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

(57) The present invention relates to the technical field of electronic atomization. Disclosed are an atomizer and an electronic atomization device. The atomizer comprises: a liquid guide element, comprising an atomization surface and a liquid adsorption surface; a heating element, configured to heat a liquid matrix adsorbed by the liquid guide element to generate aerosol; and a first bracket, comprising a partition part, a first chamber, and a second chamber, wherein the partition part separates the first chamber from the second chamber, and comprises a first through hole communicating the first chamber with the second chamber. The liquid guide element

is at least partially accommodated in the second chamber, and the atomization surface faces the first chamber, wherein the atomization surface is used for allowing the aerosol to escape and enter the first chamber through the first through hole. By means of the method, the liquid guide element can be conveniently placed in the second chamber from bottom to top through a lower opening; in addition, the first support having such a structure can be easily demolded from a corresponding mold after being formed, so that the complexity of the mold for forming the first support can be reduced, thereby improving the mass productivity of the first support.

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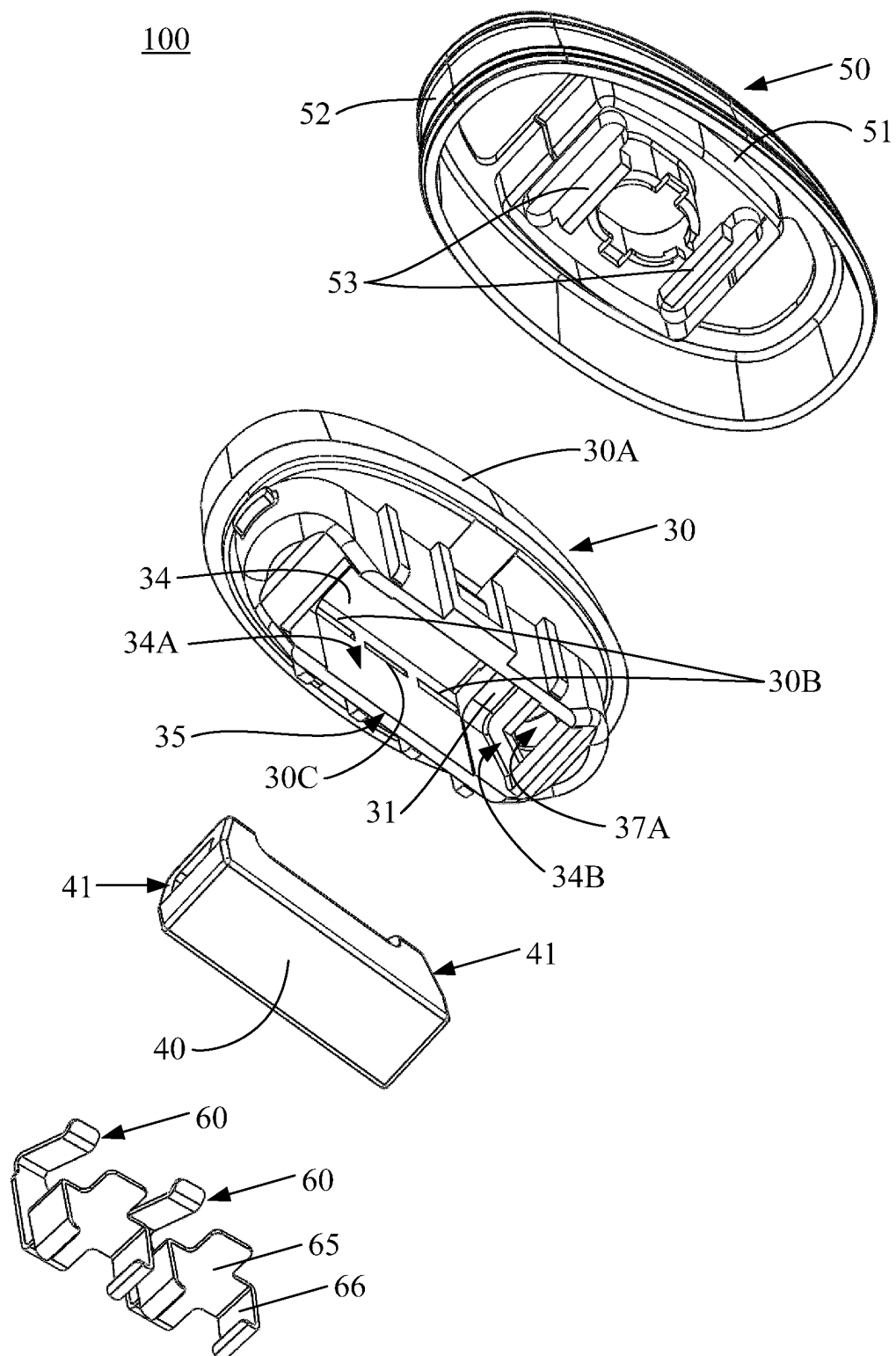


FIG. 8

Description

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to Chinese Patent Application No. 202111669779.2, filed with the China National Intellectual Property Administration on December 31, 2021 and entitled "ATOMIZER AND ELECTRONIC ATOMIZATION DEVICE", which is incorporated herein by reference in its entirety.

TECHNICAL FIELD

[0002] The present invention relates to the field of electronic atomization technologies, and in particular, to an atomizer. The present invention further relates to an electronic atomization device including the atomizer.

BACKGROUND

[0003] An electronic atomization device is an electronic product that heats liquid such as e-liquid or medical liquid and atomizes the liquid into aerosol fog for inhaling.

[0004] The electronic atomization device may include an atomizer and a power supply component. The power supply component is configured to supply power to the atomizer. The atomizer may include an atomization core component and a liquid storage tank. The atomization core component atomizes the liquid when generating heat. The liquid storage tank is configured to supply the atomization core component with the liquid to be heated and atomized.

[0005] In the electronic atomization device, a porous ceramic body is usually used as a capillary liquid guide element absorbing liquid, to absorb a liquid substrate, and a heating element disposed on an atomization surface of the porous ceramic body is used to heat at least a part of the liquid substrate in the porous ceramic body to generate an aerosol.

[0006] In a related electronic atomization device, a bracket for accommodating and supporting a liquid guide element is usually integrally formed through injection molding by using plastic.

[0007] However, because the bracket is usually designed to be in a shape of a container with one end open and the other end closed, and the bracket further includes a curved liquid inlet channel, the formed bracket is difficult to be demolded. As a result, a design of a mold for forming the bracket is complex, and productivity of the bracket is difficult to be improved.

SUMMARY

[0008] The present invention intends to provide an atomizer and an electronic atomization device including the atomizer, to resolve a technical problem that a design of a mold for a bracket in a current atomizer is complex.

[0009] The present invention resolves the technical

problem by using the following technical solutions. An atomizer is provided, including: a liquid guide element, including an atomization surface and a liquid absorbing surface; a heating element, configured to heat at least a part of a liquid substrate absorbed by the liquid guide element, to generate an aerosol; and a first bracket, including a partition portion, a first chamber with an upper opening, and a second chamber with a lower opening. The partition portion isolates the first chamber from the second chamber, and the partition portion includes a first through hole communicating the first chamber with the second chamber. The liquid guide element is at least partially accommodated in the second chamber. The atomization surface faces the first chamber, and the atomization surface is for the aerosol to escape and enter the first chamber through the first through hole.

[0010] In a preferred implementation, a part of the atomization surface is exposed to the first chamber through the first through hole of the partition portion.

[0011] In a preferred implementation, the heating element is disposed on the exposed part of the atomization surface.

[0012] In a preferred implementation, the first bracket further includes a liquid flowing channel. The liquid flowing channel extends downward from an upper end of the first bracket, and is in communication with the second chamber from a side portion, to enable the liquid substrate to flow to the liquid absorbing surface of the liquid guide element.

[0013] In a preferred implementation, the atomizer further includes a first seal member. The first seal member is at least partially located between the liquid guide element and an inner wall of the second chamber, and is configured to seal and isolate the atomization surface from the liquid absorbing surface.

[0014] In a preferred implementation, the inner wall of the second chamber includes a first inclined plane inclined relative to a vertical direction. The first seal member includes a second inclined plane. The first inclined plane is attached to and matches the second inclined plane.

[0015] In a preferred implementation, the first seal member includes a first part. The first part covers an edge part of the atomization surface, and the first part abuts against the partition portion.

[0016] In a preferred implementation, the liquid guide element includes a channel penetrating the liquid guide element inside, and at least a part of an inner surface that is of the liquid guide element and that defines the channel constitutes the liquid absorbing surface.

[0017] In a preferred implementation, a cross-sectional area of the first chamber is less than a cross-sectional area of the second chamber.

[0018] In a preferred implementation, the atomizer includes a second seal member. The second seal member includes an inner cylinder portion and an outer cylinder portion. The inner cylinder portion is inserted into the first chamber and is attached to and matches an inner wall

of the first chamber. The outer cylinder portion surrounds the upper end of the first bracket and is attached to and matches an outer wall of the upper end.

