



(11) **EP 4 772 038 A1**

(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
08.07.2026 Bulletin 2026/28

(51) International Patent Classification (IPC):
A24F 40/40 ^(2020.01) **A24F 40/46** ^(2020.01)

(21) Application number: **24857973.2**

(52) Cooperative Patent Classification (CPC):
A24F 40/40; A24F 40/46

(22) Date of filing: **20.06.2024**

(86) International application number:
PCT/CN2024/100459

(87) International publication number:
WO 2025/044429 (06.03.2025 Gazette 2025/10)

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA
Designated Validation States:
GE KH MA MD TN

(72) Inventors:
• **ZHONG, Zhida**
Shenzhen, Guangdong 518105 (CN)
• **CHENG, Peng**
Shenzhen, Guangdong 518105 (CN)

(74) Representative: **Winter, Brandl - Partnerschaft mbB**
Alois-Steinecker-Straße 22
85354 Freising (DE)

(30) Priority: **28.08.2023 CN 202311095353**

(71) Applicant: **Shenzhen Merit Technology Co., Ltd.**
Shenzhen, Guangdong 518105 (CN)

(54) **AEROSOL GENERATING DEVICE**

(57) An aerosol generating device (100) includes a housing (10) providing with a loading hole (11), a cover (30), a shielding assembly (50) and a limiting assembly (70). A shielding member (51) of the shielding assembly (50) is movable relative to the housing (10) to cover or uncover the loading hole (11). A limiting member (71) and a fitting member (73) of the limiting assembly (70) overlap along the height direction. One of the limiting member and the fitting member is arranged at the shielding assembly (50), and the other is arranged at the housing (10) or the cover (30).

100

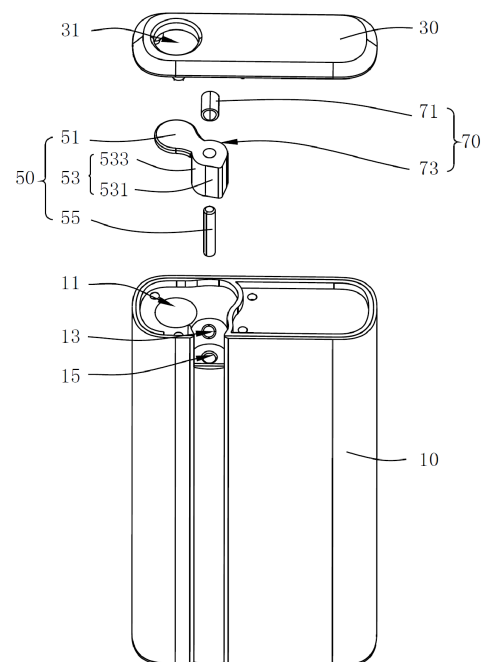


FIG. 2

Description

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to and the benefit of Patent Application No. 202311095353.X, filed with the China National Intellectual Property Administration on August 28, 2023, which is incorporated by reference in its entirety.

TECHNICAL FIELD

[0002] This application relates to the technical field of atomisation, and in particular, to an aerosol generating device.

BACKGROUND

[0003] An aerosol generating device is a compact apparatus that can act on an aerosol generating substrate and generate an aerosol by using a heat not burning (HNB) technology. Specifically, the aerosol generating device typically heats the aerosol generating substrate to a temperature at which the aerosol generating substrate can generate an aerosol but cannot burn, so that the aerosol generating substrate can generate an aerosol for the user to inhale without burning. The aerosol generating device can preserve the original flavour of the aerosol generating substrate, and can further effectively control the generation of harmful substances. With the rising focus on health, aerosol generating devices gradually become preferred choice for consumers.

[0004] To prevent external substances from entering the aerosol generating device and generating harmful substances during heating that could affect human health, the aerosol generating device is typically provided with a shielding assembly. However, the shielding assembly currently available on the market is usually arranged outside the aerosol generating device, affecting the integrity and aesthetic appeal of the aerosol generating device.

SUMMARY

[0005] An embodiment of this application provides an aerosol generating device, at least for solving the problem that the shielding assembly is arranged outside the aerosol generating device, affecting the integrity and aesthetic appeal of the aerosol generating device.

[0006] The aerosol generating device according to embodiments of this application includes a housing, a cover, a shielding assembly, and a limiting assembly. The housing is provided with a loading hole, and the loading hole is configured to load an aerosol generating article. The cover is mounted to the housing and provided with a through hole corresponding to the loading hole. The shielding assembly is arranged between the housing and the cover. The shielding assembly includes a shield-

ing member, and the shielding member is movable relative to the housing and the cover under an external force. The limiting assembly includes a limiting member and a fitting member. One of the limiting member and the fitting member is arranged at the shielding assembly, and the other is arranged at the housing or the cover. The limiting member and the fitting member overlap along the height direction of the aerosol generating device. In a state in which the shielding member is in a first position covering the loading hole, the limiting member interacts with the fitting member to limit the shielding member to be in the first position. In a state in which the shielding member is in a second position uncovering the loading hole, the limiting member interacts with the fitting member to limit the shielding member to be in the second position.

[0007] In some embodiments, the shielding assembly further includes a toggle member. The toggle member is at least partially exposed from the side wall of the housing, and the toggle member is configured to drive, under an external force, the shielding member to rotate, translate, or rotate and translate relative to the housing and the cover.

[0008] In some embodiments, the toggle member is cylindrical and is rotatably connected to the cover and/or the housing, and the shielding member is arranged at one end of the toggle member along the height direction.

[0009] In some embodiments, the fitting member is arranged at the side wall of the toggle member, and the limiting member is arranged at the housing or the cover.

[0010] In some embodiments, the limiting member and the fitting member interact by contact to limit the shielding member to be in the first position or the second position.

[0011] In some embodiments, the limiting member has a retractable structure. The limiting member includes a protruding limiting portion. The limiting assembly includes two fitting members. The fitting members are grooves in the side wall of the toggle member. The limiting portion engages with one of the grooves to limit the shielding member to be in the first position, and the limiting portion engages with the other groove to limit the shielding member to be in the second position.

[0012] In some embodiments, the limiting member further includes a mounting portion and an elastic portion. The elastic portion is mounted at the mounting portion. One end of the elastic portion is connected to the mounting portion, and the other end of the elastic portion is connected to the limiting portion. When the elastic portion is in a natural state, the limiting portion protrudes toward the fitting member relative to the mounting portion.

[0013] In some embodiments, the limiting member and the fitting member are spaced apart and interact magnetically to limit the shielding member to be in the first position or the second position.

[0014] In some embodiments, the limiting member is a first magnetic member. The fitting member is a second magnetic member. The first magnetic member repels the

second magnetic member. The first position and the second position are on two opposite sides of the first magnetic member. When the shielding member is in an intermediate position between the first position and the second position, the first magnetic member faces the second magnetic member.

[0015] In some embodiments, the limiting assembly includes two limiting members. The limiting members are first magnetic members. The fitting member is a second magnetic member. When the shielding member is in the first position, one of the first magnetic members attracts the second magnetic member. When the shielding member is in the second position, the other first magnetic member attracts the second magnetic member.

[0016] In the aerosol generating device according to the embodiments of this application, the shielding assembly is located between the housing and the cover, so that the aerosol generating device has good integrity and aesthetic appeal. In addition, the limiting member and the fitting member provided in the aerosol generating device cooperate with each other. When the loading hole needs to be covered, the shielding member can be stably in the first position, and when the loading hole needs to be uncovered, the shielding member can be stably in the second position, so as to prevent the shielding member from shaking between the housing and the cover.

[0017] Other aspects and advantages of this application will be given in the following description, some of which will become apparent from the following description or may be learned from practices of this application.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] The above and/or additional aspects and advantages of this application will become apparent and comprehensible in the description of the embodiments made with reference to the following accompanying figures.

