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(54) ATOMIZER

(57) An atomizer is provided, including oil cup, and bottom component at end of the oil cup to form liquid storage cavity with the oil cup. The bottom component includes base, and at least two vertical or oblique heat generating components, atomization gas channel is formed in the bottom component, liquid inlet channel is formed between outer sidewall of the base and inner wall of the oil cup, the outer sidewall of the base is provided with liquid inlet hole communicating with the liquid inlet channel, width of the liquid inlet hole gradually decreases towards bottom end of the base, the liquid inlet hole supplies atomization liquid from the liquid storage cavity to the heat generating components through the liquid inlet channel. With this solution, even penetration of the atomization liquid into the heat generating components is achieved, which guarantees smooth liquid guidance, enhances atomization effects, and improves taste.

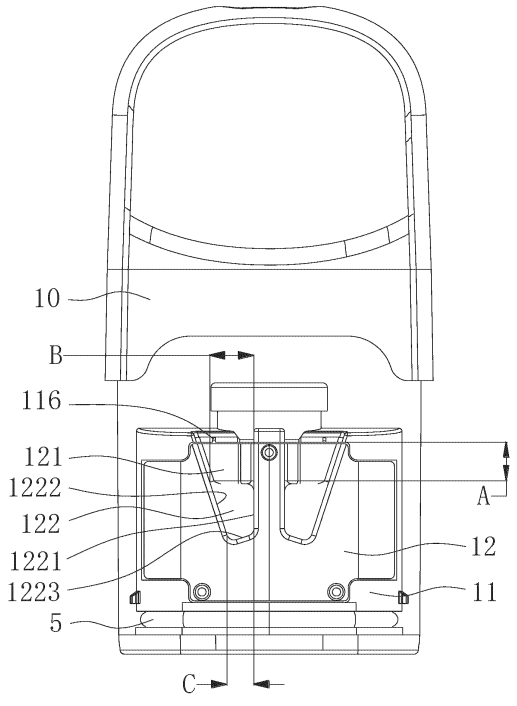

FIG. 2

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Description

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to Chinese Patent Application No.202210441820.9 filed on April 25, 2022 and Chinese Patent Application No.202220975652.7 filed on April 25, 2022, which are incorporated in their entireties by reference herein.

TECHNICAL FIELD

[0002] The present disclosure relates to the technical field of electronic atomization, and in particular to an atomizer.

BACKGROUND

[0003] Electronic atomization devices are devices that atomize an atomization liquid into an aerosol. In related technologies, an atomizer in an electronic atomization device usually includes an oil cup, a heat generating component, and a bracket. The oil cup and the bracket cooperatively form a storage cavity by means of enclosure. The heat generating component is installed in the bracket. The bracket is provided with an oil inlet hole to guide the atomization liquid from the storage cavity to the heat generating component.

[0004] However, in the related technologies, the oil inlet hole is usually vertically disposed inside the bracket, and the atomization liquid is guided to the heat generating component from the top. Through research, the applicant has found that in a case that the oil inlet hole disposed in this manner is applied to an atomizer where the heat generating component is vertically positioned, it can not smoothly and uniformly supply the atomization liquid to the heat generating component. In this case, dry burning, burnt smell, blackening, or other undesirable situations may easily occur in some areas of the heat generating component; and for some other areas of the heat generating component, leakage may be easily caused due to excessively fast oil guiding, which leads to oil explosion or leads to inhalation of the atomization liquid which is incompletely atomized.

TECHNICAL PROBLEMS

[0005] The atomization liquid can not be smoothly and uniformly supplied to the heat generating component based on the oil supply method in the related technologies, which may easily results in dry burning, burnt smell, blackening, or other undesirable situations in some areas of the heat generating component, and may easily cause leakage in some other areas of the heat generating component due to excessively fast oil guiding and then leads to oil explosion or leads to inhalation of the atomization liquid that is incompletely atomized.

TECHNICAL SOLUTIONS

[0006] The technical problem to be solved by the present disclosure is to provide an atomizer, so as to at least address the deficiencies in the related technologies to a certain degree.

[0007] The present disclosure provides an atomizer, including: an oil cup, and a bottom component provided at an end of the oil cup to form a liquid storage cavity with the oil cup, where the bottom component includes a base installed on the oil cup, and at least two heat generating components vertically or obliquely mounted on the base, an atomization gas channel on a side of the heat generating component is formed in the bottom component, liquid inlet channels are formed between an outer sidewall of the base and an inner wall of the oil cup, the outer sidewall of the base is provided with a liquid inlet hole communicating with the liquid inlet channel, a width of the liquid inlet hole gradually decreases in a direction towards a bottom end of the base, and the liquid inlet hole is configured to supply an atomization liquid from the liquid storage cavity to the heat generating component through the liquid inlet channel.

BENEFICIAL EFFECTS

[0008] In the solution, the atomization liquid is guided from the storage cavity to the liquid inlet holes through the liquid inlet channels formed between the outer sidewall of the base and the inner wall of the oil cup, and then the atomization liquid is supplied to the heat generating components through the liquid inlet holes. Since the heat generating components are vertically or obliquely arranged and the width of the liquid inlet hole gradually decreases in the direction towards the bottom end of the base, oil supply volume is larger at an upper end of the liquid inlet hole and the oil supply volume gradually decreases in a direction towards a lower end of the liquid inlet hole. In this way, a more uniform penetration speed of the atomization liquid into the heat generating components is achieved, which ensures smooth liquid guidance, enhances atomization effects, and improves taste.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009]

FIG. 1 is a schematic diagram of an exploded structure of an atomizer according to embodiments of the present disclosure;

FIG. 2 is a schematic diagram of an atomizer viewed by a user in a front direction according to embodiments of the present disclosure;

FIG. 3 is a cross-sectional view of an atomizer in a first direction according to embodiments of the present disclosure;

FIG. 4 is a cross-sectional view of an atomizer in a

second direction according to embodiments of the present disclosure;

FIG. 5 is a schematic diagram of an oil cup of an atomizer viewed from a bottom according to embodiments of the present disclosure; and

FIG. 6 is a schematic diagram of a gas return path of an atomizer according to embodiments of the present disclosure.

[0010] In the drawings, reference numbers are as follows. 100, storage cavity; 200, atomization gas channel; 10, oil cup; 20, bottom component; 101, gas tube; 102, rib; 103, sealing component; 1, base; 2, heat generating component; 3, gas channel component; 4, electrode; 5, sealing ring; 11, base body; 12, bracket; 111, gas inlet; 115, clearance cavity; 116, gas return groove; 121, liquid inlet groove; 122, liquid inlet hole; 1221, first hole wall; 1222, second hole wall; 1223, bottom wall; 21, oil guiding element; 22, heat generating element.

