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(54) **HOLDER**

(57) Holder (160) for supporting a vaporiser (132) in an aerosol delivery system (100), the holder comprising at least one holder inlet (134a, 14b); a holder outlet (164) for fluid communication with the vaporiser; and at least one air flow channel (162a, 162b) extending within the holder from the holder inlet to the holder outlet, wherein the at least one air flow channel comprises an undulating portion (169a, 169b) having an undulating lower surface (166a, 166b) comprising at least one trough (172a, 172b) for retaining leaked aerosol precursor from the vaporiser.

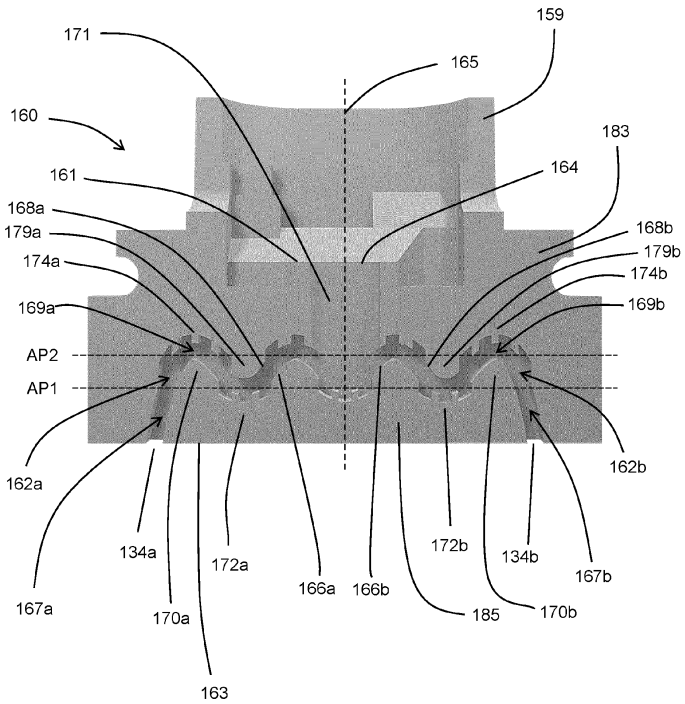

FIG 3

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Description

Technical field

[0001] The present disclosure relates to a holder for supporting a vaporiser in an aerosol delivery system (e. g. a smoking substitute system).

Background

[0002] 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.

[0003] 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 in order to avoid the smoking of tobacco.

[0004] 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.

[0005] Smoking substitute systems, which may also be known as electronic nicotine delivery systems, may comprise electronic systems that permit a user to simulate the act of smoking by producing an aerosol, also referred to as a "vapour", which is drawn into the lungs through the mouth (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.

[0006] 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 tobacco products.

[0007] 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. Some smoking substitute systems are designed to resemble a traditional cigarette and are cylindrical in form with a mouthpiece at one end. Other smoking substitute systems do not generally resemble a cigarette (for example, the smoking substitute device may have a generally box-like form).

[0008] There are a number of different categories of smoking substitute systems, each utilising a different smoking substitute approach. A smoking substitute approach corresponds to the manner in which the substitute system operates for a user.

[0009] One approach for a smoking substitute system is the so-called "vaping" approach, in which a vaporisable liquid, typically referred to (and referred to herein) as "e-liquid", is heated by a heater to produce an aerosol vapour which is inhaled by a user. An e-liquid typically includes a base liquid as well as nicotine and/or flavourings. The resulting vapour therefore typically contains nicotine and/or flavourings. The base liquid may include propylene glycol and/or vegetable glycerine.

[0010] Atypical vaping smoking substitute system includes a mouthpiece, a power source (typically a battery), a tank or liquid reservoir for containing e-liquid, as well as a heater. In use, electrical energy is supplied from the power source to the heater, which heats the e-liquid to produce an aerosol (or "vapour") which is inhaled by a user through the mouthpiece.

[0011] Vaping smoking substitute systems can be configured in a variety of ways. For example, there are "closed system" vaping smoking substitute systems which typically have a heater and a sealed tank which is pre-filled with e-liquid and is not intended to be refilled by an end user. One subset of closed system vaping smoking substitute systems include a device which includes the power source, wherein the device is configured to be physically and electrically coupled to a consumable component including the tank and the heater. In this way, when the tank of the consumable component has been emptied, the device can be reused by connecting it to a new consumable component. Another subset of closed system vaping smoking substitute systems are completely disposable, and intended for one-use only.

[0012] There are also "open system" vaping smoking substitute systems which typically have a tank that is configured to be refilled by a user, so the system can be used multiple times.

[0013] An example vaping smoking substitute system is the myblu™ e-cigarette. The myblu™ e cigarette is a closed system which includes a device and a consumable component. The device and consumable component are physically and electrically coupled together by pushing the consumable component into the device. The device includes a rechargeable battery. The consumable component includes a mouthpiece, a sealed tank which contains e-liquid, as well as a vaporiser, which for this system is a heating filament coiled around a portion of a wick which is partially immersed in the e-liquid. The system is activated when a microprocessor on board the device detects a user inhaling through the mouthpiece. When the system is activated, electrical energy is supplied from the power source to the vaporiser, which heats e-liquid from the tank to produce a vapour which is inhaled by a user through the mouthpiece.

[0014] Another example vaping smoking substitute system is the blu PRO™ e-cigarette. The blu PRO™ e cigarette is an open system which includes a device, a (refillable) tank, and a mouthpiece. The device and tank are physically and electrically coupled together by screwing one to the other. The mouthpiece and refillable tank are physically coupled together by screwing one into the other, and detaching the mouthpiece from the refillable

tank allows the tank to be refilled with e-liquid. The system is activated by a button on the device. When the system is activated, electrical energy is supplied from the power source to a vaporiser, which heats e-liquid from the tank to produce a vapour which is inhaled by a user through the mouthpiece.

[0015] As the vapour passes through the consumable (entrained in the airflow) from the location of vaporization to an outlet of the consumable (e.g. a mouthpiece), the vapour cools and condenses to form an aerosol for inhalation by the user. The aerosol may contain nicotine and/or flavour compounds.

[0016] In typical smoking substitute systems, aerosol precursor can leak from the vaporiser. This leaked aerosol precursor may leak onto the user, or onto a surface of which the system is placed. This may harm the experience and satisfaction for the user.

[0017] The present invention has been devised in light of the above considerations.

Summary

[0018] According to a first aspect there is a provided a holder for supporting a vaporiser in an aerosol delivery system, the holder comprising:

at least one holder inlet;

a holder outlet for fluid communication with the vaporiser; and

at least one airflow channel extending within the holder from the holder inlet to the holder outlet,

wherein the at least one air flow channel comprises an undulating portion having an undulating lower surface comprising at least one trough for retaining leaked aerosol precursor from the vaporiser.

[0019] By providing at least one air flow channel comprising an undulating portion within the holder, aerosol precursor leaked from the vaporiser may be caught and retained at the lower surface, specifically, in the at least one trough of the lower surface. Furthermore, the undulating portion forms a torturous path that inhibits aerosol precursor (leaked from the vaporiser) from flowing through the at least one air flow channel in a direction from the holder outlet to the holder inlet. Accordingly, the present invention reduces aerosol precursor leakage.

[0020] Optional features will now be set out. These are applicable singly or in any combination with any aspect.

[0021] The holder may comprise a plurality of air flow channels and a plurality of holder inlets. In some embodiments, each of the plurality of air flow channels may extend from a respective holder inlet to the holder outlet.

[0022] The holder may comprise an upper face and a lower face.

[0023] The at least one holder inlet may be provided in the holder lower face. The holder outlet may be provided in the holder upper face.

[0024] The holder may have a central axis extending between the holder upper and lower faces.

[0025] The or each undulating portion may extend generally in a direction that is substantially perpendicular to the central axis.

[0026] The holder may have an upright orientation, where the central axis is vertical and the holder outlet is vertically uppermost relative to the at least one holder inlet. Accordingly, the holder may have an inverted orientation, where the central axis is vertical and the holder outlet is vertically lowermost relative to the at least one holder inlet.

[0027] References to "upper", "lower", "above" or "below" as described herein are intended to refer to the holder when in an upright orientation i.e. with the central axis of the holder vertically aligned and with the holder outlet vertically uppermost.

[0028] The or each holder inlet may be laterally offset from the central axis. For example, there may be a plurality of holder inlets each equally laterally offset from the central axis.

[0029] The or each air flow channel may comprise a respective linear portion extending from the respective holder inlet to the respective undulating portion. The or each linear portion may extend substantially parallel to the central axis or may be angled towards the central axis.

[0030] The or each air flow channel may comprise a holder outlet conduit. The holder outlet conduit may extend from the undulating portion of the at least one air flow channel to the holder outlet. The holder outlet conduit may extend substantially parallel to the central axis e.g. it may be coaxial with the central axis of the holder. Thus the holder outlet may be provided on the central axis.

[0031] In some embodiments including a plurality of air flow channels, each of the air flow channels may be separate before combining at the holder outlet conduit.

[0032] The term 'lower surface' is intended to describe the surface of the air flow channel that is lowermost in the upright orientation of the holder. This surface will face the holder outlet and will face away from the at least one holder inlet.

[0033] The term 'undulating' as described herein is intended to define a surface that is wavy/oscillating, such that the surface comprises at least one recessed trough. In some embodiments, the undulating lower surface may also comprise at least one peak.

[0034] The undulating lower surface may define at least part of a repeating wave or a non-repeating wave profile. For example, the undulating lower surface may define at least part of a sinusoidal, square and/or triangular wave profile. In some embodiments, the undulating lower surface of the/each air flow channel may comprise a plurality of peaks and/or troughs.

