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(54) **ARTICLE OF THE INDUSTRY OF PRODUCTS ADAPTED TO EMIT A SUBSTANCE TO BE INHALED**

ARTIKEL DER BRANCHE VON ZUR EMISSION EINER ZU INHALIERENDEN SUBSTANZ  
ADAPTIERTEN PRODUKTEN

ARTICLE DE L'INDUSTRIE DES PRODUITS CONÇUS POUR ÉMETTRE UNE SUBSTANCE À  
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(56) References cited:

**EP-A1- 3 015 007**

**WO-A2-2008/038145**

**GB-A- 2 260 253**

**US-A1- 2005 172 976**

**US-A1- 2010 108 084**

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**EP 3 644 767 B1**

**Description**TECHNICAL FIELD

**[0001]** The present invention relates to an article of the industry of products adapted to emit a substance to be inhaled, in particular to an article of the tobacco processing industry (more particularly, to a smoking article).

PRIOR ART

**[0002]** In recent years, multi-component articles (i.e. comprising segments of different types) for the formation of aerosol have been proposed. Said articles, precisely due to the fact that they comprise a plurality of components (segments) to be managed and assembled, are complex and expensive to produce. In this regard, it is important to note that each component needs its own storage space, its own supply and an assembly device dedicated to the same.

**[0003]** These articles have the additional drawback of needing a wide use of material and/or not always being particularly solid, since it is often difficult to guarantee an adequate and stable connection between the different components (segments). The patent application EP3015007A1 describes a filter cigarette comprising a piece of tobacco wrapped in a first wrapping sheet and filter wrapped in a second wrapping sheet which also partially embraces the piece of tobacco so as to form a stable connection between the piece of tobacco itself and the filter. The filter internally contains several different filter pieces and, inside the filter, an empty space is also obtained which axially separates different filter pieces from one another.

**[0004]** The patent application US2005172976A1 describes a new generation cigarette which, in use, is electrically heated and comprises a pressed tobacco piece and a filter joined together by a wrapping sheet.

**[0005]** Patent application US2010108084A1 discloses a filtered cigarette, having smokable/tobacco rod secured to distal filter end by tipping material that circumscribes filter element and smokable/tobacco rod.

DESCRIPTION OF THE INVENTION

**[0006]** The object of the present invention is to provide an article of industry of products adapted to emit a substance to be inhaled, which article allows to overcome, at least partially, the drawbacks of the prior art and, at the same time, is easy and inexpensive to implement.

**[0007]** In accordance with the present invention, an article is provided according to what is defined in the independent claim detailed below and, preferably, in any one of the claims directly or indirectly dependent on the aforementioned independent claim.

BRIEF DESCRIPTION OF THE DRAWINGS

**[0008]** The present invention will now be described with reference to the accompanying drawings, which illustrate non-limiting examples of embodiment thereof, wherein:

- Figure 1 is a sectioned side view of an article according to the present invention;
- Figure 2 is a section along the line II-II of the article of Figure 1;
- Figure 3 is a section along the line III-III of the article of Figure 1;
- Figure 4 is a sectioned side view of a further embodiment of an article according to the present invention;
- Figure 5 is a sectioned side view of a further embodiment of an article according to the present invention;
- Figure 6 is a sectioned side view of a further embodiment of an article according to the present invention;
- Figure 7 is a sectioned side view of a further embodiment of an article according to the present invention;
- Figure 8 is a sectioned side view of a further embodiment of an article according to the present invention; and
- Figure 9 is a sectioned side view of a further embodiment of an article according to the present invention.

PREFERRED EMBODIMENTS OF THE INVENTION

**[0009]** In the accompanying figures, 1 denotes as a whole an article for the formation of a substance to be inhaled (in particular, an aerosol) comprising a group 2 (more precisely, a row) of segments (components distinct from one another). In particular, the article 1 is a smoking article, for example a cigarette.

**[0010]** The group 2 has an oblong shape (in particular, with a longitudinal axis A) and comprises a (first) segment 3 and at least a (second) segment 5 arranged in succession along a longitudinal extension (in particular, along the axis A) of the group 2.

**[0011]** According to some non-limiting embodiments the group 2 also comprises, at least one (third) segment 4, which is arranged in contact with the segment 3 and is interposed between the segments 3 and 5. In particular, the segments 3, 4 and 5 are arranged in succession along a longitudinal extension (in particular, along the axis A) of the group 2.

**[0012]** The segments 3 and 5 (in particular, the segments 4 and 5) are spaced from one another so that the group 2 comprises an empty space 6 (free - that is, no segment or other structural element is arranged therein) located between the segments 3 and 5.

**[0013]** The article 1 furthermore comprises, a wrapping sheet 7 which is wound (rolled) around a stretch 8 and a stretch 9 of the group 2 of segments; and a wrapping sheet 10, which does not extend (is not present - is absent) to the stretch 8 and is wound (rolled) around a stretch 11 of the group 2 of segments and around the

wrapping sheet 7 at the stretch 9. The wrapping sheet 7 does not extend (is not present - is absent) to the stretch 11. The stretches 8, 9 and 11 are arranged (in succession) along said longitudinal extension (more precisely, along the longitudinal axis A).

**[0014]** The particular arrangement of the sheets 7 and 10 allows the article 1 to be stable from a mechanical point of view, using at the same time a reduced quantity of material and/or a reduced number of components.

**[0015]** More precisely, the wrapping sheet 7 is wound (rolled) around (and in contact with) the stretches 8 and 9 at least once (at least one complete revolution - at least by 360°), in particular so that the stretches 8 and 9 are laterally completely covered. In other words, the lateral surface of the stretches 8 and 9 (that is, the surfaces delimiting the stretches 8 and 9 radially to the axis A towards the outside - typically, said surfaces extend parallel to the axis A) are (completely) covered (wrapped) by the sheet 7.

**[0016]** More precisely (similarly to what has been said for the sheet 7), the sheet 10 is wound (rolled) around the stretch 11 of the group 2 of segments and around the wrapping sheet 7 at the stretch 9 at least once (at least one complete revolution - at least by 360°), in particular so that the stretch 11 and the sheet 7 at the stretch 9 are laterally completely covered. In other words, the lateral surface of the stretch 11 and of the sheet 7 at the stretch 9 (that is, the surfaces that delimit the stretch 11 and the sheet 7 radially to the axis A towards the outside - typically said surfaces extend parallel to the axis A) are covered (wrapped) by sheet 10.

