



(51) International Patent Classification:

H04N 21/4788 (2011.01) *H04N* 5/445 (2011.01)
H04N 21/482 (2011.01) *G06F* 17/30 (2006.01)

(21) International Application Number:

PCT/US2011/057065

(22) International Filing Date:

20 October 2011 (20.10.2011)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/425,795 22 December 2010 (22.12.2010) US

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: REALTIME SEARCH GRID UPDATES

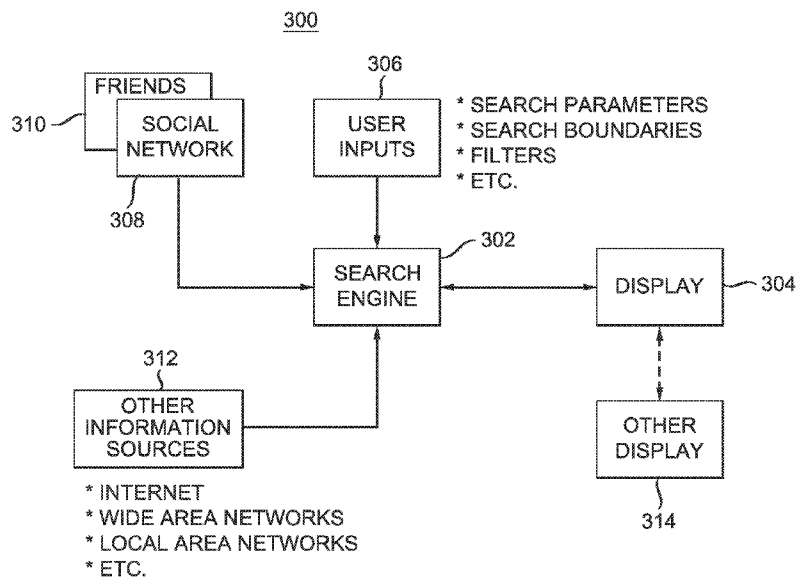


FIG. 3

(57) **Abstract:** A search engine performs searches on displayed information to facilitate in limiting the search results and increasing relevancy. The search engine allows user inputs to influence a search boundary and/or a search result. The search boundaries and/or search results can also be influenced by social networking information and the like. The search results can be dynamically filtered by the search engine as the user enters in their search criteria. The searched information is limited to what is visually seen by a user on a screen/display device. This significantly reduces the displayed results and lets the user instantly see what their search parameters will yield.



Published:

— *with international search report (Art. 21(3))*

REALTIME SEARCH GRID UPDATES

This application claims priority from U.S. Provisional Application No. 61/425,795 filed 22 December 2010.

5

BACKGROUND

[0001] Electronic program guides (EPGs) provide listings of all available channels for a given time. This can be a daunting list when consumers can have hundreds or even thousands of channel choices. Consumers can attempt to use conventional search means to find a program, but it is a very slow and cumbersome process. This is because a typical programming guide searches all programming guide data, returning a significant amount of search results with little relevancy to a user. The user is then forced to search again through the search results to find relevant programs – which is both time consuming and frustrating.

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SUMMARY

[0002] User searches of programming information are accomplished using a mined electronic program guide and then selectively displaying results as the user enters in their search criteria. The searched information is limited to what is visually seen by a user on a screen/display device. This significantly reduces the displayed results and lets the user instantly see what their search parameters will yield. The searching parameters can include title information and/or descriptive information and the like.

[0003] The above presents a simplified summary of the subject matter in order to provide a basic understanding of some aspects of subject matter embodiments. This summary is not an extensive overview of the subject matter. It is not intended to identify key/critical elements of the embodiments or to delineate the scope of the subject matter. Its sole purpose is to present some concepts of the subject matter in a simplified form as a prelude to the more detailed description that is presented later.

