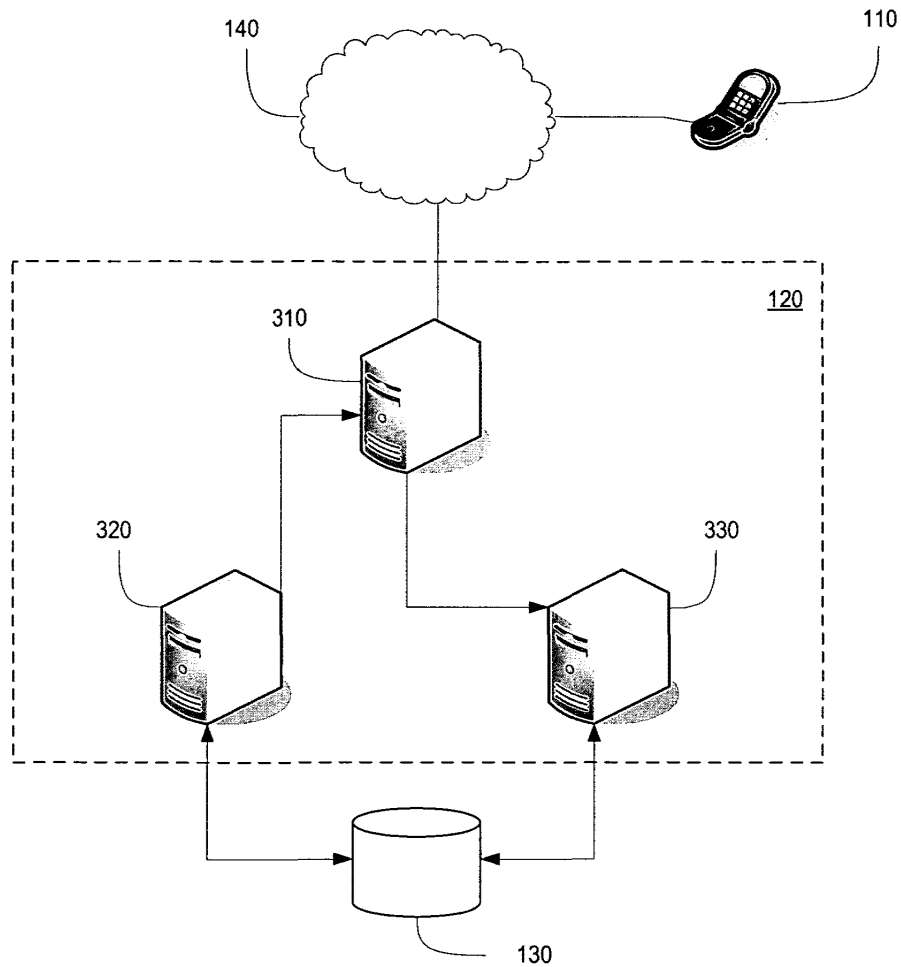


Figure 3

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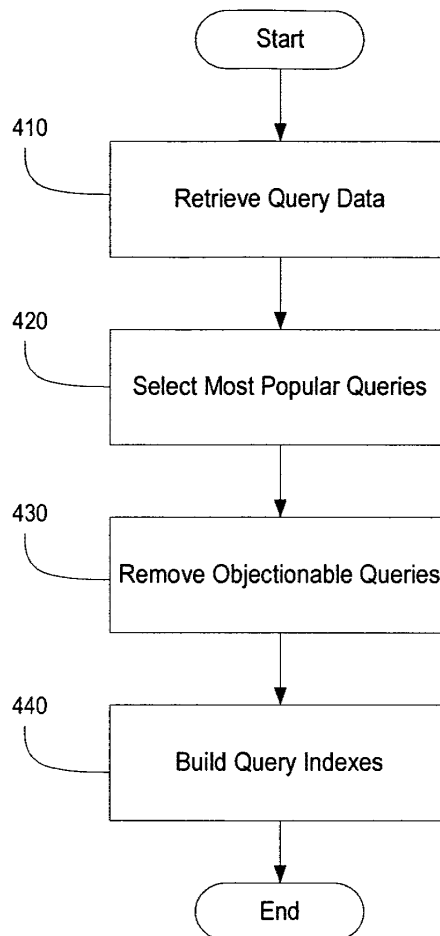


Figure 4

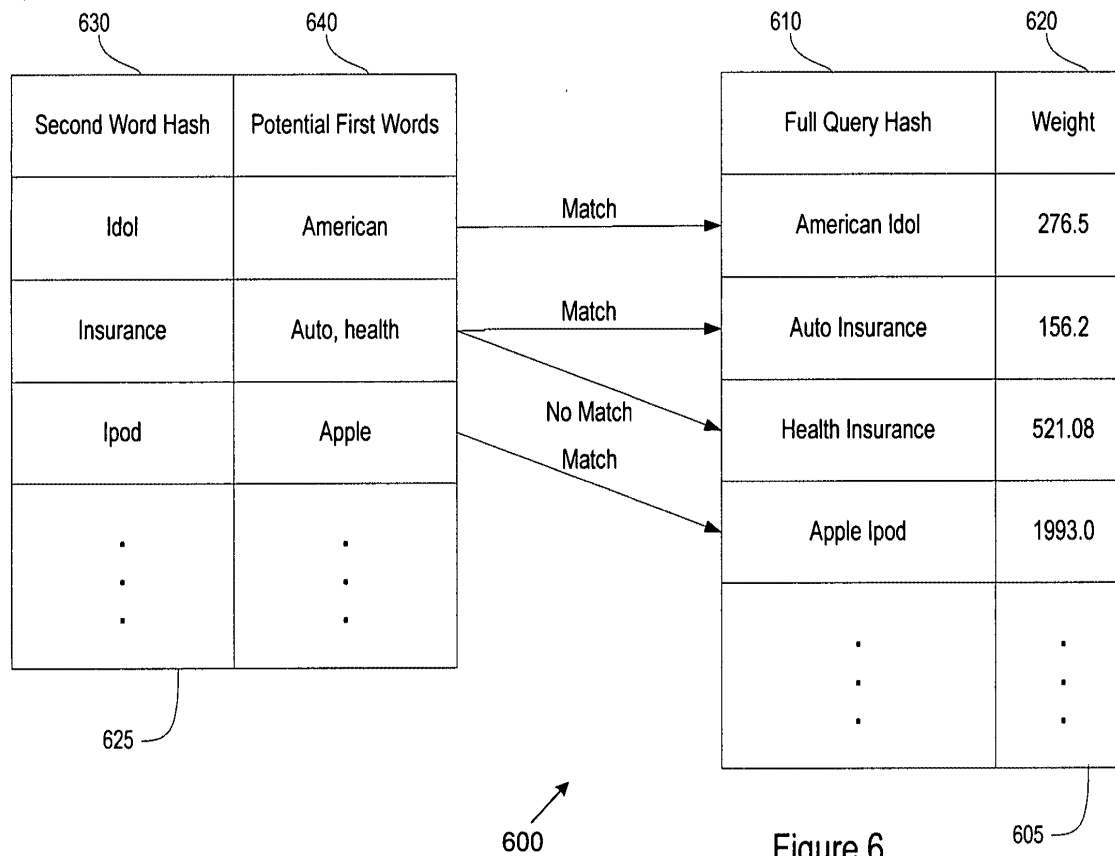
5/7

510 Query	520 Weight
Weather	100.8
Maps	200.4
Game	50.9
⋮	⋮

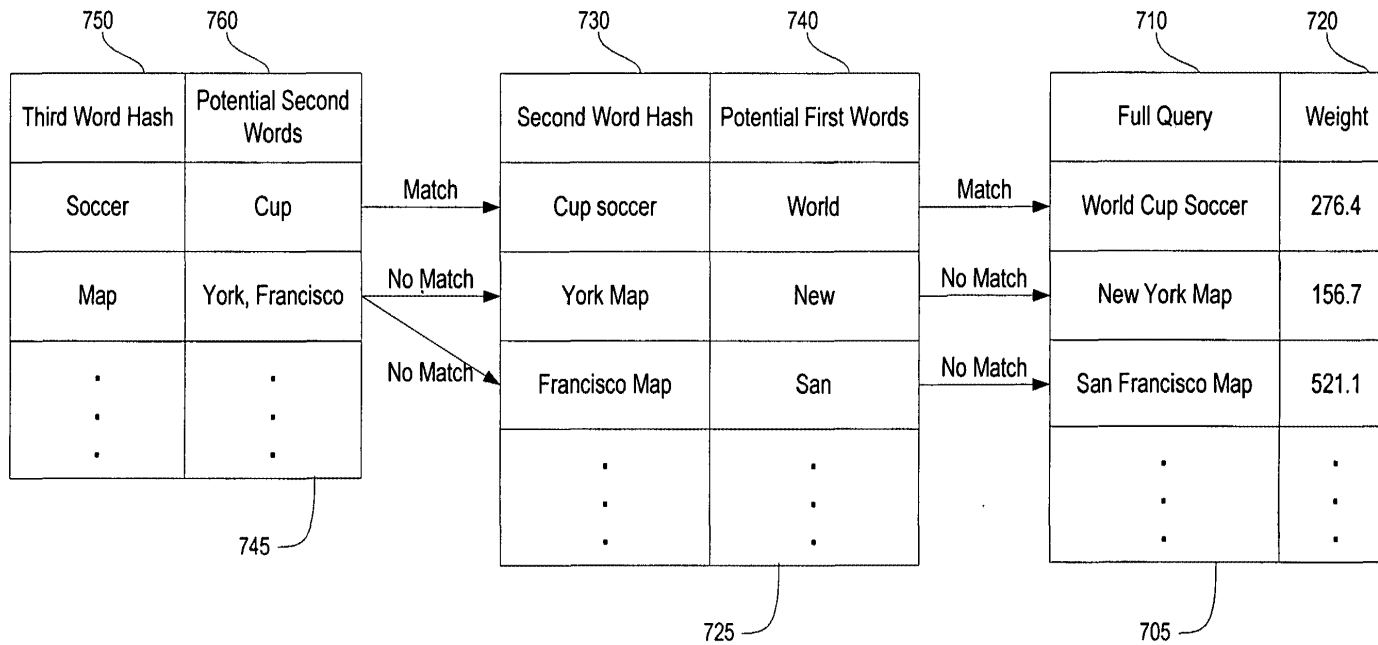
500
↙

Figure 5

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700

Figure 7

**DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION
(37 C.F.R. §1.63)**

As a below named inventor, I hereby declare:

My residence, mailing address, and citizenship are as stated below next to my name:

I believe I am the original, first and sole inventor or an original, first and joint inventor of the subject matter that is claimed and for which a patent is sought on the invention entitled:

METHOD AND APPARATUS FOR RECONSTRUCTING A SEARCH QUERY

the specification of which (check one)

☒ is attached hereto.

☐ was filed on _____ as United States Application No. _____ and was amended on _____ (if applicable).

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

I acknowledge my duty to disclose to the United States Patent and Trademark Office all information that I know to be material to the patentability of this application as defined in 37 C.F.R. §1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under 35 U.S.C. §119(a)-(d) or (f), or §365(b) of any foreign application(s) for patent or inventor's or plant breeder's rights certificate(s), or §365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's or plant breeder's rights certificate(s) or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s):

Priority
Not Claimed

(Number) (Country) (Filing Date, MM/DD/YYYY)

☐

(Number) (Country) (Filing Date, MM/DD/YYYY)

☐

I hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional application(s) listed below:

(Application Serial No.) (Filing Date, MM/DD/YYYY) (Status: pending, or abandoned)

(Application Serial No.) (Filing Date, MM/DD/YYYY) (Status: pending, or abandoned)

I hereby claim the benefit under 35 U.S.C. §120 of any United States applications(s), or §365(c) of any PCT International Application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. §112, I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. §1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

(Application Serial No.)	(Filing Date, MM/DD/YYYY)	(Status: patented, pending, abandoned)
(Application Serial No.)	(Filing Date, MM/DD/YYYY)	(Status: patented, pending, abandoned)
(Application Serial No.)	(Filing Date, MM/DD/YYYY)	(Status: patented, pending, abandoned)

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

Customer No. 56020 YAHOO / OVERTURE

PLEASE RECOGNIZE or change the CORRESPONDENCE ADDRESS for this application to the address associated with the above Customer Number:

PLEASE DIRECT all telephonic and facsimile communications to:

Vincent J. Gnoffo (Reg. No. 44,714)

Tel: (312) 321-4200; Fax: (312) 321-4299

Full name of sole or first inventor Deepa Joshi	
Sole or first inventor's signature <i>Deepa Joshi</i>	Date 08/10/2006
Residence (City, State/Foreign Country) Santa Clara, CA	
Citizenship Indian	
Mailing Address 900 Pepper Tree Lane #1413, Santa Clara, CA, 95051	

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POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(b).

I hereby appoint:



Practitioners associated with the Customer Number:

56020 YAHOO! / OVERTURE

OR



Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(b).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(b) to:



The address associated with Customer Number:

56020 - YAHOO! / OVERTURE

OR



Firm or Individual Name

Address

City

State

Zip

Country

Telephone

Email

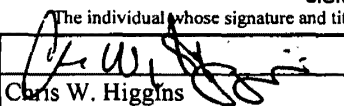
Assignee Name and Address:

Yahoo! Inc.
701 First Avenue
Sunnyvale, California 94089

A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature		Date	9/20/2005
Name	Chris W. Higgins	Telephone	
Title	Director, Patent Asset Development, Yahoo! Inc.		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Yahoo! Inc.

Application No./Patent No.: _____ Filed/Issue Date: August 10, 2006

Entitled: METHOD AND APPARATUS FOR RECONSTRUCTING A SEARCH QUERY

Yahoo! Inc., a Delaware corporation
(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☒ the assignee of the entire right, title, and interest; or
2. ☐ an assignee of less than the entire right, title and interest.
The extent (by percentage) of its ownership interest is _____ %

in the patent application/patent identified above by virtue of either:

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

OR

B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as shown below:

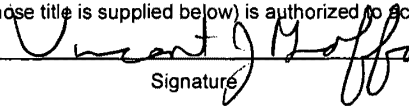
1. From: Deepa Joshi To: Yahoo! Inc.
The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.
2. From: _____ To: _____
The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.
3. From: _____ To: _____
The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet.

☒ Copies of assignments or other documents in the chain of title are attached.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, if the assignment is to be recorded in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.



Signature

Vincent J. Gnoffo (Reg No. 44,714)

Printed or Typed Name

August 10, 2006

Date

(312) 321-4200

Telephone Number

Attorney
Title

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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

ASSIGNMENT

WHEREAS, Deepa Joshi, hereinafter called the "Assignor", has made the invention described in the United States patent application entitled METHOD AND APPARATUS FOR RECONSTRUCTING A SEARCH QUERY, executed by the Assignor on the same date as, or on a date prior to, this Assignment;

WHEREAS, Yahoo! Inc., a corporation organized and existing under the laws of the State of Delaware, having a place of business at 701 First Avenue, Sunnyvale, California 94089, hereinafter called the "Assignee", desires to acquire the entire right, title and interest in and to the invention and the patent application identified above, and all patents which may be obtained for said invention, as set forth below;

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00), and other valuable and legally sufficient consideration, the receipt of which by the Assignor from the Assignee is hereby acknowledged, the Assignor has sold, assigned and transferred, and by these presents does sell, assign and transfer to the Assignee, the entire right, title and interest for the United States in and to the invention and the patent application identified above, and any patents that may issue for said invention in the United States; together with the entire right, title and interest in and to said invention and all patent applications and patents therefor in all countries foreign to the United States, including the full right to claim for any such application all benefits and priority rights under any applicable convention; together with the entire right, title and interest in and to all continuations, divisions, renewals and extensions of any of the patent applications and patents defined above; together with the right to recover all damages, including, but not limited to, a reasonable royalty, by reason of past, present, or future infringement or any other violation of patent or patent application rights; together with the right to recover all damages, including, but not limited to, a reasonable royalty, by reason of past, present, or future infringement or any other violation of patent or patent application rights; to have and to hold for the sole and exclusive use and benefit of the Assignee, its successors and assigns, to the full end of the term or terms for all such patents.

The Assignors hereby covenant and agree, for both the Assignors and the Assignor's legal representatives, that the Assignors will assist the Assignee in the prosecution of the patent application identified above; in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; in vesting in the Assignee like exclusive title in and to all such other patent applications and patents; and in the prosecution of any interference which may arise involving said invention, or any such patent application or patent; and that the Assignors will execute and deliver to the Assignee any and all additional papers which may be requested by the Assignee to carry out the terms of this Assignment.

The Commissioner of Patents and Trademarks is hereby authorized and requested to issue patents to the Assignee in accordance with the terms of this Assignment.

IN TESTIMONY WHEREOF, the Assignor has executed this agreement.

DATED:

08/10/2006

Deepa Joshi.
Deepa Joshi

"Express Mail" Mailing Label No. EV 653878732 US

August 10, 2006

Date of Deposit

Our Case No. (12729-180)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
APPLICATION FOR UNITED STATES LETTERS PATENT

INVENTORS:	Deepa Joshi
TITLE:	METHOD AND APPARATUS FOR RECONSTRUCTING A SEARCH QUERY
ATTORNEY:	Vincent J. Gnoffo (Reg. No. 44,714) BRINKS HOFER GILSON & LIONE POST OFFICE BOX 10395 CHICAGO, ILLINOIS 60610 (312) 321-4200

METHOD AND APPARATUS FOR RECONSTRUCTING A SEARCH QUERY

BACKGROUND

1. Technical Field.

[0001] This application relates to search engines. In particular, this application relates to a flexible and intuitive system for reconstructing a search query based on a received partial query.

2. Related Art.

[0002] The transfer of information over computer networks, such as the Internet, has become an increasingly important means by which institutions, corporations, and individuals do business. Computer networks have grown over the years from independent and isolated entities established to serve the needs of a single group into vast internets which interconnect disparate physical networks and allow them to function as a coordinated system. Currently, the largest computer network in existence is the Internet. The Internet is a worldwide interconnection of computer networks that communicate using a common protocol. Millions of computers, from low end personal computers to high end supercomputers, are connected to the Internet.

[0003] The availability of powerful new tools that facilitate the development and distribution of Internet content (this includes information of any kind, in any form or format) has led to a proliferation of information, products, and services offered through the Internet and a dramatic growth in both the number and types of consumers using the Internet. To sift through this sea of information, user's typically employ the use of search engines that allow users to submit queries and provide responsive information, such as a list of references, that meet criteria specified in the query.

[0004] Additionally, the number of devices capable of accessing the Internet has also dramatically increased. Today, user's may access the Internet using a wide variety of devices, such as personal computers, cell phones, personal digital assistants, and the like which may utilize different networking technologies to

connect to the Internet. The portability of the device and/or connection type has become an increasingly important concern for users. However, increased access costs and decreased input capabilities are often associated with portable Internet access. As a result, users are limited in their ability to access the full depth of the Internet. For example, users may not be able to take full advantage of a search engine on a mobile device, such as a cell phone, because the user is unable to enter a search query without substantial effort.

BRIEF SUMMARY

[0005] In one embodiment, a method for providing search results to a user is provided. The method may include receiving a first set of information indicative of a partial query, determining a full query based on the partial query, submitting the full query to a search engine, receiving results from the search engine, and presenting the results to the user.

[0006] In another embodiment, a method for determining a full query based on a partial query is provided. The method may include receiving a first set of information indicative of a partial query, comparing the partial query to an index of known search queries to determine matching known queries, determining a full query by selecting at least one of the matching known queries.

[0007] In another embodiment, a system for providing search results to a user is provided. The system may include a query reconstruction server operable to receive a first set of information indicative of a partial query, determining a full query based on the partial query, and submitting the full query to a search engine. The system may also include a web server operable to receiving results from the search engine and presenting the results to the user.

[0008] These and other embodiments and aspects are described with reference to the noted Figures and the below detailed description of the preferred embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

- [0009] FIG. 1 is a diagram of an exemplary architecture for providing search results;
- [0010] FIG. 2 is a flow chart of an exemplary method for providing search results to a user based on a partial query;
- [0011] FIG. 3 is another exemplary architecture including a search engine and query reconstruction server;
- [0012] FIG. 4 is a flow chart of an exemplary method for building query indexes;
- [0013] FIG. 5 is an exemplary query index;
- [0014] FIG. 6 is another exemplary query index; and
- [0015] FIG. 7 is another exemplary query index.

DETAILED DESCRIPTION

[0016] Referring now to the drawings, and initially to FIG. 1, an exemplary architecture for providing search results is shown. The architecture 100 may include a user client system 110, a search engine server 120, and a database 130. Although reference will now be made to specific components of the system performing specific features, it should be apparent that such reference is exemplary, is not intended to limit the scope of the claims in any way, and that the functionalities described herein may be implemented in a virtually unlimited number of configurations.

[0017] The user client system 110 may submit a search query to search engine 120 via the communications network 140. The communication network 140 may be any private or public communication network. The user client system 110 may connect to the search engine server 120 via the Internet using a standard browser application. A browser based implementation allows system features to be accessible regardless of the underlying platform of the user client system 110. For example, the user client system 110 may be a workstation computer, laptop computer, handheld computer, cell phone, mobile messaging device, or the like which may all utilize different hardware and/or software packages. Alternatively,

or additionally, the user client system 110 may connect to the search engine server 120 using a stand-alone application which may be either platform dependent or platform independent. Other methods may be used to implement the user client system 110.

[0018] The search engine server 120 may receive a partial query from the user client system 110, reconstruct a full query and provide search results based on the reconstructed query. The search engine server 120 may also include a web server that delivers Web pages that may include the search results to browsers (and other files to applications) via the HTTP protocol. The search engine server 120 may include a database 130 for storing the information to be search. The database 130 may also include search query statistics such as an index of all submitted queries, the number of times a particular query was submitted, and the like. Moreover, although figuratively attached to search engine server 120, database 130 may, in practice, distribute user-specific data elements (such as user preferences) to the user client system 110.

[0019] FIG. 2 is a flow chart of an exemplary method for providing search results to a user based on a partial query. Initially, the user may submit a partial query which is received at 210. As used herein, the term “partial search query” or “partial query” means any abbreviated or incomplete search query such that the submitted query is not fully representative of the entire search query desired by the user. In other words, partial search queries are shorthand ways of expressing typical search queries. For example, a partial query “a i” may be used to represent the full search queries “American Idol™” or “auto insurance.” It should be apparent that a full search query may be represented by a multitude of partial search queries. As an additional example, the full query “auto insurance” may be represented by the partial queries “a ins,” “auto ins,” “a insurance” and the like. The partial search query may include a regular expression, such as the partial query “w c s[oc].*”, which may match the full queries “world cup soccer”, “world cup schedule”, “world cup scores”, and the like.

[0020] Next, a full query is reconstructed from the partial query at 220. For example, the query “auto insurance” may be reconstructed from a partial query of

“a i”. In order to reconstruct the full query, partial query may be interpreted in a particular manner. The system may interpret the partial query as a series of word separated by delimiters, such as a space character. For example, the partial query “a i” may be interpreted as a two word query. Each word of the partial query may be interpreted as a partial word of the full query, and the system may then determine a full query that matches the partial words specified in the partial query. The determined full query may be the most frequently submitted known query that matches the partial words of the partial query in the same order, or may be determined using any other criteria.

[0021] Optionally, alternative queries may also be determined at 230.

Alternative queries may include any query that matches the partial query but is not selected as the reconstructed full query. For example, the partial query “b” may be reconstructed as the query “basketball” while the query “baseball” may be determined to be an alternative query. The alternative queries may include any full queries that match the partial words of the partial query in a different order. The received partial query may also be designated as an alternative query.

[0022] Finally, a search may be performed using the reconstructed query at 240, and the results may be provided to the user at 250. Optionally, the alternative queries may also be provided to the user. For example, a list of hyperlinks may be provided that allow the user to submit a search using the alternative query. The list may also include the initially received partial query to allow the user to perform a search using the original partial query. The system may limit the number of alternative queries that are provided to the user, such as providing four or five alternative queries.

[0023] Another exemplary architecture for providing search results is shown in FIG. 3. The architecture 300 may include a user client system 110, a search engine server 120, and a database 130, similar to those described above in reference to FIG. 1. The search engine server 120 may include a query reconstruction server 310, a query data management server 320, and a search engine 330. The query reconstruction server 310 may reconstruct a full query from a partial query submitted via the client system 110. The reconstructed query

may then be provided to the search engine 330. The query reconstruction server 310 may also determine alternative queries and cause the alternative queries to be provided to the user client system 110.

[0024] The query data management server 320 may analyze historic query data. For example, the query data management server 320 may retrieve historic query data, analyze or filter the data, and generate data structures for later use in reconstructing the query. In one implementation, the query management may create query indexes that are provided to the query reconstruction server 310 for use in reconstructing the query. Other data structures may also be used.

[0025] A flow chart of an exemplary method for building query indexes is shown in Fig. 4. Initially, query data may be retrieved from a database of query data. The query data may include previously submitted queries. For example, query data representative of previously submitted queries to the Yahoo! Search Engine may be retrieved. The query data may also include frequency counts representative of the number of times the query has been submitted. Alternatively, or additionally, the query data may include weights that are calculated using the frequency data. For example, a weight for a particular query may be calculated by multiplying a constant value by the negative logarithm of the ratio of the frequency for the particular query to the highest frequency for all queries. Other methods of calculating a weight may also be used. The search query data may be retrieved periodically, such as once a day, once a week, or the like. Optionally, query data from multiple sources may be retrieved and consolidated by the system.

[0026] Next, the retrieved query data may be filtered. First, the most popular queries from the retrieved queries may be selected at 420. For example, the top million queries may be selected. Other amounts and criteria may also be used to filter the query data. The system may also filter the query data for controversial or objectionable queries at 430. For example, queries containing sexually explicit terms may be removed. Misspelled queries may also be removed. Alternatively, misspelled queries may be corrected. The system may also remove queries that are determined to be improper for other reasons, such as non-human submitted queries and the like. Other criteria for filtering the query data may also be used.

[0027] Finally, the system may construct indexes from the filtered query data at 440. In one implementation, the filtered queries may be split into different groups based on number of words in the query. Indexes may then be created for each query group. Exemplary one-word, two-word, and three-word indexes are shown in FIGS. 5, 6, and 7, respectively, described in more detail below. The index files may then be transmitted to the query reconstruction server 310, which may utilize the indexes to reconstruct the partial queries.

[0028] An exemplary one-word index 500 is shown in FIG. 5. The index may include a query 510 and a frequency 520 for each filtered query. The query may act as a key for the index and may be represented by a hash value based on the actual query. For example, the index may include hash values and weights for the single word queries “weather,” “maps,” and “game.” Assuming the system receives a partial query of “w,” the system may determine which single word queries match the reconstruction pattern for “w,” and select “weather” as the only potential match. The reconstructed query “weather” may then be submitted to a search engine. If additional matches are found, however, the system may then select the matching query with the largest weight as the reconstructed query. Optionally, the system may designate certain remaining matching queries as alternative queries, and provide a list of those alternative queries to the user with the search results.

