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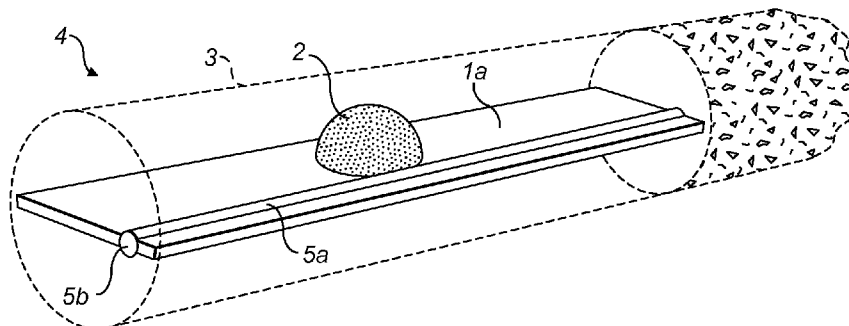


FIG. 1

(57) Abstract: A smoking article filter comprises an additive-containing member to selectively release additive inside the filter; and an additive-transfer member to transfer additive released from the additive-containing member to the periphery of the filter to indicate that the additive has been released.

TITLE OF INVENTION

Smoking article filter

FIELD

5 This invention relates, among other things, to a smoking article filter.

BACKGROUND

Filter elements for smoking articles such as cigarettes typically comprise a plug of cellulose acetate material surrounded by a plugwrap wrapper. In cigarette
10 manufacture, filter elements are aligned with tobacco rods and wrapped with a further wrapper known as a "tipping paper" to join them together.

It is known to provide a breakable menthol-containing capsule inside the plug of a cigarette filter. By applying pressure to the outside of the filter, the smoker may break
15 the capsule, thereby releasing the flavourant so as to flavour the smoke drawn from the cigarette.

WO2010/003899 describes a method of manufacturing capsule-containing cigarette filter rods in which an elongate tube containing a plurality of capsules is pulled from a
20 reel into a flow of filter tow to form an elongate filter rod, which is then cut into segments to form individual capsule-containing filter rods.

SUMMARY

In accordance with embodiments of the invention, there is provided a smoking article
25 filter, comprising an additive-containing member to selectively release additive inside the filter; and an additive-transfer member to transfer additive released from the additive-containing member to the periphery of the filter to indicate that the additive has been released.

30 A region of the additive-transfer member may be provided at the periphery of the filter.

The additive-containing member may contain a fluid additive; and the additive-transfer member may be formed of a wicking material to transfer additive by capillary action.

35 The region of the additive-transfer member may be adapted to undergo a colour change in response to the presence of the additive.

The additive-transfer member may comprise a cylinder of wicking material, preferably in the form of a thread.

- 5 The additive-transfer member may comprises a strip of wicking material, and the region of the additive-transfer member may comprise an end face and/or side edge of said strip.

10 The filter may have a peripheral end face and the additive-transfer member may be arranged to transfer additive released from the additive-containing member to the peripheral end face.

The smoking article filter may comprise first and second additive-containing members to selectively concurrently release first and second additives inside the filter; the
15 additive-transfer member may be adapted to transfer the second additive released from the first additive-containing member to the periphery of the filter to indicate that the first additive has been released; and the first additive may be unsuitable for being transferred by the additive-transfer member and/or for providing a visual indication that it has been released.

20

The smoking article filter may comprise first and second additive-containing members to selectively release first and second additives inside the filter; and a connecting member connecting the additive-containing members together, wherein the connecting member comprises: a first additive-transfer member to transfer first additive from the
25 first additive-containing member to the periphery of the filter to indicate that the first additive has been released; and a second additive-transfer member to transfer second additive from the second additive-containing member to the periphery of the filter to indicate that the second additive has been released.

30 A portion of the filter plug of the smoking article filter may constitute the additive-transfer member.

The smoking article filter may comprise a window adapted to provide a view of a region to which the additive released from the additive-containing member is transferred by
35 the additive-transfer member.

In accordance with embodiments of the invention, there is provided a smoking article filter, comprising an additive release component to selectively release additive inside the filter; and an additive-transfer member to transfer additive released from the additive release component to a visible region of the filter to indicate that the additive
5 has been released.

In accordance with embodiments of the invention, there is provided an arrangement of smoking article additive-containing members, comprising first and second additive-containing members configured to selectively release additive, and a connecting
10 member connecting the first and second additive-containing members together, wherein the connecting member comprises an additive-transfer member to transfer additive released from one of said additive-containing members to a predetermined region of the connecting member, for indicating that additive has been released.

15 The first and second additive-containing members may be adapted to releasably contain fluid additive and the additive-transfer member may comprise a wicking material to transfer fluid additive by capillary action.

The arrangement may comprise two layers which form the connecting member and
20 which are sealed together to form pocket regions for containing the additive. The additive-transfer member may be held by the sealing between the two layers. The additive-transfer member may be narrow in relation to the layers and may be positioned alongside the pocket regions.

25 There may be provided a filter rod for use in the manufacture of smoking articles, comprising a segment of the arrangement, wherein the segment includes one or more additive-containing members.

Preferably, the elongate member is formed from a polymeric material such as a PVOH, SCMC or HPMC. Using a polymeric material leads to advantages in terms of long shelf
30 life, low crush strength requirement, low cost, and robustness against freezing/thawing which may occur in the supply chain. Alternatively, starches may be used to form the strip.

35 As used herein, the term “smoking article additive” refers to any substance that may be suitably added to a smoking article. Many different additives are envisaged, including

solid additive(s) such as tobacco (e.g: ground fire-cured tobacco). However, fluid additive(s) are preferred. Possible additives include smoke-modifying agents such as flavourants, humectants or adsorbents. Preferably, each additive-containing member contains between 10 and 100 µl of additive

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As used herein the term fluid includes any substance which flows and therefore includes liquids, gases and solids (e.g. in powder or granule or grain form, or plastic solids) which are able to flow.

10 As used herein, the terms “flavour” and “flavourant” refer to materials which, where local regulations permit, may be used to create a desired taste or aroma in a product. They may include extracts e.g., licorice, hydrangea, Japanese white bark magnolia leaf, chamomile, fenugreek, clove, menthol, Japanese mint, aniseed, cinnamon, herb, wintergreen, cherry, berry, peach, apple, Dramboui, bourbon, scotch, whiskey, 15 spearmint, peppermint, lavender, cardamon, celery, cascarilla, nutmeg, sandalwood, bergamot, geranium, honey essence, rose oil, vanilla, lemon oil, orange oil, cassia, caraway, cognac, jasmine, ylang-ylang, sage, fennel, piment, ginger, anise, coriander, coffee, or a mint oil from any species of the genus *Mentha*, flavour masking agents, bitterness receptor site blockers, receptor site enhancers, sweeteners e.g., sucralose, 20 acesulfame potassium, aspartame, saccharine, cyclamates, lactose, sucrose, glucose, fructose, sorbitol, or mannitol, and other additives such as chlorophyll, minerals, botanicals, or breath freshening agents. They may be imitation, synthetic or natural ingredients or blends thereof. They may be in any suitable form, for example, oil, liquid, or powder.

25

As used herein, the term “smoking article” includes smokeable products such as cigarettes, cigars and cigarillos whether based on tobacco, tobacco derivatives, expanded tobacco, reconstituted tobacco or tobacco substitutes and also heat-not-burn products. The smoking article may be provided with a filter for the smoke drawn from 30 the smoking article. Various filter dimensions are possible. For example, typical filter sizes are a diameter of between 5 and 8mm and a length of between 22 and 27 mm

BRIEF DESCRIPTION OF THE DRAWINGS

Embodiments of the invention will now be described, by way of example only, with 35 reference to the accompanying drawings, in which:

Figure 1 shows a first example of a smoking article filter, which includes an additive-transfer member in the form of a thread;

Figure 2a illustrates rupturing of the additive release component in the filter of Figure 1;

5 Figure 2b shows an end view of the filter of Figure 1 after the additive release component has been ruptured;

Figure 3 shows a tape, a section of which is included in the filter shown in Figure 1;

Figure 4 illustrates an example of a method of manufacturing a tape similar to that shown in Figure 3;

10 Figure 5a shows a second example of a smoking article filter, which includes two additive release components and two additive-transfer members;

Figure 5b illustrates rupturing of one of the additive release components in the filter of Figure 5a;

15 Figure 5c illustrates rupturing of the other of the additive release components in the filter of Figure 5a;

Figure 6a shows a third example of a smoking article filter, which includes an additive-transfer member in the form of a strip;

Figure 6b illustrates rupturing of the additive release component in the filter of Figure 6a;