[0019] In a preferred implementation, a blocking arm extending toward the atomization surface and adjacent to the atomization surface is further disposed on the inner cylinder portion.

[0020] In a preferred implementation, a heating part of the heating element is located between two blocking arms.

[0021] In a preferred implementation, the atomizer further includes a main housing. The main housing defines liquid accommodating space and includes an aerosol channel located inside the main housing. The first bracket is connected to the main housing, to enable the aerosol channel to be in fluid communication with the first chamber.

[0022] In a preferred implementation, the aerosol channel is defined by a vapor-gas output tube, and a blocking arm extending toward the atomization surface and adjacent to the atomization surface is disposed on a free end of the vapor-gas output tube.

[0023] The present invention further resolves the technical problem by using the following technical solutions. An electronic atomization device is provided, including an atomizer that atomizes a liquid substrate to generate an aerosol, and a power supply component that supplies power to the atomizer. The atomizer includes an atomizer in accordance with any one of the foregoing implementations.

[0024] A beneficial effect of the present invention is as follows. In the atomizer in embodiments of the present invention, the first bracket is arranged to include the partition portion, the first chamber with the upper opening, and the second chamber with the lower opening, to help dispose the liquid guide element in the second chamber from bottom to top through the lower opening. In addition, the first bracket in this structure is easily to be demolded from a corresponding mold thereof after the first bracket is formed, so that complexity of the mold for forming the first bracket can be reduced, thereby improving productivity of the first bracket.

BRIEF DESCRIPTION OF THE DRAWINGS

[0025] One or more embodiments are exemplarily described with reference to the corresponding accompanying drawings, and the descriptions do not constitute a limitation to the embodiments. Elements in the accompanying drawings that have same reference numerals are represented as similar elements, and unless otherwise particularly stated, the figures in the accompanying drawings are not drawn to scale.

FIG. 1 is a schematic three-dimensional diagram of assembly of an atomizer according to an embodiment of the present invention;

FIG. 2 is another schematic three-dimensional dia-

gram of assembly of the atomizer shown in FIG. 1; FIG. 3 is a schematic diagram of a cross section of the atomizer shown in FIG. 1;

FIG. 4 is a schematic diagram of another cross section of the atomizer shown in FIG. 1;

FIG. 5 is a schematic three-dimensional exploded view of the atomizer shown in FIG. 1;

FIG. 6 is another schematic three-dimensional exploded view of the atomizer shown in FIG. 5;

FIG. 7 is a schematic three-dimensional exploded view of an atomization core component of the atomizer shown in FIG. 5;

FIG. 8 is another schematic three-dimensional exploded view of the atomization core component of the atomizer shown in FIG. 7;

FIG. 9 is a schematic three-dimensional exploded view of a second bracket and a second electrode elastic sheet of the atomizer shown in FIG. 5; and

FIG. 10 is another schematic three-dimensional exploded view of the second bracket and the second electrode elastic sheet of the atomizer shown in FIG. 9.

DETAILED DESCRIPTION

[0026] For ease of understanding of the present invention, the following describes the present invention in more detail with reference to the accompanying drawings and specific implementations. It should be noted that, when an element is expressed as "being fixed to" another element, the element may be directly on the other element, or one or more intermediate elements may exist between the element and the other element. When an element is expressed as "being connected to" another element, the element may be directly connected to the other element, or one or more intermediate elements may exist between the element and the other element. The terms "vertical", "horizontal", "left", "right", "inner", "outer", and similar expressions used in this specification are merely used for an illustrative purpose.

[0027] Unless otherwise defined, meanings of all technical and scientific terms used in this specification are the same as those usually understood by a person skilled in the art to which the present invention belongs. The terms used in this specification of the present invention are merely intended to describe objectives of the specific embodiments, but are not intended to limit the present invention. The term "and/or" used in this specification includes any or all combinations of one or more related listed items.

[0028] In addition, the technical features involved in different embodiments of the present invention described below may be combined with each other provided that they do not conflict with each other.

[0029] FIG. 1 and FIG. 2 are two schematic three-dimensional diagrams of assembly of an atomizer 200 according to an embodiment of the present invention. The atomizer 200 may store a liquid substrate. When the at-

omizer 200 is powered on and works, the atomizer 200 is configured to heat and vaporize the liquid substrate to generate an aerosol. An electronic atomization device that can be directly used by a user may be formed by the atomizer 200 and a power supply component supplying power to the atomizer 200. The liquid substrate may be liquid such as e-liquid or medical liquid. In this specification, the liquid substrate may also be referred to as liquid, "vaporize" may also be referred to as "atomize", and the aerosol may also be referred to as vapor gas, aerosol fog, or atomizing gas.

[0030] FIG. 3 to FIG. 6 are two schematic diagrams of cross sections and two schematic three-dimensional exploded views that are of the atomizer 200 shown in FIG. 1. The atomizer 200 may include an atomization core component 100 and a main housing 90. The main housing 90 defines liquid accommodating space 91, and includes an aerosol channel located inside the main housing 90. The aerosol channel is configured to be in fluid communication with the atomization core component 100 and output the generated aerosol to the outside. For example, the aerosol channel may be defined by a vapor-gas output tube 92, and the vapor-gas output tube 92 includes a free end 93. The main housing 90 is substantially constructed as a hollow cylinder. The main housing 90 includes an inhalation inlet 94 located at a near end and an opening located at a far end, to help assemble functional components in the main housing 90 through the opening. The atomization core component 100 is mounted in match with the main housing 90, to receive the liquid substrate from the liquid accommodating space 91.

[0031] FIG. 7 and FIG. 8 are two schematic three-dimensional exploded views of the atomization core component 100 in the atomizer 200. In some embodiments, with reference to FIG. 3, FIG. 7, and FIG. 8, the atomization core component 100 may include a liquid guide element 10, a heating element 20, and a first bracket 30. The liquid guide element 10 includes an atomization surface 11 and a liquid absorbing surface 12. The heating element 20 may be disposed on the atomization surface 11, and is configured to heat at least a part of the liquid substrate absorbed by the liquid guide element 10, to generate the aerosol. The first bracket 30 includes a partition portion 31, a first chamber 32 with an upper opening 33, and a second chamber 34 with a lower opening 35. The partition portion 31 isolates the first chamber 32 from the second chamber 34, and the partition portion 31 includes a first through hole 36 communicating the first chamber 32 with the second chamber 34. The liquid guide element 10 is at least partially accommodated in the second chamber 34, and the atomization surface 11 faces the first chamber 32. The atomization surface 11 is for the aerosol to escape and enter the first chamber 32 through the first through hole 36. For example, the first chamber 32 may be in communication with the vapor-gas output tube 92 of the atomizer 200, to discharge the generated aerosol through the vapor-gas output tube 92.

The liquid guide element 10 may be entirely accommodated in the second chamber 34. Alternatively, the atomization surface 11 may be arranged to be partially located in the first through hole 36 or even in the first chamber 32.

[0032] The liquid guide element 10 may be prepared by using a material having a capillary channel or a hole. For example, the liquid guide element 10 is made of a hard or rigid capillary structure such as fiber cotton, porous ceramic, a glass fiber cord, porous glass ceramic, or porous glass. The liquid guide element 10 is in fluid communication with the liquid accommodating space 91, to absorb the liquid substrate transferred from the liquid accommodating space 91. The atomization surface 11 of the liquid guide element 10 may be an upper surface thereof facing the vapor-gas output tube 92. The upper surface is preferably a plane extending along a cross section of the main housing 90. The liquid absorbing surface 12 and the atomization surface 11 may be disposed facing away from each other.

[0033] The heating element 20 may generate heat by using resistance. The heating element 20 heats at least a part of the liquid substrate absorbed by the liquid guide element 10, to generate the aerosol, and the generated aerosol may be released into the vapor-gas output tube 92 after escaping from the atomization surface 11. For example, the heating element 20 may be formed on the atomization surface 11 of the liquid guide element 10 in a manner of mounting, printing, depositing, or the like. In some embodiments, the heating element 20 may be made of a material such as stainless steel, nickel chromium alloy, iron chromium aluminum alloy, or metal titanium. As shown in FIG. 7, the heating element 20 is a conductive trajectory in a winding or circuitous pattern or another pattern, and may include conductive terminals 21 at both ends. The conductive terminal 21 may be in a form of a gasket, and may be in a shape of a square, a circle, an ellipse, or the like.

[0034] In some other embodiments, the heating element 20 may alternatively be in a form of an electromagnetic induction element, or infrared radiation non-contact heating. In addition to a case in which heating element 20 in a form of a resistive circuit or a stainless steel sheet is combined on the atomization surface, the heating element 20 may alternatively be at least partially embedded in the liquid guide element 10. For example, the heating element 20 is at least partially embedded in the liquid guide element 10 at a position close to the atomization surface 11.

