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

(57) The present disclosure provides an electronic-cigarette vaporization device (100) and an electronic cigarette. The electronic-cigarette vaporization device (100) includes: a housing (10), including an e-liquid storage bin (11) arranged therein, the housing (10) being provided with an airflow passage (12) communicated with outside air; a vaporization component (20), comprising an e-liquid absorption body (21) and a heating element (22), the heating element (22) being arranged on the e-liquid absorption body (21), and the e-liquid absorption body (21) being communicated with the e-liquid storage bin (11); and a first bracket (30), arranged in the housing (10), the vaporization component (20) being arranged on the first bracket (30), the first bracket (30) being provided with a first air guide hole (31) communicated with the airflow passage (12), a barrier portion (32) being arranged on an inner wall of the first bracket (30), and the barrier portion (32) being corresponding to a position of the first air guide hole (31) to change an airflow direction of air passing through the first air guide hole (31).

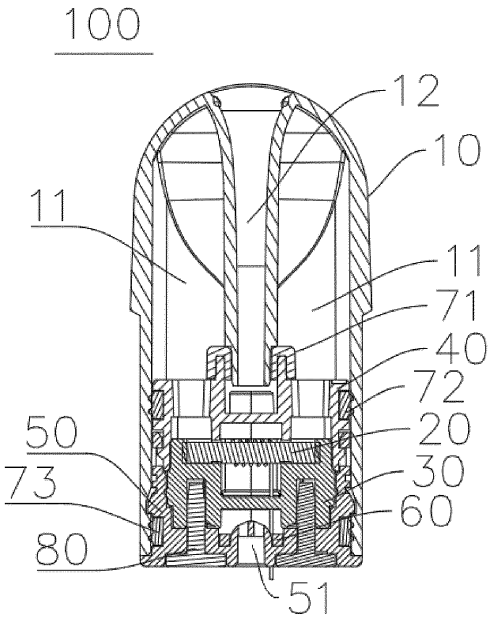

FIG. 1

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Description

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims priority to and benefits of Chinese Patent Application No. 202121256512.6, entitled "ELECTRONIC-CIGARETTE VAPORIZATION DEVICE AND ELECTRONIC CIGARETTE", and filed on June 04, 2021. The entire content of the above-referenced application is incorporated herein by reference.

FIELD

[0002] The present disclosure relates to the field of electronic cigarettes, and specifically to an electronic-cigarette vaporization device and an electronic cigarette including same.

BACKGROUND

[0003] At present, conventional vaporizer structures have a simple airway design, which reduces the vaping experience of users. In addition, although the e-liquid passage and the airway are designed to be separated in conventional vaporizer structures, the e-liquid flows to the outside through the airway when there is a condensate or leaked e-liquid in the airway because the airway is communicated with the outside, resulting in e-liquid leakage and affecting user experience.

SUMMARY

[0004] An objective of the present disclosure is to provide new technical solutions of an electronic-cigarette vaporization device and an electronic cigarette to at least solve the problem of e-liquid leakage of vaporizer structures in the related art.

[0005] A first aspect of the present disclosure provides an electronic-cigarette vaporization device, including: a housing, including an e-liquid storage bin arranged therein, the housing being provided with an airflow passage communicated with outside air; a vaporization component, including an e-liquid absorption body and a heating element, the heating element being arranged on the e-liquid absorption body, and the e-liquid absorption body being communicated with the e-liquid storage bin; and a first bracket, arranged in the housing, the vaporization component being arranged on the first bracket, the first bracket being provided with a first air guide hole communicated with the airflow passage, a barrier portion being arranged on an inner wall of the first bracket, and the barrier portion being corresponding to a position of the first air guide hole to change an airflow direction of air passing through the first air guide hole.

[0006] According to an embodiment of the present disclosure, the inner wall of the first bracket is defined as a first side wall, the first air guide hole is arranged at a joint of a bottom wall of the first bracket and the first side wall, and the barrier portion is arranged on one side of the first air guide hole facing the e-liquid storage bin.

[0007] According to an embodiment of the present disclosure, the e-liquid absorption body divides the airflow direction of the air passing through the first air guide hole into two airflow directions, and the air in the two airflow directions respectively contacts with two sides of the e-liquid absorption body and is then led out through the airflow passage.

[0008] According to an embodiment of the present disclosure, the first air guide hole runs through the bottom wall along a thickness direction of the bottom wall.

[0009] According to an embodiment of the present disclosure, a cross section of the first air guide hole is rectangular, and the barrier portion is spaced apart from the first air guide hole.

[0010] According to an embodiment of the present disclosure, a side surface of the barrier portion facing the vaporization component is defined as a second side wall, and the first side wall is arranged opposite to the second side wall.

[0011] According to an embodiment of the present disclosure, the barrier portion horizontally extends from the first side wall toward the vaporization component.

[0012] According to an embodiment of the present disclosure, a horizontal extending dimension of the barrier portion is smaller than a length dimension of the cross section of the first air guide hole.

[0013] According to an embodiment of the present disclosure, the length dimension of the cross section of the first air guide hole is ranged from 1 mm to 2 mm.

[0014] According to an embodiment of the present disclosure, a distance between one side of the barrier portion close to the first air guide hole and the first air guide hole in a vertical direction is ranged from 0.8 mm to 2.5 mm.

