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(54) **ATOMIZER AND AEROSOL GENERATING DEVICE**

(57) An atomizer and an aerosol generating device. In the atomizer, an atomizing housing (1) is at least partially accommodated in a liquid storage cavity (53), a liquid storage space is formed in the atomizing housing (1), and a pressure relief hole (114) in communication with the liquid storage space and the liquid storage cavity (53) and an air guide port (117) for communicating the liquid storage space with the outside atmosphere are provided on the atomizing housing (1). In this way, when the air pressure in the liquid storage cavity (53) is greater than the external air pressure and a positive pressure difference is formed, the positive pressure difference presses an aerosol-forming substrate in the liquid storage cavity (53) into the liquid storage space by means of the pressure relief hole (114), so that the internal air pressure of the atomizer and the external air pressure reach a balanced state. However, when the air pressure in the liquid storage cavity (53) is greater than the external air pressure and a negative pressure difference is formed, the negative pressure difference presses an aerosol-forming substrate in the liquid storage space back into the liquid storage cavity (53) by means of the pressure relief hole (114), so that the internal air pressure of the atomizer and the external air pressure reach a balanced state. In this process, the aerosol-forming substrate is prevented from flowing into an atomizing cavity (112), thereby

avoiding seepage of the aerosol-forming substrate, and effectively preventing liquid leakage of the atomizer.

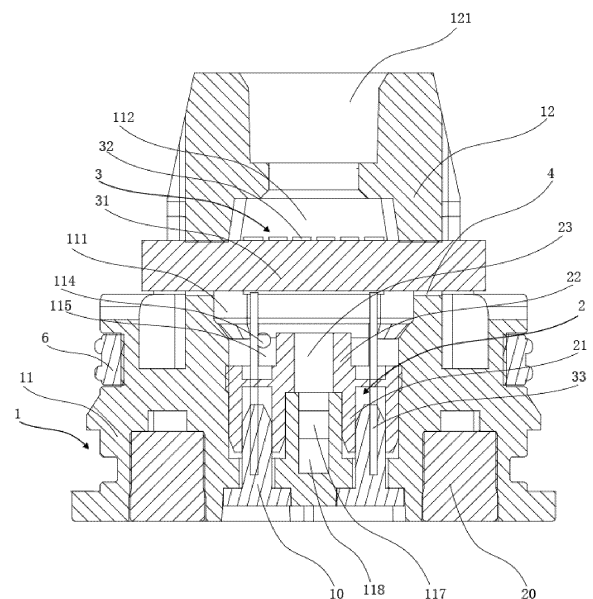


FIG. 2

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Description**TECHNICAL FIELD**

5 [0001] The present application relates to the technical field of simulated smoking, in particular to an atomizer and an aerosol generating device.

BACKGROUND

10 [0002] The aerosol generating device is a relatively common electronic product that simulates cigarettes. It mainly includes a power supply device and an atomizer. The power supply device supplies power to the heating unit in the atomizer, so that the atomizer heats the aerosol-forming substrate and produces smoke under electric driving for users to inhale, to achieve the effect of simulating smoking.

15 [0003] Currently, when the surrounding environment of the atomizer changes (such as changes in the surrounding atmospheric pressure during air transportation of the atomizer), a certain pressure difference can occur between the internal air pressure of the atomizer and the external air pressure. When the internal air pressure of the atomizer is greater than the external air pressure, under the pressure difference between the internal air pressure of the atomizer and the external air pressure, the aerosol-forming substrate in the liquid storage cavity of the atomizer will be squeezed into the atomizing cavity, so that the internal air pressure of the atomizer and the external air pressure reach a balanced state. During this process, the aerosol-forming substrate squeezed into the atomizing cavity by the pressure difference easily leaks out from the smoke outlet or air inlet of the atomizer. As a result, the atomizer leaks, seriously affecting the transportation and use of the atomizer.

SUMMARY

25 [0004] Based on the above-mentioned problems existing in the prior art, a first object of the embodiment of the present application is to provide an atomizer, such that when there is a pressure difference between the internal air pressure and the external air pressure, the aerosol-forming substrate in the liquid storage cavity can be prevented from being squeezed into the atomizing cavity by the pressure difference, so as to achieve the effect of preventing liquid leakage.

30 [0005] In order to achieve the above purpose, the technical solution adopted by the present application is to provide an atomizer for an aerosol generating device, including:

a liquid storage member with a liquid storage cavity formed therein for storing an aerosol-forming substrate; and an atomizing housing at least partially received in the liquid storage cavity;
 35 wherein a liquid storage space is formed inside the atomizing housing, the atomizing housing is provided with an air guiding hole configured for communicating an upper portion of the liquid storage space with an outside atmosphere, and the atomizing housing is provided with a pressure relief hole communicating the liquid storage space with the liquid storage cavity; when an air pressure in the liquid storage cavity is greater than an external air pressure and a positive pressure difference is formed, the aerosol-forming substrate in the liquid storage cavity is squeezed into the liquid storage space through the pressure relief hole.

40 [0006] Further, the atomizing housing includes a base and an upper cover, an upper end face of the base is recessed to form an atomizing groove, the upper cover covers a groove opening of the atomizing groove, so that an atomizing cavity is formed inside the base, an inner bottom surface of the atomizing groove is recessed to form a liquid storage groove, and the liquid storage groove constitutes the liquid storage space, the pressure relief hole and the air guiding hole are both provided on the base.

45 [0007] Further, a protrusion is formed and protrudes on an inner bottom surface of the liquid storage groove, the portion of the liquid storage groove other than the protrusion defines the liquid storage space, an air guiding passage is provided in the protrusion, an air inlet end of the air guiding passage is in communication with the air guiding hole, an air outlet end of the air guiding passage is located at an upper end face of the protrusion, and the air outlet end of the air guiding passage is in communication with the liquid storage space.

50 [0008] Further, the atomizer further includes a first sealing member provided in the liquid storage groove, the first sealing member includes a sealing seat covering a bottom of the liquid storage groove and a protrusion protruding from a surface of the sealing seat facing the upper cover, the portion of the liquid storage groove other than the sealing seat and the protrusion defines the liquid storage space, an air guiding passage is provided in the first sealing member, an air inlet end of the air guiding passage is located at the sealing seat, and the air inlet end of the air guiding passage is in communication with the air guiding hole, an air outlet end of the air guiding passage is located at an upper end face of the protrusion, and the air outlet end of the air guiding passage is in communication with the liquid storage space.

[0009] Further, the atomizing housing further includes a heating member for heating the aerosol-forming substrate, the sealing seat is provided with a through hole for a lead wire of the heating member to pass through, the heating member is located in the atomizing cavity, the lead wire of the heating member passes through the through hole and extends to an outside of the liquid storage groove.

[0010] Further, an outer wall of the base is provided with an annular groove around a circumference of the base, the pressure relief hole is located in the annular groove, a second sealing member is disposed in the annular groove, the second sealing member is configured to seal the pressure relief hole when the air pressure in the liquid storage cavity is equal to the external air pressure; when the air pressure in the liquid storage cavity is greater than the external air pressure and a positive pressure difference is formed, or when the air pressure in the liquid storage cavity is less than the external air pressure and a negative pressure difference is formed, the second sealing member is squeezed by the positive pressure difference or the negative pressure difference to open the pressure relief hole.

[0011] Further, a gap is preset between a surface of the second sealing member facing the upper cover and an inner surface of the annular groove facing the base.

[0012] Further, a spacing of the gap is 0.03 mm - 0.05 mm.

[0013] Further, the liquid storage member is a cartridge case with an open bottom end and a smoke outlet at a top end, the atomizing housing is sealed and assembled on a bottom opening of the cartridge case, the atomizing housing is at least partially received in the cartridge case, an atomizing cavity is formed inside the atomizing housing, the atomizing housing is provided with a smoke guiding hole in communication with the atomizing cavity, a vent tube communicating the smoke guiding hole with the smoke outlet is provided in the cartridge case, an inside space of the cartridge case other than the atomizing housing and the vent tube defines the liquid storage cavity, the atomizing housing is provided with a liquid inlet hole communicating the liquid storage cavity with the atomizing cavity.

[0014] Based on the above-mentioned problems existing in the prior art, a second object of the embodiment of the present application is to provide an aerosol generating device with the atomizer provided by any of the above solutions, such that when there is a pressure difference between the air pressure in the atomizer and the external air pressure, the aerosol-forming substrate in the liquid storage cavity can be prevented from being squeezed into the atomizing cavity by the pressure difference, so as to achieve the effect of preventing liquid leakage.

[0015] In order to achieve the above object, the technical solution adopted by the present application is to provide an aerosol generating device, including the atomizer and a power supply device for supplying power to the atomizer, the atomizer is assembled to the power supply device.

[0016] Compared with the prior art, the above one or more technical solutions in the embodiment of the present application have at least one of the following beneficial effects:

[0017] The embodiment of the present application provides an atomizer and an aerosol generating device. The atomizing housing of the atomizer is at least partially received in the liquid storage cavity, a liquid storage space is formed inside the atomizing housing, and the atomizing housing is provided with a pressure relief hole communicating the liquid storage space with the liquid storage cavity and an air guiding hole communicating the upper portion of the liquid storage space with the outside atmosphere. In this way, when the air pressure in the liquid storage cavity is greater than the external air pressure and a positive pressure difference is formed, the positive pressure difference squeezes the aerosol-forming substrate in the liquid storage cavity into the liquid storage space through the pressure relief hole, so that the internal air pressure of the atomizer and the external air pressure reach a balanced state. When the air pressure in the liquid storage cavity is greater than the external air pressure and a negative pressure difference is formed, the negative pressure difference reversely squeezes the aerosol-forming substrate in the liquid storage space back into the liquid storage cavity through the pressure relief hole, so that the internal air pressure of the atomizer and the external air pressure reach a balanced state. During this process, the aerosol-forming substrate squeezed into the liquid storage space by the positive pressure difference is only temporarily stored in the liquid storage space, and finally will be reversely squeezed by the negative pressure difference and flow back into the liquid storage cavity. Thus, the problem of the aerosol-forming substrate flowing into the atomizing cavity does not occur, thereby avoiding leakage of the aerosol-forming substrate, and effectively preventing leakage of the atomizer.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] In order to more clearly illustrate the technical solutions of the embodiments of the present application, the drawings used below for the description of the embodiments will be introduced briefly. It should be understood that the following drawings only illustrate some embodiments of the present application, and therefore should not be considered as limitation to the protection scope. A person skilled in the art may further obtain other relevant drawings according to these drawings without creative work.

