



(51) International Patent Classification:

A24D 1/20 (2020.01) A24D 3/04 (2006.01)
A24D 1/22 (2020.01)

(21) International Application Number:

PCT/EP2019/079198

(22) International Filing Date:

25 October 2019 (25.10.2019)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

1817536.4 29 October 2018 (29.10.2018) GB

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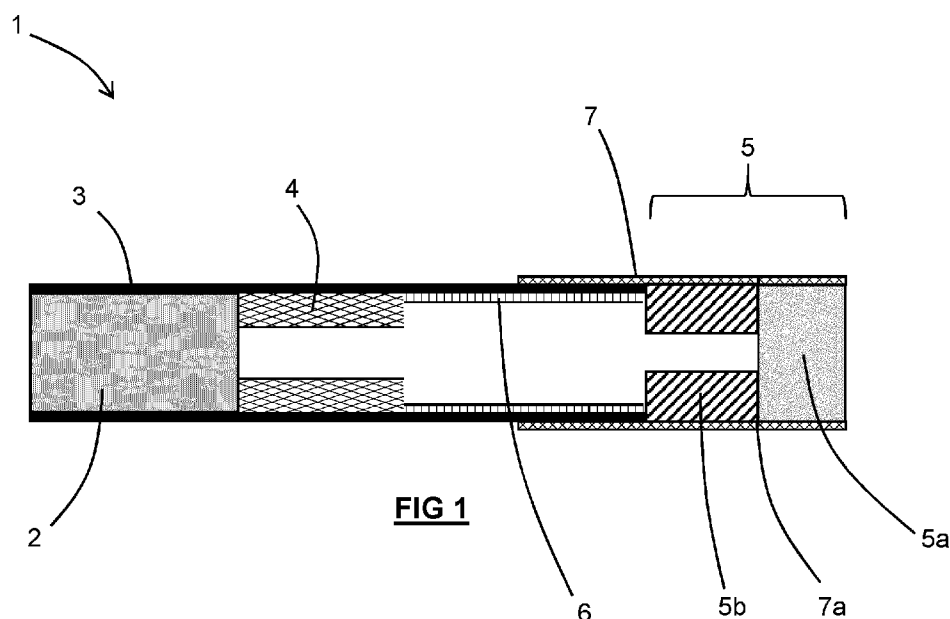
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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

(54) Title: SMOKING SUBSTITUTE CONSUMABLE



(57) Abstract: The present disclosure relates to a heat not burn consumable (1) comprising an aerosol-forming substrate (2) and a terminal filter element (5). The axial length of the terminal filter element is adjustable. There is also disclosure of an aerosol-forming article comprising an aerosol-forming substrate and a terminal filter element where the terminal filter element comprises a hollow bore filter portion and a solid filter portion.

Published:

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

Smoking substitute consumable

Field of the Disclosure

The present disclosure relates to a consumable for use in a smoking substitute system and particularly, although not exclusively, to a heat-not-burn (HNB) consumable.

Background

The smoking of tobacco is generally considered to expose a smoker to potentially harmful substances. It is generally thought that a significant amount of the potentially harmful substances are generated through the heat caused by the burning and/or combustion of the tobacco and the constituents of the burnt tobacco in the tobacco smoke itself.

10 Conventional combustible smoking articles, such as cigarettes, typically comprise a cylindrical rod of tobacco comprising shreds of tobacco which is surrounded by a wrapper, and usually also a cylindrical filter axially aligned in an abutting relationship with the wrapped tobacco rod. The filter typically comprises a filtration material which is circumscribed by a plug wrap. The wrapped tobacco rod and the filter are joined together by a wrapped band of tipping paper that circumscribes the entire length of the filter and an adjacent
15 portion of the wrapped tobacco rod. A conventional cigarette of this type is used by lighting the end opposite to the filter, and burning the tobacco rod. The smoker receives mainstream smoke into their mouth by drawing on the mouth end or filter end of the cigarette.

Combustion of organic material such as tobacco is known to produce tar and other potentially harmful by-products. There have been proposed various smoking substitute systems (or “substitute smoking systems”) in order to avoid the smoking of tobacco.
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Such smoking substitute systems can form part of nicotine replacement therapies aimed at people who wish to stop smoking and overcome a dependence on nicotine.

Smoking substitute systems include electronic systems that permit a user to simulate the act of smoking by producing an aerosol (also referred to as a “vapour”) that is drawn into the lungs through the mouth
25 (inhaled) and then exhaled. The inhaled aerosol typically bears nicotine and/or flavourings without, or with fewer of, the odour and health risks associated with traditional smoking.

In general, smoking substitute systems are intended to provide a substitute for the rituals of smoking, whilst providing the user with a similar experience and satisfaction to those experienced with traditional smoking and with combustible tobacco products. Some smoking substitute systems use smoking substitute articles

that are designed to resemble a traditional cigarette and are cylindrical in form with a mouthpiece at one end.

The popularity and use of smoking substitute systems has grown rapidly in the past few years. Although originally marketed as an aid to assist habitual smokers wishing to quit tobacco smoking, consumers are increasingly viewing smoking substitute systems as desirable lifestyle accessories.

There are a number of different categories of smoking substitute systems, each utilising a different smoking substitute approach.

One approach for a smoking substitute system is the so-called "heat not burn" ("HNB") approach in which tobacco (rather than an "e-liquid") is heated or warmed to release vapour. The tobacco may be leaf tobacco or reconstituted tobacco. The vapour may contain nicotine and/or flavourings. In the HNB approach the intention is that the tobacco is heated but not burned, i.e. the tobacco does not undergo combustion.

A typical HNB smoking substitute system may include a device and a consumable. The consumable may include the tobacco material. The device and consumable may be configured to be physically coupled together. In use, heat may be imparted to the tobacco material by a heating element of the device, wherein airflow through the tobacco material causes moisture in the tobacco material to be released as vapour. A vapour may also be formed from a carrier in the tobacco material (this carrier may for example include propylene glycol and/or vegetable glycerine) and additionally volatile compounds released from the tobacco. The released vapour may be entrained in the airflow drawn through the tobacco.

As the vapour passes through the consumable (entrained in the airflow) from an inlet to a mouthpiece (outlet), the vapour cools and condenses to form an aerosol for inhalation by the user. The aerosol will normally contain the volatile compounds.

In HNB smoking substitute systems, heating as opposed to burning the tobacco material is believed to cause fewer, or smaller quantities, of the more harmful compounds ordinarily produced during smoking. Consequently, the HNB approach may reduce the odour and/or health risks that can arise through the burning, combustion and pyrolytic degradation of tobacco.

In some cases, the aerosol passing from the mouthpiece (i.e. being inhaled by a user) may not be in a desirable state. Thus, it may be desirable to alter one or more characteristics of the aerosol before it is inhaled by the user.