20 Figure 6c shows an end view of the filter of Figure 6a after the additive release component has been ruptured;

Figure 7a shows a fourth example of a smoking article filter, which includes an additive release component and a colourant release component;

25 Figure 7b illustrates rupturing of the additive release component and the colourant release component in the filter of Figure 7a;

Figure 7c shows an end view of the filter of Figure 7a after the additive release component and the colourant release component has been ruptured;

Figure 8a shows a fifth example of a smoking article filter, which includes a window in the side of the filter;

30 Figure 8b illustrates rupturing of the additive release component in the filter of Figure 8a;

Figure 8c shows the filter of Figure 8a after the additive release component has been ruptured;

35 DESCRIPTION OF EMBODIMENTS

Figure 1 shows a section 1a of tape 1 positioned within the cellulose acetate plug of the

filter 3 of a cigarette 4. The section 1a of tape 1 has an additive-containing member in the form of a sealed pocket 2. The pocket 2 has an inner space containing an additive in the form of a liquid flavourant such as menthol – or coffee – essence. The tape and pockets may be formed from a flexible polymeric material such as Polyvinyl alcohol
5 (PVOH) or polyethylene (PE). By applying pressure to the outside of the filter 3, the smoker can cause the pocket 2 to rupture so as to release its liquid flavourant. In this way, the smoker may cause the smoke drawn from the cigarette 4 to be selectively flavoured.

10 The section 1a of tape 1 is provided with an additive-transfer member in the form of a section 5a of thread 5. The section 5a of thread 5 is for indicating that the additive has been released. This may involve transferring the additive towards the periphery of the filter 3. The thread 5 is formed from a wicking material configured for absorbing and transferring liquid by capillary action. The wicking material may comprise uncrimped
15 cellulose acetate. Preferably, the wicking material is white. Preferably, the wicking material wicks the additive more rapidly than the filter material. An example of suitable thread 5 is 0.5-mm-diameter, 1800-denier cellulose acetate thread.

As shown in Figure 1, Figure 2a and Figure 2b, an end face 5b of the section 5a of
20 indicating thread 5 is flush with the end face of the filter 3 so that the end face 5b can be seen by looking at the filter 3 end on.

When the pocket 2 is broken, a portion of the released fluid is absorbed by the thread 5, which may change colour due to presence of the absorbed fluid. As shown in Figure 2a
25 and Figure 2b, a portion of the liquid is transferred to an end region of the section 5a of thread 5 so that the end face 5b becomes coloured, thereby providing a visual indication to the smoker that the pocket 2 has been ruptured and the fluid therein released.

In some examples, a colourant may be provided inside the pocket 2 with the fluid
30 additive so that the wicking strip adopts a particular colour when the pocket is ruptured.

Figure 3 shows the tape 1, a section of which is shown in Figure 1. The tape 1 has a plurality of additive-containing members in the form of sealed pockets 2 spaced along
35 its length. The tape also has thread 5 running along it.

A vertical form, fill, seal method may be used to manufacture the tape 1. The tape 1 may be formed from two or more polymeric layers which are sealed together such that the non-sealed areas form the pockets 2. Heat-sealing or ultrasonic sealing may be used to form the seals.

5

Figure 4 illustrates a method of manufacturing the tape 1.

At step A, cavities 7 are formed in a first layer 6. This forming may involve causing the first layer 6 to adopt to the shape of a mould (not shown) which is under vacuum. The
10 cavities 7 protrude from one side (e.g. the lower side) of the layer 6.

At step B, the cavities 7 are filled with additive 8.

At step C, thread 5 is positioned on the first layer 6 on the opposite side (e.g. the upper
15 side) from the side from which the cavities 7 protrude. The thread 5 is positioned such that it runs along the first layer 6 between the edges of the cavities 7 and one edge of the first layer 6. As illustrated in the figure, the positioning of the thread 5 may be performed after the cavities 7 have been formed and filled. Alternatively, the positioning may be performed before completing either of these steps.

20

At step D, a second layer 9 is positioned on the same side of the first layer 6 as the thread 5. Thus, the thread 5 is sandwiched between the layers 6, 9.

At step E, the layers 6, 9 are sealed to each other, e.g. using heat sealing. A sealed area
25 10 is formed around each of the cavities 7, thus forming the pockets 2. A section of the thread 5 also passes through each of the sealed areas 10 and is thus fixed in place alongside the pockets 2 (but not in communication with the pockets 2). There is an unsealed area 11 separating each pocket 2 and each fixed section of thread 5 from the next pocket 2 and the next fixed section of thread 5.

30

Alternative methods of manufacturing the tape 1 may be used.

For example, the tape 1 may first be formed without the thread 5. This may involve a similar method to the one illustrated in Figure 4 (without step C) or any other suitable
35 method. The thread 5 may then be attached to one side of the tape 1. If additive is preferentially released on one side of the tape 1, e.g. the side from which the pockets 2

protrude, then the thread 50 may be attached to that side. The thread may be attached to the surface in any suitable way, e.g. using an adhesive.

5 In some examples, the tape 1 may be formed by a method in which the pockets 2 are attached to the tape with adhesive.

10 In any case, the tape 1 may be wound onto a reel and then drawn from the reel into a flow of filter tow passing through a filter rod maker, so as to be incorporated into an elongate filter rod. The cutter of the filter maker then cuts the elongate filter rod into segments to form individual filter rods, each containing one pockets 2 and section 5a of thread 5. This filter manufacturing process is substantially similar to that described in WO2010/003899, but with the elongate capsule-containing tube of WO2010/003899 replaced by the tape 1.

15 Therefore, the methods described above facilitate the positioning of the pocket 2 and section 5a of thread 5 in the filter 3. Moreover, due to the presence of the unsealed areas 11, when the pocket 2 is broken as described above, a portion of the released fluid can still be absorbed by the indicating thread 5.

20 The inclusion of a thread or other, similar additive transfer member can also have the effect of increasing the resistance to longitudinal stretching and increasing the longitudinal tensile strength of the tape. This can facilitate the handling of the tape during manufacture, for example when the tape is wound onto and subsequently drawn from the reel.

25 Figure 5a shows another example of a section 51a of tape 51 positioned within the cellulose acetate plug of the filter 53 of a cigarette 54. The section 51a of tape 51 includes two pockets 52a, 52b, which respectively contain two different flavourants (for example menthol and coffee-essence). The smoker may selectively break one or the other pocket 52a, 52b by applying pressure to different regions of the filter periphery. In this way, the smoker is provided with several options for flavouring smoke, i.e.: break one or the other pocket and flavour the cigarette smoke with menthol or coffee, or break both pockets and flavour the cigarette smoke with a mixed coffee-menthol flavour.

35

A vertical form, fill, seal method may be used to manufacture the tape 51. The tape 51 may be formed from two or more polymeric layers which are sealed together such that the non-sealed areas form the pockets 52a, 52b. Heat-sealing or ultrasonic sealing may be used to form the seals. In some examples, the tape 51 may be formed from three
5 layers: a central layer and two outer layers disposed on either side of the central layer. The central layer may be formed of a rigid material (or a material less flexible or thicker than the outer layers), such that the pockets 52a, 52b are caused to bulge asymmetrically from opposing sides of the tape.

10 Although Figure 5a shows the pockets 52a, 52b protruding from opposite sides of the tape 51, many alternative arrangements are envisaged. For example, the pockets 52a, 52b may be arranged on one side of the tape 51.

The tape 51 may be provided with two indicating strips 55, 56. The indicating strips are
15 formed from a wicking material configured for absorbing and transferring liquid by capillary action. The wicking material may comprise uncrimped cellulose acetate. Preferably, the wicking material is coloured white.

The first indicating strip 55 is disposed on the same side of the tape as the upper pocket
20 52a, underneath sealed pocket 52a. An end face 55a of the indicating strip 55 is flush with the end face of the filter 53 so that the end face 55a can be seen by looking at the filter 53 end on. When the pocket 52a is broken, a portion of the released fluid is absorbed by the indicating strip 55, which may change colour due to presence of the absorbed fluid. For example, where the fluid is a menthol-containing liquid, the
25 wicking strip can adopt a green colour. As shown in Figure 5b, a portion of the liquid is transferred to an end region of the indicating strip so that the end face 55a becomes coloured, thereby providing a visual indication to the smoker that the pocket 52a has been ruptured and the fluid therein released.

30 In some examples, a colourant may be provided inside a pocket 52a, 52b with the fluid additive so that the wicking strip adopts a particular colour when the pocket is ruptured.

