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(54) **ATOMIZER AND ELECTRONIC ATOMIZATION APPARATUS**

(57) This application provides an atomizer and an electronic atomization apparatus. The electronic atomization apparatus includes a power supply structure and the atomizer. The power supply structure is configured to supply power to the atomizer. The atomizer includes a medium cavity, an atomization assembly, and a first liquid-conducting piece. The medium cavity has a liquid storage cavity configured to contain an atomization medium and a liquid outlet hole that is in communication with the liquid storage cavity, and the liquid outlet hole extends in an axial direction of the atomizer. The first liquid-conducting piece is in fluid communication with the liquid outlet hole. A second liquid-conducting piece is disposed between the first liquid-conducting piece and the atomization assembly in a flow direction of the atomization medium. The density of the first liquid-conducting piece is greater than the density of the second liquid-conducting piece. The atomizer of this application not only enables continuous and stable liquid supply to the atomization assembly, to ensure consistent inhalation performance, but also can prevent liquid leakage from the first liquid-conducting piece and the atomization assembly when the atomizer is idle.

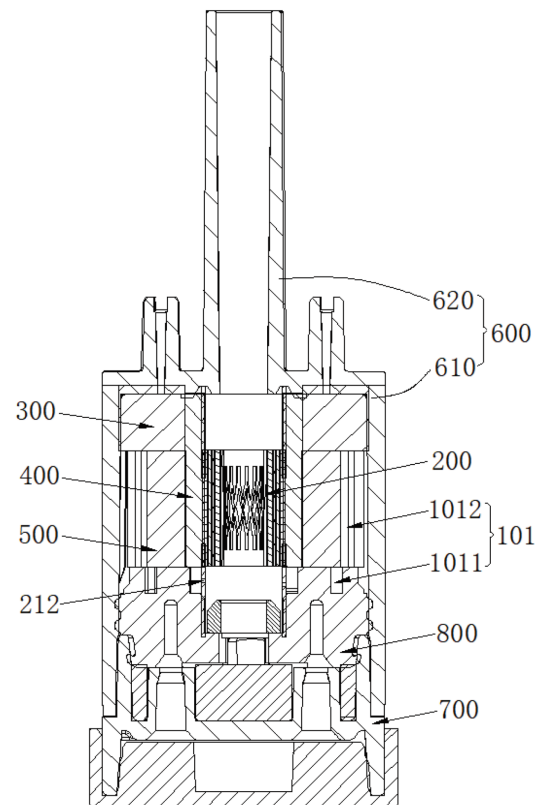


FIG. 4

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Description

TECHNICAL FIELD

[0001] This application belongs to the field of aerosol generation technologies, and more specifically, relates to an atomizer and an electronic atomization apparatus.

BACKGROUND

[0002] Generally, an atomization medium is stored in a liquid storage cavity of an atomizer, and is guided to an atomization assembly via liquid-conducting cotton. After being powered on, the atomization assembly atomizes the atomization medium to generate an aerosol. However, there are problems of liquid leakage and unstable liquid supply when the liquid-conducting cotton is employed for liquid storage and liquid supply.

SUMMARY

[0003] An objective of embodiments of this application is to provide an atomizer and an electronic atomization apparatus, in order to solve the technical problems of liquid leakage and unstable liquid supply in the atomizer in the related art.

[0004] To achieve the foregoing objective, a technical solution adopted in this application is to provide an atomizer, including a medium cavity, an atomization assembly, and a first liquid-conducting piece. The medium cavity has a liquid storage cavity configured to contain an atomization medium and a liquid outlet hole that is in communication with the liquid storage cavity. The liquid outlet hole extends in an axial direction of the atomizer, and the first liquid-conducting piece is in fluid communication with the liquid outlet hole. A second liquid-conducting piece is disposed between the first liquid-conducting piece and the atomization assembly in a flow direction of the atomization medium, and the density of the first liquid-conducting piece is greater than the density of the second liquid-conducting piece.

[0005] In some embodiments, the atomizer further includes a third liquid-conducting piece. The third liquid-conducting piece is in communication with the second liquid-conducting piece, and the third liquid-conducting piece is in communication with the first liquid-conducting piece. The liquid-conducting capability of the second liquid-conducting piece is greater than the liquid-conducting capability of the third liquid-conducting piece.

[0006] In some embodiments, the density of the second liquid-conducting piece is greater than the density of the third liquid-conducting piece.

[0007] In some embodiments, at least a part of the third liquid-conducting piece is in contact with the first liquid-conducting piece, at least a part of the third liquid-conducting piece is located below the first liquid-

conducting piece, and the atomization medium in the first liquid-conducting piece is guided to the third liquid-conducting piece by gravity.

[0008] In some embodiments, at least a part of the third liquid-conducting piece is in contact with the second liquid-conducting piece.

[0009] In some embodiments, the second liquid-conducting piece is in contact with the first liquid-conducting piece; or the first liquid-conducting piece and the second liquid-conducting piece are respectively disposed on different sides of the third liquid-conducting piece.

[0010] In some embodiments, the atomizer further has an air vent channel. One end of the air vent channel is in communication with the liquid storage cavity, and the other end of the air vent channel is in communication with the external atmosphere. At least a part of the air vent channel is located between a liquid-conducting piece and the inner wall of a main housing of the atomizer, and/or, at least a part of the air vent channel is located between the liquid-conducting piece and the outer wall of the atomization assembly. The liquid-conducting piece is the first liquid-conducting piece, the second liquid-conducting piece, or the third liquid-conducting piece.

[0011] In some embodiments, the atomization assembly includes an atomization tube and an atomization core. The atomization core is disposed in the atomization tube. The peripheral side wall of the atomization tube has an air vent hole. The atomizer further has an air vent channel. The air vent channel is in communication with the air vent hole, and the air vent channel is in communication with the liquid storage cavity.

[0012] In some embodiments, the air vent channel is in communication with the first liquid-conducting piece.

[0013] According to another aspect, this application further provides an electronic atomization apparatus, including a power supply structure and the foregoing atomizer. The power supply structure is configured to supply power to the atomizer.

[0014] The atomizer and the electronic atomization apparatus provided in this application have the following beneficial effects: the first liquid-conducting piece and a second liquid-conducting piece are disposed between the liquid outlet hole of the liquid storage cavity and the atomization assembly, the first liquid-conducting piece is in fluid communication with the liquid outlet hole, the second liquid-conducting piece is in communication with the atomization assembly, the second liquid-conducting piece is in communication with the first liquid-conducting piece, and the liquid outlet hole extends in the axial direction of the atomizer. In this way, the atomization medium in the liquid storage cavity can be conveyed to the first liquid-conducting piece and the second liquid-conducting piece by gravity. The first liquid-conducting piece and the second liquid-conducting piece enable liquid absorption, liquid conduction, and liquid storage between the liquid outlet hole and

the atomization assembly, thereby achieving continuous and stable liquid supply to the atomization assembly and ensuring consistent inhalation performance of the atomizer. In addition, the density of the first liquid-conducting piece is set to be greater than the density of the second liquid-conducting piece, so that the liquid-locking capability of the first liquid-conducting piece is greater than the liquid-locking capability of the second liquid-conducting piece. The first liquid-conducting piece can lock a part of the atomization medium, thereby avoiding liquid leakage from the first liquid-conducting piece and the atomization assembly when the atomizer is idle.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] To describe the technical solutions in the embodiments of this application or in the related art more clearly, the drawings required for describing the embodiments or the related art are briefly described below. Apparently, the drawings in the following description show only some of the embodiments of this application, and a person of ordinary skill in the art may derive other drawings from these drawings without creative efforts.

FIG. 1 is a schematic diagram of a stereostructure of an electronic atomization apparatus according to an embodiment of this application.

FIG. 2 is a schematic diagram of a sectional structure of an electronic atomization apparatus according to an embodiment of this application.

FIG. 3 is a schematic diagram of an enlarged structure of a part of the electronic atomization apparatus located above a first liquid-conducting piece in FIG. 2.

FIG. 4 is a schematic diagram of an enlarged structure of a main housing, a first liquid-conducting piece, a second liquid-conducting piece, a third liquid-conducting piece, an atomization assembly, and the like in the electronic atomization apparatus in FIG. 2.

FIG. 5 is a schematic diagram of an enlarged structure of a first liquid-conducting piece, a second liquid-conducting piece, a third liquid-conducting piece, and an atomization assembly in the electronic atomization apparatus in FIG. 2.

FIG. 6 is a schematic structural diagram of a first liquid-conducting piece, a second liquid-conducting piece, and a third liquid-conducting piece in an electronic atomization apparatus according to an embodiment of this application.

FIG. 7 is a schematic diagram of a first layout of a first liquid-conducting piece, a second liquid-conducting piece, and a third liquid-conducting piece according to an embodiment of this application.

FIG. 8 is a schematic diagram of a second layout of a first liquid-conducting piece, a second liquid-conducting piece, and a third liquid-conducting piece

according to an embodiment of this application.