[0035] In the atomizer 200 in this embodiment, the first bracket 30 is arranged to include the partition portion 31, the first chamber 32 with the upper opening 33, and the second chamber 34 with the lower opening 35, to help dispose the liquid guide element 10 in the second chamber 34 from bottom to top through the lower opening 35. In addition, the first bracket 30 in this structure is easily to be demolded from a corresponding mold thereof after the first bracket 30 is formed, so that complexity of the mold for forming the first bracket 30 can be reduced,

thereby improving productivity of the first bracket 30.

[0036] In addition, the atomization surface 11 of the liquid guide element 10 is arranged to face the vapor-gas output tube 92, so that the atomization surface 11 is arranged to face the inhalation inlet 94. When the heating element 20 on the atomization surface 11 generates heat, liquid on the atomization surface 11 absorbs the heat and is atomized. Generated vapor does not flow through the liquid guide element 10, but directly enters an inhalation channel of the vapor-gas output tube 92 until reaching the inhalation inlet 94 to be inhaled by the user. In this way, a loss generated when the vapor flows through an atomization core is reduced, to ensure that a sufficient amount of the vapor is effectively inhaled by the user in unit duration, thereby improving an amount of effective vapor generated by the electronic atomization device in the unit duration. In addition, a distance between the atomization surface 11 and the inhalation inlet 94 is small, so that a path for the vapor to flow to the inhalation inlet 94 is shortest. Therefore, the loss of the vapor in the inhalation channel can also be reduced, to further ensure the amount of effective vapor generated by the electronic atomization device in the unit duration.

[0037] In some embodiments, with reference to FIG. 3 and FIG. 7, a part of the atomization surface 11 is exposed to the first chamber 32 through the first through hole 36 of the partition portion 31. For example, the atomization surface 11 and the first through hole 36 may be disposed facing each other, so that the partition portion 31 corresponds to an edge part of the atomization surface 11, and most surface of the atomization surface 11 is exposed through the first through hole 36. In other words, most surface of the atomization surface 11 can be seen from the first chamber 32. In this way, the aerosol generated on the atomization surface 11 can be discharged to the vapor-gas output tube 92 through the first through hole 36 and the first chamber 32.

[0038] In some embodiments, with reference to FIG. 3 and FIG. 7, the heating element 20 is disposed on the exposed part of the atomization surface 11. In this way, the aerosol generated on the atomization surface 11 can be directly discharged to the first chamber 32 through the first through hole 36.

[0039] In some embodiments, with reference to FIG. 3 and FIG. 7, the first bracket 30 further includes a liquid flowing channel 37. The liquid flowing channel 37 extends downward from an upper end of the first bracket 30, and is in communication with the second chamber 34 from a side portion, to enable the liquid substrate to flow to the liquid absorbing surface 12 of the liquid guide element 10. The liquid flowing channel 37 is configured to be in communication with the liquid accommodating space 91 at an upper end, and in communication with the second chamber 34 at a lower end. For example, a side opening 37A may be provided on a side that is at the lower end of the liquid flowing channel 37 and that is adjacent to the second chamber 34, so that the liquid flowing channel 37 can be in communication with the second chamber

34. The side opening 37A may be disposed vertically or obliquely relative to the atomization surface 11. In this way, the liquid substrate transferred downward through the liquid flowing channel 37 can flow to the second chamber 34 through the side opening 37A in a horizontal direction, and in particular, to the liquid absorbing surface 12 of the liquid guide element 10 in the second chamber 34.

[0040] In the foregoing embodiment, the liquid flowing channel 37 is disposed. For example, liquid of e-liquid may enter the liquid guide element 10 through the liquid flowing channel 37, and the liquid is guided upward into the atomization surface 11 of the liquid guide element 10 through a capillarity phenomenon for atomization. In this way, an atomization amount of the e-liquid is completely supplied through the capillarity phenomenon, and the liquid does not leak downward during flowing, so that an anti-leakage effect is good.

[0041] In some embodiments, with reference to FIG. 3 and FIG. 7, the atomizer 200 further includes a first seal member 40. The first seal member 40 is at least partially located between the liquid guide element 10 and an inner wall 34A of the second chamber 34, and is configured to seal and isolate the atomization surface 11 from the liquid absorbing surface 12. In other words, when the first seal member 40 is used, liquid provided by the liquid accommodating space 91 can only enter the liquid guide element 10 through the liquid absorbing surface 12, and is then transferred to the atomization surface 11. The first seal member 40 may be substantially in a cup shape, so that the liquid guide element 10 can be accommodated in a recess of the cup-shaped first seal member 40. Liquid inlets 44 are further disposed on both left and right side walls of the first seal member 40, so that the liquid absorbing surface 12 is in communication with the outside through the liquid inlet 44, and is then in communication with the liquid accommodating space 91 during assembly.

[0042] The first seal member 40 may be made of a seal silicone material.

[0043] In some embodiments, with reference to FIG. 3 and FIG. 8, the inner wall 34A of the second chamber 34 includes a first inclined plane 34B inclined relative to a vertical direction. The first seal member 40 includes a second inclined plane 41, and the first inclined plane 34B is attached to and matches the second inclined plane 41. For example, both left and right sides of the second chamber 34 may extend downward and be gradually away from the liquid guide element 10, so that the second chamber 34 can be in a flared shape. In addition, an opening at a bottom of the second chamber 34 may have a consistent cross-sectional area. An external contour of the first seal member 40 may be substantially complementary to a shape of the second chamber 34, so that the first seal member 40 can hermetically match the second chamber 34. Therefore, the arrangement of the first inclined plane 34B and the second inclined plane 41 helps accommodate the first seal member 40 accommo-

dating the liquid guide element 10 in the second chamber 34, and helps enhance sealing between the liquid guide element 10 and the first bracket 30. In addition, the side opening 37A is disposed on the first inclined plane 34B, to help demold the first bracket 30 in an upward and downward travel during manufacturing.

[0044] In some embodiments, with reference to FIG. 3 and FIG. 7, the first seal member 40 includes a first part 42, the first part 42 covers an edge part 13 of the atomization surface 11, and the first part 42 abuts against the partition portion 31. In this way, the liquid guide element 10 can be fixedly maintained in the first seal member 40. In addition, when the liquid guide element 10 is mounted, the first part 42 of the first seal member 40 abuts against the partition portion 31, to avoid direct and hard contact between the liquid guide element 10 and the first bracket 30.

[0045] In some embodiments, with reference to FIG. 3 and FIG. 7, the liquid guide element 10 includes a channel 14 penetrating the liquid guide element 10 inside, and at least a part of an inner surface that is of the liquid guide element 10 and that defines the channel 14 constitutes the liquid absorbing surface 12. For example, the liquid guide element 10 may be in a shape of a square tube, and the channel 14 penetrating the liquid guide element 10 from left to right is disposed inside the liquid guide element 10. An entirety of the liquid guide element 10 may be in a shape of a square, and the channel 14 penetrating the liquid guide element 10 from left to right is disposed inside the liquid guide element 10. In this way, a top surface of the liquid guide element 10 may serve as the atomization surface 11, and an upper surface of the channel 14 may serve as the liquid absorbing surface 12. In addition, left, right, and lower surfaces of the channel 14 may also serve as liquid absorbing surfaces. Openings at both ends of the channel 14 respectively correspond to the two liquid inlets 44 at left and right ends of the first seal member 40, and the two liquid inlets 44 respectively correspond to the two side openings 37A of the first bracket 30. In this way, the liquid substrate can be transferred to the liquid guide element 10 on both left and right sides simultaneously.

[0046] In some embodiments, with reference to FIG. 3, FIG. 7, and FIG. 8, a cross-sectional area of the first chamber 32 may be arranged to be less than a cross-sectional area of the second chamber 34. For example, in a length direction of the atomization surface 11, a length of the first chamber 32 may be less than a length of the second chamber 34. In this case, a thickness of a partition wall between the liquid flowing channel 37 and the first chamber 32 may be less than a thickness of a partition wall between the liquid flowing channel 37 and the second chamber 34. The length direction may be parallel to an extension direction of the channel 14. Alternatively or additionally, in a width direction of the atomization surface 11, a length of the first chamber 32 may be less than a length of the second chamber 34. In this way, a distance between a wall surface of the first

chamber 32 and the vapor-gas output tube 92 can be minimized, thereby reducing retention of continuously generated aerosol in the first chamber 32. Correspondingly, the user can obtain a better taste of vapor.

[0047] In some embodiments, with reference to FIG. 3, FIG. 7, and FIG. 8, the atomizer 200 includes a second seal member 50. The second seal member 50 includes an inner cylinder portion 51 and an outer cylinder portion 52. The inner cylinder portion 51 is inserted into the first chamber 32 and is attached to and matches an inner wall 32A of the first chamber 32. The outer cylinder portion 52 surrounds the upper end of the first bracket 30, and is attached to and matches an outer wall of the upper end. The second seal member 50 may further include a top through hole 54 and a top insertion hole 55. The top through hole 54 is for communicating the liquid accommodating space 91 with the liquid flowing channel 37, and the top insertion hole 55 is for a free end 93 of the vapor-gas output tube 92 to be inserted therein. Sealing is formed between the first bracket 30 and the main housing 90 through the arrangement of the second seal member 50, so that the liquid substrate in the liquid accommodating space 91 can only be transferred to the liquid absorbing surface 12 through the liquid flowing channel 37.

