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(54) **COVER MECHANISM AND AEROSOL GENERATION DEVICE**

(57) This application relates to the field of cigarette device technologies, and provides a cover mechanism and an aerosol-generation device with the cover mechanism. The cover mechanism includes a housing, provided with a receiving hole; and a movable member, configured to be movable relative to the housing in a first stroke between an initial position and a press position, and slidable relative to the housing in a second stroke when the movable member moves to the press position, where the second stroke has a first slide position for opening the receiving hole and a second slide position for covering the receiving hole. In this application, the movable member is first pressed and then slid, to open the receiving hole in the housing, so that the operation is simple, and the user experience is good.

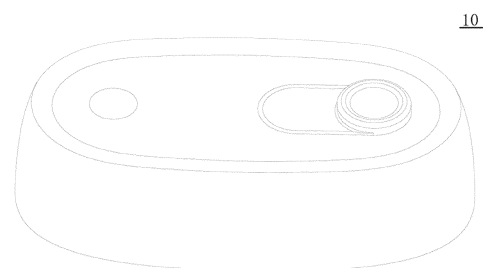


FIG. 3

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Description

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to Chinese Patent Application No. 202021945399.8, filed with the China National Intellectual Property Administration on September 8, 2020 and entitled "COVER MECHANISM AND AEROSOL-GENERATION DEVICE", which is incorporated herein by reference in its entirety.

TECHNICAL FIELD

[0002] Embodiments of this application relate to the field of cigarette device technologies, and in particular, to a cover mechanism and an aerosol-generation device.

BACKGROUND

[0003] During the use of smoking articles such as cigarettes or cigars, tobacco is burned to produce smoke. Attempts have been made to replace these tobacco-burning articles with products that release compounds without burning. An example of such products is a heat-not-burn product that releases compounds by heating rather than burning tobacco.

[0004] Disclosed in the patent with the publication number CN205072072U is an electric heating cigarette device, including a movable end cap and a pressing end cap. When the electric heating cigarette device is not used, the movable end cap closes an accommodating cavity, and the movable end cap cannot move due to the abutting of the pressing end cap. When the electric heating cigarette device needs to be used, the pressing end cap can be pressed, and the movable end cap can move toward an initial position of the pressing end cap, so that the accommodating cavity is open to allow a tobacco product to enter the accommodating cavity.

[0005] A problem in the electric heating cigarette device is that a user needs to operate the electric heating cigarette device with both hands to open the accommodating cavity, and the operation is complex, affecting user experience.

SUMMARY

[0006] This application provides an aerosol-generation device and an infrared heater, aiming to resolve a problem that an end cap assembly needs to be operated by a user with both hands to open an accommodating cavity in an existing cigarette device.

[0007] According to an aspect of this application, a cover mechanism is provided, including:

a housing, provided with a receiving hole; and
a movable member, configured to be movable relative to the housing in a first stroke between an initial position and a press position, and slidable relative

to the housing in a second stroke when the movable member moves to the press position, where the second stroke has a first slide position for opening the receiving hole and a second slide position for covering the receiving hole.

[0008] According to another aspect of this application, an aerosol-generation device is provided, including the cover mechanism.

[0009] In the cover mechanism and the aerosol-generation device with the cover mechanism provided in this application, the movable member is first pressed and then slid, to open the receiving hole in the housing, so that the operation is simple, and user experience is good.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] One or more embodiments are exemplarily described with reference to the corresponding figures in the accompanying drawings, and the descriptions do not constitute a limitation to the embodiments. Components/modules and steps in the accompanying drawings that have same reference numerals are represented as similar components/modules and steps, and unless otherwise particularly stated, the figures in the accompanying drawings are not drawn to scale.

FIG. 1 is a schematic diagram of an aerosol-generation device according to an implementation of this application;

FIG. 2 is a schematic exploded view of FIG. 1;

FIG. 3 is a schematic diagram of a cover mechanism according to an implementation of this application;

FIG. 4 is a schematic diagram of a cover mechanism after pressing and sliding according to an implementation of this application;

FIG. 5 is a schematic exploded view of a cover mechanism according to an implementation of this application;

FIG. 6 is a schematic cross-sectional view of a cover mechanism according to an implementation of this application;

FIG. 7 is a schematic diagram of a housing in a cover mechanism according to an implementation of this application;

FIG. 8 is a schematic diagram of a cover plate in a cover mechanism according to an implementation of this application;

FIG. 9 is a schematic diagram of a slide panel in a cover mechanism according to an implementation of this application;

FIG. 10 is a schematic diagram of a torsion spring in a cover mechanism according to an implementation of this application;

FIG. 11 is a schematic diagram of a holder in a cover mechanism according to an implementation of this application;

FIG. 12 is a schematic cross-sectional view of an-

other cover mechanism in a closed state according to an implementation of this application;
 FIG. 13 is a schematic cross-sectional view of another cover mechanism in an open state according to an implementation of this application;
 FIG. 14 is a schematic cross-sectional view of still another cover mechanism in a closed state according to an implementation of this application; and
 FIG. 15 is a schematic cross-sectional view of still another cover mechanism in an open state according to an implementation of this application.

DETAILED DESCRIPTION

[0011] For ease of understanding of this application, this application is described in further detail below with reference to the accompanying drawings and specific implementations. It should be noted that, when a component is expressed as "being fixed to" another component, the component may be directly on the another component, or one or more intermediate components may exist between the component and the another component. When an element is expressed as "being connected to" another element, the element may be directly connected to the another element, or one or more intermediate elements may exist between the element and the another element. The terms "upper", "lower", "left", "right", "inner", "outer", and similar expressions used in this specification are merely used for an illustrative purpose.

[0012] Unless otherwise defined, meanings of all technical and scientific terms used in this specification are the same as that usually understood by a person skilled in the technical field to which this application belongs. The terms used in this specification of this application are merely intended to describe objectives of the specific implementations, and are not intended to limit this application. The term "and/or" used in this specification includes any or all combinations of one or more related listed items.

[0013] FIG. 1 and FIG. 2 show an aerosol-generation device 100 according to an implementation of this application, including a cover mechanism 10 and a main body 20.

[0014] The main body 20 includes, but is not limited to, a heater, a circuit, and a power supply.

[0015] The power supply supplies power for operating the aerosol-generation device 100. For example, the power supply may supply power to the heater to enable the heater to heat an inhalable material, and may supply power required for operating the circuit. Besides, the power supply may supply power required for operating other elements provided in the aerosol-generation device 100. The power supply may be, but is not limited to, a lithium iron phosphate (LiFePO₄) battery, a lithium cobaltate (LiCoO₂) battery, a lithium titanate battery, or the like. The power supply may be a rechargeable battery or a disposable battery.

[0016] The heater may use a central heating method

(a periphery of a heating body or a heat generation body is in contact with an inhalable material) and a peripheral heating method (a heating body or a heat generation body is wrapped around an inhalable material). The heater may further use one or more of the following methods including heat conduction, electromagnetic induction, chemical reactions, infrared effects, resonance, photoelectric conversion, or photothermal conversion to heat the inhalable material to generate an aerosol that can be inhaled.

