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(54) Title: A PACK OF DISTINGUISHING AEROSOL GENERATING ARTICLES AND CORRESPONDING DISTINGUISHING AEROSOL GENERATING ARTICLE

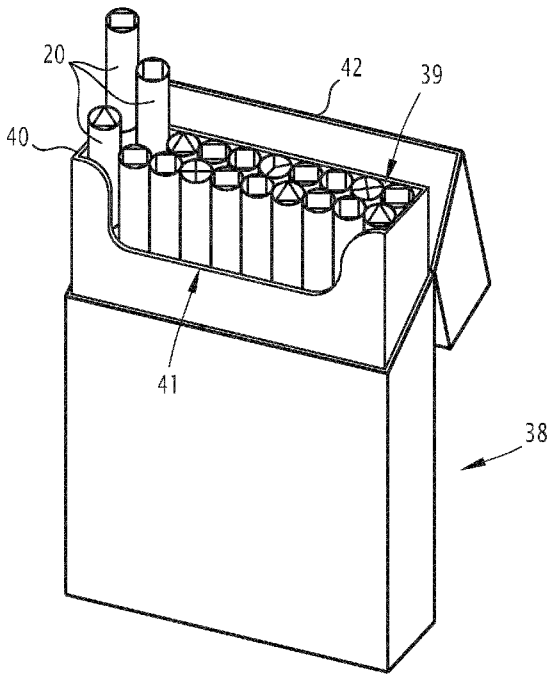


FIG.2

(57) Abstract: The present invention concerns a pack (38) of aerosol generating articles (20) comprising a plurality of aerosol generating articles. Each aerosol generating article (20) comprises an aerosol generating substrate. Each aerosol generating article (20) extends between an upstream end and a mouth end, the mouth end of each aerosol generating article (20) delimiting a recess portion.; Each aerosol generating article (20) further comprises an inner tube or strut received in the recess portion and having a cross-section adapted to distinguish this aerosol generating article (20) from at least one another aerosol generating article (20) of the pack (38).

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A pack of distinguishing aerosol generating articles and corresponding distinguishing aerosol generating article

FIELD OF THE INVENTION

The present invention concerns a pack of aerosol generating articles comprising a plurality of aerosol generating articles.

The present invention also relates to such an aerosol generating article.

Particularly, the aerosol generating article according to the invention is configured to operate with an aerosol generating device, also known as a heat-not-burn device or HNB device. Such type of aerosol generating devices is adapted to heat, rather than burn, an aerosol generating substrate comprised in the article.

Alternatively, the aerosol generating article according to the invention is a ready-made cigarette (RMC) comprising an aerosol generating substrate configured to release aerosol when being burnt.

BACKGROUND OF THE INVENTION

A pack of aerosol generating articles comprises a plurality of aerosol generating articles, typically up to ten, twenty or thirty articles. In some cases, a pack might comprise different aerosol generating articles, for example with different aerosol amounts, tastes or flavours. However, it is sometime complex to distinguish different articles in a same pack.

SUMMARY OF THE INVENTION

One aim of the invention is to provide a pack of aerosol generating articles and an aerosol generating article designed to make it possible to recognize aerosol generating articles at first sight, in particular to identify features of said article without requiring to extract the article out of the pack.

For this purpose, the invention relates to a pack of aerosol generating articles comprising a plurality of aerosol generating articles;

each aerosol generating article comprising an aerosol generating substrate;

each aerosol generating article extending between an upstream end and a mouth end, the mouth end of each aerosol generating article delimiting a recess portion;

wherein each aerosol generating article further comprises an inner tube or strut received in the recess portion and having a cross-section adapted to distinguish this aerosol generating article from at least one another aerosol generating article of the pack.

With the pack according to the invention, the inner tube or the strut, makes it possible to recognize the feature of the cigarette from another. Thus, for a pack comprising several types of aerosol generating articles having for example different flavours or other features, a user does not require to extract an article and control it to determine its features.

It is clear that the upstream end delimits the aerosol generating substrate.

According to some embodiments of the pack according to the invention, each aerosol generating article comprises a filter adjacent to the recess portion of this aerosol generating article.

With this feature, the filter makes it possible to cool the aerosol produced when consuming the article. The user experience is thus improved.

According to some embodiments of the pack according to the invention, the filter of each aerosol generating article comprises paper filter.

With this feature, a pressure drop of the aerosol released by the aerosol generating substrate is reduced. Actually, mostly when vaping a HNB product, the pressure of the aerosol produced might be too low to provide a satisfactory user experience. This phenomenon might be increased with a filter made of acetate filter tow. On the contrary, a filter made of paper makes it possible to cool and transmit the aerosol without substantially reducing its pressure. In a possible aspect, the several types of aerosol generating articles may differ by having filters of different pressure drops and/or different lengths.

According to some embodiments of the pack according to the invention, each aerosol generating article further comprises a wrapper arranged around the filter and extending towards the mouth end to delimit the recess portion.

This feature simplifies the structure of the article by reducing the number of elements comprised in the filter and recess portion of the article. This is particularly advantageous when manufacturing the article because the recess portion may be produced with reduced complexity when producing the filter or combining the filter to the aerosol generating substrate, e.g. in the form of a rod.

In addition, this feature makes it possible for the recess portion to have the same diameter as the rest of the article. Then, storing the articles in the pack is as easy as storing conventional articles without a recess portion.

According to some embodiments of the pack according to the invention, the wrapper is a plug wrap, a tipping paper, or a combination thereof.

Having the recess portion made with the tipping paper reduces the consumption of plug wrap since the plug wrap thus only covers the filter. In addition, since tipping paper is not porous, the tipping paper ensures that the released aerosol flows until the mouth end without leakage. For example, the tipping paper may have a thickness between 40 and 100 µm and/or a basis weight between 40 and 90 gsm.

