(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
02 November 2023 (02.11.2023)

WIPO | PCT

(10) International Publication Number
WO 2023/208966 A1

(51) International Patent Classification:
A24F 40/60 (2020.01) *A24F 40/90* (2020.01)

(21) International Application Number:
PCT/EP2023/060860

(22) International Filing Date:
25 April 2023 (25.04.2023)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2206329.1 29 April 2022 (29.04.2022) GB

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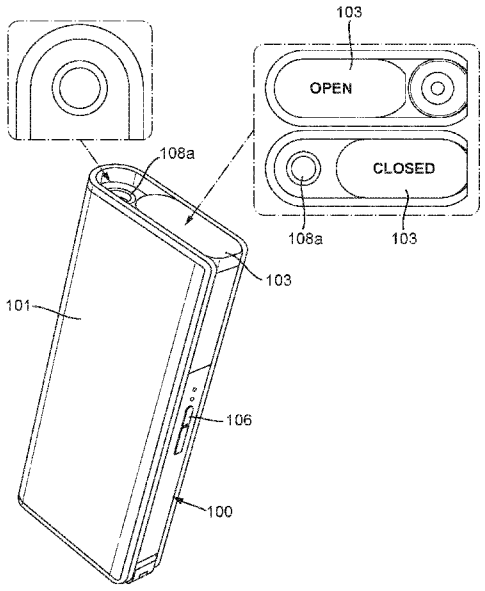
(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ,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

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

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

(54) Title: AEROSOL PROVISION SYSTEM

Fig. 10



(57) Abstract: An aerosol provision system comprising an aerosol provision device (100) and a charging unit (101) for charging the aerosol provision device (100), the charging unit (101) having a cavity for receiving the aerosol provision device (100). The charging unit (101) further comprises a lid (103) moveable between a first position and a second position, wherein: (i) the aerosol provision system further comprises a user display (108a) and wherein movement of the lid (103) between the first position and the second position activates and/or deactivates the user display (108a); and/or (ii) the aerosol provision system further comprises a user interface (106) and wherein movement of the lid (103) between the first position and the second position activates and/or deactivates the user interface (106).

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AEROSOL PROVISION SYSTEM

TECHNICAL FIELD

The present invention relates to an aerosol provision system and a method of generating an aerosol.

BACKGROUND

Smoking articles such as cigarettes, cigars and the like burn tobacco during use to create tobacco smoke. Attempts have been made to provide alternatives to these articles by creating products that release compounds without combusting. Examples of such products are so-called “heat not burn” products or tobacco heating devices or products, which release compounds by heating, but not burning, material. The material may be, for example, tobacco or other non-tobacco products, which may or may not contain nicotine.

Aerosol provision systems, which cover the aforementioned devices or products, are known. Common systems use heaters to create an aerosol from a suitable medium which is then inhaled by a user. Often the medium used needs to be replaced or changed to provide a different aerosol for inhalation. It is known to use induction heating systems as heaters to create an aerosol from a suitable medium. An induction heating system generally consists of a magnetic field generating device for generating a varying magnetic field, and a susceptor or heating material which is heatable by penetration with the varying magnetic field to heat the suitable medium.

Conventional aerosol provision devices comprise a cylindrical heating chamber into which a rod shaped consumable is inserted.

It is desired to provide an improved aerosol provision system.

SUMMARY

According to an aspect there is provided an aerosol provision system comprising:

an aerosol provision device;

a charging unit for charging the aerosol provision device, the charging unit having a cavity for receiving the aerosol provision device; and

wherein the charging unit further comprises a lid moveable between a first position and a second position, wherein: (i) the aerosol provision system further comprises a user display and wherein movement of the lid between the first position and the second position activates and/or deactivates the user display; and/or (ii) the aerosol provision system further comprises a user interface and wherein movement of the lid

between the first position and the second position activates and/or deactivates the user interface.

According to various embodiments the aerosol provision system may comprise a user display and/or a user interface. According to an embodiment a first user display may be provided on the charging unit and the aerosol provision device may comprise a user interface and optionally a second user display. The lid may be moveable between a first (open) position and a second (closed) position.

According to an embodiment a user display may be provided on the charging unit and the user display may be visible to a user when the lid is in the second (closed) position and is partially or fully concealed or obscured from sight by the lid when the lid is in the first (open) position. Accordingly, the user display may be provided on the charging unit under the slider such that the user display is only visible when the slider is in the second (closed) position as this is the only interaction that a user needs with the user display on the charging unit e.g. to check the charge status of the charging unit. This location also provides a degree of discretion for the user in the sense that the display is not immediately visible to others and is only primarily visible to the user.

According to embodiments the user display may be activated for an activation time which may be approx. 3 s commencing from the time that the slider is first moved from the first (open) position to the second (closed) position thereby revealing the user display. The user display may be visible, illuminated or otherwise switched ON for the activation time before the user display becomes invisible or is no longer illuminated or is otherwise switched OFF. According to various embodiments the activation time may be in the range < 1s, 1-2 s, 2-3 s, 3-4 s, 4-5 s, 5-6 s, 6-7 s, 7-8 s, 8-9 s or 9-10s. According to an embodiment the activation time may be in the range of 3-5 s.

Embodiments are contemplated wherein the user display may have a first intensity I1 during an activation time when the user display is switched ON and a second lower intensity I2 when the user display is either switched OFF or is switched to a low illumination or low power mode of operation.

According to various embodiments a user interface should be understood as a component of the aerosol provision system with which a user may interact, for example, in order to provide an input into the aerosol provision system. For example, the user interface may comprise one or more buttons or touch sensitive panels which a user may touch. A user display should be understood as a component of the aerosol provision system which displays information to the user.

When the lid is moved (e.g. slid or pivoted) from the first (open) position to the second (closed) position (e.g. after an aerosol provision device has been inserted into a

cavity of the charging unit) then a user display located, for example, on the charging unit may be activated in order to indicate the charge state or level of charge of the charging unit. As a result, a user is provided with an indication of whether or not the charging unit has sufficient charge in order to partially or fully charge the aerosol provision device. The user display may indicate a warning or an error indication if the aerosol provision device is inserted into the charging unit and the charging unit has a low level of charge or insufficient charge in order to fully recharge the aerosol provision device. The user display may only be activated for a preselected time e.g. < 1s, 1-5 s or 5-10 s in order to save battery life. According to various embodiments the user display may be activated for an activation time of 3-5 s.

Embodiments are contemplated wherein when the lid is moved (e.g. slid or pivoted) from the first (open) position to the second (closed) position (e.g. after an aerosol provision device has been inserted into a cavity of the charging unit) then a user display located, for example, on the charging unit may be activated in order to display other information e.g. the charge status of the aerosol provision device, a cleanliness status of the aerosol provision device, information concerning the battery life of the aerosol provision device, the date and/or time or information related to aerosol generating articles that are suitable for use with the aerosol provision device.

A user may also move the lid from the second (closed) position partially towards the first (open) position but not fully into the first (open) position. The user may then move the lid back into the second (closed) position in order to reactivate the user display.

It will be understood that the user display may only be activated for a period of time i.e. the user display may be turned ON for a period of time (e.g. 3 s) and may then automatically turn OFF.

When the lid is moved (e.g. slid or pivoted) from the second (closed) position to the first (open) position (e.g. in order to allow an aerosol provision device to be removed from the charging unit) then a user display located, for example, on the charging unit may be deactivated in order to save battery life of the charging unit. It is also contemplated that when the lid is moved (e.g. slid or pivoted) from the second (closed) position to the first (open) position then the user display located, for example, on the charging unit may be temporarily activated in order to indicate to the user the remaining battery life of the charging unit. For example, if the charging unit is low on charge or power then the user display may provide a warning indication to the user. The warning indication may alert the user that the charging unit should itself be recharged by being charged either directly or wirelessly with mains power.

When the lid is slid from the first (open) position to the second (closed) position (e.g. after an aerosol provision device is inserted into the cavity of the charging unit) then

a user interface located, for example, on the aerosol provision device may be deactivated in order to prevent accidental activation of the aerosol provision device whilst the aerosol provision device is being recharged by the charging unit.

When the lid is moved (e.g. slid or pivoted) from the second (closed) position to the first (open) position (e.g. when allowing an aerosol provision device to be removed from the cavity of the charging unit) then a user interface located, for example, on the aerosol provision device may be activated allowing a user to activate the aerosol provision device when the aerosol provision device has been removed from the charging unit.

Optionally, at least a portion of the user display may be located on the charging unit.

For example, a user display may be provided on the charging unit in order to indicate the charge status of the charging unit. The user display may be located on a position on the charging unit such that it is always visible to a user. Alternatively, the user display may be located on the charging unit in a position such that when the lid is in the first (open) position then the lid may partially or fully conceal the user display. The user display provided on the charging unit may provide a user with an indication of the charge level or charging status of the charging unit. The user display may only display the status of the charging unit when an aerosol provision device is located in the cavity of the charging unit and the lid of the charging unit is in a second (closed) position.

When the lid is in the second (closed) position and an aerosol provision device is located in the cavity of the charging unit then electrical power may be supplied to the aerosol provision device from the charging unit and/or data may be transferred to the aerosol provision device from the charging unit and/or data may be transferred from the aerosol provision device to the charging unit.

When the lid is in the first (open) position and an aerosol provision device is not located in the cavity of the charging unit then no attempt may be made by the charging unit to supply electrical power to the aerosol provision device from the charging unit and/or no attempt may be made to transfer data to the aerosol provision device from the charging unit and/or no attempt may be made to transfer data from the aerosol provision device to the charging unit.

Optionally, the user display may be located at a position on the charging unit so as to be visible to a user when the lid is in the first (open) position and also when the lid is in the second (closed) position.

Alternatively, the user display may be located at a position on the charging unit so

as to be visible to a user when the lid is in the second (closed) position and to be at least partially concealed or obscured or fully concealed or obscured when the lid is in the first (open) position.

According to arrangements a user display located on the charging unit may be concealed or obscured by the lid when the lid is in the first (open) position or alternatively when the lid is in the second (closed) position.

Optionally, at least a portion of the user display may be located on the aerosol provision device.

The aerosol provision device may comprise a user display which may, for example, comprise one, two or more than two LEDs in order to indicate the charge status of the aerosol provision device.

Optionally, in a mode of operation the user display may be arranged to indicate the charge state of the charging unit.

The user display may be arranged, for example, to indicate that the charge state or level of the charging unit is in the range 0-25%, 25-50%, 50-75% or 75-100% of a full charge. The user display may also indicate a warning if the charging unit is low on charge.