**[0017]** More generally, advantageously but not necessarily, when in the present text it is stated that a sheet is wound around something (a segment, a stretch and/or a part of a segment) means that the sheet is wound at least once (360°) around said thing.

**[0018]** In particular (therefore), the sheets 7 and 10 are wound around the group 2 (at least once) so as to define, for each, a respective tubular shape.

**[0019]** Advantageously but not necessarily, the article 1 has, furthermore, at least two wrapping layers 12 and 13, which are at least partially defined by the wrapping sheet 7 and/or 10 and are wound around the empty space 6 (around the entire space 6) so as laterally (completely) delimit it (peripherally - radially relative to the longitudinal extension of the group 2, more precisely relative to the axis A).

**[0020]** According to some non-limiting embodiments (see Figures from 5 to 7), the article 1 has (at least) three wrapping layers 12, 13 and 14, which are at least partially defined by the wrapping sheet 7 and/or 10 and are wound around the empty space (around the entire space 6) so as to laterally (completely) delimit it (peripherally - radially relative to the longitudinal extension of the group 2, more precisely relative to the axis A).

**[0021]** In particular, the layers 12 and 13 (and possibly 14) extend from a first end (delimited by the segment 4) to a second end (delimited by the segment 5 or 15) of

the space 6.

**[0022]** The layers 12 and 13 (and possibly 14) are meant to be wound (at least) once (at least by 360°) around the space 6 (as they are laterally delimiting the space 6 itself).

**[0023]** The presence of a plurality of external layers at the empty space 6 allows to give the article 1 a sufficient mechanical strength even in the absence of segments (or other elements which have - also - a structural function) at the space 6. The absence of further segments (or other elements that have - also - a structural function) between the segments 4 and 5 leads to a simplification of the production of the article 1, being, inter alia, necessary to manage (store, feed and/or or assemble) an element less than would otherwise be necessary.

**[0024]** Advantageously but not necessarily, the stretch 8 comprises (at least part of) the segment 3. In addition or alternatively, the stretch 11 comprises (at least part of) the segment 5. Alternatively or additionally, the stretch 9 comprises (at least part of) the segment 3 (and/or 5). Alternatively or additionally, the stretch 9 comprises (at least part of) the segment 4. Alternatively or additionally, the stretch 9 comprises (at least part of) the empty space 6.

**[0025]** According to some non-limiting embodiments, the group 2 comprises at least one further segment 15, which is arranged between the segments 3 and 5 (in particular, between the segments 4 and 5) in contact with the segment 5. In these cases, the empty space 6 is arranged between the segments 4 and 15. The wrapping sheet 10 is wound (at least once) (also) around the (at least part of) the segment 15 (in this way the segments 15 and 5 are kept integral one with the other).

**[0026]** The empty space 6 is (therefore) delimited at the ends by the segments 3 (or possibly 4) and 5 (or possibly 15).

**[0027]** According to some non-limiting and not illustrated embodiments, the segment 4 has its own through cavity, which extends in the direction of the longitudinal extension of the group of segments (in particular, in the direction of the axis A). In addition or alternatively, the segment 15 is provided with its own through cavity which extends in the direction of the longitudinal extension of the group of segments (in particular, in the direction of the axis A).

**[0028]** According to specific and non-limiting embodiments, the segment 4 (and possibly the segment 15) is made of cellulose acetate, more precisely it is paperless (NWA - non-wrapped acetate).

**[0029]** Advantageously but not necessarily, at least one of the segments 3 and 5 and possibly 4 (in particular, the segment 3) is adapted to release the substance to be inhaled. According to some non-limiting embodiments, the segment adapted to release the substance to be inhaled comprises the tobacco. In particular, the segment 3 is adapted to release the substance to be inhaled.

**[0030]** Advantageously but not necessarily, at least one of the segments 3 and 5 and possibly 4 comprises

(is made of) filtering material. In particular, the segment 5 comprises (is made of) a filtering material.

**[0031]** According to some non-limiting embodiments (see for example Figure 4), the article 1 comprises a further wrapping sheet 18, which is wound (at least once) around the empty space 6, in particular so as to define at least one among the wrapping layers 12 and 13 (and possibly 14) laterally delimiting the empty space. In particular, the wrapping sheet 18, which is wound (at least once) around at least part of the segment 4.

**[0032]** Advantageously but not necessarily, the sheet 18 is also rolled around at least part of the segment 15 (where present).

**[0033]** More precisely (similarly to what has been said for the sheet 7 and for the sheet 10), the sheet 18 is wound (rolled) around the empty space 6 (and possibly around at least part of the segment 4, in some cases, the sheet 18 is wound - rolled - around at least part of the segment 15) at least once (at least one complete revolution - at least by 360°), in particular the space 6 (and possibly at least part of the segment 4 - and/or the segment 15) is laterally completely covered.

**[0034]** According to some non-limiting embodiments (Figures 1-8), the sheet 10 is wound around (at least part of) the segments 4 and 5 (at least once). In this way the segments 4 and 5 are integral one with the other. In addition or alternatively (Figures 5, 6, 8 and 9), the sheet 10 is wound around (at least part of) the segments 3 and 5 (at least once). In this way the segments 3 and 5 are integral one with the other. In addition or alternatively (Figures 1-7), the sheet 7 is wound (at least once) around (at least part of) the segments 3 and 4. In this way the segments 3 and 4 are integral one with the other.

**[0035]** According to some non-limiting embodiments, the sheets 7 and 10 (and possibly 18) are made of paper or cardboard or similar material (in particular, a non-rigid material which allows the sheets to be rolled up but, at the same time, allows a sufficient structural strength). In addition or alternatively, the layers 12 and 13 (and possibly 14) are made of paper or cardboard or similar material (in particular, a non-rigid material which can be rolled up but, at the same time, allows sufficient structural solidity).

**[0036]** Advantageously but not necessarily, the stretch 9 comprises (at least part of) the empty space 6. In this way a particularly resistant connection between the segments 3 and 4 on one side and the segment 5 (and possibly 15) on the other is obtained and a good mechanical seal in the area of the space 6.

**[0037]** Advantageously but not necessarily (Figures 1 and 8) the sheet 10 is wound at least twice (at least 720° - see, in particular, Figures 2 and 3) around the empty space 6, in particular so as to define the two wrapping layers 12 and 13. Advantageously but not necessarily, the sheet 10 is wound at least twice (at least 720° - see, in particular, Figures 2 and 3) around the segment 5 (and possibly around the segment 15).