[0048] In some embodiments, with reference to FIG. 3 and FIG. 8, a blocking arm 53 extending toward the atomization surface 11 and adjacent to the atomization surface 11 is further disposed on the inner cylinder portion 51. The blocking arm 53 may be for reducing retention of the generated aerosol between the blocking arm 53 and the inner wall 32A of the first chamber 32. The blocking arm 53 may extend into the first through hole 36. Space between the blocking arm 53 and the inner wall 32A of the first chamber 32 is small through the arrangement of the blocking arm 53, and airflow therein tends to be stagnant. Therefore, the aerosol generated on the atomization surface 11 basically does not flow into the space between the blocking arm 53 and the inner wall 32A, thereby reducing retention of the continuously generated aerosol in the space. Correspondingly, the user can obtain a better taste of vapor.

[0049] In some embodiments, with reference to FIG. 3 and FIG. 7, a heating part of the heating element 20 is located between two blocking arms 53. The heating part of the heating element 20 includes a wire located between the two conductive terminals 21. In this way, the aerosol can be directly generated in space between the two blocking arms 53, and then can be directly discharged into the vapor-gas output tube 92.

[0050] In some embodiments, with reference to FIG. 3, FIG. 7, and FIG. 8, the first bracket 30 includes a side wall 30A and the second chamber 34 with the lower opening 35, and an electrode through hole 30B is provided on the side wall 30A. The atomization core component 100 may further include a first electrode elastic sheet 60. The first electrode elastic sheet 60 includes a first bent portion 61, a connection portion 62, and a second bent portion

63 that are connected in sequence. Both the first bent portion 61 and the second bent portion 63 are bent relative to the connection portion 62. After the liquid guide element 10 is accommodated in the second chamber 34, the first bent portion 61 may penetrate through the electrode through hole 30B to enter the second chamber 34. The second bent portion 63 may be located on a side of the liquid guide element 10 to support the liquid guide element 10, so that the liquid guide element 10 is maintained in the second chamber 34. It is easy to understand that, after the first bent portion 61 penetrates through the electrode through hole 30B to enter the second chamber 34, the first electrode elastic sheet 60 is inserted on the first bracket 30. Further, when the liquid guide element 10 is supported by the second bent portion 63, the liquid guide element 10 may be suspended in the second chamber 34 by using the first electrode elastic sheet 60. The first electrode elastic sheet 60 may be formed by bending a sheet-shaped metal base material.

[0051] In some other embodiments, the electrode through hole 30B may not be provided on the side wall 30A. Instead, the first electrode elastic sheet 60 and the first bracket 30 may be relatively mounted in another manner, provided that the first bent portion 61 can at least partially project into the second chamber 34 to be in contact with the heating element 20. For example, the first bracket 30 may be concaved from a top end to form a groove, to enable the first bent portion 61 to penetrate through the groove to enter the second chamber 34. Alternatively, the first bent portion 61 may circumvent the top end of the first bracket 30 to enter the second chamber 34.

[0052] In some embodiments, with reference to FIG. 7 and FIG. 8, a free end 64 of the first bent portion 61 may abut against the heating element 20. The free end 64 of the first bent portion 61 may serve as a conductive contact, so that the free end 64 can abut against the conductive terminal 21 of the heating element 20 through elasticity of the first electrode elastic sheet 60. A quantity of first electrode elastic sheets 60 may be two, so that two free ends 64 are respectively in conductive contact with the two conductive terminals 21 of the heating element 20, to transport a current.

[0053] In some embodiments, with reference to FIG. 7 and FIG. 8, a width of at least a part of the second bent portion 63 is greater than a width of the connection portion 62. In this way, support stability of the second bent portion 63 can be improved.

[0054] In some embodiments, with reference to FIG. 3, FIG. 5, FIG. 9, and FIG. 10, where FIG. 9 and FIG. 10 are two schematic three-dimensional exploded views of a second bracket 70 and a second electrode elastic sheet 80 of the atomizer 200 shown in FIG. 5, the atomization core component 100 includes the second bracket 70, and the first bracket 30 is mounted on the second bracket 70. The second electrode elastic sheet 80 is disposed on the second bracket 70, and the first electrode elastic sheet 60 is conductively connected to the second electrode

elastic sheet 80. For example, a buckle may be disposed on each of two opposite outer sides of the first bracket 30, and a slot may be disposed on each of two opposite inner sides of the second bracket 70, so that the two brackets can be snap-connected. The second electrode elastic sheet 80 and the second bracket 70 may be integrally formed through injection molding, and a part of the second electrode elastic sheet 80 is exposed from the second bracket 70, to be in conductive contact with, for example, the second bent portion 63 of the first electrode elastic sheet 60. The second electrode elastic sheet 80 may be formed by bending a sheet-shaped metal base material.

[0055] In some embodiments, with reference to FIG. 3, FIG. 8, FIG. 9, and FIG. 10, the second bent portion 63 includes a horizontal part 65 and a downward extension part 66. The horizontal part 65 provides, for example, an upward supporting force for the liquid guide element 10. The downward extension part 66 is in contact with the second electrode elastic sheet 80 on the second bracket 70. In this way, it is convenient to implement a conductive connection between components through elastic contact after assembly is completed.

[0056] In some embodiments, with reference to FIG. 3, FIG. 6, FIG. 9, and FIG. 10, a part 81 of the second electrode elastic sheet 80 exposes outside from a side of the second bracket 70, to be in conductive contact with the power supply component of the electronic atomization device. For example, the part 81 of the second electrode elastic sheet 80 may be disposed in a vertical orientation, and the part 81 exposes outside from the side of the second bracket 70, to facilitate conductive contact with an elastic conductive terminal of the power supply component. A quantity of second electrode elastic sheets may be two, and the two second electrode elastic sheets may be disposed on left and right sides of the second bracket 70 respectively, so that two exposed parts 81 are disposed parallel to each other.

[0057] In some embodiments, with reference to FIG. 3 and FIG. 9, the quantity of first electrode elastic sheets 60 is two, the second bracket 70 includes an isolation portion 73, and the isolation portion 73 isolates the two first electrode elastic sheets 60. For example, the isolation portion 73 may extend upward from a bottom in the second bracket 70, and is located between two second bent portions 63 of the two first electrode elastic sheets 60. In this way, a short circuit caused by contact between the two first electrode elastic sheets 60 when the first electrode elastic sheet 60 and the first bracket 30 are mounted to the second bracket 70 can be avoided.

[0058] In some embodiments, with reference to FIG. 3, FIG. 6, FIG. 9, and FIG. 10, the first seal member 40 further includes a sealing bottom 43 that covers a part of a surface of the liquid guide element 10, and the second bent portion 63 abuts against the sealing bottom 43. The sealing bottom 43 may be in a shape of a shallow container, to accommodate a bottom of the liquid guide element 10, thereby preventing liquid from leaking down-

ward through the liquid guide element 10. An elastic force of the first electrode elastic sheet 60 enables the second bent portion 63 to abut against the sealing bottom 43, so that the liquid guide element 10 is clamped between the first bent portion 61 and the second bent portion 63 of the first electrode elastic sheet 60.

[0059] In some embodiments, with reference to FIG. 3, FIG. 9, and FIG. 10, an air inlet 71 may be disposed on the second bracket 70, and the air inlet 71 is in communication with internal space 72 of the second bracket 70. Further, as shown in FIG. 7 and FIG. 8, a vent hole 30G may be further provided on the side wall 30A of the first bracket 30, and the vent hole 30G communicates external space of the first bracket 30 with internal space of the second chamber 34. In this way, after the first bracket 30 is mounted on the second bracket 70, the internal space 72 of the second bracket 70 may be in communication with internal space of the first bracket 30 through the vent hole 30G.

[0060] In some embodiments, with reference to FIG. 3 and FIG. 8, the atomizer 200 may further include the main housing 90. The first bracket 30 is connected to the main housing 90, to enable the aerosol channel of the main housing 90 to be in fluid communication with the first chamber 32. For example, the free end 93 of the vapor-gas output tube 92 of the main housing 90 may be inserted into the first chamber 32. In this way, a to-be-atomized liquid substrate may be provided to the atomization core component 100 through the liquid accommodating space 91 defined by the main housing 90, and the generated aerosol may be transferred out of the atomizer 200 through the vapor-gas output tube 92, to be inhaled by the user.

