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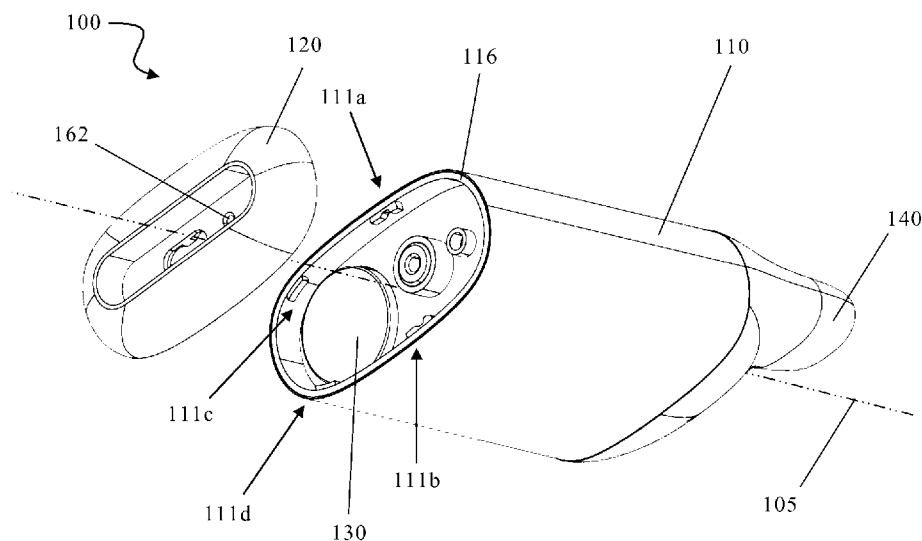


Fig. 6

(57) Abstract: An aerosol-generating apparatus (100) comprising a body (110) defining a battery chamber (150) for releasably housing a battery (130) and a cover (120) for sealing the battery chamber (150). The cover (120) is movable from a sealing configuration in which the cover (120) is connected to the body (110) so that battery chamber (150) is sealed to an open configuration in which the battery chamber (150) is exposed. Preferably, the cover (120) is movable from the sealing to the open configuration by a combination of sliding and axial movement. The apparatus (100) comprises a locking mechanism for locking the cover (120) to the body (110) in the sealing configuration. The battery chamber (150) may house two electric contacts (133a, 133b) at an axial end (152) distal the cover (120). The present disclosure also relates to a method of removing a battery (130) from a battery chamber (150) within a body (110) of an aerosol-generating apparatus (100), the method comprising moving a cover (120) attached to the body (110) from a sealed configuration in which the battery chamber (150) is sealed to an open configuration in which the battery chamber (150) is exposed, and removing the battery (130) from the battery chamber (150) by sliding the battery (130) in an axial direction.

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AEROSOL-GENERATING APPARATUS

FIELD

5 The present disclosure relates to an aerosol-generating apparatus and to a method of removing a battery from an aerosol generating apparatus.

BACKGROUND

10 A typical aerosol-generating apparatus may comprise a power supply, for example, a battery, an aerosol generating unit that is driven by the power supply, an aerosol precursor, which in use is aerosolised by the aerosol generating unit to generate an aerosol, and a delivery system for delivery of the aerosol to a user.

15 A drawback with known aerosol-generating apparatuses is that once the aerosol-generating apparatus is no longer operable because, for example, the battery or liquid precursor has run out, it may not be possible for a user to remove the battery from the device, for example, in order to recycle or replace the battery, resulting in the battery and other components being disposed of together in the general waste where they could otherwise be recycled.

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SUMMARY

In a first aspect the present disclosure provides an aerosol-generating apparatus comprising:

- 25 a body defining a battery chamber for releasably housing a battery;
- a cover for sealing the battery chamber, the cover being movable from a sealing configuration in which the cover is connected to the body so that battery chamber is sealed to an open configuration in which the battery chamber is exposed; and
- a locking mechanism for locking the cover to the body in the sealing configuration, wherein the locking mechanism comprises:
 - 30 a pair of first body lock elements and first cover lock elements, each of the first body lock elements interlocking with the respective first cover lock element in the sealing configuration; and
 - a pair of second body lock elements and second cover lock elements, each of the second body lock elements interlocking with the respective second cover lock element in the sealing configuration.

35 In this way, the cover can be removed from the body to expose the battery chamber to allow removal of a battery from the battery chamber e.g. for removal and disposal of a spent battery. This arrangement may also provide for separate disposal of the body (where the aerosol-generating apparatus is a single-use apparatus) and the battery. The locking mechanism ensures that the cover is not accidentally/inadvertently removed from the body as this could allow the battery to become displaced

40 from the battery chamber. The provision of two pairs of body lock elements and cover lock elements

(i.e. four body lock elements and four cover lock elements) ensures that the cover is securely locked. The battery chamber often houses a sprung-loaded battery, and the two pairs of body/cover lock elements hold the cover in place against the force of the sprung loaded battery.

- 5 Optional features will now be described and may be included alone or in any combination in any aspect of the disclosure.

The two first body lock elements may oppose each other (e.g. symmetrically) across an elongate axis of a base of the body, the base defining an opening into the battery chamber. The two second body
10 lock elements may also oppose each other (e.g. symmetrically) across the elongate axis of the base of the body. Consequently, the two first cover lock elements may oppose each other (e.g. symmetrically) across an elongate axis the cover and the two second cover lock elements may also oppose each other (e.g. symmetrically) across the elongate axis of the cover.

- 15 The two second body lock elements may be proximal the opening into the battery chamber. For example, they may be on opposing sides of the opening into the battery chamber. In this way, the second body lock elements can (by virtue of their interlocking with the associated two second cover lock elements) help resist any forces to the cover applied by the sprung loaded battery.

- 20 The two first body lock elements may be spaced in the direction of the elongate axis of the base of the body from the two second body lock elements.

One of either the first body lock elements or the first cover lock elements may comprise a first male locking structure comprising a respective first lug. The other of the first body lock elements and the first
25 cover lock elements may comprise a first female locking structure comprising a respective first locking recess partly defined by a respective first hook, each first hook for securing the respective first lug within the respective first locking recess. By securing the first lugs within the first locking recesses, the first hooks act to restrict any axial movement of the cover relative to the body thus locking the cover to the body in the sealing configuration.

30 In some embodiments, the first locking recesses each comprise a respective axial portion having a top opening into which the respective first lug can be inserted. The axial portions extend in an axial direction (the axial direction being aligned with a longitudinal axis of the battery chamber/apparatus). The first locking recesses then each further comprise a locking portion extending perpendicular to the respective
35 axial portion. The first hooks partly define the respective locking portions of the first locking recesses and abutment of the first hooks against the first lugs within the locking portions of the first locking recesses prevents axial movement of the first lug (and thus prevents relative axial movement of the cover and body).

In some embodiments, each of the locking portions of the first locking recesses houses a respective locking projection and each of the first lugs comprises a respective indent for releasably receiving the respective projection, each indent interposed between a respective leading portion of the first lug and a respective trailing portion of the first lug (the leading portions being distal the axial portions of the first locking recesses in the sealing configuration of the cover).

The cooperation of the locking projections and indents restricts movement of the first lugs within the locking portions of the first locking recesses (i.e. movement perpendicular to the axial direction). The projections may have an angled i.e. sloped surface proximal the axial portion of the respective first locking recess. They may have an angled i.e. sloped surface distal the axial portion. The angled surfaces of the projections distal the axial portion of the respective first locking recess may have a steeper slope than the angled surfaces of the projections proximal the axial portion of the first locking recess.

The indents in the first lugs may have angled surfaces substantially matching the angled surfaces of the projections.

In some embodiments the first cover lock elements comprise the female locking structure i.e. the first hooks and first locking recesses and the body lock elements comprise the male locking structure i.e. the first lugs.

One of either the second body lock elements or the second cover lock elements may comprise a second male locking structure comprising a respective second lug. The other of the second body lock elements and the second cover lock elements may comprise a second female locking structure comprising a respective second locking recess partly defined by a respective second hook, each second hook for securing the respective second lug within the respective second locking recess. By securing the second lugs within the second locking recesses, the second hooks act to further restrict any axial movement of the cover relative to the body.

In some embodiments, the second locking recesses each comprise a locking portion having a respective side opening into which the respective second lug can be inserted, the locking portions extending perpendicularly to the axial elongation of the battery chamber. The second hooks partly define the locking portions of the second locking recesses and abutment of the second hooks against the respective second lug within the locking portion of the respective second locking recess prevents axial movement of the second lugs (and thus prevents relative axial movement of the cover and body).

In some embodiments the cover lock elements comprise the second female locking structure i.e. the second hook and second locking recess and the two body lock elements comprises the second male locking structure i.e. the second lugs.

In some embodiments first cover lock elements comprise the first female locking structure i.e. the first hooks and first locking recesses, the first body lock elements comprise the first male locking structure i.e. the first lugs, the second cover lock elements comprise the second female locking structure i.e. the second hooks and second locking recesses and the second body lock elements comprise the second male locking structure i.e. the second lugs.

In these embodiments, in order to affix the cover to the body for obtaining the sealing configuration, the first lugs are inserted axially into the axial portions of the locking recesses (via the top openings) and then slid sideways (perpendicular to the axial direction) so that the first lugs move into the locking portion of the respective first locking recess. This sliding causes the second lugs to move into the locking portion of the respective second locking recess through the respective side opening. The first/second lugs move into abutment with the first/second hooks i.e. with the upper surfaces of the leading and trailing portions of the first/second lugs in abutment with the first/second hooks.

As the leading portion of the first lugs meet the respective projection in the locking portion of the respective first locking recess, the leading edge of the first lugs (i.e. the edges distal the axial portion of the respective first locking recess) rides up the angled surface of the respective projection and over the projection until the projection is seated in the indent of the respective first lug. In this way, the first and second hooks limit axial movement of the cover and the projections limit movement perpendicular to the axial direction, Thus the cover is secured to the body in the sealing configuration and the battery chamber is sealed.

Conversely, in these embodiments, to remove the cover from the body, a sliding force is applied to the cover (e.g. by a user) so that the leading portions of the first lugs (i.e. the portion of the first lugs distal the axial portion of the respective first locking recess) slides over the respective projection to unseat each projection from the respective indent to allow sliding of the cover. Once the first lugs reach the axial portion of the respective first locking recess (and the second lugs reach the respective side opening), the first/second lugs can be moved axially within the axial portions so that the cover can be disengaged from the body to expose the battery chamber.

The cover may comprise an inner wall upstanding from a base. When the cover is in its sealing configuration, the inner wall will be partly contained within the body. The first and second cover lock elements may be provided on the inner wall e.g. on an outer surface of the inner wall. For example, there may be two opposed (e.g. symmetrically opposed) first cover lock elements and two opposed (e.g. symmetrically opposed) second cover lock elements formed on the inner wall e.g. on the outer surface of the inner wall. For example, the first and second locking recesses may be formed in the inner wall e.g. the locking recesses may extend into the inner wall from the outer surface thereof. In these embodiments, the top openings into the axial portions of the first locking recesses may be provided on an upper edge of the inner wall. The inner wall may define the first and second hooks.

The side openings into the locking portions of the second locking recesses may be on a side edge of the inner wall e.g. on a side edge defined by a deflection (e.g. a curve) in the inner wall. For example, the inner wall may be an annular wall (e.g. defining a circle, oval, mandorla, or stadium shape) and the axis through the side openings may extend at a tangent to the curved inner wall.

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The inner wall may define a cavity having a geometric centre which is offset from the geometric centre of the base of the cover. In this way, the first/second lugs and axial portions of the first/second locking recesses can be aligned with the base laterally offset (i.e. in a direction perpendicular to the axial direction) from the body and then the base can be slid to align with the body as the first/second lugs are slid into the locking portions of the respective first/second locking recesses.

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The body i.e. the base of the body may comprise an outer wall which may circumscribe the inner wall of the cover when the cover is in the sealing configuration. The outer wall may be annular (e.g. defining a circle, oval, mandorla, or stadium shape). The first and second body lock elements may be provided on the outer wall e.g. on an inner surface of the outer wall. For example, there may be two opposed (e.g. symmetrically opposed) first body lock elements and two opposed (e.g. symmetrically opposed) second body lock elements formed on the outer wall e.g. on the inner surface of the outer wall. For example, the first/second lugs may be formed on the outer wall e.g. the first/second lugs may protrude from the inner surface of the outer wall. The first/second lugs may be aligned with a bottom edge of the outer wall. The bottom edge of the outer wall will seat against the base of the cover.