DETAILED DESCRIPTION

[0011] Embodiments of the present disclosure are described in detail hereinafter. Examples of the embodiments are shown in the accompanying drawings, and identical or similar reference numbers represent an identical or similar element or elements having an identical or similar function. The following embodiments described in conjunction with the drawings are for illustrative purposes and are only used to explain the present disclosure, and should not be construed as limitation to the present disclosure. Based on the embodiments of the present disclosure, all other embodiments obtained by those skilled in the art without creative efforts fall within the scope of protection of the present disclosure.

[0012] In the descriptions of the present disclosure, it should be understood that if terms such as "central", "longitudinal", "transversal", "length", "width", "thickness", "above", "below", "front", "back", "left", "right ", "vertical", "horizontal", "top", "bottom", "inside", "outside", "clockwise", "counterclockwise", "axial", "circumferential" and "radial" are used to indicate orientation or positional relationships, they are based on orientation or positional relationships shown in the accompanying drawings, which are solely used to facilitate describing the present disclosure and simplify the descriptions, and do not indicate or imply that a device or element as referred to should have a specific orientation, be constructed and operated in a specific orientation, and therefore should not be construed as limitation to the present disclosure.

[0013] Furthermore, terms such as "first" and "second" are used for descriptive purposes only and should not be construed as indicating or implying relative importance or implicitly specifying the quantity of indicated technical features. Thus, features defined as "first" or "second" may explicitly or implicitly include one or more of such features. In the descriptions of the present disclosure, the term "multiple" refers to two or more, unless otherwise specifically defined.

[0014] Reference is made to FIGS. 1-4. The embodiments of the present disclosure provide an atomizer, which includes: an oil cup 10, and a bottom component 20 provided at an end of the oil cup 10 to form a liquid storage cavity 100 with the oil cup 10. The bottom component 20 includes a base 1 installed on the oil cup 10, and at least two heat generating components 2 vertically or obliquely mounted on the base 1. An atomization gas channel 200 on a side of the heat generating component 2 is formed in the bottom component 20. Liquid inlet channels are formed between an outer sidewall of the base 1 and an inner wall of the oil cup 10. The outer sidewall of the base 1 is provided with a liquid inlet hole 122 communicating with the liquid inlet channel, a width of the liquid inlet hole 122 gradually decreases in a direction towards a bottom end of the base 1. The liquid inlet hole 122 supplies an atomization liquid from the liquid storage cavity 100 to the heat generating component 2 through the liquid inlet channel.

[0015] In the solution, the atomization liquid is guided from the storage cavity 100 to the liquid inlet holes 122 through the liquid inlet channels formed between the outer sidewall of the base 1 and the inner wall of the oil cup 10, and then the atomization liquid is supplied to the heat generating components 2 through the liquid inlet holes 122. Since the heat generating components 2 are vertically or obliquely arranged and the width of the liquid inlet hole 122 gradually decreases in the direction towards the bottom end of the base 1, oil supply volume is larger at an upper end of the liquid inlet hole 122 and the oil supply volume gradually decreases in a direction towards a lower end of the liquid inlet hole 122. In this way, a more uniform penetration speed of the atomization liquid into the heat generating components 2 is achieved, which ensures smooth liquid guidance, enhances atomization effects, and improves taste.

[0016] Furthermore, the liquid inlet hole 122 has a first hole wall 1221 and a second hole wall 1222 that are oppositely disposed and both extend towards the bottom end of the base 1. The first hole wall 1221 and the second hole wall 1222 each may be a curved surface or planar surface. In an embodiments, both the first hole wall 1221 and the second hole wall 1222 are planar surfaces, and an angle between an extension surface, extending towards an end of the base 1, of the first hole wall 1221 and an extension surface, extending towards the end of the base 1, of the second hole wall 1222 ranges from 0 to 90°. This is equivalent to the fact that the first hole wall 1221 and the second hole wall 1222 jointly form an inverted trumpet shape, which can ensure smooth oil guidance while preventing oil leakage.

[0017] Additionally, a height of the liquid inlet hole 122 along an axial direction of the atomizer is at least 1mm. A first distance C between bottom ends of the first hole wall 1221 and the second hole wall 1222 is a minimum distance between the first hole wall and the second hole

wall, the first distance C ranges from 1 to 4mm. A second distance B between top ends of the first hole wall 1221 and the second hole wall 1222 is a maximum distance between the first hole wall and the second hole wall, and a ratio of the second distance B to the first distance C ranges from 1.2 to 5. Based on such distance parameter settings, on the one hand, smooth oil guidance can be ensured; and on the other hand, the speed oil inlet at the lower end can be gradually reduced to match the speed of consumption of atomization oil by the heat generating components 2, thereby preventing oil leakage.

[0018] In the embodiments, each heat generating component 2 receives the atomization liquid from the storage cavity 100 through two liquid inlet channels, and each liquid inlet channel is provided with a liquid inlet hole 122. In other words, each heat generating component 2 receives the atomization liquid from the storage cavity 100 through two liquid inlet holes 122. In this case, the first distance C ranges from 1 to 3mm, and the ratio of the second distance B to the first distance C ranges from 1.2 to 4. Specifically, the two liquid inlet channels are symmetrically arranged, the liquid inlet holes 122 are positioned at bottom ends of the liquid inlet channels, and oil is supplied to a single heat generating component 2 through two liquid inlet channels. The liquid inlet holes 122 are located at the bottom ends. An angle between an extension direction, towards the end of the base 1, of the first hole wall 1221 and an extension direction, towards the end of the base 1, of the second hole wall 1222 ranges from 0 to 45°. Taking the liquid inlet hole 122 in the left liquid inlet groove 121 as shown in FIG. 2 as an example, the extension direction of the first hole wall 1221 is parallel to the axial direction of the base 1, an angle of 90° is formed, that is, the first hole wall 1221 is vertically arranged and the second hole wall 1222 is obliquely arranged, and the right liquid inlet hole 122 is symmetrically arranged with the left liquid inlet hole 122. Consequently, the bottom ends of the two liquid inlet holes 122 tend to converge towards the center, and the atomization oil can be guided towards the middle of the atomizer, which ensures smooth oil guidance and prevents oil residue within the liquid inlet channels, achieving higher utilization and enhancing atomization effects. In some embodiments, each heat generating component 2 may receive the atomization liquid from the storage cavity 100 through a single liquid inlet channel, and the liquid inlet channel may be provided with a liquid inlet hole 122. In other words, each heat generating component 2 receives the atomization liquid from the storage cavity 100 through a single liquid inlet hole 122. In this case, the first distance ranges from 2 to 4mm, and the ratio of the second distance to the first distance ranges from 1.25 to 2.5, and angle between the extension direction of the first hole wall 1221 towards the end of the base 1 and the extension direction of the second hole wall 1222 towards the end of the base 1 may range from 0 to 60°. Based on such a configuration, the atomization liquid in the liquid inlet channels is allowed to flow more smoothly towards the heat generating components 2, which better ensure oil supply volume.

