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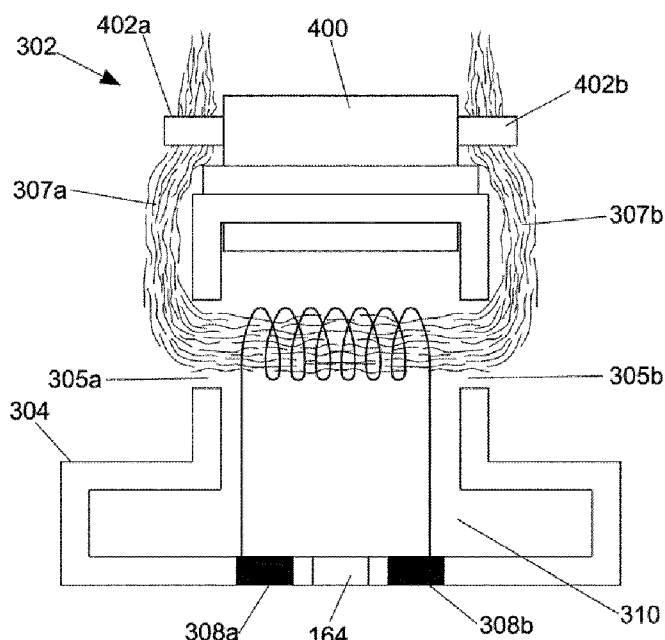


Fig. 4

(57) Abstract: A smoking substitute device and a consumable for use in the smoking substitute device. The consumable comprising: a tank, for storing vapourisable liquid which contains a solid suspension; and a coil and wick assembly, having a cavity, and an aperture which fluidly connects the cavity to the tank. The coil and wick assembly comprises: a coil, within the cavity; and a wick, which extends from the coil through the aperture and into the tank.

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CONSUMABLE FOR SMOKING SUBSTITUTE DEVICE

Field of the Invention

The present invention relates to smoking substitute devices, and particularly, although not exclusively, to providing a consumable for a smoking substitute device which include an
5 elongated wick.

Background

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

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 devices in order to avoid the smoking of tobacco.

Such smoking substitute devices can form part of nicotine replacement therapies aimed at
15 people who wish to stop smoking and overcome a dependence on nicotine.

Smoking substitute devices, 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
20 and/or flavourings without, or with fewer of, the odour and health risks associated with traditional smoking.

In general, smoking substitute devices 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.

The popularity and use of smoking substitute devices has grown rapidly in the past few
25 years. Although originally marketed as an aid to assist habitual smokers wishing to quit tobacco smoking, consumers are increasingly viewing smoking substitute devices as desirable lifestyle accessories. Some smoking substitute devices are designed to resemble a traditional cigarette and are cylindrical in form with a mouthpiece at one end. Other smoking
30 substitute devices do not generally resemble a cigarette (for example, the smoking substitute device may have a generally box-like form).

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

One approach for a smoking substitute device is the so-called “vaping” approach, in which a vapourisable liquid, typically referred to (and referred to herein) as “e-liquid”, is heated by a heating device 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 glycerin.

A typical vaping smoking substitute device includes a mouthpiece, a power source (typically a battery), a tank or liquid reservoir for containing e-liquid, as well as a heating device. In use, electrical energy is supplied from the power source to the heating device, which heats the e-liquid to produce an aerosol (or “vapour”) which is inhaled by a user through the mouthpiece.

Vaping smoking substitute devices can be configured in a variety of ways. For example, there are “closed system” vaping smoking substitute devices which typically have a sealed tank and heating element 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 devices include a main body which includes the power source, wherein the main body is configured to be physically and electrically coupled to a consumable including the tank and the heating element. In this way, when the tank of a consumable has been emptied, the main body can be reused by connecting it to a new consumable. Another subset of closed system vaping smoking substitute devices are completely disposable, and intended for one-use only.

There are also “open system” vaping smoking substitute devices which typically have a tank that is configured to be refilled by a user, so the device can be used multiple times.

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

Another example vaping smoking substitute device is the blu PRO™ e-cigarette. The blu PRO™ e-cigarette is an open system device which includes a main body, a (refillable) tank, and a mouthpiece. The main body 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 device is activated by a button on the main body. When the device is activated, electrical energy is supplied from the power source to a heating device, which heats e-liquid from the tank to produce a vapour which is inhaled by a user through the mouthpiece.

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

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

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

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

An example of the HNB approach is the IQOS® smoking substitute device from Philip Morris Ltd. The IQOS® smoking substitute device uses a consumable, including reconstituted tobacco located in a wrapper. The consumable includes a holder incorporating a mouthpiece. The consumable may be inserted into a main body that includes a heating device. The heating device has a thermally conductive heating knife which penetrates the

reconstituted tobacco of the consumable, when the consumable is inserted into the heating device. Activation of the heating device heats the heating element (in this case a heating knife), which, in turn, heats the tobacco in the consumable. The heating of the tobacco causes it to release nicotine vapour and flavourings which may be drawn through the mouthpiece by the user through inhalation.

A second example of the HNB approach is the device known as "Glo"® from British American Tobacco p.l.c. Glo® comprises a relatively thin consumable. The consumable includes leaf tobacco which is heated by a heating device located in a main body. When the consumable is placed in the main body, the tobacco is surrounded by a heating element of the heating device. Activation of the heating device heats the heating element, which, in turn, heats the tobacco in the consumable. The heating of the tobacco causes it to release nicotine vapour and flavourings which may be drawn through the consumable by the user through inhalation. The tobacco, when heated by the heating device, is configured to produce vapour when heated rather than when burned (as in a smoking apparatus, e.g. a cigarette). The tobacco may contain high levels of aerosol formers (carrier), such as vegetable glycerine ("VG") or propylene glycol ("PG").

The present inventor(s) have observed that when utilizing vapourisable liquids which contain a solid suspension, for example flavourings or tobacco, clogging of these solids can occur around the wick and reduce, or entirely cut off, the wick from the remaining vapourisable liquid. This may occur when the user inhales from the device, as in such a configuration, coil and wick assembly is at a lowermost point of the tank.

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

Summary

In a first aspect, the invention provides a consumable for a smoking substitute device, the consumable comprising:

- a tank, for storing vapourisable liquid; and

- a coil and wick assembly, having a cavity, and an aperture which fluidly connects the cavity to the tank;

- wherein the coil and wick assembly comprises:

- a coil, within the cavity; and

- a wick, which extends from the coil through the aperture and into the tank.

