

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

To:

see form PCT/ISA/220

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference see form PCT/ISA/220	FOR FURTHER ACTION See paragraph 2 below
---	--

International application No. PCT/EP2019/083699	International filing date (day/month/year) 04.12.2019	Priority date (day/month/year) 06.12.2018
--	--	--

International Patent Classification (IPC) or both national classification and IPC
INV. A61M15/06 A24F47/00 A61M15/00 A24F7/00

Applicant
PHILIP MORRIS PRODUCTS S.A.

1. This opinion contains indications relating to the following items:


- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Fax: +49 89 2399 - 4465	Date of completion of this opinion see form PCT/ISA/210	Authorized Officer Cecchini, Stefano Telephone No. +49 89 2399-0
---	--	--



Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established 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)).
2. This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
 - a. forming part of the international application as filed:
 - in the form of an Annex C/ST.25 text file.
 - on paper or in the form of an image file.
 - b. furnished together with the international application under PCT Rule 13ter.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
 - c. furnished subsequent to the international filing date for the purposes of international search only:
 - in the form of an Annex C/ST.25 text file (Rule 13ter.1(a)).
 - on paper or in the form of an image file (Rule 13ter.1(b) and Administrative Instructions, Section 713).
4. In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>3-5, 11-13</u>
	No: Claims	<u>1, 2, 6-10</u>
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-13</u>
Industrial applicability (IA)	Yes: Claims	<u>1-13</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

1 **Re Item V**

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1.1 Reference is made to the following documents:

- D1 WO 2009/009013 A2 (MANTA DEVICES LLC [US]; JONES ANDREW [US]; MILLER RICHARD L [US]) 15 January 2009 (2009-01-15)
- D2 WO 2017/212284 A1 (BRITISH AMERICAN TOBACCO LTD [GB]) 14 December 2017 (2017-12-14)
- D3 WO 2014/183073 A1 (LOEC INC [US]) 13 November 2014 (2014-11-13)
- D4 GB 2 137 067 A (BROWN & WILLIAMSON TOBACCO) 3 October 1984 (1984-10-03)
- D5 US 2 954 778 A (LEBERT HERBERT A) 4 October 1960 (1960-10-04)
- D6 GB 10910 A A.D. 1911 (TIMMINS JOSEPH GEORGE) 25 April 1912 (1912-04-25)
- D7 US 4 413 641 A (DWYER JR R WILLIAM [US] ET AL) 8 November 1983 (1983-11-08)
- D8 WO 2013/132056 A1 (ACTIVAERO GMBH [DE]) 12 September 2013 (2013-09-12)
- D9 WO 2015/117702 A1 (PHILIP MORRIS PRODUCTS SA [CH]) 13 August 2015 (2015-08-13)

1.2 The present application does not meet the criteria of Article 33(2) PCT, because the subject-matter of claim 1 is not new.

D1 (Fig. 5A and page 21 lines 4-20) discloses:

Mouthpiece (540,524) (members 540 and 524 are unitarily formed; see disclosure at page 19 lines 30 and 31, referring at analogous embodiment of Fig. 4) suitable for attachment to a hollow tubular filter portion of an aerosol-

generating article (the hollow filter can be attached such to fit and encircle the bottom aperture of member 524), wherein the mouthpiece comprises an inner tubular section (524) having a minimum outer diameter which is smaller than an inner diameter of the hollow tubular filter portion of the aerosol-generating article (the filter can be mounted such to encircle at least a part of member 524), and wherein the mouthpiece comprises an outer tubular section (540) having a maximum inner diameter which is larger than an outer diameter of the aerosol-generating article (inner diameter of 540 is larger than outer diameter of device 500 in correspondence to its upper aperture, see Fig. 5A) wherein the mouthpiece comprises a central airflow channel (507',503) arranged along the longitudinal axis of the mouthpiece, wherein the airflow channel comprises a Venturi portion, wherein the Venturi portion comprises an inlet portion (converging portion downstream to portion 507'), an optional central portion (507') and an outlet portion (503), wherein the inlet portion is configured converging in a downstream direction and the outlet portion is configured diverging in a downstream direction.