FIG. 1 is a schematic three-dimensional assembly view of an aerosol generating device according to some embodiments of this application;

FIG. 2 is a schematic three-dimensional exploded view of the aerosol generating device according to some embodiments of this application;

FIG. 3 is a schematic structural view of the aerosol generating device of FIG. 1 with a cover removed and a shielding member in a first position;

FIG. 4 is a schematic structural view of the aerosol generating device of FIG. 1 with the cover removed and the shielding member in a second position;

FIG. 5 is a schematic structural view of a shielding assembly and a limiting assembly according to some embodiments of this application;

FIG. 6 is a schematic sectional view of the aerosol generating device of FIG. 3 taken along line VI-VI;

FIG. 7 is a schematic sectional view of the aerosol

generating device according to other embodiments of this application; and

FIG. 8 is a schematic sectional view of the aerosol generating device according to still other embodiments of this application.

[0019] List of reference signs:

100, aerosol generating device; 10, housing; 11, loading hole; 13, first accommodating slot; 15, second accommodating slot; 30, cover; 31, through hole; 50, shielding assembly; 51, shielding member; 53, toggle member; 531, toggle portion; 533, cylindrical portion; 55, connecting member; 70, limiting assembly; 71, limiting member; 711, limiting portion; 713, mounting portion; 715, elastic portion; 717, first magnetic member; 73, fitting member; 731, groove; and 733, second magnetic member.

DETAILED DESCRIPTION

[0020] To make the foregoing objectives, features, and advantages of this application more comprehensible, specific embodiments of this application are described below in detail with reference to the accompanying figures. In the following description, many specific details are described for thorough understanding of this application. However, this application can be implemented in many other ways different from those described herein. Those skilled in the art can make similar improvements without departing from the connotation of this application. Therefore, this application is not limited by specific embodiments disclosed below.

[0021] In the description of this application, it should be understood that orientation or position relationships indicated by the terms such as "centre", "longitudinal", "transverse", "length", "width", "thickness", "on", "below", "front", "back", "left", "right", "vertical", "horizontal", "top", "bottom", "inside", "outside", "clockwise", "anticlockwise", "axial direction", "radial direction", and "circumferential direction" are based on orientation or position relationships shown in the accompanying figures, and are used only for ease and brevity of illustration and description, rather than indicating or implying that the mentioned apparatus or component needs to have a particular orientation or needs to be constructed and operated in a particular orientation. Therefore, such terms should not be construed as limiting of this application.

[0022] In addition, terms "first" and "second" are used merely for the purpose of description, and shall not be construed as indicating or implying relative importance or implying a quantity of indicated technical features. Therefore, a feature restricted by "first" or "second" may explicitly indicate or implicitly include at least one of such features. In description of this application, "multiple" means at least two, such as two and three unless it is specifically defined otherwise.

[0023] In this application, unless otherwise expressly specified and limited, the terms "mount", "link", "connect",

"fix", and the like should be understood in a broad sense, such as, a fixed connection, a detachable connection, an integrated connection, a mechanical connection, an electrical connection, a direct connection, an indirect connection through an intermediate medium, an internal communication of two elements, or interaction between two elements, unless expressly specified otherwise. A person of ordinary skill in the art may understand the specific meanings of the foregoing terms in this application according to specific situations.

[0024] In this application, unless otherwise explicitly specified or defined, the first feature being located "above" or "below" the second feature may be the first feature being in a direct contact with the second feature, or the first feature being in an indirect contact with the second feature through an intermediary. In addition, that the first feature is "above", "over", or "on" the second feature may indicate that the first feature is directly above or obliquely above the second feature, or may merely indicate that the horizontal position of the first feature is higher than that of the second feature. That the first feature is "below", "under", and "beneath" the second feature may be that the first feature is right below the second feature or at an inclined bottom of the second feature, or may merely indicate that the horizontal position of the first feature is lower than that of the second feature.

[0025] It should be noted that, when an element is referred to as "fixed to" or "arranged on" another element, the element may be directly on another element, or an intervening element may be present. When deemed as "being connected to" another element, an element may be directly connected to another element, or an intervening element may be present. The terms such as "perpendicular", "horizontal", "upper", "lower", "left", and "right" used herein are merely for the purpose of description, but do not indicate a unique embodiment.

[0026] To prevent external substances from entering the aerosol generating device and generating harmful substances during heating that could affect human health, the aerosol generating device is typically provided with a shielding assembly. However, the shielding assembly currently available on the market is usually arranged outside the aerosol generating device, affecting the integrity and aesthetic appeal of the aerosol generating device. To solve the problem, this application provides an aerosol generating device 100 (shown in FIG. 1).

[0027] Referring to FIG. 1 and FIG. 2, the aerosol generating device 100 according to the embodiments of this application includes a housing 10, a cover 30, a shielding assembly 50, and a limiting assembly 70. The housing 10 is provided with a loading hole 11, and the loading hole 11 is configured to load an aerosol generating article. The cover 30 is mounted to the housing 10 and provided with a through hole 31 corresponding to the loading hole 11. The shielding assembly 50 is arranged between the housing 10 and the cover 30. The shielding assembly 50 includes a shielding member 51. The shield-

ing member 51 is movable relative to the housing 10 and the cover 30 under an external force. The limiting assembly 70 includes a limiting member 71 and a fitting member 73. One of the limiting member 71 and the fitting member 73 is arranged at the shielding assembly 50, and the other is arranged at the housing 10 or the cover 30. The limiting member 71 and the fitting member 73 overlap along the height direction H of the aerosol generating device 100. In a state in which the shielding member 51 is in the first position (shown in FIG. 3) covering the loading hole 11, the limiting member 71 interacts with the fitting member 73 to limit the shielding member 51 to be in the first position. In a state in which the shielding member 51 is in the second position (shown in FIG. 4) uncovering the loading hole 11, the limiting member 71 interacts with the fitting member 73 to limit the shielding member 51 to be in the second position.

[0028] Specifically, the aerosol generating device 100 is a structure that can generate an aerosol by acting on an aerosol generating article through resistive heating, electromagnetic heating, microwave heating, laser radiation, infrared light radiation, ultrasonic waves, mechanical vibration, or the like. For example, the aerosol generating device 100 may generate an aerosol by heating an aerosol generating article with microwave radiation. The aerosol may be visible or invisible, and may include vapor (for example, fine particulate matter in a gaseous state that is typically liquid or solid at room temperature), gases and liquid droplets of condensed vapor. The aerosol generating article is an article loaded with an aerosol generating substrate. A shell of the aerosol is not limited to a paper shell, a plastic shell, or a metal shell. The aerosol generating substrate is loaded in the shell to form the aerosol generating article. The aerosol generating substrate is a plant leaf article that can be treated and heated to generate an aerosol. The aerosol generating substrate may be in an all-solid or semi-solid form. In the case that the aerosol generating substrate is in the all-solid form, the aerosol generating substrate may be prepared and formed by using a process such as rolling, pasting, die casting, and extrusion. The aerosol generating substrate may have a cylindrical structure similar to a cigarette, or may have a sheet-like structure, a strip-like structure, or a block-like structure.

[0029] The housing 10 is a structure configured to accommodate other elements. The housing 10 in this application is configured to accommodate a heating element, a circuit board, a control element, a power supply unit, and the like of the aerosol generating device 100. A material of the housing 10 may be, but not limited to, metal, plastic, or ceramic. When the material of the housing 10 is metal, the housing 10 has high structural strength, so the housing 10 is not easily damaged and has long service life. When the material of the housing 10 is plastic, the housing 10 has a light weight and is convenient to carry, and the cost of the housing 10 is low. When the material of the housing 10 is ceramic, the housing 10 has high hardness and is not easily deformed,

and the housing 10 has good corrosion resistance and long service life. A cross-section of the housing 10 may be, but not limited to, circular, elliptical, or rectangular.

[0030] The loading hole 11 is a spatial structure for loading other elements therein. When the user intends to inhale the aerosol, the aerosol generating article needs to be first loaded into the loading hole 11, and the control element in the inner cavity of the housing 10 controls the heating element to heat the aerosol generating article to generate the aerosol for the user to inhale. When all the aerosol generating article is consumed, the aerosol generating article needs to be taken from the loading hole 11, so that a new aerosol generating article can be loaded into the loading hole 11 for the next puff. The shape of the loading hole 11 may be, but not limited to, a circle, an ellipse, a triangle, a quadrangle, or another polygon.