As shown in Figure 5a, the second indicating strip 56 is disposed on the same side of
35 the tape as the lower pocket 52b, above sealed pocket 52b. An end region 56a of the indicating strip 56 is flush with the end face of the filter 53 so that the end region can be

seen by looking at the end of the filter 53. As illustrated in Figure 5c, when the pocket 52b is broken, a portion of the released fluid is absorbed by the indicating strip 56, which may change colour due to presence of the absorbed fluid. For example, where the fluid is an colour-essence-containing liquid, the wicking strip adopts a brown colour. A portion of the liquid is transferred to an end region of the indicating strip so that the end face 56a becomes coloured, thereby providing an indication to the smoker that the pocket 52b has been ruptured and the fluid therein released.

In some examples, the indicating strips 55, 56 may have the same width as the filter and an edge of the indicating strip may be visible on the side of the filter. In this case, when the additive is released, a coloured "strip" appears on the side of the filter to indicate that a pocket 2a, 2b has been ruptured.

Figure 6a shows another example of a section 61a of tape 61 positioned within the cellulose acetate plug of the filter 63 of a cigarette 64. The tape 61 is similar to the tape 51 described above, but includes only one pocket 62 and one indicating strip 65. The tape 61 include holes 66 through the tape 61 next to the pocket 42, the function of which will be described below.

In an example method of manufacture, the tape 61 may first be formed without the indicating strip 65, e.g. using a similar method to the one illustrated in Figure 4 (without step C).

The indicating strip 65 may then be attached, e.g. using an adhesive, to the other side of the tape 61 from which the pockets 62 protrude.

Alternatively or additionally, a third layer may be placed over the indicating strip 65. The third layer may be similar to the first and second layers described above with reference to figure 4. The third layer, the indicating strip 65 and the remainder of the tape 61 may be attached in any suitable way, e.g. using an adhesive or by heat-sealing.

The holes 66 may be formed in any suitable way at any suitable stage of the method.

The holes 66 are to facilitate the passage of the released fluid to the indicating strip 65. In particular, the released fluid can pass through the holes 66 rather than having to pass around the edge of the tape 61, which is generally impermeable.

Although not shown in Figure 5a, the example shown therein may include similar such holes on the upper and lower sides of the tape 51.

5 As shown in Figure 6b and Figure 6c, when the pocket 62 is broken, a portion of the released fluid passes through the holes 66, is absorbed by the indicating strip 65, and is transferred to an end region of the indicating strip 65 so that an end face 65a becomes coloured. The end face 65a of the indicating strip 65 is flush with the end face of the filter 63 so that the end face 65a can be seen by looking at the filter 63 end on.

10

In certain circumstances, it may be desirable or necessary to provide a separate, coloured liquid for indicating that an additive has been released. For example, the additive may not be readily colourable or wickable. Indeed, as mentioned above, the additive need not be a liquid.

15

Figure 7a shows another example of a section 71a of tape 71 positioned within the cellulose acetate plug of the filter 73 of a cigarette 74. The section 71a of tape 71 includes two pockets 72a, 72b, which respectively contain an additive and a coloured liquid. The pocket 72a protrudes from a first side of the tape 71, and the pocket 72b
20 protrudes from a second, opposing side. The pockets 72a, 72b have the same longitudinal disposition along the tape 71.

As shown in Figure 7b and Figure 7c, applying squeezing finger-pressure to the outside of the filter 73 causes both of the pockets 72a, 72b to rupture simultaneously, thereby
25 simultaneously releasing the additive and the coloured liquid. Holes (not shown) similar to the holes 66 described above may be provided in the second side of the tape 71 so that the coloured liquid may pass therethrough. In any case, the coloured liquid is absorbed by the indicating strip 75 and transferred to an end region of the indicating strip 75 so that an end face 75a becomes coloured.

30

Alternatively, two pockets respectively containing an additive and a coloured liquid may be used with an additive-transfer member in the form of a section of thread such as the one shown in Figure 1a. In either case, the two pockets may protrude from opposite sides of the tape as described above or may be arranged on one side of the
35 tape. An arrangement in which the additive-transfer member is a thread and the

pockets are arranged on one side of the tape may be manufactured using a similar method to that described above with reference to Figure 4.

5 In some examples, the additive-transfer member and/or the additive-release member may not be provided on a section of tape as described above. In particular, one or both may be provided on a different type of member or may be included directly in the filter. For example, an arrangement such as that shown in Figure 1a may be provided but with the additive-transfer member and additive-release member included directly in the filter 3 with no section 1a of tape 1.

10

In some examples, a portion of the filter plug may constitute the additive-transfer member.

15 Figure 8a shows a cigarette 84 with an example of such a filter 83. The filter 83 includes an additive-containing member in the form of a capsule 82. The capsule 82 has an inner space containing an additive in the form of a coloured liquid flavourant. A window 86 is provided in the side wall of the filter 83. As shown in the figure, the window 86 may simply be a hole in the wrapping layer around the filter 83, although a partly or fully transparent material may also be provided. The window 86 has the same
20 longitudinal disposition along the filter as the capsule 82.

25

As shown in Figure 8b and Figure 8c, when the capsule 82 is broken, a portion of the released fluid is transferred radially through a portion 85 of the filter 83 to the side periphery of the filter 83 where it is visible through the window 86.

The filter 83 and/or the portion 85 may be formed from conventional cellulose acetate. However, preferable, a arrangement through which the fluid can wick more rapidly may be used. For example, a randomly-orientated short-fibre filter may be used.

30 The portion 85 of the filter 83 may be identical to the rest of the filter 83 or it may include a different (or differently treated) filter material.

35 In some examples, the additive-containing member may be configured to release the additive at a particular position and/or in a particular direction. This may be to facilitate absorption of the additive by the additive-transfer member and/or to facilitate the transfer of the additive to a selected region of the filter.

Many further modifications, variations and embodiments are possible.

5 For example, the additive-transfer member may have any suitable shape and size and may be positioned in the filter in any suitable way. For example, a section of thread may extend radially to a window at the side periphery of the filter.

10 Furthermore, although the additive-transfer member has been described above as having a region at the periphery of the filter, this is not necessarily the case. An indication that the additive has been released can be provided by an arrangement that transfers the additive to a visible region, i.e. to any region which can be viewed by the smoker, e.g. through a window.

15 Further, although insertion of additive-containing members into filter rods is described above, in other examples additive-containing member(s) may be positioned elsewhere in or on a smoking article, for example on the periphery of the smoking article or inside the tobacco rod. In some examples a tape may be configured as a tear-off strip or as a plug wrap or a tipping paper for use in the manufacture of smoking articles.

20 Furthermore, although additive-containing members in the form of additive-containing pockets are described above, in some examples additive-containing members may alternatively or in addition comprise flavour-pellets or beads, for example, or other solid objects which have one or more additive components.

25 Further, although the additive-containing pockets discussed above release additive under pressure, alternate release mechanisms are also envisaged. For example, certain additive-containing members may release additive by dissolving in response to the presence of moisture. In this way, when smoke is drawn from the eventual smoking article, moisture in the smoke may cause the additive to be released.

30 The terms additive release component and additive-containing member are used interchangeably herein.

35 The additive release components may be capsules having an outer shell, containing additive fluid (liquid or powder) in an interior cavity. The outer shell of each additive release component is frangible to release all of the additive on application of pressure.

The filter may comprise a reaction surface against which the additive release component can be urged, in order to facilitate release of additive. In particular, the additive release components may be located on a periphery of the filter. The radially adjacent filtration material may provide a reaction surface against which the additive release component can be urged. Preferably, the filtration material may be relatively hard (e.g. by containing an increased amount of plasticiser) to form the reaction surface, and may have a hardness on the Filtrona scale of more than 90%. The additive release components may be located within the filtration material, or may be located in a cavity adjacent to the filtration material. The cavity may be formed by an elongate inner rod of filtration material, which one or two annular outer sections of filtration material surround. A covering layer forming an exterior of the filter is attached to one or both of the outer sections of filtration material, and spaced from the inner rod to define a cavity. Preferably, the inner rod is harder than the annular outer sections, optionally by containing more plasticiser.

Alternatively, each additive release component may release its additive contents in a plurality of discrete doses, preferably actuated by a plurality of separate applications of pressure. This type of additive release component may comprise a resiliently or plastically deformable outer shell, preferably configured to release additive through a slit formed in a pre-determined area. Alternatively, this type of additive release components may comprise a porous absorbent substrate having an open cell structure (e.g. open cell foam), in which the additive is contained. The substrate may be at least partially resiliently deformable. The substrate is surrounded by an outer shell to retain the additive, which may be frangible, resiliently deformable, plastically deformable, or a thin coating. The substrate may form discrete additive release components, or may be in the form of an annulus in the first filter section. Alternatively, this type of additive release component may comprise a porous matrix containing the additive in discrete cavities and having a closed cell structure (e.g. closed cell foam), which is plastically deformable to release the additive. The additive release component may be in the form of a gelatine capsule that contains an additive.