[0017] The circuit may control an overall operation of the aerosol-generation device 100. Specifically, the circuit can control operations of the power supply and the heater, and can also control operations of other elements in the aerosol-generation device 100. In addition, the circuit may check the status of elements in the aerosol-generation device 100 to determine whether the aerosol-generation device 100 can be operated.

[0018] FIG. 3 to FIG. 11 show a cover mechanism according to an implementation of this application. The cover mechanism 10 includes a housing 11 and a movable member, a drive portion, and a holder 16 that are arranged in the housing 11.

[0019] In this example, the housing 11 is detachably fixedly connected to a shell of the main body 20. Manners of the connection include, but are not limited to, a buckle connection and a magnetic connection. In other examples, the housing 11 may be integrally formed with the shell of the main body 20.

[0020] As shown in FIG. 4, FIG. 6, and FIG. 11, a receiving hole B is provided in the housing 11. A through hole C is provided in the holder 16. A cavity 21 accommodating an inhalable material is arranged inside the main body 20. The receiving hole B, the through hole C, and the cavity 21 are coaxially arranged. Through the receiving hole B, the through hole C, and the cavity 21, the inhalable material is at least partially accommodated in the aerosol-generation device 100 or is removed from the aerosol-generation device 100. In other examples, the holder 16 may not be provided with the through hole C.

[0021] The movable member is configured to be movable relative to the housing 11 in a first stroke between an initial position and a press position, and slidable relative to the housing 11 in a second stroke when the movable member moves to the press position. The second stroke has a first slide position for opening the receiving hole B and a second slide position for covering the receiving hole B.

[0022] In this example, the movable member includes a cover plate 12 and a slide panel 14. The cover plate 12 is configured to be movable in the first stroke between the initial position and the press position, and is slidable together with the slide panel 14 relative to the housing 11 in the second stroke when the cover plate 12 moves to the press position. The cover plate 12 and the slide panel 14 have a first slide position and a second slide position in a slide stroke. It may be understood that the

first slide position or the second slide position may be a limit position in the second stroke and may be a position in a sliding process. When the cover plate 12 and the slide panel 14 slide together to the second slide position, the cover plate 12 is movable to the initial position. The initial position is a position of the cover plate 12 when being not pressed in FIG. 3, and the second slide position and the press position are the same position. In some examples, a direction of the first stroke is substantially perpendicular to a direction of the second stroke.

[0023] Specifically, as shown in FIG. 6, FIG. 8, FIG. 9, and FIG. 11, the holder 16 has a sliding groove 161. A lower end of the slide panel 14 is inserted in the sliding groove 161. One end of the slide panel 14 is provided with an accommodating chamber 141 protruding toward an inner surface of the cover plate 12. The accommodating chamber 141 and the receiving hole B are coaxially arranged. A part of a compression spring 13 is accommodated in the accommodating chamber 141, and another part of the compression spring 13 abuts against the inner surface of the cover plate 12. Because the compression spring 13 is arranged between the cover plate 12 and the slide panel 14, when the cover plate 12 and the slide panel 14 move together to the second slide position, the compression spring 13 can provide a restoring force to make the cover plate 12 movable to the initial position. It should be noted that, the compression spring 13 is used in this example. In other examples, another elastic member may be used. It should be further noted that, in other examples, the holder 16 may be integrally formed with the housing 11.

[0024] When the cover plate 12 is not pressed, the cover plate 12 is at least partially received in the receiving hole B, and an outer surface of the cover plate 12 and an outer surface of the housing 11 remain in the same horizontal plane. Further, as shown in FIG. 8, the outer surface of the cover plate 12 is provided with a protruding portion 121. The protruding portion 121 is configured to receive a pressing operation and/or a sliding operation of a user. In other examples, the outer surface of the cover plate 12 may not be provided with the protruding portion 121. In an alternative solution, an antiskid protruding bar may be arranged on the outer surface of the cover plate 12.

[0025] The cover plate 12 is constructed to be vertically slidable along at least a part of an outer surface of the slide panel 14. Specifically, a guide post 123 and a guide portion 124 are respectively provided at two ends of the cover plate 12. The shape of the guide portion 124 matches the shape of the accommodating chamber 141. A groove matching the guide post 123 is opened in the slide panel 14. In this way, the guide post 123 and the guide portion 124 are vertically movable along the outer surface of the slide panel 14.

[0026] As shown in FIG. 6, when the cover plate 12 is pressed, the guide post 123 and the guide portion 124 are surrounded by the outer surface of the slide panel 14. In this case, if the cover plate 12 is moved left, the

cover plate 12 may slide together with the slide panel 14 along the sliding groove 161, thereby opening the receiving hole B. FIG. 4 shows the first slide position for opening the receiving hole B in the slide stroke of the cover plate 12 and the slide panel 14.

[0027] When the cover plate 12 and the slide panel 14 slide together from the first slide position shown in FIG. 4 to the right along the sliding groove 161, the receiving hole B may be covered.

[0028] FIG. 2 or FIG. 3 shows the cover plate 12 and the slide panel 14 in the second slide position that can cover the receiving hole B in the slide stroke.

[0029] The drive portion is configured to generate a force that drives the movable member to be positioned to the first slide position or the second slide position. The drive portion generates a force that drives the movable member to be positioned to the second slide position, so that the movable member moves to the initial position.

[0030] Specifically, as shown in FIG. 6 and FIG. 10, in this example, the drive portion includes a torsion spring 15. The torsion spring 15 includes a spring body 151 and two support legs extending from the spring body 151. One support leg 153 is fixed on the lower end of the slide panel 14, and the other support leg 152 is reversely fixed on the holder 16. When the cover plate 12 and the slide panel 14 slide together, the torsion spring 15 is deformed to generate an elastic force that positions the cover plate 12 and the slide panel 14 to the first slide position or the second slide position.

[0031] As shown in FIG. 7 to FIG. 9, a guide rail 111, a guide rail 112, and a limiting portion 113 that protrude toward the slide panel 14 are provided on an inner surface of the housing 11. A protrusion distance of the guide rail 112 is longer than that of the guide rail 111, and the length of the guide rail 112 is larger than that of the guide rail 111 in a length direction of the housing 11. The cover plate 12 has an extending portion 122 extending in a width direction of the housing 11. The slide panel 14 has an extending portion 142 extending in the width direction of the housing 11.

[0032] When the cover plate 12 and the slide panel 14 slide together to the first slide position, the extending portion 122 may slide along the guide rail 111. When the cover plate 12 and the slide panel 14 slide together to the second slide position, the cover plate 12 is detachable from the guide rail 111. After the cover plate 12 is detached from the guide rail 111, the cover plate 12 starts to return to the initial position under the restoring force of the compression spring 13 and the elastic force of the torsion spring 15. In this case, the extending portion 122 abuts against the limiting portion 113, and the limiting portion 113 limits the cover plate 12, so that the outer surface of the cover plate 12 and the outer surface of the housing 11 remain in the same horizontal plane. When the cover plate 12 and the slide panel 14 slide together to the first slide position or the second slide position, the extending portion 142 of the slide panel 14 keeps sliding along the guide rail 112.