There is a need for an improved design of HNB consumables to enhance the user experience and improve the function of the HNB smoking substitute system.

The present disclosure has been devised in the light of the above considerations.

Summary of the Invention

At its most general, the present disclosure relates to an aerosol-forming article e.g. a smoking substitute article such as an HNB consumable. The aerosol-forming article of the invention provides a means for the user to tailor their experience thereby facilitating increased enjoyment of the product.

According to a first aspect, there is provided a heat not burn (HNB) consumable comprising an aerosol-forming substrate, and a terminal filter element, wherein the axial length of the terminal filter element is adjustable.

In this way, the user is able to tailor their experience of the consumable to meet their own requirements. A user may decide to retain the entire axial length of the terminal filter element thereby providing the highest level of filtration and a less harsh experience. Alternatively they may decide to adjust the axial length of the filter element to vary the intensity. For example, they may reduce the axial length of the terminal filter element to reduce the level of filtration and increase the intensity of their experience. The invention removes the need for complex and expensive HNB devices which provide different levels of heating to vary the intensity of the user experience. In contrast, the present invention provides a consumable with an integrated variability in intensity, such that the user experience can be tailored regardless of capabilities of the device which is used to heat the consumable.

The variable intensity provided by the present invention offers particular advantages when applied to a HNB consumable. A traditional cigarette provides a relatively constant level/intensity of smoke throughout its use, until the rod of smokable material has been entirely combusted and the intensity drops to zero. However, the intensity of the aerosol generated by a HNB consumable tends to decline more gradually through its use, as the quantity of volatile substances (e.g. nicotine, humectant and/or flavourant) within the aerosol-forming substrate decreases. The present invention offers a means for the user to compensate for this decline in intensity during use of the HNB consumable. For example, as the user begins to sense that the intensity of the inhaled aerosol has decreased, they may adjust the axial length of the filter element to increase the intensity again, thereby extending the operable lifetime of the HNB consumable, which in turn leads to cost savings and lower levels of waste.

Optional features will now be set out. These are applicable singly or in any combination with any aspect.

The aerosol-forming substrate is capable of being heated to release at least one volatile compound that can form an aerosol. The aerosol-forming substrate may be located at the upstream end of the consumable.

As used herein, the terms "upstream" and "downstream" are intended to refer to the flow direction of the vapour/aerosol i.e. with the downstream end of the consumable being the mouth end or outlet where the aerosol exits the consumable for inhalation by the user. The upstream end of the consumable is the opposing end to the downstream end.

- 5 In order to generate an aerosol, the aerosol-forming substrate comprises at least one volatile compound that is intended to be vaporised/aerosolised and that may provide the user with a recreational and/or medicinal effect when inhaled. Suitable chemical and/or physiologically active volatile compounds include the group consisting of: nicotine, cocaine, caffeine, opiates and opioids, cathine and cathinone, kavalactones, mysticin, beta-carboline alkaloids, salvinorin A together with any combinations, functional
10 equivalents to, and/or synthetic alternatives of the foregoing.

- The aerosol-forming substrate may comprise plant material. The plant material may comprise least one plant material selected from the list including *Amaranthus dubius*, *Arctostaphylos uva-ursi* (Bearberry), *Argemone mexicana*, *Amica*, *Artemisia vulgaris*, Yellow Tees, *Galea zacatechichi*, *Canavalia maritima* (Baybean), *Cecropia mexicana* (Guamora), *Cestrum nocturnum*, *Cynoglossum virginianum* (wild comfrey),
15 *Cytisus scoparius*, *Damiana*, *Entada rheedii*, *Eschscholzia californica* (California Poppy), *Fittonia albivenis*, *Hippobroma longiflora*, *Humulus japonica* (Japanese Hops), *Humulus lupulus* (Hops), *Lactuca virosa* (Lettuce Opium), *Laggera alata*, *Leonotis leonurus*, *Leonurus cardiaca* (Motherwort), *Leonurus sibiricus* (Honeyweed), *Lobelia cardinalis*, *Lobelia inflata* (Indian-tobacco), *Lobelia siphilitica*, *Nepeta cataria* (Catnip), *Nicotiana species* (Tobacco), *Nymphaea alba* (White Lily), *Nymphaea caerulea* (Blue Lily), Opium
20 poppy, *Passiflora incamata* (Passionflower), *Pedicularis densiflora* (Indian Warrior), *Pedicularis groenlandica* (Elephant's Head), *Salvia divinorum*, *Salvia dorrii* (Tobacco Sage), *Salvia species* (Sage), *Scutellaria galericulata*, *Scutellaria lateriflora*, *Scutellaria nana*, *Scutellaria species* (Skullcap), *Sida acuta* (Wireweed), *Sida rhombifolia*, *Silene capensis*, *Syzygium aromaticum* (Clove), *Tagetes lucida* (Mexican Tarragon), *Tarchonanthus camphoratus*, *Tumera diffusa* (Damiana), *Verbascum* (Mullein), *Zamia latifolia*
25 (Maconha Brava) together with any combinations, functional equivalents to, and/or synthetic alternatives of the foregoing.

- Preferably, the plant material is tobacco. Any type of tobacco may be used. This includes, but is not limited to, flue-cured tobacco, burley tobacco, Maryland Tobacco, dark-air cured tobacco, oriental tobacco, dark-fired tobacco, perique tobacco and rustica tobacco. This also includes blends of the above
30 mentioned tobaccos.

Any suitable parts of the tobacco plant may be used. This includes leaves, stems, roots, bark, seeds and flowers.

The tobacco may comprise one or more of leaf tobacco, stem tobacco, tobacco powder, tobacco dust, tobacco derivatives, expanded tobacco, homogenised tobacco, shredded tobacco, extruded tobacco, cut rag tobacco and/or reconstituted tobacco (e.g. slurry recon or paper recon).

5 The aerosol-forming substrate may comprise a gathered sheet of homogenised (e.g. paper/slurry recon) tobacco or gathered shreds/strips formed from such a sheet.

In some embodiments, the sheet used to form the aerosol-forming substrate has a grammage greater than or equal to 100 g/m², e.g. greater than or equal to 110 g/m² such as greater than or equal to 120 g/m².

The sheet may have a grammage of less than or equal to 300 g/m² e.g. less than or equal to 250 g/m² or less than or equal to 200 g/m².

10 The sheet may have a grammage of between 120 and 190 g/m².

The aerosol-forming substrate may comprise at least 50 wt% plant material, e.g. at least 60 wt% plant material e.g. around 65 wt% plant material. The aerosol-forming substrate may comprise 80 wt% or less plant material e.g. 75 or 70 wt% or less plant material. The aerosol-forming substrate may comprise from 50 to 80 wt% plant material, for example from 50 to 75 wt%, from 55 to 80 wt%, from 55 to 75 wt%, from 15 50 to 70 wt%, from 55 to 70 wt%, from 60 to 75 wt% or from 60 to 70 wt%.