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In some embodiments, the cover is slidable from the sealing configuration to the open configuration. In some embodiments, the movement of the cover from the sealing to the open configuration comprises both axial and sliding movement (the sliding being perpendicular to the axial movement). In some embodiments, the cover is movable from the open configuration to the sealing configuration. In some embodiments, the cover is slidable from the open configuration to the sealing configuration. In some embodiments, the movement of the cover from the open to the sealing configuration comprises both axial and sliding movement (the sliding being perpendicular to the axial movement).

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In some embodiments, the cover is disconnected from the body in the open configuration.

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In some embodiments, the cover comprises a resilient member extending into the battery chamber (at a first axial end) for biasing a battery contained within the chamber towards electric contact(s) at a second axial end. This helps secure the positioning of the battery within the chamber in order to ensure a good connection between the battery contacts and the electric contacts at the second axial end of the battery chamber. The resilient member may be housed in the cavity defined within the inner wall of the cover. The resilient member may be formed of a resiliently deformable material such as silicone or rubber.

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The cover may comprise an air inlet for an airflow path along which air can be drawn by the user e.g. by inhalation at a mouthpiece portion distal the cover. The airflow path will extend through the body via an aerosol-generating unit. The airflow path may extend through the resilient member. For example, the resilient member may comprise an opening defining a portion of the airflow path.

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The body may comprise an airflow sensor (also known as a puff sensor) configured to trigger heating of a heating element in the aerosol-generating unit upon a decrease in pressure along the airflow path caused by inhalation at the mouthpiece portion. The airflow sensor may include a microphone.

- 10 The cover may comprise a movable blocking element (e.g. a slidable blocking element) for reversibly blocking the air inlet in order to block the airflow path thus preventing activation of the aerosol-generating unit by the airflow sensor. The blocking element may be mounted e.g. slidably mounted on the base of the cover e.g. on an outer surface of the cover opposing an inner surface from which the inner wall extends. The blocking element may be slideable relative to the cover in the same direction
- 15 as the cover is slideable relative to the body. In these embodiments, the force required to slide the blocking element relative to the cover (i.e. to block the air inlet) may be less than the force required to slide the cover relative to the body (i.e. to remove the cover from the body).

- The second axial end of the battery chamber (i.e. the end distal the cover) may house at least one and
- 20 preferably two electric contacts e.g. sprung electric contacts. In this way, a battery having battery terminals at one axial end inserted into the battery chamber can form a connection with the electric contacts in the battery chamber to provide power to an aerosol-generating unit (e.g. a heating system) within the apparatus.

- 25 The/each contact may have a fixing end connected to the body at the second axial end and a free end within the battery chamber. The/each sprung contact may be configured to flex between the fixing end and free end so that the/each contact is resiliently biased into the battery chamber. The/each sprung contact may comprise at least one pivot point about which the flexing may occur (as a result of contact with the battery terminals).

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- In some examples, the/each sprung electric contact may have a substantially serpentine-shaped cross section in a plane extending through the first and the second axial ends of the battery chamber. That is, the/each sprung electric contact may comprise a plurality of linear portions and a plurality of bends joining adjacent linear portions to provide the serpentine shape. At least some of the linear portions
- 35 may be parallel to one another. Some/each of the plurality of linear portions may extend substantially parallel to the axial direction. The plurality of linear portions may overlies one another along the axial direction (i.e. such that a line extending along the axial direction transects all of the linear portions). The bends are for joining adjacent linear portions to one another. In some examples, the/each sprung electric contact may have four linear portions and three bends connecting adjacent linear portions. The
- 40 serpentine shape provides the resilient properties of the/each sprung electric contact so as to bias it

into the battery chamber while also allowing it to compress (by flexing about at least one bend) when the battery pushes against it during insertion of the battery into the battery chamber.

In other examples, the/each electric contact may include a cantilever portion e.g. deformable cantilever portion extending between a fixing portion at the fixing end and the free end of the contact i.e. the free end is provided at the end of the cantilever portion distal the fixing portion. When the battery is inserted into the battery chamber, the battery terminals may engage with and resiliently deform the/each cantilever portion such that the/each cantilever portion is biased into contact with the/each corresponding battery terminal. Thus, the/each electric contact may have a substantially L-shaped cross section in a plane extending through the first and the second axial ends of the battery chamber (e.g. the cantilever portion may join (e.g. at right angles) an elongate fixing portion).

In some examples, the/each sprung electric contact may have a respective convex portion (proximal the free end of the contact) for contacting the respective battery terminal in use. The/each convex portion may comprise a contact bend may comprise two linear portions extending inwardly into the battery chamber. They may extend inwardly substantially axially and may be substantially parallel to one another. The two linear portions may be connected by a curved contact portion having a surface configured to contact the respective battery terminal. The curved contact portion will be convexly curved into the battery chamber, along the axial direction.

The convex portion may comprise a dome e.g. a hollow dome.

Conveniently, the convex portion e.g. the curved contact portion of the contact bend or the (hollow) dome can extend towards the respective battery terminal in use to achieve robust electric contact therewith. In some examples, the/each contact bend/(hollow) dome may be substantially U-shaped in a plane extending along the axial direction.

In embodiments comprising a serpentine sprung electric contact, the linear portions of the contact bend may be substantially perpendicular to the linear portions of the sprung electric contact providing its serpentine shape.

In embodiments comprising a cantilever portion, the convex portion e.g. the (hollow) dome may extend from the cantilever portion (e.g. proximal the free end) into the battery chamber. For example, the cantilever portion may be deformed downwardly proximal the free end into the battery chamber to provide the convex portion. Thus the (hollow) dome may be integrally formed with the cantilever portion.

In some embodiments, the body further comprises a feedback element e.g. a haptic, visual or audible feedback element and a controller. The controller may be configured to generate a signal upon the connection of the battery terminals to the electric contacts at the second axial end of the battery

chamber, the signal for causing the feedback element to provide feedback to a user (e.g. a haptic, visible, audible feedback to a user) to inform the user of the successful contact connection.

In a second aspect, there is provided a method of removing a battery from a battery chamber within a body of an aerosol generating apparatus according to the first aspect, the method comprising moving a cover attached to the body from a sealed configuration in which the battery chamber is sealed to an open configuration in which the battery chamber is exposed, and removing the battery from the battery chamber.

In a third aspect, there is provided a method of inserting a battery into a battery chamber within a body of an aerosol generating apparatus according to the first aspect, the method comprising inserting a battery into the battery chamber and moving a cover from an open configuration in which the battery chamber is exposed to a sealed configuration in which the battery chamber is sealed.

The battery may be removed from or inserted into the battery chamber by sliding in an axial direction (i.e. in a direction aligned with the axis of the battery chamber).

In some embodiments, the method comprises sliding the cover between the sealing configuration and the open configuration. In some embodiments, the method comprises both axial and sliding movement of the cover to move it between the sealing and the open configuration (the sliding being perpendicular to the axial movement).

In some embodiments, the method comprises disconnecting the cover from the body in the open configuration.

In some embodiments of the second aspect, the method comprises unlocking the locking mechanism. In some embodiments of the third aspect, the method comprises locking the locking mechanism.

The locking mechanism is as described above for the first aspect.

Accordingly, in some embodiments of the second aspect, the method comprises applying a sliding force to the cover (i.e. by a user) so that the leading portion of the first lugs (i.e. the portion of the first lugs distal the axial portion of the respective first locking recess) slides over the respective projection to unseat the projection from the respective indent to allow sliding of the cover. Once the first lugs reach the axial portions of the respective first locking recess, they can be moved axially within the axial portions so that the cover can be disengaged from the body to expose the battery chamber. The method will also comprise sliding the second lugs from the second locking recesses to the side openings where they can be removed by the axial movement.

In some embodiments, of the third aspect, embodiments, the method comprises inserting the first lugs axially into the axial portions of the respective first locking recess and then sliding the cover sideways (perpendicular to the axial direction) so that the first lugs lug move into the locking portion of the respective first locking recess in abutment with the respective first hook i.e. with the upper surfaces of the leading and trailing portions of the first lugs in abutment with the respective hooks. As the leading portions of the first lugs meet the projections in the locking portions of the first locking recesses, the leading edges of the first lugs (i.e. the edges distal the axial portions of the respective first locking recesses) ride up the angled surfaces of the projections and over the projections until the projections are seated in the respective indent of the first lugs. In this way, the first hooks limit axial movement of the cover and the projections limit movement perpendicular to the axial direction. As the first lugs slide into the locking portion of the first locking recesses, the second lugs will enter the side openings and slide into the locking portions of the second locking recesses into abutment with the second hooks. Thus the cover is secured to the body in the sealing configuration and the battery chamber is sealed.

In some embodiments of the third aspect, the method comprises securing the position of the battery within the chamber using a resilient member (e.g. as described above for the first aspect) on the cover.

In some embodiments of the third aspect, the method may further comprise preventing activation of an aerosol-generating unit within the body by blocking an air inlet in the cover, the air inlet connected to a flow path comprising an airflow sensor. The method may comprise moving e.g. sliding a blocking element mounted on the cover over the air inlet.

In some embodiments of the second aspect, the method comprises ejecting the battery from the battery chamber using at least one e.g. two sprung electric contacts mounted at the second axial end of the battery chamber (i.e. at the opposed end to the removable cover). The sprung electric contacts may be as described for the first aspect.

In some embodiments of the third aspect, the method further comprises providing feedback e.g. a haptic, visual or audible feedback upon the connection of the battery terminals to the electric contacts at the second axial end of the battery chamber to inform the user of the successful contact connection.

The preceding summary is provided for purposes of summarizing some examples to provide a basic understanding of aspects of the subject matter described herein. Accordingly, the above-described features should not be construed to narrow the scope or spirit of the subject matter described herein in any way. Moreover, the above and/or proceeding examples may be combined in any suitable combination to provide further examples, except where such a combination is clearly impermissible or expressly avoided. Other features, aspects, and advantages of the subject matter described herein will become apparent from the following text and the accompanying drawings.

BRIEF DESCRIPTION OF THE FIGURES

Aspects, features and advantages of the present disclosure will become apparent from the following description of examples in reference to the appended drawings in which like numerals denote like elements.

- 5 Fig. 1 is a block system diagram showing an example aerosol generating apparatus.
Fig. 2 is a block system diagram showing an example implementation of the apparatus of Fig. 1, where the aerosol generating apparatus is configured to generate aerosol from a liquid precursor.
Figs. 3A and 3B are schematic diagrams showing an example implementation of the apparatus of Fig. 2.
- 10 Fig. 4 is a block system diagram showing an example implementation of the apparatus of Fig. 1, where the aerosol generating apparatus is configured to generate aerosol from a solid precursor.
Fig. 5 is a schematic diagram showing an example implementation of the apparatus of Fig. 4.
Fig. 6 is an exploded perspective view of an aerosol-generating apparatus 100 according to the first aspect with some optional components hidden for clarity.
- 15 Fig. 7 is an alternative exploded perspective view of the aerosol-generating apparatus 100 of Fig. 6.
Fig. 8 is an exploded side view of the aerosol-generating apparatus 100 of Fig. 6.
Fig. 9 is a top view of the cover 120 of the aerosol-generating apparatus 100 of Fig. 6.
Fig. 10 is a top section view of the cover 120 of Fig. 9 through section A-A labelled on Fig. 8.
Fig. 11 is a bottom view of the body 110 of the aerosol-generating apparatus 110 of Fig. 6.
- 20 Fig. 12 is a perspective section view of the body 110 of Fig. 11 through the section B-B labelled on Fig. 11.
Fig. 13 is a perspective section view of the aerosol-generating apparatus 100 of Fig. 6.
Fig. 14 is a perspective view of the electric contacts 133a, 133b of the aerosol-generating apparatus 100 of Fig. 6 isolated from all other components.

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DETAILED DESCRIPTION OF EMBODIMENTS

- Before describing several examples implementing the present disclosure, it is to be understood that the present disclosure is not limited by specific construction details or process steps set forth in the following
- 30 description and accompanying drawings. Rather, it will be apparent to those skilled in the art having the benefit of the present disclosure that the systems, apparatuses and/or methods described herein could be embodied differently and/or be practiced or carried out in various alternative ways.

- Unless otherwise defined herein, scientific and technical terms used in connection with the presently
- 35 disclosed inventive concept(s) shall have the meanings that are commonly understood by those of ordinary skill in the art, and known techniques and procedures may be performed according to conventional methods well known in the art and as described in various general and more specific references that may be cited and discussed in the present specification.