FIG. 9 is a schematic diagram of a third layout of a first liquid-conducting piece, a second liquid-conducting piece, and a third liquid-conducting piece according to an embodiment of this application.

FIG. 10 is a schematic diagram of a fourth layout of a first liquid-conducting piece, a second liquid-conducting piece, and a third liquid-conducting piece according to an embodiment of this application.

[0016] Reference numerals in the figures are as follows:

1: atomizer; 101: air vent channel; 1011: first air vent portion; 1012: second air vent portion; 100: medium cavity; 110: upper housing; 111: first inner connecting portion; 112: outer covering portion; 120: lower housing; 121: second inner connecting portion; 122: covering portion; 130: liquid storage cavity; 140: liquid outlet hole; 150: air outlet channel; 200: atomization assembly; 210: atomization tube; 211: atomization channel; 212: air vent hole; 220: atomization core; 230: heating element; 300: first liquid-conducting piece; 400: second liquid-conducting piece; 500: third liquid-conducting piece; 600: main housing; 610: socket portion; 620: air-conducting portion; 700: base; 800: sealing gasket; 900: sealing sleeve; and 2: power supply structure.

DETAILED DESCRIPTION

[0017] To make technical problems to be resolved, technical solutions, and beneficial effects of this application clearer and more comprehensible, this application is further described in detail below with reference to the accompanying drawings and embodiments. It should be understood that the specific embodiments described herein are merely used for explaining this application but are not intended to limit this application.

[0018] It should be noted that when an element is referred to as being "fixed to" or "disposed on" another element, the element may be directly on the another element, or there may be an intervening element. When an element is referred to as being "connected to" another element, the element may be directly connected to the another element or indirectly connected to the another element.

[0019] It should be understood that orientation or position relationships indicated by the terms such as "length", "width", "upper", "lower", "front", "back", "left", "right", "vertical", "horizontal", "top", "bottom", "inside", and "outside" are based on orientation or position relationships shown in the accompanying drawings, and are merely used for ease and brevity of the description of this application, rather than indicating or implying that the mentioned apparatus or element needs to have a particular orientation or needs to be constructed and operated in a particular orientation. Therefore, such terms should not be interpreted as limiting this application.

[0020] In addition, the terms "first" and "second" are merely used for the purpose of description, and cannot be interpreted as indicating or implying relative importance or implying a quantity of indicated technical features. Therefore, a feature limited by "first" or "second" may explicitly or implicitly include one or more of the features. In the description of this application, "a plurality of" indicates two or more, unless otherwise specifically defined.

[0021] As described in the background, an atomization medium is generally stored in a liquid storage cavity of an atomizer, and is guided to an atomization assembly via liquid-conducting wool. After being powered on, the atomization assembly atomizes the atomization medium to generate an aerosol. However, there are problems of liquid leakage and unstable liquid supply when the liquid-conducting cotton is employed for liquid storage and liquid supply.

[0022] Specifically, a conventional atomizer is provided with only one layer of liquid-conducting cotton. In addition, to ensure an atomization function of an atomization assembly, generally, a pore size of an inner micro-pore of the liquid-conducting cotton is set to be large to absorb a sufficient amount of atomization medium. However, this results in a low liquid-locking effect, making the liquid-conducting cotton prone to liquid leakage. In addition, when temperature fluctuations cause continuous liquid supply from the liquid storage cavity, leakage is also likely to occur. In addition, the liquid storage cavity is easily affected by an external environment, leading to unstable liquid supply, and finally, poor consistency of the taste experience.

[0023] To resolve the foregoing problems, embodiments of this application provide an atomizer 1 and an electronic atomization apparatus. A first liquid-conducting piece 300 and a second liquid-conducting piece 400 that are in communication with each other are disposed between a liquid outlet hole 140 of a liquid storage cavity 130 and an atomization assembly 200, and the density of the first liquid-conducting piece 300 is greater than the density of the second liquid-conducting piece 400, so that the second liquid-conducting piece 400 can stably supply liquid to the atomization assembly 200, and an atomization medium can be locked by the first liquid-conducting piece 300. In this way, impact of the atomization medium on the second liquid-conducting piece 400 and the atomization assembly 200 is relieved, and liquid leakage of the atomization assembly 200 is relieved.

[0024] First, referring to FIG. 1 and FIG. 2, the electronic atomization apparatus provided in the embodiments of this application is described. The electronic atomization apparatus includes a power supply structure 2 and the atomizer 1. The power supply structure 2 is configured to supply power to the atomizer 1. After being powered on, the atomizer 1 is configured to atomize an atomization medium stored in the atomizer to generate an aerosol.

[0025] Referring to FIG. 2 to FIG. 4, the atomizer 1 provided in the embodiments of this application is described.

[0026] The atomizer 1 includes a medium cavity 100, an atomization assembly 200, and a first liquid-conducting piece 300. The medium cavity 100 has a liquid storage cavity 130 configured to contain an atomization medium and a liquid outlet hole 140 that is in communication with the liquid storage cavity 130. The liquid outlet hole 140 extends in an axial direction of the atomizer 1, and the first liquid-conducting piece 300 is in fluid communication with the liquid outlet hole 140.

[0027] A second liquid-conducting piece 400 is disposed between the first liquid-conducting piece 300 and the atomization assembly 200 in a flow direction of the atomization medium. The density of the first liquid-conducting piece 300 is greater than the density of the second liquid-conducting piece 400.

[0028] It should be noted that the first liquid-conducting piece 300 and the second liquid-conducting piece 400 are both of a cellular structure, and have functions of liquid absorption, liquid conduction, and liquid storage. The atomization assembly 200 also includes a cellular structure. The atomization assembly 200 also has liquid absorption, liquid conduction, and liquid storage capabilities. In addition, after being powered on, the atomization assembly 200 is capable of atomizing the atomization medium stored in the atomization assembly to generate an aerosol.

[0029] In addition, it should be noted that, generally speaking, whether the first liquid-conducting piece 300 can lock the atomization medium is related to a material of the first liquid-conducting piece 300, the density of the first liquid-conducting piece 300, a liquid storage amount of the first liquid-conducting piece 300, and the like. Within a range, the density of the first liquid-conducting piece 300 is greater than the density of the second liquid-conducting piece 400, indicating that the liquid-locking capability of the first liquid-conducting piece 300 is greater than the liquid-locking capability of the second liquid-conducting piece 400.

[0030] In a case that the material and the density of the first liquid-conducting piece 300 are determined, a preset amount of atomization medium may be stored in the first liquid-conducting piece 300 in advance, so that the first liquid-conducting piece 300 in an initial state forms an oil film due to aggregation of a large amount of atomization medium. In this way, the first liquid-conducting piece can not only lock the atomization medium, but also block a port of the liquid outlet hole 140. Certainly, when selecting a material of the first liquid-conducting piece 300, a material with the large surface viscosity is usually selected to enhance the liquid-locking capability of the first liquid-conducting piece 300. For example, a material, such as liquid-absorbing cotton, polyamide, or polyethylene terephthalate, may be selected.

[0031] In the atomizer 1 provided in the embodiments

of this application, the first liquid-conducting piece 300 and the second liquid-conducting piece 400 are disposed between the liquid outlet hole 140 of the liquid storage cavity 130 and the atomization assembly 200, the first liquid-conducting piece 300 is in fluid communication with the liquid outlet hole 140, the second liquid-conducting piece 400 is in communication with the first liquid-conducting piece 300, and the liquid outlet hole 140 extends in the axial direction of the atomizer 1. In this way, the atomization medium in the liquid storage cavity 130 can be conveyed to the first liquid-conducting piece 300 and the second liquid-conducting piece 400 by gravity. The first liquid-conducting piece 300 and the second liquid-conducting piece 400 enable liquid absorption, liquid conduction, and liquid storage between the liquid outlet hole 140 and the atomization assembly 200, thereby achieving continuous and stable liquid supply to the atomization assembly 200, and ensuring consistent inhalation performance of the atomizer 1. In addition, the density of the first liquid-conducting piece 300 is set to be greater than the density of the second liquid-conducting piece 400, so that the liquid-locking capability of the first liquid-conducting piece 300 is greater than the liquid-locking capability of the second liquid-conducting piece 400. The first liquid-conducting piece 300 can lock a part of the atomization medium, thereby avoiding liquid leakage from the first liquid-conducting piece 300 and the atomization assembly 200 when the atomizer 1 is idle.

[0032] Optionally, the first liquid-conducting piece 300 and the second liquid-conducting piece 400 are both liquid-absorbing cotton.