[0033] Still referring to FIG. 11, the holder 16 has a stop portion 162 and a stop portion 163.

[0034] The stop portion 162 is configured to stop the slide panel 14 when the slide panel 14 slides to the first slide position. The stop portion 163 is configured to stop the slide panel 14 when the slide panel 14 slides to the second slide position.

[0035] In summary, because the compression spring 13 and the protruding portion 121 are coaxially arranged, a pressing force generated by a press operation and the restoring force generated by the compression spring 13 substantially remain on the same axis. The guide post 123 and the guide portion 124 are surrounded by the outer surface of the slide panel 14, so that the cover plate 12 can vertically move along the outer surface of the slide panel 14. Therefore, it can be ensured that the cover plate 12 does not deflect relative to the slide panel 14, thereby avoiding jamming caused by deflection. The cover plate 12 is limited by the guide rail 111 and the limiting portion 113. On one hand, it is ensured that the cover plate 12 is kept from scratching the inner surface of the housing 11 when sliding. On the other hand, it is ensured that the outer surface of the cover plate 12 and the outer surface of the housing 11 remain in the same horizontal plane. The slide panel 14 is limited by a guide rail 112 and is kept from deflecting relative to the housing 11 either. The torsion spring 15 provides an elastic force that positions the cover plate 12 and the slide panel 14 to the first slide position or the second slide position. The structure of the torsion spring is simple, thereby resolving a problem of limited space in the aerosol-generation device 100.

[0036] FIG. 12 and FIG. 13 show another cover mechanism according to an implementation of this application. A difference from the implementation shown in FIG. 3 to FIG. 11 is as follows: The drive portion includes a magnetic member 251, a magnetic member 252, and a magnetic member 253. The magnetic member 251 is fixed on the cover plate 12 or the slide panel 14 (in this example, the magnetic member 251 is riveted on the cover plate 12), the magnetic member 252 is fixed on the slide panel 14, and the magnetic member 253 is fixed on the holder 16. When the cover plate 12 and the slide panel 14 slide together to the first slide position, the magnetic member 251 and the magnetic member 253 attract each other to generate an attractive force that positions the cover plate 12 and the slide panel 14 to the first slide position. When the cover plate 12 and the slide panel 14 slide together to the second slide position, the magnetic member 252 and the magnetic member 253 repel each other to generate a repulsive force that positions the cover plate 12 and the slide panel 14 to the second slide position. The repulsive force may simultaneously cause the cover plate 12 to return to the initial position. In this example, the magnetic member 251 may be a ferromagnetic material or a magnet. The magnetic member 252 and the magnetic member 253 may be magnets. The same magnetic poles of the magnetic member 252 and

the magnetic member 253 are arranged facing each other.

[0037] A movable hole is provided in an end of the slide panel 14. The cover plate 12 has a movable post corresponding to the movable hole. The cover plate 12 is vertically movable along the movable hole and an outer surface of the accommodating chamber 141.

[0038] FIG. 14 and FIG. 15 show still another cover mechanism according to an implementation of this application. Differences from the embodiment shown in FIG. 3 to FIG. 11 lie in that:

The movable member 22 is an integrally formed component. The drive portion includes a magnetic member 351 and a magnetic member 352 with the same magnetic poles arranged correspondingly. The magnetic member 352 is riveted on the movable member 22. When being pressed, the movable member 22 may slide left to the first slide position, and the magnetic member 351 and the magnetic member 352 repel each other and provide a repulsive force that positions the movable member 22 to the first slide position, thereby opening the receiving hole B. When the movable member 22 slides to the second slide position, the movable member 22 moves to the initial position under the repulsive force of the magnetic member 351 and the magnetic member 352. As can be seen from the figure, the magnetic member 352 is biased toward a position of the magnetic member 351 in the direction of the second stroke in the first slide position or the second slide position, so that the magnetic member 351 generates a repulsive force that positions the movable member 22 to the first slide position or the second slide position.

[0039] It should be noted that, the foregoing cover mechanisms are all used in an aerosol-generation device, and it is easily conceivable that the cover mechanisms are not limited to this case. For example, the cover mechanisms may be used in a cigarette box or another device.

[0040] It should be noted that, the specification of this application and the accompanying drawings thereof illustrate preferred embodiments of this application. However, this application may be implemented in various different forms, and is not limited to the embodiments described in this specification. These embodiments are not intended to be an additional limitation on the content of this application, and are described for the purpose of providing a more thorough and comprehensive understanding of the content disclosed in this application. Moreover, the foregoing technical features are further combined to form various embodiments not listed above, and all such embodiments shall be construed as falling within the scope of this application. Further, a person of ordinary skill in the art may make improvements or modifications according to the foregoing description, and all the improvements and modifications shall fall within the protection scope of the attached claims of this application.

Claims

1. A cover mechanism, comprising:

a housing, provided with a receiving hole; and
a movable member, configured to be movable
relative to the housing in a first stroke between
an initial position and a press position, and slid-
able relative to the housing in a second stroke
when the movable member moves to the press
position, wherein the second stroke has a first
slide position for opening the receiving hole and
a second slide position for covering the receiving
hole.

2. The cover mechanism according to claim 1, wherein a direction of the first stroke is substantially perpen- dicular to a direction of the second stroke.

3. The cover mechanism according to claim 1 or 2, wherein the cover mechanism further comprises a drive portion, and the drive portion is configured to generate a driving force that positions the movable member to the first slide position or the second slide position.

4. The cover mechanism according to claim 3, wherein the drive portion comprises a torsion spring, the tor- sion spring comprises a spring body and two support legs extending from the spring body, one support leg is fixed on the movable member, and an other sup- port leg is reversely fixed on the housing; and when the movable member slides relative to the housing, the torsion spring is deformed to generate an elastic force that positions the movable member to the first slide position or the second slide position.

5. The cover mechanism according to claim 3, wherein the drive portion comprises a first magnetic member, a second magnetic member, and a third magnetic member, the first magnetic member and the second magnetic member are fixed on the movable member at an interval, and the third magnetic member is fixed on the housing;

when the movable member slides to the first
slide position, the first magnetic member and
the third magnetic member attract each other to
generate an attractive force that positions the
movable member to the first slide position; and
when the movable member slides to the second
slide position, the second magnetic member and
the third magnetic member repel each other to
generate a repulsive force that positions the
movable member to the second slide position.

6. The cover mechanism according to claim 3, wherein the drive portion comprises a fourth magnetic mem-

ber and a fifth magnetic member with magnetic poles
of same polarity arranged correspondingly, the
fourth magnetic member is fixed on the movable
member, and the fifth magnetic member is fixed on
the housing; and

when the movable member slides relative to the
housing, the fourth magnetic member is biased to-
ward a position of the fifth magnetic member in the
direction of the second stroke in the first slide position
or the second slide position, so that the fifth magnetic
member generates a repulsive force that positions
the movable member to the first slide position or the
second slide position.

7. The cover mechanism according to claim 3, wherein the second slide position and the press position are a same position; and the drive portion generates the driving force that po- sitions the movable member to the second slide po- sition, to move the movable member to the initial position.