[0035] As described above, the or each undulating portion may extend generally in a direction that is substantially perpendicular to the central axis.

[0036] The undulating lower surface may undulate about a first average plane. The first average plane may be defined as the plane of which the undulating lower surface is equally provided above and below. In some embodiments, the first average plane of the undulating lower surface may be substantially perpendicular to the central axis of the holder.

[0037] The term 'substantially perpendicular' is intended herein to define that the first average plane (or second average plane, as described later) of the undulating lower surface (or upper surface) is oriented equal to or marginally less than 90 degrees relative to the central axis of the holder, for example between and including 90 to 70 degrees relative to the central elongate axis, such as between and including 90 to 80 degrees relative to the central axis.

[0038] In the upright orientation, the undulating lower surface may be provided below the holder outlet. In this way, aerosol precursor leaked from the vaporiser (mounted above the upper face of the holder) may drip and pass through the holder outlet (and optionally through the holder outlet conduit and on to the undulating lower surface, where it is retained at the at least one trough.

[0039] The undulating portion of the at least one air flow channel may be defined by the undulating lower surface and an opposing upper surface.

[0040] The term 'upper surface' is intended to describe the surface of the air flow channel that is uppermost in the upright orientation of the holder. This surface will face the at least one holder inlet and will face away from the holder outlet.

[0041] In some embodiments, the upper surface may be an undulating upper surface and may comprise a concave portion for retaining leaked aerosol precursor from the vaporiser, particularly when the holder in arranged in an inverted orientation, i.e. where the central axis of the holder is vertical and the holder outlet is vertically lowermost relative to the at least one holder inlet.

[0042] The undulating upper surface may undulate about a second average plane. The second average plane may be defined as the plane of which the undulating upper surface is equally provided above and below. The second average plane of the undulating upper surface may be substantially perpendicular to the central axis of the holder. Thus, in some embodiments the second average surface of the undulating upper surface may be substantially parallel to the first average surface of the undulating lower surface.

[0043] The term 'substantially parallel' as used therein is intended to define that the second average plane of the undulating upper surface is oriented equal to or marginally greater than 0 degrees relative to the first average plane of the undulating lower surface, for example between and including 0 to 20 degrees relative to the first average plane, such as between and including 0 to 10 degrees relative to the first average plane.

[0044] The undulating upper surface may comprise at least one concave portion and at least one convex portion. The undulating upper surface may define at least part of a repeating wave or a non-repeating wave profile. For example, the undulating upper surface may define at least part of a sinusoidal, square and/or triangular wave profile. In some embodiments, the undulating upper surface of the/each air flow channel may comprise a plurality of concave portions and/or convex portions.

[0045] In some embodiments, the convex portion(s) may face the at least one trough of the undulating lower surface. For instance, in some embodiments the undulating upper surface may be arranged laterally offset from the undulating lower surface such that a convex portion of the undulating upper surface opposes (i.e. is laterally aligned with) a trough of the undulating lower surface and/or a concave portion of the undulating upper surface opposes a peak of the undulating lower surface.

[0046] In this way, the undulating lower surface and undulating upper surface may define the undulating portion of the air flow channel having a torturous path for inhibiting aerosol precursor (leaked from the vaporiser) from flowing through the air flow channel(s). In particular, the torturous path of the air flow channel may inhibit aerosol precursor flow in a direction from the holder outlet to the at least one holder inlet.

[0047] The or each trough on the lower surface of the undulating portion may comprise a pitted trough surface.

[0048] In some embodiments, the pitted trough surface may comprise at least one lower pit, e.g. a plurality of lower pits, that is/are formed into the trough of the undulating lower surface. The/each lower pit may be an elongate pit (e.g. a trench) and may extend in a front to back (depth) direction within the channel - the front to back direction being perpendicular to the central axis of the holder (and perpendicular to the lateral extension of the respective air flow channel). In some embodiments, the/each lower pit may extend the entire depth of the respective air flow channel in the front to back direction within the trough.

[0049] The or each lower pit may be at least partly defined by at least one lower rib. For example, at least one lower pit may be defined between two adjacent lower ribs e.g. between two adjacent parallel ribs. At least one lower pit may be defined by a lower rib and an ascending portion of the trough. In some embodiments, the ascending portion of the trough may be substantially vertical.

[0050] The term 'substantially vertical' as described herein is intended to define a direction that is substantially parallel to the central axis of the holder. In other words, it is intended to define a direction that is oriented equal to or marginally greater than 0 degrees relative to the central axis of the holder, for example between and including 0 to 20 degrees relative to the central axis, such as between and including 0 to 10 degrees relative to the central axis. Accordingly, when the holder is oriented in the upright or inverted orientation, the ascending portion of the trough will extend in a vertical direction.

[0051] The/each lower rib that at least partially defines at least one lower pit may extend normal to the undulating

lower surface or the first average plane. The lower rib(s) may extend in a front to back (depth) direction within the channel, the front to back direction being perpendicular to the central axis of the holder (and perpendicular to the lateral extension of the respective air flow channel). The or each lower rib may extend the entire depth of the respective air flow channel in the front to back direction.

[0052] The pitted trough surface may provide an obstruction along the undulating lower surface (specifically, at the trough(s)) which may resist aerosol precursor (leaked from the vaporiser) from flowing through the at least one air flow channel, in particular, in a direction from the holder outlet to the at least one holder inlet (when the holder is in the upright orientation).

[0053] The or each concave portion on the upper surface of the undulating portion may comprise a pitted concave surface.

[0054] In some embodiments, the pitted concave surface may comprise at least one upper pit, e.g. a plurality of upper pits, that is/are formed into the concave portion of the undulating upper surface. The/each upper pit may be an elongate pit (e.g. a trench) and may extend in the front to back (depth) direction within the channel, the front to back direction being perpendicular to the central axis of the holder (and perpendicular to the lateral extension of the respective air flow channel). In some embodiments, the/each upper pit may extend the entire depth of the respective air flow channel in the front to back direction within the trough.

[0055] The or each lower pit may be at least partly defined by at least one upper rib.

[0056] For example, the at least one upper pit may be defined between two adjacent upper ribs e.g. between two adjacent parallel ribs. At least one upper pit may be defined by an upper rib and a descending portion of the concave portion. In some embodiments, the descending portion of the concave portion may be substantially vertical.

[0057] The/each upper rib that at least partially defines at least one upper pit may extend normal to the undulating upper surface or the second average plane. The upper rib(s) may extend in a front to back (depth) direction within the channel, the front to back direction being perpendicular to the central axis of the holder (and perpendicular to the lateral extension of the respective air flow channel). The or each upper rib may extend the entire depth of the respective air flow channel in the front to back direction.

[0058] The pitted concave surface may provide an obstruction along the undulating upper surface (specifically, at the concave portions) which may resist aerosol precursor (leaked from the vaporiser) from flowing within the at least one channel, in particular, in a direction from the holder outlet to the at least one holder inlet (when the holder is oriented in an inverted orientation).

[0059] The holder may by formed of a main body and a plug. The main body may include an open cavity for accommodating the plug. The plug may provide the lower surface of the undulating portion(s) of the air flow channel(s). In some embodiments, the main body may provide the undulating upper surface at/in the cavity.

[0060] The plug may be reversibly separable from the main body to allow the removal of aerosol precursor (leaked from the vaporiser) retained in the at least one trough of the undulating lower surface.

[0061] The plug may comprise a connection portion for connecting the plug to the main body. In some embodiments, the connection portion may form a frictional engagement with the main body.

[0062] The main body may provide the upper face of the holder, the holder outlet and/or the holder outlet conduit. In some embodiments, the main body may provide a minor portion of the lower face of the holder. In some embodiments, the cavity may be open adjacent to the minor portion of the lower face of the main body.

[0063] The main body may comprise an extension that extends upward from the upper face of the holder. The extension may be hollow and may be adapted to support the vaporiser. The extension may extend substantially parallel to the central axis, e.g. it may be coaxial with the central axis of the holder.

[0064] The plug and main body may together define the at least one holder inlet, at least one linear portion and/or at least one undulating portion(s) of the air flow channel(s).

[0065] The plug may be formed of an impermeable material, such as silicone.

[0066] In a second aspect there is a provided a component having the holder of the first aspect.

[0067] The component may comprise a component housing having an upstream mouthpiece portion and a downstream base portion. The mouthpiece portion and base portion may be integrally formed. In some embodiments, the holder may be attached or integrally formed with the base portion of the component.

[0068] The component may comprise an airflow path that extends from at least one air inlet to an air outlet. The air outlet is preferably provided in a mouthpiece portion. In this respect, a user may draw fluid (e.g. air) into and along the airflow path by inhaling at the air outlet (i.e. using the mouthpiece portion).

[0069] The at least one air inlet may be provided by the at least one holder inlet.

[0070] The air flow path passes a vaporiser between the at least one air inlet and the air outlet. The vaporiser may be housed in a vaporising chamber.

[0071] The airflow path may comprise a first portion extending from the at least one air inlet towards the vaporiser. A second portion of the airflow path passes through the vaporising chamber and/or over/around the vaporiser to a conduit that extends to the air outlet. The conduit may extend along an axial centre of the component. References to "downstream" in relation to the airflow path are intended to referto the direction towards the air outlet/mouthpiece portion. Thus the second portion of the airflow path is downstream of the first portion of the airflow path. Conversely, references to "upstream"

are intended to refer to the direction towards the air inlet. Thus the first portion of the airflow path (and the air inlet) is upstream of the second portion of the airflow path (and the air outlet/mouthpiece portion).