[0019] Furthermore, a ratio of a length of the liquid inlet hole 122 in an axial direction of the base 1 to the first distance C is greater than 1. In the embodiments, each heat generating component 2 receives the atomization liquid from the storage cavity 100 through two liquid inlet channels, and in a case that each liquid inlet channel is provided with a liquid inlet hole 122, the ratio of the length of the liquid inlet hole 122 in the axial direction of the base 1 to the first distance may range from 1.5 to 2.0, thereby providing sufficient oil supply to the heat generating components 2.

[0020] Furthermore, the liquid inlet hole 122 also includes a bottom wall 1223 connecting bottom ends of the first hole wall 1221 and the second hole wall 1222. The bottom wall 1223 is concave towards the bottom end of the base 1. Specifically, two ends of the bottom wall 1223 are connected to the curved surfaces of the first hole wall 1221 and the second hole wall 1222 respectively, and the bottom wall 1223 is inclined. Moreover, the end where the bottom wall 1223 connects to the second hole wall 1222 is closer to the bottom end of the base 1, which is equivalent to the fact that the connection segment between the bottom wall 1223 and the curved surface of the second hole wall 1222 is concave towards the bottom end of the base 1. In this way, the width of the bottom end of the liquid inlet hole 122 is allowed to decrease more rapidly. Additionally, the concave region of the bottom wall 1223 has a small width and a low height, which can further reduce the oil supply speed at the bottom end of the liquid inlet hole, thereby mitigating the risk of liquid leakage. Or, in some embodiments, the middle portion of the bottom wall 1223 may be concave towards the bottom end of the base 1.

[0021] It should be understood that the specific shapes of the first hole wall 1221, the second hole wall 1222, and the bottom wall 1223 are not limited. For example, the first hole wall 1221, the second hole wall 1222, and the bottom wall 1223 each may be planar; the first hole wall 1221, the second hole wall 1222, and the bottom wall 1223 each maybe curved; or some of the first hole wall 1221, the second hole wall 1222, and the bottom wall 1223 are planar while others are curved. When the first hole wall 1221 and/or the second hole wall 1222 are curved, an angle between extension surfaces, extending towards the base 1, at any positions of the first hole wall 1221 and the second hole wall 1222 ranges from 0 to 90°.

[0022] Furthermore, the first hole wall 1221, the second hole wall 1222, and the bottom wall 1223 are flush with at least parts of the sidewalls of the liquid inlet channel in the radial direction of the base 1. That is, the bottom of the liquid inlet hole 122 matches the shape of the bottom end of the liquid inlet channel, which facilitates the flow of the atomization liquid from the liquid inlet channel into the liquid inlet hole 122.

[0023] Additionally, the width of the liquid inlet channel gradually decreases in the direction towards the bottom

end of the base 1. Specifically, in the embodiments, two sidewalls of the liquid inlet channel are coplanar with the first hole wall 1221 and the second hole wall 1222 respectively, resulting in a smoother transition between the liquid inlet hole 122 and the liquid inlet channel, and ensuring smooth oil guidance. In some embodiments, bottom ends of the sidewalls of the liquid inlet channel may be coplanar with the first hole wall 1221 and the second hole wall 1222 respectively; and at a position at a top end of the liquid inlet hole 122, the sidewalls of the liquid inlet channel may be bent outwards, in this way, a larger opening is provided at the end of the liquid inlet channel facing the storage cavity 100, which further improves fluidity of oil flow.

[0024] In the present disclosure, the liquid inlet channel may have different configurations. Preferably, the outer sidewall of the base 1 may be provided with liquid inlet grooves 121, a projection of the liquid inlet hole 122 in its normal direction is located within the liquid inlet groove 121, and liquid inlet grooves 121 and the inner wall of the oil cup 10 jointly enclose to form the liquid inlet channels. In some embodiments, the inner wall of the oil cup 10 may be provided with liquid inlet grooves 121, positions of the liquid inlet holes 122 correspond to positions of the liquid inlet grooves 121, and the liquid inlet grooves 121 and the outer sidewall of the base 1 jointly enclose to form the liquid inlet channels. An outward protrusion may be formed at a portion of the oil cup 10 corresponding to the liquid inlet grooves 121, which, on the one hand, can increase the space of the storage cavity 100 to improve oil storage capacity, and on the other hand, can be held by a user to provide more convenient utilization.

[0025] Furthermore, the oil cup 10 is made of transparent material, and a central axis of the liquid inlet hole 122 is perpendicular to an inner wall of the oil cup 10 towards which the liquid inlet hole 122 faces. As a result, a user can directly observe the liquid inlet hole 122 from the outside of the oil cup 10 and monitor the operating state of the heat generating component 2 through the liquid inlet hole 122. In a case of low atomization liquid volume, unsmooth oil supply, or malfunction of the heat generating component 2, the user can promptly stop using the atomizer, thereby ensuring a pleasant inhalation experience and safeguarding health.

[0026] Moreover, the base 1 includes a base body 11 fitted to the oil cup 10 and a bracket 12 mounted on the base body 11. The heat generating components 2 are clamped and fixed between the base body 11 and the bracket 12, and the liquid inlet holes 122 are disposed in the bracket 12. An outer side of the bracket 12 and an inner side of the oil cup 10 together enclose to form the liquid inlet channels.

[0027] Specifically, the base 1 includes two brackets 12 symmetrically arranged on opposite sides of the base body 11. The bottom component 20 includes two heat generating components 2 in a one-to-one correspondence with the two brackets 12, the two heat generating components are respectively located on the two opposite sides of the base body 11. Each heat generating component 2 is clamped and fixed to the base body 11 by the corresponding bracket 12. Two liquid inlet grooves 121 are symmetrically arranged on a side of each bracket 12 away from the base body 11, and each liquid inlet groove 121 is provided with a liquid inlet hole 122. The heat generating component 2 includes an oil guiding element 21 clamped and fixed on a side of the liquid inlet hole 122 by the base body 11 and bracket 12, and a heat generating element 22 attached to a side of the oil guiding element 21 away from the liquid inlet hole 122. The oil guiding element 21 covers the liquid inlet hole 122. In this way, the two liquid inlet channels can smoothly and evenly supply the atomization oil to the oil guiding elements 21 to enhance atomization effects. In some embodiments, one, three, four, or more liquid inlet grooves 121 may be arranged on a same bracket 12, and two, three, or more liquid inlet holes 122 may be disposed in each liquid inlet groove 121, so as to increase oil supply. The specific arrangement may be adjusted according to actual conditions.