Optionally, in a mode of operation the user display may be arranged to indicate the charge state of the aerosol provision device.

The user display may, for example, indicate that the charge state or level of the aerosol provision device is in the range 0-25%, 25-50%, 50-75% or 75-100% of a full charge. The user display may also indicate a warning if the aerosol provision device is low on charge.

Optionally, in a mode of operation the user display may be arranged to indicate an error or fault status of either the charging unit and/or the aerosol provision device.

For example, the user display may indicate an error or fault status if a determination is made that an attempt was made to connect the charging unit to the mains (either via a wired or wireless connection) but that the charging unit did not regain charge as expected. The user display may indicate an error or fault status if a determination is made that the aerosol provision device was inserted into the cavity of the charging unit and the lid of the charging unit was moved to the second (closed) position in order to activate one or more electrical connections and/or one or more data transfer connections between the charging unit and the aerosol provision device but that

there was a failure or a problem with transferring electrical power to the aerosol provision device and/or there was a failure or a problem with data transfer between the charging unit and the aerosol provision device.

Optionally, in a mode of operation the user display may be arranged to indicate the time left of a session of use.

For example, the user display may be provided on the aerosol provision device and may indicate that an expected session of use is 0-25%, 25-50%, 50-75% or 75-100% complete. The user display may comprise a timer which indicates the current duration of a session of use. The user display may comprise a countdown timer which indicates the predicted time remaining of the current session of use.

Optionally, the first position comprises an open position in which the aerosol provision device can be inserted into, and removed from the cavity.

For example, the first position may relate to a position wherein the lid is fully retracted so as to uncover or unblock an entrance aperture into the cavity of the charging unit to the fullest extent possible. When the lid is fully retracted i.e. in the first position then the lid may slide over a user display located on the charging unit.

Optionally, the second position comprises a closed position in which an upper portion of the cavity is closed by the lid.

Optionally, the lid is configured to slide or pivot between the first and second positions.

Optionally, the charging unit may comprise a housing having one or more rails or grooves and the lid may comprise one or more tabs or projections arranged to engage the one or more rails or grooves.

Alternatively, the charging unit may comprise a housing having one or more tabs or projections and the lid may comprise one or more rails or grooves and wherein the one or more tabs or projections engage the one or more rails or grooves.

Optionally, the aerosol provision system further comprises an aerosol generating article.

According to another aspect there is provided a method of generating an aerosol comprising:

providing an aerosol provision system as described above; and

energising the aerosol generating article.

BRIEF DESCRIPTION OF THE DRAWINGS

Various embodiments will now be described, by way of example only, and with reference to the accompanying drawings, in which:

Fig. 1 shows an aerosol provision device located within a charging unit wherein a user display is provided on an upper portion of the charging unit and is visible to a user irrespective of the position of a sliding lid;

Fig. 2 shows a cross-sectional view of the aerosol provision device;

Fig. 3 shows a cross-sectional view of a portion of an aerosol provision device with an aerosol generating article inserted therein;

Fig. 4 shows a perspective view of an upper portion of an aerosol provision system wherein a lid on the charging unit is in a first (open) position;

Fig. 5 shows a top view of the aerosol provision system shown in Fig. 4;

Fig. 6 shows a cross sectional view through the upper portion of the aerosol provision system shown in Fig. 4;

Fig. 7 shows a perspective view of an upper portion of an aerosol provision system wherein the lid on the charging unit is in a second (closed) position;

Fig. 8 shows a top view of the aerosol provision system shown in Fig. 7;

Fig. 9 shows a cross sectional view through the upper portion of the aerosol provision system shown in Fig. 7; and

Fig. 10 shows an aerosol provision device located within a charging unit wherein a user display is provided on an upper portion of the charging unit and is visible to a user when a sliding lid is in a closed position but is hidden from view when the sliding lid is in an open position wherein the sliding lid obscures the user display.

DETAILED DESCRIPTION

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

facilitate delivery of at least one substance to a user.

In some embodiments, the delivery system is a non-combustible aerosol provision system, such as a powered non-combustible aerosol provision system.

In some embodiments, the non-combustible aerosol provision system is an electronic cigarette, also known as a vaping device or electronic nicotine delivery system (END), although it is noted that the presence of nicotine in the aerosol generating material is not a requirement.

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

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

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

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

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

In some embodiments, the non-combustible aerosol provision system may comprise an area for receiving the consumable, an aerosol generator, an aerosol

generation area, a housing, a mouthpiece, a filter and/or an aerosol-modifying agent.

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

Aerosol generating material is a material that is capable of generating aerosol, for example when heated, irradiated or energized in any other way. Aerosol generating material may, for example, be in the form of a solid, liquid or semi-solid (such as a gel) which may or may not contain an active substance and/or flavourants.

The aerosol generating material may comprise a binder and an aerosol former. Optionally, an active and/or filler may also be present. Optionally, a solvent, such as water, is also present and one or more other components of the aerosol generating material may or may not be soluble in the solvent. In some embodiments, the aerosol generating material is substantially free from botanical material. In particular, in some embodiments, the aerosol generating material is substantially tobacco free.

The aerosol generating material may comprise or be an aerosol generating film. The aerosol generating film may be formed by combining a binder, such as a gelling agent, with a solvent, such as water, an aerosol-former and one or more other components, such as active substances, to form a slurry and then heating the slurry to volatilise at least some of the solvent to form the aerosol generating film. The slurry may be heated to remove at least about 60 wt%, 70 wt%, 80 wt%, 85 wt% or 90 wt% of the solvent. The aerosol generating film may be a continuous film or a discontinuous film, such an arrangement of discrete portions of film on a support. The aerosol generating film may be substantially tobacco free.

The aerosol generating film may comprise or be a sheet, which may optionally be shredded to form a shredded sheet.

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

An aerosol generator is an apparatus configured to cause aerosol to be generated from the aerosol generating material. In some embodiments, the aerosol generator is a heater configured to subject the aerosol generating material to heat

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

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

A susceptor is a heating material that is heatable by penetration with a varying magnetic field, such as an alternating magnetic field. The susceptor may be an electrically-conductive material, so that penetration thereof with a varying magnetic field causes induction heating of the heating material. The heating material may be magnetic material, so that penetration thereof with a varying magnetic field causes magnetic hysteresis heating of the heating material. The susceptor may be both electrically-conductive and magnetic, so that the susceptor is heatable by both heating mechanisms. The aerosol provision device that is configured to generate the varying magnetic field is referred to as a magnetic field generator, herein.

Non-combustible aerosol provision systems may comprise a modular assembly including both a reusable aerosol provision device and a replaceable aerosol generating article. In some implementations, the non-combustible aerosol provision device may comprise a power source and a controller (or control circuitry). The power source may, for example, comprise an electric power source, such as a battery or rechargeable battery. In some implementations, the non-combustible aerosol provision device may also comprise an aerosol generating component. However, in other implementations the aerosol generating article may comprise partially, or entirely, the aerosol generating component.

Induction heating is a process in which an electrically-conductive object, referred to as a susceptor, is heated by penetrating the object with a varying magnetic field. The process is described by Faraday's law of induction and Ohm's law. An induction heater may comprise an electromagnet and a device for passing a varying electrical current, such as an alternating current, through the electromagnet. When the electromagnet and

the object to be heated are suitably relatively positioned so that the resultant varying magnetic field produced by the electromagnet penetrates the object, one or more eddy currents are generated inside the object. The object has a resistance to the flow of electrical currents and when such eddy currents are generated in the object, their flow against the electrical resistance of the object causes the object to be heated. This process is called Joule, ohmic or resistive heating.

Magnetic hysteresis heating is a process in which an object made of a magnetic material is heated by penetrating the object with a varying magnetic field. A magnetic material can be considered to comprise many atomic-scale magnets, or magnetic dipoles. When a magnetic field penetrates such material, the magnetic dipoles align with the magnetic field. Therefore, when a varying magnetic field, such as an alternating magnetic field, for example as produced by an electromagnet, penetrates the magnetic material, the orientation of the magnetic dipoles changes with the varying applied magnetic field. Such magnetic dipole reorientation causes heat to be generated in the magnetic material.

When an object is both electrically-conductive and magnetic, penetrating the object with a varying magnetic field can cause both Joule heating and magnetic hysteresis heating in the object. Moreover, the use of magnetic material can strengthen the magnetic field, which can intensify the Joule heating.

An aerosol provision system according to various embodiments will now be described in more detail.

Fig. 1 shows an aerosol generating system comprising an aerosol provision device 100 which is shown located within a cavity of a charging unit 101. The aerosol provision device 100 is arranged to generate aerosol from an aerosol generating article which may be inserted, in use, into the aerosol provision device 100.

The aerosol provision device 100 is an elongate structure, extending along a longitudinal axis. Additionally, the aerosol provision device 100 has a proximal end, which will be closest to the user (e.g. the user's mouth) when in use by the user to inhale the aerosol generated by the aerosol provision device 100, as well as a distal end which will be furthest from the user when in use. The proximal end may also be referred to as the mouth end. The aerosol provision device 100 also accordingly defines a proximal direction, which is directed towards the user when in use, i.e. in the direction from the distal end to the proximal end. Further, the aerosol provision device 100 also likewise defines a distal direction, which is directed away from the user when in use, i.e. in the direction from the proximal end to the distal end.

The aerosol provision device 100 may be removably inserted into the charging

unit 101 in order to be charged. The charging unit 101 comprises a cavity for receiving the aerosol provision device 100. The aerosol provision device 100 may be inserted into the cavity via an opening. The cavity may also comprise a longitudinal opening. A portion of the aerosol provision device 100 may comprise a first side. One or more user-operable control elements or a user interface such as buttons 106 which can be used to operate the aerosol provision device 100 may be provided on the first side of the aerosol provision device 100. The first side of the aerosol provision device 100 may be received in the longitudinal opening provided in the charging unit 101.

As will be described in more detail below with reference to Figs. 2 and 3 and as describe below, the aerosol provision device may comprise a heating element 202 (see Fig. 2). Referring back to Fig. 1, the user interface 106 provided on the aerosol provision device 100 may comprise two buttons. A first button may be provided in order to operate the aerosol provision device 100 in a standard or base mode of operation wherein a predetermined heating profile may be set for the heating element 202. A second button may be provided in order to operate the aerosol provision device 100 in an enhanced or boost mode of operation wherein the heating profile set for the heating element 202 may be altered. For example, in an enhanced or boost mode of operation a set or desired temperature for the heating element 202 may be increased for a period of time.

