



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

(43) Date of publication:
10.08.2022 Bulletin 2022/32

(51) International Patent Classification (IPC):
A24F 47/00 ^(2020.01)

(21) Application number: **19948182.1**

(52) Cooperative Patent Classification (CPC):
A24F 47/00

(22) Date of filing: **30.09.2019**

(86) International application number:
PCT/CN2019/109705

(87) International publication number:
WO 2021/062781 (08.04.2021 Gazette 2021/14)

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

(72) Inventors:
• **LEI, Guilin**
Shenzhen, Guangdong 518102 (CN)
• **GONG, Boxue**
Shenzhen, Guangdong 518102 (CN)

(71) Applicant: **Shenzhen Smoore Technology Limited**
Shenzhen Guangdong 518102 (CN)

(74) Representative: **De Arpe Tejero, Manuel**
Arpe Patentes y Marcas
Alcalá, 26, 5ª Planta
28014 Madrid (ES)

(54) **ELECTRONIC ATOMIZATION DEVICE AND ATOMIZER THEREOF**

(57) Disclosed are an electronic atomization device and an atomizer thereof. The atomizer comprises an atomization cavity (311) and an air outlet channel (121) communicated with the atomization cavity (311). A bottom of the atomization cavity (311) is arranged with a liquid storage structure (23); the liquid storage structure (23) is communicated with the atomization cavity (311)

and comprises at least one second liquid absorbing groove (231) facing the atomization cavity (311); the at least one second liquid absorbing groove (231) is configured to absorb a liquid medium leaking from the atomization cavity (311) and/or the air outlet channel (121) by capillary forces.

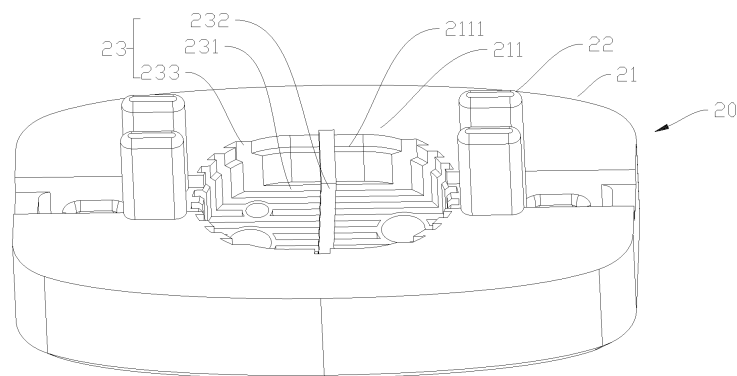


FIG. 8

Description

TECHNICAL FIELD

[0001] The present disclosure relates to the field of electronic atomization device technologies, and in particular to an electronic atomization device and an atomizer thereof.

BACKGROUND

[0002] In the related art, an electronic atomization device is usually configured to heat and atomize cigarette liquid stored therein, and form atomized gas for a user to inhale. The user generally inhales the atomized gas through an air outlet channel in an air flow channel of the electronic atomization device. When the atomized air enters the air outlet channel, the atomized gas will partially condense when it meets a side wall of the air outlet channel to form a condensate. The condensate will easily enter an atomization cavity by gravity and leak out from a bottom of the atomization cavity to an outside of a housing. In addition, the cigarette liquid in an atomization element in the atomization cavity may also leak from the bottom of the atomization cavity to the outside of the housing, resulting in a poor user experience.

SUMMARY OF THE DISCLOSURE

[0003] The technical problem to be solved by the present disclosure is to provide an improved atomizer, and further to provide an improved electronic atomization device.

[0004] A technical solution used in the present disclosure to solve its technical problems is: to propose a nebulizer, defining an atomization cavity and an air outlet channel communicated with the atomization cavity; wherein a bottom of the atomization cavity is arranged with a liquid storage structure; the liquid storage structure is communicated with the atomization cavity and comprises at least one second liquid absorbing groove facing the atomization cavity; the at least one second liquid absorbing groove is configured to suck a liquid medium leaking from the atomization cavity and/or the air outlet channel by capillary forces.

[0005] In some embodiments, each second liquid absorbing groove extends along a lateral direction of the atomization cavity.

[0006] In some embodiments, the number of the at least one second liquid absorbing groove is more than one, and the plurality of second liquid absorbing grooves are arranged side by side and spaced apart.

[0007] In some embodiments, the liquid storage structure further comprises at least one branch groove; the at least one branch groove is crossed and connected to the plurality of second liquid absorbing grooves.

[0008] In some embodiments, a width of each branch groove is greater than a width of each second liquid ab-

sorbing groove.

[0009] In some embodiments, the atomizer further comprises a base; wherein the atomization cavity is arranged on the base; the at least one second liquid absorbing groove and the at least one branch groove are arranged on a side of the base facing the atomization cavity.

[0010] In some embodiments, the side of the base facing the atomization cavity defines a groove; the at least one second liquid absorbing groove and the at least one branch groove are arranged on a bottom of the groove.

[0011] In some embodiments, the atomizer further comprises: a first sealing member, sleeved on the base; an atomization element; and an atomization shell sleeved on the base and configured to install the atomization element; wherein an inside of the atomization shell defines the atomization cavity; the first sealing member is sleeved on a periphery of the atomization shell.

[0012] In some embodiments, the liquid storage structure further comprises a plurality of guide grooves; wherein each guide groove is communicated with a corresponding second liquid absorbing groove and a corresponding branch groove; the plurality of guide grooves are arranged on a side wall of the groove and extends along a longitudinal direction of the base; an opening of each guide groove away from the corresponding second liquid absorbing groove and the corresponding branch groove is arranged facing a connection of the atomization shell and the first sealing member; the plurality of guide grooves are configured to suck the liquid medium leaking from the connection by capillary forces.

[0013] In some embodiments, an inner side wall of the groove is arranged with a step for assembly with the atomization shell.

[0014] In some embodiments, a width of each second liquid absorbing groove is 0.05-1mm.

[0015] In some embodiments, a depth of each second liquid absorbing groove is greater than or equal to 0.1mm.

[0016] In some embodiments, a width of each guide groove is 0.05-1mm.

[0017] The present disclosure further proposes an electronic atomization device, defining an atomization cavity and an air outlet channel communicated with the atomization cavity; wherein a bottom of the atomization cavity is arranged with a liquid storage structure; the liquid storage structure is communicated with the atomization cavity and comprises at least one second liquid absorbing groove facing the atomization cavity; the at least one second liquid absorbing groove is configured to suck a liquid medium leaking from the atomization cavity and/or the air outlet channel by capillary forces.

[0018] In some embodiments, each second liquid absorbing groove extends along a lateral direction of the atomization cavity.

[0019] In some embodiments, the liquid storage structure further comprises at least one branch groove; the at least one branch groove is crossed and connected to the at least one second liquid absorbing groove.

[0020] In some embodiments, the electronic atomization device further comprises a base; wherein the atomization cavity is arranged on the base; the at least one second liquid absorbing groove and the at least one branch groove are arranged on a side of the base facing the atomization cavity.

[0021] In some embodiments, the side of the base facing the atomization cavity defines a groove; the at least one second liquid absorbing groove and the at least one branch groove are arranged on a bottom of the groove.

[0022] In some embodiments, the electronic atomization device further comprises: a first sealing member, sleeved on the base; an atomization element; and an atomization shell sleeved on the base and configured to install the atomization element; wherein an inside of the atomization shell defines the atomization cavity; the first sealing member is sleeved on a periphery of the atomization shell.

[0023] In some embodiments, the liquid storage structure further comprises a plurality of guide grooves; wherein each guide groove is communicated with a corresponding second liquid absorbing groove and a corresponding branch groove; the plurality of guide grooves are arranged on a side wall of the groove and extends along a longitudinal direction of the base; an opening of each guide groove away from the corresponding second liquid absorbing groove and the corresponding branch groove is arranged facing a connection of the atomization shell and the first sealing member; the plurality of guide grooves are configured to suck the liquid medium leaking from the connection by capillary forces.

[0024] The electronic atomization device and its atomizer of the present disclosure have the following beneficial effects: the atomizer is arranged with the liquid storage structure communicated to the atomization cavity at the bottom of the atomization cavity, and at least one second liquid absorbing groove of the liquid storage structure with capillary effect is defined opposite to the atomization cavity, so as to suck and store the liquid leaking out from the bottom of the atomization cavity, and then prevent the liquid from leaking outside the shell, thus improving the user experience.

[0025] The electronic atomization device has the advantages of high user experience and low production cost.

BRIEF DESCRIPTION OF THE DRAWINGS

[0026] The present disclosure will be further described below in conjunction with the accompanying drawings and embodiments.

FIG. 1 is a perspective structural schematic view of an electronic atomization device according to an embodiment of the present disclosure.

FIG. 2 is a perspective structural schematic view of an atomizer of the electronic atomization device as shown in FIG. 1.

FIG. 3 is a partial exploded schematic view of the atomizer as shown in FIG. 2.

FIG. 4 is a cross-sectional view of the atomizer as shown in FIG. 2.

FIG. 5 is a partial enlarged schematic view of the atomizer as shown in FIG. 4.

FIG. 6 is a perspective structural schematic view of a housing of the atomizer as shown in FIG. 4.

FIG. 7 is another perspective structural schematic view of a housing of the atomizer as shown in FIG. 4.

FIG. 8 is a perspective structural schematic view of a base of the atomizer as shown in FIG. 4.

FIG. 9 is a structural schematic view of an atomizer according to an embodiment of the present disclosure.

FIG. 10 is another structural schematic view of an atomizer according to an embodiment of the present disclosure.

FIG. 11 is a schematic sectional view of the atomizer of an atomizer according to an embodiment of the present disclosure.

FIG. 12 is a structural schematic view of an atomization assembly, a sleeve, a liquid absorbing structure, and a seal according to an embodiment of the present disclosure.

FIG. 13 is a structural schematic view of an air outlet tube according to an embodiment of the present disclosure.

FIG. 14 is another structural schematic view of an air outlet tube according to an embodiment of the present disclosure.

FIG. 15 is a structural schematic view of an atomization assembly, a sleeve, a transverse liquid storage groove, and a seal according to an embodiment of the present disclosure.

FIG. 16 is a structural schematic view of a longitudinal liquid storage groove according to an embodiment of the present disclosure.

FIG. 17 is another structural schematic view of a longitudinal liquid storage groove according to an embodiment of the present disclosure.

DETAILED DESCRIPTION

[0027] In order to have a clearer understanding of the technical features, objectives and effects of the present disclosure, the specific embodiments of the present disclosure will now be described in detail with reference to the accompanying drawings.

[0028] Position limitations of "upper", "lower", "top", and "bottom" shown in the drawings are "upper", "lower", "top", and "bottom" indicated by the present disclosure. It should be understood that the orientation or positional relationship indicated by "upper", "lower", etc., is based on the orientation or positional relationship shown in the drawings, constructed and operated in a specific orientation, and is only for the convenience of describing the technical solution, but not indicate that the corresponding

device or element shall have a specific orientation. Therefore, the orientation or positional relationship cannot be understood as a limitation of the present disclosure.

[0029] FIGS. 1 to 4 show a first embodiment of the electronic atomization device of the present disclosure. The electronic atomization device is applied to an atomization of liquid medium such as atomization cigarette liquid and medicine. The electronic atomization device includes an atomizer and a power supply device mechanically and electrically connected to the atomizer. The atomizer is configured for heating and atomizing the liquid medium, and the power supply device is configured for powering the atomizer. In some embodiments, the atomizer and the power supply device are detachably connected. The power supply device includes a power supply case; a battery arranged in the power supply case; a conductive contact arranged in the power supply case, connected to the battery, and connected to the atomizer; and a control circuit arranged in the power supply case and electrically connected to the battery and the atomizer.

[0030] As shown in FIGS. 3 to 7, in the embodiments, the atomizer includes a housing 10, a base 20, an atomization assembly 30, a first sealing member 40, an air-liquid balancing element 50, and a liquid guiding element 60. The housing 10 is sleeved on a periphery of the atomization assembly 30, and an inner side of the housing 10 is configured to define a liquid storage cavity 111 for accommodating the liquid medium. In the embodiments, the liquid medium is cigarette liquid. The base 20 is configured for an installation of the atomization assembly 30, and the housing 10 is sleeved on the base 20. The atomization assembly 30 is arranged in the housing 10 and on the base 20. The first sealing member 40 is arranged on the base 20 and is configured to seal a connection between the atomization assembly 30 and the base 20. The air-liquid balancing element 50 is arranged in a main body 11 at a lower part of the liquid storage cavity 111, is sleeved on the periphery of the atomization assembly 30, and is arranged on the base 20. The air-liquid balancing element 50 connects the liquid storage cavity 111 with the outside, so as to balance the air pressure in the liquid storage cavity 111. The number of the liquid guiding elements 60 may be two. It can be understood that in other embodiments, the number of the liquid guiding elements 60 may be one or more. The liquid guiding element 60 is inserted through the air-liquid balancing element 50, and is configured to connect the liquid storage cavity 111 with the atomization assembly 30 for providing liquid medium to the atomization assembly 30. It can be understood that in other embodiments, both the air-liquid balancing element 50 and the liquid guiding element 60 may be omitted.

[0031] Further, in the embodiment, the housing 10 includes a main body 11 and an air outlet tube 12. The main body 11 and the air outlet tube 12 are integrally formed by injection molding. It can be understood that in

other embodiments, the air outlet tube 12 and the main body 11 are separate structures. The main body 11 is sleeved on the base 20 and the atomization assembly 30, and a space is defined within the main body 11 above the atomization assembly 30. The space is configured to define the liquid storage cavity 111. The air outlet tube 12 is longitudinally arranged in the main body 11 and is connected to the atomization assembly 30. The air outlet tube 12 is arranged at a central axis of the body 11. It can be understood that in other embodiments, the air outlet tube 12 is arranged on a side of the main body 11 and is not limited to the central axis. The air outlet tube 12 may also be arranged obliquely. An air outlet channel 121 is defined on an inner side of the air outlet tube 12, and the air outlet channel 121 is arranged along an axial direction of the air outlet tube 12. A side wall of the air outlet channel 121 is integrally formed with the housing. When a user inhales, an atomized gas may reach the mouth of the user through the air outlet channel 121. A second end 1212 of the air outlet channel 121 is inserted into the atomization assembly 30, and a first end 1211 of the air outlet channel 121 forms a cigarette holder for the user to inhale the atomized gas. At least one first liquid absorbing groove 122 is defined on an inner side wall of the air outlet channel 121. In the embodiments, the number of the at least one first liquid absorbing groove 122 may be more than one. In some embodiments, the number of the first liquid absorbing grooves 121 is not limited to multiple, and it may also be one. The first liquid absorbing groove 122 has a capillary function, which is configured to suck the condensate formed by condensation on the side wall of the air outlet channel 121. The condensate flows to the atomization assembly 30 under the action of gravity. The atomization assembly 30 atomizes the condensate flowing down from the first liquid absorbing groove 122 again, thereby improving the utilization rate of the liquid medium.