- 1.3 The present application does not meet the requirements of Article 33(3) PCT because the subject-matter of claim 1 is not inventive over a combination of D2 with D3-D7.

D2 can be seen as the closest prior-art to the subject-matter of claim 1 and discloses:

Mouthpiece (303) (Figs 3 and 4, page 12 line 26 to page 15 line 7 and page 16 lines 8-17) for attachment to a hollow tubular filter portion (11) of an aerosol-generating article (302) wherein the mouthpiece comprises an inner tubular section (20) having a minimum outer diameter which is smaller than an inner diameter of the hollow tubular filter portion (11) of the aerosol-generating article, and wherein the mouthpiece comprises an outer tubular section ((22) in Fig. 3 or (31) in Fig. 4) having a maximum inner diameter which is larger than an outer diameter of the aerosol-generating article, wherein the mouthpiece comprises a central airflow channel (20a,20b) arranged along the longitudinal axis of the mouthpiece.

Claim 1 differs from the disclosure of D2 in that the airflow channel comprises a Venturi portion, wherein the Venturi portion comprises an inlet portion, an optional central portion and an outlet portion, wherein the inlet portion is configured converging in a downstream direction and the outlet portion is configured diverging in a downstream direction.

The technical effect of said distinguishing features is influencing the flow characteristics of the generated aerosol (e.g. velocity, direction and particle size).

The objective technical problem can be seen as how to modify a mouthpiece for an aerosol-generating article such to be able to enhance flavor, throat-effect, and delivery of the aerosol to a user.

D3 belongs to the field of aerosol generating devices as D2 (and also the current invention) and provides a solution to the problem mentioned above by means of the features shown in figures 1A-C, in particular by means of a mouthpiece (100) provided with through-hole (140) having inlet region (170), exit region (180) and throat region (190) (Venturi portion in the sense of the current application).

The skilled-person aware of the teaching of D3, would have modified the mouthpiece of D2 such to introduce the described Venturi portion by D3.

Moreover, it appears that using Venturi portions in the mouthpiece of aerosol-delivering devices, with the purpose of enhancing the perceived taste and cooling the generated aerosol, is very well known to the skilled-person in the field: see D4 at Fig. 2 (30,32,34), D5 at Fig. 2 (30,32,34), D6 at Fig. 1 and D7 at Fig. 1.

For the reasons above, the subject-matter of claim 1 is not inventive.

The same arguments apply *mutatis-mutandis* to claim 13.

- 1.4 Dependent claims 2-12 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step:
 - 1.4.1 Claim 2: see transition portion between members (540) and (524) in D1 and (29) in Fig. 3 of D2.
 - 1.4.2 Claim 3: length of recess (13) and first portion of cylindrical element (20a) of D2 varies between 5 and 20 mm.
 - 1.4.3 Claim 4: in D2, internal diameter of recess (13) is 4 mm, whereas external diameter of cylindrical element (20) is 3.8 mm. Other values are also disclosed in the range from 2 to 6 mm.
 - 1.4.4 Claim 5: in D2, internal diameter of tubular element (31) (Figs. 2 and 4) is between 4 and 10 mm (page 11 lines 4-18).

- 1.4.5 Claim 6: see upstream end of tubular section (524) of D1. Similarly (20) in D2 is a cylindrical element, thus it has a rounded upstream end by definition.
- 1.4.6 Claims 7-9: see (540),(524) of D1 and (20a),(20b) of D8.
- 1.4.7 Claim 10: see above-cited passages of D1 and D2.
- 1.4.8 Claim 11: hinged mouthpieces are very common in the field. See, for example, mouthpiece (12) in D9.
- 1.4.9 Claim 12: see above-mentioned passages of D2.

2 **Re Item VII**

Certain defects in the international application

- 2.1 Independent claims 1 and 13 are not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art being placed in the preamble (Rule 6.3(b)(i) PCT) and the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).
- 2.2 The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).
- 2.3 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in D1-D3 is not mentioned in the description, nor are these documents identified therein.