The aerosol-forming substrate may comprise one or more additives selected from humectants, flavourants, fillers, aqueous/non-aqueous solvents and binders.

Humectants are provided as vapour generators – the resulting vapour helps carry the volatile active compounds and increases visible vapour. Suitable humectants include polyhydric alcohols (e.g. propylene glycol (PG), triethylene glycol, 1,2-butane diol and vegetable glycerine (VG)) and their esters (e.g. glycerol 20 mono-, di- or tri-acetate). They may be present in the aerosol-forming substrate in an amount between 1 and 50 wt%.

The humectant content of the aerosol-forming substrate may have a lower limit of at least 1 % by weight of the plant material, such as at least 2 wt%, such as at least 5 wt%, such as at least 10 wt%, such as at 25 least 20 wt%, such as at least 30 wt%, or such as least 40 wt%.

The humectant content of the aerosol-forming substrate may have an upper limit of at most 50 % by weight of the plant material, such as at most 40 wt%, such as at most 30 wt%, or such as at most 20 wt%.

Preferably, the humectant content is 1 to 40 wt% of the aerosol-forming substrate, such as 1 to 20 wt%

Suitable binders are known in the art and may act to bind together the components forming the aerosol-forming substrate. Binders may comprise starches and/or cellulosic binders such as methyl cellulose, ethyl cellulose, hydroxypropyl cellulose, hydroxyethyl cellulose and methyl cellulose, gums such as xanthan, guar, arabic and/or locust bean gum, organic acids and their salts such as alginic acid/ sodium alginate, agar and pectins.

Preferably the binder content is 5 to 10 wt% of the aerosol-forming substrate e.g. around 6 to 8 wt%.

Suitable fillers are known in the art and may act to strengthen the aerosol-forming substrate. Fillers may comprise fibrous (non-tobacco) fillers such as cellulose fibres, lignocellulose fibres (e.g. wood fibres), jute fibres and combinations thereof.

Preferably, the filler content is 5 to 10 wt% of the aerosol-forming substrate e.g. around 6 to 9 wt%.

The aerosol-forming substrate may comprise an aqueous and/or non-aqueous solvent. In some embodiments, the aerosol forming substrate has a water content of between 5 and 10 wt% e.g. between 6-9 wt% such as between 7-9 wt%.

The flavourant may be provided in solid or liquid form. It may include menthol, liquorice, chocolate, fruit flavour (including e.g. citrus, cherry etc.), vanilla, spice (e.g. ginger, cinnamon) and tobacco flavour. The flavourant may be evenly dispersed throughout the aerosol-forming substrate or may be provided in isolated locations and/or varying concentrations throughout the aerosol-forming substrate.

The aerosol-forming substrate may be formed in a substantially cylindrical shape such that the consumable resembles a conventional cigarette. It may have a diameter of between 5 and 10mm e.g. between 6 and 9 mm or 6 and 8 mm e.g. around 7 mm. It may have an axial length of between 10 and 15 mm e.g. between 11 and 14 mm such as around 12 or 13 mm.

The aerosol-forming substrate may be circumscribed by a wrapping layer e.g. a paper wrapping layer. The wrapping layer may overlie an inner foil layer or may comprise a paper/foil laminate (with the foil innermost).

The consumable comprises a terminal filter element. It may further comprise an upstream filter element, upstream from the terminal filter element. The two filter elements may be adjacent one another or may be spaced apart. The upstream filter element may be at least partly (e.g. entirely) circumscribed by the (paper) wrapping layer.

The or at least one of the filter element(s) (e.g. the terminal filter element) may be comprised of cellulose acetate or polypropylene tow. The or at least one filter element(s) (e.g. the terminal filter element) may be comprised of activated charcoal. The or at least one of filter element(s) (e.g. the terminal element) may be

comprised of paper. The or each filter element (e.g. the terminal filter element) may be comprised of extruded plant material. The or each filter element may be circumscribed with a plug wrap e.g. a paper plug wrap.

5 The or each filter element may have a substantially cylindrical shape with a diameter substantially matching the diameter of the aerosol-forming substrate (with or without its associated wrapping layer). The axial length of the or each filter element may be less than 20 mm, e.g. between 8 and 15 mm, for example between 9 and 13 mm e.g. between 10 and 12 mm.

10 The upstream filter element may be a solid filter element. The upstream filter element may be a hollow bore filter element having a bore diameter of between 1 and 5 mm, e.g. between 2 and 4 mm or between 2 and 3 mm.

15 The axial length of the terminal filter element is adjustable. In some embodiments, the axial length of the terminal filter element is reducible. Herein, "axial length" when used to describe a dimension of a filter or filter element refers to the length in the direction of the airflow through the consumable. Thus, when the axial length of the terminal filter element is adjusted the effective filtration length (i.e. the length of filter through which the vapour/aerosol must pass before inhalation) is adjusted. For example, a reduction of the axial length of the terminal filter element will reduce the length of terminal filter element through which the aerosol passes within the consumable and reduce the extent of filtration accordingly.

20 In some embodiments, the axial length of the terminal filter element is adjustable by the removal of one or more terminal portions of the terminal filter element. In this way, a discrete portion or element of the terminal filter element is removed from the consumable, leaving a residual portion in place which is of reduced axial length, thereby offering a reduced level of filtration and increased intensity.

25 In some embodiments, the terminal filter element comprises a plurality of filter portions in axial abutment with one another wherein one or more filter portions is/are removable from the consumable to adjust the axial length of the terminal filter element. In this way, one or more filter portions may be more easily removed from the residual one or more filter portions of the terminal filter element so that the user experience is more easily tailored. In some embodiments, the terminal filter element comprises two filter portions in axial abutment with one another. In some embodiments, the terminal filter element comprises three filter portions in axial abutment with one another. In some embodiments, the terminal filter element comprises four filter portions in axial abutment with one another. Providing an increased number of discrete, separable portions within the filter element provides finer adjustability of the filtration level provided by the consumable.

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The terminal filter element may comprise a circumscribing tipping layer e.g. a tipping paper layer for holding the filter portions in abutment and for joining the terminal filter element to the upstream elements forming the consumable. The tipping paper may have an axial length longer than the axial length of the terminal filter element such that the tipping paper completely circumscribes the terminal filter element plus the wrapping layer surrounding any adjacent upstream element.

In some embodiments, the one or more filter portions of the terminal filter element are removable by breaking the tipping paper along a region of weakness. In some embodiments, the region of weakness comprises a line of weakness in the tipping paper which overlies a junction between two axially abutting filter portions. In some embodiments, the line of weakness comprises a linear array of perforations in the tipping layer of the consumable.

In some embodiments, at least one of the plurality of filter portions is adapted to provide a reduced level of filtration. For example, at least one of the filter portions may be a hollow bore filter portion having a hollow axial bore.