[0032] Further, in the embodiments, the plurality of first liquid absorbing grooves 122 are arranged on an inner side wall of the air outlet tube 12 and are arranged at intervals along the air outlet channel 121 in a circumferential direction. When the atomized gas reaches an air outlet through the air outlet channel 121, airflow around the air outlet channel 121 meets the inner side wall of the air outlet tube 12 to condense to form the condensate. At this time, the first liquid absorbing groove 122 may suck the condensate in by capillary function. In the embodiment, the first liquid absorbing groove 122 is arranged along a longitudinal direction of the air outlet channel 121, and extends from the second end 1212 of the air outlet channel 121 toward the first end 1211 of the air outlet channel 121. The first liquid absorbing groove 122 is parallel to the central axis of the air outlet channel 121 and is connected to the atomization assembly 30 in a liquid conducting manner, such that the condensate flows to the top of the atomization assembly 30 in the direction of the first liquid absorbing groove 122 under the action of gravity and drops on the atomization

assembly 30 to be atomized again, thereby improving the utilization rate of the liquid medium, and preventing the liquid medium from being inhaled into the user's mouth, thus improving the user experience. In the embodiments, the first liquid absorbing groove is not limited to being arranged longitudinally, and it may be arranged spirally or inclined.

[0033] In the embodiments, an outlet 1221 is defined on an end surface of the first end 1211 of the air outlet channel 121. The outlet 1221 is in communication with the first liquid absorbing groove 122 and is in communication with the atomization assembly 30. The liquid in the first liquid absorbing groove 122 may drop onto the atomization assembly 30 through the outlet 1221.

[0034] In the embodiments, the depth of the first liquid absorbing groove 122 is gradually reduced along the direction away from the outlet 1221. A bottom surface of the first liquid absorbing groove 122 is a slope inclined toward the direction of the outlet 1221. In this way, an upper part of the first liquid absorbing groove 122 stores less liquid, and a lower part of the first liquid absorbing groove 122 stores more liquid, thereby preventing the liquid in the upper part of the first liquid absorbing groove 122 from being inhaled into the user's mouth. The bottom surface of the first liquid absorbing groove 122 is set as an inclined surface inclined toward the direction of the outlet 1221, thereby increasing the resistance of the lower liquid to be sucked out, further preventing the liquid from being inhaled into the user's mouth. Specifically, in the embodiments, the depth of each first liquid absorbing groove 122 may be greater than or equal to 0.1 mm. In the embodiments, the width of each first liquid absorbing groove 122 is gradually increased along the opening direction of the first liquid absorbing groove 122, such that the first liquid absorbing groove 122 has a narrow inside and a wide opening. This feature further facilitates the flow of liquid to the atomization assembly 30 along the first liquid absorbing groove 122. In the embodiments, the width of each liquid storage groove 122 may be 0.05-1 mm.

[0035] As shown in FIGS. 4 to 8, in the embodiments, the base 20 includes a base body 21, a support assembly 22 arranged on the base body 21, and a liquid storage structure 23. The shape and size of a cross-section of the base body 21 are adapted to the shape and size of an opening end of the housing 10. The base body 21 is configured to block the opening of the housing 10. The base 20 defines a groove 211. Specifically, the groove 211 is defined on a side of the base body 21 opposite to an atomization cavity 311 of the atomization assembly 30, thereby forming the liquid storage structure 23 at the bottom of the atomization cavity 311. The support assembly 22 includes two sets of support pillars arranged at intervals. The two sets of support pillars are arranged on two opposite sides of the groove 211, which are configured to support an atomization element 32 of the atomization assembly 30. The liquid storage structure 23 is arranged in the groove 211 and communicates with

the atomization cavity 311 of the atomization assembly 30. The liquid storage structure 23 is configured to store the liquid medium and prevent the liquid medium from leaking.

[0036] Further, in the embodiments, the liquid storage structure 23 includes a plurality of second liquid absorbing grooves 231, a branch groove 232, and a plurality of guide grooves 233. The plurality of second liquid absorbing grooves 231 are arranged side by side and spaced at a bottom of the groove 211. The plurality of second liquid absorbing grooves 231 are arranged opposite to the atomization cavity 311, which have a capillary function and can suck from the liquid medium dropping from the atomization cavity 311 or the air outlet channel 121. The number of the second liquid absorbing grooves 231 is not limited to multiple, and it may be one. The branch groove 232 is arranged on the bottom surface of the groove 211 and is intersected with the plurality of second liquid absorbing grooves 231. The branch groove 232 crosses and communicates with the second liquid absorbing grooves 231, thereby achieving diversion and enabling faster suction of the liquid medium. The plurality of guide grooves 233 are arranged on a side wall of the groove 211 at intervals, are arranged corresponding to the second liquid absorbing grooves 231 and the branch groove 232, and are connected to the second liquid absorbing grooves 231 and the branch groove 232. The plurality of guide grooves 233 have a capillary function and are configured to pour liquid into the second liquid absorbing grooves 231.

[0037] Further, in the embodiments, each second liquid absorbing groove 231 extends laterally along the bottom surface of the groove 211, that is, extends laterally along the atomization cavity 311. In this way, the flow direction of the liquid medium may be controlled, thereby effectively preventing liquid leakage. In the embodiments, the width of each second liquid absorbing groove 231 is 0.05-1 mm, and the depth of each second liquid absorbing groove 231 is greater than 0.1 mm. It can be understood that in other embodiments, the depth of each second liquid absorbing groove 231 may be equal to 0.1 mm.

[0038] Further, in the embodiments, the branch groove 232 is perpendicular to each second liquid absorbing groove 231 and divides each second liquid absorbing groove 231 into two sections. The width of the branch groove 232 is greater than the width of each second liquid absorbing groove 231, thereby increasing the liquid suction rate and preventing the liquid medium from penetrating to the outside from an electrode pore.

[0039] Further, in the embodiments, the guide grooves 233 are arranged on the side wall of the groove 211 and extend along the longitudinal direction of the base 20. Each guide groove 233 communicates with a corresponding second liquid absorbing groove 231 and the branch groove 232. The guide grooves 233 are configured to guide the liquid medium to the second liquid absorbing grooves 231 and the branch groove 232. In the

embodiments, an opening at an end of each guide groove 233 away from the corresponding second liquid absorbing groove 231 and the branch groove 232 is arranged outside the atomization cavity 311, which is configured to suck liquid leakage from the outside of the atomization cavity 311. In the embodiments, a step 2111 is arranged on the inner side wall of the groove 211, and the step is configured for mating and assembling with an atomization shell 31 of the atomization assembly 30 to improve the compactness of the assembly. In the embodiments, the guide grooves 233 have a capillary function, which is configured to suck the leakage and cause the leakage to the second absorbing grooves 231. In the embodiments, the width of each guide groove 233 may be 0.05-1 mm. It can be understood that in other embodiments, the width of each guide groove 233 is not limited to 0.05-1 mm.

[0040] Further, in the embodiments, the atomization assembly 30 includes an atomization shell 31 and an atomization element 32. The atomization shell 31 is sleeved on the base 20 and inserted into the groove 211. The atomization shell 31 is configured for arranging and fixing the atomization element 32. An inner side of the atomization shell 31 defines an atomization cavity 311. The atomization cavity 311 is arranged on the upper part of the base 20 and is directly connected to the first liquid absorbing groove 122. Liquid leakage is prone to occurring at the position at which the atomization shell 31 contacts the atomization element 32, and the liquid medium is easy to leak from the connection between a first sealing member 40 and the atomization shell 31. The opening at the end of each guide groove 233 away from the corresponding second liquid absorbing groove 231 and the branch groove 232 is arranged opposite to the connection between the atomization shell 31 and the first sealing member 40. Specifically, the opening directly faces the connection, which can suck the leakage by capillary force. The atomization element 32 passes through the atomization shell 31 in a transverse direction. The atomization element 32 includes an atomization core 321 passing through the atomization shell 31 and a heating element 322 surrounding the atomization core 321. The atomization core 321 may be a cotton core. Two ends of the atomization core 321 are arranged on the two sets of support pillars on the base body 211 and are connected to the liquid guiding element 60 for liquid guiding. A conductive connection part of the heating element 322 penetrates the base 20 and is connected to an electrode 90. In the embodiments, the heating element 322 may be a heating wire.

[0041] Further, in the embodiments, the first sealing member 40 is sleeved on the base 20 and is sleeved on a periphery of the atomization shell 31. Specifically, the first sealing member 40 may be a sealing sleeve. The sealing sleeve may be a silicone sleeve or a rubber sleeve. It can be understood that in other embodiments, the sealing sleeve is not limited to a silicone sleeve or a rubber sleeve.

[0042] Further, in the embodiments, the air-liquid balancing element 50 is cylindrical, specifically, it is in a cylindrical shape with an oval or rectangular cross-section. An outer circumference of the air-liquid balancing element 50 is combined with the inner wall surface of the housing 10 by means of interference fit to seal the liquid storage cavity 111. In the embodiments, the air-liquid balancing element 50 includes two through holes 51, a liquid storage and air exchange structure 52 arranged on a periphery of each through hole 51, and an air flow channel 53 arranged between the two through holes 51. The liquid guiding elements 60 are inserted into the through holes 51. The liquid storage and air exchange structure 52 is configured to communicate the liquid storage cavity 111 with the outside to balance the air pressure in the liquid storage cavity 111. The liquid storage and air exchange structure 52 includes a plurality of liquid storage grooves 521 arranged side-by-side to generate capillary force on the liquid medium and two air return grooves. The air return grooves are configured to store liquid to prevent leakage. The air return grooves are arranged in the longitudinal direction, transversely cut the liquid storage grooves 521, and communicate with the liquid storage grooves 521 and the liquid storage cavity 111, thereby supplying gas into the liquid storage cavity 111. The air flow channel 53 communicates with the air outlet channel 121 to facilitate the communication between the air outlet channel 121 and the atomization cavity 311. With the air-liquid balancing element 60, a temperature ventilation process is formed, which prevents frying oil and burnt odor caused by long-term non-ventilation (insufficient liquid supply), and prevents large-particle droplets and liquid leakage phenomenon caused by sudden large-scale ventilation (excessive liquid supply). Further, by forming an independent ventilation channel and sealing the structural gap, the liquid leakage caused by capillary force of the gap and environmental changes may be prevented, and leakage and condensate may be prevented from being inhaled, thereby improving product yield.

[0043] Further, in the embodiments, each liquid guiding element 60 is arranged corresponding to the through hole 51 on the air-liquid balancing element 50. The liquid guiding elements 60 are inserted into the through holes 51 and are arranged at both ends of the atomization core 321. The liquid guiding elements 60 are connected to the atomization core 321 in a liquid conducting manner. The liquid guiding element 60 may be a cotton core. It is understood that in other embodiments, the liquid guiding element 60 is not limited to a cotton core.

[0044] Further, in the embodiments, the atomizer further includes a fixing sleeve 70 configured for fixing the conductive connection part of the heating element 322 and for positioning the conductive connection part of the heating element 322. The conductive connecting part of the heating element 322 penetrates the fixing sleeve 70. The fixing sleeve 70 defines a through hole 71 communicating with the atomization cavity 311. The through hole 71 is arranged in the longitudinal direction and commu-

nicates with the air outlet channel 121 to facilitate gas circulation. In the embodiments, the fixing sleeve 70 may be a silicone sleeve. It can be understood that in other embodiments, the fixing sleeve 70 may be omitted.

[0045] Further, in the embodiments, the atomizer further includes a second sealing member 80. The second sealing member 80 may be a sealing sleeve, which is sleeved on the air-liquid balancing element 50. The second sealing member 80 defines relief holes facing the liquid guiding element 60 and the air outlet channel 121. The second sealing member 80 may be a silicone sleeve or a rubber sleeve.

[0046] Further, in the embodiments, the atomizer further includes an electrode 90. The electrode 90 includes two electrode columns. The two electrode columns are a positive electrode column and a negative electrode column, which are arranged side by side on the base body 211. For each electrode column, an end is connected to the conductive connection part of the heating element 322 by a lead wire, and the other end is conductively connected to the power supply device.

[0047] FIGS. 9-12 show a second embodiment of the atomizer of the present disclosure. The present disclosure provides an atomizer, including: a base 20; a housing 10 sleeved on the base 20, and sealed and connected to the base 20 to define a liquid storage cavity 111; an electrode 90 arranged on a bottom of the base 20; a liquid injection assembly 109 arranged on and penetrating the base 20 for filling the liquid storage cavity 111; an atomizer body arranged on the base 20; an air flow channel running through the entire atomizer; and a liquid absorbing structure 101. Among them, the base includes a liquid storage structure, and the liquid storage structure refers to the first embodiment, which will not be repeated here. The atomizer body includes an atomization assembly 30, and the air flow channel includes an air inlet channel 131, an atomization cavity 311 and an air outlet channel 121. The liquid absorbing structure 101 is arranged in the air outlet channel 121, and the liquid absorbing structure 101 defines a plurality of liquid storage grooves 105 in a circumferential direction. The liquid storage groove 105 sucks a condensate in the air outlet channel 121 and/or an incomplete atomized cigarette liquid carried out during an inhaling process by capillary forces. In the embodiments, the material of the liquid absorbing structure 101 is one or more of PETG, PCTG, and PC.

[0048] Specifically, the liquid absorbing structure 101 includes a plurality of fins 104. The fins 104 are arranged at intervals in parallel along a longitudinal direction, and a liquid storage groove 105 is defined between every two adjacent fins 104. The width of the liquid storage groove 105 is small enough to generate a capillary force on the condensate, such that in the smoke generated during the inhaling process, the liquid droplets brought out by passing through the fin 104 structure will be trapped in the liquid storage groove 105, and a liquid film is formed in the liquid storage groove 105. In this way, the liquid droplets may be stored in the liquid storage groove 105 to

prevent the leakage of liquid from being inhaled.

[0049] The atomization assembly 30 includes a cylindrical atomization core 321, a liquid guiding cotton 323 surrounding the atomization core 321, and a heating element 322 wound on the atomization core 321. A conductive connection part of the heating element 322 penetrates the base 20 and is connected to the electrode 90. In some embodiments, the heating element 322 may be a heating wire. When in use, the atomization core 321 sucks the cigarette liquid in the liquid storage cavity 111, and the heating element 322 is energized to generate heat, such that the cigarette liquid in the atomization core 321 is atomized. The user inhales through an inhaling port of a top cover of the atomizer. Air enters the atomization core 321 from the air inlet channel 131 under the inhaling action, is mixed with the atomized cigarette liquid in the atomization core 321, and is discharged from the inhaling port of the top cover of the atomizer after passing through the air outlet channel 121.