The additive release components may be individually attached to the filter or substrate. Alternatively, the additive release components may be connected by a web, and may be connected by laminated strips of sheet material. Alternatively, the strips of sheet material may form the additive release components, such that the additive release

components do not have a separate outer shell, and the strips of sheet material contain the additive.

5 The additive release components may be manually manipulated to release the additive or a movable part may be configured such that movement of the movable part around an exterior of the smoking article releases additive from at least one of the additive release components. The movement is preferably sliding or rotation, by a ring or C-shaped clip, over an external surface of the filter. The filter may provide a reaction surface, against which the additive release components are urged by the movable part.
10 The additive release components may be located in one or more grooves, extending circumferentially, longitudinally or helically. Alternatively, the movable part comprises a covering layer defining two adjacent surfaces, wherein the additive release components are located between the adjacent surfaces such that relative movement of the adjacent surfaces of the covering layer releases additive from at least one of the
15 additive release components.

The additive release components are preferably spherical. Alternatively, the additive release components may be elongate, with a longitudinal axis extending parallel to a longitudinal axis of the filter. The elongate additive release component preferably has a
20 circular or elliptical cross-section, and contain more additive than an additive release component of the same diameter. The elongate additive release component preferably has a maximum lateral extent of less than 3.5mm, or less than 3mm, or from 2mm to 3mm. Alternatively, or in addition, the elongate additive release component may have a radial cross-sectional area which is less than 50% of the radial cross-sectional area of
25 the smoking article, and optionally, less than 40% or less than 30%.

The additive release components are preferably individually located in the smoking article. Alternatively, a plurality of the additive release components may be surrounded by an outer wall or outer encapsulation. The outer encapsulation may be porous or
30 configured to rupture or deform to allow release of additive on compression. The outer encapsulation may itself be contained within a further encapsulation. The additive may be contained within a plurality of discrete cavities within an open cell substrate, or a closed cell substrate. The open cell substrate, and optionally the closed cell substrate, have an outer encapsulation. One or more additive release components may be affixed
35 to an exterior of a substantially larger additive release component. Alternatively, a plurality of additive release components, of the same or different sizes, may be affixed

together. Any of these embodiments may be considered as a plurality of components connected in a unitary structure.

5 Embodiments of the invention are configured to comply with applicable regulations, such as, by way of non-limiting example, regulations relating to flavours, additives, emissions, constituents, and/or the like. For example, the invention may be configured such that a smoking article implementing the invention is compliant with applicable regulations before release of an additive, after release of a first additive, and remains compliant after the release of one or more additional additives.

10

In order to address various issues and advance the art, the entirety of this disclosure shows by way of illustration various embodiments in which the claimed invention(s) may be practiced and provide for superior smoking article filters. The advantages and features of the disclosure are of a representative sample of embodiments only, and are not exhaustive and/or exclusive. They are presented only to assist in understanding and teach the claimed features. It is to be understood that advantages, embodiments, examples, functions, features, structures, and/or other aspects of the disclosure are not to be considered limitations on the disclosure as defined by the claims or limitations on equivalents to the claims, and that other embodiments may be utilised and
15 modifications may be made without departing from the scope and/or spirit of the disclosure. Various embodiments may suitably comprise, consist of, or consist essentially of, various combinations of the disclosed elements, components, features, parts, steps, means, etc. In addition, the disclosure includes other inventions not presently claimed, but which may be claimed in future.
20

CLAIMS

1. A smoking article filter, comprising:
an additive-containing member to selectively release additive inside the filter;
5 and
an additive-transfer member to transfer additive released from the additive-containing member to the periphery of the filter to indicate that the additive has been released.
- 10 2. A smoking article filter as claimed in claim 1, wherein a region of the additive-transfer member is provided at the periphery of the filter.
3. A smoking article filter as claimed in claim 2, wherein:
the additive-containing member contains a fluid additive;
15 the additive-transfer member is formed of a wicking material to transfer additive by capillary action.
4. A smoking article filter as claimed in claim 2 or claim 3, wherein said region of the additive-transfer member is adapted to undergo a colour change in response to the
20 presence of the additive.
5. A smoking article filter as claimed in any of claims 1 to 4, wherein the additive-transfer member comprises a cylinder of wicking material, preferably in the form of a thread.
25
6. A smoking article filter as claimed in any of claims 1 to 4, wherein the additive-transfer member comprises a strip of wicking material, and wherein said region of the additive-transfer member comprises an end face and/or side edge of said strip.
- 30 7. A smoking article filter as claimed in any of claims 1 to 6, wherein the filter has a peripheral end face and the additive-transfer member is arranged to transfer additive released from the additive-containing member to the peripheral end face.
8. A smoking article filter as claimed in any of claims 1 to 7, comprising:
35 first and second additive-containing members to selectively concurrently release first and second additives inside the filter;

wherein the additive-transfer member is adapted to transfer the second additive released from the first additive-containing member to the periphery of the filter to indicate that the first additive has been released; and

5 wherein the first additive is unsuitable for being transferred by the additive-transfer member and/or for providing a visual indication that it has been released.

9. A smoking article filter as claimed in claim 1, comprising:

first and second additive-containing members to selectively release first and second additives inside the filter; and

10 a connecting member connecting the additive-containing members together, wherein the connecting member comprises:

a first additive-transfer member to transfer first additive from the first additive-containing member to the periphery of the filter to indicate that the first additive has been released; and

15 a second additive-transfer member to transfer second additive from the second additive-containing member to the periphery of the filter to indicate that the second additive has been released.

10. A smoking article filter as claimed in any of claims 1 to 9, wherein a portion of
20 the filter plug of the smoking article filter constitutes the additive-transfer member.

11. A smoking article filter as claimed in any of claims 1 to 10, comprising a window adapted to provide a view of a region to which the additive released from the additive-containing member is transferred by the additive-transfer member.

25

12. A smoking article filter, comprising:

an additive release component to selectively release additive inside the filter; and

30 an additive-transfer member to transfer additive released from the additive release component to a visible region of the filter to indicate that the additive has been released.

13. An arrangement of smoking article additive-containing members, comprising first and second additive-containing members configured to selectively release additive,
35 and a connecting member connecting the first and second additive-containing members together, wherein the connecting member comprises an additive-transfer

member to transfer additive released from one of said additive-containing members to a predetermined region of the connecting member, for indicating that additive has been released.

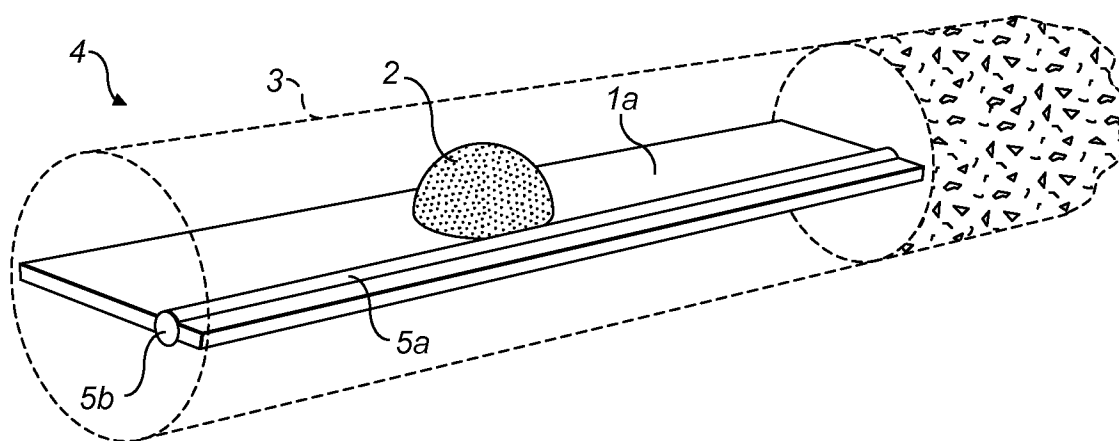
5 14. An arrangement as claimed in claim 13, wherein the first and second additive-containing members are adapted to releasably contain fluid additive and wherein the additive-transfer member comprises a wicking material to transfer fluid additive by capillary action.

10 15. An arrangement as claimed in claim 13 or claim 14, comprising two layers which form the connecting member and which are sealed together to form pocket regions for containing the additive.

16. An arrangement as claimed in claim 15, wherein the additive-transfer member
15 is held by the sealing between the two layers.