[0004] To the accomplishment of the foregoing and related ends, certain illustrative aspects of embodiments are described herein in connection with the following description and the annexed drawings. These aspects are indicative,

30

however, of but a few of the various ways in which the principles of the subject matter can be employed, and the subject matter is intended to include all such aspects and their equivalents. Other advantages and novel features of the subject matter can become apparent from the following detailed description when considered in
5 conjunction with the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] FIG. 1 shows a screen device display illustrating an electronic programming guide.
10 FIG. 2 depicts the resulting screen device display after a search term is typed into a search box.
FIG. 3 is an example system that uses a search engine based on displayed information.
FIG. 4 is an example of a method of providing search results.

15

DETAILED DESCRIPTION

[0006] The subject matter is now described with reference to the drawings, wherein like reference numerals are used to refer to like elements throughout. In the following description, for purposes of explanation, numerous specific details are set
20 forth in order to provide a thorough understanding of the subject matter. It can be evident, however, that subject matter embodiments can be practiced without these specific details. In other instances, well-known structures and devices are shown in block diagram form in order to facilitate describing the embodiments.

[0007] As used in this application, the term “component” is intended to refer
25 to hardware, software, or a combination of hardware and software in execution. For example, a component can be, but is not limited to being, a process running on a processor, a processor, an object, an executable, *and/or* a microchip and the like. By way of illustration, both an application running on a processor and the processor can be a component. One or more components can reside within a process and a
30 component can be localized on one system *and/or* distributed between two or more systems. Functions of the various components shown in the figures can be provided

through the use of dedicated hardware as well as hardware capable of executing software in association with appropriate software.

[0008] Although the following descriptions can refer to a system that utilizes a first screen and a second screen, the principles described can be utilized on single
5 and/or multiple screen systems. The screen devices can include television sets, monitors, hand-held devices such as personal digital assistants (PDA), smart phones, wireless/wired pads, laptops, remotes, etc.

[0009] In one instance, a search of an enhanced electronic programming guide (EPG) is bounded by what is displayed to a user. This allows the user, who may have
10 previously selected display parameters, search only what they are interested in viewing. The user is not distracted by the thousands of other search results that are not of interest. This technique can be utilized in multi-screen systems to assist a user in quickly finding viewing content. A second screen device is often very user specific, and these pre-established user boundaries for viewing can be leveraged to provide a
15 much enhanced search result. By limiting the search to what a user is currently viewing, their personal settings are incorporated into the search results along with any additional settings if available.

[0010] In a similar instance, a search is performed only on what is currently being displayed to a user on a 2nd screen device which is associated with a 1st screen
20 program that is being watched. This significantly limits the search results and also increases the relevancy of the search results. An autocompletion function can be implemented as well. The autocompletion function can be limited to the information currently being viewed by the user. This eliminates irrelevant autocompletion suggestions that are found in most autocomplete systems. In one example, the search
25 is performed on titles, show summary information, actor/cast information, short and/or long descriptions provided by schedules directly and/or mined extended information about the show and the like. Any of this information can be used to autocomplete a search parameter. Social networking information can also be utilized so that friends and the like can also be autocompleted.

[0011] Filters can also be employed based on what friends are viewing, etc.
30 In one example, the information displayed to the user consists of a mined program guide associated with what is being viewed on a 1st screen. This allows a user to

search for information related to the currently viewed program. The search results will have high relevancy to the user as the 2nd screen is displaying information that the user is already interested in viewing. A user can also adjust search boundaries and the like. Thus, a user can search for a predefined interval of time (e.g., by the half
5 hour, by the hour, by the day, by the week, etc.). Other criteria can also be used such as searching by channel and the like and/or sorting by what friends are watching and/or prefer and the like. For example, a user might receive a call from a friend that they've found a great show to watch about Egypt, but the friend can't remember the specific details (e.g., time and/or channel, etc.). The search boundaries can then be limited by
10 that particular friend so that the returned Egypt search results are relevant to Egypt and to that friend.