[0033] In some embodiments of this application, referring to FIG. 4 to FIG. 6, the atomizer 1 further includes a third liquid-conducting piece 500. The third liquid-conducting piece 500 is in communication with the second liquid-conducting piece 400, and the third liquid-conducting piece 500 is in communication with the first liquid-conducting piece 300. The liquid-conducting capability of the second liquid-conducting piece 400 is greater than the liquid-conducting capability of the third liquid-conducting piece 500. It should be noted that the liquid-conducting capability herein refers to a capability to draw in the atomization medium from another liquid-conducting piece. The liquid-conducting capability is related to a material, the density, the porosity of the liquid-conducting piece, as well as a type of the atomization medium. The liquid-conducting capability of the second liquid-conducting piece 400 is greater than the liquid-conducting capability of the third liquid-conducting piece 500 means that, for the same type of atomization medium, the liquid-conducting capability of the second liquid-conducting piece 400 is greater than the liquid-conducting capability of the third liquid-conducting piece 500, and the second liquid-conducting piece 400 can absorb the atomization medium from the third liquid-conducting piece 500. Certainly, when a liquid storage amount ratio of the atomization medium

in the third liquid-conducting piece 500 is much smaller than a liquid storage amount ratio of the atomization medium in the second liquid-conducting piece 400, a situation where the third liquid-conducting piece 500 absorbs the atomization medium from the second liquid-conducting piece 400 may occur. The liquid storage amount ratio refers to a ratio of a current liquid storage amount to a liquid storage amount of a liquid-conducting piece in a saturated state.

[0034] In a continuous inhalation process, because the second liquid-conducting piece 400 continuously supplies liquid to the atomization assembly 200, when the liquid storage amount ratio of the second liquid-conducting piece 400 is less than a first preset value, for example, when the liquid storage amount ratio of the second liquid-conducting piece 400 is less than 40% to 60%, the second liquid-conducting piece 400 absorbs the atomization medium from the third liquid-conducting piece 500. The third liquid-conducting piece 500 supplies the liquid to the second liquid-conducting piece 400, to enable the second liquid-conducting piece 400 to continuously and stably supply the liquid to the atomization assembly 200. When the liquid storage amount ratio of the third liquid-conducting piece 500 is less than a second preset value, for example, when the liquid storage amount ratio of the third liquid-conducting piece 500 is less than 60% to 80%, and the first liquid-conducting piece 300 is in a saturated state at this moment, the third liquid-conducting piece 500 may absorb the atomization medium from the first liquid-conducting piece 300, to stably supply the liquid to the second liquid-conducting piece 400. When a liquid storage amount ratio of the first liquid-conducting piece 300 is less than a third preset value, for example, when the liquid storage amount ratio of the first liquid-conducting piece 300 is less than 60% to 80%, the blocking capability of the oil film in the first liquid-conducting piece 300 is not enough to block the atomization medium, so that the first liquid-conducting piece 300 may absorb the atomization medium from the liquid outlet hole 140 until the first liquid-conducting piece 300 reaches a saturated state. A new dynamic balance is slowly established, and the oil film again blocks the liquid outlet hole 140. At this point, one liquid outlet cycle is completed. The saturated state means that a state in which a liquid-conducting piece has absorbed a specific amount of liquid, reached a maximum absorption capacity of the liquid-conducting piece, and cannot absorb any more liquid.

[0035] In conclusion, in this embodiment, the third liquid-conducting piece 500, the third liquid-conducting piece 500 is in communication with the second liquid-conducting piece 400 and the first liquid-conducting piece 300, respectively, and the liquid-conducting capability of the second liquid-conducting piece 400 is greater than the liquid-conducting capability of the third liquid-conducting piece 500. In this way, the third liquid-conducting piece 500 may serve as a transfer bridge

between the first liquid-conducting piece 300 and the second liquid-conducting piece 400, to convey the atomization medium in the liquid storage cavity 130 in a dynamic balance state from the first liquid-conducting piece 300 to the third liquid-conducting piece 500, then to the second liquid-conducting piece 400, and finally, to the atomization assembly 200. Therefore, a stable liquid outlet system is achieved, which is less susceptible to environmental changes, and constantly enables an amount of atomization medium near the atomization assembly 200 to be slightly greater than an atomized amount of the atomization medium. This results in a more stable and consistent taste experience during inhalation. In addition, because the liquid-conducting capability of the second liquid-conducting piece 400 is greater than the liquid-conducting capability of the third liquid-conducting piece 500, the second liquid-conducting piece 400 near the atomization assembly 200 may absorb the atomization medium in the third liquid-conducting piece 500 far away from the atomization assembly 200, to utilize the atomization medium to the greatest extent. Therefore, when there is a small amount of atomization medium in the liquid storage cavity 130, a situation where there is a large amount of atomization medium in the third liquid-conducting piece 500 far away from the atomization assembly 200 and there is no atomization medium in the second liquid-conducting piece 400 near the atomization assembly 200 does not occur. This not only improves utilization of the atomization medium, but also prolongs the puff count of the atomizer 1.

[0036] In some specific embodiments, the density of the second liquid-conducting piece 400 is greater than the density of the third liquid-conducting piece 500. Generally speaking, when materials of the second liquid-conducting piece 400 and the third liquid-conducting piece 500 are the same or have similar material properties, and the density of the second liquid-conducting piece 400 is greater than the density of the third liquid-conducting piece 500, the liquid-conducting capability of the second liquid-conducting piece 400 is greater than a liquid-conducting capability of the third liquid-conducting piece 500, so that the second liquid-conducting piece 400 can absorb the atomization medium from the third liquid-conducting piece 500. In addition, the liquid storage capability of the third liquid-conducting piece 500 is greater than the liquid storage capability of the second liquid-conducting piece 400, so that the third liquid-conducting piece 500 can store more atomization medium, to stably supply the liquid to the second liquid-conducting piece 400, and prevent liquid leakage of the third liquid-conducting piece 500 during temperature fluctuations.

[0037] In some specific embodiments, the density of the first liquid-conducting piece 300 is greater than the density of the third liquid-conducting piece 500, the density of the first liquid-conducting piece 300 is greater than the density of the second liquid-conducting

piece 400, and the density of the second liquid-conducting piece 400 is greater than the density of the third liquid-conducting piece 500. Through such an arrangement, the first liquid-conducting piece 300 has higher liquid-locking capability compared to the second liquid-conducting piece 400 and the third liquid-conducting piece 500, to lock the atomization medium and reduce liquid leakage. In addition, the third liquid-conducting piece 500 has higher liquid storage capability compared to the second liquid-conducting piece 400 and the first liquid-conducting piece 300, to stably supply the liquid to the second liquid-conducting piece 400. Furthermore, in a case that the first liquid-conducting piece 300 does not block the atomization medium, more atomization medium is stored in the third liquid-conducting piece 500, to reduce liquid leakage. The second liquid-conducting piece 400 has higher liquid-conducting capability compared to the third liquid-conducting piece 500, to absorb the atomization medium from the third liquid-conducting piece 500.

[0038] In some embodiments, referring to FIG. 4 and FIG. 5, at least a part of the third liquid-conducting piece 500 is in contact with the first liquid-conducting piece 300, at least a part of the third liquid-conducting piece 500 is located below the first liquid-conducting piece 300, and the atomization medium in the first liquid-conducting piece 300 is guided to the third liquid-conducting piece 500 by gravity. In another embodiment, the third liquid-conducting piece 500 and the first liquid-conducting piece 300 may alternatively be arranged at an interval.

[0039] At least a part, which is in communication with the first liquid-conducting piece 300, of the third liquid-conducting piece 500 is located below the first liquid-conducting piece 300, so that when the liquid storage amount ratio of the third liquid-conducting piece 500 is less than the second preset value, the atomization medium in the first liquid-conducting piece 300 is guided to the third liquid-conducting piece 500 by gravity. In this embodiment, to ensure the high liquid-locking capability of the first liquid-conducting piece 300, the density of the first liquid-conducting piece 300 needs to be set to be higher than the density of the third liquid-conducting piece 500. Correspondingly, the liquid-conducting capability of the first liquid-conducting piece 300 is generally greater than the liquid-conducting capability of the third liquid-conducting piece 500. However, at least a part, which is in communication with the first liquid-conducting piece 300, of the third liquid-conducting piece 500 is located below the first liquid-conducting piece 300, so that even if the liquid-conducting capability of the third liquid-conducting piece 500 is lower than the liquid-conducting capability of the first liquid-conducting piece 300, when the liquid storage amount ratio of the third liquid-conducting piece 500 is lower than the second preset value, the atomization medium in the first liquid-conducting piece 300 can also be guided to the third liquid-conducting piece 500

by gravity. This ensures sequential stable liquid supply of the first liquid-conducting piece 300, the third liquid-conducting piece 500, and the second liquid-conducting piece 400.

[0040] Optionally, a range of the second preset value is 60% to 80%. Specifically, the second preset value may be 60%, 62%, 64%, 66%, 68%, 70%, 72%, 74%, 76%, 78%, 80%, or the like. The second preset value is related to a material, the density, and the like of the third liquid-conducting piece 500. Different third liquid-conducting pieces 500 correspond to different second preset values, and the second preset value needs to be obtained through experiments by a designer based on different third liquid-conducting piece 500.

[0041] In some embodiments, at least a part of the third liquid-conducting piece 500 is in contact with the second liquid-conducting piece 400. A high effect of fluid transfer between the third liquid-conducting piece 500 and the second liquid-conducting piece 400 is achieved through the contact. It may be understood that, in another embodiment of this application, the third liquid-conducting piece 500 and the second liquid-conducting piece 400 may alternatively be arranged at an interval.

