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(54) ATOMIZER AND AEROSOL GENERATING DEVICE

(57) An atomizer (100) includes a liquid storage assembly (10), an atomizing assembly (20) and a base assembly (30); the base assembly (30) is detachably connected to one end of the liquid storage assembly (10), the atomizing assembly (20) is arranged between the base assembly (30) and the liquid storage assembly (10), the liquid storage assembly (10) includes an elastic member (14), the elastic member (14) is elastically biased between the liquid storage assembly (10) and the atomizing assembly (20), and when the base assembly (30) is detached from the liquid storage assembly (10), the atomizing assembly (20) is ejected out by the elastic member (14). The atomizer (100) is convenient for a user to take out the atomizing assembly (20). In addition, further provided is an aerosol generating device using the atomizer (100).

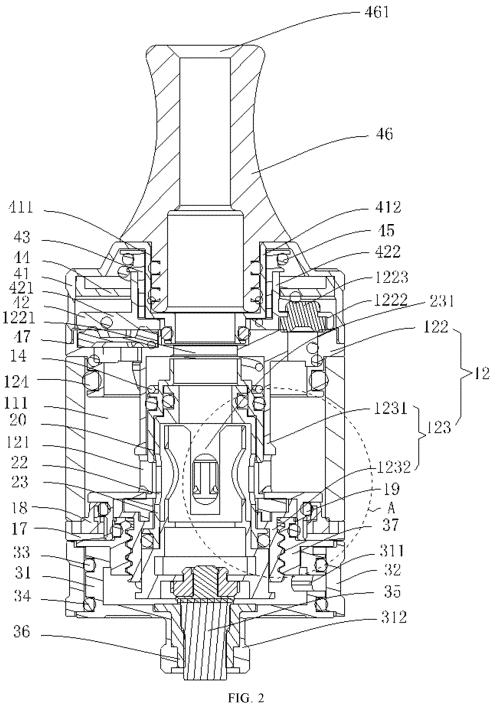

FIG. 2

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Description

TECHNICAL FIELD

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

BACKGROUND

[0002] At present, the aerosol generating device has become a relatively mature smoking substitute on the market. It supplies power to the atomizing assembly of the atomizer through the battery assembly, so that the atomizing assembly is electrically driven to heat the aerosol-forming substrate to generate smoke, for users to inhale.

[0003] In the atomizers on the market, when the user needs to clean the dirt in the atomizing assembly or replace the atomizing assembly, if the atomizing assembly is received deeply inside the atomizer, the atomizing assembly is inconvenient to be taken out.

SUMMARY

[0004] In view of the above-mentioned problem, it is necessary to provide an atomizer and an aerosol generating device having the atomizer.

[0005] The technical solution adopted by the present disclosure to solve the problem is as follows: an atomizer includes a liquid storage assembly, an atomizing assembly and a base assembly, wherein the base assembly is detachably connected to one end of the liquid storage assembly, the atomizing assembly is arranged between the base assembly and the liquid storage assembly, the liquid storage assembly includes an elastic member, the elastic member is elastically biased between the liquid storage assembly and the atomizing assembly, when the base assembly is detached from the liquid storage assembly, the atomizing assembly is ejected out by the elastic member.

[0006] Further, the liquid storage assembly includes a housing and a connecting body arranged in the housing, the elastic member is telescopically arranged in the connecting body, the atomizing assembly is movably installed in the connecting body, the base assembly is detachably connected to the connection body; during the course of connecting the base assembly and the connecting body, the atomizing assembly compresses the elastic member under the pushing of the base assembly; during the course of separating the base assembly from the connecting body, the atomizing assembly is ejected from the connecting body to the outside by the elastic member.

[0007] Further, a space between the housing and the connecting body forms a liquid storage chamber, the liquid storage chamber is configured to store an aerosol-forming substrate, the connecting body is provided with a liquid inlet hole communicating with the liquid storage chamber, the liquid storage assembly further includes a liquid sealing member slidably received in the connecting body, the elastic member is telescopically arranged between the connecting body and the liquid sealing member, the liquid sealing member is movable between a liquid discharging position and a liquid sealing position; when the liquid sealing member is located in the liquid discharging position, the aerosol-forming substrate in the liquid storage chamber flows to the atomizing assembly through the liquid inlet hole; when the liquid sealing member is located in the liquid sealing position, the liquid sealing member blocks the aerosol-forming substrate in the liquid storage chamber from flowing to the atomizing assembly.

[0008] Further, the liquid sealing member and the elastic member are arranged in sequence along a loading direction of the atomizing assembly, when the base assembly is connected with the connecting body, the liquid sealing member compresses the elastic member under the pushing of the atomizing assembly, and the liquid sealing member is located in the liquid discharging position; when the base assembly is separated from the connecting body, the liquid sealing member ejects the atomizing assembly from the connecting body to the outside under the action of the elastic restoring force of the elastic member, and the liquid sealing member is located in the liquid sealing position.

[0009] Further, a sealing member is installed on the connecting body, when the liquid sealing member is located in the liquid sealing position, the sealing member is configured to seal a gap between the liquid sealing member and the connecting body, the sealing member is provided with an insertion hole, the atomizing assembly passes through the insertion hole and then extends into the connecting body to abut against the sealing member.

[0010] Further, an atomizing chamber is provided in the atomizing assembly, the base assembly includes a base and an air regulating member rotatably sleeved on the base, the base is provided with an air inlet opening communicating with the atomizing chamber, the air regulating member is provided with an air inlet hole communicating with the outside environment and the air inlet opening.

[0011] Further, the connecting body includes an upper cover connected with the housing and a connecting sleeve connected with the upper cover, the liquid inlet hole is provided in the connecting sleeve, the sealing member is slidably received in the connecting sleeve, the elastic member is telescopically arranged between the connecting sleeve and

the liquid sealing member.

[0012] Further, the upper cover is provided with a vent hole, the vent hole communicates with the outside environment and an inner cavity of the connecting sleeve.

[0013] Further, the atomizing assembly includes an atomizing casing and a heating structure provided in the atomizing casing, an inner cavity of the atomizing casing is an atomizing chamber, the atomizing casing is provided with a liquid inlet opening communicating with the atomizing chamber.

[0014] An aerosol generating device includes the atomizer as described above.

[0015] The beneficial effects of the present disclosure are as follows: in the atomizer and the aerosol generating device using the atomizer provided by the present disclosure, the atomizing assembly is arranged between the base assembly and the liquid storage assembly, and the elastic member is elastically biased between the liquid storage assembly and the atomizing assembly. When the base assembly is detached from the liquid storage assembly, the atomizing assembly is ejected out by the elastic member, so as to facilitate the user to take out the atomizing assembly.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] The following further describes the present disclosure with reference to the accompanying drawings and embodiments.

FIG. 1 is a front view of the atomizer of the aerosol generating device of the present disclosure;
FIG. 2 is a cross-sectional view of the atomizer shown in FIG. 1;
FIG. 3 is a partially enlarged view of the portion A of the atomizer shown in FIG. 2;
FIG. 4 is an exploded view of the liquid storing assembly of the atomizer shown in FIG. 1;
FIG. 5 is a schematic diagram of the cooperation relationship between the atomizing assembly and the base assembly of the atomizer shown in FIG. 1; and
FIG. 6 is an exploded view of the mouthpiece assembly of the atomizer shown in FIG. 1.