8. The cover mechanism according to claim 7, wherein the movable member comprises a cover plate and a slide panel;

the cover plate is configured to be movable rel-
ative to the housing in the first stroke, and slid-
able together with the slide panel relative to the
housing in the second stroke when the cover
plate moves to the press position; and
when the cover plate and the slide panel slide
together to the second slide position, the cover
plate is movable to the initial position.

9. The cover mechanism according to claim 8, wherein a first guide rail protruding toward the slide panel is provided on an inner surface of the housing; when the cover plate and the slide panel slide to- gether to the first slide position, the cover plate is slidable along the first guide rail; and when the cover plate and the slide panel slide together to the second slide position, the cover plate is detachable from the first guide rail.

10. The cover mechanism according to claim 9, wherein a second guide rail protruding toward the slide panel is provided on the inner surface of the housing, and a protrusion distance of the second guide rail is long- er than a protrusion distance of the first guide rail; and when the cover plate and the slide panel slide to- gether to the first slide position or the second slide position, the slide panel is slidable along the second guide rail.

11. The cover mechanism according to claim 8, wherein the cover mechanism further comprises an elastic member, and the elastic member is arranged be-

tween the cover plate and the slide panel; and when the cover plate and the slide panel slide together to the second slide position, the elastic member provides a restoring force to make the cover plate movable to the initial position.

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12. The cover mechanism according to claim 8, wherein the cover mechanism further comprises a holder fixed inside the housing; and the holder is provided with a sliding groove, and the slide panel is at least partially inserted in the sliding groove.

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13. An aerosol-generation device, configured to heat an inhalable material to generate an inhalable aerosol, and comprising:

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a main body; and

a cavity, arranged inside the main body, wherein the cavity is configured to accommodate an inhalable material; and

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the cover mechanism according to any one of claims 1 to 12, wherein the cover mechanism is arranged on the main body.

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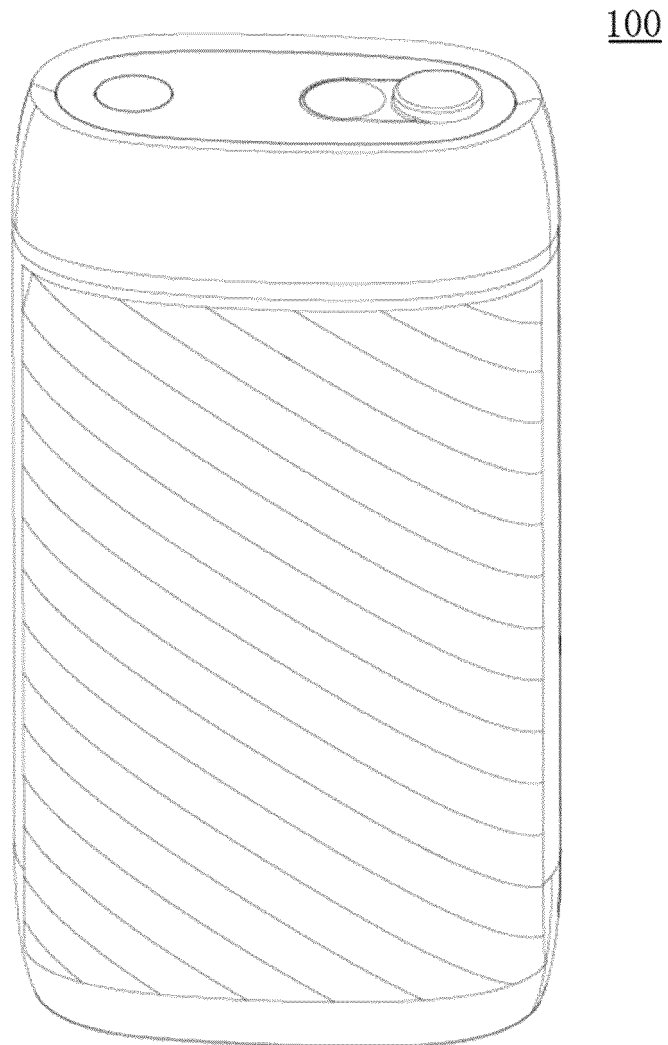