[0015] According to an embodiment of the present disclosure, a distance between an extension line of one side of the barrier portion close to the second side wall and an extension line of one side of the first air guide hole away from the first side wall in a vertical direction is ranged from 0.5 mm to 1.5 mm.

[0016] According to an embodiment of the present disclosure, the electronic-cigarette vaporization device further includes: a second bracket, arranged in the housing, where the second bracket is provided with a second air guide hole and an e-liquid guide hole, the second air guide hole is communicated with the airflow passage, the e-liquid guide hole is communicated with the e-liquid storage bin, the e-liquid absorption body is arranged in the second bracket, and the e-liquid absorption body is connected to the e-liquid guide hole; and a cover, sleeved on one side of the second bracket close to the first bracket, where an accommodating cavity is defined between the cover and the second bracket, the vaporization component and the first bracket are arranged in the accommodating cavity, the cover is provided with an air inlet, and the air inlet is communicated with the airflow passage

through the first air guide hole and the second air guide hole.

[0017] According to an embodiment of the present disclosure, a quantity of the e-liquid guide holes is two, the two e-liquid guide holes are arranged at intervals on two radial sides of the second air guide hole, the two e-liquid guide holes respectively form two e-liquid guide paths with the e-liquid storage bin, an air guide path is formed by the air inlet, the first air guide hole, the second air guide hole, and the airflow passage, and the two e-liquid guide paths are independent of the air guide path.

[0018] According to an embodiment of the present disclosure, a vaporization cavity communicated with the first air guide hole and the second air guide hole is defined between the second bracket and the first bracket, and the vaporization component is located in the vaporization cavity.

[0019] According to an embodiment of the present disclosure, the second bracket further includes a beam, the beam is arranged in the second bracket, and the beam corresponds to the second air guide hole and the airflow passage.

[0020] According to an embodiment of the present disclosure, the e-liquid absorption body is columnar, and two ends of the e-liquid absorption body respectively abut against the two e-liquid guide holes of the second bracket.

[0021] According to an embodiment of the present disclosure, the heating element is wound on a middle portion of the e-liquid absorption body, and an orthographic projection of the beam on the bottom wall of the first bracket covers the e-liquid absorption body.

[0022] According to an embodiment of the present disclosure, a central axis of the air inlet and a central axis of the first air guide hole are not in a same straight line.

[0023] According to an embodiment of the present disclosure, a liquid absorption body, where the liquid absorption body is arranged on a bottom wall of the cover, and a part of the liquid absorption body corresponds to the position of the first air guide hole.

[0024] According to an embodiment of the present disclosure, the liquid absorption body is liquid absorption cotton.

[0025] According to an embodiment of the present disclosure, the electronic-cigarette vaporization device further includes: a first sealing member, sleeved on the second air guide hole to seal a joint of the airflow passage and the second air guide hole.

[0026] According to an embodiment of the present disclosure, the electronic-cigarette vaporization device further includes a second sealing member, arranged in the housing, where the second sealing member is sleeved on the second bracket, and an outer edge of the second sealing member abuts against an inner wall of the housing.

[0027] According to an embodiment of the present disclosure, the electronic-cigarette vaporization device further includes a third sealing member, sleeved on the cover, where an outer edge of the third sealing member abuts against an inner wall of the housing.

[0028] According to an embodiment of the present disclosure, the vaporization component is a cotton core vaporizer.

[0029] According to an embodiment of the present disclosure, the electronic-cigarette vaporization device further includes a conductive pin, passing through the cover and electrically connected to the heating element.

[0030] A second aspect of the present disclosure provides an electronic cigarette, including the electronic-cigarette vaporization device in the above embodiments.

[0031] According to an embodiment of the present disclosure, the first air guide hole communicated with the airflow passage and the barrier portion are arranged on the first bracket, and the barrier portion is arranged on an air transfer path of the first air guide hole. With the arrangement of the barrier portion on the air transfer path of the first air guide hole, when outside air is introduced through the first air guide hole, the air collides with the barrier portion, to improve the flow rate and resistance of air and change the transfer direction of air, thereby ensuring that air fully contacts with the vaporization component impregnated with the e-liquid for vaporization to take away the aerosol, and greatly improving user experience. In addition, when a small amount of e-liquid falls off the e-liquid absorption body, the e-liquid falls on the bottom wall of the first bracket, and the bottom wall of the first bracket can block the e-liquid, to prevent the leaked e-liquid from directly flowing out of the electronic-cigarette vaporization device to affect user experience.

[0032] Other features and advantages of the present disclosure will become apparent from the following detailed description of exemplary embodiments of the present disclosure with reference to the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0033] Accompanying drawings are incorporated into and constitute a part of this specification, show embodiments that conform to this application, and are used together with this specification to describe the principle of this application.

FIG. 1 is a cross-sectional view of an electronic-cigarette vaporization device according to the present disclosure;

FIG. 2 is another cross-sectional view of an electronic-cigarette vaporization device according to the present disclosure;

FIG. 3 is still another cross-sectional view of an electronic-cigarette vaporization device according to the present disclosure;

FIG. 4 is a partially enlarged view of region A in FIG. 3;

FIG. 5 is a partial cross-sectional view of an electronic-cigarette vaporization device according to the present disclosure;

FIG. 6 is an exploded view of an electronic-cigarette vaporization device according to the present disclosure;

FIG. 7 is a top view of a first bracket of an electronic-cigarette vaporization device according to the present disclosure;

FIG. 8 is a bottom view of a first bracket of an electronic-cigarette vaporization device according to the present disclosure;

FIG. 9 is a cross-sectional view of a first bracket of an electronic-cigarette vaporization device according to the present disclosure; and

FIG. 10 is a schematic structural view of a second bracket of an electronic-cigarette vaporization device according to the present disclosure.