[0029] An exemplary two-word index 600 is shown in FIG. 6. Two-word indexes may include a set of two sub-indexes. The first sub-index, referred to herein as the second word sub-index 625, may include a second word hash value 630 representative of all words that appear as the second word in the two word filtered query. The second word hash value 630 may act as a key for the second word sub-index, may also include corresponding values 640 representative of each potential first word that precedes the second word in the filtered two-word query. For example, the query “American Idol” may be represented as in the second word hash as the key-value pair “idol=American,” while the queries “auto insurance” and “health insurance” may be represented in the second word sub-index 625 as the key-value pair of “insurance=auto,health.”

[0030] Another sub-index, referred to herein as the first-word sub-index 605, may include hash values representative of the full two-word queries 610 along with their weight 620, similar to the one-word index described above. For example, the system may receive a partial query “a i” and determine potential matches from the second word sub-index of “idol,” “insurance,” and “ipod” by retrieving each value corresponding to the matching key. Each potential two-word query based on the partial matches may then be used to search the full query-hash 605. For example, the system may determine potential matches of “American Idol™,” “auto insurance,” “health insurance,” and “Apple iPod™” based on the second word sub-index, and also determine that “health insurance” does not match based on the first word of the partial query “a i.” The system may also determine a full query match by determining if the first word of the full query matches the first partial word of the partial query. The system may then retrieve weights 620 for each matching full query 610 from the first word sub-index 605.

[0031] The system may then select the most popular query from among the matching queries as the reconstructed query, and optionally provide the remaining matches, or a subset of those remaining matches, as alternative queries. For instance, “Apple iPod™” may have the largest weight and may be selected as the reconstructed query for submission to the search engine. The results may be provided to the user along with hyperlinks that enable the user to perform searches on the alternative queries “American Idol™” and “auto insurance.”

[0032] An exemplary three-word index is shown in FIG. 7. The three-word index 700 may include three sub-indexes: a third word sub-index 745, a second word sub-index 725, and a first word query index 705. Similar to the second word sub-index 625 of the two-word index 600 described above, the third word sub-indexes 745 of the three-word index 700 may include keys 750 representative of hashed values based on the third word in the full query, and values 760 representative of list of potential second words. The second word sub-index 725 may include keys 730 representative of hashed values based on the second and third words in the query, and values 740 representative of list of potential first words. Finally, the first word sub-index 705 may include keys 710 representative

of hashed values based on the three word query and values 720 representative of weights associated with each query. Using the index 700 shown in FIG. 7, the system may reconstruct the query “world cup soccer” from a partial query “w c s.”

[0033] Additional indexes, such as four word or five word indexes may also be created by the system in a similar fashion. Alternatively, or additionally, the system may treat the last n words of queries containing more than a specified number of words as a single word . For example, the four word query “world cup soccer schedule” may be treated by the system as a three word query with a third word “soccer schedule”. Because the number of such queries is small in comparison to the one and two word queries, placing them in a single group reduces the number of indexes which need to be managed without substantially affecting the performance of the reconstruction process. Alternatively, or additionally, the system may condense queries containing more than a specified number of terms. In condensing a query, the system may remove stop words from the query. Other methods of configuring the indexes and treating multi-word queries may also be used.

[0034] It is therefore intended that the foregoing detailed description be regarded as illustrative rather than limiting, and that it be understood that it is the following claims, including all equivalents, that are intended to define the spirit and scope of this invention.

081006

In Application of: Deepa Joshi
 For: Method and Apparatus for Reconstructing a Search Query
 Attorney Docket No: 12729/180
 "Express Mail" mailing label number: EV 653878732 US
 Date of Deposit: August 10, 2006

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081006

Transmitted herewith is a new application under 37 C.F.R. § 1.53(b), including the following elements and other papers:

1. Application including: ☐ Application Data Sheet. See 37 CFR § 1.76.
 - ☒ Title page
 - ☒ Specification, including claims and Abstract (13 pages)
 - ☒ Drawings (7 sheet(s))
 - ☐ Appendices:
 - ☒ Declaration (2 pages; ☒ Executed ☐ Unexecuted)
 - ☐ Combined Declaration and Power of Attorney (____ pages; ☐ Executed ☐ Unexecuted)
2. ☐ Information Disclosure Statement, including Form PTO-1449 (____ sheets), and any required copies
3. ☒ Assignment Recordation Cover Sheet, with fee and attached assignment to: Yahoo! Inc.
4. ☒ Power of Attorney (1 pages; ☐ by inventor ☒ by Assignee identified in item #3 above)
5. ☐ Nonpublication Request under 35 USC § 122(b)(2)(B)(i)
6. ☒ Other: Statement under 37 CFR 3.73(b) and copy of assignment
7. ☒ Return Postcard
8. Fee calculation:
 - ☐ Applicant is a Small Entity.

Claims as Filed	Col. 1	Col. 2	Small Entity			Not a Small Entity		
For	No. Filed	No. Extra	Rate	Fee	or	Rate	Fee	
Basic Fee				\$ 150	or		\$ 300	
Total Claims	20-20	0	x\$25=	\$	or	x\$50=	\$	
Independent Claims	3-3	0	x\$100=	\$	or	x\$200=	\$	
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Utility Application Size Fee (for each additional 50 sheets that exceeds 100 sheets, including specification and drawings)			x\$125=	\$	or	X\$250=	\$	
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10. CORRESPONDENCE ADDRESS: please recognize the correspondence address for this application as the address associated with the following Customer Number:

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11. PLEASE DIRECT all telephonic communications to:
 Vincent J. Gnoffo (tel: (312) 321-4200).

Respectfully submitted,

Vincent J. Gnoffo
 Vincent J. Gnoffo (Reg. No. 44,714)

Date

Aug. 10, 2006

PATENT APPLICATION SERIAL NO. _____

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08/14/2006 FFANAEIA 00000029 11502202

01 FC:1011	300.00 OP
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PATENT APPLICATION FEE DETERMINATION RECORD

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Application or Docket Number

11502702

APPLICATION AS FILED - PART I

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BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	150.00		N/A	300.00
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	\$250		N/A	\$500
EXAMINATION FEE (37 CFR 1.16(d), (e), or (f))	N/A	N/A	N/A	\$100		N/A	\$200
TOTAL CLAIMS (37 CFR 1.16(i))	29 minus 20 =	9	X\$ 25 =		OR	X\$50 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	0	X100 =			X200 =	
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))			+180=			+360=	
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APPLICATION AS AMENDED - PART II

(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
Total (37 CFR 1.16(i))	Minus	**	=	X\$ 25 =		OR	X\$50 =	
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Application Size Fee (37 CFR 1.16(s))						OR		
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))				+180=		OR	+360=	
				TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

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Independent (37 CFR 1.16(h))	Minus	***	=	X100 =		OR	X200 =	
Application Size Fee (37 CFR 1.16(s))						OR		
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))				+180=		OR	+360=	
				TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

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APPLICATION NUMBER	FILING OR 371(c) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/502,202	08/10/2006	Deepa Joshi	12729/180

CONFIRMATION NO. 7444

56020
BRINKS HOFER GILSON & LIONE / YAHOO! OVERTURE
P.O. BOX 10395
CHICAGO, IL60610

Title: Method and apparatus for reconstructing a search query

Publication No. US-2008-0040323-A1

Publication Date: 02/14/2008

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The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

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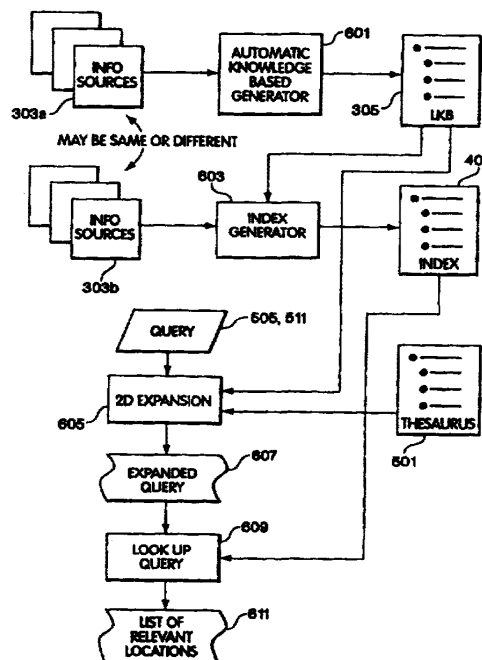
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(21) International Application Number: PCT/IB97/00748 (22) International Filing Date: 4 April 1997 (04.04.97) (30) Priority Data: 60/014,815 4 April 1996 (04.04.96) US 08/660,478 7 June 1996 (07.06.96) US (71) Applicant: FLAIR TECHNOLOGIES, LTD. [IL/IL]; 1 Corazin Street, 53583 Givatayim (IL). (72) Inventors: LEVI, Yuval; 9 Reuven Street, 93510 Jerusalem (IL). MARGULIS, Haim; 11 Nahal Snir Street, 77717 Ashdod (IL). ARAD, Iris; 10 Arazim Street, 96182 Jerusalem (IL). (74) Agent: GADOR, Deborah; Seligsohn & Gabrieli, P.O. Box 1426, 61013 Tel Aviv (IL).		(81) Designated States: CA, JP, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>Without international search report and to be republished upon receipt of that report.</i>

(54) Title: A SYSTEM, SOFTWARE AND METHOD FOR LOCATING INFORMATION IN A COLLECTION OF TEXT-BASED INFORMATION SOURCES

(57) Abstract

A system for processing information contained in a collection of text-based information sources employs associative and linguistic expansion of input words in which associative expansion is first performed, followed by simultaneous linguistic expansion in accordance with related morphological and phonetic rules. The system automatically generates and updates a linguistic knowledge base for each language to be processed by analyzing a large body of text in each language. The system also automatically indexes the collection of text-based information sources to be searched. A method is provided to expand a word or term in a supported language using a two-dimensional (2D) expansion matrix providing great flexibility, high accuracy and low noise output. The 2D expansion matrix includes an associative dimension that utilizes thesauri, databases of saved queries and other associated information sources, in which words are related to other words by meaning and relations, and a linguistic dimension which utilizes recognition-grammars, in which words are related to other words by combined rules for morphological and phonetic variation.



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**A SYSTEM, SOFTWARE AND METHOD FOR LOCATING INFORMATION IN A
COLLECTION OF TEXT-BASED INFORMATION SOURCES**

5

BACKGROUND

1. Field of the Invention

The present invention relates generally to the field of information retrieval. More particularly, the present invention relates to information management systems and computational linguistic systems for finding information related to a user-input query, in a collection of text-based information sources.

2. Discussion of Related Art

In the Information Age, the ability to manage enormous volumes of information efficiently and find needed information quickly has become a driving force in all human endeavors. Early in the development of information management systems, the capability to process large volumes of free-form text documents and other text-based information sources was severely limited. Therefore information specialists developed various types of database management systems and searching systems based on strictly controlling how data may be received, stored, and referred to. However, as the volume and nature of the information which must be handled by such systems has expanded, conventional database management systems have been unable to keep pace.

In conventional database management systems, data is stored in a strictly structured environment. Such systems may be based upon tables of records or spreadsheet models, for example. Such systems may be flat or may be relational with respect to how records in the database are associated with each other. However, conventional database management systems generally require structured records in which one or more fields may be searchable, i.e. are key fields. Furthermore, it is desirable that such key fields use terms, e.g. numbering systems, labels, etc., in a consistent manner which facilitates searching with known query values, i.e. combinations of numbers, labels, etc.

In order to locate information within general text-based information sources, so-called full-text searching has developed. Full-text searching of a collection of text-based information sources, such as English-language documents stored in a computer system, permits a user to write a query containing terms known to be used in relevant documents. The collection of documents is first fully indexed and the words of the documents in the index are compared with

the query terms. In the simplest form of this type of system, an exact match between a query term and an index entry must be found in order to identify a relevant document. Spelling errors, word variants, etc. will tend to prevent finding all relevant documents. A technique called wild-carding may be used to partially alleviate this problem, but many irrelevant documents, referred to as "noise," often turn up when wild-carding is used. An example of the use of wild-carding is where a user query term includes only what the user has identified to be a word base of a relevant term, such as "comput*" for the concept of "compute," "computer," "computing," "computation," etc., where "*" indicates the portion of the term which has been left out.

Modern, conventional, full-text searching systems have been developed which have a much higher level of sophistication. For example, Pinkas, G., *Natural Language Full-Text Retrieval System*, Master's Thesis, University of Jerusalem, 1985, discloses a system which automatically expands a user's query to include additional relevant terms in a manner more noise-free than simple wild-carding. The Pinkas system: (1) receives a user query composed of query-words and boolean operators; (2) expands the query linguistically, i.e. by referring to a pre-processed database of morphological and phonetic information; (3) expands the query associatively, i.e. by referring to a database of associated sub-queries; and (4) merges the results of steps 2 and 3 above. Morphological expansion draws in the infix variations of the query terms, while phonetic expansion brings in terms that may be generated by misspelled vowels (e.g. recieve → receive). Associative expansion draws into the query related terms as pre-defined by the user in the form of sub-queries being associated with a specific query-word (e.g. to associate the acronym "USA" with its full wording, one creates an association between the word "USA" and a query applying a boolean "and" operation to the following 4 words: "United", "States", "of", "America", restricted to a proximity of 1 word distance. Thus a comprehensive expanded query is generated to cover the many different words that may conceptually be related to user's original query. Some variation in the level of morphological expansion and the level of phonetic expansion to be performed is available to the user by selection of expansion parameters.

However, this process of morphological and phonetic expansion suffers from many inefficiencies: it fails to recognize the fundamental differences between different "word-bases" such as morphological stems and phonemes, therefore it misses many relevant linguistic permutations affected by both mechanisms, and at the same time it generates a large amount of noise, i.e. false-positives, due to the combinatorial effect of combining both mechanisms. Moreover, this process also is fairly limited to recognizing and expanding single words, and even

then the interaction between the associative expansion and the linguistic expansion is fairly limited to a trivial merge of both results, having not shared a conceptual foundation that allows a mutual feedback (e.g. the query-word "airplane" expands to ("airplane" or "airplanes" or "aircraft") but not to "aircrafts").

5 In conventional systems, query expansion depended upon a set of linguistic rules which were developed by an expert in the language to be processed. The set of linguistic rules was both extensive and relatively inflexible, since as many characteristics of the input language as possible had to be accounted for before processing any text-based information sources. Development of the linguistic rules for each language to be processed was a very labor-intensive and time-
10 consuming task.

 Finally, conventional systems are known which require manual indexing of text sources, as well as which index text sources automatically. Conventional indexes simply map a word found in the text sources to a location at which the word is found. Manual full-text indexing is extremely time-consuming and error-prone. Keyword indexing is subjective and also somewhat
15 error-prone.

SUMMARY OF THE INVENTION

 Therefore, it is a general aim of the present invention to solve the problems noted above with respect to the prior art. Aspects of the present invention solving the problems of the prior
20 art include at least a system, software and a method for processing information contained in a collection of text-based information sources.

 The system may include a computer or data processor and software structured as one or more software modules, units or functions which when executed in a specified order by the computer or data processor perform the desired information processing task. One or more
25 software modules, units or functions may be made available in conventional manner as either compile-time or run-time library entries which may be referred to by a software program which is written in a manner to be aware of such a library. The present invention further provides a method to process query-concepts and transform them to an expanded/improved query using an expansion matrix providing great flexibility, high accuracy and low noise output.

30 According to one aspect of the invention, there may be provided a text-based information processing system, comprising an automatic linguistic knowledge base generator having an input receiving a collection of text-based information sources and which produces a linguistic

knowledge base; an index generator having inputs receiving a collection of text-based information sources and the linguistic knowledge base and which produces an index of the received text-based information and further which updates the linguistic knowledge base to reflect the inputs to the index generator and maintain correlation between the index and the linguistic knowledge base; a query processor having inputs receiving a query composed by an operator, the linguistic knowledge base, the index and a thesaurus and which produces a list of locations in the collection of text-based information sources relevant to the query. The text-based information processing system may be subject to numerous modifications and variations. For example, the automatic linguistic knowledge base generator, the automatic index generator and the query processor may be embodied in various ways.

In accordance with another aspect of the invention, in a text-based information processing system, an automatic linguistic knowledge base generator may comprise a parser, receiving an input stream of terms and producing individual terms; a language recognizer connected to receive the individual terms from the parser and which produces an output indicative of a language to which each individual term belongs; a normalizer connected to receive the individual terms and further to receive linguistic rules for the language indicated by the output of the language recognizer and producing normalized terms; and a linguistic expander connected to receive the legal individual terms and producing entries stored in the linguistic knowledge base.

In accordance with yet another aspect of the invention, in a text-based information processing system, an automatic indexer may comprise a parser, receiving an input stream of terms and producing individual terms; a language recognizer connected to receive the individual terms from the parser and which produces an output indicative of a language to which each individual term belongs; a normalizer connected to receive the individual terms and further to receive linguistic rules for the language indicated by the output of the language recognizer and producing normalized terms; and an index entry generator connected to receive the legal individual terms and producing entries stored in the index when the terms have not previously been indexed and modifying an existing index entry when the terms have previously been indexed.

Finally, in accordance with yet another aspect of the invention, in a text-based information processing system, an expansion unit for expanding terms in a language may comprise an associative expander having an input receiving a term and having an output representing the term and at least one associated term found by the associated expander making

reference to a thesaurus; and a linguistic expander having an input connected to the output of the associative expander and having an output representing the input of the linguistic expander and at least one term linguistically related to the input of the linguistic expander and found by reference to a linguistic knowledge base for the language.

5 The normalizers recited above may be constructed of two units. The first normalizer unit may be connected to receive the individual terms and the linguistic rules and producing terms from which illegal characters have been removed; and the second normalizer unit may then be connected to receive the terms from which illegal characters have been removed and the linguistic rules and which produces normalized terms including word stems found by applying
10 the linguistic rules to the terms from which illegal characters have been removed.

The present invention will be better understood by reading the Detailed Description of at least one illustrative embodiment of the invention, in connection with the attached drawing.

BRIEF DESCRIPTION OF THE DRAWINGS

15 In the drawings, in which like reference designations indicate like elements,
Fig. 1 is a schematic block diagram of a computer or data processing system on which the present invention may be practiced;
Fig. 2 is a schematic block diagram of the memory of Fig. 1;
Fig. 3 is a flow chart of automatic linguistic knowledge base generation;
20 Fig. 4 is a flow chart of automatic index generation;
Fig. 5 is a flow chart of query expansion; and
Fig. 6 is a flow chart of an information retrieval system including the features illustrated in Figs. 3-5.

DETAILED DESCRIPTION

25 In order to better understand the following detailed description, reference should be made to the following definitions. In this discussion a "language" is considered to be any organized system of tokens, which have symbolic meaning. For convenience, the tokens are referred to hereinafter as "words" or "terms," since the most common types of languages dealt with by text-
30 based information systems are natural human languages composed of words or combinations of words, i.e. terms, which are understood to have specific meanings by humans. Thus, the terms "words" and "terms" are intended to encompass word phrases in those instances where a word

phrase may in fact be a token having a meaning independent of its sub-units, keywords in those instances where a word or word-phrase has a specific context/importance, and artificial words such as acronyms and short-cuts. A "word base" is the base portion of a word which remains after removing all prefixes and suffixes of the word which modify the meaning or part of speech
5 of the word root appropriately for the context in which the word may be used. The term "thesaurus" as used herein refers to a database of terms, words and/or word bases, in which each term, word or word base is associated in the database with other terms, words and word bases having a defined relationship such as morphological proximity, phonetic similarity, similar meaning (synonyms), nearly opposite meaning (antonyms), broader meaning, narrower meaning,
10 related term in a specific context, etc. The database may be navigated or searched on the basis of the terms, words and/or word bases stored therein.

Languages considered here have known linguistic rules for the morphological and phonetic variations which words may undergo. For example, the morphological rules of a language may define how a plural is formed from a singular noun, by changing the shape of the
15 word, i.e. adding a final "s" in English, while the phonetic rules may represent the common variations in spelling resulting from user spelling errors. A table, file or database may be used by a software program to hold a list of such linguistic rules.

Generally, languages also include words which do not follow the linguistic rules of the language. For example, the English language morphological rule for generating the past tense of
20 a verb does not apply to the verb "to go," which becomes "went" rather than the nonsensical "goed." Therefore, exceptions to the rules may be held by a software program in a table of exceptions, so that words which do not obey the rules may be handled as accurately as words which do obey the rules. In the context of the present invention, a "linguistic knowledge base" is developed by applying the linguistic rules and the one or more tables of exceptions or irregular
25 forms to a large body of textual information to produce an efficient, adaptable and flexible representation of the variations of word bases which produce meaning, particularly in natural languages, but also in language generally. The "linguistic knowledge base" is a table, list or database of word bases and related words. Related words are those words which when analyzed under the linguistic rules for the language are determined to have the same word base.

30 The present invention is constructed in the context of computer systems and data processing systems. An overview of such systems is given in connection with the block diagram of Fig. 1. A computer system or data processing system generally includes a processor 101, a

memory 103, one or more input devices 105, and one or more output devices 107, all interconnected through an interconnection mechanism 109. Many variations of this basic plan are possible. For example, viable systems may lack input devices 105 and output devices 107, communicating entirely through interactions with the memory 103 by external devices (not shown). Also, distributed computer systems and data processing systems are contemplated as falling within this basic plan. The interconnection mechanism 109 may be an internal system bus of a personal computer or may be the Internet, through which a processor 101 interacts with a database stored on a remote memory 103. Other variations will be evident to those skilled in this art.

10 Memory 103 may be classified into two categories useful to this discussion, long term memory (also called non-volatile memory), and short term memory (also called volatile memory). These two types of memory are often both used in computer systems and data processing systems, as shown in Fig. 2. Volatile memory 201 such as integrated circuit random access memory (RAM) is often used in close physical proximity to the processor 101 because the technologies in which such volatile memory 201 is most readily realized produce fast access times, such as are desirable to support fast processors 101. Non-volatile memory 203 is often used to store massive quantities of data for longer periods of time because it can be more cheaply constructed than volatile memory of a similar capacity. Non-volatile memory 203 is often implemented as magnetic or optical disk or tape storage units, which provide a further advantage of data and software program interchange between different computer or data processing systems. As such, non-volatile memory 203 may be a software product disk on which are recorded signals representing instructions, which when executed by a processor 101 cause the computer or data processing system to perform a special purpose function. Software embodying aspects of the present invention may be recorded on such a non-volatile memory 203 for distribution by a manufacturer, for archival purposes, for access through a volatile memory 201 by a processor 101, etc.

 In accordance with various aspects of the present invention, there may be constructed a system for searching through and locating information in a collection of text-based information sources. In accordance with various aspects of the invention, a linguistic knowledge base is first generated. Then, the collection of text-based information sources is indexed. A user next inputs a query defining the information sought. The query is expanded according to selected

associative and linguistic rules, using a thesaurus and the linguistic knowledge base. Finally, information is identified which matches the various expanded query terms.

The thesaurus, linguistic knowledge base and index may be stored in one or more computer files to which the system has access through memory 103.

5 The aspects of the invention connected with automatic generation of the linguistic knowledge base, automatic generation of the index and query expansion are next described in detail.

I. Automatic Generation of the Linguistic Knowledge Base

10 According to one aspect of the invention, software as shown in Fig. 3 is provided which when executed by a suitable data processing system will automatically generate the linguistic knowledge base from an input body of text based information sources. For example, according to this aspect of the invention, a collection of English language documents may be processed to generate an English language linguistic knowledge base.

15 A small set of linguistic rules 301, including a list of exceptions 302 to the linguistic rules for a language, e.g. English, is first generated by statistical analysis of a large body of text based information. This small set of rules includes:

- a list of irregular words and word bases in the language, i.e. the list of exceptions noted above;
- a word normalization table specifying legal characters in the language, i.e. the alphabet of
20 the language, and legal character positions in the language, e.g. special rules concerning characters which can only appear at specific locations within a word;
- a prefix and suffix list specifying legal prefixes and legal suffixes in the language; and
- letter-to-sound rules for both ordinary words and proper names in the language.

25 This set of rules 301, including the list of exceptions 302, is then used to analyze a body of text based information sources 303, to generate a linguistic knowledge base 305 specifically adapted from the body of text based information sources 303. The body of sources 303 may be selected to be sources from a particular field of endeavor in which future queries are expected to be made, for example. This will result in a linguistic knowledge base better able to cope with the specifics of that particular field of endeavor. The body of sources 303 from which the linguistic
30 knowledge base 305 is derived may not be the same body of sources which is ultimately to be searched. However, automatically generating the linguistic knowledge base 305 from the body

of sources to be searched has the advantage that the linguistic knowledge base 305 so produced is particularly well adapted to the body of sources to be searched.

Automatic generation of the linguistic knowledge base 305 proceeds as follows. The body of text based information sources 303 forms an input stream of text 304 to the system. This input stream 304 is first parsed into words and terms 307 in accordance with either fixed word recognition rules or word recognition rules specific to one or more languages. The language of each of the words parsed from the input stream is then recognized 309. Once the language of a word has been recognized the word may be normalized 311 according to the linguistic rules 301 for the language. Irregular words may also be recognized at this point, since known irregular words are already in the list of irregular words 302 and hence need no further processing. The system may also identify as potential new irregular words, those words meeting some rule-based criteria. Those previously unknown irregular words may be identified to a human operator for a determination of whether they should be added to the list of irregular words. Regular words are linguistically expanded 313 before being added to the linguistic knowledge base 305 such that word bases are stored in the linguistic knowledge base 305 along with a list of related words from the body of sources 303. Linguistic expansion 313 is discussed in greater detail below.

The step of parsing 307 the input stream 304 into sentences and words takes place according to the following pseudo-code:

```

Load segmentation rules;
20 segment input stream into sentences and words using segmentation
   rules;
       for each sentence
           {
               for each word
25                 {
                     if language not explicitly specified, identify
                       word's language
                     end if;
                     normalize word;
30                     return word and word's coordinates;
                     return rest of input stream;
                 } next word;
           } next sentence.

```

35 Normalization is performed as follows. Normalization identifies and removes garbage characters from the words of the input stream 304.

- 10 -

```
For each character of an input word
{
    if the character is illegal
    {
5         set normalization status according to the character;
    }
    else
    {
10        translate the character to the internal alphabet;
        add the translated character to the output word;
    }
} next character.
```

Finally, new keys are added to the linguistic knowledge base 305 by the following procedure.

```
15 If language not explicitly specified
    identify the language of the input word;
for each recognition type
{
    analyze word according to recognition type and level;
20    search for analysis results in key table;
    if result is found in key table
    {
        next recognition type;
    }
25    else
    {
        insert key and word into table;
        if key has a legal sub-key
        {
30            activate linguistic correction mechanism;
        }
    }
} next recognition type.
```

35 Two useful recognition types subject to analysis as indicated in the above pseudocode are morphological and phonological. The morphological analyzer of the described embodiment functions in accordance with the following procedure. The morphological analyzer receives a list of valid prefixes and suffixes in the language identified for the input word.

- 11 -

```

Start at end of word;
strip next substring from end;
for each substring of word
{ /* search for prefix*/
5   if substring is found to be a prefix in the identified
      language
      {
        strip prefix - create initial stem;
        /* search for suffix */
10      start at beginning of stem;
        strip next substring from beginning of stem;
        for each substring of stem
        {
          if substring is found to be a suffix
15          {
            strip suffix - create stem;
            return stem;
          } endif;
        } next substring;
20      } endif;
    } next substring.

```

The phonetic analyzer converts each word into a phonological representation of the word on the basis of letter to sound rules. Words having similar or same phonological representations may be
 25 considered to be related by their phonetic morphology.