FIG. 1

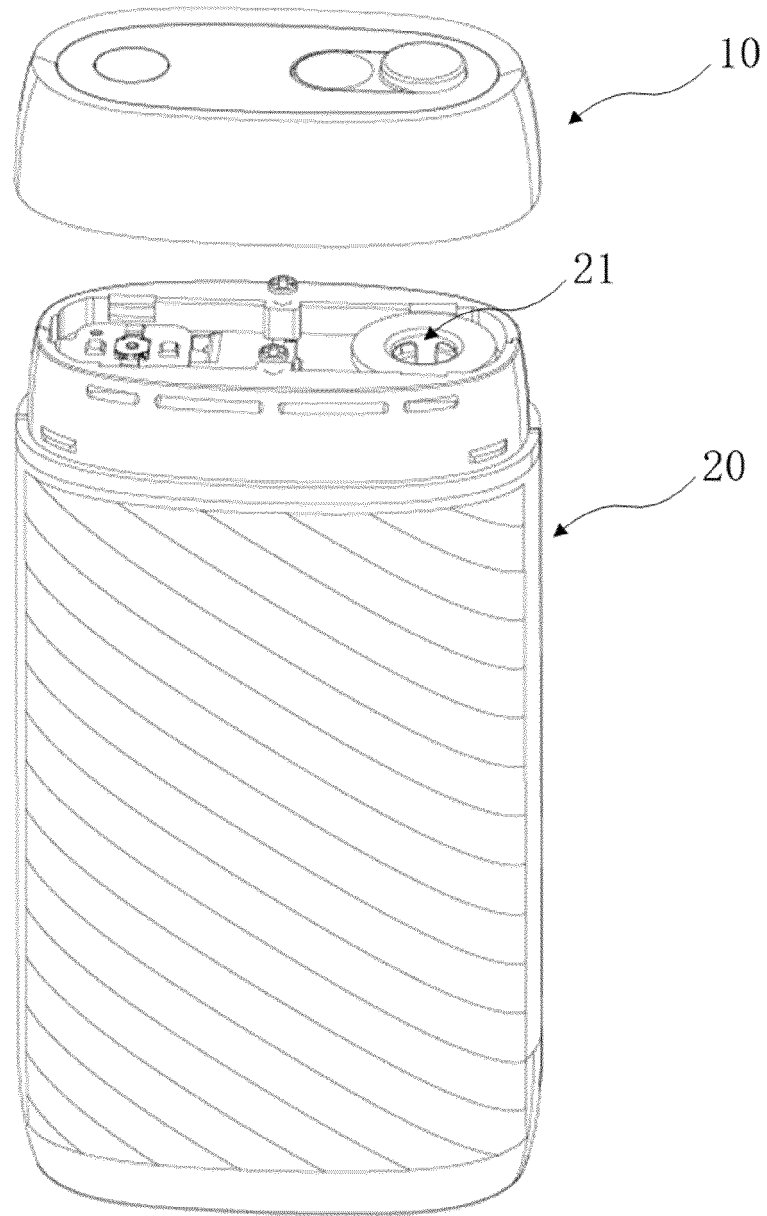


FIG. 2

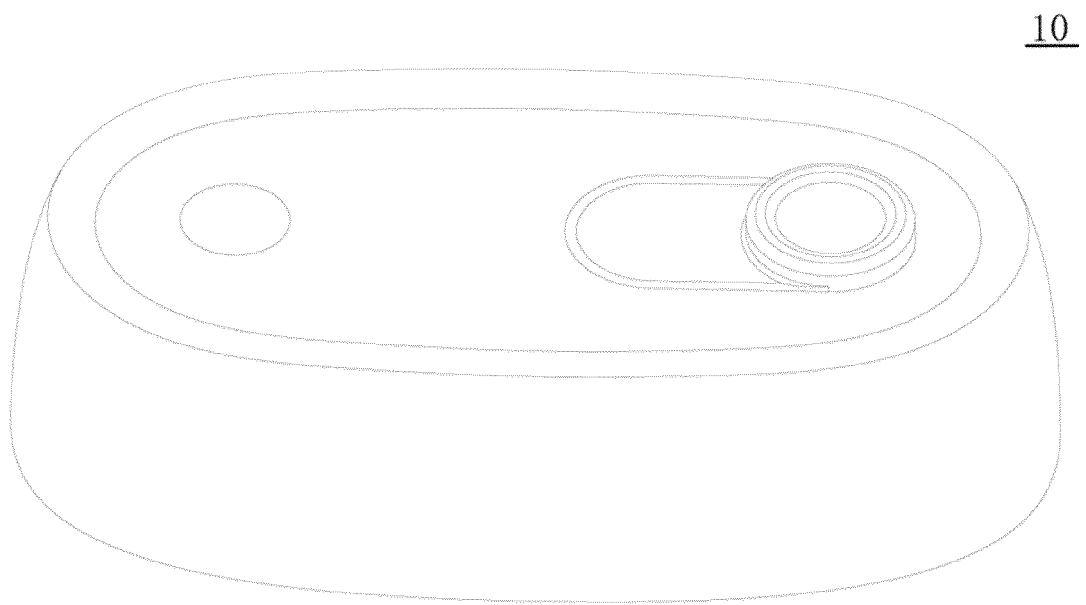


FIG. 3

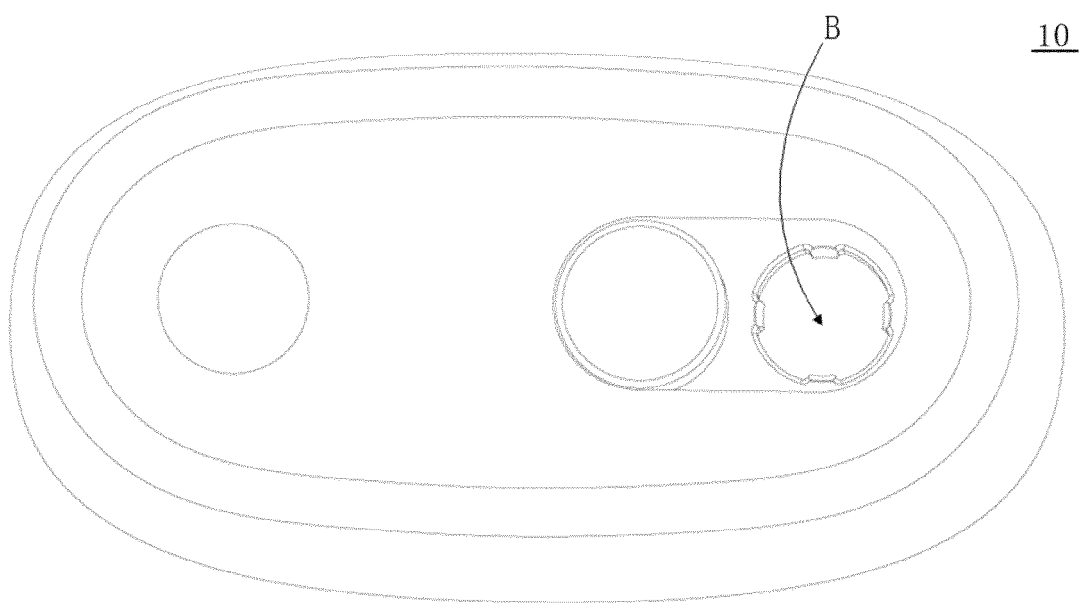


FIG. 4

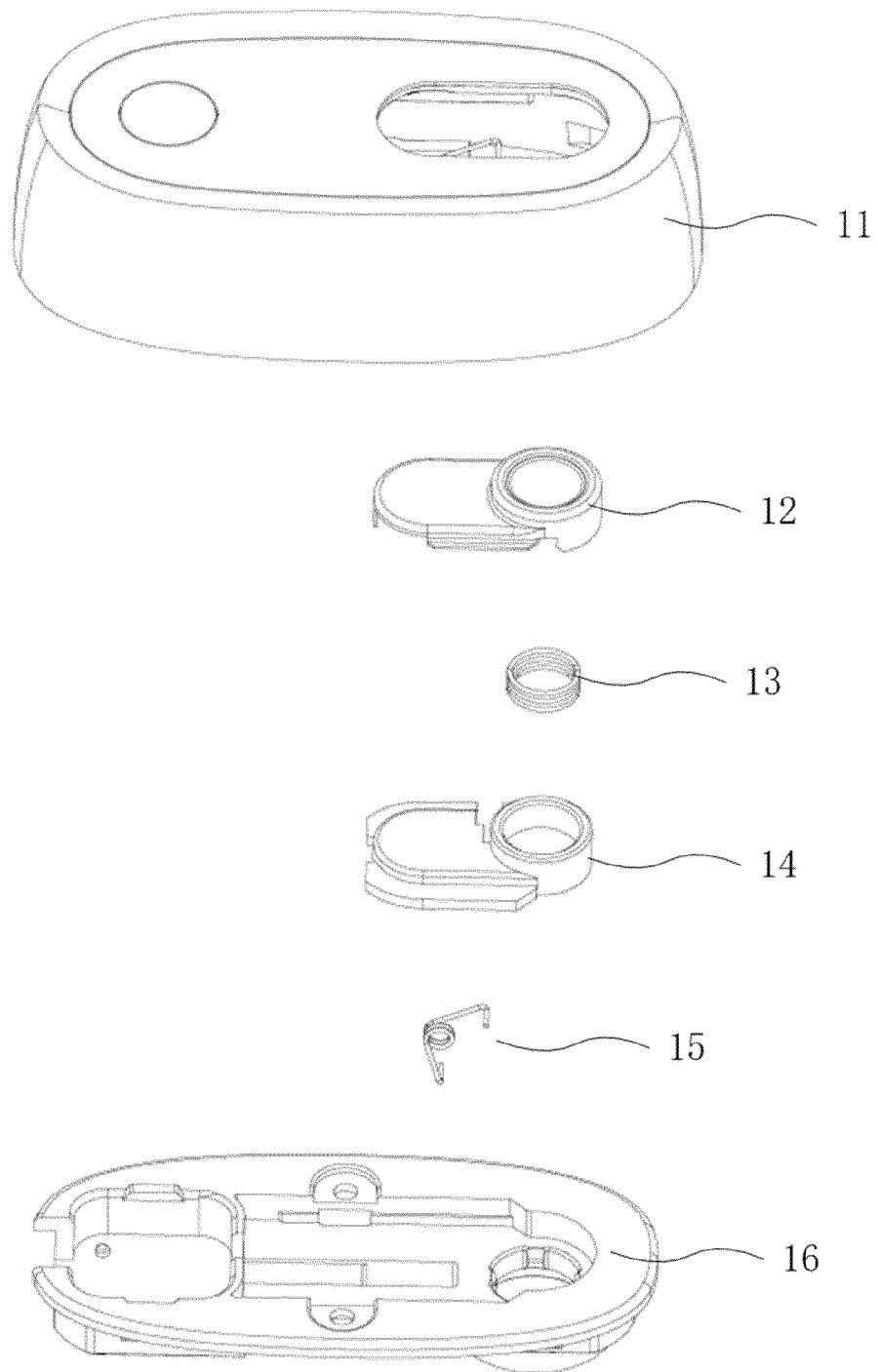


FIG. 5

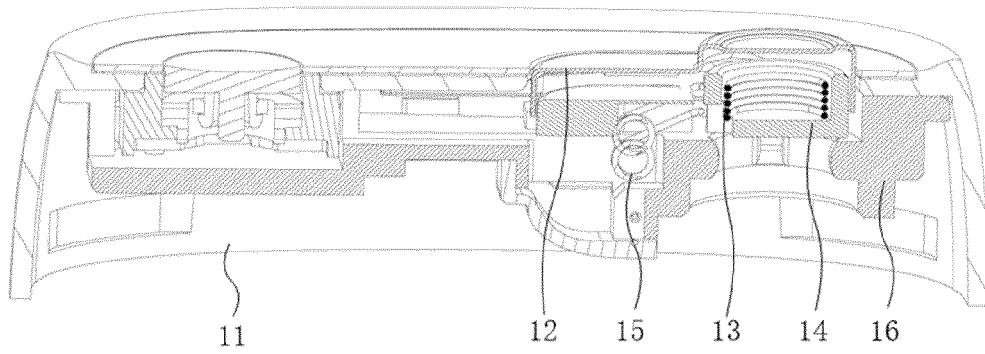


FIG. 6

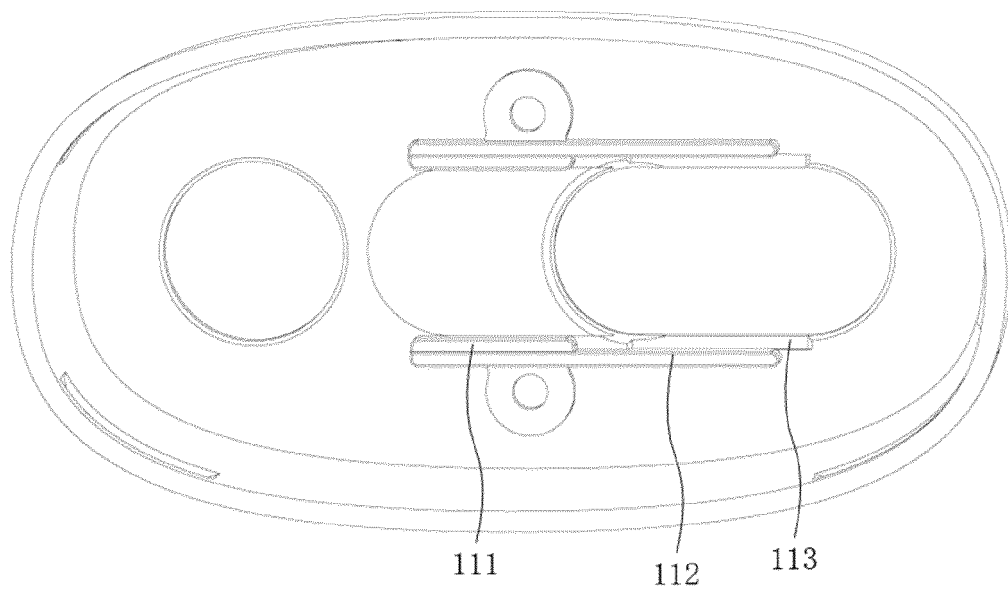


FIG. 7

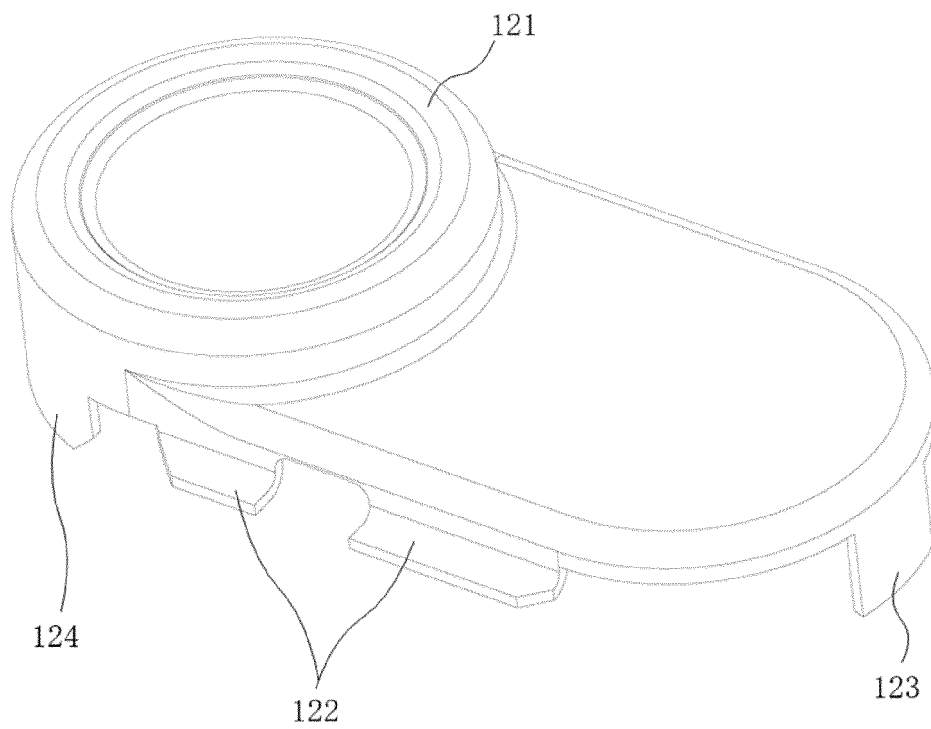


FIG. 8

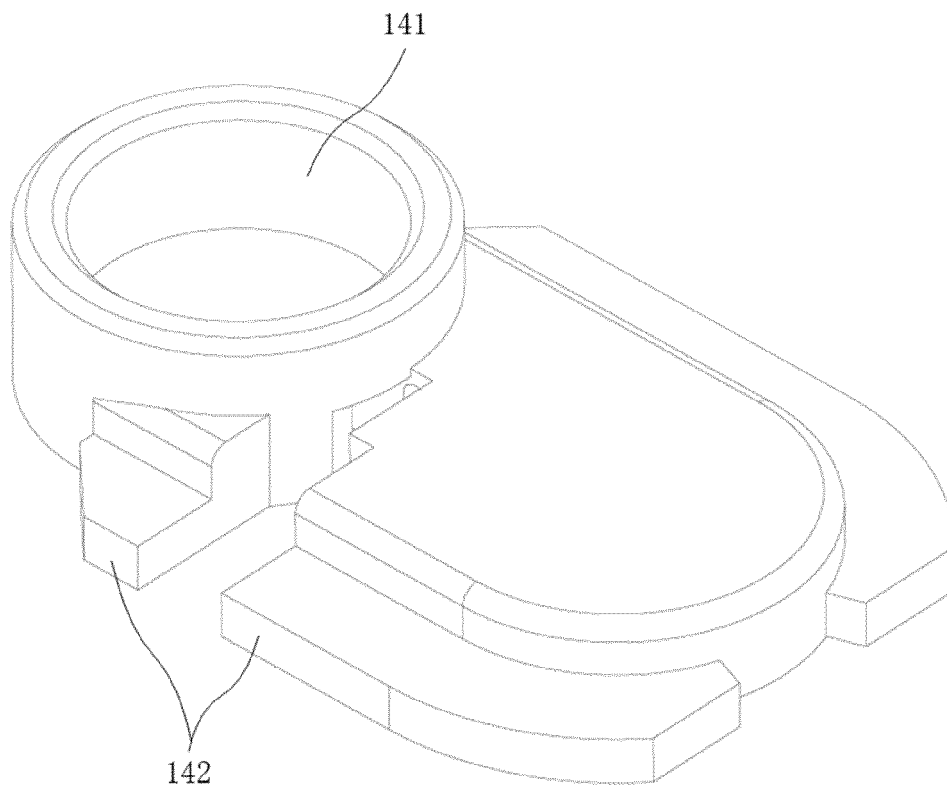


FIG. 9

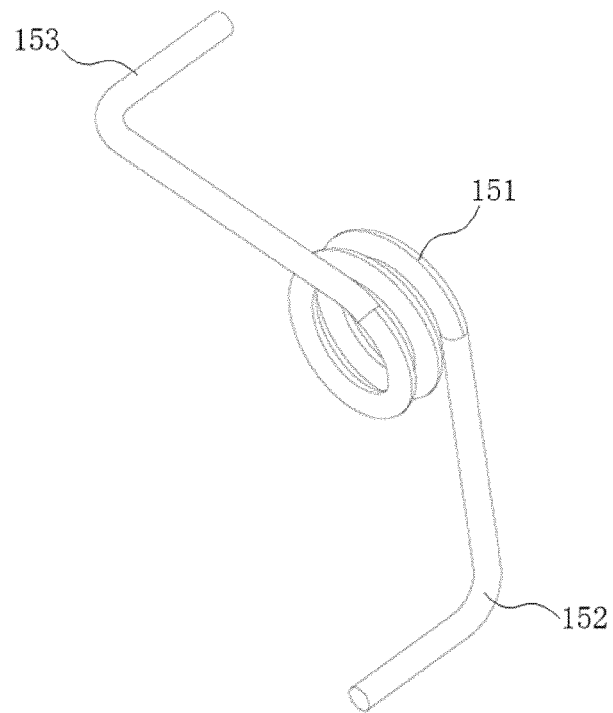


FIG. 10

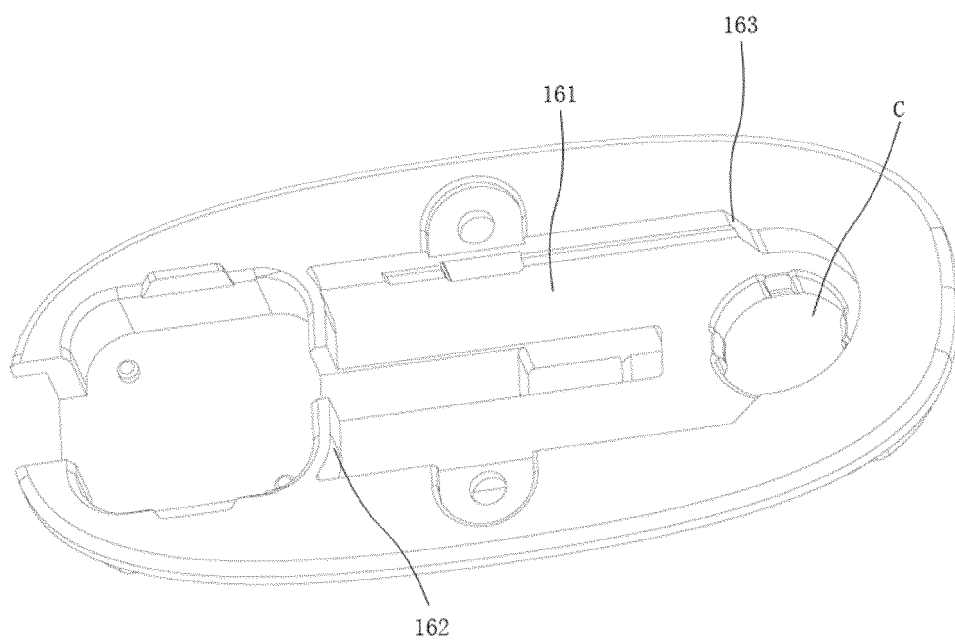


FIG. 11

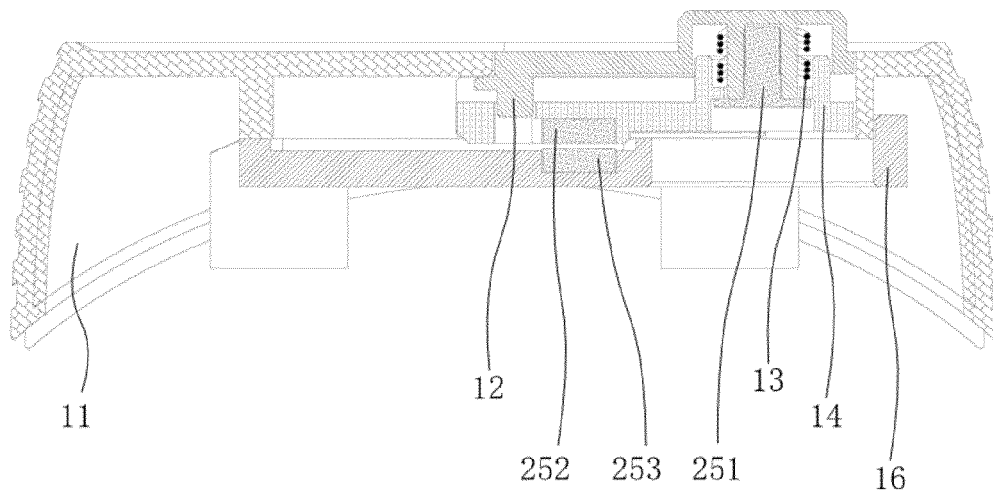


FIG. 12

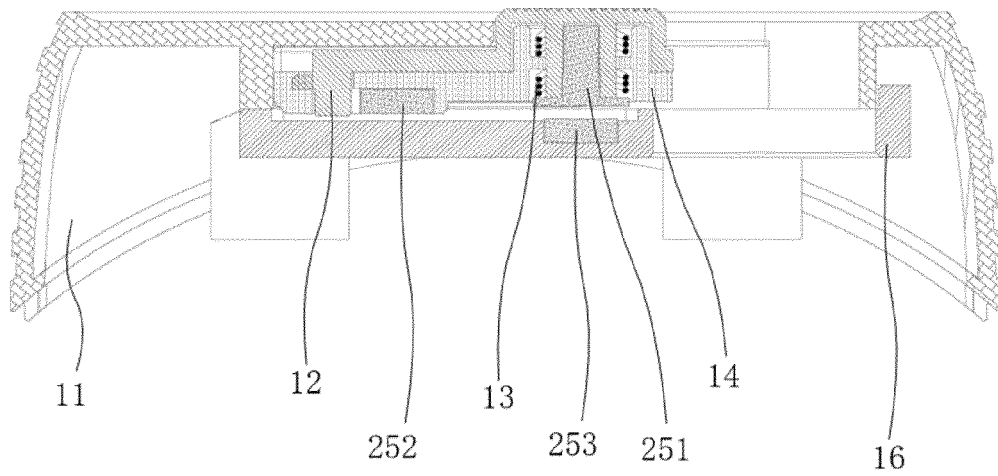


FIG. 13

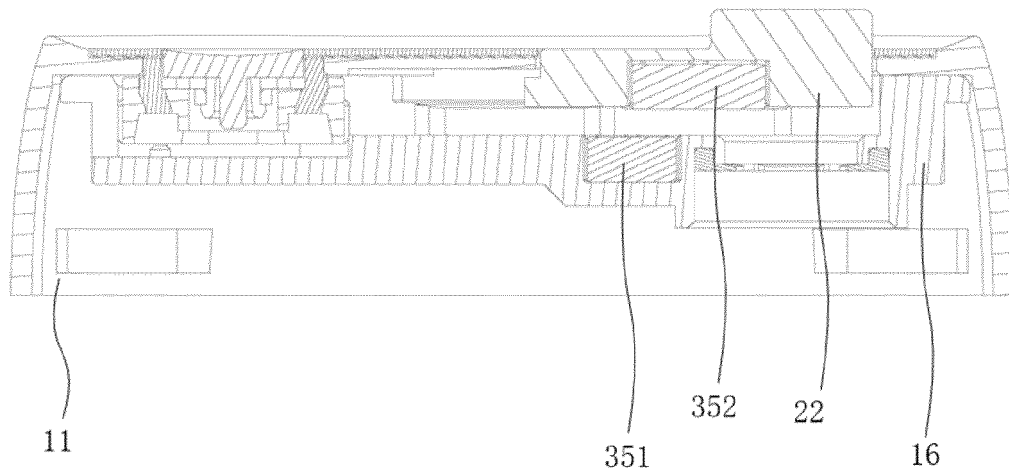


FIG. 14

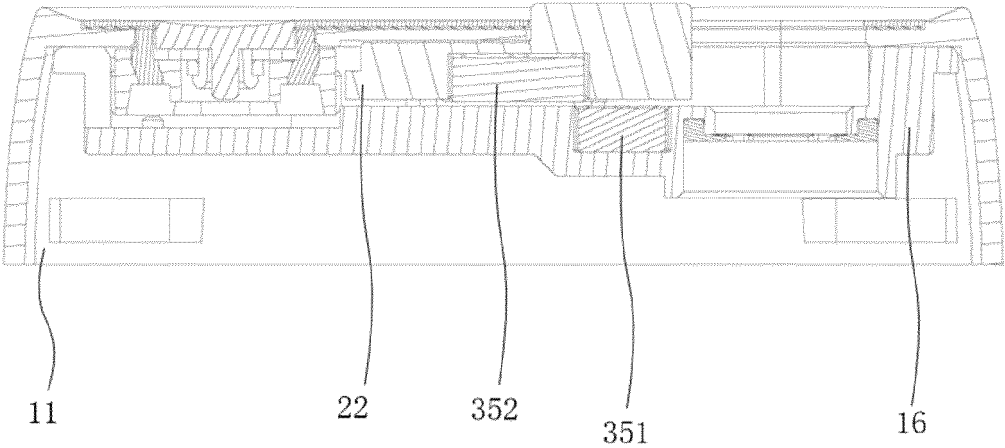


FIG. 15

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2021/117252