One or more of the filter portions may be a solid filter portion (i.e. without any axial bore).

In some embodiments, the hollow bore filter portion may be upstream from the downstream axial end of the consumable.

In some embodiments, the solid filter portion may be at the downstream axial end of the consumable.

In some embodiments, the terminal filter element comprises an upstream hollow bore filter portion and a downstream solid filter portion with the region of weakness/line of perforations in the tipping paper substantially aligned with the join between the upstream hollow bore filter portion and the downstream solid filter portion.

In this way, a more dramatic increase in intensity is attainable by the removal of a terminal filter portion of the terminal filter element, since one or more remaining filter portion is not only of shorter axial length relative to the initial terminal filter element, but is specifically adapted to provide a reduced level of filtration.

The upstream filter element or one of the solid filter portions of the terminal filter element may include a capsule e.g. a crushable capsule (crush-ball) containing a liquid flavourant e.g. any of the flavourants listed above. The capsule can be crushed by the user during smoking of the consumable to release the flavourant. The capsule may be located at the axial centre of the upstream filter element or one of the solid filter portions of the terminal filter element.

In a second aspect, there is provided an aerosol-forming article (e.g. a smoking substitute article or a heat not burn (HNB) consumable) comprising an aerosol-forming substrate and a terminal filter element wherein the axial length of the terminal filter element is adjustable and wherein the terminal filter element comprises a hollow bore filter portion and a solid filter portion.

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The aerosol-forming substrate in the second aspect may be as described above for the first aspect. There may be an upstream filter element as described for the first aspect. There may be an aerosol-cooling element and/or a spacer element as described above for the first aspect.

At least one of the filter portions may be comprised of cellulose acetate or polypropylene tow. At least one filter portions may be comprised of activated charcoal. At least one of filter portions may be comprised of paper. At least one of filter portions may be comprised of extruded plant material. Each filter portion may be circumscribed with a plug wrap e.g. a paper plug wrap.

The filter portions may have a substantially cylindrical shape with a diameter substantially matching the diameter of the aerosol-forming substrate (with or without its associated wrapping layer). The axial length of the terminal filter element (and the upstream filter element) may be less than 20 mm, e.g. between 8 and 15 mm, for example between 9 and 13 mm e.g. between 10 and 12 mm.

The terminal filter element comprises a hollow bore filter portion and a solid filter portion. They may be in axial abutment or they may be spaced by one or more further filter portions. The solid bore filter portion may be the terminal filter portion i.e. at the downstream axial end of the article. In this case, the hollow bore filter element will be upstream of the solid filter portion e.g. axially adjacent and upstream of the solid filter portion.

The axial length of the terminal filter element is adjustable/reducible as described above for the first aspect i.e. by removal of the terminal portion of the terminal filter element.

The terminal filter element may comprise a circumscribing tipping layer as described for the first aspect e.g. a tipping paper layer for holding the filter portions in abutment and for joining the terminal filter element to the upstream elements forming the consumable. The tipping paper may have an axial length longer than the axial length of the terminal filter element such that the tipping paper completely circumscribes the terminal filter element plus the wrapping layer surrounding any adjacent upstream element. In some embodiments, the tipping paper comprises a region of weakness/line of perforations substantially aligned with the upstream axial end of the terminal (e.g. solid) filter portion e.g. at a join between the terminal (e.g. solid) and upstream (e.g. hollow bore) filter portions.

In some embodiments of the first or second aspect, the consumable/article may comprise an aerosol-cooling element which is adapted to cool the aerosol generated from the aerosol-forming substrate (by heat exchange) before being inhaled by the user.

5 The aerosol-cooling element will be downstream from the aerosol-forming substrate. For example, it may be between the aerosol-forming substrate and the upstream filter element/the upstream filter portion of the terminal filter element and/or between the upstream filter element and the upstream filter portion of the terminal filter element. The aerosol cooling element may be at least partly (e.g. completely) circumscribed by the (paper) wrapping layer.

10 The aerosol-cooling element may be formed of a plastics material selected from the group consisting of polylactic acid (PLA), polyvinyl chloride (PVC), polyethylene (PE) and polyethylene terephthalate (PET). The aerosol-cooling element may be formed of a crimped/gathered sheet of material to form a structure having a high surface area with a plurality of longitudinal channels to maximise heat exchange and cooling of the aerosol.

15 The consumable/article may comprise a spacer element that defines a space or cavity or chamber between the aerosol-forming substrate and the downstream end of the consumable. It may be provided between the aerosol-forming substrate and the upstream filter element/the upstream filter portion of the terminal filter element and/or between the upstream filter element and the upstream filter portion of the terminal filter element. The spacer acts to allow both cooling and mixing of the aerosol. The spacer element may be a tubular element e.g. it may comprise a cardboard tube. The spacer element may be at least partly (e.g. 20 entirely) circumscribed by the (paper) wrapping layer.

The spacer element may have an external diameter of between 5 and 10 mm e.g. between 6 and 9 mm or 6 and 8 mm e.g. around 7 mm. It may have an axial length of between 10 and 15 mm e.g. between 12 and 14 mm or 13 and 14 mm e.g. around 14 mm.

25 In a third aspect, there is provided a smoking substitute system comprising a HNB consumable according to the first aspect or an article according to the second aspect and a device comprising a heating element.

The device may be a HNB device i.e. a device adapted to heat but not combust the aerosol-forming substrate.

30 The device may comprise a main body for housing the heating element. The heating element may comprise an elongated e.g. rod, tube-shaped or blade heating element. The heating element may project into or surround a cavity within the main body for receiving the consumable described above.

The device (e.g. the main body) may further comprise an electrical power supply e.g. a (rechargeable) battery for powering the heating element. It may further comprise a control unit to control the supply of power to the heating element.

In a fourth aspect, there is provided a method of using a smoking substitute system according to the third aspect, the method comprising:

- inserting the consumable/article into the device; and
- heating the consumable/article using the heating element.

In some embodiments, the method comprises inserting the consumable/article into a cavity within the main body and penetrating the consumable with the heating element upon insertion of the consumable/article.

For example, the heating element may penetrate the aerosol-forming substrate in the consumable/article.

The method may further comprise reducing the axial length of the terminal filter element.

The skilled person will appreciate that except where mutually exclusive, a feature or parameter described in relation to any one of the above aspects may be applied to any other aspect. Furthermore, except where mutually exclusive, any feature or parameter described herein may be applied to any aspect and/or combined with any other feature or parameter described herein.

Summary of the Figures

So that the invention may be understood, and so that further aspects and features thereof may be appreciated, embodiments illustrating the principles of the invention will now be discussed in further detail with reference to the accompanying figures, in which:

Figure 1 shows a first embodiment of an HNB consumable;

Figure 2 shows the first embodiment of the HNB consumable in a second condition;

Figure 3 shows a second embodiment of an HNB consumable

Figure 4 shows a third embodiment of an HNB consumable; and

Figure 5 shows the first embodiment within a device forming an HNB system.

