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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
4 February 2016 (04.02.2016)

WIPO | PCT

(10) International Publication Number
WO 2016/016252 A1

(51) International Patent Classification:
A24D 3/06 (2006.01)

(21) International Application Number:
PCT/EP2015/067291

(22) International Filing Date:
28 July 2015 (28.07.2015)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
14179276.2 31 July 2014 (31.07.2014) EP

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(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, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, 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).

Published:

— *with international search report (Art. 21(3))*

WO 2016/016252 A1

(54) Title: FILTER ELEMENT FOR A SMOKING ARTICLE

(57) Abstract: A filter element (2) for a smoking article (1) comprises a plug of filter material (6, 61, 62) and a wrapper (13) at least partially surrounding the plug of filter material (6, 61, 62). The wrapper (13) comprises an aperture (4) with a covering (5) which the user may open to access the plug of filter material (6, 61, 62) and that may be resealed over the aperture (4). The invention also provides a method for manufacturing a filter element (2).

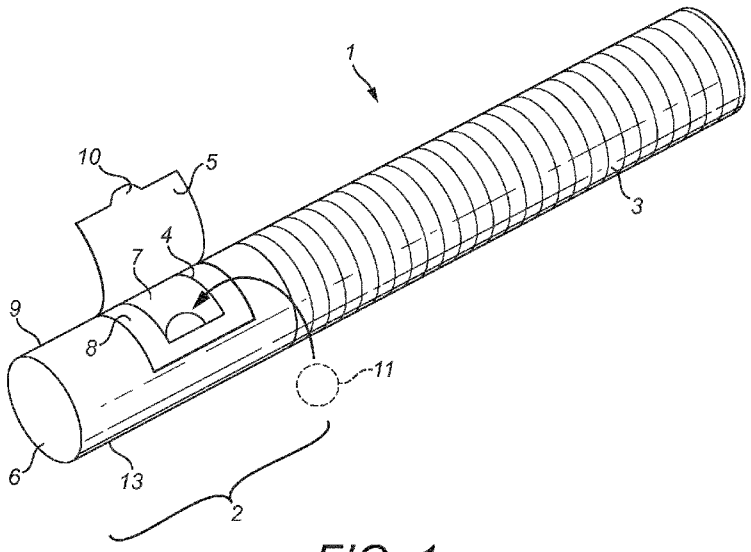

FIG. 1

Filter element for a smoking article

This invention relates to a filter element for a smoking article.

Smoking articles, such as cigarettes, are well known in the art. Conventional cigarettes allow the user to inhale smoke from a rod of tobacco through a filter. This type of pre-made cigarette is still widely used. However, various modified cigarettes have been produced to alter the smoking experience with additives.

One type of modified cigarette known in the art provides a capsule in the filter. The user may crush the capsule before or during smoking to release an additive into the smoke stream to modify the physical properties thereof. The capsules may contain flavouring, such as menthol, or non-flavoured contents in a liquid, gel or pulverised form.

Capsule cigarettes have allowed users to modify the smoking experience. Providing an additive in capsule form presents users with an alternative to the ordinary smoking experience with a conventional cigarette. With the capsule cigarette, the user crushes the capsule to release the additive. Provision of flavoured additives in capsules also prevents loss of volatile components such as flavourings until capsules are crushed by users before or during smoking. However, the user is currently limited in choice by these capsule cigarettes. Both the type and quantity of additive are pre-determined and there is no opportunity for users to select the additive(s) from one cigarette to another or to combine different additives or even to adjust quantities of additives they want to use during a specific smoking experience.

Therefore there exists a need to provide a smoking article where the user is able to select the type, quantity and combination of additives to enhance the smoking experience according to personal choice.

The invention provides a solution to that need by means of a filter element for a smoking article, the filter element comprising: at least one plug of filter material; and a wrapper at least partially surrounding the plug of filter material, wherein

the wrapper comprises an aperture with a covering which the user may open to access the plug of filter material and that may be resealed over the plug of filter material.

The covering may comprise a tab capable of resealing the covering. The tab may comprise re-sealable adhesive. Preferably, the tab and adhesive are configured to provide an airtight closure of the covering over the aperture to prevent unwanted ventilation of the filter element. The wrapper may comprise an inner layer and an outer layer. The tab may be cut into the outer layer, such that when the covering is closed the tab secures the outer layer to the inner layer. The aperture may be cut into the inner layer, and preferably be slightly smaller than the covering such that the tab can be resealed over parts of the inner layer delimiting a frame or border to the aperture.