List of reference numerals:

[0034]

electronic-cigarette vaporization device 100;
housing 10; e-liquid storage bin 11; airflow passage 12; accommodation cavity 13;
vaporization component 20; e-liquid absorption body 21; heating element 22; vaporization cavity 23;
first bracket 30; first air guide hole 31; barrier portion 32; bottom wall 33; first side wall 34; second side wall 35;
second bracket 40; second air guide hole 41; e-liquid guide hole 42; beam 43;
cover 50; air inlet 51;
liquid absorption body 60;
first sealing member 71; second sealing member 72; third sealing member 73; and
conductive pin 80.

DETAILED DESCRIPTION

[0035] Various exemplary embodiments of this application are now be described in detail with reference to the accompanying drawings. It should be noted that unless otherwise specified, opposite arrangement, numerical expressions, and numerical values of components and steps described in the embodiments do not limit the scope of the present disclosure.

[0036] The following descriptions of at least one exemplary embodiment are merely illustrative, and in no way constitute any limitation on this application and application or use of this application.

[0037] Technologies, methods, and devices known to those of ordinary skill in related arts may not be discussed in detail, but where appropriate, the techniques, the methods, and the devices should be considered as a part of the specification.

[0038] In all examples shown and discussed herein, any specific value should be construed as merely exemplary and not as limitations. Therefore, other examples of exemplary embodiments may have different values.

[0039] It should be noted that like numerals and letters denote like terms in the following drawings. Therefore, once an item is defined in one accompanying drawing, the item does not need to be further discussed in the subsequent accompanying drawings.

[0040] The following first specifically describes an electronic-cigarette vaporization device 100 according to embodiments of the present disclosure in conjunction with the accompanying drawings.

[0041] As shown in FIG. 1 to FIG. 9, an electronic-cigarette vaporization device 100 according to an embodiment of the present disclosure includes a housing 10, a vaporization component 20, and a first bracket 30.

[0042] Specifically, the housing 10 includes an e-liquid storage bin 11 arranged therein, and the housing 10 is provided with an airflow passage 12 communicated with outside air. The vaporization component 20 includes an e-liquid absorption body 21 and a heating element 22. The heating element 22 is arranged on the e-liquid absorption body 21. The e-liquid absorption body 21 is communicated with the e-liquid storage bin 11. The first bracket 30 is arranged in the housing 10. The vaporization component 20 is arranged on the first bracket 30. The first bracket 30 is provided with a first air guide hole 31 communicated with the airflow passage 12. A barrier portion 32 is arranged on an inner wall of the first bracket 30. The barrier portion 32 corresponds to a position of the first air guide hole 31 to change an airflow direction of air passing through the first air guide hole 31.

[0043] In other words, referring to FIG. 1 and FIG. 2, the electronic-cigarette vaporization device 100 according to the embodiment of the present disclosure is mainly composed of the housing 10 the vaporization component 20, and the first bracket 30. The housing 10 serves as an e-liquid cup of the electronic-cigarette vaporization device 100, the e-liquid storage bin 11 is arranged in the housing 10 (as shown in FIG. 1 to FIG. 3), and the e-liquid storage bin 11 is configured to store an e-liquid. The housing 10 is provided with the airflow passage 12. The airflow passage 12 is communicated with outside air. An aerosol generated through vaporization of the e-liquid by the outside air and the vaporization component 20 may enter a user's mouth through the airflow passage 12, for the user to inhale.

[0044] The vaporization component 20 is mainly composed of the e-liquid absorption body 21 and the heating element 22. The heating element 22 is arranged on the e-liquid absorption body 21. The e-liquid absorption body 21 is communicated with the e-liquid storage bin 11. The e-liquid in the e-liquid storage bin 11 may penetrate into the e-liquid absorption body 21, and the e-liquid absorption body 21 adsorbs the e-liquid until a saturated state is reached. The heating element 22 can heat the e-liquid absorption body 21 impregnated with the e-liquid, to vaporize the e-liquid into the aerosol. When the user vapes the electronic-cigarette vaporization device 100, the heating element 22 heats the e-liquid absorption body 21 impregnated with the e-liquid, to vaporize the e-liquid

into the aerosol. The generated aerosol is finally supplied into the user's mouth through the airflow passage 12.