[0012] In another instance, a programming guide is provided with a category filter. When a user types into the search box, a search can be limited within that category and/or time window. In one example, search filter, friend, and/or boundary
15 buttons, etc. can be placed on the programming guide to allow a user to easily limit, associate, and/or filter a search. A user can also set preferences and/or provide predefined tags for programming and the like. Thus, when a search is performed, autocomplete, etc. can sort by a user's tags and then everything else.

[0013] FIGs. 1 and 2 illustrate an example search using the techniques
20 described above. The figures represent what is shown to a user on a display of a screen device. In this instance, the screen device is displaying an electronic program guide. However, other forms of information can be displayed as well.

[0014] FIG. 1 shows a screen device display 100 showing an electronic programming guide 102. The guide 102 includes times 104 and channel/program
25 information. Category buttons and/or tabs 106 and a social networking button and/or tab 108 are also shown. The search entry box 110 is blank at this point. If the user so desired, they can select the buttons and/or tabs of the categories and/or social networking/friends and the like to further filter the displayed information before searching.

30 **[0015]** FIG. 2 depicts the resulting screen device display 200 after "mia" 204 is typed into the search box 202. The electronic program guide information 206 has been reduced from the information 102 shown in FIG. 1 to the display 200 shown in

FIG. 2 in real-time. The resulting “mia” search results come from what was displayed in FIG. 1 as the user enters “m” and “i” and “a” (the user sees the results reduced with each keystroke). If the user so desired, they can select the buttons and/or tabs of the categories and/or social networking/friends and the like to further filter the displayed search results.

[0016] FIG. 3 is an example system 300 that uses a search engine 302 based on information from a display 304. The search engine 302 determines what information is displayed on the display 304 and limits or bounds its search to this information. User inputs 306 can be accepted by the search engine 302 to assist in further bounding the search and/or in filtering the search results and the like. Thus, the user inputs 306 can be, but are not limited to, search parameters/entries, search boundaries information (e.g., by time, by director, based on a particular friend, etc.) and/or filter information (e.g., by time, by director, based on a particular friend, etc.) and the like. The search engine 302 can also utilize information from social networks 308 that can contain information about a user’s friends 310 and the like. This helps to limit the search and/or search results to facilitate in providing the most relevant search results. The search engine 302 can also utilize other information sources 312 as well. These other information sources 312 can include, but are not limited to, Internet sources, wide area network (WAN) sources, and/or local area network (LAN) sources and the like. In some instances, the information displayed on the display 304 can be directly associated with another display 314. This information can also be incorporated into the search engine 302 processes as well.

[0017] In view of the exemplary systems shown and described above, methodologies that can be implemented in accordance with the embodiments will be better appreciated with reference to the flow chart of FIG. 3. While, for purposes of simplicity of explanation, the methodologies are shown and described as a series of blocks, it is to be understood and appreciated that the embodiments are not limited by the order of the blocks, as some blocks can, in accordance with an embodiment, occur in different orders *and/or* concurrently with other blocks from that shown and described herein. Moreover, not all illustrated blocks may be required to implement the methodologies in accordance with the embodiments.