[0031] The cover 30 is configured to cover a top opening of the housing 10, and in this case, the through hole 31 of the cover 30 corresponds to and communicates with the loading hole 11 of the housing 10. A material of the cover 30 may be, but not limited to, metal, plastic, or ceramic. When the material of the cover 30 is metal, the cover 30 has high structural strength, and is not easily damaged and has long service life. When the material of the cover 30 is plastic, the cover 30 has a light weight and is convenient to carry, and is also low in cost. When the material of the cover 30 is ceramic, the cover 30 has high hardness and is not easily deformed, also has good corrosion resistance and long service life.

[0032] The material of the cover 30 may be the same as or different from that of the housing 10. The shape of the cross-section of the cover 30 is basically the same as that of the cross-section of the housing 10, so that the cover 30 can be stably connected to the housing 10.

[0033] The through hole 31 is configured for the aerosol, which is generated by heating the aerosol generating article in the loading hole 11, to flow out through the through hole 31 for the user to inhale. The shape of the through hole 31 may be, but not limited to, a circle, an ellipse, a triangle, a quadrangle, or another polygon. The shape of the through hole 31 may be the same as or different from that of the loading hole 11. The cross-sectional area of the through hole 31 may be the same as or different from that of the loading hole 11, provided that the through hole 31 communicates with the loading hole 11.

[0034] The shielding assembly 50 is a structure that is movable to cover a target element. For example, under an external force, the shielding assembly 50 is movable relative to the housing 10 and the cover 30 to cover or uncover the loading hole 11. The shielding member 51 may cover or uncover the loading hole 11 in a manner such as rotating or translating relative to the housing 10 and the cover 30. The shape of the cross-section of the shielding member 51 may be, but not limited to, a circle, an ellipse, a quadrangle, or another polygon. The cross-sectional area of the shielding member 51 may be the same as that of the loading hole 11 and the through hole

31, or the cross-sectional area of the shielding member 51 is greater than the cross-sectional area of the loading hole 11 and the through hole 31. When the loading hole 11 needs to be covered, the shielding member 51 is located between the loading hole 11 and the through hole 31. The shielding member 51 is configured to partition the loading hole 11 and the through hole 31, so as to prevent external substances from entering the loading hole 11 from the through hole 31.

[0035] The limiting assembly 70 is a structure configured to limit the movement of the shielding assembly 50. The limiting member 71 cooperates with the fitting member 73 to limit the shielding member 51 to stay in the first position or the second position. In an embodiment, the limiting member 71 is arranged at the housing 10, and the fitting member 73 is arranged at the shielding assembly 50. In another embodiment, the limiting member 71 is arranged at the cover body 30, and the fitting member 73 is arranged at the shielding assembly 50. In still another embodiment, the limiting member 71 is arranged at the shielding assembly 50, and the fitting member 73 is arranged at the housing 10. In yet another embodiment, the limiting member 71 is arranged at the shielding assembly 50, and the fitting member 73 is arranged at the cover 30. In this embodiment of this application, the limiting member 71 is arranged at the housing 10, and the fitting member 73 is arranged at the shielding assembly 50.

[0036] Referring to FIG. 3 and FIG. 4, in a state in which the shielding member 51 is in the first position covering the loading hole 11, the limiting member 71 cooperates with the fitting member 73 to generate a first limiting force. The first limiting force is used for limiting the movement of the shielding member 51 toward the second position, so that the shielding member 51 can be stably in the first position to cover the loading hole 11. In a state in which the shielding member 51 is in the second position uncovering the loading hole 11, the limiting member 71 cooperates with the fitting member 73 to generate a second limiting force. The second limiting force is used for limiting the movement of the shielding member 51 toward the first position, so that the shielding member 51 can be stably in the second position to uncover the loading hole 11, thereby facilitating the user to inhale the aerosol.

[0037] That the limiting member 71 and the fitting member 73 overlap along the height direction H of the aerosol generating device 100 means that along the height direction H of the aerosol generating device 100, at least part of the limiting member 71 and at least part of the fitting member 73 occupy the same height range. In an embodiment, part of the limiting member 71 and part of the fitting member 73 occupy the same height range. In this case, the mounting of the limiting member 71 and the fitting member 73 is simple and convenient, provided that part of the limiting member 71 and part of the fitting member 73 occupy the same height range. In another embodiment, the height of the limiting member 71 is the same as that of the fitting member 73, that is, the

limiting member 71 and the fitting member 73 are at the same height. When the limiting member 71 and the fitting member 73 are at the same height, the first limiting force and the second limiting force that are generated between the limiting member 71 and the fitting member 73 are acting forces perpendicular to the height direction H of the aerosol generating device 100. In this case, when the shielding member 51 needs to be moved from the first position to the second position, an action force opposite to the first limiting force is applied to the shielding member 51, so that the shielding member 51 can be moved to the second position. When the shielding member 51 needs to be moved from the second position to the first position, an action force opposite to the second limiting force is applied to the shielding member 51, so that the shielding member 51 can be moved to the second position. In this way, it is easy to cover and uncover the loading hole.

[0038] In the aerosol generating device 100 according to the embodiments of this application, the shielding assembly 50 is located between the housing 10 and the cover 30, so that the aerosol generating device 100 has good integrity and aesthetic appeal. In addition, the limiting member 71 and the fitting member 73 provided in the aerosol generating device 100 cooperate with each other. When the loading hole 11 needs to be covered, the shielding member 51 can be stably in the first position, and when the loading hole 11 needs to be uncovered, the shielding member 51 can be stably in the second position, so as to prevent the shielding member 51 from shaking between the housing 10 and the cover 30.

[0039] The aerosol generating device 100 will be further described below with reference to the accompanying figures.

[0040] Referring to FIG. 2 to FIG. 4, in some embodiments, the shielding assembly 50 further includes a toggle member 53. The toggle member 53 is at least partially exposed from the side wall of the housing 10. The toggle member 53 is configured to drive, under an external force, the shielding member 51 to rotate, translate, or rotate and translate relative to the housing 10 and the cover 30.

[0041] The toggle member 53 is configured to drive the shielding member 51 to rotate or move relative to the housing 10 and the cover 30, so that the shielding member 51 is switched between the first position and the second position. The toggle member 53 and the shielding member 51 may have an integral or separate structure. When the toggle member 53 and the shielding member 51 have an integral structure, the material of the toggle member 53 is the same as that of the shielding member 51.

[0042] When the toggle member 53 and the shielding member 51 have a separate structure, the toggle member 53 may be detachably or non-detachably connected to the shielding member 51. The detachable connection includes, but is not limited to, threaded connection, screw connection, or snap-fit connection. The non-detachable

connection includes, but is not limited to, soldering, gluing, or interference fitting.

[0043] The toggle member 53 includes a toggle portion 531 and a cylindrical portion 533. The cylindrical portion 533 is connected to the shielding member 51. The cylindrical portion 533 in this application is configured to drive the shielding member 51 to rotate, so that the shielding member 51 is switched between the first position and the second position. The toggle portion 531 is exposed from the housing 10, so that the user applies a force to the toggle portion 531 to enable the toggle member 53 to drive the shielding member 51 to switch between the first position and the second position.

[0044] In an embodiment, the toggle portion 531 protrudes from an aperture in the side wall of the housing 10. In this case, the shielding assembly 50 of the aerosol generating device 100 is convenient for the user to operate. The user may apply an external force to the toggle portion 531 protruding from the side wall of the housing 10, to drive the shielding member 51 to move. In another embodiment, the toggle portion 531 corresponds to the aperture in the side wall of the housing 10. In this case, the whole aerosol generating device 100 is small in structure and convenient to carry, and has good appearance. The user may control the toggle portion 531 by inserting an object such as an ejector pin through the aperture.

[0045] Referring to FIG. 2 to FIG. 4, in some embodiments, the toggle member 53 is cylindrical and is rotatably connected to the cover 30 and/or the housing 10. The shielding member 51 is arranged at one end of the toggle member 53 along the height direction H of the aerosol generating device 100. Specifically, the cylindrical portion 533 of the toggle member 53 has a cylindrical structure, so that the toggle member 53 can rotate relative to the cover 30 or the housing 10. An extension direction of the cylindrical portion 533 is parallel to the height direction H of the aerosol generating device 100. The shielding member 51 in this application is arranged at a top end of the cylindrical portion 533. After the user applies a force to the toggle portion 531, the cylindrical portion 533 receives the external force and drives the shielding member 51 to rotate together. In an embodiment, the cylindrical portion 533 is rotatably connected to the cover 30. In another embodiment, the cylindrical portion 533 is rotatably connected to the housing 10.