Detailed Description of the Figures

As shown in Figure 1, the HNB consumable 1 comprises an aerosol-forming substrate 2 at the upstream end of the consumable 1.

The aerosol-forming substrate comprises reconstituted tobacco which includes nicotine as a volatile compound.

5 The aerosol-forming substrate 2 comprises 65 wt% tobacco which is provided in the form of gathered shreds produced from a sheet of slurry/paper recon tobacco. The tobacco is dosed with 20wt% of a humectant such as propylene glycol (PG) or vegetable glycerine (VG) and has a moisture content of between 7-9 wt%. The aerosol-forming substrate further comprises cellulose pulp filler and guar gum binder.

The aerosol-forming substrate 2 is formed in a substantially cylindrical shape such that the consumable resembles a conventional cigarette. It has diameter of around 7 mm and an axial length of around 12 mm.

10 The aerosol-forming substrate 2 is circumscribed by a paper wrapping layer 3.

The consumable 1 comprises an upstream filter element 4 and a downstream (terminal) filter element 5. The two filter elements 4, 5 are spaced by a cardboard tube spacer 6. Both filter elements 4, 5 are formed of cellulose acetate tow and wrapped with a respective paper plug layer (not shown).

15 Both filter elements have a substantially cylindrical shape. The diameter of the upstream filter 4 matches the diameter of the aerosol-forming substrate 2. The diameter of the terminal filter element 5 is slightly larger and matches the combined diameter of the aerosol-forming substrate 2 and the wrapping layer 3. The upstream filter element is slightly shorter in axial length than the terminal filter element at an axial length of 10mm compared to 12mm for the terminal filter element.

20 The terminal filter element 5 is made up of two axially abutting filter portions 5a and 5b. The terminal portion 5a is a solid cellulose acetate tow filter portion. The upstream filter portion 5b of the terminal filter element 5 is a cellulose acetate tow filter portion defining a hollow, longitudinally (axially) extending bore.

The cardboard tube spacer 6 is longer than each of the two filter elements 4, 5 having an axial length of around 14 mm.

25 The diameter of the bore in the filter portion 4 is slightly larger than the diameter of the bore in the portion 5b of the terminal filter element having a diameter of 3 mm compared to 2 mm for the terminal filter element portion 5b.

The cardboard tube spacer 6 and the upstream filter element 4 are circumscribed by the wrapping layer 3.

The terminal filter element 5 is joined to the upstream elements forming the consumable by a circumscribing paper tipping layer 7. The tipping layer 7 encircles the terminal filter element 5 and has an axial length of around 20 mm such that it overlays a portion of the cardboard tube spacer 6.

5 A region of weakness 7a is provided in the paper tipping layer 7, consisting of an annular array of perforations in the paper tipping layer 7 which circumscribes the terminal filter element 5. The region of weakness 7a directly overlies the junction between the two filter portions 5a and 5b.

10 Either before or during use, should the user require an increased intensity (lower level of filtration), force may be applied to the terminal filter portion 5a to break the region of weakness 7a and separate the two filter portions 5a, 5b of the terminal filter element 5. The terminal filter portion 5a may then be disposed of, for example into a waste bin or recycling.

Figure 2 shows the consumable of Figure 1 after removal of the terminal portion 5a of the terminal filter element 5. The terminal filter element 5' now consists only of the hollow bore filter portion 5b which provides a reduced level of filtration relative to the longer terminal filter element 5 of Figure 1. The reduced level of filtration is provided by both the reduced overall axial length of the terminal filter element 5, and further
15 reduction is provided by the fact that portion 5b includes the hollow bore. In alternative embodiments, filter portion 5b may be a solid filter and the reduction in level of filtration will be provided simply by the reduction in overall axial length of the terminal filter element after breakage.

Figure 3 shows a second embodiment of a consumable 1' which is the same as that shown in Figure 1 except that both filter portions 5a, 5b of the terminal filter element 5 are solid filter portions and the upstream
20 filter portion 5b comprises a crushable capsule 8 (crush-ball) having a shell wall containing a liquid menthol or cherry or vanilla flavourant. The capsule 8 is spherical and has a diameter of 3.5mm. It is positioned within the axial centre of the upstream filter portion 5b.

During use the user may apply pressure to the capsule 8 to break the capsule and release the flavourant. The flavour can be provided whether or not the user decides to break off the terminal filter portion 5a due
25 to the location of the capsule within the other filter portion 5b.

Figure 4 shows a third embodiment of a consumable 1'' which is the same as the first embodiment except that the wrapping layer 3 does not completely circumscribe the cardboard tube spacer 6 such that there is an annular gap 9 between the tipping layer 7 and the cardboard tube spacer 6 downstream of the end of the wrapping layer 3.

30 Figure 5 shows the first embodiment inserted into an HNB device 10 comprising a rod-shaped heating element 20. The heating element 20 projects into a cavity 11 within the main body 12 of the device.

The consumable 1 is inserted into the cavity 11 of the main body 12 of the device 10 such that the heating rod 20 penetrates the aerosol-forming substrate 2. Heating of the reconstituted tobacco in the aerosol-forming substrate 2 is effected by powering the heating element (e.g. with a rechargeable battery (not shown)). As the tobacco is heated, moisture and volatile compound (e.g. nicotine) within the tobacco and the humectant are released as a vapour and entrained within an airflow generated by inhalation by the user at the terminal filter element 5.

As the vapour cools within the upstream filter element 4 and the cardboard tube spacer 6, it condenses to form an aerosol containing the volatile compounds for inhalation by the user.

The features disclosed in the foregoing description, or in the following claims, or in the accompanying drawings, expressed in their specific forms or in terms of a means for performing the disclosed function, or a method or process for obtaining the disclosed results, as appropriate, may, separately, or in any combination of such features, be utilised for realising the invention in diverse forms thereof.

While the invention has been described in conjunction with the exemplary embodiments described above, many equivalent modifications and variations will be apparent to those skilled in the art when given this disclosure. Accordingly, the exemplary embodiments of the invention set forth above are considered to be illustrative and not limiting. Various changes to the described embodiments may be made without departing from the scope of the invention.

For the avoidance of any doubt, any theoretical explanations provided herein are provided for the purposes of improving the understanding of a reader. The inventors do not wish to be bound by any of these theoretical explanations.

Any section headings used herein are for organizational purposes only and are not to be construed as limiting the subject matter described.

Throughout this specification, including the claims which follow, unless the context requires otherwise, the words "have", "comprise", and "include", and variations such as "having", "comprises", "comprising", and "including" will be understood to imply the inclusion of a stated integer or step or group of integers or steps but not the exclusion of any other integer or step or group of integers or steps.

