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(54) Title: HOLOGRAPHIC DISPLAY

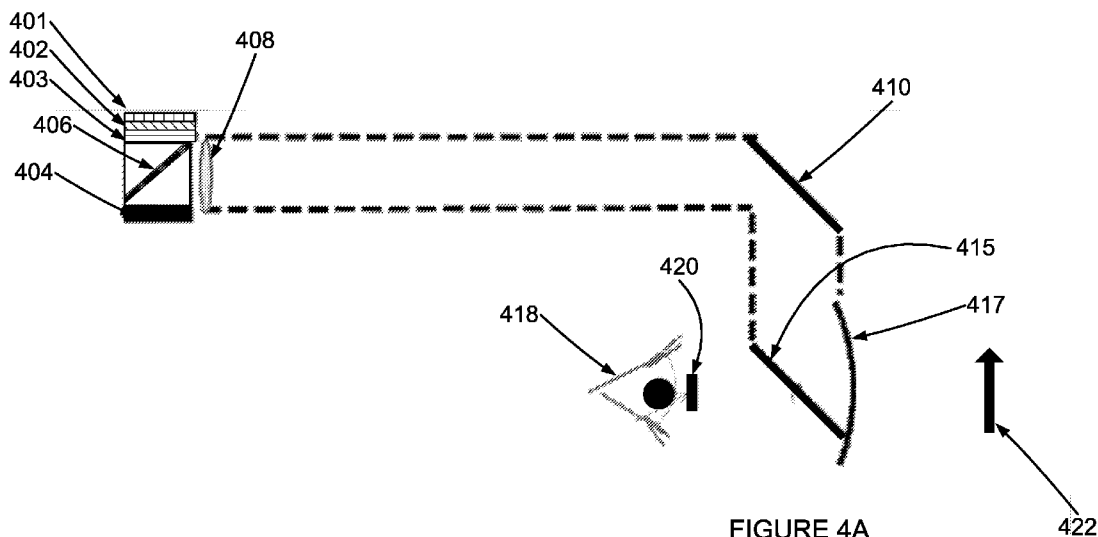


FIGURE 4A

(57) Abstract: A method of displaying a Computer Generated Holographic (CGH) image by a display, including setting pixel values of a Spatial Light Modulator (SLM) included in a Head Mounted Display (HMD), producing a interference based holographic image at a first location by projecting coherent light onto the SLM, and re-imaging the holographic image from the first location to form a holographic image in front of an eye of a viewer wearing the HMD. Related apparatus and methods are also described.





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,
KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— *of inventorship (Rule 4.17(iv))*

Published:

— *with international search report (Art. 21(3))*
— *before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments (Rule 48.2(h))*

(88) Date of publication of the international search report:

16 November 2017 (16.11.2017)

INTERNATIONAL SEARCH REPORT

International application No
PCT/IL2017/050226

A. CLASSIFICATION OF SUBJECT MATTER
INV. G03H1/22 G02B27/01
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)
G03H G02B

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 practicable, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2013/222384 A1 (FUTTERER GERALD [DE]) 29 August 2013 (2013-08-29) abstract figures 4,6,18,19 paragraph [0021] paragraph [0071] - paragraph [0075] paragraph [0196] - paragraph [0202] paragraph [0248] - paragraph [0260] -----	1-33,35, 41,42
X	WO 2009/126264 A2 (CHAUM DAVID [GB]; ROGERS JOHN R [US]) 15 October 2009 (2009-10-15) abstract figures 1-6,136-139 page 5, line 1 - page 12, line 2 page 64 - page 66 -----	1-33,35, 41,42



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 application or patent 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 April 2017

Date of mailing of the international search report

07/09/2017

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IL2017/050226

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2013222384	A1	29-08-2013	JP 5953311 B2 20-07-2016
			JP 2014503836 A 13-02-2014
			JP 2016189008 A 04-11-2016
			TW 201219829 A 16-05-2012
			TW 201641990 A 01-12-2016
			US 2013222384 A1 29-08-2013
			US 2016313556 A1 27-10-2016
			WO 2012062681 A1 18-05-2012

WO 2009126264	A2	15-10-2009	NONE

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IL2017/050226

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.:

1-33, 35, 41, 42

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: 1-33, 35, 41, 42

Method of displaying a computer-generated holographic image in a head-mounted display

2. claim: 34

Method of displaying of a computer-generated holographic image coordinated among a plurality of displays.

3. claims: 36-40

Method of filtering of diffraction orders produced by a spatial light modulator in a projection apparatus.

4. claims: 43-47

Holographic display having a wide-field of view in which two images are combined from two different sources, one image being located in the foveal region of the human vision, and the other image being located in the peripheral region of the human vision.