By providing a wick which extends in this manner, the likelihood of it becoming clogged or blocked with solid matter is significantly reduced.

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

The wick may extend from the aperture by a distance of at least 5mm. The wick may extend from the aperture by a distance of at least 6mm. The wick may extend from the aperture by a distance of at least 7mm. The wick may extend from the aperture by a distance of at least 8mm. The wick may extend from the aperture by a distance of at least 9mm. The wick may extend from the aperture by a distance of at least 10mm.

The wick may have a length, from one end to the other, of more than 2 cm. The wick may have a length of more than 2.5 cm, or more than 3 cm. The wick may have a length of more than 4 cm.

The consumable may include a mouthpiece, and the wick may extend from the aperture in a direction substantially towards the mouthpiece. The mouthpiece may be located at or towards an opposite end of the consumable to the coil and wick assembly. Advantageously, as the mouthpiece is generally the highest point of the consumable, when the consumable is in use, by extending the wick towards it this can help ensure that solid matter settling at the bottom of the consumable does so as away from at least some of the wick.

The consumable may include a clip, which fixes a portion of the wick not contained within the coil and wick assembly to or near an exterior part of the coil and wick assembly. By providing such a clip, it can be ensured that the wick is held away from a bottommost part of the coil and wick assembly, and so away from an area where solid matter is likely to settle.

The consumable may include an outlet, which is fluidly connected to the coil and wick assembly, and a seal, which seals the outlet to the oil and wick assembly, and to which the clip is attached. The outlet may be referred to as a chimney or airway tube, and acts to draw the vapourised liquid from the coil towards the mouthpiece.

The coil and wick assembly may have a second aperture, which fluidly connects the cavity to the tank, and the wick may extend from the coil through both the first aperture and the second aperture into the tank. The second aperture may be on an opposite side of the coil and wick assembly to the first aperture. Such a second aperture, with a corresponding second wick portion, may help ensure that even if the first aperture and first wick portion become clogged some portion of the wick is still exposed to the liquid in the tank.

The clip may fix a second portion of the wick, which extends through the second aperture, to or near a second exterior part of the coil and wick assembly on the opposing side of the coil and wick assembly.

5 The tank of the consumable may contain a vapourisable liquid, which may have a solid suspension therein. The solid suspension may be tobacco, or a nicotine-containing solid. As such, the vapourisable liquid may leach the nicotine from the solid suspension. The solid suspension may be a flavouring, and the vapourisable liquid may be an e-liquid i.e. one containing nicotine. The vapourisable liquid may be propylene glycol and/or vegetable glycerin.

10 In a second aspect, the invention provides a smoking substitute device including a consumable as set out with respect to the first aspect.

Brief Description of the Drawings

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

15 Figure 1(a) shows an example smoking substitute device;

Figure 1(b) shows the main body of the smoking substitute device of Figure 1(a) without the consumable;

Figure 1(c) shows the consumable of the smoking substitute device of Figure 1(a) without the main body;

20 Figure 2(a) is a schematic view of the main body of the smoking substitute device of Figure 1(a);

Figure 2(b) is a schematic view of the consumable of the smoking substitute device of Figure 1(b);

Figure 3 is a cross-sectional view of a coil and wick assembly;

25 Figure 4 is a partial cross-sectional view of a further coil and wick assembly;

Figure 5 is a cross-sectional view of the coil and wick assembly of Figure 3 as installed in a tank; and

Figure 6 is a photograph of a coil and wick assembly.

Detailed Description and Further Optional Features

Aspects and embodiments of the present invention will now be discussed with reference to the accompanying figures. Further aspects and embodiments will be apparent to those
5 skilled in the art. All documents mentioned in this text are incorporated herein by reference

Figure 1(a) shows an example smoking substitute device 110. In this example, the smoking substitute device 110 includes a main body 120 and a consumable 150. The consumable 150 may alternatively be referred to as a “pod”. The consumable may also be referred to as a cartridge or cartomizer.

10 In this example, the smoking substitute device 110 is a closed system vaping device, wherein the consumable 150 includes a sealed tank or liquid reservoir 156 and is intended for one-use only.

Figure 1(a) shows the smoking substitute device 110 with the main body 120 physically coupled to the consumable 150.

15 Figure 1(b) shows the main body 120 of the smoking substitute device 110 without the consumable 150.

Figure 1(c) shows the consumable 150 of the smoking substitute device 110 without the main body 120.

The main body 120 and the consumable 150 are configured to be physically coupled
20 together, in this example by pushing the consumable 150 into an aperture in a top end 122 of the main body 120. In other examples, the main body 120 and the consumable could be physically coupled together by screwing one onto the other, or through a bayonet fitting, for example. An optional light 126, e.g. an LED located behind a small translucent cover, is located a bottom end 124 of the main body 120. The light 126 may be configured to
25 illuminate when the smoking substitute device 110 is activated.

The consumable 150 includes a mouthpiece (not shown) at a top end 152 of the consumable 150, as well as one or more air inlets (not shown in Fig. 2) so that air can be drawn into the smoking substitute device 110 when a user inhales through the mouthpiece. At a bottom end 154 of the consumable 150, there is located a tank 156 that contains e-liquid. The tank 156
30 may be a translucent body, for example.

The tank 156 preferably includes a window 158, so that the amount of e-liquid in the tank 156 can be visually assessed. The main body 120 includes a slot 128 so that the window 158 of the consumable 150 can be seen whilst the rest of the tank 156 is obscured from view

when the consumable 150 is inserted into the aperture in the top end 122 of the main body 120.

The tank 156 may be referred to as a “clearomizer” if it includes a window 158, or a “cartomizer” if it does not.

5 The consumable 150 may identify itself to the main body 120, via an electrical interface, RFID chip, or barcode.

Figure 2(a) is a schematic view of the main body 120 of the smoking substitute device 110.

Figure 2(b) is a schematic view of the consumable 150 of the smoking substitute device 110.

10 As shown in Figure 2(a), the main body 120 includes a power source 140, a control unit 130, a memory 132, a wireless interface 134, an electrical interface 136, and, optionally, one or more additional components 138.

The power source 140 is preferably a battery, more preferably a rechargeable battery.

The control unit 130 may include a microprocessor, for example.