FIG. 1 is a schematic three-dimensional structural diagram of an atomizer provided in an embodiment of the present application;

FIG. 2 is a schematic cross-sectional structural diagram of the atomizer provided in the embodiment of the present application;

FIG. 3 is a schematic three-dimensional structural diagram of the base provided in the embodiment of the present application;

FIG. 4 is another schematic three-dimensional structural diagram of the base provided in the embodiment of the present application;

FIG. 5 is another schematic three-dimensional structural diagram of the base provided in the embodiment of the present application;

FIG. 6 is an exploded view of the atomizer provided in the embodiment of the present application;

FIG. 7 is a schematic three-dimensional structural diagram of an atomizer provided in another embodiment of the present application;

FIG. 8 is a partially exploded view of the atomizer provided in another embodiment of the present application;

FIG. 9 is a schematic top view of the atomizer provided in another embodiment of the present application;

FIG. 10 is a schematic cross-sectional structural diagram along line A-A in FIG. 9;

FIG. 11 is a schematic cross-sectional structural diagram along line B-B in FIG. 9;

FIG. 12 is a partially enlarged structural diagram of part A in FIG. 11;

FIG. 13 is an exploded view of the atomizer provided in another embodiment of the present application.

[0019] The reference signs in the figures are as follows:

atomizing housing 1	liquid guiding member 31
base 11	heating member 32
atomizing groove 111	lead wire 33

atomizing cavity 112	liquid inlet hole 4
groove opening 113	first liquid inlet 41
pressure relief hole 114	second liquid inlet 42
liquid storage groove 115	liquid storage member 5
annular groove 116	smoke outlet 51
air guiding hole 117	bottom opening 52
liquid holding groove 118	liquid storage cavity 53
upper cover 12	second sealing member 6
smoke guiding hole 121	sealing ring 7
first sealing member 2	vent tube 8
sealing seat 21	locking structure 9
through hole 211	locking portion 91
protrusion 22	locking groove 92
air guiding passage 23	conductive assembly 10
atomizing assembly 3	magnetic member 20
gap 30	

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0020] In order to make the technical problems to be solved, technical solutions, and beneficial effects of the present application more clear, the present application will be further described in detail below with reference to the accompanying drawings and embodiments. It should be understood that the specific embodiments described here are only configured to explain the present application and are not intended to limit the present application.

[0021] It should be noted that when an element is referred to as being "connected to" or "provided on" another element, it can be directly on another element or indirectly on the another element. When an element is referred to as being "connected to" another element, it can be directly connected to the another element or indirectly connected to the another element.

[0022] In the description of the present application, it should be noted that, unless otherwise explicitly stipulated and limited, the terms "installed", "fixed" and "connected" should be understood in a broad sense. For example, it can be a fixed connection, a detachable connection, or an integral connection; it can be a mechanical connection or an electrical connection; it can be directly connected or indirectly connected through an intermediate element, or it can be the internal connection between two elements or the interaction between two elements. For those of ordinary skill in the art, the specific meanings of the above terms in the present application can be understood according to specific circumstances.

[0023] It should be understood that the orientation or positional relationship indicated by the terms "length", "width", "top", "bottom", "front", "back", "left", "right", "vertical", "horizontal", "top", "bottom", "inner", "outer", etc. is based on the orientation or positional relationship shown in the accompanying drawings. It is only for the convenience of describing the present application and simplifying the description, rather than indicating or implying that the device or element referred to must have a particular orientation, be constructed and operate in a particular orientation; therefore, it cannot be understood as a limitation of the present application.

[0024] Reference throughout this specification to "one embodiment" or "an embodiment" means that a particular feature, structure or characteristic described in connection with the embodiment is included in at least one embodiment of the present application. Thus, the phrases "in one embodiment," "in some embodiments," or "in some of these embodiments" appear in various places throughout this specification, and are not all referring to the same embodiment. Furthermore, the particular features, structures, or characteristics can be combined in any suitable manner in one or more embodiments.

[0025] Please refer to FIGS. 1 to 6 together to describe the atomizer provided in the embodiment of the present application. The atomizer provided in the embodiment of the present application is suitable for the atomizer of an aerosol generating device. The aerosol generating device atomizes an aerosol-forming substrate through the atomizer to form smoke for the user to inhale to achieve the effect of simulating smoking. Please refer to FIG. 1, FIG. 2, FIG. 3 together, the atomizer provided in the embodiment of the present application includes an atomizing housing 1 and a liquid storage member 5. A liquid storage cavity 53 for storing the aerosol-forming substrate is formed inside the liquid storage member 5, and the atomizing housing 1 is at least partially received in the liquid storage cavity 53. A liquid storage space is formed inside the atomizing housing 1, the atomizing housing 1 is provided with an air guiding hole 117, and the air guiding hole 117 communicates the upper portion of the liquid storage space with the outside atmosphere. The atomizing housing 1 is further provided with a pressure relief hole 114, and the pressure relief hole 114 communicates the liquid storage space with the liquid storage cavity 53. In this way, when the air pressure in the liquid storage cavity 53 is greater than the external air pressure and a positive pressure difference is formed, the aerosol-forming substrate in the liquid storage cavity 53 can be squeezed into the liquid storage space through the pressure relief hole 114; when the air pressure in the liquid storage cavity 53 is less than the external air pressure and a negative pressure difference is formed, the aerosol-forming substrate in the liquid storage space can be squeezed back into the liquid storage cavity 53 through the pressure relief hole 114.

[0026] Compared with the prior art, the atomizer provided in the embodiment of the present application forms a liquid storage cavity 53 inside the liquid storage member 5, the atomizing housing 1 is at least partially received in the liquid storage cavity 53, a liquid storage space is formed inside the atomizing housing 1, and the atomizing housing 1 is provided with a pressure relief hole 114 communicating the liquid storage space with the liquid storage cavity 53 and an air guiding hole 117 communicating the upper portion of the liquid storage space with the outside atmosphere. In this way, when the surrounding environment of the atomizer changes, and when the air pressure in the liquid storage cavity 53 is greater than the external air pressure and a positive pressure difference is formed, the positive pressure difference squeezes the aerosol-forming substrate in the liquid storage cavity 53 into the liquid storage space through the pressure relief hole 114, so that the internal air pressure of the atomizer and the external air pressure reach a balanced state. When the surrounding environment of the atomizer returns to normal, and when the air pressure in the liquid storage cavity 53 is less than the external air pressure and a negative pressure difference is formed, the negative pressure difference reversely squeezes the aerosol-forming substrate in the liquid storage space back into the liquid storage cavity 53 through the pressure relief hole 114, so that the internal air pressure of the atomizer and the external air pressure reach a balanced state. During this process, the aerosol-forming substrate squeezed into the liquid storage space by the positive pressure difference is only temporarily stored in the liquid storage space, and finally will be squeezed back into the liquid storage cavity 53 by the negative pressure difference, the aerosol-forming substrate is prevented from flowing into the atomizing cavity 112, which can prevent the aerosol-forming substrate from leaking out, thus effectively preventing leakage from the atomizer.

[0027] Please refer to FIG. 1, FIG. 2 and FIG. 3 together, in some embodiments, the atomizing housing 1 includes a base 11 and an upper cover 12. The upper end face of the base 11 is recessed to form an atomizing groove 111, and

the upper cover 12 covers a groove opening 113 of the atomizing groove 111. The inner bottom surface of the atomizing groove 111 is recessed to form a liquid storage groove 115, and the liquid storage groove 115 constitutes the liquid storage space. The pressure relief hole 114 and the air guiding hole 117 are both provided on the base 11. In this way, after the upper cover 12 covers the groove opening 113 of the atomizing groove 111, the groove opening 113 of the atomizing groove 111 is closed, so that an atomizing cavity 112 is formed inside the base 11 for heating and atomizing the aerosol-forming substrate. An atomizing assembly 3 is provided in the atomizing cavity 112, and the atomizing assembly 3 can heat and atomize the aerosol-forming substrate in the atomizing cavity 112 to form smoke. The upper cover 12 is further provided with a smoke guiding hole 121. The smoke guiding hole 121 is configured for allowing atomized smoke to flow out of the atomizing cavity 112. The base 11 and/or the upper cover 12 is provided with a liquid inlet hole 4 in communication with the atomizing cavity 112, and the aerosol-forming substrate stored in the liquid storage cavity 53 can continuously flow into the atomizing cavity 112 through the liquid inlet hole 4 to be heated and atomized by the atomizing assembly 3 in the atomizing cavity 112. It can be understood that the liquid inlet hole 4 can be independently provided on the side wall of the base 11, or be independently provided on the side wall or top wall of the upper cover 12. Also, the liquid inlet hole 4 can be formed by combining a slot provided on the side wall of the base 11 with a corresponding slot provided on the side wall of the upper cover 12. The specific location of the liquid inlet hole 4 can be selected and set according to actual needs, and is not uniquely limited here. Please refer to FIG. 3, FIG. 4 and FIG. 5 together, the base 11 is provided with the pressure relief hole 114 for releasing pressure when the air pressure in the liquid storage cavity 53 is greater than the external air pressure, the inner bottom surface of the atomizing groove 111 is recessed to form the liquid storage groove 115, wherein the liquid storage groove 115 constitutes the liquid storage space, and the pressure relief hole 114 is in communication with the liquid storage groove 115. In this way, when the surrounding environment of the atomizer changes (for example, the surrounding atmospheric pressure changes when the atomizer is transported by air, the external air pressure decreases, and the air pressure in the liquid storage cavity 53 becomes relatively large), when the air pressure inside the atomizer (in the liquid storage cavity 53) is greater than the external air pressure and a positive pressure difference is formed, the positive pressure difference squeezes the aerosol-forming substrate in the liquid storage cavity 53, and the aerosol-forming substrate in the liquid storage cavity 53 is squeezed into the liquid storage groove 115 through the pressure relief hole 114, so that the internal air pressure of the atomizer and the external air pressure reach a balanced state. When the surrounding environment of the atomizer returns to normal (for example, after the atomizer is transported by air to the destination, the plane is landed on the ground, the external air pressure increases, and the air pressure in the liquid storage cavity 53 becomes relatively small), when the air pressure inside the atomizer (in the liquid storage cavity 53) is less than the external air pressure and a negative pressure difference is formed, the negative pressure difference squeezes the aerosol-forming substrate in the liquid storage groove 115, and the aerosol-forming substrate in the liquid storage groove 115 is reversely squeezed back into the liquid storage cavity 53 through the pressure relief hole 114, so that the internal air pressure of the liquid storage cavity 53 and the external air pressure reach a balanced state. During this process, the aerosol-forming substrate squeezed into the liquid storage groove 115 by the positive pressure difference is only temporarily stored in the liquid storage groove 115, and finally will be reversely squeezed back into the liquid storage cavity 53 by the negative pressure difference. The aerosol-forming substrate in the atomizing cavity 112 is prevented from leaking out from the smoke outlet 51 or air inlet of the atomizer, which effectively prevents leakage from the atomizer.