Having the recess portion made with the plug wrap increases the hardness of the recess portion and if the tipping paper surrounds it, it would have a higher thickness. For example, when a recess is formed by both a plug wrap and a tipping paper, each of these may have a thickness between 25 and 50 µm and a basis weight between 25 and 55 gsm.

According to some embodiments of the pack according to the invention, the inner tube or strut comprises at least one edge in contact the corresponding wrapper and at least one surface spaced from said wrapper.

This feature enhances the hardness of the recess portion. Thanks to the edge in the contact with the wrapper, a risk of recess portion's crush is reduced.

According to some embodiments of the pack according to the invention, the space formed between said surface and said wrapper is empty.

The absence of material in the space makes it possible for aerosol to flow in this space when vaping. This reduces even more the disturbance and/or pressure drop of the aerosol flow in the recess portion while maintaining sufficient stiffness of the mouth end.

In addition, from the mouth end, the cross-section's shape of the inner tube is more visible. It is thus easier for a user to determine if an article in the pack corresponds to a desired one.

According to some embodiments of the pack according to the invention, the inner tube is hollow.

With this feature, the inner tube provides additional hardness or stiffness to the mouth end without significantly hindering the aerosol flow. Furthermore, the inner tube can maintain the low-pressure resistance filter material away from the mouth end thereby avoiding filter material to be damaged or to fall apart. Thus, when vaping, the user experience is not strongly affected by the presence of the inner tube since the aerosol can flow in the inner tube.

According to some embodiments of the pack according to the invention, the inner tube or strut is made of paper.

This feature make is possible to simply produce the inner tube or the strut since it is easy to form a paper tube, or a paper strut, with a desired cross-section's shape.

Preferably, the paper tube may be formed of overlapping paper layers such as spirally wound paper layers.

According to some embodiments of the pack according to the invention delimits an opening;

wherein the aerosol generating articles are arranged so as their mouth ends are visible from the opening.

This feature simplifies the determination, for a user, of the feature of each article. Actually, when the pack is open, the user can observe easily the cross-section of each inner tube, or strut, and determine if it corresponds to a desire article.

More particularly, the aerosol generating articles are grouped in a bundle inside a housing of the pack with the mouth ends of the articles protruding from the housing and being configured to lie along a common plane.

According to some embodiments of the pack according to the invention, at least two aerosol generating articles distinguished one from the other by their recess portions have different tastes and/or flavouring components.

This feature makes it possible for a user to readily select an article according to a desired taste, flavor, or level of active ingredient or additive only by looking at the cross section of the inner tube, or strut, of each article.

The flavor or taste of an article can be modified from another article of the pack by any suitable flavoring or taste modifying constituents of the article including, but not limited to, naturally occurring flavour materials, botanicals, extracts of botanicals, synthetically obtained materials, sweetener, sugar, other taste enhancer, cooling agent (e.g. eucalyptol, WS3) , heat effect agent (e.g. vanillyl ethyl ether) or combination thereof (e.g., tobacco, licorice, menthol, mint oil, cinnamon, cherry, berry, fruit, tea, aspartame, tobacco sugar content, nicotine level, etc.). Active ingredients may be nicotinoids (in particular nicotine) or cannabinoids.

According to another aspect of the invention, the invention concerns an aerosol generating article extending between an upstream end and a mouth end, the mouth end of each aerosol generating article delimiting a recess portion, the aerosol generating article further comprising an inner tube or strut received in the recess portion, the aerosol generating article comprising an aerosol generating substrate;

the aerosol generating article comprising a filter adjacent to the mouth end of this aerosol generating article and a wrapper arranged around the filter and forming the recess portion,

wherein said inner tube or strut comprises at least one edge in contact the corresponding wrapper and at least one surface spaced from said wrapper.

As already mentioned, the absence of material in the space makes it possible for aerosol to flow in this space when vaping. This reduces even more the disturbance and/or pressure drop of the aerosol flow in the recess portion while maintaining sufficient stiffness of the mouth end.

According to some embodiments of the aerosol generating article according to the invention, comprises the following feature(s) taken solely or in combination:

- the space formed between said surface and said wrapper is empty;
- the inner tube is hollow;
- the inner tube is made of paper;
- the inner tube is at least partially glued to the wrapper, and
- the aerosol generating article comprises at least one glue dots or line between the inner tube and the wrapper to maintain the inner tube fixed with respect to the wrapper.

According to some embodiments of the aerosol generating article according to the invention, the article aims at being used with an HNB device.

According to some embodiments, the recess portion comprising the inner tube has a pressure drop substantially equal to 0 mmH2O.

According to some embodiments, the inner tube or strut is made of paper or cardboard.

According to some embodiments, the inner tube or strut is formed of walls having a thickness lower than 1 mm.

According to some embodiments, the inner tube or strut has a wall thickness higher than the wrapper thickness.

All aforementioned features to the aerosol generating article in the pack are applicable to the aerosol generating article as such.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention and its advantages will be better understood upon reading the following description, which is given solely by way of none-limiting examples and which is made with reference to the appended drawings, in which.

- Figure 1 is a schematic diagram of an aerosol generating assembly comprising an aerosol generating article according to the invention;

- Figure 2 is a perspective view of a pack of aerosol generating articles according to the invention;

- Figure 3 is a longitudinal cross-sectional view of the aerosol generating article of Figure 1;

- Figure 4 is a transversal cross-sectional view of the article of Figure 3; and

- Figure 5 is a transversal cross-sectional view of the article of Figure 3 according to an alternative embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

Before describing the invention, it is to be understood that it is not limited to the details of construction set forth in the following description. It will be apparent to those skilled in the art having the benefit of the present disclosure that the invention is capable of other embodiments and of being practiced or being carried out in various ways.