[0046] Referring to FIG. 2 to FIG. 4, further, the shielding assembly 50 further includes a connecting member 55. One end of the connecting member 55 is connected to the housing 10, and the other end of the connecting member 55 is connected to the cylindrical portion 533. The connecting member 55 is configured to rotate the cylindrical portion 533 relative to the housing 10 and the cover 30. Preferably, the connecting member 55 has a cylindrical structure, so that the cylindrical portion 533 connected to the connecting member 55 can rotate relative to the housing 10 and the cover 30. The connecting member 55 is mounted in a second accommodating slot

15 of the housing 10. The connection between the connecting member 55 and the housing 10 may be, but not limited to, threaded connection, snap-fit connection, soldering, or gluing.

[0047] In an embodiment, the connecting member 55 is fixedly connected to the cylindrical portion 533, and the connecting member 55 is configured to drive the cylindrical portion 533 to rotate relative to the housing 10. In this case, the user applies an external force to the toggle portion 531, and the connecting member 55 rotates to drive the cylindrical portion 533 to rotate, so that the cylindrical portion 533 drives the shielding member 51 to switch between the first position and the second position. In another embodiment, the connecting member 55 is fixedly connected to the housing 10, and the cylindrical portion 533 can rotate relative to the connecting member 55. In this case, the user applies an external force to the toggle portion 531, and the toggle portion 531 drives the cylindrical portion 533 to rotate relative to the connecting member 55, so that the cylindrical portion 533 drives the shielding member 51 to switch between the first position and the second position.

[0048] Further referring to FIG. 2 and FIG. 4, in some embodiments, in a process in which the shielding member 51 switches from the first position to the second position, the limiting force generated by the limiting member 71 and the fitting member 73 first increases and then decreases.

[0049] Specifically, in a process in which the shielding member 51 switches from the first position to the second position, the limiting force between the limiting member 71 and the fitting member 73 is relatively small in the first position, and the limiting force between the limiting member 71 and the fitting member 73 is the maximum when the shielding member 51 is in an intermediate position between the first position and the second position. In a process in which the shielding member 51 reaches the second position, the limiting force between the limiting member 71 and the fitting member 73 gradually decreases. When the user toggles the shielding member 51, the user can feel the process that the limiting force first increases and then decreases, so as to know whether the shielding member 51 moves into position.

[0050] Referring to FIG. 5 and FIG. 6, in some embodiments, the fitting member 73 is arranged at the side wall of the toggle member 53, and the limiting member 71 is arranged at the housing 10 or the cover 30. Specifically, the fitting member 73 is arranged at the side wall of the cylindrical portion 533 that faces the limiting member 71. The limiting member 71 may be arranged at the housing 10 or at the cover 10. The limiting member 71 faces the fitting member 73.

[0051] Referring to FIG. 5 and FIG. 6, in some embodiments, the limiting member 71 and the fitting member 73 interact by contact to limit the shielding member 51 to be in the first position or the second position. The limiting member 71 and the fitting member 73 cooperate to generate a first limiting force, so as to limit the shielding

member 51 to be in the first position. The limiting member 71 and the fitting member 73 cooperate to generate a second limiting force, so as to limit the shielding member 51 to be in the second position. In this embodiment of this application, the limiting member 71 and the fitting member 73 repel each other to generate the first limiting force and the second limiting force.

[0052] Further referring to FIG. 5 and FIG. 6, specifically, in some embodiments, the limiting member 71 has a retractable structure. The limiting member 71 includes a protruding limiting portion 711, a mounting portion 713, and an elastic portion 715. The elastic portion 715 is mounted at the mounting portion 713. One end of the elastic portion 715 is connected to the mounting portion 713, and the other end of the elastic portion 715 is connected to the limiting portion 711.

[0053] When the elastic portion 715 is in a natural state, the limiting portion 711 protrudes toward the fitting member 73 relative to the mounting portion 713.

[0054] Specifically, the shielding member 51 in this application can rotate relative to the housing 10 and the cover 30, and the limiting portion 711 and the fitting member 73 cooperate through rotation, so that the shielding member 51 can stay in the first position or the second position.

[0055] The limiting portion 711 is a structure configured to cooperate with the fitting member 73 to limit the shielding member 51 to be in the first position or the second position. Preferably, the limiting portion 711 has a spherical structure, to facilitate rotation of the shielding member 51 so as to cooperate with the limiting portion 711.

[0056] The limiting portion 711 may have a hollow spherical structure or a solid spherical structure. When the limiting portion 711 has a hollow spherical structure, the limiting portion 711 has a light weight and can use less materials. When the limiting portion 711 has a solid spherical structure, the limiting portion 711 has high structural strength and long service life.

[0057] The mounting portion 713 is a structure configured to mount other elements. The mounting portion 713 in this application is configured to mount the elastic portion 715 and the limiting portion 711. The shape of the cross-section of the mounting portion 713 is a circle, so that the spherical limiting portion 711 can be mounted to the mounting portion 713. The mounting portion 713 may be mounted in a first accommodating slot 13 of the housing 10. When the mounting portion 713 is mounted in the first accommodating slot 13, in an example, the shape of the first accommodating slot 13 may be the same as that of the cross-section of the mounting portion 713, so that the mounting portion 713 can be stably mounted to the first accommodating slot 13. In another example, the shape of the first accommodating slot 13 may be different from that of the cross-section of the mounting portion 713. In this case, the mounting portion 713 may be mounted and fixed in the first accommodating slot 13 by gluing or soldering. The material of the mounting portion 713 may be the same as or different from that of the limiting portion

711.

[0058] The elastic portion 715 may drive, through extension and retraction, another element connected thereto to move. The elastic portion 715 in this application is configured to drive the limiting member 71 connected thereto to move. The elastic portion 715 is mounted inside the mounting portion 713, and the elastic portion 715 is detachably or non-detachably connected to the mounting portion 713 and the limiting portion 711. The detachable mounting includes, but is not limited to, threaded connection or snap-fit connection. The non-detachable mounting includes, but is not limited to, soldering or gluing. The elastic portion 715 includes, but is not limited to, a coil spring or a leaf spring. The coil spring may be a cylindrical coil spring, a conical coil spring, or the like. When the elastic portion 715 is a coil spring, the elastic portion 715 has a small size and a light weight, and is convenient to disassemble. When the elastic portion 715 is a leaf spring, the elastic portion 715 is simple in structure and convenient to fabricate and has strong bearing capacity.

[0059] Further referring to FIG. 5 and FIG. 6, in some embodiments, the limiting assembly 70 includes two fitting members 73. The fitting members 73 are grooves 731 in the side wall of the toggle portion 531 of the toggle member 53. The limiting portion 711 engages with one of the grooves 731 to generate the first limiting force, so as to limit the shielding member 51 to be in the first position. The limiting portion 711 engages with the other groove 731 to generate the second limiting force, so as to limit the shielding member 51 to be in the second position. The fitting members 73 are configured to cooperate with the limiting member 71, so as to limit the shielding member 51 to stay in the first position or the second position. The grooves 731 are arc-shaped, so as to cooperate with the spherical limiting portion 711. The limiting portion 711 engages with the groove 731 close to the loading hole 11 to generate the second limiting force, so as to limit the shielding member 51 to stay in the second position. The limiting portion 711 engages with the groove 731 away from the loading hole 11 to generate the first limiting force, so as to limit the shielding member 51 to stay in the first position.