A session of use may be determined to relate to a period of time during which a user is enabled to take multiple puffs of aerosol generated from aerosol generating material without replacement or replenishment of the aerosol generating material.

The aerosol provision device 100 may be operable in at least a first (e.g. base) mode of operation and a second (e.g. boost) mode of operation. The modes of operation may be selectable by a user by selecting one of the two buttons 106 provided as part of the user interface.

The heating element 202 may configured such that, in a first mode, the aerosol provision device 100 is ready for use a first period of time after the start of a session of use, and in a second mode the aerosol provision device 100 is ready for use a second period of time after the start of the session. The first period of time may be different from the second period of time. The aerosol provision device 100 may be ready for use at a time t1 after the start of a session of use in a first (base) mode of operation and may be ready for use at a time t2 after the start of a session of use in a second (boost) mode of operation, wherein $t2 < t1$.

Providing an aerosol provision device 100 such as a tobacco heating product with a heating assembly that is operable in a plurality of modes (e.g. base mode and boost mode) gives more choice to the consumer, particularly where each mode is associated with a different maximum heater temperature. Moreover, such an aerosol provision

device 100 is capable of providing different aerosols having differing characteristics, because volatile components in the aerosol generating material will be volatilised at different rates and concentrations at different heater temperatures. This allows a user to select a particular mode based on a desired characteristic of the inhalable aerosol, such as degree of tobacco flavour, nicotine concentration, and aerosol temperature. For example, modes in which the aerosol provision device 100 is ready for use more quickly (e.g. a second or "boost" mode) may provide a quicker first puff, or a greater nicotine content per puff, or a more concentrated flavour per puff. Conversely, modes in which the aerosol provision device 100 is ready for use at a later point in the session of use (e.g. a first or base mode) may provide a longer overall session of use, lower nicotine content per puff, and more sustained delivery of flavour.

The user interface 106 may comprise one or more lights or LEDs which indicate the charging status of the aerosol provision device 100. For example, in the embodiment shown in Fig. 1 the user interface 106 may comprise two LEDs. If zero LEDs are displayed or are otherwise illuminated, then a low charge status of the aerosol provision device 100 may be indicated to a user. If one LED is displayed or otherwise illuminated then an intermediate charge status of the aerosol provision device 100 may be indicated to a user. If two LEDs are displayed or otherwise illuminated then a full or nearly full charge status of the aerosol provision device 100 may be indicated to a user.

The cavity of the charging unit 101 may have a cross-sectional profile which only permits that the aerosol provision device 100 to be inserted into the charging unit 101 in a single orientation. The outer profile of the aerosol provision device 100 may comprise an arcuate portion and a linear portion. The cross-sectional profile of the cavity provided in the charging unit 101 may also comprise a similar arcuate portion and a linear portion. The linear portion of the cross-sectional profile of the cavity may correspond with the longitudinal opening.

The aerosol provision device 100 comprises an opening leading into a heating chamber. A rod shaped aerosol generating article comprising aerosol generating material may be inserted through the opening and may be retained within the heating chamber of the aerosol provision device 100. The aerosol generating article may be heated by a heating element so that an aerosol or other inhalable medium may be generated which may then be inhaled by a user of the aerosol provision device 100.

The charging unit 101 may include a slidable lid 103. When the aerosol provision device 100 is inserted into the charging unit 101 in order to be recharged, the slidable lid 103 may be closed so as to cover the opening into the aerosol provision device 100. The charging unit 101 may include a user display 108.

As shown in Fig. 1, a user display 108 may be provided on an upper portion of

the charging unit 101 and may be visible to a user irrespective of the position of a sliding lid 103. However, as will be described with reference to Fig. 10, other arrangements are contemplated wherein the user display may be concealed by the sliding lid 103 when the lid is in a first (open) position. The user display may then be revealed to a user when the sliding lid 103 is in a second (closed) position.

According to an embodiment the charging unit 101 may further comprise a lid 103 moveable between a first position and a second position, wherein: (i) the aerosol provision system further comprises a user display and wherein movement of the lid 103 between the first position and the second position activates and/or deactivates the user display; and/or (ii) the aerosol provision system further comprises a user interface and wherein movement of the lid 103 between the first position and the second position activates and/or deactivates the user interface.

Fig. 2 shows for illustrative purposes a cross sectional view of a portion of the aerosol provision device 100. The aerosol provision device 100 comprises a main housing 200 which forms a heating chamber 201. The main housing 200 may comprise a wall 200a which is a tubular wall 200a, and which may extend along the longitudinal axis of the aerosol provision device 100, and which surrounds the heating chamber 201. The wall 200a may, at least in part, define the heating chamber 201 of the aerosol provision device 100, as the volume which is enclosed within the tubular wall 200a. The wall 200a may be a shape other than tubular, and may be any shape which encloses (e.g. encircles) and defines a heating chamber 201 therewithin. A heating element 202 may be provided in a portion of the main housing 200 and the heating element 202 may extend or project into the heating chamber 201. The heating element 202 may comprise a base portion 202a which may be located in a recess provided in a portion of the main housing 200.

The heating element 202 may comprise a resistive heating element. The heating element 202 may comprise a pin which may be inserted, in use, into a distal end of an aerosol generating article which is received within the heating chamber 201 in order to internally heat the aerosol generating article.

Alternatively, the heating element 202 may comprise a resistive blade heating element comprising a planar portion and a pointed portion. The pointed portion of the resistive blade heating element may be arranged to be inserted, in use, into a distal end of an aerosol generating article in order to internally heat the aerosol generating article.

According to another arrangement the heating element 202 may comprise an inductive heating element which may be arranged to internally heat an aerosol generating article. The inductive heating element may similarly comprise a pin or blade. It is contemplated that the heating element may form part of the aerosol generating article

rather than being a component of the aerosol provision device 100.

The aerosol provision device 100 may further comprise a removal mechanism 204 which may be removably retained to the main housing 200 of the aerosol provision device 100. The removal mechanism 204 may be retained to the main housing 200 so that at least a portion of the removal mechanism 204 extends into the heating chamber 201. The removal mechanism 204 may comprise a longitudinal portion such as a tubular portion 207a and a base portion 207b. The base portion 207b may have an aperture 206 through which the heating element 202 may project. In order to retain the removal mechanism 204 to the main housing 200, the removal mechanism 204 may be pushed into engagement with the main housing 200 in the distal direction, i.e. towards the distal end of the main housing 200, until the removal mechanism 204 is able to move no further in the distal direction. In the following description, when the removal mechanism 204 is referred to as being retained to the main housing 200, this is when the removal mechanism 204 is engaged with the main housing 200, and can move no further in the distal direction.

Together, the tubular portion 207a and the base portion 207b may define and enclose an article chamber for receiving an aerosol generating article. The article chamber comprises an inner surface which may be configured to contact the aerosol generating article. The inner surface may comprise a longitudinally extending portion which is provided by the tubular portion 207a and an end portion which is provided by the base portion 207b. When an aerosol generating article is received in the heating chamber, the aerosol generating article may contact both the longitudinally extending portion of the inner surface and the end portion of the inner surface. In particular, the article chamber (i.e. the tubular portion 207a and the base portion 207b) may be configured to receive at least part of an aerosol generating article which is in the form of rod which is longitudinally extending and cylindrical, such that the longitudinal axis of the aerosol generating article is parallel to (and optionally in line with) the longitudinal axis of the aerosol provision device 100 when received in the article chamber.

The article chamber may also be referred to as a receiving portion. When the removal mechanism 204 is retained to the main housing 200, in use, the article chamber of the removal mechanism 204 may be arranged, at least partially, within the heating chamber 201. The heating element 202 may be arranged so as to project into the article chamber, through the aperture 206 provided in the base portion 207b of the removal mechanism 204. The removal mechanism 204 is therefore configured to receive at least a portion of the aerosol generating article in use.

The removal mechanism 204 may comprise a first magnet or a magnetisable material 208. The main housing 200 may comprise a second magnet or magnetisable material 209. In use, the removal mechanism 204 may be magnetically retained to the

main housing 200 by the interaction of the first magnet or magnetisable material 208 and the second magnet or magnetisable material 209.

The removal mechanism 204 is fully detachable from the main housing 200. The removal mechanism 204 may be retained to the main housing 200 by a magnetic force of attraction between the first magnet or magnetisable material 208 and the second magnet or magnetisable material 209. The removal mechanism 204 may be detached from the main housing 200 by overcoming the magnetic force between the first magnet or magnetisable material 208 and the second magnet or magnetisable material 209. Alternatively, the removal mechanism 204 may be removably retained to the main housing 200 by other means. For example, the removal mechanism 204 may be configured to be removably retained to the main housing 200 by an interference fit with the main housing.

Fig. 3 shows a cross-sectional view of a portion of the aerosol provision device 100 and shows a main housing 200 with a heating element 202 extending into a heating chamber 201 and wherein a removal mechanism 204 is removably retained to the main housing 200. The removal mechanism 204 surrounds the heating element 202. An aerosol generating article 300 is shown located at least partly within the article chamber, and accordingly also within the heating chamber 201, such that the aerosol generating article 300 is positioned onto the heating element 202.

When retained to the main housing 200, the outer cap portion 210 forms a portion of an outer housing of the aerosol provision device 100. The outer cap portion 210 may radially surround the tubular element 207a with a gap being provided between the internal element (e.g. the tubular element 207a) and the outer cap 210, the gap extending along a portion of the length of the removal mechanism 204, and being configured to receive a portion of the main housing 200, e.g. the wall 200a. The removal mechanism 204 may define an opening 203 to the article chamber, through which the aerosol generating article 300 may be inserted in a first direction in order to be inserted into the article chamber. This first direction is the distal direction, and may be parallel to the longitudinal axis of the aerosol provision device 100. In embodiments, the opening 203 may be configured to contact the aerosol generating article 300.

The first magnet or a magnetisable material 208 and the second magnet or magnetisable material 209 may be located in the removal mechanism 204 and the main housing 200 respectively, such that they are sufficiently proximate to one another to generate an attractive force between one another when the removal mechanism 204 is retained to the main housing 200, such that the removal mechanism 204 is magnetically retained to the main housing 200. For example, the first magnet or magnetisable material may be located at the proximal end of the portion of the main housing 200, e.g. at the proximal end of the wall 200a, which is inserted into the gap within the removal

mechanism 204 (i.e. between the outer cap 210 and the internal element 207a,207b) when the removal mechanism 204 is retained to the main housing 200, with the second magnet or magnetisable material 209 located at a corresponding location in the removable mechanism 204. Accordingly, when the removal mechanism 204 is engaged to the main housing 200 the second magnet or magnetisable material 209 is positioned sufficiently close to the first magnet or magnetisable material 208 such that the attraction between the first magnet or magnetisable material 208 and the second magnet or magnetisable material 209 keeps the removal mechanism 204 retained to the main housing 200.