[0061] In an embodiment, similar to the blocking arm 53 shown in FIG. 8, a blocking arm extending toward the atomization surface 11 is further disposed on the free end 93 of the vapor-gas output tube 92. The blocking arm may be for reducing retention of the generated aerosol between the blocking arm and the inner wall 32A of the first chamber 32. The blocking arm extends into the first through hole 36. In this embodiment, the blocking arm 53 may not be disposed on the second seal member 50.

[0062] Further, as shown in FIG. 1 and FIG. 2, a sealing plug 95 may be inserted into the inhalation inlet 94 of the atomizer 200, and a sealing sheet 96 may be attached to the air inlet 71 of the second bracket 70, so that the atomizer 200 is maintained sealed before first using, to prevent liquid from leaking outside.

[0063] The foregoing describes various components of the atomizer 200 of the present invention. When the electronic atomization device needs to be used for inhaling, the atomizer 200 may be first mounted and connected to the power supply component, and then a power switch of the power supply component is switched on, so that the power supply component supplies power to the atomizer 200. Then, when a user inhales on a suction nozzle at which the inhalation inlet 94 of the atomizer 200

is located, the atomizer 200 is started, by a controller of the electronic atomization device based on an inhalation action, to work, to finally generate aerosol fog for the user to inhaled. Liquid from the liquid accommodating space 91 is heated and atomized by the heating element 20 to form the aerosol fog. External air may sequentially flow through the air inlet 71, the internal space 72 of the second bracket 70, and the vent hole 30G of the first bracket 30, to be further transferred to a top of the atomization surface 11 of the liquid guide element 10 in the first bracket 30, so as to carry the formed aerosol fog out of the vapor-gas output tube 92.

[0064] Finally, it should be noted that the foregoing embodiment is merely used to describe the technical solutions of the present invention, but are not intended to limit the present invention. Under the ideas of the present invention, the technical features in the foregoing embodiment or different embodiments may also be combined, the steps may be performed in any order, and many other changes in different aspects of the present invention described above also exist, and these changes are not provided in detail for simplicity. Although the present invention is described in detail with reference to the foregoing embodiment, a person of ordinary skill in the art should understand that, modifications may still be made to the technical solutions in the foregoing embodiments, or equivalent replacements may be made to some of the technical features, and such modifications or replacements do not cause the essence of the corresponding technical solutions to depart from the scope of the technical solutions in the embodiments of the present invention.

Claims

1. An atomizer, comprising:

a liquid guide element, comprising an atomization surface and a liquid absorbing surface;
a heating element, configured to heat at least a part of a liquid substrate absorbed by the liquid guide element, to generate an aerosol; and
a first bracket, comprising a partition portion, a first chamber with an upper opening, and a second chamber with a lower opening, wherein the partition portion isolates the first chamber from the second chamber, and the partition portion comprises a first through hole communicating the first chamber with the second chamber, wherein
the liquid guide element is at least partially accommodated in the second chamber, the atomization surface faces the first chamber, and the atomization surface is for the aerosol to escape and enter the first chamber through the first through hole.

2. The atomizer according to claim 1, wherein a part of the atomization surface is exposed to the first chamber through the first through hole of the partition portion.
3. The atomizer according to claim 2, wherein the heating element is disposed on the exposed part of the atomization surface.
4. The atomizer according to claim 1, wherein the first bracket further comprises a liquid flowing channel, and the liquid flowing channel extends downward from an upper end of the first bracket, and is in communication with the second chamber from a side portion, to enable the liquid substrate to flow to the liquid absorbing surface of the liquid guide element.
5. The atomizer according to claim 1, wherein the atomizer further comprises a first seal member, and the first seal member is at least partially located between the liquid guide element and an inner wall of the second chamber, and is configured to seal and isolate the atomization surface from the liquid absorbing surface.
6. The atomizer according to claim 5, wherein the inner wall of the second chamber comprises a first inclined plane inclined relative to a vertical direction, the first seal member comprises a second inclined plane, and the first inclined plane is attached to and matches the second inclined plane.
7. The atomizer according to claim 5, wherein the first seal member comprises a first part, the first part covers an edge part of the atomization surface, and the first part abuts against the partition portion.
8. The atomizer according to claim 1, wherein the liquid guide element comprises a channel penetrating the liquid guide element inside, and at least a part of an inner surface that is of the liquid guide element and that defines the channel constitutes the liquid absorbing surface.
9. The atomizer according to claim 1, wherein a cross-sectional area of the first chamber is less than a cross-sectional area of the second chamber.
10. The atomizer according to any one of claims 1 to 9, wherein the atomizer comprises a second seal member, the second seal member comprises an inner cylinder portion and an outer cylinder portion, the inner cylinder portion is inserted into the first chamber and is attached to and matches an inner wall of the first chamber, and the outer cylinder portion surrounds the upper end of the first bracket and is attached to and matches an outer wall of the upper end.
11. The atomizer according to claim 10, wherein a blocking arm extending toward the atomization surface and adjacent to the atomization surface is further disposed on the inner cylinder portion.
12. The atomizer according to claim 11, wherein a heating part of the heating element is located between two blocking arms.
13. The atomizer according to any one of claims 1 to 9, wherein the atomizer further comprises a main housing, and the main housing defines liquid accommodating space and comprises an aerosol channel located inside the main housing, wherein the first bracket is connected to the main housing, to enable the aerosol channel to be in fluid communication with the first chamber.
14. The atomizer according to claim 13, wherein the aerosol channel is defined by a vapor-gas output tube, and a blocking arm extending toward the atomization surface and adjacent to the atomization surface is disposed on a free end of the vapor-gas output tube.
15. An electronic atomization device, comprising an atomizer that atomizes a liquid substrate to generate an aerosol, and a power supply component that supplies power to the atomizer, wherein the atomizer comprises the atomizers according to any one of claims 1 to 14.

