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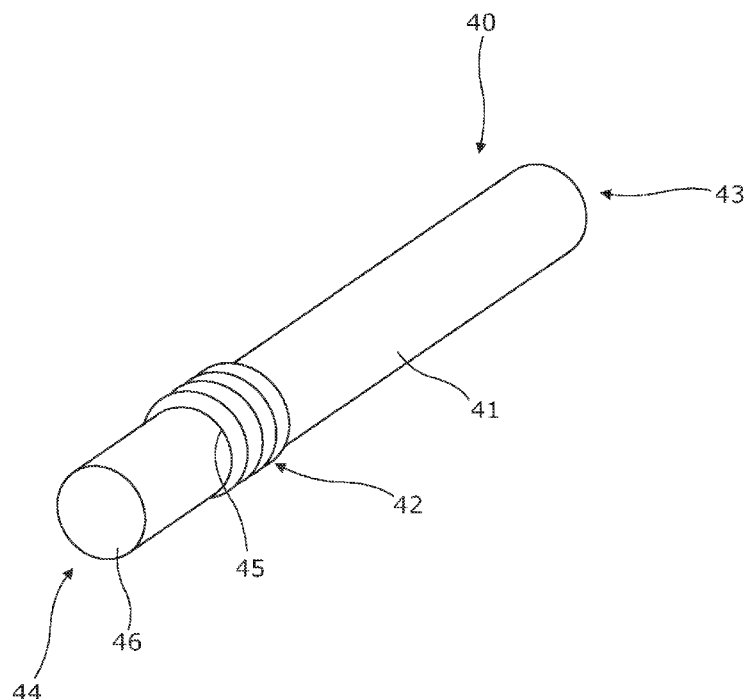


Fig. 5b

(57) Abstract: An article for insertion into an aerosol provision device, the aerosol provision device comprising a heating assembly having a wall that at least partially defines a chamber for receiving a consumable for heating during use of the device, wherein heating said consumable causes deposits of condensate to form on said wall, the article comprising a section configured to expand in response to the application of an axial force to said article, wherein said section is configured to tightly abut said wall of said chamber when expanded and inserted into the aerosol provision device to remove said deposits from the wall by abrasion with said wall.



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Article for use in an aerosol provision system

Technical Field

The present invention relates to an article for use in a non-combustible aerosol
5 provision system and a non-combustible aerosol provision system including an article.

Background

Certain tobacco industry products produce an aerosol during use, which is inhaled by a
user. For example, tobacco heating devices heat an aerosol generating substrate such
10 as tobacco to form an aerosol by heating, but not burning, the substrate.

Summary

In some embodiments described herein, there is provided an article for insertion into
an aerosol provision device, the aerosol provision device comprising a heating assembly
15 having a wall that at least partially defines a chamber for receiving a consumable for
heating during use of the device, wherein heating said consumable causes deposits of
condensate to form on said wall, the article comprising a section configured to expand
in response to the application of an axial force to said article, wherein said section is
configured to tightly abut said wall of said chamber when expanded and inserted into
20 the aerosol provision device to remove said deposits from the wall by abrasion with said
wall.

The article may further comprise an outer wall configured to splay outward in response
to said axial force.

25 Lines of weakness may be provided in said outer wall.

The lines of weakness may extend in a longitudinal direction of the article.

30 The lines of weakness may be spaced from each other around a perimeter of the article.

The lines of weakness may extend around a perimeter of the article.

The lines of weakness may be spaced in a longitudinal direction of the article.

35 The lines of weakness may comprise cuts made all the way through the outer wall.

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The article may comprise an inner core wrapped in a wrapper, and wherein the outer wall is the wrapper.

5 The wrapper may comprise an abrasive outer surface.

The abrasive outer surface may comprises at least one protrusion.

The abrasive outer surface may be corrugated.

10

The abrasive outer surface may be embossed into the wrapper.

The abrasive outer surface may comprise abrasive particles embedded in and/or adhered to the wrapper.

15

The abrasive particles may comprise fibres.

The fibres may comprise bristles extending in a direction perpendicular to a longitudinal axis of the article.

20

The inner core may comprise an aerosol generating material.

In some embodiments described herein, there is provided a system comprising an aerosol provision device and an article, the aerosol provision device comprising a heating assembly having a wall that at least partially defines a chamber for receiving a consumable of the aerosol provision device, said wall being configured to heat a consumable received within said chamber during use.

The chamber for receiving a consumable may comprise a wedge that upstands from a base of said chamber and wherein said section that is configured to expand is disposed at a distal end of the article, so that, when the article is inserted into the aerosol provision device, said section is pushed over said wedge in response to an axial force applied to the article, causing said section to splay outward and into contact with said wall of the aerosol provision device.

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In some embodiments described herein, there is provided a pack comprising an article and a consumable comprising an aerosol generating material.

In some embodiments described herein, there is provided a pack comprising an article.

5

In some embodiments described herein, there is provided an article for insertion into an aerosol provision device, the aerosol provision device comprising a heating assembly having a wall that at least partially defines a chamber for receiving said consumable for heating during use of the device, wherein heating said consumable causes deposits of condensate to form on said wall, wherein a section of the article comprises a heat-
10 expandable material and a layer positioned outwardly of said heat-expandable material, the heat-expandable material being configured to expand in response to heat to displace said layer outward, so that, when the consumable is inserted into the aerosol provision device and heated, said layer is pressed against the wall of said chamber to
15 remove said deposits from the wall by abrasion with the wall.

The heat expandable material may be wrapped in a wrapper and wherein said layer is the wrapper.

20 The heat expandable material may comprise a bimetallic strip.

The heat expandable material may comprise a foam.

The article may further comprise an aerosol generating material.

25

The heat expandable material may be disposed between the aerosol generating material and the wrapper.

The wrapper may comprise an abrasive outer surface.

30

The abrasive outer surface may comprises at least one protrusion.

The abrasive outer surface may be corrugated.

35 The abrasive outer surface may be embossed into the wrapper.

- 4 -

The abrasive outer surface may comprise abrasive particles embedded in and/or adhered to the wrapper.

The abrasive particles may comprise fibres.

5

The fibres may comprise bristles extending in a direction perpendicular to a longitudinal axis of the article.

10 In some embodiments described herein, there is provided a system comprising an aerosol provision device and an article, the aerosol provision device comprising a heating assembly having a wall that at least partially defines a chamber for receiving a consumable of the aerosol provision device, said wall being configured to heat a consumable received within said chamber during use.

15 In some embodiments described herein, there is provided a pack comprising an article and a consumable comprising aerosol generating material.

In some embodiments described herein, there is provided an article.

20 In some embodiments described herein, there is provided an aerosol provision device comprising a heating assembly having a wall that at least partially defines a chamber for receiving a consumable for heating during use of the device, wherein said chamber comprises a wedge that upstands from a base of the chamber, said wedge being configured so that when a consumable is inserted into the aerosol provision device, an
25 end of the consumable is pushed over said wedge, causing said end to splay outward and into contact with said wall of the aerosol provision device.

In some embodiments described herein, there is provided a method of making an article for insertion into an aerosol provision device comprising:

30 providing a heat expandable material; and
positioning a layer outwardly of said heat expandable material.

In some embodiments described herein, there is provided a method of making an article for insertion into an aerosol provision device comprising:

35 forming a section configured to expand in response to an axial load; and
integrating said section into said article.

Brief Description of the Drawings

Embodiments of the invention will now be described, by way of example only, with
5 reference to the accompanying drawings, in which:
Figure 1 schematically illustrates an aerosol provision device;
Figure 2 schematically illustrates an aerosol provision device;
Figure 3 schematically illustrates a consumable;
Figure 4a illustrates an article/consumable according to embodiments of the invention;
10 Figure 4b illustrates an article/consumable according to embodiments of the invention;
Figure 5a illustrates an article/consumable according to embodiments of the invention;
Figure 5b illustrates an article/consumable according to embodiments of the invention;
Figure 6 schematically illustrates a consumable according to embodiments of the
invention;
15 Figure 7 illustrates an aerosol provision device according to embodiments of the
invention;
Figure 8 schematically illustrates a consumable according to embodiments of the
invention;
Figure 9 schematically illustrates a consumable according to embodiments of the
20 invention;
Figure 10 schematically illustrates an article according to embodiments of the
invention; and
Figures 11A to 11E illustrate various abrasive surfaces according to embodiments of the
invention.

25

Detailed Description

According to the present disclosure, a “non-combustible” aerosol provision system is
one where a constituent aerosol-generating material of the aerosol provision system (or
30 component thereof) is not combusted or burned in order to facilitate delivery of at least
one substance to a user.

In some embodiments, the non-combustible aerosol provision system comprises an
aerosol-generating material heating system, also known as a heat-not-burn system. An
example of such a system is a tobacco heating system.

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In some embodiments, the non-combustible aerosol provision system comprises a hybrid system to generate aerosol using a combination of aerosol-generating materials, one or a plurality of which may be heated. Each of the aerosol-generating materials may be, for example, in the form of a solid, liquid or gel and may or may not contain nicotine. In some embodiments, the hybrid system comprises a liquid or gel aerosol-generating material and a solid aerosol-generating material. The solid aerosol-generating material may comprise, for example, tobacco or a non-tobacco product.

Typically, the non-combustible aerosol provision system may comprise a non-combustible aerosol provision device and a consumable for use with the non-combustible aerosol provision device.

In some embodiments, the disclosure relates to consumables comprising aerosol-generating material and configured to be used with non-combustible aerosol provision devices. These consumables are sometimes referred to as articles throughout the disclosure.

In some embodiments, the non-combustible aerosol provision system, such as a non-combustible aerosol provision device thereof, may comprise a power source and a controller. The power source may, for example, be an electric power source or an exothermic power source. In some embodiments, the exothermic power source comprises a carbon substrate which may be energised so as to distribute power in the form of heat to an aerosol-generating material or to a heat transfer material in proximity to the exothermic power source.

In some embodiments, the non-combustible aerosol provision system may comprise an area for receiving the consumable, an aerosol generator, an aerosol generation area, a housing, a mouthpiece, a filter and/or an aerosol-modifying agent.

In some embodiments, the consumable for use with the non-combustible aerosol provision device may comprise aerosol-generating material, an aerosol-generating material storage area, an aerosol-generating material transfer component, an aerosol generator, an aerosol generation area, a housing, a wrapper, a filter, a mouthpiece, and/or an aerosol-modifying agent.

In some embodiments, the substance to be delivered comprises an active substance.

The active substance as used herein may be a physiologically active material, which is a material intended to achieve or enhance a physiological response. The active substance

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may for example be selected from nutraceuticals, nootropics, psychoactives. The active substance may be naturally occurring or synthetically obtained. The active substance may comprise for example nicotine, caffeine, taurine, theine, vitamins such as B6 or B12 or C, melatonin, cannabinoids, or constituents, derivatives, or combinations thereof. The active substance may comprise one or more constituents, derivatives or extracts of tobacco, cannabis or another botanical.

In some embodiments, the active substance comprises nicotine. In some embodiments, the active substance comprises caffeine, melatonin or vitamin B12.

As noted herein, the active substance may comprise or be derived from one or more botanicals or constituents, derivatives or extracts thereof. As used herein, the term "botanical" includes any material derived from plants including, but not limited to, extracts, leaves, bark, fibres, stems, roots, seeds, flowers, fruits, pollen, husk, shells or the like. Alternatively, the material may comprise an active compound naturally existing in a botanical, obtained synthetically. The material may be in the form of liquid, gas, solid, powder, dust, crushed particles, granules, pellets, shreds, strips, sheets, or the like. Example botanicals are tobacco, eucalyptus, star anise, hemp, cocoa, cannabis, fennel, lemongrass, peppermint, spearmint, rooibos, chamomile, flax, ginger, ginkgo biloba, hazel, hibiscus, laurel, licorice (liquorice), matcha, mate, orange skin, papaya, rose, sage, tea such as green tea or black tea, thyme, clove, cinnamon, coffee, aniseed (anise), basil, bay leaves, cardamom, coriander, cumin, nutmeg, oregano, paprika, rosemary, saffron, lavender, lemon peel, mint, juniper, elderflower, vanilla, wintergreen, beefsteak plant, curcuma, turmeric, sandalwood, cilantro, bergamot, orange blossom, myrtle, cassis, valerian, pimento, mace, damien, marjoram, olive, lemon balm, lemon basil, chive, carvi, verbena, tarragon, geranium, mulberry, ginseng, theanine, theacrine, maca, ashwagandha, damiana, guarana, chlorophyll, baobab or any combination thereof. The mint may be chosen from the following mint varieties: *Mentha Arventis*, *Mentha c.v.*, *Mentha niliaca*, *Mentha piperita*, *Mentha piperita citrata c.v.*, *Mentha piperita c.v.*, *Mentha spicata crispa*, *Mentha cardifolia*, *Memtha longifolia*, *Mentha suaveolens variegata*, *Mentha pulegium*, *Mentha spicata c.v.* and *Mentha suaveolens*

In some embodiments, the active substance comprises or is derived from one or more botanicals or constituents, derivatives or extracts thereof and the botanical is tobacco.