[0028] Please refer to FIG. 5, in some embodiments, a protrusion 22 is formed and protrudes on the inner bottom surface of the liquid storage groove 115. The portion of the liquid storage groove 115 other than the protrusion 22 defines the liquid storage space. An air guiding passage 23 is provided in the protrusion 22, an air inlet end of the air guiding passage 23 is in communication with the air guiding hole 117, an air outlet end of the air guiding passage 23 is located at the upper end face of the protrusion 22, and the air outlet end of the air guiding passage 23 is in communication with the liquid storage space. By adopting the above solution, the protrusion 22 protrudes from the inner bottom surface of the liquid storage groove 115, the portion of the liquid storage groove 115 other than the protrusion 22 defines the liquid storage space, the air guiding passage 23 is provided in the protrusion 22, the air inlet end of the air guiding passage 23 is in communication with the air guiding hole 117, and the air outlet end of the air guiding passage 23 is located at the upper end face of the protrusion 22. In this way, the air guiding hole 117 can be in communication with the upper portion of the liquid storage groove 115 through the air guiding passage 23, and the aerosol-forming substrate squeezed into the liquid storage groove 115 can be prevented from leaking through the air guiding passage 23 and the air guiding hole 117. Moreover, the height of the protrusion 22 is greater than or equal to the height of the pressure relief hole 114, which is beneficial for preventing the aerosol-forming substrate from leaking through the air guiding passage 23 and the air guiding hole 117 during the process of reversely squeezing the aerosol-forming substrate in the liquid storage groove 115 back into the liquid storage cavity 53.

[0029] Please refer to FIG. 2, FIG. 6 and FIG. 13 together, in some embodiments, the atomizer further includes a first sealing member 2 provided in the liquid storage groove 115. The first sealing member 2 includes a sealing seat 21 covering the bottom of the liquid storage groove 115 and a protrusion 22 protruding from the surface of the sealing seat 21 facing the upper cover 12. The portion of the liquid storage groove 115 other than the sealing seat 21 and the protrusion

22 defines the liquid storage space. The air guiding passage 23 is provided in the first sealing member 2, the air inlet end of the air guiding passage 23 is provided at the sealing seat 21, and the air inlet end of the air guiding passage 23 is in communication with the air guiding hole 117. The air outlet end of the air guiding passage 23 is provided at the upper end face of the protrusion 22, and the air outlet end of the air guiding passage 23 is in communication with the liquid storage space. By adopting the above solution, the first sealing member 2 is provided in the liquid storage groove 115, with the sealing seat 21 of the first sealing member 2 covering the bottom of the liquid storage groove 115, thereby enhancing the sealing performance at the bottom of the liquid storage groove 115 and helping to prevent leakage. Furthermore, the protrusion 22 is provided on the surface of the sealing seat 21 facing the upper cover 12, the portion of the liquid storage groove 115 other than the sealing seat 21 and the protrusion 22 defines the liquid storage space, the protrusion 22 is provided with the air guiding passage 23 in communication with the air guiding hole 117, and the air outlet end of the air guiding passage 23 is located at the upper end face of the protrusion 22. In this way, the air guiding hole 117 can be in communication with the upper portion of the liquid storage groove 115 through the air guiding passage 23, and the aerosol-forming substrate squeezed into the liquid storage groove 115 can be prevented from leaking through the air guiding passage 23 and the air guiding hole 117. In addition, the height of the air outlet end of the air guiding passage 23 is greater than the height of the pressure relief hole 114, which is beneficial for preventing the aerosol-forming substrate from leaking through the air guiding passage 23 and the air guiding hole 117 during the process of reversely squeezing the aerosol-forming substrate in the liquid storage groove 115 back into the liquid storage cavity 53.

[0030] Please refer to FIG. 2, FIG.6 and FIG. 13 together, in some embodiments, the atomizing housing 1 further includes a heating member 32 for heating the aerosol-forming substrate, the sealing seat 21 is provided with a through hole 211 for the lead wire 33 of the heating member 32 to pass through. The heating member 32 is located in the atomizing cavity 112. The lead wire 33 of the heating member 32 passes through the through hole 211 and extends to the outside of the liquid storage groove 115. By adopting the above solution, the sealing seat 21 covers the bottom of the liquid storage groove 115, and the through hole 211 is provided on the sealing seat 21; after the lead wire 33 of the heating member 32 penetrates the sealing seat 21, it passes through the through hole 211 and extends to the outside of the liquid storage groove 115. In this way, the arrangement of the sealing seat 21 is conducive to enhancing the sealing performance of the bottom of the liquid storage groove 115, and the aerosol-forming substrate dripping along the heating member 32 can be stored in the liquid storage groove 115.

[0031] Please refer to FIG. 1 and FIG. 2 together, in some embodiments, the air guiding hole 117 is provided on the side wall of the base 11, the base 11 is provided with a liquid holding groove 118, and the height of the groove opening of the liquid holding groove 118 is lower than the height of the air guiding hole 117. The liquid holding groove 118 is located under the air inlet end of the air guiding passage 23. In this way, since the top of the liquid storage groove 115 is opened, if a portion of the aerosol-forming substrate flows into the air guiding passage 23, the aerosol-forming substrate in the air guiding passage 23 will fall into the liquid holding groove 118, which plays a role of secondary gathering of the aerosol-forming substrate to prevent liquid leakage.

[0032] Please refer to FIGS. 3 and 6 together, in some embodiments, the outer wall of the base 11 is provided with an annular groove 116 around the circumference of the base 11, and the pressure relief hole 114 is located in the annular groove 116. A second sealing member 6 is disposed in the annular groove 116. By adopting the above solution, the outer wall of the base 11 is recessed to form the annular groove 116, and the annular groove 116 is arranged around the circumference of the base 11; it is only necessary to provide the pressure relief hole 114 in the annular groove 116, and to install and position the second sealing member 6 in the annular groove 116. When the air pressure in the liquid storage cavity 53 is equal to the external air pressure, the pressure relief hole 114 is sealed by the second sealing member 6 to prevent the aerosol-forming substrate in the liquid storage cavity 53 from flowing out through the pressure relief hole 114. When the air pressure in the liquid storage cavity 53 is greater than the external air pressure and a positive pressure difference is formed, the positive pressure difference squeezes the aerosol-forming substrate in the liquid storage cavity 53, and the aerosol-forming substrate transmits the pressure to the second sealing member 6, causing the second sealing member 6 to shrink and deform slightly to remove the sealing effect on the pressure relief hole 114 so that the pressure relief hole 114 is opened, and the aerosol-forming substrate in the liquid storage cavity 53 is squeezed into the liquid storage groove 115 through the pressure relief hole 114, thereby realizing the pressure relief through the pressure relief hole 114, so that finally the air pressure in the liquid storage cavity 53 and the external air pressure reach a balanced state. When the air pressure in the liquid storage cavity 53 is less than the external air pressure and a negative pressure difference is formed, the negative pressure difference squeezes the aerosol-forming substrate in the liquid storage groove 115, and the aerosol-forming substrate transmits the pressure to the second sealing member 6, causing the second sealing member 6 to shrink and deform slightly to remove the sealing effect on the pressure relief hole 114 so that the pressure relief hole 114 is opened, and the aerosol-forming substrate in the liquid storage groove 115 is squeezed into the liquid storage cavity 53 through the pressure relief hole 114, so that finally the air pressure in the liquid storage cavity 53 and the external air pressure reach a balanced state. It can be understood that the second sealing member 6 is an elastic member having elasticity and made of silicone, rubber or silicone rubber.

Moreover, the contour of the second sealing member 6 is in an annular shape, so that the second sealing member 6 with an annular shape can be stably embedded in the annular groove 116.

[0033] In some embodiments, when the air pressure in the liquid storage cavity 53 is greater than the external air pressure and a positive pressure difference is formed, the positive pressure difference squeezes the second sealing member 6 in the direction away from the upper cover 12, so that a channel (not shown) configured for the aerosol-forming substrate in the liquid storage cavity 53 to flow towards the pressure relief hole 114 is formed between the second sealing member 6 and the base 11. By adopting the above solution, when the air pressure in the liquid storage cavity 53 is greater than the external air pressure and a positive pressure difference is formed, the positive pressure difference squeezes the aerosol-forming substrate in the liquid storage cavity 53, and the aerosol-forming substrate transmits pressure to the second sealing member 6, causing the second sealing member 6 to shrink and deform slightly so as to remove the sealing effect on the pressure relief hole 114, and meanwhile the positive pressure difference squeezes the second sealing member 6 in the direction away from the upper cover 12, so that a channel is formed between the second sealing member 6 and the base 11, and the channel allows the aerosol-forming substrate in the liquid storage cavity 53 to flow towards the pressure relief hole 114, which is beneficial for the aerosol-forming substrate to flow out through the pressure relief hole 114, thus ensuring the stability and reliability of the pressure relief.

[0034] Please refer to FIG. 12, in some embodiments, a gap 30 is preset between a surface of the second sealing member 6 facing the upper cover 12 and an inner surface of the annular groove 116 facing the base 11. By adopting the above solution, the lower surface of the second sealing member 6 abuts against the lower surface of the annular groove 116, and the gap 30 with a preset spacing is formed between the upper surface of the second sealing member 6 and the upper surface of the annular groove 116, which is beneficial to squeeze the second sealing member 6 and cause the second sealing member 6 to shrink and deform slightly, to smoothly remove the sealing effect of the second sealing member 6 on the pressure relief hole 114 and achieve the purpose of quickly opening the pressure relief hole 114. Specifically, the preset spacing of the gap 30 is 0.03 mm - 0.05 mm.