The expression "**substantially equal to**" is understood hereinafter as an equality at plus or minus 10% and preferably at plus or minus 5%.

As used herein, the term "**aerosol generating device**" or "**device**" may include a vaping device to deliver aerosol from an aerosol generating article received in the device, for example comprising tobacco. The device may be portable. "Portable" may refer to the device being for use when held by a user. The device may be adapted to generate a variable amount of aerosol, e.g. by activating a heating system for a variable amount of time (as opposed to a metered dose of aerosol) using a trigger. The trigger may be user activated, such as a vaping button and/or inhalation sensor. The inhalation sensor may be sensitive to the strength of inhalation as well as the duration of inhalation to enable a variable amount of vapor to be provided (so as to mimic the effect of smoking a conventional combustible smoking article such as a cigarette, cigar or pipe, etc.).

As used herein, the term "**control unit**" refers to a component of the aerosol generating device and may control the operation of the heating system. The control unit

may include a temperature regulation control to drive the temperature of the heating system thereafter to maintain the temperature.

As used herein, the term "**aerosol generating substrate**" is used to designate any material that is able to form aerosol. The aerosol is generally obtained by a temperature increase of the aerosol generating substrate, such as at a temperature less than 400°C, preferably up to 350°C. The aerosol generating substrate may, for example, comprise or consist in an aerosol-generating solid that may be in the form of a rod, which contains processed tobacco material, a crimped sheet or oriented strips of reconstituted tobacco (RTB), or any combination of these. The aerosol generating substrate may comprise one or more of: nicotine, caffeine or other active components.

As used herein, the term "**aerosol**" may include a suspension of precursor as one or more of: solid particles; liquid droplets; gas. Said suspension may be in a gas including air. Aerosol may be formed by the aerosol generating substrate and may comprise one or several components of it.

As used herein, the term "**vaping session**" may refer to a using period of the aerosol generated device starting from the activation of the trigger defined above to the moment in which the aerosol generation device is disabled.

As represented in Figure 1, an aerosol generating assembly 10 comprises an aerosol generating device 15 and an aerosol generating article 20 adapted to operate with the aerosol generating device 15. Thus, in the example of this figure, the aerosol generating article 20 is adapted to operate with an HNB device.

The aerosol generating device 15 extends along an axis X called hereinafter "device axis X". The aerosol generating device 15 comprises an outside casing 22 and internal components arranged in the outside casing 22. The outside casing 22 delimits an article socket 26 and at least one flow inlet 28. The internal components comprise for example a heating system 30 to heat at least a part of the aerosol generating article 20, a battery 24 for powering the heating system 30 and a control unit 32 to control powering of the heating system 30 by the battery 24.

The battery 24 is for example a known battery designed to be charged using a power supply furnished by an external charger, and designed to provide direct current of a predetermined voltage to the heating system 30.

The article socket 26 is configured to receive at least a part of the aerosol generating article 20. For this purpose, the article socket 26 may delimit a hole 36 opening at the exterior of the aerosol generating device 15 and is adapted to receive at least a part of the aerosol generating article 20 in said hole 36. In Figure 1, the aerosol generating article 20 is inserted into the hole 36.

The flow inlet 28 allows air entering from the exterior of the outside casing 22. An internal airflow channel may extend from the flow inlet 28 to conduct the air until the article socket 26.

The heating system 30 comprises for example a heating element which may be arranged adjacent to at least a wall of the article socket 26. The heating system is for example, connected to the battery 24, and configured to produce heat when powered by the battery 24. When the aerosol generating article 20 is inserted in the hole 36, and when the heating system 30 is powered by the battery 24, the temperature of said heating system 30 is for example comprised between 200 degrees and 350 degrees.

In a non-represented variant, the heating system 30 comprises a device part of the heating system and an article part of the heating system. The device part of the heating system may comprise electromagnetic emitter(s) configured to produce electromagnetic field when powered by the battery 24. The emitter(s) can comprise for example a magnetic coil arranged around the article socket 26. The article part of the heating system may thus comprise susceptors configured to produce heat when being traversed by an electromagnetic field. The susceptors can for example be integrated in the aerosol generating substrate of the article 20.

The control unit 32 is adapted to control the operation of the heating system 30. More specifically, the control unit 32 is configured to control powering of the heating system 30 by the battery 24.

As shown on Figure 2, before being used with the aerosol generating device 15, aerosol generating articles 20 are generally stored in a pack 38 of aerosol generating articles 20.

The pack 38 is for example a rectangular cuboid defining a housing 39 for receiving articles 15. The housing 39 opens to an opening 40 at the exterior of the pack 38 such that articles 15 may be extracted from the housing 39 or inserted in the housing 39. The housing 39 may generally comprise up to ten, twenty or thirty articles 20.

As shown on Figure 2, the housing 39 opens to a face of the rectangular cuboid. The pack 38 may define, from said face, a recess 41 in a contiguous face to simplify the extraction of article 20. The recess 41 may be formed in what is usually referred as an inner frame of the pack which is assembled to cuboid body.

As shown on Figure 2, the pack 38 may comprise a cover or lid 42 configured to cover the opening 40 when a user does not want to extract or insert any article 20. As an example, the cover 42 is integral with the pack 38 defining a folding line of the pack 38 around which the cover 42 might rotate between a storage position and a delivering position. In the storage position, the cover 42 covers the opening 40 so that no article 20 might fall out of the pack 38. In the delivering position, the cover 42 does not cover the opening 40 so that a user might extract an article 20 from the housing 39.

The pack 38 comprises for example cardboard, paper or a combination thereof. It may further comprise a removable outer protective film.