[0042] Optionally, the second liquid-conducting piece 400 is in contact with the first liquid-conducting piece 300. In other words, the atomization medium can be transferred between the second liquid-conducting piece 400 and the first liquid-conducting piece 300. Alternatively, the first liquid-conducting piece 300 and the second liquid-conducting piece 400 are respectively disposed on different sides of the third liquid-conducting piece 500. In other words, the first liquid-conducting piece 300 is not in contact with the second liquid-conducting piece 400.

[0043] In this application, there may be a plurality of position relationships among the first liquid-conducting piece 300, the second liquid-conducting piece 400, and the third liquid-conducting piece 500, which are respectively described below by using examples.

[0044] In a first case, referring to FIG. 7, the third liquid-conducting piece 500 is disposed below the first liquid-conducting piece 300 and is in contact with the first liquid-conducting piece 300, the second liquid-conducting piece 400 extends in the axial direction of the atomizer 1, and the second liquid-conducting piece 400 is in contact with the first liquid-conducting piece 300 and the third liquid-conducting piece 500, respectively.

[0045] In the first case, referring to FIG. 4 to FIG. 6, the atomization assembly 200 may be provided with a cylindrical structure. The second liquid-conducting piece 400 is sleeved outside the atomization assembly 200, the third liquid-conducting piece 500 is sleeved outside the second liquid-conducting piece 400, the first liquid-conducting piece 300 is sleeved outside the second liquid-conducting piece 400, and the third liquid-conducting piece 500 is disposed below the first liquid-conducting piece 300. The third liquid-conducting

piece 500 is sleeved on the second liquid-conducting piece 400, so that the third liquid-conducting piece 500 can uniformly provide the atomization medium to the second liquid-conducting piece 400 in a circumferential direction. This also ensures that the atomization medium in the second liquid-conducting piece 400 is uniformly distributed in the circumferential direction. In addition, the second liquid-conducting piece 400 is sleeved on the atomization assembly 200, so that the second liquid-conducting piece 400 can uniformly transfer the atomization medium to the atomization assembly 200 in the circumferential direction. This enables the atomization assembly 200 to achieve an atomization effect to the atomization medium. Certainly, in another embodiment, the atomization assembly 200 may alternatively be provided with a block structure. In this case, the second liquid-conducting piece 400 may be disposed on the liquid inlet side of the atomization assembly 200, and the third liquid-conducting piece 500 is disposed on one or more sides of the second liquid-conducting piece 400. This is not limited herein.

[0046] In a second case, referring to FIG. 8, the third liquid-conducting piece 500 is disposed below the first liquid-conducting piece 300 and is in contact with the first liquid-conducting piece 300, the second liquid-conducting piece 400 is in contact with the third liquid-conducting piece 500, the second liquid-conducting piece 400 and the first liquid-conducting piece 300 are respectively disposed on adjacent sides of the third liquid-conducting piece 500, and the second liquid-conducting piece 400 is not in contact with the first liquid-conducting piece 300.

[0047] In a third case, referring to FIG. 9, the third liquid-conducting piece 500 is disposed below the first liquid-conducting piece 300 and is in contact with the first liquid-conducting piece 300, the second liquid-conducting piece 400 is disposed below the first liquid-conducting piece 300 and is in contact with the first liquid-conducting piece 300, and the second liquid-conducting piece 400 is in contact with the third liquid-conducting piece 500.

[0048] In a fourth case, referring to FIG. 10, a part of the third liquid-conducting piece 500 is disposed below the first liquid-conducting piece 300, a part of the third liquid-conducting piece 500 is disposed alongside the first liquid-conducting piece 300, and the first liquid-conducting piece 300 is in contact with the third liquid-conducting piece 500; and the second liquid-conducting piece 400 is disposed on the side, facing away from the first liquid-conducting piece 300, of the third liquid-conducting piece 500, and the second liquid-conducting piece 400 is in contact with the third liquid-conducting piece 500. To be specific, in a transverse direction of the atomizer 1, the third liquid-conducting piece 500 is disposed between the first liquid-conducting piece 300 and the second liquid-conducting piece 400. In this case, through the design of the liquid-conducting capabilities of the third liquid-conducting piece 500 and the

first liquid-conducting piece 300, when the liquid storage amount ratio of the third liquid-conducting piece 500 is less than the second preset value, the third liquid-conducting piece 500 can absorb the atomization medium from the first liquid-conducting piece 300, and guide the atomization medium to the second liquid-conducting piece 400. This is not limited herein.

[0049] In some embodiments, referring to FIG. 4 and FIG. 5, the atomizer 1 further has an air vent channel 101. One end of the air vent channel 101 is in communication with the liquid storage cavity 130, and the other end of the air vent channel 101 is in communication with the external atmosphere. At least a part of the air vent channel 101 is located between a liquid-conducting piece and the inner wall of a main housing 600 of the atomizer 1, and/or, at least a part of the air vent channel 101 is located between the liquid-conducting piece and the outer wall of the atomization assembly 200. The liquid-conducting piece is the first liquid-conducting piece 300, the second liquid-conducting piece 400, or the third liquid-conducting piece 500.

[0050] That at least a part of the air vent channel 101 is located between the liquid-conducting piece and the inner wall of the main housing 600 of the atomizer 1 means that the air vent channel 101 may be formed at the outer edge of the liquid-conducting piece, or may be formed on the liquid exchange piece and the main housing 600, or may be directly formed at an inner wall of the main housing 600. The main housing 600 is a housing structure that is at least sleeved on the first liquid-conducting piece 300, the second liquid-conducting piece 400, and the third liquid-conducting piece 500.

[0051] That at least a part of the air vent channel 101 is located between the liquid-conducting piece and the external wall of the atomization assembly 200 may be that the air vent channel 101 is formed on the internal wall of the liquid-conducting piece, or the air vent channel 101 may be formed on the external wall of the atomization assembly 200, or the air vent channel 101 may be formed on the internal wall of the liquid-conducting piece and the external wall of the atomization assembly 200.

[0052] In this embodiment, at least a part of the air vent channel 101 is located between the liquid-conducting piece and the inner wall of the main housing 600 of the atomizer 1, and/or at least a part of the air vent channel 101 is located between the liquid-conducting piece and the outer wall of the atomization assembly 200, so that the air vent channel 101 does not affect internal porous structures of the first liquid-conducting piece 300, the second liquid-conducting piece 400, and the third liquid-conducting piece 500, and does not affect the liquid-conducting capabilities, the liquid storage capabilities, and the liquid-locking capabilities of the first liquid-conducting piece 300, the second liquid-conducting piece 400, and the third liquid-conducting piece 500.

[0053] In some embodiments, the air vent channel 101 is in communication with the first liquid-conducting piece 300. To be specific, an external air flow can be guided to the liquid storage cavity 130 via the first liquid-conducting piece 300, to achieve air ventilation, and a highpressure air flow in the liquid storage cavity 130 can be guided to the outside, to achieve pressure relief, thereby reducing liquid leakage. Specifically, in a continuous inhalation process, when the liquid storage amount ratio of the first liquid-conducting piece 300 is less than the third preset value, the blocking capability of the oil film in the first liquid-conducting piece 300 weakens. In this case, an external air flow enters the first liquid-conducting piece 300 via the air vent channel 101, and enters the liquid storage cavity 130 from the first liquid-conducting piece 300 via the liquid outlet hole 140, to achieve air ventilation. In addition, the third liquid-conducting piece 500 is always in an unsaturated state during temperature fluctuations, and has a remaining space for receiving the atomization medium pushed out from the liquid storage cavity 130 due to expansion of air, thereby preventing liquid leakage. In addition, an expansion pressure of the high-temperature air can also be relieved in time via the air vent channel 101, so that the atomization medium in the liquid storage cavity 130 is not continuously pushed by the high-temperature air to the atomization assembly 200, causing liquid leakage. In addition, communication between the air vent channel 101 and the liquid storage cavity 130 is implemented through the first liquid-conducting piece 300, to prevent the air vent channel 101 from extending to the side wall of the main housing 600 to be in communication with the liquid storage cavity 130, thereby reducing processing difficulty of the main housing 600.

[0054] In some embodiments, referring to FIG. 4 and FIG. 5, the atomization assembly 200 includes an atomization tube 210 and an atomization core 220. The atomization core 220 is disposed in the atomization tube 210. The peripheral side wall of the atomization tube 210 has an air vent hole 212. The atomizer 1 further has an air vent channel 101. The air vent channel 101 is in communication with the vent hole 212, and the air vent channel 101 is in communication with the liquid storage cavity 130. In this embodiment, communication between the air vent channel 101 and the atomization tube 210 is formed through the vent hole 212, so that the air vent channel 101 is in communication with the external atmosphere.