The filter element may comprise a cavity below the aperture. Said cavity may be shaped into the at least one plug of filter material. Alternatively, the filter element may comprise at least two plugs of filter material spaced from each other to delimit a cavity between the plugs and below the aperture. An additive may be manually inserted into the cavity defined in or within the plug or plugs of filter material. The additive may be a flavouring or any other smoke altering or filtering substance. The additive may be provided in any form, such as solid, liquid or pulverised form. The additive may preferably be embedded in a capsule capable of rupture.

The invention also provides a smoking article comprising a filter element according to the invention and a tobacco rod, wherein a wrapping material connects one end of the tobacco rod to an end of the filter element. The wrapping material may be the wrapper of the filter component or a different wrapping material.

The filter element of the invention offers extended flexibility of use to users wishing to modify their smoking experiences according to personal choice and uniquely for each smoking article used. Smoking articles well known in the art

either provide no additives, or an additive of a pre-determined type and quantity, with no option to change it.

With the filter element of the present invention, the user can choose an additive type, choose the quantity he or she wishes to use for a particular smoking article and furthermore may choose a combination of additives to design the smoking experience he wishes.

The aperture and covering setup of the filter element of the invention provides ease of use. All the user needs to do is to select at least one additive, to open the covering and to insert the selected additive before closing the covering and proceeding to smoking as usual.

An example of the present invention will now be described with reference to the accompanying drawings, in which:

- figure 1 shows a perspective view of a smoking article 1 comprising a filter element 2 of the invention; and
- figures 2a-d show cross-sectional views of smoking articles 1 comprising filter elements 2 according to different embodiments of the invention.

In figure 1, a smoking article 1, in this case a cigarette, comprises a filter element 2 and a tobacco rod 3. The filter element 2 comprises at least one plug of filter material 6 wrapped with at least one outer wrapper 13, commonly known in the art as a tipping of the smoking article 1. An end of the tobacco rod 3 is connected to an end of the filter element 2 by an overlapping of the wrapper 13, which forms a tight collar secured by adhesive around at least part of the filter element 2 and part of the tobacco rod 3 to secure the assembly. The plug of filter material 6 is made of any known filter material used for smoking articles such as crimped cellulose acetate tow, paper, synthetic and/or natural fibres or a mixture thereof.

According to the invention, the filter element 2 comprises an aperture 4 formed in the wrapper 13. Said aperture 4 is defined at least by a re-sealable covering 5 that is cut into wrapper 13. Thereby, the aperture 4 is delimited by the surface

area of the covering 5 cut in the wrapper. The covering 5 is re-sealable over the aperture, for example by a re-sealable adhesive applied to the inner surface of the covering 5. The aperture 4 may take any shape, including rectangular, circular and elliptical.

In a preferred embodiment as represented in figure 1, the wrapper 13 is a laminate comprising at least an inner layer 8 and an outer layer 9. In such embodiment the aperture 4 is cut into the inner layer 8 and is smaller than the covering 5. This enables the covering 5 to form a seal over the aperture 4. The covering 5 is cut into the outer layer 9 and comprises a tab 10 to ease opening and closing thereof. The covering 5 is, in this example, at least partially coated on its inner surface with a re-sealable adhesive, which sticks the outer layer 9 to the inner layer 8 around the aperture 4.

Preferably, the inner layer 8 and outer layer 9 can have a different nature, e.g. a polymer based inner layer 8 and a paper based outer layer 9, Alternatively, both inner and outer layers 8, 9 may be paper based and the inner layer being coated, for example with varnish, on its outermost surface at least to allow for easy resealing on the covering 5 onto the inner layer 8 about the aperture 4.

As represented in figures 2a-d in particular, the filter element 2 of the invention preferably comprises a cavity 7 formed below the aperture 4 in the at least one plug 6 of filter material or between two plugs 6 of filter material. Such cavity 7 allows for insertion of an additive of choice into the filter element 2 by a user through the aperture 4. The additive may be of any kind and any form capable of altering the smoke stream during smoking of the smoking article 1 by a user, as will be described hereinafter in relation to figures 2a to 2d. Preferably, the additive may be a breakable capsule 11 to be manually inserted into the cavity 7 as represented in figure 1, said capsule containing, for example, a flavoured or non-flavoured composition.

The aperture 4 may be provided to the user open or closed. Where the aperture 4 is provided closed, the user must first open the aperture 4.