In use, a user may insert or partially insert an aerosol generating article 300 through the opening 203 into the aerosol provision device 100. The aerosol generating article 300 is received within the tubular portion 207a of the removal mechanism 204 and hence the aerosol generating article 300 is received into the article chamber defined by the tubular portion 207a and the base portion 207b, and is additionally received into the heating chamber 201. The heating element 202 may be arranged to pierce a distal end of the aerosol generating article 300 so that the heating element 202 is located within the aerosol generating article 300 and is arranged to heat the aerosol generating article 300 via internal heating.

Once the aerosol generating article 300 has been inserted into the aerosol provision device 100 the user may then conduct a session of use. During the session of use the aerosol generating article 300 may be heated by the heating element 202. It will be understood that a session of use may last several minutes. For example, according to various embodiments a session of use may last 2-3 mins, 3-4 mins or 4-5 mins.

At the end of a session of use the user may wish to remove the spent aerosol generating article 300 from the aerosol provision device 100 and optionally replace the spent aerosol generating article 300 with a fresh aerosol generating article 300. According to an embodiment in order to remove a spent aerosol generating article 300 after a session of use, the user may detach the removal mechanism 204 from the main housing 200 by applying a force to the removal mechanism 204 in order to overcome the magnetic force of attraction between the first magnet 208 provided in the removal mechanism 204 and the second magnet provided in the main housing 200.

Fig. 4 shows a perspective view of the uppermost part of an aerosol provision system in accordance with various embodiments and Fig. 5 shows a top view of the aerosol provision system shown in Fig. 4.

According to various embodiments the charging unit 101 comprises a lid 103 which is moveable between a first position and a second position. With reference to Figs. 4 and 5 the lid 103 is shown in a first position which may correspond to an open

position wherein the aerosol provision device 100 can be inserted or removed from the charging unit 101.

The lid 103 may be moved into a second (closed) position as shown in Figs. 7 to 9 and described in more detail further below. In the first (open) position, the lid 103 may be positioned such that an opening 111 in the charging unit is accessible such that the aerosol provision device 100 can be inserted into and removed from a cavity 112 within the charging unit 101. In the embodiment shown in Figs. 4 and 5, the aerosol provision device 100 is shown within the cavity 112. The charging unit 101 may comprise a housing 113 which houses the components of the charging unit 101.

Accordingly, the charging unit 101 comprises a lid 103 which is moveable between a first (open) position and a second (closed) position. The aerosol provision device 100 further comprises a user display and/or a user interface 106a and movement of the lid may be arranged to activate and/or deactivate the user display and/or user interface 106a provided on the aerosol provision device 100.

Embodiments are contemplated such as shown in Fig. 1 wherein a user display 108 may be provided on the charging unit 101 and may be separate from a user interface 106 which may be provided on the aerosol provision device 100 (as shown in Fig. 1). However, other embodiments are contemplated wherein as shown in Fig. 4, a user interface and/or a user display 106a may be provided solely on the aerosol provision device 100. In the embodiment shown in Fig. 4 the user interface and/or user display 106a is provided on a side panel of the aerosol provision device 100 which is visible to a user when the aerosol provision device 100 is docked within the charging unit 101. Other embodiments are contemplated wherein a user interface and/or user display may be provided on the charging unit 101. It is contemplated, for example, that a user display may be provided on the charging unit 101 beneath the lid (or slider) 103 such that the user display is concealed when the lid is in an open position as shown in Figs. 4 and 5 but is revealed or visible to a user when the lid 103 is in a closed position as shown in Figs. 7 and 8.

According to embodiments a user interface 106,106a may be provided, for example, on the aerosol provision device 100. Movement of the lid 103 may be arranged to activate and/or deactivate the user interface 106,106a.

For example, when the lid 103 is in the second (closed) position then the aerosol provision system may be arranged to deactivate the user interface 106,106a provided on the aerosol provision device 100 in order to prevent accidental activation of the aerosol provision device 100.

The lid 103 may be slid by a user from the second (closed) position back to the

first (open) position and when the lid 103 is returned to the first (open) position the user interface 106,106a on the aerosol provision device 100 may be activated enabling a user to control various operations of the aerosol provision device 100.

According to embodiments at least a portion of the user display 108 may be located on the charging unit 101 as shown in Fig. 1. However, other embodiments are contemplated as shown in Fig. 4 wherein at least a portion of the user display 106a is located on the aerosol provision device 100. According to an embodiment the user display 106a may be provided solely on the aerosol provision device 100.

In a mode of operation a user display 108 provided on the charging unit 101 (see Fig. 1) or a user display 106a provided on the aerosol provision device 100 (see Fig. 4) may be arranged to indicate the charge state of the charging unit 101. For example, with reference to Fig. 1 a user display 108 provided on the charging unit 101 may comprise a series of concentric circles wherein the number of concentric circles illuminated indicates the charge state of the charging unit 101. Alternatively, the user display 108 may comprise a circle divided into four quadrants wherein the number of quadrants illuminated may indicate the charge state of the charging unit 101. Other embodiments are also contemplated wherein the colour of the user display 108 may indicate the charge state of the charging unit 101. For example, the colour red may be used to indicate a low charge state, the colour yellow may be used to indicate an intermediate charge state and the colour green, blue or white may be used to indicate a full or nearly full charge state.

With reference to Fig. 4, a user display 106a may additionally or alternatively be provided on the aerosol provision device 100. According to an embodiment the user display 106a may comprise a sequence or array of two, three, four or more than four lights or LEDs. For example, according to an embodiment two lights or LEDs may be provided and the lights or LEDs may be progressively illuminated in order to indicate the charge state. Zero lights or LEDs illuminated may indicate a low charge state (or a charge status of < 33%), one light or LED illuminated may indicate an intermediate charge state (or a charge state of 33-66%) and two lights or LEDs may indicate a full or nearly full charge state (or a charge state of > 66%). Other embodiments are also contemplated wherein the colour of the user display 106a may indicate the charge state of the charging unit 101. For example, the colour red may be used to indicate a low charge state, the colour yellow may be used to indicate an intermediate charge state and the colour green, blue or white may be used to indicate a full or nearly full charge state.

In a mode of operation a user display 108 provided on the charging unit 101 or a user display 106,106a on the aerosol provision device 100 may be arranged to indicate the charge state of the aerosol provision device 100. For example, with reference to Fig. 1 the user display 108 may comprise a series of concentric circles wherein the number of

concentric circles illuminated indicates the charge state of the aerosol provision device 100. Alternatively, the user display 108 may comprise a circle divided into four quadrants wherein the number of quadrants illuminated may indicate the charge state of the aerosol provision device 100. Other embodiments are also contemplated wherein the colour of the user display 108 may indicate the charge state of the aerosol provision device 100. For example, the colour red may be used to indicate a low charge state, the colour yellow may be used to indicate an intermediate charge state and the colour green, blue or white may be used to indicate a full or nearly full charge state.

With reference to Fig. 4, the user display 106a may be provided on the aerosol provision device 100. According to an embodiment the user display 106a may comprise a sequence or array of two, three, four or more than four lights or LEDs. For example, according to an embodiment two lights or LEDs may be provided and the lights or LEDs may be progressively illuminated in order to indicate the charge state. Zero lights or LEDs illuminated may indicate a low charge state (or a charge status of < 33%), one light or LED illuminated may indicate an intermediate charge state (or a charge state of 33-66%) and two lights or LEDs may indicate a full or nearly full charge state (or a charge state of > 66%). Other embodiments are also contemplated wherein the colour of the user display 106a may indicate the charge state of the aerosol provision device 100. For example, the colour red may be used to indicate a low charge state, the colour yellow may be used to indicate an intermediate charge state and the colour green, blue or white may be used to indicate a full or nearly full charge state.

Other embodiments are contemplated wherein a user display is not provided on the aerosol provision device 100. For example, according to an embodiment a user display may be provided solely on the charging unit 101. According to another embodiment no user display may be provided at all i.e. no user display is provided on either the aerosol provision device 100 or the charging unit 101.

In a mode of operation a user display 108 provided on the charging unit 101 and/or a user display 106a provided on an aerosol provision device 100 may be arranged to indicate an error or fault status of either the charging unit 101 and/or the aerosol provision device 100.

In a mode of operation a user display 108 provided on the charging unit 101 and/or a user display 106a provided on an aerosol provision device 100 may be arranged to indicate the time left of a session of use.

According to various embodiments the first position comprises an open position in which the aerosol provision device 100 can be inserted into, and removed from the cavity of the charging unit 101. According to various embodiments the second position comprises a closed position in which an upper portion of the cavity of the charging unit

101 is closed by the lid 103.

The lid 103 may be configured to moved (e.g. slid or pivoted) between the first and second positions. The charging unit 101 may comprise a housing having one or more rails or grooves and the lid 103 may comprise one or more tabs or projections arranged to engage the one or more rails or grooves. Alternatively, the charging unit 101 may comprise a housing having one or more tabs or projections and the lid 103 may comprises one or more rails or grooves and wherein the one or more tabs or projections engage the one or more rails or grooves.

With reference to Figs. 4 and 5, the lid 103 may be configured to slide between the first and second positions. Sliding of the lid 103 may be achieved by any suitable arrangement. The charging unit 101 may comprise grooves 114. The grooves 114 may be arranged on an inside edge of the housing 113 as shown in Figs. 4 and 5. The lid 103 may comprise tabs 116 which engage the grooves 114. Engagement of the tabs 116 with the grooves 114 may constrain the lid 103 such that it is able to slide relative to the main housing 113.

Other embodiments are envisaged wherein the charging unit 101 comprises rails instead of grooves 114. Similarly, the lid 103 may comprise projections, having a form other than tabs 116, which may engage the grooves 114 or rails. The grooves 114 or rails may be arranged on the lid 103 instead of the housing 113, and the tabs 116 or projections may be arranged on the housing 113 or other suitable part of the charging unit 101, rather than the lid 103. The grooves 114 and/or rails together with the tabs 116 and/or projections, irrespective of their location, act to constrain movement of the lid 103. Any number of grooves 114, rails, tabs 116 or projections may be provided.