15 The memory 132 is preferably includes non-volatile memory. The memory may include instructions which, when implemented, cause the control unit 130 to perform certain tasks or steps of a method.

The wireless interface 134 is preferably configured to communicate wirelessly with the mobile device 2, e.g. via Bluetooth®. To this end, the wireless interface 134 could include a Bluetooth® antenna. Other wireless communication interfaces, e.g. WiFi®, are also possible.

20 As discussed above, the wireless interface 134 may be configured to communicate wirelessly with the remote server 2.

25 The electrical interface 136 of the main body 120 may include one or more electrical contacts. The electrical interface 136 may be located in, and preferably at the bottom of, the aperture in the top end 122 of the main body 120. When the main body 120 is physically coupled to the consumable 150, the electrical interface 136 may be configured to pass electrical power from the power source 140 to (e.g. a heating device of) the consumable 150 when the smoking substitute device 110 is activated, e.g. via the electrical interface 160 of the consumable 150 (discussed below). When the main body 120 is not physically coupled to the consumable 150, the electrical interface may be configured to receive power from the charging station 6. The electrical interface 136 may also be used to identify the consumable 150 from a list of known consumables. For example, the consumable may be a particular flavour and/or have a certain concentration of nicotine. This can be identified to the control unit 130 of the main body 120 when the consumable is connected to the main body.

30 Additionally, or alternatively, there may be a separate communication interface provided in

the main body 120 and a corresponding communication interface in the consumable 150 such that, when connected, the consumable can identify itself to the main body 120.

The additional components 138 of the main body 120 may include the optional light 126 discussed above.

5 The additional components 138 of the main body 120 may, if the power source 140 is a rechargeable battery, include a charging port configured to receive power from the charging station 6. This may be located at the bottom end 124 of the main body 120. Alternatively, the electrical interface 136 discussed above is configured to act as a charging port configured to receive power from the charging station 6 such that a separate charging port is not required.

10 The additional components 138 of the main body 120 may, if the power source 140 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 the charging station 6 (if present).

The additional components 138 of the main body 120 may include an airflow sensor for
15 detecting airflow in the smoking substitute device 110, e.g. caused by a user inhaling through a mouthpiece 166 (discussed below) of the smoking substitute device 110. The smoking substitute device 110 may be configured to be activated when airflow is detected by the airflow sensor. This optional sensor could alternatively be included in the consumable 150 (though this is less preferred where the consumable 150 is intended to be disposed of
20 after use, as in this example). 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.

The additional components 138 of the main body 120 may include an actuator, e.g. a button. The smoking substitute device 110 may be configured to be activated when the actuator is
25 actuated. This provides an alternative to the airflow sensor noted, as a mechanism for activating the smoking substitute device 110.

As shown in Figure 2(b), the consumable 150 includes the tank 156, an electrical interface 160, a heating device 162, one or more air inlets 164, a mouthpiece 166, and, optionally, one or more additional components 168.

30 The electrical interface 160 of the consumable 150 may include one or more electrical contacts. The electrical interface 136 of the main body 120 and an electrical interface 160 of the consumable 150 are preferably configured to contact each other and therefore electrically couple the main body 120 to the consumable 150 when the main body 120 is physically coupled to the consumable 150. In this way, electrical energy (e.g. in the form of
35 an electrical current) is able to be supplied from the power source 140 in the main body 120 to the heating device 162 in the consumable 150.

The heating device 162 is preferably configured to heat e-liquid contained in the tank 156, e.g. using electrical energy supplied from the power source 140. In one example, the heating device 162 may include a heating filament and a wick, wherein a first portion of the wick extends into the tank 156 in order to draw e-liquid out from the tank 156, and wherein the heating filament coils around a second portion of the wick located outside the tank 156. In this example, the heating filament is configured to heat up e-liquid drawn out of the tank 156 by the wick to produce an aerosol vapour.

The one or more air inlets 164 are preferably configured to allow air to be drawn into the smoking substitute device 110, when a user inhales through the mouthpiece 166.

In use, a user activates the smoking substitute device 110, e.g. through actuating an actuator included in the main body 120 or by inhaling through the mouthpiece 166 as described above. Upon activation, the control unit 130 may supply electrical energy from the power source 140 to the heating device 162 (via electrical interfaces 136, 166), which may cause the heating device 162 to heat e-liquid drawn from the tank 156 to produce a vapour which is inhaled by a user through the mouthpiece 166.

As an example of one of the one or more additional components 168, an interface for obtaining an identifier of the consumable may be provided. As discussed above, this interface may be, for example, an RFID reader, a barcode or QR code reader, or an electronic interface which is able to identify the consumable to the main body. The consumable 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 main body.

Of course, a skilled reader would readily appreciate that the smoking substitute device 110 shown in Figs. 2 and 3 shows just one example implementation of a smoking substitute device, and that other forms of smoking substitute device could be used.

By way of example, a HNB smoking substitute device including a main body and a consumable could be used, instead of the smoking substitute device 110. One such HNB smoking substitute device is the IQOS® smoking substitute device discussed above.

As another example, an open system vaping device which includes a main body, a refillable tank, and a mouthpiece could be used, instead of the smoking substitute device 110. One such open system vaping device is the blu PRO™ e-cigarette discussed above.

As another example, an entirely disposable (one use) smoking substitute device could be used as the smoking substitute device.

Figure 3 shows a cross-sectional view of a coil and wick assembly 302. The coil and wick assembly may form the heater of any of the preceding consumables 150. The coil and wick

assembly is disposed within the tank 156, at a bottom end thereof opposite to the mouthpiece 166. The coil and wick assembly is connected to the mouthpiece via an outlet, or chimney. The coil and wick assembly may form a lower wall of the tank, i.e. it may at least partially define the interior volume of the tank which is fillable with liquid.