When the above processes have been completed for the body of text based information sources 303 initially presented, a linguistic knowledge base 305 for the languages of the text in the body of sources 303 will have been automatically generated. When new text based information sources are added to the system, they are also processed as above. Thus, new
 30 sources increase the knowledge and accuracy of the linguistic knowledge base 305 through the addition of new information to the linguistic knowledge base 305, as well as through the linguistic correction mechanism which corrects the contents of individual entries in the linguistic knowledge base 305 according to new information. The learning procedure which embodies the linguistic correction mechanism is as follows.

```

Open a new table entry for a new correct key;
get the list of words in the body of a previous key entry;
for each word

```

```

{
5   re-analyze word;
   if analysis results match the new correct key
   {
       delete word from body of previous key entry;
       add word to body of new correct key entry;
10  }
} next word;
if previous key entry is empty
    delete previous key entry.

```

15 When the system detects inconsistencies between the contents of the linguistic knowledge base 305 and a newly presented text source, the affected word base and list of related words may be automatically, or at the direction of a human operator, reanalyzed and updated in accordance with the newly presented information and the above procedure. Thus, the system constantly learns about each language processed and updates the affected linguistic knowledge bases.

20 II. Automatic Generation of the Index Correlated with the Linguistic Knowledge Base

In addition to the linguistic knowledge base 305, the retrieval system according to another aspect of the present invention shown in Fig. 4 automatically generates an index 401, whereby text based information may be found by reference to the index 401. Automatic generation of the index 401 is accompanied by updating of the linguistic knowledge base 305, so
25 that the contents of the linguistic knowledge base 305 reflects the relevant terms contained in the body of text based information sources 303 and is thus correlated with the index 401. The index 401 simply relates words actually found in the body of text based information sources 303 to locations within the body of sources 303. It is preferred that the location be defined hierarchically. For example, the location may be represented hierarchically by a document
30 number, section number, sentence number and position number. Other hierarchical location identification schemes may be used, as seen fit by those skilled in this art.

In accordance with a preferred embodiment of the invention, the index 401 is assisted by the linguistic knowledge base 305. The index 401 includes only words and terms actually occurring in the text-based information sources 303. The linguistic knowledge base 305 relates
35 word bases derived from the words actually occurring in the text-based information sources 303 to lists of related words. During retrieval, which is explained below, the system retrieves an

entry from the linguistic knowledge base 305 which is then used to reference one or more index entries.

Automatic generation of the index 401 proceeds as follows. The body of text based information sources 303 forms an input stream of text 304 to the indexing subsystem. This input stream 304 is first parsed into words and terms 307 in accordance with the word recognition rules. The language of each of the words parsed from the input stream is then recognized 309. Once the language of a word has been recognized 309 the word may be normalized 311 according to the linguistic rules 301 for the language. An index entry is then generated 403 for each new normalized word. If the normalized word already has an entry in the index 401, then the location of the current occurrence of the word is added to the previous entry.

At substantially the same time as the above process, the linguistic knowledge base 305 is continuously kept correlated with new and modified entries produced in index 401. Each normalized word is reduced to its word base 405 in accordance with the linguistic rules of the language of the word. The word base and related word is then added to the linguistic knowledge base file 407, if not already present. The user may also specify that related words include various types of expansions of the word bases. If expansions are included, expansion of the word base is performed before storing the word base and related words in the linguistic knowledge base file 305. When indexing of a body of text based information sources 303 is complete, the linguistic knowledge base 305 is correlated with the index 401 and reflects the relevant terms contained in the body of text based information sources 303.

III. Query Expansion

Query expansion is performed in accordance with a third aspect of the invention, shown in Fig. 5. Since a query may contain more than one word or term, word recognition is first performed as above.

The words and terms identified by the word recognition task may further be normalized. That is, they may be converted to a base form, if desired. By making reference to a thesaurus and linguistic rules, spelling errors may be removed, different lexical forms of acronyms and short-cuts may be recognized, etc.

Each recognized word in the query may then be expanded using a 2D expansion matrix. The 2D expansion matrix is one way of defining the expansion space in which an input word may be represented. The dimensions of this space are associative and linguistic. The associative dimension is based upon the meaning of words/word-bases in the language to be processed. In

the described embodiment of the invention, the associative dimension is defined by one or more thesauri 501 relating words and terms to their synonyms, broader terms, narrower terms and other relations. Each thesaurus 501 includes a database of terms along with conceptually related terms. The thesaurus is searchable by term. Thus, each thesaurus entry contains an entry key
5 which is a list of searchable terms. Each entry key has associated therewith one or more terms conceptually related to the entry key, such as synonyms, broader terms, narrower terms, associated terms, antonyms, etc. The inclusion of any one or more categories of association is optional. Furthermore, each entry term may optionally have associated therewith a conventional dictionary definition and usage guide, as well as a query string into which the entry key may be
10 translated when required. Thus, the thesaurus is a list of entries, wherein each entry has a structure substantially as follows:

- KEYWORD: (in the form of natural language phrase or term) Used as an entry key.
- DESCRIPTION (optional): A description of keyword meaning and usage (as in encyclopedic dictionaries).
- 15 • QUERY: A complete query statement in an underlying full-text query language that the keyword is translated to when required (optional). (E.g., KEYWORD "USA" → QUERY "United AND States AND of AND America".) If a translation of the keyword to a complete query statement is not supplied explicitly, a default translation is applied to the keyword.
- 20 • RELATIONS
 - SYNONYMS: A list of keywords synonymous with the KEYWORD that comprise a concept or descriptor.
 - BROADER TERMS
 - NARROWER TERMS
 - 25 • ASSOCIATIONS
 - OTHER

All of these features may be used by an operator to determine whether associative expansion is having a desired effect.

The linguistic dimension of this expansion space is based upon the linguistic knowledge
30 base 305 of the language to be processed. As discussed above, the linguistic knowledge base is built automatically from the actual corpora of the text-based information sources, independent of manually crafted linguistic dictionaries, and not being restricted to "legal" or "proper" words. In

this embodiment of the invention, linguistic expansion grammars of morphology and phonetics are supported.

The expansion task performs 2D expansion in substantially two main steps. First an associative expansion is performed at step 503, in which each input word of an input query 505 is expanded to a list of words 507 including words having defined relations to the input word. The associated words are found by making reference to the thesaurus 501. This expanded list of words 507 becomes the input on which linguistic expansion 509 is performed in both the morphological and phonetic dimensions, simultaneously. The morphological and phonetic expansion is controlled by making reference to the linguistic knowledge base 305. The linguistic expansion 509 may be controlled by expansion parameters 511 supplied by the user to include varying degrees of morphological expansion and phonetic expansion, ranging for both dimensions from no expansion in that dimension to full expansion in that dimension. By performing the morphological and phonetic expansions as a single, linguistic expansion step 509, expansion strategies for morphology and phonetics may be intelligently related. The relationships between the expansion dimensions are defined in the linguistic knowledge base 305 for the language. Thus, a rule for morphological expansion may define a morphological variation which changes depending upon the phonetic properties of the input word or the expanded result. As a result, less noise is generated in the expanded output because relating the morphological and phonetic dimensions as a single linguistic plane eliminates morphological variants which are phonetically unacceptable under the totality of the linguistic rules, and vice versa.

IV. A Complete Text Retrieval System

It can now be seen that using the software described above a retrieval system may be constructed as shown in Fig. 6, which can perform efficient and accurate location of information within a collection of text-based information sources. Briefly, such a system is given access to one or more collections of text-based information sources 303a and 303b. At least one group of text-based information sources 303a is supplied to automatic linguistic knowledge base generating software 601, which generates the linguistic knowledge base 305 as described above. Text-based information sources 303b are provided to an indexing subsystem 603 which creates an index 401 of words in the text-based information sources 303b, in which each entry in the index 401 defines a relationship between a word and the location of the word in the collection, as described above. It is preferred that the index 401 be generated using normalized words in one

or more languages for which the system has a thesaurus 501 and a linguistic knowledge base 305. The indexing subsystem 603 may include a module to recognize words having forms which conform to one of the languages supported by the system and may further include an appropriate normalizing module for each language supported by the system. Words are normalized in their language as discussed above, to reduce the number of anomalous entries appearing in the index 401. The system further receives a user query 505 in the form of one or more words expressive of the information sought by the user. The query words are expanded 605 using a 2D expansion matrix, as discussed above. The query is first associatively expanded to include words related to the original query words by reference to the thesaurus appropriate for the language of the query words. The associatively expanded query is then linguistically expanded in both the morphological and phonetic dimensions, simultaneously. The degree of expansion in each dimension is specified by the user, by parameters 511 supplied with the query. The degree of expansion may be specified by the user, for example, by attaching a checklist of expansion parameters 511 to each query term. Finally, the terms of the fully expanded query 607 are compared 609 with the entries in the index 401 to find relevant locations 611 within the collection of text-based information sources 303b.

Relevant locations 611 in the collection of text-based information sources 303b do not necessarily contain any of the original query terms. By the processing described above, the locations found 611 will contain one of the original query terms or a related term produced by the associative and linguistic expansion processes. The locations found 611 will not include many "noise" locations because the linguistic expansion process is performed as described above in a manner in which the morphological and phonetic linguistic rules are applied simultaneously in a synergistic manner that avoids the problem of applying a morphological rule to generate a phonetically nonsensical result or vice versa.

In a system such as described above, the text-based information sources may be text documents stored on a computer system. In this case, it may be convenient for the indexing system to hierarchically refer to locations by document number, section number, sentence number and position within the sentence. Furthermore, freely formatted text documents may be processed by the above-described system. There is no need to structure the documents a particular way or to manually produce classifications or keywords, as done in some prior art systems, because the present system indexes words and manipulates queries according to the rules of the language in which the words occur.

If it is desired that a phrase be treated as a single word or term in a particular language, then that phrase may be so defined as a conceptual entity in a thesaurus. In all other respects, the phrase so defined as a word is treated simply as a word in the language. However, it is unnecessary to declare a long list of accepted keywords because the process of indexing and
5 query expansion generates accurate, relatively noise-free matches for user queries reasonably expressive of the information sought.

Having thus described at least one illustrative embodiment of the invention, various alterations, modifications, and improvements will readily occur to those skilled in the art. Such alterations, modifications and improvements are intended to be within the spirit and scope of the
10 invention. Accordingly, the foregoing description is by way of example only and is not intended as limiting. The invention is limited only as defined in the following claims and the equivalents thereto.

CLAIMS

1. A text-based information processing system, comprising:
an automatic linguistic knowledge base generator having an input receiving a collection
5 of text-based information sources and which produces a linguistic knowledge base;
an index generator having inputs receiving a collection of text-based information sources
and the linguistic knowledge base and which produces an index of the received text-based
information and further which updates the linguistic knowledge base to reflect the inputs to the
index generator and maintain correlation between the index and the linguistic knowledge base;
10 and
a query processor having inputs receiving a query composed by an operator, the linguistic
knowledge base, the index and a thesaurus and which produces a list of locations in the
collection of text-based information sources relevant to the query.
- 15 2. In a text-based information processing system, an automatic linguistic knowledge base
generator, comprising:
a parser, receiving an input stream of terms and producing individual terms;
a language recognizer connected to receive the individual terms from the parser and
which produces an output indicative of a language to which each individual term belongs;
20 a normalizer connected to receive the individual terms and further connected to receive
linguistic rules for the language indicated by the output of the language recognizer and producing
normalized terms; and
a linguistic expander connected to receive the normalized terms and producing entries
stored in the linguistic knowledge base.
- 25 3. The system of claim 2, wherein the normalizer further comprises:
a first normalizer unit connected to receive the individual terms and the linguistic rules
and producing terms from which illegal characters have been removed; and
a second normalizer unit connected to receive the terms from which illegal characters
30 have been removed and the linguistic rules and which produces normalized terms including word
stems found by applying the linguistic rules to the terms from which illegal characters have been
removed.

4. In a text-based information processing system, an automatic indexer, comprising:
a parser, receiving an input stream of terms and producing individual terms;
a language recognizer connected to receive the individual terms from the parser and
which produces an output indicative of a language to which each individual term belongs;
5 a normalizer connected to receive the individual terms and further connected to receive
linguistic rules for the language indicated by the output of the language recognizer and producing
normalized terms; and
an index generator having inputs receiving a collection of text-based information sources
and the linguistic knowledge base and which produces an index of the received text-based
10 information and further which updates the linguistic knowledge base to reflect the inputs to the
index generator and maintain correlation between the index and the linguistic knowledge base.

5. The system of claim 4, wherein the normalizer further comprises:
a first normalizer unit connected to receive the individual terms and the linguistic rules
15 and producing terms from which illegal characters have been removed; and
a second normalizer unit connected to receive the terms from which illegal characters
have been removed and the linguistic rules and which produces normalized terms including word
stems found by applying the linguistic rules to the terms from which illegal characters have been
removed.

20

6. In a text-based information processing system, an expansion unit for expanding terms
in a language, comprising:
an associative expander having an input receiving a term and having an output
representing the term and at least one associated term found by the associated expander making
25 reference to a thesaurus; and
a linguistic expander having an input connected to the output of the associative expander
and having an output representing the input of the linguistic expander and at least one term
linguistically related to the input of the linguistic

1/5

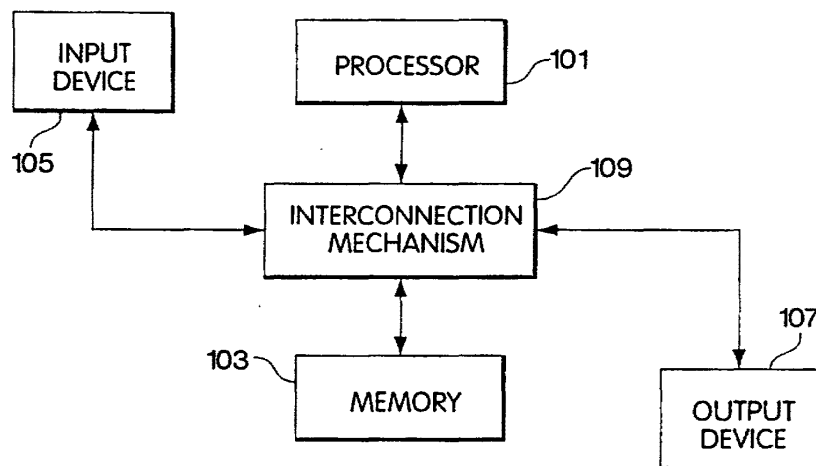


Fig. 1

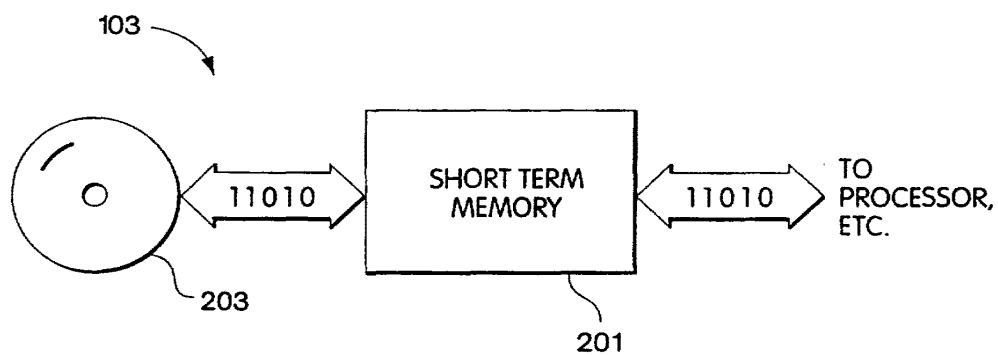


Fig. 2

SUBSTITUTE SHEET (RULE 26)

2/5

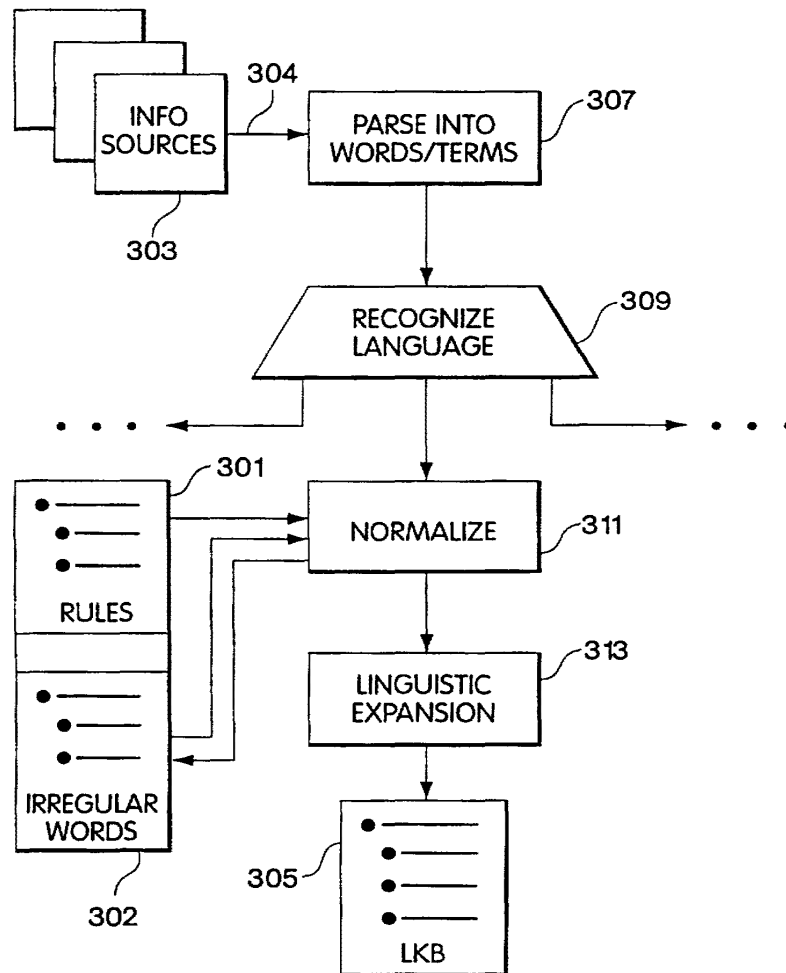


Fig. 3

SUBSTITUTE SHEET (RULE 26)

3/5

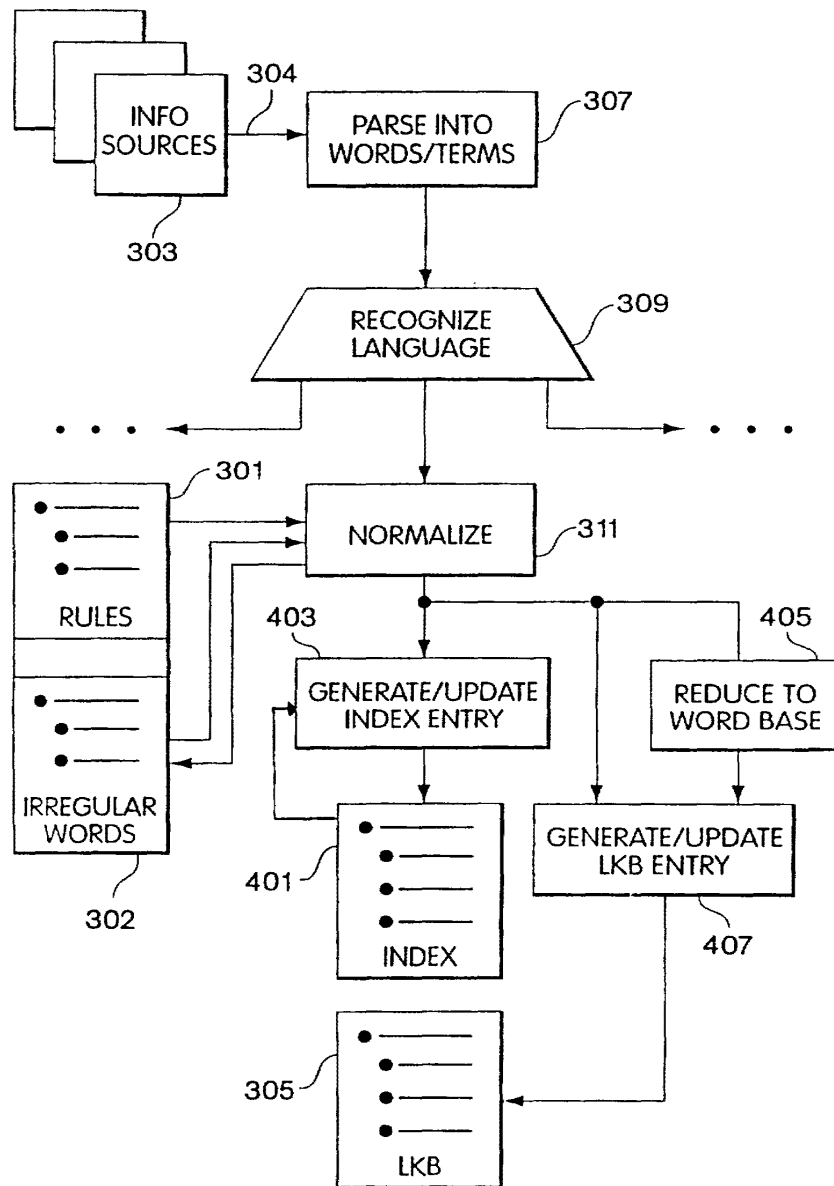


Fig. 4

SUBSTITUTE SHEET (RULE 26)

4/5

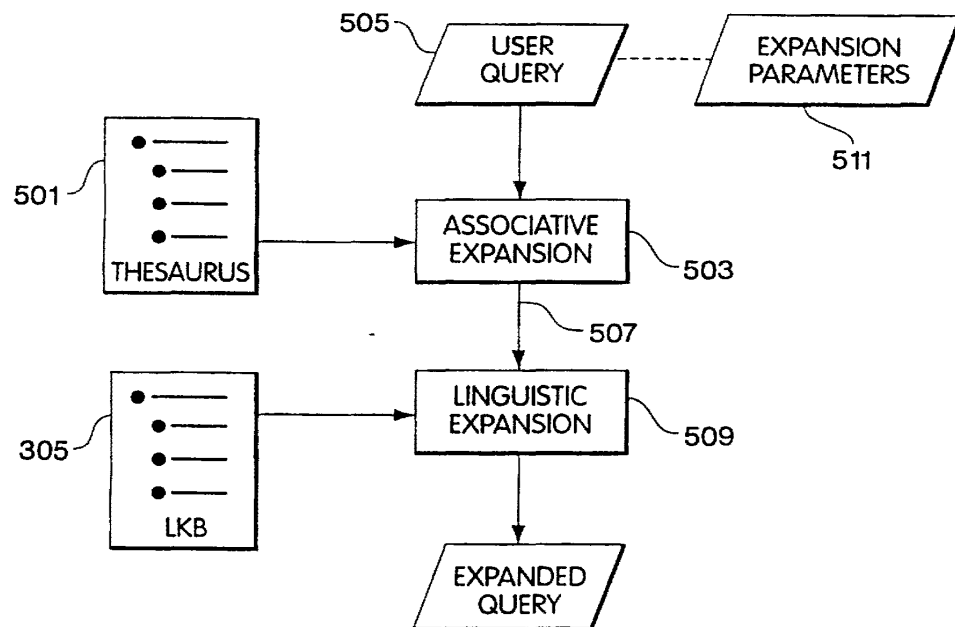


Fig. 5

SUBSTITUTE SHEET (RULE 26)

5/5

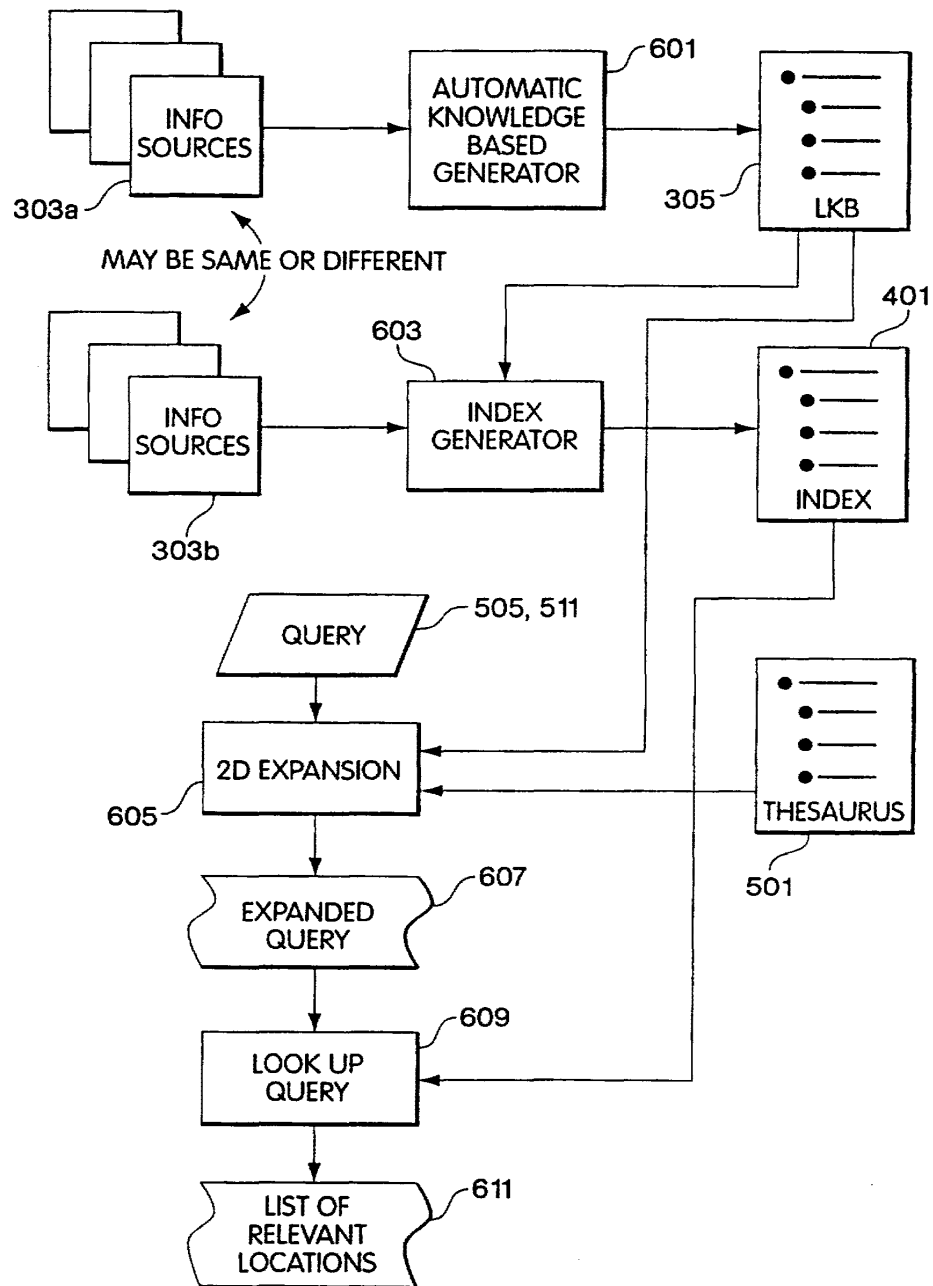


Fig. 6
SUBSTITUTE SHEET (RULE 26)

FORM PTO-1449	SERIAL NO. 11/502,202	CASE NO. 12729/180
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT	FILING DATE August 10, 2006	GROUP ART UNIT 2165
(use several sheets if necessary)		APPLICANT(S): Deepa Joshi

REFERENCE DESIGNATION U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER Number-Kind Code (if known)	DATE	NAME	CLASS/ SUBCLASS	FILING DATE
	A1	5,765,147	06/09/1998	Mattos, et al.	707/4	11/21/1996
	A2	6,134,540	10/17/2000	Carey, et al.	707/2	05/09/1997
	A3	6,269,361	07/31/2001	Davis, et al.	707/3	09/322,677
	A4	6,876,997	04/05/2005	Rorex, et al.	707/3	05/22/2000
	A5	7,149,732	12/12/2006	Wen	707/006	10/12/2001
	A6	7,181,446	02/20/2007	Bossman, et al.	707/3	01/23/2004
	A7	7,188,098	03/06/2007	Chen, et al.	707/2	09/24/2003
	A8	7,330,848	02/12/2008	Chaudhuri, et al.	707/3	05/23/2003
	A9	7,337,163	02/26/2008	Srinivasan, et al.	707/3	12/04/2003

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER Number-Kind Code (if known)	DATE	COUNTRY	CLASS/ SUBCLASS	TRANSLATION YES OR NO
	A10	WO 97/038376 A2	10/16/1997	WIPO	G06F 17/30	No

EXAMINER INITIAL	OTHER ART – NON PATENT LITERATURE DOCUMENTS (Include name of author, title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date page(s), volume-issue number(s), publisher, city and/or country where published.					
	A11	H. Itoh, NTCIR-4 Patent Retrieval Experiments at RICOH, Working Notes of NTCIR-4, NII Test Collection for IR Systems Workshop 4, June 2-4, 2004, 4 pages.				