[0072] References to "upper", "lower", "above" or "below" are intended to refer to the component when in an upright/vertical orientation i.e. with elongate (longitudinal/length) axis of the component vertically aligned and with the mouthpiece vertically uppermost.

[0073] The component may comprise a tank for housing the aerosol precursor (e.g. a liquid aerosol precursor). The aerosol precursor may comprise an e-liquid, for example, comprising a base liquid and e.g. nicotine. The base liquid may include propylene glycol and/or vegetable glycerine.

[0074] The conduit may extend through the tank with the conduit walls defining an inner region of the tank. In this respect, the tank may surround the conduit e.g. the tank may be annular.

[0075] The tank may be defined by one or more side walls (e.g. laterally opposed first and second side walls) extending longitudinally from the mouthpiece portion.

[0076] The tank may further comprise opposing front and rear walls spaced by the laterally opposed first and second side walls.

[0077] The tank walls may be integrally formed with the mouthpiece portion.

[0078] The distance between the first and second side walls may define a width of the tank. The distance between the front and rear walls may define a depth of the tank. The width of the tank may be greater than the depth of the tank.

[0079] The length of the tank/component housing may be greater than the width of the tank/component housing. The depth of the tank/component housing may be smaller than each of the width and the length.

[0080] The tank walls may be integrally formed and may additionally be integrally formed with the mouthpiece portion. In that way, the component may be easily manufactured using injection moulding.

[0081] The component housing may comprise a lower shell that at least partly forms the base portion of the component. The lower shell may overlap the tank walls.

[0082] As discussed above, the air flow path passes over/around the vaporiser between the air inlet and the air outlet. The vaporiser may be disposed in the vaporising chamber. The vaporising chamber may form part of the airflow path.

[0083] The vaporiser may comprise a heating element. Alternatively, the vaporiser may comprise an ultrasonic or flow expansion unit, or an induction heating system.

[0084] The vaporiser may comprise a wick.

[0085] The wick may form the base of the tank so that the aerosol precursor may be in contact with the wick. The wick may comprise one or more channels on its upper surface (facing the tank), the channels being in fluid communication with the tank.

[0086] The wick may have a length and width defining its upper surface with a depth aligned with the longitudinal axis of the component. Thus the upper surface and opposing lower surface of the wick may lie in respective planes that are perpendicular to the longitudinal axis of component and longitudinal to the first and third portions of the airflow path.

[0087] The wick may comprise a porous material e.g. a ceramic material. A portion of the wick e.g. at least a portion of the lower surface and/or at least a portion of at least one side wall extending between the upper and lower surface (in a depth direction of the wick) may be exposed to airflow in the second portion of the airflow path.

[0088] The heating element may be in the form of a heater track on the wick e.g. on the lower surface of the wick.

[0089] In other embodiments, the wick may be a cylindrical, porous wick e.g. formed of cotton or ceramic. It may be oriented so as to extend in the direction of the width dimension of the component (perpendicular to the longitudinal axis of the component). Thus the wick may extend in a direction perpendicular to the direction of airflow in the airflow path. Opposing ends of the wick may protrude into the tank and a central portion (between the ends) may extend across the airflow path so as to be exposed to airflow. Thus, fluid may be drawn (e.g. by capillary action) along the wick, from the tank to the exposed portion of the wick. The heating element may be in the form of a filament wound about the wick (e.g. the filament may extend helically about the wick). The filament may be wound about the exposed portion of the wick.

[0090] The heating element may be electrically connectable (or connected) to a power source. Thus, in operation, the power source may supply electricity to (i.e. apply a voltage across) the heating element so as to heat the heating element. This may cause liquid stored in the wick (i.e. drawn from the tank) to be heated so as to form a vapour and become entrained in fluid flowing along the airflow path. This vapour may subsequently cool to form an aerosol in the airflow path (e.g. the third portion of the airflow path).

[0091] In a third aspect there is provided an aerosol-delivery system (e.g. a smoking substitute system) comprising a component having the holder according to the first aspect and an aerosol-delivery (e.g. smoking substitute) device.

[0092] The component may be an aerosol-delivery (e.g. a smoking substitute) consumable i.e. in some embodiments the component may be a consumable component for engagement with the aerosol-delivery (e.g. a smoking substitute) device to form the aerosol-delivery (e.g. s smoking substitute) system.

[0093] The device may be configured to receive the consumable component. For example the device and the consumable component may be configured to be physically coupled together. For example, the consumable component may be at least partially received in a recess

of the device, such that there is snap engagement between the device and the consumable component. Alternatively, the device and the consumable component may be physically coupled together by screwing one onto the other, or through a bayonet fitting.

[0094] Thus, the consumable component may comprise one or more engagement portions for engaging with the device.

[0095] The device and consumable component may be coupled together by magnetic attraction. For example, the device may comprise at least one magnet whilst the component may comprise a magnet or ferrous metal plate/portion.

[0096] The consumable component may comprise an electrical interface for interfacing with a corresponding electrical interface of the device. One or both of the electrical interfaces may include one or more electrical contacts. Thus, when the device is engaged with the consumable component, the electrical interface may be configured to transfer electrical power from the power source to a heating element of the consumable component. The electrical interface may also be used to identify the consumable component from a list of known types. The electrical interface may additionally or alternatively be used to identify when the consumable component is connected to the device.

[0097] The device may alternatively or additionally be able to detect information about the consumable component via an RFID reader, a barcode or QR code reader. This interface may be able to identify a characteristic (e. g. a type) of the consumable. In this respect, the consumable component may include any one or more of an RFID chip, a barcode or QR code, or memory within which is an identifier and which can be interrogated via the interface.

[0098] In other embodiments, the component may be integrally formed with the aerosol-delivery (e.g. a smoking substitute) device to form the aerosol-delivery (e.g. s smoking substitute) system.

[0099] In such embodiments, the aerosol former (e.g. e-liquid) may be replenished by re-filling a tank that is integral with the device (rather than replacing the consumable). Access to the tank (for re-filling of the e-liquid) may be provided via e.g. an opening to the tank that is sealable with a closure (e.g. a cap).

[0100] Further features of the device are described below. These are applicable to both the device for receiving a consumable component and to the device integral with the component.

[0101] The device may comprise a power source e.g. a rechargeable battery. The device may comprise a controller.

[0102] A memory may be provided and may be operatively connected to the controller. The memory may include non-volatile memory. The memory may include instructions which, when implemented, cause the controller to perform certain tasks or steps of a method. The device may comprise a wireless interface, which may be configured to communicate wirelessly with another device, for example a mobile device, e.g. via Bluetooth®. To this end, the wireless interface could include a Bluetooth® antenna. Other wireless communication interfaces, e.g. WiFi®, are also possible. The wireless interface may also be configured to communicate wirelessly with a remote server.

[0103] An airflow (i.e. puff) sensor may be provided that is configured to detect a puff (i.e. inhalation from a user). The airflow sensor may be operatively connected to the controller so as to be able to provide a signal to the controller that is indicative of a puff state (i.e. puffing or not puffing). The airflow sensor may, for example, be in the form of a pressure sensor or an acoustic sensor. The controller may control power supply to a heating element in response to airflow detection by the sensor. The control may be in the form of activation of the heating element in response to a detected airflow. The airflow sensor may form part of the device.

[0104] In a fourth aspect there is provided a method of using the aerosol-delivery (e.g. smoking substitute) consumable component according to the third aspect, the method comprising engaging the consumable component with an aerosol-delivery (e.g. smoking substitute) device (as described above) having a power source so as to electrically connect the power source to the consumable component (i.e. to the vaporiser of the consumable component).

[0105] The invention includes the combination of the aspects and preferred features described except where such a combination is clearly impermissible or expressly avoided.

BRIEF DESCRIPTION OF THE DRAWINGS

[0106] So that further aspects and features thereof may be appreciated, embodiments will now be discussed in further detail with reference to the accompanying figures, in which:

- Fig. 1A is a front schematic view of a smoking substitute system;
- Fig. 1B is a front schematic view of a device of the system;
- Fig. 1C is a front schematic view of a component of the system;
- Fig. 2A is a schematic of the elements of the device;
- Fig. 2B is a schematic of the elements of the component;
- Fig. 3 is a frontal view of a holder;
- Fig. 4 is an enlarged view of part of the holder of Fig. 3 showing one airflow channel;
- Fig. 5 is a top perspective view of a plug of the holder; and
- Fig. 6 is a further schematic view of the component;

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0107] Fig. 1A shows a first embodiment of a smoking substitute system 100. In this example, the smoking substitute system 100 includes a device 102 and a component 104. The component 104 may alternatively be referred to as a "pod", "cartridge" or "cartomizer". It should be appreciated that in other examples (i.e. open systems), the device may be integral with the component. In such systems, a tank of the aerosol delivery system may be accessible for refilling the device.

[0108] In this example, the smoking substitute system 100 is a closed system vaping system, wherein the component 104 includes a sealed tank 106 and is intended for single-use only. The component 104 is removably engageable with the device 102 (i.e. for removal and replacement). Fig. 1A shows the smoking substitute system 100 with the device 102 physically coupled to the component 104, Fig. 1B shows the device 102 of the smoking substitute system 100 without the component 104, and Fig. 1C shows the component 104 of the smoking substitute system 100 without the device 102.

[0109] The device 102 and the component 104 are configured to be physically coupled together by pushing the component 104 into a cavity at an upper end 108 of the device 102, such that there is an interference fit and/or a magnetic connection between the device 102 and the component 104. In other examples, the device 102 and the component may be coupled by screwing one onto the other, or through a bayonet fitting.