- 5 Broadly, the coil and wick assembly is formed from a housing 304, in which are first 305a and second 305b apertures or wick apertures. Within a cavity 310, provided by the housing, is a coil 306 e.g. coil of electrical wire, connected to first 308a and second 308b electrical contacts. These contacts are connectable to the battery of the main device 110, and so provide power to the coil.
- 10 An outlet aperture 309 is located proximal to the coil 306. When installed within the consumable, the outlet aperture is sealed from the liquid containing volume of the tank and is fluidly connected to an outlet. The outlet fluidly connects the cavity 310 of the coil and wick assembly to the mouthpiece 166. A wick 307 is provided through the coil, and through each of the first and second apertures. The wick acts to substantially seal the cavity 310 of the coil and wick assembly from free flowing liquid in the tank. Thus, liquid can only generally enter
- 15 the cavity 310 by capillary action i.e. by being wicked in via the wick. The wick extends from the apertures, in a direction away from the electrical contacts and/or towards the mouthpiece (not shown, but located above the coil and wick assembly) to leave exposed regions 307a and 307b respectively.
- 20 The outlet aperture 309 is positioned above the coil i.e. on an opposing side of the coil to the electrical contacts, in an uppermost surface of the coil and wick assembly. This outlet aperture is connected to the outlet discussed previously, which allows vapourised liquid to travel to the mouthpiece. The wick may have a length, as measured from one end to an opposing end, of more than 2 cm. For example, the wick may have a length of around 3 cm.
- 25 At a lower end of the consumable, i.e. one nearest the electrical contacts, is an air inlet 164. In use, the user draws on the mouthpiece which causes air to flow in through air inlet 164. The coil is heated, either in response to the air flow or upon actuation of a button, and so vapourisable liquid held within the wick 307 is vapourised. This airflow draws with it the vapourised liquid from the wick, and the airflow, now containing vapourised liquid, travels up
- 30 an outlet and into the mouthpiece whereby it is inhaled. Whilst the air inlet in this example is shown as a single air inlet disposed between the electrical contacts, instead there may be plural air inlets disposed between respective electrical contacts and an edge region of the

coil and wick assembly. Further alternatively, there may be a single air inlet which extends across a width of the device thereby defining a channel. The channel may be bridged, across its width, by the first and second electrodes.

Figure 4 shows a variant coil and wick assembly, where like reference numerals denote like features.

A notable difference between Figure 4 and Figure 3 is the inclusion of first 402a and second 402b clips, which are attached to a seal 400. The seal 400 seals an outlet (not shown) to the coil and wick assembly, so that vapourised liquid can pass therebetween. The first and second clips retain the exposed portions of wick in a position distal from the electrical contacts and proximal to the seal. For clarity, in Figure 4 the outlet aperture 309 is omitted. However it will be appreciated that there is an outlet aperture present which allows the flow of vapourised liquid within the cavity 310 through a portion of the seal 400 and onwards to the mouthpiece. Whilst the clip in this example is attached to the seal, it may be that the clip is attached to an upper region of the coil and wick assembly (i.e. between the aperture and the seal) or to a portion of the outlet. By varying the location of the clip, the consumable is able to accommodate a range of wick lengths.

Figure 5 shows the coil and wick assembly of Figure 3, as installed in the consumable 150. As can be seen, the coil and wick assembly 302 forms a lower wall of the tank 156 and so at least partially defines the liquid containing volume thereof. The tank 156 in this example is filled with a vapourisable liquid which contains a solid suspension. As a result, when the consumable 150 is orientated such that the mouthpiece is higher than the coil and wick assembly (as is the case in Figure 5) solid sediment 602 may accumulate around the coil and wick assembly. The portions of the wick 307a and 307b extend above where this sediment may accumulate, and so will generally be exposed to the liquid within the tank 156. As shown in the figure, an outlet 604 is provided which is sealed to the coil and wick assembly via a seal (omitted for clarity). Arrows 606 and 608 indicate the air flow through the consumable. Whilst not shown, this coil and wick assembly could also include the clip shown in Figure 4.

Figure 6 is a photograph of a coil and wick assembly similar to that shown in Figure 4. Like features are denoted by like reference numerals.

The clip assembly can be more clearly seen in this view, with a main body 502 positioned around the seal 400. First 402a and second 402b clips extend from the main body on opposing sides of the coil and wick assembly 302. The clips in this example are formed from incomplete hollow cylinders, having a gap through which the corresponding wick portion may be introduced. The interior of the cylinder then retains the wick.

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

List of Features

	110	Smoking substitute device
	120	Main body
	122	Top end of main body
5	124	Bottom end of main body
	126	Light
	128	Slot
	130	Control unit
	132	Memory
10	134	Wireless interface
	136	Electrical interface
	138	Additional component
	140	Power source
	150	Consumable
15	152	Top end of consumable
	154	Bottom end of consumable
	156	Tank
	158	Window
	160	Electrical interface
20	162	Heating device
	164	Air inlets
	166	Mouthpiece
	168	Additional components
	302	Coil and wick assembly
25	304	Housing
	305a,b	Apertures
	306	Coil
	307a,b	Wick
	308a,b	Electrical contacts
30	310	Cavity
	400	Seal
	402a,b	Clip
	502	Clip main body
	602	Sediment

604	Outlet
606, 608	Air flow

Claims:

1. A consumable (150) for a smoking substitute device, the consumable comprising:
a tank (156), for storing vapourisable liquid which contains a solid suspension; and
5 a coil and wick assembly (162), having a cavity (310), and an aperture (305a, 305b) which fluidly connects the cavity to the tank;
wherein the coil and wick assembly comprises:
a coil (306), within the cavity; and
a wick (307a, 307b), which extends from the coil through the aperture and
10 into the tank.
2. The consumable of claim 1, wherein the wick extends from the aperture by a distance of at least 5 mm.
3. The consumable of claim 1 or claim 2, wherein the wick has a length from one end to the other of more than 2 cm.
- 15 4. The consumable of any preceding claim, further comprising a mouthpiece (166), wherein the wick extends from the aperture in a direction substantially towards the mouthpiece.
5. The consumable of claim 4, wherein the coil and wick assembly is at an opposite end of the consumable to the mouthpiece.
- 20 6. The consumable of any preceding claim, further comprising a clip (402a, 402b), which fixes a portion of the wick not contained within the coil and wick assembly to or near an exterior part of the coil and wick assembly.
7. The consumable of claims 6, further comprising an outlet, which is fluidly connected to the coil and wick assembly, and a seal (400), which seals the outlet to the coil and wick
25 assembly, and to which the clip is attached.
8. The consumable of any preceding claim, wherein the coil and wick assembly has a second aperture (402a, 402b) which fluidly connects the cavity to the tank, and wherein the wick extends from the coil through both the first aperture and the second aperture into the tank.

9. The consumable of claim 8, wherein the second aperture is on an opposite side of the coil and wick assembly to the first aperture.