[0028] In the solution, the base body 11 and the bracket 12 are arranged horizontally. Consequently, a gas channel component 3 is arranged in the base body 11. It should be understood that in some implementations, the base body 11 and bracket 12 may be arranged vertically, in this case, the bracket 12 may be mounted on the top of the base body 11. In this way, an accommodation space is formed between the base body 11 and bracket 12, the gas channel component 3 and heat generating components 2 may be clamped and fixed in the accommodation space by the base body 11 and bracket 12, or, the heat generating components 2 may be clamped and fixed by the base body 11 and bracket 12 while the gas channel component 3 is separately assembled to either the base body 11 or bracket 12 and is located in the accommodation space. In other words, the specific arrangement of the base 1 is not limited in the present disclosure, as long as the gas channel component 3 is assembled to the base 1.

[0029] The oil guiding element 21 is a flat plate structure, and a heat generating element 22 is a sheet-like structure, the heat generating element 22 includes two conductive parts and a heat generating part connected in series between the two conductive parts. Two electrodes 4 penetrate through the base body 11 and are electrically connected to the two conductive parts respectively.

[0030] The oil guiding element 21 is a flat-plate oil-absorbing cotton. With the oil-absorbing cotton, a large atomization amount can be achieved, providing better inhalation experience and higher fragrance restoration of the atomization liquid. In the embodiments, the oil guiding element 21 is positioned at an angle of 90° with respect to a bottom surface of the atomizer, i.e., arranged vertically. In practical applications, an angle between the oil guiding element 21 and the bottom surface of the atomizer may range from 60° to 120°, i.e., the oil guiding element 21 is arranged obliquely. It should be understood that the

bottom surface of the atomizer refers to a plane perpendicular to the central axis of the atomizer.

[0031] Each of opposite sides of the electrodes 4 is connected with a heat generating element 22. The heat generating element 22 may be a metal sheet formed by etching conductive metal, for example, it may be made of nickel-chromium, iron-chromium-aluminum, or stainless steel through etching or laser cutting. Each heat generating element includes two conductive parts and a heat generating part connected in series between the two conductive parts. The resistance of the conductive parts is significantly lower than that of the heat generating part, as a result, when the heat generating element 22 is energized and heated, only a small amount of heat is generated in the conductive parts, allowing heat to concentrate in the region of the heat generating part for optimal atomization effects. The shape of the heat generating part is not specifically limited in the embodiments of the present disclosure, which may be grid-like, striped, S-shaped, zigzag, wavy, serrated, spiral, circular, or rectangular, as long as it can achieve planar heat generating.

[0032] Furthermore, as shown in FIGS. 4-5, the oil cup 10 includes a gas tube 101, and ribs 102 connected between the gas tube 101 and the inner wall of the oil cup 10. Both the gas tube 101 and the ribs 102 are connected to the base 1. The inner wall of the oil cup 10, the base 1, the outer wall of the gas tube 101, and the ribs 102 jointly enclose to form at least two liquid storage cavities 100, the liquid storage cavities are independent of each other and correspond one-to-one with the heat generating components 2. Additionally, a liquid inlet channel is provided between each liquid storage cavity 100 and the corresponding heat generating component 2.

[0033] Specifically, the base 1 has a gas inlet 111, the oil cup 10 has a gas outlet, and the base body 11 has a clearance cavity 115. The clearance cavity 115 has at least two clearance openings. The clearance cavity 115 has a gas channel component 3 installed therein. The heat generating component 2 is mounted on a side of the base body 11 opposite to the gas channel component 3, and an atomization gas channel 200 connecting the gas inlet 111 and the gas outlet is formed between the heat generating component 2 and the gas channel component 3. The cross-sectional area of the atomization gas channel 200 gradually increases in a direction from an end near the gas inlet 111 to the gas outlet. That is, each heat generating component 2 corresponds to an independent atomization gas channel 200.

[0034] Therefore, different types of atomization liquids may be injected into different liquid storage cavities 100. The atomization liquid in the corresponding liquid storage cavity 100 is guided to the corresponding heat generating component 2 through the liquid inlet channel and the liquid inlet hole 122 for atomization, and the resulting aerosol enters the corresponding atomization gas channel 200. In other words, each atomization gas channel 200 may produce an aerosol with a different flavor. Subsequently, the aerosols from the different atomization gas channels 200 converge into a single stream for inhalation, providing a smoking experience with a mixed-flavor and enriching user experience.

[0035] Moreover, since each atomization gas channel 200 corresponds to a heat generating component 2, the atomization liquid in the oil cup 10 may be atomized by the heat generating components 2 on the two sides individually to form aerosols in their respective atomization gas channels 200. The atomization processes in the two atomization gas channels 200 do not interfere with each other. Afterwards, the aerosols from the two atomization gas channels 200 converge, which effectively double the TPM (Total Particulate Matter), thereby enhancing the smoking experience for the user.

[0036] Furthermore, to balance the negative pressure formed in the liquid storage cavity 100 during atomization liquid consumption, the base body 11 is provided with a gas return groove 116 that is spaced apart from the liquid inlet channel and connects the liquid storage cavity 100 to the gas inlet 111. As shown in FIG. 6, the gas return groove 116 in the embodiments is arranged on a side of the clearance opening of the base body 11, so as to enclose a gas return channel with the oil guiding element 21. The gas return channel connects the corresponding liquid storage cavity 100 and the clearance cavity 115, specifically, connecting the atomization gas channel 200 whose position is corresponding to the liquid storage cavity 100. Furthermore, the liquid inlet channel and the gas return channel are separated from each other by the solid part of the bracket 12. In this way, during the gas exchange process, the gas does not need to pass through the liquid inlet channel and the liquid inlet hole. The bubbles generated by the gas exchange may not be trapped by the atomization liquid, thus making the flow of the atomization liquid smoother, which overcomes the drawback of arranging the oil inlet channel and the gas return channel together.

[0037] Furthermore, a distance A between the other end of the gas return channel and the liquid inlet hole 122 is at least 0.8mm. In this way, the separation of liquid inlet and gas exchange is ensured, which prevents the liquid inlet from be disrupted in the gas exchange moment and eliminates the risk of bubbles getting stuck at the liquid inlet hole 122. Additionally, in this solution, the gas return groove 116 is located in the base 11, while the liquid inlet hole 122 is located in the bracket 12, so that they are not in the same component, reducing potential interactions between them.

[0038] Furthermore, the gas tube 101 and the base body 11 are connected through a sealing component 103 to ensure airtightness. The sealing component 103 may be made of silicone. The aerosols from the various atomization gas channels 200 converge at the portion where the gas tube 101 connects the base body 11 and are directed to the outlet of the oil cup 10 through the gas tube 101 for user inhalation. Two ribs 102 are arranged between the outer wall of the gas tube 101 and the inner wall

of the oil cup 10, to divide the inner cavity of the oil cup 10 into two symmetrical halves. The base body 11 is connected to the ends of the gas tube 101 and the ribs 102, thus forming two non-communicating liquid storage cavities 100 together with the gas tube 101, the ribs 102, and the sidewall of the oil cup 10 by means of enclosure.