[0055] In some specific embodiments, referring to FIG. 4 and FIG. 5, the air vent channel 101 includes a first air vent portion 1011 and a second air vent portion 1012. The first air vent portion 1011 is in communication with the air vent hole 212. The first air vent portion 1011 is located on the sides, facing away from the liquid storage cavity 130, of the second liquid-conducting piece 400 and the third liquid-conducting piece 500. The second liquid-conducting piece 400 is sleeved out-

side the atomization tube 210, and the third liquid-conducting piece 500 is sleeved outside the second liquid-conducting piece 400. The second air vent portion 1012 is formed between the third liquid-conducting piece 500 and the inner wall of the main housing 600 of the atomizer 1, and/or the second air vent portion 1012 is formed between the second liquid-conducting piece 400 and the outer wall of the atomization assembly 200. The second air vent portion 1012 is located between and in communication with the first air vent portion 1011 and the first liquid-conducting piece 300.

[0056] In this embodiment, the first air vent portion 1011 is located on the sides, facing away from the liquid storage cavity 130, of the second liquid-conducting piece 400 and the third liquid-conducting piece 500, that is, the first air vent portion 1011 does not pass through the second liquid-conducting piece 400 and the third liquid-conducting piece 500, so that the first air vent portion 1011 does not affect the internal porous structures of the second liquid-conducting piece 400 and the third liquid-conducting piece 500. In addition, the second air vent portion 1012 is formed between the third liquid-conducting piece 500 and the inner wall of the main housing 600 of the atomizer 1, and/or the second air vent portion 1012 is formed between the second liquid-conducting piece 400 and the outer wall of the atomization assembly 200, so that the second air vent portion 1012 does not affect the internal porous structures of the second liquid-conducting piece 400 and the third liquid-conducting piece 500, and does not affect the liquid-conducting capabilities, the liquid storage capabilities, and the liquid-locking capabilities of the second liquid-conducting piece 400 and the third liquid-conducting piece 500.

[0057] In some embodiments, the peripheral side wall of the atomization tube 210 has a liquid inlet hole, and the second liquid-conducting piece 400 is in communication with a heating element 230 through the liquid inlet hole.

[0058] Specifically, the atomization tube 210 has an atomization channel 211, the atomization core 220 is disposed in the atomization channel 211 of the atomization tube 210, and the second liquid-conducting piece 400 is in communication with the outer peripheral wall of the atomization core 220 through the liquid inlet hole. The atomization core 220 is of a cellular structure and has the liquid storage capability. When powered on to generate heat, the atomization core 220 can atomize the atomization medium guided to the inner peripheral wall of the atomization core 220 to generate an aerosol, and the aerosol is carried by an air flow in the atomization channel 211 to a mouthpiece for user inhalation.

[0059] In some embodiments, referring to FIG. 4, the atomizer 1 further includes a base 700 and a sealing gasket 800. The base 700 is connected to the main housing 600. The sealing gasket 800 is abutted between the base 700, the third liquid-conducting piece 500, the second liquid-conducting piece 400, and the

atomization tube 210. The sealing gasket 800, the main housing 600, the atomization tube 210, the second liquid-conducting piece 400, and the third liquid-conducting piece 500 are jointly enclose and form the first air vent portion 1011.

[0060] In some embodiments, referring to FIG. 4 to FIG. 6, the third liquid-conducting piece 500 is sleeved outside the second liquid-conducting piece 400, the third liquid-conducting piece 500 abuts against the lower part of the first liquid-conducting piece 300, the second air vent portion 1012 is formed on the outer peripheral wall of the third liquid-conducting piece 500, and the second air vent portion 1012 extends through the third liquid-conducting piece 500 in the axial direction. A plurality of second air vent portions 1012 are disposed and are distributed at intervals in the circumferential direction of the third liquid-conducting piece 500, or the second air vent portions 1012 extend in a circumferential direction of the third liquid-conducting piece 500.

[0061] In some embodiments, referring to FIG. 3, the medium cavity 100 further has an air outlet channel 150. The air outlet channel 150 is in communication with the atomization channel 211. The medium cavity 100 includes an upper housing 110 and a lower housing 120. The upper housing 110 and the lower housing 120 jointly enclose and form the liquid storage cavity 130 and the air outlet channel 150.

[0062] Specifically, the upper housing 110 includes a first inner connecting portion 111 and an outer covering portion 112. The outer covering portion 112 is sleeved outside the first inner connecting portion 111. The top end of the outer covering portion 112 is integrally connected to the top end of the first inner connecting portion 111. The bottom end of the first inner connecting portion 111 is axially contracted relative to the bottom end of the outer covering portion 112. The lower housing 120 includes a second inner connecting portion 121 and a covering portion 122. The second inner connecting portion 121 and the first inner connecting portion 111 are distributed in the axial direction and are connected in a sealing manner through a sealing sleeve 900. The covering portion 122 is integrally connected to the bottom end of the second inner connecting portion 121. The bottom end of the outer covering portion 112 is sleeved outside the covering portion 122. The outer covering portion 112, the first inner connecting portion 111, the second inner connecting portion 121, and the covering portion 122 jointly enclose and form the liquid storage cavity 130. The main housing 600 includes a socket portion 610 and an air-conducting portion 620. The socket portion 610 is sleeved outside the first liquid-conducting piece 300, the second liquid-conducting piece 400, and the base 700. The air-conducting portion 620 extends from the top center of the socket portion 610 in a direction away from the socket portion 610 in the axial direction. The air-conducting portion 620 is inserted into the second inner connecting

portion 121. The air-conducting portion 620 abuts against the first inner connecting portion 111 in the axial direction. The top end of the atomization tube 210 abuts against the inner side of the top of the socket portion 610. The first inner connecting portion 111 and the air-conducting portion 620 jointly form the air outlet channel 150. A connection hole for communicating the air outlet channel 150 with the atomization channel 211 is formed in the top center of the socket portion 610.

[0063] The foregoing descriptions are merely preferred embodiments of this application, but are not intended to limit this application. Any modification, equivalent replacement, and improvement made shall fall within the scope of protection of this application.

Claims

1. An atomizer, comprising a medium cavity, an atomization assembly, and a first liquid-conducting piece, wherein the medium cavity has a liquid storage cavity configured to contain an atomization medium and a liquid outlet hole that is in communication with the liquid storage cavity, and the first liquid-conducting piece is in fluid communication with the liquid outlet hole; and a second liquid-conducting piece is disposed between the first liquid-conducting piece and the atomization assembly in a flow direction of the atomization medium, and the density of the first liquid-conducting piece is greater than the density of the second liquid-conducting piece.
2. The atomizer of claim 1, wherein the liquid outlet hole extends in an axial direction of the atomizer, and the atomization medium in the liquid storage cavity can be conveyed to the first liquid-conducting piece and the second liquid-conducting piece by gravity.
3. The atomizer of claim 1 or 2, further comprising a third liquid-conducting piece, wherein the third liquid-conducting piece is in communication with the second liquid-conducting piece, and the third liquid-conducting piece is in communication with the first liquid-conducting piece, and the liquid-conducting capability of the second liquid-conducting piece is greater than the liquid-conducting capability of the third liquid-conducting piece.
4. The atomizer of claim 3, wherein the density of the second liquid-conducting piece is greater than the density of the third liquid-conducting piece.
5. The atomizer of claim 3 or 4, wherein at least a part of the third liquid-conducting piece is in contact with the first liquid-conducting piece, at least a part of the third liquid-conducting piece is located below

the first liquid-conducting piece, and the atomization medium in the first liquid-conducting piece is guided to the third liquid-conducting piece by gravity.

6. The atomizer of claim 3 or 4, wherein at least a part of the third liquid-conducting piece is in contact with the second liquid-conducting piece.
7. The atomizer of claim 3 or 4, wherein the second liquid-conducting piece is in contact with the first liquid-conducting piece; or the first liquid-conducting piece and the second liquid-conducting piece are respectively disposed on different sides of the third liquid-conducting piece.
8. The atomizer of any one of claims 3 to 7, wherein the third liquid-conducting piece is disposed below the first liquid-conducting piece and is in contact with the first liquid-conducting piece, the second liquid-conducting piece is in contact with the third liquid-conducting piece, the second liquid-conducting piece and the first liquid-conducting piece are respectively disposed on adjacent sides of the third liquid-conducting piece, and the second liquid-conducting piece is not in contact with the first liquid-conducting piece.
9. The atomizer of any one of claims 3 to 7, wherein the third liquid-conducting piece is disposed below the first liquid-conducting piece and is in contact with the first liquid-conducting piece, the second liquid-conducting piece is disposed below the first liquid-conducting piece and is in contact with the first liquid-conducting piece, and the second liquid-conducting piece is in contact with the third liquid-conducting piece.
10. The atomizer of any one of claims 3 to 7, wherein a part of the third liquid-conducting piece is disposed below the first liquid-conducting piece, a part of the third liquid-conducting piece is disposed alongside the first liquid-conducting piece, and the first liquid-conducting piece is in contact with the third liquid-conducting piece; and the second liquid-conducting piece is disposed on the side, facing away from the first liquid-conducting piece, of the third liquid-conducting piece, and the second liquid-conducting piece is in contact with the third liquid-conducting piece.
11. The atomizer of any one of claims 3 to 10, wherein the atomizer further has an air vent channel, one end of the air vent channel is in communication with the liquid storage cavity, and the other end of the air vent channel is in communication with the external atmosphere; at least a part of the air vent channel is located between a liquid-conducting

piece and the inner wall of a main housing of the atomizer.