[0110] The component 104 includes a mouthpiece portion at an upper end 109 of the component 104, and one or more air inlets (not shown) in fluid communication with the mouthpiece portion such that air can be drawn into and through the component 104 when a user inhales through the mouthpiece portion. The tank 106 containing e-liquid is located at the lower end 111 of the component 104.

[0111] The tank 106 includes a window 112, which allows the amount of e-liquid in the tank 106 to be visually assessed. The device 102 includes a slot 114 so that the window 112 of the component 104 can be seen whilst the rest of the tank 106 is obscured from view when the component 104 is inserted into the cavity at the upper end 108 of the device 102.

[0112] The lower end 110 of the device 102 also includes a light 116 (e.g. an LED) located behind a small translucent cover. The light 116 may be configured to illuminate when the smoking substitute system 100 is activated. Whilst not shown, the component 104 may identify itself to the device 102, via an electrical interface, RFID chip, or barcode.

[0113] The lower end 110 of the device 102 also includes a charging connection 115, which is usable to charge a battery within the device 102. The charging connection 115 can also be used to transfer data to and from the device, for example to update firmware thereon.

[0114] Figs. 2A and 2B are schematic drawings of the device 102 and component 104. As is apparent from Fig. 2A, the device 102 includes a power source 118, a controller 120, a memory 122, a wireless interface 124, an electrical interface 126, and, optionally, one or more additional components 128.

[0115] The power source 118 is preferably a battery, more preferably a rechargeable battery. The controller 120 may include a microprocessor, for example. The memory 122 preferably includes non-volatile memory. The memory may include instructions which, when implemented, cause the controller 120 to perform certain tasks or steps of a method.

[0116] The wireless interface 124 is preferably configured to communicate wirelessly with another device, for example a mobile device, e.g. via Bluetooth®. To this end, the wireless interface 124 could include a Bluetooth® antenna. Other wireless communication interfaces, e.g. WiFi®, are also possible. The wireless interface 124 may also be configured to communicate wirelessly with a remote server.

[0117] The electrical interface 126 of the device 102 may include one or more electrical contacts. The electrical interface 126 may be located in a base of the aperture in the upper end 108 of the device 102. When the device 102 is physically coupled to the component 104, the electrical interface 126 is configured to transfer electrical power from the power source 118 to the component 104 (i.e. upon activation of the smoking substitute system 100).

[0118] The electrical interface 126 may also be used to identify the component 104 from a list of known components. For example, the component 104 may be a particular flavour and/or have a certain concentration of nicotine (which may be identified by the electrical interface 126). This can be indicated to the controller 120 of the device 102 when the component 104 is connected to the device 102. Additionally, or alternatively, there may be a separate communication interface provided in the device 102 and a corresponding communication interface in the component 104 such that, when connected, the component 104 can identify itself to the device 102.

[0119] The additional components 128 of the device 102 may comprise the light 116 discussed above.

[0120] The additional components 128 of the device 102 also comprises the charging connection 115 configured to receive power from the charging station (i.e. when the power source 118 is a rechargeable battery). This may be located at the lower end 110 of the device 102.

[0121] The additional components 128 of the device 102 may, if the power source 118 is a rechargeable battery, include a battery charging control circuit, for controlling the charging of the rechargeable battery. However, a battery charging control circuit could equally be located in a charging station (if present).

[0122] The additional components 128 of the device 102 may include a sensor, such as an airflow (i.e. puff) sensor for detecting airflow in the smoking substitute system 100, e.g. caused by a user inhaling through a mouth-

piece portion 136 of the component 104. The smoking substitute system 100 may be configured to be activated when airflow is detected by the airflow sensor. This sensor could alternatively be included in the component 104. The airflow sensor can be used to determine, for example, how heavily a user draws on the mouthpiece or how many times a user draws on the mouthpiece in a particular time period.

[0123] The additional components 128 of the device 102 may include a user input, e.g. a button. The smoking substitute system 100 may be configured to be activated when a user interacts with the user input (e.g. presses the button). This provides an alternative to the airflow sensor as a mechanism for activating the smoking substitute system 100.

[0124] As shown in Fig. 2B, the component 104 includes the tank 106, an electrical interface 130, a vaporiser 132, one or more air inlets 134, a mouthpiece portion 136, and one or more additional components 138.

[0125] The electrical interface 130 of the component 104 may include one or more electrical contacts. The electrical interface 126 of the device 102 and an electrical interface 130 of the component 104 are configured to contact each other and thereby electrically couple the device 102 to the component 104 when the lower end 111 of the component 104 is inserted into the upper end 108 of the device 102 (as shown in Fig. 1A). In this way, electrical energy (e.g. in the form of an electrical current) is able to be supplied from the power source 118 in the device 102 to the vaporiser 132 in the component 104.

[0126] The vaporiser 132 is configured to heat and vaporise e-liquid contained in the tank 106 using electrical energy supplied from the power source 118. As will be described further below, the vaporiser 132 includes a heating filament and a wick. The wick draws e-liquid from the tank 106 and the heating filament heats the e-liquid to vaporise the e-liquid.

[0127] The one or more air inlets 134 are preferably configured to allow air to be drawn into the smoking substitute system 100, when a user inhales through the mouthpiece portion 136. When the component 104 is physically coupled to the device 102, the air inlets 134 receive air, which flows to the air inlets 134 along a gap between the device 102 and the lower end 111 of the component 104.

[0128] In operation, a user activates the smoking substitute system 100, e.g. through interaction with a user input forming part of the device 102 or by inhaling through the mouthpiece portion 136 as described above. Upon activation, the controller 120 may supply electrical energy from the power source 118 to the vaporiser 132 (via electrical interfaces 126, 130), which may cause the vaporiser 132 to heat e-liquid drawn from the tank 106 to produce a vapour which is inhaled by a user through the mouthpiece portion 136.

[0129] An example of one of the one or more additional components 138 of the component 104 is an interface for obtaining an identifier of the component 104. As discussed above, this interface may be, for example, an RFID reader, a barcode, a QR code reader, or an electronic interface which is able to identify the component. The component 104 may, therefore include any one or more of an RFID chip, a barcode or QR code, or memory within which is an identifier and which can be interrogated via the electronic interface in the device 102.

[0130] It should be appreciated that the smoking substitute system 100 shown in figures 1A to 2B is just one exemplary implementation of a smoking substitute system. For example, the system could otherwise be in the form of an entirely disposable (single-use) system or an open system in which the tank is refillable (rather than replaceable).

[0131] Fig. 3 is a frontal view of a holder 160. The holder 160 comprises two air flow channels 162a, 162b that each extend within the holder 160 from a respective holder inlet 134a, 134b to a holder outlet 164.

[0132] The holder 160 further comprises an upper face 161, a lower face 163 and a central axis 165. The central axis 165 extends from the upper face 161 to the lower face 163 of the holder.

[0133] The holder outlet 164 is provided in the holder upper face 161 and is aligned with the central axis 165. In contrast, the holder inlets 134a, 134b are provided in the holder lower surface 163 and are each arranged laterally offset from the central axis 165.

[0134] The holder 160 further comprises an extension 159 extending from the holder upper face 161. The extension 159 extends in a (upward) direction that is substantially parallel to the central axis 165. The extension 159 is hollow and can support the vaporiser (not shown) therein.

[0135] Fig. 3 shows the holder 160 in an upright orientation. When in the upright orientation, the central axis 165 of the holder 160 is vertically oriented and the holder outlet 164 is arranged vertically uppermost relative the holder inlets 134a, 134b. Alternatively, the holder 160 is oriented in an inverted orientation when the central axis 165 is vertically oriented and the holder outlet 164 is arranged vertically lowermost relative the holder inlets 134a, 134b.

[0136] The air flow channels 162a, 162b each comprise a linear portion 167a, 167b, an undulating portion 169a, 169b, and a single holder outlet conduit 171. Each linear portion 167a, 167b extends from a respective holder inlet 134a, 134b to a respective undulating portion 169a, 169b of the respective air flow channel 162a, 162b. Each linear portion 167a, 167b is angled within the holder 160 such that the linear portion 167a, 167b extends towards the central axis 165 of the holder 160.

[0137] Each undulating portion 169a, 169b of the air flow channels 162a, 162b extends from a respective linear portion 167a, 167b to the holder outlet conduit 171, i.e. the air flow channels 162a, 162b are separate until they combine at the holder outlet conduit 171. Each undulating portion 169a, 169b extends in a direction that is substantially perpendicular to the central axis 165 of the

holder 160.

[0138] The holder outlet conduit 171 extends from the undulating portions 169a, 169b of the air flow channels 162a, 162b to the holder outlet 164. The holder outlet conduit 171 extends substantially parallel to the central axis 165 of the holder 160, i.e. the holder outlet conduit 171 is coaxial with the central axis 165 of the holder 160.

[0139] Each undulating portion 169a, 169b of the air flow channels 162a, 162b comprises an undulating lower surface 166a, 166b and an undulating upper surface 168a, 168b. The each undulating lower surface 166a, 166b comprises peaks 170a, 170b and troughs 172a, 172b, while the each undulating upper surface 168a, 168b comprises concave portions 174a, 174b and convex portions 179a, 179b. The each undulating upper surface 168a, 168b is laterally (i.e. width direction) offset from the each undulating lower surface 166a, 166b so that the concave portions 174a, 174b of the each undulating upper surface 168a, 168b oppose and face the peaks 170a, 170b of the respective undulating lower surface 166a, 166b. Furthermore, the lateral offset of the each undulating upper surface 168a, 168b relative to the each undulating lower surface 166a, 166b means that the convex portions 179a, 179b of the each undulating upper surface 168a, 168b oppose and face the troughs 172a, 172b of the respective undulating lower surface 166a, 166b.