[0017] The part names and reference signs in the figures are as follows:

atomizer	100	liquid storage assembly	10
mouthpiece assembly	40	liquid storage chamber	111
liquid sealing member	13	elastic member	14
liquid inlet opening	22	upper cover	122
vent hole	1221	liquid injection hole	1222
connecting portion	1232	sealing member	15
air regulating member	32	air inlet opening	311
third abutting member	34	connecting end	312
connecting member	37	fourth abutting member	38
fifth abutting member	16	resisting member	17
liquid injection cover	41	mouthpiece seat	42
restoring member	45	mouthpiece	46
seat body	421	cylinder	422
atomizing assembly	20	base assembly	30
housing	11	connecting body	12
assembling surface	47	liquid inlet hole	121
connecting sleeve	123	first abutting member	124
liquid injection plug	1223	main body	1231
insertion hole	151	base	31
air inlet hole	321	second abutting member	33
electrode contact member	35	insulating member	36
mounting hole	371	atomizing casing	23
sixth abutting member	18	seventh abutting member	19
fixing member	43	limiting member	44
smoking opening	411	mounting portion	412
smoking hole	461	atomizing chamber	231

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0018] The present disclosure will now be described in detail with reference to the accompanying drawings. These figures are simplified schematic diagrams, which only illustrate the basic structure of the present disclosure in a schematic manner, so they only show the structures related to the present disclosure.

[0019] Referring to FIG. 1, the present disclosure provides an aerosol generating device, the aerosol generating device includes an atomizer 100 and a battery device. When the atomizer 100 is electrically connected to the battery device, under the electric driving of the battery device, the aerosol-forming substrate is heated and atomized by the atomizer 100 to form smoke.

[0020] It should be noted that "axial" refers to the connection direction of the atomizer 100 and the battery device, "radial" refers to the direction perpendicular to the "axial". "Lower end" refers to the end of each portion, component of the atomizer 100 that is close to the battery device in the axial direction of the atomizer 100, "upper end" refers to the end of each portion, component of the atomizer 100 that is away from the battery device in the axial direction of the atomizer 100. "Upper end face" means the flat and/or curved surface of the upper end, "lower end face" refers to the flat and/or curved surface of the lower end.

[0021] Referring to FIGs. 1-3, the atomizer 100 includes a liquid storage assembly 10, an atomizing assembly 20, a base assembly 30 and a mouthpiece assembly 40. The atomizing assembly 20 is arranged on the base assembly 30, the base assembly 30 is installed at one end of the liquid storage assembly 10, and the mouthpiece assembly 40 is installed at the opposite end of the liquid storage assembly 10 relative to the base assembly 30. In use, the liquid storage assembly 10 supplies the aerosol-forming substrate to the atomizing assembly 20, the atomizing assembly 20 heats the aerosol-forming substrate under the electric driving of the battery device, the aerosol-forming substrate is heated to generate smoke, the smoke flows out through the mouthpiece assembly 40, and the user can inhale the atomized smoke through the mouthpiece assembly 40.

[0022] The base assembly 30 is detachably connected to one end of the liquid storage assembly 10. The atomizing assembly 20 is arranged between the base assembly 30 and the liquid storage assembly 10. The liquid storage assembly 10 includes an elastic member 14, the elastic member 14 is elastically biased between the liquid storage assembly 10 and the atomizing assembly 20. When the base assembly 30 is detached from the liquid storage assembly 10, the atomizing assembly 20 is ejected out by the elastic member 14.

[0023] In this embodiment, the liquid storage assembly 10 includes a housing 11 in which a liquid storage chamber 111 is provided, a connecting body 12 provided in the housing 11, a liquid sealing member 13 slidably received in the connecting body 12, and an elastic member 14 axially telescopically provided between the connecting body 12 and the liquid sealing member 13. The atomizing assembly 20 is movably installed in the connecting body 12. An atomizing chamber 231 is provided in the atomizing assembly 20. The base assembly 30 is detachably connected to the connecting body 12. The liquid sealing member 13 and the elastic member 14 are arranged in sequence along the loading direction of the atomizing assembly 20. The liquid sealing member 13 can be switched between a liquid discharging position and a liquid sealing position. During the course of connecting the base assembly 30 to the liquid storage assembly 10, the liquid sealing member 13 moves and compresses the elastic member 14 under the pushing of the atomizing assembly 20, the liquid sealing member 13 is located in the liquid discharging position, and the aerosol-forming substrate in the liquid storage chamber 111 can flow into the atomizing chamber 231. During the course of separating the base assembly 30 from the liquid storage assembly 10, the liquid sealing member 13 is pushed to the liquid sealing position under the elastic restoring force of the elastic member 14, the liquid sealing member 13 blocks the aerosol-forming substrate in the liquid storage chamber 111 from flowing into the atomizing chamber 231, and the atomizing assembly 20 is ejected to the outside by the elastic member 14. The gap between the housing 11 and the connecting body 12 forms the liquid storage chamber 111.

[0024] Specifically, the connection or separation of the base assembly 30 and the liquid storage assembly 10 means that the base assembly 30 can be connected to or separated from the connecting body 12 and/or the housing 11. The manner in which the base assembly 30 is connected to the connecting body 12 and/or the housing 11 includes, but is not limited to, a detachable connection manner such as snapping connection, plugging connection, or screwing connection, etc., as long as when the liquid sealing member 13 is located in the liquid discharging position, the atomizing assembly 20 is fixed. In this embodiment, the base assembly 30 is connected to the connecting body 12 by means of screwing connection.

[0025] Specifically, the elastic member 14 is a spring. It is understood that, in another embodiment, the elastic member 14 may also be an element with elasticity such as a stainless steel elastic sheet or silicone.

[0026] It can be understood that, in another embodiment not shown, the atomizing assembly 20 is detachably connected to the liquid storage assembly 10, so as to enable the liquid sealing member 13 to switch between the liquid discharging position and the liquid sealing position. When the atomizing assembly 20 is detached from the liquid storage assembly 10, the atomizing assembly 20 is ejected out by the elastic member 14.

[0027] In summary, when the user needs to use the atomizer 100, during the course of connecting the base assembly

30 to the liquid storage assembly 10, the liquid sealing member 13 moves and compresses the elastic member 14 under the pushing of the atomizing assembly 20, when the liquid sealing member 13 is located in the liquid discharging position, the aerosol-forming substrate in the liquid storage chamber 111 can flow into the atomizing chamber 231. After the use of the atomizer 100 by the user, during the course of separating the base assembly 30 from the liquid storage assembly 10, the liquid sealing member 13 is pushed to the liquid sealing position under the elastic restoring force of the elastic member 14, the liquid sealing member 13 blocks the aerosol-forming substrate in the liquid storage chamber 111 from flowing into the atomizing chamber 231. Therefore, when the user needs to clean the dirt in the atomizing chamber 231 or replace the atomizing assembly 20, the base assembly 30 can be separated from the liquid storage assembly 10, the elastic member 14 can eject the atomizing assembly 20 to the outside, which is convenient for the user to take out the atomizing assembly 20.

[0028] Referring to FIGs. 1-4, in one embodiment, the connecting body 12 is provided with a liquid inlet hole 121 communicating with the liquid storage chamber 111. The atomizing assembly 20 is provided with a liquid inlet opening 22 communicating with the atomizing chamber 231. When the liquid sealing member 13 is located in the liquid discharging position, the liquid inlet hole 121 is opened, and the liquid inlet opening 22 communicates with the atomizing chamber 231 and the liquid inlet hole 121. When the liquid sealing member 13 is located in the liquid sealing position, the liquid inlet hole 121 is shielded by the liquid sealing member 13. It can be understood that, in another embodiment not shown, the liquid inlet hole 121 is formed by the gap between the connecting body 12 and the lower end of the liquid storage assembly 10.