As shown in Figure 3, at least one aerosol generating article 20 of the pack 38 extends between an upstream end 43 and a mouth end 44. The aerosol generating article 20 comprises, from the upstream end 43 toward the mouth end 44, an aerosol generating substrate 45, a filter 46 and a recess portion 47. The aerosol generating article 20 further comprises an article wrapper 48 and preferably, a cooling or distancing element 49 arranged between the aerosol generating substrate 45 and the filter 46. The filter 46 is arranged between the recess portion 47 and the aerosol generating substrate 45 or cooling element 49.

In an example, the length of each of the aerosol generating substrate 45, the filter 46 and optionally the cooling or distancing element 49 is substantially comprised between

10 mm and 30 mm, preferably between 15 and 25 mm, more preferably equal to 20 mm. In said example, the length of the aerosol generating article 20 is comprised between 40 and 90 mm, more preferably between 50 and 70 mm, most preferably between 55 and 65 mm, such as substantially equals to 60 mm.

The aerosol generating substrate 45 is adjacent to the cooling or distancing element 49 in the example of Figure 3 and Figure 4, or to the filter 46 if the article does not comprise said cooling or distancing element 49. The aerosol generating substrate 45 is designed to be heated by the heating system 30 of the aerosol generating device 15 to form aerosol, as previously explained. In case of an RMC-type cigarette, the aerosol generating substrate 45 is designed to be burnt, at least partially.

Optionally, a taste modifying agent is added to the aerosol material of the aerosol generating substrate 45 to enhance the taste of the released aerosol. The taste modifying agent may be a flavourant (e.g., menthol), a taste enhancer, a sweetener, a cooling agent and combinations thereof. For example, the taste modifying agent can be a plurality of flavouring micro-chips comprising a polysaccharide and/or starch matrix and flavour such as described in EP2279677B, EP2682007B, EP2682009B, EP3533348A or WO2015029750A. Preferably, two articles 20 of the pack 38 may comprise two different taste modifying agents, so that the taste of the released aerosol of one of these articles 20 is distinct from the taste of the other one.

Alternatively or additionally, the aerosol generating substrate may comprise nicotine. Preferably two articles 20 of the pack may content two different levels of nicotine. For example, a first aerosol generating agent and a second generating agent contain respectively less than 1,5 % and more than 1,8 % by weight of nicotine relative to the weight of the aerosol generating substrate.

When the article 20 comprises the cooling or distancing element 49, said element may be configured to cool the aerosol before reaching the filter 46. The cooling or distancing element 49 is for example an inner hollow tube and is preferably made of paper. During a vaping session, the aerosol generated by the aerosol generating substrate flows through the cooling or distancing element 49 before reaching the filter 46. For example, the cooling or distancing element 49 is hollow or contains additional flow guides mixing the flow issued from the aerosol generating substrate 45 and/or increasing the cooling effect. The cooling or distancing element 49 can further comprise venting holes arranged circumferentially. The

venting holes should preferably be positioned at a short distance from the filter 46, preferably at a distance comprised between 1 mm and 7 mm, more preferably 2,5 mm and 6 mm, most preferably 3 mm and 5,5 mm.

In an embodiment, the article wrapper 48 extends from the upstream end 43 to the mouth end 44. The article wrapper 48 thus entirely surrounds the filter 46, the aerosol generating substrate 45, the recess portion 47, and optionally the cooling or distancing element 49. The article wrapper 48 comprises for example a tipping paper 50 extending from the recess portion 47 and overlapping partially the aerosol generating substrate 45.

As represented in Figure 3, the filter 46 extends along a filter axis F, between the cooling or distancing element 49 and the recess portion 47. Alternatively, the filter 46 extends between the aerosol generating substrate 45 and the recess portion 47. The filter 46 is preferably adjacent to the mouth end 44.

The filter 46 preferably comprises a filter material such as paper or cellulose acetate 51 surrounded by a plug wrap 55 which maintains the filter material 51 assembled. As represented in Figure 3, Figure 4 and Figure 5, the article wrapper 48 surrounds the plug wrap 55. Thus, when producing the article 20, the filter 46 can be produced by wrapping the filter material 51 with the plug wrap 55 and then the aerosol generating substrate 45 and the filter 46 can be maintained together with article wrapper 48.

Advantageously, the filter material 51 is made of one single sheet, like a paper tape for example, by folding this sheet to form several layers extending along the filter axis F. The filter material 51 is preferably a gathered sheet of paper.

If the filter material is paper filter 51, the base weight of said paper filter 51 is for example comprised between 20 and 120 gsm, preferably between 25 and 50 gsm. The thickness of the paper filter 51 is for example comprised between 30 and 100 μm. The porosity of the paper filter 51 is preferably comprised between 0 and 3000 CU. The contact angle of the paper filter 51 is lower than 90°. The tensile strength of the paper filter 51 is higher than 18 N per 15 mm. Advantageously, the paper filter 51 is made of one single sheet, like a paper tape for example, by folding this sheet to form several layers extending along the filter axis F. Preferably, the density of the paper filter 51 is comprised between 0,0350 mg/mm3 and 0,180 mg/mm3, and advantageously between 0,036 mg/mm3 and 0,135 mg/mm3.

Alternatively, the paper material 51 is a non-woven sheet. A non-woven sheet is preferably made of a plurality of sheets bonded or intertwined together by binder.

The base weight of non-woven sheet may be comprised between 20 and 100 gsm, preferably between 30 and 80 gsm, and more preferably between 40 and 65 gsm.

The thickness of the non-woven sheet may be comprised between 0,8 and 1,6 mm, preferably between 1,0 and 1,4 mm, and more preferably substantially equal to 1,2 mm.

In an alternative, the paper sheet 51 may be replaced by a gathered cellulose acetate tow.

As shown in Figure 3, Figure 4 and Figure 5, the plug wrap 55 extends along the filter axis F until the mouth end 44. The recess portion 47 is thus formed by the plug wrap 55. It is clear that in this example, the recess portion 47 is formed at least by the plug wrap 55 and in addition, surrounded by the tipping paper 50.