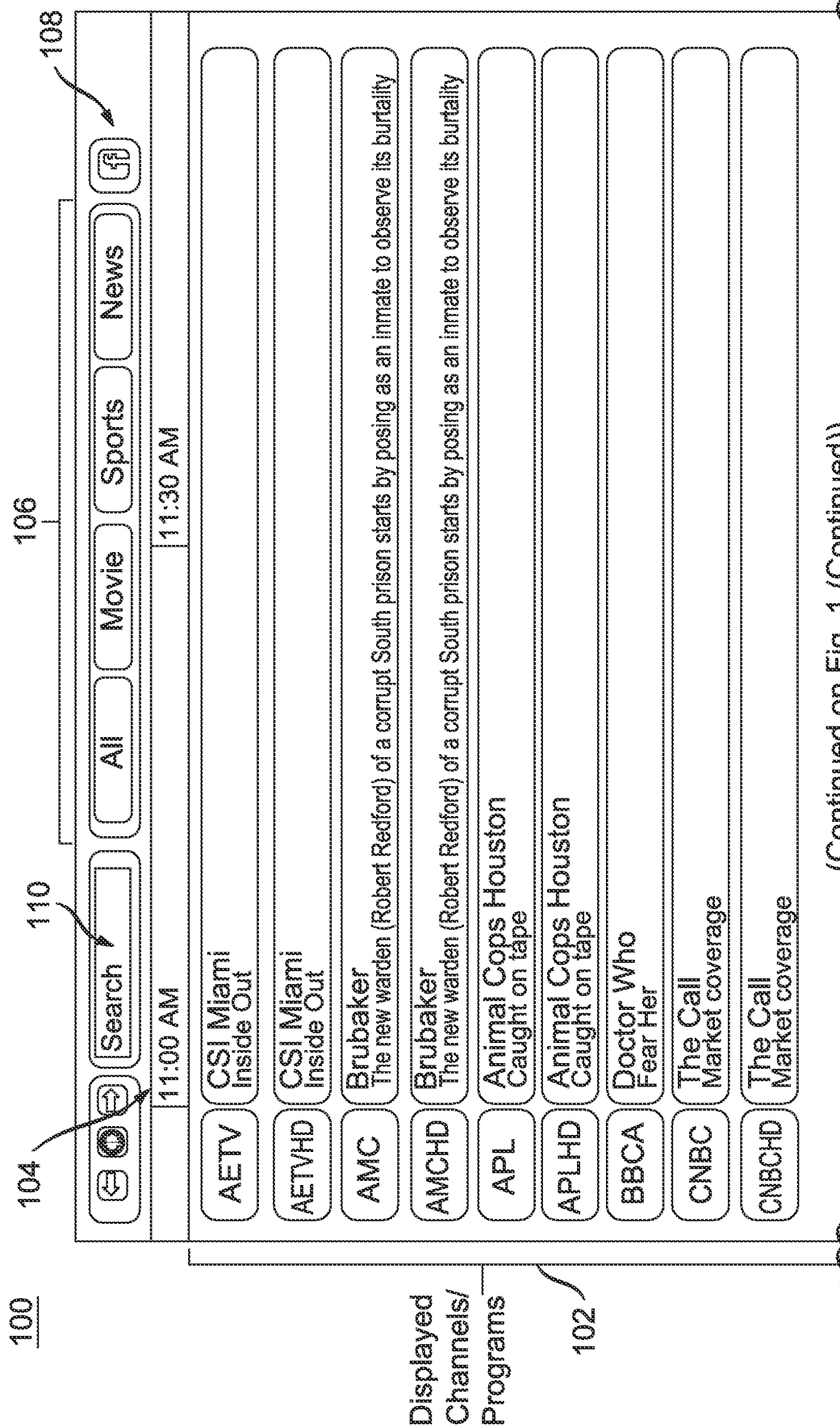
[0018] FIG. 3 is a flow diagram of a method 300 of determining search results. The method starts 302 by determining what information is displayed 304. The displayed information can be on a laptop, cell phone, pda, pad and/or other handheld and/or stationary device and/or screen. The displayed information can be
5 filtered by a user 306. The filtering criteria can be commanded via voice, selection of a command on a screen and/or other means of inputting user commands. Thus, a user could select to reduce the displayed information by selecting a category, time period and/or social networking based information and the like. As the user inputs characters of their search parameter, the search results are dynamically updated 308, ending the
10 flow 310. This allows the user to input only partial names, etc. for search parameters. The user can guess on correct spelling, etc. and still get relevant search results returned.

[0019] What has been described above includes examples of the embodiments. It is, of course, not possible to describe every conceivable combination
15 of components or methodologies for purposes of describing the embodiments, but one of ordinary skill in the art can recognize that many further combinations and permutations of the embodiments are possible. Accordingly, the subject matter is intended to embrace all such alterations, modifications and variations that fall within the spirit and scope of the appended claims. Furthermore, to the extent that the term
20 “includes” is used in either the detailed description or the claims, such term is intended to be inclusive in a manner similar to the term “comprising” as “comprising” is interpreted when employed as a transitional word in a claim.

