(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau







(10) International Publication Number WO~2018/007936~A3

(51) International Patent Classification:

 A24F 47/00 (2006.01)
 A61M 15/00 (2006.01)

 A61M 11/00 (2006.01)
 A61M 15/06 (2006.01)

 A61M 11/04 (2006.01)

(21) International Application Number:

PCT/IB2017/054018

(22) International Filing Date:

03 July 2017 (03.07.2017)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

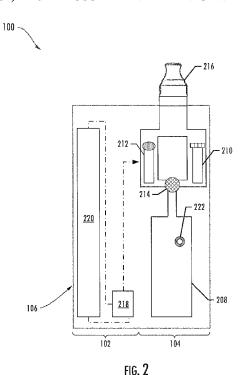
15/205,775 08 July 2016 (08.07.2016) US

(71) Applicant: RAI STRATEGIC HOLDINGS, INC. [US/US]; 401 North Main Street, Winston-Salem, NC 27101 (US).

(72) Inventors: DAVIS, Michael, F.; 1788 Havenbrook Ct., Clemmons, NC 27012 (US). ROGERS, James; 18329 Peninsula Club Dr., Cornelius, NC 28031 (US). PHILIPS, Percy; c/o RAI Strategic Holdings, Inc., 401 North Main Street, Winston-Salem, NC 27101 (US). GARCIA, Ercilia, Hernandez; 307 Durham Street, Clayton, NC 27520 (US).

- (74) Agent: SPENCE, Andrew T.; Womble Carlyle Sandridge & Rice, LLP, Attn: Patent Docketing, P.O. Box 7037, Atlanta, GA 30357-0037 (US).
- (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, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, 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, ST, SZ, TZ, 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).

(54) Title: AEROSOL DELIVERY DEVICE WITH CONDENSING AND NON-CONDENSING VAPORIZATION



(57) Abstract: An aerosol delivery device (100) having condensing and non-condensing vaporization functionality is provided. The aerosol delivery device may comprise at least one housing (106), and a first element (210) and second element (212) contained within the at least one housing. The first and second element may be configured to activate and vaporize components of an aerosol precursor composition, and thereby form respectively a condensing vapor and non-condensing vapor. In response to a flow of air through at least a portion of the at least one housing, the condensing vapor or non-condensing vapor may be combinable with the air to form an aerosol.



Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

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:

15 March 2018 (15.03.2018)

INTERNATIONAL SEARCH REPORT

International application No PCT/IB2017/054018

A. CLASSIFICATION OF SUBJECT MATTER INV. A24F47/00 A61M11/00 A61M11/04 A61M15/00 A61M15/06 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) A24F - A61M

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, WPI Data

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Х	WO 2015/079197 A1 (PURITY HEALTH PHARMA LTD) 4 June 2015 (2015-06-04)	1-3, 5-11,13, 14,17-20
Α	the whole document	4
Α	W0 2012/027350 A2 (ALELOV ELI [US]) 1 March 2012 (2012-03-01) paragraphs [0021], [0022]; figure 1	1-10,17, 18
Α	US 2016/089508 A1 (SMITH CALEB [US] ET AL) 31 March 2016 (2016-03-31) abstract; figures paragraph [0026]	1-10,17, 18
А	WO 2013/152873 A1 (JT INT SA [CH]) 17 October 2013 (2013-10-17) page 6, line 1 - page 6, line 7	1-13
	-/	

X Further documents are listed in the continuation of Box C.	X See patent family annex.
"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 22 January 2018	Date of mailing of the international search report $01/02/2018$
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 Valfort, Cyril

3

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2017/054018

C(Continua	tion). DOCUMENTS CONSIDERED TO BE RELEVANT	101/12202//001020		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X,P	EP 3 066 941 A1 (FONTEM HOLDINGS 1 BV [NL]) 14 September 2016 (2016-09-14) paragraph [0039]; figure 3 paragraph [0073]	11,13, 14,19		
X	US 6 158 431 A (POOLE TRENT A [US]) 12 December 2000 (2000-12-12) the whole document	11,12, 14,19		
X	the whole document WO 2005/079894 A1 (KOREVAAR JACOB [NL]) 1 September 2005 (2005-09-01) the whole document	11,15,16		

3

International application No. PCT/IB2017/054018

INTERNATIONAL SEARCH REPORT

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:
Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:
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:
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. X 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.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/IB2017/054018