Any patents, published patent applications, and non-patent publications mentioned in the specification are hereby incorporated by reference in their entirety.

5 All examples implementing the present disclosure can be made and executed without undue experimentation in light of the present disclosure. While particular examples have been described, it will be apparent to those of skill in the art that variations may be applied to the systems, apparatus, and/or methods and in the steps or in the sequence of steps of the methods described herein without departing from the concept, spirit, and scope of the inventive concept(s). All such similar substitutions and modifications apparent to those skilled in the art are deemed to be within the spirit, scope, and
10 concept of the inventive concept(s) as defined by the appended claims.

The use of the term “a” or “an” in the claims and/or the specification may mean “one,” as well as “one or more,” “at least one,” and “one or more than one.” As such, the terms “a,” “an,” and “the,” as well as all singular terms, include plural referents unless the context clearly indicates otherwise. Likewise, plural
15 terms shall include the singular unless otherwise required by context.

The use of the term “or” in the present disclosure (including the claims) is used to mean an inclusive “and/or” unless explicitly indicated to refer to alternatives only or unless the alternatives are mutually exclusive. For example, a condition “A or B” is satisfied by any of the following: A is true (or present)
20 and B is false (or not present), A is false (or not present) and B is true (or present), and both A and B are true (or present).

As used in this specification and claim(s), the words “comprising,” “having,” “including,” or “containing” (and any forms thereof, such as “comprise” and “comprises,” “have” and “has,” “includes” and “include,”
25 or “contains” and “contain,” respectively) are inclusive or open-ended and do not exclude additional, unrecited elements or method steps.

Unless otherwise explicitly stated as incompatible, or the physics or otherwise of the embodiments, examples, or claims prevent such a combination, the features of examples disclosed herein, and of the
30 claims, may be integrated together in any suitable arrangement, especially ones where there is a beneficial effect in doing so. This is not limited to only any specified benefit, and instead may arise from an “ex post facto” benefit. This is to say that the combination of features is not limited by the described forms, particularly the form (e.g. numbering) of example(s), embodiment(s), or dependency of claim(s). Moreover, this also applies to the phrase “in one embodiment,” “according to an embodiment,” and the
35 like, which are merely a stylistic form of wording and are not to be construed as limiting the following features to a separate embodiment to all other instances of the same or similar wording. This is to say, a reference to ‘an,’ ‘one,’ or ‘some’ embodiment(s) may be a reference to any one or more, and/or all embodiments, or combination(s) thereof, disclosed. Also, similarly, the reference to “the” embodiment may not be limited to the immediately preceding embodiment. Further, all references to one or more
40 embodiments or examples are to be construed as non-limiting to the claims.

The present disclosure may be better understood in view of the following explanations, wherein the terms used that are separated by "or" may be used interchangeably:

5 As used herein, an "aerosol generating apparatus" (or "electronic(e)-cigarette") may be an apparatus configured to deliver an aerosol to a user for inhalation by the user. The apparatus may additionally/alternatively be referred to as a "smoking substitute apparatus", if it is intended to be used instead of a conventional combustible smoking article. As used herein a combustible "smoking article" may refer to a cigarette, cigar, pipe or other article, that produces smoke (an aerosol comprising solid
10 particulates and gas) via heating above the thermal decomposition temperature (typically by combustion and/or pyrolysis). An aerosol generated by the apparatus may comprise an aerosol with particle sizes of 0.2 - 7 microns, or less than 10 microns, or less than 7 microns. This particle size may be achieved by control of one or more of: heater temperature; cooling rate as the vapour condenses to an aerosol; flow properties including turbulence and velocity. The generation of aerosol by the aerosol
15 generating apparatus may be controlled by an input device. The input device may be configured to be user-activated, and may for example include or take the form of an actuator (e.g. actuation button) and/or an airflow sensor.

Each occurrence of the aerosol generating apparatus being caused to generate aerosol for a period of
20 time (which may be variable) may be referred to as an "**activation**" of the aerosol generating apparatus. The aerosol generating apparatus may be arranged to allow an amount of aerosol delivered to a user to be varied per activation (as opposed to delivering a fixed dose of aerosol), e.g. by activating an aerosol generating unit of the apparatus for a variable amount of time, e.g. based on the strength/duration of a draw of a user through a flow path of the apparatus (to replicate an effect of
25 smoking a conventional combustible smoking article).

The aerosol generating apparatus may be portable. As used herein, the term "portable" may refer to the apparatus being for use when held by a user.

30 As used herein, an "aerosol generating system" may be a system that includes an aerosol generating apparatus and optionally other circuitry/components associated with the function of the apparatus, e.g. one or more external devices and/or one or more external components (here "external" is intended to mean external to the aerosol generating apparatus).

35 As used herein, an "external device" and "external component" may include one or more of a: a charging device, a mobile device (which may be connected to the aerosol generating apparatus, e.g. via a wireless or wired connection); a networked-based computer (e.g. a remote server); a cloud-based computer; any other server system.

An example aerosol generating system may be a system for managing an aerosol generating apparatus. Such a system may include, for example, a mobile device, a network server, as well as the aerosol generating apparatus.

5 As used herein, an "aerosol" may include a suspension of precursor, including as one or more of: solid particles; liquid droplets; gas. Said suspension may be in a gas including air. An aerosol herein may generally refer to/include a vapour. An aerosol may include one or more components of the precursor.

10 As used herein, a "precursor" may include one or more of a: liquid; solid; gel; loose leaf material; other substance. The precursor may be processed by an aerosol generating unit of an aerosol generating apparatus to generate an aerosol. The precursor may include one or more of: an active component; a carrier; a flavouring. The active component may include one or more of nicotine; caffeine; a cannabidiol oil; a non-pharmaceutical formulation, e.g. a formulation which is not for treatment of a disease or physiological malfunction of the human body. The active component may be carried by the carrier,
15 which may be a liquid, including propylene glycol and/or glycerine. The term "flavouring" may refer to a component that provides a taste and/or a smell to the user. The flavouring may include one or more of: Ethylvanillin (vanilla); menthol, Isoamyl acetate (banana oil); or other. The precursor may include a substrate, e.g. reconstituted tobacco to carry one or more of the active component; a carrier; a flavouring.

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As used herein, a "storage portion" may be a portion of the apparatus adapted to store the precursor. It may be implemented as fluid-holding reservoir or carrier for solid material depending on the implementation of the precursor as defined above.

25 As used herein, a "flow path" may refer to a path or enclosed passageway through an aerosol generating apparatus, e.g. for delivery of an aerosol to a user. The flow path may be arranged to receive aerosol from an aerosol generating unit. When referring to the flow path, upstream and downstream may be defined in respect of a direction of flow in the flow path, e.g. with an outlet being downstream of an inlet.

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As used herein, a "delivery system" may be a system operative to deliver an aerosol to a user. The delivery system may include a mouthpiece and a flow path.

35 As used herein, a "flow" may refer to a flow in a flow path. A flow may include aerosol generated from the precursor. The flow may include air, which may be induced into the flow path via a puff by a user.

As used herein, a "**puff**" (or "inhale" or "draw") by a user may refer to expansion of lungs and/or oral cavity of a user to create a pressure reduction that induces flow through the flow path.

As used herein, an "aerosol generating unit" may refer to a device configured to generate an aerosol from a precursor. The aerosol generating unit may include a unit to generate a vapour directly from the precursor (e.g. a heating system or other system) or an aerosol directly from the precursor (e.g. an atomiser including an ultrasonic system, a flow expansion system operative to carry droplets of the precursor in the flow without using electrical energy or other system). A plurality of aerosol generating units to generate a plurality of aerosols (for example, from a plurality of different aerosol precursors) may be present in an aerosol generating apparatus.

As used herein, a "heating system" may refer to an arrangement of at least one heating element, which is operable to aerosolise a precursor once heated. The at least one heating element may be electrically resistive to produce heat from the flow of electrical current therethrough. The at least one heating element may be arranged as a susceptor to produce heat when penetrated by an alternating magnetic field. The heating system may be configured to heat a precursor to below 300 or 350 degrees C, including without combustion.

As used herein, a "consumable" may refer to a unit that includes a precursor. The consumable may include an aerosol generating unit, e.g. it may be arranged as a cartomizer. The consumable may include a mouthpiece. The consumable may include an information carrying medium. With liquid or gel implementations of the precursor, e.g. an e-liquid, the consumable may be referred to as a "capsule" or a "pod" or an "e-liquid consumable". The capsule/pod may include a storage portion, e.g. a reservoir or tank, for storage of the precursor. With solid material implementations of the precursor, e.g. tobacco or reconstituted tobacco formulation, the consumable may be referred to as a "stick" or "package" or "heat-not-burn consumable". In a heat-not-burn consumable, the mouthpiece may be implemented as a filter and the consumable may be arranged to carry the precursor. The consumable may be implemented as a dosage or pre-portioned amount of material, including a loose-leaf product.

As used herein, an "information carrying medium" may include one or more arrangements for storage of information on any suitable medium. Examples include: a computer readable medium; a Radio Frequency Identification (RFID) transponder; codes encoding information, such as optical (e.g. a bar code or QR code) or mechanically read codes (e.g. a configuration of the absence or presents of cut-outs to encode a bit, through which pins or a reader may be inserted).

As used herein "heat-not-burn" (or "HNB" or "heated precursor") may refer to the heating of a precursor, typically tobacco, without combustion, or without substantial combustion (i.e. localised combustion may be experienced of limited portions of the precursor, including of less than 5% of the total volume).

Referring to Fig. 1, an example aerosol generating apparatus 1 includes a power supply 2, for supply of electrical energy. The apparatus 1 includes an aerosol generating unit 4 that is driven by the power supply 2. The power supply 2 may include an electric power supply in the form of a battery and/or an

electrical connection to an external power source. The apparatus 1 includes a precursor 6, which in use is aerosolised by the aerosol generating unit 4 to generate an aerosol. The apparatus 2 includes a delivery system 8 for delivery of the aerosol to a user.

- 5 Electrical circuitry (not shown in figure 1) may be implemented to control the interoperability of the power supply 4 and aerosol generating unit 6.

In variant examples, which are not illustrated, the power supply 2 may be omitted since, e.g. an aerosol generating unit implemented as an atomiser with flow expansion may not require a power supply.

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Fig. 2 shows an implementation of the apparatus 1 of Fig. 1, where the aerosol generating apparatus 1 is configured to generate aerosol from a liquid precursor.

In this example, the apparatus 1 includes a device body 10 and a consumable 30.

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In this example, the body 10 includes the power supply 4. The body may additionally include any one or more of electrical circuitry 12, a memory 14, a wireless interface 16, one or more other components 18.

- 20 The electrical circuitry 12 may include a processing resource for controlling one or more operations of the body 10 and consumable 30, e.g. based on instructions stored in the memory 14.

The wireless interface 16 may be configured to communicate wirelessly with an external (e.g. mobile) device, e.g. via Bluetooth.

25

The other component(s) 18 may include one or more user interface devices configured to convey information to a user and/or a charging port, for example (see e.g. Fig. 3).

- 30 The consumable 30 includes a storage portion implemented here as a tank 32 which stores the liquid precursor 6 (e.g. e-liquid). The consumable 30 also includes a heating system 34, one or more air inlets 36, and a mouthpiece 38. The consumable 30 may include one or more other components 40.

- 35 The body 10 and consumable 30 may each include a respective electrical interface (not shown) to provide an electrical connection between one or more components of the body 10 with one or more components of the consumable 30. In this way, electrical power can be supplied to components (e.g. the heating system 34) of the consumable 30, without the consumable 30 needing to have its own power supply.

- 40 In use, a user may activate the aerosol generating apparatus 1 when inhaling through the mouthpiece 38, i.e. when performing a puff. The puff, performed by the user, may initiate a flow through a flow path

in the consumable 30 which extends from the air inlet(s) 34 to the mouthpiece 38 via a region in proximity to the heating system 34.

Activation of the aerosol generating apparatus 1 may be initiated, for example, by an airflow sensor in the body 10 which detects airflow in the aerosol generating apparatus 1 (e.g. caused by a user inhaling through the mouthpiece), or by actuation of an actuator included in the body 10. Upon activation, the electrical circuitry 12 (e.g. under control of the processing resource) may supply electrical energy from the power supply 2 to the heating system 34 which may cause the heating system 32 to heat liquid precursor 6 drawn from the tank to produce an aerosol which is carried by the flow out of the mouthpiece 38.