**[0038]** In addition or alternatively, according to specific

embodiments, such as that illustrated in Figures 1-3, the sheet 7 is wound (at least once) around the segment 3 (and around the segment 4) (and does not extend to the space 6 and to the segments 5 and 6) and the sheet 10 is wound (at least once, more precisely, at least twice) around the segment 5 (around the segment 15) (and around at least part of the segment 4).

**[0039]** According to specific embodiments, such as that illustrated in Figure 8, the sheet 7 is wound (at least once) around the segment 3 (and not around the segment 4 and around the segment 5) and the sheet 10 is wound (at least once; more precisely, at least twice) around the segment 5 (around the segment 15), around the space 6, around part of the segment 3 (and possibly also around the segment 4).

**[0040]** Advantageously but not necessarily (Figures 5-7), the sheet 10 is wound at least once (at least by 360°) around the sheet 7 at the empty space 6, in particular so as to define at least one wrapping layer 11 or 12 (or 13) laterally delimiting the empty space. In these cases, the mechanical stability of the article 1 is particularly relevant.

**[0041]** According to some non-limiting (and not illustrated) embodiments, the sheet 10 is wound at least twice (at least by 720°) around the sheet 7 at the empty space 6, in particular so as to define at least two of the wrapping layers 11, 12 and 13 laterally delimiting the empty space.

**[0042]** Advantageously but not necessarily (Figures 5-7), the wrapping sheet 7 is wound at least twice (at least by 720°) around the empty space 6, in particular so as to define at least two of the wrapping layers 12, 13 and 14.

**[0043]** According to specific embodiments, such as that illustrated in Figure 5, the sheet 7 is wound (at least twice) around the segment 3, the segment 4, the space 6 and the segment 15 (and is absent at the segment 5) and the sheet 10 is wound around the segment 5, the segment 15, the segment 4, the space 6 and part of the segment 3. In particular, the sheet 7 extends up to an end of the segment 5 facing the segment 4 (and in contact with the segment 15).

**[0044]** According to specific embodiments, such as that illustrated in Figure 6, the sheet 7 is wound (at least twice) around the segment 3, the space 6 and the segment 4 (and is absent at the segment 5) and the sheet 10 is wound around the segment 5, the space 6, the segment 4 and part of the segment 3. In particular, the sheet 7 extends up to an end of the segment 5 facing the segment 4.

**[0045]** According to specific embodiments, such as that illustrated in Figure 7, the sheet 7 is wound (at least twice) around the segment 3, the space 6 and the segment 4 (and is absent at the segments 5 and 15) and the sheet 10 is wound around the segment 5, the segment 15, the space 6 and part of the segment 4 (and is absent at the segment 3). In particular, the sheet 7 extends up to an end of the segment 15 opposite to the segment 5.

**[0046]** Advantageously but not necessarily, the wrap-

ping layers 12 and 13 (and possibly 14) have a plurality of through holes (of a known type and not illustrated), which establish a connection between the empty space 6 and the outside. In particular, the holes are distributed along the peripheral extension of the wrapping layers 12 and 13 (and possibly 14). In particular, the holes are distributed in rows (and are radially orientated relative to the axis A).

**[0047]** The holes can eventually be made by means of a laser.

**[0048]** The article 1 of the present invention has a remarkable mechanical stability and can be produced in a simple and inexpensive way.

## Claims

1. An article of the industry of products adapted to emit a substance to be inhaled, in particular a smoking article; the article (1) comprises a group (2) of segments, said group (2) having an oblong shape and comprising, in turn, a first segment (3) and at least a second segment (5), which are arranged in succession along a longitudinal extension of the group (2) of segments;

wherein the article (1) comprises at least a first wrapping sheet (7), which is wound around a first and at least a second stretch (8, 9) of the group (2) of segments;

wherein the first and the second segments (3, 5) are spaced from one another so that the group (2) of segments comprises an empty space (6) arranged between the first and the second segments (3, 5) ;

wherein the article (1) furthermore comprises, at least a second wrapping sheet (10), which does not extend at the first stretch (8) and is wound around a third stretch (11) of the group (2) of segments and around the first wrapping sheet (7) at the second stretch (9);

wherein the first wrapping sheet (7) does not extend at the third stretches (11);

wherein the first, the second and the third stretch (8, 9, 11) are arranged in succession along said longitudinal extension; wherein the first wrapping sheet (7) or the second wrapping sheet (10) is wound around said empty space (6) at least twice, in particular so as to define two wrapping layers (12, 13); the article (1) is **characterized in that:**

the group (2) of segments comprises at least a third segment (4), which is interposed between the first and the second segments (3, 5) and in contact with the first segment (3); and  
the empty space (6) being arranged be-

tween the third segment (4) and the second segment (5).

2. The article according to claim 1, and having at least two wrapping layers (12, 13; 14), which are at least partially defined by the first and/or the second wrapping sheet (7, 10) and are wound around the empty space (6) so as to laterally, in particular radially relative to said longitudinal extension, delimit it.

3. The article according to claim 1 or 2, wherein the second wrapping sheet (10) is wound around at least part of the second and the third segments (5, 4), in particular so as to keep them integral.

4. The article according to claim 1, 2 or 3, wherein the first wrapping sheet (7) is wound around at least part of the first and at least part of the third segments (3, 4), in particular so as to keep them integral.

5. The article according to any of the claims from 1 to 4, wherein:

the group (2) of segments comprises at least a fourth segment (15), which is arranged between the second and the third segments (5, 4) in contact with the second segment (5);

said empty space (6) being arranged between the third and the fourth segments (4, 15); and  
the second wrapping sheet (10) being wound around at least part of the fourth segment (15).

6. The article according to claim 5, wherein the first wrapping sheet (7) is wound around at least part of the fourth segment (15) .

7. The article according to claim 5, and comprising a further wrapping sheet (18), which is wound around at least part of the second segment (4), around at least part of the fourth segment (15) and around said empty space (6).

8. The article according to one of the preceding claims, wherein the second stretch (9) comprises said empty space (6).

9. The article according to any one of the preceding claims, wherein:

the first wrapping sheet (7) is wound around said empty space (6) at least twice, in particular so as to define two wrapping layers (12, 13); and  
the second wrapping sheet (10) is wound around the first wrapping sheet (7) at said empty space (6) at least once, in particular so as to define at least one wrapping layer (12, 13) laterally delimiting the empty space (6).

10. The article according to any one of the preceding claims, wherein:

the first stretch (8) comprises at least part of the first segment (3), and  
the third stretch (11) comprises at least part of the second segment (5).