[0045] Referring to FIG. 1 and FIG. 2, the first bracket 30 is mounted in the housing 10, the vaporization component 20 is arranged on the first bracket 30, and the first air guide hole 31 and the barrier portion 32 are arranged on the first bracket 30. The first air guide hole 31 is communicated with the airflow passage 12, and the barrier portion 32 corresponds to the position of the first air guide hole 31. Referring to FIG. 3 and FIG. 5, the barrier portion 32 is arranged on an air transfer path of the first air guide hole 31. When the user vapes the electronic-cigarette vaporization device 100, the outside air is introduced through the first air guide hole 31, and collides with the barrier portion 32 after passing through the first air guide hole 31. The barrier portion 32 can prevent the air from flowing upward directly through the first air guide hole 31, increase the resistance to vaping, and provide a buffering function and a function of changing the flow direction of the air. After the air entering the first air guide hole 31 collides with the barrier portion 32, the flow of the air is slowed down and the direction of the air is changed (the transfer direction of the air is denoted by arrows in FIG. 3 and FIG. 5). After the transfer direction is changed, the air enters the first bracket 30, fully contacts with the vaporization component 20 to take away the aerosol generated through vaporization by the vaporization component 20, and finally enters the user's mouth, thereby greatly improving the taste of the aerosol for the user.

[0046] In addition, when the e-liquid falls from the e-liquid absorption body 21 impregnated with the e-liquid, the e-liquid falls on a bottom wall 33 of the first bracket 30, to prevent the e-liquid from directly flowing out of the electronic-cigarette vaporization device 100 and prevent the electronic-cigarette vaporization device 100 from e-liquid leakage to affect user experience.

[0047] It should be noted that in the electronic-cigarette vaporization device 100 of the present disclosure, the e-liquid in the e-liquid storage bin 11 may penetrate into the e-liquid absorption body 21, and the e-liquid absorption body 21 adsorbs the e-liquid until the e-liquid absorption body 21 reaches the saturated state. When a user vapes the electronic-cigarette vaporization device 100, the e-liquid absorbed by the e-liquid absorption body 21 is heated and vaporized by the heating element 22 to generate an aerosol. In addition, as the e-liquid absorbed by the e-liquid absorption body 21 is continuously consumed and vaporized, the e-liquid in the e-liquid storage bin 11 can continuously penetrate into the e-liquid absorption body 21 to meet the vaping demand of the user. During vaping by the user, outside air may be introduced through the first air guide hole 31, collides with the barrier portion 32, and then enters the first bracket 30. The air entering the first bracket 30 fully contacts with the vaporization component 20 to take away the aerosol generated through vaporization by the vaporization component 20, and finally enters the user's mouth, thereby greatly improving the taste of the aerosol for the user.

[0048] Therefore, in the electronic-cigarette vaporization device 100 according to the embodiment of the present disclosure, the first air guide hole 31 communicated with the airflow passage 12 is arranged on the first bracket 30, the barrier portion 32 is arranged on the inner wall of the first bracket 30, and the barrier portion 32 is arranged on the air transfer path of the first air guide hole 31. With the arrangement of the barrier portion 32 on the air transfer path of the first air guide hole 31, when outside air is introduced through the first air guide hole 31, the air collides with the barrier portion 32, to improve the flow rate and resistance of air and change the transfer direction of air, thereby ensuring that air fully contacts with the vaporization component 20 impregnated with the e-liquid for vaporization to take away the aerosol, and greatly improving user experience. In addition, when a small amount of e-liquid falls off the e-liquid absorption body 21, the e-liquid falls on the bottom wall 33 of the first bracket 30, and the bottom wall 33 of the first bracket 30 can block the e-liquid, to prevent the leaked e-liquid from directly flowing out of the electronic-cigarette vaporization device 100 to affect user experience.

[0049] According to an embodiment of the present disclosure, the inner wall of the first bracket 30 is defined as a first side wall 34. The first air guide hole 31 is arranged at a joint of the bottom wall 33 of the first bracket 30 and the first side wall 34, the barrier portion 32 is arranged at a position on the first side wall 34 corresponding to the first air guide hole 31, and the barrier portion 32 is located on one side of the first air guide hole 31 facing the e-liquid storage bin 11. The e-liquid absorption body 21 divides the airflow direction of the air passing through the first air guide hole 31 into two airflow directions, and the air in the two airflow directions respectively contacts with two sides of the e-liquid absorption body 21 and is then led out through the airflow passage 12.

[0050] In other words, as shown in FIG. 7 to FIG. 9; the first air guide hole 31 is provided at the joint of the bottom wall 33 and the first side wall 34 of the first bracket 30, and the first bracket 30 may be a silica gel bracket.

[0051] According to an embodiment of the present disclosure, a side surface of the barrier portion 32 facing the vaporization component 20 is defined as a second side wall 35, and the first side wall 34 is arranged opposite to the second side wall 35. The first side wall 34 is an inner wall surface of the first bracket 30 close to the first air guide hole 31. The first air guide hole 31 is communicated with the airflow passage 12, and outside air may be transferred between the first air guide hole 31 and the airflow passage 12. Referring to FIG. 2 and FIG. 4 the barrier portion 32 may be arranged on the first side wall 34, and the barrier portion 32 corresponds to the position of the first air guide hole 31. The introduction of the outside air from the first air guide hole 31 may be understood as that air is transferred along an airflow direction in the first air guide hole 31. The air exiting the first air guide hole 31 collides with the barrier portion 32, so that the

transfer direction of the air is changed.