[0060] When the limiting member 71 engages with the groove 731 close to the loading hole 11, the limiting portion 711 protrudes from the mounting portion 713. When the shielding member 51 rotates such that the groove 731 close to the loading hole 11 moves away from the limiting member 71 engaged therewith, the shielding member 51 compresses the limiting portion 711, and the elastic portion 715 is compressed to drive the limiting portion 711 to retract into the mounting portion 713. When the shielding member 51 rotates such that the groove 731 close to the loading hole 11 is separated from the limiting portion 711, but the limiting portion 711 has not engaged with the groove 731 away from the loading hole 11, the degree to which the elastic portion 715 and the limiting portion 711 are compressed by the shielding

member 51 is the maximum, and in this case, the limiting force between the limiting member 71 and the fitting member 73 is the maximum.

[0061] When the shielding member 51 continues rotating, the limiting portion 711 engages with the groove 731 away from the loading hole 11, and the elastic portion 715 drives the limiting portion 711 to extend toward the groove 731, so that the limiting portion 711 engages with the groove 731.

[0062] In another embodiment, the limiting member 71 may be a retractable structure arranged on the toggle member 53, and the fitting members 73 may be the grooves 731 provided in the housing 10. The limiting member 71 cooperates with the two fitting members 73, so that the shielding member 51 is in the first position or the second position.

[0063] Referring to FIG. 7 and FIG. 8, in some embodiments, the limiting member 71 and the fitting member 73 are spaced apart and interact magnetically to limit the shielding member 51 to be in the first position or the second position. The shielding member 51 in this application can rotate relative to the housing 10 and the cover 30, and the limiting portion 711 and the fitting member 73 cooperate through rotation, so that the shielding member 51 can be in the first position or the second position. By the attractive or repulsive force between magnetic poles, the first limiting force is formed between the limiting member 71 and the fitting member 73 to limit the shielding member 51 to be in the first position, and the second limiting force is formed to limit the shielding member 51 to be in the second position.

[0064] Referring to FIG. 7, in some embodiments, the limiting member 71 is a first magnetic member 717. The fitting member 73 is a second magnetic member 733. The first magnetic member 717 repels the second magnetic member 733 to generate the first limiting force and the second limiting force. The first position and the second position are at two opposite sides of the first magnetic member 717. When the shielding member 51 is in an intermediate position between the first position and the second position, the first magnetic member 717 faces the second magnetic member 733. In this case, the repulsive force between the first magnetic member 717 and the second magnetic member 733 is the maximum, and the first magnetic member 717 has a tendency to move away from the second magnetic member 733.

[0065] Specifically, the first magnetic member 717 may be a magnet or another magnetic structure, and the second magnetic member 733 may be a magnet or another magnetic object. The first magnetic member 717 and the second magnetic member 733 may be a same object, or different objects. The first magnetic member 717 and the second magnetic member 733 in this embodiment of this application are both magnets.

[0066] The first magnetic member 717 and the second magnetic member 733 may have a cylindrical or prismatic structure. The first magnetic member 717 is mounted in the first accommodating slot 13 of the housing 10, and the

height direction of the first magnetic member 717 is parallel to the height direction H of the aerosol generating device 100. The second magnetic member 733 is mounted in the groove in the side wall of the shielding member 51, and the height direction of the second magnetic member 733 is parallel to the height direction H of the aerosol generating device 100.

[0067] Opposite poles of the first magnetic member 717 are respectively located at upper and lower ends, and opposite poles of the second magnetic member 733 are also respectively located at upper and lower ends. Preferably, the first magnetic member 717 and the second magnetic member 733 have the same height, so that the magnetic pole at the upper end of the first magnetic member 717 and the magnetic pole at the upper end of the second magnetic member 733 are located in the same horizontal plane perpendicular to the height direction H of the aerosol generating device 100, and the magnetic pole at the lower end of the first magnetic member 717 and the magnetic pole at the lower end of the second magnetic member 733 are located in the same horizontal plane perpendicular to the height direction H of the aerosol generating device 100. Accordingly, the repulsive force generated between the first magnetic member 717 and the second magnetic member 733 is perpendicular to the height direction H of the aerosol generating device 100. In an embodiment, the first magnetic member 717 has an N pole at the upper end and an S pole at the lower end. In this case, the second magnetic member 733 has an N pole at the upper end and an S pole at the lower end. In another embodiment, the first magnetic member 717 has an S pole at the upper end and an N pole at the lower end. In this case, the second magnetic member 733 has an S pole at the upper end and an N pole at the lower end.

[0068] In this case, the first limiting force is the repulsive force between the first magnetic member 717 and the second magnetic member 733, and the second limiting force is the repulsive force between the first magnetic member 717 and the second magnetic member 733. In a process in which the shielding member 51 rotates from the first position to the second position, a distance between the limiting member 71 and the fitting member 73 decreases, and a horizontal repulsive force between the limiting member 71 and the fitting member 73 increases. When the distance between the limiting member 71 and the fitting member 73 reaches the minimum, the horizontal repulsive force between the limiting member 71 and the fitting member 73 reaches the maximum. As the distance between the limiting member 71 and the fitting member 73 increases, the horizontal repulsive force between the limiting member 71 and the fitting member 73 gradually decreases.

[0069] When the shielding member 51 is in the first position, due to the repulsive force between the limiting member 71 and the fitting member 73, the shielding member 51 can be stably in the first position covering the loading hole 11. An external force opposite to the

repulsive force is applied to the shielding member 51, so that the shielding member 51 rotates from the first position toward the second position. When the shielding member 51 passes the position at which the repulsive force is the maximum, the repulsive force between the limiting member 71 and the fitting member 73 enables the shielding member 51 to quickly reach the second position and stay stably in the second position.

[0070] Referring to FIG. 8, in some embodiments, the limiting assembly 70 includes two limiting members 71. The limiting members 71 are first magnetic members 717, and the fitting member 73 is a second magnetic member 733. When the shielding member 51 is in the first position, one of the first magnetic members 717 attracts the second magnetic member 733. When the shielding member 51 is in the second position, the other first magnetic member 717 attracts the second magnetic member 733.

[0071] Specifically, the two first magnetic members 717 are respectively mounted in the accommodating slots of the housing 10. Height directions of the two first magnetic members 717 are parallel to the height direction H of the aerosol generating device 100. The second magnetic member 733 is mounted in the groove 731 in the side wall of the shielding member 51, and the height direction of the second magnetic member 733 is parallel to the height direction H of the aerosol generating device 100.

[0072] The two first magnetic members 717 are respectively arranged near the first position and the second position of the shielding member 51. When the shielding member 51 is in the first position, the first magnetic member 717 close to the first position attracts the second magnetic member 733, so that the shielding member 51 is stably in the first position. When the shielding member 51 is in the second position, the first magnetic member 717 close to the second position attracts the second magnetic member 733, so that the shielding member 51 is stably in the second position.

[0073] The first magnetic member 717 and the second magnetic member 733 have the same height. In an embodiment, the first magnetic member 717 close to the first position has an N pole at the upper end and an S pole at the lower end. The first magnetic member 717 close to the second position has an N pole at the upper end and an S pole at the lower end. In this case, the second magnetic member 733 has an S pole at the upper end and an N pole at the lower end. In another embodiment, the first magnetic member 717 close to the first position has an S pole at the upper end and an N pole at the lower end. The first magnetic member 717 close to the second position has an S pole at the upper end and an N pole at the lower end. In this case, the second magnetic member 733 has an N pole at the upper end and an S pole at the lower end.

[0074] In this case, the first limiting force is the attractive force between the first magnetic member 717 close to the loading hole 11 and the second magnetic member

733, and the second limiting force is the attractive force between the first magnetic member 717 away from the loading hole 11 and the second magnetic member 733. In a process in which the shielding member 51 rotates from the first position to the second position, a distance between the first magnetic member 717 close to the loading hole 11 and the second magnetic member 733 increases, and a horizontal attractive force between the first magnetic member 717 close to the loading hole 11 and the second magnetic member 733 decreases. When the distances between the second magnetic member 733 and the two first magnetic members 717 are equal, the horizontal attractive force between the second magnetic member 733 and the two first magnetic members 717 reaches the minimum. As the distance between the second magnetic member 733 and the first magnetic member 717 away from the loading hole 11 decreases, the horizontal attractive force between the first magnetic member 717 away from the loading hole 11 and the second magnetic member 733 gradually increases, so as to stably hold the shielding member 51 to the second position.