EXAMINER	DATE CONSIDERED
----------	-----------------

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

Electronic Acknowledgement Receipt	
EFS ID:	3147876
Application Number:	11502202
International Application Number:	
Confirmation Number:	7444
Title of Invention:	Method and apparatus for reconstructing a search query
First Named Inventor/Applicant Name:	Deepa Joshi
Customer Number:	56020
Filer:	John G. Rauch/Jesus Rodriguez
Filer Authorized By:	John G. Rauch
Attorney Docket Number:	12729/180
Receipt Date:	14-APR-2008
Filing Date:	10-AUG-2006
Time Stamp:	16:43:59
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no				
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	12729180Transmittal.pdf	50848 c811b77c1bd21bae88ce791dabd9711b d39d5323	no	1
Warnings:					
Information:					

2	Information Disclosure Statement (IDS) Filed	12729180IDSANDPTO1449.pdf	146179 68bf563535449a46f29aa39b635468724967fb4c	no	3
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	Foreign Reference	12729180REFA10.pdf	1161923 697d3e6a8c2c98c03ec9bf501947052a4ca0399a	no	26
Warnings:					
Information:					
4	NPL Documents	12729180REFA11.pdf	312250 dc279fe272b7c80de2fc92e9677bfb7d3129da62	no	4
Warnings:					
Information:					
Total Files Size (in bytes):			1671200		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

CERTIFICATE OF ELECTRONIC FILING

I hereby certify that this correspondence is being filed electronically with the U.S. Patent and Trademark Office on the below date:

Date April 14, 2008 Name: John G. Rauch Signature: /John G. Rauch/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: Deepa Joshi

Appln. No.: 11/502,202

Filed: August 10, 2006

For: METHOD AND APPARATUS
FOR RECONSTRUCTING A
SEARCH QUERY

Attorney Docket No: 12729/180

Examiner: Gaffin, Jeffrey A.

Art Unit: 2165

Confirmation No. 7444

INFORMATION DISCLOSURE STATEMENT

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

DOCUMENT NUMBER Number-kind Code (if known)	DATE	NAME
5,765,147	06/09/1998	Mattos, et al.
6,134,540	10/17/2000	Carey, et al.
6,269,361	07/31/2001	Davis, et al.
6,876,997	04/05/2005	Rorex, et al.
7,149,732	12/12/2006	Wen
7,181,446	02/20/2007	Bossman, et al.
7,188,098	03/06/2007	Chen, et al.
7,330,848	02/12/2008	Chaudhuri, et al.
7,337,163	02/26/2008	Srinivasan, et al.

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& LIONE

FOREIGN DOCUMENTS

DOCUMENT NUMBER Number-Kind Code (if known)	DATE	COUNTRY
WO 97/038376 A2	10/16/1997	WIPO

OTHER DOCUMENTS

H. Itoh, NTCIR-4 Patent Retrieval Experiments at RICOH, Working Notes of NTCIR-4, NII Test Collection for IR Systems Workshop 4, June 2-4, 2004, 4 pages.

Applicant is enclosing Form PTO-1449 (one sheet), along with a copy of each listed reference for which a copy is required under 37 C.F.R. §1.98(a)(2). As each of the listed references is in English, no further commentary is believed to be necessary, 37 C.F.R §1.98(a)(3). Applicant respectfully requests the Examiner's consideration of the above reference(s) and entry thereof into the record of this application.

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

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

Respectfully submitted,

April 14, 2008

Date

/John G. Rauch/

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

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CERTIFICATE OF ELECTRONIC FILING

I hereby certify that this correspondence is being filed electronically with the U.S. Patent and Trademark Office on the below date:
 Date April 14, 2008 Name: John G. Rauch Signature: /John G. Rauch/

**BRINKS
HOFFER
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& LIONE**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: **Deepa Joshi**

Appln. No.: **11/502,202**

Filed: **August 10, 2006**

For: **METHOD AND APPARATUS FOR
RECONSTRUCTING A SEARCH QUERY**

Docket No: **12729/180**

Examiner: **Gaffin, Jeffrey A.**

Art Unit: **2165**

Conf. No.: **7444**

TRANSMITTAL

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

Sir:

Attached is/are:

- ☒ Information Disclosure Statement; Form PTO 1449; Copies of references A10 and A11; and
☐ Return Receipt Postcard.

Fee Calculation:

- ☒ No additional fee is required.
☐ Small Entity.
☐ An extension fee in an amount of \$_____ for a _____-month extension of time under 37 CFR § 1.136(a).
☐ A petition or processing fee in an amount of \$_____ under 37 CFR § 1.17(____).
☐ An additional filing fee has been calculated as shown below:

					Small Entity			Not a Small Entity	
	Claims Remaining After Amendment		Highest No. Previously Paid For	Present Extra	Rate	Add'l Fee	OR	Rate	Add'l Fee
Total		Minus			x \$25=			x \$50=	
Indep.		Minus			x 105=			x \$210=	
First Presentation of Multiple Dep. Claim					+\$185=			+\$370=	
					Total	\$		Total	\$

Fee Payment:

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

Respectfully submitted,

April 14, 2008
 Date

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

**BRINKS
HOFFER
GILSON
& LIONE**

Notice of References Cited	Application/Control No. 11/502,202		Applicant(s)/Patent Under Reexamination JOSHI, DEEPA	
	Examiner HANH B. THAI		Art Unit 2163	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2006/0106769 A1	05-2006	Gibbs, Kevin A.	707/003
*	B	US-2005/0283468 A1	12-2005	Kamvar et al.	707/003
*	C	US-2008/0114743 A1	05-2008	VENKATARAMAN et al.	707/003
*	D	US-2006/0206454 A1	09-2006	Forstall et al.	707/003
*	E	US-2005/0222975 A1	10-2005	Nayak et al.	707/003
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /HT/

FORM PTO-1449	SERIAL NO. 11/502,202	CASE NO. 12729/180
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT	FILING DATE August 10, 2006	GROUP ART UNIT 2163 ~~2105~~
(use several sheets if necessary)	APPLICANT(S): Deepa Joshi	

REFERENCE DESIGNATION U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER Number-Kind Code (if known)	DATE	NAME	CLASS/ SUBCLASS	FILING DATE
	A1	5,765,147	06/09/1998	Mattos, et al.	707/4	11/21/1996
	A2	6,134,540	10/17/2000	Carey, et al.	707/2	05/09/1997
	A3	6,269,361	07/31/2001	Davis, et al.	707/3	09/322,677
	A4	6,876,997	04/05/2005	Rorex, et al.	707/3	05/22/2000
	A5	7,149,732	12/12/2006	Wen	707/006	10/12/2001
	A6	7,181,446	02/20/2007	Bossman, et al.	707/3	01/23/2004
	A7	7,188,098	03/06/2007	Chen, et al.	707/2	09/24/2003
	A8	7,330,848	02/12/2008	Chaudhuri, et al.	707/3	05/23/2003
	A9	7,337,163	02/26/2008	Srinivasan, et al.	707/3	12/04/2003

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER Number-Kind Code (if known)	DATE	COUNTRY	CLASS/ SUBCLASS	TRANSLATION YES OR NO
	A10	WO 97/038376 A2	10/16/1997	WIPO	G06F 17/30	No

EXAMINER INITIAL	OTHER ART – NON PATENT LITERATURE DOCUMENTS (Include name of author, title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date page(s), volume-issue number(s), publisher, city and/or country where published.					
	A11	H. Itoh, NTCIR-4 Patent Retrieval Experiments at RICOH, Working Notes of NTCIR-4, NII Test Collection for IR Systems Workshop 4, June 2-4, 2004, 4 pages.				

EXAMINER /Hanh Thai/	DATE CONSIDERED 06/09/2008
----------------------	----------------------------

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



UNITED STATES PATENT AND TRADEMARK OFFICE

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

BIB DATA SHEET

CONFIRMATION NO. 7444

SERIAL NUMBER 11/502,202	FILING or 371(c) DATE 08/10/2006 RULE	CLASS 707	GROUP ART UNIT 2163	ATTORNEY DOCKET NO. 12729/180	
APPLICANTS Deepa Joshi, Santa Clara, CA; ** CONTINUING DATA ***** ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 08/25/2006					
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and /HANH B THAI/ Acknowledged Examiner's Signature		☐ Met after Allowance Initials	STATE OR COUNTRY CA	SHEETS DRAWINGS 7	TOTAL CLAIMS 20 INDEPENDENT CLAIMS 3
ADDRESS BRINKS HOFER GILSON & LIONE / YAHOO! OVERTURE P.O. BOX 10395 CHICAGO, IL 60610 UNITED STATES					
TITLE Method and apparatus for reconstructing a search query					
FILING FEE RECEIVED 1000	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	☐ All Fees			
		☐ 1.16 Fees (Filing)			
		☐ 1.17 Fees (Processing Ext. of time)			
		☐ 1.18 Fees (Issue)			
		☐ Other _____			
		☐ Credit			



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UNITED STATES DEPARTMENT OF COMMERCE
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Alexandria, Virginia 22313-1450
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/502,202	08/10/2006	Deepa Joshi	12729/180	7444
56020 7590 06/17/2008 BRINKS HOFER GILSON & LIONE / YAHOO! OVERTURE P.O. BOX 10395 CHICAGO, IL 60610			EXAMINER THAI, HANH B	
			ART UNIT 2163	PAPER NUMBER
			MAIL DATE 06/17/2008	DELIVERY MODE PAPER

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

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.		Applicant(s)	
	11/502,202		JOSHI, DEEPA	
	Examiner		Art Unit	
	HANH B. THAI		2163	

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

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

Status

1) ☒ Responsive to communication(s) filed on 10 August 2006.

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

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

Disposition of Claims

4) ☒ Claim(s) 1-20 is/are pending in the application.

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

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-20 is/are rejected.

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

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

Application Papers

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

10) ☒ The drawing(s) filed on 10 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

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

Priority under 35 U.S.C. § 119

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

a) ☐ All b) ☐ Some * c) ☐ None of:

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

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

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

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

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 4/14/08.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1. This is in response to an application filed on August 10, 2006 in which claims 1-20 are presented for examination.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on April 14, 2008 have been considered and entered into record. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 102

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

A person shall be entitled to a patent unless –

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

3. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Gibbs (US 2006/0106769 A1).

Regarding claim 1, Gibbs discloses a method for providing search results to a user, comprising:

- receiving a first set of information indicative of a partial query (paragraphs [0035]-[0040] and [0066], e.g. "partial input" corresponding to the claimed "partial query", Gibbs);

- determining a full query based on the partial query (paragraphs [0044]-[0047], e.g. “predicted search queries”)
- submitting the full query to a search engine (Figs.2-3; paragraphs [0033] and [0044]-[0045]);
- receiving results from the search engine (Figs.2-3; paragraphs [0033] and [0044]-[0045]); and
- presenting the results to the user (Figs.2-3; paragraphs [0033] and [0044]-[0045]).

Regarding claim 2, Gibbs discloses determining an alternative query based on the partial query (paragraphs [0033] and [0044]-[0045]).

Regarding claim 3, Gibbs discloses presenting the alternative (paragraphs [0021] and [0044]-[0045], e.g. “predicted queries” corresponding to the claimed “alternative query”) query to the user.

Regarding claim 4 Gibbs discloses where the alternative query is presented as a hyperlink ([0040]-[0044]).

Regarding claim 5, Gibbs discloses where the selection of the alternative query hyperlink causes the alternative query to be submitted to the search engine ([0021] and [0044]-[0045]).

Regarding claim 6, Gibbs discloses presenting the partial query to the user (Fig.1; [0021] and [0044]-[0045]).

Regarding claim 7, Gibbs discloses where the partial query is presented as a hyperlink ([0040]-[0044]).

Regarding claim 8, Gibbs discloses where selection of the partial query hyperlink causes the partial query to be submitted to the search engine ([0040]-[0044]).

Regarding claim 9, Gibbs discloses a method for determining a full query based on a partial query, the method comprising:

- receiving a first set of information indicative of a partial query (paragraphs [0035]-[0040] and [0066], e.g. "partial input" corresponding to the claimed "partial query", Gibbs);
- comparing the partial query to an index of known search queries to determine matching known queries (paragraphs [0030] and [0040]-[0044]);
- determining a full query by selecting at least one of the matching known queries (Figs.2-3; paragraphs [0033] and [0044]-[0045]).

Regarding claim 10, Gibbs discloses wherein the index includes weights for each of the known search queries (paragraphs [0033] and [0040]-[0045]).

Regarding claim 11, Gibbs discloses where the determining the full query further comprises selecting the matching known query with the largest weight (paragraphs [0044]-[0045] and [0066]).

Regarding claim 12, Gibbs discloses building the index by retrieving information indicative of previously submitted search queries (paragraphs [0033] and [0040]-[0045]).

Regarding claim 13, Gibbs discloses where the building the index further comprises removing misspelled queries from the retrieved information (paragraph [0050]).

Regarding claim 14, Gibbs discloses where the building the index further comprises removing queries including controversial terms from the retrieved information (paragraph [0050]).

Regarding claim 15, Gibbs discloses a system for providing search results to a user, comprising:

- a query reconstruction server operable to (Fig.2):
- receive a first set of information indicative of a partial query (paragraphs [0035]-[0040] and [0066], e.g.” partial input” corresponding to the claimed “partial query”, Gibbs);
- determine a full query based on the partial query (Figs.2-3; paragraphs [0033] and [0044]-[0045]); and
- submit the full query to a search engine (Figs.2-3; paragraphs [0033] and [0044]-[0045]);
- web server operable to receiving results from the search engine and presenting the results to the user (Figs.2-3; paragraphs [0033] and [0044]-[0045]).

Regarding claim 16, Gibbs discloses where the query reconstruction server and the web server are different (paragraphs [0035]-[0040] and [0066]).

Regarding claim 17, Gibbs discloses a query data management server operable to: retrieve historical query data including information relating to a plurality of previously submitted search queries; build an index of known search queries based on the historical query data; and provide the index to the query reconstruction server, and where the query reconstruction server is further operable to determine the full query by comparing the partial query to the index of known

search queries to determine matching known queries and determining a full query by selecting at least one of the matching known queries (paragraphs [0044]-[0050] and [0066]).

Regarding claim 18, Gibbs discloses where the index includes weight information for the plurality of previously submitted search queries, and where the query reconstruction server determines the full query based on the weight information (paragraphs [0044]-[0045] and [0066]).

Regarding claim 19, Gibbs discloses where the query reconstruction server is further operable to determine alternative queries based on the partial query, and where the web server is further operable to present the alternative queries to the user as hyperlinks and where the selection of the alternative query hyperlink causes the alternative query to be submitted to the search engine (paragraphs [0044]-[0045] and [0066]).

Regarding claim 20, Gibbs discloses where the web server is further operable to present the partial query to the user as a hyperlink and where selection of the partial query hyperlink causes the partial query to be submitted to the search engine (paragraphs [0044]-[0045] and [0066]).

Conclusion

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

1. Kamvar et al. (US 2005/0283468 A1) disclose anticipated query generation and processing in a search engine.

2. Venkataraman et al. (US 2008/0114743 A1) disclose method and system for incrementally selecting and providing relevant search engines in response to a user query.

Forstall et al. (US 2006/0206454 A1) disclose immediate search feedback.

Nayak et al. (US 2005/0222975 A1) disclose integrated full text search system and method.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HANH B. THAI whose telephone number is (571)272-4029. The examiner can normally be reached on Mon-Thur (7:00AM - 4:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571-272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hanh B Thai
Examiner
Art Unit 2163

June 9, 2008

/don wong/

Supervisory Patent Examiner, Art Unit 2163

<i>Index of Claims</i> 	Application/Control No. 11502202	Applicant(s)/Patent Under Reexamination JOSHI, DEEPA
	Examiner HANH B THAI	Art Unit 2163

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant				☐ CPA		☐ T.D.		☐ R.1.47		
CLAIM			DATE							
Final	Original	06/09/2008								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
	8	✓								
	9	✓								
	10	✓								
	11	✓								
	12	✓								
	13	✓								
	14	✓								
	15	✓								
	16	✓								
	17	✓								
	18	✓								
	19	✓								
	20	✓								

Search Notes 	Application/Control No. 11502202	Applicant(s)/Patent Under Reexamination JOSHI, DEEPA
	Examiner HANH B THAI	Art Unit 2163

SEARCHED			
Class	Subclass	Date	Examiner
707	3-6; 104.1	6/8/08	Ht

SEARCH NOTES		
Search Notes	Date	Examiner
East search (text search)	6/8/08	Ht

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L3	450	(search\$3 near result\$1) and (partial\$2 near (query search \$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/06/09 08:00
L4	1	L3 and ((rebuild \$3 reconstruct\$3 re\$creat\$3) near full near (search43 query))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/06/09 08:07
L5	1	L3 and ((rebuild \$3 reconstruct\$3 re\$creat\$3) near full near (search \$3 query))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/06/09 08:08
L6	2	L3 and ((rebuild \$3 reconstruct\$3 re\$creat\$3) near (search\$3 query))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/06/09 08:08
L7	1719	(search\$3 near result\$1) and ((partial\$2 abbreviated incomplete express\$4) near (query search \$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/06/09 08:13
L8	9	L7 and ((rebuild \$3 reconstruct\$3 re\$creat\$3) near (search\$3 query))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/06/09 08:13

L9	1	(search\$3 near result\$1) and (((partial\$2 abbreviated incomplete express\$4) near (query search \$3)) with ((rebuild\$3 reconstruct\$3 re \$creat\$3) near (search\$3 query)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/06/09 08:43
L10	1	(search\$3 near result\$1) and (((partial\$2 abbreviated incomplete express\$4 shorthand) near (query search \$3)) with ((rebuild\$3 reconstruct\$3 re \$creat\$3) near (search\$3 query)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/06/09 08:46
L11	2	(search\$3 near result\$1) and (((partial\$2 abbreviated incomplete express\$4 shorthand) near (query search \$3)) same ((rebuild\$3 reconstruct\$3 re \$creat\$3) near (search\$3 query)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/06/09 08:46

L12	29	(search\$3 near result\$1) and (((partial\$2 abbreviated incomplete express\$4 shorthand) near (query search \$3)) same (full near (search\$3 query)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/06/09 08:50
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6/9/08 11:21:23 AM

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I hereby certify that this correspondence is being filed electronically with the U.S. Patent and Trademark Office on the below date:

Our Case No. 12729/180

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

AMENDMENT

Remarks begin on page 6 of this paper.

Amendments to the Claims

Please amend claims 1, 6, 9 and 15 as shown below.

Please cancel claims 10 and 11.

Listing of Claims

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

1. (Currently amended) A method for providing search results to a user, comprising:
receiving at a server a partial query submitted at a remote user client system by a user
seeking search results matching the submitted partial query a first set of
information indicative of a partial query;
determining a full query based on the partial query;
submitting the full query to a search engine;
receiving results from the search engine that match the partial query submitted by the
user; and
presenting the results to the user.
2. (Original) The method of claim 1, further comprising determining an alternative query based on the partial query.
3. (Original) The method of claim 2, further comprising presenting the alternative query to the user.
4. (Original) The method of claim 3, where the alternative query is presented as a hyperlink.
5. (Original) The method of claim 4, where the selection of the alternative query hyperlink causes the alternative query to be submitted to the search engine.

6. (Currently amended) The method of claim 1, further comprising ~~presenting~~ present the partial query to the user.

7. (Original) The method of claim 6, where the partial query is presented as a hyperlink

8. (Original) The method of claim 7, where selection of the partial query hyperlink causes the partial query to be submitted to the search engine

9. (Currently amended) A method for determining a full query based on a partial query, the method comprising:

receiving at a server a partial query submitted at a remote user client system by a user seeking search results matching the submitted partial query a first set of information indicative of a partial query;

comparing the partial query to an index of known search queries to determine matching known queries, the index including weights for each of the known search queries;
determining a full query by selecting at least one of the matching known queries including the matching known query with the largest weight.

10. (Cancelled)

11. (Cancelled)

12. (Original) The method of claim 9, further comprising:

building the index by retrieving information indicative of previously submitted search queries.

13. (Original) The method of claim 12, where the building the index further comprises removing misspelled queries from the retrieved information.

14. (Original) The method of claim 12, where the building the index further comprises removing queries including controversial terms from the retrieved information.

15. (Currently amended) A system for providing search results to a user, comprising:
a query reconstruction server operable to:

receive at the query reconstruction server a partial query submitted at a remote user client system by a user seeking search results matching the submitted partial query a first set of information indicative of a partial query;
determine a full query based on the partial query; and
submit the full query to a search engine;

a web server operable to ~~receiving~~ receive results matching the submitted partial query from the search engine and present ~~presenting~~ the results to the user.

16. (Original) The system of claim 15, where the query reconstruction server and the web server are different.

17. (Original) The system of claim 15, further comprising:

a query data management server operable to:

retrieve historical query data including information relating to a plurality of previously submitted search queries;
build an index of known search queries based on the historical query data; and
provide the index to the query reconstruction server, and
where the query reconstruction server is further operable to determine the full query by comparing the partial query to the index of known search queries to determine matching known queries and determining a full query by selecting at least one of the matching known queries.

18. (Original) The system of claim 17, where the index includes weight information for the plurality of previously submitted search queries, and where the query reconstruction server determines the full query based on the weight information.

19. (Original) The system of claim 15, where the query reconstruction server is further operable to determine alternative queries based on the partial query, and where the web server is further operable to present the alternative queries to the user as hyperlinks and where the selection of the alternative query hyperlink causes the alternative query to be submitted to the search engine.

20. (Original) The system of claim 15, where the web server is further operable to present the partial query to the user as a hyperlink and where selection of the partial query hyperlink causes the partial query to be submitted to the search engine.

Electronic Acknowledgement Receipt	
EFS ID:	3959438
Application Number:	11502202
International Application Number:	
Confirmation Number:	7444
Title of Invention:	Method and apparatus for reconstructing a search query
First Named Inventor/Applicant Name:	Deepa Joshi
Customer Number:	56020
Filer:	John G. Rauch/Olivia Lopez
Filer Authorized By:	John G. Rauch
Attorney Docket Number:	12729/180
Receipt Date:	17-SEP-2008
Filing Date:	10-AUG-2006
Time Stamp:	17:20:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	12729180TRANSMITTAL.pdf	40372 bf56175544e9c394383ab5fae0c02be835a334cc	no	1

Warnings:

Information:

2	Amendment/Req. Reconsideration-After Non-Final Reject	12729180AMENDMENT.pdf	307280 f72885c0b153548b7d8a657ca5bde7073ca65c81	no	8
Warnings:					
Information:					
Total Files Size (in bytes):			347652		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

REMARKS

Claims 1-9 and 12-20 are pending in the application. By this paper, claims 1, 6, 9 and 15 have been amended and claims 10 and 11 have been cancelled. Reconsideration and allowance of claims 1-9 and 12-20 are respectfully requested.

Claims 1-20 stand rejected under 35 U.S.C. 102(e) as being anticipated by US patent publication number 2006/0106769 to Gibbs (“Gibbs”). Independent claims 1, 9 and 15 have been amended to more clearly define the invention defined by these claims over Gibbs.

The present invention relates to system and method for reconstructing a search query when only a partial search query has been received at the searching apparatus. A user may intend to search for a search term such as “Apple iPod” but will in fact enter and submit the partial search “a i” instead. This received partial search may represent a large number of actually intended searches submitted by the user.

Consider claim 1. A method for providing search results includes receiving a partial query submitted at a remote user client system by a user seeking search results matching the submitted partial query; determining a *full query* based on the partial query; submitting the full query to a search engine and receiving and presenting results to the user. Since the inventive method and device can resolve even a partial query submitted at a remote user client system, unique benefits become available to users who could not previously submit search queries. For example, users of mobile devices such as a cell phone have in the past had to exert substantial effort to enter a search query using the conventional 12-key keypad of a cell phone. Paragraph [0004] of the application as filed. When the method and apparatus of the present invention operating on a search system, only a partial query such as “a i” needs to be entered and reliable results can be obtained. As used in the present application, “partial search queries are shorthand ways of expressing typical search queries.” Paragraph [0019].

Gibbs, in contrast, relates to a device *at a user client* (202) which tries to guess what search a user is entering. The “search assistant” 204 monitors user input and looks for either a “final input” or a “partial input.” A partial input is identified by detecting a delimiter such as a space or slash (/), number of characters or a pause in entry (para. [0033] – [0038]). Once the partial input is identified at the user client (202) it is communicated to the search engine (208).

The search engine returns a set of predicted search queries. Para. [0039] In one embodiment, the search engine may return predicted search **results** which are based on the predicted search queries. Para. [0044]

However, Gibbs fails to disclose receiving **a partial query submitted at a user client by a user seeking search results matching the submitted partial query, determining a full query based on the partial query** and receiving and presenting **results that match the partial query submitted by the user** as in claim 1. Claims 9 and 15 have been amended to include similar features. In this regard, the processing according to claim 1 is more like Gibbs' processing of a final input, described in para. [0033] - [0034]. A final query is identified by the user entering a carriage return or selecting a search button in a user interface. In such a case, the user is submitting the final query, looking for results that match the final query. Gibbs' processing of a final query is shown on the left side of FIG. 4. Search results are obtained from a cache or elsewhere and returned to the user client.

Thus, Gibbs fails to show determining a full query based on a received partial query, as the term partial query is used in this application. Claims 1, 9 and 15 have been amended to clarify that usage. Since a partial query is intended to mean a shorthand way of expressing a typical search query, the partial query is not a guess at what the user is entering but it is, in fact, what the user entered and submitted by entering a carriage return or hitting "send" etc. The user's act of submitting the search query is a conscious and deliberate act and is different from the Gibbs situation of a user entering text and a soft ware routine guessing at the search terms the user is entering. Claims 1, 9 and 15, as amended, make this distinction more clear.