10. The consumable of claim 9, wherein the clip fixes a second portion of the wick, which extends through the second aperture, to or near a second exterior part of the coil and wick assembly on the opposing side of the coil and wick assembly.

11. The consumable of any preceding claim, wherein the tank contains a vapourisable liquid having a solid suspension therein.

12. The consumable of claim 11, wherein the tank contains a vapourisable liquid which contains nicotine and has a suspension of tobacco solids therein.

13. A smoking substitute device, including the consumable of any of claims 1 – 12.

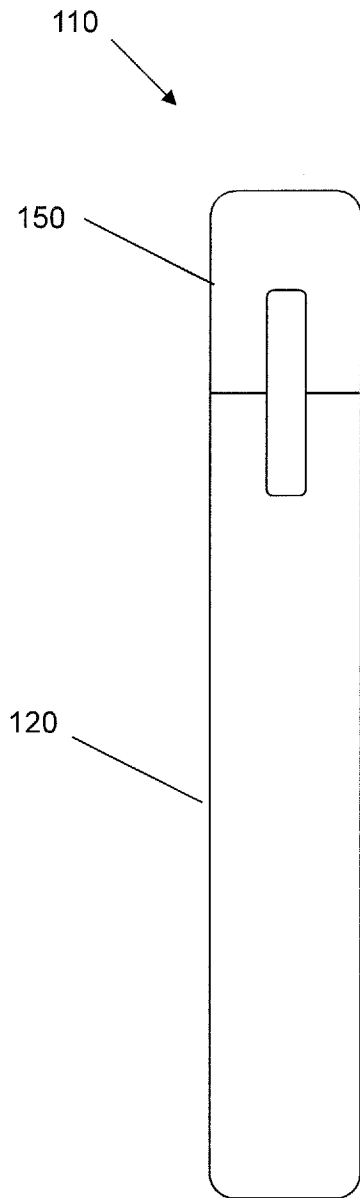


Fig. 1(a)

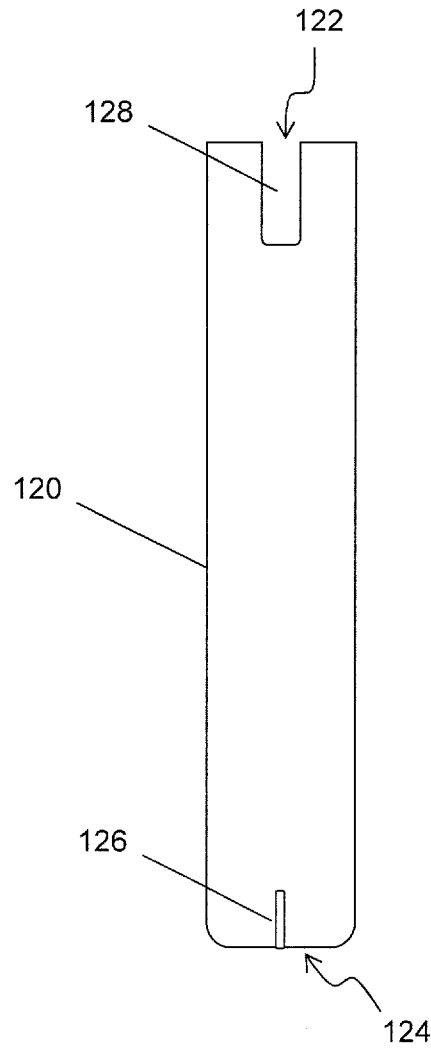


Fig. 1(b)

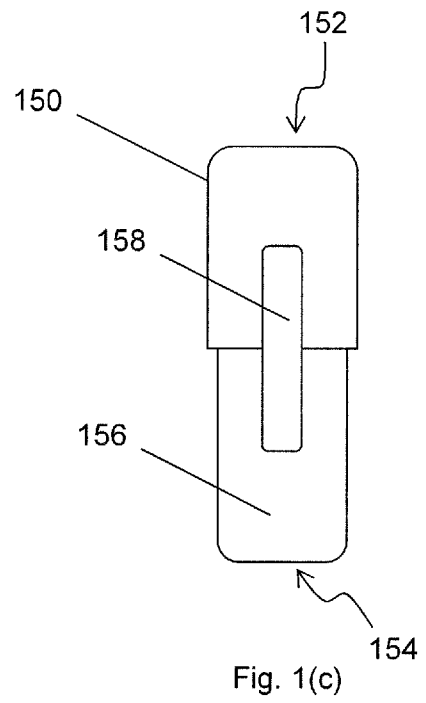


Fig. 1(c)

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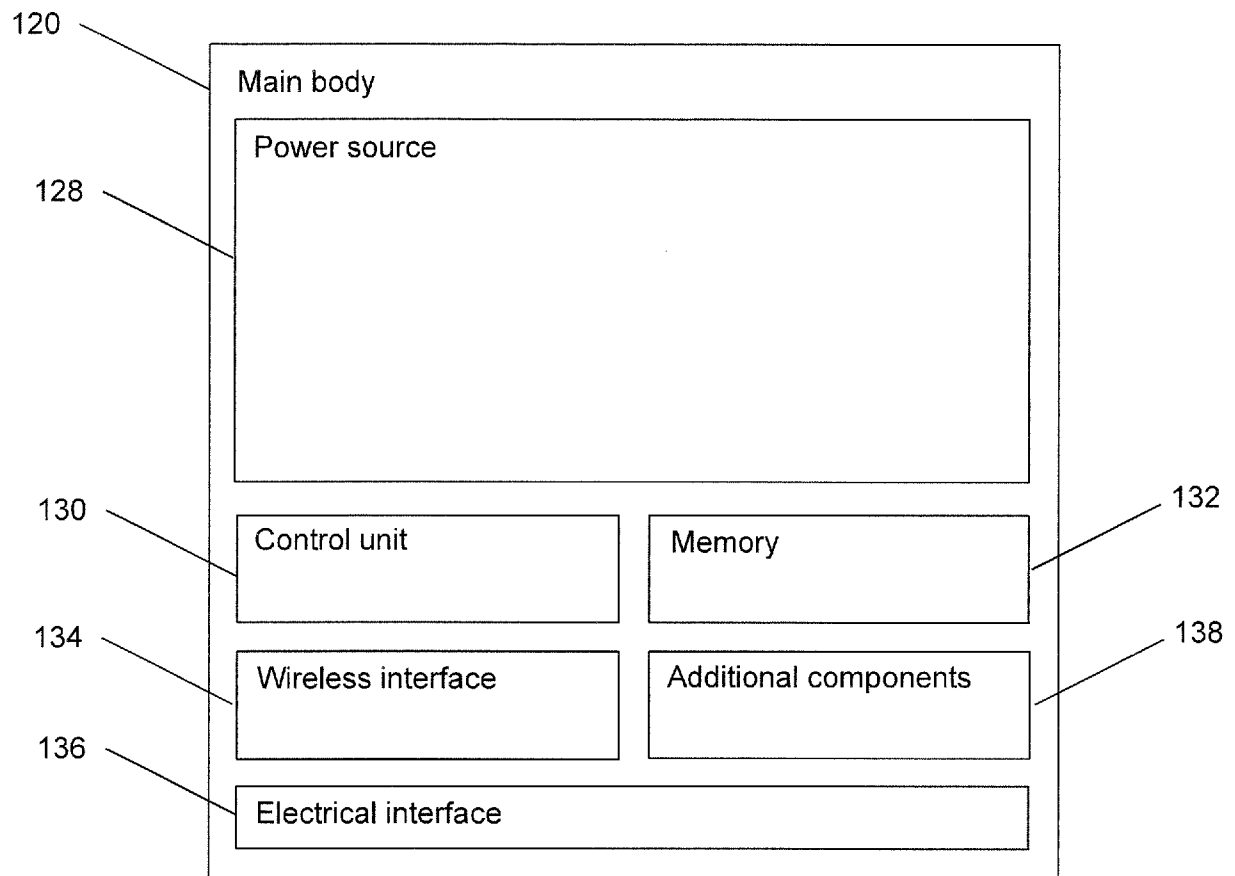