[0029] In one embodiment, the housing 11 is made of a transparent material such as glass. By setting the transparent housing 11, it is convenient for the user to observe the remaining amount of the aerosol-forming substrate in the liquid storage chamber 111 through the housing 11. It is understood that in another embodiment, the housing 11 may also be made of translucent or opaque material.

[0030] In one embodiment, the connecting body 12 includes an upper cover 122 connected with the housing 11 and a connecting sleeve 123 connected with the upper cover 122. The liquid inlet hole 121 is provided in the connecting sleeve 123. The liquid sealing member 13 is slidably received in the connecting sleeve 123. The elastic member 14 is telescopically disposed between the connecting sleeve 123 and the liquid sealing member 13.

[0031] Specifically, the upper cover 122 is provided on the upper end of the housing 11, the connecting sleeve 123 protrudes downward along the axial direction of the housing 11, the connecting sleeve 123 and the upper cover 122 are integrally formed, and the connecting sleeve 123 is received in the liquid storage chamber 111. The liquid storage chamber 111 is a space enclosed cooperatively by the side wall of the connecting sleeve 123, the bottom wall of the upper cover 122 and the inner wall of the housing 11. It can be understood that, in another embodiment, the connecting sleeve 123 may also be detachably connected to the upper cover 122 by means of snapping connection or plugging connection. The upper end of the elastic member 14 elastically abuts against the inner top wall of the connecting sleeve 123, and the lower end of the elastic member 14 elastically abuts against the upper end of the liquid sealing member 13. When the elastic member 14 is in the natural state, the liquid sealing member 13 closes the liquid inlet hole 121, and at this time, the liquid sealing member 13 is in the liquid sealing position, and in this position, the aerosol-forming substrate cannot flow into the connecting sleeve 123 through the liquid inlet hole 121.

[0032] In one embodiment, the upper cover 122 and the housing 11 are two independent elements, and the two are detachably connected by means of snapping connection or plugging connection. A first abutting member 124 is sandwiched between the upper cover 122 and the housing 11. The first abutting member 124 can prevent the side surface of the upper cover 122 from being in rigid contact with the inner surface of the housing 11 to cause both surfaces to be worn. In addition, the first abutting member 124 can also prevent the upper cover 122 and the housing 11 from loosening after being assembled. Specifically, the first abutting member 124 is made of a material with good sealing properties such as silicone or rubber. It can be understood that, in another embodiment, the upper cover 122 may also be integrally formed with the housing 11.

[0033] In one embodiment, a vent hole 1221 and a liquid injection hole 1222 are respectively provided in the upper cover 122. Specifically, the vent hole 1221 communicates with the outside environment and the inner cavity of the connecting sleeve 123, the liquid injection hole 1222 communicates with the outside environment and the liquid storage chamber 111, and the user can inject liquid into the liquid storage chamber 111 through the liquid injection hole 1222. In one embodiment, a liquid injection plug 1223 is provided in the liquid injection hole 1222, so that after the user finishes the liquid injection, the liquid injection plug 1223 can be installed in the liquid injection hole 1222, and the liquid injection plug 1223 can seal the liquid injection hole 1222 to prevent the aerosol-forming substrate from leaking from the liquid injection hole 1222 to the outside environment. Specifically, the liquid injection plug 1223 is made of a material with good sealing properties such as rubber or silicone.

[0034] In one embodiment, the connecting sleeve 123 includes a main body 1231 connected with the upper cover 122. The main body 1231 is provided with the liquid inlet hole 121, the liquid inlet hole 121 communicates with the liquid storage chamber 111 and the inner cavity of the main body 1231. Therefore, when the atomizer 100 is not in use, the aerosol-forming substrate in the liquid storage chamber 111 can contact the side wall of the liquid sealing member 13

through the liquid inlet hole 121. It can be understood that, in another embodiment, the main body 1231 can be omitted, in this case, the aerosol-forming substrate in the liquid storage chamber 111 can directly contact the liquid sealing member 13.

[0035] In one embodiment, the connecting sleeve 123 further includes a connecting portion 1232 mounted on the main body 1231. The connecting portion 1232 serves as a bottom cover of the liquid storage assembly 10 to connect with the base assembly 30. Specifically, the connecting portion 1232 can be detachably connected to the main body 1231 by means of snapping connection or plugging connection. It can be understood that, in another embodiment, the connecting portion 1232 may also be integrally formed with the main body 1231.

[0036] In one embodiment, a sealing member 15 is installed on the connecting portion 1232. When the liquid sealing member 13 is located in the liquid sealing position, the sealing member 15 is configured to seal the gap between the liquid sealing member 13 and the connecting portion 1232, so as to improve the sealing performance between the two and prevent the leakage of the aerosol-forming substrate. The sealing member 15 is provided with an insertion hole 151, the atomizing assembly 20 can pass through the insertion hole 151 and then extend into the connecting sleeve 123 to abut against the liquid sealing member 13. Specifically, the sealing member 15 is installed at one end of the connecting portion 1232 facing the liquid sealing member 13. The sealing member 15 is made of a material with good sealing properties such as silicone or rubber.

[0037] Referring to FIGs. 1-5, in one embodiment, the base assembly 30 includes a base 31 disposed at the lower end of the housing 11 and a gas regulating member 32 rotatably sleeved on the base 31. The base 31 is provided with an air inlet opening 311, the air regulating member 32 is provided with an air inlet hole 321 communicating with the outside environment and the air inlet opening 311, and external air can flow into the inner cavity of the base 31 through the air inlet hole 321 and the air inlet opening 311 in sequence. When it is necessary to adjust the intake air volume of the external air flowing into the inner cavity of the base 31, the air regulating member 32 is rotated to adjust the communication area between the air inlet hole 321 and the air inlet opening 311, so as to adjust the air intake volume of the external air flowing into the inner cavity of the base 31.

[0038] In one embodiment, a second abutting member 33 and a third abutting member 34 are sandwiched between the base 31 and the air regulating member 32. The second abutting member 33 and the third abutting member 34 are used to improve air tightness. Specifically, the second abutting member 33 and the third abutting member 34 are both made of materials with good sealing properties such as silicone or rubber.

[0039] The lower end of the base 31 protrudes downward along the axial direction of the base 31 to form a connecting end 312 for connecting with the battery device. An electrode contact member 35 is provided in the connecting end 312, and an insulating member 36 is sandwiched between the connecting end 312 and the electrode contact member 35. Specifically, the connecting end 312 and the base 31 are integrally formed. The base 31 and the electrode contact member 35 are both conductors. Both the base 31 and the electrode contact member 35 are made of conductive materials such as iron, cobalt or nickel. The electrode contact member 35 is configured as a positive contact, the base 31 is configured as a negative contact, and the battery device supplies power to the atomizing assembly 20 through the base 31 and the electrode contact members 35. Specifically, the insulating member 36 is configured to insulate the electrode contact member 35 and the connecting end 312. The insulating member 36 is made of an insulating material such as rubber and silicone.

[0040] In one embodiment, the base assembly 30 further includes a connecting member 37 provided on the base 31. The connecting member 37 is configured for connecting with the connecting portion 1232. In one embodiment, the connecting member 37 and the base 31 are two independent components, and the two are detachably connected by means of snapping connection or plugging connection, etc. It can be understood that the connecting member 37 may also be integrally formed with the base 31.

[0041] In one embodiment, the connecting member 37 is connected to the connecting portion 1232 through threads, so that the atomizing assembly 20 and the liquid storage assembly 10 are fixedly connected. It can be understood that, in another embodiment, the connecting member 37 may also be detachably connected to the connecting portion 1232 by means of snapping connection or plugging connection, as long as the connecting member 37 slides axially upward relative to the connecting sleeve 123 in place, the connecting member 37 and the connecting sleeve 123 are fixedly connected, so as to fix the atomizing assembly 20 on the liquid storage assembly 10.