In some embodiments, the active substance comprises or derived from one or more botanicals or constituents, derivatives or extracts thereof and the botanical is selected from eucalyptus, star anise, cocoa and hemp.

5 In some embodiments, the active substance comprises or derived from one or more botanicals or constituents, derivatives or extracts thereof and the botanical is selected from rooibos and fennel.

In some embodiments, the substance to be delivered comprises a flavour.

As used herein, the terms "flavour" and "flavourant" refer to materials which, where local regulations permit, may be used to create a desired taste, aroma or other
10 somatosensorial sensation in a product for adult consumers. They may include naturally occurring flavour materials, botanicals, extracts of botanicals, synthetically obtained materials, or combinations thereof (e.g., tobacco, cannabis, licorice (liquorice), hydrangea, eugenol, Japanese white bark magnolia leaf, chamomile, fenugreek, clove, maple, matcha, menthol, Japanese mint, aniseed (anise), cinnamon,
15 turmeric, Indian spices, Asian spices, herb, wintergreen, cherry, berry, red berry, cranberry, peach, apple, orange, mango, clementine, lemon, lime, tropical fruit, papaya, rhubarb, grape, durian, dragon fruit, cucumber, blueberry, mulberry, citrus fruits, Drambuie, bourbon, scotch, whiskey, gin, tequila, rum, spearmint, peppermint, lavender, aloe vera, cardamom, celery, cascarrilla, nutmeg, sandalwood, bergamot,
20 geranium, khat, naswar, betel, shisha, pine, honey essence, rose oil, vanilla, lemon oil, orange oil, orange blossom, cherry blossom, cassia, caraway, cognac, jasmine, ylang-ylang, sage, fennel, wasabi, piment, ginger, coriander, coffee, hemp, a mint oil from any species of the genus *Mentha*, eucalyptus, star anise, cocoa, lemongrass, rooibos, flax, ginkgo biloba, hazel, hibiscus, laurel, mate, orange skin, rose, tea such as green tea or
25 black tea, thyme, juniper, elderflower, basil, bay leaves, cumin, oregano, paprika, rosemary, saffron, lemon peel, mint, beefsteak plant, curcuma, cilantro, myrtle, cassis, valerian, pimento, mace, damien, marjoram, olive, lemon balm, lemon basil, chive, carvi, verbena, tarragon, limonene, thymol, camphene), flavour enhancers, bitterness receptor site blockers, sensorial receptor site activators or stimulators, sugars and/or
30 sugar substitutes (e.g., sucralose, acesulfame potassium, aspartame, saccharine, cyclamates, lactose, sucrose, glucose, fructose, sorbitol, or mannitol), and other additives such as charcoal, 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, liquid such as an oil, solid such as a powder, or gas.

In some embodiments, the flavour comprises menthol, spearmint and/or peppermint. In some embodiments, the flavour comprises flavour components of cucumber,
5 blueberry, citrus fruits and/or redberry. In some embodiments, the flavour comprises eugenol. In some embodiments, the flavour comprises flavour components extracted from tobacco. In some embodiments, the flavour comprises flavour components extracted from cannabis.

In some embodiments, the flavour may comprise a sensate, which is intended to
10 achieve a somatosensorial sensation which are usually chemically induced and perceived by the stimulation of the fifth cranial nerve (trigeminal nerve), in addition to or in place of aroma or taste nerves, and these may include agents providing heating, cooling, tingling, numbing effect. A suitable heat effect agent may be, but is not limited to, vanillyl ethyl ether and a suitable cooling agent may be, but not limited to
15 eucalyptol, WS-3.

Aerosol-generating material is a material that is capable of generating aerosol, for example when heated, irradiated or energized in any other way. Aerosol-generating material may, for example, be in the form of a solid, liquid or gel which may or may not contain an active substance and/or flavourants. In some embodiments, the aerosol-
20 generating material may comprise an “amorphous solid”, which may alternatively be referred to as a “monolithic solid” (i.e. non-fibrous). In some embodiments, the amorphous solid may be a dried gel. The amorphous solid is a solid material that may retain some fluid, such as liquid, within it. In some embodiments, the aerosol-generating material may for example comprise from about 50wt%, 60wt% or 70wt% of
25 amorphous solid, to about 90wt%, 95wt% or 100wt% of amorphous solid.

The aerosol-generating material may comprise one or more active substances and/or flavours, one or more aerosol-former materials, and optionally one or more other functional material.

The aerosol-former material may comprise one or more constituents capable of forming
30 an aerosol. In some embodiments, the aerosol-former material may comprise one or more of glycerine, glycerol, propylene glycol, diethylene glycol, triethylene glycol, tetraethylene glycol, 1,3-butylene glycol, erythritol, meso-Erythritol, ethyl vanillate, ethyl laurate, a diethyl suberate, triethyl citrate, triacetin, a diacetin mixture, benzyl

benzoate, benzyl phenyl acetate, tributyrin, lauryl acetate, lauric acid, myristic acid, and propylene carbonate.

The one or more other functional materials may comprise one or more of pH regulators, colouring agents, preservatives, binders, fillers, stabilizers, and/or
5 antioxidants.

The material may be present on or in a support, to form a substrate. The support may, for example, be or comprise paper, card, paperboard, cardboard, reconstituted material, a plastics material, a ceramic material, a composite material, glass, a metal, or a metal alloy. In some embodiments, the support comprises a susceptor. In some
10 embodiments, the susceptor is embedded within the material. In some alternative embodiments, the susceptor is on one or either side of the material.

A consumable is an article comprising or consisting of aerosol-generating material, part or all of which is intended to be consumed during use by a user. A consumable may comprise one or more other components, such as an aerosol-generating material
15 storage area, an aerosol-generating material transfer component, an aerosol generation area, a housing, a wrapper, a mouthpiece, a filter and/or an aerosol-modifying agent. A consumable may also comprise an aerosol generator, such as a heater, that emits heat to cause the aerosol-generating material to generate aerosol in use. The heater may, for example, comprise combustible material, a material heatable by electrical conduction,
20 or a susceptor.

An aerosol-modifying agent is a substance, typically located downstream of the aerosol generation area, that is configured to modify the aerosol generated, for example by changing the taste, flavour, acidity or another characteristic of the aerosol. The aerosol-modifying agent may be provided in an aerosol-modifying agent release component,
25 that is operable to selectively release the aerosol-modifying agent

The aerosol-modifying agent may, for example, be an additive or a sorbent. The aerosol-modifying agent may, for example, comprise one or more of a flavourant, a colourant, water, and a carbon adsorbent. The aerosol-modifying agent may, for example, be a solid, a liquid, or a gel. The aerosol-modifying agent may be in powder,
30 thread or granule form. The aerosol-modifying agent may be free from filtration material.

An aerosol generator is an apparatus configured to cause aerosol to be generated from the aerosol-generating material. In some embodiments, the aerosol generator is a heater configured to subject the aerosol-generating material to heat energy, so as to release one or more volatiles from the aerosol-generating material to form an aerosol.

5 In some embodiments, the aerosol generator is configured to cause an aerosol to be generated from the aerosol-generating material without heating. For example, the aerosol generator may be configured to subject the aerosol-generating material to one or more of vibration, increased pressure, or electrostatic energy.

10 In the figures described herein, like reference numerals are used to illustrate equivalent features, articles or components.

A non-combustible aerosol provision device 1 (herein referred to simply as the 'device 1') is shown schematically in Fig. 1. The device 1 comprises a wall 2 that defines a rod shaped consumable receiving space 3 (herein referred to simply as 'receiving space 3'); and a heater 4 configured to heat the consumable receiving space 3.

15 The device further comprises a power source 7 and a control unit 8 which are configured to power and control the heater 4, respectively. The power source 7 may be, for example, a battery 7, such as a rechargeable battery or a non-rechargeable battery. Examples of suitable batteries include, for example, a lithium battery (such as a lithium-ion battery), a nickel battery (such as a nickel-cadmium battery), and an
20 alkaline battery.

The various components of the device, including the heater 4, receiving space 3, battery 7 and control unit 8 are retained within a housing 6.

The device 1 is of the approximate size and shape to allow a user to hold the device 1 in a single hand. In use, a consumable 11 comprising an aerosol generating material is
25 inserted into the receiving space 3 and heated by the heater 4. The heat causes one or more volatiles from the aerosol-generating material to form an aerosol. A mouth end 12 of the consumable protrudes from the device as illustrated by Fig. 2. To inhale the aerosol generated by the heated consumable 11, a user draws on the mouth end 12 of the consumable 11, in the manner of a conventional cigarette.

30 The device further comprises an inlet 9 as shown in fig. 1. When a user draws on the consumable 11, air is drawn from the inlet 9 and through the consumable.

The device 1 further comprises a first activation button 13 to allow a user to turn the device 1 on or off; and a second activation button 14 to activate the heater 4. To use the device 1, a user draws on the mouth end 12 of the consumable 11 while simultaneously pressing the second activation button 14 to cause the heater 4 to heat the consumable 11 and generate an aerosol.

The inlet 9 may comprise a pressure sensor (not shown) which acts as a 'puff sensor'. The puff sensor is configured to detect a drop in pressure at the air inlet 9 which indicates that a user is drawing on a consumable 11 located within the receiving space 3. The device 1 is thereby configured to activate the heater 4 in response to a drop in pressure detected at the air inlet 9.

The control unit 8 is configured to direct electrical energy from the battery 7 to activate the heater in response to an input signal.

In one example, the input signal is generated when the second activation button 14 is pressed by the user. In another embodiment, the input signal is generated when a pressure drop is detected at the inlet 9 by a pressure sensor.

The heater 4 may be an inductive heating assembly 4 and comprise various components to heat the consumable receiving space via an inductive heating process. Induction heating is a process of heating an electrically conducting object (such as a susceptor) by electromagnetic induction. An induction heating assembly may comprise an inductive element, for example, one or more inductor coils, and a device for passing a varying electric current, such as an alternating electric current, through the inductive element. The varying electric current in the inductive element produces a varying magnetic field. The varying magnetic field penetrates a susceptor suitably positioned with respect to the inductive element, and generates eddy currents inside the susceptor. The susceptor has electrical resistance to the eddy currents, and hence the flow of the eddy currents against this resistance causes the susceptor to be heated by Joule heating. In cases where the susceptor comprises ferromagnetic material such as iron, nickel or cobalt, heat may also be generated by magnetic hysteresis losses in the susceptor, i.e. by the varying orientation of magnetic dipoles in the magnetic material as a result of their alignment with the varying magnetic field. In inductive heating, as compared to heating by conduction for example, heat is generated inside the susceptor, allowing for rapid heating. Further, there need not be any physical contact between the inductive heater and the susceptor, allowing for enhanced freedom in construction and application.

In the example illustrated by figure 1, the inductive heating assembly comprises a susceptor 23 and an inductor coil 24. The inductor coil 24 is made from an electrically conducting material. In the illustrated embodiment, the inductor coil 24 is made from Litz wire/cable which is wound in a helical fashion about the susceptor 23. Litz wire
5 comprises a plurality of individual wires which are individually insulated and are twisted together to form a single wire. Litz wires are designed to reduce the skin effect losses in a conductor. In the illustrated embodiment, the inductor coil 24 is made from copper Litz wire which has a rectangular cross section. In other examples the Litz wire can have other shape cross sections, such as circular. The inductor coil 24 is configured
10 to generate a varying magnetic field for heating the susceptor 23.

The susceptor 23 of the illustrated embodiment is cylindrical and hollow and forms the wall 2 that defines the receiving space 3 within which the consumable 11 is received. For example, the consumable 11 can be inserted into the susceptor 23. In the illustrated embodiment, the susceptor 23 is tubular, with a circular cross section.

15 The susceptor 23 may be made from one or more materials. Preferably the susceptor 23 comprises carbon steel having a coating of Nickel or Cobalt.

The device 1 may further comprise an insulating member (not shown). The insulating member may be generally tubular and disposed between the susceptor 23 and the inductor coil 24. The insulating member may be constructed from any insulating
20 material, such as plastic for example. In this particular example, the insulating member is constructed from polyether ether ketone (PEEK). The insulating member may help insulate the various components of the device from the heat generated in the susceptor 23.