11. The article according to any one of the preceding claims, and comprising a further wrapping sheet (18), which is wound around said empty space (6), in particular so as to define at least one further wrapping layer (14) laterally - more in particular radially relative to said direction of longitudinal extension - delimiting the empty space (6).

12. The article according to claim 2, wherein said wrapping layers (12, 13) have a plurality of through holes, which establish a connection between said empty space (6) and the outside; in particular, the holes are distributed along the peripheral extension of the wrapping layers (12, 13).

13. The article according to any one of the preceding claims, wherein at least one among the first and the second segments (3, 5) is adapted to release the substance to be inhaled.

14. The article according to any one of the preceding claims, wherein:

the first segment (3) is adapted to release the substance to be inhaled;  
the second segment (5) comprises a filtering material;  
the group (2) of segments comprises a third segment (4), which is interposed between the first and the second segments (3, 5) and in contact with the first segment (3);  
the empty space (6) is arranged between the third segment (4) and the second segment (5). possibly, the third segment (4) is provided with a through cavity which extends in the direction of the longitudinal extension of the group (2) of segments;  
the group (2) of segments comprises a fourth segment (15), which is arranged between the second and the third segments (5, 4) in contact with the second segment (5);  
the empty space (6) is arranged between the third and the fourth segments (4, 15);  
the second wrapping sheet (10) is wound around at least part of the fourth segment (15); and  
possibly, the fourth segment (15) is provided with a through cavity, which extends in the direction of the longitudinal extension of the group (2) of segments.

## Patentansprüche

1. Artikel der Industrie für Produkte, die ausgelegt sind, eine Substanz zu emittieren, die inhaliert werden soll, insbesondere ein Rauchartikel; wobei der Artikel (1) eine Gruppe (2) von Segmenten umfasst, wobei die Gruppe (2) eine längliche Form hat und wiederum ein erstes Segment (3) und wenigstens ein zweites Segment (5) umfasst, die längs einer Längsausdehnung der Gruppe (2) von Segmenten hintereinander angeordnet sind;

wobei der Artikel (1) wenigstens einen ersten Einwickelbogen (7) umfasst, der um einen ersten und wenigstens einen zweiten Abschnitt (8, 9) der Gruppe (2) von Segmenten gewickelt ist; wobei das erste und das zweite Segment (3, 5) voneinander beabstandet sind, so dass die Gruppe (2) von Segmenten einen leeren Zwischenraum (6) umfasst, der zwischen dem ersten und dem zweiten Segment (3, 5) angeordnet ist;

wobei der Artikel (1) ferner wenigstens einen zweiten Einwickelbogen (10) umfasst, der sich nicht beim ersten Abschnitt (8) erstreckt und um einen dritten Abschnitt (11) der Gruppe (2) von Segmenten und um den ersten Einwickelbogen (7) beim zweiten Abschnitt (9) gewickelt ist; wobei sich der erste Einwickelbogen (7) nicht beim dritten Abschnitt (11) erstreckt; wobei der erste, der zweite und der dritte Abschnitt (8, 9, 11) längs der Längsausdehnung hintereinander angeordnet sind;

wobei der erste Einwickelbogen (7) oder der zweite Einwickelbogen (10) wenigstens zweimal um den leeren Zwischenraum (6) gewickelt ist, insbesondere um zwei Einwickellagen (12, 13) zu definieren;

wobei der Artikel (1) **dadurch gekennzeichnet ist, dass:**

die Gruppe (2) von Segmenten wenigstens ein drittes Segment (4) umfasst, das zwischen dem ersten und dem zweiten Segment (3, 5) angeordnet ist und mit dem ersten Segment (3) in Kontakt ist; und wobei der leere Zwischenraum (6) zwischen dem dritten Segment (4) und dem zweiten Segment (5) angeordnet ist.

2. Artikel nach Anspruch 1, und aufweisend wenigstens zwei Einwickellagen (12, 13; 14), die wenigstens teilweise durch den ersten und/oder den zweiten Einwickelbogen (7, 10) definiert sind und um den leeren Zwischenraum (6) gewickelt sind, um diesen seitlich, insbesondere radial relativ zu der Längsausdehnung, zu begrenzen.

3. Artikel nach Anspruch 1 oder 2, wobei der zweite Einwickelbogen (10) um wenigstens einen Teil des

zweiten und des dritten Segments (5, 4) gewickelt ist, insbesondere um diese integral zu halten.

4. Artikel nach Anspruch 1, 2 oder 3, wobei der erste Einwickelbogen (7) um wenigstens einen Teil des ersten und wenigstens einen Teil des dritten Segments (3, 4) gewickelt ist, insbesondere um diese integral zu halten. 5
5. Artikel nach einem der Ansprüche 1 bis 4, wobei: 10
  - die Gruppe (2) von Segmenten wenigstens ein viertes Segment (15) umfasst, das zwischen dem zweiten und dem dritten Segment (5, 4) in Kontakt mit dem zweiten Segment (5) angeordnet ist; 15
  - wobei der leere Zwischenraum (6) zwischen dem dritten und dem vierten Segment (4, 15) angeordnet ist; und
  - der zweite Einwickelbogen (10) um wenigstens einen Teil des vierten Segments (15) gewickelt ist. 20
6. Artikel nach Anspruch 5, wobei der erste Einwickelbogen (7) um wenigstens einen Teil des vierten Segments (15) gewickelt ist. 25
7. Artikel nach Anspruch 5, und umfassend einen weiteren Einwickelbogen (18), der um wenigstens einen Teil des zweiten Segments (4), um wenigstens einen Teil des vierten Segments (15) und um den leeren Zwischenraum (6) gewickelt ist. 30
8. Artikel nach einem der vorhergehenden Ansprüche, wobei der zweite Abschnitt (9) den leeren Zwischenraum (6) umfasst. 35
9. Artikel nach einem der vorhergehenden Ansprüche, wobei: 40
  - der erste Einwickelbogen (7) wenigstens zweimal um den leeren Zwischenraum (6) gewickelt ist, insbesondere um zwei Einwickellagen (12, 13) zu definieren; und
  - der zweite Einwickelbogen (10) beim leeren Zwischenraum (6) wenigstens einmal um den ersten Einwickelbogen (7) gewickelt ist, insbesondere um wenigstens eine Einwickellage (12, 13) zu definieren, die den leeren Zwischenraum (6) seitlich begrenzt. 45
10. Artikel nach einem der vorhergehenden Ansprüche, wobei: 50
  - der erste Abschnitt (8) wenigstens einen Teil des ersten Segments (3) umfasst, und
  - der dritte Abschnitt (11) wenigstens einen Teil des zweiten Segments (5) umfasst. 55

11. Artikel nach einem der vorhergehenden Ansprüche, und umfassend einen weiteren Einwickelbogen (18), der um den leeren Zwischenraum (6) gewickelt ist, insbesondere um wenigstens eine weitere Einwickellage (14) seitlich - insbesondere radial relativ zu der Richtung der Längsausdehnung - zu definieren, um den leeren Zwischenraum (6) zu begrenzen.

