



(11) **EP 4 212 031 A1**

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

(43) Date of publication:
19.07.2023 Bulletin 2023/29

(21) Application number: **21863759.3**

(22) Date of filing: **05.11.2021**

(51) International Patent Classification (IPC):
A24F 40/40 ^(2020.01) **A24F 40/20** ^(2020.01)
A24F 47/00 ^(2020.01) **A24F 40/46** ^(2020.01)
A24F 40/42 ^(2020.01)

(52) Cooperative Patent Classification (CPC):
A24F 40/20; A24F 40/40; A24F 40/42; A24F 40/46;
A24F 47/00

(86) International application number:
PCT/CN2021/129113

(87) International publication number:
WO 2022/048697 (10.03.2022 Gazette 2022/10)

(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 MK MT NL NO
PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

(30) Priority: **07.09.2020 CN 202021931728 U**
29.06.2021 CN 202121467229 U

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(54) **LIQUID-CORE SEPARATED ATOMIZER, AND ELECTRONIC CIGARETTE COMPRISING ATOMIZER**

(57) Provided are an atomizer and an electronic cigarette comprising the atomizer. The atomizer comprises: a liquid storage chamber, comprising a liquid storage cavity for storing e-liquid; a liquid storage chamber base, arranged at the bottom of the liquid storage chamber; and an atomization core, provided with at least one liquid inlet hole. The atomization core is configured to be able to move from a first position to a second position. At the first position, the at least one liquid inlet hole is positioned outside the liquid storage chamber, and at the second position, the at least one liquid inlet hole is positioned inside the liquid storage chamber.

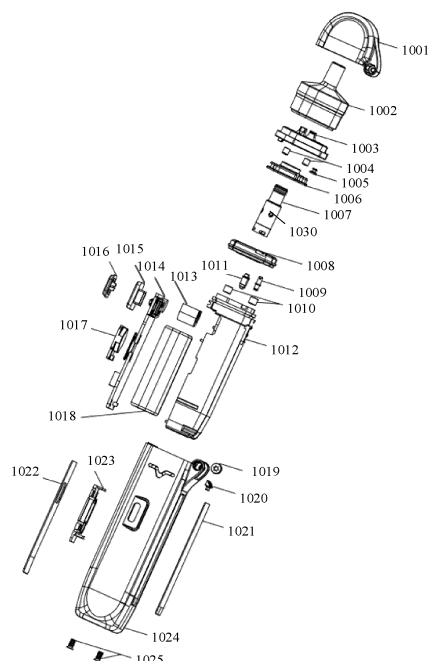


FIG. 1

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Description

[0001] The disclosure relates to the field of electronic cigarette, and more particularly, to an atomizer and an electronic cigarette comprising the same.

[0002] An electronic cigarette is an electronic device that simulates tobacco smoking by producing the same taste and vapor. In a conventional electronic cigarette, the e-liquid is in direct contact with the atomizer, which leads to corrosion or oxidation of the heating element. The corrosion or oxidation shortens the lifespan of the heating element and introduces impurities into the e-liquid, impacting the vapor taste and harming the user's health.

[0003] To solve the aforesaid problems, the first objective of the disclosure is to provide an atomizer.

[0004] The atomizer comprises a cartridge, a base, and an atomizing core; the cartridge comprises a cavity used to store e-liquid; the base is disposed on a bottom part of the cartridge; and the atomizing core comprises at least one e-liquid inlet; the atomizing core is movable from a first position to a second position; when the atomizing core is moved to the first position, the at least one e-liquid inlet is located outside the cartridge; when the atomizing core is moved to the second position, the at least one is located inside the cartridge.

[0005] The second objective of the disclosure is to provide an electronic cigarette comprising the atomizer.

[0006] The quality of the e-liquid is maintained by separating the e-liquid from the atomizing core when the electronic cigarette is not in use. When in use, the atomizing core is pushed inwards and the e-liquid inlet is located inside the cartridge, so that the e-liquid flows smoothly through the e-liquid inlet and into the atomizing core, which increases the lifespan of the electronic cigarette.

FIG. 1 is an exploded view of an electronic cigarette according to one example of the disclosure;

FIG. 2 is a perspective view of an electronic cigarette according to one example of the disclosure;

FIG. 3 is a cross-sectional view of an electronic cigarette according to one example of the disclosure;

FIG. 4 is an exploded view of an atomizer according to one example of the disclosure;

FIG. 5 is a perspective view of an atomizer according to one example of the disclosure;

FIG. 6 is a cross-sectional view of an atomizer located in a first position according to one example of the disclosure;

FIG. 7 is a cross-sectional view of an atomizer located in a second position according to one example of

the disclosure;

FIG. 8 is a perspective view of an atomizing core according to one example of the disclosure;

FIG. 9 shows a direction of an air flow in an atomizer according to one example of the disclosure; and

FIG. 10 shows a principle of air replenishment in an atomizer according to one example of the disclosure.

[0007] To further illustrate the disclosure, embodiments detailing an atomizer and an electronic cigarette comprising the same are described below. It should be noted that the following embodiments are intended to describe and not to limit the disclosure.

[0008] It should be noted that the specification of the disclosure contains a large number of technical features distributed among the various technical solutions, which would make the specification too long if all possible combinations of technical features (i.e., technical solutions) of the disclosure were to be enumerated. To avoid this problem, the technical features disclosed in the present application, the technical features disclosed in the following embodiments and examples, and the technical features disclosed in the accompanying drawings are free to be combined with each other to form various new technical solutions (which are deemed to be recorded in the present specification), unless such combination of technical features is technically infeasible. For example, if feature A+B+C is disclosed in one example, and feature A+B+D+E is disclosed in another example, and features C and D are equivalent technical means that play the same role, and it is technically possible to use one or the other, but not both, and feature E can be technically combined with feature C, then the scheme of A+B+C+D should not be regarded as having been documented because it is technically infeasible, and the scheme of A+B+C+E should be regarded as having been documented because it is technically infeasible.

[0009] In a conventional electronic cigarette, the e-liquid is in direct contact with an atomizer, which leads to corrosion or oxidation of a heating element. The corrosion or oxidation shortens the lifespan of the heating element and introduces impurities into the e-liquid, impacting the vapor taste and harming the user's health.

[0010] To solve the aforesaid problems, the disclosure provides an atomizer and an electronic cigarette comprising the same. The atomizer comprises an atomizing core that is detached from the e-liquid. In certain examples, the atomizer comprises a cartridge, a base, and an atomizing core; the cartridge comprises a cavity used to store the e-liquid; the base is disposed on a bottom part of the cartridge; and the atomizing core comprises at least one e-liquid inlet; the atomizing core is movable from a first position to a second position; when the atomizing core is moved to the first position, the at least one e-liquid inlet is located outside the cartridge; when the atomizing

core is moved to the second position, the at least one is located inside the cartridge.

[0011] In the example, the quality of the e-liquid is maintained by separating the e-liquid from the atomizing core when the electronic cigarette is not in use. When in use, the atomizing core is pushed inwards, so that the e-liquid inlet is located inside the cartridge; the e-liquid flows through the e-liquid inlet and enters the atomizing core.

[0012] The disclosure provides certain examples of an atomizer and an electronic cigarette comprising the same, as shown in FIGS. 1-3. The atomizer comprises a cartridge 1002, a base 1003, and an atomizing core 1007; the base 1003 is disposed in the bottom part of the cartridge 1002; and the atomizing core 1007 comprises at least one e-liquid inlet 1030; the atomizing core is detached from the e-liquid; the atomizing core 1007 is configured to move from a first position to a second position; when not in use, the atomizing core 1007 is moved to the first position, so that the at least one e-liquid inlet 1030 is located outside the cartridge 1003; when in use, the atomizing core 1007 is moved to a second position, so that the at least one e-liquid inlet 1030 is located inside the cartridge 1003, allowing the e-liquid to flow into the atomizing core 1007.

[0013] In certain examples, the electronic cigarette further comprises a first seal disposed in the bottom of the cartridge 1002; when not in use, the atomizing core is moved to the first position, so that at least one e-liquid inlet 1030 is sealed by the first seal. Specifically, as shown in FIG. 1, the atomizer further comprises a silicone pad 1006 disposed in the bottom part of the cartridge 1002; when not in use, the atomizing core passes through the silicone pad 1006 and is located in the first position, so that the at least one e-liquid inlet 1030 is sealed inside the silicone pad 1006.

[0014] In certain examples, the silicone pad 1006 is disposed in the bottom part of the base 1003; the silicone pad 1006 and the base 1003 are pressed against the bottom part of the cartridge 1002; the atomizing core 1007 passes through the silicone pad 1006 and one end of the atomizing core 1007 is inserted into the cartridge 1002. When not in use, the atomizing core is moved to the first position, the at least one e-liquid inlet 1030 is sealed inside the silicone pad 1006; when in use, the atomizing core 1007 is moved inwards, so that the at least one e-liquid inlet 1030 is located inside the cartridge 1002.