The article 20 may comprise a flavoring component to change the flavor of the released aerosol. As represented in Figure 3, Figure 4 and Figure 5, the filter 46 may comprise a flavoring capsule 60 trapped in the filter material 51. During a vaping session, the aerosol reaching the filter 46, gets in contact with the flavoring capsule 60 to be loaded with the flavor of the flavoring capsule 60, and then passes through the recess portion 47 until the user's mouth.

The flavoring capsule's diameter can be comprised between 2,5 and 4,5 mm, preferably between 2,8 and 3,5 mm, and/or may weigh between 10 and 50 mg. Additionally, the flavoring capsule 60 can comprise a shell containing a flavoring agent releasable while vaping. The flavoring agent may for example be liquid. The shell can be soluble, melting upon interaction with aerosol and/or upon heating.

Alternatively, the shell of the flavoring capsule 60 is breakable by a pinch of the user on the filter 46. After such pinch, the flavoring agent spreads in the filter 46 and is absorbed by the filter material 51. In such case, during a vaping session, the aerosol passing through the filter 46 is loaded with the flavor of the liquid initially contained in the flavoring capsule

60. The number of capsules 60 in the filter 46 may vary from 1 to 3 or 4 and when multiple capsules 60 are present, they may be longitudinally aligned in the filter 46.

Preferably, the pack 38 comprises at least two articles 20 comprising a respective flavoring capsule 60. These capsules 60 have different flavors.

As mentioned above, the recess portion 47 extends along the filter axis F from the filter 46 until the mouth end 44.

In the pack 38, each article 20 is stored in parallel to another one, so that, when the cover 42 is in the delivering position, the recess portion 47 of each article 20 is visible from the opening 40. More specifically, in the delivering position of the cover 42, the mouth end 44 of each article 20 is visible from the opening 40. In addition, when the user desires to extract an article 20 from the pack 38 he/she pulls the article 20 along the filter axis F.

As shown in Figure 3 and Figure 4, the recess portion 47 receives an inner tube 65 which is for example hollow. The inner tube 65 extends for example according to the whole depth of the recess portion, i.e. between the filter 46 and the mouth end 44. The inner tube 65 is open at the mouth end 44. As represented on the right part of Figure 3, the inner tube 65 is visible for a user looking at the filter 46 by the mouth end 44.

The recess portion 47 comprising the inner tube 65 may have a pressure drop substantially equal to 0 mmH2O.

In the example of Figure 3, the inner tube 65 has a square shape cross-section. Alternatively, the cross-section may have a triangle shape, a pentagon shape, a hexagon shape, a heptagon shape, an octagon shape, an enneagon shape, or any other polygon shape. Alternatively again, the cross-section may have a star shape, for example the shape of a five-pointed star.

In each case, the inner tube 65 defines edges 70 extending along the filter axis F and surfaces 75 between two successive edges. At least one, and preferably all of these edges extend along the filter axis F and is in contact with the plug wrap 55. In addition, at least one surface is spaced from the plug wrap 55. Said space 75 is empty. In other words, no filter paper is placed in said space.

In a specific embodiment, the the inner tube 65 is at least partially glued to the wrapper 48.

Preferably each edge 70 of the inner tube 65 is at least partially glued to the wrapper 48.

For example, the aerosol generating article 20 may comprise at least one glue dot or line between the inner tube 65 and the wrapper 48 to maintain the inner tube 65 fixed with respect to the wrapper 48. The glue dot(s) or line(s) is/are then advantageously located between the edge 70 of the inner tube 65 and the wrapper 48. In that case, the inner tube 65 is in contact with the wrapper 48 via said glue dot(s) or line(s).

In the example of Figure 4, the inner tube 65 defines four edges 70, each in contact with the plug wrap 55. The inner tube 65 in addition defines four surfaces 75 between two successive edges 70. None of the surfaces 75 is in contact with the article wrapper 48.

The inner tube 65 is preferably made of paper. The inner tube 65 may be formed by normal paper and preferably spirally wound paper sheet(s).

The thickness of the inner tube may be substantially comprised between 0,05 and 1,5 mm, preferably between 0,5 and 1,5 mm most preferably between 0,8 and 1,2 mm.

Alternatively and as represented in Figure 5, instead of an inner tube 65, the recess portion 47 receives a strut 66. The strut 66 may comprise legs 67 configured to compartment the recessed portion 47 in several hollow spaces 68. Each leg 67 extends along the filter axis F and defines a respective edge 70 at its extremity and at least one surface joining said edge 70 and another leg 67. For example, the strut 66 may form an X shape, Y shape, S-shape or a Greek-character shape such as Ω shape.

The recess portion 47 comprising the strut 66 may have a pressure substantially drop equal to 0 mmH2O.

In a specific embodiment, the strut 66 is at least partially glued to the wrapper 48.

Preferably each edge 70 of the strut 66 is at least partially glued to the wrapper 48.

For example, the aerosol generating article 20 may comprise at least one glue dot or line between the strut 66 and the wrapper 48 to maintain the strut 66 fixed with respect to the wrapper 48. The glue dot(s) or line(s) is/are then advantageously located between the edge 70 of the inner tube 65 and the wrapper 48. In that case, the strut 66 is in contact with the wrapper 48 via said glue dot(s) or line(s).

The strut 66 is preferably made of paper or cardboard. The thickness of each leg 67 of the strut may be substantially comprised between 0,5 and 1,5 mm, preferably between 0,8 and 1,2 mm. More preferably, the thickness of each leg 67 is lower to 1 mm not to create a significant pressure drop. The thickness of each leg 67 is preferably higher than a thickness of the wrapper 48.