[0075] When the shielding member 51 is in the first position, due to the attractive force between the limiting member 71 close to the first position and the fitting member 73, the shielding member 51 can be stably in the first position covering the loading hole 11. An external force opposite to the first limiting force is applied to the shielding member 51, so that the shielding member 51 rotates from the first position toward the second position. When the shielding member 51 passes the position at which the attractive force is the minimum, the attractive force between the limiting member 71 and the fitting member 73 close to the second position enables the shielding member 51 to quickly reach the second position and stay stably in the second position.

[0076] In the aerosol generating device 100 according to the embodiments of this application, the shielding assembly 50 is located between the housing 10 and the cover 30, so that the aerosol generating device 100 has good integrity and aesthetic appeal. In addition, the limiting member 71 and the fitting member 73 provided in the aerosol generating device 100 cooperate with each other. When the loading hole 11 needs to be covered, the shielding member 51 can be stably in the first position, and when the loading hole 11 needs to be uncovered, the shielding member 51 can be stably in the second position, so as to prevent the shielding member 51 from shaking between the housing 10 and the cover 30. The technical features in the foregoing embodiments may be combined in any way. For concise description, not all possible combinations of the technical features in the embodiments are described. However, provided that combinations of the technical features do not conflict with each other, the combinations of the technical features are considered as falling within the scope described in this specification. Moreover, other embodiments can be derived from the above embodiments, so that struc-

tural and logical replacements and changes can be made without departing from the scope of the invention. The foregoing embodiments only describe several embodiments of this application, which are described specifically and in detail, but cannot be construed as a limitation to the patent scope of this application. It should be noted that for a person of ordinary skill in the art, several modifications and improvements can be made without departing from the idea of this application. These modifications and improvements shall fall within the protection scope of this application. Therefore, the protection scope of this application shall be subject to the appended claims.

15 Claims

1. An aerosol generating device, **characterized by** comprising:

a housing, the housing being provided with a loading hole, and the loading hole being configured to load an aerosol generating article;
a cover, the cover being mounted to the housing and provided with a through hole corresponding to the loading hole;
a shielding assembly, the shielding assembly being arranged between the housing and the cover, the shielding assembly comprising a shielding member, and the shielding member being movable relative to the housing and the cover under an external force; and
a limiting assembly, the limiting assembly comprising a limiting member and a fitting member, one of the limiting member and the fitting member being arranged at the shielding assembly, the other being arranged at the housing or the cover, and the limiting member and the fitting member overlapping along the height direction of the aerosol generating device, wherein
in a state in which the shielding member is in a first position covering the loading hole, the limiting member interacts with the fitting member to limit the shielding member to be in the first position; and in a state in which the shielding member is in a second position uncovering the loading hole, the limiting member interacts with the fitting member to limit the shielding member to be in the second position.

2. The aerosol generating device of claim 1, wherein the shielding assembly further comprises a toggle member, the toggle member is at least partially exposed from the side wall of the housing, and the toggle member is configured to drive, under an external force, the shielding member to rotate, translate, or rotate and translate relative to the housing and the cover.

3. The aerosol generating device of claim 2, wherein the toggle member is cylindrical and is rotatably connected to the cover and/or the housing, and the shielding member is arranged at one end of the toggle member along the height direction. 5
4. The aerosol generating device of claim 3, wherein the fitting member is arranged at the side wall of the toggle member, and the limiting member is arranged at the housing or the cover. 10
5. The aerosol generating device of claim 2, wherein the limiting member and the fitting member interact by contact to limit the shielding member to be in the first position or the second position. 15
6. The aerosol generating device of claim 5, wherein the limiting member has a retractable structure, the limiting member comprises a protruding limiting portion, the limiting assembly comprises two fitting members, the fitting members are grooves in the side wall of the toggle member, the limiting portion engages with one of the grooves to limit the shielding member to be in the first position, and the limiting portion engages with the other groove to limit the shielding member to be in the second position. 20 25
7. The aerosol generating device of claim 6, wherein the limiting member further comprises: 30
 - a mounting portion; and
 - an elastic portion, the elastic portion being mounted at the mounting portion, one end of the elastic portion being connected to the mounting portion, the other end of the elastic portion being connected to the limiting portion, and when the elastic portion is in a natural state, the limiting portion protruding toward the fitting member relative to the mounting portion. 35 40
8. The aerosol generating device of claim 1, wherein the limiting member and the fitting member are spaced apart and interact magnetically to limit the shielding member to be in the first position or the second position. 45
9. The aerosol generating device of claim 8, wherein the limiting member is a first magnetic member, the fitting member is a second magnetic member, the first magnetic member repels the second magnetic member, the first position and the second position are on two opposite sides of the first magnetic member, and when the shielding member is in an intermediate position between the first position and the second position, the first magnetic member faces the second magnetic member. 50 55
10. The aerosol generating device of claim 8, wherein

the limiting assembly comprises two limiting members, the limiting members are first magnetic members, the fitting member is a second magnetic member, when the shielding member is in the first position, one of the first magnetic members attracts the second magnetic member, and when the shielding member is in the second position, the other first magnetic member attracts the second magnetic member.