[0035] Please refer to FIGS. 7 to 13 together, in some embodiments, the atomizer further includes a cartridge case 5 with an open bottom end and a smoke outlet 51 at a top end. The base 11 is sealed and assembled on a bottom opening 52 of the cartridge case 5. The base 11 is at least partially received in the cartridge case 5. A vent tube 8 communicating the smoke guiding hole 121 with the smoke outlet 51 is provided in the cartridge case 5. The inside space of the cartridge case 5 other than the upper cover 12, the base 11 and the vent tube 8 defines the liquid storage cavity 53 for storing the aerosol-forming substrate. The liquid storage cavity 53 is in communication with the atomizing cavity 112 through the liquid inlet hole 4. The base 11 is provided with the air guiding hole 117 for the external air to enter the atomizing cavity 112. By adopting the above solution, the top of the upper cover 12 is provided with the smoke guiding hole 121 in communication with the atomizing cavity 112, one end of the vent tube 8 extends to the smoke outlet 51 and communicates with the smoke outlet 51, and the other end of the vent tube 8 is fixed in the smoke guiding hole 121 and communicates with the smoke guiding hole 121. By adopting the above solution, when the atomizer is activated, the aerosol-forming substrate in the liquid storage cavity 53 of the atomizer enters the atomizing cavity 112 through the liquid inlet hole 4, the atomizing assembly 3 in the atomizing cavity 112 is driven by the power supply device to heat and atomize the aerosol-forming substrate that enters the atomizing cavity 112; the external air enters the atomizing cavity 112 through the air guiding hole 117 and the air guiding passage 23 of the base 11, the external air entering the atomizing cavity 112 mixes rapidly with the atomized aerosol-forming substrate to form aerosol smoke, and the aerosol smoke is guided to the smoke outlet 51 on the top of the cartridge case 5 through the vent tube 8 along with the negative pressure airflow formed when the user sucks, for the user to inhale.

[0036] Please refer to FIG. 3, FIG.6 and FIG. 10 together, in some embodiments, the atomizing assembly 3 includes a liquid guiding member 31 located in the atomizing cavity 112 and a heating member 32 installed on the liquid guiding member 31. It can be understood that when the heating member 32 is a heating wire, the heating wire is spirally wound around the liquid guiding member 31, and the heating wire is wound around a central portion of the liquid guiding member 31. By adopting the above solution, the heating wire is a spiral electric heating wire formed by winding, since the heating wire is prefabricated into a spiral-shaped electric heating wire, the wound spiral electric heating wire can be directly sleeved on the liquid guiding member 31, so that the heating wire is quickly spirally wound around the liquid guiding member 31 to facilitate the installation of the heating wire. It can be understood that the liquid guiding member 31 can be, but is not limited to, a liquid guiding cotton. For example, the liquid guiding member 31 can further be a liquid guiding material made of porous liquid guiding medium materials such as porous ceramics. Of course, in some embodiments, the atomizing assembly 3 can also include a liquid guiding member 31 made of porous liquid guiding medium materials such as porous ceramics, and a heating layer provided on the liquid guiding member 31 by insert molding, printing or coating.

[0037] Please refer to FIG. 2, FIG. 3 and FIG.6 together, in some embodiments, the liquid inlet hole 4 includes a first liquid inlet 41 and a second liquid inlet 42 separately provided on the side wall of the base 11. The first liquid inlet 41 and the second liquid inlet 42 are arranged oppositely, the first end of the liquid guiding member 31 passes through the first liquid inlet 41 and extends into the liquid storage cavity 53, and/or the second end of the liquid guiding member 31

passes through the second liquid inlet 42 and extends into the liquid storage cavity 53. By adopting the above solution, the first end of the liquid guiding member 31 passes through the first liquid inlet 41 and extends into the liquid storage cavity 53 of the atomizer, and the second end of the liquid guiding member 31 passes through the second liquid inlet 42 and extends into the liquid storage cavity 53 of the atomizer, which facilitates the two ends of the liquid guiding member 31 (the first end of the liquid guiding member 31 and the second end of the liquid guiding member 31) to quickly absorb the aerosol-forming substrate from the liquid storage cavity 53, to prevent the heating member 32 or the heating layer from dry burning or oil frying due to insufficient liquid supply. Of course, it can be understood that if the amount of liquid supplied to the heating member 32 or the heating layer is satisfied, it can be that only the first end of the liquid guiding member 31 passes through the first liquid inlet 41 and extends into the liquid storage cavity 53 of the atomizer, or only the second end of the liquid guiding member 31 passes through the second liquid inlet 42 and extends into the liquid storage cavity 53 of the atomizer, which can be reasonably selected according to actual use needs, and is not limited here.

[0038] Please refer to FIGS. 8 and 10 together, in some embodiments, the atomizer further includes a locking structure 9 for detachably connecting the base 11 to the cartridge case 5. The locking structure 9 includes a locking portion 91 protruding on the base 11 and a locking groove 92 recessed from the cartridge case 5. The locking portion 91 is locked in the locking groove 92 to fix the base 11 to the cartridge case 5. It can be understood that the locking structure 9 may also include a locking portion 91 protruding on the cartridge case 5 and a locking groove 92 recessed from the base 11, and the locking portion 91 is locked in the locking groove 92 to fix the base 11 to the cartridge case 5. A sealing ring 7 is further provided at the connection position between the base 11 and the cartridge case 5 to enhance the sealing performance of the connection between the base 11 and the cartridge case 5 and prevent liquid leakage. It can be understood that the base 11 can be made of, but is not limited to, silicone, rubber or silicone rubber; the upper cover 12 can be made of, but is not limited to, silicone, rubber or silicone rubber.

[0039] An embodiment of the present application further provides an aerosol generating device, and the aerosol generating device includes an atomizer and a power supply device (not shown). The atomizer is detachably assembled to the power supply device through magnetic members 20 such as magnets, and the atomizer is electrically connected to the power supply device through a conductive assembly 10, so that when the atomizer is working, the power supply device supplies power to the atomizer. Specifically, the atomizer is an atomizer provided in any of the above embodiments. Since the aerosol generating device has all the technical features of the atomizer provided in any of the above embodiments, it has the same technical effects as the above atomizer.

[0040] The above descriptions are only preferred embodiments of the present application and are not intended to limit the present application. Any modifications, equivalent substitutions and improvements made within the spirit and principles of the present application shall be included in the protection scope of the present application.

Claims

1. An atomizer for an aerosol generating device, the atomizer comprising:

a liquid storage member with a liquid storage cavity formed therein for storing an aerosol-forming substrate; and an atomizing housing at least partially received in the liquid storage cavity; wherein a liquid storage space is formed inside the atomizing housing, the atomizing housing is provided with an air guiding hole configured for communicating an upper portion of the liquid storage space with an outside atmosphere, and the atomizing housing is further provided with a pressure relief hole communicating the liquid storage space with the liquid storage cavity; when an air pressure in the liquid storage cavity is greater than an external air pressure and a positive pressure difference is formed, the aerosol-forming substrate in the liquid storage cavity is squeezed by the positive pressure difference into the liquid storage space through the pressure relief hole.

2. The atomizer according to claim 1, wherein the atomizing housing comprises a base and an upper cover, an upper end face of the base is recessed to form an atomizing groove, the upper cover covers a groove opening of the atomizing groove, so that an atomizing cavity is formed inside the base, an inner bottom surface of the atomizing groove is recessed to form a liquid storage groove, and the liquid storage groove constitutes the liquid storage space, the pressure relief hole and the air guiding hole are both provided on the base.

3. The atomizer according to claim 2, wherein a protrusion is formed and protrudes on an inner bottom surface of the liquid storage groove, the portion of the liquid storage groove other than the protrusion defines the liquid storage space, an air guiding passage is provided in the protrusion, an air inlet end of the air guiding passage is in communication with the air guiding hole, an air outlet end of the air guiding passage is located at an upper end face of the

protrusion, and the air outlet end of the air guiding passage is in communication with the liquid storage space.

4. The atomizer according to claim 2, wherein the atomizer further comprises a first sealing member provided in the liquid storage groove, the first sealing member comprises a sealing seat covering a bottom of the liquid storage groove and a protrusion protruding from a surface of the sealing seat facing the upper cover, the portion of the liquid storage groove other than the sealing seat and the protrusion defines the liquid storage space, an air guiding passage is provided in the first sealing member, an air inlet end of the air guiding passage is located at the sealing seat, and the air inlet end of the air guiding passage is in communication with the air guiding hole, an air outlet end of the air guiding passage is located at an upper end face of the protrusion, and the air outlet end of the air guiding passage is in communication with the liquid storage space.
5. The atomizer according to claim 4, wherein the atomizing housing further comprises a heating member for heating the aerosol-forming substrate, the sealing seat is provided with a through hole for a lead wire of the heating member to pass through, the heating member is located in the atomizing cavity, the lead wire of the heating member passes through the through hole and extends to an outside of the liquid storage groove.
6. The atomizer according to claim 2, wherein an outer wall of the base is provided with an annular groove around a circumference of the base, the pressure relief hole is located in the annular groove, a second sealing member is disposed in the annular groove, the second sealing member is configured to seal the pressure relief hole when the air pressure in the liquid storage cavity is equal to the external air pressure; when the air pressure in the liquid storage cavity is greater than the external air pressure and a positive pressure difference is formed, or when the air pressure in the liquid storage cavity is less than the external air pressure and a negative pressure difference is formed, the second sealing member is squeezed by the positive pressure difference or the negative pressure difference to open the pressure relief hole.
7. The atomizer according to claim 6, wherein a gap is preset between a surface of the second sealing member facing the upper cover and an inner surface of the annular groove facing the base.
8. The atomizer according to claim 7, wherein a spacing of the gap is 0.03 mm - 0.05 mm.
9. The atomizer according to any one of claims 1 to 8, wherein the liquid storage member is a cartridge case with an open bottom end and a smoke outlet at a top end, the atomizing housing is sealed and assembled on a bottom opening of the cartridge case, the atomizing housing is at least partially received in the cartridge case, an atomizing cavity is formed inside the atomizing housing, the atomizing housing is provided with a smoke guiding hole in communication with the atomizing cavity, a vent tube communicating the smoke guiding hole with the smoke outlet is provided in the cartridge case, an inside space of the cartridge case other than the atomizing housing and the vent tube defines the liquid storage cavity, the atomizing housing is provided with a liquid inlet hole communicating the liquid storage cavity with the atomizing cavity.
10. An aerosol generating device, comprising an atomizer and a power supply device for supplying power to the atomizer, the atomizer being assembled to the power supply device, wherein the atomizer is the atomizer according to any one of claims 1 to 9.