25 The outer surface of the susceptor 23 may be spaced apart from the inner surface of the inductor coil 24 by a distance, measured in a direction perpendicular to a longitudinal axis of the susceptor 23. In one particular example, the distance is about 3 mm to 4mm, about 3-3.5mm, or about 3.25mm.

The outer surface of the insulating member may be spaced apart from the inner surface of the inductor coil 24 by a distance, measured in a direction perpendicular to a
30 longitudinal axis of the susceptor 23. In one particular example, the distance is about 0.05 mm. In another example, the distance is substantially 0mm, such that the inductor coil 24 abuts and touches the insulating member.

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The susceptor 23 may have a wall thickness of about 0.025mm to 1mm, or about 0.05 mm.

The susceptor 23 may have a length of about 40mm to 60mm, about 40mm to 45 mm, or about 44.5 mm.

- 5 The insulating member may have a wall thickness of about 0.25 mm to 2 mm, 0.25 mm to 1mm, or about 0.5 mm.

Figure 3 shows a consumable 11 comprising an aerosol generating material 25 and a filter section 27. The consumable 11 comprises a distal end, opposite the mouth end 12. The distal end is therefore most proximate a base 20 of the receiving space 3 when
10 received therein.

During use of the device 1, some of the aerosol generated when the aerosol generating material is heated will condense during transit through the consumable 11 from the distal end to the mouth end 12. Condensate formed in the consumable 11 has a tendency to leak from the distal end of the consumable 11 and accumulate in the
15 receiving space 3 and form deposits. Embodiments of the invention are configured to remove deposits from the receiving space 3 that have built up over time, following repeated heating of consumables 11.

Figure 4a shows an article 40 according to embodiments of the invention. The article 40 is configured to assist with cleaning of an aerosol provision device, such as the
20 aerosol provision device 1 of Figs. 1 and 2. Use of the article 40 will be described with reference to the features of the aerosol provision device of Figs. 1 and 2.

The article 40 is the approximate size and shape of a consumable. The article 40 may therefore easily provided in a pack of consumables. For example, one of the consumables of the pack of consumables may be replaced with the article 40. However,
25 it shall be appreciated that the article 40 may be provided in addition to the regular number of consumables in a pack and may be any size and shape that permits the article 40 to be inserted into a consumable receiving space 3 of an aerosol provision device.

In the illustrated embodiment, the article 40 comprises a rod shaped outer wall 41. The
30 outer wall 41 comprises a section 42 configured to splay outward in response to an axial force applied to the article 40. As used herein, the term 'axial force' refers to a force applied in a direction of the article's longitudinal axis, that is, an axis that extends

through the centre of the article in a longitudinal direction. The longitudinal axis X-X is illustrated in figure 4a.

The article 40 comprises a proximal end 43 that protrudes from the receiving space of an aerosol provision device when inserted therein, and a distal end 44 that is opposite
5 the proximal end 43.

To assist with the cleaning of an aerosol provision device, a user may insert the article 40 into the receiving space 3 and, gripping the proximal end 43 of the article 40, push the article 40 all the way into the device until the distal end 44 abuts the base 20 of the receiving space 3. Thereinafter, the application of an axial force to the article 40
10 compresses the article 40 and causes said section to splay 42 outward and into contact with the wall 2 of the receiving space 3. It is also envisaged that the user may press the distal end 44 of the article onto any suitable surface to apply said axial force and cause said section 42 to splay. For example, the user may press the article 40 onto a table and then insert the article 40 into the device. In either case, by causing said section 42 to
15 splay outward, the outer wall 41 of the article contacts the wall 2 of the receiving space 3 when inserted therein. Therefore, the action of inserting and removing the article 40 from the aerosol provision device causes said section 42 to scrape deposits from the wall 2 of the receiving space 3 by abrasion with said wall 2.

In the illustrated embodiment, said section 42 comprises lines of weakness in the outer
20 wall 41. The lines of weakness 45 are configured to facilitate said section splaying outward in response to the application of an axial force. The lines of weakness 45 extend in a longitudinal direction of the article 40 and are evenly spaced from each other around the outer wall 41. In the illustrated embodiment, the lines of weakness 45 comprise cuts made all the way through the outer wall 41. Portions of the outer wall 41
25 between the lines of weakness 45 are therefore able to splay outward when an axial force is applied to the article, as shown in Fig. 4b. Although in the illustrated embodiment, the lines of weakness comprise cuts made all the way through the outer wall 41, it is envisaged that in other embodiments the lines of weakness 45 comprise partial cuts or perforations. The function of the lines of weakness is to allow the
30 portions of the outer wall between the lines of weakness 45 to separate from each other along the lines of weakness and splay outward, in response to an axial force applied to the article 40.

In some embodiments, and as illustrated in Figs. 5a and 5b, in which like features retain the same reference numbers, said section 42 configured to splay outward in

response to an axial force is provided with lines of weakness 45 that extend around the outer wall 41 in a direction perpendicular to the longitudinal direction. The lines of weakness 45 are spaced from each other in a longitudinal direction of the article. In this embodiment, the lines of weakness 45 are configured to allow said section 42 to
5 collapse in the manner of an accordion, with portions of the outer wall 41 between adjacent lines of weakness 45 folding in opposite directions, as shown in Fig. 5b. In other words, said section 42 is configured to concertina. When an axial force is applied to the article 40 of Figs. 5a and 5b, the portions of the outer wall 41 between adjacent lines of weakness 45 fold in opposite directions, with every other adjacent pair of
10 portions of the outer wall 41 splaying outward for contact with the wall 2 of the receiving space 3 when inserted therein.

In some embodiments, the article 40 further comprises an inner core 46 for additional structure, with the outer wall 41 encasing the inner core 46. For example, the outer wall
15 41 may be a wrapper 41 – such as cigarette paper or tipping material – the inner core 46 being wrapped in the wrapper. The inner core 46 must be resiliently deformable to allow a degree of compression of the inner core 46 when an axial force is applied to the article 40. The inner core 46 may be made, for example, of any conventional filter material, such as cellulose acetate.

20

In some embodiments, said section 42 is provided closer to the distal end 44 of the article 40 than the proximal end 43.

In some embodiments, the article 40 may be a consumable 40 comprising aerosol
25 generating material 25. A consumable 40 according to embodiments of the invention is shown in section in Fig. 6. The consumable 40 may have any or all of the features of the consumable 11 of Fig. 3. Features in common with the consumable of Fig. 3 retain the same reference numbers.

The wrapper 41 attaches the filter section 27 to the rod of aerosol generating material
30 25. In some embodiments the outer wall may further comprise a first wrapping material 31 in addition to the wrapper. The first wrapping material 31 circumscribes the rod of aerosol generating material 25 so that edges of the first wrapping material 31 overlap. Overlapping edges of the first wrapping material are adhered along a lap seam. The first wrapping material 31 is therefore disposed between the rod of aerosol
35 generating material 25 and the wrapper 41. The first wrapping material 31 may be

electrically conducting, such as aluminium foil, metalized paper or a braided ferrous material. Therefore the first wrapping material 31 may serve as an additional susceptor to the inductive heating assembly 22.

5 In embodiments wherein the outer wall 41 comprises both the wrapper 41 and the first wrapping material 31, the lines of weakness 45 are provided in both the wrapper 41 and the first wrapping material 31. It is important that the lines of weakness 45 in the wrapper 41 are superimposed over the lines of weakness 45 in the first wrapping material 31.

10 In some embodiments, an aerosol provision device 70 is provided that comprises a wedge 71 that upstands from the base of a receiving space, as shown in section in Fig. 7. The aerosol provision device 70 of Fig. 7 is otherwise substantially as described with reference to Figures 1 and 2, with like features retaining the same reference numbers. When a consumable 11 is inserted into the receiving space 3, the distal end of the consumable or article may be pushed over the wedge 71 causing the distal end to splay
15 outward and into contact with the wall 2 defining the receiving chamber 3.

In some embodiments, the consumable 40 or article 40 is adapted so that said section 42 is provided at the distal end 44. Said section 42 of the consumable or article is disposed at the distal end of the consumable or article so that, when the consumable or article is inserted into the receiving space, said section 42 is pushed over said wedge 71
20 in response to an axial force applied to the article, causing said section to splay outward and into contact with the wall 2 defining the receiving chamber 3.

Figs. 8 to 10 show an article 80 in accordance with embodiments of the invention, said article 80 being configured to assist with the cleaning of an aerosol provision device, such as the aerosol provision device 1 of Figs. 1 and 2. Use of the article 80 will be
25 described with reference to the features of the aerosol provision device of Figs. 1 and 2.

The article 80 is the approximate size and shape of a consumable, such as consumable 11 illustrated by Fig. 3. The article 80 is therefore easily provided in a pack of consumables. For example, one of the consumables of the pack of consumables may be replaced with the article 80. However, it shall be appreciated that the article 80 may be
30 provided in addition to the regular number of consumables in a pack and may be any size and shape that permits the article 80 to be inserted into the consumable receiving space 3 of the aerosol provision device.

In the illustrated embodiment, a section 82 of the article 80 comprises a heat-expandable material 85 and a layer 81 positioned outwardly of said heat-expandable material 85, the heat-expandable material 85 being configured to expand in response to heat to displace said layer outward 81, so that, when the article 80 is inserted into an aerosol provision device and heated, at least a portion of said layer is pressed against the wall 2 defining the receiving space 3 of the aerosol provision device to remove said deposits from the wall by abrasion with the wall 2; for example, when the article 80 is removed from the receiving space 3.

10 The heat expandable material 85 may be a foam or a bimetallic strip or it may be any other material that is configured to change its form in response to heat.

In some embodiments, and as illustrated in Figs. 8 and 9, the article 80 is a consumable 80 comprising aerosol generating material 25. Features in common with the consumable Figs. 3 and 6 retain the same reference numbers.

In some embodiments, and as illustrated in Fig. 10, the aerosol generating material 25 may be omitted, such that the article is configured only for cleaning an aerosol provision device.

20 In some embodiments, said layer 81 positioned outwardly of the heat expandable material 85 may comprise a wrapper 41 and, optionally, a first wrapping material 31.

In some embodiments, and as illustrated in Fig. 8, the heat expandable material 85 is positioned between the first wrapping material 31 and the wrapper 41. In such embodiments, the heat expandable 85 material may be a bimetallic strip that is configured to curl in response to heat to push the wrapper 41 outward.

In one embodiment, and as illustrated in Fig. 9, the heat expandable material 85 comprises a plug of foam material disposed in a distal end 84 of the consumable 80.

In some embodiments, and as illustrated by Fig. 10, aerosol generating material 25 is omitted; the article 80 instead comprises an inner core 86 encased in a wrapper 41. The heat expandable material 85 is disposed between the inner core 86 and the wrapper 41, so that, when the article 80 is inserted into an aerosol provision device and heated, the

wrapper 41 is pressed against the wall 2 defining the receiving space 3 of the aerosol provision device to remove said deposits from the wall by abrasion with the wall 2.

5 In some embodiments the wrapper 41 comprises an abrasive outer surface 47 configured to assist in dislodging deposits from the wall 2 of the receiving space 3 when the article 40 is inserted therein.

10 In some embodiments, the abrasive surface 47 comprises abrasive particles embedded in the wrapper 41. Alternatively, the abrasive surface 47 may be formed by abrasive particles adhered to the wrapper 41 using adhesive. The abrasive surface 47 may extend along a portion of the article 40 or along the entire length of the article 40. In
15 embodiments in which the article 80 comprises heat expandable material 85, said abrasive surface 47 may extend along a portion of the article 80 that overlies the heat expandable material 85. In embodiments in which the article 40 comprises a section 42 configured to splay outward, said abrasive surface 47 may extend along a portion of the
15 article 40 that overlies said section 42. The abrasive particles could be in the form of small rock or sand particles. Alternatively, the abrasive particles may be fibres. It is to be appreciated that the abrasive particles can be formed from any substance that will create an abrasive surface capable of dislodging condensate deposits from the wall 2 of the receiving space 3.

20 Figures 11A to 11E show abrasive surfaces 47 according to embodiments of the invention.

Figure 11A illustrates a side view of the abrasive surface 47 of an article 40. The abrasive surface 47 comprises a protrusion 48. The protrusion 48 is configured to dislodge or remove condensate deposits from the wall 2 of the aerosol provision device
25 1. The protrusion 48 extends in a direction perpendicular to a longitudinal axis of the article 40 and is configured to contact the wall 2 in order to dislodge or remove condensate deposits via abrasion. The article 40 may comprise multiple protrusions 48 along its length as shown in Figure 11B. The protrusions 48 shown in Figures 11A and 11B have a semi-circular cross section, however it is to be appreciated that the
30 protrusions 48 can be any shape or size in order to be in contact with the wall 2 of the receiving space 3.