CLAIMS

1. A system that provides search results, comprising:
a device that displays information to a user; and
5 a search engine that determines what information is currently displayed on the device and limits its search to that information to determine search results for the user.
2. The system of claim 1, wherein the device is one of a mobile phone, a laptop, a pad, a monitor and a television.
10
3. The system of claim 1, wherein the displayed information is an electronic program guide.
4. The system of claim 1, wherein the search engine dynamically
15 searches the display information as a user inputs search parameter characters.
5. The system of claim 1, wherein the search engine uses at least one user supplied pre-defined boundary when determining what information to search.
- 20 6. The system of claim 1, wherein the search engine automatically completes a search entry based on the displayed information.
7. The system of claim 1, wherein the search engine automatically completes a search entry based on social networking information.
25
8. The system of claim 1, wherein the display information is related to content displayed on another display.
9. A method for determining search results, comprising:
30 determining what information is displayed on an electronic device; and bounding a search based on the displayed information.

10. The method of claim 9 further comprising:
dynamically adjusting search results with each search parameter character
input.
- 5 11. The method of claim 9 further comprising:
automatically completing a search parameter based on at least one of the
displayed data, information associated with a social network and another user.
- 10 12. The method of claim 9 further comprising:
filtering search results based on user designated filters.
13. The method of claim 9 further comprising:
adjusting the search boundaries based on user input.
- 15 14. A system that provides search results, comprising:
a means for determining what information is displayed on an electronic
device; and
a means for bounding a search based on the displayed information.
- 20 15. The system of claim 14 further comprising:
a means for adjusting the boundary based on at least one of user input, social
networking information and time.



(Continued on Fig. 1 (Continued))

FIG. 1

100

(Continued from Fig. 1)

Displayed Channels/ Programs	CNN	CNN Newsroom
	CNNHD	CNN Newsroom
	DSC	Area 51 A cloak of secrecy surrounds the military base
	DSCHD	Area 51 A cloak of secrecy surrounds the military base
	ESPN	SportsCenter ESPN's flagship program provides sports news, highlights and analysis
	ESPNHD	SportsCenter ESPN's flagship program provides sports news, highlights and analysis
	FNC	Happening Now Breaking news reports

102

FIG. 1 (Continued)