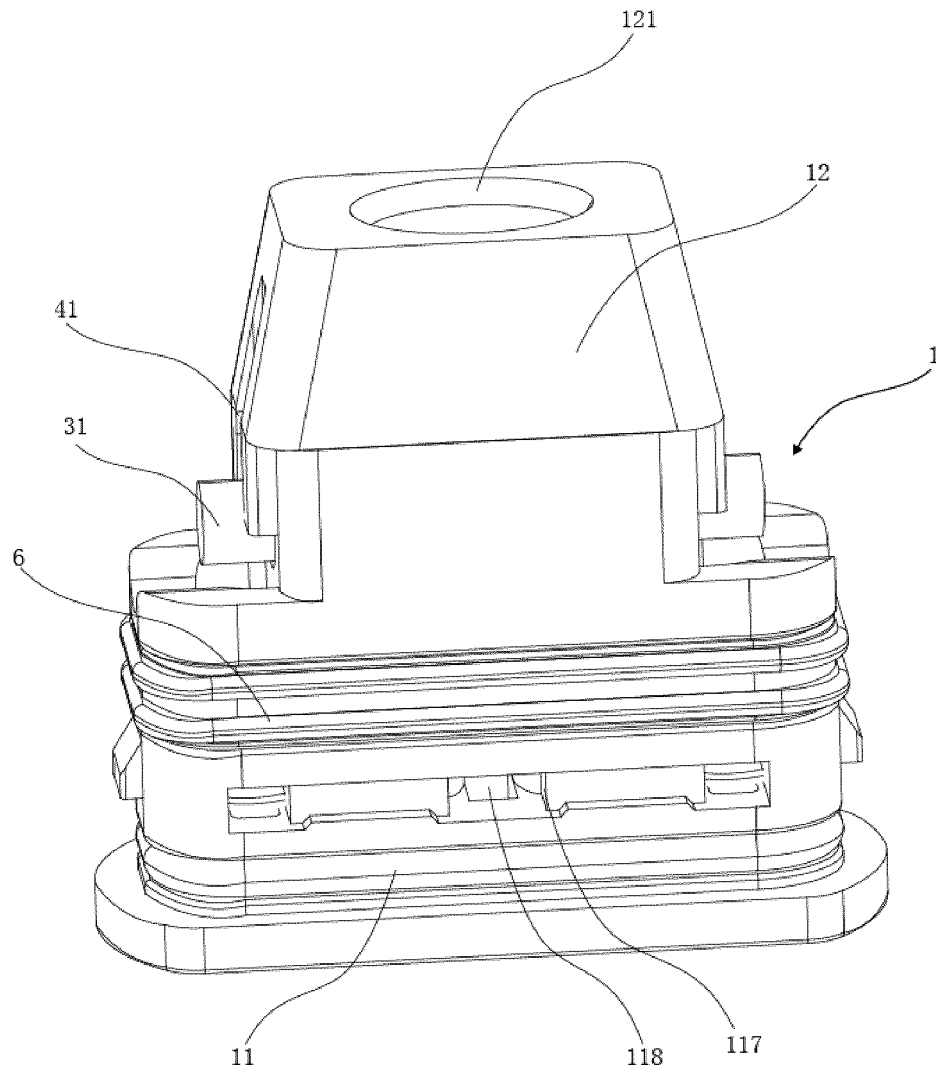


FIG. 1

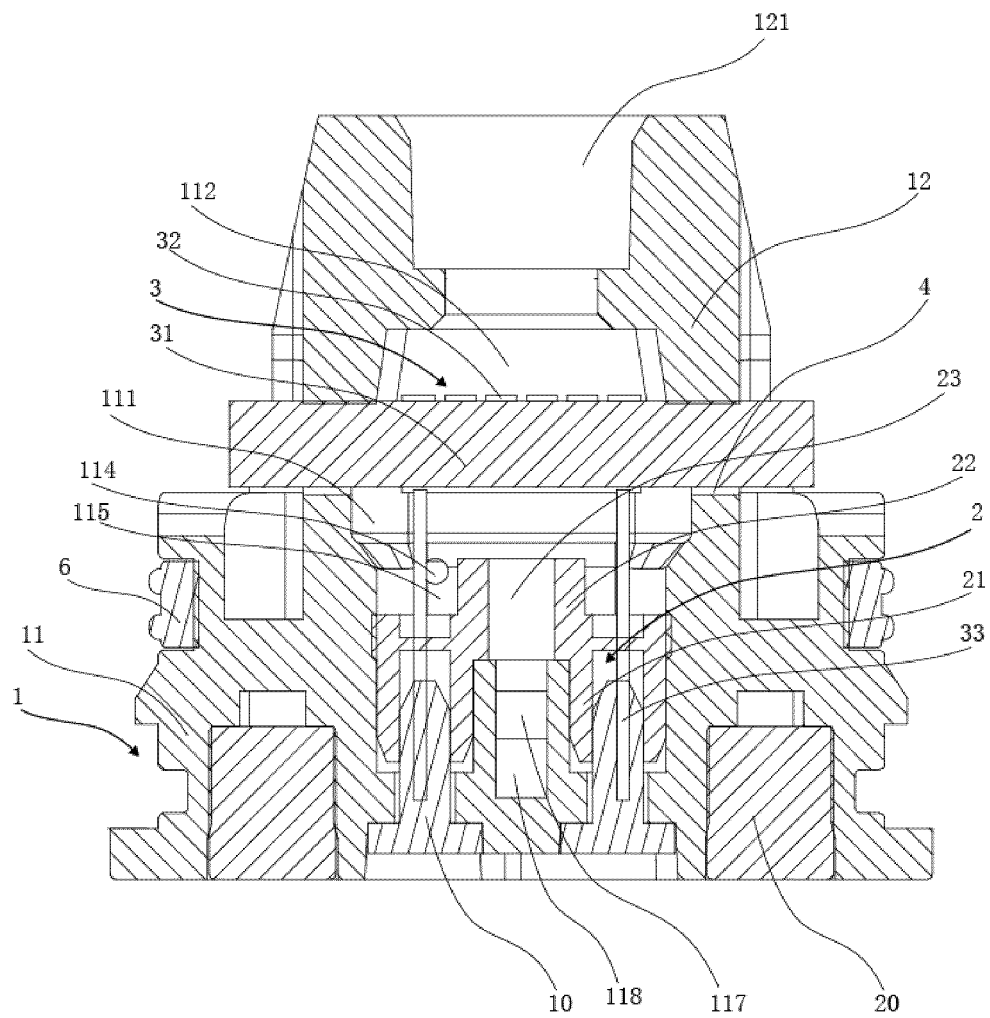


FIG. 2

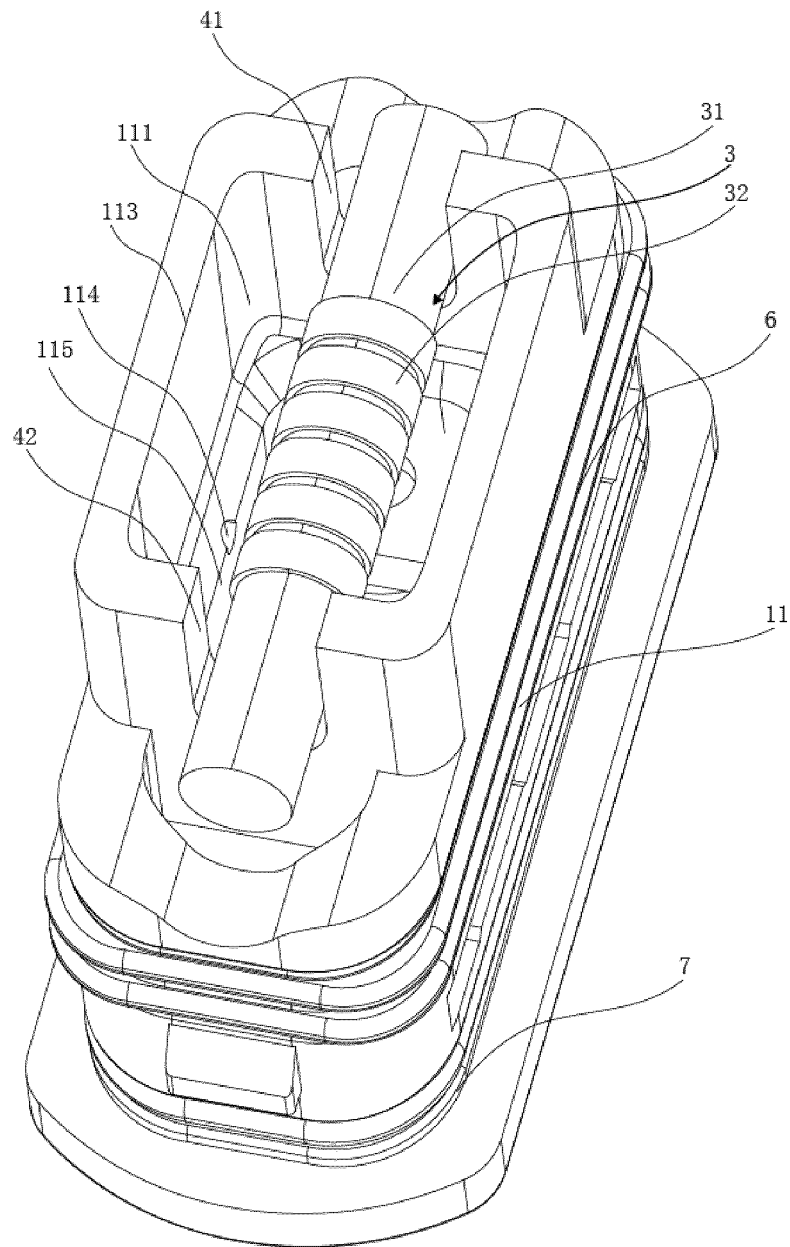


FIG. 3

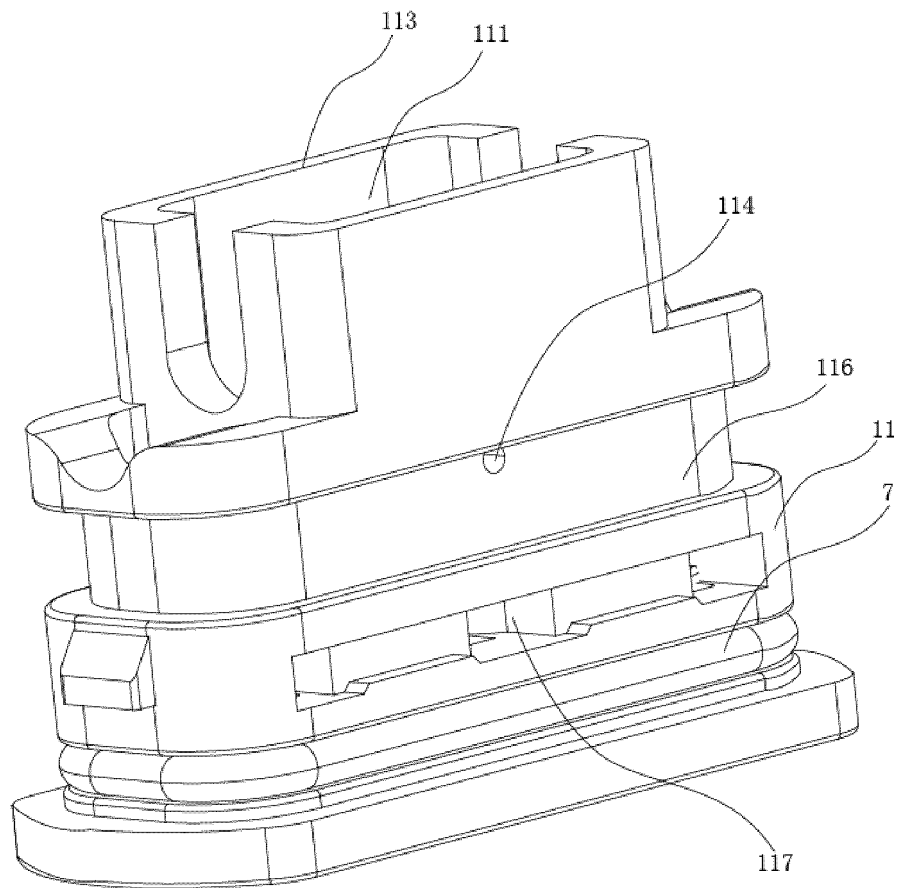


FIG. 4

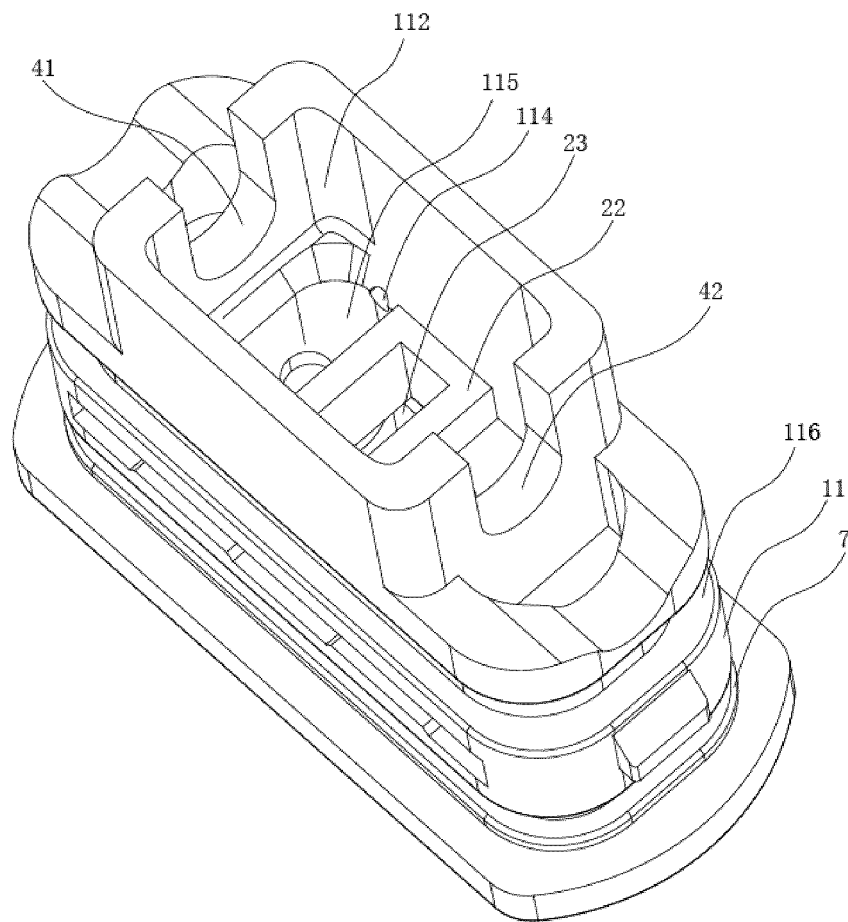


FIG. 5

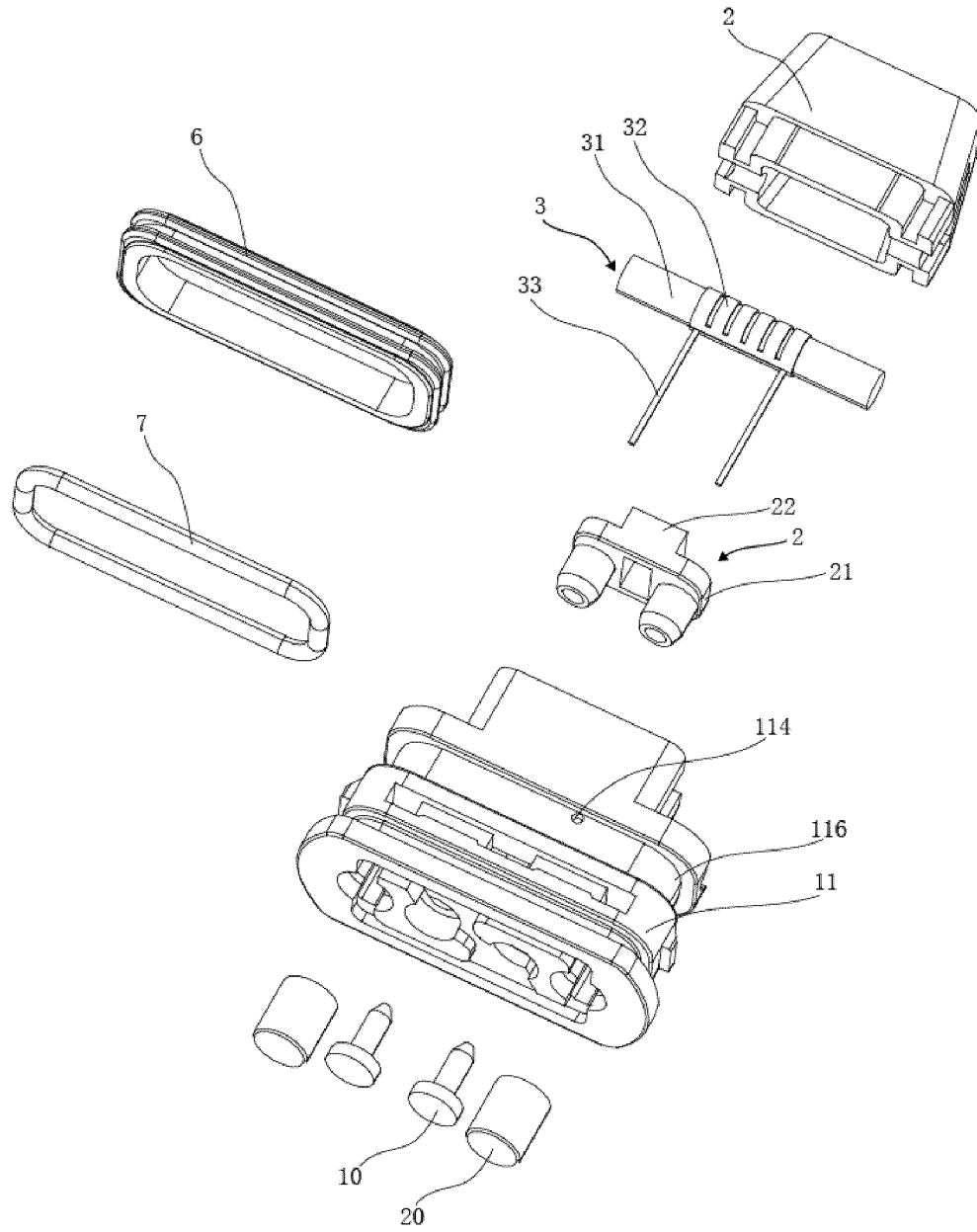


FIG. 6

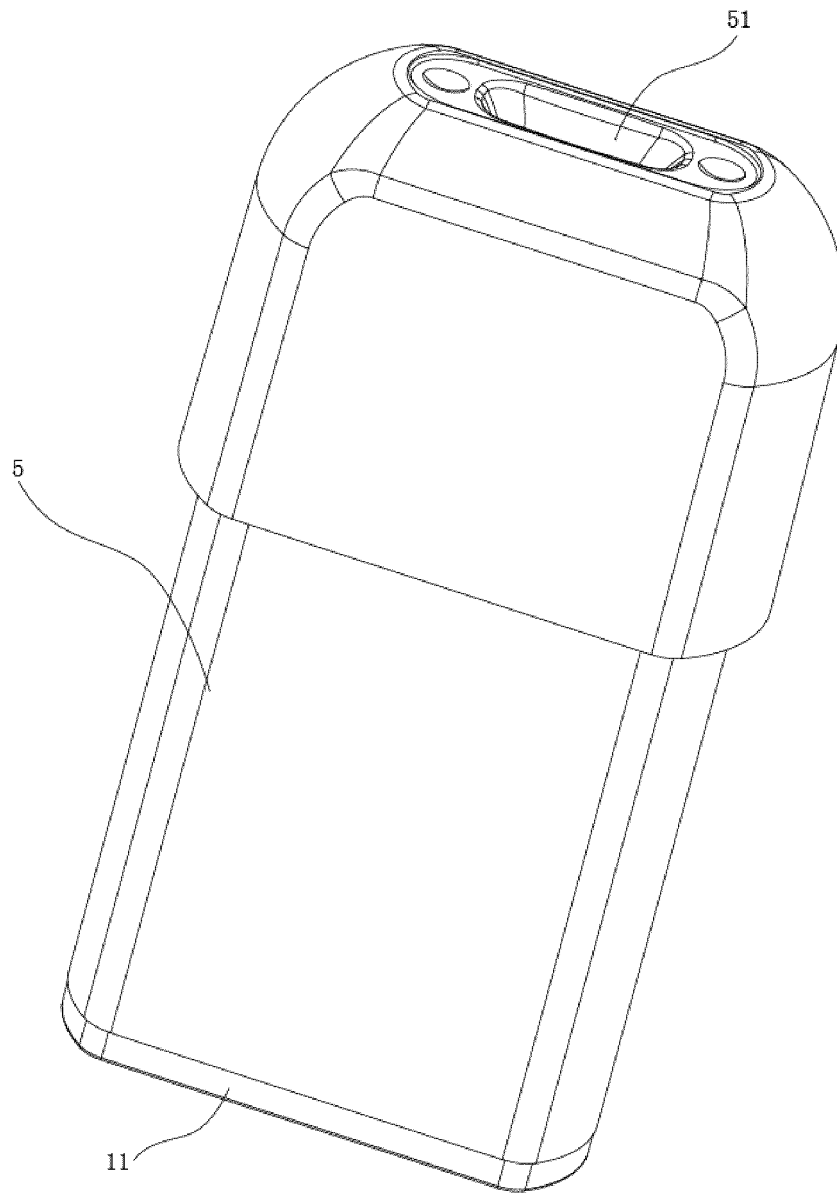


FIG. 7

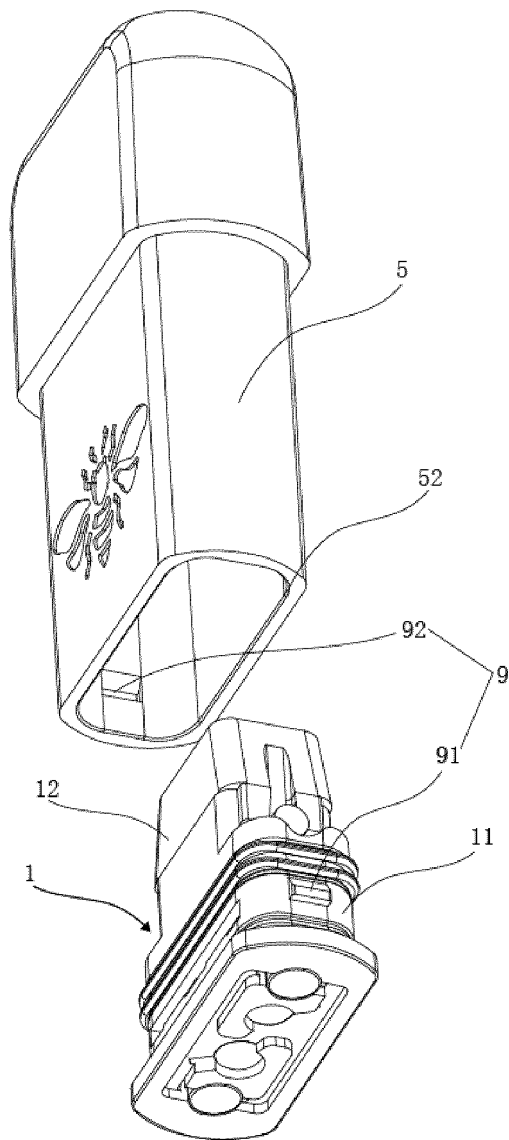


FIG. 8

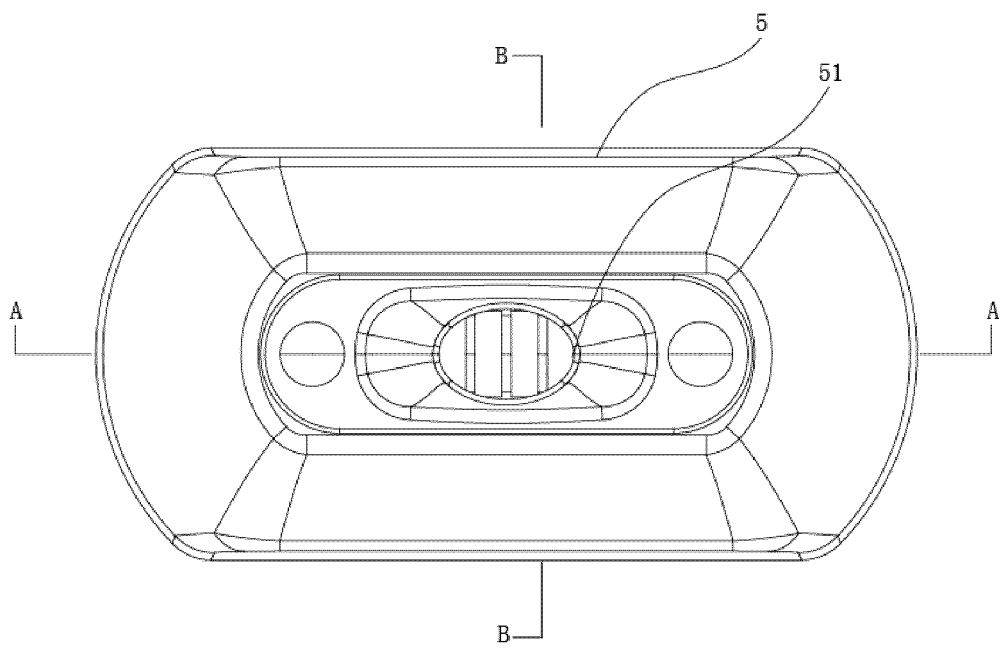


FIG. 9

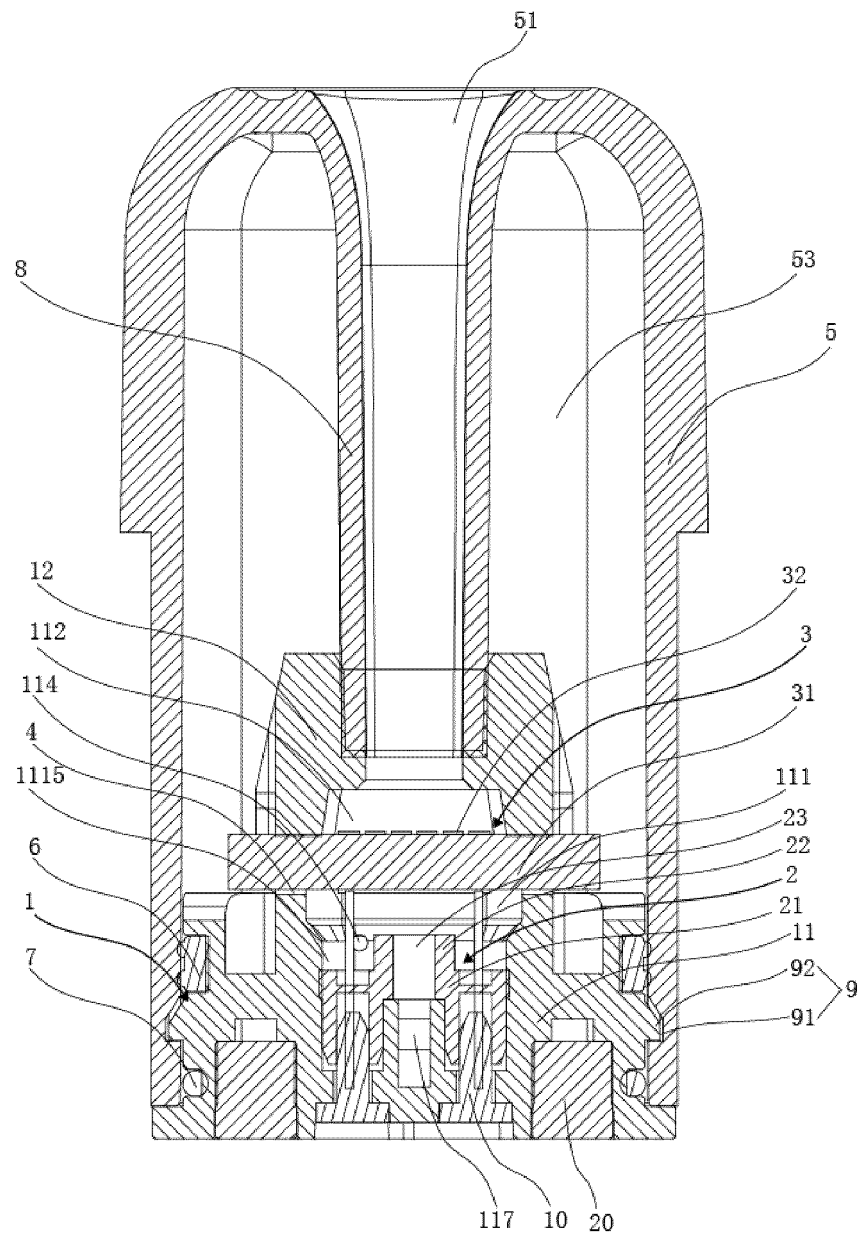


FIG. 10

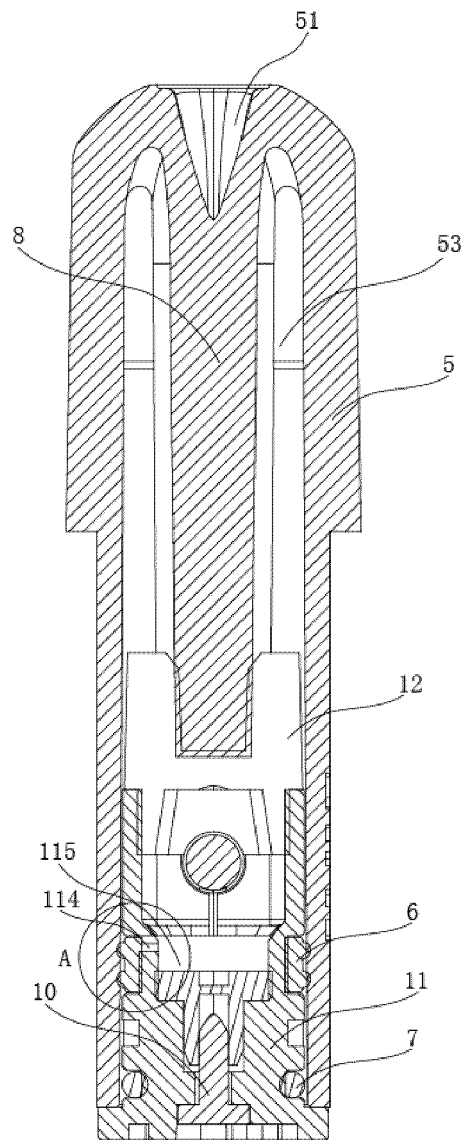


FIG. 11

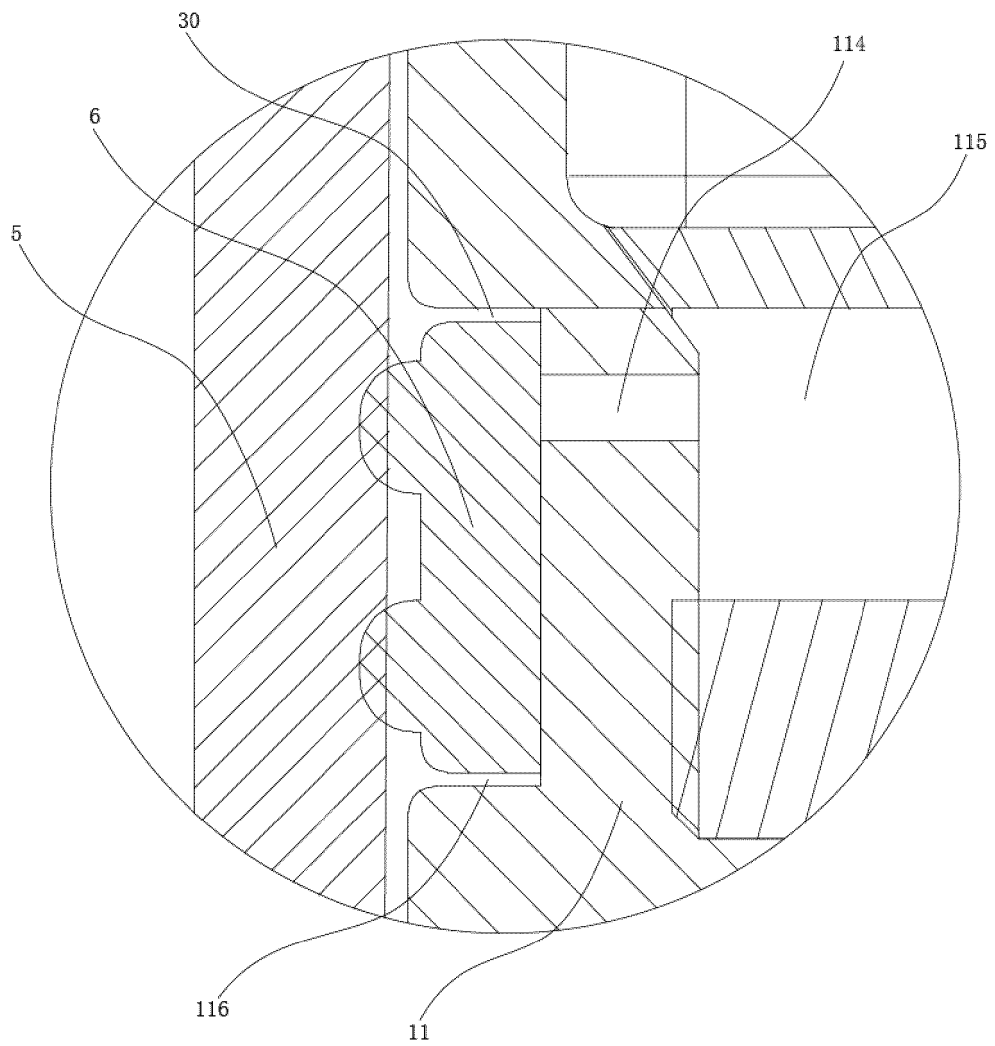


FIG. 12

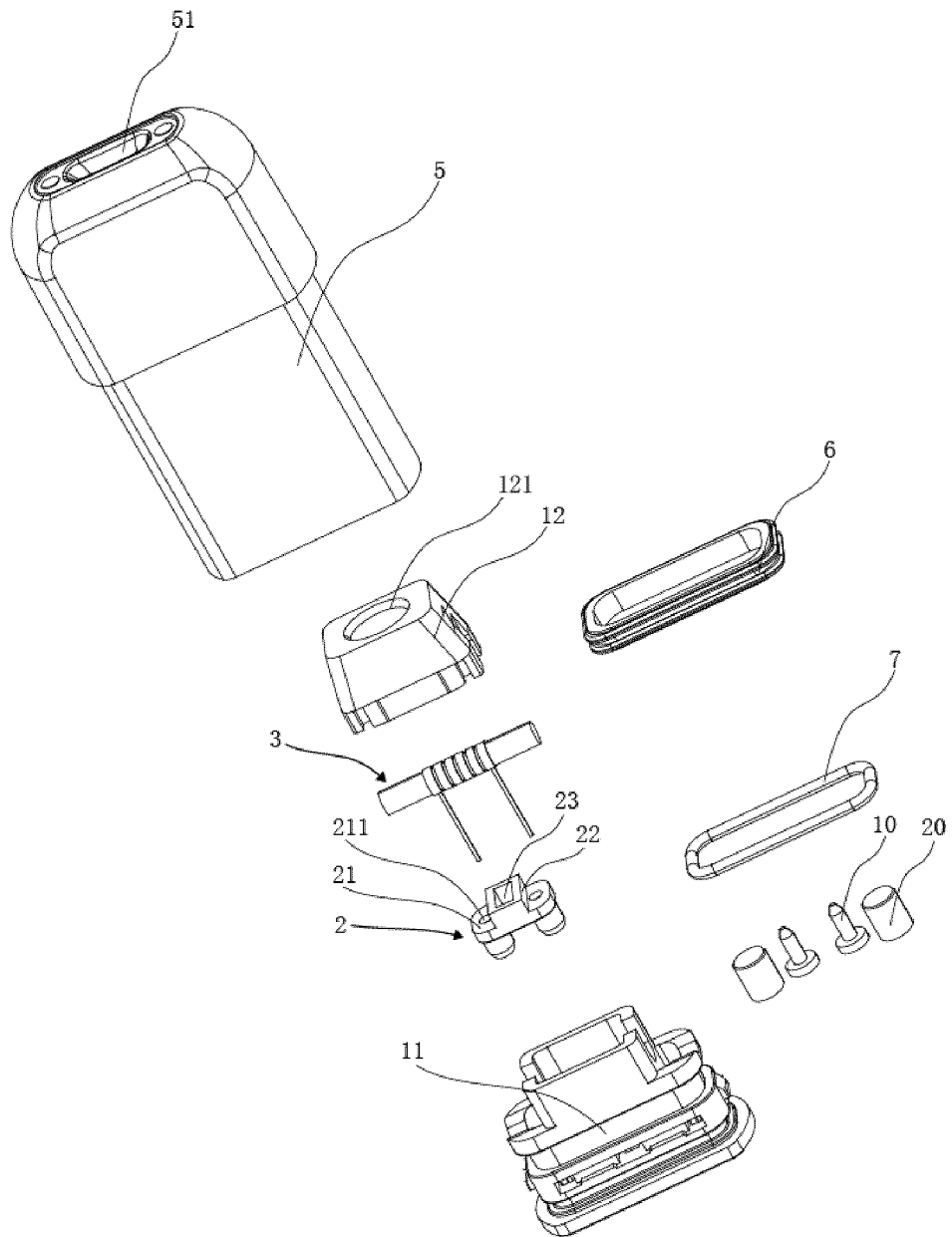


FIG. 13

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2022/107953

A. CLASSIFICATION OF SUBJECT MATTER A24F 40/10(2020.01)i; A24F 40/48(2020.01)i; A24F 40/40(2020.01)i According to International Patent Classification (IPC) or to both national classification and IPC																					