100

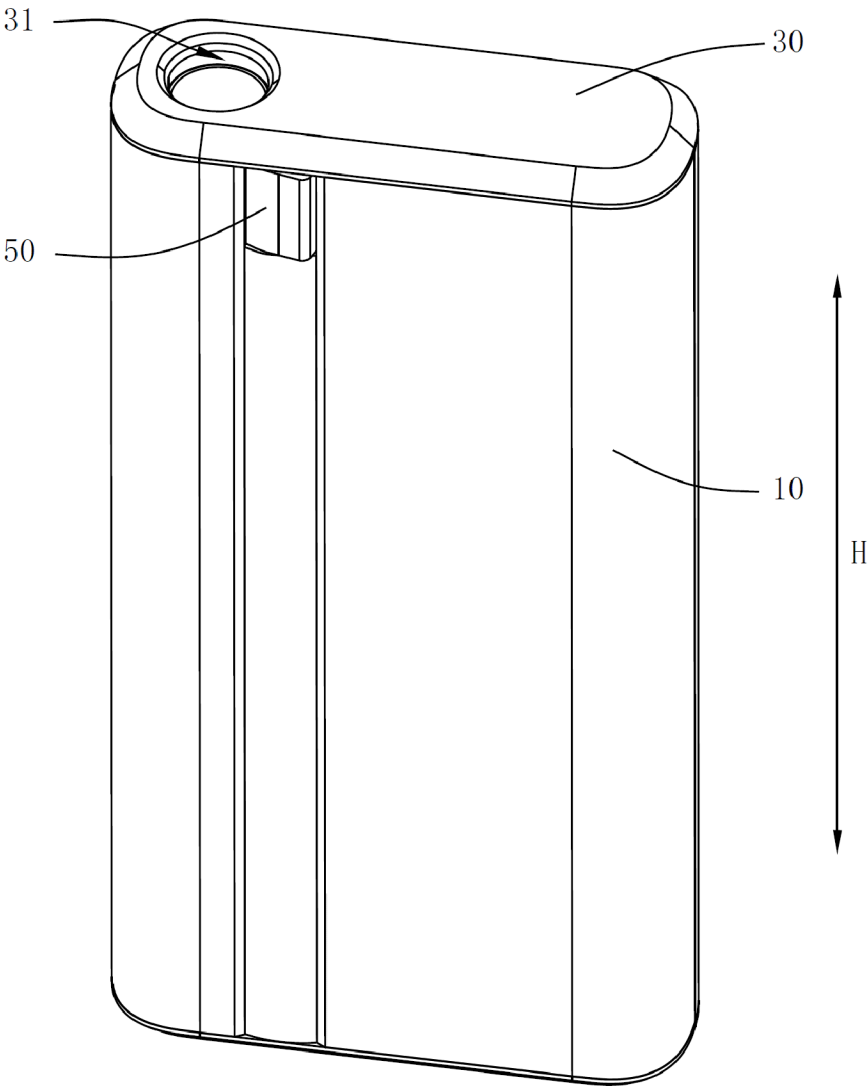


FIG. 1

100

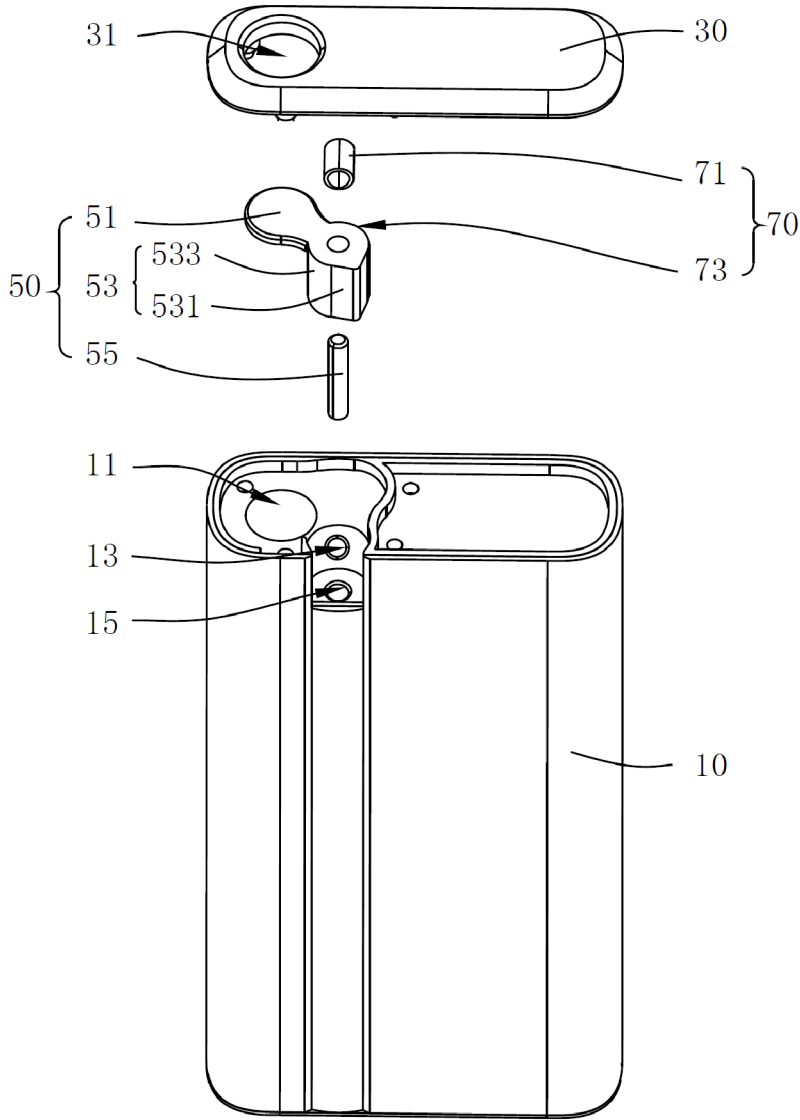


FIG. 2

100

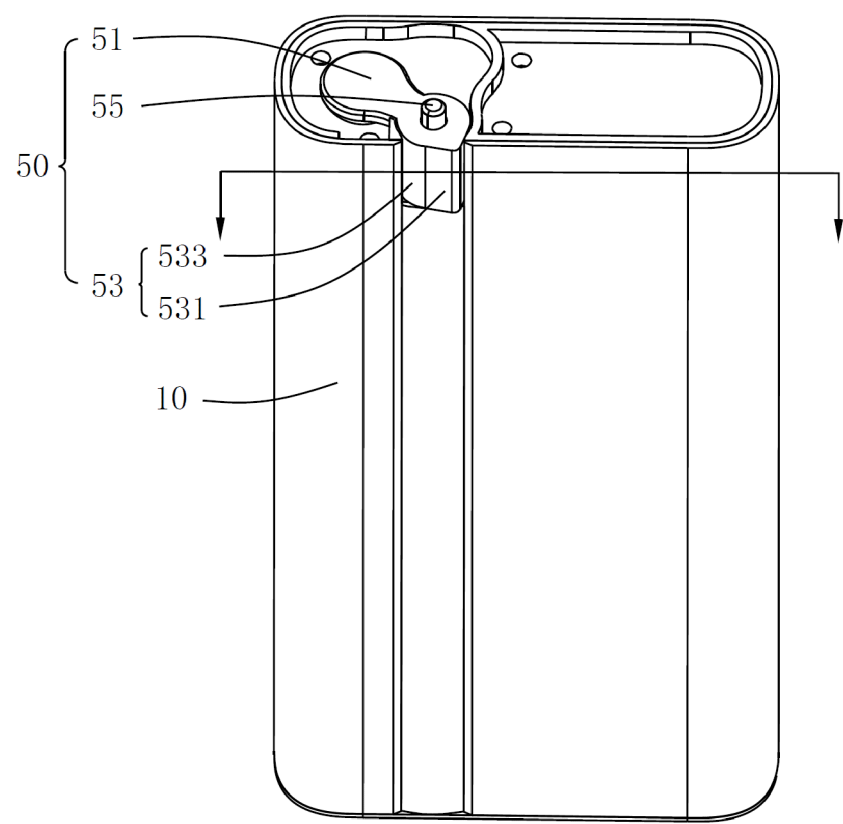


FIG. 3

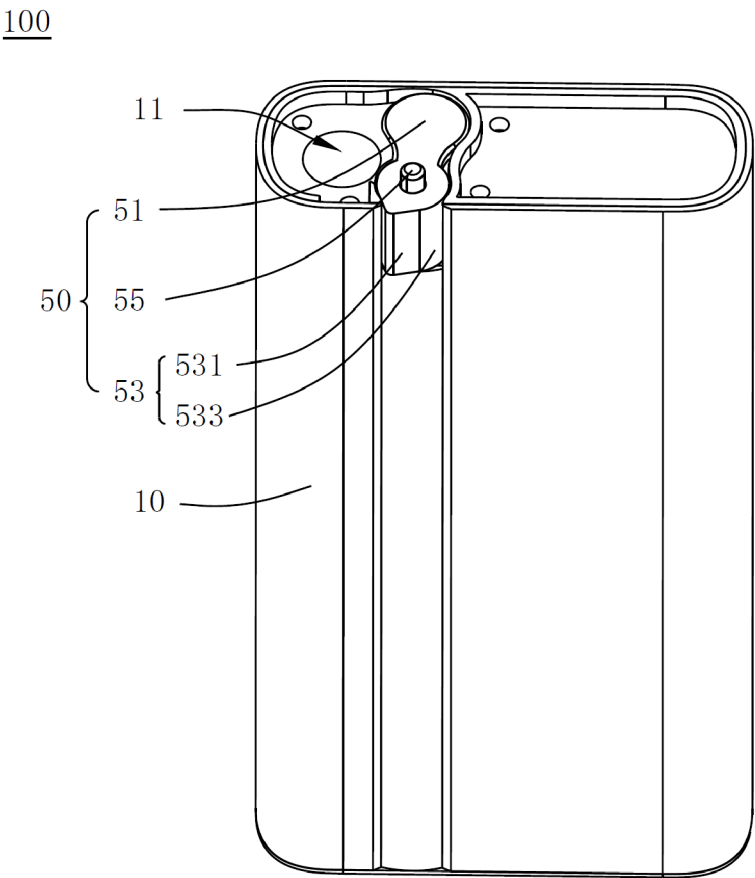


FIG. 4

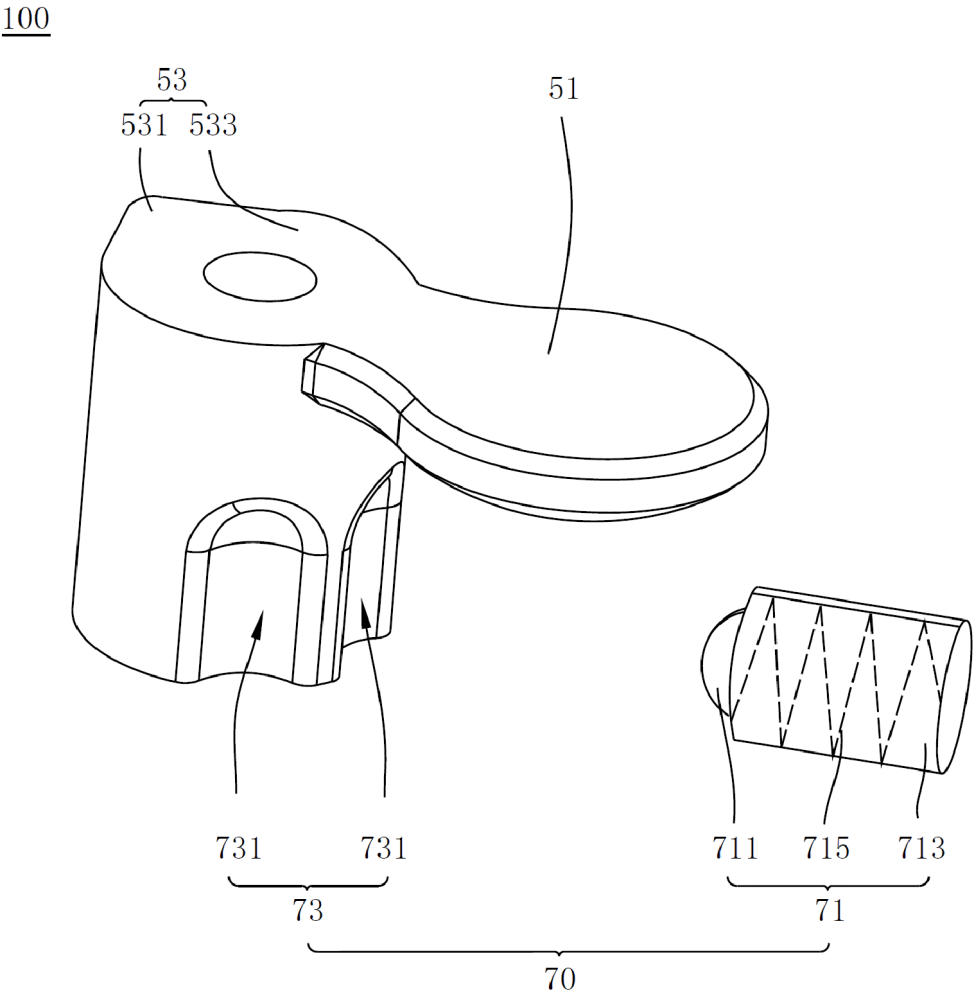


FIG. 5

100

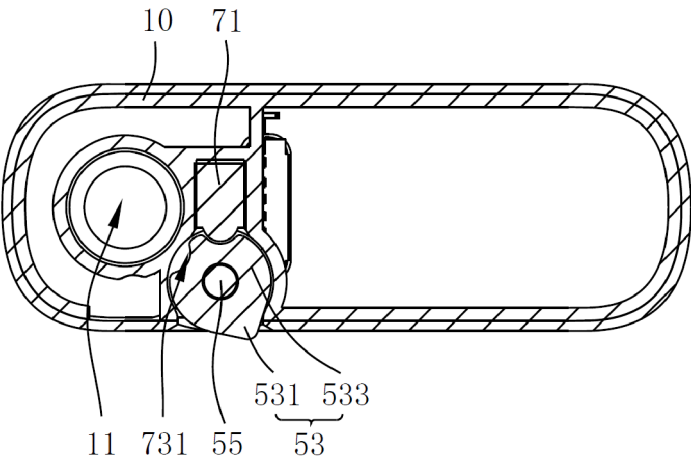


FIG. 6

100

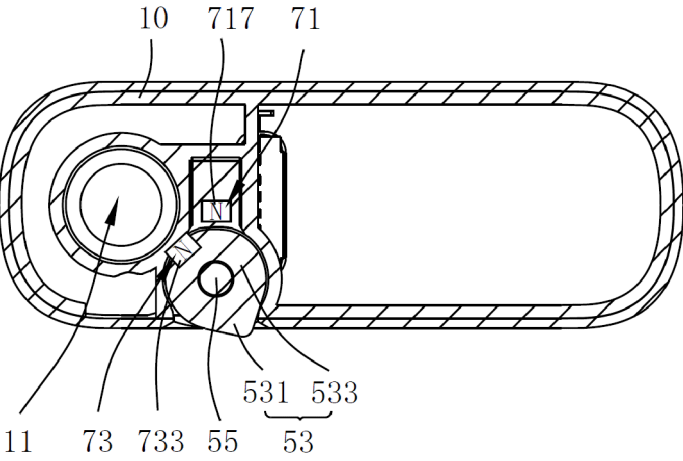


FIG. 7

100

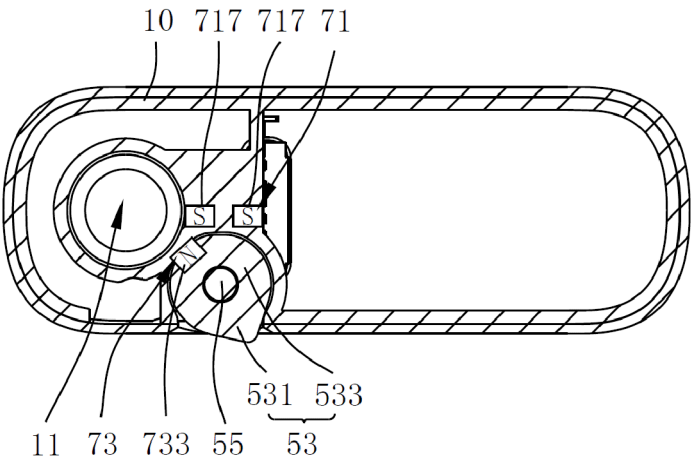


FIG. 8

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2024/100459

A. CLASSIFICATION OF SUBJECT MATTER

A24F40/40(2020.01)i; A24F40/46(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)

IPC: A24F40/-

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)

DWPI, CNABS, WPABS, CNKI, CNTXT, ENTXT: 电子烟, 雾化器, 加热, 气溶胶, 防尘, 遮挡, 装载孔, 通孔, 限位, 旋转, 转动, 平移, 磁性, electric, cigarette, smoke, aerosol, heating, protect+, dust, cover, hole, rotate, movable, magnetic

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CN 217184814 U (SHENZHEN FIRST UNION TECHNOLOGY CO., LTD.) 16 August 2022 (2022-08-16) description, paragraphs 0031-0050, and figures 1-7	1-10
A	CN 218889262 U (SHENZHEN MAISHI TECHNOLOGY CO., LTD.) 21 April 2023 (2023-04-21) entire document	1-10
A	CN 111031224 A (GOERTEK TECHNOLOGY CO., LTD.) 17 April 2020 (2020-04-17) entire document	1-10
A	CN 113826956 A (SHENZHEN MAISHI TECHNOLOGY CO., LTD.) 24 December 2021 (2021-12-24) entire document	1-10
A	CN 220068867 U (SHENZHEN MAISHI TECHNOLOGY CO., LTD.) 24 November 2023 (2023-11-24) entire document	1-10
A	KR 20220042938 A (KT & G CORP.) 05 April 2022 (2022-04-05) entire document	1-10

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

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"D" document cited by the applicant in the international application	"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
"E" earlier application or patent but published on or after the international filing date	"&" document member of the same patent family
"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	

Date of the actual completion of the international search	Date of mailing of the international search report
06 August 2024	14 August 2024
Name and mailing address of the ISA/CN China National Intellectual Property Administration (ISA/CN) China No. 6, Xitucheng Road, Jimenqiao, Haidian District, Beijing 100088	Authorized officer Telephone No.

Form PCT/ISA/210 (second sheet) (July 2022)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2024/100459

5

10

15

20

25

30

35

40

45

50

55

Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)			Publication date (day/month/year)
CN	217184814	U	16 August 2022	None			
CN	218889262	U	21 April 2023	None			
CN	111031224	A	17 April 2020	None			
CN	113826956	A	24 December 2021	None			
CN	220068867	U	24 November 2023	None			
KR	20220042938	A	05 April 2022	KR	102587101	B1	10 October 2023
				KR	20230002242	A	05 January 2023
				KR	102587109	B1	10 October 2023
				KR	20230109121	A	19 July 2023
				KR	102663245	B1	03 May 2024

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- CN 202311095353X [0001]