Claim 9 has been further amended to include the limitations of claims 10 and 11. More specifically, claim 9 has been amended to recite comparing a partial query to an index which includes weights for each of the known search queries, and determining a full query by selecting at least one matching query including the matching known query with the largest weight. This is a unique feature nowhere shown in the cited reference.

In rejecting claims 10 and 11, the Office Action points generally to Gibbs paras. {0033}, [0040] – [0045] and [0060]. While paragraph [0030] of Gibbs does mention an inverse document index 228 and a cache index 234 for locating search results, nowhere does Gibbs

mention the feature of including weights for the known search queries or using the weights for determining a full query. Gibbs para. [0033] actually relates to selecting search results, not identifying a full query from a partial query. The features of claims 10 and 11, now incorporated into claim 9, are therefore unique as well.

Further, it is noted that the features of dependent claims 13 and 14 are absent from Gibbs as well. Claim 13 recites removing misspelled queries from the retrieved information as an aspect of building the index. The Office Action refers to Gibbs para. [0050] as showing this feature. However, this passage of Gibbs only discloses correcting misspellings in received partial queries, not in retrieved information. Claim 14 recites removing queries including controversial terms from the retrieved information as an aspect of building the index. The Office Action refers to Gibbs para. [0050] as showing this feature as well. However, this feature is completely missing from para. [0050] or any other portion of Gibbs.

Accordingly, it is respectfully submitted that independent claims 1, 9 and 15 each recite features missing from Gibbs. Therefore, Gibbs cannot anticipate these claims and they are allowable over this reference. Claims 2-8, 12-15 and 16-20 are dependent from claims 1, 9 and 15 respectively, and add further limitations thereto. The dependent claims are allowable for the same reasons and for other reasons as well. Reconsideration and allowance of claims 1-9 and 12-20 are respectfully requested.

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

Respectfully submitted,

/John G. Rauch/
John G. Rauch
Registration No. 37,218
Attorney for Applicants

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

CERTIFICATE OF ELECTRONIC FILING

I hereby certify that this correspondence is being filed electronically with the U.S. Patent and Trademark Office on the below date:

Date September 17, 2008 Name: John G. Rauch Signature: /John G. Rauch/

**BRINKS
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GILSON
& LIONE**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: Deepa Joshi

Appln. No.: 11/502,202

Filed: August 10, 2006

For: METHOD AND APPARATUS FOR
RECONSTRUCTING A SEARCH QUERY

Docket No: 12729/180

Examiner: Thai, Hanh B.

Art Unit: 2163

Conf. No.: 7444

TRANSMITTAL

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

Sir:

Attached is/are:

- ☒ Amendment; and
☐ Return Receipt Postcard.

Fee Calculation:

- ☒ No additional fee is required.
☐ Small Entity.
☐ An extension fee in an amount of \$_____ for a _____-month extension of time under 37 CFR § 1.136(a).
☐ A petition or processing fee in an amount of \$_____ under 37 CFR § 1.17(____).
☐ An additional filing fee has been calculated as shown below:

	Claims Remaining After Amendment		Highest No. Previously Paid For	Present Extra	Small Entity		OR	Not a Small Entity	
					Rate	Add'l Fee		Rate	Add'l Fee
Total		Minus			x \$25=			x \$50=	
Indep.		Minus			x 105=			x \$210=	
First Presentation of Multiple Dep. Claim					+\$185=			+ \$370=	
					Total	\$		Total	\$

Fee Payment:

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

Respectfully submitted,

September 17, 2008
Date

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

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& LIONE**

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 11/502,202		Filing Date 08/10/2006		☐ To be Mailed		
APPLICATION AS FILED – PART I											
(Column 1)			(Column 2)		SMALL ENTITY ☐		OR		OTHER THAN SMALL ENTITY		
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)			RATE (\$)	FEE (\$)			
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A				N/A				
☐ SEARCH FEE (37 CFR 1.16(k), (j), or (m))	N/A	N/A	N/A				N/A				
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A				N/A				
TOTAL CLAIMS (37 CFR 1.16(j))	minus 20 =	*	X \$	=			OR	X \$	=		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$	=			OR	X \$	=		
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).										
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))											
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL				TOTAL				
APPLICATION AS AMENDED – PART II											
(Column 1)			(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY		
AMENDMENT	09/17/2008	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(o))	* 18	Minus	** 20	= 0	X \$	=	OR	X \$50=	0	
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X \$	=	OR	X \$210=	0	
	☐ Application Size Fee (37 CFR 1.16(s))										
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))										
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	0	
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(o))	*	Minus	**	=	X \$	=	OR	X \$	=	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$	=	OR	X \$	=	
	☐ Application Size Fee (37 CFR 1.16(s))										
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))										
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE		
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.											

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

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

Legal Instrument Examiner:
/EFREM WARREN/



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/502,202	08/10/2006	Deepa Joshi	12729/180	7444
56020 7590 12/17/2008 BRINKS HOFER GILSON & LIONE / YAHOO! OVERTURE P.O. BOX 10395 CHICAGO, IL 60610			EXAMINER THAI, HANH B	
			ART UNIT 2163	PAPER NUMBER
			MAIL DATE 12/17/2008	DELIVERY MODE PAPER

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

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.		Applicant(s)	
	11/502,202		JOSHI, DEEPA	
	Examiner		Art Unit	
	HANH B. THAI		2163	

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

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

Status

1) ☒ Responsive to communication(s) filed on 17 September 2008.

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

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

Disposition of Claims

4) ☒ Claim(s) 1-20 is/are pending in the application.

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

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-20 is/are rejected.

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

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

Application Papers

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

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

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

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

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

Attachment(s)

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

DETAILED ACTION

1. This is Non-Final Office Action in response to amendment filed on September 17, 2008 in which claims 1-20 are pending.

Response to Arguments

2. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

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

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

3. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gibbs (US 2006/0106769 A1) in view of Kamvar et al. (US 2005/0283468 A1) previously cited.

Regarding claim 1, Gibbs discloses a method for providing search results to a user, comprising:

- receiving a first set of information indicative of a partial query (paragraphs [0035]-[0040] and [0066], e.g. "partial input" corresponding to the claimed "partial query", Gibbs);
- predicting a full query based on the partial query (paragraphs [0044]-[0047], e.g. "predicted search queries")
- submitting the full query to a search engine (Figs.2-3; paragraphs [0033] and [0044]-[0045]);

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- receiving results from the search engine (Figs.2-3; paragraphs [0033] and [0044]-[0045]); and
- presenting the results to the user (Figs.2-3; paragraphs [0033] and [0044]-[0045]).

Gibbs, however, does not explicitly determining a full query based on the partial query.

Kamvaran anticipated query generation and processing in a search engine including determining a full query based on the partial query ([0042]; [0051] and [0062], Kamvar). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Gibbs to include the claimed features as taught by Kamvaran because it would have been to provide more efficient search.

Regarding claim 2, Gibbs/Kamvaran combination discloses determining an alternative query based on the partial query (paragraphs [0033] and [0044]-[0045], Gibbs).

Regarding claim 3, Gibbs/Kamvaran combination discloses presenting the alternative (paragraphs [0021] and [0044]-[0045] of Gibbs, e.g. “predicted queries” corresponding to the claimed “alternative query”) query to the user.

Regarding claim 4, Gibbs/Kamvaran combination discloses where the alternative query is presented as a hyperlink ([0040]-[0044], Gibbs).

Regarding claim 5, Gibbs/Kamvaran combination discloses where the selection of the alternative query hyperlink causes the alternative query to be submitted to the search engine ([0021] and [0044]-[0045], Gibbs).

Regarding claim 6, Gibbs/Kamvaran combination discloses presenting the partial query to the user (Fig.1; [0021] and [0044]-[0045], Gibbs).

Regarding claim 7, Gibbs/Kamvaran combination discloses where the partial query is presented as a hyperlink ([0040]-[0044], Gibbs).

Regarding claim 8, Gibbs/Kamvaran combination discloses where selection of the partial query hyperlink causes the partial query to be submitted to the search engine ([0040]-[0044], Gibbs).

Regarding claim 9, Gibbs discloses a method for determining a full query based on a partial query, the method comprising:

- receiving at a server a partial query a first set of information indicative of a partial query (paragraphs [0035]-[0040] and [0066], e.g.” partial input” corresponding to the claimed “partial query”, Gibbs);
- comparing the partial query to an index of known search queries to determine matching known queries (paragraphs [0030] and [0040]-[0044]);
- determining a full query by selecting at least one of the matching known queries (Figs.2-3; paragraphs [0033] and [0044]-[0045]).

Gibbs, however, does not explicitly determining a full query based on the partial query and determining the full query with index weight.

Kamvaran anticipated query generation and processing in a search engine including determining a full query based on the partial query and the determining the full query with weight. ([0042]; [0051] and [0062], Kamvar). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Gibbs to include the claimed features as taught by Kamvaran because it would have been to provide more efficient search.

Regarding claim 10, Gibbs/Kamvaran combination discloses wherein the index includes weights for each of the known search queries (paragraphs [0033] and [0040]-[0045], Gibbs).

Regarding claim 11, Gibbs/Kamvaran combination discloses where the determining the full query further comprises selecting the matching known query with the largest weight (paragraphs [0044]-[0045] and [0066], Gibbs).

Regarding claim 12, Gibbs/Kamvaran combination discloses building the index by retrieving information indicative of previously submitted search queries (paragraphs [0033] and [0040]-[0045], Gibbs).

Regarding claim 13, Gibbs/Kamvaran combination discloses where the building the index further comprises removing misspelled queries from the retrieved information (paragraph [0050], Gibbs).

Regarding claim 14, Gibbs/Kamvaran combination discloses where the building the index further comprises removing queries including controversial terms from the retrieved information (paragraph [0050], Gibbs).

Regarding claim 15, Gibbs discloses a system for providing search results to a user, comprising:

- a query reconstruction server operable to (Fig.2):
- receive a first set of information indicative of a partial query (paragraphs [0035]-[0040] and [0066], e.g.” partial input” corresponding to the claimed “partial query”, Gibbs);
- determine a full query based on the partial query (Figs.2-3; paragraphs [0033] and [0044]-[0045]); and

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- submit the full query to a search engine (Figs.2-3; paragraphs [0033] and [0044]-[0045]);
- web server operable to receiving results from the search engine and presenting the results to the user (Figs.2-3; paragraphs [0033] and [0044]-[0045]).

Gibbs, however, does not explicitly determining a full query based on the partial query.

Kamvaran anticipated query generation and processing in a search engine including

determining a full query based on the partial query ([0042]; [0051] and [0062],

Kamvar). It would have been obvious to one of ordinary skill in the art at the time of the

invention was made to modify Gibbs to include the claimed features as taught by

Kamvaran because it would have been to provide more efficient search.

Regarding claim 16, Gibbs/Kamvaran combination discloses where the query reconstruction server and the web server are different (paragraphs [0035]-[0040] and [0066], Gibbs).

Regarding claim 17, Gibbs/Kamvaran combination discloses a query data management server operable to: retrieve historical query data including information relating to a plurality of previously submitted search queries; build an index of known search queries based on the historical query data; and provide the index to the query reconstruction server, and where the query reconstruction server is further operable to determine the full query by comparing the partial query to the index of known search queries to determine matching known queries and determining a full query by selecting at least one of the matching known queries (paragraphs [0044]-[0050] and [0066], Gibbs).

Regarding claim 18, Gibbs/Kamvaran combination discloses where the index includes weight information for the plurality of previously submitted search queries, and where the query reconstruction server determines the full query based on the weight information (paragraphs [0044]-[0045] and [0066], Gibbs).

Regarding claim 19, Gibbs/Kamvaran combination discloses where the query reconstruction server is further operable to determine alternative queries based on the partial query, and where the web server is further operable to present the alternative queries to the user as hyperlinks and where the selection of the alternative query hyperlink causes the alternative query to be submitted to the search engine (paragraphs [0044]-[0045] and [0066], Gibbs).

Regarding claim 20, Gibbs/Kamvaran combination discloses where the web server is further operable to present the partial query to the user as a hyperlink and where selection of the partial query hyperlink causes the partial query to be submitted to the search engine (paragraphs [0044]-[0045] and [0066], Gibbs).

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HANH B. THAI whose telephone number is (571)272-4029. The examiner can normally be reached on Mon-Thur (7:00AM - 4:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571-272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hanh B Thai
Examiner
Art Unit 2163

December 8, 2008

/don wong/

Supervisory Patent Examiner, Art Unit 2163

<i>Index of Claims</i> 	Application/Control No. 11502202	Applicant(s)/Patent Under Reexamination JOSHI, DEEPA
	Examiner HANH B THAI	Art Unit 2163

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant				☐ CPA		☐ T.D.		☐ R.1.47	
CLAIM		DATE							
Final	Original	06/09/2008	12/08/2008						
	1	✓	✓						
	2	✓	✓						
	3	✓	✓						
	4	✓	✓						
	5	✓	✓						
	6	✓	✓						
	7	✓	✓						
	8	✓	✓						
	9	✓	✓						
	10	✓	✓						
	11	✓	✓						
	12	✓	✓						
	13	✓	✓						
	14	✓	✓						
	15	✓	✓						
	16	✓	✓						
	17	✓	✓						
	18	✓	✓						
	19	✓	✓						
	20	✓	✓						

Search Notes 	Application/Control No. 11502202	Applicant(s)/Patent Under Reexamination JOSHI, DEEPA
	Examiner HANH B THAI	Art Unit 2163

SEARCHED			
Class	Subclass	Date	Examiner
707	3-6; 104.1	12/8/08	Ht

SEARCH NOTES		
Search Notes	Date	Examiner
East search (updated text search)	12/8/08	Ht

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

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EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1905	(search\$3 near result\$1) and ((partial\$2 abbreviated incomplete express\$4 shorthand) near (query search \$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/08 10:13
L2	9	L1 and ((rebuild \$3 reconstruct\$3 re\$creat\$3 near (search\$3 query))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/08 10:13
L3	239	L1 and ((rebuild \$3 reconstruct\$3 re\$creat\$3 alternat\$4) near (search\$3 query))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/08 10:16
L4	844	(search\$3 with result\$1) and ((partial\$2 abbreviated incomplete shorthand short \$form) near (query search \$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/08 10:20
L5	1823	((partial\$2 abbreviated incomplete shorthand short \$form) near (query search \$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/08 10:20
L6	152	L4 and ((rebuild \$3 reconstruct\$3 re\$creat\$3 alternat\$4) near (search\$3 query))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/08 10:20

L7	13	(search\$3 with result\$1) and ((partial\$2 abbreviated incomplete shorthand short \$form) near (query search \$3)) and (full near query)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/08 10:21
L8	3	L7 and ((rebuild \$3 reconstruct\$3 re\$creat\$3 alternat\$4) near (search\$3 query))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/08 10:21

12/ 08/ 08 10:52:40 AM

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CERTIFICATE OF ELECTRONIC FILING

I hereby certify that this correspondence is being filed electronically with the U.S. Patent

and Trademark Office on the below date:

Date April 15, 2009 Name: John G. Rauch Signature: /John G. Rauch/

Our Case No. 12729/180

Client ref. Y01651US01

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
Deepa Joshi	)	
	)	Examiner: Thai, Hanh B.
Serial No. 11/502,202	)	
	)	Group Art Unit No. 2163
Filing Date: August 10, 2006	)	
	)	Confirmation No. 7444
For	)	
METHOD AND APPARATUS FOR	)	
RECONSTRUCTING A SEARCH	)	
QUERY	)	

AMENDMENT

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

Dear Sir:

In response to the Office Action dated December 17, 2008, please amend the application as follows:

Listing of Claims begins on page 2 of this paper. No claim is amended.

Remarks begin on page 6 of this paper.

Claims

The listing of claims is provided for convenience. No claim is amended or cancelled.

Listing of Claims

1. (Previously presented) A method for providing search results to a user, comprising:
receiving at a server a partial query submitted at a remote user client system by a user
seeking search results matching the submitted partial query;
determining a full query based on the partial query;
submitting the full query to a search engine;
receiving results from the search engine that match the partial query submitted by the
user; and
presenting the results to the user.
2. (Original) The method of claim 1, further comprising determining an alternative
query based on the partial query.
3. (Original) The method of claim 2, further comprising presenting the alternative query
to the user.
4. (Original) The method of claim 3, where the alternative query is presented as a
hyperlink.
5. (Original) The method of claim 4, where the selection of the alternative query
hyperlink causes the alternative query to be submitted to the search engine.
6. (Previously presented) The method of claim 1, further comprising presenting the
partial query to the user.
7. (Original) The method of claim 6, where the partial query is presented as a hyperlink

8. (Original) The method of claim 7, where selection of the partial query hyperlink causes the partial query to be submitted to the search engine

9. (Previously presented) A method for determining a full query based on a partial query, the method comprising:

receiving at a server a partial query submitted at a remote user client system by a user

seeking search results matching the submitted partial query;

comparing the partial query to an index of known search queries to determine matching

known queries, the index including weights for each of the known search queries;

determining a full query by selecting at least one of the matching known queries

including the matching known query with the largest weight.

10. (Cancelled)

11. (Cancelled)

12. (Original) The method of claim 9, further comprising:

building the index by retrieving information indicative of previously submitted search queries.

13. (Original) The method of claim 12, where the building the index further comprises removing misspelled queries from the retrieved information.

14. (Original) The method of claim 12, where the building the index further comprises removing queries including controversial terms from the retrieved information.

15. (Previously presented) A system for providing search results to a user, comprising:
a query reconstruction server operable to:

receive at the query reconstruction server a partial query submitted at a remote user client system by a user seeking search results matching the submitted partial query;
determine a full query based on the partial query; and
submit the full query to a search engine;
a web server operable to receive results matching the submitted partial query from the search engine and present the results to the user.

16. (Original) The system of claim 15, where the query reconstruction server and the web server are different.

17. (Original) The system of claim 15, further comprising:

a query data management server operable to:

retrieve historical query data including information relating to a plurality of previously submitted search queries;
build an index of known search queries based on the historical query data; and
provide the index to the query reconstruction server, and
where the query reconstruction server is further operable to determine the full query by comparing the partial query to the index of known search queries to determine matching known queries and determining a full query by selecting at least one of the matching known queries.

18. (Original) The system of claim 17, where the index includes weight information for the plurality of previously submitted search queries, and where the query reconstruction server determines the full query based on the weight information.

19. (Original) The system of claim 15, where the query reconstruction server is further operable to determine alternative queries based on the partial query, and where the web server is further operable to present the alternative queries to the user as hyperlinks and where the

Application no. 11/502,202
Amendment dated: April 15, 2009
Reply to office action dated: December 17, 2008

selection of the alternative query hyperlink causes the alternative query to be submitted to the search engine.

20. (Original) The system of claim 15, where the web server is further operable to present the partial query to the user as a hyperlink and where selection of the partial query hyperlink causes the partial query to be submitted to the search engine.

Electronic Acknowledgement Receipt	
EFS ID:	5159225
Application Number:	11502202
International Application Number:	
Confirmation Number:	7444
Title of Invention:	Method and apparatus for reconstructing a search query
First Named Inventor/Applicant Name:	Deepa Joshi
Customer Number:	56020
Filer:	John G. Rauch/Kristie McNeal
Filer Authorized By:	John G. Rauch
Attorney Docket Number:	12729/180
Receipt Date:	15-APR-2009
Filing Date:	10-AUG-2006
Time Stamp:	16:03:47
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$ 130
RAM confirmation Number	2043
Deposit Account	231925
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)					
Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)					
Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)					
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	12729180TRANSMITTAL041509.pdf	45407	no	1
			92970ecf95d2c33243a0c4a279da37723bc8840d		
Warnings:					
Information:					
2	Extension of Time	12729180EXTOFTIME.pdf	48594	no	2
			8e63a4e37f5c5a04aac9c17a245da1efcd4a42		
Warnings:					
Information:					
3	Amendment/Req. Reconsideration-After Non-Final Reject	12729180AMENDMENT041509.pdf	278257	no	8
			5be1158fc2201572d3b6bb1c9c598b64430f88c7		
Warnings:					
Information:					
4	Fee Worksheet (PTO-06)	fee-info.pdf	30220	no	2
			390f5cead2401353c624e5d2bbd1698d992aac2a		
Warnings:					
Information:					
Total Files Size (in bytes):			402478		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

REMARKS

Claims 1-9 and 12-20 are pending in the application. No claim has been amended or cancelled by this paper. Reconsideration and allowance of claims 1-9 and 12-20 are respectfully requested.

Claims 1-9 and 12-20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over US patent publication number 2006/0106769 to Gibbs ("Gibbs") in view of US patent publication number 2005/0283468 to Kamvar et al. ("Kamvar").

The present invention relates to system and method for reconstructing a search query when only a partial search query has been received at the searching apparatus. A user may intend to search for a search term such as "Apple iPod" but will in fact enter and submit the partial search "a i" instead. This received partial search may represent a large number of actually intended searches submitted by the user.

The cited prior art references instead relate to system and method for auto-completing an unfinished search query. When a user enters the first part of a search query such as "hot" for the intended complete query "hot dogs", the system or method in such conventional system will present a list of suggested completed queries (Gibbs FIG. 11 and Kamvar FIG. 7). The system and methods in the references act while the user is typing but *before the user submits a query*.

Independent claims 1 and 9 recite "**receiving** at a server **a partial query submitted** at a remote user client system **by a user**" (*emphasis added*). Similarly, claim 15 recites "**receive** at the query reconstruction server **a partial query submitted** at a remote user client system **by a user**" (*emphasis added*). Both Gibbs and Kamvar fail to teach or suggest at least these limitations.

The Office Action alleges that Gibbs teaches "receiving a first set of information indicative of a partial query" in para. [0035]-[0040] and [0066]. However, a careful reading of the paragraphs and the corresponding FIG. 3 of Gibbs reveals Gibbs does not teach "receiving ... a partial query submitted ... by a user". Gibbs, in contrast, relates to *a search assistant (204) of a user client (202)* to identify and transmit the partial input prior to a user signaling a final input (para. [0035]-[0039]). Gibbs states that FIG.3 illustrates an embodiment of the invention implemented in the *search assistant (204) of a client system (202)* (para. [0032]). The *search*

assistant (204) transmits a “partial input” to *search engine (208)* (para. [0039]). Gibbs discloses receiving a partial input transmitted by a *search assistant (204)*. *Gibbs fails to disclose receiving* at a server **a partial query submitted** at a remote user client system **by a user**. Claims 1, 9 and 15 are allowable for at least this reason.

Further, Gibbs’ described a final query is identified by the user entering a carriage return or selecting a search button in a user interface (para [0033] - [0034]). In such a case, the claimed “partial query submitted” in claims 1, 9 and 15 are final queries. Gibbs’ processing of a final query is shown on the left side of FIG. 4. Search results are obtained from a cache or elsewhere and returned to the user client.

Thus, Gibbs fails to show determining a full query based on a received partial query, as the term partial query is used in this application. Since a partial query is intended to mean a shorthand way of expressing a typical search query, the partial query is not a guess at what the user is entering but it is, in fact, what the user entered and submitted by entering a carriage return or hitting “send” etc. The user’s act of **submitting** the search query is a conscious and deliberate act and is different from the Gibbs situation of a user entering text and a software routine guessing at the search terms the user is entering. Claims 1, 9 and 15 are allowable for at least this reason.

Finally, it is noted that the features of dependent claims 13 and 14 are absent from Gibbs as well. Claim 13 recites **removing** misspelled queries **from the retrieved information** as an aspect of building the index. The Office Action refers to Gibbs para. [0050] as showing this feature. However, this passage of Gibbs only discloses correcting misspellings in received partial queries, not in retrieved information. Claim 14 recites **removing** queries including controversial terms **from the retrieved information** as an aspect of building the index. The Office Action refers to Gibbs para. [0050] as showing this feature as well. However, this feature is completely missing from para. [0050] or any other portion of Gibbs.

Accordingly, it is respectfully submitted that independent claims 1, 9 and 15 each recite features missing from Gibbs and Kamvar. Therefore, these claims are allowable over the cited references. Claims 2-8, 12-14 and 16-20 are dependent from claims 1, 9 and 15 respectively, and add further limitations thereto. The dependent claims are allowable for the same reasons and for

Application no. 11/502,202
Amendment dated: April 15, 2009
Reply to office action dated: December 17, 2008

other reasons as well. Reconsideration and allowance of claims 1-9 and 12-20 are respectfully requested.

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

Respectfully submitted,

/John G. Rauch/
John G. Rauch
Registration No. 37,218
Attorney for Applicants

April 15, 2009
BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, ILLINOIS 60610
(312) 321-4200

CERTIFICATE OF ELECTRONIC FILING

I hereby certify that this correspondence is being filed electronically with the U.S. Patent and Trademark Office on the below date:

Date April 15, 2009 Name: John G. Rauch Signature: /John G. Rauch/

**BRINKS
HOFER
GILSON
& LIONE**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: Deepa Joshi

Appln. No.: 11/502,202

Filed: August 10, 2006

For: METHOD AND APPARATUS FOR
RECONSTRUCTING A SEARCH
QUERY

Examiner: Thai, Hanh B.

Art Unit: 2163

Conf. No.: 7444

Attorney Docket No.: 12729-180

TRANSMITTAL

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

Sir:

Attached is/are:

- ☒ Amendment; Petition and Fee for Extension of Time; and
☐ Return Receipt Postcard.

Fee Calculation:

- ☐ No additional fee is required.
☐ Small Entity.
☒ An extension fee in an amount of \$130 for a one-month extension of time under 37 CFR § 1.136(a).
☐ A petition or processing fee in an amount of \$_____ under 37 CFR § 1.17(____).
☐ An additional filing fee has been calculated as shown below:

	Claims Remaining After Amendment		Highest No. Previously Paid For	Present Extra	Small Entity		OR	Not a Small Entity	
					Rate	Add'l Fee		Rate	Add'l Fee
Total		Minus			x \$26=			x \$52=	
Indep.		Minus			x 110=			x \$220=	
First Presentation of Multiple Dep. Claim					+\$195=			+\$390=	
					Total	\$		Total	\$

Fee Payment:

- ☐ A check in the amount of \$_____ is enclosed.
☐ Payment by credit card in the amount of \$_____ (Form PTO-2038 is attached).
☒ Please charge Deposit Account No. 23-1925 in the amount of \$130 for the one-month extension of time.
☒ The Director is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this paper (including any extension fee required to ensure that this paper is timely filed), or to credit any overpayment, to Deposit Account No. 23-1925.

Respectfully submitted,

April 15, 2009
Date

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

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& LIONE**

Electronic Patent Application Fee Transmittal				
Application Number:		11502202		
Filing Date:		10-Aug-2006		
Title of Invention:		Method and apparatus for reconstructing a search query		
First Named Inventor/Applicant Name:		Deepa Joshi		
Filer:		John G. Rauch/Brenda Skinner		
Attorney Docket Number:		12729/180		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 1 month with \$0 paid	1251	1	130	130

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				130

Notice of References Cited	Application/Control No. 11/502,202	Applicant(s)/Patent Under Reexamination JOSHI, DEEPA	
	Examiner HANH B. THAI	Art Unit 2163	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2007/0050351	03-2007	Kasperski et al.	707/004
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/502,202	08/10/2006	Deepa Joshi	12729/180	7444
56020 7590 06/08/2009 BRINKS HOFER GILSON & LIONE / YAHOO! OVERTURE P.O. BOX 10395 CHICAGO, IL 60610			EXAMINER THAI, HANH B	
			ART UNIT 2163	PAPER NUMBER
			MAIL DATE 06/08/2009	DELIVERY MODE PAPER

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

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.		Applicant(s)	
	11/502,202		JOSHI, DEEPA	
	Examiner		Art Unit	
	HANH B. THAI		2163	

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

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

Status

1) ☒ Responsive to communication(s) filed on amdnement filed 4/15/09.