It must be noted that, as used in the specification and the appended claims, the singular forms "a," "an," and "the" include plural referents unless the context clearly dictates otherwise. Ranges may be expressed herein as from "about" one particular value, and/or to "about" another particular value. When such a range is expressed, another embodiment includes from the one particular value and/or to the other particular value. Similarly, when values are expressed as approximations, by the use of the antecedent "about," it

will be understood that the particular value forms another embodiment. The term "about" in relation to a numerical value is optional and means, for example, +/- 10%.

The words "preferred" and "preferably" are used herein refer to embodiments of the invention that may provide certain benefits under some circumstances. It is to be appreciated, however, that other

5 embodiments may also be preferred under the same or different circumstances. The recitation of one or more preferred embodiments therefore does not mean or imply that other embodiments are not useful, and is not intended to exclude other embodiments from the scope of the disclosure, or from the scope of the claims.

Claims:

1. A heat not burn consumable comprising an aerosol-forming substrate and a terminal filter element, wherein the axial length of the terminal filter element is adjustable.
- 5 2. A consumable according to claim 1, wherein the terminal filter element comprises a plurality of filter portions in axial abutment with one another and wherein one or more of the filter portions is/are removable from the consumable to adjust the axial length of the terminal filter element.
3. A consumable according to claim 1 or 2 wherein the terminal filter element comprises a hollow bore filter portion.
- 10 4. A consumable according to claim 3 wherein the hollow bore filter portion is upstream from the downstream axial end of the consumable.
5. A consumable according to claim 4 further comprising a solid filter portion at the axial downstream end of the consumable.
6. A consumable according to any one of claims 2 to 5 wherein the terminal filter element is
15 circumscribed by a tipping paper and wherein the tipping paper comprises a region of weakness aligned with a join between two filter portions.
7. A consumable according to claim 6, wherein the region of weakness comprises an array of perforations in the tipping paper.
8. An aerosol-forming article comprising an aerosol-forming substrate and a terminal filter
20 element wherein the axial length of the terminal filter element is adjustable and wherein the terminal filter element comprises a hollow bore filter portion and a solid filter portion.
9. An article according to claim 8 wherein the terminal filter element is circumscribed by a tipping paper and wherein the tipping paper comprises a region of weakness aligned with a join between the two filter portions.
- 25 10. An article according to claim 9, wherein the region of weakness comprises an array of perforations in the tipping paper.
11. A system comprising a consumable or an article according to any one of claims 1 to 10 and a device comprising a heating element.

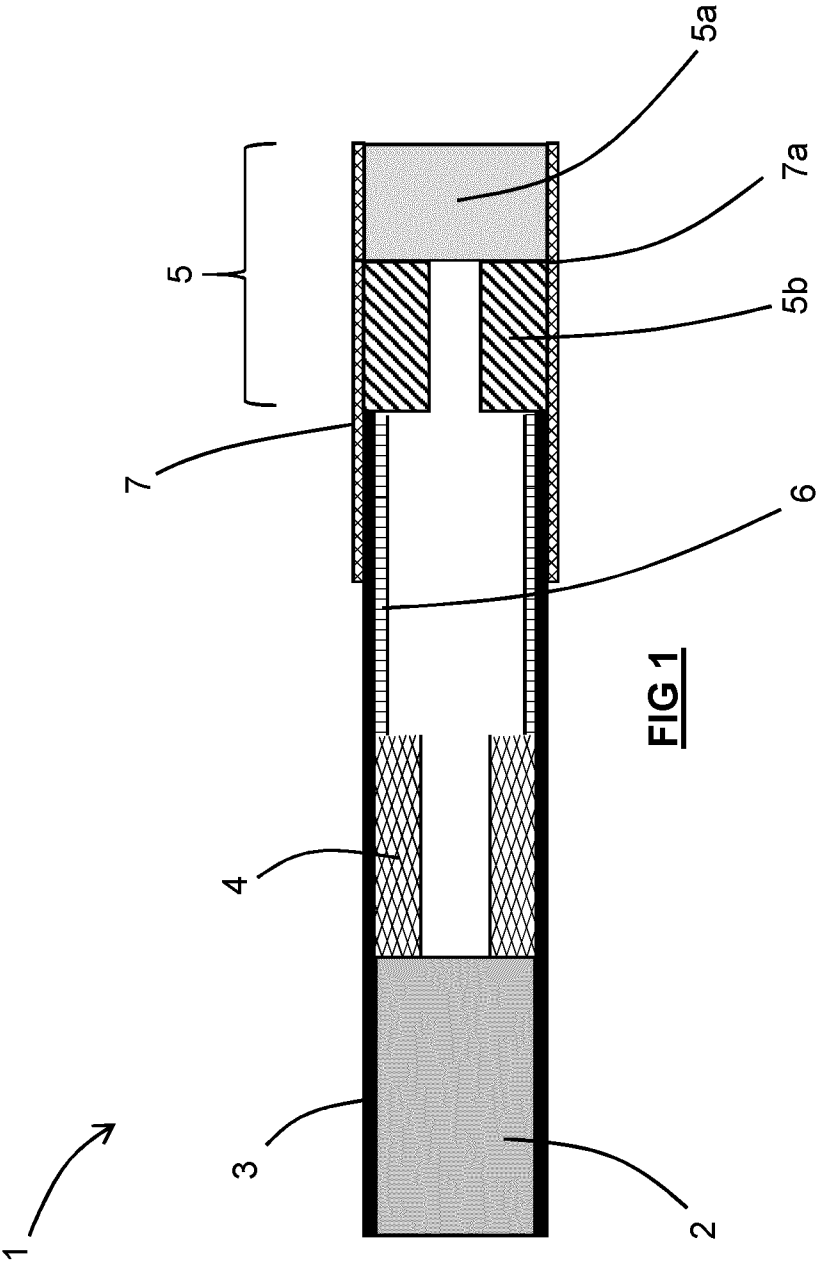
12. A system according to claim 11 wherein the device comprises a main body for housing the heating element and the heating element comprises an elongated heating element.