200

204

202

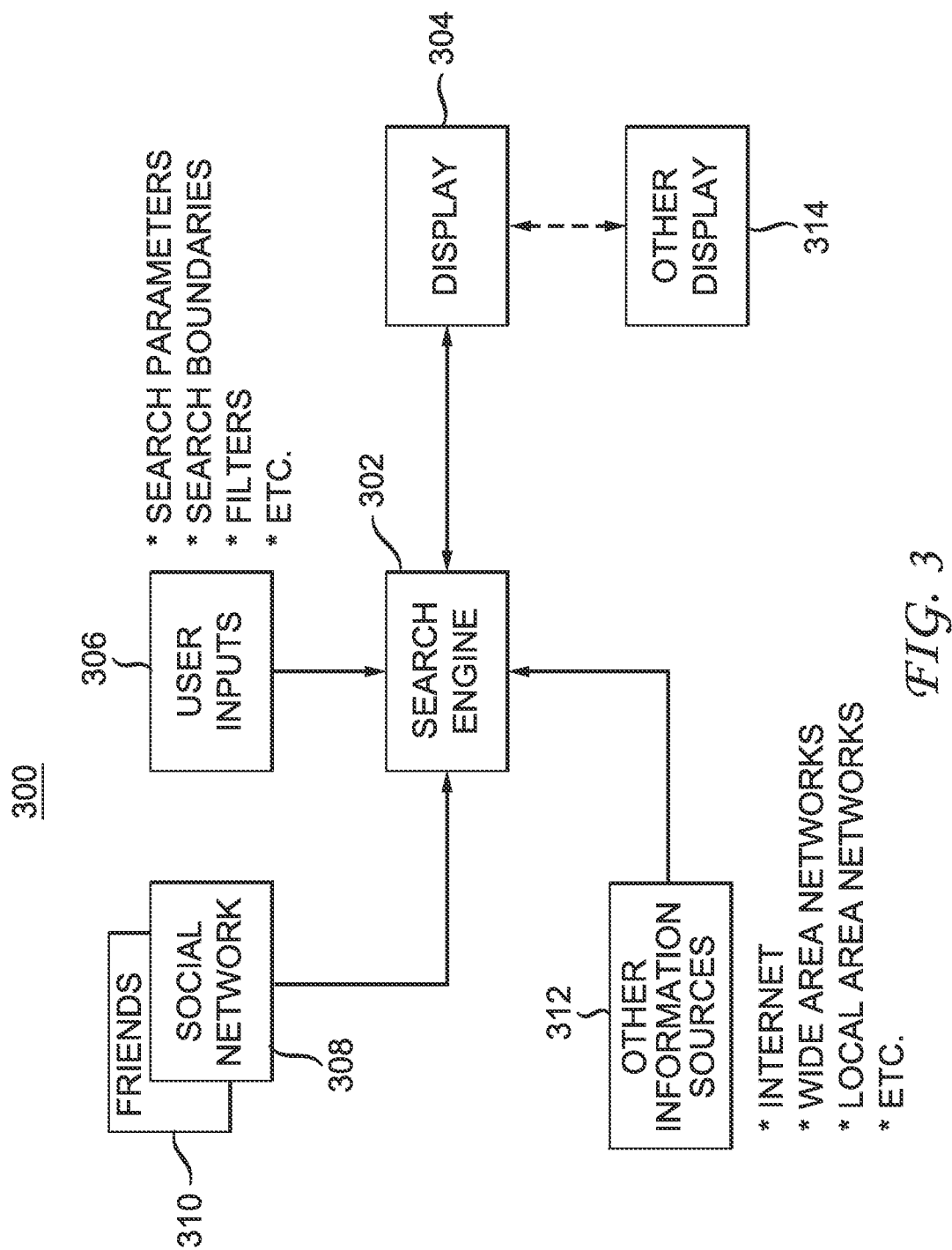
<div>⏮️ 🔍 ⏭️</div> <div><div>mia</div><div>All</div><div>Movie</div><div>Sports</div><div>News</div></div> <div>📺</div>	
11:30 AM	
12:00 PM	
AETVHD	CSI Miami Inside Out
APLHD	Animal Cops Houston Caught on tape
	Billy the Exterminator Bobcat & Yellow Jacket
	Miami Animal Police Big Ben

Displayed
Channels/
Programs
Search
Results
For 'mia'