[0015] Therefore, when the electronic cigarette is not used, the e-liquid inlet of the atomizing core can be sealed in the silicone pad 1006 at the bottom of the cartridge 1002, and the e-liquid will not enter the atomizing core, and the long-term storage of the electronic cigarette will not affect the life of the atomizer and the taste of the vapor. When using the electronic cigarette, the atomizing core is pushed to make the e-liquid inlet of the atomizing core enter the cartridge 1002, so that the e-liquid can enter the atomizing core via the e-liquid inlet, which is simple and convenient to operate.

[0016] In certain examples, the atomizer further comprises a buckle disposed on the base 1003; when the electronic cigarette is not in use, the buckle locks the atomizing core in the first position, preventing the atomizing core from being moved by an external force, and keeping the e-liquid inlet 1030 outside the cartridge 1002, so that the reliability of the electronic cigarette is improved.

[0017] The disclosure further provides certain examples of an atomizer, as shown in FIGS. 4-10. In certain examples, the atomizing core is configured to move back and forth between the first position and the second position. The atomizer further comprises a first positioning part and a second positioning part; the first positioning part is configured to locate the atomizing core at the first position and a second positioning part is configured to locate the atomizing core at the second position, thus preventing the e-liquid leakage in the atomizer caused by the over-insertion or pulling out of the atomizing core.

[0018] As shown in FIGS. 4-10, the atomizer comprises a cartridge assembly and an atomizing core; the cartridge assembly comprises a cartridge 2002 and a base disposed in the bottom part of the cartridge 2002; the cartridge 2002 comprises a cavity 2201 configured to store the e-liquid; a channel 2403 is formed inside the base; one end of the atomizing core passes through the channel 2403 and is inserted into the cavity 2201, so as to move back and forth between a first position and a second position; the channel 2403 is convex to form a first stopper 2902 functioning as the first positioning part and a second stopper 2404 functioning as the second positioning part; the atomizing core comprises an outer wall provided with at least one protrusion; the at least one protrusion is configured to abut against the first stopper 2902 or the second stopper 2404 during the movement of the atomizing core. Understandably, the second stopper 2404 is configured to prevent the atomizing core from being inserted deeply into the cavity, and the first stopper 2902 is configured to prevent the atomizing core from being pulled out of the channel 2403, avoiding the e-liquid leakage in the atomizer.

[0019] A bottom end of the channel 2403 comprises a first opening 2901; the first stopper 2902 protrudes radially inward at the first opening 2901; the second stopper 2404 protrudes radially inward on the channel 2403; the at least one protrusion is slidable between the first stopper 2902 and the second stopper 2404. Understandably, the first stopper 2902 is disposed at the first opening 2901 to prevent the atomizing core from being pulled out of the channel 2403; and the second stopper 2404 is formed on a certain position of the channel 2403 to prevent the atomizing core from being inserted deeply into the cavity.

[0020] The atomizing core comprises a distal end away from the cartridge and a proximal end close to the cartridge; when not in use, the atomizing core is moved downward and the at least one protrusion abuts against the first stopper 2902, so that the distal end of the atomizing core protrudes from the first opening 2901; when in

use, the atomizing core is moved upward and the at least one protrusion abuts against the second stopper 2404, the distal end of the atomizing core and the bottom end of the atomizer are located on the same plane.

[0021] In certain examples, as shown in FIGS. 4-10, the atomizing core comprises a main body 2008 and an accessory 2804 connected to the main body 2008. The main body 2008 comprises a vaporizing chamber 2807; the atomizing core further comprises a heating element 2808 disposed in the vaporizing chamber 2807; the e-liquid is heated by the heating element 2008; the at least one e-liquid inlet 2802 is disposed in the main body 2008; the at least one protrusion is disposed on the outside wall of the accessory 2804. Preferably, two e-liquid inlets 2802 are disposed on the main body 2008 to improve the flow of the e-liquid into the atomizer.

[0022] In certain examples, as shown in FIGS. 4-10, the at least one protrusion comprises a first protrusion 2810 and a second protrusion 2803; the first protrusion 2810 is used to abut against the first stopper 2902, the second protrusion 2803 is used to abut against the second stopper 2404; an annular groove is formed between the first protrusion 2810 and the second protrusion 2803; and a first seal ring 2811 is disposed in the annular groove. Understandably, the first seal ring 2811 is used to abut against the inner wall of the channel 2403, to prevent the e-liquid leaks in the channel 2403.

[0023] In certain examples, as shown in FIGS. 4-10, the atomizing core further comprises an air hole 2809 disposed on the outside wall of the main body 2008; the air is replenished through the air hole 2809 into the atomizing core to balance the air pressure; and a seal sleeve 2801 sleeves the outer wall of the atomizing core to seal the air hole 2809. Understandably, the seal sleeve 2801 seals the air hole 2809 to prevent the e-liquid from flowing out of the air hole under excessive pressure difference caused by high or low temperatures.

[0024] The atomizer further comprises an air duct 2202 disposed in the cavity 2201 and integrally formed with the cartridge 2002 to allow for air ventilation and smoke exhaust in the atomizer; the proximal end of the atomizing core is inserted into the air duct 2202; one end of the air duct 2202 is disposed opposite to the seal sleeve 2801; or the inside wall of the air duct 2202 protrudes radially inward to form a third stopper, and the seal sleeve 2801 is disposed opposite to the third stopper.

[0025] As the atomizing core is moved upward along the channel, the seal sleeve 2801 is blocked by the third stopper or the one end of the air duct 2202 and moves downward along the atomizing core, so that the air hole 2809 is exposed.

[0026] As shown in FIGS. 4-10, a distance between the seal sleeve 2801 and the one end of the air duct 2202, or between the seal sleeve 2801 and the third stopper is smaller than a distance between the first stopper 2902 and the second stopper 2404. Understandably, when the distance between the seal sleeve 2801 and the one end of the air duct 2202 is smaller than the distance between

the first stopper 2902 and the second stopper 2404, the seal sleeve 2801 is blocked by the one end of the air duct 2202 and moves downward along the main body 2008, so that the air hole 2809 is exposed.

[0027] In certain examples, as shown in FIGS. 4 - 10, the base 1003 functions as an e-liquid seal 2004; the e-liquid seal 2004 is disposed in one end of the cartridge 2002 to seal the cavity 2201; the channel 2403 is formed in the e-liquid seal 2004; and the accessory 2804 is disposed in the channel 2403.

[0028] An air guide space 2204 is formed by the e-liquid seal 2004 and the cartridge 2002 and is configured to allow for ingress or egress of the air flow.

[0029] A first e-liquid absorbent cotton 2007 is disposed in the air guide space 2204 to absorb the e-liquid leaking from the cartridge.

[0030] The e-liquid seal 2004 comprises a wall disposed in the air guide space 2204; the e-liquid seal 2004 further comprises an air passage 2401 disposed on the wall and communicating with the channel 2403; the bottom end of the e-liquid seal 2004 is disposed away from the cavity and comprises both an e-liquid injection hole 2405 and an air inlet 2402; the e-liquid injection hole 2405 communicates with the cavity; and the air inlet 2402 communicates with the air passage 2401.

[0031] Different from the base 1003 and the silicone pad 1006 described in FIGS. 1 - 3, the e-liquid seal 2004 is an injection molded part comprising a plastic material and a silicone material. Preferably, the e-liquid seal 2004 is integrally formed by injection molding of the plastic material and the liquid silicone material. Understandably, the injection molded part allows for easy assembly, improve production efficiency, and play the same role of multiple components.

[0032] A second e-liquid absorbent cotton 2001 is hollow and disposed in the air duct 2202 to absorb condensate. Understandably, the second e-liquid absorbent cotton 2001 is configured to absorb the condensed e-liquid in the air duct 2202, to prevent the condensed e-liquid from being sucked into the mouth when smoking.

[0033] The bottom end of the channel 2403 comprises a first opening; the cartridge assembly further comprises a fixing part 2009 disposed on the outside wall of the bottom part of the cartridge 2002; the bottom end of the fixing part 2009 comprises a second opening 2901 having a smaller diameter than the first opening; the first opening is disposed opposite to the second opening; the second opening 2901 is defined by a lateral wall; the lateral wall extends inward to form a first stopper 2902.

[0034] To further illustrate the disclosure, embodiments detailing an atomizer and an electronic cigarette comprising the same are described below. It should be noted that the following embodiments are intended to describe and not to limit the disclosure.