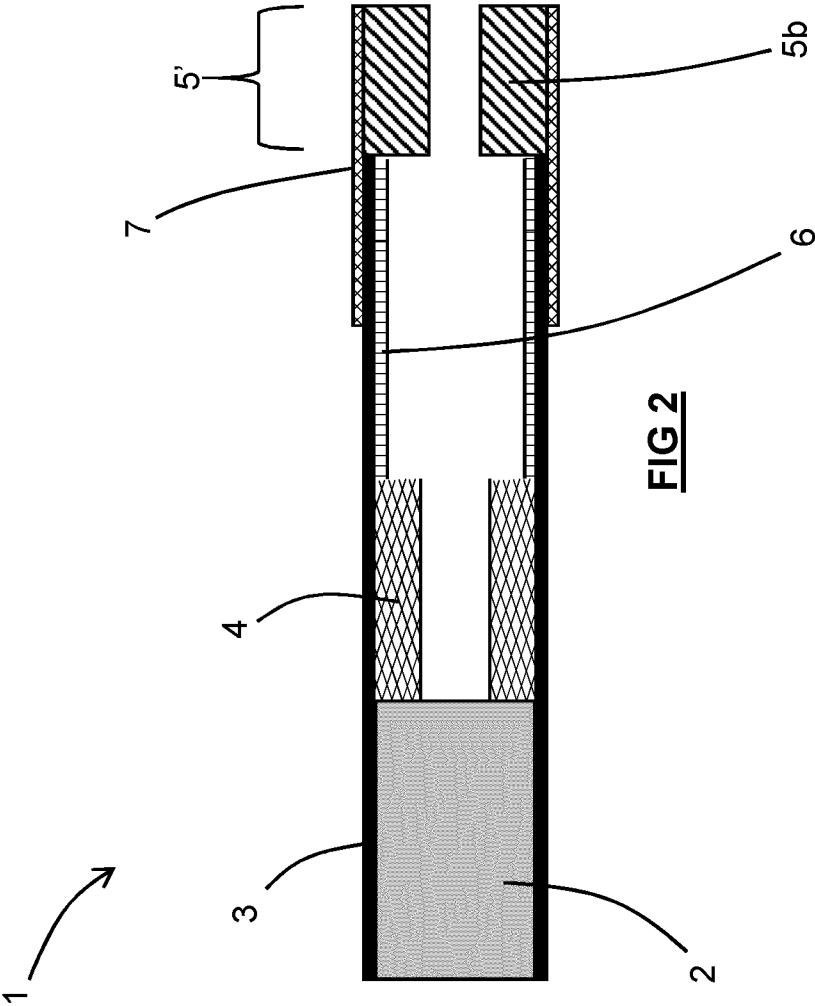
13. A method of using the system according to claim 11 or 12, the method comprising:
inserting the consumable/article into the device; and

5 heating the consumable/article using the heating element.

14. A method according to claim 10 comprising inserting the consumable/article into a cavity within a main body of the device and penetrating the consumable/article with the heating element upon insertion of the consumable.