Fig. 2(a)

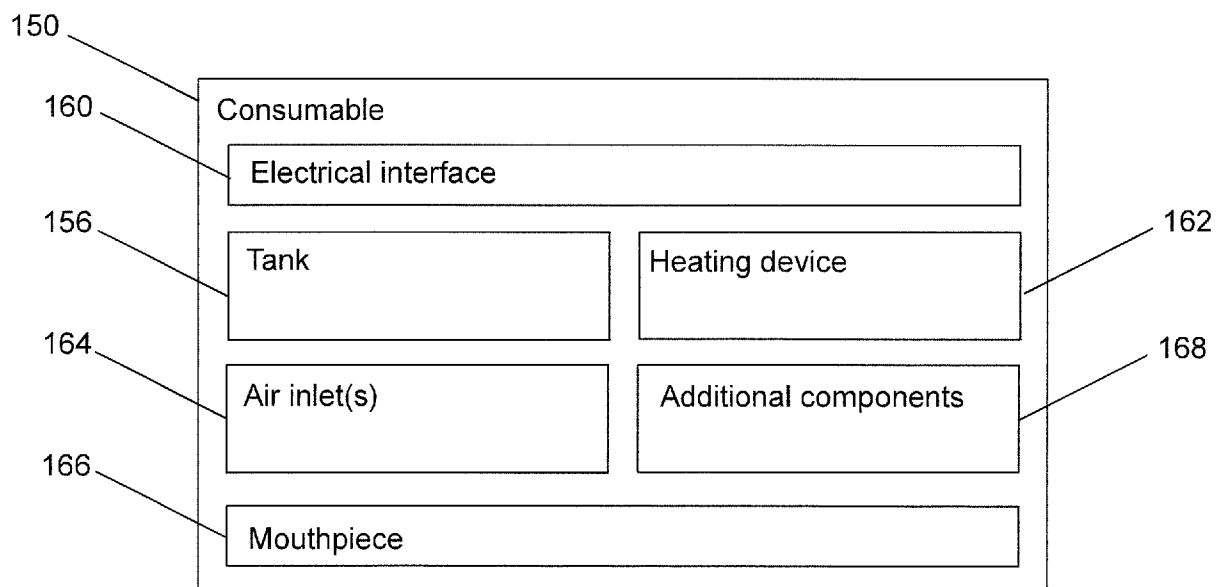
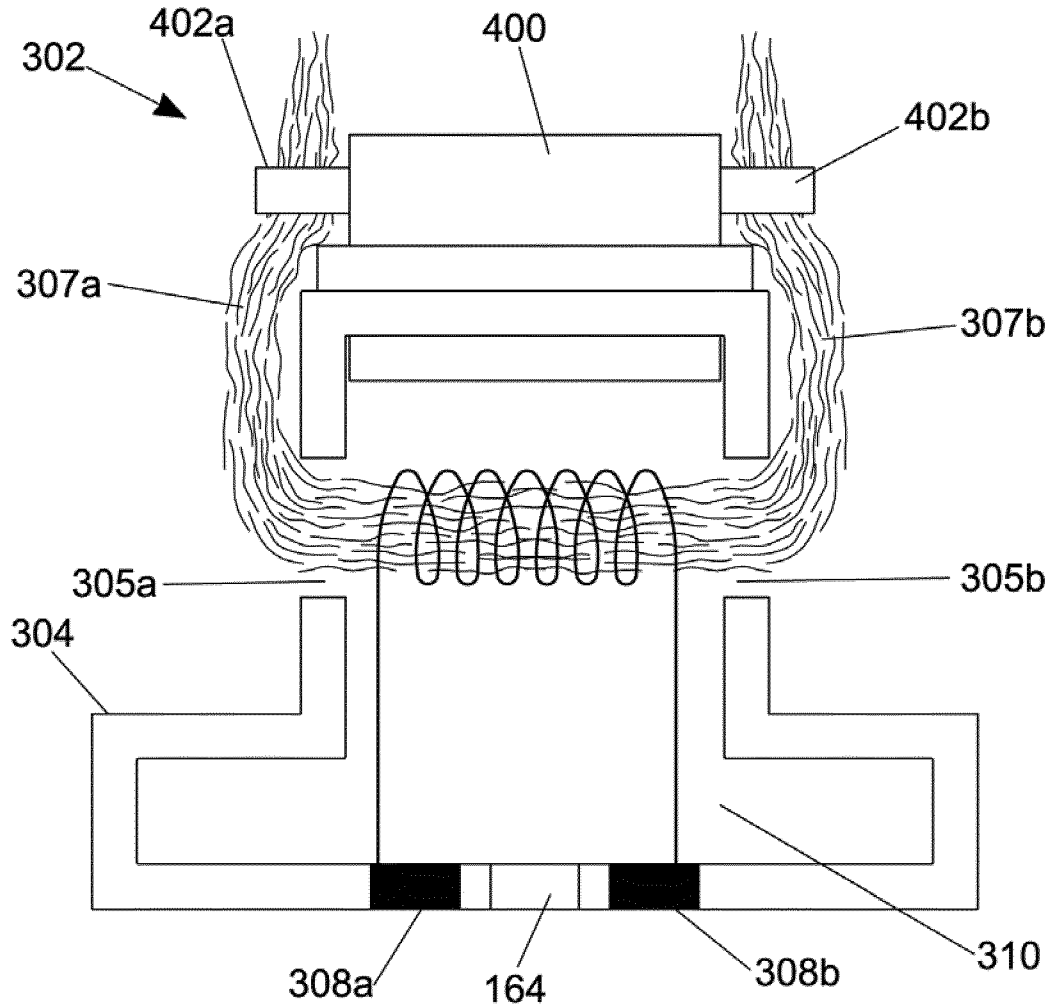
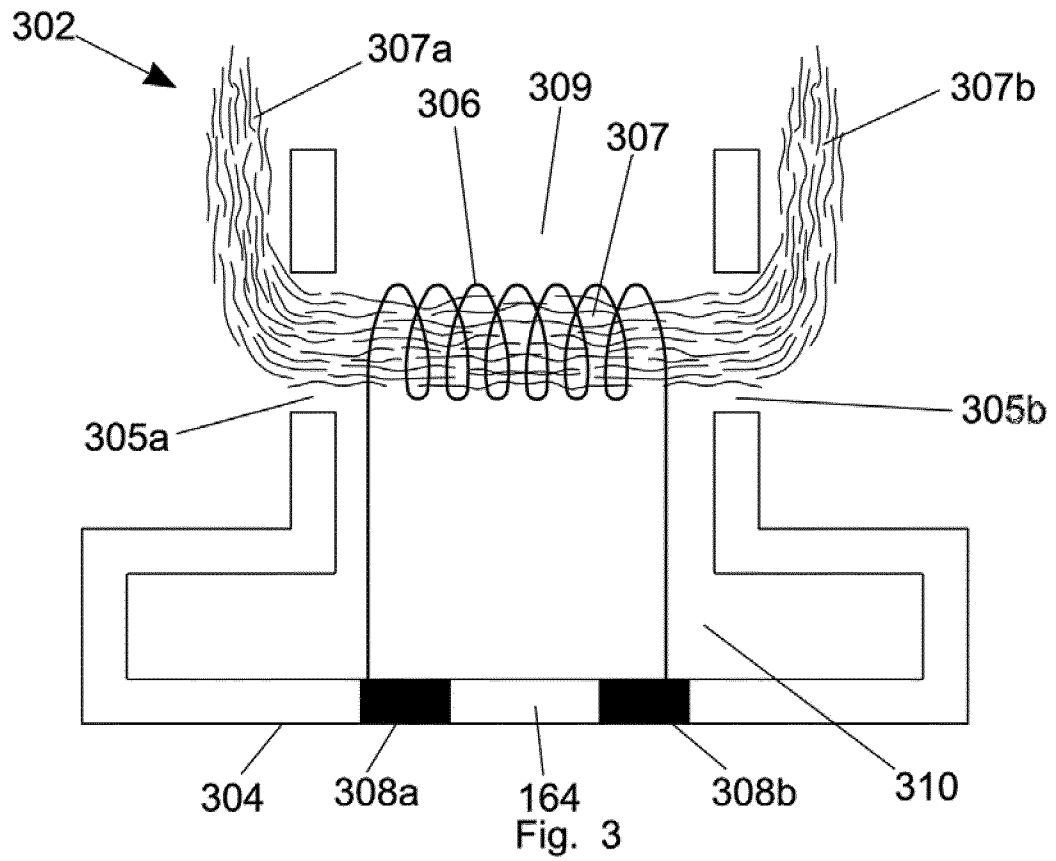