[0140] In this way, the undulating portion 169a, 169b of each air flow channel 162a, 162b forms a torturous path for inhibiting aerosol precursor (leaked from the vaporiser) from flowing therethrough. In particular, each undulating portion 169a, 169b inhibits aerosol precursor flowing in a direction from the holder outlet conduit 171 to the respective holder inlet 134a, 134b.

[0141] The undulating lower surface 166a, 166b of each air flow channel 162a, 162b undulates about a first average plane AP1. The first average plane AP1 is defined as the plane for which the respective undulating lower surface 166a, 166b is provided equally above and below. The respective undulating lower surface 166a, 166b is arranged such that the first average plane AP1 is perpendicular to the central axis 165 of the holder 160. In this way, were the holder 160 oriented in the upright orientation (i.e. with the central axis being vertical and the holder outlet 164 being uppermost relative to the holder inlets 134a, 134b), aerosol precursor (leaked from the vaporiser) and in the air flow channel(s) 162a, 162b will be retained by at least one of the troughs 172a, 172b.

[0142] The undulating upper surface 168a, 168b of each air flow channel 162a, 162b undulates about a second average plane AP2. The second average plane AP2 is defined as the plane for which the respective undulating upper surface 168a, 168b is provided equally above and below. The respective undulating upper surface 168a, 168b is arranged such that the second average plane AP2 is perpendicular to the central axis 165 of the holder 160. In this way, were the holder 160 oriented in the inverted orientation (i.e. with the central axis 165 being vertical and the holder outlet 164 being lowermost relative to the holder inlets 134a, 134b), aerosol precursor (leaked from the vaporiser) and in the air flow channel 162a, 162b will be retained by at least one of the concave portions 174a, 174b.

[0143] Fig. 4 is an enlarged view of part of the holder 160 in Fig. 3 showing one of the air flow channels 162a. Fig. 4 shows the troughs 172a of the undulating lower surface 166a comprising a pitted trough surface 175a. The pitted trough surface 175a of each trough 172a comprises three lower pits 178a and two lower ribs 176a. The centre lower pit 178a of the three is between and defined by the two adjacent lower ribs 176a, while the end lower pits 178a of the three are each between and defined by a lower rib 176a and a substantially vertical ascending portion 180a of the trough 172a.

[0144] The lower pits 178a each extend in a front to back (depth) direction within the air flow channel 162a, the front to back direction being perpendicular to the central axis 165 of the holder 160 (and perpendicular to the lateral extension of the respective air flow channel 162a). The lower pits extend the entire depth of the respective air flow channel 162a

[0145] The lower ribs 178a of pitted trough surface 175a extend in a direction perpendicular to the first average plane AP1 and in the front to back direction. The lower ribs 176a each extend the entire depth of the respective air flow channel 162a of the holder 160.

[0146] Each pitted trough surface 175a therefore provides obstructions at the troughs 172a, which resist aerosol precursor flowing within the respective air flow channel 162a when the holder 160 is oriented in the upright orientation.

[0147] The concave portions 174a of the undulating upper surface 168a comprising a pitted concave surface 177a. The pitted concave surface 177a of each concave portion 172a comprises upper pits 182a and upper ribs 184a. For example, in Fig. 4, the pitted concave surface 177a proximal the holder inlet 134a comprises four upper pits 182a and three upper ribs 184a. Of these four upper pits 182a, the central pair of upper pits 178a are each defined by two adjacent upper ribs 184a, while the outer pair of upper pits 178a are each defined by an upper rib 184a and a substantially vertical descending portion 186a of the concave portion 174a.

[0148] The upper pits 182a each extend in a front to back (depth) direction within the air flow channel 162a, the front to back direction being perpendicular to the central axis 165 of the holder 160 (and perpendicular to the lateral extension of the respective air flow channel 162a). The upper pits 182a extend the entire depth of the respective air flow channel 162a

[0149] The upper ribs 178a of the pitted concave surface 177a extend in a direction perpendicular to the second average plane AP2 and in the front to back direction. The upper ribs 184a each extend the entire depth of the respective air flow channel 162a of the holder 160.

[0150] Each pitted concave surface 177a therefore

provides obstructions at the concave portion 174a, which resist aerosol precursor flowing within the respective air flow channel 162a when the holder 160 is oriented in the inverted orientation.

[0151] Returning to Fig. 3, the holder 160 is formed by a main body 183 and a plug 185. The main body 183 comprises an open cavity (not shown) for accommodating the plug 185 - the open cavity being open at the lower face 163 of the holder 160. With the plug 185 provided in the cavity of the main body 183 (as shown in Fig. 3), the main body 183 and plug 185 define the respective holder inlet 134a, 134b, linear portion 167a, 167b and undulating portion 169a, 169b of the air flow channels 162a, 162b. The main body 183 provides the holder outlet 164 and holder outlet conduit 171.

[0152] The plug 185 is formed of silicone and is reversibly separable from the main body 183.

[0153] Fig. 5 is a top perspective view of the plug 185. The plug 185 comprises a central channel section 187 interposed between a pair of sealing surfaces 189a, 189b. With the plug 185 provided in the cavity of the main body 183 (as shown Fig. 3), the sealing surfaces 189a, 189b of the plug 185 each engage with the main body 183 to provide a seal between the plug 185 and main body 183. The sealing surfaces 189a, 189b each include a connection portion 191a, 191b on an outer surface for attaching the plug 185 to the holder housing 183. For example, upon inserting the plug 185 into the open cavity of the main body 183 (e.g. by inserting the plug 185 vertically upward for the holder in Fig. 3), the connection portions 191a, 191b on either side of the plug 185 provide frictional engagement between the outside of the plug 185 and the inside to the main body 183 (i.e. inside the open cavity), which in turn secures the plug 185 to the main body 183.

[0154] The central channel section 187 of the plug 185 defines each of the undulating lower surfaces 166a, 166b of undulating portions 169a, 169b (when the plug 185 is connected to the main body 183), while the main body 183 defines the undulating upper surfaces 168a, 168b. The ends 193a, 193b of the central section 187 of the plug 185 partially define the respective linear portions 167a, 167b and respective holder inlets 134a, 134b of the air flow channels 162a, 162b.

[0155] The plug 185 allows for aerosol precursor retained at the troughs 172a, 172b of the undulating lower surfaces 166a, 166b to be emptied. The troughs 172a 172b may need to be regularly emptied to avoid the air flow channels 162a, 162b becoming overly filled with aerosol precursor (leaked from the vaporiser), and thus avoid aerosol precursor from leaking out of the air inlets 134a, 134b of the holder 160.

[0156] Fig. 6 is a schematic view of an example of the component 104 described above. The component 104 comprises a tank 106 for storing e-liquid, a mouthpiece portion 136 and a conduit 140 extending along a longitudinal axis of the component 104. In the illustrated embodiment the conduit 140 is in the form of a tube having a substantially circular transverse cross-section (i.e. transverse to the longitudinal axis). The tank 106 surrounds the conduit 140, such that the conduit 140 extends centrally through the tank 106.

[0157] A component housing 142 defines an outer casing of the component 104. The component housing 142 extends from a lower shell 158 at the lower end 111 of the component 104 to the mouthpiece portion 136 at the upper end 109 of the component 104. The component housing may define a lip or shoulder which acts as a stop feature when the component 104 is inserted into the device 102 (i.e. by contact with an upper edge of the device 102).

[0158] The tank 106, the conduit 140 and the mouthpiece portion 136 are integrally formed with each other so as to form a single unitary component and may e.g. be formed by way of an injection moulding process. Such a component may be formed of a thermoplastic material.

[0159] The mouthpiece portion 136 comprises a mouthpiece aperture 148 defining an outlet of the conduit 140. The vaporiser 132 is downstream of the inlets 134a, 134b of the component 104 and is fluidly connected to the mouthpiece aperture 148 (i.e. outlet) by the conduit 140.

[0160] The vaporiser 132 comprises a porous ceramic wick and a heater track (not shown) printed onto the bottom surface (facing the inlets 134a, 134b) of the ceramic wick or the vaporiser 132 may comprise a cylindrical porous wick with a coiled heating filament.

[0161] The porous ceramic wick and heater track vaporiser 132 may form the base of the tank 106 so that the aerosol precursor is in contact with the wick and may move axially into the wick.

[0162] Alternatively, the cylindrical wick and coiled heating filament may extend into opposing lower portions 106a, 106b of the tank so that the aerosol precursor may move radially into the wick.

[0163] The aerosol precursor is heated by the heater track (when activated e.g. by detection of inhalation), which causes the aerosol precursor to be vaporised and to be entrained in air flowing past the wick. This vaporised liquid may cool to form an aerosol in the conduit 140, which may then be inhaled by a user.

[0164] The lower shell 158 of the component housing 142 has an opening that accommodates the electrical interface 119 of the consumable component 102 comprising two electrical contacts 136a, 136b that are electrically connected to the heater track. In this way, when the consumable component 104 is engaged with the device 102, power can be supplied from the power source 118 of the device to the heater track.

[0165] The component 104 further comprises the holder 160 according to the first aspect for supporting the vaporiser 132. The holder 160 is arranged at the lower end 111 of the component 104. The holder 160 comprises two holder inlets 134a, 134b, a holder outlet 164 and two air flow channels 162a, 162b that extend within the holder 160 from the respective holder inlet 134a, 134b to the

holder outlet 164. In this embodiment, the holder inlets 134a, 134b are therefore the air inlets of the component 104.

[0166] The holder outlet 164 is in fluid communication with the vaporiser 132. Therefore, in use, air passes from the holder inlets 134a, 134b to the vaporiser 132 when the user draws at the mouthpiece aperture 148.