The protrusions 48 of the abrasive surface 47 may be in the form of corrugations 49 embossed into the wrapper 46 as shown in Figures 11C and 11D. In Figure 11C the corrugations 49 are formed on the surface of the wrapper 46 and are parallel to a

longitudinal axis of the article 40. Alternatively, as shown in Figure 11D, the corrugations 49 are arranged around the circumference of the article 40. It is to be appreciated that the corrugations 49 may extend helically around the article 40 and not linearly as shown.

5 Figure 11E shows a side view of an alternative article 40 according to the invention. The abrasive surface 47 of the article 40 comprises bristles 50. The bristles 50 extend away from the article 40 in a direction perpendicular to a longitudinal axis of the article 40. The bristles 50 are configured to dislodge or remove condensate deposits within the wall 2 of the receiving space 3 via abrasion.

10 It is to be appreciated that the abrasive surface 47 of the article 40 may comprise any number features or combination of features. The features can be any shape or arrangement that would ensure that the abrasive surface 47 is capable of dislodging or removing condensate deposits from the wall 2 of the receiving space 3 via abrasion. The features of the abrasive surface are not limited to the examples as described above.

15

In some embodiments the aerosol generating material 25 comprises a tobacco material 26. The tobacco material 26 may comprise conventionally cured tobacco that has been cut or shredded in the normal way. Such tobacco is similar to the tobacco found in cigarettes.

20 In another embodiment, the tobacco material may 26 be reconstituted to make a tobacco paper which is then shredded or cut into strips. The tobacco paper may be further impregnated with an aerosol former material such as glycerine, glycerol or propylene glycol. Therefore, heat from the aerosol vaporizes the aerosol former material as it passes through the rod of aerosol generating material 25 during inhalation by a user. Advantageously, the aerosol former material will be flavoured by the tobacco paper to provide a tobacco flavour to the aerosol.

In some embodiments, the tobacco paper comprises longitudinal strips of tobacco paper, each longitudinal strip being arranged substantially parallel to a longitudinal axis of the article. Therefore, the resistance to draw of the rod of aerosol generating material 25 is reduced.

30

In another embodiment, the tobacco material 26 is reconstituted to make beads of tobacco. The beads of tobacco may have a mean diameter of 0.5mm to 3mm. It shall be appreciated that for a given volume occupied by the beads of tobacco, the smaller the

mean diameter, the larger the collective surface area presented by the beads of tobacco. Advantageously, the flavour imparted to the aerosol is proportional to the surface area presented by the beads of tobacco.

5 The filter section 27 comprises a cylindrical body of filter material wrapped in a plug wrap 32. The plug wrap 32 is disposed between the filter material and the wrapper 41.

In some embodiments, the distal end 33 of the consumable 40, 80 further comprises a plug 29. The plug 29 comprises a disc of material that extends across the end of the rod of aerosol generating material and is attached thereto by the wrapper 41. In some
10 embodiments, the plug 29 further comprises a plug wrapper 30 disposed between the plug and the wrapper 41.

In some embodiments, the plug 29 may be impermeable to prevent condensate from leaking out of the distal end of the consumable 40, 80, during use.

In the present example, the consumable 40, 80 has an outer circumference of about 21 mm (i.e. the consumable is in the demi-slim format). Preferably, the consumable 40,
15 80 has a rod of aerosol generating material 25 with a circumference greater than 19mm. Where the consumable 40, 80 is heated, heat transfers through the rod of aerosol generating material 25 to volatise components of the rod of aerosol generating material 25, and circumferences greater than 19mm have been found to be particularly effective at producing an aerosol in this way. Since the consumable 40, 80 may be heated to
20 release an aerosol, improved heating efficiency can be achieved using consumables 11, 40, 80 having circumferences of less than about 23mm. To achieve improved aerosol via heating, while maintaining a suitable product length, circumferences of greater than 19mm and less than 23mm are preferable. In some examples, the circumference can be between 20mm and 22mm, which has been found to provide a good balance between
25 providing effective aerosol delivery while allowing for efficient heating.

The outer circumference of the filter section 27 is substantially the same as the outer circumference of the rod of aerosol generating material 25 and the plug 29, such that there is a smooth transition between these components. In the present example, the outer circumference of the filter section 27 is about 20.8mm.

30 The wrapper 41 can have a basis weight which is higher than the basis weight of the other wrapping materials 30, 31, 32 used in the consumable 40, 80, for instance a basis weight of 40 gsm to 80 gsm, more preferably between 50 gsm and 70 gsm, and in the

present example 58 gsm. These ranges of basis weights have been found to result in wrappers having acceptable tensile strength while being flexible enough to wrap around the consumable 40, 80 and adhere to itself along overlapping longitudinal edges.

5 In some examples, the wrapper 41 and/or the first wrapping material 31 and/or plug wrapper 30 comprises citrate, such as sodium citrate or potassium citrate. In such examples, the materials 41, 31, 30 may have a citrate content of 2% by weight or less, or 1% by weight or less. Reducing the citrate content is thought to assist with reducing the charring effect which may occur during use.

10 In some embodiments, the respective wrapping materials 30, 31, 32 of the plug 29, rod of aerosol generating material 25 and filter section 27 have a basis weight of less than 50 gsm, more preferably between about 20 gsm and 40 gsm. Preferably, said wrapping materials 30, 31, 32 have a thickness of between 30 μm and 60 μm , more preferably between 35 μm and 45 μm . Preferably, said wrapping materials 30, 31, 32 are a non-porous, for instance having a permeability of less than 100 Coresta units, for instance
15 less than 50 Coresta units. However, in other embodiments, said wrapping materials 30, 31, 32 can be porous, for instance having a permeability of greater than 200 Coresta Units. Preferably, the length of the filter section 27 is less than about 20 mm. In the present example, the length of the filter section 27 is 16 mm.

In some embodiments, the filter section 27 comprises a body formed from filamentary
20 tow. In the present example, the tow used in the body has a denier per filament (d.p.f.) of 8.4 and a total denier of 21,000. Alternatively, the tow can, for instance, have a denier per filament (d.p.f.) of 9.5 and a total denier of 12,000. In the present example, the tow comprises plasticised cellulose acetate tow. The plasticiser used in the tow comprises about 7% by weight of the tow. In the present example, the plasticiser is
25 triacetin. In other examples, different materials can be used to form the body. For instance, rather than tow, the body of the filter section 27 can be formed from paper, for instance in a similar way to paper filters known for use in cigarettes. Alternatively, the body can be formed from tows other than cellulose acetate, for instance polylactic acid (PLA), other materials described herein for filamentary tow or similar materials.
30 The tow is preferably formed from cellulose acetate. The tow, whether formed from cellulose acetate or other materials, preferably has a d.p.f. of at least 5, more preferably at least 6 and still more preferably at least 7. These values of denier per filament provide a tow which has relatively coarse, thick fibres with a lower surface area which result in a lower pressure drop across the filter section 6 than tows having lower d.p.f.

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values. Preferably, to achieve a sufficiently uniform body, the tow has a denier per filament of no more than 12 d.p.f., preferably no more than 11 d.p.f. and still more preferably no more than 10 d.p.f.

The total denier of the tow forming the body of the filter section 27 is preferably at most 30,000, more preferably at most 41,000 and still more preferably at most 25,000. These values of total denier provide a tow which takes up a reduced proportion of the cross sectional area of the filter section 27 which results in a lower pressure drop across the filter section 27 than tows having higher total denier values. For appropriate firmness of the filter section 27, the tow preferably has a total denier of at least 8,000 and more preferably at least 10,000. Preferably, the denier per filament is between 5 and 12 while the total denier is between 10,000 and 25,000. More preferably, the denier per filament is between 6 and 10 while the total denier is between 11,000 and 22,000. Preferably the cross-sectional shape of the filaments of tow are 'Y' shaped, although in other embodiments other shapes such as 'X' shaped filaments can be used, with the same d.p.f. and total denier values as provided herein.

The cross section of the filaments of tow may have an isoperimetric ratio L^2/A of 25 or less, 20 or less, or 15 or less, where L is the length of the perimeter of the cross section and A is the area of the cross section. Such filaments of tow have a relatively low surface area for a given value of denier per filament, which improves delivery of aerosol to the consumer. In some examples, the body may comprise an adsorbent material (e.g. charcoal) dispersed within the tow.

In some examples, the body of the filter section 27 may comprise a capsule. The capsule can comprise a breakable capsule, for instance a capsule which has a solid, frangible shell surrounding a liquid payload. In some examples, a single capsule is used. The capsule is entirely embedded within the body of the filter section 27. In other words, the capsule is completely surrounded by the material forming the body. In other examples, a plurality of breakable capsules may be disposed within the body of the filter section 27, for instance 2, 3 or more breakable capsules. The length of the body of the filter section 27 can be increased to accommodate the number of capsules required. In examples where a plurality of capsules is used, the individual capsules may be the same as each other, or may differ from one another in terms of size and/or capsule payload. In other examples, multiple bodies of material may be provided, with each body containing one or more capsules.

The capsule has a core-shell structure. In other words, the capsule comprises a shell encapsulating a liquid agent, for instance a flavourant or other agent, which can be any one of the flavourants or aerosol modifying agents described herein. The shell of the capsule can be ruptured by a user to release the flavourant or other agent into the body of the filter section 27. The filter section plug wrap 32 can comprise a barrier coating to make the plug wrap 32 substantially impermeable to the liquid payload of the capsule. Alternatively or in addition, the plug wrap 32 can comprise a barrier coating to make the plug wrap 32 substantially impermeable to the liquid payload of the capsule.

In some examples, the capsule is spherical and has a diameter of about 3 mm. In other examples, other shapes and sizes of capsule can be used. The total weight of the capsule may be in the range about 10 mg to about 50 mg.

It is known to generate, for a given tow specification (such as 8.4Y21000), a tow capability curve which represents the pressure drop through a length of rod formed using the tow, for each of a range of tow weights. Parameters such as the rod length and circumference, wrapper thickness and tow plasticiser level are specified, and these are combined with the tow specification to generate the tow capability curve, which gives an indication of the pressure drop which would be provided by different tow weights between the minimum and maximum weights achievable using standard filter rod forming machinery. Such tow capability curves can be calculated, for instance, using software available from tow suppliers. It has been found that it is particularly advantageous to use a body for a filter section 27 which includes filamentary tow having a weight per mm of length of the body which is between about 10% and about 30% of the range between the minimum and maximum weights of a tow capability curve generated for the filamentary tow. This can provide an acceptable balance between providing enough tow weight to avoid shrinkage after the body has been formed, providing an acceptable pressure drop, while also assisting with capsule placement within the tow, for capsules of the sizes described herein.

In some embodiments, the filter section 27 may further comprise a hollow tubular element that extends from the mouth end 12 and is attached to the filter section by the plug wrap 32. The hollow tubular element may advantageously have a length of greater than about 10mm, for instance between about 10mm and about 30mm or between about 12mm and about 25mm. It has been found that a consumer's lips are likely to extend in some cases to about 12mm from the mouth end 12 of the consumable 40, 80 when drawing aerosol through the consumable 40, 80 and therefore a hollow tubular

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element having a length of at least 10mm or at least 12mm means that most of the consumer's lips surround this element.

In some embodiments, there is provided a method of making an article for insertion into an aerosol provision device comprising: providing a heat expandable material; and
5 positioning a layer outwardly of said heat expandable material.

In some embodiments, there is provided a method of making an article for insertion into an aerosol provision device comprising forming a section configured to expand in response to an axial load; and integrating said section into said article.

10

Claims

1. An article for insertion into an aerosol provision device, the aerosol provision device comprising a heating assembly having a wall that at least partially defines a chamber for receiving a consumable for heating during use of the device, wherein heating said consumable causes deposits of condensate to form on said wall, the article comprising a section configured to expand in response to the application of an axial force to said article, wherein said section is configured to tightly abut said wall of said chamber when expanded and inserted into the aerosol provision device to remove said deposits from the wall by abrasion with said wall.
2. An article according to claim 1, further comprising an outer wall configured to splay outward in response to said axial force.
3. An article according to claim 2, wherein lines of weakness are provided in said outer wall.
4. An article according to claim 3, wherein said lines of weakness extend in a longitudinal direction of the article.
5. An article according to claim 4, wherein the lines of weakness are spaced from each other around a perimeter of the article.
6. An article according to claim 3, wherein the lines of weakness extend around a perimeter of the article.
7. An article according to claim 6, wherein the lines of weakness are spaced in a longitudinal direction of the article.
8. An article according to any of claims 3 to 7, wherein the lines of weakness comprise cuts made all the way through the outer wall.
9. An article according to any of claims 2 to 8, wherein the article comprises an inner core wrapped in a wrapper, and wherein the outer wall is the wrapper.