[0035] As shown in FIGS. 4-8, in certain examples, the atomizer comprises a second e-liquid absorbent cotton 2001, a cartridge 2002, a seal tube 2003, an e-liquid seal 2004, and a first magnetic member 2005, a second mag-

netic member 2006, a first e-liquid absorbent cotton 2007, a main body 2008, a fixing part 2009, and a seal plug 2010; the cartridge 2002 comprises a cavity 2201 configured to store the e-liquid; an air duct 2202 is disposed in the cavity 2201 and integrally formed with the cartridge 2002 to allow for air ventilation and smoke exhaust in the atomizer; a second e-liquid absorbent cotton 2001 is hollow and disposed in the air duct 2202 to absorb condensate, to prevent the condensed e-liquid from being sucked into the mouth when smoking; the cartridge further comprises a top part provided with a mouthpiece 2203; the mouthpiece 2203 communicates with the top end of the air duct 2202 to allow the user to inhale the vapor; the e-liquid seal 2004 is disposed in one end of the cartridge 2002 to seal the cavity 2201; an air guide space 2204 is formed by the e-liquid seal 2004 and the cartridge 2002 and is configured to allow for ingress or egress of the air flow; a first e-liquid absorbent cotton 2007 is disposed in the air guide space 2204 to absorb the e-liquid leaking from the cartridge, prevent the e-liquid from flowing out of the atomizer; the outer wall of the e-liquid seal 2004 comprises an air passage 2401; the e-liquid seal 2004 comprises a channel 2403; the second stopper 2404 protrudes radially inward on the channel 2403; the air passage 2401 communicates with the channel 2403; the bottom end of the e-liquid seal 2004 comprises both an e-liquid injection hole 2405 and an air inlet 2402; the e-liquid injection hole 2405 communicates with the cavity 2201 to allow for injection of the e-liquid into the cavity 2201; the air inlet 2402 communicates with the air passage 2401; the main body 2008 passes through the channel 2403 and is inserted into the cavity 2201; the seal tube 2003 sleeves the outer wall of the upper end of the main body 2008 to seal a gap between the air duct 2202 and the upper end of the main body 2008, to prevent leakage of the air, vapor and e-liquid in the electronic cigarette; the upper end of the main body 2008 is connected to the lower end of the inside of the air duct 2202; the main body 2008 comprises a vaporizing chamber 2807; the atomizing core further comprises a heating element 2808 disposed in the vaporizing chamber 2807; the e-liquid is heated by the heating element; the outer wall of the main body comprises two e-liquid inlets 2802 and an air hole 2809; the e-liquid is injected into the atomizing core through the two e-liquid inlets 2802; the air is replenished through the air hole 2809 into the atomizing core to balance the air pressure; a seal sleeve 2801 sleeves the outer wall of the atomizing core to seal the air hole 2809, to prevent the e-liquid from flowing out of the air hole under excessive pressure difference caused by high or low temperatures; the atomizing core further comprises an accessory 2804 fixedly connected to the lower end of the main body 2008 and protruding out of the lower end of the vaporizing chamber 2807; the upper end of the accessory 2804 comprises a first protrusion 2810 and a second protrusion 2803 for positioning the atomizing core; an annular groove is formed between the first protrusion 2810 and the second protrusion 2803; a

first seal ring 2811 is disposed in the annular groove and abuts against the inner wall of the channel 2403 to prevent leakage from the cavity 2201; the lower end of the accessory 2804 is provided with a first electrode 2805 and a second electrode 2806 electrically connected to the heating element 2808; the main body 2008 is disposed in the cavity 2201; and the accessory 2804 is disposed in the channel 2403. An electronic cigarette comprises the atomizer and an electronic rod; the first magnetic member 2005 and the second magnetic member 2006 are fixed on the bottom end of the e-liquid seal 2004; the e-liquid seal 2004 is connected to the electronic rod under magnetic suction; the fixing part 2009 is disposed on the outer wall of the bottom part of the cartridge 2002; the bottom end of the fixing part 2009 comprises a second opening 2901 having a smaller diameter than the first opening; the second opening 2901 is disposed opposite to the first opening; the first opening 2901 is defined by a lateral wall; the lateral wall extends inward to form a first stopper 2902; a second stopper 2402 is formed on a certain position of the channel 2403; the first protrusion 2810 and the second protrusion 2803 are disposed between the first stopper 2902 and the second stopper 2402; the accessory 2804 is slidable along the inside wall of the channel 2403; as the accessory 2804 is moved upward along the channel 2403, the main body 2008 moves toward the cavity 2201; when the second protrusion 2803 abuts against the second stopper 2404, the main body 2008 is positioned; the seal sleeve 2801 is blocked by one end of the air duct 2202 and moves downward along the atomizing core, so that the air hole 2809 is exposed; as the accessory 2804 is moved downward along the channel 2403, the first protrusion 2810 abuts against the first stopper 2902; the main body 2008 is remained in the channel 2403; when the e-liquid is injected into the cartridge, the seal plug 2010 is disposed in the e-liquid injection hole 2405 to prevent the e-liquid leak.

[0036] FIG. 9 shows a direction of an air flow in an atomizer according to one example of the disclosure. The air flow passes through the air inlet 2402 into the air passage 2401 and enters the vaporizing chamber 2807 of the main body 2008; the heating element 2808 is powered with the air flow to heat the e-liquid; the smoke generated is discharged from the vaporizing chamber 2807 to the air duct 2202, filtered by the second e-liquid absorbent cotton 2001 in the air duct 2202, and sucked in via the mouthpiece 2203.

[0037] FIG. 10 shows a principle of air replenishment in an atomizer according to one example of the disclosure. A difference in pressure may occur between the inside and outside of the cavity 2201 and reduce the velocity of the e-liquid flowing from the oil inlet hole 2802 to the heating element 2808; the air flow passes through the mouthpiece into the air duct 2202 and enters the vaporizing chamber 2807 of the main body 2008; the air is then replenished through the air hole 2809 into the cartridge 2002 to balance the air pressure, so that the e-

liquid flows smoothly into the heating element 2808 to prevent the heating element 2808 from burning out.

[0038] An electronic cigarette comprises any one of the atomizer described herein, a cover 1001, and a power assembly.

[0039] As shown in FIGS. 1 - 3, the atomizer comprises a cartridge 1002, a base 1003, at least one first magnet 1004, a seal plug 1005, a silicone pad 1006, and an atomizing core 1007. The power assembly comprises a second seal ring 1008, an air guide column 1009, at least one second magnet 1010, an electrode 1011, a first bracket 1012, a first silicone part 1013, a control board 1014, a second silicone part 1015, a button 1016, a third silicone part 1017, a battery 1018, a shaft screw 1019, a bumper 1020, a first decorative panel 1021, a second decorative panel 1022, a second bracket 1023, a shell 1024, an airflow sensor, and at least one screw 1025; the first bracket 1012 is used to support a control board; and the second bracket 1023 is used to support the first decorative panel 1021 and the second decorative panel 1022.

[0040] The seal plug 1005 is disposed in the e-liquid injection hole of the base 1003 to prevent the e-liquid from flowing out of the cartridge 1002; the at least one first magnet 1004 is fixed on the base 1003; the air guide column 1009 is fixed on the top part of the first bracket 1012 to allow for air ventilation; and the at least one second magnet 1010 is fixed on the top part of the first bracket 1012.

[0041] The electrode 1011 is disposed in the middle of the top part of the first bracket 1012 to electrically connect to the atomizing core 1007; the airflow sensor is disposed on the control board 1014; the first silicone part 1013 is disposed on the airflow sensor; the control board 1014 is provided with two input wires respectively welded to the anode and cathode of the battery 1018; the control board 1014 and the battery 1018 are fixed on the first bracket 1012; the button 1016 is disposed on the second silicone part 1015 and pressed against the power button of the control board 1014; the third silicone part 1017 is disposed on the control board 1014 to guide light.

[0042] The second seal ring 1008 is disposed on the upper end of the first bracket 1012 to seal a gap between the first bracket 1012 and the shell 1024; the first bracket 1012 is disposed in the shell 1024 and locked in the bottom part of the shell 1024 with the at least one screw 1025.

[0043] The at least one first magnet 1004 and the at least one second magnet 1010 are stuck together so that the cartridge 1002 is disposed in the shell 1024; when in use, the cover 1001 is flipped and allows the user to smoke from the mouthpiece; when not in use, the cover 1001 is closed to protect the atomizer of the inside of the shell 1024; and the cover 1001 is rotatable 90 degrees about the shaft screw 1019.

[0044] The bumper 1020 is disposed on the surface area of contact between the cover 1001 and the shell 1024 to absorb shock and prevent damage; the bumper

1020 comprises a soft plastic material with low hardness.

[0045] The first decorative panel 1021 and the second decorative panel 1022 are disposed on the front and back surfaces of the shell 1024, respectively; and the second bracket 1023 is disposed on the lateral surface of the shell 1024 to cover the components of the inside of the shell 1024.

10 Claims

1. An atomizer, comprising:

a cartridge, comprising a cavity configured to store e-liquid;
a base, disposed in a bottom part of the cartridge; and
an atomizing core, comprising at least one e-liquid inlet;
wherein the atomizing core is movable from a first position to a second position; when the atomizing core is moved to the first position, the at least one e-liquid inlet is located outside the cartridge; when the atomizing core is moved to the second position, the at least one is located inside the cartridge.

2. The atomizer of claim 1, wherein the atomizer further comprises a silicone pad disposed at the bottom part of the cartridge; when the atomizing core is moved to the first position, the silicone pad receives the atomizing core to seal the at least one e-liquid inlet.