When open, the aperture 4 reveals the cavity 7 defined by the plug of filter material 6. The user is then able to insert an additive, provided separately, into the cavity 7. In an alternative embodiment, a liquid additive may be inserted into a plug of filter material 6 that does not define a cavity. After inserting the additive, the user may close the aperture 4. The user can secure the closure by means of the tab 10 and simply press close the covering 5, which sticks on to the overlapping inner layer 8.

The user may then proceed to smoke the smoking article 1. Where the additive is provided in the form of a capsule 11, the user may crush this capsule 11 at any point before or during smoking to release its content and alter the smoke stream.

Figures 2a-d show longitudinal cross-sectional views of a smoking article 1 according to the invention as represented in figure 1, where the aperture 4 over the cavity 7 is closed by the covering 5 in wrapper 13.

In figure 2a, the filter element 2 comprises a single plug of filter material 6 wherein a cavity 7 is shaped within the plug underneath the aperture 4 in the wrapper. The cavity 7 does not extend across the entire filter element 2 normal to the longitudinal axis.

In figures 2b, 2c and 2d, a cavity 7 is defined by two plugs 61, 62 of filter material. The plugs 61, 62 of filter material may be the same or different sizes and may be of the same or different composition. One plug 61 of filter material forms the mouth end of the filter element 2; the other plug 62 of filter material forms the tobacco end of the filter element 2. In a first embodiment, both plugs 61, 62 may be formed of crimped cellulose acetate tow. In another embodiment, the mouth end plug 61 may be of crimped cellulose acetate tow while the tobacco end plug 62 may be formed of cellulose acetate tow, either crimped with plasticizer or in the form of randomly oriented fibres, admixed with an adsorbent material, for example activated charcoal. The cavity 7 extends across the filter element 2 normal to the longitudinal axis of the smoking article 1.

In figures 2a-c, the cavity 7 is filled by one or several individual capsule(s) 11. The capsule(s) 11 may contain an additive such as flavouring, in a liquid or gel solution. Before or during smoking, the user may crush the capsule(s) 11 to release the additive it contains and alter the smoke stream properties to provide a different smoking experience.

In figure 2c, the cavity 7 is filled by more than one capsule 11. A user is thereby given the freedom to choose the amount of additive he or she wishes to have in each smoking article 1. Providing the additives separately to the filter element 2 enables the user to choose one or more additives for each smoking article 1 smoked. It also enables the user to adjust the dose and/or nature of additive as desired for each smoking article 1.

In figure 2d, the cavity 7 is filled by additive in a pulverised or microencapsulated form 12. Some additives, such as natural fine cut leaf parts, adsorbent powders, granules or particles, do not need to be provided in capsule form. Since the cavity 7 may be filled by items other than capsules, the invention allows the user to select and experiment with different additives to alter his smoking experiences according to his own choices.

The filter element 2 and smoking article 1 of the invention provide users with the freedom of choice to uniquely design and alter their smoking experience. The filter element 2 of the invention is simple to manufacture and use and, when joined to a tobacco rod 3, allows the user to adjust the smoking experience with additives of his choice in the context of a familiar smoking article 1.

Claims

1. A filter element for a smoking article, the filter element comprising:
a plug of filter material; and
a wrapper at least partially surrounding the plug of filter material, wherein the wrapper comprises an aperture with a covering which the user may open to access the plug of filter material and that may be resealed over the aperture.

2. A filter element according to claim 1, wherein the covering comprises a tab arranged to open and close the covering.

3. A filter element according to claim 2, wherein at least one of the covering and the tab comprise re-sealable adhesive.

4. A filter element according to any of claims 1 to 3, wherein the wrapper comprises at least an inner layer and an outer layer.

5. A filter element according to claim 4, wherein the covering is formed into the outer layer, such that it reseals onto the inner layer over the aperture upon closure.

6. A filter element according to any preceding claim, further comprising a cavity in the plug of filter material below the aperture.

7. A filter element according to any preceding claim, wherein a cavity is shaped into the plug of filter material.

8. A filter element according to any preceding claim, comprising a second plug of filter material, and wherein a cavity is defined between the two plugs of filter material and below the aperture.

9. A filter element according to claim 8, wherein the plugs of filter material are made of a same material, preferably from cellulose acetate.

10. A filter element according to claim 8 or 9, wherein at least one of the plugs comprises an adsorbent material, preferably activated charcoal.