[0039] In some embodiments, more ribs 102 may be arranged in the oil cup 10 to divide the inner cavity of the oil cup 10 into three, four, five, or more cavities. When the oil cup 10 is assembled with the base body 11, three, four, five, or more liquid storage cavities 100 may be formed by means of enclosure. The arrangement of the ribs 102 may be adjusted according to actual needs. It should be understood that the shapes and capacities of the various liquid storage cavities 100 may be the same or different, which are not limited herein. In some embodiments, the inner cavity of the oil cup 10 may be divided by installing partitions on the base body 11. For example, an end of the base body 11 facing the oil cup 10 may be provided with sheet-like partitions. When the base body 11 is assembled with the oil cup 10, edges of the partitions are connected to the inner wall of the oil cup 10 and the outer wall of the gas tube 101 in a sealed manner, to divide the inner cavity of the oil cup 10 into multiple non-communicating liquid storage cavities 100 so as to provide a smoking experience with more flavors. In some embodiments, only one liquid storage cavity 100 may be provided, in this case, the atomization liquid in the liquid storage cavity 100 may flow to the heat generating components 2 through different liquid inlet channels for atomization, and aerosols are formed in different atomization gas channels 200.

[0040] In the above embodiments, descriptions of the various embodiments have their respective focuses. For details which are not elaborated in a certain embodiment, reference may be made to relevant descriptions of other embodiments.

[0041] The technical solutions of the present disclosure are described in the above. For those skilled in the art, based on the idea of the embodiments of the present disclosure, modifications can be made for specific implementations and application scopes. In summary, the content of this specification should not be construed as limitation to the present disclosure.

Claims

1. An atomizer, comprising: an oil cup, and a bottom component provided at an end of the oil cup to form a liquid storage cavity with the oil cup, wherein the bottom component comprises a base installed on the oil cup, and at least two heat generating components vertically or obliquely mounted on the base, an atomization gas channel on a side of the heat generating component is formed in the bottom component, liquid inlet channels are formed between an outer sidewall of the base and an inner wall of the oil cup, the outer sidewall of the base is provided with a liquid inlet hole communicating with the liquid inlet channel, a width of the liquid inlet hole gradually decreases in a direction towards a bottom end of the base, and the liquid inlet hole is configured to supply an atomization liquid from the liquid storage cavity to the heat generating component through the liquid inlet channel.

2. The atomizer according to claim 1, wherein the liquid inlet hole has a first hole wall and a second hole wall disposed opposite to each other and both extending towards the bottom end of the base; an angle between an extension surface, extending towards an end of the base, of the first hole wall and an extension surface, extending towards the end of the base, of the second hole wall ranges from 0 to 90°.

3. The atomizer according to claim 2, wherein the first hole wall is planar or curved, and the second hole wall is planar or curved; in a case that the first hole wall and/or the second hole wall are curved, an angle between extension surfaces, extending towards the base, at any positions of the first hole wall and the second hole wall ranges from 0 to 90°.

4. The atomizer according to claim 2, wherein a first distance between bottom ends of the first hole wall and the second hole wall is a minimum distance between the first hole wall and the second hole wall, the first distance ranges from 1 to 4mm, and a height of the liquid inlet hole along an axial direction of the atomizer is at least 1mm.

5. The atomizer according to claim 4, wherein a second distance between top ends of the first hole wall and the second hole wall is a maximum distance between the first hole wall and the second hole wall, and a ratio of the second distance to the first distance ranges from 1.2 to 5.

6. The atomizer according to claim 5, wherein each heat generating component is configured to receive the atomization liquid from the liquid storage cavity through one liquid inlet hole, the first distance ranges from 2 to 4mm, and the ratio of the second distance to the first distance ranges from 1.25 to 2.5.

7. The atomizer according to claim 6, wherein an angle between an extension direction, towards the end of the base, of the first hole wall and an extension direction, towards the end of the base, of the second hole wall ranges from 0 to 60°.

8. The atomizer according to claim 5, wherein each heat generating component is configured to receive the atomization liquid from the liquid storage cavity through two liquid inlet holes, the first distance

ranges from 1 to 3mm, and the ratio of the second distance to the first distance ranges from 1.2 to 4.

9. The atomizer according to claim 4, wherein the liquid inlet hole further comprises a bottom wall connecting bottom ends of the first hole wall and the second hole wall, and the bottom wall is concave towards the bottom end of the base.

10. The atomizer according to claim 9, wherein a ratio of a length of the liquid inlet hole in an axial direction of the base to the first distance is greater than 1.

11. The atomizer according to claim 10, wherein each heat generating component is configured to receive the atomization liquid from the liquid storage cavity through two liquid inlet channels, each of the liquid inlet channels is provided with one liquid inlet hole, and the ratio of the length of the liquid inlet hole in the axial direction of the base to the first distance ranges from 1.5 to 2.0.

12. The atomizer according to claim 2, wherein the width of the liquid inlet channel gradually decreases in the direction towards the bottom end of the base.

13. The atomizer according to claim 12, wherein two sidewalls of the liquid inlet channel are coplanar with the first hole wall and the second hole wall respectively; or,
wherein bottom ends of sidewalls of the liquid inlet channel are coplanar with the first hole wall and the second hole wall respectively; and at a position at a top end of the liquid inlet hole, the sidewalls of the liquid inlet channel bend outwards.

14. The atomizer according to claim 12, wherein the outer sidewall of the base is provided with liquid inlet grooves, and a projection of the liquid inlet hole in its normal direction is located within the liquid inlet groove, and the liquid inlet grooves and the inner wall of the oil cup together enclose to form the liquid inlet channels.

15. The atomizer according to claim 12, wherein the inner wall of the oil cup is provided with liquid inlet grooves, positions of the liquid inlet holes correspond to positions of the liquid inlet grooves, and the liquid inlet grooves and the outer sidewall of the base together enclose to form the liquid inlet channels.

16. The atomizer according to claim 12, wherein the base comprises a base body mounted on the oil cup and a bracket mounted on the base body, the heat generating components are clamped and fixed by the base body and the bracket, the liquid inlet holes are disposed in the bracket, and an outer side of the bracket and an inner side of the oil cup together enclose to form the liquid inlet channels.

17. The atomizer according to claim 16, wherein the base comprises two brackets symmetrically arranged on two opposite sides of the base body, the bottom component comprises two heat generating components in a one-to-one correspondence with the two brackets, the two heat generating components are respectively located on the two opposite sides of the base body, each heat generating component is clamped and fixed to the base body by the corresponding bracket, two liquid inlet grooves are symmetrically arranged on a side of each bracket away from the base body, and each liquid inlet groove 121 is provided with one liquid inlet hole.

18. The atomizer according to claim 17, wherein the heat generating component comprises an oil guiding element clamped and fixed on a side of the liquid inlet hole by the base body and the bracket, and a heat generating element attached to a side of the oil guiding element away from the liquid inlet hole, and the oil guiding element covers the liquid inlet hole.