17. An arrangement as claimed in claim 15 or claim 16, wherein the additive-transfer member is narrow in relation to the layers and is positioned alongside the pocket regions.
20

18. A filter rod for use in the manufacture of smoking articles, comprising a segment of the arrangement claimed in any of claims 13 to 17, wherein said segment includes one or more additive-containing members.

**FIG. 1**

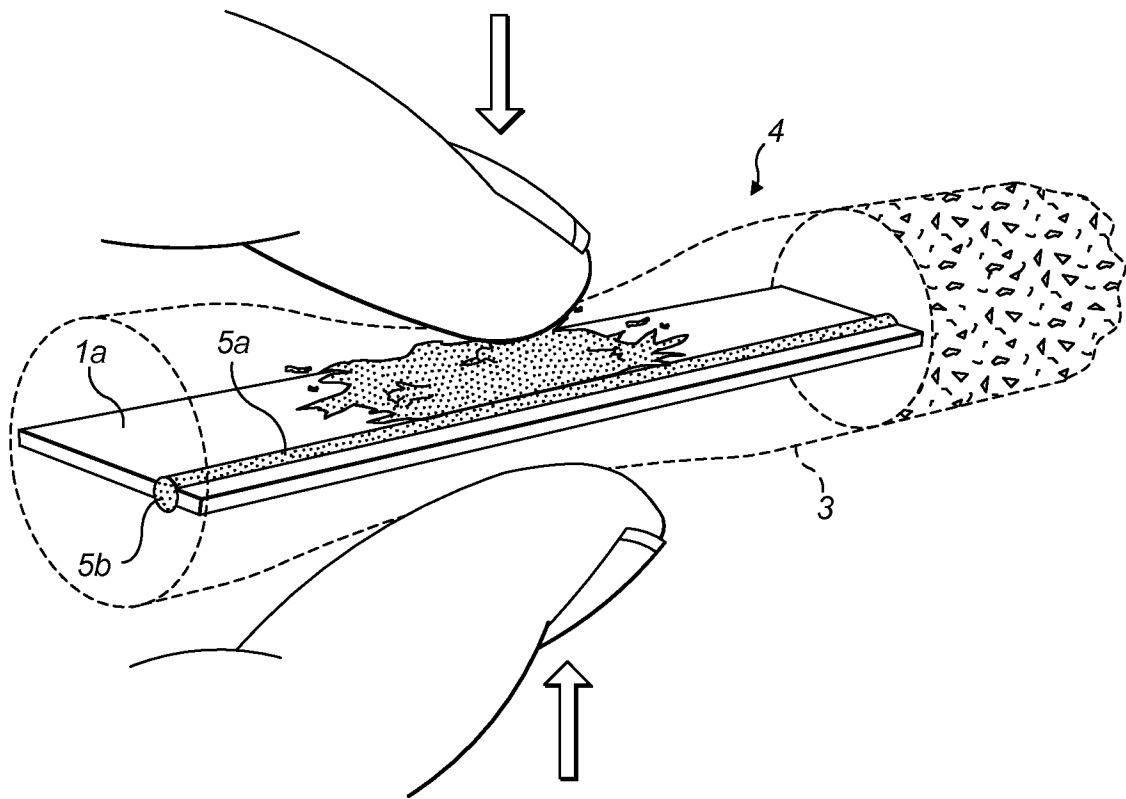


FIG. 2a

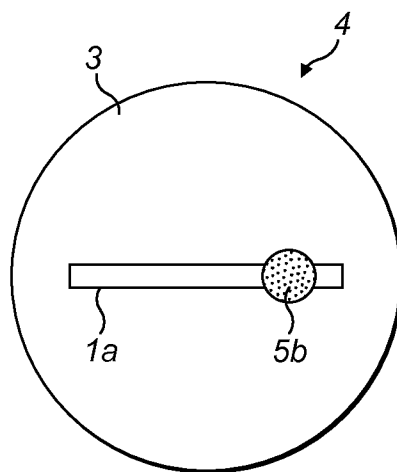


FIG. 2b

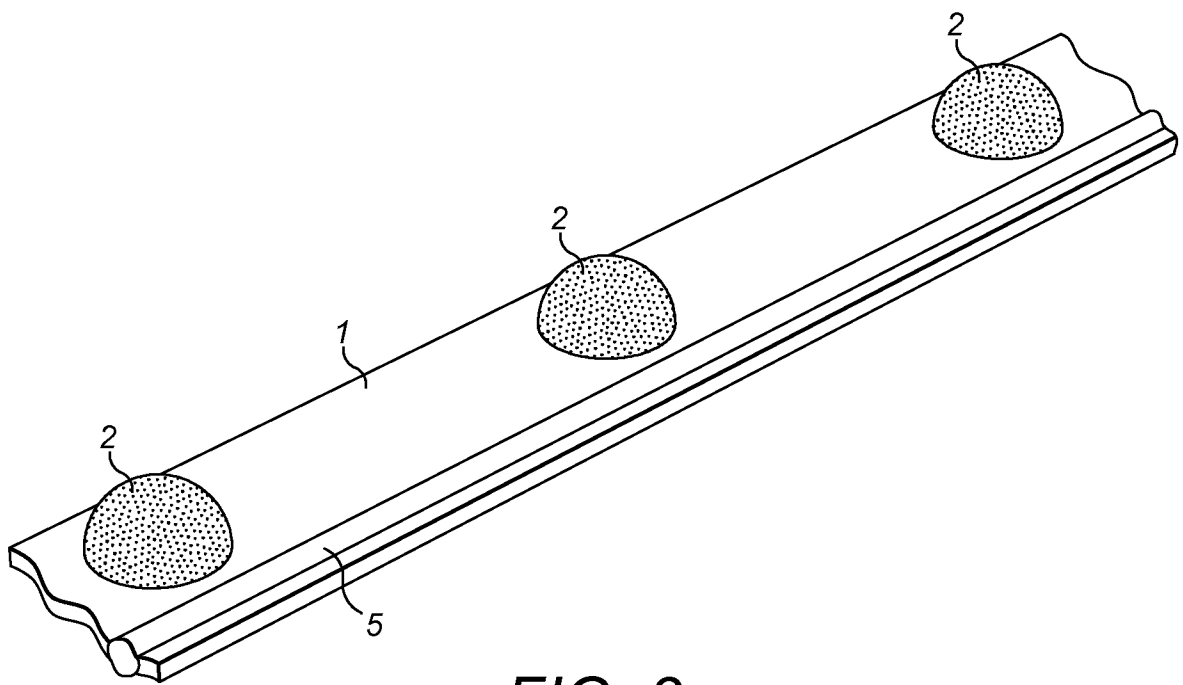


FIG. 3

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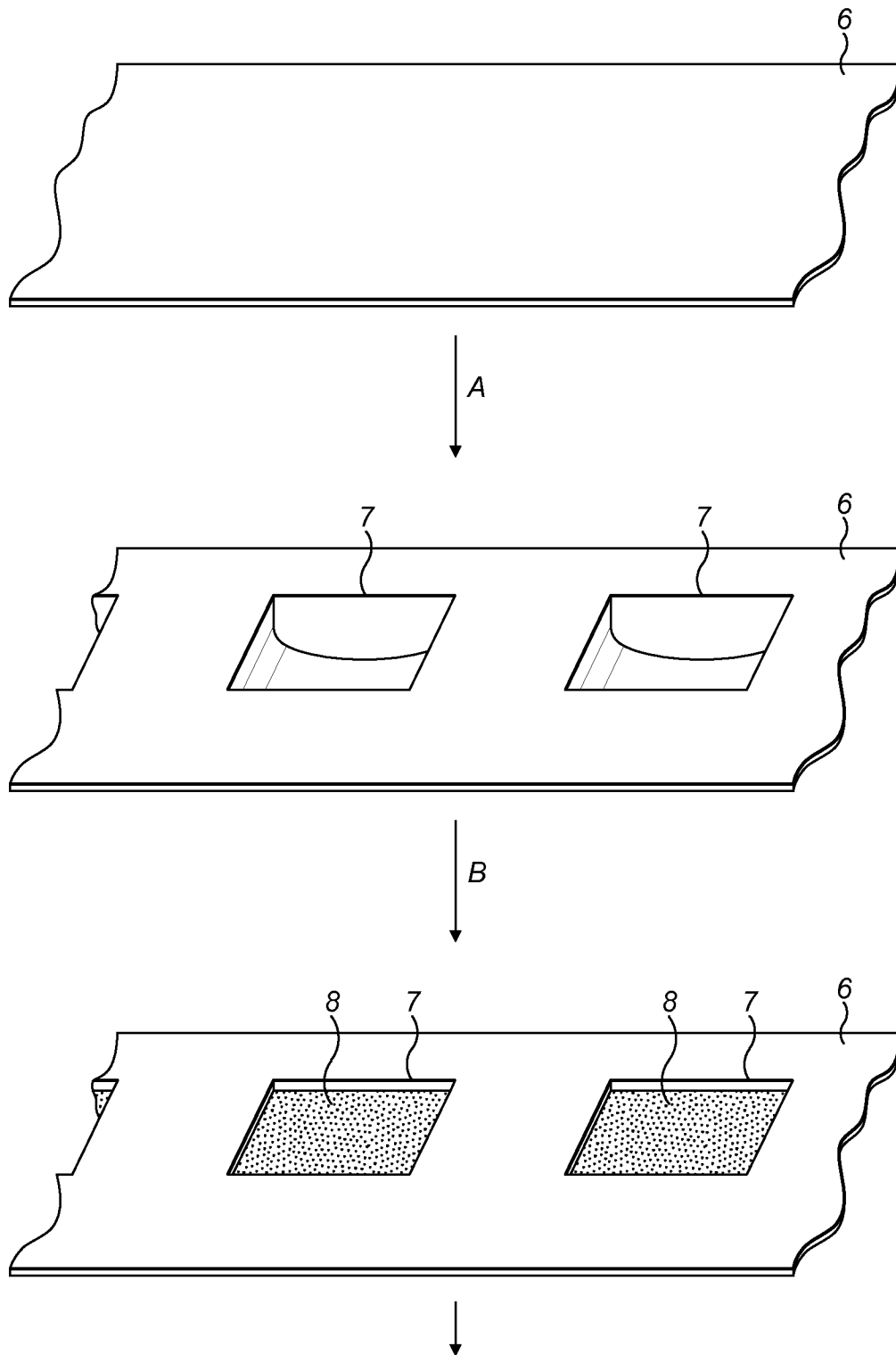