[0052] In the present disclosure, air collides with the barrier portion 32 after passing through the first air guide hole 31, and the transfer direction of the air (or airflow direction) is changed after the collision. The e-liquid absorption body 21 divides the airflow direction of the air passing through the first air guide hole 31 into two, i.e., two airflow directions are generated on two sides of the e-liquid absorption body 21. The air in the two airflow directions respectively contacts with two sides of the e-liquid absorption body 21 and is then led out through the airflow passage 12. The airflow directions are denoted by arrows in FIG. 3 and FIG. 5. After the air contacts with the e-liquid absorption body 21 in the two airflow directions, the air finally enters the user's mouth through the airflow passage 12. Compared with a case where air is introduced into the first bracket 30 along one airflow direction, the air collides with the barrier portion 32 after passing through the first air guide hole 31, thereby improving the air flow rate and resistance and increasing the contact area between the air and the vaporization component 20. In this way, the air entering the first bracket 30 fully contacts with the vaporization component 20, takes away the aerosol generated through vaporization by the vaporization component 20, and enters the user's mouth, thereby greatly improving the taste of the aerosol for the user.

[0053] In some specific implementations of the present disclosure, referring to FIG. 2 and FIG. 4, the first air guide hole 31 runs through the bottom wall 33 along a thickness direction of the bottom wall 33. An upper end of the first air guide hole 31 is communicated with the airflow passage 12, and a lower end of the first air guide hole 31 is communicated with outside air. The outside air is introduced through the first air guide hole 31 and collides with the barrier portion 32. The barrier portion 32 can prevent the air from flowing upward directly through the first air guide hole 31, increase the resistance to vaping, and provide a buffering function and a function of changing the flow direction of the air.

[0054] In an embodiment of the present disclosure, referring to FIG. 2 and FIG. 4, a cross section of the first air guide hole 31 may be rectangular, and the barrier portion 32 is spaced apart from the first air guide hole 31. The barrier portion 32 is located above the first air guide hole 31, so that the air exiting the first air guide hole 31 can collide with the barrier portion 32. Of course, the specific shape of the first air guide hole 31 may be specifically defined according to actual needs and will not be described in detail in the present disclosure.

[0055] According to an embodiment of the present disclosure, the barrier portion 32 horizontally extends from the first side wall 34 toward the vaporization component 20.

[0056] Referring to FIG. 2 and FIG. 4, the barrier portion 32 extends toward the vaporization component 20, and the barrier portion 32 is located on the side of the first air guide hole 31 facing the e-liquid storage bin 11, to block the air for collision. According to an embodiment of the present disclosure, the barrier portion 32 horizontally extends toward the vaporization component 20, so that the barrier portion 32 is horizontally arranged above the first air guide hole 31 to ensure that the air can completely collide with the barrier portion 32.

[0057] In an embodiment of the present disclosure, a horizontal extending dimension of the barrier portion 32 is smaller than a length dimension of the cross section of the first air guide hole 31. An area of an orthographic projection of the barrier portion 32 on the first air guide hole 31 is smaller than a cross-sectional area of the first air guide hole 31, to optimize the transfer channel of the outside air at the first air guide hole 31.

[0058] In some specific implementations of the present disclosure, the length dimension of the cross section of the first air guide hole 31 ranges from 1 mm to 2 mm. A distance between one side of the barrier portion 32 facing the first air guide hole 31 and the first air guide hole 31 in a vertical direction ranges from 0.8 mm to 2.5 mm. A distance between an extension line of one side of the barrier portion 32 close to the second side wall 35 and an extension line of one side of the first air guide hole 31 away from the first side wall 34 in a vertical direction ranges from 0.5 mm to 1.5 mm.

[0059] In other words, as shown in FIG. 4, assuming that the cross section of the first air guide hole 31 is rectangular, and the length dimension of the cross section of the first air guide hole 31 may be defined as d1 and set to ranges from 1 mm to 2 mm. The distance between the barrier portion 32 and the side of the first air guide hole 31 facing the barrier portion 32 may be defined as d2 and set to ranges from 0.8 mm to 2.5 mm. The barrier portion 32 of the present disclosure is similar to a stop wall structure. The distance between the extension line of the side of the barrier portion 32 facing the second side wall 35 of the first bracket 30 and the extension line of the side of the first air guide hole 31 away from the first side wall 34 of the first bracket 30 in the vertical direction is defined as d3 and set to ranges from 0.5 mm to 1.5 mm. With the arrangement of the barrier portion 32 above the first air guide hole 31, the first air guide hole 31 and the barrier portion 32 jointly define a bent passage for leading out the air.

[0060] When the user vapes, the air enters from the first air guide hole 31 at the bottom of the first bracket 30. A special stop wall structure (the barrier portion 32) is designed, and the dimensional distance between the barrier portion 32 and the first air guide hole 31 is further optimized. As shown in FIG. 4, a width d1 of an entrance opening of the internal airway barrier wall is designed to be ranged from 1 mm to 2 mm, an outlet width d3 is designed to be ranged from 0.5 mm to 1.5 mm, and a height d2 is designed to be ranged from 0.8 mm to 2.5 mm. The above dimension ranges allow for optimal collision rebound between the air and the barrier portion 32, so that the air flow rate and resistance can be optimized and improved. Of course, it may be understood by those

skilled in the art that any dimensions that allow for optimal collision rebound between the air and the barrier portion 32 fall within the scope of protection of the present disclosure, which will not be described in detail in the present disclosure.

[0061] According to an embodiment of the present disclosure, the electronic-cigarette vaporization device 100 further includes a second bracket 40 and a cover 50.