In some examples, the heating system 34 may include a heating filament and a wick, wherein a first portion of the wick extends into the tank 32 in order to draw liquid precursor 6 out from the tank 32, wherein the heating filament coils around a second portion of the wick located outside the tank 32. The heating filament may be configured to heat up liquid precursor 6 drawn out of the tank 32 by the wick to produce the aerosol.

In this example, the aerosol generating unit 4 is provided by the above-described heating system 34 and the delivery system 8 is provided by the above-described flow path and mouthpiece 38.

In variant embodiments (not shown), any one or more of the precursor 6, heating system 34, air inlet(s) 36 and mouthpiece 38, may be included in the body 10. For example, the mouthpiece 36 may be included in the body 10 with the precursor 6 and heating system 32 arranged as a separable cartomizer.

Figs. 3A and 3B show an example implementation of the aerosol generating device 1 of Fig. 2. In this example, the consumable 30 is implemented as a capsule/pod, which is shown in Fig. 3A as being physically coupled to the body 10, and is shown in Fig. 3B as being decoupled from the body 10.

In this example, the body 10 and the consumable 30 are configured to be physically coupled together by pushing the consumable 30 into an aperture in a top end 11 the body 10, with the consumable 30 being retained in the aperture via an interference fit.

In other examples (not shown), the body 10 and the consumable 30 could be physically coupled together in other ways, e.g. by screwing one onto the other, through a bayonet fitting, or through a snap engagement mechanism, for example.

The body 10 also includes a charging port (not shown) at a bottom end 13 of the body 10.

The body 10 also includes a user interface device configured to convey information to a user. Here, the user interface device is implemented as a light 15, which may e.g. be configured to illuminate when the apparatus 1 is activated. Other user interface devices are possible, e.g. to convey information haptically or audibly to a user.

In this example, the consumable 30 has an opaque cap 31, a translucent tank 32 and a translucent window 33. When the consumable 30 is physically coupled to the body 10 as shown in Fig. 3A, only the cap 31 and window 33 can be seen, with the tank 32 being obscured from view by the body 10. The body 10 includes a slot 15 to accommodate the window 33. The window 33 is configured to allow the amount of liquid precursor 6 in the tank 32 to be visually assessed, even when the consumable 30 is physically coupled to the body 10.

Fig. 4 shows an implementation of the apparatus 1 of Fig. 1, where the aerosol generating apparatus 1 is configured to generate aerosol by a-heat not-burn process.

In this example, the apparatus 1 includes a device body 50 and a consumable 70.

In this example, the body 50 includes the power supply 4 and a heating system 52. The heating system 54 includes at least one heating element 54. The body may additionally include any one or more of electrical circuitry 56, a memory 58, a wireless interface 60, one or more other components 62.

The electrical circuitry 56 may include a processing resource for controlling one or more operations of the body 50, e.g. based on instructions stored in the memory 58.

The wireless interface 60 may be configured to communicate wirelessly with an external (e.g. mobile) device, e.g. via Bluetooth.

The other component(s) 62 may include an actuator, one or more user interface devices configured to convey information to a user and/or a charging port, for example (see e.g. Fig. 5).

The body 50 is configured to engage with the consumable 70 such that the at least one heating element 54 of the heating system 52 penetrates into the solid precursor 6 of the consumable. In use, a user may activate the aerosol generating apparatus 1 to cause the heating system 52 of the body 50 to cause the at least one heating element 54 to heat the solid precursor 6 of the consumable (without combusting it) by conductive heat transfer, to generate an aerosol which is inhaled by the user.

Fig. 5 shows an example implementation of the aerosol generating device 1 of Fig. 4.

As depicted in Fig. 5, the consumable 70 is implemented as a stick, which is engaged with the body 50 by inserting the stick into an aperture at a top end 53 of the body 50, which causes the at least one heating element 54 of the heating system 52 to penetrate into the solid precursor 6.

The consumable 70 includes the solid precursor 6 proximal to the body 50, and a filter distal to the body 50. The filter serves as the mouthpiece of the consumable 70 and thus the apparatus 1 as a whole. The solid precursor 6 may be a reconstituted tobacco formulation.

- 5 In this example, the at least one heating element 54 is a rod-shaped element with a circular transverse profile. Other heating element shapes are possible, e.g. the at least one heating element may be blade-shaped (with a rectangular transverse profile) or tube-shaped (e.g. with a hollow transverse profile).

- 10 In this example, the body 50 includes a cap 51. In use the cap 51 is engaged at a top end 53 of the body 50. Although not apparent from Fig. 5, the cap 51 is moveable relative to the body 50. In particular, the cap 51 is slidable and can slide along a longitudinal axis of the body 50.

- 15 The body 50 also includes an actuator 55 on an outer surface of the body 50. In this example, the actuator 55 has the form of a button.

- The body 50 also includes a user interface device configured to convey information to a user. Here, the user interface device is implemented as a plurality of lights 57, which may e.g. be configured to illuminate when the apparatus 1 is activated and/or to indicate a charging state of the power supply 4. Other user interface devices are possible, e.g. to convey information haptically or audibly to a user.

- 20 The body may also include an airflow sensor which detects airflow in the aerosol generating apparatus 1 (e.g. caused by a user inhaling through the consumable 70). This may be used to count puffs, for example.

- 25 In this example, the consumable 70 includes a flow path which transmits aerosol generated by the at least one heating element 54 to the mouthpiece of the consumable.

- 30 In this example, the aerosol generating unit 4 is provided by the above-described heating system 52 and the delivery system 8 is provided by the above-described flow path and mouthpiece of the consumable 70.

- Referring to Figs. 6 to 13 an aerosol-generating apparatus 100, which may be implemented in any of the preceding examples, comprises: a body 110 defining a battery chamber 150 (visible in Fig. 12); and a removeable cover 120 for sealing the battery chamber 150. The battery chamber 150 is configured to removably house a battery 130. The body 110 is elongate and has a longitudinal axis 105.

The aerosol-generating apparatus 100 further comprises a first locking mechanism and a second locking mechanism for locking the cover 120 to the body 110 in a sealing configuration.

On the body 110, the first locking mechanism comprises two opposing first body lock elements 111a, 111b and the second locking mechanism comprises two opposing second body lock elements 111c, 111d. The two first body lock elements 111a, 111b are laterally offset (in a direction perpendicular to the longitudinal axis 105) from the two second body lock elements 111c, 111d.

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On the cover 120, the first locking mechanism comprises two opposing first cover lock elements 121a, 121b and the second locking mechanism comprises two opposing second cover lock elements 121c, 121d. The two first cover lock elements 121a, 121b are laterally offset (in a direction perpendicular to the longitudinal axis 105) from the two second cover lock elements 121c, 121d.

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In the sealing configuration, the first body lock elements 111a, 111b interlock with the first cover lock elements 121a, 121b in corresponding pairs and the second body lock elements 111c, 111d interlock with the second cover lock elements 121c, 121d in corresponding pairs.

15 Each first body lock element 111a, 111b comprises a male locking structure comprising a first lug 112a, 112b. Each first cover lock element 121a, 121b comprises a female locking structure comprising a first locking recess 122a, 122b partly defined by a first hook 126a, 126b. Each first hook 126a, 126b is for securing the corresponding first lug 112a, 112b within the corresponding first locking recess 122a, 122b.

20 Each first locking recess 122a, 122b includes an axial portion 124a, 124b having a top opening into which each corresponding first lug 112a, 112b can be inserted. Each axial portion 124a, 124b extends in an axial direction (parallel to the longitudinal axis 105). Each first locking recess 122a, 122b then further comprises a locking portion 123a, 123b extending perpendicular to the corresponding axial portion 124a, 124b. Each first hook 126a, 126b partly defines the locking portion 123a, 123b of each
25 corresponding first locking recess 122a, 122b. Abutment of each first hook 126a, 126b against each corresponding first lug 112a, 112b within the locking portion 123a, 123b of each corresponding first locking recess 122a, 122b prevents axial movement of the first lugs 112a, 112b (and thus prevents relative axial movement of the cover 120 relative to the body 110). Each locking portion 123a, 123b of the first locking recesses 122a, 122b also includes a locking projection 125a, 125b.

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Each first lug 112a, 112b of the first body lock elements 111a, 111b includes a leading portion 113a, 113b and a trailing portion 114a, 114b (each leading portion 113a, 113b being distal the corresponding axial portion 124a, 124b of the first locking recess 122a, 122b in the sealing configuration of the cover 120). Each first lug 112a, 112b of the first body lock elements 111a, 111b also comprises an indent
35 115a, 115b for releasably receiving the corresponding locking projection 125a, 125b. Each indent 115a, 115b is interposed between the corresponding leading portion 113a, 113b and the corresponding trailing portion 114a, 114b.

The cooperation of each locking projection 125a, 125b with each corresponding indent 115a, 115b restricts movement of the first lugs 112a, 112b within the locking portions 123a, 123b of the first locking recesses 122a, 122b (i.e. movement perpendicular to the longitudinal axis 105).

- 5 Each locking projection 125a, 125b has an angled surface proximal the corresponding axial portion 124a, 124b of the corresponding first locking recess 122a, 122b and also has an angled surface distal the corresponding axial portion 124a, 124b. The angled surface of each locking projection 125a, 125b distal the corresponding axial portion 124a, 124b has a steeper slope than the angled surface of the locking projection 125a, 125b proximal the corresponding axial portion 124a, 124b. Each indent 115a,
10 115b has angled surfaces substantially matching the angled surfaces of the corresponding projection 125a, 125b.

- Each second body lock element 111c, 111d comprises a second male locking structure comprising a second lug 112c, 112d. Each second cover lock element 121c, 121d comprises a second female locking
15 structure comprising a second locking recess 122c, 122d partly defined by a second hook 126c, 126d. Each second hook 126c, 126d is for securing the corresponding second lug 112c, 112d within the corresponding second locking recess 122c, 122d.

- Each second locking recess 122c, 122d includes a locking portion 123c, 123d having a side opening
20 into which the corresponding second lug 112c, 112d can be inserted (each locking portion 123c, 123d extending perpendicularly to the longitudinal axis 105). Each second hook 126c, 126d partly defines the locking portion 123c, 123d of the corresponding second locking recess 122c, 122d. Abutment of each second hook 126c, 126d against the corresponding second lug 112c, 112d within the locking portion 123c, 123d of each corresponding second locking recess 122c, 122d prevents axial movement
25 of the second lugs 112c, 112d (and thus prevents relative axial movement of the cover 120 relative to the body 110).

- Hence, the cover 120 is slidable between the sealing configuration and an open configuration. The movement of the cover 120 between the sealing configuration and the open configuration comprises
30 both axial movement (parallel to the longitudinal axis 105) and lateral movement (perpendicular to the longitudinal axis 105). The cover 120 is disconnected from the body 110 in the open configuration as shown in Figs. 6, 7 and 8.

- By securing the first lugs 112a, 112b and the second lugs 112c, 112d within the corresponding first
35 locking recesses 122a, 122b and the corresponding second locking recesses 122c, 122d, the first hooks 126a, 126b and the second hooks 126c, 126d act to restrict any axial movement of the cover 120 relative to the body 110 thus locking the cover 120 to the body 110 in the sealing configuration.

- In order to affix the cover 120 to the body 110 and thus obtaining the sealing configuration, the first lugs
40 112a, 112b are inserted axially into the axial portions 124a, 124b of the corresponding first locking

recesses 122a, 122b (via the top opening) and the second lugs 112c, 112d are axially aligned with the side openings of the corresponding second locking recesses 122c, 122d. Then the cover 120 is slid sideways (perpendicular to the longitudinal axis 105) so that the first lugs 112a, 112b move into the locking portions 123a, 123b of the corresponding first locking recesses 122a, 122b and the second lugs 112c, 112d move into the locking portions 123c, 123d of the corresponding second locking recesses 122c, 122d via the sides openings. The first lugs 112a, 112b move into abutment with the corresponding first hooks 126a, 126b (i.e. with the upper surfaces of the leading 113a, 113b and trailing portions 114a, 114b of the first lugs 112a, 112b in abutment with the first hook 126a, 126b). The second lugs 112c, 112d move into abutment with the second hooks 126c, 126d.

As the leading portion 113a, 113b of each first lug 112a, 112b meets the corresponding locking projection 125a, 125b in the locking portions 123a, 123b of the corresponding first locking recesses 122a, 122b, the leading edges of first lugs 112a, 112b (i.e. the edges distal the axial portion 124a, 124b of each first locking recesses 122a, 122b) ride up the angled surface of the corresponding locking projections 125a, 125b and over the locking projection 125a, 125b until the locking projections 125a, 125b are seated in the corresponding indents 115a, 115b of the first lugs 112a, 112b.