12. The atomizer of claim 11, wherein at least a part of the air vent channel is located between the liquid-conducting piece and the outer wall of the atomization assembly; and the liquid-conducting piece is the first liquid-conducting piece, the second liquid-conducting piece, or the third liquid-conducting piece. 5 10
13. The atomizer of any one of claims 3 to 10, wherein the atomization assembly comprises an atomization tube and an atomization core, the atomization core is disposed in the atomization tube, the peripheral side wall of the atomization tube has an air vent hole, and the atomizer further has an air vent channel, the air vent channel is in communication with the air vent hole, and the air vent channel is in communication with the liquid storage cavity. 15 20
14. The atomizer of any one of claims 11 to 13, wherein the air vent channel is in communication with the first liquid-conducting piece. 25
15. An electronic atomization apparatus, comprising a power supply structure and the atomizer of any one of claims 1 to 14, wherein the power supply structure is configured to supply power to the atomizer. 30

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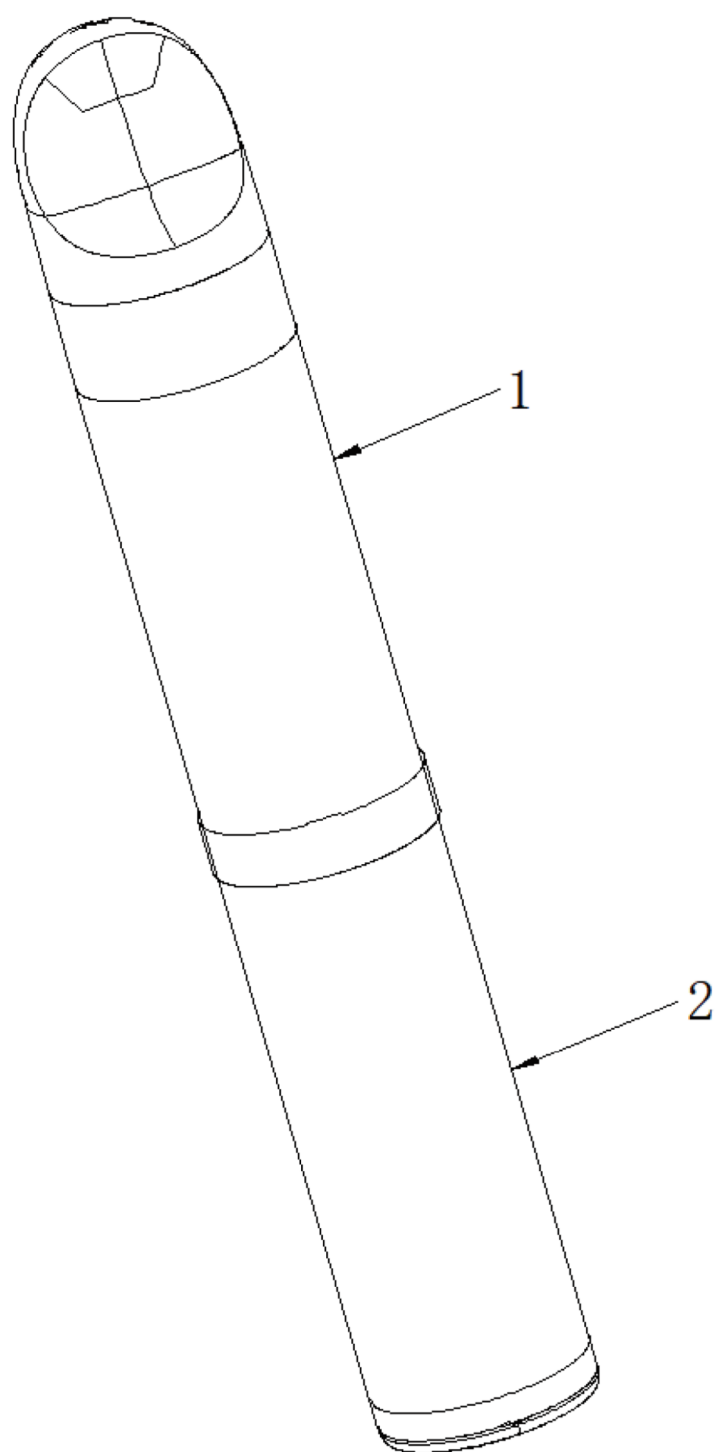