[0042] In one embodiment, a fourth abutting member 38 is sleeved on the connecting member 37. When the connecting member 37 and the connecting portion 1232 are connected in place, the fourth abutting member38 can prevent the connecting member 37 from being in rigid contact with the housing 11 to cause the both to wear. Specifically, the fourth abutting member38 is made of a material with good sealing properties such as silicone or rubber.

[0043] In one embodiment, the connecting member 37 is provided with a mounting hole 371 for accommodating the atomizer assembly 20, and the mounting hole 371 communicates with the inner cavity of the base 31. The atomizing assembly 20 can extend into the inner cavity of the base 31 from the mounting hole 371, and the atomizing assembly 20 is electrically connected with the base 31 and the electrode contact member 35.

[0044] The atomizing assembly 20 includes an atomizing casing 23 and a heating structure disposed in the atomizing

casing 23. The inner cavity of the atomizing casing 23 is the atomizing chamber 231 which communicates with the vent hole 1221. The atomizing casing 23 is provided with the liquid inlet opening 22 communicating with the atomizing chamber 231. The heating structure includes a liquid absorbing member and a heating member in contact with each other. The liquid absorbing member and the heating member are both received in the atomizing chamber 231. The liquid absorbing member has the ability to absorb the aerosol-forming substrate. The heating member can generate heat after being energized. In use, after the heating member is energized, the aerosol-forming substrate absorbed by the liquid absorbing member is heated to generate smoke, and the smoke fills up the atomizing chamber 231.

[0045] The liquid absorbing member can be made of cotton, cotton cloth, fiber rope and other materials that are easy to absorb liquid. The heating member can be made of stainless steel, nickel-chromium alloy, ceramics and other materials. The type of the heating member can be a heating sheet, a heating mesh, etc., which are not limited herein. When the atomizing assembly 20 extends into the inner cavity of the base 31, one pin of the heating member is electrically connected to the electrode contact element 35, and the other pin of the heating member is electrically connected to the base 31. The atomizing chamber 231 is communicated with the air inlet opening 311, and the external air can flow into the atomizing chamber 231 through the air inlet hole 321 and the air inlet opening 311 in sequence.

[0046] In summary, since the connecting member 37 is connected with the connecting portion 1232 through threads, when the user needs to use the aerosol generating device, the connecting member 37 can move upward along the axial direction of the connecting sleeve 123 by rotating the base assembly 30. When the atomizing assembly 20 extends into the connecting sleeve 123 and abuts against the liquid sealing member 13, the liquid sealing member 13 is driven to move upward under the pushing of the atomizing assembly 20, thereby compressing the elastic member 14, and the liquid inlet hole 121 is opened, the aerosol-forming substrate in the liquid storage chamber 111 enters into the atomizing chamber 231 through the liquid inlet hole 121 and the liquid inlet opening 22 in sequence and is absorbed by the liquid absorbing member, the heating member heats and atomizes the aerosol-forming substrate absorbed by the liquid absorbing member, the aerosol-forming substrate generates smoke under the heating action of the heating member, and the smoke fills up the atomizing chamber 231. At this time, the liquid sealing member 13 is located in the liquid discharging position. In this position, the external air can enter the atomizing chamber 231 through the air inlet hole 321 and the air inlet opening 311 in sequence and mix with the atomized smoke, the smoke after being mixed with the air flows out from the vent hole 1221. After the suction, the base assembly 30 can be reversely rotated to cause the connecting member 37 to move downward along the axial direction of the connecting sleeve 123, the liquid sealing member 13 can be reset under the elastic force of the elastic member 14, thereby closing the liquid inlet hole 121 again, the liquid sealing member 13 returns to the liquid sealing position again, the aerosol-forming substrate cannot flow out. At this time, the connecting member 37 is still connected with the connecting sleeve 123 through the threads, as long as the liquid sealing member 13 can be reset under the action of the elastic force of the elastic member 14 to close the liquid inlet hole 121 again. When the user needs to separate the atomizing assembly 20 from the atomizer 100 and take out the atomizing assembly 20, the base assembly 30 is continued to be reversely rotated, so that the connecting member 37 is continued to rotate downward along the axial direction of the connecting sleeve 123 until the base assembly 30 is separated from the liquid storage assembly 10.

[0047] In one embodiment, the liquid storage assembly 10 further includes a fifth abutting member 16 sandwiched between the liquid sealing member 13 and the connecting sleeve 123. The fifth abutting member 16 is configured to improve the tightness between the liquid sealing member 13 and the connecting sleeve 123. Specifically, the fifth abutting member 16 is made of a material with good sealing properties such as silicone or rubber.

[0048] In one embodiment, in order to improve the appearance of the aerosol generating device, a resisting member 17 is sandwiched between the base 31 and the housing 11. In one embodiment, in order to prevent the upper end face of the resisting member 17 and the lower end face of the housing 11 from being in rigid contact to cause the two to wear, a sixth abutting member 18 is provided on the resisting member 17. Specifically, the sixth abutting member 18 is disposed at one end of the resisting member 17 facing the housing 11. The sixth abutting member 18 is made of a material with good sealing properties such as silicone or rubber. In one embodiment, a seventh abutting member 19 is sandwiched between the main body 1231 and the sixth abutting member 18. The seventh abutting member 19 is configured to further improve air tightness. The seventh abutting member 19 is made of a material with good sealing properties such as silicone or rubber.

[0049] Please refer to FIG. 1, FIG. 2, FIG. 3 and FIG. 6, the mouthpiece assembly 40 is installed on the upper cover 122. The upper cover 122 is protruded with two limiting portions for limiting the position of the mouthpiece assembly 40, each of the limiting portions is provided with a sliding groove facing the vent hole 1221, the mouthpiece assembly 40 can slide relative to the upper cover 122 in the sliding groove. Specifically, the two limiting portions are both protruded on the upper end face of the upper cover 122, and the two limiting portions are located at opposite sides of the vent hole 1221. That is, one of the limiting portions is located at one side of the vent hole 1221, the other limiting portion is located at the other side of the vent hole 1221, the surfaces of the two limiting portions facing the vent hole 1221 are provided with the sliding grooves, the two sliding grooves are used to cooperate with the mouthpiece assembly 40, and the mouthpiece assembly 40 can slide relative to the upper cover 122 in the sliding grooves.

[0050] The mouthpiece assembly 40 includes a liquid injection cover 41 for assembling with the upper cover 122, a mouthpiece seat 42 received in the liquid injection cover 41, a fixing member 43 located at the upper end of the mouthpiece seat 42, a limiting member 44 and a restoring member 45 installed in the liquid injection cover 41, and a mouthpiece 46 installed on the liquid injection cover 41.

[0051] Specifically, the liquid injection cover 41 is installed at the upper end of the upper cover 122. The liquid injection cover 41 is provided with a smoking opening 411 which communicates with the outside environment and the vent hole 1221. A mounting portion 412 is formed around the inner wall of the smoking opening 411 and protrudes downward along the axial direction of the smoking opening 411. The space enclosed by the inner peripheral wall of the mounting portion 412 is a cavity for mounting the mouthpiece seat 42, and the mouthpiece seat 42 is installed in the cavity.