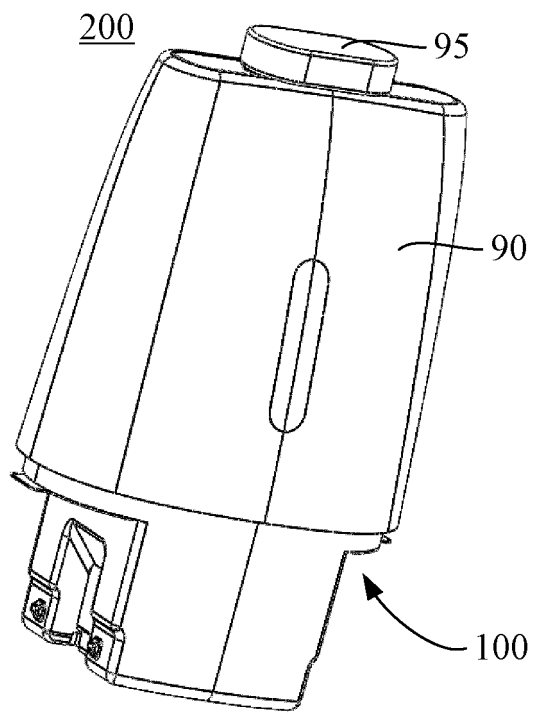


FIG. 1

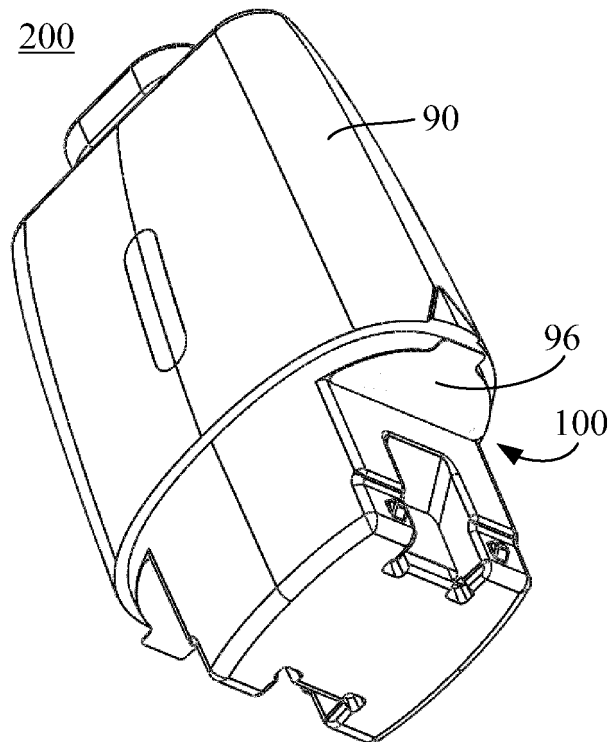


FIG. 2

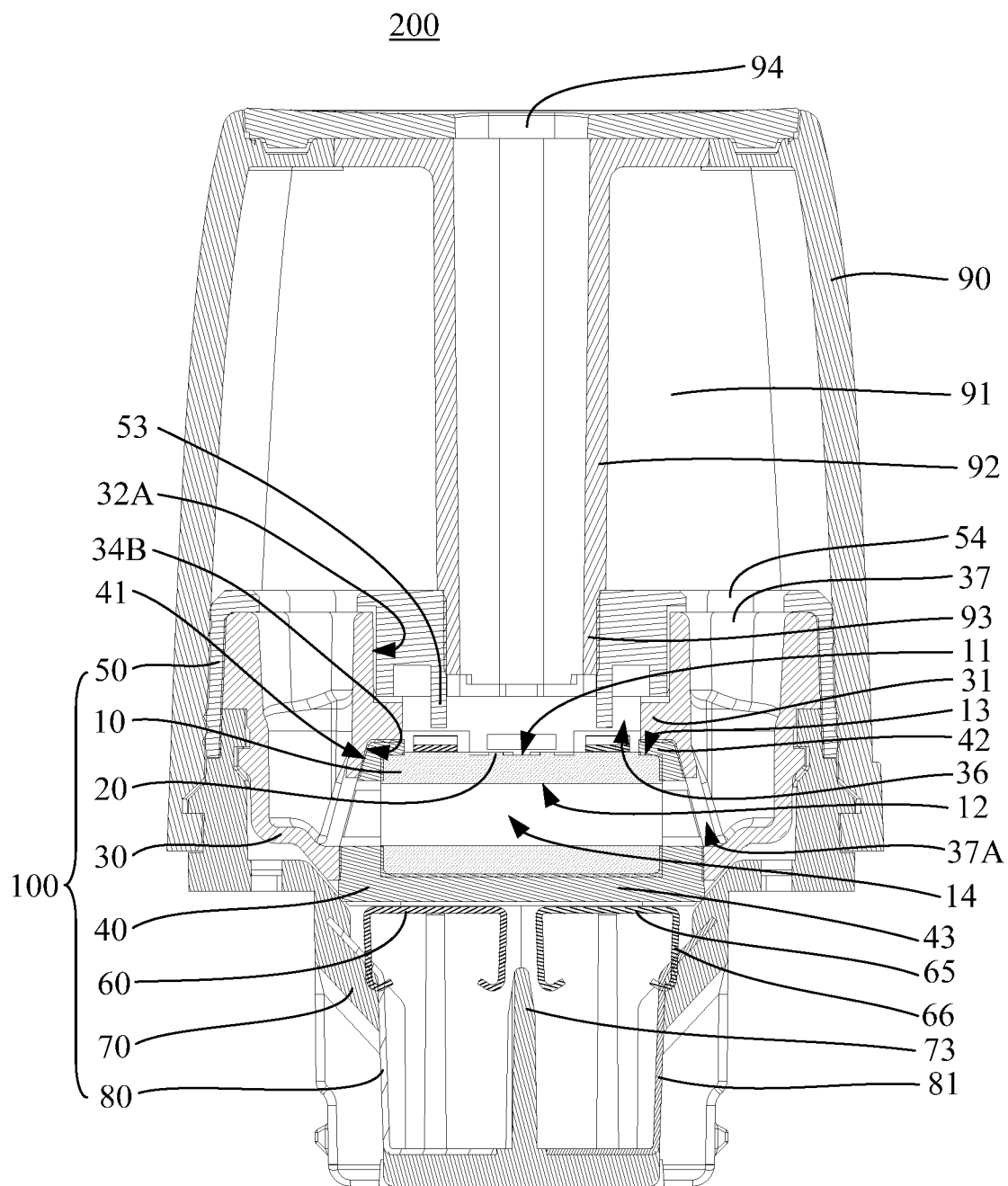


FIG. 3

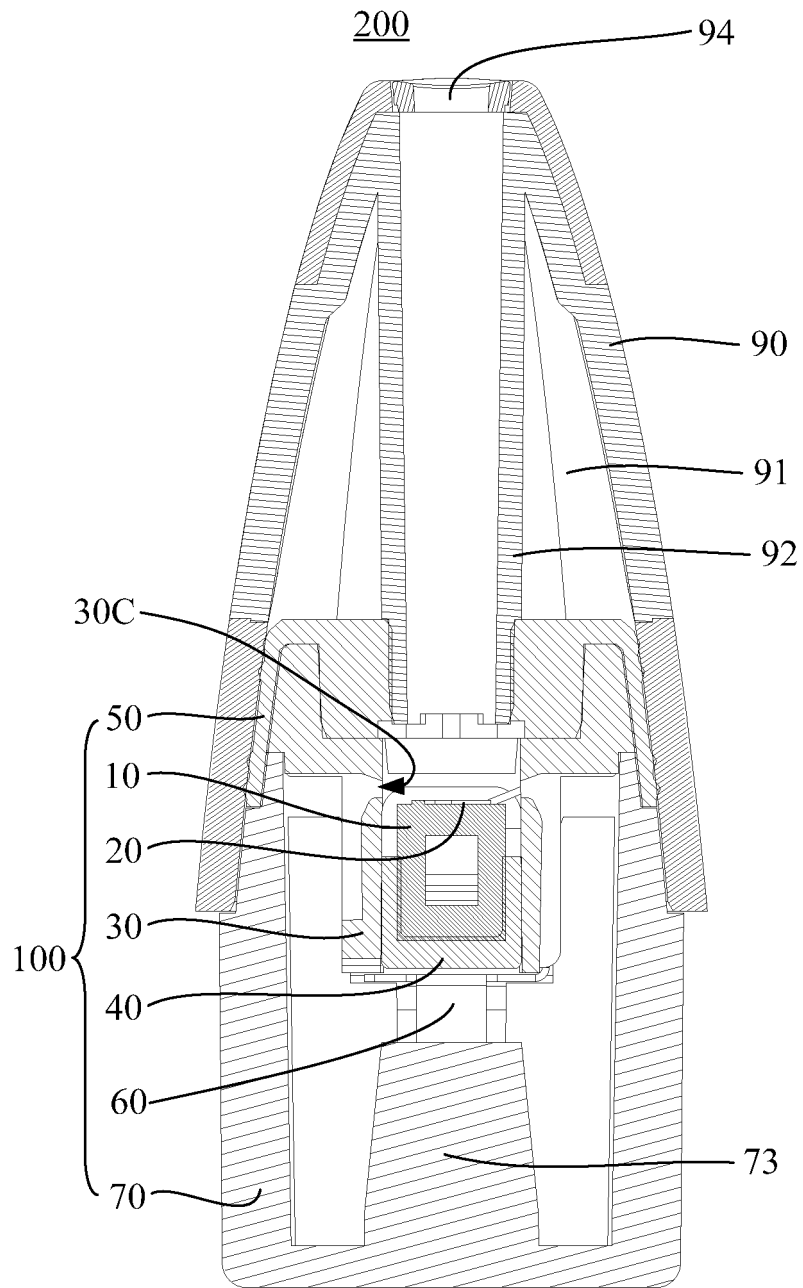


FIG. 4

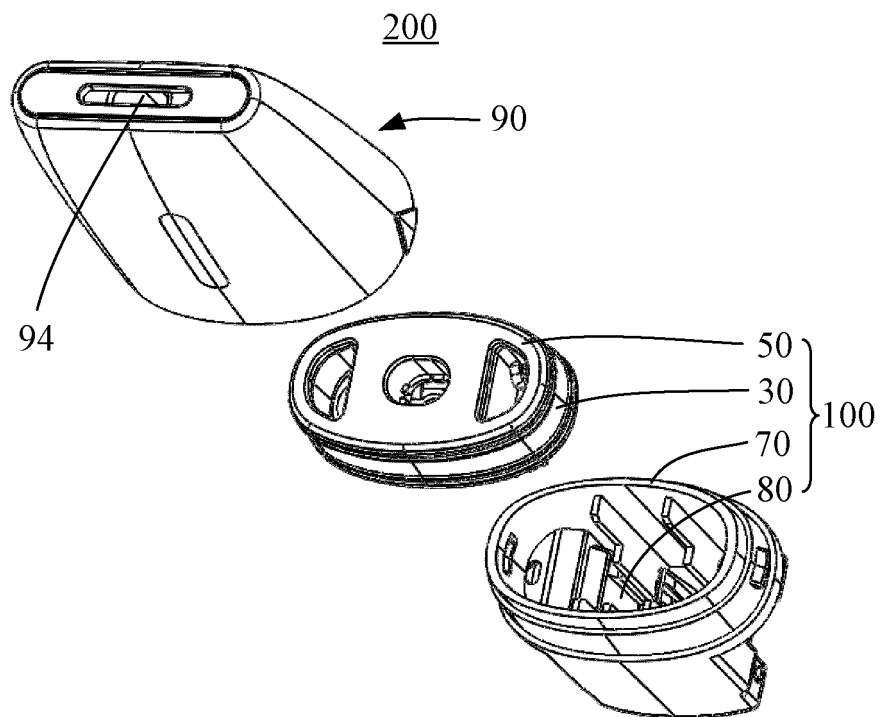


FIG. 5

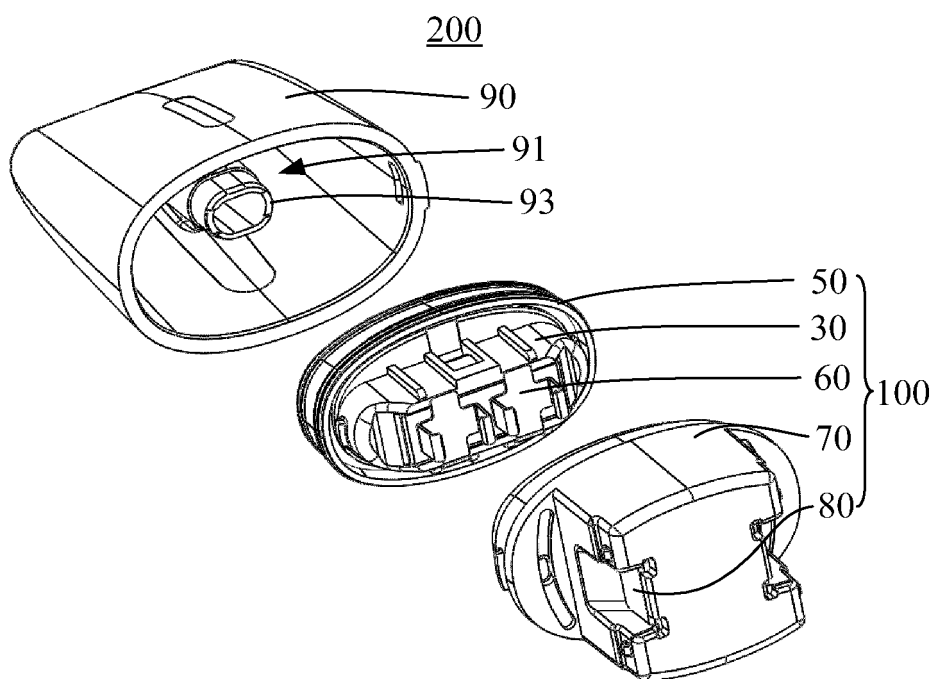


FIG. 6

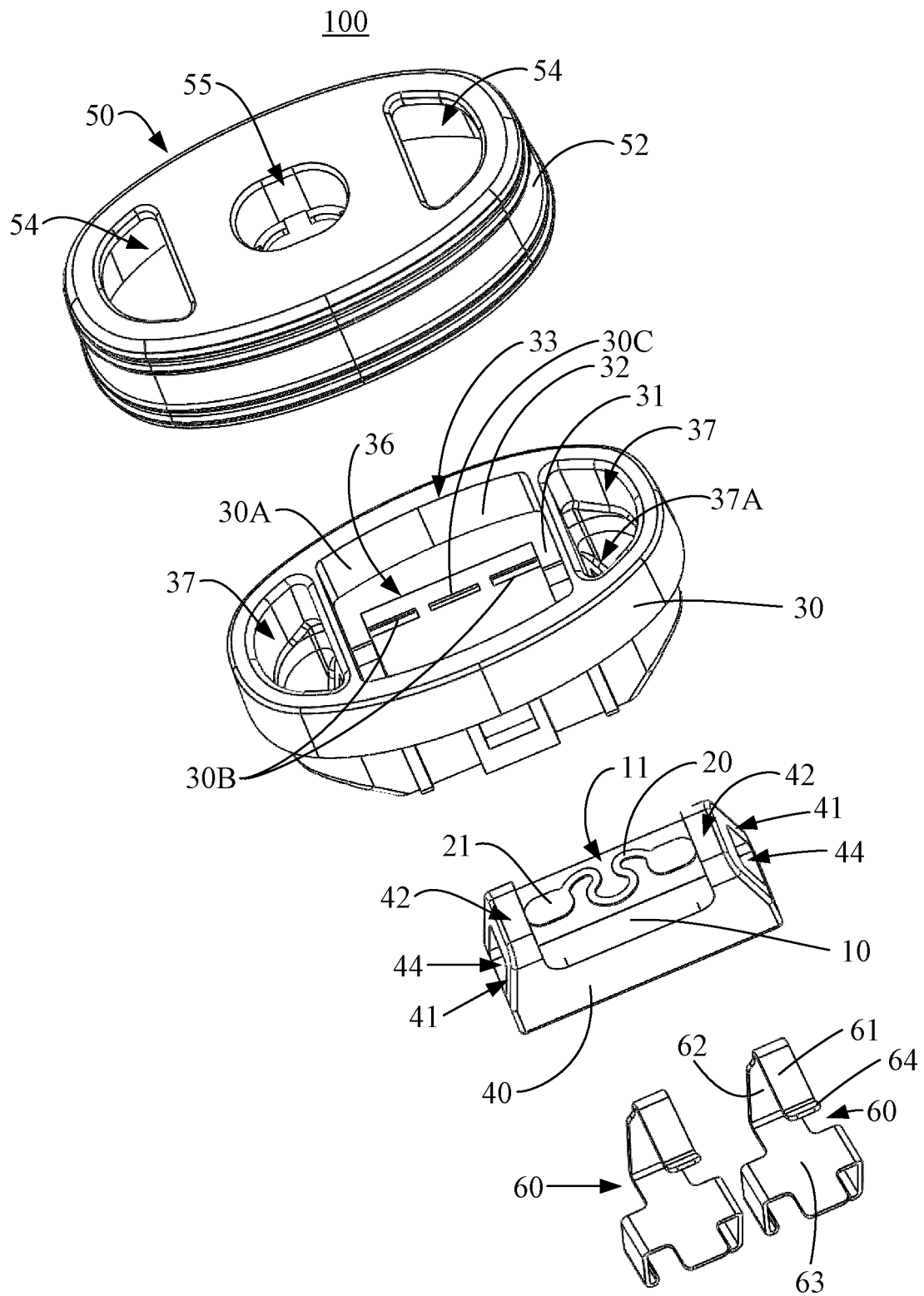


FIG. 7

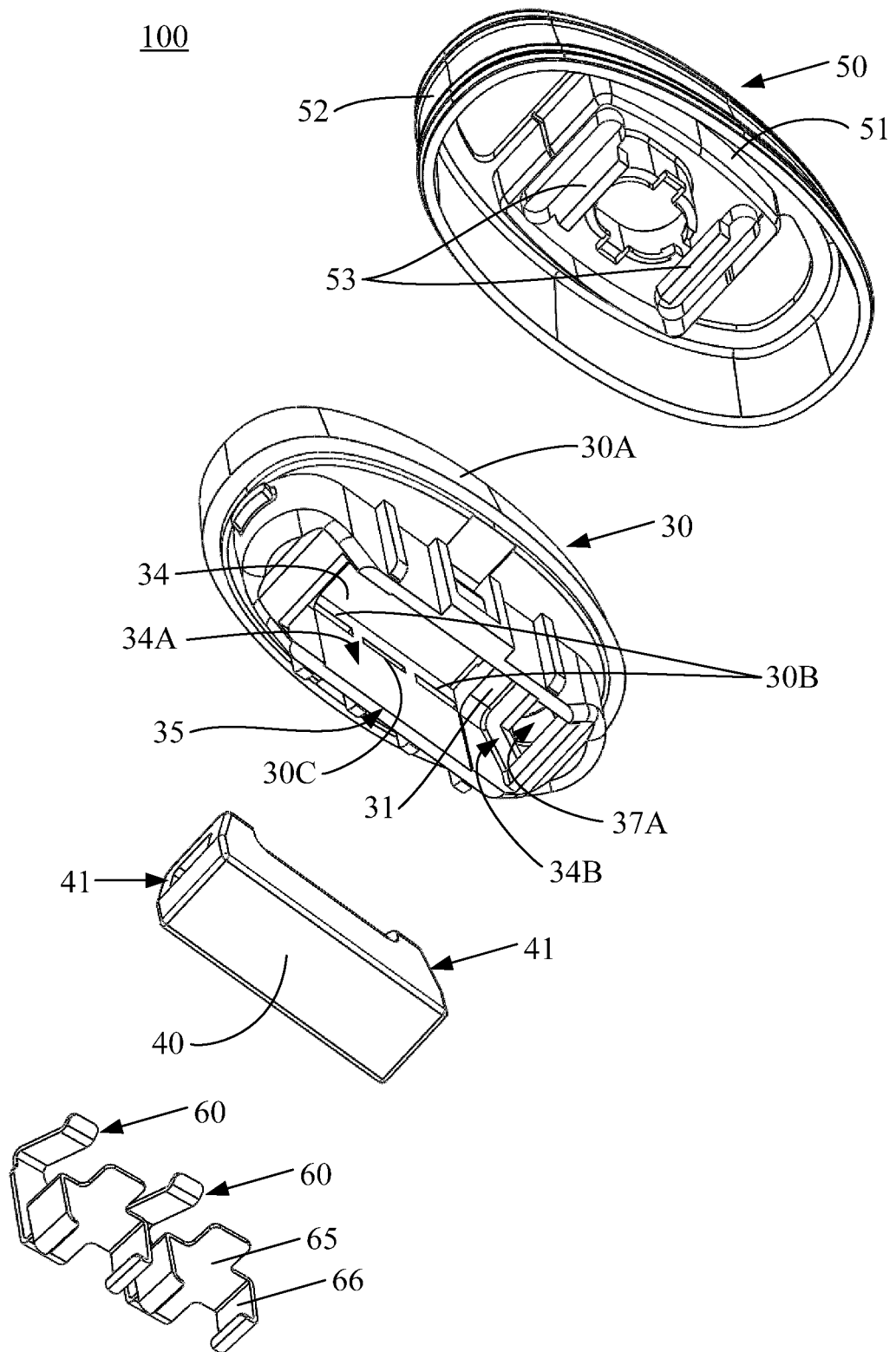


FIG. 8

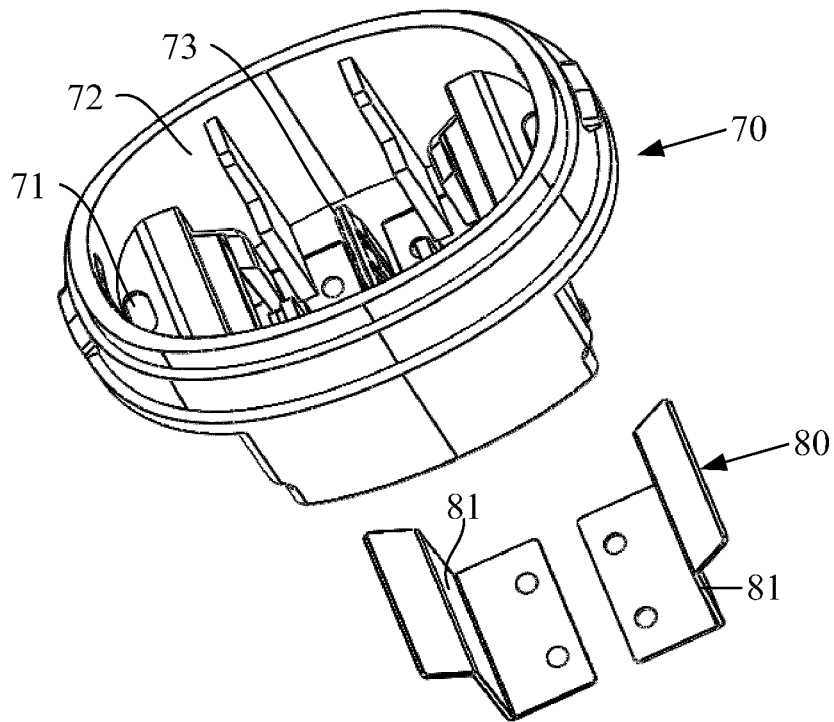


FIG. 9

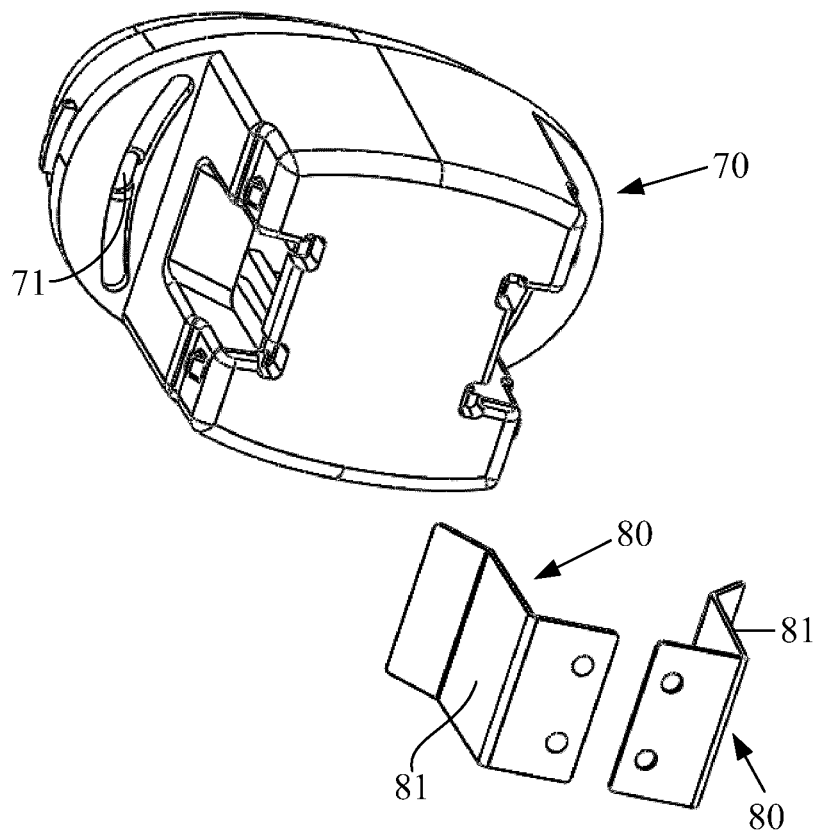


FIG. 10

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2022/143614

A. CLASSIFICATION OF SUBJECT MATTER																		
A24F40/10(2020.01)i;A24F40/40(2020.01)i; A24F40/46(2020.01)i;A24F40/50(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; VEN; WPABSC; ENTXT; USTXT; EPTXT; JPTXT; CNKI: 深圳市合元科技有限公司, 电子烟, 雾化, 底座, 支撑, 支架, 导液, 两端, 开口, 脱模, 多孔, electronic cigarette, atomiz+, tobacco, demould+, support, opening																		
C. DOCUMENTS CONSIDERED TO BE RELEVANT																		
<table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>PX</td> <td>CN 217065383 U (SHENZHEN FIRST UNION TECHNOLOGY CO., LTD.) 29 July 2022 (2022-07-29) claims 1-15, and description, paragraphs [0001]-[0072], and figures 1-10</td> <td>1-15</td> </tr> <tr> <td>PX</td> <td>CN 216853796 U (SHENZHEN FIRST UNION TECHNOLOGY CO., LTD.) 01 July 2022 (2022-07-01) description, paragraphs [0001]-[0075], and figures 