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

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

Disposition of Claims

4) ☒ Claim(s) 1-9 and 12-20 is/are pending in the application.

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

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-9 and 12-20 is/are rejected.

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

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

Application Papers

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

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

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

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____

DETAILED ACTION

1. This is Final Office Action in response to amendment filed on April 15, 2009. Claims 10-11 have been cancelled. Claims 1-9 and 12-20 are pending in this application.

Examiner Remarks

2. The argument against the rejections holding claims 1-9 and 12-20 unpatentable over Gibbs in view of Kamver has not been found persuasive. More specifically, the examiner disagrees that the type of input would make the claimed invention patentably distinct over Gibbs and Kamver. In fact, the very point made in the argument clearly contradicts the inventive concept as defined by the specification. Case in point, the specification teaches to expand an abbreviated text input into a full word search. Applicant's statement "the user's act of submitting the search query is a conscious and deliberate act and is different from the Gibbs situation of a user entering text and a software routine guessing at the search terms the user is entering" (response 4/15/09, page 7) would appear to suggest a fully expanded text search required to perform a query. This statement in itself is a contradiction to the specification. As such, the argument is not persuasive.

In the interest of expediting a focused prosecution, the examiner would point out that the inventive concept is based on expanding an abbreviated search using the combined steps as defined in claims 1 and 17 or 15 and 17. As such, an amendment including this language would further the application toward the allowance's process.

Response to Arguments

3. Applicant's arguments regarding "receiving at a server a partial query submitted at a remote user client system by a user and... reconstruction a partial query submitted ..." (response 4/15/09, pages 6-7) have been fully considered but they are not persuasive.

Gibbs clearly discloses a method for providing search results to a user including receiving a first set of information indicative of a partial query (paragraphs [0035]-[0040] and [0066], e.g. "partial input" corresponding to the claimed "partial query", Gibbs); and predicting a full query based on the partial query (paragraphs [0044]-[0047] and [0066], e.g. predicting complete search queries based on the partial query)

Furthermore, Kamvar discloses a query generation and processing in a search engine including determining a full query based on the received partial query (§[0042]; [0051] and [0062], Kamvar).

Examiner maintains that Gibbs and Kamvar both disclose receiving a partial query and reconstructing a full query based on the received partial query in the same manner similar to the claimed invention.

Claim Rejections - 35 USC § 103

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

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

4. Claims 1-9 and 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gibbs (US 2006/0106769 A1) in view of Kamvar et al. (US 2005/0283468 A1) previously cited.

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Regarding claim 1, Gibbs discloses a method for providing search results to a user, comprising:

- receiving a first set of information indicative of a partial query (paragraphs [0035]-[0040] and [0066], e.g. "partial input" corresponding to the claimed "partial query", Gibbs);
- predicting a full query based on the partial query (paragraphs [0044]-[0047], e.g. "predicted search queries")
- submitting the full query to a search engine (Figs.2-3; paragraphs [0033] and [0044]-[0045]);
- receiving results from the search engine (Figs.2-3; paragraphs [0033] and [0044]-[0045]); and
- presenting the results to the user (Figs.2-3; paragraphs [0033] and [0044]-[0045]).

Gibbs, however, does not explicitly determining a full query based on the partial query.

Kamvaran anticipated query generation and processing in a search engine including determining a full query based on the partial query ([0042]; [0051] and [0062], Kamvar). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Gibbs to include the claimed features as taught by Kamvaran because it would have been to provide more efficient search.

Regarding claim 2, Gibbs/Kamvaran combination discloses determining an alternative query based on the partial query (paragraphs [0033] and [0044]-[0045], Gibbs).

Regarding claim 3, Gibbs/Kamvaran combination discloses presenting the alternative (paragraphs [0021] and [0044]-[0045] of Gibbs, e.g. “predicted queries” corresponding to the claimed “alternative query”) query to the user.

Regarding claim 4, Gibbs/Kamvaran combination discloses where the alternative query is presented as a hyperlink ([0040]-[0044], Gibbs).

Regarding claim 5, Gibbs/Kamvaran combination discloses where the selection of the alternative query hyperlink causes the alternative query to be submitted to the search engine ([0021] and [0044]-[0045], Gibbs).

Regarding claim 6, Gibbs/Kamvaran combination discloses presenting the partial query to the user (Fig.1; [0021] and [0044]-[0045], Gibbs).

Regarding claim 7, Gibbs/Kamvaran combination discloses where the partial query is presented as a hyperlink ([0040]-[0044], Gibbs).

Regarding claim 8, Gibbs/Kamvaran combination discloses where selection of the partial query hyperlink causes the partial query to be submitted to the search engine ([0040]-[0044], Gibbs).

Regarding claim 9, Gibbs discloses a method for determining a full query based on a partial query, the method comprising:

- receiving at a server a partial query a first set of information indicative of a partial query (paragraphs [0035]-[0040] and [0066], e.g.” partial input” corresponding to the claimed “partial query”, Gibbs);
- comparing the partial query to an index of known search queries to determine matching known queries (paragraphs [0030] and [0040]-[0044]);

- determining a full query by selecting at least one of the matching known queries (Figs.2-3; paragraphs [0033] and [0044]-[0045]).

Gibbs, however, does not explicitly determining a full query based on the partial query and determining the full query with index weight.

Kamvar discloses an anticipated query generation and processing in a search engine including determining a full query based on the partial query and the determining the full query with weight ([0042]; [0051] and [0062], Kamvar). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Gibbs to include the claimed features as taught by Kamvar because it would have been to provide more efficient search.

Regarding claim 12, Gibbs/Kamvar combination discloses building the index by retrieving information indicative of previously submitted search queries (paragraphs [0033] and [0040]-[0045], Gibbs).

Regarding claim 13, Gibbs/Kamvar combination discloses where the building the index further comprises removing misspelled queries from the retrieved information (paragraph [0050], Gibbs).

Regarding claim 14, Gibbs/Kamvar combination discloses where the building the index further comprises removing queries including controversial terms from the retrieved information (paragraph [0050], Gibbs).

Regarding claim 15, Gibbs discloses a system for providing search results to a user, comprising:

- a query reconstruction server operable to (Fig.2):

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- receive a first set of information indicative of a partial query (paragraphs [0035]-[0040] and [0066], e.g. "partial input" corresponding to the claimed "partial query", Gibbs);
- determine a full query based on the partial query (Figs.2-3; paragraphs [0033] and [0044]-[0045]); and
- submit the full query to a search engine (Figs.2-3; paragraphs [0033] and [0044]-[0045]);
- web server operable to receiving results from the search engine and presenting the results to the user (Figs.2-3; paragraphs [0033] and [0044]-[0045]).

Gibbs, however, does not explicitly determining a full query based on the partial query.

Kamvar discloses an anticipated query generation and processing in a search engine including determining a full query based on the partial query (§[0042]; [0051] and [0062], Kamvar). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Gibbs to include the claimed features as taught by Kamvar because it would have been to provide more efficient search.

Regarding claim 16, Gibbs/Kamvar combination discloses where the query reconstruction server and the web server are different (paragraphs [0035]-[0040] and [0066], Gibbs).

Regarding claim 17, Gibbs/Kamvar combination discloses a query data management server operable to: retrieve historical query data including information relating to a plurality of previously submitted search queries (paragraphs [0042]-[0044], Gibbs); build an index of known search queries based on the historical query data (paragraphs [0042]-[0044], Gibbs); and provide

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the index to the query reconstruction server, and where the query reconstruction server is further operable to determine the full query by comparing the partial query to the index of known search queries to determine matching known queries and determining a full query by selecting at least one of the matching known queries (paragraphs [0044]-[0050] and [0066], Gibbs).

Regarding claim 18, Gibbs/Kamvar combination discloses where the index includes weight information for the plurality of previously submitted search queries, and where the query reconstruction server determines the full query based on the weight information (paragraphs [0044]-[0045] and [0066], Gibbs).

Regarding claim 19, Gibbs/Kamvar combination discloses where the query reconstruction server is further operable to determine alternative queries based on the partial query, and where the web server is further operable to present the alternative queries to the user as hyperlinks and where the selection of the alternative query hyperlink causes the alternative query to be submitted to the search engine (paragraphs [0044]-[0045] and [0066], Gibbs).

Regarding claim 20, Gibbs/Kamvar combination discloses where the web server is further operable to present the partial query to the user as a hyperlink and where selection of the partial query hyperlink causes the partial query to be submitted to the search engine (paragraphs [0044]-[0045] and [0066], Gibbs).

Conclusion

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

Kasperski et al. (US 2007/0050351 A1) disclose alternative search query prediction.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HANH B. THAI whose telephone number is (571)272-4029. The examiner can normally be reached on Mon-Thur (7:00AM - 4:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571-272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hanh B Thai
Examiner
Art Unit 2163

May 28, 2009

/don wong/

Supervisory Patent Examiner, Art Unit 2163

<i>Index of Claims</i> 	Application/Control No. 11502202	Applicant(s)/Patent Under Reexamination JOSHI, DEEPA
	Examiner HANH B THAI	Art Unit 2163

✓	Rejected
=	Allowed

-	Cancelled
÷	Restricted

N	Non-Elected
I	Interference

A	Appeal
O	Objected

☐ Claims renumbered in the same order as presented by applicant					☐ CPA					☐ T.D.					☐ R.1.47				
CLAIM		DATE																	
Final	Original	06/09/2008	12/08/2008	05/28/2009															
	1	✓	✓	✓															
	2	✓	✓	✓															
	3	✓	✓	✓															
	4	✓	✓	✓															
	5	✓	✓	✓															
	6	✓	✓	✓															
	7	✓	✓	✓															
	8	✓	✓	✓															
	9	✓	✓	✓															
	10	✓	✓	-															
	11	✓	✓	-															
	12	✓	✓	✓															
	13	✓	✓	✓															
	14	✓	✓	✓															
	15	✓	✓	✓															
	16	✓	✓	✓															
	17	✓	✓	✓															
	18	✓	✓	✓															
	19	✓	✓	✓															
	20	✓	✓	✓															

Search Notes 	Application/Control No. 11502202	Applicant(s)/Patent Under Reexamination JOSHI, DEEPA
	Examiner HANH B THAI	Art Unit 2163

SEARCHED			
Class	Subclass	Date	Examiner
707	3-6; 104.1	5/28/09	Ht

SEARCH NOTES		
Search Notes	Date	Examiner
East search (updated text search)	5/28/09	Ht

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

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EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1	(search\$3 with result\$1) and ((partial\$2 incomplet\$2 abbreviat\$2) near (query search\$3)) and ((rebuild\$3 reconstruct\$3 construct\$3 re\$creat\$3 creat\$3) near (full complet\$2) near (search\$3 query))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/28 15:31
L2	83	(search\$3 with result\$1) and ((partial\$2 incomplet\$2 abbreviat\$2) near (query search\$3)) and ((rebuild\$3 reconstruct\$3 construct\$3 re\$creat\$3 creat\$3) with (full complet\$2) with (search\$3 query))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/28 15:32
L3	56	(search\$3 with result\$1) and ((partial\$2 incomplet\$2 abbreviat\$2) near (query search\$3)) and ((rebuild\$3 reconstruct\$3 construct\$3 re\$creat\$3 creat\$3) near7 (full complet\$2) near7 (search\$3 query))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/28 15:32
L4	55	(search\$3 with result\$1) and ((partial\$2 incomplet\$2 abbreviat\$2) near (query search\$3)) and ((rebuild\$3 reconstruct\$3 construct\$3 re\$creat\$3 creat\$3) near7 (full complet\$2) near4 (search\$3 query))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/28 15:33
L5	52	(search\$3 with result\$1) and ((partial\$2 incomplet\$2 abbreviat\$2) near (query search\$3)) and ((rebuild\$3 reconstruct\$3 construct\$3 re\$creat\$3 creat\$3) near7 (full complet\$2) near4 (search\$3 query)) and index\$3	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/28 15:34

L6	30	(search\$3 with result\$1) and ((partial\$2 incomplet\$2 abbreviat\$2) near (query search\$3)) and ((rebuild\$3 reconstruct\$3 construct\$3 re\$creat\$3 creat\$3) near7 (full complet\$2) near4 (search\$3 query)) and index\$3 and (histor\$4 near (log query))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/28 15:35
L7	18	(search\$3 with result\$1) and ((partial\$2 incomplet\$2 abbreviat\$2) near (query search\$3)) and ((rebuild\$3 reconstruct\$3 construct\$3 re\$creat\$3 creat\$3) near7 (full complet\$2) near4 (search\$3 query)) and index\$3 and (histor\$4 near (log query)) and @ad<"20060810"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/28 15:35
L8	24	(search\$3 with result\$1) and ((partial\$2 incomplet\$2 abbreviat\$2) near (query search\$3)) and ((full complet\$2) near4 (search\$3 query)) and index\$3 and (histor\$4 near (log query)) and @ad<"20060810"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/28 15:38
L9	38	(search\$3 with result\$1) and ((partial\$2 incomplet\$2 abbreviat\$2 alternat\$4) near (query search\$3)) and ((full complet\$2) near4 (search\$3 query)) and index\$3 and (histor\$4 near (log query)) and @ad<"20060810"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/05/28 15:38

05/28/09 4:04:16 PM

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CERTIFICATE OF ELECTRONIC FILING

I hereby certify that this correspondence is being filed electronically with the U.S. Patent
and Trademark Office on the below date:
Date August 10, 2009 Name: John G. Rauch Signature: /John G. Rauch/

Our Case No. 12729/180
Client ref. Y01651US01

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
Deepa Joshi	)	
	)	Examiner: Thai, Hanh B.
Serial No. 11/502,202	)	
	)	Group Art Unit No. 2163
Filing Date: August 10, 2006	)	
	)	Confirmation No. 7444
For METHOD AND APPARATUS FOR	)	
RECONSTRUCTING A SEARCH	)	
QUERY	)	

RESPONSE

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

Dear Sir:

In response to the Office Action dated June 8, 2009, please amend the application as follows:

Listing of Claims begins on page 2 of this paper. No claim is amended.

Remarks begin on page 6 of this paper.

Claims

The listing of claims is provided for convenience. No claim is amended or cancelled.

Listing of Claims

1. (Previously presented) A method for providing search results to a user, comprising:
receiving at a server a partial query submitted at a remote user client system by a user
seeking search results matching the submitted partial query;
determining a full query based on the partial query;
submitting the full query to a search engine;
receiving results from the search engine that match the partial query submitted by the
user; and
presenting the results to the user.
2. (Original) The method of claim 1, further comprising determining an alternative
query based on the partial query.
3. (Original) The method of claim 2, further comprising presenting the alternative query
to the user.
4. (Original) The method of claim 3, where the alternative query is presented as a
hyperlink.
5. (Original) The method of claim 4, where the selection of the alternative query
hyperlink causes the alternative query to be submitted to the search engine.
6. (Previously presented) The method of claim 1, further comprising presenting the
partial query to the user.
7. (Original) The method of claim 6, where the partial query is presented as a hyperlink

8. (Original) The method of claim 7, where selection of the partial query hyperlink causes the partial query to be submitted to the search engine

9. (Previously presented) A method for determining a full query based on a partial query, the method comprising:

receiving at a server a partial query submitted at a remote user client system by a user
seeking search results matching the submitted partial query;
comparing the partial query to an index of known search queries to determine matching
known queries, the index including weights for each of the known search queries;
determining a full query by selecting at least one of the matching known queries
including the matching known query with the largest weight.

10. (Cancelled)

11. (Cancelled)

12. (Original) The method of claim 9, further comprising:
building the index by retrieving information indicative of previously submitted search
queries.

13. (Original) The method of claim 12, where the building the index further comprises
removing misspelled queries from the retrieved information.

14. (Original) The method of claim 12, where the building the index further comprises
removing queries including controversial terms from the retrieved information.

15. (Previously presented) A system for providing search results to a user, comprising:
a query reconstruction server operable to:

receive at the query reconstruction server a partial query submitted at a remote user client system by a user seeking search results matching the submitted partial query;
determine a full query based on the partial query; and
submit the full query to a search engine;
a web server operable to receive results matching the submitted partial query from the search engine and present the results to the user.

16. (Original) The system of claim 15, where the query reconstruction server and the web server are different.

17. (Original) The system of claim 15, further comprising:
a query data management server operable to:

retrieve historical query data including information relating to a plurality of previously submitted search queries;
build an index of known search queries based on the historical query data; and
provide the index to the query reconstruction server, and
where the query reconstruction server is further operable to determine the full query by comparing the partial query to the index of known search queries to determine matching known queries and determining a full query by selecting at least one of the matching known queries.

18. (Original) The system of claim 17, where the index includes weight information for the plurality of previously submitted search queries, and where the query reconstruction server determines the full query based on the weight information.

19. (Original) The system of claim 15, where the query reconstruction server is further operable to determine alternative queries based on the partial query, and where the web server is further operable to present the alternative queries to the user as hyperlinks and where the

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Amendment dated: August 10, 2009
Reply to office action dated: June 8, 2009

selection of the alternative query hyperlink causes the alternative query to be submitted to the search engine.

20. (Original) The system of claim 15, where the web server is further operable to present the partial query to the user as a hyperlink and where selection of the partial query hyperlink causes the partial query to be submitted to the search engine.

Electronic Acknowledgement Receipt	
EFS ID:	5856789
Application Number:	11502202
International Application Number:	
Confirmation Number:	7444
Title of Invention:	Method and apparatus for reconstructing a search query
First Named Inventor/Applicant Name:	Deepa Joshi
Customer Number:	56020
Filer:	John G. Rauch/Magdalena Pieczonka
Filer Authorized By:	John G. Rauch
Attorney Docket Number:	12729/180
Receipt Date:	10-AUG-2009
Filing Date:	10-AUG-2006
Time Stamp:	15:09:42
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	12729180TRANSMITTAL08109.pdf	42589 f7a17d0644a5c5277fb93cf288e0d682fa2bdc40	no	1

Warnings:

Information:

2	Amendment After Final	12729180RESPONSE081009.pdf	408940 a50f60d4651d508e46d89e08f17549d3faa1b7f7	no	10
Warnings:					
Information:					
Total Files Size (in bytes):			451529		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

REMARKS

Claims 1-9 and 12-20 are pending in the application. No claim has been amended or cancelled by this paper. Reconsideration and allowance of claims 1-9 and 12-20 are respectfully requested.

Claims 1-9 and 12-20 stand finally rejected under 35 U.S.C. 103(a) as being unpatentable over US patent publication number 2006/0106769 to Gibbs ("Gibbs") in view of US patent publication number 2005/0283468 to Kamvar et al. ("Kamvar"). Reconsideration of this rejection is respectfully requested.

Gibbs and Kamvar fail to show all the features of claim 1

Neither Gibbs nor Kamvar, taken alone or in combination, disclose all the features of claim 1. Consider Gibbs. This reference relates to a system which detects a series of (possibly non-alphabetic) entries by a user. To "speed up the process," the disclosed system and method guesses at a set of predicted queries and provides them back to the user. The user can select one of the predicted queries and then indicate completion of the query. Or, the user can complete entry of his query and indicate completion. When the completion indication is received, a search engine processes the query (the selected predicted query or the query fully entered by the user) and then produces a set of search results. Gibbs paragraphs [0006] – [0008].

Thus, Gibbs fails to disclose at least the following limitations of claim 1:

**...receiving at a server a partial query submitted at a remote user client system by a
user seeking search results matching the submitted partial query;
determining a full query based on the partial query;
submitting the full query to a search engine;
receiving results from the search engine that match the partial query submitted by
the user; ...**

(emphasis added). Gibbs does not disclose "receiving ... a partial query *submitted...by a user....*" Rather, Gibbs detects specific user entries such as a specified delimiter (paragraph

[0036]), a predetermined number of characters (paragraph [0037]) or a timeout condition (paragraph [0038]). The user's entry to that point is considered a "partial input" and is submitted to a search engine. However, instead of returning search results that match the query, the search engine returns a set of ordered **predicted search queries**. These are presented to the user. The user may select one of these predicted search queries.

Rather than determining the full query based on the query submitted by the user, and submitted the full query to a search engine to receive search results that match the partial query submitted by the user, Gibbs instead determines a set of predicted queries which are then presented to the user. After a further input by the user, a search query is submitted by Gibbs, but it is not "a full query" determined "based on the partial query." It is a query selected from a set of predicted queries, or guesses, submitted to the user by the Gibbs system.

Subsequently, Gibbs does not disclose "receiving results from the search engine that *match the partial query* submitted by the user." Rather, Gibbs receives results that *match the predicted query selected by the user*. This may or may not be the same query the user even intended—the predicted query may have been "better than" the query the user was intending. The user's query entry process was interrupted by the Gibbs system by presentation of the predicted queries, one of which was selected by the user.

As noted in the response filed April 15, 2009, in the presently claimed invention, a partial query is not a guess at what the user is entering, as in Gibbs. Rather, a partial query is, in fact, what the user entered and submitted—for example by entering an abbreviated text string and then entering a carriage return or "send" etc. The user's act of submitting the search query is a conscious and deliberate act by the user—an abbreviated query is entered, for example on a mobile device such as a cell phone. Users of such devices may not be able to take full advantage of a search engine when using the mobile device because the user is unable to enter a search query without substantial effort (paragraph [0006] of the present application). The user's submission is of a partial query—an abbreviation of the full query intended by the user—and the submission is a complete act—entering a text string and indicating completion by hitting ENTER or SEND, for example. This is different from the Gibbs situation of a user entering text and a software routine guessing at the search terms the user is entering then interrupting the user by presenting a set of predicted queries which the user may select.

Accordingly, Gibbs fails to disclose all the features of the present invention. Kamvar fails to provide the missing teaching. Kamvar relates to a similar system which guesses at the user's search query before the user has completed entry of the search query. As in Gibbs, this is done for "speeding up this process" of submitting a query to the query processor (para. [0004]). Kamvar thus discloses monitoring a user's entry of a search query to identify a partial query (para. [0031]-[0034]). The partial query is submitted to a search engine to obtain a set of predicted search queries for presentation to the user. One may be selected by the user and the selected predicted search query is submitted to a search engine to obtain search results.

This Kamvar process matches the Gibbs process described above, without adding more that's relevant to the invention defined by claim 1. For the same reasons discussed in connection with Gibbs above, then, Kamvar fails to disclose all the features of claim 1. Accordingly, withdrawal of the rejection of claim 1 is respectfully requested. Claims 2-9 are dependent on claim 1 and are submitted to be allowable for the same reasons.

Gibbs and Kamvar fail to show all the features of claim 9

Claim 9 recites features which are not shown by Gibbs and Kamvar, taken alone or together. For example, claim 9 recites in part "receiving at a server a partial query submitted at a remote user client system by a user seeking search results matching the submitted partial query." In Gibbs and Kamvar, as discussed above, the disclosed system detects a query as it is being entered by the user, guesses at a set of predicted queries and interrupts the user by presenting the predicted queries to the user. The user may then select one of the predicted queries.

In Gibbs and Kamvar, first, the user does not submit a partial query, as in claim 9. Rather, the user submits a query, stops upon being interrupted by the presentation of the predicted queries, then selects one of the predicted queries. No "submission" of a partial query occurs in this case—rather, the detection of the partial query occurs when certain conditions are met, such as a detected delimiter or detecting entry of a predetermined number of characters or a timeout condition. The user does not get to "submit" a partial query. Rather, the disclosed system decides when it is a "partial query" and acts accordingly to identify predicted queries.

Second, in the Gibbs and Kamvar system, the "partial query" cannot be described as one for which a user is seeking search results *matching the submitted partial query*. The partial

query in Gibbs and Kamvar is something that the system decides on, for example, after entry of a delimiter or predetermined characters or a timeout. In effect, the user of the Gibbs and Kamvar system is typing his search query and is interrupted by the system responding with predicted queries. The partial query decided on by the system may or may not match the query for which the user seeks search results. As one example, the user may type in "ball" and the system responds with predicted queries like "ballplayer" and "ballgames," when actually the user wanted search results about "ballet." The claim 1 act of receiving a partial query is not shown by Gibbs and Kamvar.

Accordingly, claim 9 includes limitations missing from Gibbs and Kamvar and is submitted to be allowable over these references. Claims 12-14 are dependent from claim 9 and are submitted to be allowable for the same reasons.

Gibbs and Kamvar fail to show all the features of claim 15

Claim 15 recites features not shown in Gibbs or Kamvar. For example, claim 15 recites a query reconstruction server operable to receive at the query reconstruction server a partial query submitted at a remote user client system by a user seeking search results matching the submitted partial query. In Gibbs and Kamvar, first, the user does not submit a partial query, as in claim 15, so that in Gibbs and Kamvar, there cannot be a query reconstruction server which receives a **partial query submitted by the user**. Further, in the Gibbs and Kamvar system, the "partial query" cannot be described as one for which a user is seeking search results *matching the submitted partial query*. The partial query in Gibbs and Kamvar is something the system has decided up based up characters entered by the user or a timeout condition.

Moreover, Gibbs and Kamvar do not disclose a web server operable to receive *results matching the submitted partial query* from the search engine. The partial query in Gibbs and Kamvar is something that the system decides on, for example, after entry of a delimiter or predetermined characters or a timeout. The partial query that the Gibbs and Kamvar system operates on is not a partial query submitted by the user, so that the matching results cannot match the "submitted partial query," as in claim 15.

Application no. 11/502,202
Amendment dated: August 10, 2009
Reply to office action dated: June 8, 2009

Accordingly, claim 15 includes limitations missing from Gibbs and Kamvar and is submitted to be allowable over these references. Claims 16-20 are dependent from claim 15 and are submitted to be allowable for the same reasons.

At page 2 of the Final Office Action, it is stated, "In the interest of expediting a focused prosecution, the examiner would point out that the inventive concept is based on indexing an abbreviated search using the combined steps as defined in claims 1 and 17 and 15 and 17." Applicants thank the examiner for attention on expediting focused prosecution. However, it is respectfully submitted that the invention is defined by the claims and, as detailed herein, the present claims are submitted to be patentable over the cited references. No "inventive concept" is recognized, other than the invention defined by the various claims. The disclosure is considered to include a variety of patentable subject matter, some of which is reflected in the currently pending claims. If current claim 17, as dependent from claim 15, is considered to be allowable, the examiner should so indicate.

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

Respectfully submitted,

/John G. Rauch/
John G. Rauch
Registration No. 37,218
Attorney for Applicants

August 10, 2009
BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, ILLINOIS 60610
(312) 321-4200

CERTIFICATE OF EFS FILING UNDER 37 CFR §1.8

I hereby certify that this correspondence is being electronically transmitted to the United States Patent and Trademark Office, Commissioner for Patents, via the EFS pursuant to 37 CFR §1.8 on the below date:

Date: August 10, 2009 Name: John G. Rauch Signature: /John G. Rauch/

**BRINKS
HOFER
GILSON
& LIONE**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: Deepa Joshi

Appln. No.: 11/502,202

Filed: August 10, 2006

For: METHOD AND APPARATUS FOR
RECONSTRUCTING A SEARCH QUERY

Attorney Docket No.: 12729/180

Examiner: Thai, Hanh B.