12. Artikel nach Anspruch 2, wobei die Einwickellagen (12, 13) mehrere Durchgangslöcher haben, die eine Verbindung zwischen dem leeren Zwischenraum (6) und der Außenseite bilden; wobei insbesondere die Löcher längs der Umfangsausdehnung der Einwickellagen (12, 13) verteilt sind.

13. Artikel nach einem der vorhergehenden Ansprüche, wobei wenigstens eines aus dem ersten und dem zweiten Segment (3, 5) ausgelegt ist, die Substanz freizugeben, die inhaliert werden soll.

14. Artikel nach einem der vorhergehenden Ansprüche, wobei:

das erste Segment (3) ausgelegt ist, die Substanz freizugeben, die inhaliert werden soll; das zweite Segment (5) ein Filtermaterial umfasst;

die Gruppe (2) von Segmenten ein drittes Segment (4) umfasst, das zwischen dem ersten und dem zweiten Segment (3, 5) angeordnet ist und mit dem ersten Segment (3) in Kontakt ist; der leere Zwischenraum (6) zwischen dem dritten Segment (4) und dem zweiten Segment (5) angeordnet ist;

das dritte Segment (4) gegebenenfalls mit einem Durchgangshohlraum versehen ist, der in der Richtung der Längsausdehnung der Gruppe (2) von Segmenten verläuft;

die Gruppe (2) von Segmenten ein viertes Segment (15) umfasst, das zwischen dem zweiten und dem dritten Segment (5, 4) in Kontakt mit dem zweiten Segment (5) angeordnet ist;

der leere Zwischenraum (6) zwischen dem dritten und dem vierten Segment (4, 15) angeordnet ist;

der zweite Einwickelbogen (10) um wenigstens einen Teil des vierten Segments (15) gewickelt ist; und

das vierte Segment (15) gegebenenfalls mit einem Durchgangshohlraum versehen ist, der in der Richtung der Längsausdehnung der Gruppe (2) von Segmenten verläuft.

## Revendications

1. Article de l'industrie de produits conçus pour émettre une substance à inhaler, en particulier un article à

fumer ; l'article (1) comprend un groupe (2) de segments, ledit groupe (2) présentant une forme oblongue et comprenant, à son tour, un premier segment (3) et au moins un deuxième segment (5), qui sont agencés successivement le long d'une extension longitudinale du groupe (2) de segments ;

dans lequel l'article (1) comprend au moins une première feuille d'enveloppe (7), qui est enroulée autour d'un premier tronçon et d'au moins un deuxième tronçon (8, 9) du groupe (2) de segments ;

dans lequel les premier et deuxième segments (3, 5) sont espacés l'un de l'autre de sorte que le groupe (2) de segments comprenne un espace vide (6) agencé entre les premier et deuxième segments (3, 5) ;

dans lequel l'article (1) comprend en outre, au moins une deuxième feuille d'enveloppe (10), qui ne s'étend pas au niveau du premier tronçon (8) et est enroulée autour d'un troisième tronçon (11) du groupe (2) de segments et autour de la première feuille d'enveloppe (7) au niveau du deuxième tronçon (9) ;

dans lequel la première feuille d'enveloppe (7) ne s'étend pas au niveau des troisièmes tronçons (11) ;

dans lequel les premier, deuxième et troisième tronçons (8, 9, 11) sont agencés successivement le long de ladite extension longitudinale ;

dans lequel la première feuille d'enveloppe (7) ou la deuxième feuille d'enveloppe (10) est enroulée autour dudit espace vide (6) au moins deux fois, en particulier de manière à définir deux couches d'enveloppe (12, 13) ;

l'article (1) est **caractérisé en ce que** :

le groupe (2) de segments comprend au moins un troisième segment (4), qui est interposé entre les premier et deuxième segments (3, 5) et en contact avec le premier segment (3) ; et

l'espace vide (6) étant agencé entre le troisième segment (4) et le deuxième segment (5).

2. Article selon la revendication 1, et présentant au moins deux couches d'enveloppe (12, 13 ; 14), qui sont au moins partiellement définies par les première et/ou deuxième feuilles d'enveloppe (7, 10) et sont enroulées autour de l'espace vide (6) de manière à le délimiter latéralement, en particulier radialement, par rapport à ladite extension longitudinale.

3. Article selon la revendication 1 ou 2, dans lequel la deuxième feuille d'enveloppe (10) est enroulée autour d'au moins une partie des deuxième et troisième segments (5, 4), en particulier de manière à

les garder solidaires.

4. Article selon la revendication 1, 2 ou 3, dans lequel la première feuille d'enveloppe (7) est enroulée autour d'au moins une partie du premier segment et d'au moins une partie du troisième segment (3, 4), en particulier de manière à les garder solidaires.

5. Article selon l'une quelconque des revendications de 1 à 4, dans lequel :

le groupe (2) de segments comprend au moins un quatrième segment (15), qui est agencé entre les deuxième et troisième segments (5, 4) en contact avec le deuxième segment (5) ; ledit espace vide (6) étant agencé entre les troisième et quatrième segments (4, 15) ; et la deuxième feuille d'enveloppe (10) étant enroulée autour d'au moins une partie du quatrième segment (15).

6. Article selon la revendication 5, dans lequel la première feuille d'enveloppe (7) est enroulée autour d'au moins une partie du quatrième segment (15).

7. Article selon la revendication 5, et comprenant une autre feuille d'enveloppe (18), qui est enroulée autour d'au moins une partie du deuxième segment (4), autour d'au moins une partie du quatrième segment (15) et autour dudit espace vide (6).

8. Article selon l'une des revendications précédentes, dans lequel le deuxième tronçon (9) comprend ledit espace vide (6).