[0050] In the embodiments, the liquid absorbing structure 101 includes a plurality of fins 104. The fins 104 are arranged in parallel or non-parallel at intervals along the longitudinal direction, and a liquid storage groove 105 is defined between every two adjacent fins 104. The width of the liquid storage groove 105 is small enough to generate a capillary force on the condensate, such that in the smoke generated during the inhaling process, the liquid droplets brought out by passing through the fin 104 structure will be trapped in the liquid storage groove 105, and a liquid film is formed in the liquid storage groove 105. In this way, the liquid droplets may be stored in the liquid storage groove 105 to prevent the leakage of liquid from being inhaled. The thickness of the fin 104 and the width of the liquid storage groove 105 are 0.1-0.5 mm, and in some embodiments 0.15-0.3 mm.

[0051] In order to prevent that too much cigarette liquid accumulated in the liquid storage groove 105 in the liquid absorbing structure 101 will be taken out along with the inhaling, in the embodiments, the liquid absorbing structure 101 includes: at least one return groove 106 extending in the longitudinal direction. At least one return groove 106 longitudinally intersects with at least part of the liquid storage groove 105. When the liquid storage groove 105 accumulates too much cigarette liquid, the cigarette liquid may flow back to the atomization core 321 along the return groove 106 to be atomized again. Specifically, two return grooves 106 with the same diameter are defined on the inner wall of the liquid absorbing structure 101. The return grooves 106 longitudinally extend from the next fin 104 of the top fin 104 of the liquid absorbing structure 101 to the bottom fin 104. The top fin 104 of the liquid absorbing structure 101 is configured to block the condensate in the return groove 106 from flowing to the air outlet channel 121.

[0052] Further, as shown in FIG. 12, in order to make the refluxed cigarette liquid better be sucked by the atomization core 321 and re-atomized, the length of the bottom fin 104 of the liquid absorbing structure 101 ex-

tending to the central axis of the absorbing structure 101 is shorter than the length of an adjacent fin 104 extending to the central axis.

[0053] In some embodiments, the air outlet channel 121 and the atomization assembly 30 are arranged next to each other up and down. The liquid absorbing structure 101 and the air outlet channel 121 are an integral structure. The liquid storage groove 105 is defined on the inner wall surface of the air outlet channel 121. In the embodiments, as shown in FIG. 12, the liquid absorbing structure 101 and the air outlet channel 121 are separate structures. The liquid absorbing structure 101 includes a cylindrical body, which is arranged directly above the atomization assembly 30. The housing 10 includes a main body and an air outlet tube 12 longitudinally arranged in an internal cavity of the main body. The air inlet channel 131, the atomization cavity 311, the inner cavity of the liquid absorbing structure 101, and the air outlet tube 12 form a complete air flow channel.

[0054] The liquid absorbing structure 101 is arranged directly above the atomization core 321 and is arranged next to the atomization core 321. The reason of this arrangement is: when the electronic cigarette is heated, due to an oil film in the atomization process, bubbles generated during the atomization process may easily bring out the incompletely atomized cigarette liquid. When the smoke rises, the liquid absorbing structure directly above the atomization core 321 sucks and stores the liquid droplets carried in the smoke in the liquid storage groove, which greatly reduces the possibility of leakage being inhaled.

[0055] The plurality of fins 104 are arranged on the inner wall surface of the cylindrical body. As shown in FIG. 12, the cylindrical body includes a first part 102 and a second part (not shown) that are detachably enclosed together. The inner wall surface of the first part 102 is arranged with a plurality of first fins, and the inner wall surface of the second part is arranged with a plurality of second fins. Specifically, the liquid absorbing structure is cylindrical and may be formed by a combination of two half-cylinders, and the fins are fan-ring shaped.

[0056] The atomization assembly 30 and the liquid absorbing structure 101 may also be arranged in a same sleeve 107, and the liquid absorbing structure 101 is arranged next to the atomization assembly 30. A position of the sleeve 107 corresponding to the atomization assembly 30 defines at least one liquid inlet 110, which is configured to allow the cigarette liquid in the liquid storage cavity 111 to enter the atomization core 321.

[0057] In addition, in order to fix the atomization assembly 30 and the liquid absorbing structure 101 and make the installation more convenient, the outer side wall of the liquid absorbing structure 101 and the inner side wall of the sleeve 107 are closely arranged. In some embodiments, the liquid absorbing structure 101 and the sleeve 107 may be an integral structure.

[0058] In order to seal a connection between the sleeve 107 and the air outlet channel 121, the sleeve 107 cor-

responding to the top of the liquid absorbing structure 101 is arranged with a sealing member 108 that is sealed and connected to the air outlet channel 121. The seal member may be a silicone sleeve or a rubber sleeve. It can be understood that in other embodiments, the sealing member 108 is not limited to a silicone sleeve or a rubber sleeve.

[0059] The present disclosure also provides an electronic atomization device, as shown in FIGS. 9-12, which includes: a base 20; a housing 10 sleeved on the base 20, and sealed and connected to the base 20 to define a liquid storage cavity 111; an electrode 90 arranged on a bottom of the base 20; a liquid injection assembly 109 arranged on and penetrating the base 20 for filling the liquid storage cavity 111; an atomizer body arranged on the base 20; an air flow channel running through the entire atomizer; and a liquid absorbing structure 101. Among them, the atomizer body includes an atomization assembly 30, and the air flow channel includes an air inlet channel 131, an atomization cavity 311, and an air outlet channel 121. The liquid absorbing structure 101 is arranged in the air outlet channel 121, and the liquid absorbing structure 101 defines a plurality of liquid storage grooves 105 in a circumferential direction. The liquid storage groove 105 sucks a condensate in the air outlet channel 121 and/or an incomplete atomized cigarette liquid carried out during an inhaling process by capillary forces. In the embodiments, the material of the liquid absorbing structure 101 is one or more of PETG, PCTG, and PC. The electronic atomization device may be a disposable atomization device with the base, housing, and atomizer body in an integrated structure, and may also be an atomization device with the base, housing, and atomizer body in a separate structure.

[0060] Specifically, the liquid absorbing structure 101 includes a plurality of fins 104. The fins 104 are arranged at intervals in parallel along a longitudinal direction, and a liquid storage groove 105 is defined between every two adjacent fins 104. The width of the liquid storage groove 105 is small enough to generate a capillary force on the condensate, such that in the smoke generated during the inhaling process, the liquid droplets brought out by the fin 104 structure will be trapped in the liquid storage groove 105, and a liquid film is formed in the liquid storage groove 105. In this way, the liquid droplets may be stored in the liquid storage groove 105 to prevent the leakage of liquid from being inhaled.

[0061] The atomization assembly 30 includes a cylindrical atomization core 321, a liquid guiding cotton 323 surrounding the atomization core 321, and a heating element 322 wound on the atomization core 321. A conductive connection part of the heating element 322 penetrates the base 20 and is connected to the electrode 90. In some embodiments, the heating element 322 may be a heating wire. When in use, the atomization core 321 sucks the cigarette liquid in the liquid storage cavity 111, and the heating element 322 is energized to generate heat, such that the cigarette liquid in the atomization core

321 is atomized. The user inhales through an inhaling port of a top cover of the atomizer. Air enters the atomization core 321 from the air inlet channel 131 under the inhaling action, is mixed with the atomized cigarette liquid in the atomization core 321, and is discharged from the inhaling port of the top cover of the atomizer after passing through the air outlet channel 121.

[0062] In the embodiments, the liquid absorbing structure 101 includes a plurality of fins 104. The fins 104 are arranged in parallel or non-parallel at intervals along the longitudinal direction, and a liquid storage groove 105 is defined between every two adjacent fins 104. The width of the liquid storage groove 105 is small enough to generate a capillary force on the condensate, such that in the smoke generated during the inhaling process, the liquid droplets brought out by passing through the fin 104 structure will be trapped in the liquid storage groove 105, and a liquid film is formed in the liquid storage groove 105. In this way, the liquid droplets may be stored in the liquid storage groove 105 to prevent the leakage of liquid from being inhaled. The thickness of the fin 104 and the width of the liquid storage groove 105 are 0.1-0.5 mm, and in some embodiments 0.15-0.3 mm.

[0063] In order to prevent that too much cigarette liquid accumulated in the liquid storage groove 105 in the liquid absorbing structure 101 will be taken out along with the inhaling, in the embodiments, the liquid absorbing structure 101 includes: at least one return groove 106 extending in the longitudinal direction. At least one return groove 106 longitudinally intersects with at least part of the liquid storage groove 105. When the liquid storage groove 105 accumulates too much cigarette liquid, the cigarette liquid may flow back to the atomization core 321 along the return groove 106 to be atomized again. Specifically, two return grooves 106 with the same diameter are defined on the inner wall of the liquid absorbing structure 101. The return grooves 106 longitudinally extend from the next fin 104 of the top fin 104 of the liquid absorbing structure 101 to the bottom fin. 104. The top fin 104 of the liquid absorbing structure 101 is configured to block the condensate in the return groove 106 from flowing to the air outlet channel 121.

[0064] Further, as shown in FIG. 12, in order to make the refluxed cigarette liquid better be sucked by the atomization core 321 and re-atomized, the length of the bottom fin 104 of the liquid absorbing structure 101 extending to the central axis of the liquid absorbing structure 101 is shorter than the length of an adjacent fin 104 extending to the central axis.

[0065] In some embodiments, the air outlet channel 121 and the atomization assembly 30 are arranged next to each other up and down. The liquid absorbing structure 101 and the air outlet channel 121 are an integral structure. The liquid storage groove 105 is defined on the inner wall surface of the air outlet channel 121. In the embodiments, as shown in FIG. 12, the liquid absorbing structure 101 and the air outlet channel 121 are separate structures. The liquid absorbing structure 101 includes a cy-

lindrical body, which is arranged directly above the atomization assembly 30. The housing 10 includes a main body and an air outlet tube 12 longitudinally arranged in an internal cavity of the main body. The air inlet channel 131, the atomization cavity 311, the inner cavity of the liquid absorbing structure 101, and the air outlet tube 12 form a complete air flow channel.

[0066] The liquid absorbing structure 101 is arranged directly above the atomization core 321 and is arranged next to the atomization core 321. The reason of this arrangement is: when the electronic cigarette is heated, due to an oil film in the atomization process, bubbles generated during the atomization process may easily bring out the incompletely atomized cigarette liquid. When the smoke rises, the liquid absorbing structure directly above the atomization core 321 sucks and stores the liquid droplets carried in the smoke in the liquid storage groove, which greatly reduces the possibility of leakage being inhaled.

[0067] The plurality of fins 104 are arranged on the inner wall surface of the cylindrical body. As shown in FIG. 12, the cylindrical body includes a first part 102 and a second part (not shown) that are detachably enclosed together. The inner wall surface of the first part 102 is arranged with a plurality of first fins, and the inner wall surface of the second part is arranged with a plurality of second fins. Specifically, the liquid absorbing structure is cylindrical and may be formed by a combination of two half-cylinders, and the fins are fan-ring shaped.

[0068] The atomization assembly 30 and the liquid absorbing structure 101 may also be arranged in a same sleeve 107, and the liquid absorbing structure 101 is arranged next to the atomization assembly 30. The sleeve 107 corresponding to the atomization assembly 30 defines at least one liquid inlet 110, which is configured to allow the cigarette liquid in the liquid storage cavity 111 to enter the atomization core 321.

[0069] In addition, in order to fix the atomization assembly 30 and the liquid absorbing structure 101 and make the installation more convenient, the outer side wall of the liquid absorbing structure 101 and the inner side wall of the sleeve 107 are closely arranged. In some embodiments, the liquid absorbing structure 101 and the sleeve 107 may be an integral structure.

[0070] In order to seal a connection between the sleeve 107 and the air outlet channel 121, a position of the sleeve 107 corresponding to the top of the liquid absorbing structure 101 is arranged with a sealing member 108 that is sealed and connected to the air outlet channel 121. The seal member may be a silicone sleeve or a rubber sleeve. It can be understood that in other embodiments, the sealing member 108 is not limited to a silicone sleeve or a rubber sleeve.

[0071] By implementing the second embodiment, the following beneficial effects may be achieved:

[0072] In the present disclosure, the liquid absorbing structure is arranged in the air outlet channel, and the plurality of liquid storage grooves are defined in the cir-

cumferential direction of the liquid absorbing structure. The liquid storage groove sucks the condensate in the air outlet channel by capillary force, such that the condensate generated in the inhaling process and/or the cigarette liquid that is not completely atomized stays in the liquid storage groove and is stored in the liquid storage groove with a liquid film formed in the liquid storage groove, thereby preventing the user from inhaling the leaking liquid during the inhaling process and improving the user's experience.

[0073] In addition, the liquid absorbing structure includes the plurality of fins, the fins are arranged in parallel and spaced along the longitudinal direction, and the liquid storage groove is defined between each two adjacent fins. In the smoke generated during the inhaling process, the liquid droplets brought out by passing through the fin will be trapped in the liquid storage groove.

[0074] In order to further prevent that too much cigarette liquid accumulated in the liquid storage groove in the liquid absorbing structure will be carried out with suction, the liquid absorbing structure of the present disclosure includes at least one return groove extending in the longitudinal direction, and at least one return groove longitudinally intersects with at least part of the liquid storage groove. When the liquid storage groove accumulates too much cigarette liquid, the cigarette liquid may flow back to the atomization core along the return groove to be atomized again.

[0075] In order to better suck and re-atomize the refluxed cigarette liquid, the length of the bottom fin of the liquid absorbing structure extending to the central axis of the liquid absorbing structure is shorter than the length of the adjacent fin extending to the central axis.

[0076] In addition, when the electronic cigarette is heated, due to an oil film in the atomization process, bubbles generated during the atomization process may easily bring out the incompletely atomized cigarette liquid. When the smoke rises, the liquid absorbing structure directly above the atomization core sucks and stores the liquid droplets carried in the smoke in the liquid storage groove, which greatly reduces the possibility of leakage being inhaled.

[0077] FIGS. 9, 10, 11, 13-17 show a third embodiment of the atomizer of the present disclosure. As shown in FIGS. 9, 10 and 11, the present disclosure provides an atomizer, a base 20; a housing 10 sleeved on the base 20, and sealed and connected to the base 20 to define a liquid storage cavity 111; an electrode 90 arranged on a bottom of the base 20; a liquid injection assembly 109 arranged on and penetrating the base 20 for filling the liquid storage cavity 111; an atomizer body arranged on the base 20; an air flow channel running through the entire atomizer; and a first liquid absorbing structure and a second liquid absorbing structure. Among them, the base includes a liquid storage structure, and the liquid storage structure refers to the first embodiment, which will not be repeated here. The atomizer body includes an atomization assembly 30, and the air flow channel includes an

air inlet channel 131, an atomization cavity 311, and an air outlet channel 121. The first liquid absorbing structure and the second liquid absorbing structure are connected to the air outlet channel 121 in a liquid conducting manner. The first liquid absorbing structure and the second liquid absorbing structure suck the condensate formed on the air outlet channel 121 by capillary force. The second liquid absorbing structure is arranged between the atomization assembly 30 and the first liquid absorbing structure, and the capillary force of the second liquid absorbing structure is greater than that of the first liquid absorbing structure. The second liquid absorbing structure defines a liquid storage groove 105 that sucks and stores condensate by capillary force. The condensate in the first liquid absorbing structure reaches the second liquid absorbing structure under the capillary force of the liquid storage groove 105 to be sucked and stored.