Art Unit: 2163

Conf. No.: 7444

TRANSMITTAL

Mail Stop AF
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

Attached is/are:

☒ Response (10 pages).

Fee calculation:

☒ No additional fee is required.

☐ Small Entity.

☐ An extension fee in an amount of \$_____ for a _____ month extension of time under 37 CFR § 1.136(a).

☐ A petition or processing fee in an amount of \$_____ under 37 CFR § 1.17(____).

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

					Small Entity			Not a Small Entity	
	Claims Remaining After Amendment		Highest No. Previously Paid For	Present Extra	Rate	Add'l Fee	OR	Rate	Add'l Fee
Total		Minus			x \$26=			x \$52=	
Indep.		Minus			x 110=			x \$220=	
First Presentation of Multiple Dep. Claim					+\$195=			+\$390=	
					Total	\$		Total	\$

Fee payment:

☐ Please charge Deposit Account No. 23-1925 in the amount of \$_____ for _____.

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

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

Respectfully submitted,

August 10, 2009

Date

/John G. Rauch/

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

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 11/502,202		Filing Date 08/10/2006		☐ To be Mailed	
APPLICATION AS FILED – PART I										
(Column 1)			(Column 2)		SMALL ENTITY ☐		OR		OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)			RATE (\$)	FEE (\$)		
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A				N/A			
☐ SEARCH FEE (37 CFR 1.16(k), (j), or (m))	N/A	N/A	N/A				N/A			
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A				N/A			
TOTAL CLAIMS (37 CFR 1.16(j))	minus 20 =	*	X \$	=			OR	X \$	=	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$	=			OR	X \$	=	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).									
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
* If the difference in column 1 is less than zero, enter "0" in column 2.										
APPLICATION AS AMENDED – PART II										
(Column 1)			(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY	
AMENDMENT	08/10/2009	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(o))	* 18	Minus	** 20	= 0	X \$	=	OR	X \$52=	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X \$	=	OR	X \$220=	0
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	0
(Column 1)			(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY	
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(o))	*	Minus	**	=	X \$	=	OR	X \$	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$	=	OR	X \$	=
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.										

Legal Instrument Examiner:
/DALE HALL/

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

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

Ok to enter

8/27/2009

HT

CERTIFICATE OF ELECTRONIC FILING

I hereby certify that this correspondence is being filed electronically with the U.S. Patent

and Trademark Office on the below date:

Date August 10, 2009 Name: John G. Rauch Signature: /John G. Rauch/

Our Case No. 12729/180

Client ref. Y01651US01

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
Deepa Joshi	)	
	)	Examiner: Thai, Hanh B.
Serial No. 11/502,202	)	
	)	Group Art Unit No. 2163
Filing Date: August 10, 2006	)	
	)	Confirmation No. 7444
For METHOD AND APPARATUS FOR	)	
RECONSTRUCTING A SEARCH	)	
QUERY	)	

RESPONSE

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

Dear Sir:

In response to the Office Action dated June 8, 2009, please amend the application as follows:

Listing of Claims begins on page 2 of this paper. No claim is amended.

Remarks begin on page 6 of this paper.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/502,202	08/10/2006	Deepa Joshi	12729/180	7444
56020 7590 09/03/2009 BRINKS HOFER GILSON & LIONE / YAHOO! OVERTURE P.O. BOX 10395 CHICAGO, IL 60610			EXAMINER THAI, HANH B	
			ART UNIT 2163	PAPER NUMBER
			MAIL DATE 09/03/2009	DELIVERY MODE PAPER

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

The time period for reply, if any, is set in the attached communication.

Advisory Action Before the Filing of an Appeal Brief	Application No. 11/502,202	Applicant(s) JOSHI, DEEPA	
	Examiner HANH B. THAI	Art Unit 2163	

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

THE REPLY FILED 10 August 2009 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

a) ☒ The period for reply expires 2 months from the mailing date of the final rejection.

b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because

(a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);

(b) ☐ They raise the issue of new matter (see NOTE below);

(c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or

(d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).

5. ☐ Applicant's reply has overcome the following rejection(s): _____.

6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).

7. ☒ For purposes of appeal, the proposed amendment(s): a) ☒ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: _____.

Claim(s) objected to: _____.

Claim(s) rejected: 1-9 and 12-20.

Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).

9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).

10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because:

1. Applicant's arguments regarding "receiving at a server a partial query submitted at a remote user client system by a user and... reconstruction a partial query submitted ..." (response 8/10/09, pages 6-9) have been fully considered but they are not persuasive.

Gibbs clearly discloses a method for providing search results to a user including receiving a first set of information indicative of a partial query (paragraphs [0035]-[0040] and [0066], e.g. "partial input" corresponding to the claimed "partial query", Gibbs); and predicting a full query based on the partial query (paragraphs [0044]-[0047] and [0066], e.g. predicting complete search queries based on the partial query) in the manner similar to the claimed language of reconstructing a full query based on the received partial query. The examiner maintains the same position as clearly explained in the final office action mailed on 6/8/2009..

12. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____

13. ☐ Other: _____.

Continuation Sheet (PTOL-303)

/don wong/
Supervisory Patent Examiner, Art Unit 2163

Application No.

/Hanh B Thai/
Examiner, Art Unit 2163

U.S. Patent and Trademark Office
PTOL-303 (Rev. 08-06)

Advisory Action Before the Filing of an Appeal Brief

Part of Paper No. 20090828

CERTIFICATE OF ELECTRONIC FILING

I hereby certify that this correspondence is being filed electronically with the U.S. Patent and Trademark Office on the below date:

Date October 8, 2009 Name: John G. Rauch Signature: /John G. Rauch/

Our Case No. 12729/180

Client ref. Y01651US01

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
Deepa Joshi	)	
	)	Examiner: Thai, Hanh B.
Serial No. 11/502,202	)	
	)	Group Art Unit No. 2163
Filing Date: August 10, 2006	)	
	)	Confirmation No. 7444
For	)	
METHOD AND APPARATUS FOR	)	
RECONSTRUCTING A SEARCH	)	
QUERY	)	

AMENDMENT

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

Dear Sir:

In response to the Office Action dated June 8, 2009 and the Advisory Action dated September 3, 2009, please amend the application as follows:

Listing of Claims begins on page 2 of this paper.

Remarks begin on page 6 of this paper.

Claims

Please amend claims 1, 9, 12, 15 and 17 as shown below.

Please add new claim 21 as shown below.

The listing of claims is provided for convenience. No claim is amended or cancelled.

Listing of Claims

1. (Currently amended) A method for providing search results to a user, comprising:
receiving at a server a partial query submitted at a remote user client system by a user
seeking search results matching the submitted partial query, the partial query
comprising an abbreviated or incomplete search query such that the submitted
query is not fully representative of an entire search query desired by the user;
determining at the server a full query based on the partial query;
at the server, submitting the full query to a search engine as a request for search results
desired by the user;
receiving, at the server, results from the search engine that match the partial query
submitted by the user as if the full query had been submitted to the search engine
by the user; and
from the server, presenting the results to the user.
2. (Original) The method of claim 1, further comprising determining an alternative
query based on the partial query.
3. (Original) The method of claim 2, further comprising presenting the alternative query
to the user.
4. (Original) The method of claim 3, where the alternative query is presented as a
hyperlink.

5. (Original) The method of claim 4, where the selection of the alternative query hyperlink causes the alternative query to be submitted to the search engine.

6. (Previously presented) The method of claim 1, further comprising presenting the partial query to the user.

7. (Original) The method of claim 6, where the partial query is presented as a hyperlink

8. (Original) The method of claim 7, where selection of the partial query hyperlink causes the partial query to be submitted to the search engine

9. (Currently amended) A method for determining a full query based on a partial query, the method comprising:

receiving at a server a partial query submitted at a remote user client system by a user seeking search results matching the submitted partial query, the submitted partial query being an abbreviated or incomplete search query selected by the user to represent an intended full query;

at the server, comparing the partial query to an index of known search queries to determine matching known queries, the index being built using previously-submitted queries received at the server, the index including weights for each of the known search queries, the weights being calculated at least in part using frequency counts representative of number of times the query has been submitted to the server;

at the server, determining a full query by selecting at least one of the matching known queries including the matching known query with the largest weight.

10. (Cancelled)

11. (Cancelled)

12. (Currently amended) The method of claim 9, further comprising:

building the index by

retrieving information indicative of the previously submitted search queries; and
filtering the retrieved information prior to building the index.

13. (Original) The method of claim 12, where the building the index further comprises removing misspelled queries from the retrieved information.

14. (Original) The method of claim 12, where the building the index further comprises removing queries including controversial terms from the retrieved information.

15. (Currently amended) A system for providing search results to a user, comprising:
a query reconstruction server operable to:

receive at the query reconstruction server a partial query submitted at a remote
user client system by a user seeking search results matching the submitted
partial query;

without further interaction with the user, determine a full query based on the
partial query by comparing the submitted partial query to an index of
known search queries to determine matching known queries and
determining the full query by selecting at least one of the matching known
queries; and

submit the full query to a search engine; and

a web server operable to receive results matching the submitted partial query from the
search engine and present the results to the user.

16. (Original) The system of claim 15, where the query reconstruction server and the
web server are different.

17. (Currently amended) The system of claim 15, further comprising:

a query data management server operable to:

retrieve historical query data including information relating to a plurality of previously submitted search queries;
build an index of known search queries based on the historical query data; and
provide the index to the query reconstruction server, ~~and~~
~~where the query reconstruction server is further operable to determine the full query by comparing the partial query to the index of known search queries to determine matching known queries and determining a full query by selecting at least one of the matching known queries.~~

18. (Original) The system of claim 17, where the index includes weight information for the plurality of previously submitted search queries, and where the query reconstruction server determines the full query based on the weight information.

19. (Original) The system of claim 15, where the query reconstruction server is further operable to determine alternative queries based on the partial query, and where the web server is further operable to present the alternative queries to the user as hyperlinks and where the selection of the alternative query hyperlink causes the alternative query to be submitted to the search engine.

20. (Original) The system of claim 15, where the web server is further operable to present the partial query to the user as a hyperlink and where selection of the partial query hyperlink causes the partial query to be submitted to the search engine.

21. (New) The method of claim 9 wherein determining a full query comprises selecting a full query that corresponds to the most frequently submitted, previously-submitted query, based on the frequency counts, that matches words of the partial query in matching order.

Electronic Acknowledgement Receipt	
EFS ID:	6229764
Application Number:	11502202
International Application Number:	
Confirmation Number:	7444
Title of Invention:	Method and apparatus for reconstructing a search query
First Named Inventor/Applicant Name:	Deepa Joshi
Customer Number:	56020
Filer:	John G. Rauch/Edward Popoca
Filer Authorized By:	John G. Rauch
Attorney Docket Number:	12729/180
Receipt Date:	08-OCT-2009
Filing Date:	10-AUG-2006
Time Stamp:	17:48:47
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$ 940
RAM confirmation Number	4067
Deposit Account	231925
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)					
Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)					
Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)					
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	12729180RCE.pdf	75911	no	2
			d1931546318ee3b032dd5fdc93131bf7cc635903		
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
2	Extension of Time	12729180EXTENSIONOFTIME100809.pdf	49398	no	2
			03d2eba756b7f6111bcb91e05c87f215d1387c0c		
Warnings:					
Information:					
3	Amendment Submitted/Entered with Filing of CPA/RCE	12729180AMENDMENT100809.pdf	324928	no	8
			601f05c828a291d22df0d32c1de596cdc45eb3e8		
Warnings:					
Information:					
4	Miscellaneous Incoming Letter	12729180TRANSMITTAL100809.pdf	45200	no	1
			500d68553479104ec2ce72b590f5a79197aa23a1		
Warnings:					
Information:					
5	Fee Worksheet (PTO-875)	fee-info.pdf	32005	no	2
			71ebbbcd9fb04025b35cc475964dbe659139a47		
Warnings:					
Information:					
Total Files Size (in bytes):			527442		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

CERTIFICATE OF EFS FILING UNDER 37 CFR §1.8

I hereby certify that this correspondence is being electronically transmitted to the United States Patent and Trademark Office, Commissioner for Patents, via the EFS pursuant to 37 CFR §1.8 on the below date:

Date: October 8, 2009 Name: John G. Rauch

Signature: /John G. Rauch/

BRINKS
HOFFER
GILSON
& LIONE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: Deepa Joshi

Appln. No.: 11/502,202

Filed: August 10, 2006

For: METHOD AND APPARATUS FOR
RECONSTRUCTING A SEARCH QUERY

Examiner: Thai, Hanh B.

Art Unit: 2163

Conf. No.: 7444

Attorney Docket No.: Y01651US01 (12729/180)

Mail Stop RCE
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

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

Sir:

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

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

☐ Previously submitted:

☐ Applicant(s) requests nonentry of any previously-filed unentered amendments.

☐ Please enter and consider the Amendment After Final Under 37 C.F.R. §1.116 previously filed on _____.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____.

☐ Other: _____.

☒ Attached is/are:

☐ An Information Disclosure Statement

☒ An Amendment to the written description, claims, or drawings

☒ New Arguments and/or New Evidence in support of Patentability

☐ Other: _____

☐ Request for suspension of action:

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

☐ Small Entity Status:

☐ Applicant(s) hereby asserts entitlement to claim small entity status under 37 CFR §§ 1.9 and 1.27.

☐ A small entity statement or assertion of entitlement to claim small entity status was filed in prior application no. _____ / _____ and such status is still proper and desired.

☐ Is no longer desired.

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

☒ A request fee of \$810 under 37 C.F.R. §1.17(e).

☐ A suspension processing fee of \$_____ under 37 C.F.R. §1.17(i).

☐ An additional filing fee of \$_____ under 37 C.F.R. §1.16 (_____ additional independent claims and/or _____ additional total claims).

☒ An extension fee of \$130 under 37 C.F.R. §1.17(a) for a one-month extension of time.

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

☒ Please charge Deposit Account No. 23-1925 (BRINKS HOFER GILSON & LIONE) in the amount of \$940.

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

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

Respectfully submitted,

October 8, 2009

Date

/John G. Rauch/

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

REMARKS

This Amendment is submitted in conjunction with a Request for Continued Examination under 37 C.F.R. § 1.114. Claims 1-9 and 12-21 are pending in the application. Claims 1, 9, 12, 15 and 17 have been amended. New claim 21 has been added. Reconsideration and allowance of claims 1-9 and 12-21 are respectfully requested.

In the final rejection mailed June 8, 2009, claims 1-9 and 12-20 were finally rejected under 35 U.S.C. 103(a) as being unpatentable over US patent publication number 2006/0106769 to Gibbs ("Gibbs") in view of US patent publication number 2005/0283468 to Kamvar et al. ("Kamvar"). Reconsideration of this rejection is respectfully requested.

In the present amendment, independent claims 1, 9 and 15 have been amended to better distinguish the invention defined by these claims over the cited references. Claim 1 has been amended to clarify that "the partial query compris[es] an abbreviated or incomplete search query such that the submitted query is not fully representative of an entire search query desired by the user." Claim 9 has been amended to recite that "the submitted partial query [is] an abbreviated or incomplete search query selected by the user to represent an intended full query." Support for this amendment may be found in the specification as filed at paragraph [0021] of US patent publication number US 2008/0040323. This emphasizes a difference over Gibbs, in which the disclosed system "guesses" at a set of predicted queries, while the user is typing the query in, and provides them back to the user. The user can then select from the list of guesses what query he was actually typing in. Claim 15 has been amended to recite "a query reconstruction server operable to: receive at the query reconstruction server a partial query submitted at a remote user client system by a user seeking search results matching the submitted partial query; *without further interaction with the user*, determine a full query based on the partial query..." (*emphasis added*). Thus, in the system of claim 15, no feedback or selection is necessary by the user.

Thus, the independent claims have been amended to distinguish the "type and guess" system of Gibbs by emphasizing a feature in which a user can type in and submit an abbreviated query. This might be done, for example, when using a mobile device on which typing a full query is difficult or inconvenient. By typing just the abbreviated query, and letting a remote

server or search system determine the intended full query before searching the query and returning search results provides substantial user convenience.

Claim 9 has been further amended to recite “comparing the partial query to an index of known search queries to determine matching known queries, the index being built using previously-submitted queries received at the server, the index including weights for each of the known search queries, the weights being calculated at least in part using frequency counts representative of number of times the query has been submitted to the server.” Claim 15 has been amended to recite “a query reconstruction server operable to: ... determine a full query based on the partial query by comparing the submitted partial query to an index of known search queries to determine matching known queries and determining then full query by selecting at least one of the matching known queries.”

The Final Office Action relies on Gibbs as showing features of comparing a query to an index of known search queries, citing Gibbs paragraphs [0030] and [0040] – [0044]. However, the cited passages of Gibbs fail to show the claim feature. Gibbs recites returning a set of ordered predicted search queries (para. [0039]). The cited passage describes how the predicted queries are *ordered* when presented to the user, rather than how they are selected (para. [0040]). The cited passage further describes operation subsequent to presenting the predicted queries to the user, such as awaiting further user input or providing more predicted queries after a timeout period, or retrieving cached queries or returning predicted results (paras. [0041] – [0044]).

Nowhere does Gibbs or Kamvar taken alone or in combination, disclose or suggest determining a full query by comparing a submitted partial query to an index of known search queries, as recited by claim 15. Similarly, neither Gibbs nor Kamvar or their combination disclose or suggest comparing a partial query to an index of known search queries, where the index was built using previously submitted queries received at the server, where the index includes weights to the known search queries, the weights being calculated using frequency counts as recited in claim 9. Accordingly, since these features are not shown, described or suggested in the cited references, claims 1, 9 and 15 are submitted to be allowable over the prior art of record.

Application no. 11/502,202
Amendment dated: October 8, 2009
Reply to office action dated: June 8, 2009

New claim 21 is submitted to claim additional disclosed but previously unclaimed subject matter. Support for new claim 21 may be found at paragraph [0022] of US patent publication no. 2008/0040323. Consideration and allowance of claim 21 is respectfully requested.

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

Respectfully submitted,

/John G. Rauch/
John G. Rauch
Registration No. 37,218
Attorney for Applicants

October 8, 2009
BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, ILLINOIS 60610
(312) 321-4200

CERTIFICATE OF EFS FILING UNDER 37 CFR §1.8

I hereby certify that this correspondence is being electronically transmitted to the United States Patent and Trademark Office, Commissioner for Patents, via the EFS pursuant to 37 CFR §1.8 on the below date:

Date: October 8, 2009 Name: John G. Rauch Signature: /John G. Rauch/

**BRINKS
HOFFER
GILSON
& LIONE**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: **Deepa Joshi**

Appln. No.: **11/502,202**

Filed: **August 10, 2006**

For: **METHOD AND APPARATUS FOR
RECONSTRUCTING A SEARCH QUERY**

Attorney Docket No.: **Y01651US01 (12729/180)**

Examiner: **Thai, Hanh B.**

Art Unit: **2163**

Conf. No.: **7444**

TRANSMITTAL

Mail Stop RCE
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

Attached is/are:

- ☒ Request for Continued Examination (37 C.F.R. § 1.114); Petition and Fee for Extension of Time (37 C.F.R. § 1.136(a)); Amendment.

Fee calculation:

- ☐ No additional fee is required.
- ☐ Small Entity.
- ☒ An extension fee in an amount of **\$130** for a one-month extension of time under 37 CFR § 1.136(a).
- ☒ A petition or processing fee in an amount of **\$810** under 37 CFR § 1.17(e).
- ☐ An additional filing fee has been calculated as shown below:

					Small Entity			Not a Small Entity	
	Claims Remaining After Amendment		Highest No. Previously Paid For	Present Extra	Rate	Add'l Fee	OR	Rate	Add'l Fee
Total		Minus			x \$26=			x \$52=	
Indep.		Minus			x 110=			x \$220=	
First Presentation of Multiple Dep. Claim					+\$195=			+ \$390=	
					Total	\$		Total	\$

Fee payment:

- ☒ Please charge Deposit Account No. 23-1925 in the amount of **\$940** for the RCE and extension fees.
- ☐ Payment by credit card in the amount of \$_____ (Form PTO-2038 is attached).
- ☒ The Director is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this paper (including any extension fee required to ensure that this paper is timely filed), or to credit any overpayment, to Deposit Account No. 23-1925.

Respectfully submitted,

October 8, 2009
Date

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

Electronic Patent Application Fee Transmittal				
Application Number:		11502202		
Filing Date:		10-Aug-2006		
Title of Invention:		Method and apparatus for reconstructing a search query		
First Named Inventor/Applicant Name:		Deepa Joshi		
Filer:		John G. Rauch/Brenda Skinner		
Attorney Docket Number:		12729/180		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 1 month with \$0 paid	1251	1	130	130

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Request for continued examination	1801	1	810	810
Total in USD (\$)				940

Notice of References Cited	Application/Control No. 11/502,202	Applicant(s)/Patent Under Reexamination JOSHI, DEEPA	
	Examiner HANH B. THAI	Art Unit 2163	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,112,172	08-2000	True et al.	704/235
*	B	US-2003/0084027	05-2003	Brandin et al.	707/3
*	C	US-2004/0254928	12-2004	Vronay et al.	707/005
*	D	US-2006/0206454	09-2006	Forstall et al.	707/003
*	E	US-2007/0050351	03-2007	Kasperski et al.	707/004
*	F	US-2007/0061317	03-2007	Ramer et al.	707/004
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
 United States Patent and Trademark Office
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 P.O. Box 1450
 Alexandria, Virginia 22313-1450
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BIB DATA SHEET

CONFIRMATION NO. 7444

SERIAL NUMBER 11/502,202	FILING or 371(c) DATE 08/10/2006 RULE	CLASS 707	GROUP ART UNIT 2163	ATTORNEY DOCKET NO. 12729/180		
APPLICANTS Deepa Joshi, Santa Clara, CA; ** CONTINUING DATA ***** ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 08/25/2006						
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and /HANH B THAI/ Acknowledged Examiner's Signature		☐ Met after Allowance Initials	STATE OR COUNTRY CA	SHEETS DRAWINGS 7	TOTAL CLAIMS 20	INDEPENDENT CLAIMS 3
ADDRESS BRINKS HOFER GILSON & LIONE / YAHOO! OVERTURE P.O. BOX 10395 CHICAGO, IL 60610 UNITED STATES						
TITLE Method and apparatus for reconstructing a search query						
FILING FEE RECEIVED 1000	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit			

<i>Index of Claims</i> 	Application/Control No. 11502202	Applicant(s)/Patent Under Reexamination JOSHI, DEEPA
	Examiner HANH B THAI	Art Unit 2163

✓	Rejected
=	Allowed

-	Cancelled
÷	Restricted

N	Non-Elected
I	Interference

A	Appeal
O	Objected

☐ Claims renumbered in the same order as presented by applicant
 ☐ CPA
 ☐ T.D.
 ☐ R.1.47

CLAIM		DATE								
Final	Original	06/09/2008	12/08/2008	05/28/2009	12/18/2009					
1	1	✓	✓	✓	=					
2	2	✓	✓	✓	=					
3	3	✓	✓	✓	=					
4	4	✓	✓	✓	=					
5	5	✓	✓	✓	=					
6	6	✓	✓	✓	=					
7	7	✓	✓	✓	=					
8	8	✓	✓	✓	=					
9	9	✓	✓	✓	=					
	10	✓	✓	-	-					
	11	✓	✓	-	-					
10	12	✓	✓	✓	=					
11	13	✓	✓	✓	=					
12	14	✓	✓	✓	=					
13	15	✓	✓	✓	=					
14	16	✓	✓	✓	=					
15	17	✓	✓	✓	=					
16	18	✓	✓	✓	=					
17	19	✓	✓	✓	=					
18	20	✓	✓	✓	=					
					-					

Issue Classification 	Application/Control No. 11502202	Applicant(s)/Patent Under Reexamination JOSHI, DEEPA
	Examiner HANH B THAI	Art Unit 2163

ORIGINAL						INTERNATIONAL CLASSIFICATION												
CLASS		SUBCLASS				CLAIMED					NON-CLAIMED							
707		706				G	0	6	F	17 / 30 (2006.01.01)								
CROSS REFERENCE(S)																		
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)																	
707	715	721	722															

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	15	17												
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/HANH B THAI/ Examiner, Art Unit 2163 (Assistant Examiner)	12/18/09 (Date)	Total Claims Allowed: 18	
/don wong/ Supervisory Patent Examiner, Art Unit 2163 (Primary Examiner)	12/18/09 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 2



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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NOTICE OF ALLOWANCE AND FEE(S) DUE

56020 7590 12/24/2009

BRINKS HOFER GILSON & LIONE / YAHOO! OVERTURE
P.O. BOX 10395
CHICAGO, IL 60610

EXAMINER

THAI, HANH B

ART UNIT

PAPER NUMBER

2163

DATE MAILED: 12/24/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/502,202	08/10/2006	Deepa Joshi	12729/180	7444

TITLE OF INVENTION: METHOD AND APPARATUS FOR RECONSTRUCTING A SEARCH QUERY

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	03/24/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

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Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/502,202	08/10/2006	Deepa Joshi	12729/180	7444

TITLE OF INVENTION: METHOD AND APPARATUS FOR RECONSTRUCTING A SEARCH QUERY

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	03/24/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
THAI, HANH B	2163	707-003000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (**Please first reapply any previously paid issue fee shown above**)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/502,202	08/10/2006	Deepa Joshi	12729/180	7444
56020	7590	12/24/2009	EXAMINER	
BRINKS HOFER GILSON & LIONE / YAHOO! OVERTURE			THAI, HANH B	
P.O. BOX 10395			ART UNIT	PAPER NUMBER
CHICAGO, IL 60610			2163	
DATE MAILED: 12/24/2009				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 192 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 192 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	11/502,202	JOSHI, DEEPA	
	Examiner	Art Unit	
	HANH B. THAI	2163	

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

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment 10/8/09.

2. ☒ The allowed claim(s) is/are 1-9 and 12-20 and renumbered as 1-18.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892) 2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____ 4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material	5. ☐ Notice of Informal Patent Application 6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ 7. ☒ Examiner's Amendment/Comment 8. ☒ Examiner's Statement of Reasons for Allowance 9. ☐ Other _____.
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/Hanh B Thai/ Examiner, Art Unit 2163	/don wong/ Supervisory Patent Examiner, Art Unit 2163
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DETAILED ACTION

1. This is in response to Amendment and RCE filed on October 8, 2009. Independent claims 1, 9 and 15 are amended. Claims 10-11 are cancelled. Claim 21 is newly added. Claims 1-9 and 12-21 are pending in this application.

Response to Arguments

2. Applicant's arguments regarding "the submitted partial query is an abbreviated or incomplete search query selected by the user to represent an intended full query" (response 10/8/09, page 6) of claims 1 and 9 and "comparing the partial query to an index of known search queries" (response 10/8/09, page 7) of claims 9 and 15 have been fully considered and are persuasive. The rejection of the claims has been withdrawn.

EXAMINER'S AMENDMENT

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with John G. Rauch (Reg. No. 37,218) on December 17, 2009.