Fig. 2(b)

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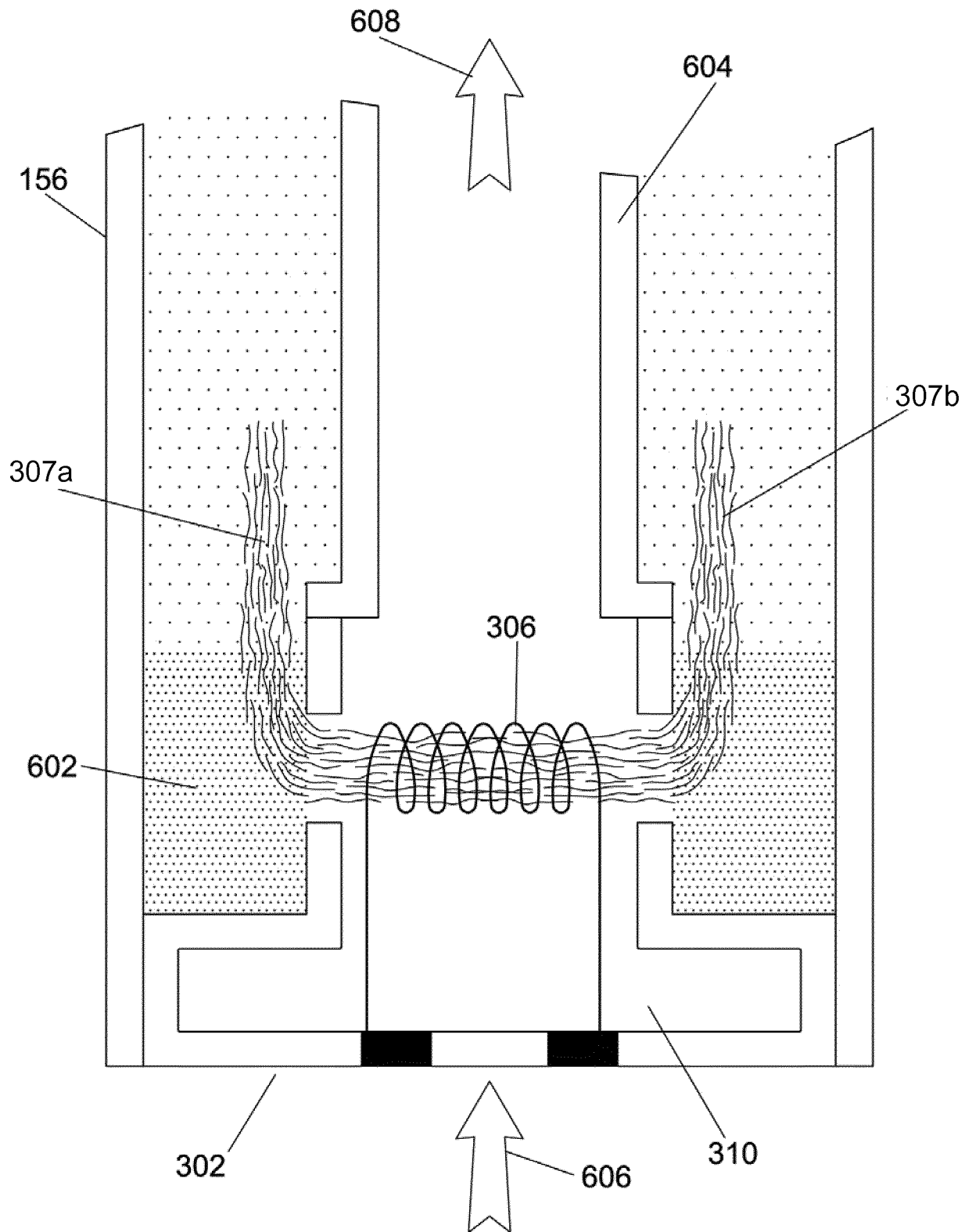