[0078] In the embodiments, the second liquid absorbing structure has an inner wall, the inner wall is recessed to define the liquid storage groove 105, and the inner wall of the second liquid absorbing structure encloses a part of the air outlet channel 121. The first liquid absorbing structure is a liquid absorbing groove 122 extending along the longitudinal direction of the inner wall of the air outlet channel 121, and an end of the liquid absorbing groove 122 is butted with the liquid storage groove 105.

[0079] In the embodiments, the air outlet channel 121 includes a detachable first airway wall and a second airway wall. The first liquid absorbing structure is formed on the first airway wall, and the second airway wall is the inner wall of the first liquid absorbing structure. As shown in FIG. 11, the housing 10 includes a main body and an air outlet tube 12 longitudinally arranged in the internal cavity of the main body. The second liquid absorbing structure is arranged below the air outlet tube 12, and the first airway wall is the air outlet tube 12. The second airway wall is the inner wall of the first liquid absorbing structure, and a complete air outlet channel 121 is formed by the air outlet tube 12 and the inner cavity of the second liquid absorbing structure.

[0080] In other embodiments, the second liquid absorbing structure may be formed on an integrally formed single element. For example, the air outlet tube 12 and the atomization assembly 30 are arranged next to each other up and down, and the second liquid absorbing structure and the air outlet tube 12 may be an integrated structure. The liquid storage groove 105 is defined on the inner wall surface of the air outlet tube 12. While in the embodiments, the second liquid absorbing structure and the air outlet tube 12 are separate structures, and the second liquid absorbing structure includes a cylindrical body, which is arranged directly above the atomization assembly 30. The air inlet channel 131, the atomization cavity 311, the inner cavity of the second liquid absorbing structure, and the air outlet tube 12 form a complete air flow channel.

[0081] As shown in FIGS. 13 and 14, the air outlet tube 12 includes a first end 1211 close to the atomization as-

sembly 30 and a second end 1212 far away from the atomization assembly 30. The liquid absorbing groove 122 extends longitudinally from the first end 1211 of the air outlet tube 12 toward the second end 1212 of the air outlet tube 12. The number of liquid absorbing grooves 122 is more than one, and the liquid absorbing grooves 122 are evenly distributed along the peripheral wall of the air outlet channel 121. The liquid absorbing grooves 122 are parallel to the central axis of the air outlet channel 121. The first liquid absorbing structure is detachably connected or fixedly connected to the inner side wall of the air outlet tube 12. In the embodiments, the first liquid absorbing structure is fixedly connected to the inner side wall of the air outlet tube 12, that is, the first liquid absorbing structure and the air outlet tube 12 are an integral structure. At least one longitudinally extending liquid absorbing groove 122 is defined on the inner side wall of the air outlet tube 12. The liquid absorbing groove 122 is not limited to being arranged in the longitudinal direction, and it can be arranged spirally, or inclinedly, or the inner side wall surface is arranged with a rough surface texture to increase the wettability of the surface to the condensate. In other embodiments, the leakage guide is detachably connected to the inner side wall of the air outlet tube 12 by pasting, snapping, or the like.

[0082] As shown in FIG. 11, the atomization assembly 30 includes a cylindrical atomization core 321, a liquid guiding cotton 323 surrounding the atomization core 321, and a heating element 322 wound around the atomization core 321. A conductive connecting part of the heating element 322 penetrates the base 20 and is connected to the electrode 90. In some embodiments, the heating element 322 may be a heating wire. When in use, the liquid guiding cotton 323 sucks the cigarette liquid in the liquid storage cavity 111, and the heating element 322 is energized to generate heat, such that the cigarette liquid in the atomization core 321 is atomized. The user inhales through an inhaling port of a top cover of the atomizer. Air enters the atomization core 321 from the air inlet channel under the inhaling action, is mixed with the atomized cigarette liquid in the atomization core 321, and is discharged from the inhaling port of the top cover of the atomizer after passing through the air outlet channel 121.

[0083] When the atomized gas reaches the air outlet through the air outlet channel 121, airflow around the air outlet channel 121 meets the inner side wall of the air outlet tube 12 to condense to form smoke oil condensate. At this time, the liquid absorbing groove 122 sucks the condensate by capillary action. Since the capillary force of the liquid storage groove 105 is greater than the capillary force of the liquid absorbing groove 122, the condensate in the liquid absorbing groove 122 reaches the second liquid absorbing structure under the capillary force of the liquid storage groove 105 to be sucked and stored.

[0084] In order to make the condensate sucked into the liquid absorbing groove 122 better flow back to the second liquid absorbing structure under the capillary

force of the liquid storage groove 105, and be sucked and stored by the second liquid absorbing structure, the depth of the liquid absorbing groove 122 gradually increases along a direction toward the liquid storage groove 105, that is, gradually increasing from the second end 1212 to the first end 1211. In some embodiments, the depth of the liquid absorbing groove 122 is greater than or equal to 0.1 mm.

[0085] It may also be arranged by setting the width of the liquid absorbing groove 122 to gradually increase along the direction toward the liquid storage groove 105, that is, gradually increasing from the second end 1212 to the first end 1211. And the width of the liquid absorbing groove 122 to gradually increase along a direction from a bottom to an opening. In some embodiments, the width of the liquid absorbing groove 122 is 0.05-1 mm.

[0086] Based on the above embodiments of the first liquid absorbing structure, the bottom of the second liquid absorbing structure abuts against the liquid guiding cotton 323 of the atomization assembly 30, and the bottom of the second liquid absorbing structure is arranged with a reflux structure to connect the liquid storage groove 105 and the liquid guiding cotton 323 in a liquid conducting manner, such that the condensate in the liquid storage groove 105 is returned to the liquid guiding cotton 323 to be sucked and reused. The reflux structure may be a return groove or a liquid outlet or a stepped structure.

[0087] As shown in FIG. 15, in some embodiments, the liquid storage groove 105 is a horizontal liquid storage groove. Specifically, a plurality of first fins 104 are arranged on the inner wall of the second liquid absorbing structure, and the first fins 104 are arranged in parallel and spaced apart along the longitudinal direction. Each two adjacently arranged first fins 104 define a transverse liquid storage groove therebetween. The width of the liquid storage groove 105 is small enough to generate capillary force on the condensate, such that in the smoke generated during the inhaling process, the liquid droplets brought out by passing through the fin 104 structure will be trapped in the liquid storage groove 105, and a liquid film is formed in the liquid storage groove 105. In this way, the liquid droplets may be stored in the liquid storage groove 105 to prevent the leakage of liquid from being inhaled.

[0088] In order to prevent excessive cigarette liquid accumulated in the liquid storage groove 105 in the second liquid absorbing structure, which will be carried out with inhaling, and to achieve reuse of the condensate, in the embodiments, the second absorbing structure includes: at least one return groove 106 extending in the longitudinal direction. At least one return groove 106 longitudinally intersects with at least part of the liquid storage groove 105. When the liquid storage groove 105 accumulates too much cigarette liquid, the cigarette liquid may flow back to the atomization core 321 along the return groove 106 to be atomized again. Specifically, two return grooves 106 with the same diameter are defined on the inner wall of the liquid absorbing structure 101. The return

grooves 106 longitudinally extend from the next fin 104 of the top fin 104 of the liquid absorbing structure 101 to the bottom fin. 104. The top fin 104 of the liquid absorbing structure 101 is configured to block the condensate in the return groove 106 from flowing to the air outlet channel 121.

[0089] In order to make the refluxed cigarette liquid better be sucked by the atomization core 321 and re-atomized, the length of the bottom fin 104 of the liquid absorbing structure 101 extending to the central axis of the absorbing structure 101 is shorter than the length of an adjacent fin 104 extending to the central axis.

[0090] Since the condensate in the liquid absorbing groove 122 will reach the second liquid absorbing structure under the capillary force of the liquid storage groove 105 to be sucked and stored, the first fin 104 on the top of the second liquid absorbing structure defines a first liquid guiding port 117 facing the liquid absorbing groove 122. The first liquid guiding port 117 is configured to divert the condensate in the liquid absorbing groove 122 to the liquid storage groove 105, so as to be better sucked and stored by the second liquid absorbing structure. Specifically, in the embodiments, the second liquid absorbing structure is cylindrical, the top first fin 104 is circular, and the other fins are fan ring shaped. The first liquid guiding port 117 is a notch defined on the inner circular edge of the top first fin 104.

[0091] The plurality of first fins 104 are arranged on the inner wall surface of the cylindrical body. As shown in FIG. 15, the cylindrical body includes a first part 102 and a second part (not shown) that are detachably enclosed together. The inner wall surfaces of the first part 102 and the second part are arranged with the plurality of first fins. Specifically, the liquid absorbing structure is cylindrical and may be formed by a combination of two half-cylinders. The top first fin 104 has a semicircular ring shape, and the other fins have a fan ring shape.

[0092] As shown in FIGS. 16 and 17, in some embodiments, the liquid storage groove 105 is a longitudinal liquid storage groove. Specifically, the second liquid absorbing structure is a hollow structure with a top wall 113 on the top, a plurality of liquid storage plates 114 are arranged from the top wall 113 longitudinally to the bottom, with the liquid storage plates 114 spaced apart. A liquid storage groove 105 is defined between each adjacent two liquid storage plates 114.

[0093] In order to achieve better diversion and liquid suction, in the embodiments, the second liquid absorbing structure further includes at least one liquid guide groove 115 for diverting condensate connected to a part of the liquid storage groove 105. The liquid guide groove 115 transversely intersects with the middle of at least some of the liquid storage plates 114. In some embodiments, the liquid guide groove 115 and the liquid storage groove 114 are not limited to be parallel or perpendicular, as long as the cross flow can be achieved.

[0094] In order to achieve diversion at the bottom of the second liquid absorbing structure, the second liquid

absorbing structure further includes at least one first stepped platform 116 for diverting condensate. The first stepped platform 116 transversely intersects with the bottom of some of the liquid storage plates 114. In the embodiments, the first stepped platform 116 transversely intersects with the bottom of all the liquid storage plates 114.

[0095] In order to allow the divided condensate to better flow back to the atomization core and be re-atomized, the at least one first stepped platform 116 is arranged with a second stepped platform 125. In the embodiments, second stepped platforms 125 are arranged on two first stepped platforms 116. The first stepped platforms 116, the second stepped platforms 125 and the liquid storage groove 105 form a stepped structure.

[0096] Similarly, since the condensate in the liquid absorbing groove 122 will reach the second liquid absorbing structure under the capillary force of the liquid storage groove 105 to be sucked and stored, the top wall 113 of the second liquid absorbing structure defines a second liquid guiding port 118 facing the liquid absorbing groove 122. Specifically, in the embodiments, the second liquid absorbing structure is cylindrical, the top wall 113 is circular, and the second liquid guiding port 118 is a notch defined on the inner circular edge of the top wall 113.

[0097] A plurality of liquid storage plates 114 are arranged on the inner wall of the cylindrical body. The cylindrical body includes a first part and a second part that are detachably enclosed together. The inner wall surfaces of the first part and the second part are arranged with a plurality of liquid storage plates 114. Specifically, the second liquid absorbing structure is cylindrical, and may be formed by combining two semi-cylindricals.

[0098] In some embodiments, the liquid storage groove 105 is a threaded liquid storage groove, and includes: a second fin 120 arranged in a spiral on the inner wall to form the liquid storage groove 105 with a threaded structure.

[0099] In order to allow the condensate in the liquid storage groove 105 to flow back to the atomization core and be re-atomized, the second liquid absorbing structure includes at least one liquid outlet, which longitudinally cuts the second fin 120 at the bottom part.

[0100] A plurality of second fins 120 are arranged on the inner wall of the cylindrical body. The cylindrical body includes a first part and a second part that are detachably enclosed together. The inner wall surfaces of the first part and the second part are arranged with the plurality of second fins 120. Specifically, the second liquid absorbing structure is cylindrical, and may be formed by combining two semi-cylindricals.

[0101] In the above embodiments, the reason why the second liquid absorbing structure is arranged directly above the atomization core 321 and adjacent to the atomization core 321 is that: when the electronic cigarette is heated and atomized, the smoke passes through the air outlet channel and condensate is easily formed on the airway wall. The second liquid absorbing structure of

the present disclosure arranged directly above the atomization assembly can suck and store the liquid droplets carried in the smoke in the liquid storage groove, which greatly reduces the possibility of inhaling leakage.

[0102] In some embodiments, the depth of the liquid storage groove 105 is greater than or equal to 0.1 mm, and the width of the liquid storage groove 105 is 0.05-1 mm. The material of the second liquid absorbing structure may also be one or more of PETG, PCTG and PC.

[0103] Moreover, in the embodiments, as shown in FIG. 11, the atomization assembly 30 and the second liquid absorbing structure are also arranged in a same sleeve 107, and the second liquid absorbing structure is arranged next to the atomization assembly 30. A position of the sleeve 107 corresponding to the atomization assembly 30 defines at least one liquid inlet 110, which is configured to allow the cigarette liquid in the liquid storage cavity 111 to be sucked by the liquid guiding cotton 323.

[0104] In order to fix the atomization assembly 30 and the second liquid absorbing structure and make the installation more convenient, the outer side wall of the second liquid absorbing structure and the inner side wall of the sleeve 107 are closely arranged. In some embodiments, the second liquid absorbing structure and the sleeve 107 may be an integral structure.

[0105] In order to seal the connection between the sleeve 107 and the air outlet channel 121, a position of the sleeve 107 corresponding to the top of the second liquid absorbing structure is arranged with a sealing member 108 that is sealed and connected to the air outlet channel 121. The seal member may be a silicone sleeve or a rubber sleeve. It can be understood that in other embodiments, the sealing member 108 is not limited to a silicone sleeve or a rubber sleeve.