The inner tube 65 might comprise a colored coating for an easier identification from a user. As an example, an article 20 comprising a flavoring component with a mint flavor might comprise an inner tube 65 including a blue or green coating. The colored coating may be placed on the interior of the tube and/or at the transversal edges.

In the pack 38, at least two articles 20 comprise a respective inner tube 65 with a distinctive cross-sectional shape so that it is possible for a user to distinguish one of these aerosol generating articles 20 from another. Preferably, each aerosol generating article 20 with the same taste agent or with the same flavoring component have an inner tube 65 with the same cross-sectional shape. On the contrary, two articles 20 with different taste agents or flavoring components do not comprise an inner tube 65 with the same cross-sectional shape. Thus, the user can chose the desired article 20 without requiring to extract the article 20 from the pack 38 and to check if it corresponds to the desired one.

In a non-shown variant, the plug wrap 55 only surrounds the paper filter 51 of the filter 46. Thus, the article wrapper 48 forms the recess portion 47. In this case, it is clear that a tipping paper 50 forms the recess portion 47. At least one edge 70 of the inner tube 65 is in contact with the tipping paper 50.

In another non-shown variant, the plug wrap 55 still extends until the mouth end 44, thus forming the recess portion, but the article wrapper 48 only extends between the upstream end 43 and the filter 46. More specifically, the article wrapper 48 and the plug wrap 55 define an overlapping area with is substantially shorter than the length of the filter 46. In such case, the recess portion 47 is not surrounded by the article wrapper 48. In that

variant, the inner tube 65 or the strut 66 is glued to the plug wrap similarly as previously presented for the wrapper 48. In particular, if the strut 66 is inserted in the recess portion 47, each leg 67 of the strut 66 has a thickness higher than the thickness of the plug wrap 55.

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CLAIMS

1. A pack (38) of aerosol generating articles (20) comprising a plurality of aerosol generating articles (20);

each aerosol generating article (20) comprising an aerosol generating substrate (45);

each aerosol generating article (20) extending between an upstream end (43) and a mouth end (44), the mouth end (44) of each aerosol generating article (20) delimiting a recess portion (47);

wherein each aerosol generating article (20) further comprises an inner tube or strut (65; 66) received in the recess portion (47) and having a cross-section adapted to distinguish this aerosol generating article (20) from at least one another aerosol generating article (20) of the pack (38).

2. The pack (38) according to claim 1, wherein each aerosol generating article (20) comprises a filter (46) adjacent to the recess portion (47) of this aerosol generating article (20).

3. The pack (38) according to claim 2, wherein the filter (46) of each aerosol generating article (20) comprises paper filter (51).

4. The pack (38) according to claim 2 or 3, wherein each aerosol generating article (20) further comprises a wrapper (48; 55) arranged around the filter (46) and extending towards the mouth end (44) to delimit the recess portion (47).

5. The pack (38) according to claim 4, wherein the wrapper (48; 55) is a plug wrap (55), a tipping paper (50), or a combination thereof.

6. The pack (38) according to claim 4 or 5, wherein said inner tube or strut (65; 66) comprises at least one edge (70) in contact the corresponding wrapper (48; 55) and at least one surface (75) spaced from said wrapper (48; 55).

7. The pack (38) according to claim 6, wherein the space formed between said surface (75) and said wrapper (48; 55) is empty.

8. The pack (38) according to any one of the preceding claims, wherein said inner tube (65) is hollow.

9. The pack (38) according any one of preceding claims, wherein said inner tube or strut (65; 66) is made of paper.

10. The pack (38) according to any one of the preceding claims, delimiting an opening (40);

wherein the aerosol generating articles (20) are arranged so as their mouth ends (44) are visible from the opening (40).

11. The pack (38) according to any one of the preceding claims, wherein at least two aerosol generating articles (20) distinguished one from the other by their recess portions (47) have different tastes and/or flavouring components (60).

12. An aerosol generating article (20) extending between an upstream end (43) and a mouth end (44), the mouth end (44) of each aerosol generating article (20) delimiting a recess portion (46), the aerosol generating article (20) further comprising an inner tube (65) received in the recess portion (47), the aerosol generating article (20) comprising an aerosol generating substrate (45);

the aerosol generating article (20) comprising a filter (46) adjacent to the mouth end (44) of this aerosol generating article (20) and a wrapper (48; 55) arranged around the filter (46) and forming the recess portion (47),

wherein said inner tube (65) comprises at least one edge (70) in contact with the corresponding wrapper (48; 55) and at least one surface (75) spaced from said wrapper (48; 55),

said inner tube (65) being hollow.

13. The aerosol generating article (20) according to claim 12, wherein the space formed between said surface (75) and said wrapper (48; 55) is empty.

14. The aerosol generating article (20) according to claim 12 or 13, wherein said inner tube (65) is made of paper.

15. The aerosol generating article (20) according to any of claims 12 to 14, wherein the inner tube (65) is at least partially glued to the wrapper (48; 55),

preferably, the aerosol generating article (20) comprising at least one glue dots or line between the inner tube (65) and the wrapper (48; 55) to maintain the inner tube (65) fixed with respect to the wrapper (48; 55).