[0062] Specifically, the second bracket 40 is arranged in the housing 10, the second bracket 40 is provided with a second air guide hole 41 and an e-liquid guide hole 42, the second air guide hole 41 is communicated with the airflow passage 12, the e-liquid guide hole 42 is communicated with the e-liquid storage bin 11, the e-liquid absorption body 21 is arranged in the second bracket 40, and the e-liquid absorption body 21 is connected to the e-liquid guide hole 42. The cover 50 is sleeved on one side of the second bracket 40 close to the first bracket 30. An accommodating cavity 13 is defined between the cover 50 and the second bracket 40. The vaporization component 20 and the first bracket 30 are arranged in the accommodating cavity 13. The cover 50 is provided with an air inlet 51, and the air inlet 51 is communicated with the airflow passage 12 through the first air guide hole 31 and the second air guide hole 41.

[0063] In other words, referring to FIG. 1, FIG. 2, FIG. 6, and FIG. 10, the electronic-cigarette vaporization device 100 may further include the second bracket 40 and the cover 50. The second bracket 40 may be a plastic bracket. The second bracket 40 is mounted in the housing 10, and the second bracket 40 is adjacent to the airflow passage 12. In the present disclosure, the second bracket 40 serves as an upper bracket, and the first bracket 30 serves as a lower bracket. Referring to FIG. 10, the second bracket 40 is provided with the second air guide hole 41 and the e-liquid guide hole 42. The second air guide hole 41 is communicated with the airflow passage 12, and the airflow passage 12 is communicated with the second air guide hole 41 and the first air guide hole 31. Outside air flows the first air guide hole 31, the second air guide hole 41, and the airflow passage 12 to form an air guide path. The e-liquid guide hole 42 is communicated with the e-liquid storage bin 11, the e-liquid absorption body 21 is arranged on the second bracket 40, and the e-liquid absorption body 21 abuts against a lower end of the e-liquid guide hole 42. An e-liquid guide path is formed by the e-liquid storage bin 11 and the e-liquid guide hole 42. The e-liquid in the e-liquid storage bin 11 is introduced through the e-liquid guide hole 42, and the e-liquid introduced through the e-liquid guide hole 42 penetrates into the e-liquid absorption body 21, and the e-liquid absorption body 21 has an adsorption effect on the e-liquid.

[0064] As shown in FIG. 1 and FIG. 6, the cover 50 is sleeved over a lower end of the second bracket 40, and the accommodating cavity 13 is defined between the cover 50 and the second bracket 40. The cover 50 can be used as a lower cover of a cartridge, the cover 50 is connected to the second bracket 40, and the first bracket 30 is arranged in the cover 50. The vaporization component 20 and the first bracket 30 are located in the accommodating cavity 13. The air inlet 51 is provided at the bottom of the cover 50, and the air inlet 51 is located below the bottom wall 33 of the first bracket 30. The air inlet 51 is communicated with the airflow passage 12 through the first air guide hole 31 and the second air guide hole 41. The outside air is introduced into the housing 10 through the air inlet 51, and the air flows in the air guide path formed by the air inlet 51, the first air guide hole 31, the second air guide hole 41, and the airflow passage 12.

[0065] According to an embodiment of the present disclosure, referring to FIG. 10, two e-liquid guide holes 42 are provided on the second bracket 40, and the two e-liquid guide holes 42 are arranged at intervals on two sides of the second air guide hole 41, and the e-liquid guide holes 42 are independent of each other. The two e-liquid guide holes 42 form two e-liquid guide paths with the e-liquid storage bin 11, respectively. The e-liquid in the e-liquid storage bin 11 may be introduced to two ends of the e-liquid absorption body 21 through the two e-liquid guide holes 42 respectively, thereby improving the e-liquid absorption efficiency of the e-liquid absorption body 21. An air guide path is formed by the air inlet 51, the first air guide hole 31, the second air guide hole 41, and the airflow passage 12, and the e-liquid guide paths are independent of the air guide path.

[0066] In the present disclosure, when the e-liquid adsorbed by the e-liquid absorption body 21 reaches saturation and a small amount of e-liquid leaks from an end of the e-liquid absorption body 21, the leaked e-liquid falls on the bottom wall 33 of the first bracket 30, which prevents the falling e-liquid from directly falling onto the air inlet 51 and flowing out of the housing 10, and preventing the electronic-cigarette vaporization device 100 from e-liquid leakage to affect user experience.

[0067] In an embodiment of the present disclosure, referring to FIG. 2, a vaporization chamber 23 is defined between the second bracket 40 and the first bracket 30, the first air guide hole 31 is communicated with the second air guide hole 41, and the vaporization component 20 is arranged in the vaporization chamber 23. During vaping by the user, outside air may be introduced through the first air guide hole 31, collide with the barrier portion 32, and then enter the vaporization chamber 23. The air entering the vaporization chamber 23 fully contacts with the vaporization component 20, takes away the aerosol generated through vaporization by the vaporization component 20, and enters the user's mouth through the airflow passage 12, thereby greatly improving the taste of the aerosol for the user.

[0068] In some specific implementations of the present disclosure, the second bracket 40 further includes a beam 43, the beam 43 is arranged in the second bracket 40, and the beam 43 corresponds to the second air guide hole 41 and the airflow passage 12.