In this way, the first hooks 126a, 126b and second hooks 126c, 126d limit axial movement of the cover 120 and the projections 125a, 125b limit movement perpendicular to the axial direction. Thus, the cover 120 is secured to the body 110 in the sealing configuration and the battery chamber 150 is sealed.

Conversely, to remove the cover 120 from the body 110, a sliding force is applied to the cover 120 (i.e. by a user) so that the leading portions 113a, 113b of the first lugs 112a, 112b (i.e. the portions of the first lugs 112a, 112b distal the axial portions 124a, 124b of the corresponding first locking recesses 122a, 122b) slide over the projections 125a, 125b to unseat the projections 125a, 125b from the indents 115a, 115b to allow sidling of the cover 120 relative to the body 110. Once the first lugs 112a, 112b reach the axial portions 124a, 124b of the corresponding first locking recess 122a, 122b (and the second lugs 112c, 112d reach the side openings), the first lugs 112a, 112b can be moved axially within the axial portions 124a, 124b so that the cover 120 can be disengaged from the body 110 to expose the battery chamber 150.

The cover 120 comprises an inner wall 127 upstanding from a base 128. When the cover 120 is in its sealing configuration, the inner wall 127 will be partly contained within the body 110. The first cover lock elements 121a, 121b and the second cover lock elements 121c, 121d are formed in the inner wall 127 (e.g. in an outer surface of the inner wall 127). Each of the first locking recesses 122a, 122b and the second locking recesses 122c, 122d are formed in the inner wall such that the first locking recesses 122a, 122b and the second locking recesses 122c, 122d extend into the inner wall 127 from the outer surface thereof. The top opening into each axial portion 124a, 124b are each provided on an upper edge of the inner wall 127. The inner wall 127 also defines the first hooks 126a, 126b and the second hooks 126c, 126d as shown in Fig. 9.

The side opening into the locking portion 123c, 123d of the second locking recesses 122c, 122d are on a side edge defined by a curve in the inner wall 127. The inner wall 127 is an annular wall defining a stadium shape and the axis through each side opening extends at a tangent to the inner wall 127. The first locking recesses 122a, 122b and the second locking recesses 122c, 122d are laterally spaced (in a direction perpendicular to the longitudinal axis 105) on the inner wall.

The inner wall 127 defines a cavity having a geometric centre which is offset (in a plane normal to the longitudinal axis 105) from the geometric centre of the base 128 of the cover 120. In this way, the first lugs 112a, 112b and the axial portions 124a, 124b of the first locking recess 122a, 122b can be aligned with the base 128 laterally offset (i.e. in a direction perpendicular to the longitudinal axis 105) from the body 110 and then the base 128 can be slid to align with the body 110 as the first lugs 112a, 112b and the second lugs 112c, 112d are slid into the corresponding locking portions 123a, 123b, 123c, 123d of the first locking recesses 122a, 122b and the second locking recesses 122c, 122d respectively.

The body 110 comprises an outer wall 116 which circumscribes the inner wall 127 of the cover 120 when the cover 120 is in the sealing configuration. The outer wall 116 is annular defining a stadium shape. The first body lock elements 111a, 111b and the second body lock elements 111c, 111d are provided on an inner surface of the outer wall 116. The first lugs 112a, 112b and the second lugs 112c, 112d are formed on the inner surface of the outer wall 116 and aligned with a bottom edge of the outer wall 116. In the sealing configuration, the bottom edge of the outer wall 116 will seat against the base 128 of the cover 120. The first lugs 112a, 112b are laterally spaced from the second lugs 112c, 112d on the outer wall.

The cover 120 comprises a biasing member 129 that extends into the battery chamber 150 at a first axial end 151 of the battery chamber 150 in the sealing configuration. The biasing member 129 is for biasing the battery 130 contained within the battery chamber 150 towards a pair of electric contacts 133a, 133b at a second axial end 152 of the battery chamber 150. This helps secure the positioning of the battery 130 within the chamber 150 in order to ensure a good connection between the battery contacts and the electric contacts 133a, 133b at the second axial end 152 of the battery chamber 150. The biasing member 129 is housed in the cavity defined by the inner wall 127 of the cover 120.

The cover 120 comprises an air inlet 162 for supplying air to an aerosol-generating unit 170. An airflow path along which air can be drawn by a user via inhalation extends from the air inlet 162 to a mouthpiece portion 140 of the body 110 distal the cover 120. The body 110 comprises an airflow sensor 174 including a microphone located on the airflow path between the air inlet 162 and the aerosol-generating unit 170. The airflow sensor 174 is configured to trigger power delivery to a heating element 170 in the aerosol-generating unit 172 upon a decrease in pressure along the airflow path caused by inhalation at the mouthpiece portion 140.

The cover 120 also comprises a slideable blocking element 160 for reversibly blocking the air inlet 162 in order to block the airflow path thus preventing activation of the aerosol-generating unit 170 by the airflow sensor 174. The blocking element 160 is slidably mounted on an outer surface of the cover 120 opposing an inner surface of the cover 120 from which the inner wall 127 extends. The blocking element 160 is slideable relative to the cover 120 in the same direction as the cover 120 is slideable relative to the body 110. The force required to slide the blocking element 160 relative to the cover 120 is less than the force required to slide the cover 120 relative to the body 110 to remove it (i.e. from the sealing configuration to the open configuration).

The second axial end 152 of the battery chamber 150 distal the cover 120 houses two sprung electric contacts 133a, 133b. In this way, a battery 130 having battery terminals at one axial end inserted into the battery chamber 150 can form a connection with the electric contacts 133a, 133b in the battery chamber 150 to controllably provide power to the aerosol-generating unit 170 within the aerosol-generating apparatus 100.

Referring to Fig. 14, each sprung electric contact 133a, 133b includes a deformable cantilever portion 135a, 135b. When the battery 130 is inserted into the battery chamber 150, the battery terminals engage with and resiliently deform each cantilever portion 135a, 135b in the axial direction such that each cantilever portion 135a, 135b is biased into contact with the corresponding battery terminal. Each electric contact 133a, 133b has a substantially L-shaped cross section in a plane extending through the first and the second axial ends of the battery chamber such that each cantilever portion 135a, 135b joins a corresponding elongate fixing portion 137a, 137b at right angles.

Each cantilever portion 135a, 135b includes a substantially cone-shaped projection 131a, 131b extending into the battery chamber 150 for facilitating contact with the terminals of the battery 130.

CLAIMS

1. An aerosol-generating apparatus comprising:
 - a body defining a battery chamber for releasably housing a battery;
 - 5 a cover for sealing the battery chamber, the cover being movable from a sealing configuration in which the cover is connected to the body so that battery chamber is sealed to an open configuration in which the battery chamber is exposed; and
 - a locking mechanism for locking the cover to the body in the sealing configuration, wherein the locking mechanism comprises:
 - 10 a pair of first body lock elements and first cover lock elements, each of the first body lock elements interlocking with the respective first cover lock element in the sealing configuration; and
 - a pair of second body lock elements and second cover lock elements, each of the second body lock elements interlocking with the respective second cover lock element in the sealing configuration.
- 15 2. An apparatus according to claim 1 wherein the two first body lock elements oppose each other across an elongate axis of a base of the body and the two second body lock element oppose each other across the elongate axis of the base, the base defining an opening into the battery chamber.
- 20 3. An apparatus according to claim 2 wherein the two second body lock elements are on opposing sides of the opening into the battery chamber.
4. An apparatus according to any one of the preceding claims wherein one of either the first body lock elements or the first cover lock elements comprises a first male locking structure comprising a
25 respective first lug and the other of the first body lock elements and the first cover lock elements comprises a first female locking structure comprising a respective first locking recess partly defined by a respective first hook, each first hook for securing the respective first lug within the respective first locking recess.
- 30 5. An apparatus according to claim 4 wherein the first locking recesses each comprise a respective axial portion having a top opening into which the respective first lug can be inserted, each first locking recesses further comprising a locking portion extending perpendicular to the respective axial portion, the locking portions of the first locking recesses defined by the first hooks.
- 35 6. An apparatus according to claim 5 wherein the locking portions of the first locking recesses each houses a respective locking projection and each of the first lugs comprises a respective indent for releasably receiving the respective projection.

7. An apparatus according to any one of claims 4 to 6 wherein the first cover lock elements comprise the first female locking structure and the first body lock elements comprise the first male locking structure.

8. An apparatus according to any one of the preceding claims wherein one of either the second body lock elements or the second cover lock elements comprises a second male locking structure comprising a respective second lug and the other of the second body lock elements and the second cover lock elements comprises a second female locking structure comprising a respective second locking recess partly defined by a respective second hook, each second hook for securing the respective second lug within the respective second locking recess.

9. An apparatus according to claim 8 wherein the second locking recesses each comprise a locking portion having a respective side opening into which the respective second lug can be inserted, the locking portions extending perpendicularly to the axial elongation of the battery chamber, the locking portions of the second locking recesses defined by the second hooks.

10. An apparatus according to any one of claims 8 or 9 wherein the second cover lock elements comprise the second female locking structure and the second body lock elements comprise the second male locking structure.

11. An apparatus according to any one of the preceding claims wherein the cover is provided at a first axial end of the body and an opposing second axial end comprises at least one sprung electric contact.

12. A method of removing a battery from a battery chamber within a body of an aerosol generating apparatus according any one of the preceding claims, the method comprising unlocking the locking mechanism; moving the cover attached to the body from a sealed configuration in which the battery chamber is sealed to an open configuration in which the battery chamber is exposed; and removing the battery from the battery chamber.

13. A method of inserting a battery into a battery chamber within a body of an aerosol generating apparatus according to any one of claims 1 to 11, the method comprising inserting a battery into the battery chamber; moving the cover from an open configuration in which the battery chamber is exposed to a sealed configuration in which the battery chamber is sealed thereby locking the locking mechanism.

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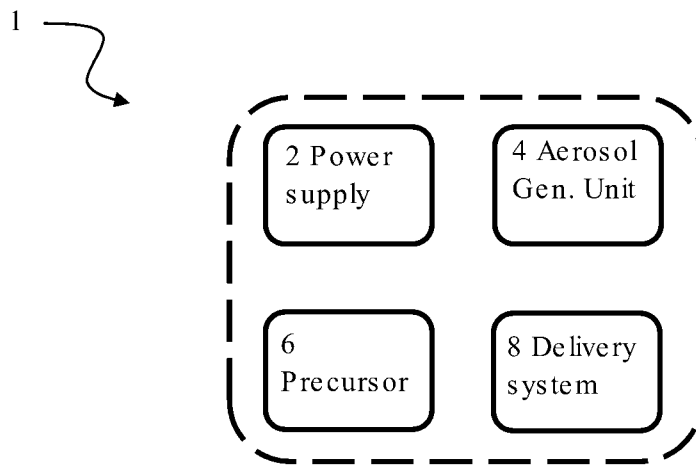