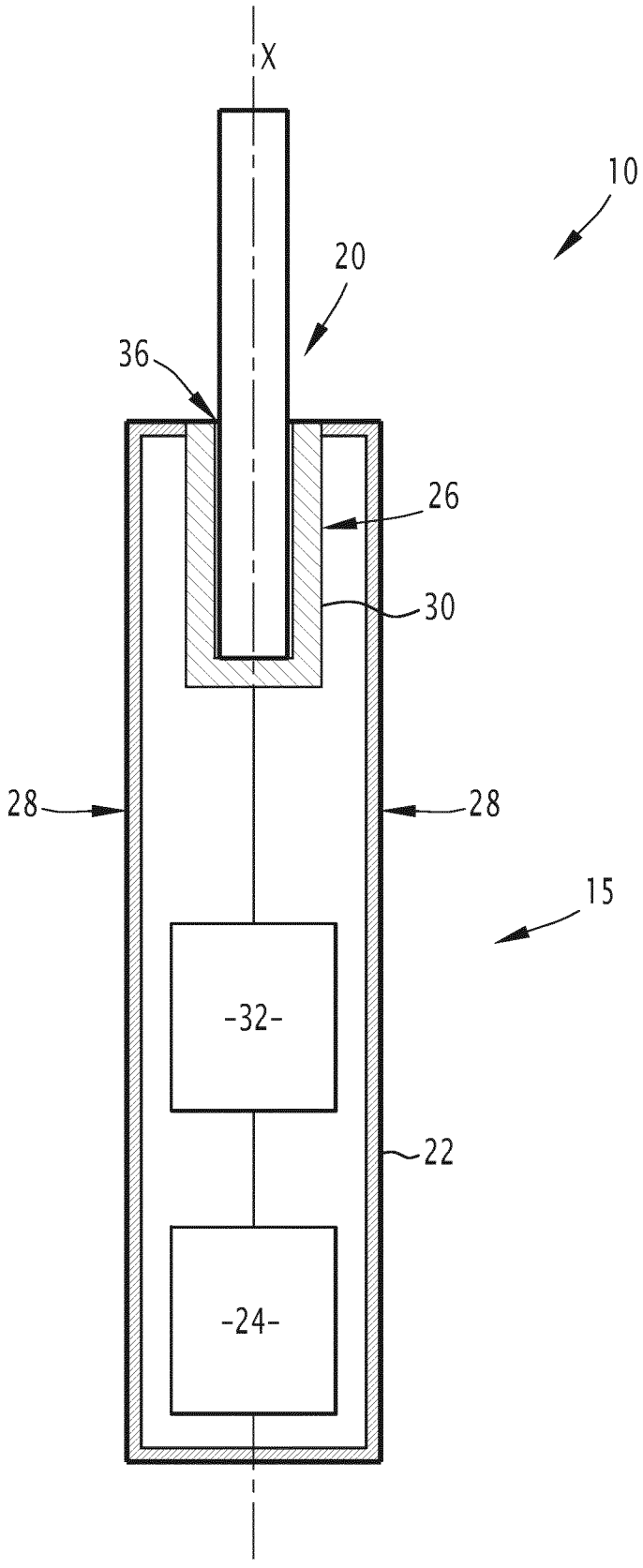


FIG.1

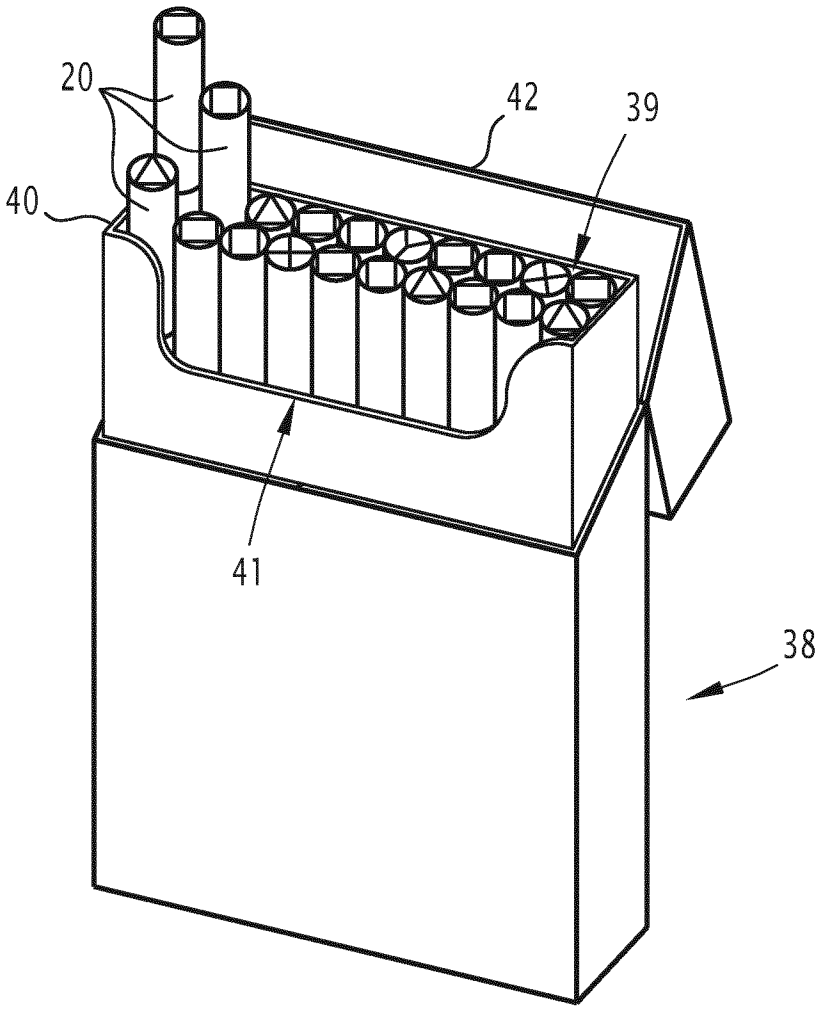


FIG.2

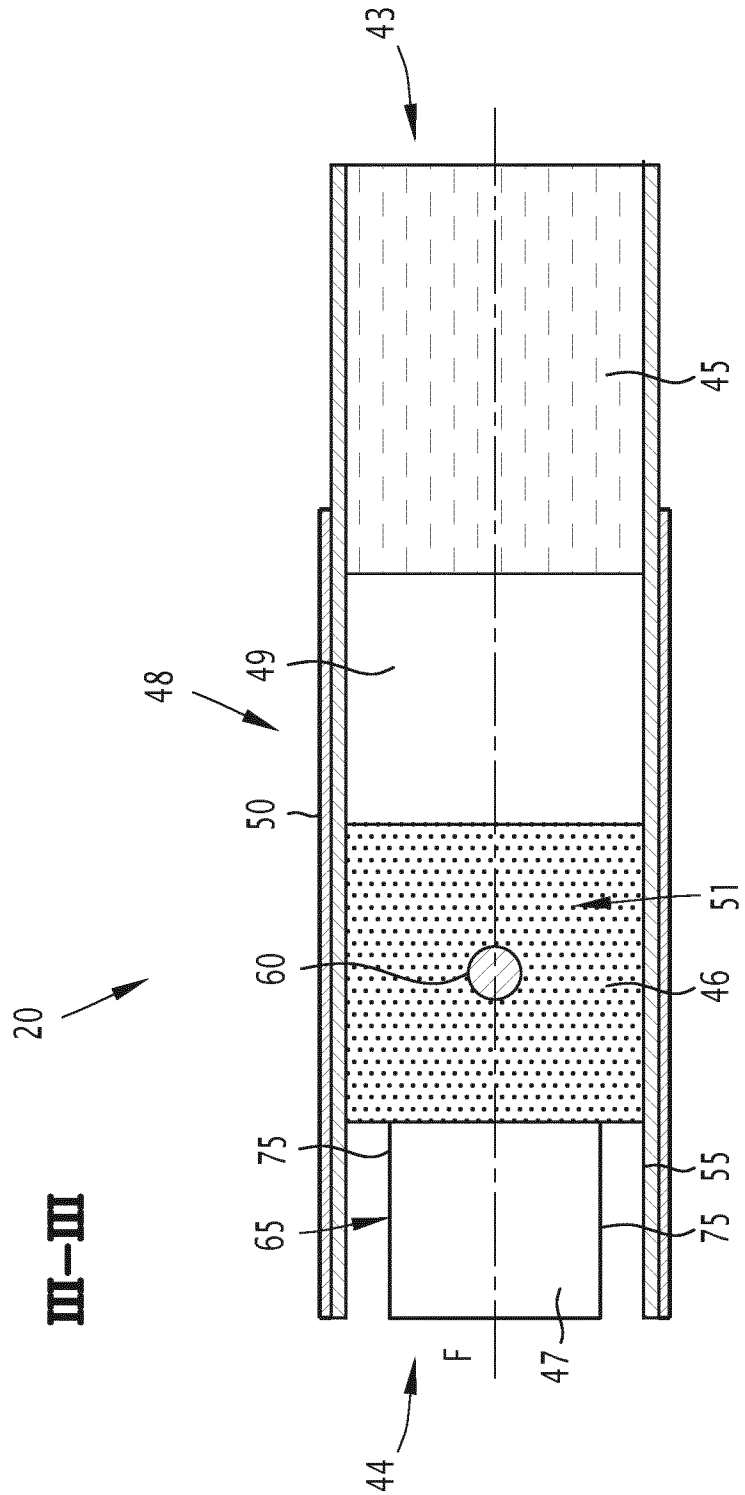


FIG.3

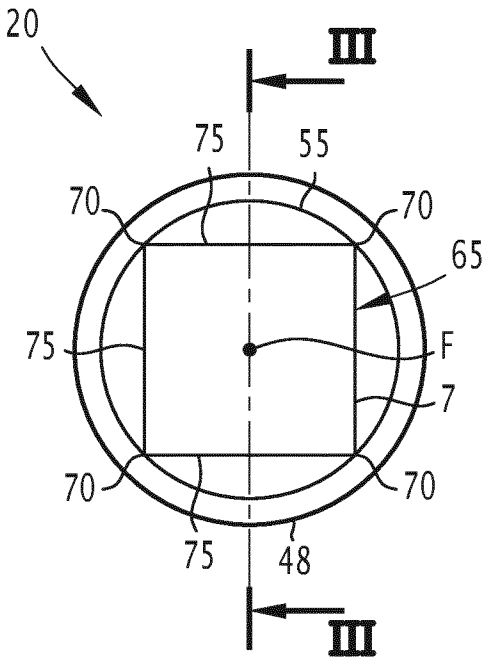


FIG.4

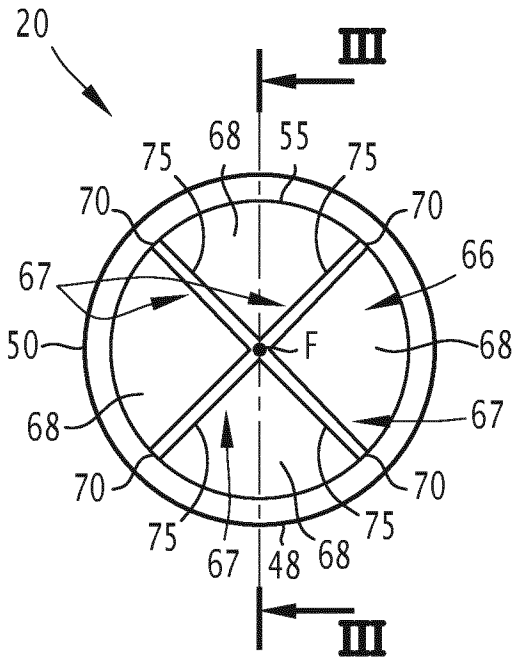


FIG.5

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2023/052048

A. CLASSIFICATION OF SUBJECT MATTER
INV. A24D3/02
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 A24C

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.
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[x] Further documents are listed in the continuation of Box C.

[x] See patent family annex.

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

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"X" document of particular relevance;; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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Date of the actual completion of the international search	Date of mailing of the international search report
27 March 2023	04/04/2023

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Kock, Søren

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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