[0106] The present disclosure also proposes an electronic atomization device, as shown in FIGS. 9, 10 and 11, including a base 20, a housing 10 sleeved on the base 20, and sealed and connected to the base 20 to define a liquid storage cavity 111; an electrode 90 arranged on a bottom 20 of the base 20; a liquid injection assembly 109 arranged on and penetrating the base 20 for filling the liquid storage cavity 111; an atomizer body arranged on the base 20; an air flow channel running through the entire atomizer; and a first liquid absorbing structure and a second liquid absorbing structure. Among them, the atomizer body includes an atomization assembly 30, and the air flow channel includes an air inlet channel 131, an atomization cavity 311, and an air outlet channel 121. The first liquid absorbing structure and the second liquid absorbing structure are connected to the air outlet channel 121 in a liquid conducting manner. The first liquid absorbing structure and the second liquid absorbing structure suck the condensate formed on the air outlet channel 121 by capillary force. The second liquid absorbing structure is arranged between the atomization assembly 30 and the first liquid absorbing structure, and the capillary force of the second liquid absorbing structure is greater than that of the first liquid absorbing struc-

ture. The second liquid absorbing structure defines a liquid storage groove 105 that sucks and stores condensate by capillary force. The condensate in the first liquid absorbing structure reaches the second liquid absorbing structure under the capillary force of the liquid storage groove 105 to be sucked and stored. In the embodiment, the electronic atomization device is a disposable atomization device with the base, the housing, and the atomizer body in an integrated structure, or a disposable atomization device with the base, the housing, and the atomizer body in a separated structure.

[0107] In the embodiments, the second liquid absorbing structure has an inner wall, the inner wall is recessed to define the liquid storage groove 105, and the inner wall of the second liquid absorbing structure encloses a part of the air outlet channel 121. The first liquid absorbing structure is a liquid absorbing groove 122 extending along the longitudinal direction of the inner wall of the air outlet channel 121, and an end of the liquid absorbing groove 122 is butted with the liquid storage groove 105.

[0108] In the embodiments, the air outlet channel 121 includes a detachable first airway wall and a second airway wall. The first liquid absorbing structure is formed on the first airway wall, and the second airway wall is the inner wall of the first liquid absorbing structure. As shown in FIG. 11, the housing 10 includes a main body and an air outlet tube 12 longitudinally arranged in the internal cavity of the main body. The second liquid absorbing structure is arranged below the air outlet tube 12, and the first airway wall is the air outlet tube 12. The second airway wall is the inner wall of the first liquid absorbing structure, and a complete air outlet channel 121 is formed by the air outlet tube 12 and the inner cavity of the second liquid absorbing structure.

[0109] In other embodiments, the second liquid absorbing structure may be formed on an integrally formed single element. For example, the air outlet tube 12 and the atomization assembly 30 are arranged next to each other up and down, and the second liquid absorbing structure and the air outlet tube 12 may be an integrated structure. The liquid storage groove 105 is defined on the inner wall surface of the air outlet tube 12. While in the embodiments, the second liquid absorbing structure and the air outlet tube 12 are separate structures, and the second liquid absorbing structure includes a cylindrical body, which is arranged directly above the atomization assembly 30. The air inlet channel 131, the atomization cavity 311, the inner cavity of the second liquid absorbing structure, and the air outlet tube 12 form a complete air flow channel.

[0110] As shown in FIGS. 13 and 14, the air outlet tube 12 includes a first end 1211 close to the atomization assembly 30 and a second end 1212 far away from the atomization assembly 30. The liquid absorbing groove 122 extends longitudinally from the first end 1211 of the air outlet tube 12 toward the second end 1212 of the air outlet tube 12. The number of liquid absorbing grooves 122 is more than one, and the liquid absorbing grooves

122 are evenly distributed along the peripheral wall of the air outlet channel 121. The liquid absorbing grooves 122 are parallel to the central axis of the air outlet channel 121. The first liquid absorbing structure is detachably connected or fixedly connected to the inner side wall of the air outlet tube 12. In the embodiments, the first liquid absorbing structure is fixedly connected to the inner side wall of the air outlet tube 12, that is, the first liquid absorbing structure and the air outlet tube 12 are an integral structure. At least one longitudinally extending liquid absorbing groove 122 is defined on the inner side wall of the air outlet tube 12. The liquid absorbing groove 122 is not limited to being arranged in the longitudinal direction, and it can be arranged spirally, or inclinedly, or the inner side wall surface is arranged with a rough surface texture to increase the wettability of the surface to the condensate. In other embodiments, the leakage guide is detachably connected to the inner side wall of the air outlet tube 12 by pasting, snapping, or the like.

[0111] As shown in FIG. 11, the atomization assembly 30 includes a cylindrical atomization core 321, a liquid guiding cotton 323 surrounding the atomization core 321, and a heating element 322 wound around the atomization core 321. A conductive connecting part of the heating element 322 penetrates the base 20 and is connected to the electrode 90. In some embodiments, the heating element 322 may be a heating wire. When in use, the liquid guiding cotton 323 sucks the cigarette liquid in the liquid storage cavity 111, and the heating element 322 is energized to generate heat, such that the cigarette liquid in the atomization core 321 is atomized. The user inhales through an inhaling port of a top cover of the atomizer. Air enters the atomization core 321 from the air inlet channel under the inhaling action, is mixed with the atomized cigarette liquid in the atomization core 321, and is discharged from the inhaling port of the top cover of the atomizer after passing through the air outlet channel 121.

[0112] When the atomized gas reaches the air outlet through the air outlet channel 121, airflow around the air outlet channel 121 meets the inner side wall of the air outlet tube 12 to condense to form smoke oil condensate. At this time, the liquid absorbing groove 122 sucks the condensate by capillary action. Since the capillary force of the liquid storage groove 105 is greater than the capillary force of the liquid absorbing groove 122, the condensate in the liquid absorbing groove 122 reaches the second liquid absorbing structure under the capillary force of the liquid storage groove 105 to be sucked and stored.

[0113] In order to make the condensate sucked into the liquid absorbing groove 122 better flow back to the second liquid absorbing structure under the capillary force of the liquid storage groove 105, and be sucked and stored by the second liquid absorbing structure, the depth of the liquid absorbing groove 122 gradually increases along a direction toward the liquid storage groove 105, that is, gradually increasing from the second end 1212 to the first end 1211. In some embodiments,

the depth of the liquid absorbing groove 122 is greater than or equal to 0.1 mm.

[0114] It may also be arranged by setting the width of the liquid absorbing groove 122 to gradually increase along the direction toward the liquid storage groove 105, that is, gradually increasing from the second end 1212 to the first end 1211. And the width of the liquid absorbing groove 122 to gradually increase along a direction from a bottom to an opening. In some embodiments, the width of the liquid absorbing groove 122 is 0.05-1 mm.

[0115] Based on the above embodiments of the first liquid absorbing structure, the bottom of the second liquid absorbing structure abuts against the liquid guiding cotton 323 of the atomization assembly 30, and the bottom of the second liquid absorbing structure is arranged with a reflux structure to connect the liquid storage groove 105 and the liquid guiding cotton 323 in a liquid conducting manner, such that the condensate in the liquid storage groove 105 is returned to the liquid guiding cotton 323 to be sucked and reused. The reflux structure may be a return groove or a liquid outlet or a stepped structure.

[0116] As shown in FIG. 15, in some embodiments, the liquid storage groove 105 is a horizontal liquid storage groove. Specifically, a plurality of first fins 104 are arranged on the inner wall of the second liquid absorbing structure, and the first fins 104 are arranged in parallel and spaced apart along the longitudinal direction. Each two adjacently arranged first fins 104 define a transverse liquid storage groove therebetween. The width of the liquid storage groove 105 is small enough to generate capillary force on the condensate, such that in the smoke generated during the inhaling process, the liquid droplets brought out by passing through the fin 104 structure will be trapped in the liquid storage groove 105, and a liquid film is formed in the liquid storage groove 105. In this way, the liquid droplets may be stored in the liquid storage groove 105 to prevent the leakage of liquid from being inhaled.

[0117] In order to prevent excessive cigarette liquid accumulated in the liquid storage groove 105 in the second liquid absorbing structure, which will be carried out with inhaling, and to achieve reuse of the condensate, in the embodiments, the second absorbing structure includes: at least one return groove 106 extending in the longitudinal direction. At least one return groove 106 longitudinally intersects with at least part of the liquid storage groove 105. When the liquid storage groove 105 accumulates too much cigarette liquid, the cigarette liquid may flow back to the atomization core 321 along the return groove 106 to be atomized again. Specifically, two return grooves 106 with the same diameter are defined on the inner wall of the liquid absorbing structure 101. The return grooves 106 longitudinally extend from the next fin 104 of the top fin 104 of the liquid absorbing structure 101 to the bottom fin 104. The top fin 104 of the liquid absorbing structure 101 is configured to block the condensate in the return groove 106 from flowing to the air outlet channel 121.

[0118] In order to make the refluxed cigarette liquid better be sucked by the atomization core 321 and re-atomized, the length of the bottom fin 104 of the liquid absorbing structure 101 extending to the central axis of the absorbing structure 101 is shorter than the length of an adjacent fin 104 extending to the central axis.

[0119] Since the condensate in the liquid absorbing groove 122 will reach the second liquid absorbing structure under the capillary force of the liquid storage groove 105 to be sucked and stored, the first fin 104 on the top of the second liquid absorbing structure defines a first liquid guiding port 117 facing the liquid absorbing groove 122. The first liquid guiding port 117 is configured to divert the condensate in the liquid absorbing groove 122 to the liquid storage groove 105, so as to be better sucked and stored by the second liquid absorbing structure. Specifically, in the embodiments, the second liquid absorbing structure is cylindrical, the top first fin 104 is circular, and the other fins are fan ring shaped. The first liquid guiding port 117 is a notch defined on the inner circular edge of the top first fin 104.

[0120] The plurality of first fins 104 are arranged on the inner wall surface of the cylindrical body. As shown in FIG. 15, the cylindrical body includes a first part 102 and a second part (not shown) that are detachably enclosed together. The inner wall surfaces of the first part 102 and the second part are arranged with the plurality of first fins. Specifically, the liquid absorbing structure is cylindrical and may be formed by a combination of two half-cylinders. The top first fin 104 has a semicircular ring shape, and the other fins have a fan ring shape.

[0121] As shown in FIGS. 16 and 17, in some embodiments, the liquid storage groove 105 is a longitudinal liquid storage groove. Specifically, the second liquid absorbing structure is a hollow structure with a top wall 113 on the top, a plurality of liquid storage plates 114 are arranged from the top wall 113 longitudinally to the bottom, with the liquid storage plates 114 spaced apart. A liquid storage groove 105 is defined between each adjacent two liquid storage plates 114.

[0122] In order to achieve better diversion and liquid suction, in the embodiments, the second liquid absorbing structure further includes at least one liquid guide groove 115 for diverting condensate connected to a part of the liquid storage groove 105. The liquid guide groove 115 transversely intersects with the middle of at least some of the liquid storage plates 114. In some embodiments, the liquid guide groove 115 and the liquid storage plate 114 are not limited to be parallel or perpendicular, as long as the cross flow can be achieved.

[0123] In order to achieve diversion at the bottom of the second liquid absorbing structure, the second liquid absorbing structure further includes at least one first stepped platform 116 for diverting condensate. The first stepped platform 116 transversely intersects with the bottom of some of the liquid storage plates 114. In the embodiments, the first stepped platform 116 transversely intersects with the bottom of all the liquid storage plates

114.

[0124] In order to allow the divided condensate to better flow back to the atomization core and be re-atomized, the at least one first stepped platform 116 is arranged with a second stepped platform 125. In the embodiments, second stepped platforms 125 are arranged on two first stepped platforms 116. The first stepped platforms 116, the second stepped platforms 125 and the liquid storage groove 105 form a stepped structure.

[0125] Similarly, since the condensate in the liquid absorbing groove 122 will reach the second liquid absorbing structure under the capillary force of the liquid storage groove 105 to be sucked and stored, the top wall 113 of the second liquid absorbing structure defines a second liquid guiding port 118 facing the liquid absorbing groove 122. Specifically, in the embodiments, the second liquid absorbing structure is cylindrical, the top wall 113 is circular, and the second liquid guiding port 118 is a notch defined on the inner circular edge of the top wall 113.

[0126] A plurality of liquid storage plates 114 are arranged on the inner wall of the cylindrical body. The cylindrical body includes a first part and a second part that are detachably enclosed together. The inner wall surfaces of the first part and the second part are arranged with a plurality of liquid storage plates 114. Specifically, the second liquid absorbing structure is cylindrical, and may be formed by combining two semi-cylindricals.

[0127] In some embodiments, the liquid storage groove 105 is a threaded liquid storage groove, and includes: a second fin 120 arranged in a spiral on the inner wall to form the liquid storage groove 105 with a threaded structure.

[0128] In order to allow the condensate in the liquid storage groove 105 to flow back to the atomization core and be re-atomized, the second liquid absorbing structure includes at least one liquid outlet, which longitudinally cuts the second fin 120 at the bottom part.

[0129] A plurality of second fins 120 are arranged on the inner wall of the cylindrical body. The cylindrical body includes a first part and a second part that are detachably enclosed together. The inner wall surfaces of the first part and the second part are arranged with the plurality of second fins 120. Specifically, the second liquid absorbing structure is cylindrical, and may be formed by combining two semi-cylindricals.

[0130] In the above embodiments, the reason why the second liquid absorbing structure is arranged directly above the atomization core 321 and adjacent to the atomization core 321 is that: when the electronic cigarette is heated and atomized, the smoke passes through the air outlet channel and condensate is easily formed on the airway wall. The second liquid absorbing structure of the present disclosure arranged directly above the atomization assembly can suck and store the liquid droplets carried in the smoke in the liquid storage groove, which greatly reduces the possibility of inhaling leakage.

[0131] In some embodiments, the depth of the liquid storage groove 105 is greater than or equal to 0.1 mm,

and the width of the liquid storage groove 105 is 0.05-1 mm. The material of the second liquid absorbing structure may also be one or more of PETG, PCTG and PC.

[0132] Moreover, in the embodiments, as shown in FIG. 11, the atomization assembly 30 and the second liquid absorbing structure are also arranged in a same sleeve 107, and the second liquid absorbing structure is arranged next to the atomization assembly 30. A position of the sleeve 107 corresponding to the atomization assembly 30 defines at least one liquid inlet 110, which is configured to allow the cigarette liquid in the liquid storage cavity 111 to be sucked by the liquid guiding cotton 323.

[0133] In order to fix the atomization assembly 30 and the second liquid absorbing structure and make the installation more convenient, the outer side wall of the second liquid absorbing structure and the inner side wall of the sleeve 107 are closely arranged. In some embodiments, the second liquid absorbing structure and the sleeve 107 may be an integral structure.

[0134] In order to seal the connection between the sleeve 107 and the air outlet channel 121, a position of the sleeve 107 corresponding to the top of the second liquid absorbing structure is arranged with a sealing member 108 that is sealed and connected to the air outlet channel 121. The seal member may be a silicone sleeve or a rubber sleeve. It can be understood that in other embodiments, the sealing member 108 is not limited to a silicone sleeve or a rubber sleeve.