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10. An article according to claim 9, wherein the wrapper comprises an abrasive outer surface.
11. An article according to claim 10, wherein the abrasive surface comprises at least one protrusion.
12. An article according to claim 11, wherein the abrasive outer surface is corrugated.
13. An article according to any of claims 10 to 12, wherein the abrasive surface is embossed into the wrapper.
14. An article according to any of claims 10 to 12, wherein the abrasive surface comprises abrasive particles embedded in and/or adhered to the wrapper.
15. An article according to any of claim 14, wherein the abrasive particles comprise fibres.
16. An article according to any of claim 15, wherein the fibres comprise bristles extending in a direction perpendicular to a longitudinal axis of the article.
17. An article according to any of claims 9 to 16, wherein the inner core comprises aerosol generating material.
18. An article according to any of claims 1 to 16, wherein the article is free of aerosol generating material.
19. A system comprising an aerosol provision device and an article according to any of claims 1 to 18, the aerosol provision device comprising a heating assembly having a wall that at least partially defines a chamber for receiving a consumable of the aerosol provision device, said wall being configured to heat a consumable received within said chamber during use.
20. A system according to claim 19, wherein the chamber for receiving a consumable comprises a wedge that upstands from a base of said chamber and wherein said section that is configured to expand is disposed at a distal end of the article, so

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that, when the article is inserted into the aerosol provision device, said section is pushed over said wedge in response to an axial force applied to the article, causing said section to splay outward and into contact with said wall of the aerosol provision device.

5 21. A pack comprising an article according to any of claims 1 to 16 and a consumable comprising an aerosol generating material.

22. A pack comprising an article according to claim 17.

10 23. An article for insertion into an aerosol provision device, the aerosol provision device comprising a heating assembly having a wall that at least partially defines a chamber for receiving said consumable for heating during use of the device, wherein heating said consumable causes deposits of condensate to form on said wall, wherein a section of the article comprises a heat-expandable material and a layer positioned
15 outwardly of said heat-expandable material, the heat-expandable material being configured to expand in response to heat to displace said layer outward, so that, when the consumable is inserted into the aerosol provision device and heated, said layer is pressed against the wall of said chamber to remove said deposits from the wall by abrasion with the wall.

20

24. An article according to claim 23, wherein the heat expandable material is wrapped in a wrapper and wherein said layer is the wrapper.

25 25. An article according to claim 23 or claim 24, wherein the heat expandable material comprises a bimetallic strip.

26. An article according to claim 23 or claim 24, wherein the heat expandable material comprises a foam.

30 27. An article according to any of claims 23 to 26, further comprising an aerosol generating material.

28. An article according to claim 27, wherein the heat expandable material is disposed between the aerosol generating material and the wrapper.

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29. An article according to any of claims 24 to 28, wherein the wrapper comprises an abrasive outer surface.
30. An article according to any of claim 29, wherein the abrasive surface comprises
5 at least one protrusion.
31. An article according to claim 30, wherein the abrasive outer surface is corrugated.
- 10 32. An article according to any of claims 29 to 31, wherein the abrasive surface is embossed into the wrapper.
33. An article according to any of claims 29 to 31, wherein the abrasive surface comprises abrasive particles embedded in and/or adhered to the wrapper.
15
34. An article according to any of claim 33, wherein the abrasive particles comprise fibres.
35. An article according to any of claim 34, wherein the fibres comprise bristles
20 extending in a direction perpendicular to a longitudinal axis of the article.
36. A system comprising an aerosol provision device and an article according to any of claims 23 to 35, the aerosol provision device comprising a heating assembly having a wall that at least partially defines a chamber for receiving a consumable of the aerosol
25 provision device, said wall being configured to heat a consumable received within said chamber during use.
37. A pack comprising an article according to any of claims 23 to 35 and a consumable comprising aerosol generating material.
30
38. An aerosol provision device comprising a heating assembly having a wall that at least partially defines a chamber for receiving a consumable for heating during use of the device, wherein said chamber comprises a wedge that upstands from a base of the chamber, said wedge being configured so that when a consumable is inserted into the
35 aerosol provision device, an end of the consumable is pushed over said wedge, causing

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said end to splay outward and into contact with said wall of the aerosol provision device.

39. A method of making an article for insertion into an aerosol provision device
5 comprising:

providing a heat expandable material; and
positioning a layer outwardly of said heat expandable material.

40. A method of making an article for insertion into an aerosol provision device
10 comprising:

forming a section configured to expand in response to an axial load; and
integrating said section into said article.

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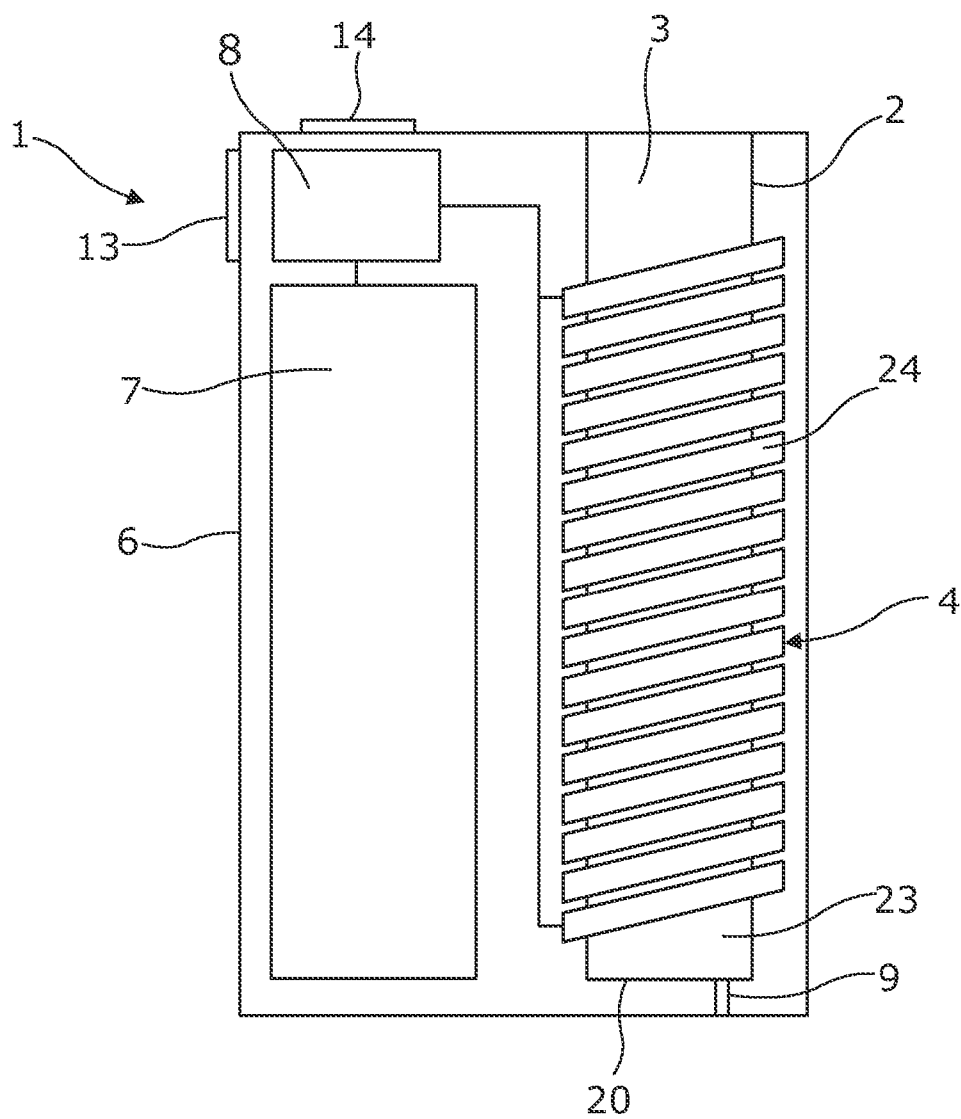


Fig. 1

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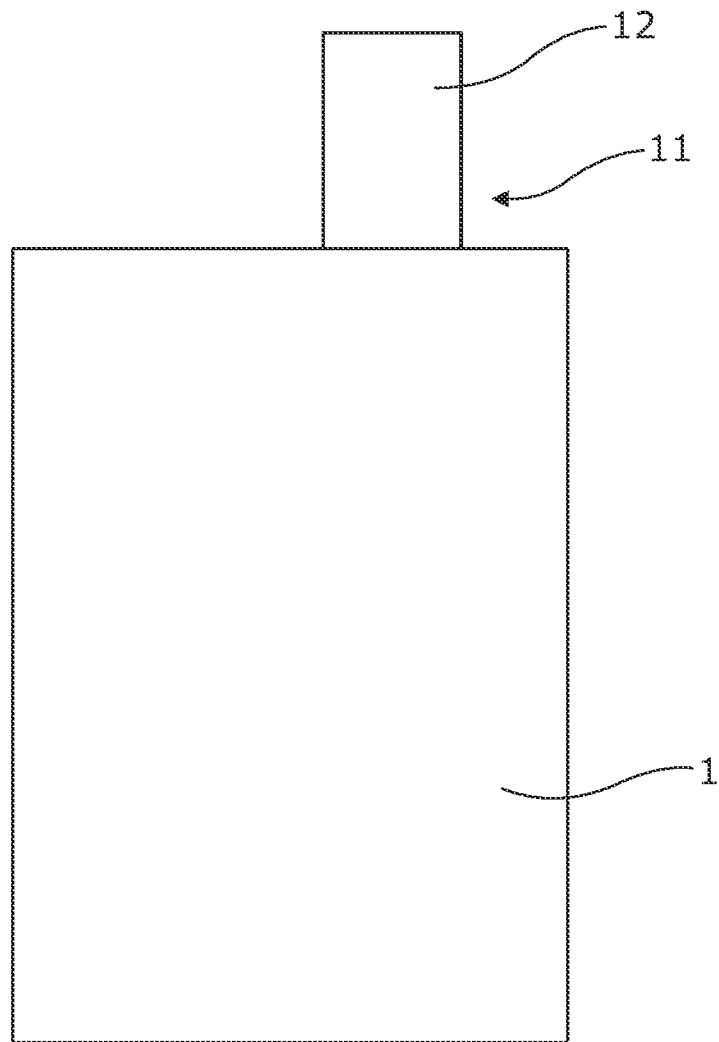