FIG. 4

5 / 10

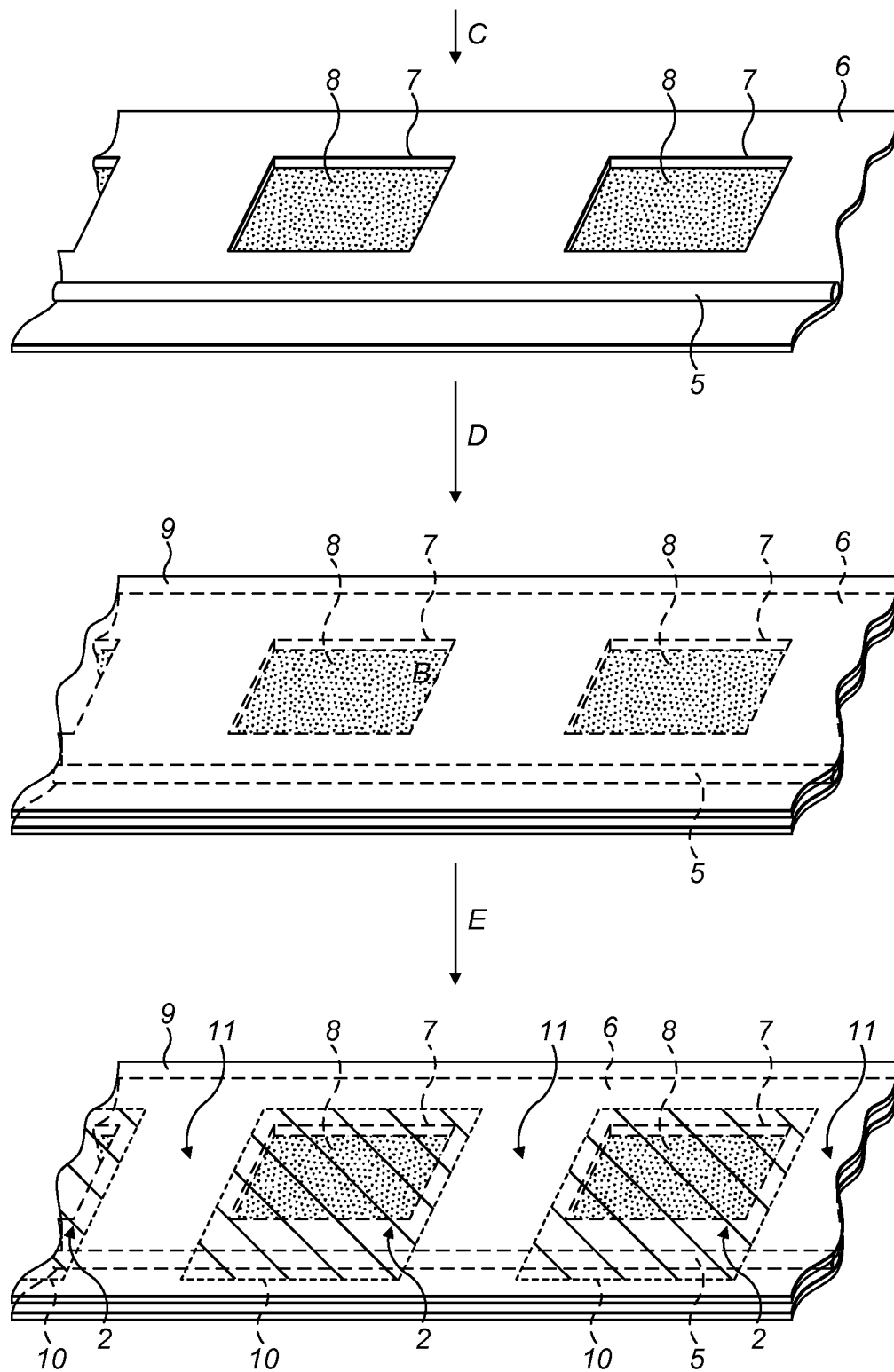


FIG. 4 Cont'd

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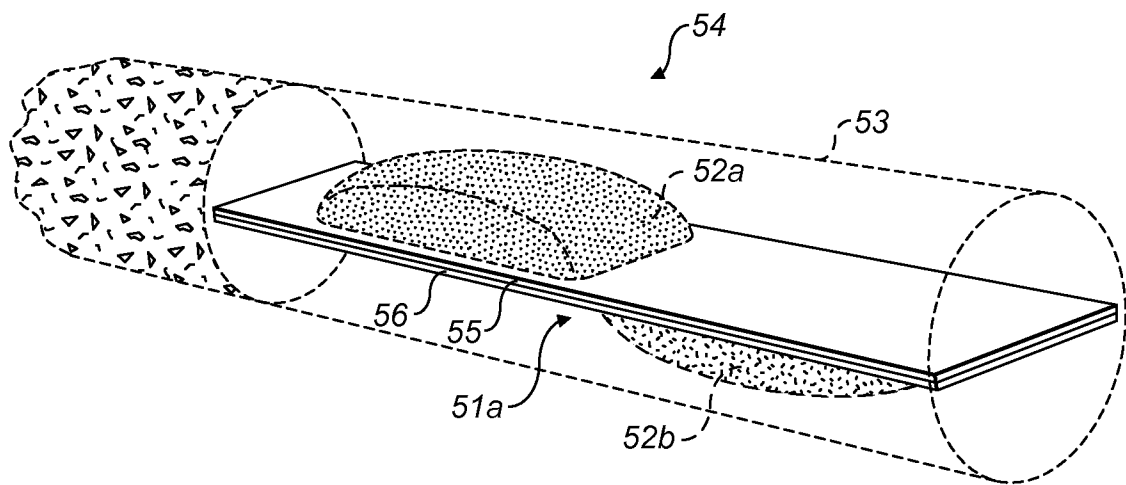