4. Please amend claims 1, 9, 15, 17 and 19-20 and cancel claim 21 as below:

Claim 1. (Currently amended) A method for providing search results to a user, comprising:

receiving at a server a partial query submitted at a remote user client system by a user seeking search results matching the submitted partial query, the partial query

Art Unit: 2163

comprising an abbreviated or incomplete search query such that the submitted query is not fully representative of an entire search query desired by the user;
at the server, comparing the received partial query to an index built using previously-submitted queries received at the server, the index including weights for each of the previously-submitted queries reflecting the number of times a respective query was submitted;
based on the comparison to the index and the weights, determining at the server a full query ~~based on~~ as the most frequently submitted, previously-submitted query that matches the partial words of the partial query in matching order;
at the server, submitting the full query to a search engine as a request for search results desired by the user;
receiving, at the server, results from the search engine that match the partial query submitted by the user as if the full query had been submitted to the search engine by the user; and
from the server, presenting the results to the user.

Claim 9. (Currently amended) A method for determining a full query based on a partial query, the method comprising:

receiving at a server a partial query submitted at a remote user client system by a user seeking search results matching the submitted partial query, the submitted partial query being an abbreviated or incomplete search query selected by the user to represent an intended full query;
at the server, comparing the partial query to an index of known search queries to determine matching known queries, the index being built using previously-submitted queries received at the server, the index including weights for each of the known search queries, the weights being calculated at least in part using frequency counts representative of number of times the query has been submitted to the server so that a greater weight is determined for a more popular query;

at the server, determining a full query by selecting as the full query at least one of the matching known queries including the matching known query with the largest weight, corresponding to the most frequently submitted, previously-submitted query, based on the frequency counts, that matches words of the partial query in matching order.

Claim 15. (Currently amended) A system for providing search results to a user, comprising:

a query reconstruction server ~~operable~~ to:

receive at the query reconstruction server a partial query submitted at a remote user client system by a user seeking search results matching the submitted partial query;

without further interaction with the user, determine a full query based on the partial query by comparing the submitted partial query to an index of known search queries, respective entries in the index reflecting frequency of submission of the respective known, previously submitted search queries, to determine matching known queries and by determining the full query by selecting at least one of the matching known queries query which is the most frequently-submitted, previously submitted query that matches partial words of the partial query in matching order; and

submit the full query to a search engine; and

a web server ~~operable~~ to receive results matching the submitted partial query from the search engine and present the results to the user.

Claim 17. (Currently amended) The system of claim 15, further comprising:

a query data management server ~~operable~~ to:

retrieve historical query data including information relating to a plurality of previously submitted search queries;

build [[an]] the index of known search queries based on the historical query data;
and
provide the index to the query reconstruction server.

Claim 19. (Currently amended) The system of claim 15, where the query reconstruction server ~~is further operable to determine~~ determines alternative queries based on the partial query, and where the web server ~~is further operable to present~~ presents the alternative queries to the user as hyperlinks and where the selection of the alternative query hyperlink causes the alternative query to be submitted to the search engine.

Claim 20. (Currently amended) The system of claim 15, where the web server ~~is further operable to present~~ presents the partial query to the user as a hyperlink and where selection of the partial query hyperlink causes the partial query to be submitted to the search engine.

Claim 21. (Cancelled)

Allowable Subject Matter

5. Claims 1-9 and 12-20 are allowed over the prior art of record.
6. The following is an examiner's statement of reasons for allowance:
7. Regarding independent claims 1, 9 and 15, the prior art fails to disclose or suggest the claimed provision "determine a full query based on the partial query by comparing the submitted partial query to an index of known search queries" as claimed in conjunction with remaining claims provisions.
8. The dependent claims, being further limiting to the independent claims, definite and enabled by the Specification are also allowed.

Comments

9. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Other Prior Art Made of Record

10. 1. True et al. (US 6,112,172) disclose interactive searching.
2. Brandin et al. (US 2003/0084027 A1) disclose control method for an extensible markup language file.
3. Vronay et al. (US 2004/0254928 A1) disclose database query user interface.
4. Forstall et al. (US 2006/0206454 A1) disclose immediate search feedback.
5. Kasperski et al. (US 2007/0050351 A1) disclose alternative search query prediction.
6. Ramer et al. (US 2007/0061317 A1) disclose mobile search substring query completion.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to Applicant’s disclosure.

Point of Contact

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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HANH B. THAI whose telephone number is (571)272-4029. The examiner can normally be reached on Mon-Thur (7:00AM - 4:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571-272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hanh B Thai
Examiner
Art Unit 2163

December 18, 2009

/don wong/

Supervisory Patent Examiner, Art Unit 2163

Search Notes 	Application/Control No. 11502202	Applicant(s)/Patent Under Reexamination JOSHI, DEEPA
	Examiner HANH B THAI	Art Unit 2163

SEARCHED			
Class	Subclass	Date	Examiner
707	3-6; 104.1	12/17/09	Ht

SEARCH NOTES		
Search Notes	Date	Examiner
East search (updated text search and class search)	12/17/09	Ht
NPL search: Google search; ACM search and IEEE search	12/18/09	Ht

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
707	3-6; 104.1	12/17/09	Ht

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EAST Search History**EAST Search History (Prior Art)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	284	(search\$3 with result\$1) and (partial\$2 near5 (query search\$3)) and (query with (compar\$6 match\$3) with (partial\$2 near5 (word\$1 query search\$3)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/17 15:55
L2	105	(search\$3 with result\$1) and (partial\$2 near5 (query search\$3)) and (query with (compar\$6 match\$3) with (partial\$2 near5 (word\$1 query search\$3))) and ((partial\$2 abbreviated incomplete shorthand short\$form) near (query search\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/17 16:00
L3	2	(search\$3 with result\$1) and (partial\$2 near5 (query search\$3)) and ((full\$1 near query) with (compar\$6 match\$3) with (partial\$2 near5 (word\$1 query search\$3))) and ((partial\$2 abbreviated incomplete shorthand short\$form) near (query search\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/17 16:14
L4	2	(search\$3 with result\$1) and ((full\$1 near query) with (compar\$6 match\$3) with (partial\$2 near5 (word\$1 query search\$3))) and ((partial\$2 abbreviated incomplete shorthand short\$form) near (query search\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/17 16:15

L5	2	(search\$3 with result\$1) and ((full\$1 near query) with (compar\$6 match\$3) with (partial\$2 near5 (word\$1 query search \$3))) and ((partial\$2 abbreviated incomplete shorthand short\$form) near7 (query search\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/17 16:15
L6	2	(search\$3 with result\$1) and ((full\$1 near query) with (compar\$6 match\$3) with (partial\$2 near5 (word\$1 query search \$3)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/17 16:15
L7	2	((full\$1 near query) with (compar\$6 match\$3) with (partial\$2 near5 (word\$1 query search\$3)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/17 16:16
L8	3	((full\$1 near query) with (determin\$4 compar\$6 match\$3) with (partial\$2 near5 (word\$1 query search\$3)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/17 16:19
L9	67	((full\$1 near query) same (partial\$2 near5 (word\$1 query search\$3)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/17 16:28
L12	57	"707"/\$.ccls. and ((full\$1 near query) same (partial\$2 near5 (word\$1 query search\$3)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/17 16:28
L13	52	"707"/\$.ccls. and ((full\$1 near query) same (partial\$2 near5 (word\$1 query search\$3))) and ((search\$3 query) with result\$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/17 16:29
L14	36	"707"/\$.ccls. and ((full\$1 near query) same (partial\$2 near5 (word\$1 query search\$3))) and ((search\$3 query) with result\$1) and @ad<"20060810"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/17 16:39

EAST Search History (I nterference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
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L10	18	((full\$1 near query) same (partial\$2 near5 (word\$1 query search\$3)))	USPAT; UPAD	OR	ON	2009/12/17 16:28
L11	16	"707"/\$.cls. and ((full\$1 near query) same (partial\$2 near5 (word\$1 query search\$3)))	USPAT; UPAD	OR	ON	2009/12/17 16:28

12/ 17/ 09 6:22:40 PM**C:\ Documents and Settings\ HThai\ My Documents\ EAST\ workspaces\ 11502202.wsp**

EAST Search History**EAST Search History (Prior Art)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S32	284	(search\$3 with result\$1) and (partial\$2 near5 (query search\$3)) and (query with (compar\$6 match\$3) with (partial\$2 near5 (word\$1 query search\$3)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/17 15:55
S33	105	(search\$3 with result\$1) and (partial\$2 near5 (query search\$3)) and (query with (compar\$6 match\$3) with (partial\$2 near5 (word\$1 query search\$3))) and ((partial\$2 abbreviated incomplete shorthand short\$form) near (query search\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/17 16:00
S34	2	(search\$3 with result\$1) and (partial\$2 near5 (query search\$3)) and ((full\$1 near query) with (compar\$6 match\$3) with (partial\$2 near5 (word\$1 query search\$3))) and ((partial\$2 abbreviated incomplete shorthand short\$form) near (query search\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/17 16:14
S35	2	(search\$3 with result\$1) and ((full\$1 near query) with (compar\$6 match\$3) with (partial\$2 near5 (word\$1 query search\$3))) and ((partial\$2 abbreviated incomplete shorthand short\$form) near (query search\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/17 16:15

S36	2	(search\$3 with result\$1) and ((full\$1 near query) with (compar\$6 match\$3) with (partial\$2 near5 (word\$1 query search\$3))) and ((partial\$2 abbreviated incomplete shorthand short\$form) near7 (query search\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/17 16:15
S37	2	(search\$3 with result\$1) and ((full\$1 near query) with (compar\$6 match\$3) with (partial\$2 near5 (word\$1 query search\$3)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/17 16:15
S38	2	((full\$1 near query) with (compar\$6 match\$3) with (partial\$2 near5 (word\$1 query search\$3)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/17 16:16
S39	3	((full\$1 near query) with (determin\$4 compar\$6 match\$3) with (partial\$2 near5 (word\$1 query search\$3)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/17 16:19
S40	67	((full\$1 near query) same (partial\$2 near5 (word\$1 query search\$3)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/17 16:28
S41	57	"707"/\$.ccls. and ((full\$1 near query) same (partial\$2 near5 (word\$1 query search\$3)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/17 16:28
S42	52	"707"/\$.ccls. and ((full\$1 near query) same (partial\$2 near5 (word\$1 query search\$3))) and ((search\$3 query) with result\$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/17 16:29
S43	36	"707"/\$.ccls. and ((full\$1 near query) same (partial\$2 near5 (word\$1 query search\$3))) and ((search\$3 query) with result\$1) and @ad<"20060810"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/17 16:39
S46	36	"707"/\$.ccls. and ((full\$1 near query) same (partial\$2 near5 (query search\$3))) and ((search\$3 query) with result\$1) and @ad<"20060810"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/18 10:02

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S44	18	((full\$1 near query) same (partial\$2 near5 (word\$1 query search\$3)))	USPAT; UPAD	OR	ON	2009/12/17 16:28
S45	16	"707"/\$.cls. and ((full\$1 near query) same (partial\$2 near5 (word\$1 query search\$3)))	USPAT; UPAD	OR	ON	2009/12/17 16:28

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G Salton, C Buckley - Readings in information retrieval, 1997 - books.google.com

... Alternatively, a **full query** expansion can be used where all terms contained in the relevant previously retrieved items are added to formulate the new feedback query, as suggested in the previously given feedback equations. Finally, several **partial query** expansion methods ...

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V Raman, JM Hellerstein - Proceedings of the 2002 ACM SIGMOD ..., 2002 - portal.acm.org

... 3. SEMANTICS OF PARTIAL RESULTS An unusual aspect of our system is that the client must handle **partial query** results. This introduces some complexities in the handling of query results that do not arise in traditional DBMSs. ...

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IK Sethi, I Coman - Pattern Recognition Letters, 1999 - Elsevier

... In the similarity search mode, a user accesses images via a query image. In this mode, both full and **partial query** modes are possible. In **full query** mode, the color composition of the **full query** image is used in the similarity search process. ...

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... to their users/clients is the conventional database one; the user/client issues queries and the mediator server responds with the **full query** answer. ... It provides the XMAS query algebra and shows how it is used for enabling **partial query** evaluation - much in the way that iterator ...

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... A **partial query** corresponds to a request from the system to provide all valid ways in which a client can refine his query. ... Partial queries support the notion of an assisted browse. An illustration can be found in Figure 7 where a **partial query** was performed on the Page 6. ...

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... Query definitions database Query result schema base base schema schema Full/**Partial query Full query** Query A2: Classification A3: Extraction B2: Classification B3: Query/Query result A B User Interface Query definitions hierarchy Query results hierarchy Schema/Data ...

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... **Partial Query Match** Given a user-supplied query Q and error "0, we seek a partial approximate match in the time-series database. Although there may not be a match for the **full query** Q in the sequence database, we would like to identify the subsequences which match a ...

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Page 1. Relational Queries Over Program Traces Simon Goldsmith † University of California, Berkeley sfg@eecs.berkeley.edu Robert O'Callahan ‡ Novell rocallahan@novell.com Alex Aiken Stanford University aiken@cs.stanford.edu ...

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... Regions are homogeneous with respect to this color variability primitive. This technique has been successfully applied to implement the **partial query** by example paradigm in the Ikona system [13]. ... We can now express a **full query** as a boolean expression using ...

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↑ ABSTRACT

Traditional query processors generate full, accurate query results, either in batch or in pipelined fashion. We argue that this strict model is too rigid for exploratory queries over diverse and distributed data sources, such as sources on the Internet. Instead, we propose a looser model of querying in which a user submits a broad initial query outline, and the system continually generates *partial* result tuples that may contain values for only some of the output fields. The user can watch these partial results accumulate at the user interface, and accordingly refine the query by specifying their interest in different kinds of partial results. After describing our querying model and user interface, we present a query processing architecture for this model which is implemented in the Telegraph dataflow system. Our architecture is designed to generate partial results quickly, and to adapt query execution to changing user interests. The crux of this architecture is a dataflow operator that supports two kinds of reorderings: reordering of intermediate tuples within a dataflow, and reordering of query plan operators through which tuples flow. We study reordering policies that optimize for the quality of partial results delivered over time, and experimentally demonstrate the benefits of our architecture in this context.

↑ REFERENCES

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- 1 [Gennady Antoshenkov , Mohamed Ziauddin, Query processing and optimization in Oracle Rdb, The VLDB Journal — The International Journal on Very Large Data Bases, v.5 n.4, p.229-237, December 1996. \[doi> 10.1007/s007780050026\]](#)
- 2  [Ron Avnur , Joseph M. Hellerstein, Eddies: continuously adaptive query processing, Proceedings of the 2000 ACM SIGMOD international conference on Management of data, p.261-272, May 15-18, 2000, Dallas, Texas, United States](#)
- 3 [M. Bates. User Interface Design, chapter The Berry-Picking Search. Addison-Wesley, 1990.](#)
- 4 [Philippe Bonnet , Anthony Tomasic, Partial Answers for Unavailable Data Sources, Proceedings of the Third International Conference on Flexible Query Answering Systems, p.43-54, May 13-15, 1998](#)
- 5 [L. Bouganim et al. Dynamic query scheduling in data integration systems. In ICDE, 2000.](#)
- 6  [Jianjun Chen , David J. DeWitt , Feng Tian , Yuan Wang, NiagaraCO: a scalable continuous query system for Internet databases, Proceedings of the 2000 ACM SIGMOD international conference on Management of data, p.379-390, May 15-18, 2000, Dallas, Texas, United States](#)
- 7 [T. Gaasterland et al. Relaxation as a platform for cooperative answering. J. Intel. Info. Sys., 1\(3/4\), 1992.](#)
- 8 [Minos N. Garofalakis , Phillip B. Gibbon, Approximate Query Processing: Taming the TeraBytes, Proceedings of the 27th International Conference on Very Large Data Bases, p.725, September 11-14, 2001](#)
- 9  [Roy Goldman , Jennifer Widom, WSQ/DSQ: a practical approach for combined querying of databases and the Web, Proceedings of the 2000 ACM SIGMOD international conference on Management of data, p.285-296, May 15-18, 2000, Dallas, Texas, United States](#)
- 10 [Jim Gray , Adam Bosworth , Andrew Layman , Hamid Pirahesh, Data Cube: A Relational Aggregation Operator Generalizing Group-By, Cross-Tab, and Sub-Total, Proceedings of the Twelfth International Conference on Data Engineering, p.152-159, February 26-March 01, 1996](#)
- 11 [Laura M. Haas , Donald Kossmann , Edward L. Wimmers , Jun Yang, Optimizing Queries Across Diverse Data Sources, Proceedings of the 23rd International Conference on Very Large Data Bases, p.276-285, August 25-29, 1997](#)
- 12  [Peter J. Haas , Joseph M. Hellerstein, Online query processing: a tutorial, Proceedings of the 2001 ACM SIGMOD international conference on Management of data, p.623, May 21-24, 2001, Santa Barbara, California, United States](#)
- 13  [Joseph M. Hellerstein , Peter J. Haas , Helen J. Wang, Online aggregation, Proceedings of the 1997 ACM SIGMOD international conference on Management of data, p.171-182, May 11-15, 1997, Tucson, Arizona, United States](#)
- 14  [Zachary G. Ives , Daniela Florescu , Marc Friedman , Alon Levy , Daniel S. Weld, An adaptive query execution system for data integration, Proceedings of the 1999 ACM SIGMOD international conference on Management of data, p.299-310, May 31-June 03, 1999, Philadelphia, Pennsylvania, United States](#)
- 15  [Navin Kabra , David J. DeWitt, Efficient mid-query re-optimization of sub-optimal query execution plans, Proceedings of the 1998 ACM SIGMOD international conference on Management of data, p.106-117, June 01-04, 1998, Seattle, Washington, United States](#)

- 16 BrightPlanet LexiBot. www.brightplanet.com.
-  17 Katherine A. Morris, An algorithm for ordering subgoals in NAIL?, Proceedings of the seventh ACM SIGACT-SIGMOD-SIGART symposium on Principles of database systems, p.82-88, March 1988, Austin, Texas, United States. [doi>10.1145/308386.308419]
- 18 A. Motro. Cooperative database systems. Intl. J.nal Intel. Sys., 11(10), 1996.
- 19 J. F. Naughton et al. The Niagara Internet query system. IEEE Data Engg. Bull., 24(2), 2001.
-  20 Vicki L. O'Day, Robin Jeffries, Orienteering in an information landscape: how information seekers get from here to there. Proceedings of the SIGCHI conference on Human factors in computing systems, p.438-445, April 24-29, 1993, Amsterdam, The Netherlands [doi>10.1145/169059.169365]
- 21 Sriram Raghavan, Hector Garcia-Molina, Crawling the Hidden Web. Proceedings of the 27th International Conference on Very Large Data Bases, p.129-138, September 11-14, 2001.
- 22 Vijayshankar Raman, Joseph M. Hellerstein, Interactive query processing, 2001.
- 23 Vijayshankar Raman, Bhaskaran Raman, Joseph M. Hellerstein, Online dynamic reordering. The VLDB Journal — The International Journal on Very Large Data Bases, v.9 n.3, p.247-260, December 2000. [doi>10.1007/s007780000032]
- 24 Kian-Lee Tan, Cheng Hian Goh, Beng Chin Ooi, Online Feedback for Nested Aggregate Queries with Multi-Threading. Proceedings of the 25th International Conference on Very Large Data Bases, p.18-29, September 07-10, 1999.
- 25 The Telegraph project, telegraph.cs.berkeley.edu.
- 26 Toiga Urhan, Michael J. Franklin, Dynamic Pipeline Scheduling for Improving Interactive Query Performance. Proceedings of the 27th International Conference on Very Large Data Bases, p.501-510, September 11-14, 2001.
-  27 Toiga Urhan, Michael J. Franklin, Laurent Amsaleg, Cost-based query scrambling for initial delays. Proceedings of the 1998 ACM SIGMOD international conference on Management of data, p.130-141, June 01-04, 1998, Seattle, Washington, United States.
- 28 Guogen Zhang, Wesley W. Chu, Frank Meng, Gladys Kong, Query Formulation from High-Level Concepts for Relational Databases. Proceedings of the 1999 User Interfaces to Data Intensive Systems, p.64, September 05-06, 1999.

↑ CITED BY 12

Laks V. S. Lakshmanan, Carson Kai-Sang Leung, Raymond T. Ng, Efficient dynamic mining of constrained frequent sets. ACM Transactions on Database Systems (TODS), v.28 n.4, p.337-389, December 2003.

Brian Babcock, Surajit Chaudhuri, Gautam Das, Dynamic sample selection for approximate query processing. Proceedings of the 2003 ACM SIGMOD international conference on Management of data, June 09-12, 2003, San Diego, California.

Mike Wawrzoniak, Larry Peterson, Timothy Roscoe, Sophia: an Information Plane for networked systems. ACM SIGCOMM Computer Communication Review, v.34 n.1, January 2004.

Anastasios Gounaris, Norman W. Paton, Alvaro A. A. Fernandes, Rizos Sakellariou, Self-monitoring query execution for adaptive query processing. Data & Knowledge Engineering, v.51.

[n.3, p.325-348, December 2004.](#)

[Magdalena Balazinska, Hari Balakrishnan, Samuel Madden, Michael Stonebraker, Fault-tolerance in the Borealis distributed stream processing system, Proceedings of the 2005 ACM SIGMOD international conference on Management of data, June 14-16, 2005, Baltimore, Maryland](#)

[David T. Liu, Michael J. Franklin, GridDB: a data-centric overlay for scientific grids, Proceedings of the Thirtieth international conference on Very large data bases, p.600-611, August 31-September 03, 2004, Toronto, Canada](#)

[Amol Deshpande, Joseph M. Hellerstein, Lifting the burden of history from adaptive query processing, Proceedings of the Thirtieth international conference on Very large data bases, p.948-959, August 31-September 03, 2004, Toronto, Canada](#)

[Amol Deshpande, Zachary Ives, Vijayshankar Raman, Adaptive query processing, Foundations and Trends in Databases, v.1 n.1, p.1-140, January 2007](#)

[Greg Barish, Craig A. Knoblock, Speculative plan execution for information gathering, Artificial Intelligence, v.172 n.4-5, p.413-453, March, 2008](#)

[Magdalena Balazinska, Hari Balakrishnan, Samuel R. Madden, Michael Stonebraker, Fault-tolerance in the borealis distributed stream processing system, ACM Transactions on Database Systems \(TODS\), v.33 n.1, p.1-44, March 2008](#)

[Christophe Bobineau, Christine Collet, Tuyet-Trinh Vu, A strategy to develop adaptive and interactive query brokers, Proceedings of the 2008 international symposium on Database engineering & applications, September 10-12, 2008, Coimbra, Portugal](#)

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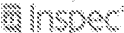
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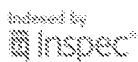
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Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

John G. Rauch	(Depositor's name)
/John G. Rauch/	(Signature)
March 22, 2010	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/502,202	08/10/2006	Deepa Joshi	12729/180	7444

TITLE OF INVENTION: METHOD AND APPARATUS FOR RECONSTRUCTING A SEARCH QUERY

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	03/24/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
THAI, HANH B	2163	707-003000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
 (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
 (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

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3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

YAHOO! INC.

(B) RESIDENCE: (CITY AND STATE OR COUNTRY)

Sunnyvale, CA

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

☒ Issue Fee
☒ Publication Fee (No small entity discount permitted)
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☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 23-1925 (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature /John G. Rauch/

Date March 22, 2010

Typed or printed name John G. Rauch

Registration No. 37,218

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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Electronic Acknowledgement Receipt	
EFS ID:	7252408
Application Number:	11502202
International Application Number:	
Confirmation Number:	7444
Title of Invention:	METHOD AND APPARATUS FOR RECONSTRUCTING A SEARCH QUERY
First Named Inventor/Applicant Name:	Deepa Joshi
Customer Number:	56020
Filer:	John G. Rauch/Magdalena Pieczonka
Filer Authorized By:	John G. Rauch
Attorney Docket Number:	12729/180
Receipt Date:	22-MAR-2010
Filing Date:	10-AUG-2006
Time Stamp:	11:47:59
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$1810
RAM confirmation Number	8075
Deposit Account	231925
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)					
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Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)					
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	12729180TRANSMITTAL032210.pdf	44670	no	1
			a963f6622be1e4fd8ae525d522d97bb156ad6ba3		
Warnings:					
Information:					
2	Issue Fee Payment (PTO-85B)	12729180FEESTRANSMITTAL.pdf	91398	no	1
			c4157554eadc29a31d4ede335a54e043554c6503a		
Warnings:					
Information:					
3	Fee Worksheet (PTO-875)	fee-info.pdf	32297	no	2
			4debc5cb49c4be70f309fadebbd04d80b7003269		
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Total Files Size (in bytes):			168365		
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CERTIFICATE OF EFS FILING UNDER 37 CFR §1.8 I hereby certify that this correspondence is being electronically transmitted to the United States Patent and Trademark Office, Commissioner for Patents, via the EFS pursuant to 37 CFR §1.8 on the below date:		
Date: <u>March 22, 2010</u>	Name: <u>John G. Rauch</u>	Signature: <u>/John G. Rauch/</u>

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: Deepa Joshi	Examiner: Thai, Hanh B.
Appln. No.: 11/502,202	Art Unit: 2163
Filed: August 10, 2006	Conf. No.: 7444
For: METHOD AND APPARATUS FOR RECONSTRUCTING A SEARCH QUERY	
Attorney Docket No.: Y01651US01 (12729/180)	

TRANSMITTAL

Mail Stop Issue Fee
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

Attached is/are:

☒ Fee(s) Transmittal, authorizing use of deposit account for issue and publication fees.

Fee calculation:

- ☐ No additional fee is required.
- ☐ Small Entity.
- ☐ An extension fee in an amount of \$_____ for a _____ month extension of time under 37 CFR § 1.136(a).
- ☐ A petition or processing fee in an amount of \$_____ under 37 CFR § 1.17(____) .
- ☐ An additional filing fee has been calculated as shown below:

					Small Entity			Not a Small Entity	
	Claims Remaining After Amendment		Highest No. Previously Paid For	Present Extra	Rate	Add'l Fee	OR	Rate	Add'l Fee
Total		Minus			x \$26=			x \$52=	
Indep.		Minus			x \$110=			x \$220=	
First Presentation of Multiple Dep. Claim					+\$195=			+\$390=	
					Total	\$		Total	\$

Fee payment:

- ☒ Please charge Deposit Account No. 23-1925 in the amount of **\$1810** for the issue and publication fees.
- ☐ Payment by credit card in the amount of \$_____ (Form PTO-2038 is attached).
- ☒ The Director is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this paper (including any extension fee required to ensure that this paper is timely filed), or to credit any overpayment, to Deposit Account No. 23-1925.

Respectfully submitted,

March 22, 2010
Date

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

Electronic Patent Application Fee Transmittal				
Application Number:		11502202		
Filing Date:		10-Aug-2006		
Title of Invention:		METHOD AND APPARATUS FOR RECONSTRUCTING A SEARCH QUERY		
First Named Inventor/Applicant Name:		Deepa Joshi		
Filer:		John G. Rauch/Brenda Skinner		
Attorney Docket Number:		12729/180		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl issue fee	1501	1	1510	1510
Publ. Fee- early, voluntary, or normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1810



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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/502,202	05/11/2010	7716201	12729/180	7444

56020 7590 04/21/2010
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P.O. BOX 10395
CHICAGO, IL 60610

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 250 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Deepa Joshi, Santa Clara, CA;