[0052] In one embodiment, the mouthpiece seat 42 includes seat bodies 421 disposed in the two sliding grooves, and a cylinder 422 disposed at the upper end of the seat body 421. The seat bodies 421 are slidably engaged in the two sliding grooves, the cylinder 422 is sleeved on the mounting portion 412, and the inner cavity of the cylinder 422 communicates with the smoking opening 411 and the vent hole 1221. It can be understood that the liquid injection cover 41 can slide radially relative to the upper cover 122. In addition, the liquid injection cover 41 can also slide axially relative to the upper cover 122.

[0053] The fixing member 43 is engaged with the mouthpiece seat 42. In one embodiment, the fixing member 43 and the cylinder 422 are detachably connected, the detachable connection method includes but is not limited to snapping connection, plugging connection, and the like. It can be understood that, in another embodiment, the fixing member 43 may also be integrally formed with the mouthpiece seat 42.

[0054] The limiting member 44 is engaged with the liquid injection cover 41. In one embodiment, the limiting member 44 and the liquid injection cover 41 are two independent components, the two are detachably connected by means of snapping connection or screw connection. The upper end face of the limiting member 44 can abut against the inner surface of the liquid injection cover 41. Specifically, when the liquid injection cover 41 slides axially downward relative to the mouthpiece seat 42, the liquid injection cover 41 can drive the limiting member 44 to slide axially downward relative to the mouthpiece seat 42. It can be understood that, in another embodiment not shown, the limiting member 44 may also be integrally formed with the liquid injection cover 41.

[0055] One end of the restoring member 45 is connected to the fixing member 43, and the other end of the restoring member 45 is connected to the limiting member 44. In one embodiment, the restoring member 45 is a spring. It is understood that, in another embodiment, the restoring member 45 may also be an elastic element such as a spring sheet.

[0056] The mouthpiece 46 is inserted into the mounting portion 412, the mouthpiece 46 is provided with a smoking hole 461 that communicates with the outside environment and the smoking opening 411.

[0057] The side wall of the upper cover 122 is the assembling surface 47 for assembling with the mouthpiece assembly 40. When the mouthpiece assembly 40 and the upper cover 122 are assembled, the seat bodies 421 are engaged in the two sliding grooves, the lower end face of the mouthpiece seat 42 is in contact with the upper end face of the upper cover 122, the inner wall of the liquid injection cover 41 abuts against the assembling surface 47. At this time, the liquid injection cover 41 cannot slide radially relative to the upper cover 122, the restoring member 45 is in a compressed state, and the mouthpiece assembly 40 and the liquid storage assembly 10 are fixed. By providing the restoring member 45, when the mouthpiece assembly 40 is assembled in place, the vibration between the mouthpiece assembly 40 and the liquid storage assembly 10 can be reduced, so as to make the connection more stable.

[0058] In summary, when it is necessary to move the mouthpiece assembly 40 relative to the liquid storage assembly 10 and inject liquid into the liquid storage chamber 111 through the liquid injection hole 1222, the inner wall of the liquid injection cover 41 can be separated from the assembling surface 47 by pulling the liquid injection cover 41 upward along the axial direction of the upper cover 122. During the upward sliding process of the liquid injection cover 41, the liquid injection cover 41 drives the limiting member 44 to slide axially upward relative to the mouthpiece seat 42. At this time, during the upward movement of the limiting member 44, the restoring member 45 is further compressed. When the lower end face of the liquid injection cover 41 is located at the same level with the upper end face of the upper cover 122 or above the upper end face of the upper cover 122, at this time, the liquid injection cover 41 can be pushed along the radial direction of the upper cover 122, and the liquid injection cover 41 drives the seat bodies 421 to slide in the two sliding grooves. When the seat bodies 421 move a certain distance along the extending direction of the sliding grooves, the liquid injection hole 1222 is exposed. By setting the restoring member 45, when the liquid injection is completed and the mouthpiece seat 42 is pushed back to the original position, the limiting member 44 is automatically pushed downward due to the elastic restoring force of the restoring member 45, the limiting member 44 drives the liquid injection cover 41 to move downward, to finally make the inner wall of the liquid injection cover 41 abut against the assembling surface 47 of the upper cover 122 and prevent radial movement of the liquid injection cover 41. At this time, the mouthpiece assembly 40 is locked again and cannot be filled with liquid. The atomizer 100 of the present disclosure increases the assembly difficulty of the liquid storage assembly 10 and the mouthpiece assembly 40, making it difficult to assemble and disassemble the two, thereby avoiding the leakage of the aerosol-forming substrate stored in the liquid storage chamber 111 or even the occurrence of accidental ingestion of the aerosol-forming substrate.

[0059] The battery device is connected to the connecting end 312, so that the positive electrode and the negative electrode on the battery device are electrically connected to the electrode contact member 35 and the base 31, respectively. Thus, the atomizer 100 can heat the aerosol-forming substrate under the electric driving of the battery device and atomize the aerosol-forming substrate into smoke for the user to inhale.

[0060] The beneficial effects of the present disclosure are: in the atomizer 100 and the aerosol generating device using the atomizer 100 provided by the present disclosure, the atomizing assembly 20 is arranged between the base assembly 30 and the liquid storage assembly 10, the elastic member 14 is elastically biased between the liquid storage assembly 10 and the atomizing assembly 20. When the base assembly 30 is detached from the liquid storage assembly 10, the atomizing assembly 20 is ejected out by the elastic member 14, so as to facilitate the user to take out the atomizing assembly 20.

[0061] Taking the above-mentioned ideal embodiments according to the present disclosure as enlightenment, through the above description, the relevant persons can make various changes and modifications without departing from the concept of the present disclosure. The technical scope of the present disclosure is not limited to the content of the specification, and its technical scope should be determined according to the scope of the claims.

Claims

1. An atomizer comprising a liquid storage assembly, an atomizing assembly and a base assembly, wherein the base assembly is detachably connected to one end of the liquid storage assembly, the atomizing assembly is arranged between the base assembly and the liquid storage assembly, the liquid storage assembly comprises an elastic member, the elastic member is elastically biased between the liquid storage assembly and the atomizing assembly, when the base assembly is detached from the liquid storage assembly, the atomizing assembly is ejected out by the elastic member.

2. The atomizer according to claim **1,** wherein the liquid storage assembly comprises a housing and a connecting body arranged in the housing, the elastic member is telescopically arranged in the connecting body, the atomizing assembly is movably installed in the connecting body, the base assembly is detachably connected to the connection body; during the course of connecting the base assembly and the connecting body, the atomizing assembly compresses the elastic member under the pushing of the base assembly; during the course of separating the base assembly from the connecting body, the atomizing assembly is ejected from the connecting body to the outside by the elastic member.

3. The atomizer according to claim **2,** wherein a space between the housing and the connecting body forms a liquid storage chamber, the liquid storage chamber is configured to store an aerosol-forming substrate, the connecting body is provided with a liquid inlet hole communicating with the liquid storage chamber, the liquid storage assembly further comprises a liquid sealing member slidably received in the connecting body, the elastic member is telescopically arranged between the connecting body and the liquid sealing member, the liquid sealing member is movable between a liquid discharging position and a liquid sealing position; when the liquid sealing member is located in the liquid discharging position, the aerosol-forming substrate in the liquid storage chamber flows to the atomizing assembly through the liquid inlet hole; when the liquid sealing member is located in the liquid sealing position, the liquid sealing member blocks the aerosol-forming substrate in the liquid storage chamber from flowing to the atomizing assembly.

4. The atomizer according to claim **3,** wherein the liquid sealing member and the elastic member are arranged in sequence along a loading direction of the atomizing assembly, when the base assembly is connected with the connecting body, the liquid sealing member compresses the elastic member under the pushing of the atomizing assembly, and the liquid sealing member is located in the liquid discharging position; when the base assembly is separated from the connecting body, the liquid sealing member ejects the atomizing assembly from the connecting body to the outside under the action of the elastic restoring force of the elastic member, and the liquid sealing member is located in the liquid sealing position.