Other embodiments are also contemplated whereby the lid 103 moves between first and second positions in any other suitable manner, for example by rotation and/or pivotal movement.

Fig. 6 shows a cross sectional view through the uppermost portion of an aerosol provision system, according to an embodiment, with the lid 103 in the first position, as shown in Figs. 4 and 5. According to various embodiments, the charging unit 101 comprises a lid positioning arrangement which comprises a first positioning element 118, a second positioning element 120, and an engagement element 122. The lid positioning arrangement acts between the lid 103 and body 124 of the charging unit 101 so as to hold the lid 103 in respective positions. The engagement element 122 is arranged to engage the first positioning element 118 when the lid is in the first position, as shown in Fig. 6. Engagement of the engagement element 122 with the first positioning element 118 may hold the lid 103 in the first position, as shown in Fig. 6. The engagement element 122 may also engage the second positioning element 120 when the lid 103 is in

a second position, and thereby hold the lid 103 in the second position. This is shown in Figs. 7-9 and described in more detail further below.

In an embodiment, as depicted, the first positioning element 118 and second positioning element 120 are arranged on the lid 103, and the engagement element is arranged on the body 124 of the charging unit 101. This arrangement may be particularly advantageous as the lid 103 may be relatively thin and it may be more complex to incorporate an engagement element 122 within the lid 103. However, other embodiments are contemplated wherein the first and second positioning element 118,120 are arranged on the body 124 of the charging unit 101 and the engagement element 122 is arranged on the lid 101.

Whilst in the embodiments depicted the body 124 of the charging unit 101 is an internal structure within the charging unit 101, the body 124 may comprise any suitable component of the charging unit 101 which is capable of carrying the engagement element 122 or the first and second positioning elements 118,120.

The first and second positioning elements 118,120 and engagement element 122 may comprise any suitable elements which engage with one another so as to hold the lid 103 in the first and second positions.

In an embodiment, the engagement element 122 is resiliently biased so as to engage the first engagement element 118 and the second engagement element 120. In embodiments which comprise a third engagement element, the resilient bias may also result in engagement with the third engagement element. The resilient bias may be achieved by any suitable means. For example, the engagement element 122 may be integrally formed with a body of the charging unit 101 and be formed from a resilient material such that its deformation, which may be generated by movement of the lid 103, may cause a resilient bias to be generated by the resilient material. In other embodiments, the resilient bias may be provided by a resilient member 126. The resilient member 126 may comprise any suitable member capable of biasing the resilient element 122. The resilient member 126 may, for example, comprise a rubber element or a spring element, e.g. a helical spring.

When the lid 103 is moved between the first position shown in Figs. 4-6 and the second position shown in Figs 7-9, the underside 125 of the lid 103 will act on the engagement element 122 causing deformation, e.g. compression, of the resilient member 126. This will result in elastic energy being stored within the resilient member 126. As the engagement element 122 becomes aligned with either of the first or second positioning elements, the resilient member will expand so as to release at least some of the stored elastic potential energy, thereby engaging a portion of the engagement element 122 with first or second positioning element 118,120.

Fig. 7 shows a perspective view of an uppermost portion of the aerosol provision system with the lid 403 in the second position. In some embodiments, the second position of the lid 103 comprises a closed position in which an upper portion of the cavity 112 is closed by the lid 103. This may prevent a user from being able to remove the aerosol provision device 100 from the cavity 112 of the charging unit 101.

Fig. 8 shows a top view of the aerosol provision system with the lid 103 in the second position. The grooves 114 on the housing 113 of the charging unit 101 and the tabs 116 on the lid 103 are visible in Fig. 8. When the lid 403 moves from the first position shown in Figs. 4-6, into the second position shown in Figs. 7-9, the tabs 116 slide within the grooves 114 and thereby guide sliding movement of the lid 103.

Fig. 9 shows a cross sectional view of the uppermost portion of the aerosol provision system with the lid 103 in the second position as shown in Figs. 7 and 8. As shown, when the lid is in the second position, the engagement element 122 engages the second positioning element 120. As a result, the lid 103 may be held in the second position. The engagement element 122 may be resiliently biased into engagement with the second positioning element 120 by the resilient element 126. As depicted, when in the second position, the lid 103 may close an upper portion of the cavity 112 such that the aerosol provision device 100 cannot be removed from the cavity 112.

Fig. 10 shows another embodiment wherein the charging unit 101 comprises a slidable lid 103. When the aerosol provision device 100 is inserted into the charging unit 101 in order to be recharged, the slidable lid 103 may be closed so as to cover the opening into the aerosol provision device 100. The charging unit 101 may include a user display 108a.

With the particular embodiment shown in Fig. 10 a user display 108a may be provided on an upper portion of the charging unit 101. The user display 108a may be concealed by the sliding lid 103 when the lid is in a first (open) position but the user display 108a may then be revealed to a user when the sliding lid 103 is in a second (closed) position.

According to an embodiment a first user display 108a may be provided on the charging unit 101 and the aerosol provision device 100 may comprise a user interface and/or a second user display 106. The lid 103 may be moveable between a first (open) position and a second (closed) position.

According to an embodiment when the lid 103 is moved (e.g. slid or pivoted) from the first (open) position to the second (closed) position (e.g. when an aerosol provision device 100 is inserted into the cavity of the charging unit 101) then a user display 108a

located, for example, on the charging unit may be activated (e.g. for a time period of 3-5 s) in order to indicate the charge state or level of charge of the charging unit 101. As a result, a user is provided with an indication of whether or not the charging unit 101 has sufficient charge in order to partially or fully charge the aerosol provision device 100. According to various embodiments, the user display 108a may indicate a warning or an error indication if the aerosol provision device 100 is inserted into the charging unit 101 and the charging unit 101 has a low level of charge or insufficient charge in order to fully recharge the aerosol provision device 100.

According to an embodiment when the lid 103 is moved (e.g. slid or pivoted) from the second (closed) position to the first (open) position (e.g. when an aerosol provision device 100 is removed from the charging unit 101) then a user display 108a located, for example, on the charging unit 101 may be deactivated in order to save battery life of the charging unit 101. Another embodiment is contemplated wherein when the lid 103 is moved (e.g. slid or pivoted) from the second (closed) position to the first (open) position then the user display 108a located, for example, on the charging unit 101 may be temporarily activated in order to indicate to the user the remaining battery life of the charging unit 101. For example, if the charging unit 101 is low on charge or power then the user display 108a may provide a warning indication to the user. The warning indication is intended to alert the user that the charging unit 100 should itself be recharged by being charged either directly or wirelessly with mains power.

According to an embodiment when the lid 103 is moved (e.g. slid or pivoted) from the first (open) position to the second (closed) position (e.g. when an aerosol provision device 100 is inserted into the cavity of the charging unit 101) then a user interface 106 located, for example, on the aerosol provision device 100 may be deactivated in order to prevent accidental activation of the aerosol provision device 100 whilst the aerosol provision device 100 is being recharged by the charging unit 101.

According to an embodiment when the lid 103 is moved (e.g. slid or pivoted) from the second (closed) position to the first (open) position (e.g. when an aerosol provision device 100 is removed from the cavity of the charging unit 101) then a user interface 106 located, for example, on the aerosol provision device 100 may be activated allowing a user to activate the aerosol provision device 100 when the aerosol provision device has been removed from the charging unit 101.

The various embodiments described herein are presented only to assist in understanding and teaching the claimed features. These embodiments are provided as a representative sample of embodiments only, and are not exhaustive and/or exclusive. It is to be understood that advantages, embodiments, examples, functions, features, structures, and/or other aspects described herein are not to be considered limitations on the scope of the invention as defined by the claims or

limitations on equivalents to the claims, and that other embodiments may be utilised and modifications may be made without departing from the scope of the claimed invention. Various embodiments of the invention may suitably comprise, consist of, or consist essentially of, appropriate combinations of the disclosed elements, components, features, parts, steps, means, etc., other than those specifically described herein. In addition, this disclosure may include other inventions not presently claimed, but which may be claimed in future.

Claims

1. An aerosol provision system comprising:
an aerosol provision device;
a charging unit for charging the aerosol provision device, the charging unit having a cavity for receiving the aerosol provision device; and
wherein the charging unit further comprises a lid moveable between a first position and a second position, wherein: (i) the aerosol provision system further comprises a user display and wherein movement of the lid between the first position and the second position activates and/or deactivates the user display; and/or (ii) the aerosol provision system further comprises a user interface and wherein movement of the lid between the first position and the second position activates and/or deactivates the user interface.

2. An aerosol provision system as claimed in claim 1, wherein at least a portion of the user display is located on the charging unit.

3. An aerosol provision system as claimed in claim 2, wherein the user display is located at a position on the charging unit so as to be visible to a user when the lid is in the first position and also when the lid is in the second position.

4. An aerosol provision system as claimed in claim 2, wherein the user display is located at a position on the charging unit so as to be visible to a user when the lid is in the second position and to be at least partially concealed or obscured or fully concealed or obscured when the lid is in the first position.

5. An aerosol provision system as claimed in any preceding claim, wherein at least a portion of the user display is located on the aerosol provision device.

6. An aerosol provision system as claimed in any preceding claim, wherein in a mode of operation the user display is arranged to indicate the charge state of the charging unit.

7. An aerosol provision system as claimed in any preceding claim, wherein in a mode of operation the user display is arranged to indicate the charge state of the aerosol provision device.

8. An aerosol provision system as claimed in any preceding claim, wherein in a mode of operation the user display is arranged to indicate an error or fault status of either the charging unit and/or the aerosol provision device.

9. An aerosol provision system as claimed in any preceding claim, wherein in a

mode of operation the user display is arranged to indicate the time left of a session of use.

10. An aerosol provision system as claimed in any preceding claim, wherein the first position comprises an open position in which the aerosol provision device can be inserted into, and removed from the cavity.

11. An aerosol provision system as claimed in any preceding claim, wherein the second position comprises a closed position in which an upper portion of the cavity is closed by the lid.

12. An aerosol provision system as claimed in any preceding claim, wherein the lid is configured to slide or pivot between the first and second positions.

13. An aerosol provision system as claimed in any preceding claim, wherein the charging unit comprises a housing having one or more rails or grooves and the lid comprises one or more tabs or projections arranged to engage the one or more rails or grooves.

