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(54) Title: PATH RESOLVED OPTICAL SAMPLING ARCHITECTURES

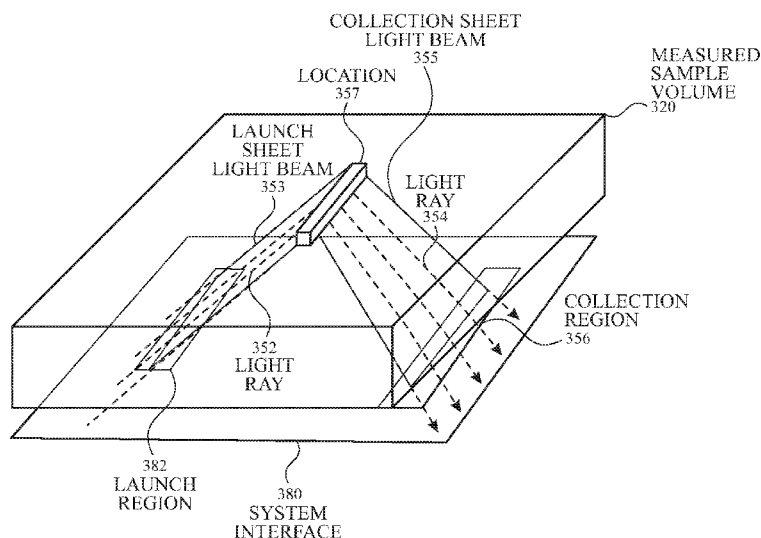


FIG. 3A

(57) Abstract: Described here are optical sampling architectures and methods for operation thereof. An optical sampling architecture can be capable of emitting a launch sheet light beam towards a launch region and receiving a detection sheet light beam from a detection region. The launch region can have one dimension that is elongated relative to another dimension. The detection region can also have one dimension elongated relative to another dimension such that the system can selectively accept light having one or more properties (e.g., angle of incidence, beam size, beam shape, etc.). In some examples, the elongated dimension of the detection region can be greater than the elongated dimension of the launch region. In some examples, the system can include an outcoupler array and associated components for creating a launch sheet light beam having light rays with different in-plane launch positions and/or in-plane launch angles.



UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, 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, KM, ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
INV. G01N21/49
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)
G01N G01J

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 2012/033211 A1 (WANG WILLIAM [TW] ET AL) 9 February 2012 (2012-02-09) paragraphs [0032] - [0049]; figures 2, 5, 7	1,2,18, 19
X	WO 2017/040431 A1 (BRIBBLA DYNAMICS LLC [US]) 9 March 2017 (2017-03-09) paragraphs [0064], [0065], [0087] - [0145]; figures 8, 13-17	1,3-6,8, 9,18-20
X	US 2016/091368 A1 (FISH GREGORY ALAN [US] ET AL) 31 March 2016 (2016-03-31) paragraphs [0013] - [0017], [0021], [0026] - [0037]; figures 1A, 1B, 2B, 3	1-6,8,9, 18-20
X	US 2015/177065 A1 (WU XUECHENG [CN] ET AL) 25 June 2015 (2015-06-25) paragraphs [0043] - [0049]; figure 1	1,3-6, 18-20
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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 7 January 2019	Date of mailing of the international search report 22/03/2019
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Flentje, Farida
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International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 122 042 A (WUNDERMAN IRWIN [US] ET AL) 19 September 2000 (2000-09-19) figures 2A - 2C column 2, line 61 - line 65 column 12, line 34 - column 13, line 19 -----	1,2,7, 18,19
X,P	WO 2017/184423 A1 (BRIBBLA DYNAMICS LLC [US]) 26 October 2017 (2017-10-26) paragraphs [0029] - [0032]; figure 2 -----	1-9, 18-20
X,P	WO 2017/184420 A1 (BRIBBLA DYNAMICS LLC [US]) 26 October 2017 (2017-10-26) paragraphs [0067] - [0084], [0088] - [0104]; figures 4A, 4I, 5, 6, 7 -----	1-9, 18-20

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2018/053237

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.:
1-9, 18-20

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: 1-9, 18-20

System for investigating a sample and a corresponding method
for operating the system

2. claims: 10-17

Light emitter

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2018/053237

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2012033211 A1	09-02-2012	TW 201207375 A US 2012033211 A1	16-02-2012 09-02-2012

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