Fig. 1

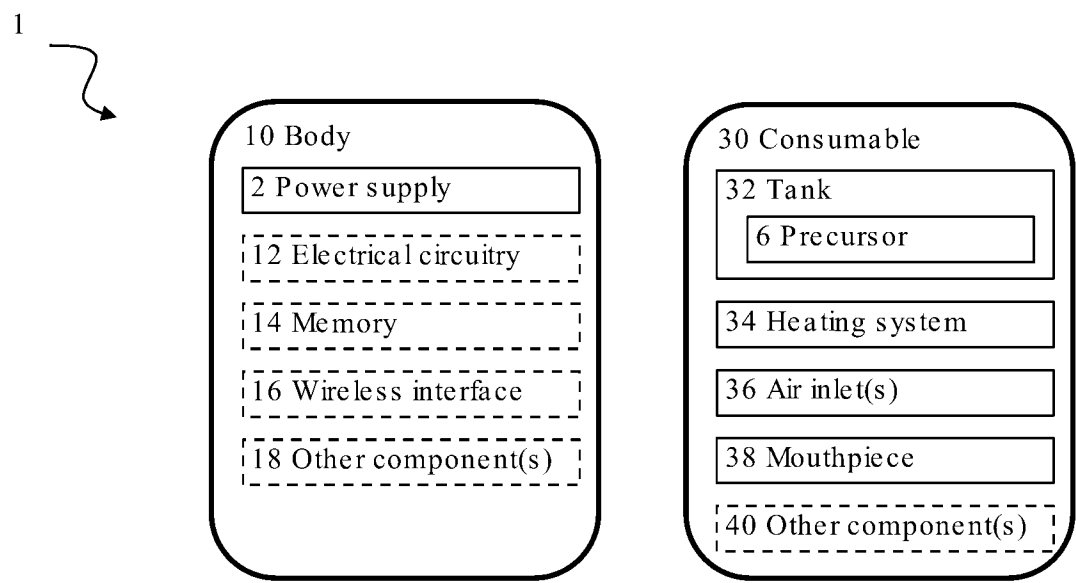


Fig. 2

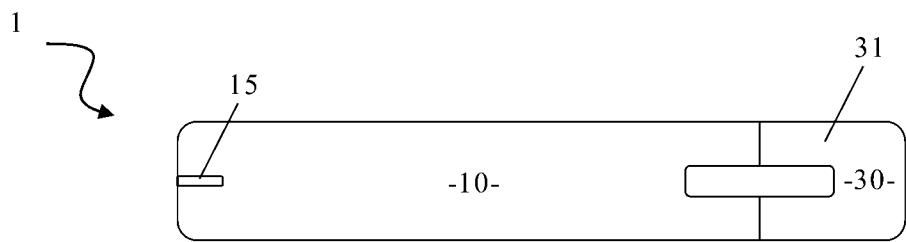


Fig. 3a

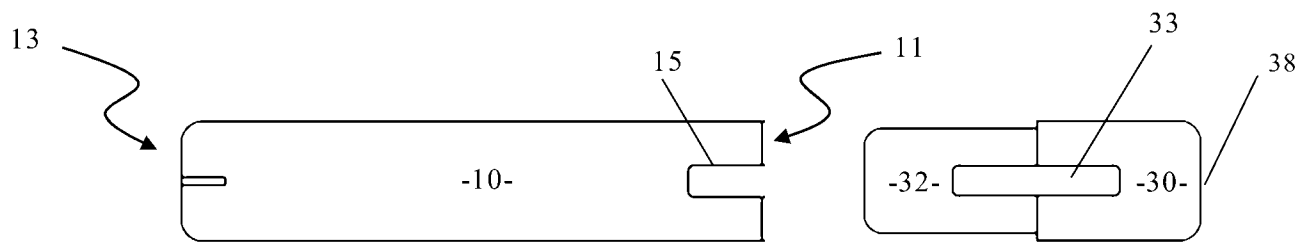


Fig. 3b

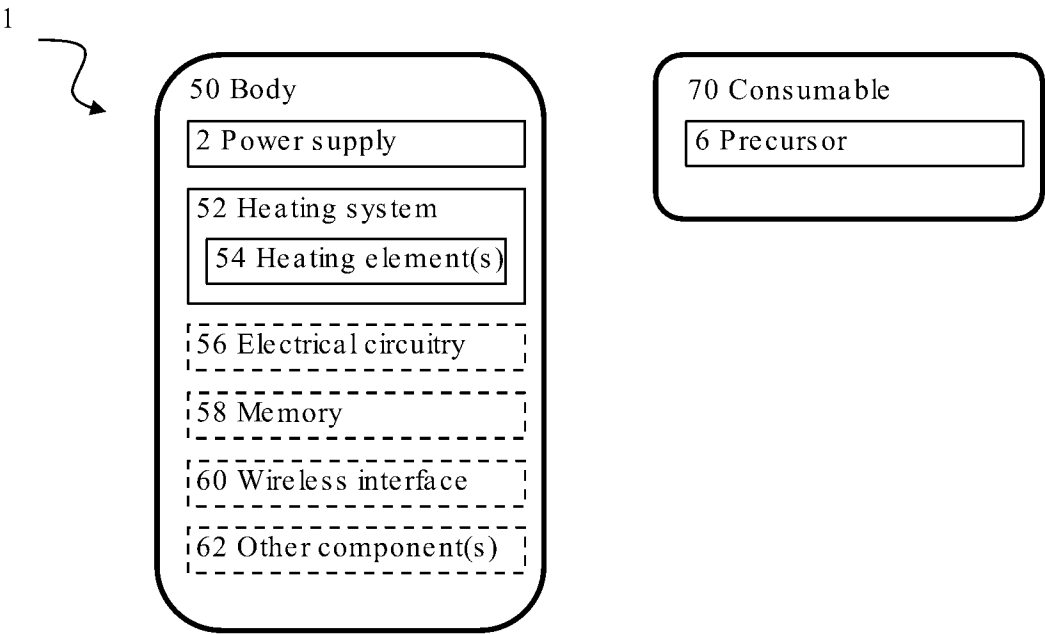


Fig. 4

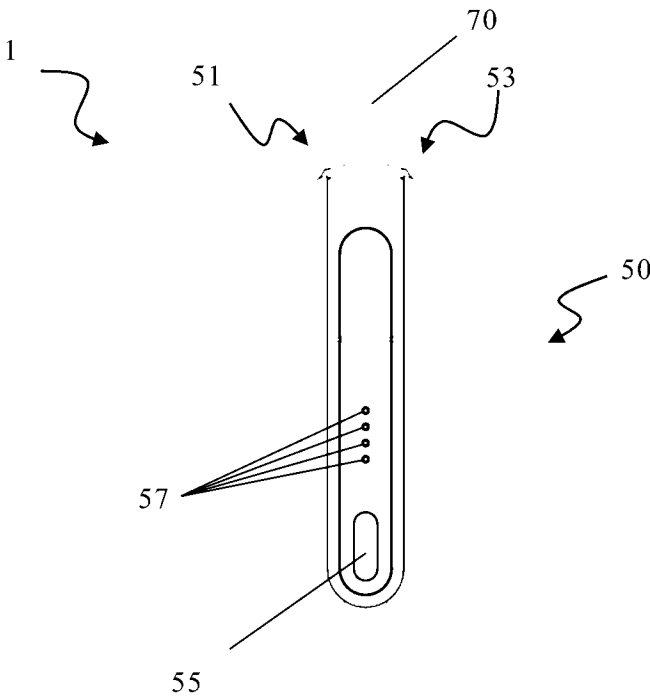


Fig. 5

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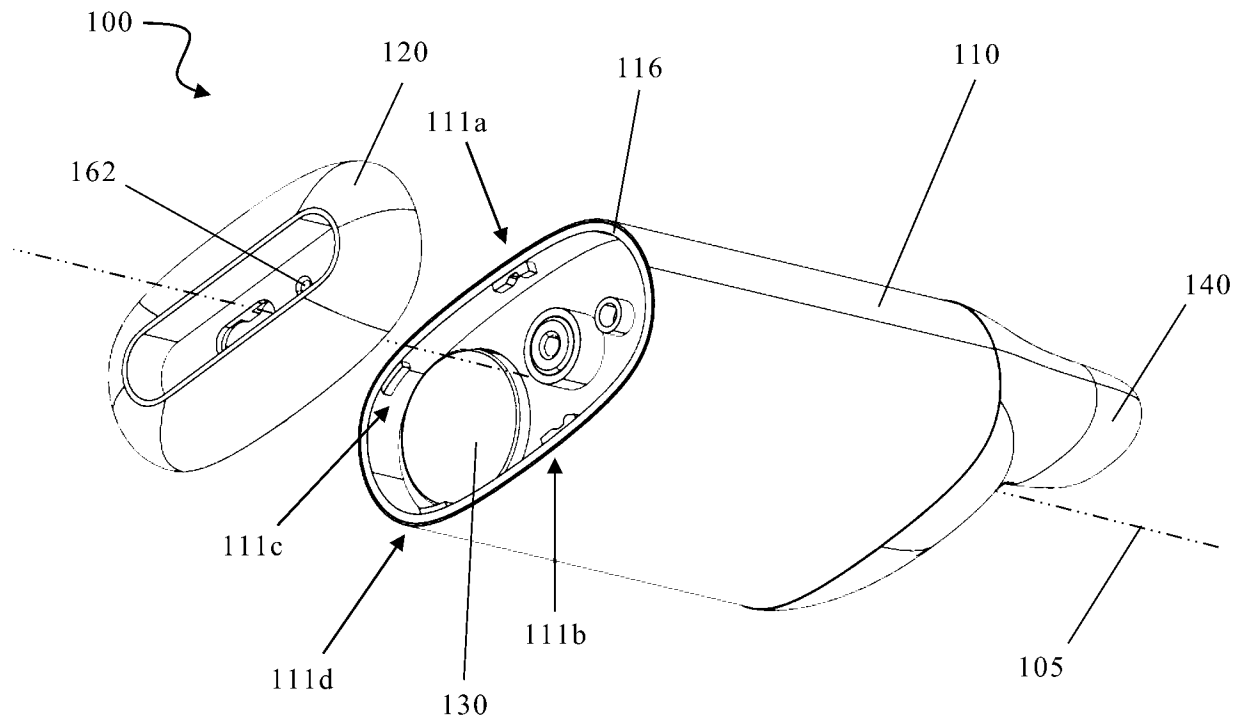