14. An aerosol provision system as claimed in any of claims 1-12, wherein the charging unit comprises a housing having one or more tabs or projections and the lid comprises one or more rails or grooves and wherein the one or more tabs or projections engage the one or more rails or grooves.

15. An aerosol provision system as claimed in any preceding claim, further comprising an aerosol generating article.

16. A method of generating an aerosol comprising:
providing an aerosol provision system as claimed in claim 15; and
energising the aerosol generating article.

Fig. 1

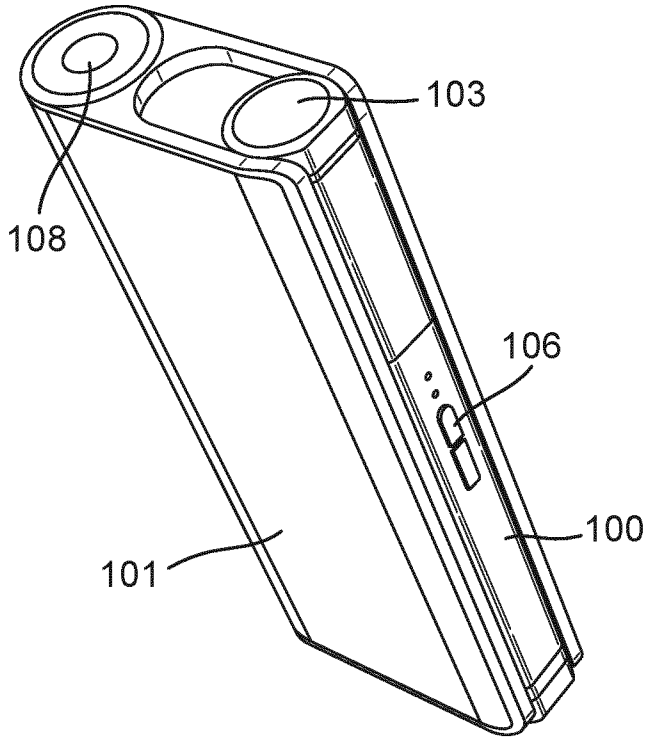

103
108
106
100
101

Fig. 2

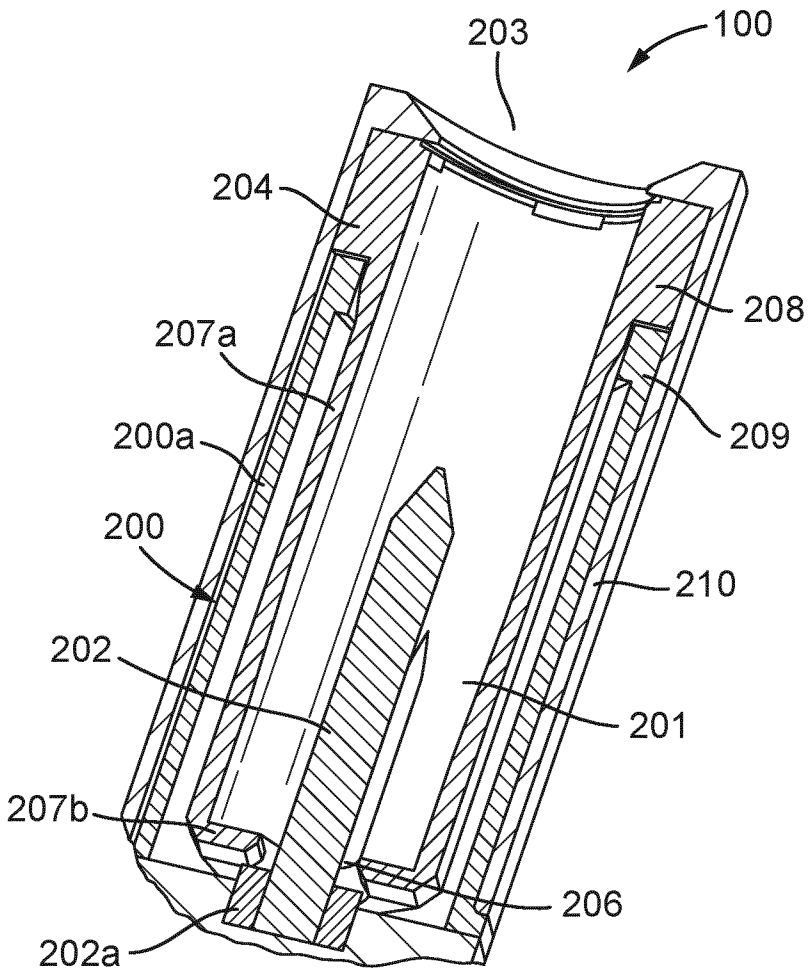

203
100
204
208
207a
209
200a
200
210
202
201
207b
206
202a

Fig. 3

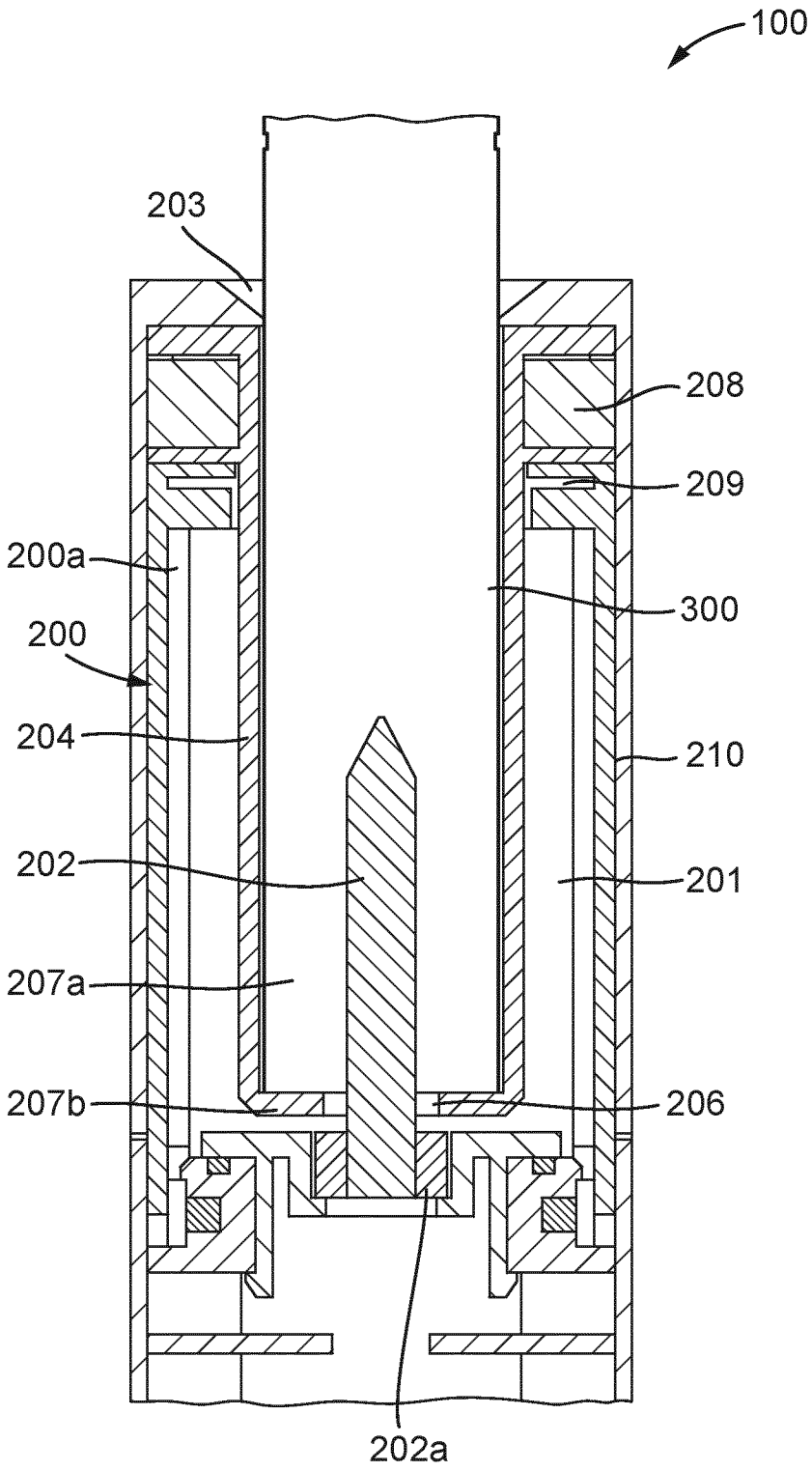


Fig. 4

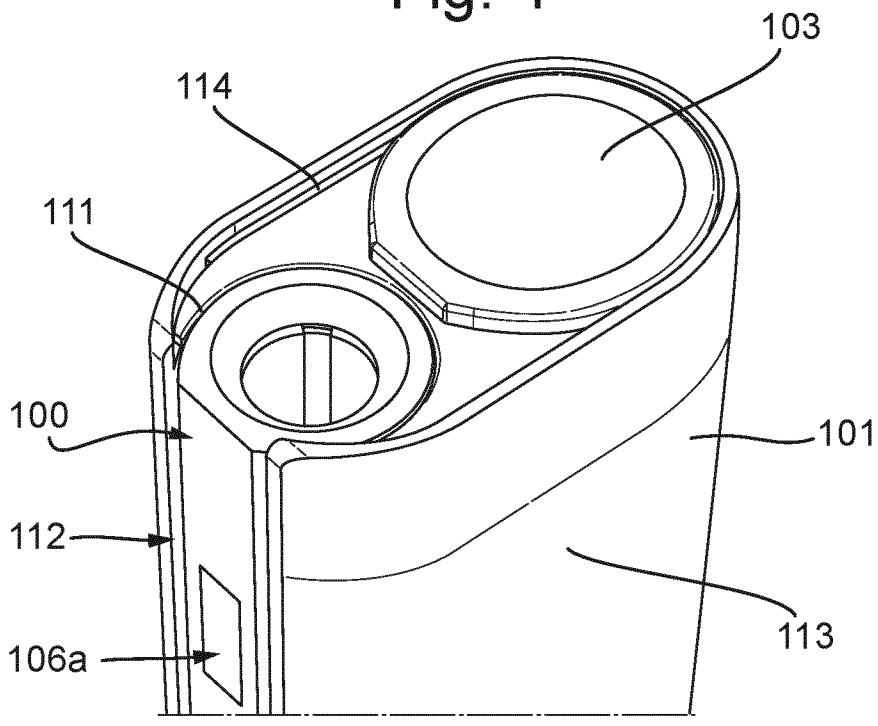


Fig. 5

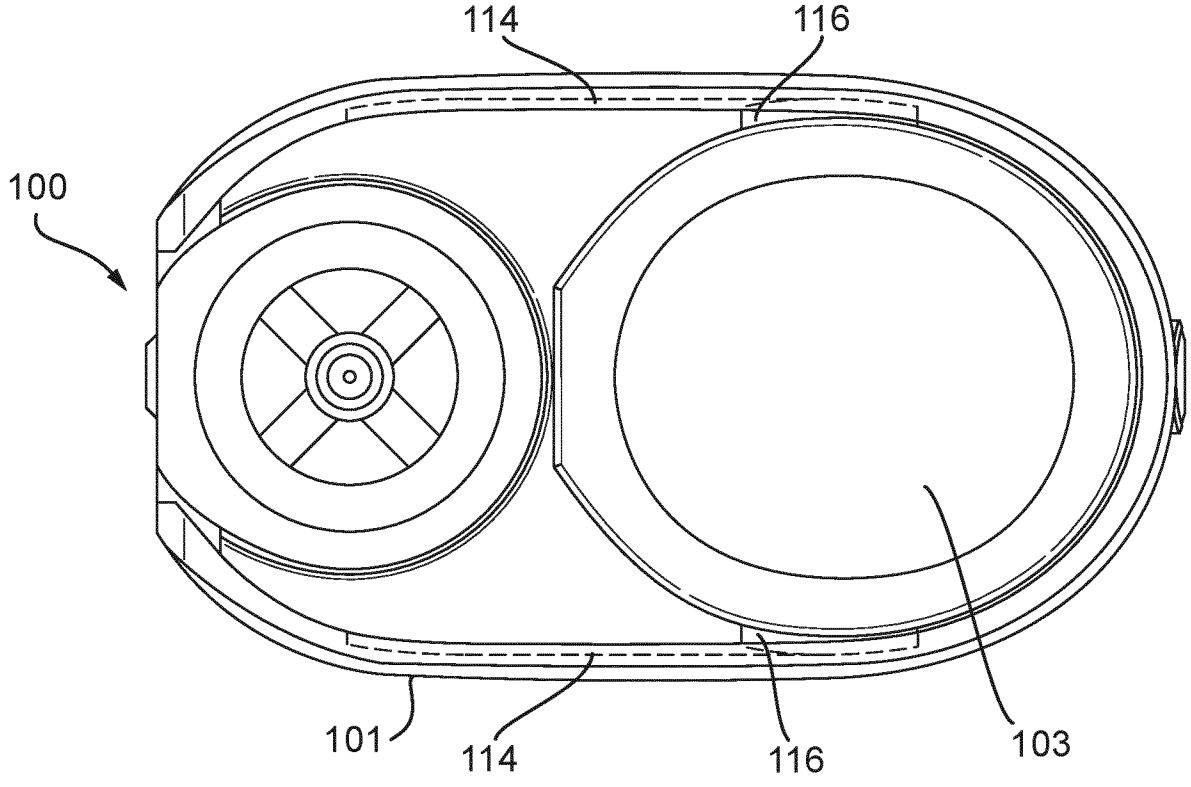
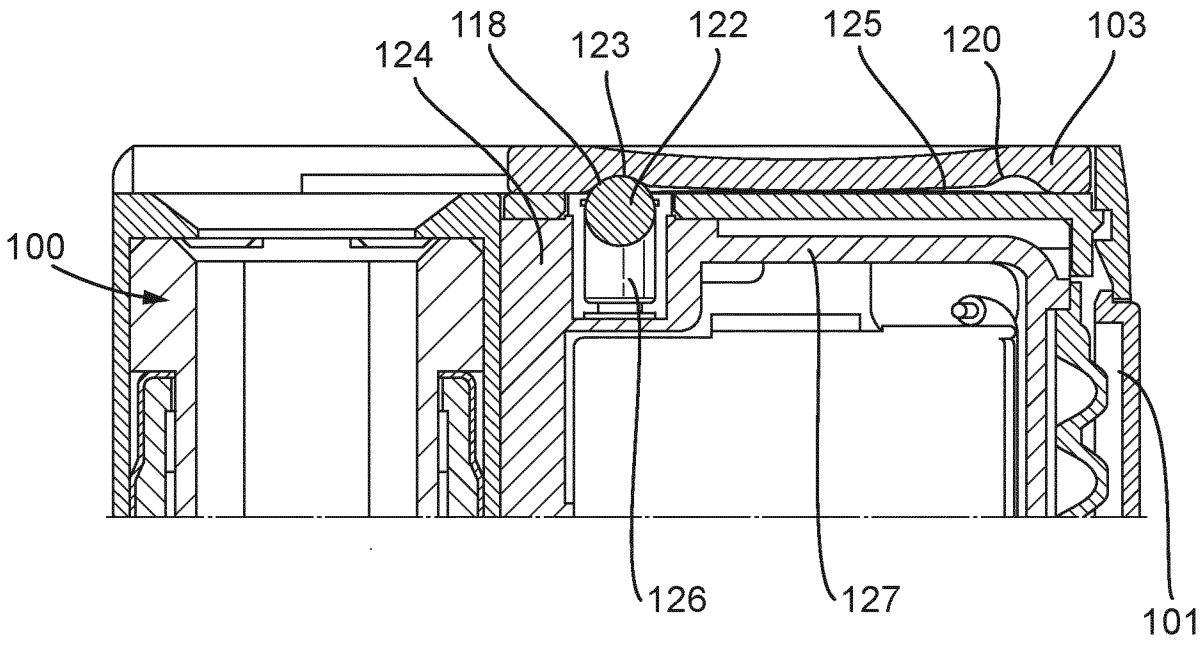


Fig. 6


124
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101

Fig. 7

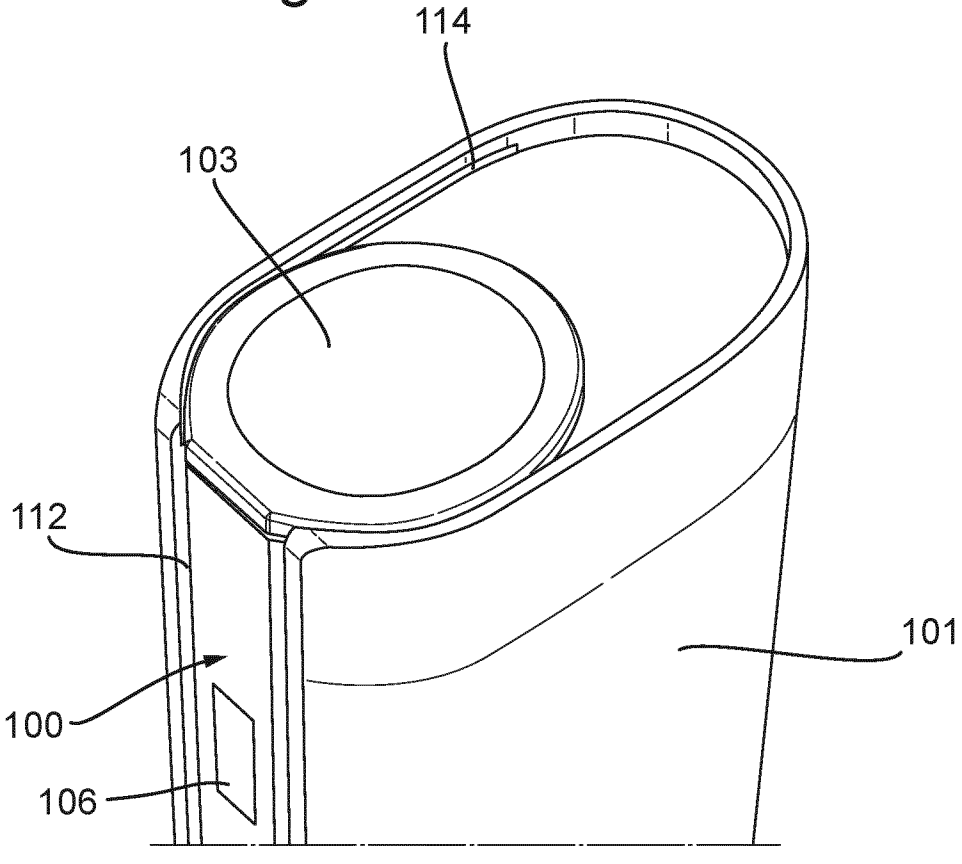
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Fig. 8