Fig. 2

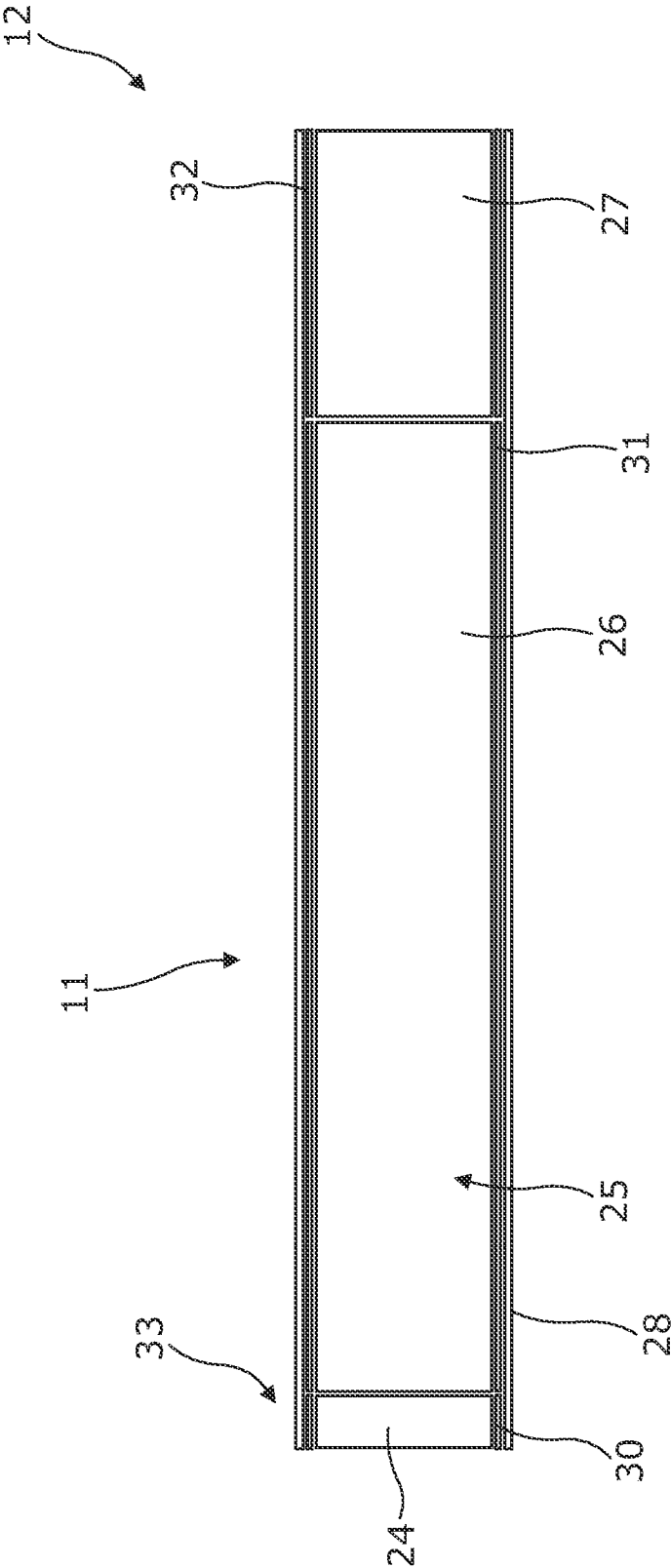


Fig. 3

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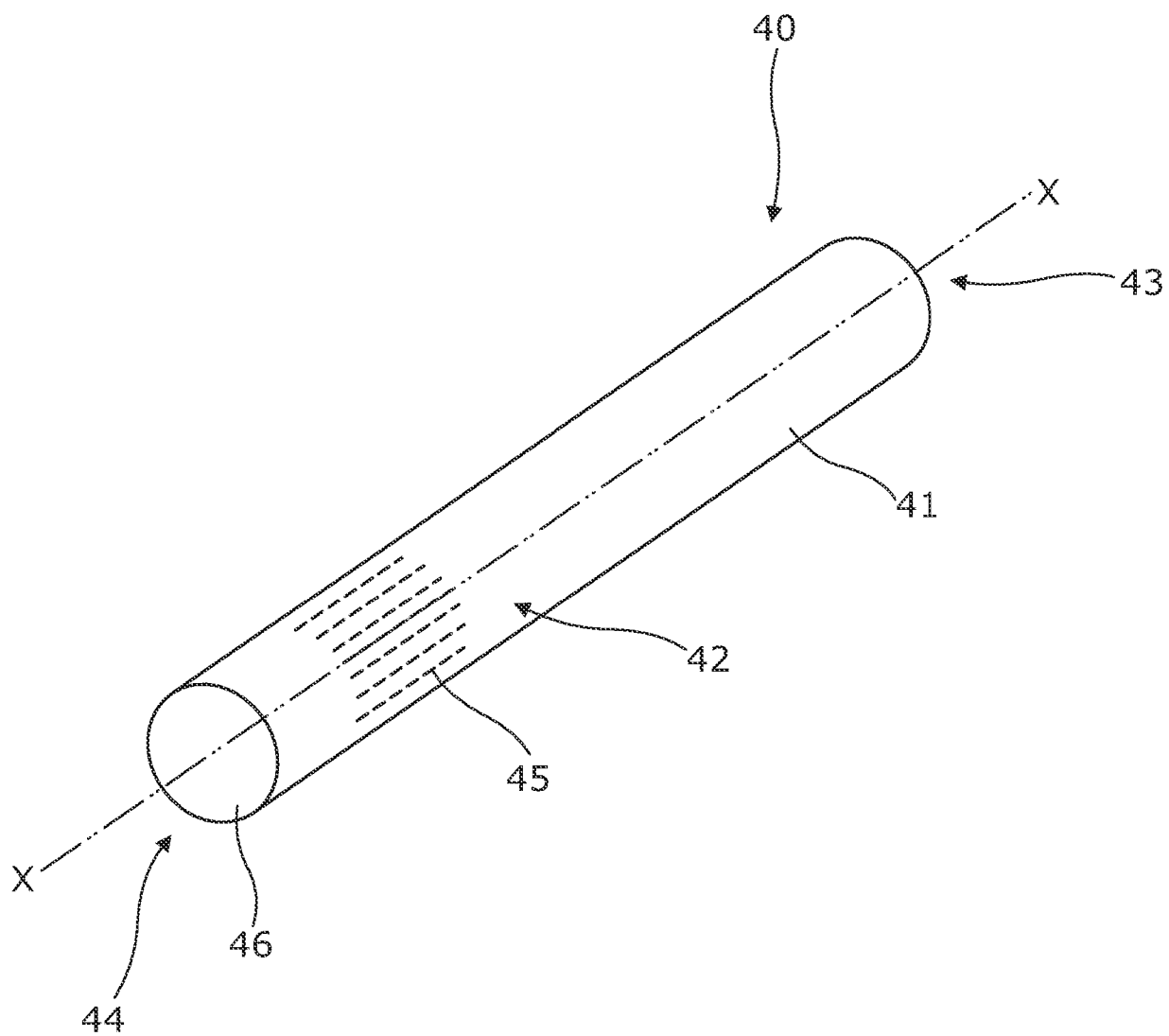


Fig. 4a

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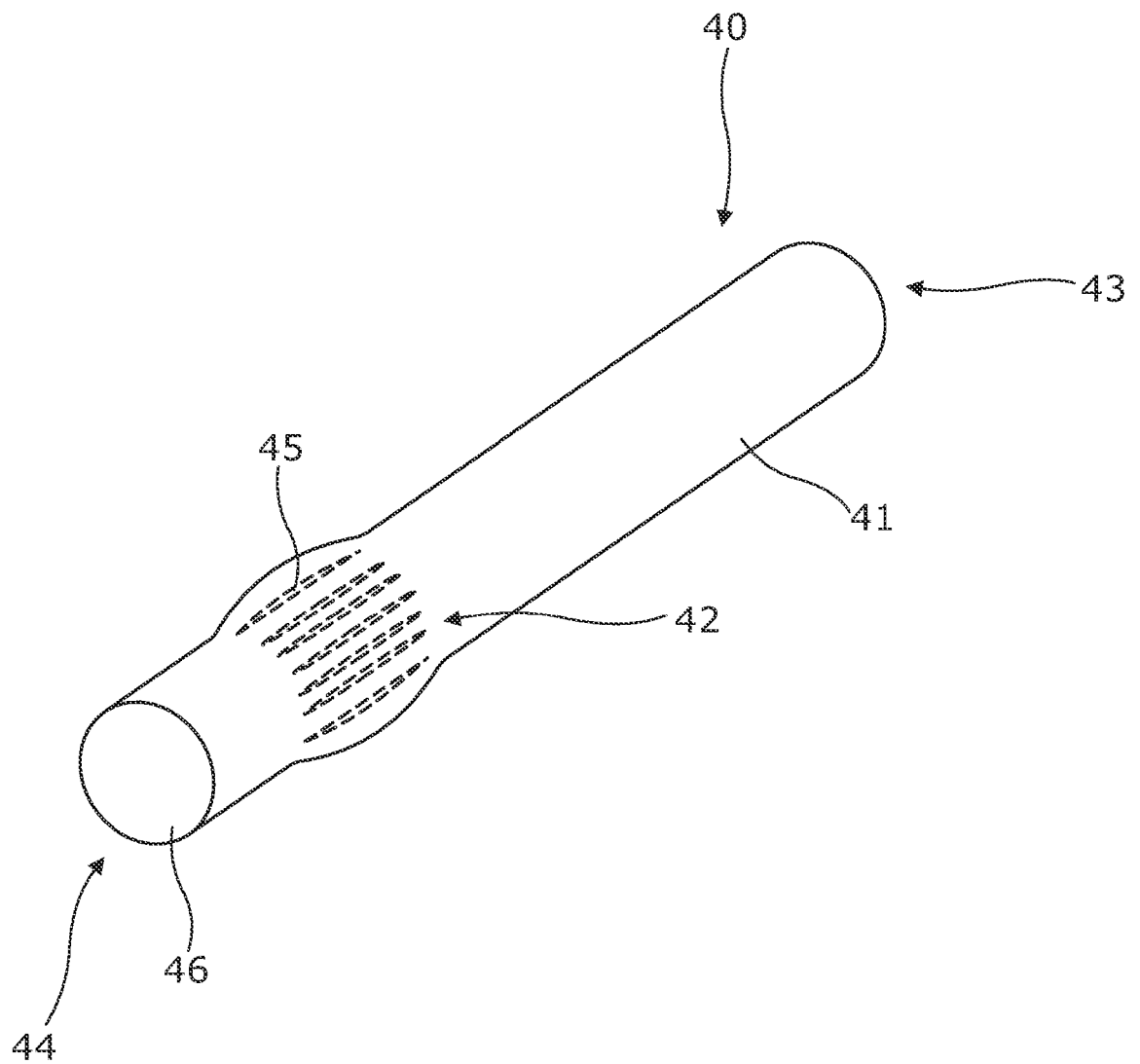


Fig. 4b

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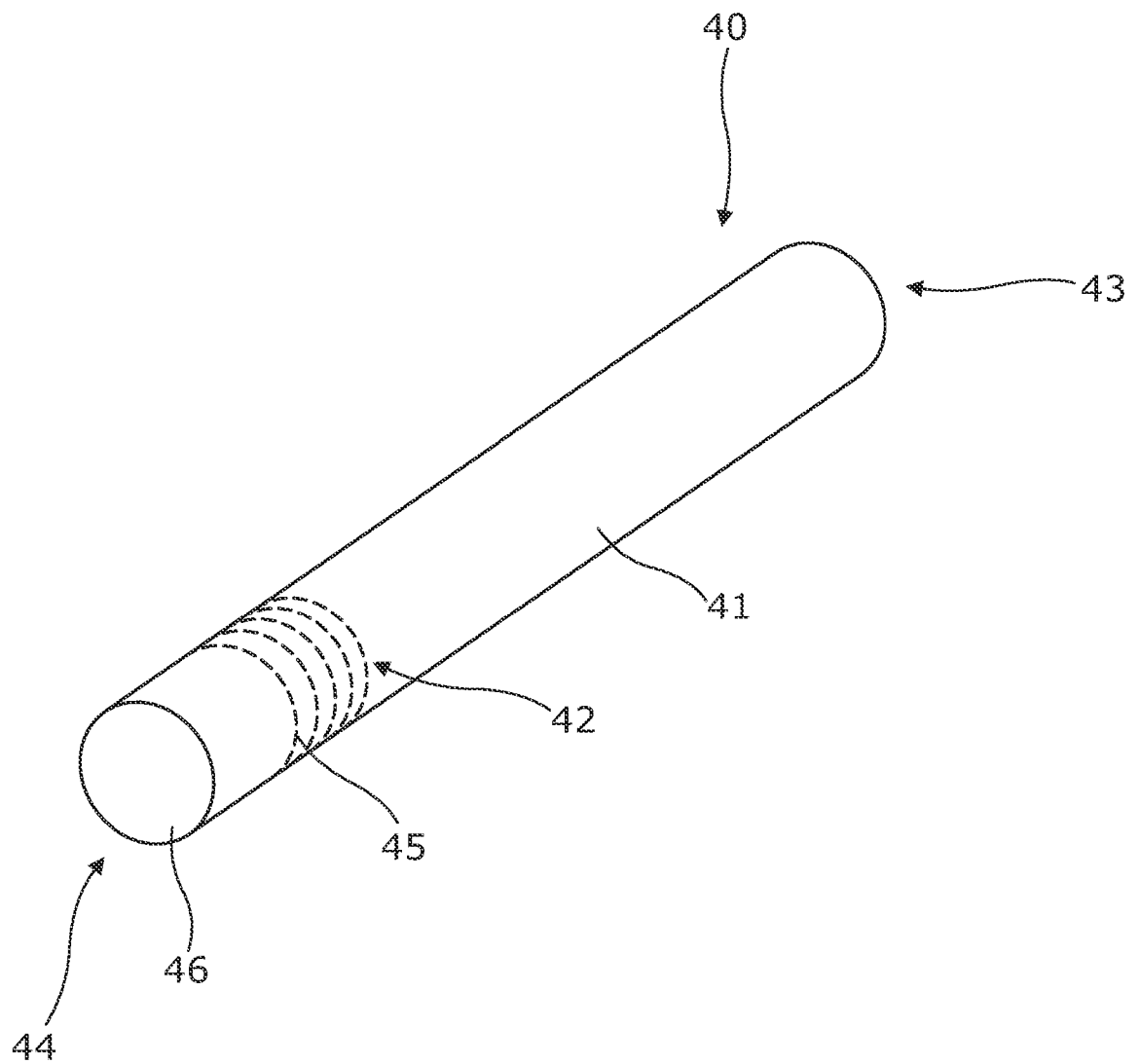