5. The atomizer according to claim **3,** wherein a sealing member is installed on the connecting body, when the liquid sealing member is located in the liquid sealing position, the sealing member is configured to seal a gap between the liquid sealing member and the connecting body, the sealing member is provided with an insertion hole, the atomizing assembly passes through the insertion hole and then extends into the connecting body to abut against the sealing member.

6. The atomizer according to claim **2,** wherein an atomizing chamber is provided in the atomizing assembly, the base assembly comprises a base and an air regulating member rotatably sleeved on the base, the base is provided with an air inlet opening communicating with the atomizing chamber, the air regulating member is provided with an air inlet hole communicating with the outside environment and the air inlet opening.

7. The atomizer according to claim **3,** wherein the connecting body comprises an upper cover connected with the housing and a connecting sleeve connected with the upper cover, the liquid inlet hole is provided in the connecting sleeve, the sealing member is slidably received in the connecting sleeve, the elastic member is telescopically arranged between the connecting sleeve and the liquid sealing member.

8. The atomizer according to claim **7,** wherein the upper cover is provided with a vent hole, the vent hole communicates with the outside environment and an inner cavity of the connecting sleeve.

9. The atomizer according to claim **2,** wherein the atomizing assembly comprises an atomizing casing and a heating structure provided in the atomizing casing, an inner cavity of the atomizing casing is an atomizing chamber, the atomizing casing is provided with a liquid inlet opening communicating with the atomizing chamber.

10. An aerosol generating device comprising the atomizer according to any one of claims **1** to **9.**

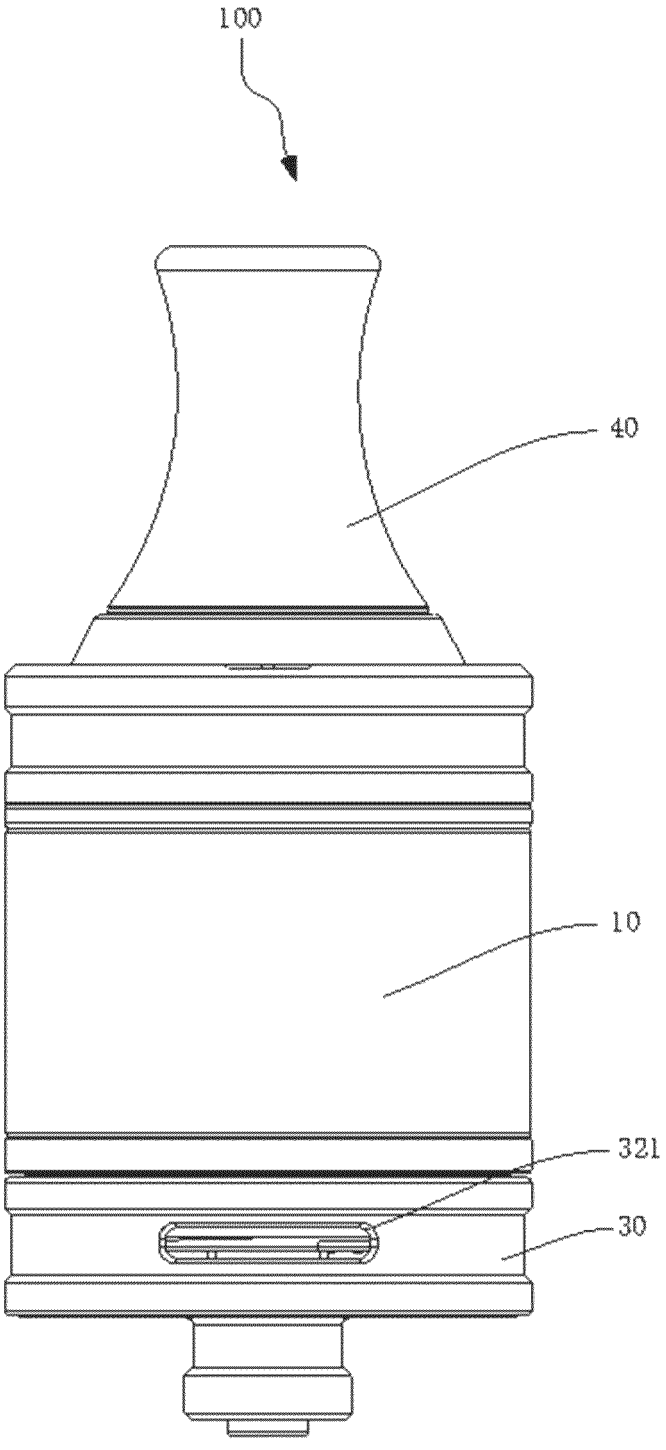

FIG. 1

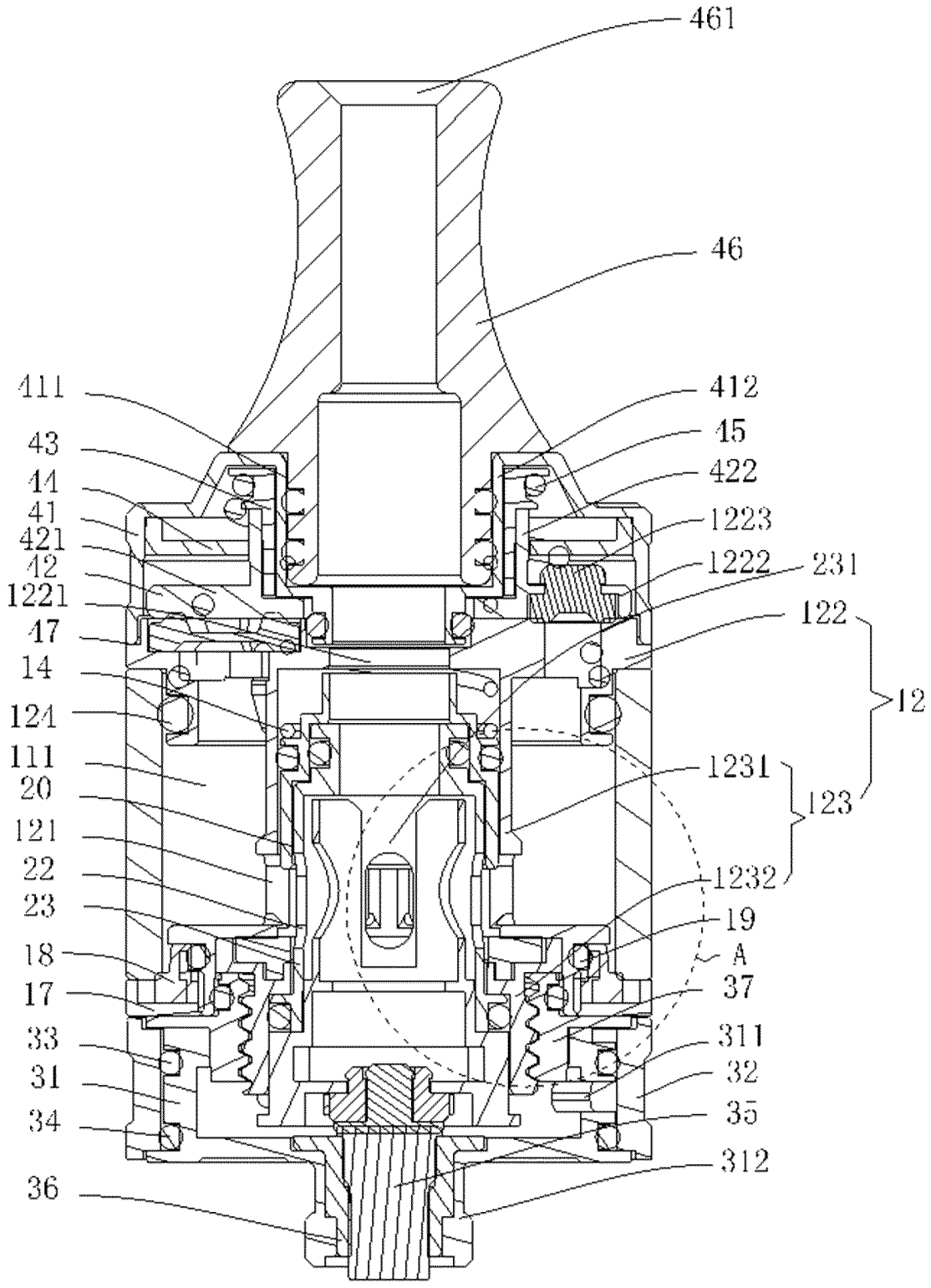
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FIG. 2