Fig. 6

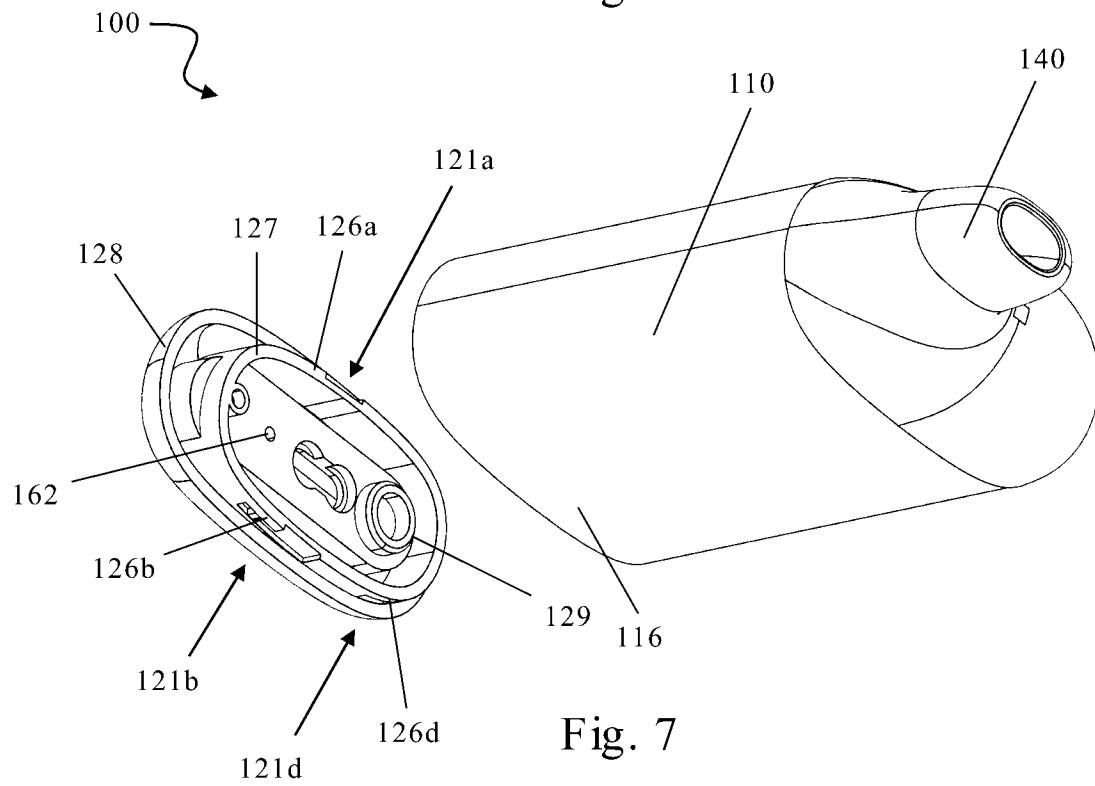


Fig. 7

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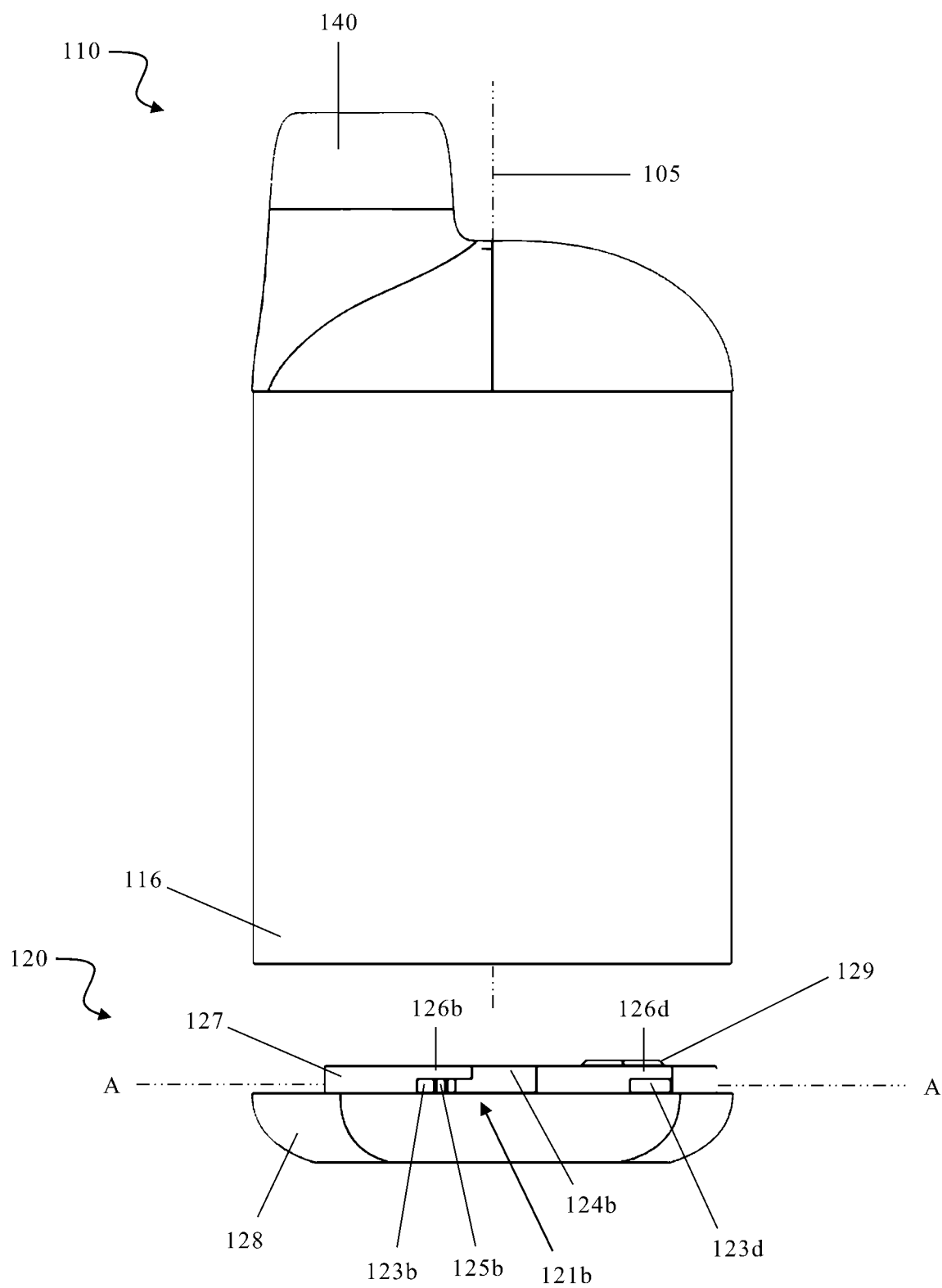


Fig. 8

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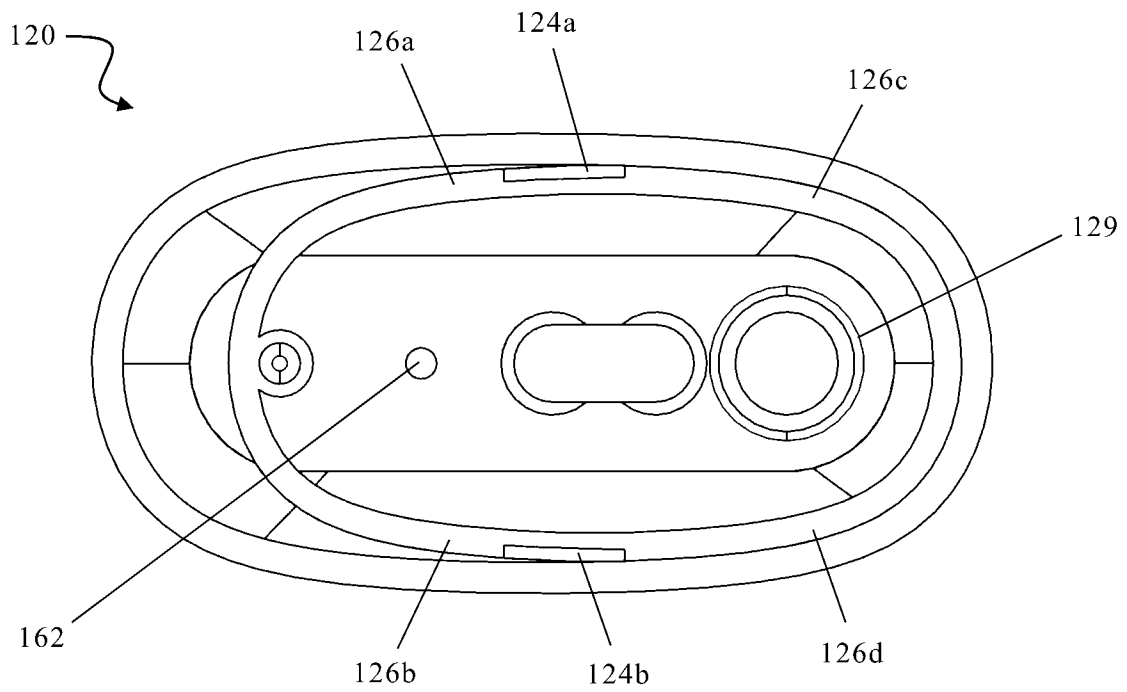


Fig. 9

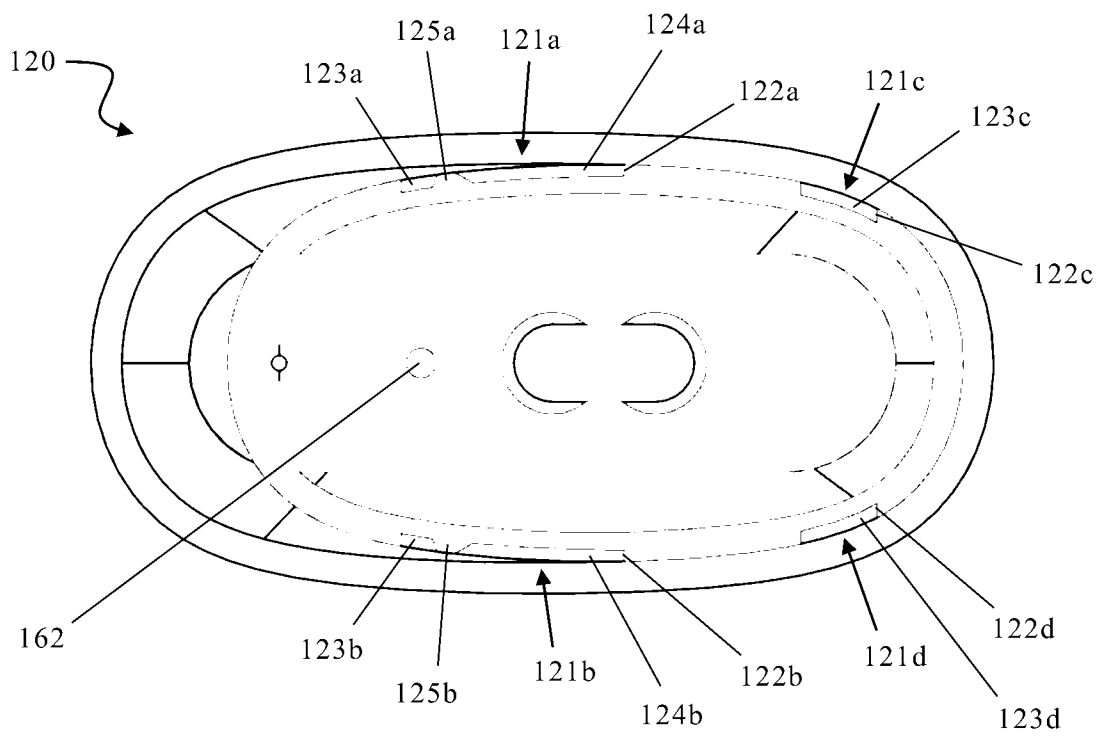


Fig. 10

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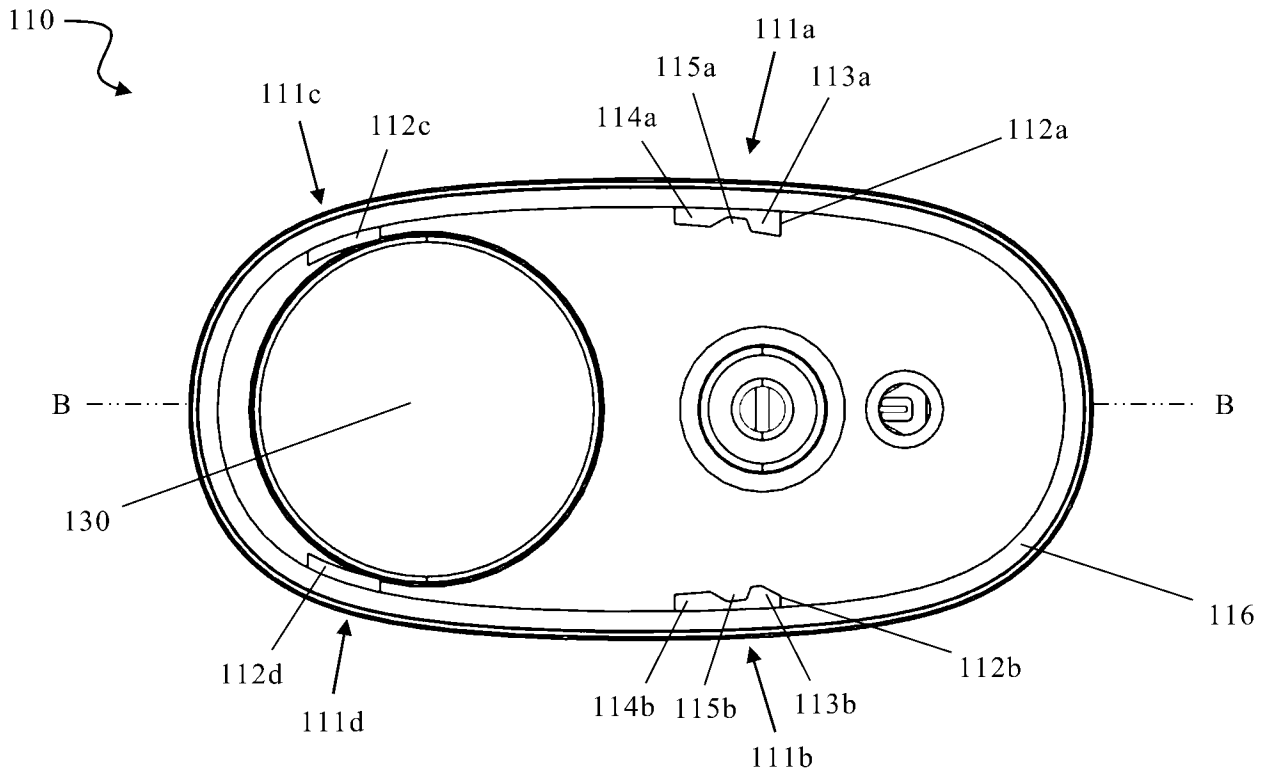