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) A24F Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched																					
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) CNTXT; ENTXT; WPABS; VEN; CNKI: 气溶胶, 雾化器, 电子烟, 储液腔, 泄压孔, 气压, 平衡, aerosol, atomizer, cigarette, pressure relief hole, liquid storage space, air pressure, balance+																					
C. DOCUMENTS CONSIDERED TO BE RELEVANT																					
<table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>PX</td> <td>CN 215013576 U (CHANGZHOU PAITENG ELECTRONIC TECHNOLOGY SERVICE CO., LTD.) 07 December 2021 (2021-12-07) claims 1-10</td> <td>1-10</td> </tr> <tr> <td>X</td> <td>CN 210611015 U (SHENZHEN SMOORE TECHNOLOGY LIMITED) 26 May 2020 (2020-05-26) description, paragraphs [0046]-[0071], and figures 1-19</td> <td>1-5, 9, 10</td> </tr> <tr> <td>A</td> <td>US 2021093018 A1 (CHEN YUSHUI) 01 April 2021 (2021-04-01) entire document</td> <td>1-10</td> </tr> <tr> <td>A</td> <td>CN 110613166 A (SHENZHEN SMOORE TECHNOLOGY LIMITED) 27 December 2019 (2019-12-27) entire document</td> <td>1-10</td> </tr> <tr> <td>A</td> <td>CN 207653593 U (CHANGZHOU PAITENG ELECTRONIC TECHNOLOGY SERVICE CO., LTD.) 27 July 2018 (2018-07-27) entire document</td> <td>1-10</td> </tr> <tr> <td>A</td> <td>CN 107772541 A (JOYETECH EUROPE HOLDING GMBH) 09 March 2018 (2018-03-09) entire document</td> <td>1-10</td> </tr> </tbody> </table>	Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	PX	CN 215013576 U (CHANGZHOU PAITENG ELECTRONIC TECHNOLOGY SERVICE CO., LTD.) 07 December 2021 (2021-12-07) claims 1-10	1-10	X	CN 210611015 U (SHENZHEN SMOORE TECHNOLOGY LIMITED) 26 May 2020 (2020-05-26) description, paragraphs [0046]-[0071], and figures 1-19	1-5, 9, 10	A	US 2021093018 A1 (CHEN YUSHUI) 01 April 2021 (2021-04-01) entire document	1-10	A	CN 110613166 A (SHENZHEN SMOORE TECHNOLOGY LIMITED) 27 December 2019 (2019-12-27) entire document	1-10	A	CN 207653593 U (CHANGZHOU PAITENG ELECTRONIC TECHNOLOGY SERVICE CO., LTD.) 27 July 2018 (2018-07-27) entire document	1-10	A	CN 107772541 A (JOYETECH EUROPE HOLDING GMBH) 09 March 2018 (2018-03-09) entire document	1-10
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Date of the actual completion of the international search 09 October 2022	Date of mailing of the international search report 17 October 2022																				
Name and mailing address of the ISA/CN China National Intellectual Property Administration (ISA/CN) No. 6, Xitucheng Road, Jimenqiao, Haidian District, Beijing 100088, China Facsimile No. (86-10)62019451	Authorized officer Telephone No.																				

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/CN2022/107953

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
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