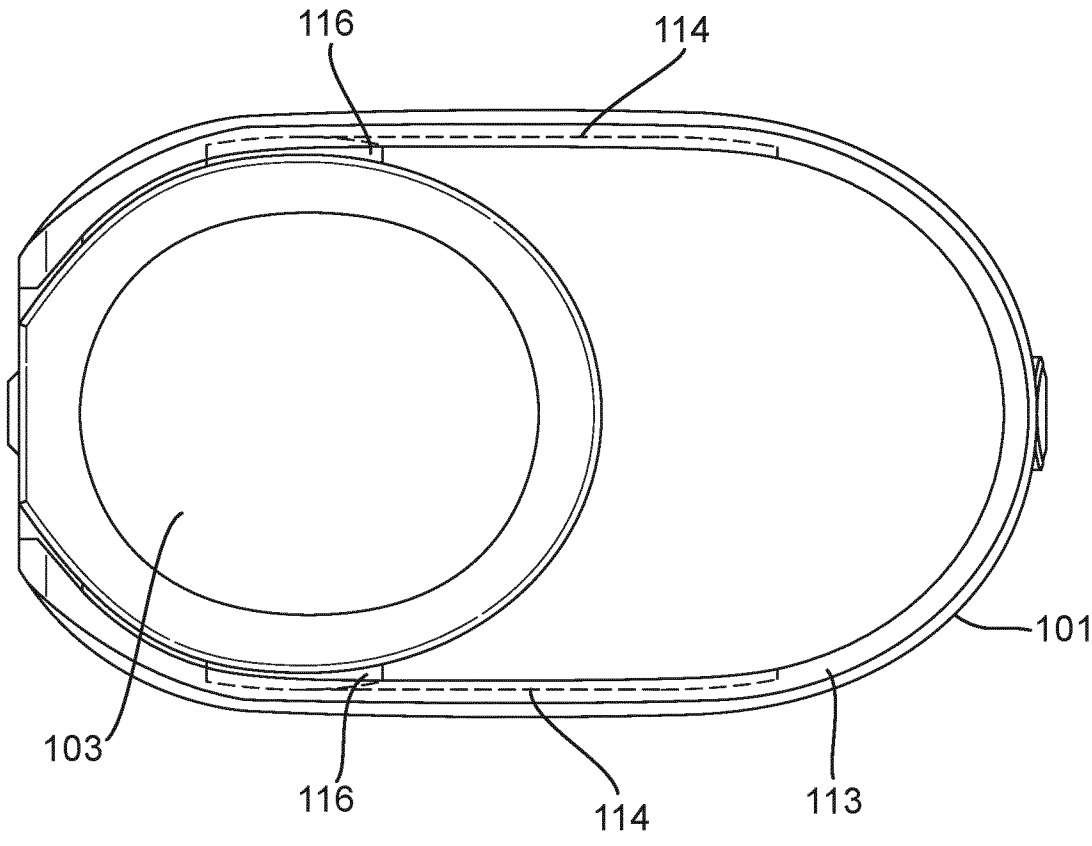


Fig. 9

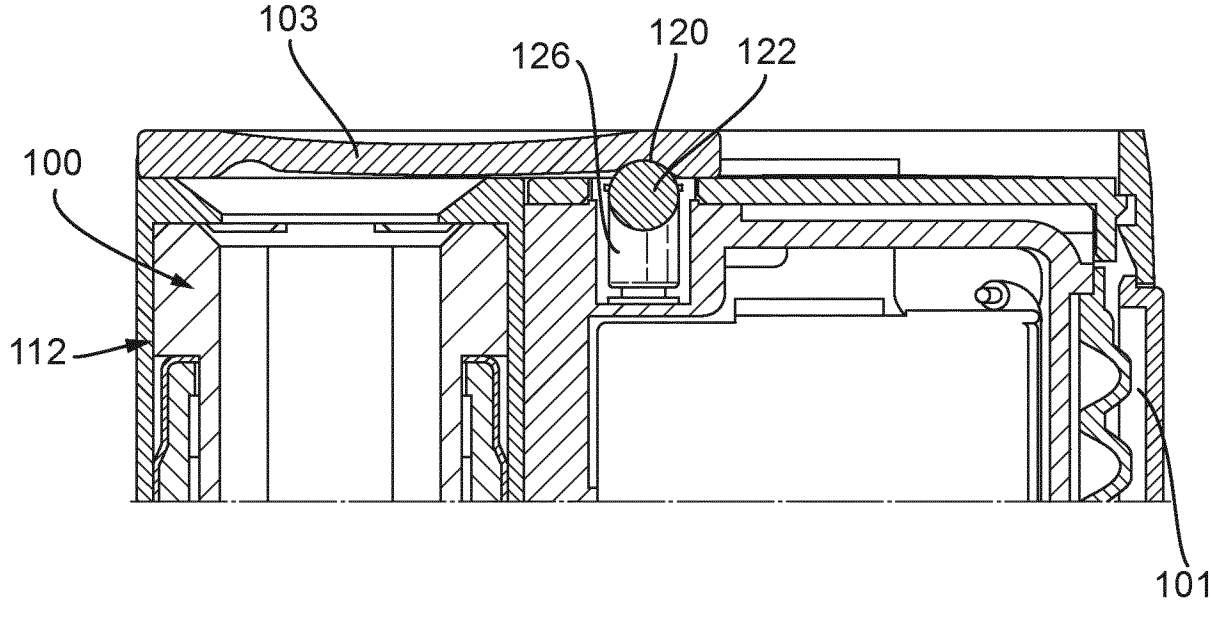
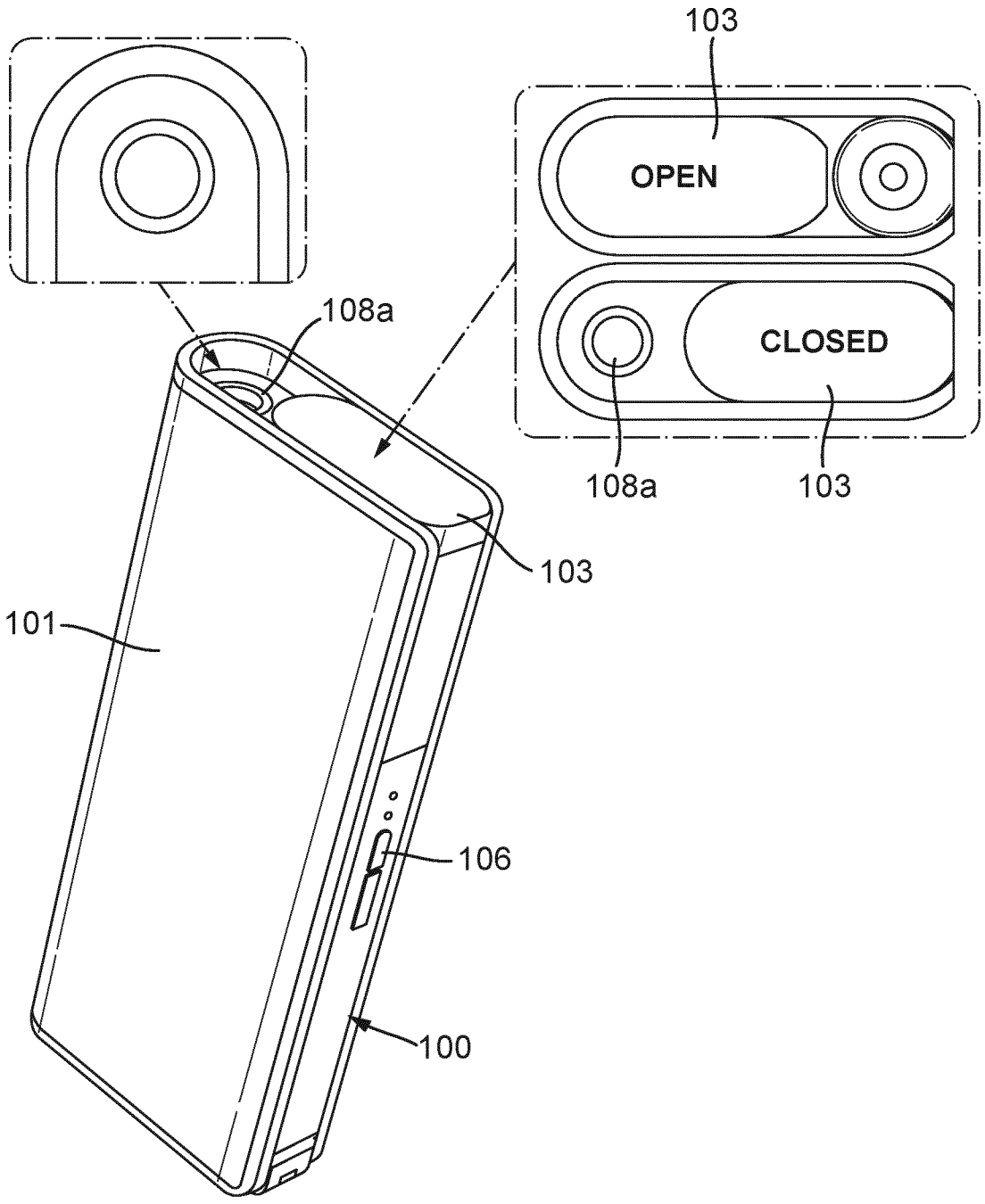


Fig. 10



INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2023/060860

A. CLASSIFICATION OF SUBJECT MATTER
INV. A24F40/60 A24F40/90
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

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	CN 114 336 806 A (SHENZHEN HEYUAN SCIENCE AND TECH LIMITED COMPANY) 12 April 2022 (2022-04-12) abstract; claim 12; figures 1-8 paragraph [0031] paragraph [0042] - paragraph [0061] -----	1-16
X	EP 3 586 655 A1 (JAPAN TOBACCO INC [JP]) 1 January 2020 (2020-01-01) figures 1-4 paragraph [0046] - paragraph [0047] -----	1,10-12, 15,16
X	US 2020/000142 A1 (SCHENNUM STEVEN MICHAEL [GB] ET AL) 2 January 2020 (2020-01-02) claim 1; figures 1-9 paragraph [0024] - paragraph [0025] paragraph [0049] paragraph [0060] - paragraph [0065] ----- -/--	1-4,6-16

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

[x] See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
20 July 2023	01/08/2023

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

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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2023/060860

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2016/029382 A1 (HUIZHOU KIMREE TECHNOLOGY CO LTD [CN]) 3 March 2016 (2016-03-03) abstract; figures 1, 2, 4-8 paragraph [0032] paragraph [0036] - paragraph [0044] paragraph [0046] paragraph [0050] paragraph [0057] - paragraph [0061] paragraph [0065] - paragraph [0066] -----	1-16

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2023/060860

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
CN 114336806 A	12-04-2022	NONE	
EP 3586655 A1	01-01-2020	CA 3055161 A1	20-09-2018
		CN 110418581 A	05-11-2019
		EA 201992100 A1	04-02-2020
		EP 3586655 A1	01-01-2020
		JP 6650550 B2	19-02-2020
		JP WO2018167817 A1	07-11-2019
		KR 20190104612 A	10-09-2019
		TW 201840277 A	16-11-2018
		US 2019387803 A1	26-12-2019
		WO 2018167817 A1	20-09-2018
US 2020000142 A1	02-01-2020	CN 106163304 A	23-11-2016
		CN 109892706 A	18-06-2019
		DK 3171720 T3	25-02-2019
		EP 3125707 A1	08-02-2017
		EP 3821734 A1	19-05-2021
		ES 2704470 T3	18-03-2019
		ES 2820865 T3	22-04-2021
		ES 2940680 T3	10-05-2023
		GB 2524736 A	07-10-2015
		GB 2524851 A	07-10-2015
		HR P20190140 T1	05-04-2019
		HU E042770 T2	29-07-2019
		HU E061287 T2	28-06-2023
		PL 3125707 T3	25-01-2021
		PL 3484012 T3	15-05-2023
		PT 3171720 T	01-02-2019
		RU 2647812 C1	19-03-2018
		RU 2655602 C1	28-05-2018
		RU 2018117145 A	25-10-2018
		US 2017013875 A1	19-01-2017
		US 2020000142 A1	02-01-2020
		US 2023172284 A1	08-06-2023
		WO 2015150759 A1	08-10-2015
WO 2016029382 A1	03-03-2016	CN 204426689 U	01-07-2015
		WO 2016029382 A1	03-03-2016