[0167] The air flow channels 162a, 162b each comprise an undulating portion 169a, 169b. The each undulating portion 169a, 169b includes an undulating lower surface 166a, 166b and an undulating upper surface 168a, 168b facing the undulating lower surface 166a, 166b. The each undulating lower surface 166a, 166b comprises a trough 172a, 172b for retaining aerosol precursor leaked from the vaporiser 132 (when the holder 160 is oriented in the upright orientation). The each undulating upper surface 168a, 168b comprises a concave portion 174a, 174b for retaining aerosol precursor leaked from the vaporiser 132 (when the holder 160 is oriented in the inverted orientation).

[0168] Accordingly, in use and in the upright orientation, aerosol precursor leaked from the vaporiser 132 will pass through the holder outlet 164 and drip onto one or both of the undulating lower surfaces 166a, 166b. Here, the leaked aerosol precursor will collect and be retained in the troughs 172a, 172b of the respective undulating lower surface 166a, 166b. In this way, aerosol precursor is inhibited from flowing through the air flow channels 162a, 162b in a direction from the holder outlet 164 to the holder inlets 134a, 134b. Accordingly, the present invention reduces aerosol precursor leakage.

[0169] Furthermore, in the event that the component 104 is oriented in the inverted orientation, e.g. when the component 104 is stored upside down in the users pocket, aerosol precursor leaked from the vaporiser 132 into air flow channel(s) 162a, 162b will be retained in the concave portions 174a, 174b of the undulating upper surfaces 168a, 168b. In this way, aerosol precursor is inhibited from flowing through the air flow channels 162a, 162b in a direction from the holder outlet 164 to the holder inlets 134a, 134b, when the holder 160 is oriented in the inverted orientation.

[0170] While exemplary embodiments have been described above, many equivalent modifications and variations will be apparent to those skilled in the art when given this disclosure. Accordingly, the exemplary embodiments set forth above are considered to be illustrative and not limiting. 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.

[0171] 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%.

[0172] 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 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 holder for supporting a vaporiser in an aerosol delivery system, the holder comprising:

   at least one holder inlet;
   a holder outlet for fluid communication with the vaporiser; and
   at least one air flow channel extending within the holder from the holder inlet to the holder outlet,
   wherein the at least one air flow channel comprises an undulating portion having an undulating lower surface comprising at least one trough for retaining leaked aerosol precursor from the vaporiser.

2. The holder according to claim 1, wherein the at least one trough of the undulating lower surface comprises a pitted trough surface having at least one lower pit extending in a depth direction of the at least one air flow channel.

3. The holder according to claim 2, wherein the pitted trough surface further comprises at least one lower rib that at least partially defines the at least one lower pit.

4. The holder according to claims 2 or 3, wherein the at least one lower pit extends the entire depth of the at least one air flow channel.

5. The holder according to any one of claims 1 to 4, wherein the undulating portion further comprises an undulating upper surface opposing the undulating lower surface, the undulating upper surface compris-

ing at least one concave portion for retaining leaked aerosol precursor from the vaporiser.

6. The holder according to claim 5, wherein the at least one concave portion of the undulating upper surface comprises a pitted concave surface having at least one upper pit extending in a depth direction of the at least one air flow channel.

7. The holder according to claim 6, wherein the pitted concave surface further comprises at least one upper rib that at least partially defines the at least one upper pit.

8. The holder according to claims 6 or 7, wherein the at least one upper pit extends the entire depth of the at least one air flow channel.

9. The holder according to any one of claims 5 to 8, wherein the undulating upper surface further comprises at least one convex portion, and wherein the undulating upper surface is laterally offset from the undulating lower surface such that the at least one convex portion of the undulating upper surface opposes the at least one trough of the undulating lower surface.

10. The holder according to any one of claims 1 to 9, further comprising a central axis extending between an upper face and a lower face, wherein the undulating portion extends in a direction that is substantially perpendicular to the central axis.

11. The holder according to any one of claims 1 to 10, wherein the holder is formed by a main body and a plug, the plug providing the undulating lower surface of the undulating portion of the at least one air flow channel.

12. The holder according to claim 11, wherein the plug is reversibly separable from the main body to allow for removal of aerosol precursor retained in the at least one trough.

13. The holder according to any one of claims 1 to 12, wherein the holder comprises a plurality of air flow channels and a plurality of holder inlets, and wherein each of the plurality of air flow channels extends from a respective holder inlet to the holder outlet.