9. Article selon l'une quelconque des revendications précédentes, dans lequel :

la première feuille d'enveloppe (7) est enroulée autour dudit espace vide (6) au moins deux fois, en particulier de manière à définir deux couches d'enveloppe (12, 13) ; et

la deuxième feuille d'enveloppe (10) est enroulée autour de la première feuille d'enveloppe (7) au niveau dudit espace vide (6) au moins une fois, en particulier de manière à définir au moins une couche d'enveloppe (12, 13) délimitant latéralement l'espace vide (6).

10. Article selon l'une quelconque des revendications précédentes, dans lequel :

le premier tronçon (8) comprend au moins une partie du premier segment (3), et le troisième tronçon (11) comprend au moins une partie du deuxième segment (5).

11. Article selon l'une quelconque des revendications

précédentes, et comprenant une autre feuille d'enveloppe (18), qui est enroulée autour dudit espace vide (6), en particulier de manière définir au moins une autre couche d'enveloppe (14) délimitant latéralement, plus particulièrement radialement par rapport à ladite direction d'extension longitudinale, l'espace vide (6). 5

12. Article selon la revendication 2, dans lequel lesdites couches d'enveloppe (12, 13) présentent une pluralité de trous traversants, qui établissent une liaison entre ledit espace vide (6) et l'extérieur ; en particulier, les trous sont répartis le long de l'extension périphérique des couches d'enveloppe (12, 13) . 10

13. Article selon l'une quelconque des revendications précédentes, dans lequel au moins l'un parmi les premier et deuxième segments (3, 5) est conçu pour libérer la substance à inhaler. 15

14. Article selon l'une quelconque des revendications précédentes, dans lequel : 20

le premier segment (3) est conçu pour libérer la substance à inhaler ; 25

le deuxième segment (5) comprend un matériau filtrant ;

le groupe (2) de segments comprend un troisième segment (4), qui est interposé entre les premier et deuxième segments (3, 5) et en contact avec le premier segment (3) ; 30

l'espace vide (6) est agencé entre le troisième segment (4) et le deuxième segment (5), éventuellement, le troisième segment (4) est doté d'une cavité traversante qui s'étend dans la direction de l'extension longitudinale du groupe (2) de segments ; 35

le groupe (2) de segments comprend un quatrième segment (15), qui est agencé entre les deuxième et troisième segments (5, 4) en contact avec le deuxième segment (5) ; 40

l'espace vide (6) est agencé entre les troisième et quatrième segments (4, 15) ;

la deuxième feuille d'enveloppe (10) est enroulée autour d'au moins une partie du quatrième segment (15) ; et 45

éventuellement, le quatrième segment (15) est doté d'une cavité traversante, qui s'étend dans la direction de l'extension longitudinale du groupe (2) de segments. 50