15. A method according to claim 10 or 11 comprising reducing the axial length of the terminal filter
10 element.





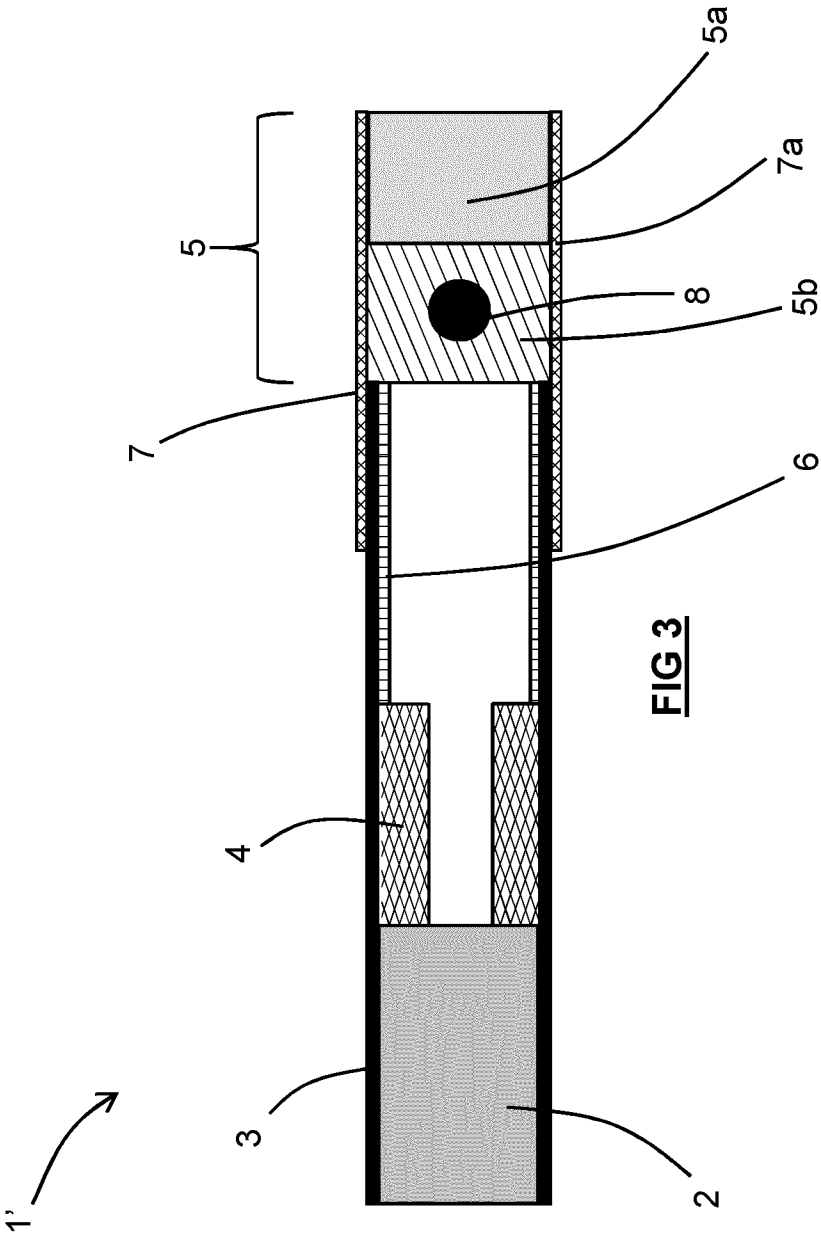
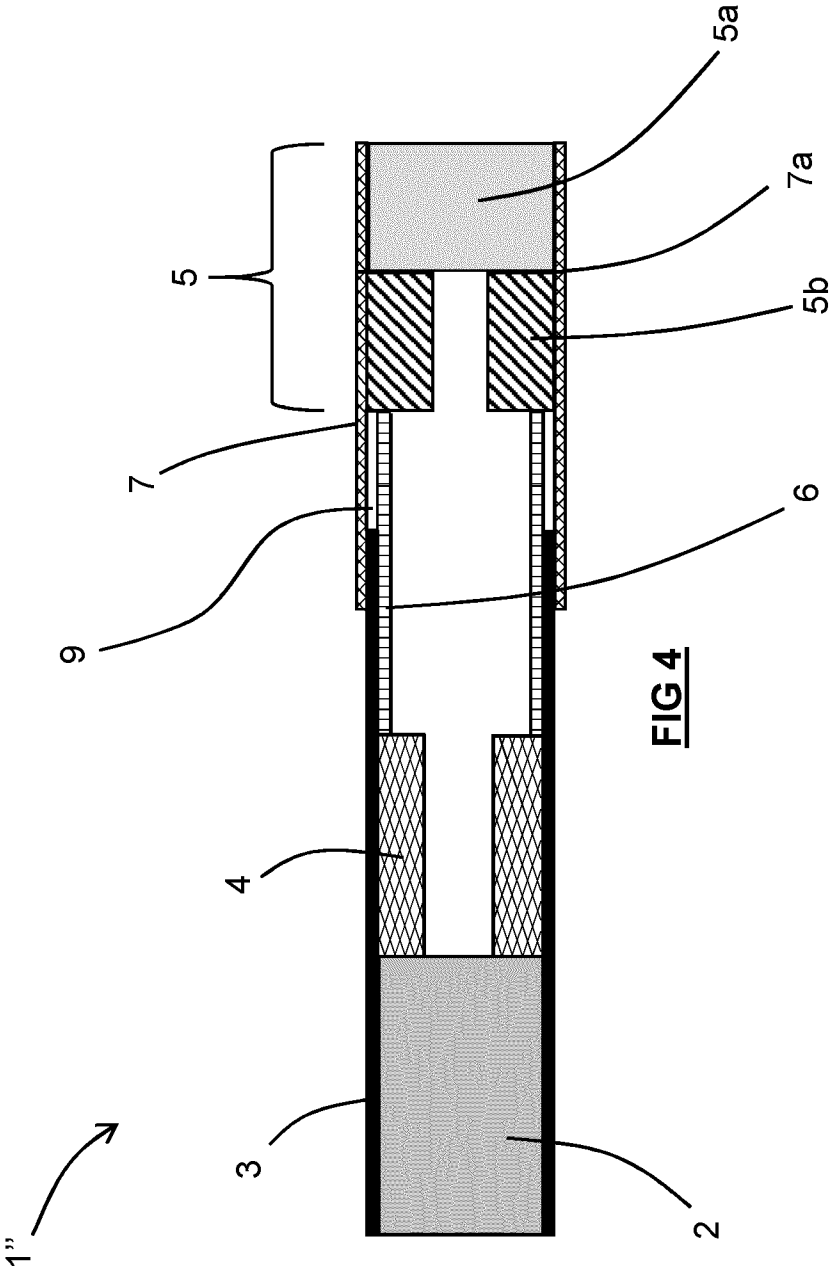
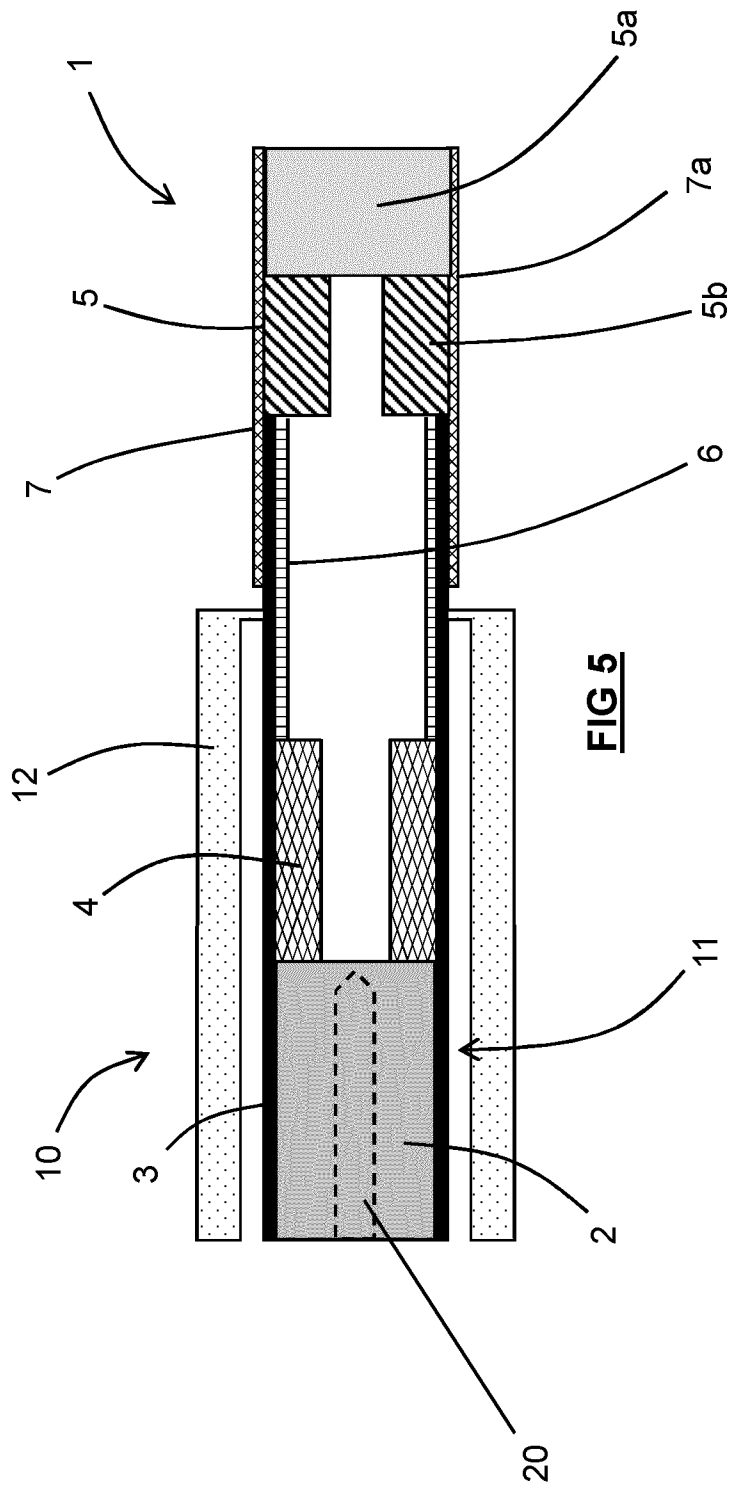


FIG 3





INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2019/079198

A. CLASSIFICATION OF SUBJECT MATTER
INV. A24D1/20 A24D1/22 A24D3/04
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A24D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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Y	page 1, line 6 - page 2, line 13; figures	11-15
A	1a,1b,2a,2b	6,7,9,10
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Y	page 2, line 26 - page 3, line 18	11-15
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X	US 2013/140197 A1 (FIEBELKORN RICHARD [GB] ET AL) 6 June 2013 (2013-06-06)	1
A	abstract; figures 1-3	2-15
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Further documents are listed in the continuation of Box C.



See patent family annex.

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Date of the actual completion of the international search

8 January 2020

Date of mailing of the international search report

20/01/2020

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INTERNATIONAL SEARCH REPORT

International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
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A	WO 2015/028654 A1 (PHILIP MORRIS PRODUCTS SA [CH]) 5 March 2015 (2015-03-05) abstract; figures -----	1

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