3. The atomizer of claim 1, wherein the atomizer further comprises a buckle disposed on the base; the buckle is configured to locate the atomizing core in the first position.

4. The atomizer of claim 1, wherein the atomizing core is movable from the second position to the first position.

5. The atomizer of claim 4, wherein the atomizer further comprises a first positioning part configured to locate the atomizing core in the first position and a second positioning part configured to locate the atomizing core in the second position.

6. The atomizer of claim 5, wherein a channel is formed in the base; one end of the atomizing core passes through the channel and is inserted into the cavity, so as to move back and forth between the first position and the second position; the channel is convex to form a first stopper functioning as the first positioning part and a second stopper functioning as the second positioning part; the atomizing core comprises an outer wall provided with at least one protrusion; the at least one protrusion is configured to abut

- against the first stopper 2902 or the second stopper 2404.
7. The atomizer of claim 6, wherein the first stopper protrudes radially inward at a bottom end of the channel; the second stopper protrudes radially inward on the channel; the at least one protrusion is slidable between the first stopper and the second stopper.
8. The atomizer of claim 6, wherein the atomizing core comprises a distal end away from the cartridge and a proximal end close to the cartridge; when the atomizing core is moved to the first position, the at least one protrusion abuts against the first stopper, so that the distal end of the atomizing core protrudes from the base; when the atomizing core is moved to the second position, the at least one protrusion abuts against the second stopper, the distal end of the atomizing core and the bottom end of the atomizer are located on the same plane.
9. The atomizer of claim 6, wherein the atomizing core comprises a main body and an accessory connected to the main body; the main body comprises a vaporizing chamber; the e-liquid is heated in the vaporizing chamber; the atomizing core further comprises a heating element disposed in the vaporizing chamber to heat the e-liquid; the at least one e-liquid inlet is disposed on the main body; and the at least one protrusion is disposed on an outside wall of the accessory.
10. The atomizer of claim 6, wherein the at least one protrusion comprises a first protrusion and a second protrusion; the first protrusion is configured to abut against the first stopper; the second protrusion is used to abut against the second stopper; an annular groove is formed between the first protrusion and the second protrusion; and a first seal ring is disposed in the annular groove.
11. The atomizer of claim 5, wherein the atomizing core further comprises an air hole through which the air is replenished into the atomizing core to balance the air pressure; and a seal sleeve sleeves the outer wall of the atomizing core to seal the air hole.
12. The atomizer of claim 11, wherein the atomizer further comprises an air duct disposed in the cavity and integrally formed with the cartridge to allow for air ventilation and smoke exhaust in the atomizer; the proximal end of the atomizing core is inserted into the air duct; one end of the air duct is disposed opposite to the seal sleeve; or the inside wall of the air duct protrudes radially inward to form a third stopper, and the seal sleeve is disposed opposite to the third stopper; as the atomizing core is moved upward along the channel, the seal sleeve 2801 is blocked by the third stopper or the one end of the air duct 2202 and moves downward along the atomizing core, so that the air hole 2809 is exposed.
13. The atomizer of claim 12, wherein a distance between the seal sleeve and the one end of the air duct, or between the seal sleeve and the third stopper is smaller than a distance between the first stopper and the second stopper.
14. The atomizer of claim 6, wherein the base functions as an e-liquid seal to seal the cavity; the e-liquid seal is an injection molded part comprising a plastic material and a silicone material.
15. The atomizer of claim 14, wherein the channel is formed in the e-liquid seal; and the atomizing core is disposed in the channel; an air guide space is formed by the e-liquid seal and the cartridge to allow for ingress or egress of an air flow;
- a first e-liquid absorbent cotton is disposed in the air guide space to absorb the e-liquid leaking from the cartridge;
- the e-liquid seal comprises a wall disposed in the air guide space; the e-liquid seal further comprises an air passage disposed on the wall and communicating with the channel; a bottom end of the e-liquid seal is disposed away from the cavity and comprises both an e-liquid injection hole and an air inlet; the e-liquid injection hole communicates with the cavity; and the air inlet communicates with the air passage.
16. The atomizer of claim 12, wherein a second e-liquid absorbent cotton is hollow and disposed in the air duct to absorb condensate.
17. The atomizer of claim 6, wherein the cartridge further comprises a fixing part disposed on the outside wall of the bottom part of the cartridge; a bottom end of the channel comprises a first opening; a bottom end of the fixing part comprises a second opening having a smaller diameter than the first opening; the first opening is disposed opposite to the second opening; the second opening is defined by a lateral wall; the lateral wall extends inward to form a first stopper.
18. An electronic cigarette, comprising any one of the atomizers of claims 1-17.
19. The electronic cigarette of claim 18, wherein the electronic cigarette further comprises a cover, a power assembly, and a bumper; the bumper is disposed between the cover and the power assembly.
20. The electronic cigarette of claim 19, wherein the bumper comprises a plastic material; the electronic

cigarette further comprises a shaft screw; the cover is hinged to the power assembly through the shaft screw; and the cover is rotatable 90 degrees about the shaft screw.

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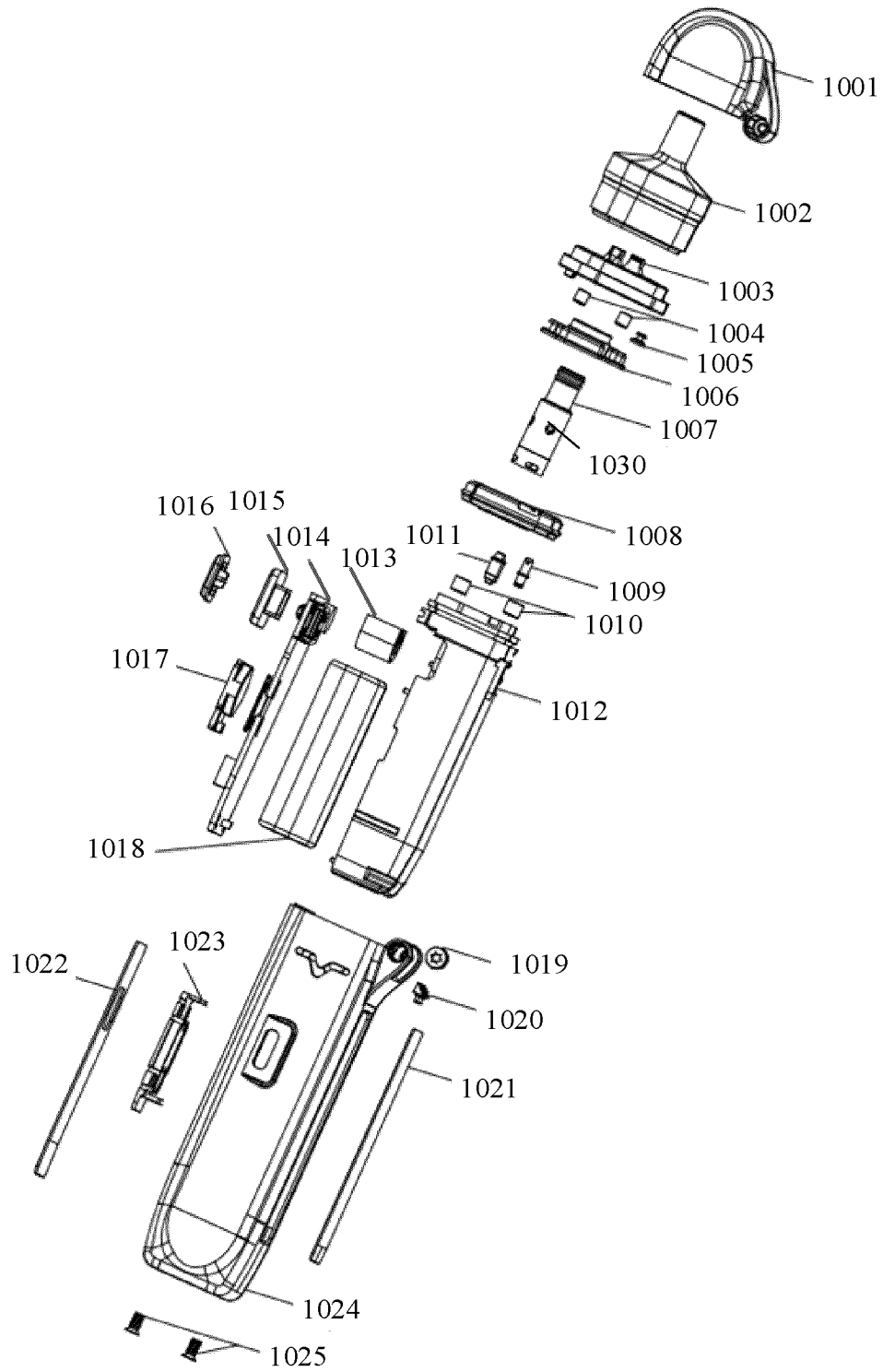