55

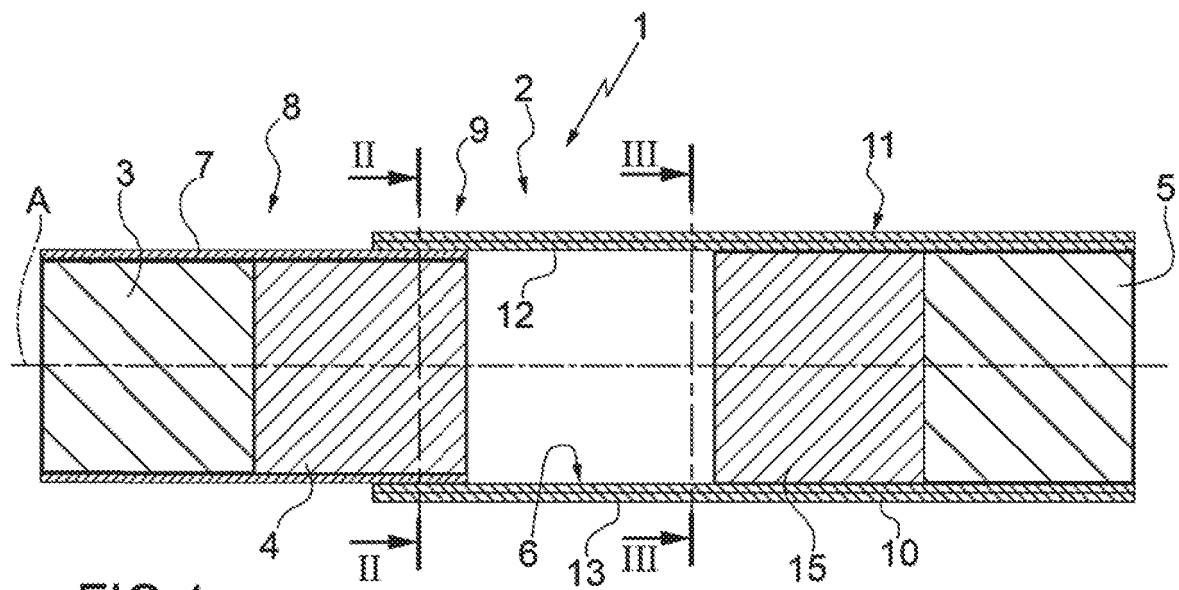


FIG. 1

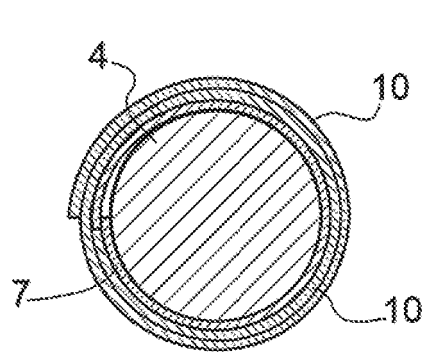


FIG. 2

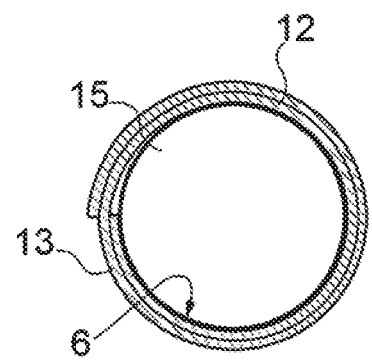


FIG. 3

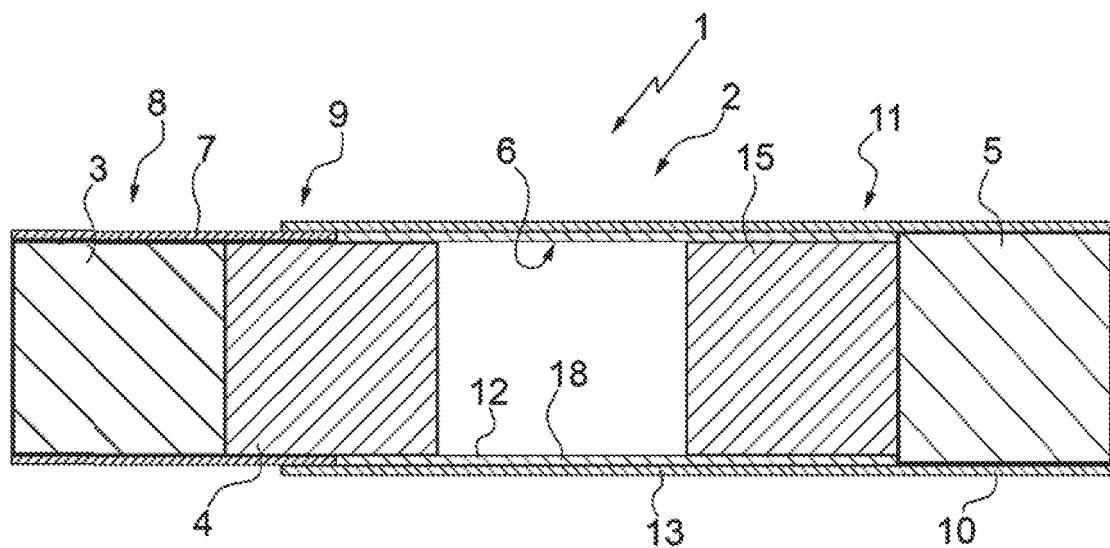
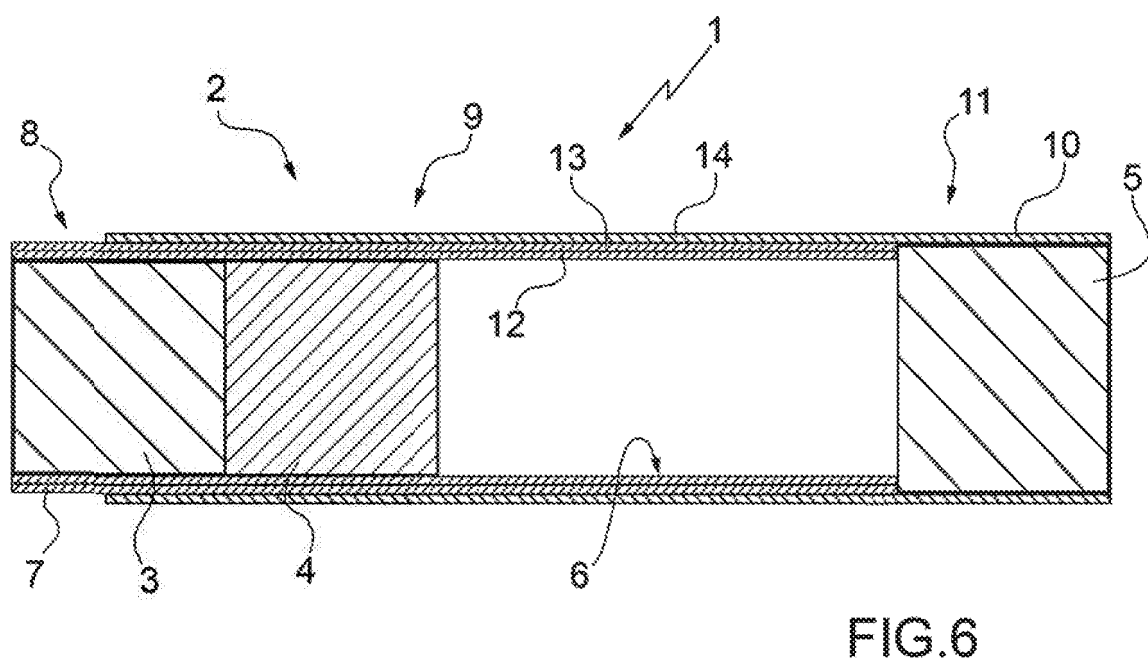
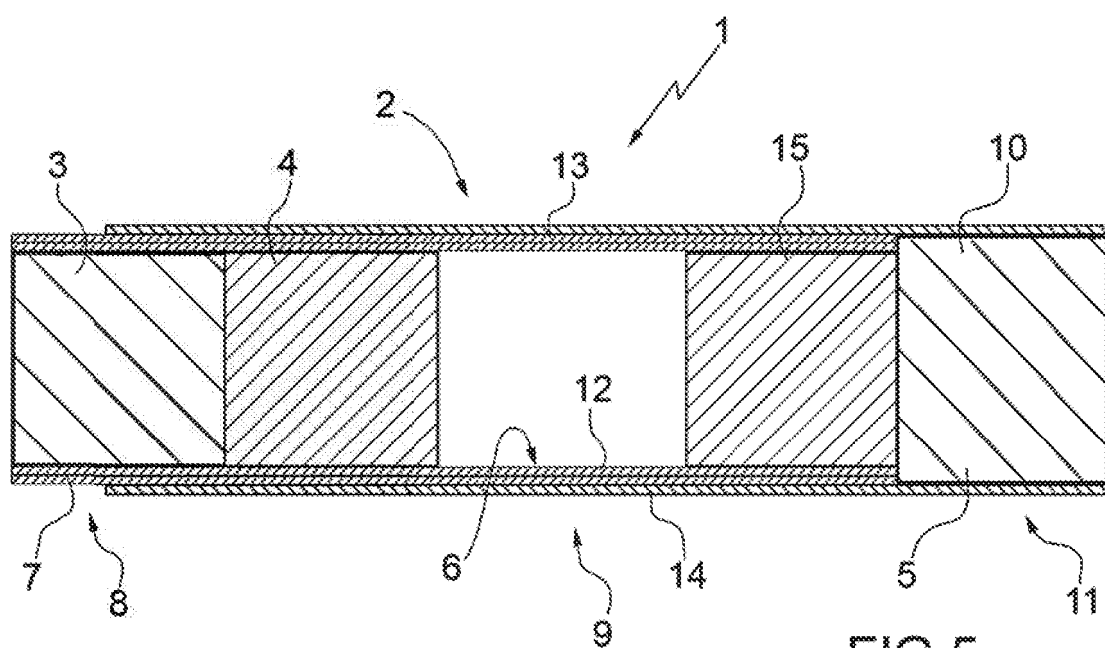