19. The atomizer according to claim 18, wherein the oil guiding element is a flat plate structure, the heat generating element is a sheet-like structure, and an angle between the oil guiding element and a bottom surface of the atomizer ranges from 60 to 120°.

20. The atomizer according to claim 1, wherein the oil cup is provided with independent liquid storage cavities in a one-to-one correspondence with the heat generating components, and the liquid inlet channel is arranged between each liquid storage cavity and the corresponding heat generating component.

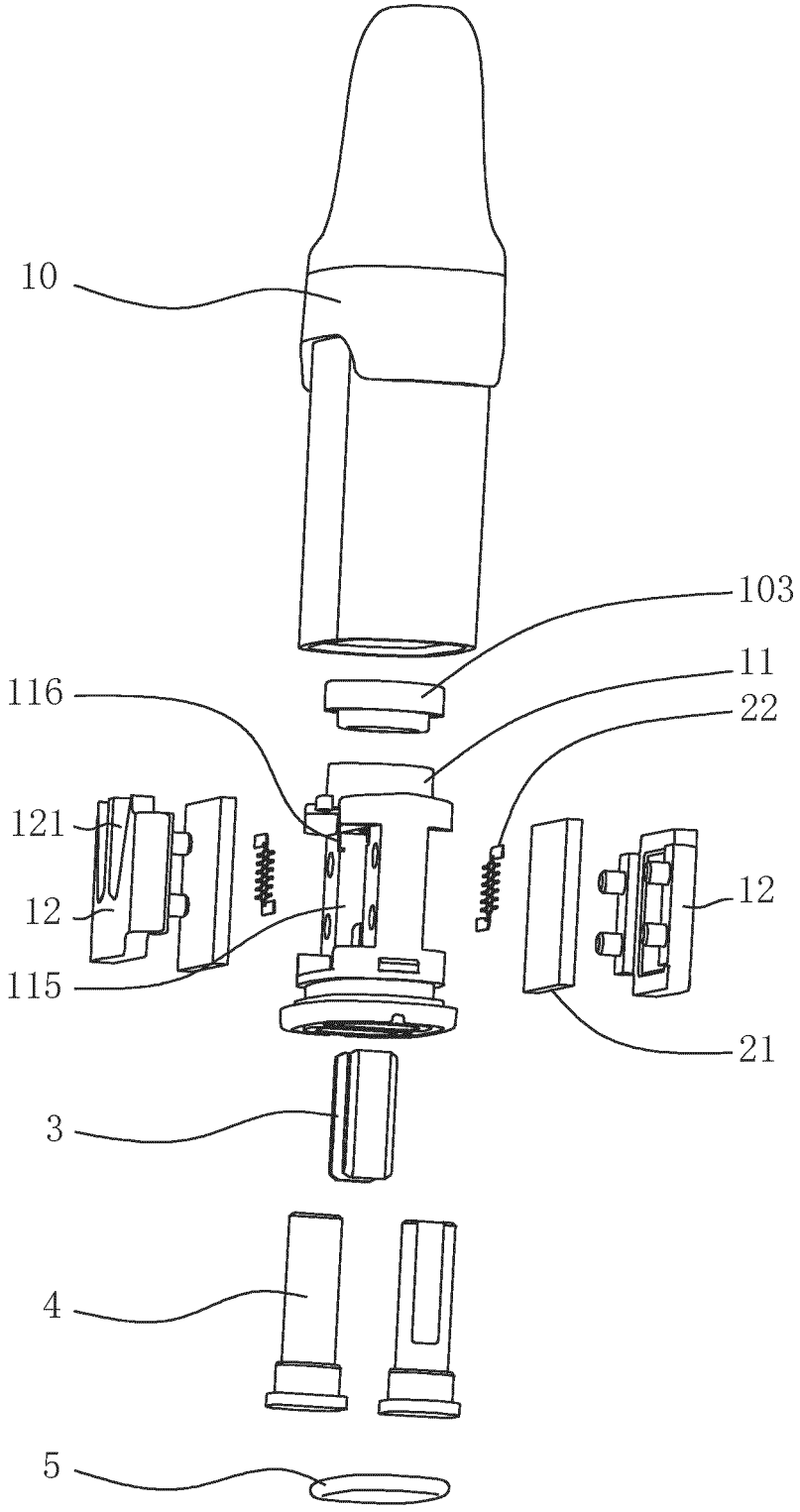

FIG. 1

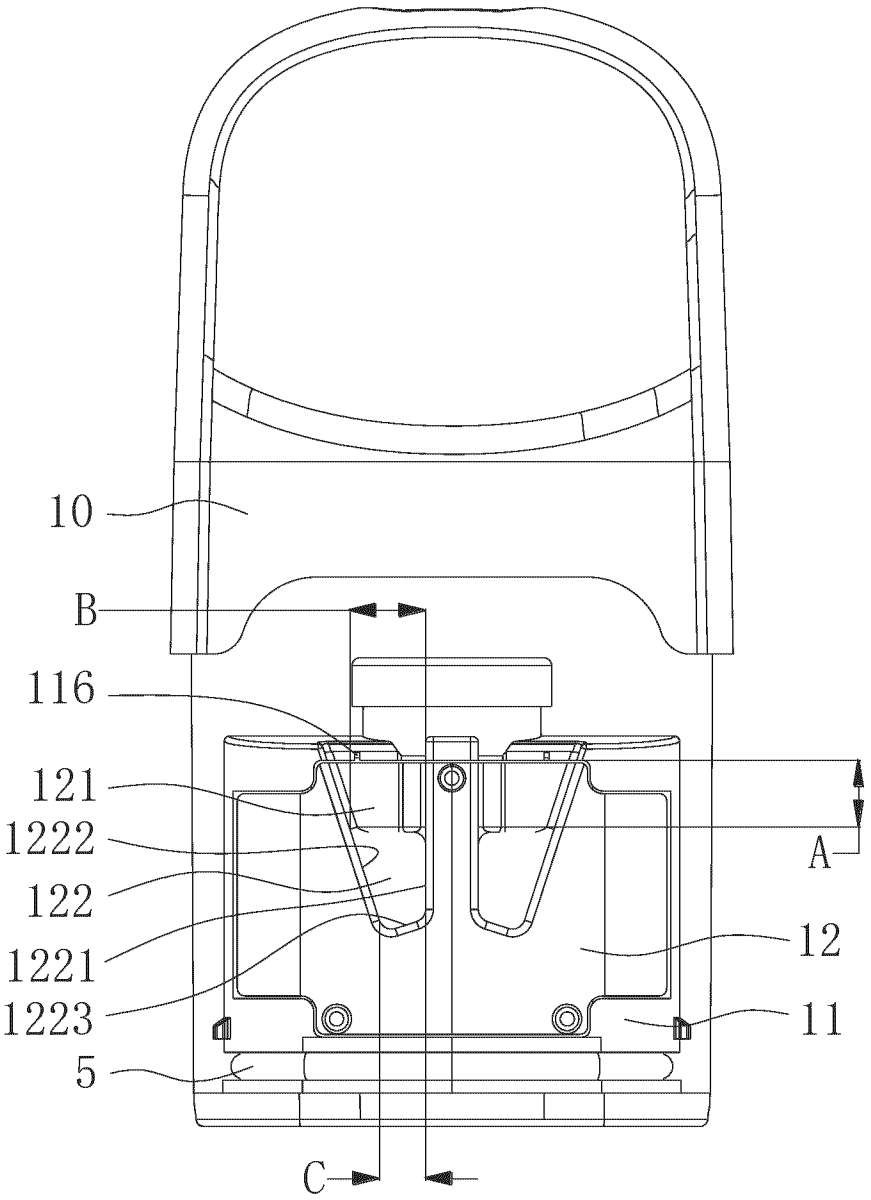

FIG. 2

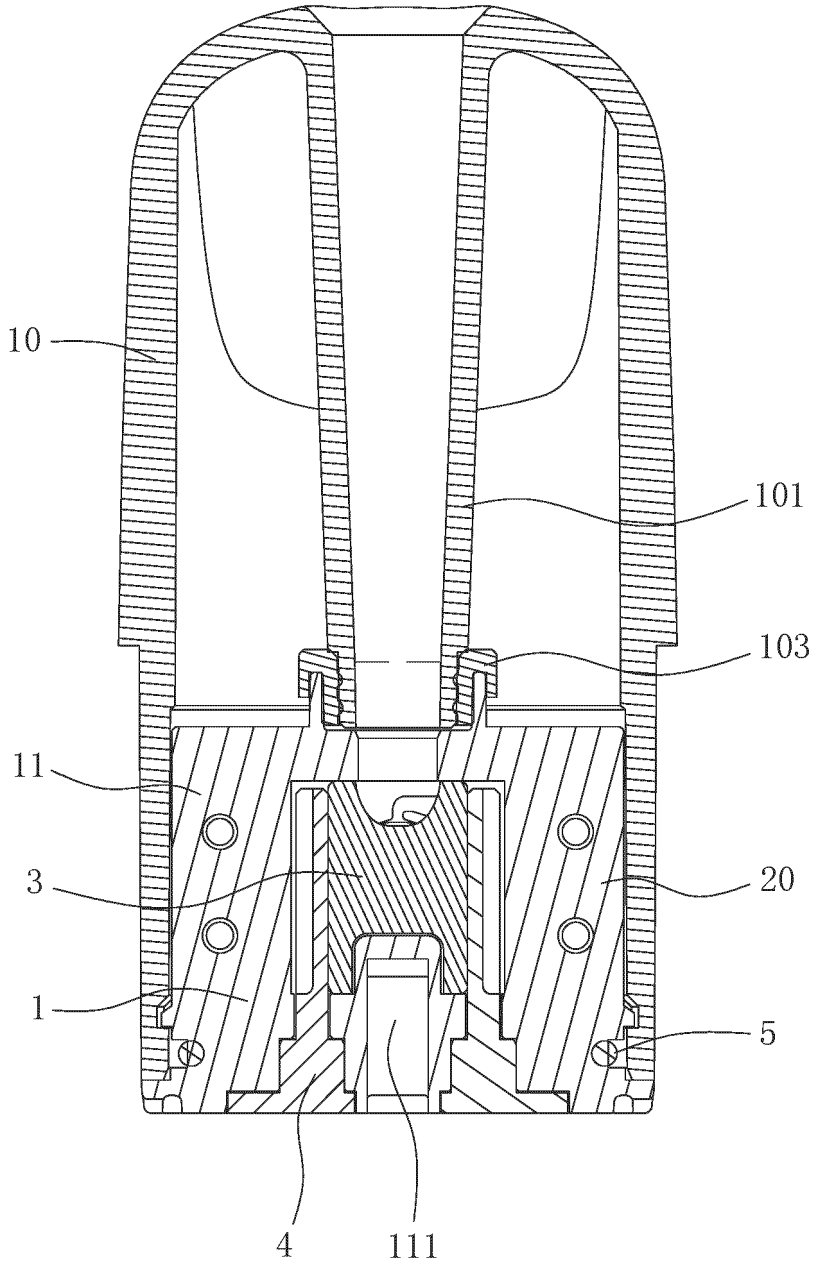

FIG. 3

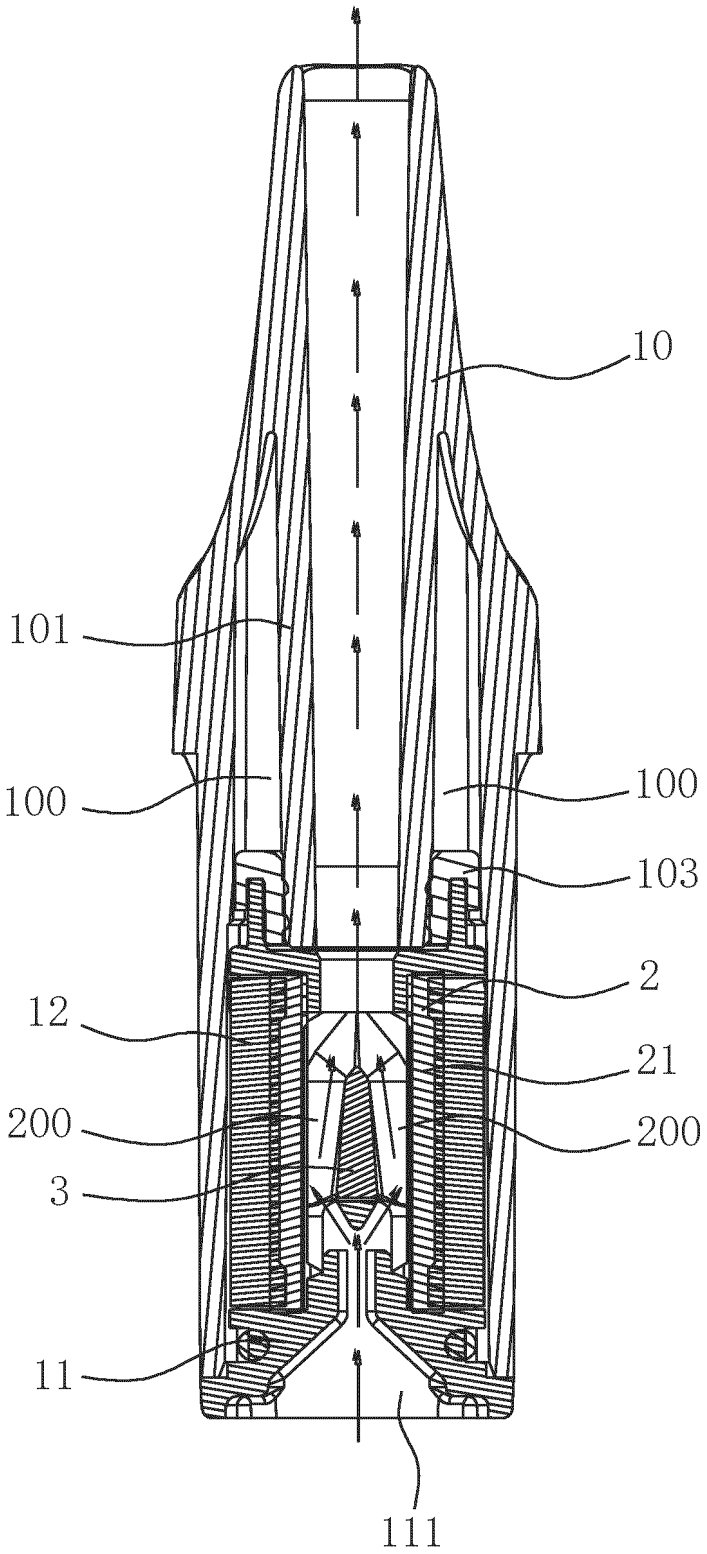

FIG. 4

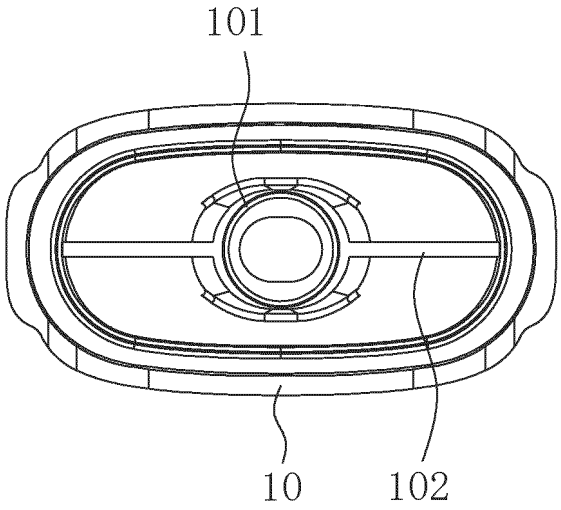

FIG. 5

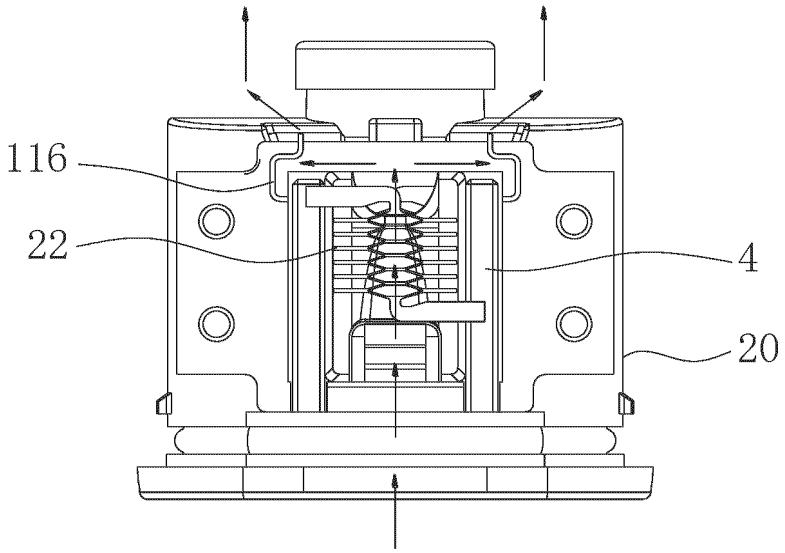

FIG. 6

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2023/089001

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)

IPC: A24F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNTXT, ENTXTC, WPABSC, DWPI: 雾化器, 油杯, 储液腔, 底部组件, 底座, 竖直, 倾斜, 发热组件, 雾化气道, 外侧壁, 进液通道, 进液孔, 底端, 缩小, 宽度, 供油量, 均匀, 流畅, atomizer, oil, cup, bottom, liquid storage, cavity, base, heating, vertically, obliquely, atomizing, air, channel, inlet, outer, side, wall, hole, width, reduced, upper, speed