11. A filter element according to any of claims 8 to 10, wherein at least one of the plugs comprises fibres.

12. A smoking article comprising a filter element according to any preceding claim and a tobacco rod, wherein the wrapper overlaps the tobacco rod and connects an end of the tobacco rod to an end of the filter element.

13. A method for manufacturing a filter element according to any of claims 1 to 11, comprising the steps of forming at least one plug of filter material, forming an aperture with a re-sealable covering in a wrapper, and wrapping the plug of filter material with said wrapper such that a user may open the covering to access the plug of filter material and reseal said covering over the aperture.

14. A method according to claim 13, further comprising the step of defining a cavity into the plug of filter material before wrapping with the wrapper, and wherein the wrapper is wrapped over the plug of filter material such that the aperture and covering are in register with the cavity.

15. A method for manufacturing a smoking article according to claim 12, comprising the steps of providing a filter element according to any of claims 1 to 11 and a tobacco rod and attaching an end of said filter element to an end of the tobacco by means of said wrapper overlapping said ends of the filter element and tobacco rod.

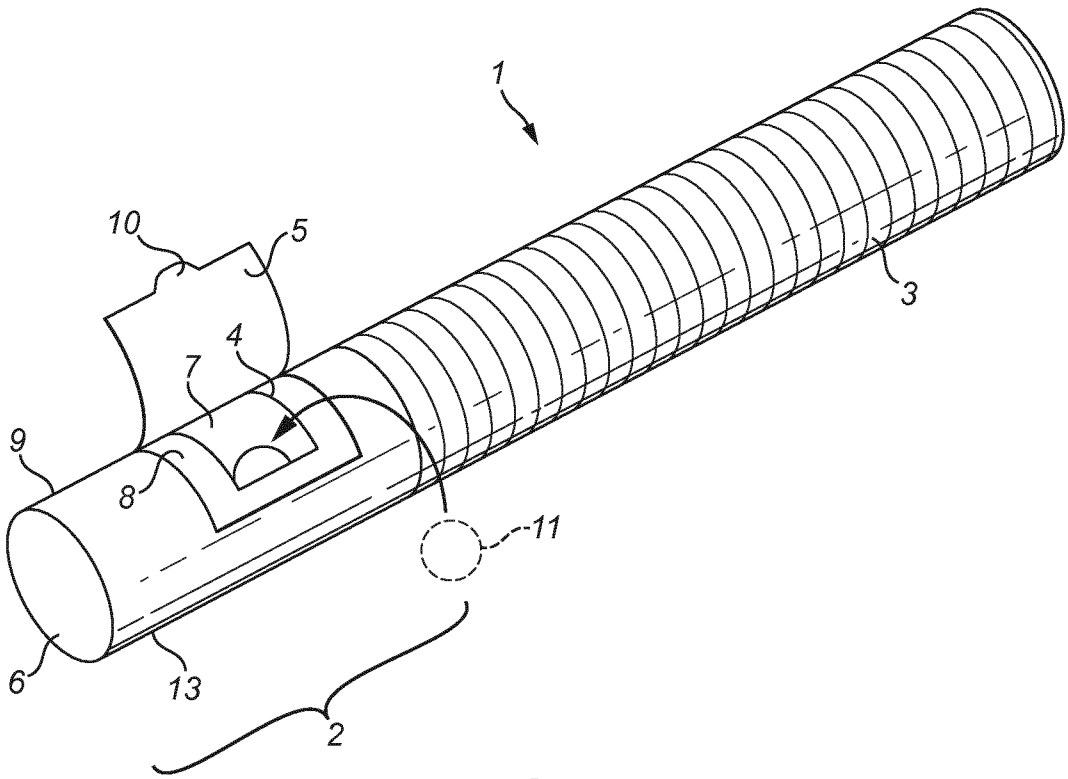

FIG. 1

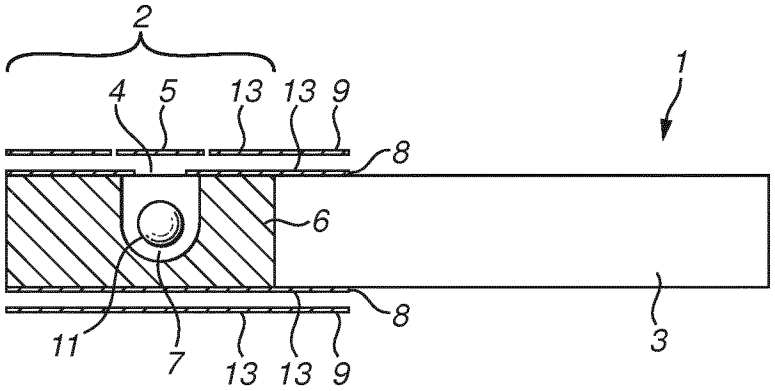

FIG. 2a

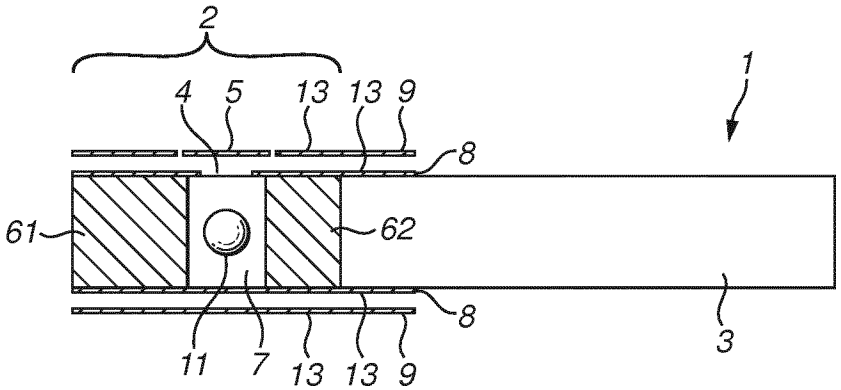

FIG. 2b

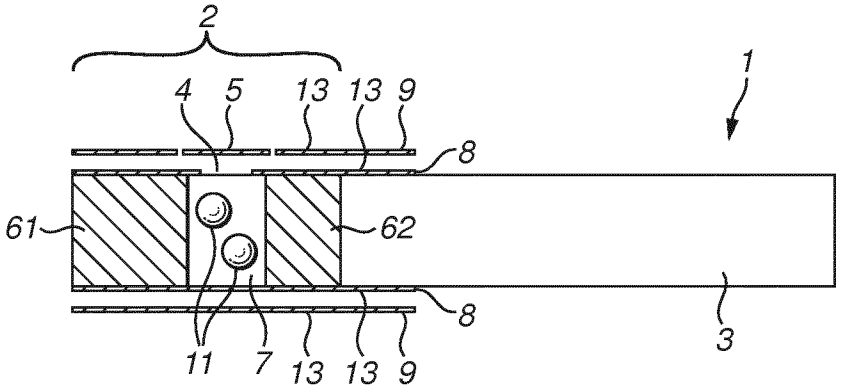

FIG. 2c

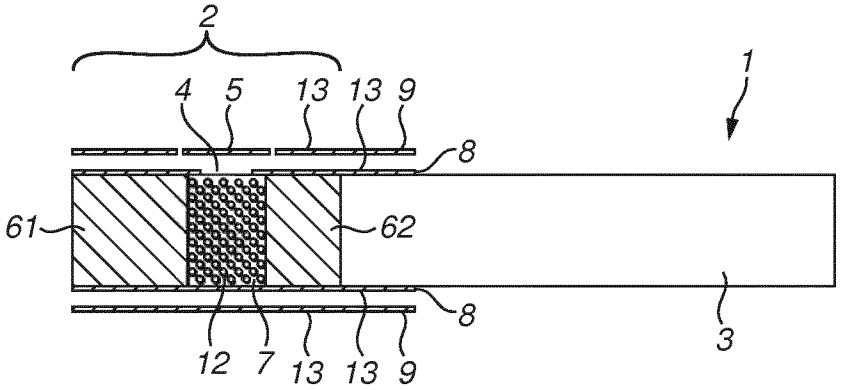

FIG. 2d

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2015/067291

A. CLASSIFICATION OF SUBJECT MATTER
INV. A24D3/06
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)
A24D

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2013/068100 A1 (PHILIP MORRIS PROD [CH]) 16 May 2013 (2013-05-16) the whole document	1-15
A	WO 2006/082529 A2 (PHILIP MORRIS PROD [CH]) 10 August 2006 (2006-08-10) the whole document	1-15
A	EP 2 578 093 A1 (JAPAN TOBACCO INC [JP]) 10 April 2013 (2013-04-10) the whole document	1-15

☐ 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	Date of mailing of the international search report
24 September 2015	05/10/2015

Name and mailing address of the ISA/	Authorized officer
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2015/067291

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