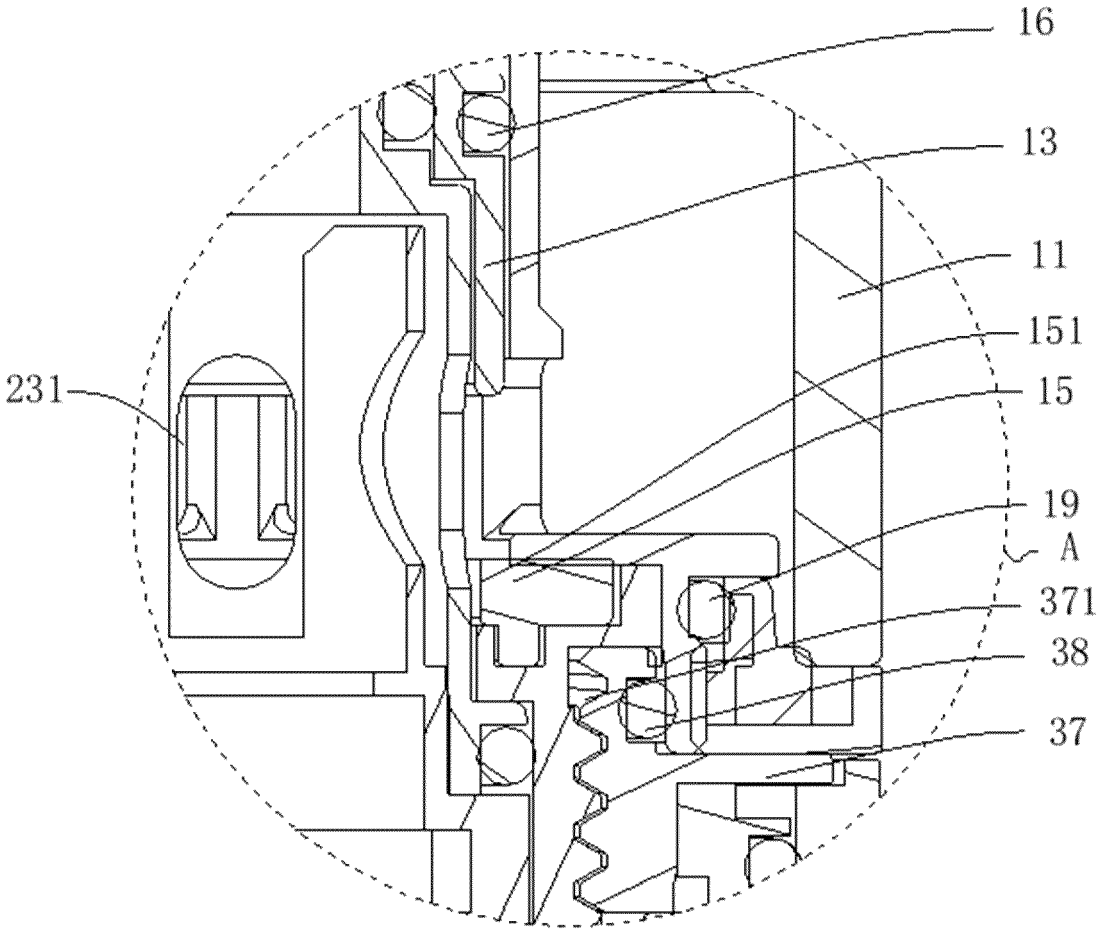

FIG. 3

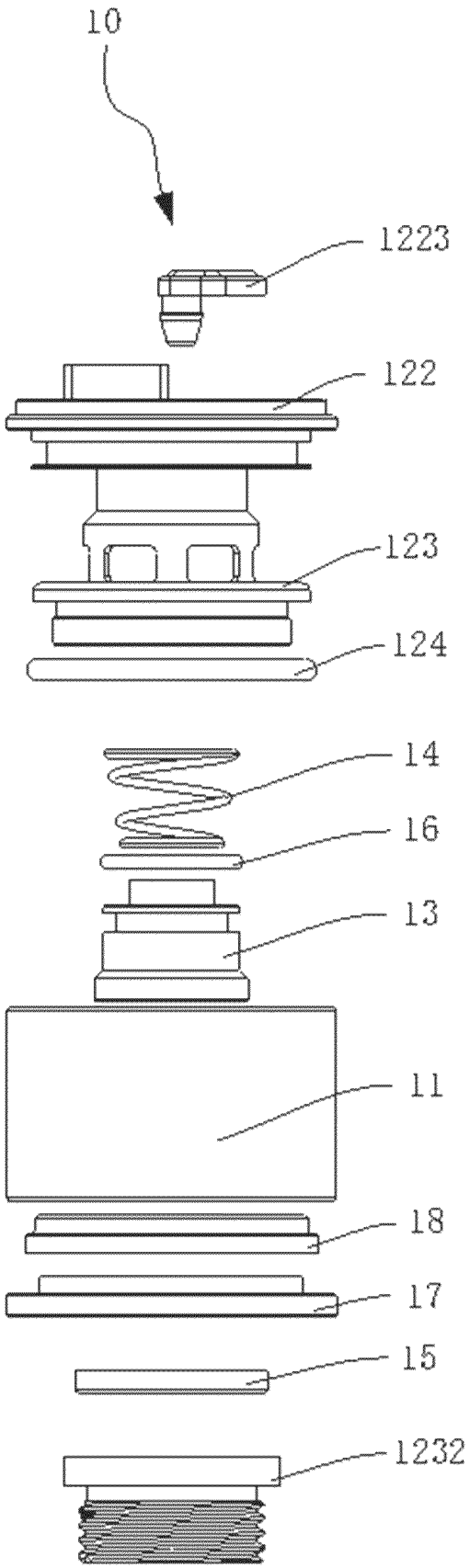

FIG. 4

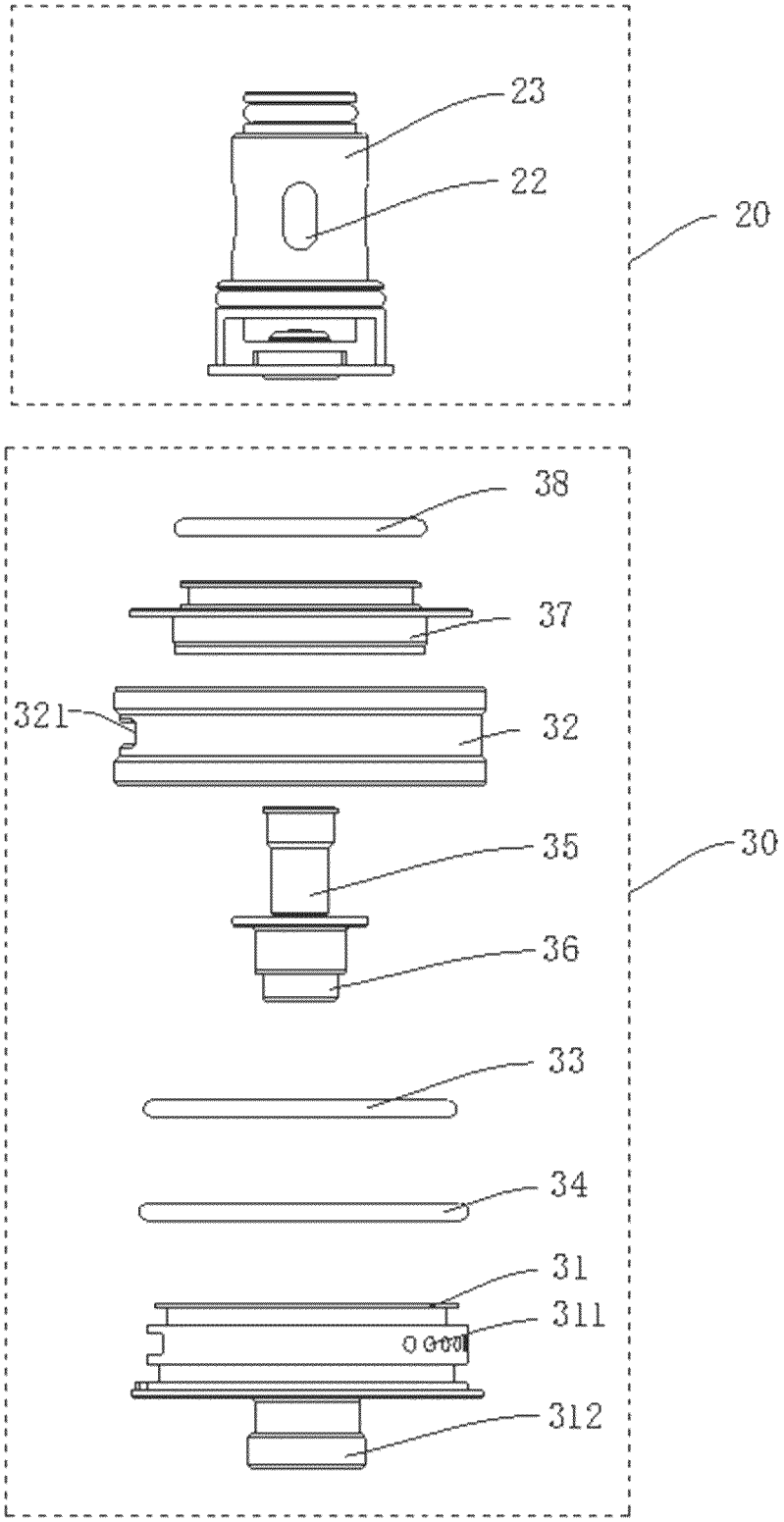

FIG. 5

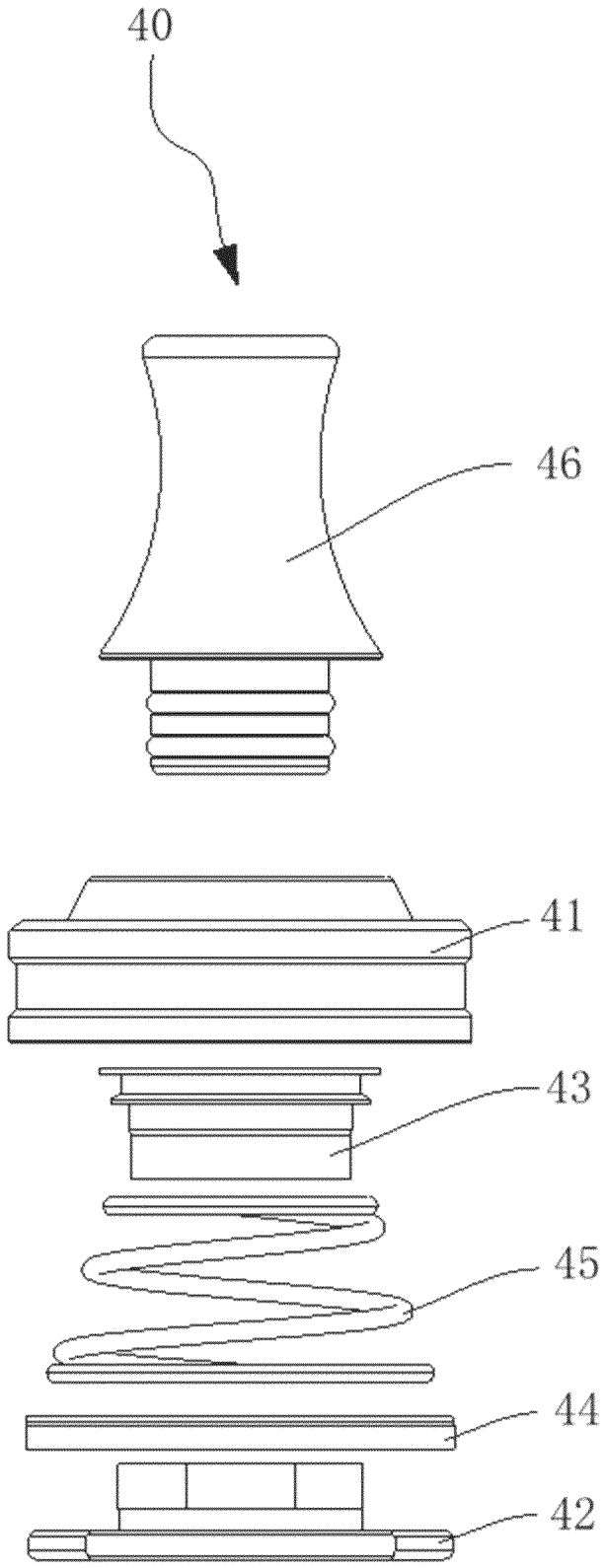

FIG. 6

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2021/081523

A. CLASSIFICATION OF SUBJECT MATTER

A24F 40/40(2020.01)i; A24F 40/10(2020.01)n

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)

CNABS, CNTXT, VEN: 电子烟, 雾化, 弹性件, 弹性, 弹簧, 弹出, 储液, 底座, 派腾, electronic cigarette, atomiz+, aerosol, generat+, elastic, spring, pop+ up, liquid storage, base

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Y	CN 207626550 U (CHANGZHOU PAITENG ELECTRONIC TECHNOLOGY SERVICE CO., LTD.) 20 July 2018 (2018-07-20) description, paragraphs 4-16	1-10
Y	CN 204317495 U (SHENZHEN YDF TECHNOLOGY CO., LTD.) 13 May 2015 (2015-05-13) description, paragraphs 11-14	1-10
A	CN 110680017 A (SHENZHEN IVPS TECHNOLOGY CO., LTD.) 14 January 2020 (2020-01-14) entire document	1-10
A	CN 208446604 U (CHANGZHOU PAITENG ELECTRONIC TECHNOLOGY SERVICE CO., LTD.) 01 February 2019 (2019-02-01) entire document	1-10

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

* Special categories of cited documents:
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"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
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"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
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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
10 June 2021	**18 June 2021**
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**	Authorized officer
Facsimile No. **(86-10)62019451**	Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2021/081523

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2021/081523

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Form PCT/ISA/210 (patent family annex) (January 2015)