Patent document cited in search report Publication date Publication date Patent family member(s) Publication date								•	
EP 3102266 A1 14-12-2016 GB 2522727 A 05-08-2015 W0 2015079197 A1 04-06-2015 W0 2015079198 A1 04-06-2015 W0 2015079198 A1 04-06-2015 W0 2012027350 A2 01-03-2012 EP 2608686 A2 03-07-2013 EP 2982255 A1 10-02-2016 ES 2543045 T3 14-08-2015 US 2012048266 A1 01-03-2012 US 2012227752 A1 13-09-2016 US 2014224245 A1 14-08-2014 W0 2012027350 A2 01-03-2012 US 2014224245 A1 14-08-2014 W0 2012027350 A2 01-03-2012 US 201422495 A1 14-08-2015 CN 203457800 U 05-03-2014 EA 201491591 A1 30-06-2015 EP 2836090 A1 18-02-2015 JP 2015513970 A 18-05-2015 KR 20140148455 A 31-12-2014 KR 20140148455 A 31-12-2014 KR 20170081290 A 11-07-2017 US 2015047662 A1 19-02-2015 W0 2013152873 A1 17-10-2013 EP 3066941 A1 14-09-2016 EP 3066941 A1 14-09-2016 GB 2536307 A 14-09-2016 US 2016262457 A1 15-09-2016 US									
EP 2982255 A1 10-02-2016 ES 2543045 T3 14-08-2015 US 2012048266 A1 01-03-2012 US 2012227752 A1 13-09-2012 US 2014224245 A1 14-08-2014 W0 2012027350 A2 01-03-2012 US 2016089508 A1 31-03-2016 NONE W0 2013152873 A1 17-10-2013 CN 104254258 A 31-12-2014 CN 203457800 U 05-03-2014 EA 201491591 A1 30-06-2015 EP 2836090 A1 18-02-2015 JP 2015513970 A 18-05-2015 KR 20140148455 A 31-12-2014 KR 20170081290 A 11-07-2017 US 2015047662 A1 19-02-2015 W0 2013152873 A1 17-10-2013 EP 3066941 A1 14-09-2016 GB 2536307 A 14-09-2016 GB 2536307 A 14-09-2016 US 2016262457 A1 15-09-2016	WO	2015079197 A	1 04-0		EP GB WO	3102266 2522727 2015079197	A1 A A1	14-12-2016 05-08-2015 04-06-2015	
WO 2013152873 A1 17-10-2013 CN 104254258 A 31-12-2014 CN 203457800 U 05-03-2014 EA 201491591 A1 30-06-2015 EP 2836090 A1 18-02-2015 JP 2015513970 A 18-05-2015 KR 20140148455 A 31-12-2014 KR 20170081290 A 11-07-2017 US 2015047662 A1 19-02-2015 WO 2013152873 A1 17-10-2013 EP 3066941 A1 14-09-2016 EP 3066941 A1 14-09-2016 GB 2536307 A 14-09-2016 US 2016262457 A1 15-09-2016	WO	2012027350 A	2 01-0	 	EP ES US US US	2982255 2543045 2012048266 2012227752 2014224245	A1 T3 A1 A1 A1	10-02-2016 14-08-2015 01-03-2012 13-09-2012 14-08-2014	
CN 203457800 U 05-03-2014 EA 201491591 A1 30-06-2015 EP 2836090 A1 18-02-2015 JP 2015513970 A 18-05-2015 KR 20140148455 A 31-12-2014 KR 20170081290 A 11-07-2017 US 2015047662 A1 19-02-2015 W0 2013152873 A1 17-10-2013 EP 3066941 A1 14-09-2016 EP 3066941 A1 14-09-2016 GB 2536307 A 14-09-2016 US 2016262457 A1 15-09-2016	US	2016089508 A	1 31-0	3-2016	NONE				
EP 3066941 A1 14-09-2016 GB 2536307 A 14-09-2016 US 2016262457 A1 15-09-2016	WO	2013152873 A	1 17-1	,	CN EA EP JP KR KR US	203457800 201491591 2836090 2015513970 20140148455 20170081290 2015047662	U A1 A1 A A A	05-03-2014 30-06-2015 18-02-2015 18-05-2015 31-12-2014 11-07-2017 19-02-2015	
US 6158431 A 12-12-2000 NONE	EP	3066941 A	1 14-0	ı	EP GB	3066941 2536307	A1 A	14-09-2016 14-09-2016	
	US	6158431 A	12-1	2-2000	NONE				
WO 2005079894 A1 01-09-2005 EP 1720590 A1 15-11-2006 JP 2007528242 A 11-10-2007 NL 1025556 C1 26-08-2005 NL 1026154 C1 26-08-2005 US 2008245363 A1 09-10-2008 WO 2005079894 A1 01-09-2005	WO	2005079894 A	1 01-0		JP NL NL US	2007528242 1025556 1026154 2008245363	A C1 C1 A1	11-10-2007 26-08-2005 26-08-2005 09-10-2008	

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-10, 17, 18

An aerosol delivery device with first and second vaporise components with a valve between the reservoir and the vaporise components

2. claims: 12(completely); 11, 14, 19, 20(partially)

An aerosol delivery device wherein the vapor modification element being configured to modify the non-condensing vapor by a moisture removal action.

3. claims: 13(completely); 11, 14, 19, 20(partially)

An aerosol delivery device wherein the vapor modification element being configured to modify the non-condensing vapor by injecting a volatile flavor into the non-condensing vapor.

4. claims: 15, 16(completely); 11(partially)

An aerosol delivery device further comprising a third element, wherein in response to a flow of air through at least a portion of the at least one housing, the third element being configured to activate and vaporize components of the aerosol precursor composition to thereby form a condensing vapor.