FIG. 5a

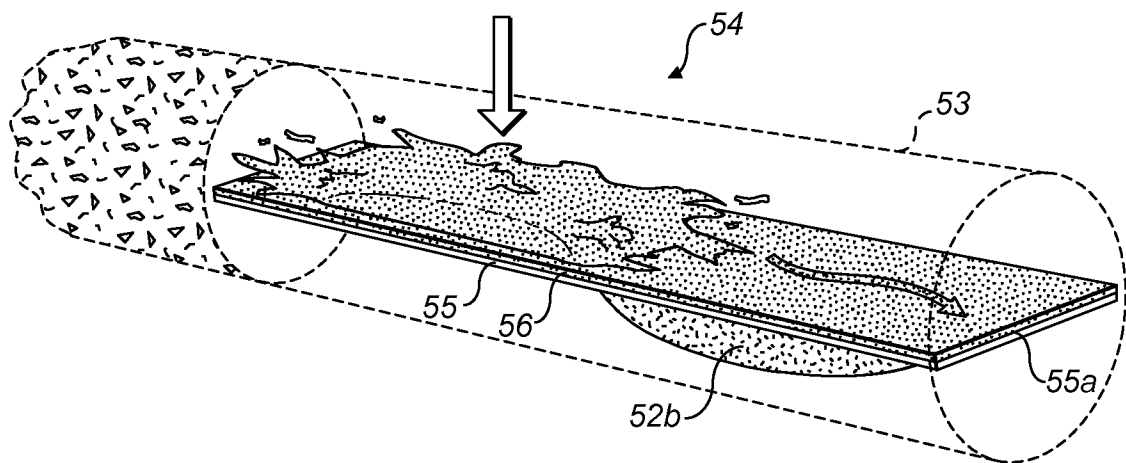


FIG. 5b

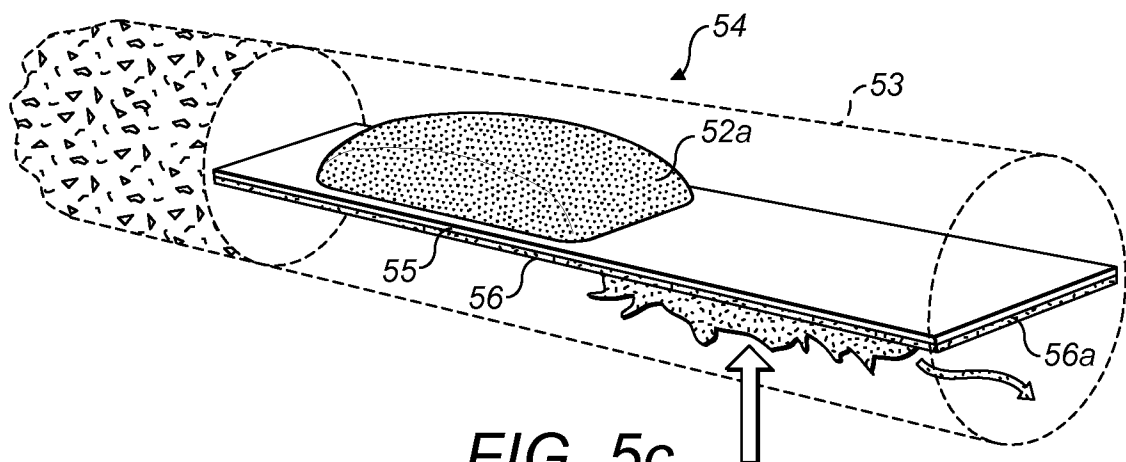


FIG. 5c

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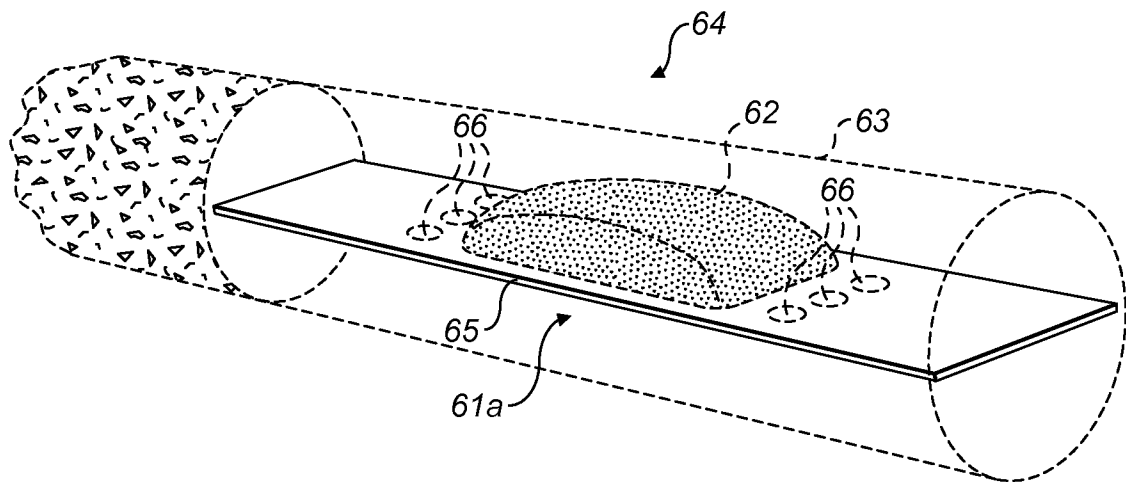


FIG. 6a

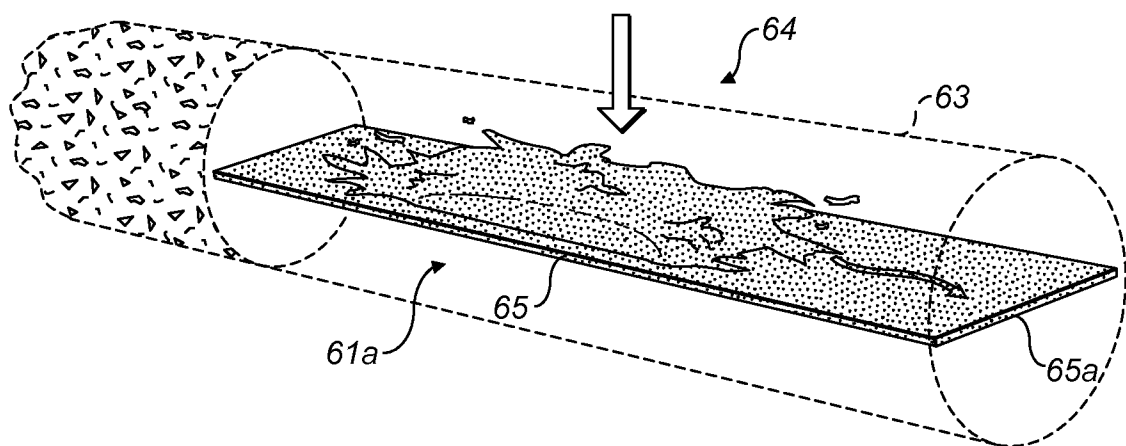


FIG. 6b

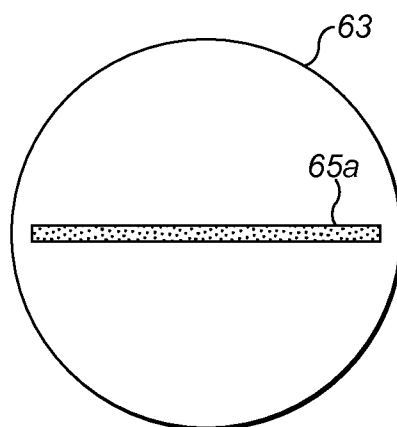


FIG 6c

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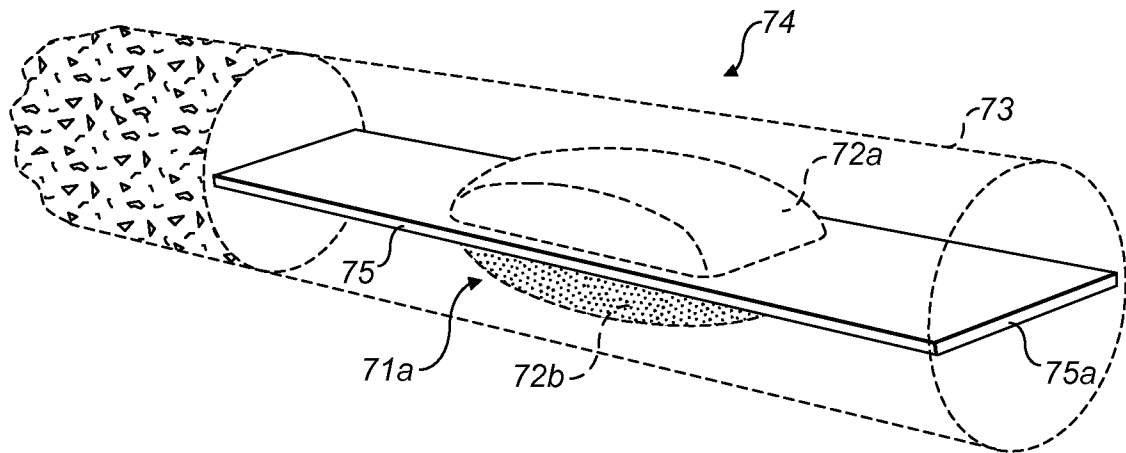