[0135] By implementing the third embodiment, the following beneficial effects are achieved:

[0136] In the present disclosure, the first liquid absorbing structure and the second liquid absorbing structure connected in a liquid conducting manner are arranged on the air outlet channel. The first liquid absorbing structure and the second liquid absorbing structure suck the condensate formed on the air outlet channel by capillary force. The second liquid absorbing structure is arranged between the atomization assembly and the first liquid absorbing structure, and the capillary force of the second liquid absorbing structure is greater than that of the first liquid absorbing structure. The second liquid absorbing structure defines a liquid storage groove that sucks and stores condensate by capillary force. The condensate in the first liquid absorbing structure reaches the second liquid absorbing structure under the capillary force of the liquid storage groove to be sucked and stored, which makes smoke oil not fully atomized in the inhaling process and condensate generated on the outlet channel to be absorbed and stored, preventing users from inhaling leakage during the inhaling process, and improving the user experience.

[0137] In addition, the bottom of the second liquid absorbing structure of the present disclosure abuts against the liquid guiding cotton 323, and the bottom of the second liquid absorbing structure is arranged with a backflow structure to allow the liquid storage groove and the liquid guiding cotton 323 to communicate with each other. The condensate in the liquid reservoir is recovered to the liq-

uid guiding cotton 323 to be re-atomized to improve the utilization rate of the cigarette oil.

[0138] When the electronic cigarette is heated and atomized, the smoke passes through the air outlet channel and condensate is easily formed on the airway wall. The second liquid absorbing structure of the present disclosure arranged directly above the atomization assembly can suck and store the liquid droplets carried in the smoke in the liquid storage groove, which greatly reduces the possibility of inhaling leakage.

[0139] It is to be understood that the above examples only present preferred embodiments of the present disclosure, and the description is more specific and detailed, but it should not be construed as a limitation on the scope of the present disclosure. It should be noted that for those skilled in the art, the above technical features can be freely combined and several deformations and improvements can be made without departing from the conception of the present disclosure, all of which fall within the scope of the present disclosure. Therefore, all equivalent transformations and modifications made within the scope of the claims of the present disclosure shall fall within the scope of coverage of the claims of the present disclosure.

Claims

1. An atomizer, **characterized by** comprising an atomization cavity and an air outlet channel communicated with the atomization cavity; wherein a bottom of the atomization cavity is arranged with a liquid storage structure; the liquid storage structure is communicated with the atomization cavity and comprises at least one second liquid absorbing groove facing the atomization cavity; the second liquid absorbing groove is configured to absorb a liquid medium leaking from the atomization cavity and/or the air outlet channel by capillary forces.
2. The atomizer according to claim 1, wherein each second liquid absorbing groove extends along a lateral direction of the atomization cavity.
3. The atomizer according to claim 1, wherein the number of the at least one second liquid absorbing groove is more than one, and the plurality of second liquid absorbing grooves are arranged side by side and spaced apart.
4. The atomizer according to claim 3, wherein the liquid storage structure further comprises at least one branch groove; the at least one branch groove is crossed and connected to the plurality of second liquid absorbing grooves.
5. The atomizer according to claim 4, wherein a width of each branch groove is greater than a width of each second liquid absorbing groove.

6. The atomizer according to claim 3, further comprising a base; wherein the atomization cavity is arranged on the base;
the at least one second liquid absorbing groove and the at least one branch groove are arranged on a side of the base facing the atomization cavity. 5
7. The atomizer according to claim 6, wherein the side of the base facing the atomization cavity is provided with a groove;
the at least one second liquid absorbing groove and the at least one branch groove are arranged on a bottom of the groove. 10
8. The atomizer according to claim 7, further comprising:
a first sealing member, sleeved on the base; an atomization element; and an atomization shell sleeved on the base and configured to install the atomization element;
wherein an inside of the atomization shell defines the atomization cavity;
the first sealing member is sleeved on a periphery of the atomization shell. 20 25
9. The atomizer according to claim 8, wherein the liquid storage structure further comprises a plurality of guide grooves; wherein each guide groove is communicated with a corresponding second liquid absorbing groove and a corresponding branch groove;
the plurality of guide grooves are arranged on a side wall of the groove and extends along a longitudinal direction of the base;
an opening of each guide groove away from the corresponding second liquid absorbing groove and the corresponding branch groove is arranged facing a connection of the atomization shell and the first sealing member; the plurality of guide grooves are configured to suck the liquid medium leaking from the connection by capillary forces. 30 35 40
10. The atomizer according to claim 8, wherein an inner side wall of the groove is arranged with a step for assembly with the atomization shell. 45
11. The atomizer according to claim 1, wherein a width of each second liquid absorbing groove is 0.05-1mm. 50
12. The atomizer according to claim 1, wherein a depth of each second liquid absorbing groove is greater than or equal to 0.1mm. 55
13. The atomizer according to claim 9, wherein a width of each guide groove is 0.05-1mm.
14. An electronic atomization device, **characterized by** comprising an atomization cavity and an air outlet channel communicated with the atomization cavity; wherein a bottom of the atomization cavity is arranged with a liquid storage structure; the liquid storage structure is communicated with the atomization cavity and comprises at least one second liquid absorbing groove facing the atomization cavity; the second liquid absorbing groove is configured to suck a liquid medium leaking from the atomization cavity and/or the air outlet channel by capillary forces.
15. The electronic atomization device according to claim 14, wherein each second liquid absorbing groove extends along a lateral direction of the atomization cavity.
16. The electronic atomization device according to claim 14, wherein the liquid storage structure further comprises at least one branch groove; the at least one branch groove is crossed and connected to the at least one second liquid absorbing groove.
17. The electronic atomization device according to claim 14, further comprising a base; wherein the atomization cavity is arranged on the base;
the at least one second liquid absorbing groove and the at least one branch groove are arranged on a side of the base facing the atomization cavity.
18. The electronic atomization device according to claim 17, wherein the side of the base facing the atomization cavity defines a groove;
the at least one second liquid absorbing groove and the at least one branch groove are arranged on a bottom of the groove.
19. The electronic atomization device according to claim 18, further comprising:
a first sealing member, sleeved on the base; an atomization element; and an atomization shell sleeved on the base and configured to install the atomization element;
wherein an inside of the atomization shell defines the atomization cavity;
the first sealing member is sleeved on a periphery of the atomization shell.
20. The electronic atomization device according to claim 19, wherein the liquid storage structure further comprises a plurality of guide grooves; wherein each guide groove is communicated with a corresponding second liquid absorbing groove and a corresponding branch groove;
the plurality of guide grooves are arranged on a side wall of the groove and extends along a longitudinal direction of the base.

gitudinal direction of the base;
an opening of each guide groove away from the
corresponding second liquid absorbing groove
and the corresponding branch groove is ar-
ranged facing a connection of the atomization
shell and the first sealing member; the plurality
of guide grooves are configured to suck the liq-
uid medium leaking from the connection by cap-
illary forces.