FIG. 1

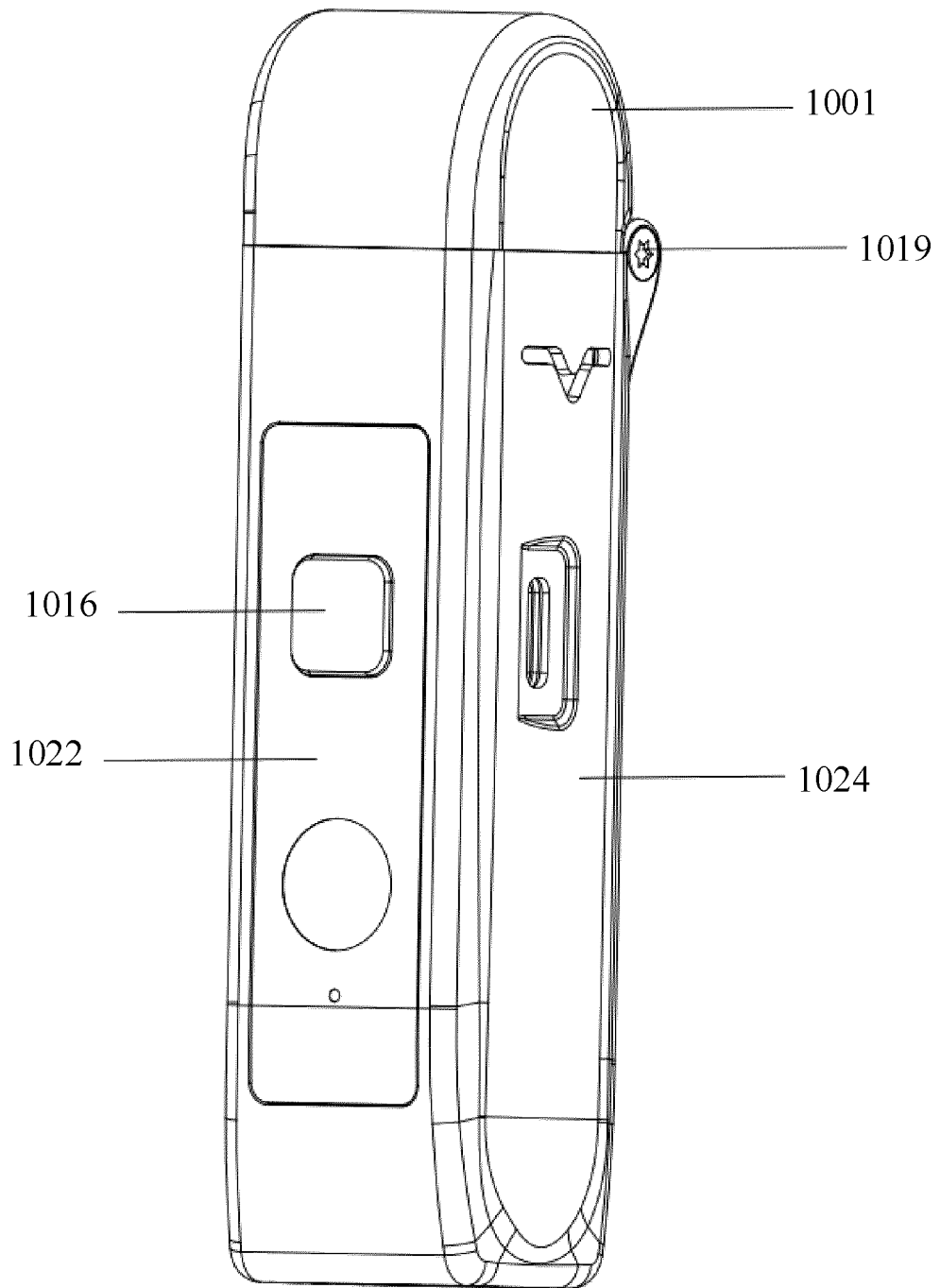


FIG. 2

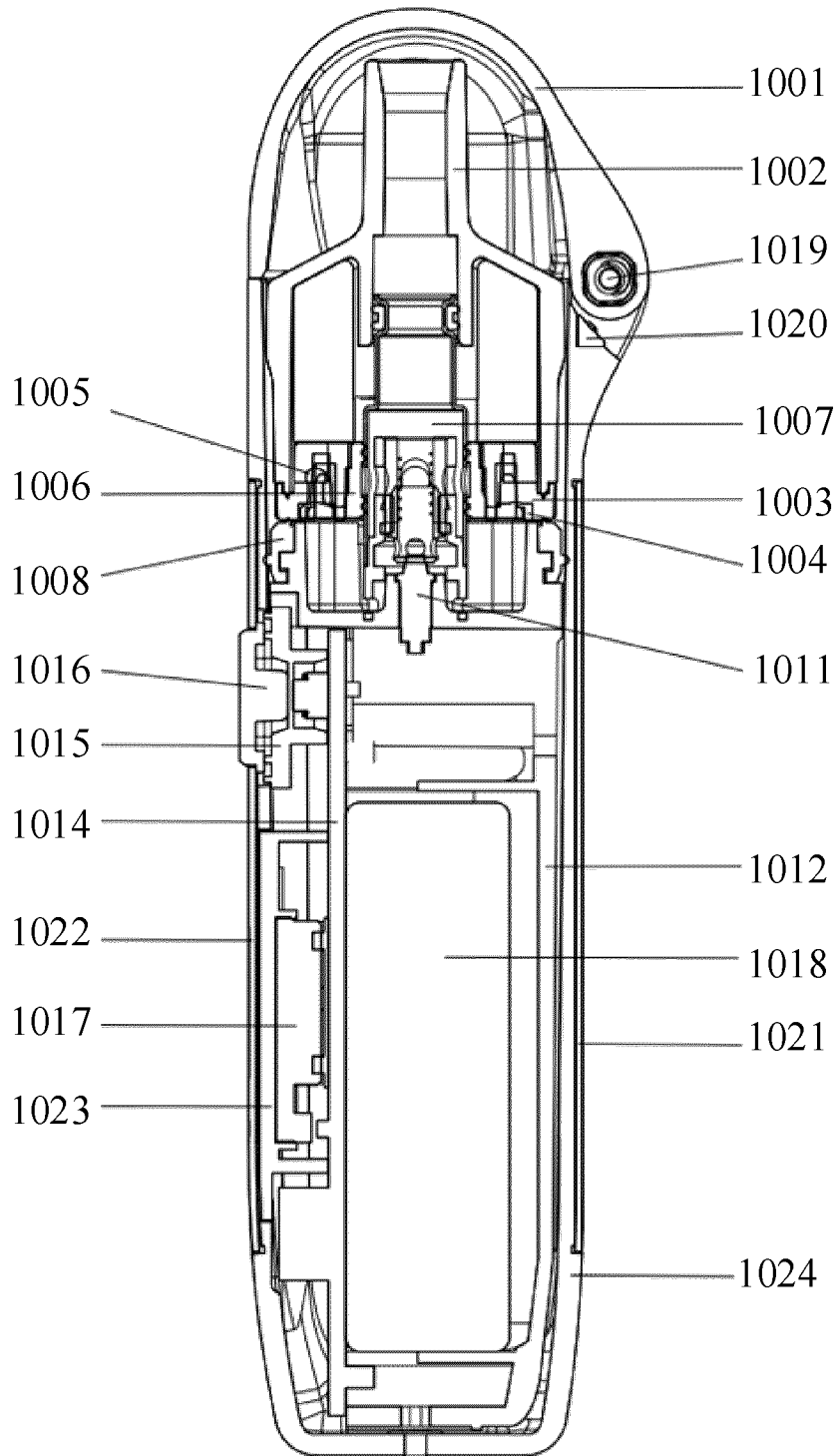


FIG. 3

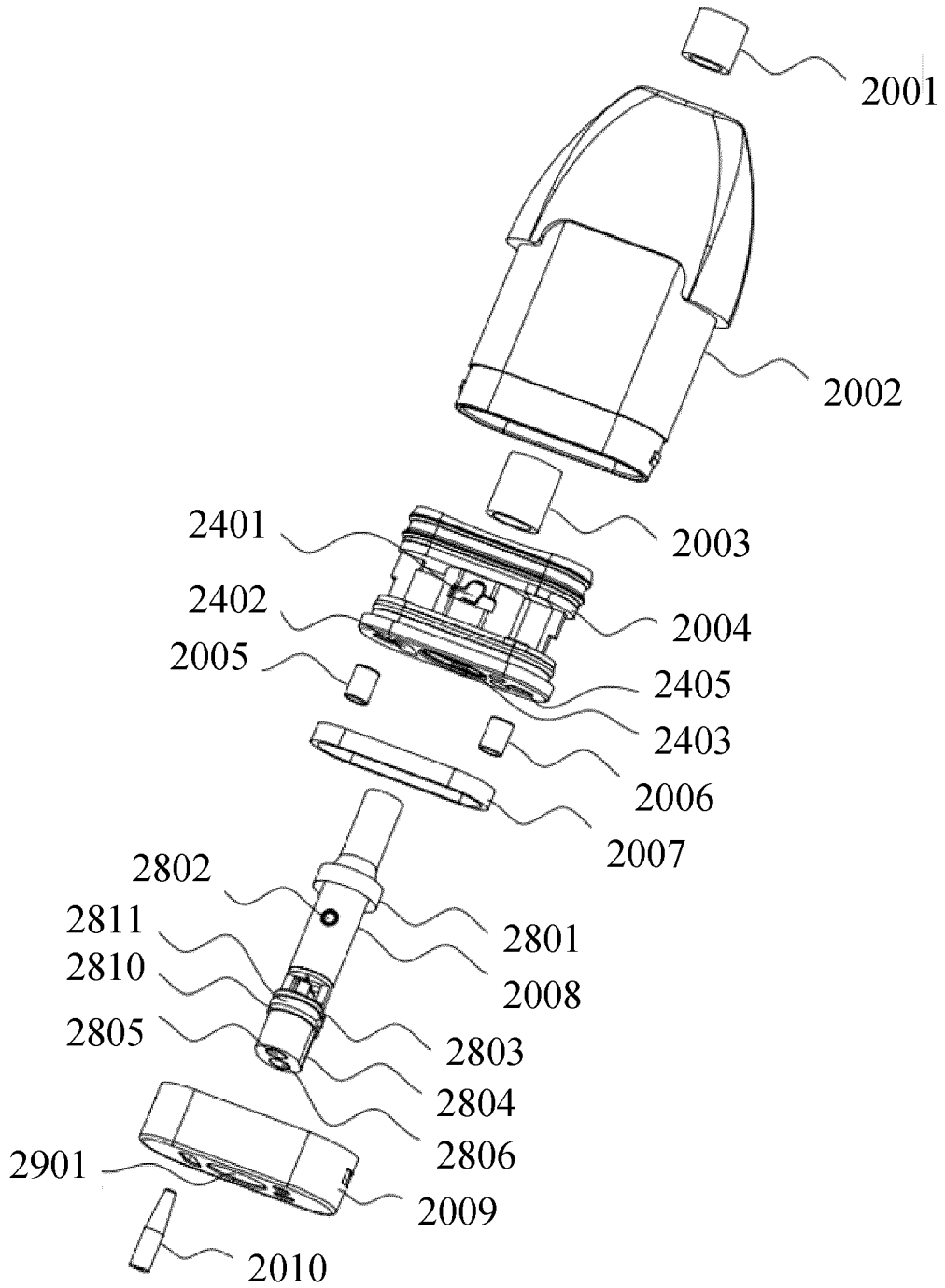


FIG. 4

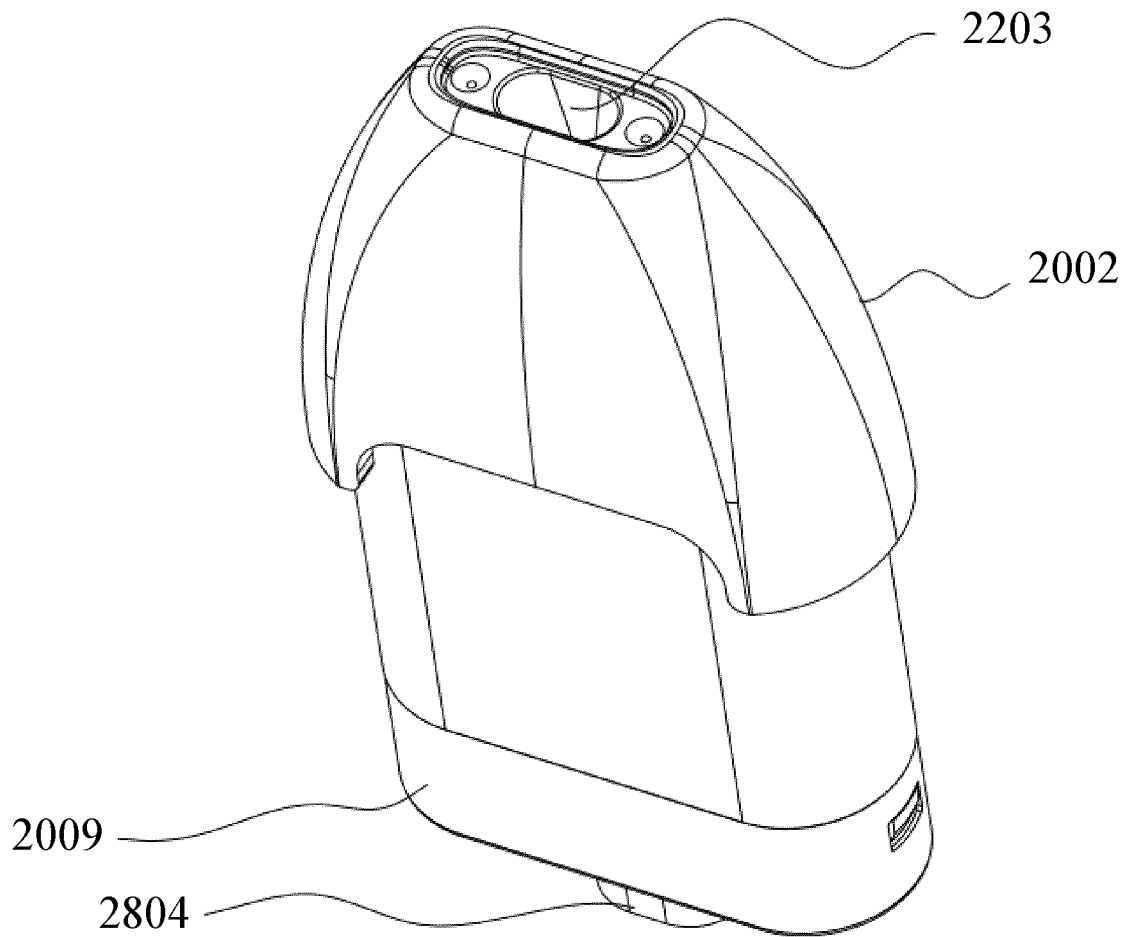


FIG. 5

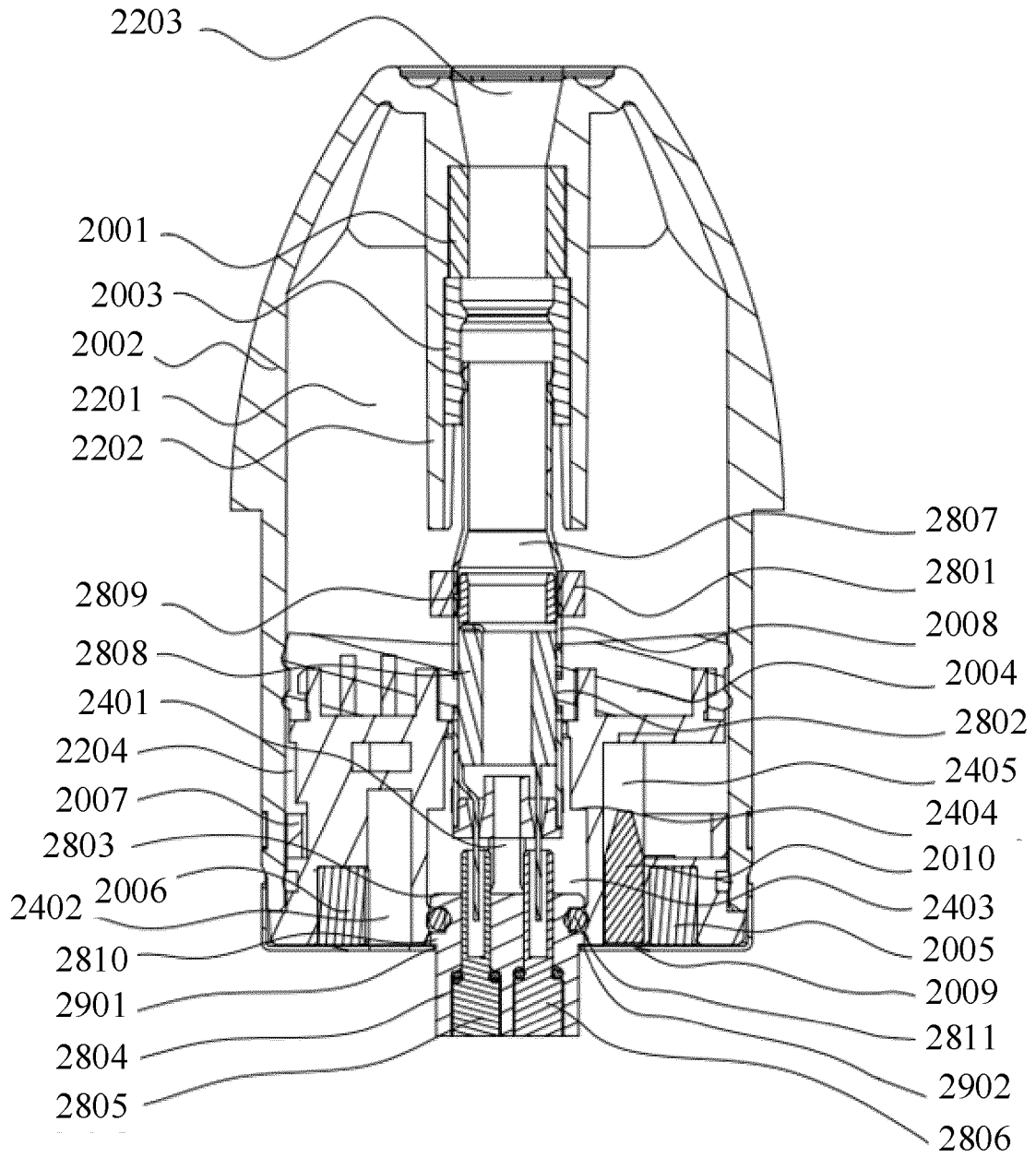


FIG. 6

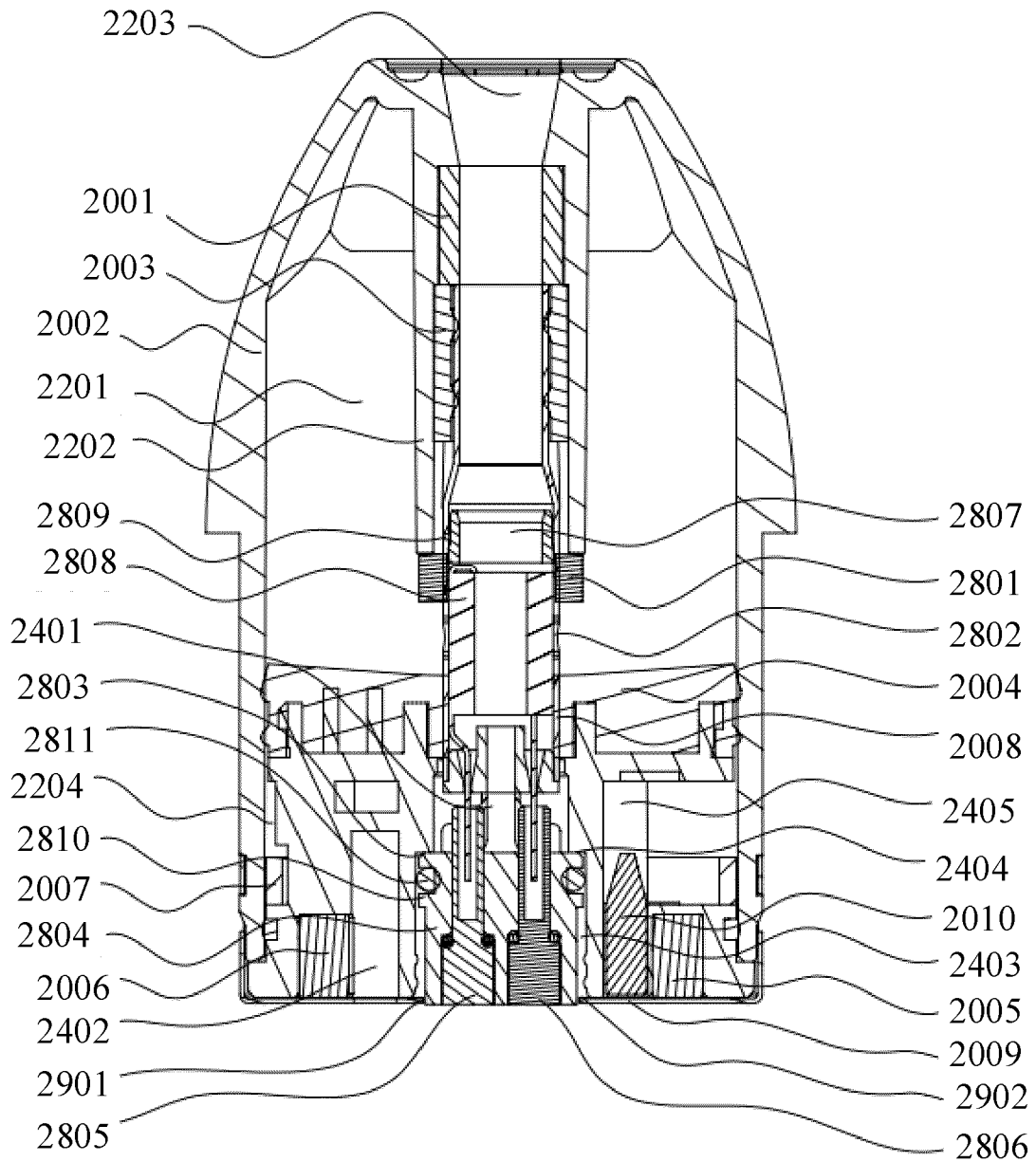


FIG. 7

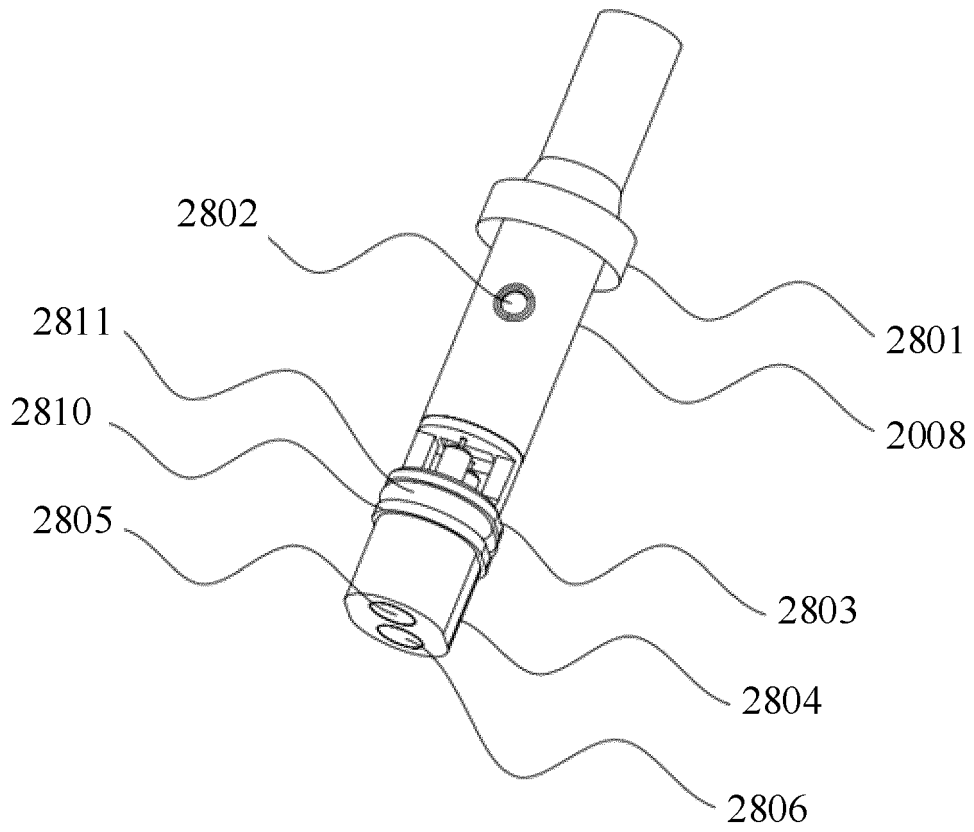


FIG. 8

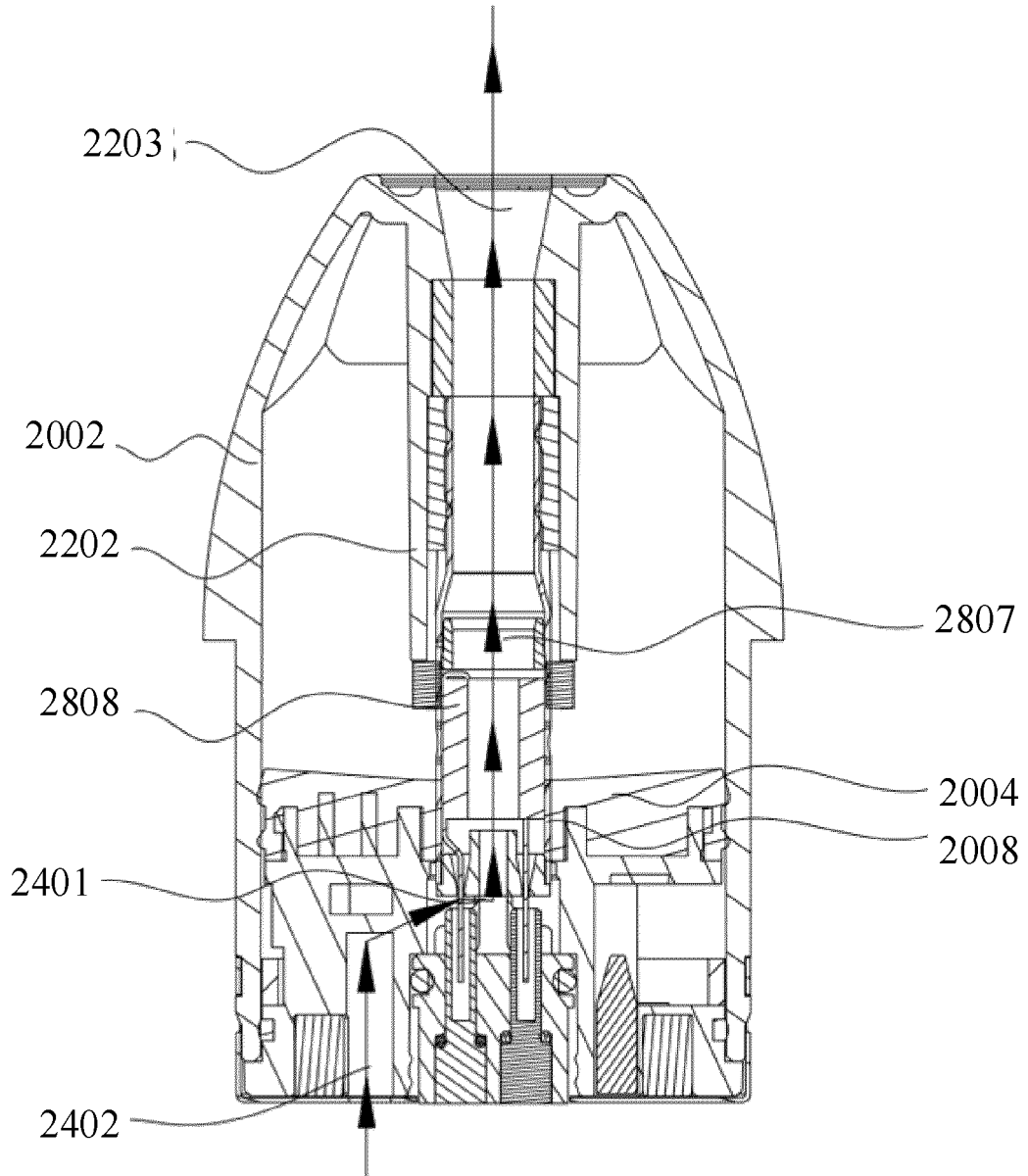


FIG. 9

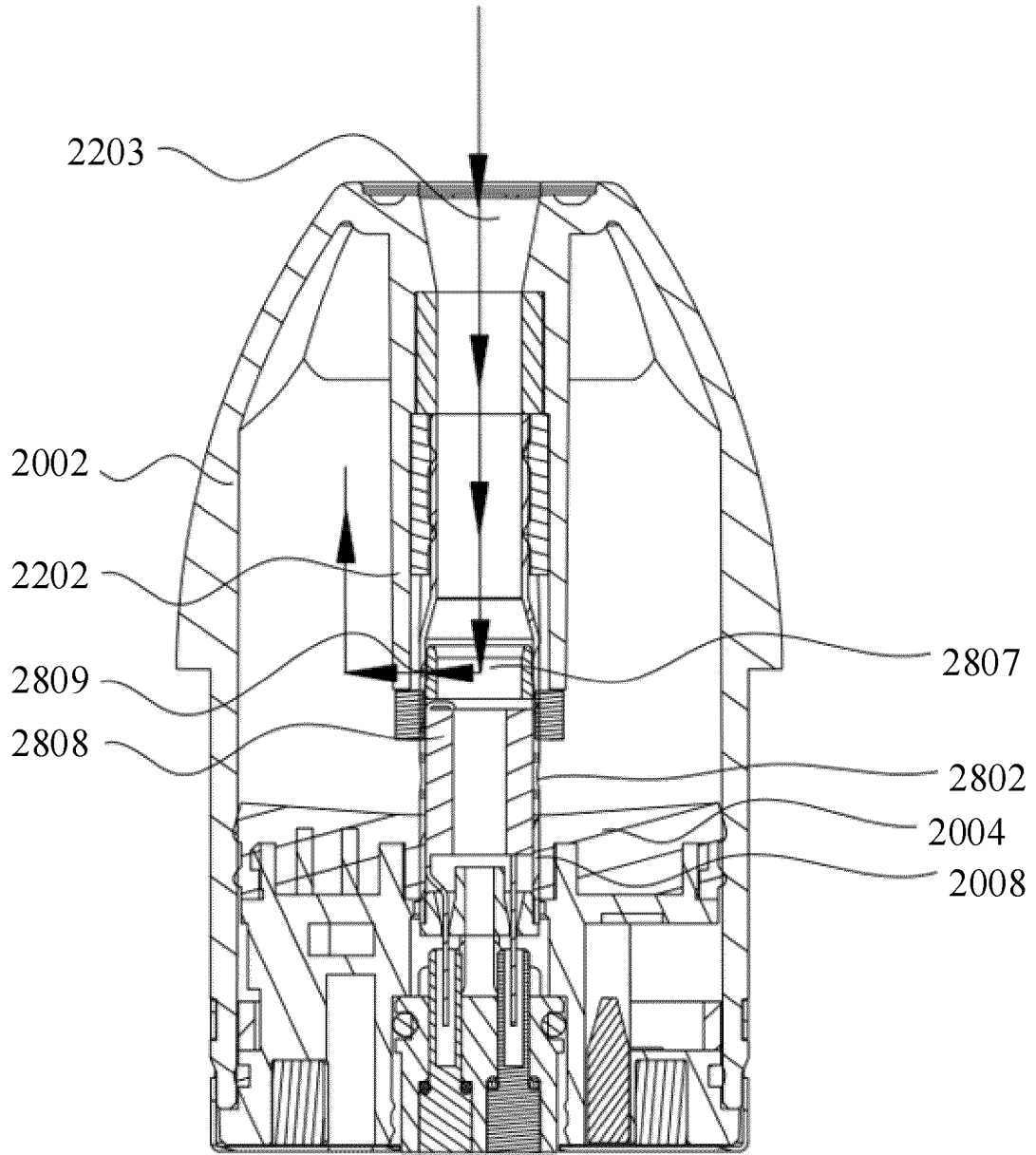


FIG. 10

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2021/129113

5	A. CLASSIFICATION OF SUBJECT MATTER		
	A24F 40/40(2020.01)i; A24F 40/20(2020.01)i; A24F 47/00(2020.01)i; A24F 40/46(2020.01)i; A24F 40/42(2020.01)i		
	According to International Patent Classification (IPC) or to both national classification and IPC		