[0069] In other words, as shown in FIG. 2, FIG. 5, and

FIG. 10, the second bracket 40 further includes the beam 43, the beam 43 is arranged in the second bracket 40, the beam 43 is located below the second air guide hole 41, and the beam 43 corresponds to the second air guide hole 41 and the airflow passage 12. When the aerosol condenses in the airflow passage 12 and the generated droplets fall off along a side wall of the airflow passage 12, the droplets fall on the beam 43, thereby preventing the droplets from directly falling on the heating element 22 of the vaporization component 20 to cause e-liquid explosion.

[0070] In an embodiment of the present disclosure, the vaporization component 20 is a cotton core vaporizer. The e-liquid absorption body 21 is columnar, and two ends of the e-liquid absorption body 21 respectively abut against the two e-liquid guide holes 42 of the second bracket 40. The heating element 22 is wound on a middle portion of the e-liquid absorption body 21, and an orthographic projection of the beam 43 on the bottom wall 33 of the first bracket 30 covers the e-liquid absorption body 21.

[0071] In other words, referring to FIG. 1, the vaporization component 20 may be a cotton core vaporizer, the e-liquid absorption body 21 may be columnar, and the e-liquid absorption body 21 may be an e-liquid absorption cotton core. The two ends of the e-liquid absorption body 21 respectively abut against the two e-liquid guide holes 42 on the second bracket 40. The e-liquid in the e-liquid storage bin 11 penetrates into the e-liquid absorption body 21 through the two e-liquid guide holes 42 on the second bracket 40, and is absorbed by the e-liquid absorption body 21. The heating element 22 is wound around the e-liquid absorption body 21, and the heating element 22 is substantially wound at a middle portion of the e-liquid absorption body 21. The heating element 22 corresponds to the positions of the second air guide hole 41 and the airflow passage 12, so that the aerosol generated by the heating element 22 by vaporizing the e-liquid can be discharged to the airflow passage 12. An orthographic projection of the beam 43 on the bottom wall 33 of the first bracket 30 covers the e-liquid absorption body 21, the beam 43 is located between the second air guide hole 41 and the e-liquid absorption body 21, and the beam 43 corresponds to the position of the heating element 22 in a length direction of the airflow passage 12. When the aerosol condenses in the airflow passage 12 and the generated droplets fall off along the side wall of the airflow passage 12, the droplets fall on the beam 43, thereby preventing the droplets from directly falling on the heating element 22 to cause e-liquid explosion.

[0072] According to an embodiment of the present disclosure, referring to FIG. 1 and FIG. 2, a central axis of the air inlet 51 and a central axis of the first air guide hole 31 are not in a same straight line. In other words, the air inlet 51 on the cover 50 is staggered from the first air guide hole 31, so as to prevent the e-liquid leaking from the first air guide hole 31 from directly flowing out of the housing 10 through the air inlet 51, and prevent the electronic-cigarette vaporization device 100 from e-liquid leakage to affect user experience.

[0073] In the present disclosure, the electronic-cigarette vaporization device 100 further includes a liquid absorption body 60, and the liquid absorption body 60 is liquid absorption cotton. The liquid absorption body 60 is arranged at the bottom of the cover 50, and a part of the liquid absorption body 60 corresponds to the position of the first air guide hole 31.

[0074] In other words, referring to FIG. 1, FIG. 2, and FIG. 6, the electronic-cigarette vaporization device 100 further includes a liquid absorption body 60. The liquid absorption body 60 may be liquid absorption cotton. The liquid absorption body 60 is mounted at the bottom of the cover 50, and the liquid absorption body 60 may be wound around an outer periphery of the air inlet 51. A part of the liquid absorption body 60 corresponds to the position of the first air guide hole 31. When a small amount of e-liquid or aerosol in the vaporization chamber 23 condenses and forms a condensate and the condensate falls off from a hole wall of the first air guide hole 31, the e-liquid or condensate may fall on the liquid absorption body 60, and be further absorbed by the liquid absorption body 60, to further prevents the falling e-liquid or condensate from flowing out of the housing 10 through the air inlet 51, and prevent the electronic-cigarette vaporization device 100 from e-liquid leakage to affect user experience.

[0075] According to an embodiment of the present disclosure, as shown in FIG. 1, FIG. 2, and FIG. 6, the electronic-cigarette vaporization device 100 further includes a first sealing member 71, which may be a sealing ring. The first sealing member 71 is sleeved on the second air guide hole 41 of the second bracket 40. The first sealing member 71 may seal a joint of the second air guide hole 41 and the airflow passage 12, and prevent the e-liquid in the e-liquid storage bin 11 from leaking into the airflow passage 12 and the second air guide hole 41, thereby improving user experience.

[0076] In the present disclosure, as shown in FIG. 1, FIG. 2, and FIG. 6, the electronic-cigarette vaporization device 100 further includes a second sealing member 72, which may be a sealing ring. The second sealing member 72 is arranged in the housing 10, the second sealing member 72 is sleeved on an outer wall surface of the second bracket 40, and an outer edge of the second sealing member 72 abuts against an inner wall of the housing 10. The e-liquid storage bin 11 may be defined jointly by the second bracket 40, the housing 10, and the second sealing member 72. The arrangement of the second sealing member 72 prevents the e-liquid in the e-liquid storage bin 11 from leaking from the inner wall of the housing 10 to the outside of the housing 10.