5

10

15

20

25

30

35

40

45

50

55

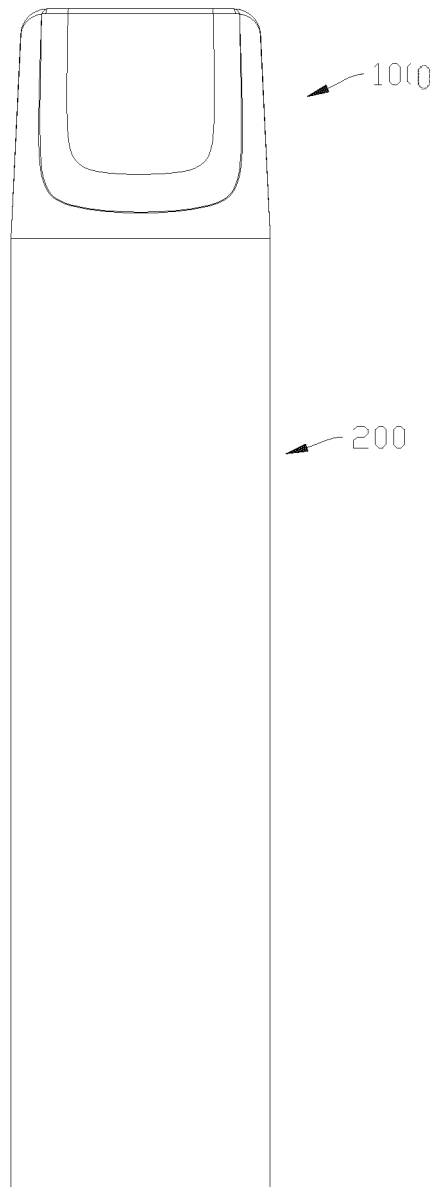


FIG. 1

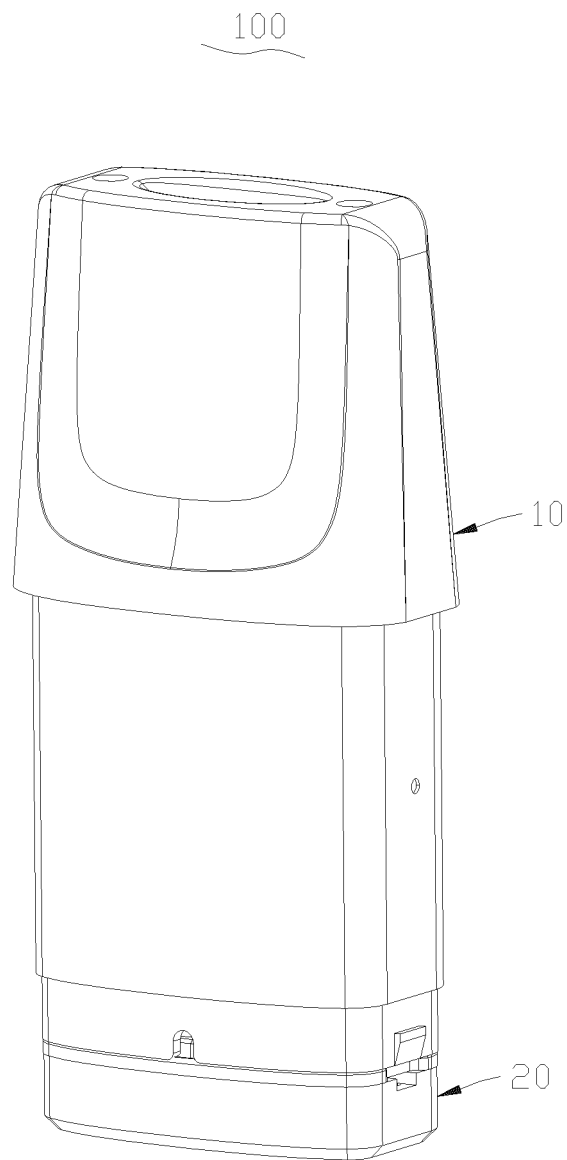


FIG. 2

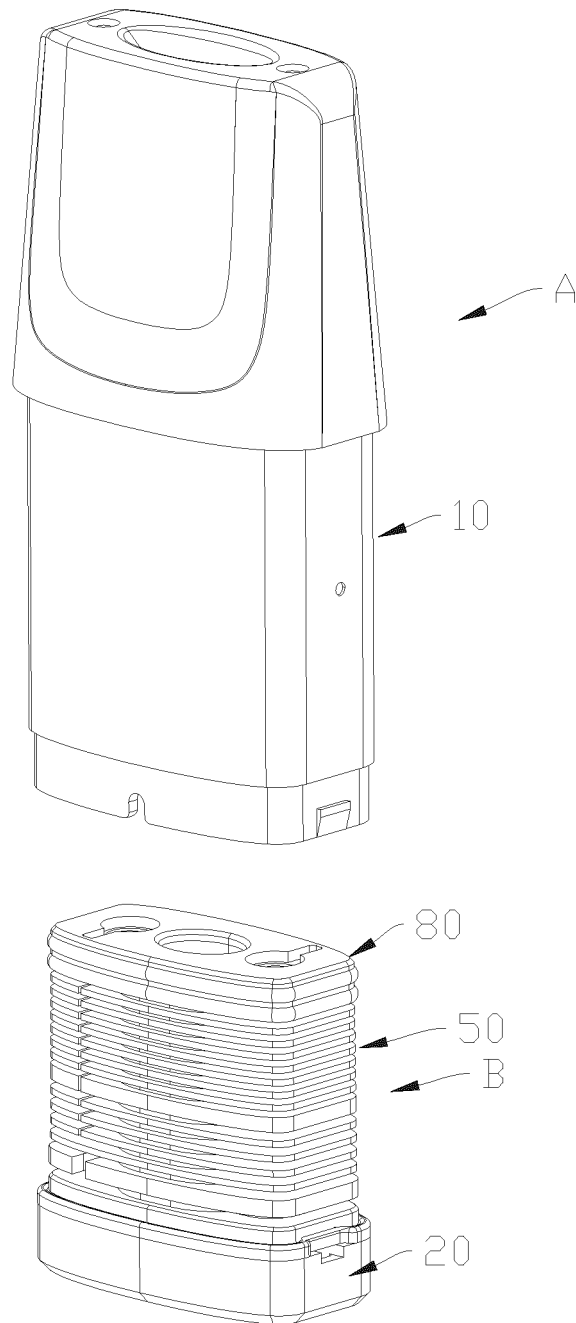


FIG. 3

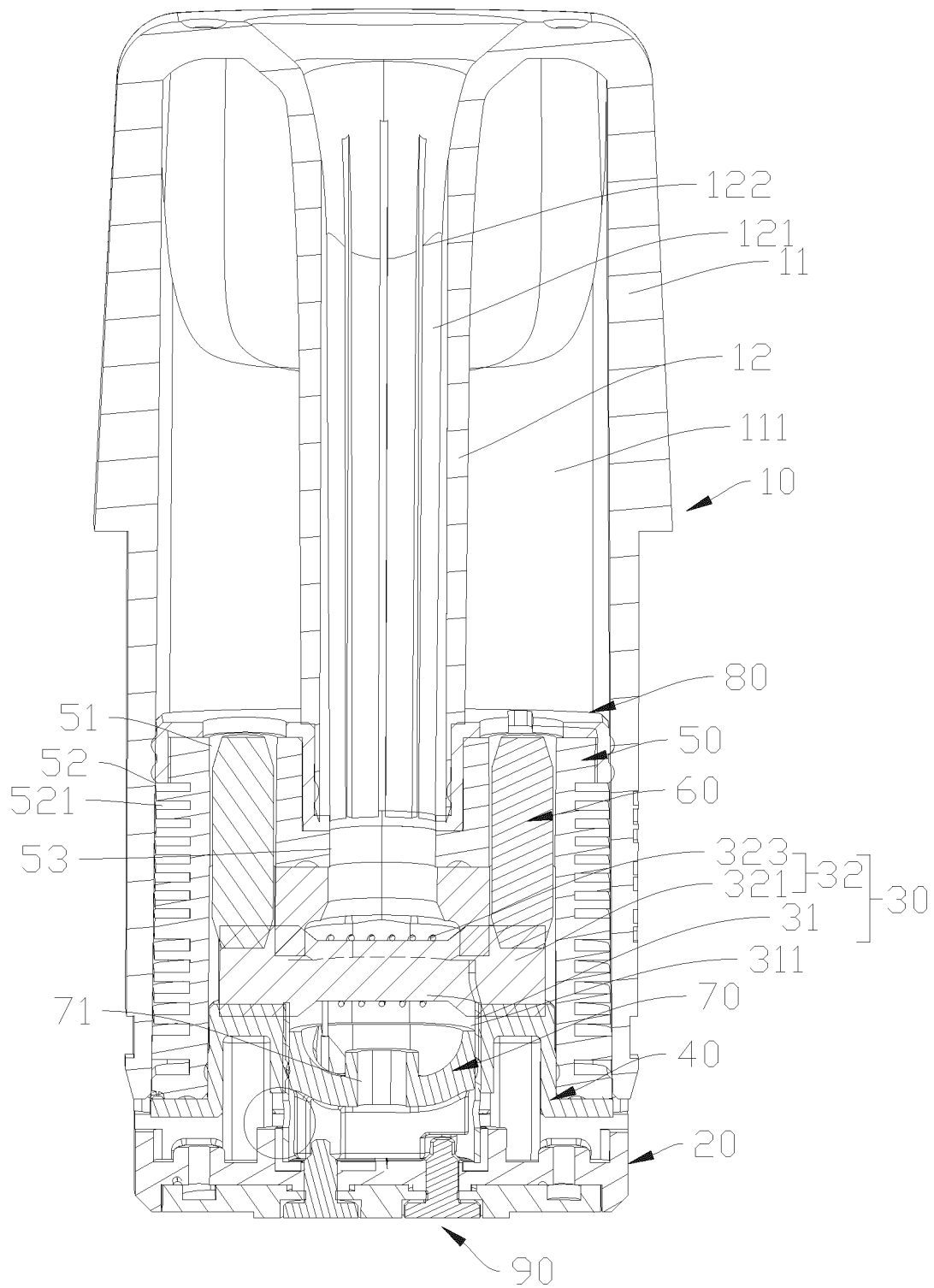


FIG. 4

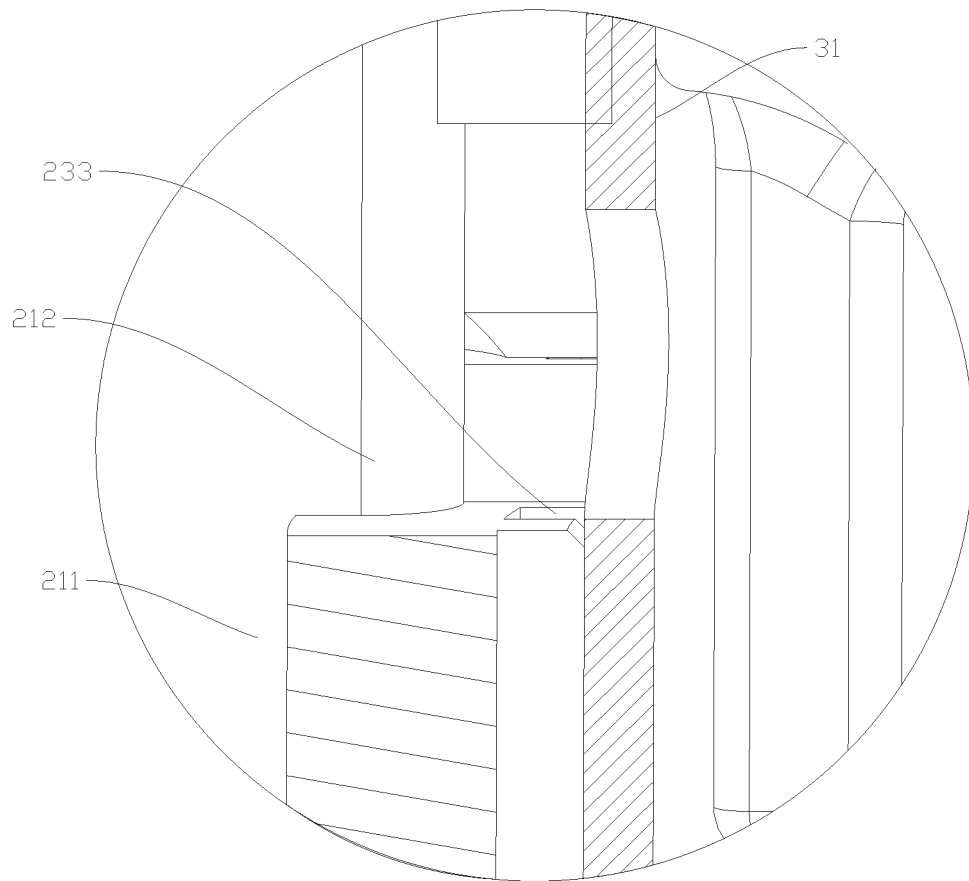


FIG. 5

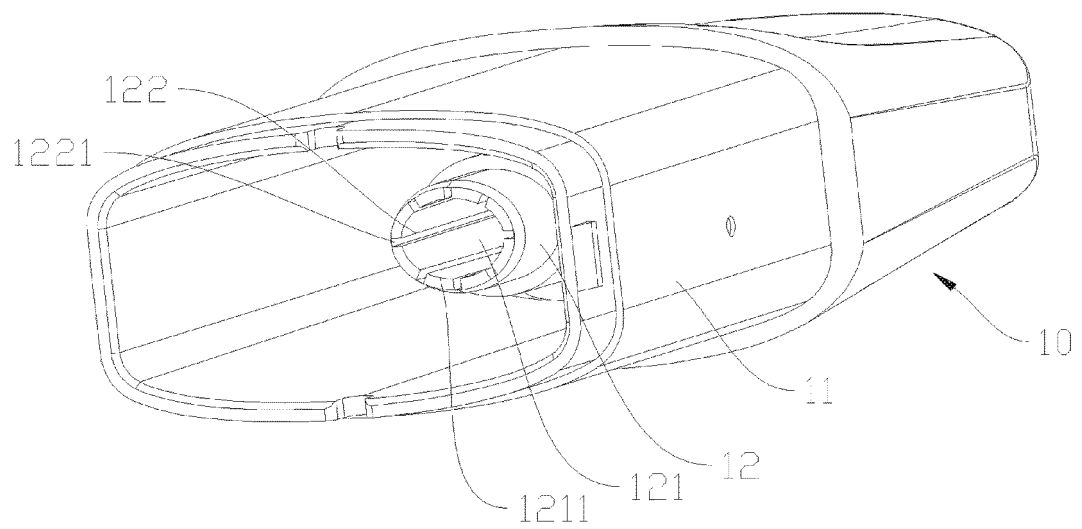


FIG. 6

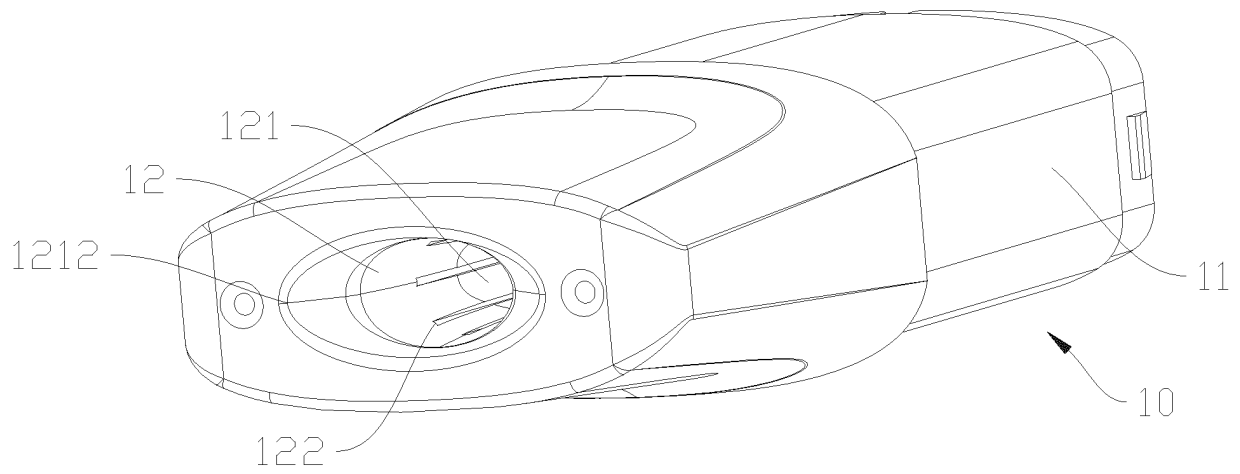


FIG. 7

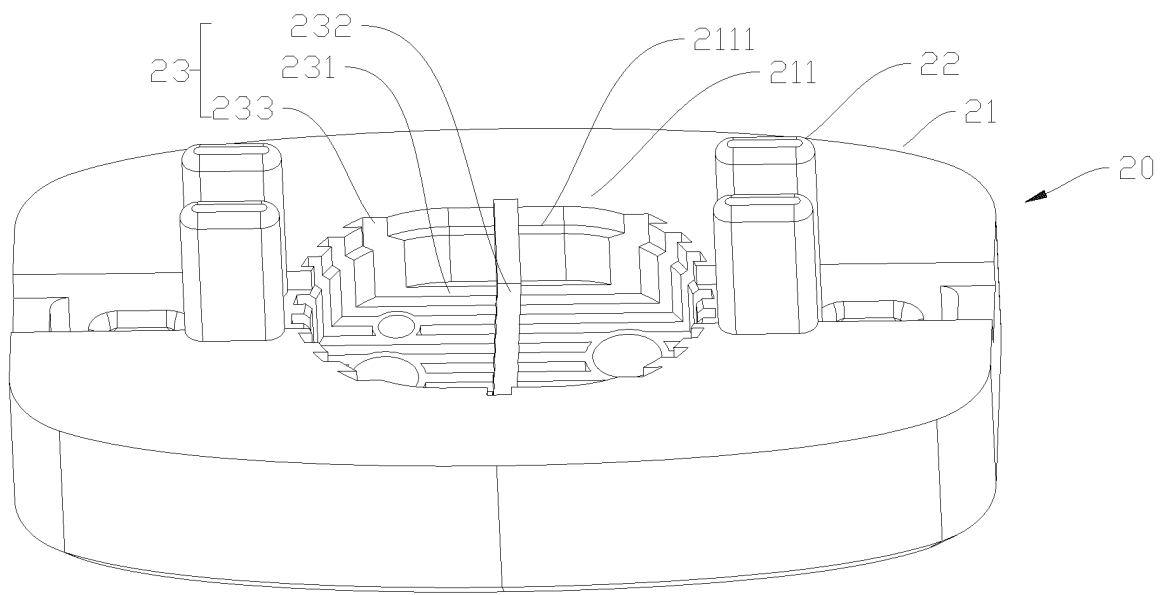


FIG. 8

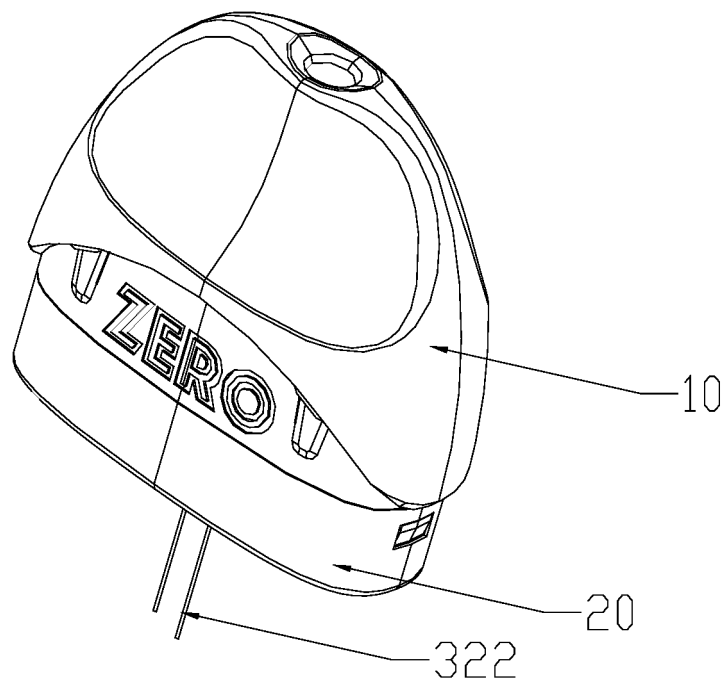


FIG. 9

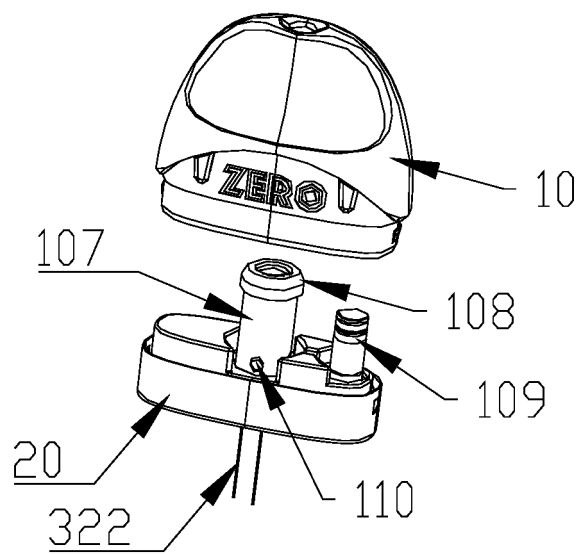


FIG. 10

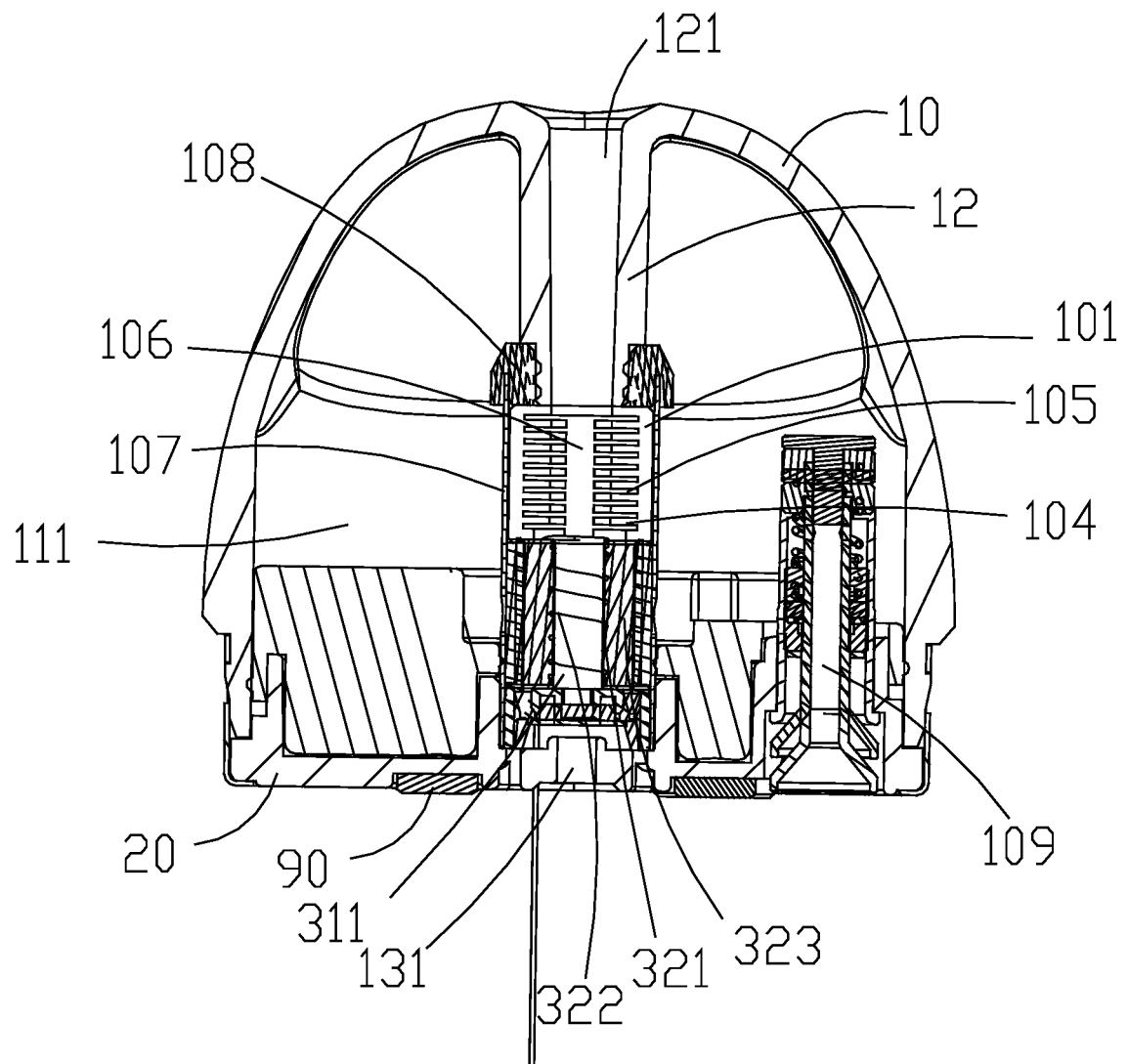


FIG. 11

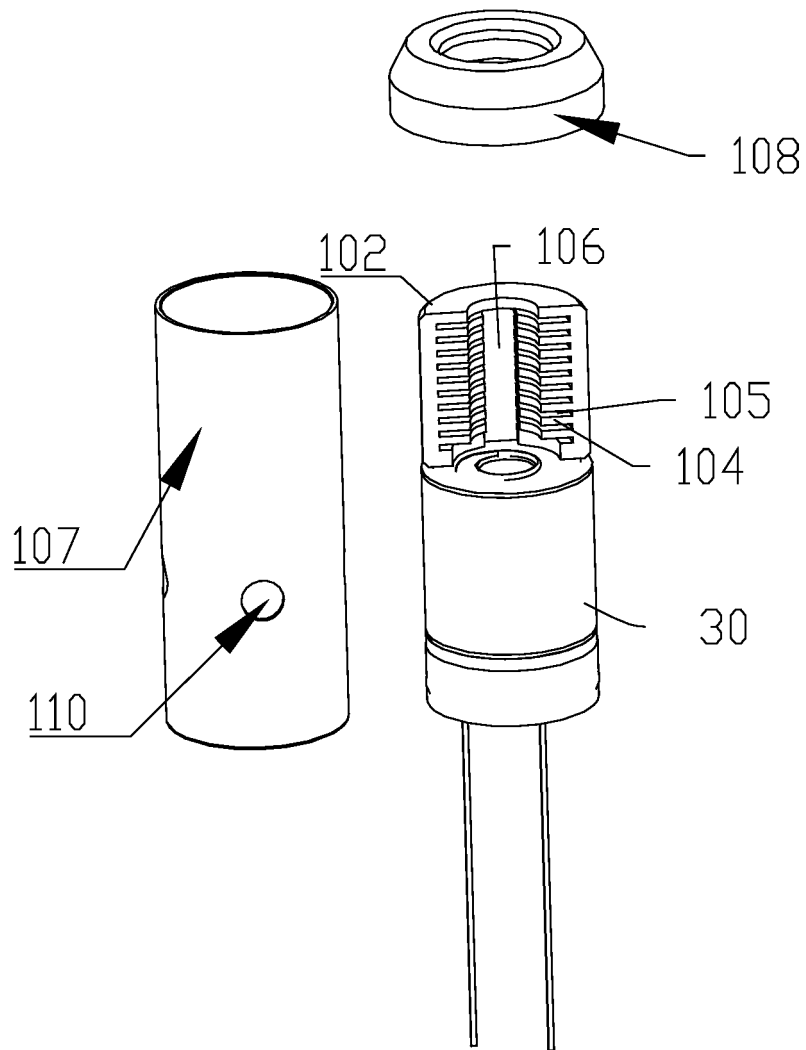


FIG. 12

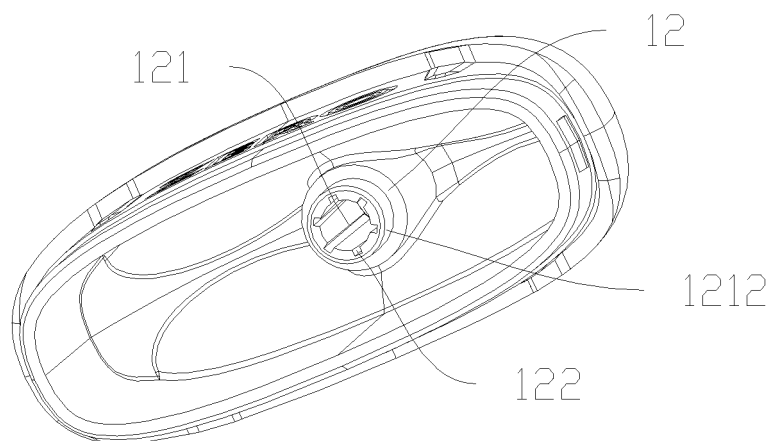


FIG. 13

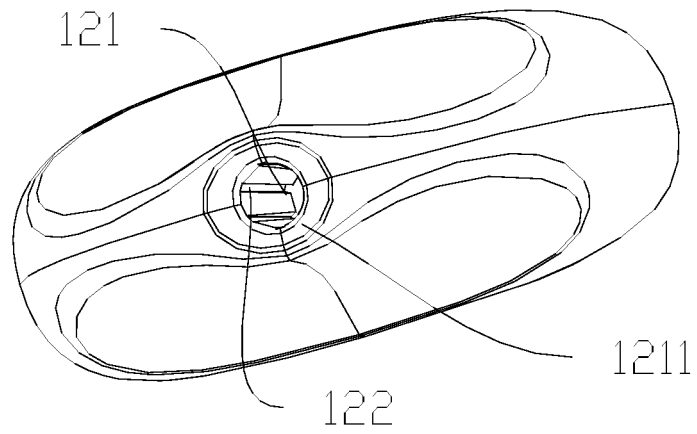


FIG. 14

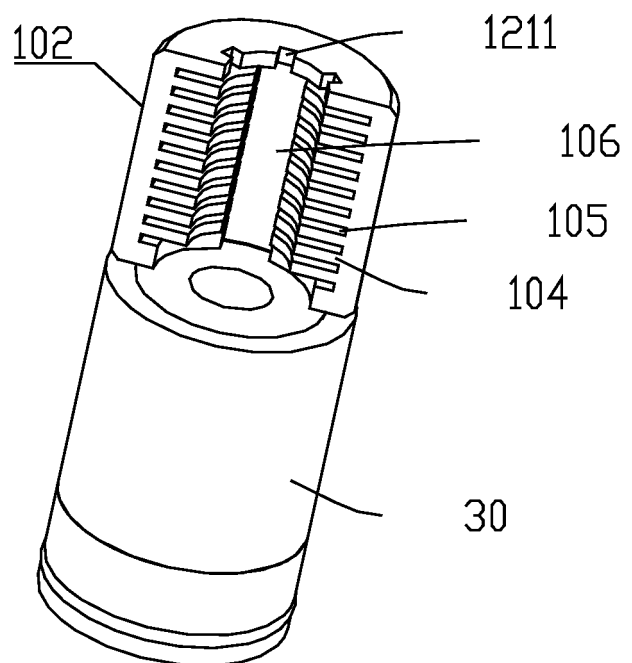
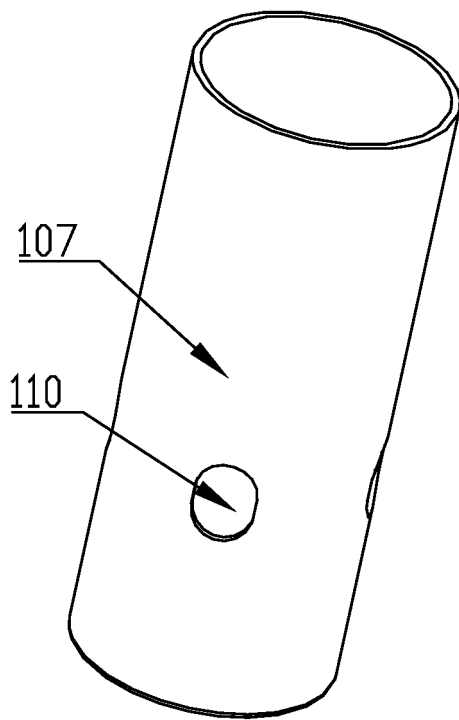
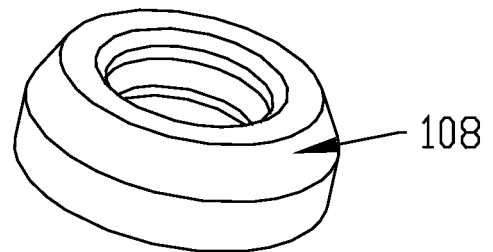


FIG. 15

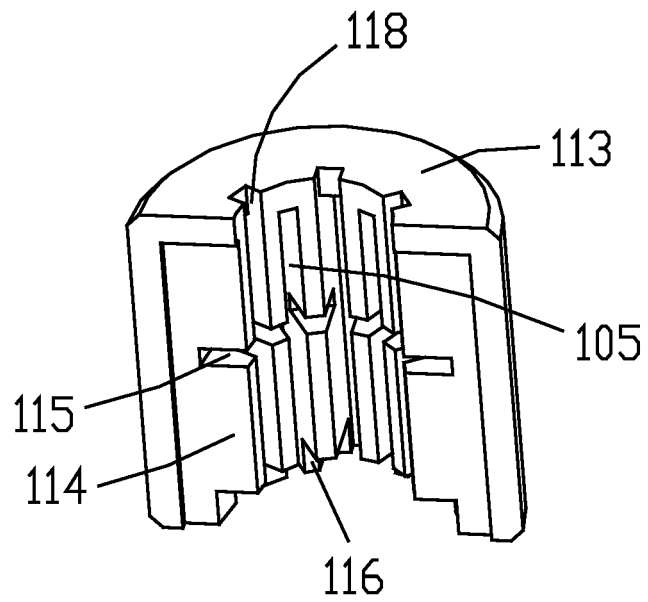


FIG. 16

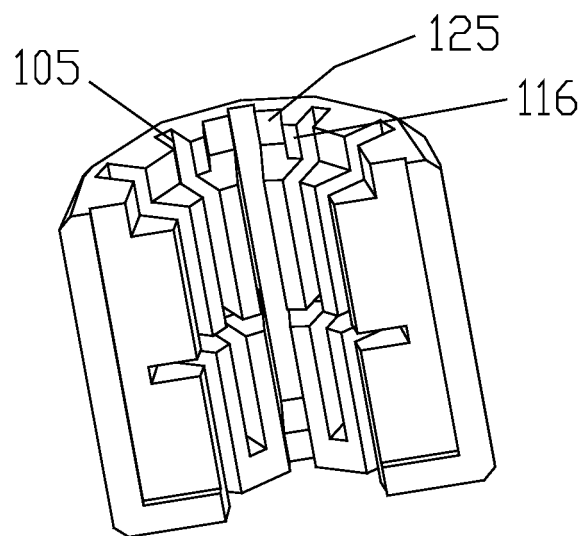


FIG. 17

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2019/109705

A. CLASSIFICATION OF SUBJECT MATTER

A24F 47/00(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)

A24F47/-

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)

CNPAT, CNTXT, CNKI, WPI, EPODOC: 深圳麦克韦尔科技有限公司/PA, (雷桂林 OR 龚博学)/in, 雾化, 冷凝, 毛细, 毛细 s (槽 OR 通道), 吸液 OR 储液: atomiz+, capillary, channel or groove, condens+, leak

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	CN 110236233 A (YANG, Shuang) 17 September 2019 (2019-09-17) description, paragraphs [0027]-[0047], and figures 1-9	1-20
Y	CN 110250576 A (SHENZHEN SMOORE TECHNOLOGY LIMITED) 20 September 2019 (2019-09-20) description, paragraphs [0052]-[0067], and figures 1-14	1-20
