

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL SEARCH REPORT**

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 750722002440	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2018/053237	International filing date ( <i>day/month/year</i> ) 27 September 2018 (27-09-2018)	(Earliest) Priority Date ( <i>day/month/year</i> ) 29 September 2017 (29-09-2017)
Applicant  MASSETA TECHNOLOGIES LLC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 6 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

- the international application in the language in which it was filed  
 a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b.  This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

c.  With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2.  **Certain claims were found unsearchable** (See Box No. II)

3.  **Unity of invention is lacking** (see Box No III)

4. With regard to the **title**,

- the text is approved as submitted by the applicant  
 the text has been established by this Authority to read as follows:

PATH RESOLVED OPTICAL SAMPLING ARCHITECTURES

5. With regard to the **abstract**,

- the text is approved as submitted by the applicant  
 the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 3A

- as suggested by the applicant  
 as selected by this Authority, because the applicant failed to suggest a figure  
 as selected by this Authority, because this figure better characterizes the invention

b.  none of the figures is to be published with the abstract

# 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.

INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2018/053237

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

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

## INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2018/053237

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

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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WO 2017040431 A1	09-03-2017	AU 2016316933 A1 AU 2019200161 A1 CN 108449957 A EP 3344971 A1 KR 20180036757 A US 2018238794 A1 WO 2017040431 A1	08-03-2018 31-01-2019 24-08-2018 11-07-2018 09-04-2018 23-08-2018 09-03-2017
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US 2016091368 A1	31-03-2016	EP 3002568 A1 US 2016091368 A1 US 2018045566 A1 US 2019049298 A1	06-04-2016 31-03-2016 15-02-2018 14-02-2019
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US 2015177065 A1	25-06-2015	AU 2013327811 A1 CN 103842797 A US 2015177065 A1 WO 2014179976 A1	27-11-2014 04-06-2014 25-06-2015 13-11-2014
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US 6122042 A	19-09-2000	NONE	
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WO 2017184423 A1	26-10-2017	CN 109073462 A WO 2017184423 A1	21-12-2018 26-10-2017
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WO 2017184420 A1	26-10-2017	CN 109073460 A EP 3446084 A1 KR 20180123129 A WO 2017184420 A1	21-12-2018 27-02-2019 14-11-2018 26-10-2017
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**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

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2. claims: 10-17

Light emitter

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