FIG. 1

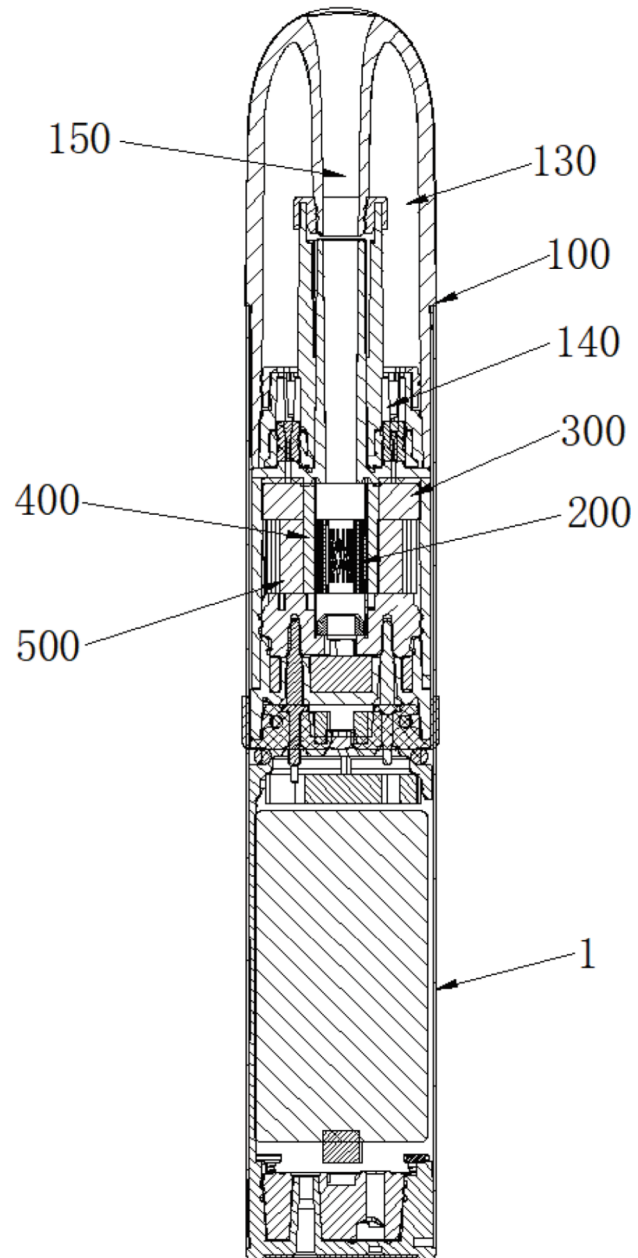


FIG. 2

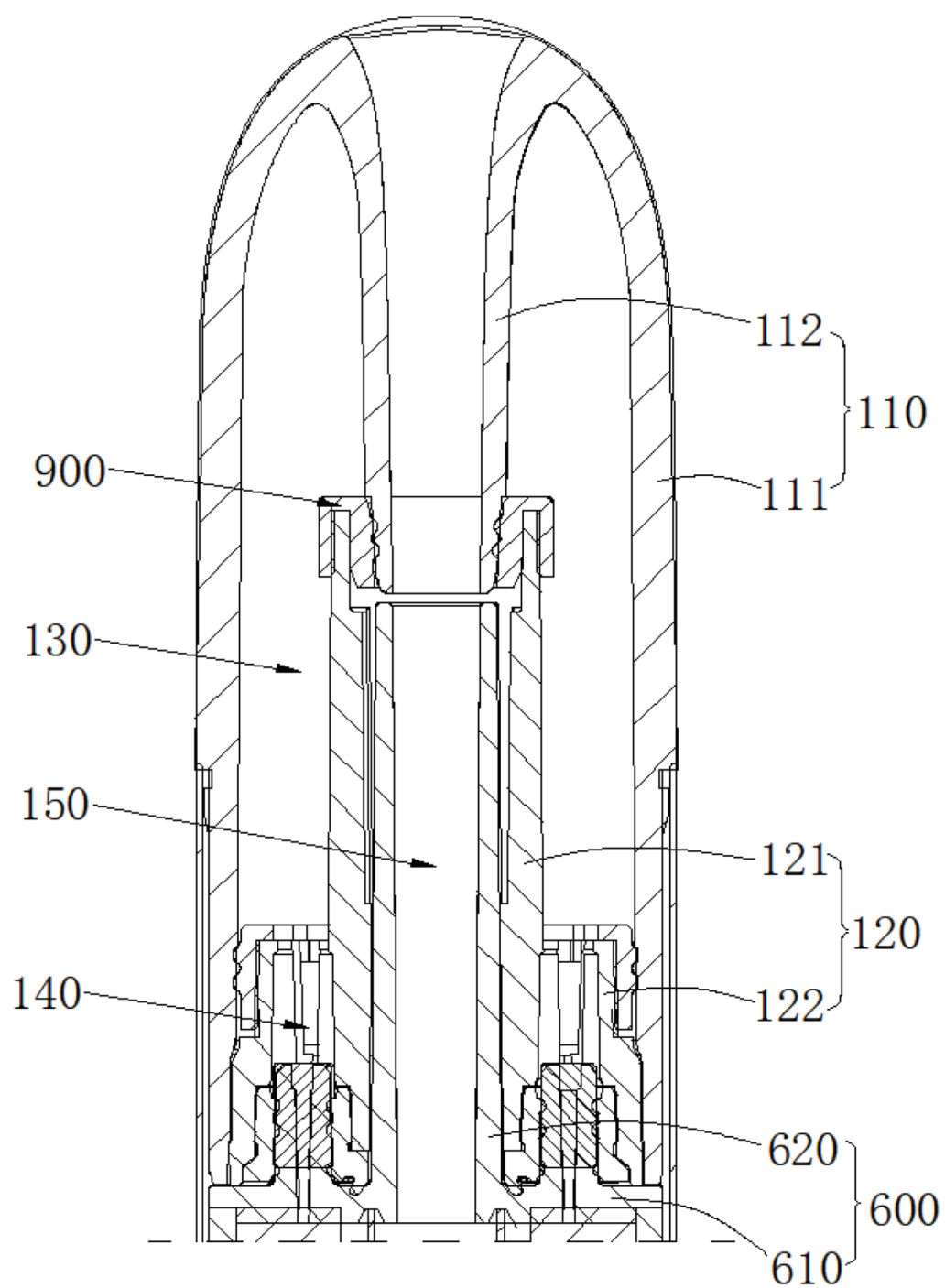


FIG. 3

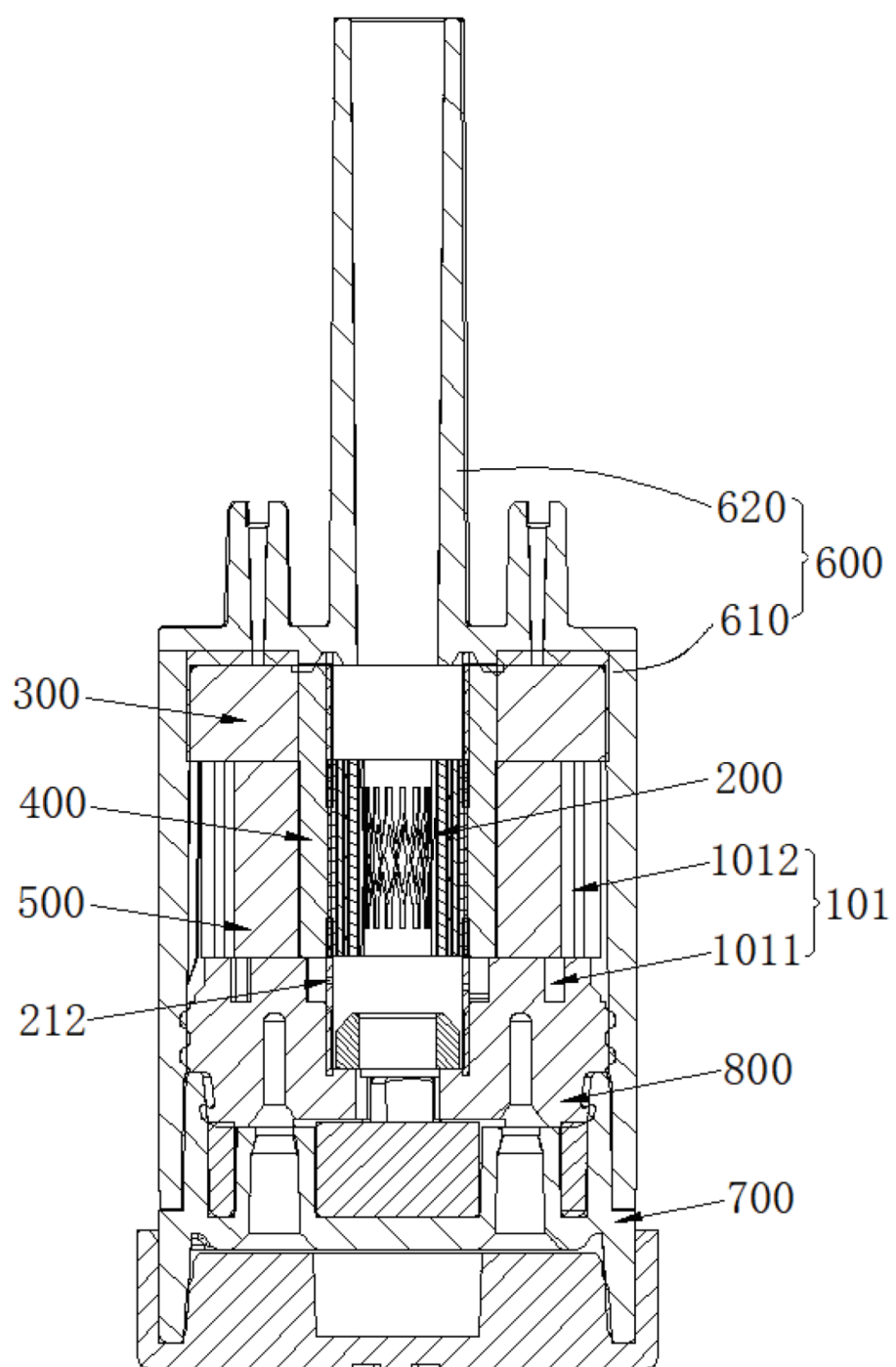


FIG. 4

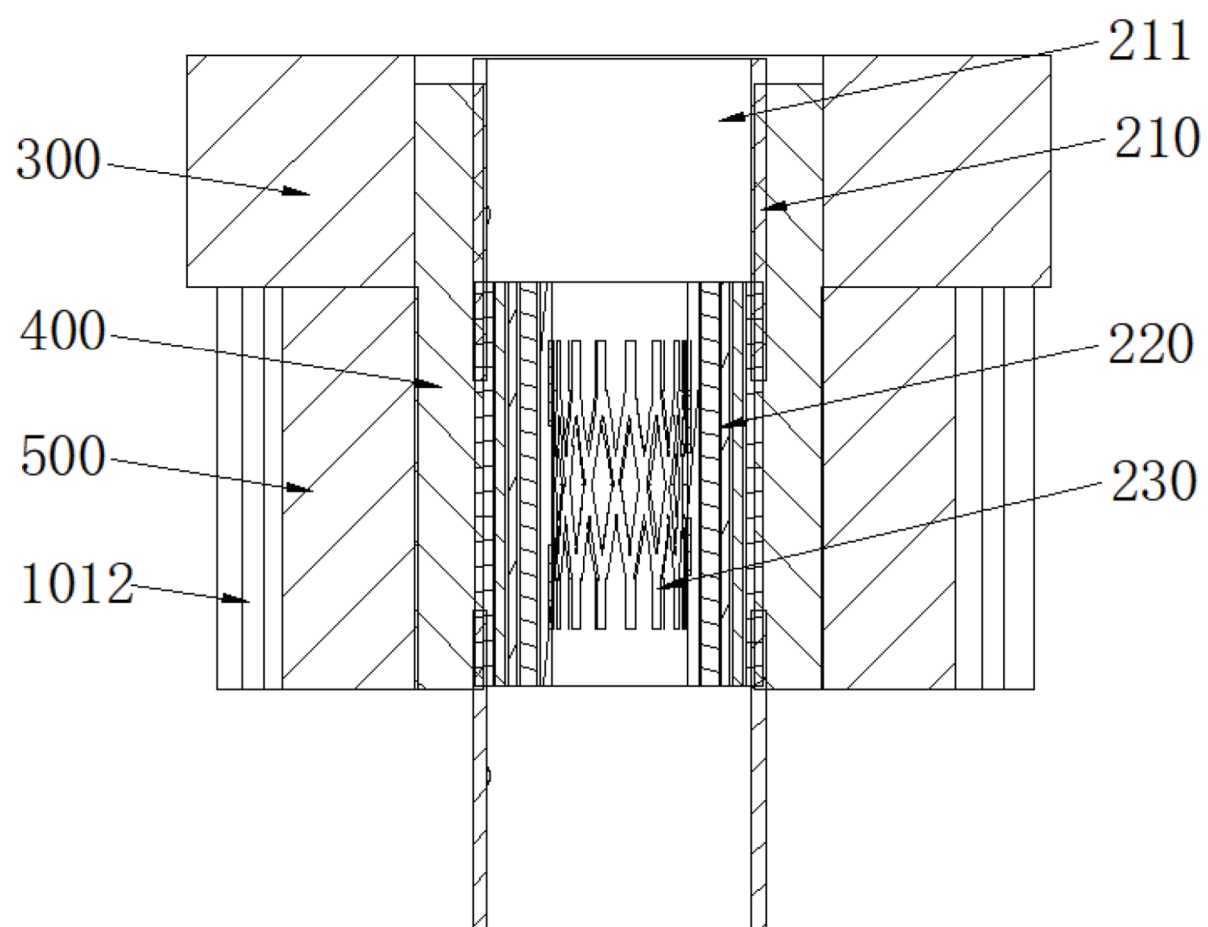


FIG. 5

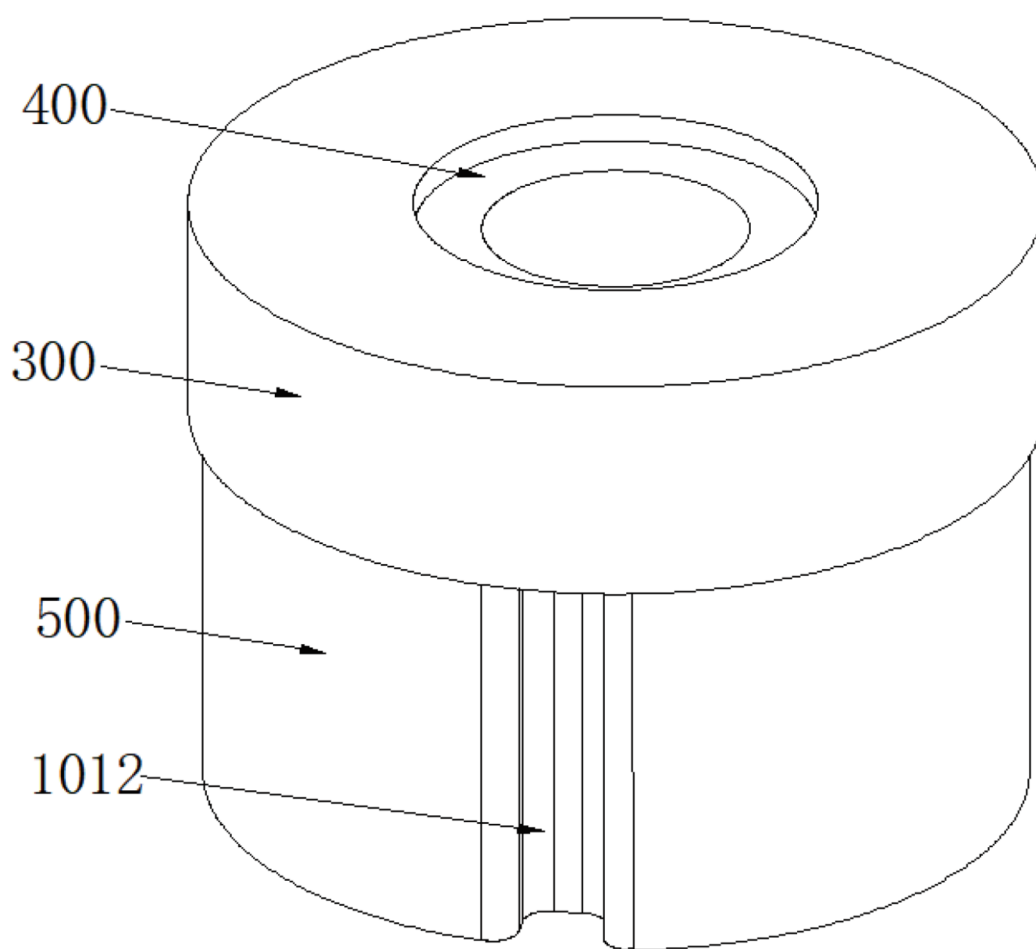


FIG. 6

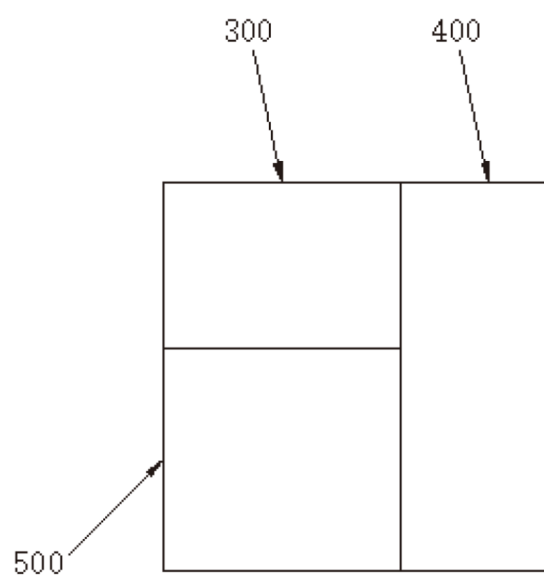


FIG. 7

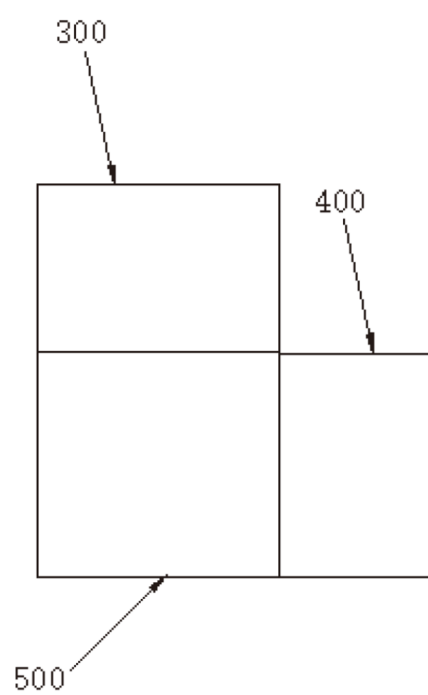


FIG. 8

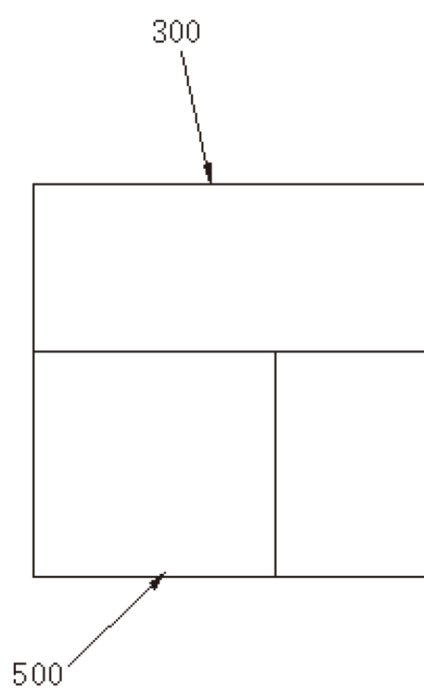


FIG. 9

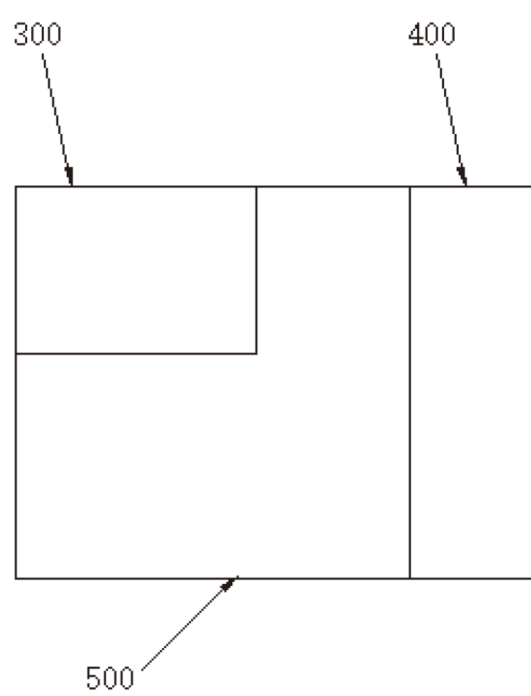


FIG. 10



EUROPEAN SEARCH REPORT

Application Number

EP 26 17 2658

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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A	* figures 1-5 * * paragraph [0064] - paragraph [0091] * * paragraphs [0064], [0076], [0079], [0086] *	3-14	ADD. A24F40/10 A24F40/485
A	----- CN 115 119 970 A (SHENZHEN AOCHU TECH CO LTD) 30 September 2022 (2022-09-30) * abstract; figure 3 *	1-15	
A	----- WO 2024/220644 A2 (BLACKSHIP TECH DEVELOPMENT LLC [US]) 24 October 2024 (2024-10-24) * figure 4 * * paragraph [0075] - paragraph [0081] *	1-15	

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			A24F
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
Munich		25 August 2026	Schwertfeger, C
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

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25-08-2026

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82