Fig. 5a

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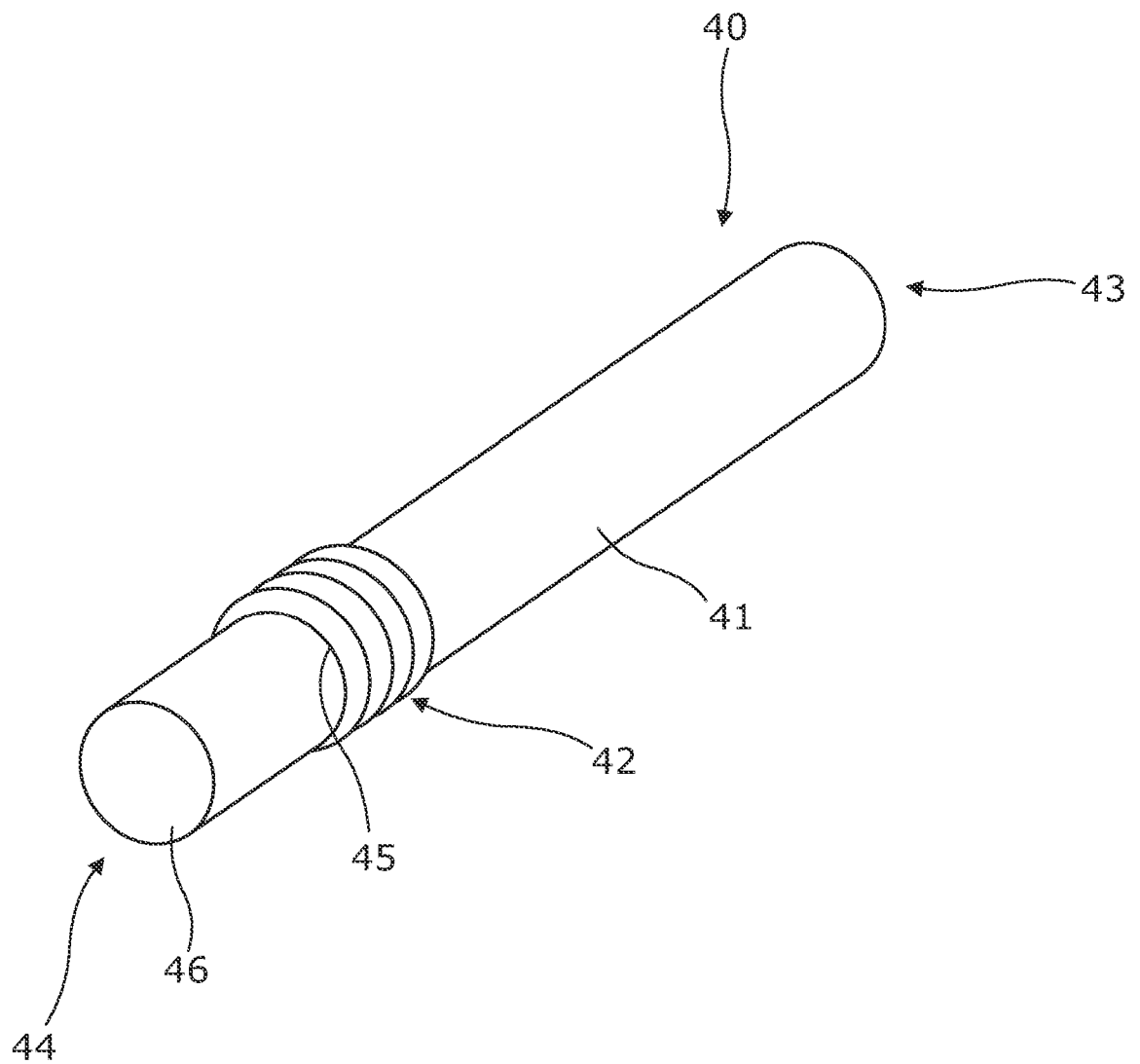