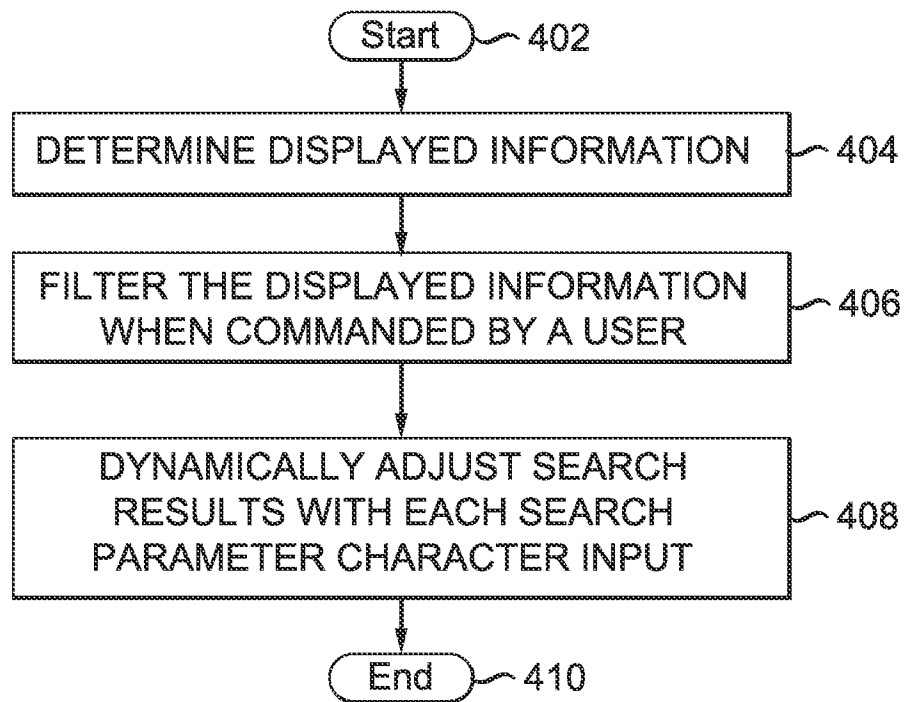
206

FIG. 2

4/5



5/5

*FIG. 4*

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2011/057065

A. CLASSIFICATION OF SUBJECT MATTER

INV. H04N21/4788 H04N21/482 H04N5/445 G06F17/30
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

H04N G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y A	US 2008/183681 A1 (MESSER ALAN [US] ET AL) 31 July 2008 (2008-07-31) abstract paragraphs [0007], [0019] paragraph [0024] - paragraph [0036] paragraph [0051] paragraph [0059] ----- -/--	1-3,9, 14,15 4,6-8, 10-12 13



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

19 March 2012

Date of mailing of the international search report

23/03/2012

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
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Authorized officer

Schreib, Franz

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2011/057065

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2006/206454 A1 (FORSTALL SCOTT J [US] ET AL FORSTALL SCOTT JAMES [US] ET AL) 14 September 2006 (2006-09-14) abstract paragraphs [0023], [0027] paragraph [0032] paragraph [0048] - paragraph [0049] paragraph [0058] paragraph [0060] paragraph [0066] paragraph [0069] figures 1-7 -----	4,6,10
X	EP 1 135 929 B1 (UNITED VIDEO PROPERTIES INC [US]) 22 January 2003 (2003-01-22) abstract	1-3,5,9, 13,14
Y	paragraph [0024] paragraph [0032] paragraph [0038] - paragraph [0043] paragraph [0048] - paragraph [0049] figures 1-16 -----	4,6,10
X	US 6 184 877 B1 (DODSON JOHN PAUL [US] ET AL) 6 February 2001 (2001-02-06) abstract	1,2,9
Y	column 3, line 8 - column 4, line 17 column 5, line 21 - line 26 column 6, line 7 - line 11 figures 1-9 -----	4,6,10
Y	US 2009/271374 A1 (KORN DAVID S [US] ET AL) 29 October 2009 (2009-10-29) abstract paragraph [0002] - paragraph [0003] paragraph [0031] - paragraph [0037] paragraph [0055] - paragraph [0060] figures 1-14 -----	7,11
Y	US 2009/164929 A1 (CHEN SHUO [US] ET AL) 25 June 2009 (2009-06-25) abstract paragraph [0002] - paragraph [0005] paragraph [0022] - paragraph [0026] figures 1-8 -----	7,11,12
Y	Anonymous: "Multi-Monitor", 18 December 2010 (2010-12-18), XP55021964, Retrieved from the Internet: URL: http://en.wikipedia.org/w/index.php?title=Multi-monitor&oldid=403014006 [retrieved on 2012-03-15] the whole document ----- -/--	8

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2011/057065

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2010/138768 A1 (LONKAR AMRUTA SATISH [IN] ET AL) 3 June 2010 (2010-06-03) abstract paragraph [0042] paragraph [0052] paragraph [0063] paragraph [0080] figures 1A-4D -----	8

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2011/057065

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-6, 9, 10, 13, 14

Content related search on a TV

2. claims: 7, 11, 12, 15

Search limited by social network information

3. claim: 8

Display content on different display

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2011/057065

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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