14. A component comprising the holder according to any one of claims 1 to 13.

15. An aerosol-delivery system comprising the component according to claim 14 and a device comprising a power source.

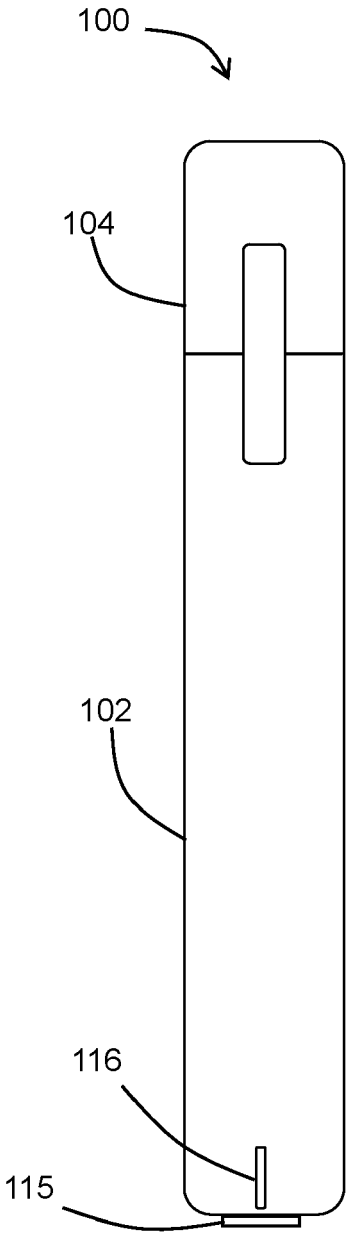


FIG 1A

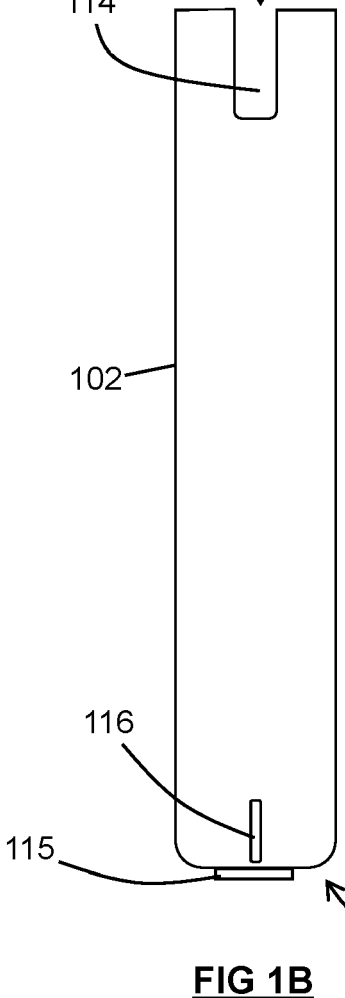


FIG 1B

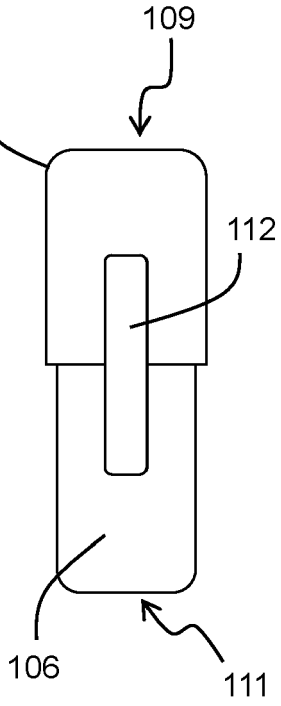


FIG 1C

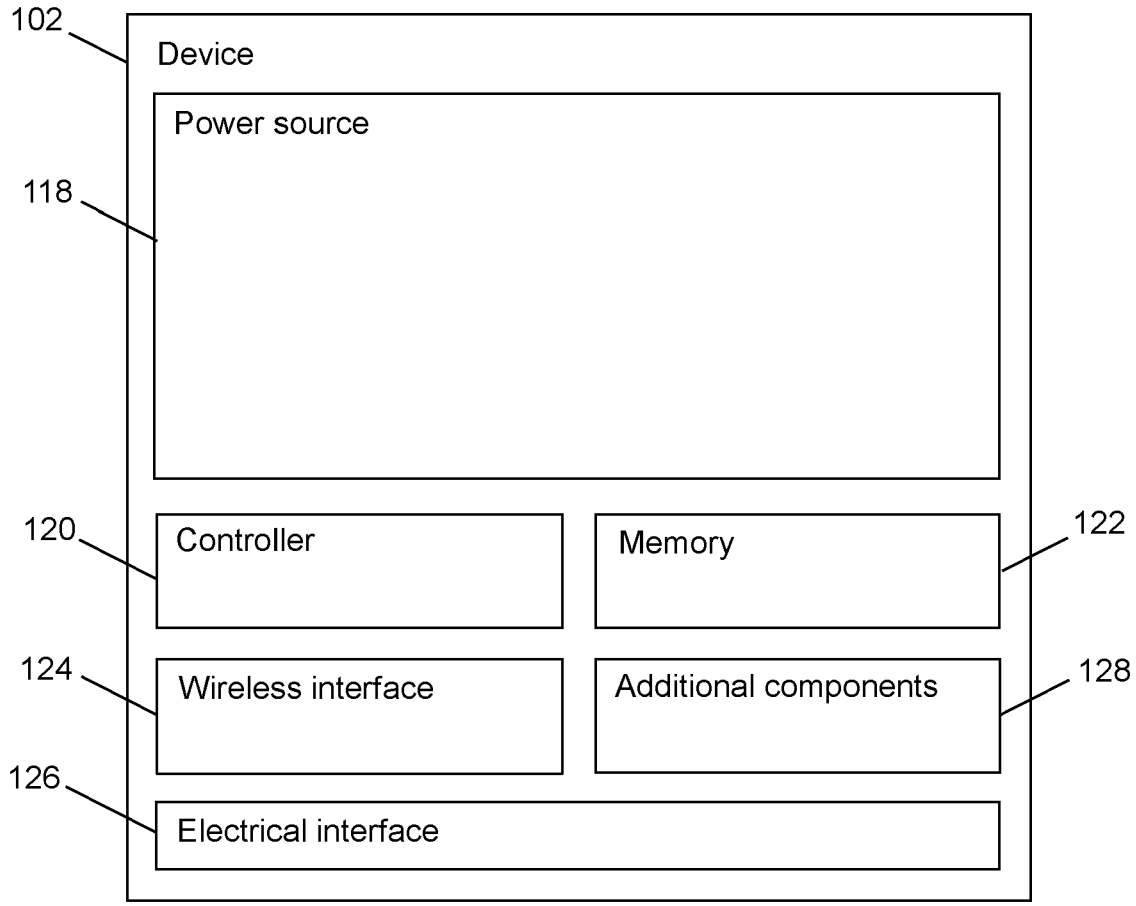

102
Device
Power source
118
120
Controller
Memory
122
124
Wireless interface
Additional components
128
126
Electrical interface

FIG 2A

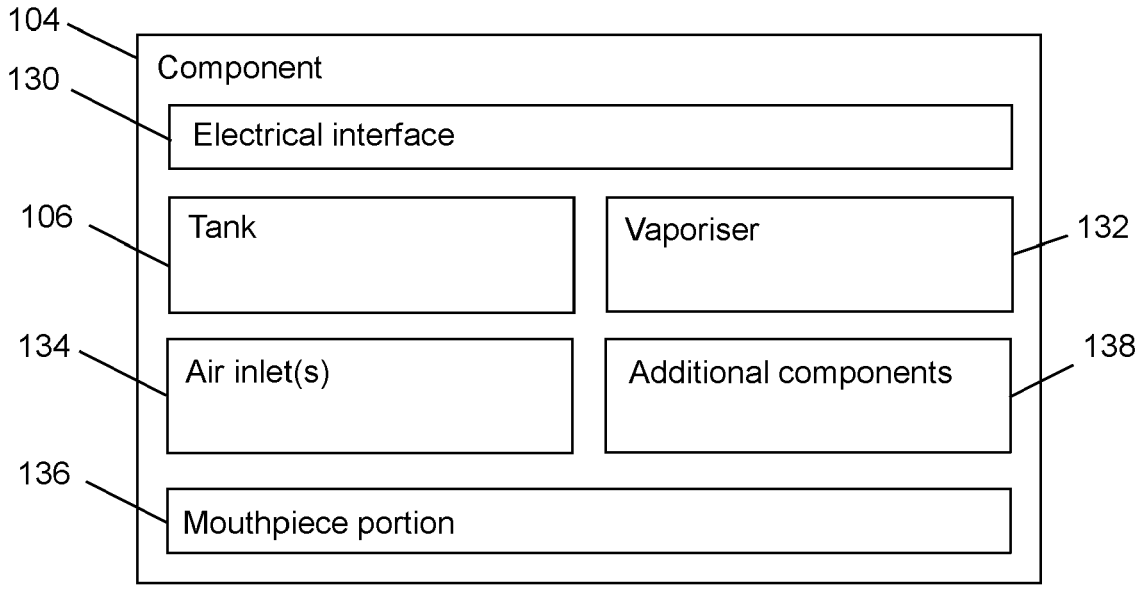
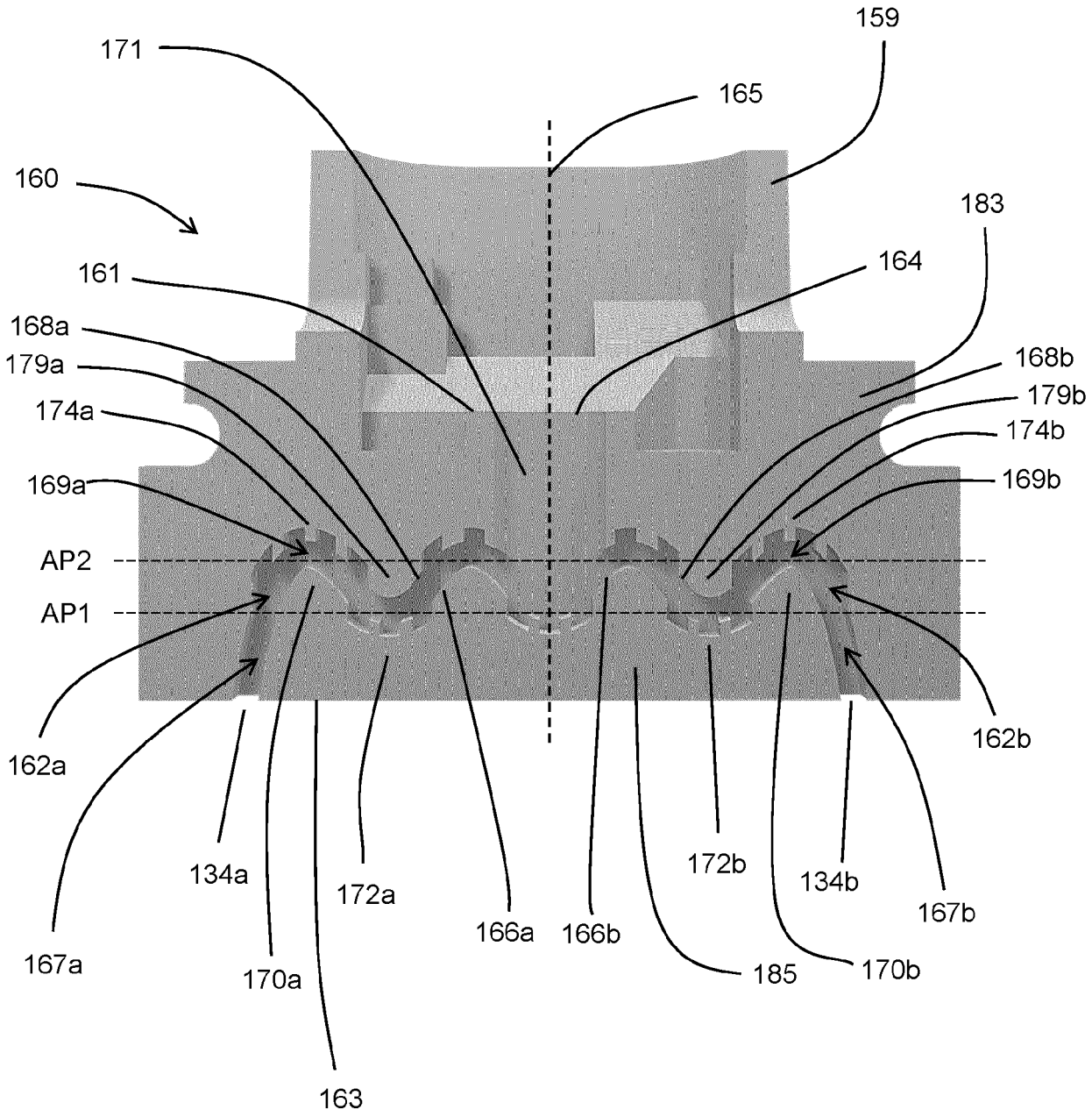

104
Component
130
Electrical interface
106
Tank
Vaporiser
132
134
Air inlet(s)
Additional components
138
136
Mouthpiece portion

FIG 2B


171
159
165
160
183
161
164
168a
168b
179a
179b
174a
174b
169a
169b
AP2
AP1
162a
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166a
166b
167a
185
170a
170b
163