Fig. 5

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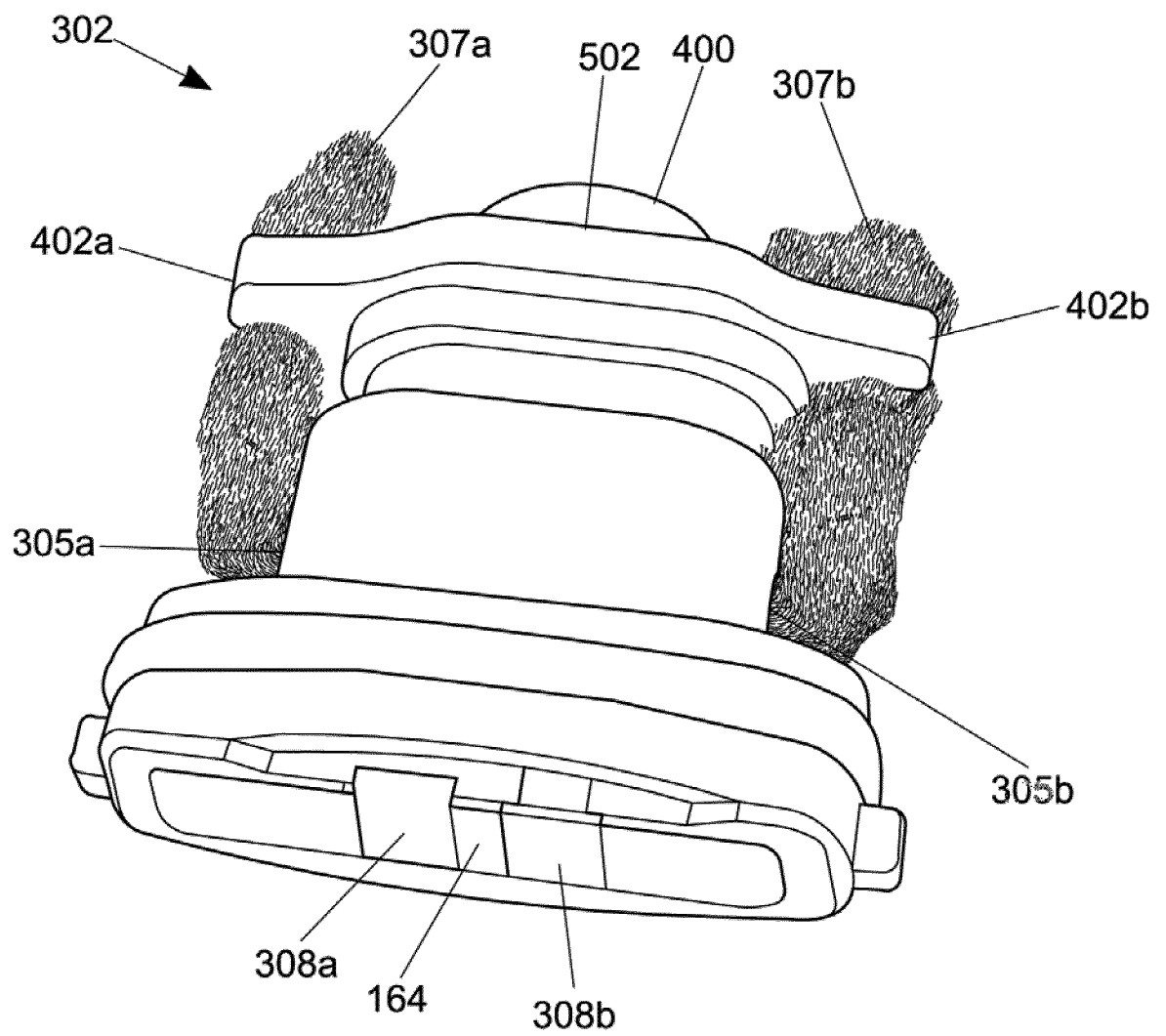


Fig. 6

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2019/061153

A. CLASSIFICATION OF SUBJECT MATTER
INV. A24F47/00 A61M15/06
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)
A24F A61M

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

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

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	EP 3 272 236 A1 (FONTEM HOLDINGS 1 BV [NL]) 24 January 2018 (2018-01-24) abstract paragraphs [0013] - [0019] paragraphs [0030] - [0040] figures 1-5 -----	1-6, 11-13 7,10
X A	WO 2016/014652 A1 (ALTRIA CLIENT SERVICES INC [US]) 28 January 2016 (2016-01-28) abstract paragraph [0028] paragraph [0075] figures 2-3 ----- -/-	1-3,8,9, 11-13 7,10



Further documents are listed in the continuation of Box C.



See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search

9 July 2019

Date of mailing of the international search report

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Authorized officer

Cabrele, Silvio

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2019/061153

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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