10	B. FIELDS SEARCHED		
	Minimum documentation searched (classification system followed by classification symbols)		
	A24F40 A24F47		
	Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
15	Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
	CNABS; CNTXT; CNKI; WPABSC; VEN; USTXTC; JPABS: 电子烟, 雾化器, 注油, 储油, 进油孔, 进油口, 仓, 室, 腔, 旋转, 移动, 上移, 加热, 进气孔, 进气口, 盖, 漏油, 泄漏, aerosol, atomizer, leakage, inject+, prevent+, oil, clamp+, hole+, channel, hous+		
20	C. DOCUMENTS CONSIDERED TO BE RELEVANT		
	Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	PX	CN 214340092 U (SHENZHEN YIJIATE TECHNOLOGY CO., LTD.) 08 October 2021 (2021-10-08) claims 1-7, and figures 1-3	1-3, 18-20
25	X	CN 111329109 A (CHINA TOBACCO YUNNAN INDUSTRIAL L.L.C.) 26 June 2020 (2020-06-26) description, paragraphs [0052]-[0075], and figures 1-6	1-20
	X	CN 111109668 A (CHINA TOBACCO YUNNAN INDUSTRIAL L.L.C.) 08 May 2020 (2020-05-08) description, paragraphs [0031]-[0042], and figures 1-4	1-8
30	A	CN 104939326 A (YANG, Weidong) 30 September 2015 (2015-09-30) entire document	1-20
	A	CN 209594764 U (SHENZHEN UWELL TECHNOLOGY CO., LTD.) 08 November 2019 (2019-11-08) entire document	1-20
35	<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
40	* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
45	Date of the actual completion of the international search		Date of mailing of the international search report
	10 January 2022		25 January 2022
50	Name and mailing address of the ISA/CN		Authorized officer
	China National Intellectual Property Administration (ISA/CN) No. 6, Xitucheng Road, Jimenqiao, Haidian District, Beijing 100088, China		
55	Facsimile No. (86-10)62019451		Telephone No.

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 210299484 U (GD SIGELEI ELECTRONIC TECH CO., LTD.) 14 April 2020 (2020-04-14) entire document	1-20

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2021/129113

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Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
CN	214340092	U	08 October 2021	None	
CN	111329109	A	26 June 2020	CN	212414753 U 29 January 2021
CN	111109668	A	08 May 2020	CN	211910518 U 13 November 2020
CN	104939326	A	30 September 2015	CN	104939326 B 27 April 2018
CN	209594764	U	08 November 2019	CN	111616413 A 04 September 2020
CN	210299484	U	14 April 2020	None	