FIG 3

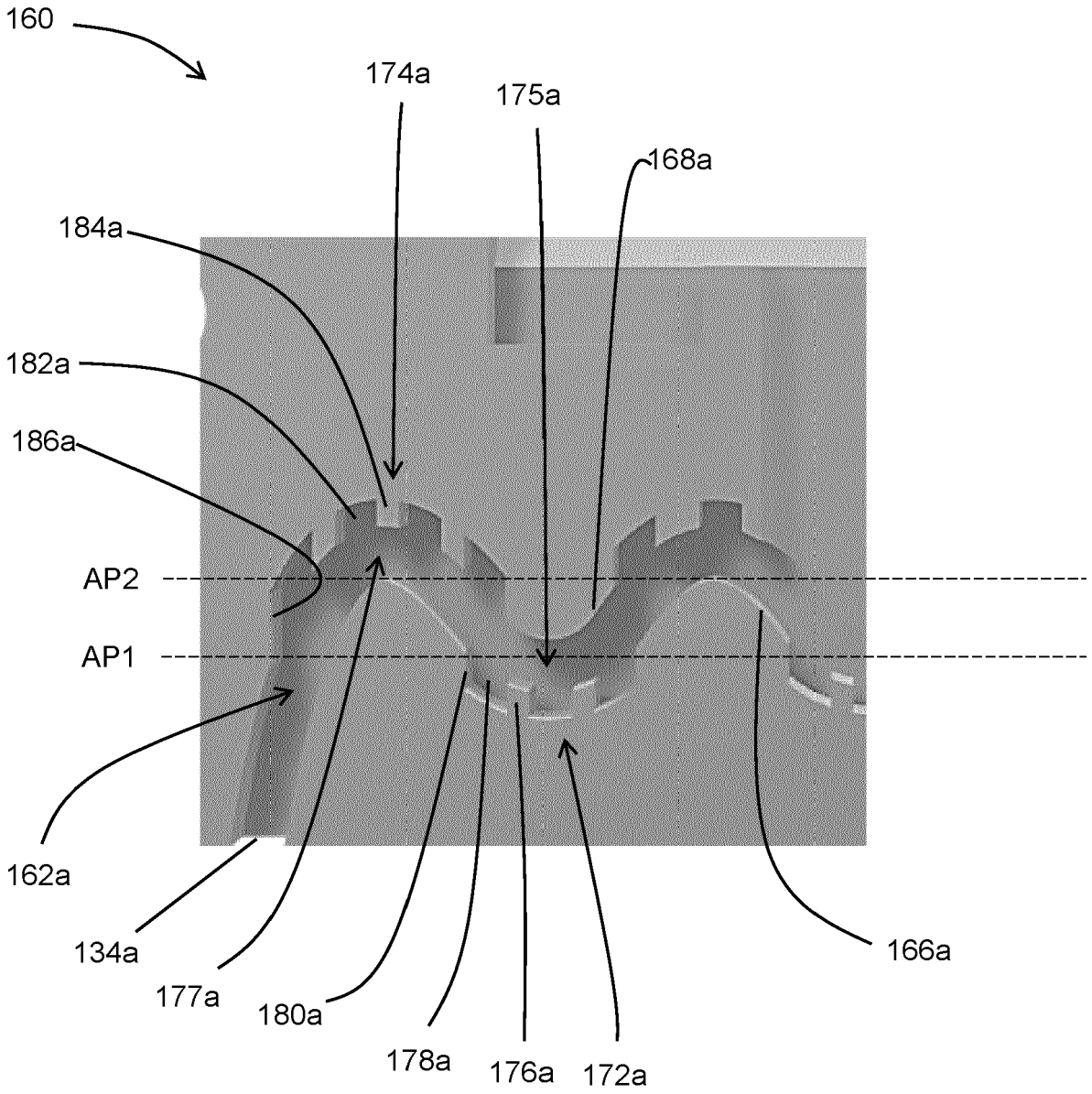
160
174a
175a
168a
184a
182a
186a
AP2
AP1
162a
134a
177a
180a
178a
176a
172a
166a

FIG 4

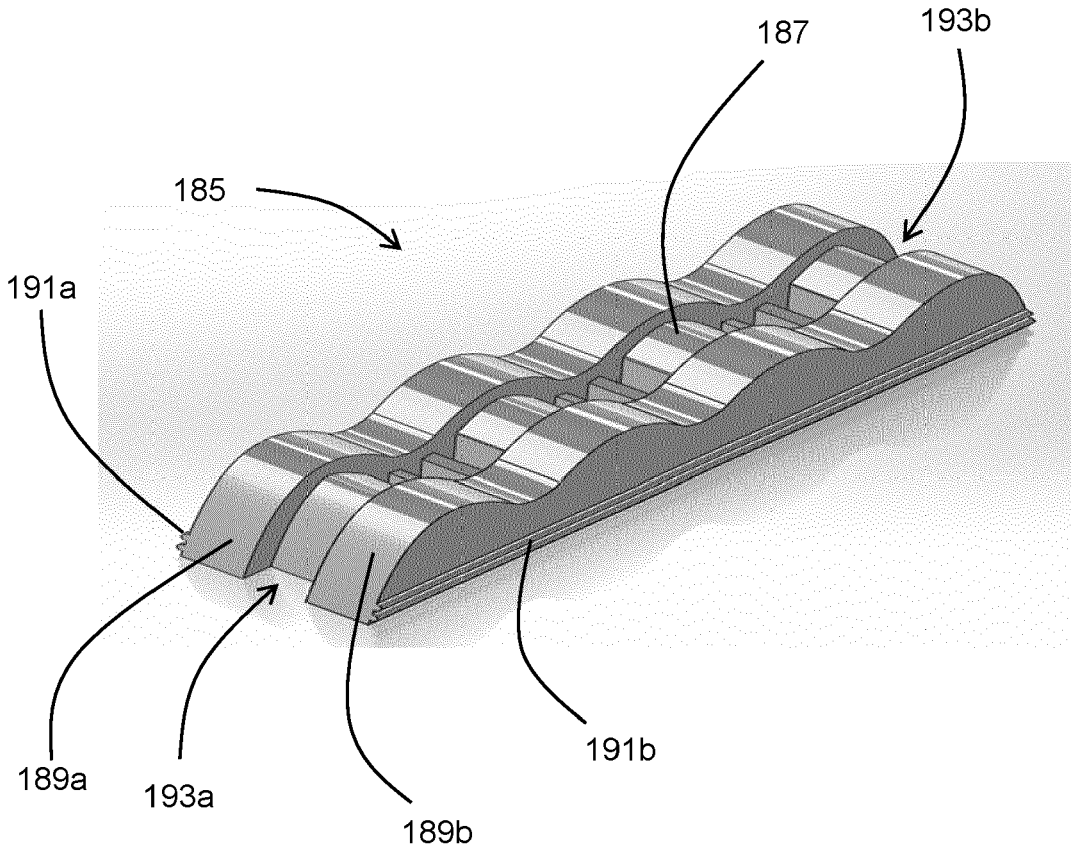

FIG 5

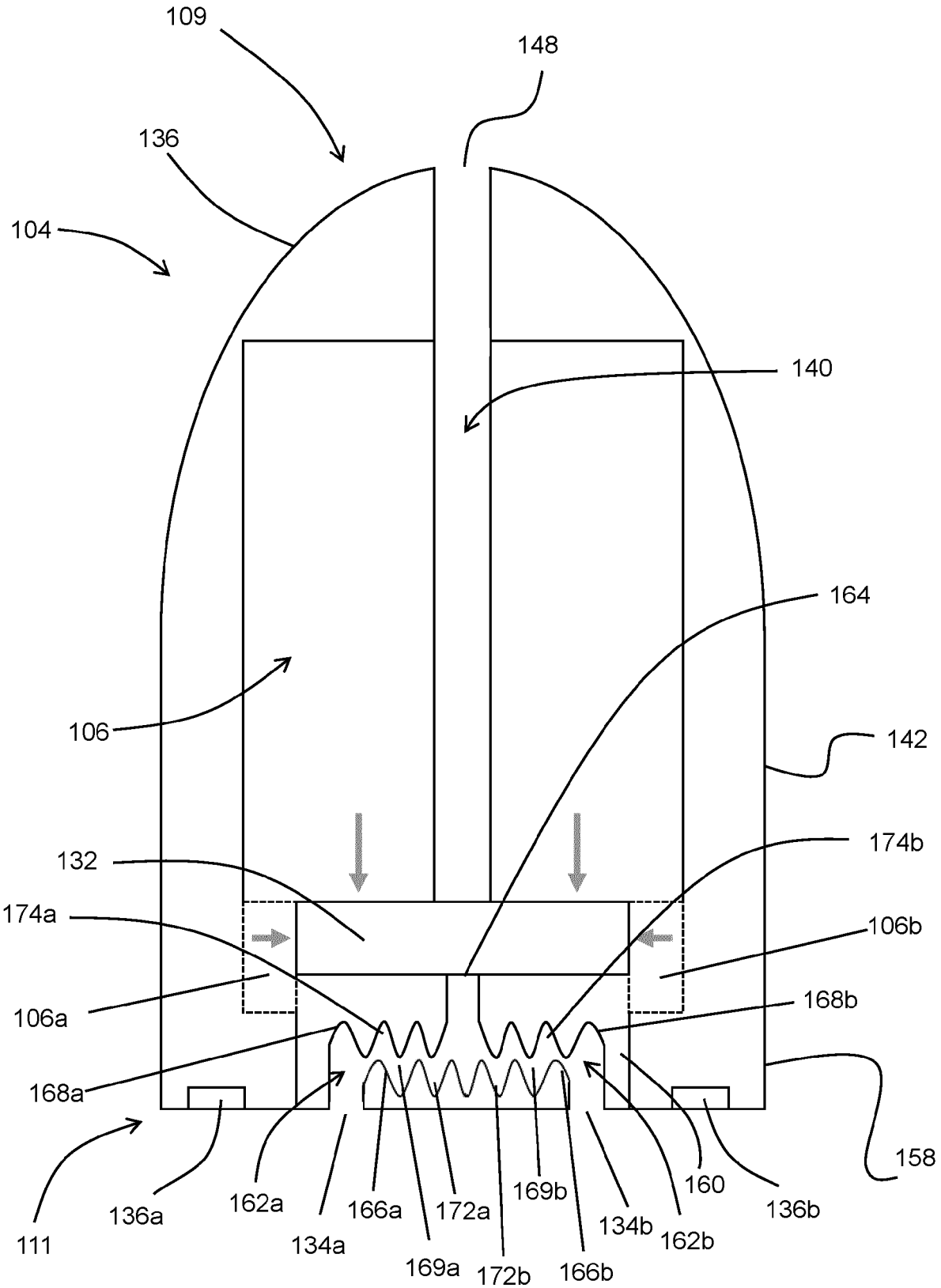
109
148
136
104
140
164
106
142
174b
132
174a
106b
106a
168b
168a
158
111
136a
162a
134a
166a
172a
169a
172b
166b
169b
134b
162b
160
136b

FIG 6

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EUROPEAN SEARCH REPORT

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Place of search	Date of completion of the search	Examiner
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