FIG. 4



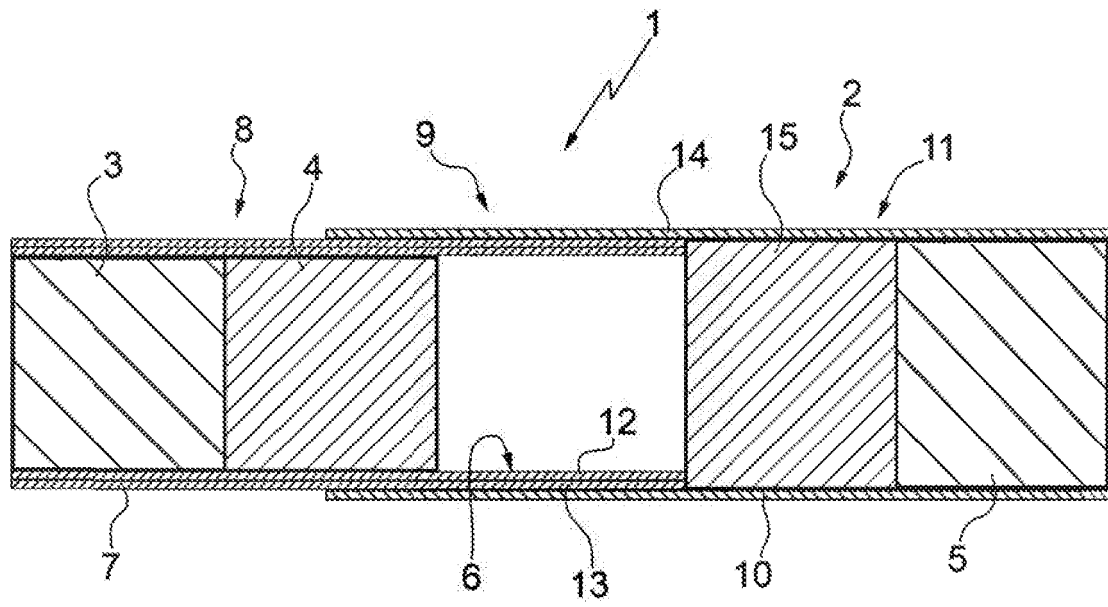


FIG. 7

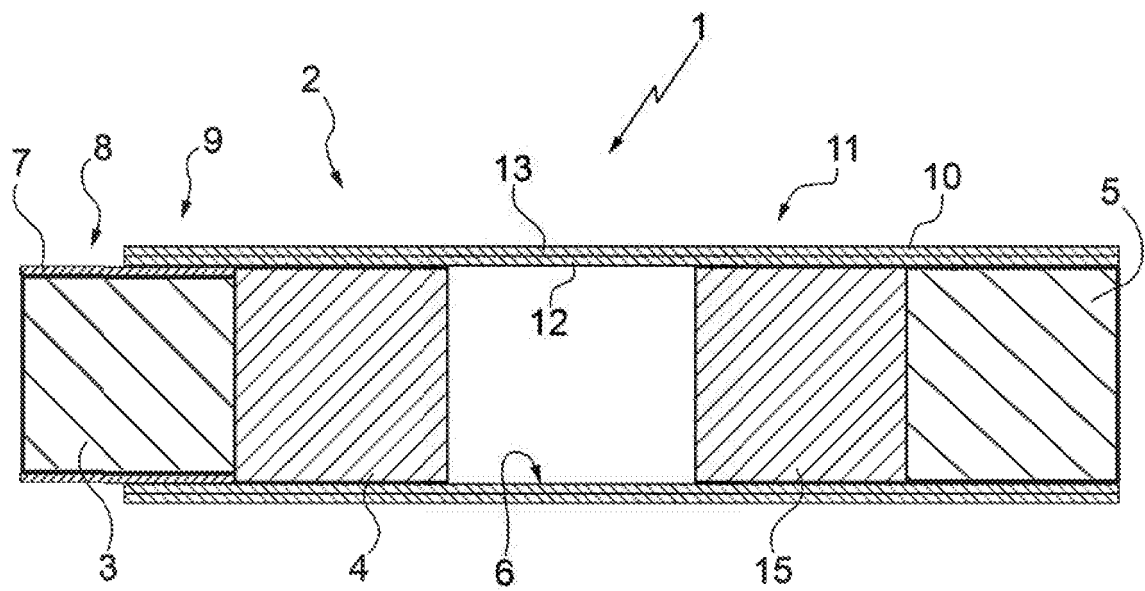


FIG. 8

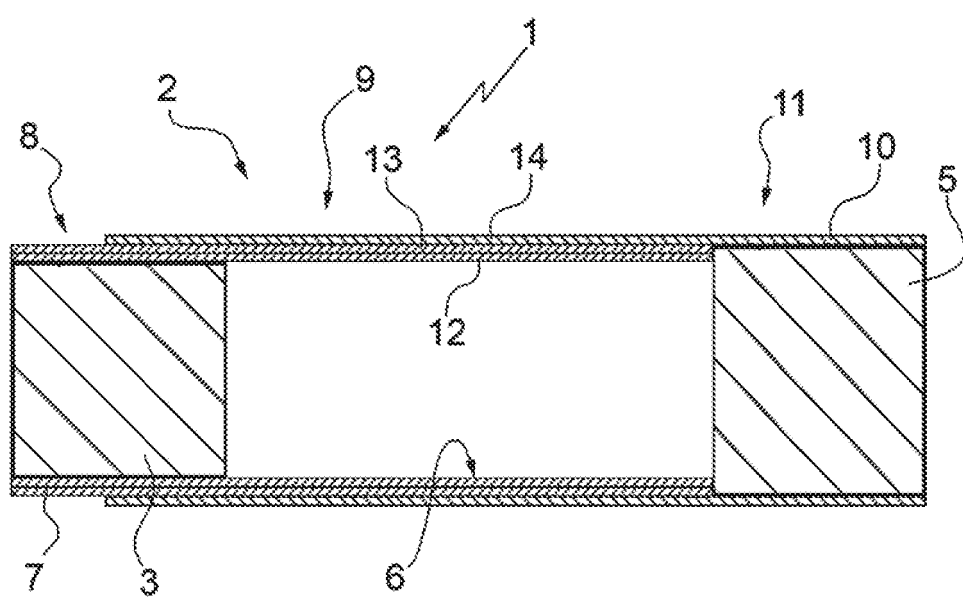


FIG.9

**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

- EP 3015007 A1 [0003]
- US 2005172976 A1 [0004]
- US 2010108084 A1 [0005]