1-10</td> <td>1-15</td> </tr> <tr> <td>Y</td> <td>CN 215075498 U (SHENZHEN FIRST UNION TECHNOLOGY CO., LTD.) 10 December 2021 (2021-12-10) description, paragraphs [0057]-[0106], and figures 1-9</td> <td>1-15</td> </tr> <tr> <td>Y</td> <td>CN 210203316 U (SHENZHEN FIRST UNION TECHNOLOGY CO., LTD.) 31 March 2020 (2020-03-31) description, paragraph [0015]</td> <td>1-15</td> </tr> <tr> <td>A</td> <td>CN 214629861 U (SHENZHEN FIRST UNION TECHNOLOGY CO., LTD.) 09 November 2021 (2021-11-09) entire document</td> <td>1-15</td> </tr> </tbody> </table>	Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	PX	CN 217065383 U (SHENZHEN FIRST UNION TECHNOLOGY CO., LTD.) 29 July 2022 (2022-07-29) claims 1-15, and description, paragraphs [0001]-[0072], and figures 1-10	1-15	PX	CN 216853796 U (SHENZHEN FIRST UNION TECHNOLOGY CO., LTD.) 01 July 2022 (2022-07-01) description, paragraphs [0001]-[0075], and figures 1-10	1-15	Y	CN 215075498 U (SHENZHEN FIRST UNION TECHNOLOGY CO., LTD.) 10 December 2021 (2021-12-10) description, paragraphs [0057]-[0106], and figures 1-9	1-15	Y	CN 210203316 U (SHENZHEN FIRST UNION TECHNOLOGY CO., LTD.) 31 March 2020 (2020-03-31) description, paragraph [0015]	1-15	A	CN 214629861 U (SHENZHEN FIRST UNION TECHNOLOGY CO., LTD.) 09 November 2021 (2021-11-09) entire document	1-15
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<table border="1"> <tr> <td>Date of the actual completion of the international search 01 March 2023</td> <td>Date of mailing of the international search report 16 March 2023</td> </tr> </table>	Date of the actual completion of the international search 01 March 2023	Date of mailing of the international search report 16 March 2023																
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<table border="1"> <tr> <td>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 Facsimile No. (86-10)62019451</td> <td>Authorized officer Telephone No.</td> </tr> </table>	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 Facsimile No. (86-10)62019451	Authorized officer Telephone No.																
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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/CN2022/143614

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
CN 217065383 U	29 July 2022	None	
CN 216853796 U	01 July 2022	None	
CN 215075498 U	10 December 2021	None	
CN 210203316 U	31 March 2020	JP 2022531779 A	11 July 2022
		KR 20220002417 A	06 January 2022
		US 2022211107 A1	07 July 2022
		WO 2020224590 A1	12 November 2020
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		EP 3967165 A4	12 October 2022
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		WO 2022161258 A1	04 August 2022

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Patent documents cited in the description

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