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 217771492 U (ALD GROUP LIMITED) 11 November 2022 (2022-11-11) description, paragraphs [0032]-[0057], figures 1-6, and claims 1-13	1-20
Y	CN 106983179 A (SHENZHEN FIRST UNION TECHNOLOGY CO., LTD.) 28 July 2017 (2017-07-28) description, paragraphs [0003]-[0060], and figures 1-8D	1-20
Y	CN 113826964 A (SHENZHEN HUACHENGDA PRECISION INDUSTRY CO., LTD.) 24 December 2021 (2021-12-24) description, paragraphs [0004]-[0058], and figures 1-13	1-20
Y	CN 106418728 A (CHANGZHOU PATENT ELECTRONIC TECHNOLOGY CO., LTD.) 22 February 2017 (2017-02-22) description, paragraph [0091]	11-19
A	CN 108783594 A (CHANGZHOU PATENT ELECTRONIC TECHNOLOGY CO., LTD.) 13 November 2018 (2018-11-13) entire document	1-20

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"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
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"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	Date of mailing of the international search report
28 July 2023	**09 August 2023**
Name and mailing address of the ISA/CN **China National Intellectual Property Administration (ISA/CN)** **China No. 6, Xitucheng Road, Jimenqiao, Haidian District, Beijing 100088**	Authorized officer Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2023/089001