A	CN 206390306 U (CHANGZHOU PAITENG ELECTRONIC TECHNOLOGY SERVICES CO., LTD.) 11 August 2017 (2017-08-11) entire document	1-20
A	CN 209234987 U (SHESHENZHEN SMOORE TECHNOLOGY LIMITED) 13 August 2019 (2019-08-13) entire document	1-20
A	US 2015230522 A1 (HORN, Jeffrey L. et al.) 20 August 2015 (2015-08-20) entire document	1-20
A	US 2017119055 A1 (KIMREE HI-TECH INC.) 04 May 2017 (2017-05-04) entire document	1-20

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

“E” earlier application or patent but published on or after the international filing date

“L” document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

“O” document referring to an oral disclosure, use, exhibition or other means

“P” document published prior to the international filing date but later than the priority date claimed

“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

“&” document member of the same patent family

Date of the actual completion of the international search

05 June 2020

Date of mailing of the international search report

24 June 2020

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.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/CN2019/109705

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
CN 110236233 A	17 September 2019	None	
CN 110250576 A	20 September 2019	None	
CN 206390306 U	11 August 2017	US 2019335813 A1	07 November 2019
		WO 2018130068 A1	19 July 2018
		EP 3569073 A1	20 November 2019
CN 209234987 U	13 August 2019	None	
US 2015230522 A1	20 August 2015	None	
US 2017119055 A1	04 May 2017	WO 2015149313 A1	08 October 2015

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