Fig. 11

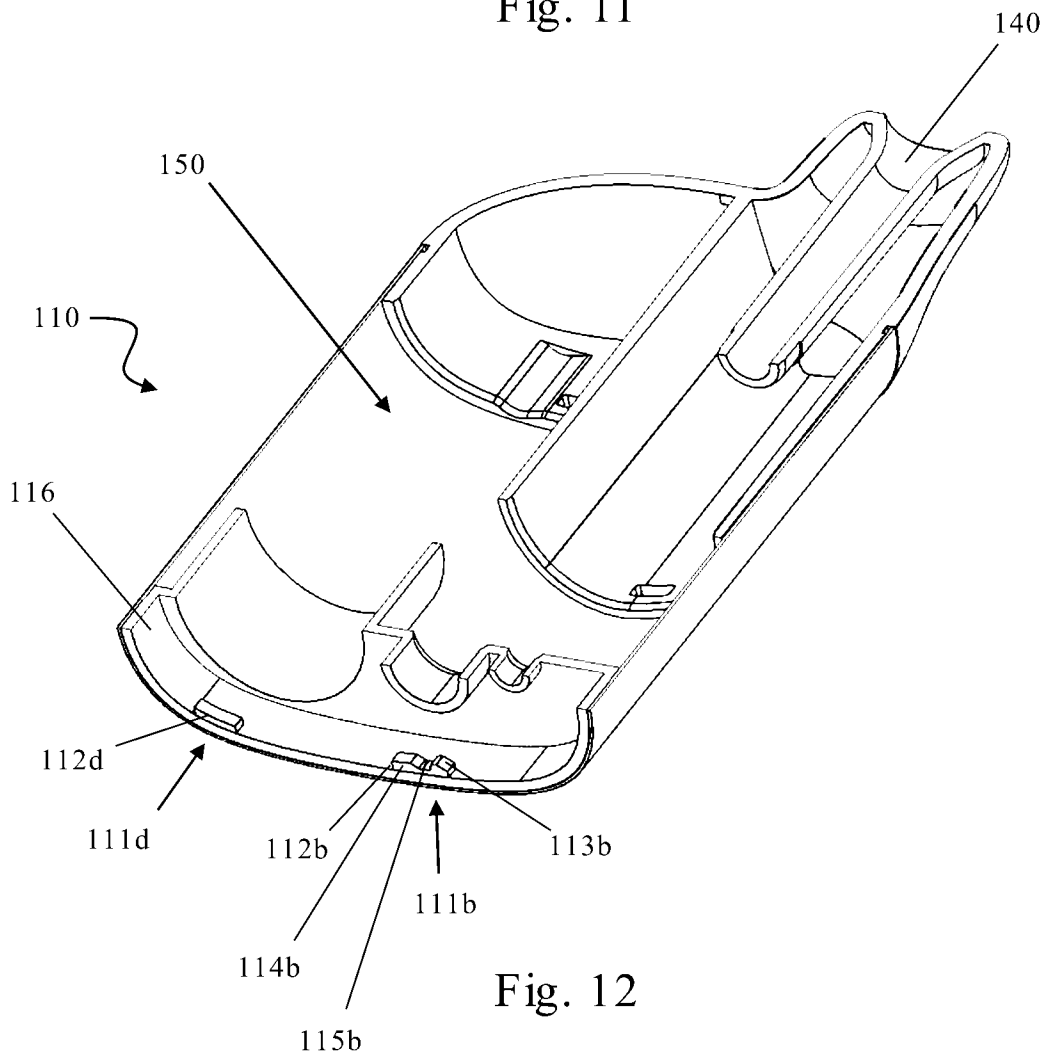


Fig. 12

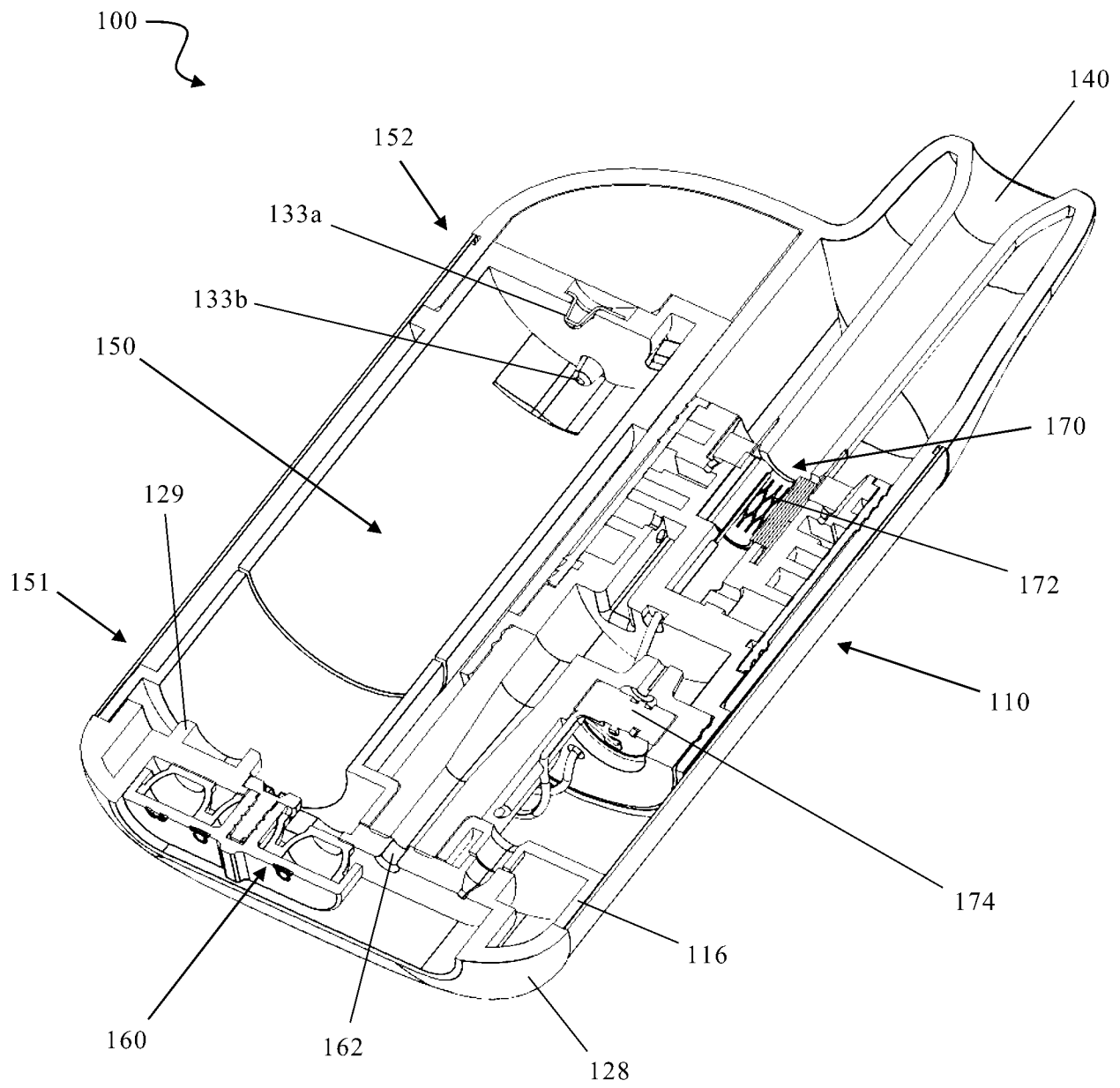


Fig. 13

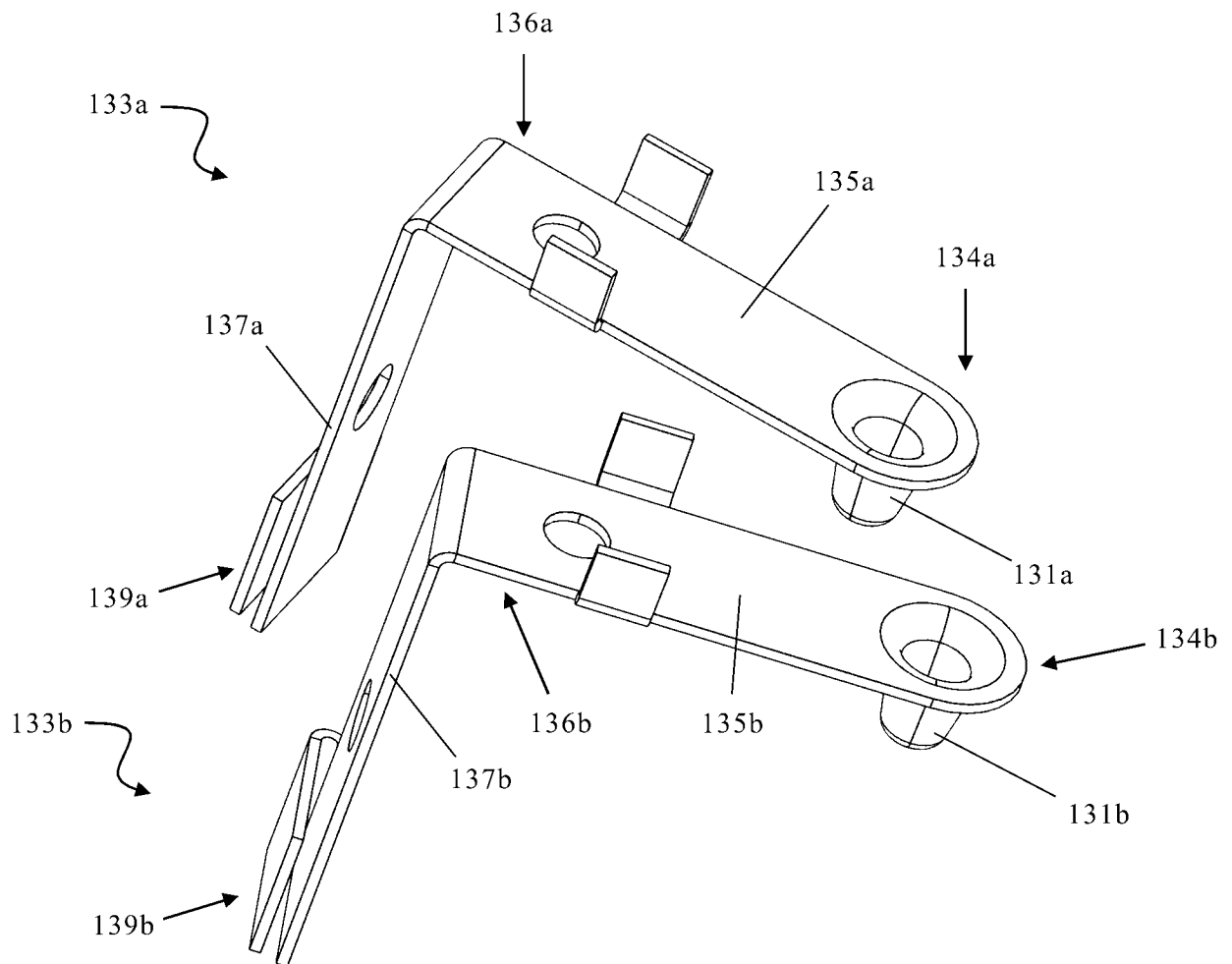


Fig. 14

INTERNATIONAL SEARCH REPORT

International application No
PCT/CN2023/141046

A. CLASSIFICATION OF SUBJECT MATTER INV. A24F40/40 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	US 2018/013104 A1 (QIU WEIHUA [CN]) 11 January 2018 (2018-01-11) paragraph [0030] - paragraph [0033]; figures 3, 5 -----	1, 12, 13
X	CN 114 557 481 A (SHENZHEN XINQIAN SCIENCE AND TECH CO) 31 May 2022 (2022-05-31) paragraph [n0044]; figures 1, 2, 4 paragraph [n0045] paragraph [n0046] ----- - / - -	1, 12, 13
☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance;; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance;; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 5 June 2024		Date of mailing of the international search report 18/06/2024
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016		Authorized officer Sodtke, Christof

INTERNATIONAL SEARCH REPORT

International application No

PCT/CN2023/141046

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CN 216 255 450 U (GIWANZHEN SCIENCE AND TECH CO LTD) 12 April 2022 (2022-04-12)	1-3, 12, 13
Y	paragraph [n0034]; figure 3 paragraph [n0035] paragraph [n0036] paragraph [n0037] paragraph [n0038] paragraph [n0039] paragraph [n0040] -----	4-10
X	CN 218 588 203 U (SHENZHEN UWELL TECH CO LTD) 10 March 2023 (2023-03-10) paragraph [n0042]; figures 8, 9 paragraph [n0043] paragraph [n0044] -----	1-3, 11-13
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A	WO 2023/020593 A1 (SHENZHEN FIRST UNION TECH CO [CN]) 23 February 2023 (2023-02-23) paragraph [0070] - paragraph [0075]; figures 1, 3 -----	1
A	CN 116 509 067 A (CHANGZHOU PAITENG ELECTRONIC TECH SERVICE CO LTD) 1 August 2023 (2023-08-01) figure 1 -----	5-7
A	CN 203 423 224 U (LIU QIUMING) 5 February 2014 (2014-02-05) figure 2 -----	1

INTERNATIONAL SEARCH REPORT

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