A. CLASSIFICATION OF SUBJECT MATTER

A24F 40/40(2020.01)i

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; F23Q

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)

CNTXT; ENTXTC; VEN: 电子烟, 气溶胶, 无烟香烟, 门, 盖, 遮蔽, 遮挡, 挡片, 滑块, 滑板, 弹簧, 板簧, 弹性, 按压, 压下, 磁性, 磁体, 磁铁, 导轨, 滑轨, smoking, electronic, cigarette, tobacco, atomiz+, slid+, cover, lid, door, spring, press, magnet, guide, lead, rail, way

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 213604383 U (SHENZHEN FIRST UNION TECHNOLOGY CO., LTD.) 06 July 2021 (2021-07-06) claims 1-13	1-13
X	DE 202013001150 U1 (GREAT PERFORMANCE INDUSTRIES CO., LTD.) 15 May 2013 (2013-05-15) description, paragraphs 17-30, and figures 1-6	1-3, 7-8, 11
Y	DE 202013001150 U1 (GREAT PERFORMANCE INDUSTRIES CO., LTD.) 15 May 2013 (2013-05-15) description, paragraphs 17-30, and figures 1-6	4-6, 9-10, 12-13
Y	CN 211129731 U (SHENZHEN FIRST UNION TECHNOLOGY CO., LTD.) 31 July 2020 (2020-07-31) description, paragraphs 24-71, and figures 1-8	1-13
Y	CN 205072072 U (SHENZHEN SMOORE TECHNOLOGY LIMITED) 09 March 2016 (2016-03-09) description, paragraphs 29-36, and figures 1-6	1-13

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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Date of the actual completion of the international search

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Name and mailing address of the ISA/CN

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Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2021/117252

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	CN 2874291 Y (HE, Guojian) 28 February 2007 (2007-02-28) description, page 4 paragraph 2 to page 9 paragraph 2 and figures 1-24	1-13
Y	CN 209807155 U (CHINA TOBACCO HUNAN INDUSTRIAL CO., LTD.) 20 December 2019 (2019-12-20) description, paragraphs 35-48, and figures 1-8	5-6, 9-10, 12
A	CN 202253750 U (GREAT PERFORMANCE INDUSTRIES CO., LTD.) 30 May 2012 (2012-05-30) entire document	1-13

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INTERNATIONAL SEARCH REPORT
Information on patent family members

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CN	211129731	U	31 July 2020		None				
CN	205072072	U	09 March 2016		None				
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REFERENCES CITED IN THE DESCRIPTION

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