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 212212684 U (SHENZHEN SMOORE TECHNOLOGY LIMITED) 25 December 2020 (2020-12-25) entire document	1-20
A	CN 213428329 U (SHENZHEN HUACHENGDA PRECISION INDUSTRY CO., LTD.) 15 June 2021 (2021-06-15) entire document	1-20
A	CN 215013576 U (CHANGZHOU PATENT ELECTRONIC TECHNOLOGY CO., LTD.) 07 December 2021 (2021-12-07) entire document	1-20
A	US 2019116884 A1 (FUMA INTERNATIONAL, L.L.C.) 25 April 2019 (2019-04-25) entire document	1-20

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2023/089001

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
CN 217771492 U	11 November 2022	None	
CN 106983179 A	28 July 2017	None	
CN 113826964 A	24 December 2021	None	
CN 106418728 A	22 February 2017	None	
CN 108783594 A	13 November 2018	None	
CN 212212684 U	25 December 2020	None	
CN 213428329 U	15 June 2021	None	
CN 215013576 U	07 December 2021	None	
US 2019116884 A1	25 April 2019	US 2021037884 A1	11 February 2021
		US 11490459 B2	01 November 2022
		US 2020178601 A1	11 June 2020
		US 10813387 B2	27 October 2020
		US 10561176 B2	18 February 2020

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REFERENCES CITED IN THE DESCRIPTION

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- CN 202210441820 **[0001]**
- CN 202220975652 **[0001]**