Fig. 5b

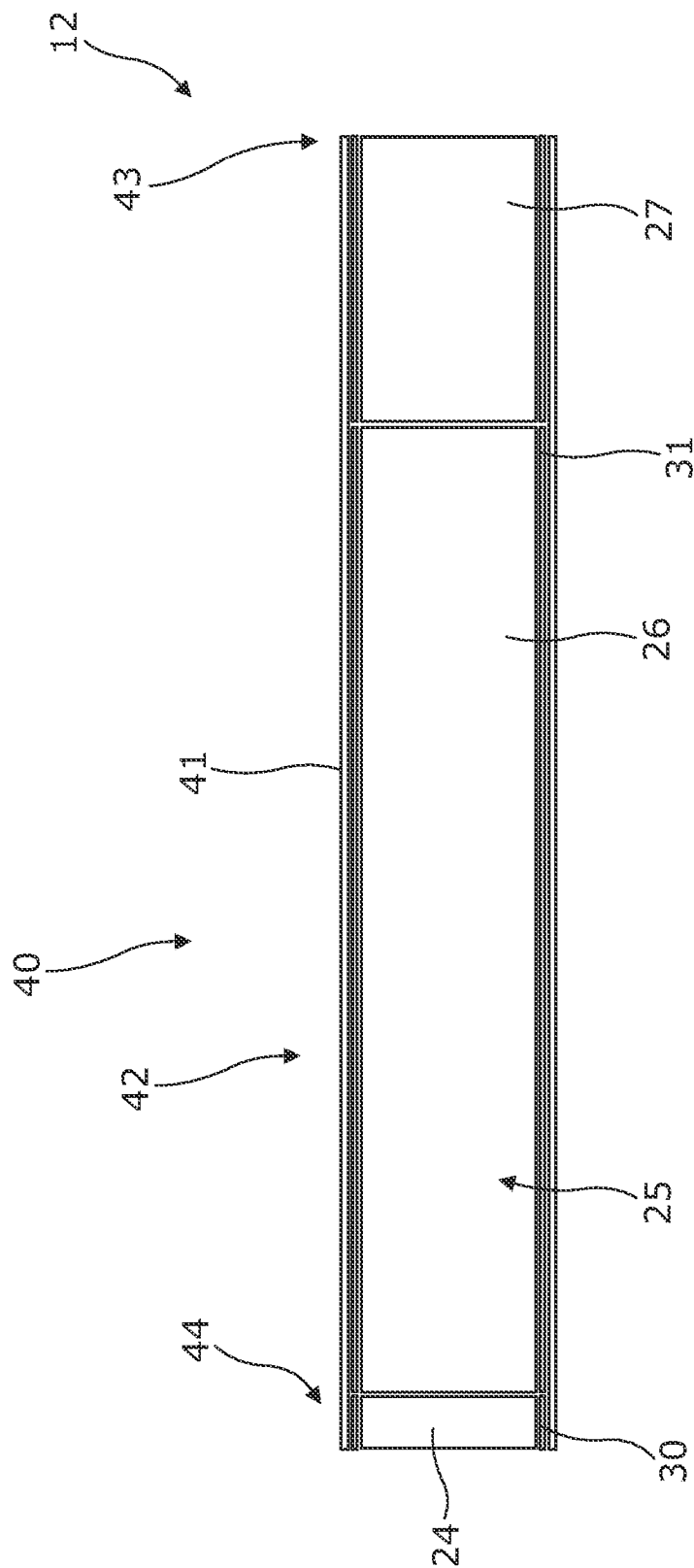


Fig. 6

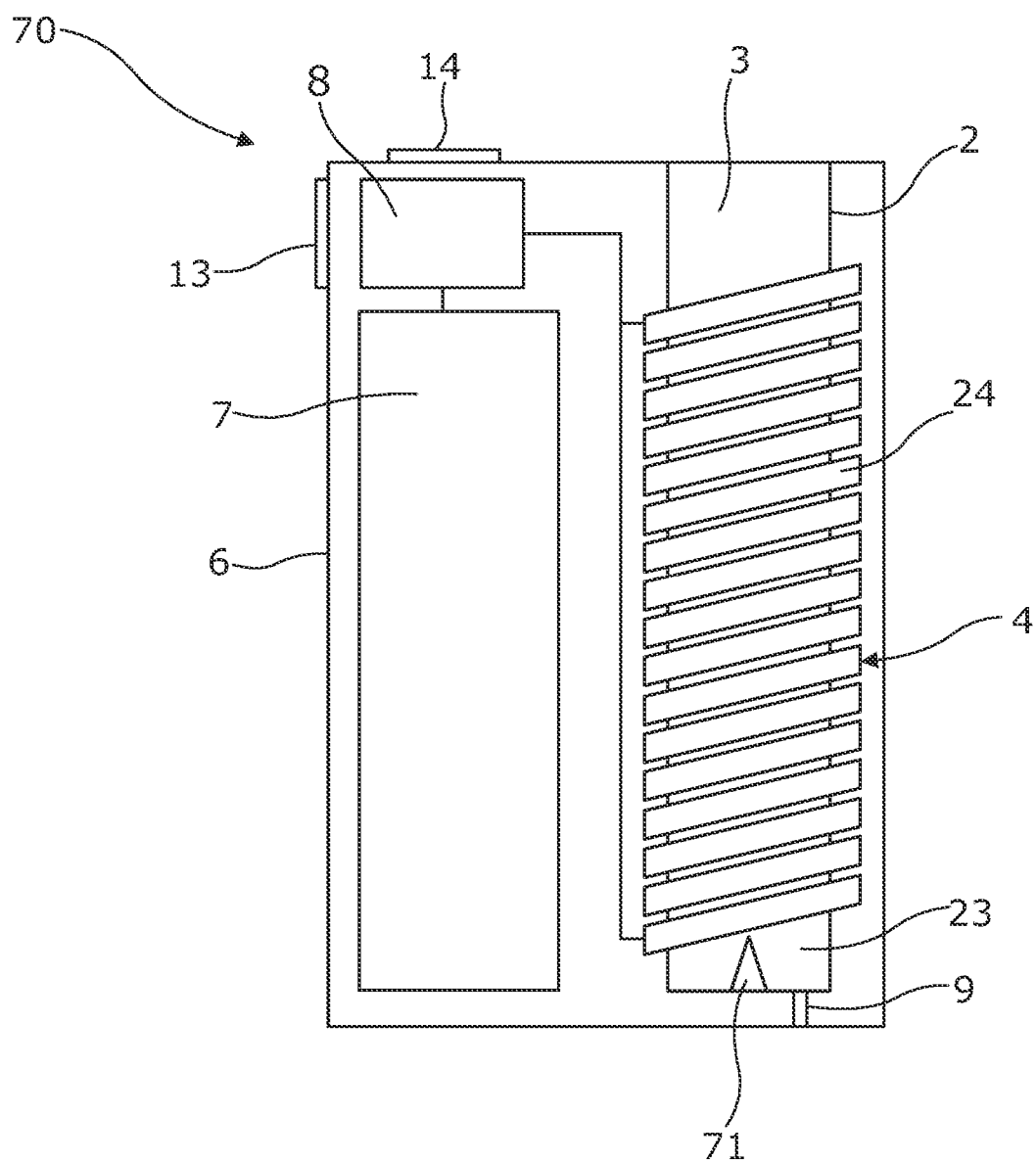


Fig. 7

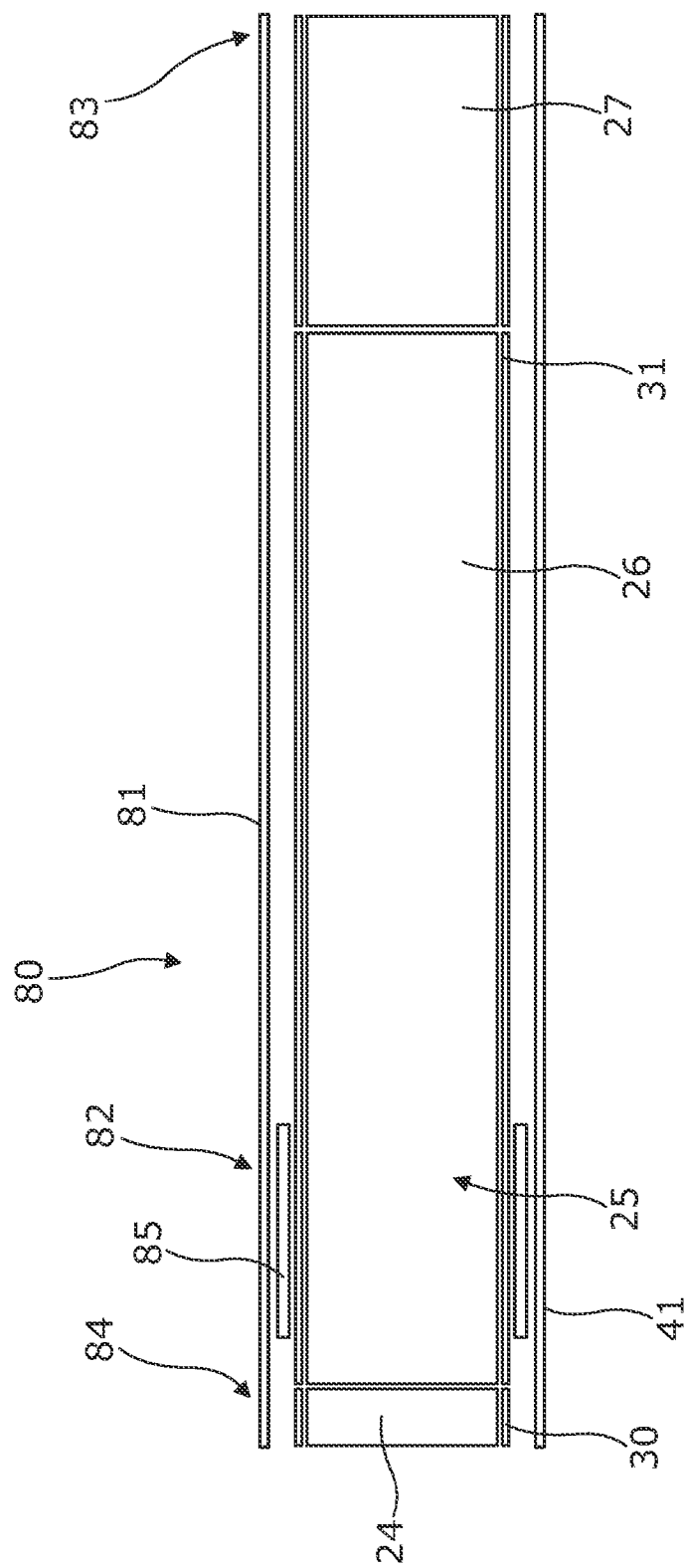


Fig. 8

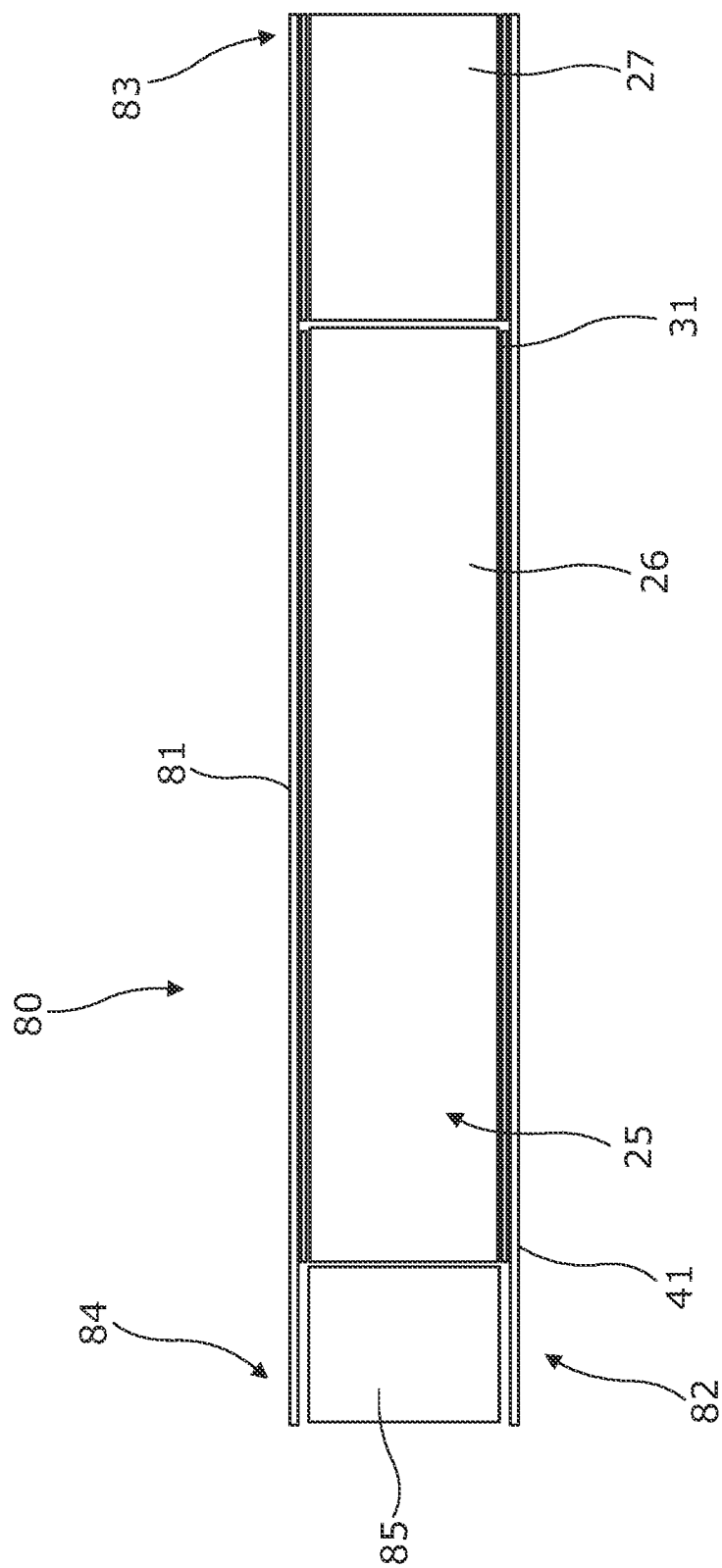


Fig. 9

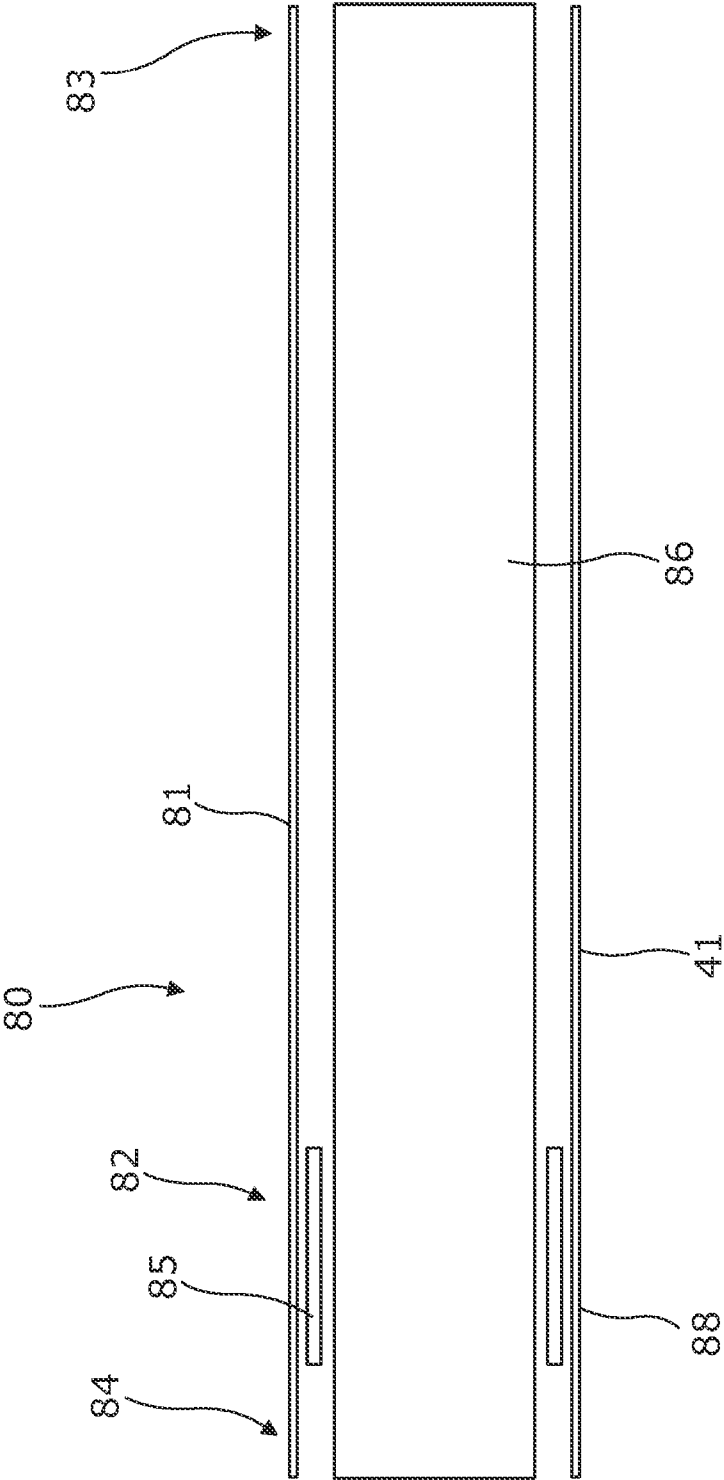


Fig. 10



Fig. 11b

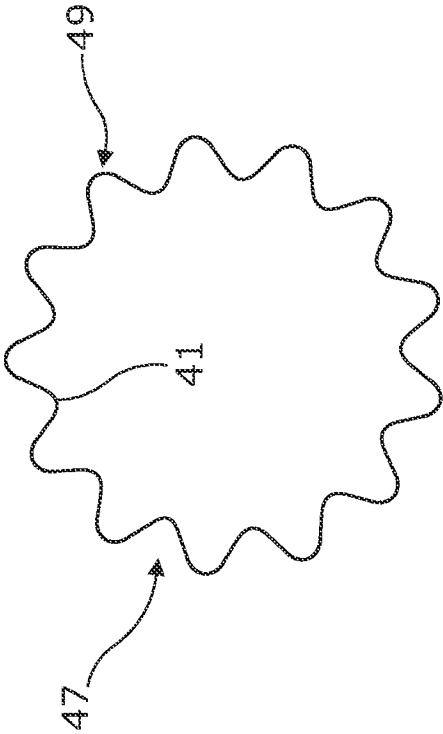


Fig. 11d

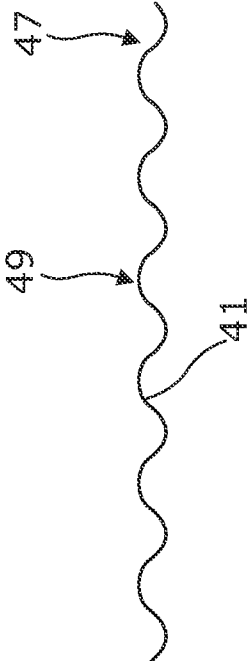


Fig. 11c

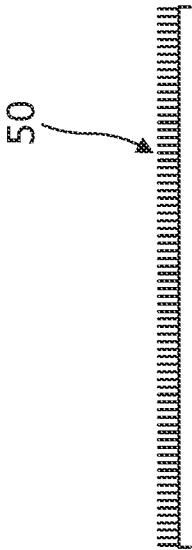


Fig. 11e

INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2021/051794

A. CLASSIFICATION OF SUBJECT MATTER
INV. A24D1/20 A24F40/40 A24F40/85
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 A24F

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.
X	WO 2019/175104 A1 (PHILIP MORRIS PRODUCTS SA [CH]) 19 September 2019 (2019-09-19)	1,19,40
Y	page 1, line 21 - page 2, line 30	20-22
A	-----	2-18
A	WO 2019/110768 A1 (PHILIP MORRIS PRODUCTS SA [CH]) 13 June 2019 (2019-06-13)	23-37,39
	page 2, lines 24-35	
	page 4, lines 24-27	

Y	WO 2019/115235 A1 (PHILIP MORRIS PRODUCTS SA [CH]) 20 June 2019 (2019-06-20)	21,22
A	page 20, line 15 - line 31	37

X	KR 2018 0070517 A (KT & G CORP [KR])	38
	26 June 2018 (2018-06-26)	
Y	paragraph [0038]	20



Further documents are listed in the continuation of Box C.



See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search

27 September 2021

Date of mailing of the international search report

08/10/2021

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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