FIG. 7a

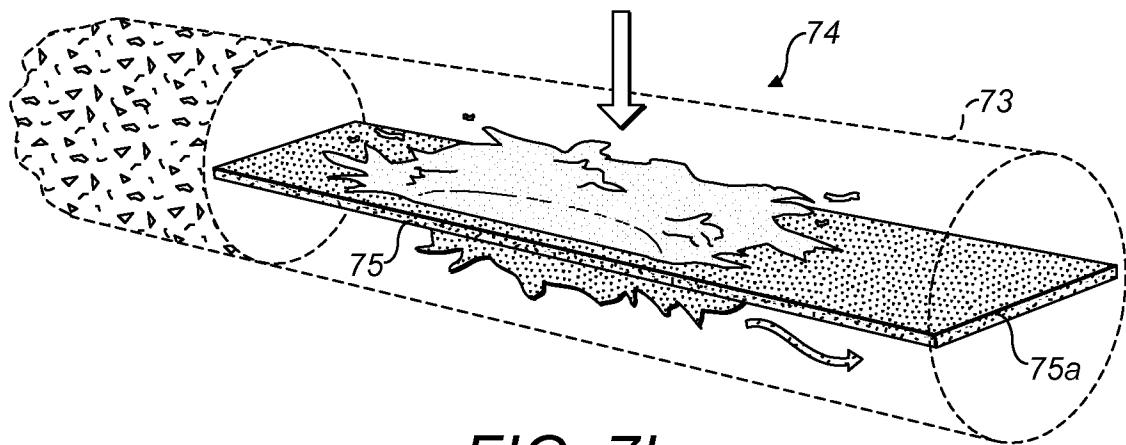


FIG. 7b

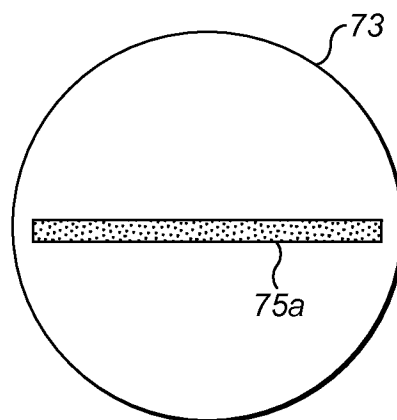


FIG. 7c

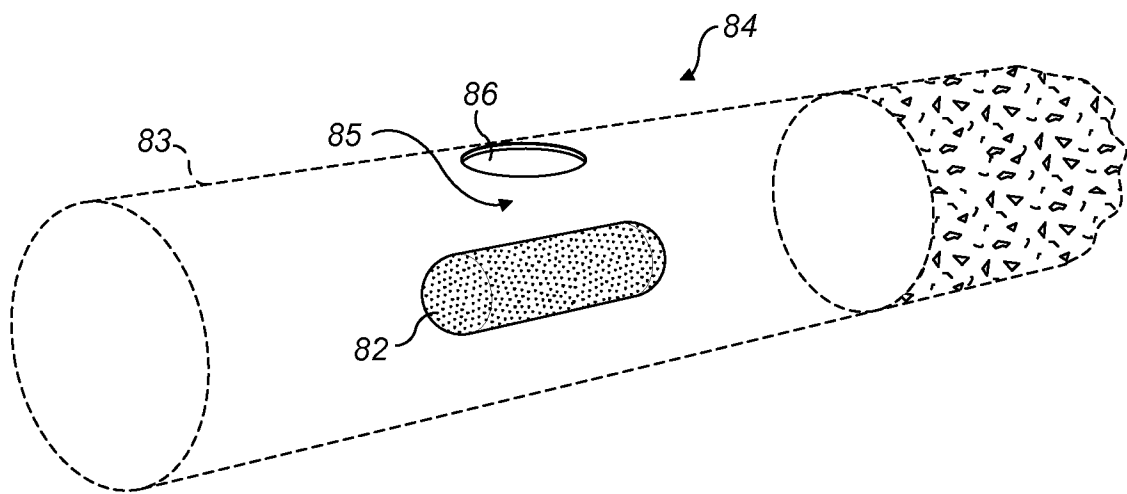


FIG. 8a

10 / 10

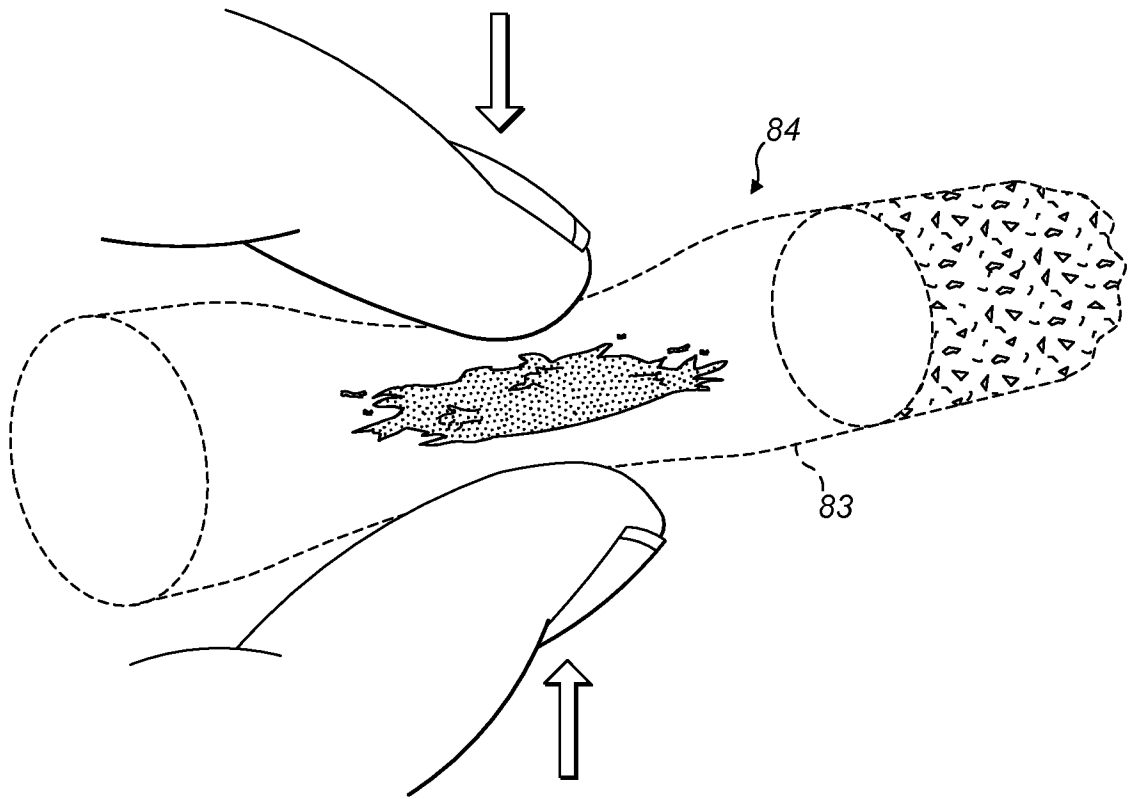


FIG. 8b

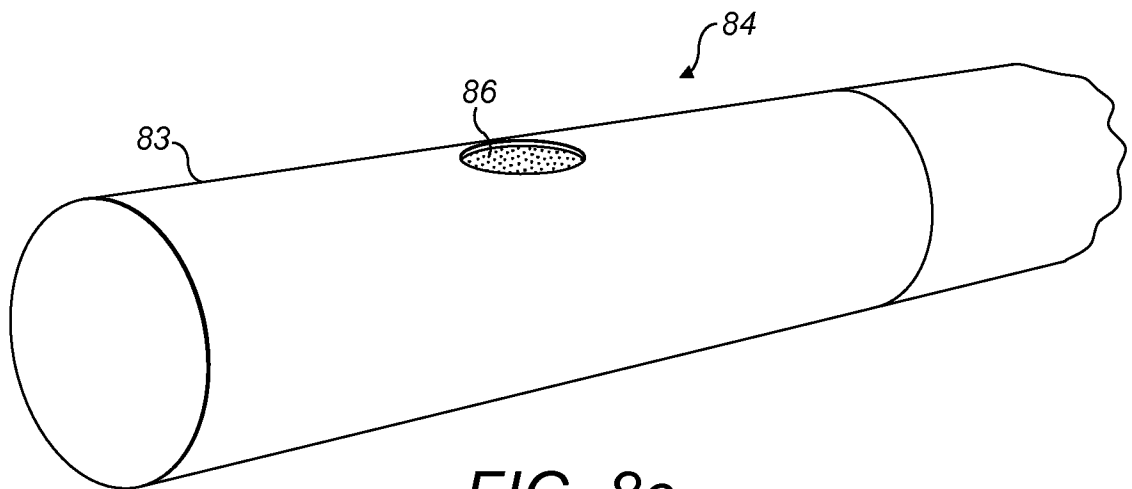


FIG. 8c