[0077] In the present disclosure, referring to FIG. 1, FIG. 2, and FIG. 6, the electronic-cigarette vaporization device 100 further includes a third sealing member 73, which may be a sealing ring. The third sealing member 73 is sleeved on an outer wall surface of the cover 50,

and an outer edge of the third sealing member 73 abuts against the inner wall of the housing 10. With the arrangement of the third sealing member 73 sleeved on the outer wall surface of the cover 50, a small amount of e-liquid leaking from the second sealing member 72 can further be sealed, to prevent the small amount of e-liquid from leaking from between the cover 50 and the housing 10 to the outside of the housing 10, thereby further improving the overall sealing performance of the electronic-cigarette vaporization device 100.

[0078] According to an embodiment of the present disclosure, as shown in FIG. 1, FIG. 2, and FIG. 6, the electronic-cigarette vaporization device 100 further includes a conductive pin 80. A quantity of conductive pins 80 is two. The two conductive pins 80 can pass through the bottom of the cover 50. The conductive pins 80 are electrically connected to the heating element 22 to realize the vaporization of the e-liquid by the vaporization component 20.

[0079] In the assembly process of the electronic-cigarette vaporization device 100 of the present disclosure, referring to FIG. 1 and FIG. 6, the first sealing member 71 may be sleeved on the second bracket 40. The two parts are sealed and fixed by an interference fit. The first sealing member 71 is configured to seal the airflow passage 12 of the housing 10 and the second bracket 40. Then, the second sealing member 72 is sleeved on the second bracket 40. After the second sealing member 72 is sleeved, the two parts are tightened to achieve an assembly fit. The second sealing member 72 is configured to seal the inner wall of the housing 10 and the second bracket 40. The e-liquid storage bin 11 configured to store the e-liquid is defined by the second bracket 40, the second sealing member 72, and the housing 10. The third sealing member 73 is sleeved on the cover 50. The cover 50 is connected to the second bracket 40 and electrically connected to the vaporization component 20 through the conductive pins 80. Finally, the structure obtained by assembling the first bracket 30, the vaporization component 20, the second bracket 40, the first sealing member 71, the second sealing member 72, the cover 50, the third sealing member 73, and the conductive pin 80 is mounted in the housing 10, and is slowly pushed into the housing from one end of the housing 10 until the structure abuts against the airflow passage 12 of the housing 10.

[0080] When the user vapes, air enters from the air inlet 51 at the bottom of the housing 10 and then enters the vaporization chamber 23 through the first air guide hole 31 on one side of the first bracket 30. The design of the special inner cavity stop wall structure (barrier portion 32) and dimensions allows for optimal collision rebound between the air and the barrier portion 32, thereby optimizing and improving the air flow rate and resistance to the greatest extent. The width d1 of the cross section of the first air guide hole 31 is designed to be ranged from 1 mm to 2 mm, the outlet width d3 is designed to be ranged from 0.5 mm to 1.5 mm, and the height d2 is designed to be ranged from 0.8 mm to 2.5 mm. When the dimensions are within the dimension ranges, optimal collision rebound is achieved between the air and the barrier portion 32. The air contacts with the cotton core vaporizer (vaporization component 20) impregnated with the e-liquid for vaporization to generate an aerosol. The aerosol continues to flow upward through the two sides of the second bracket 40 to enter the user's mouth.

[0081] After the user stops vaping and the air cools down, a condensate is adsorbed on the side wall of the airflow passage 12, and after a period of time, the condensate flows into the airflow passage. The arrangement of the beam 43 exactly below the airflow passage 12 can prevent the condensate from falling directly onto the vaporization component 20 to cause e-liquid explosion or other problems. In addition, with the design of the liquid absorption body 60 (liquid absorption cotton) above the air inlet 51, when a small amount of e-liquid falls off the e-liquid absorption body 21, the e-liquid falls on the bottom wall 33 of the first bracket 30, and the bottom wall 33 of the first bracket 30 can block the e-liquid, to prevent the e-liquid from directly falling on the air inlet 51. The liquid absorption body 60 can absorb the excess e-liquid in time, thereby preventing the e-liquid from flowing out of the housing 10 to affect user experience.

[0082] To sum up, in the electronic-cigarette vaporization device 100 according to the embodiment of the present disclosure, the first air guide hole 31 communicated with the airflow passage 12 and the barrier portion 32 are arranged on the first bracket 30, and the beam 43 is arranged below the airflow passage 12. With the arrangement of the barrier portion 32 on the air transfer path of the first air guide hole 31, when outside air is introduced through the first air guide hole 31, the air collides with the barrier portion 32, to improve the flow rate and resistance of air and change the transfer direction of air. In this way, air fully contacts with the vaporization component 20 impregnated with the e-liquid for vaporization to take away the aerosol, thereby greatly improving user experience. The arrangement of the beam 43 can prevent the condensate from falling directly onto the vaporization component 20 to cause e-liquid explosion or other problems. In addition, when a small amount of e-liquid falls off the e-liquid absorption body 21, the e-liquid falls on the bottom wall 33 of the first bracket 30, and the bottom wall 33 of the first bracket 30 can block the e-liquid, to prevent the e-liquid from directly falling on the air inlet 51. The liquid absorption body 60 can absorb the excess e-liquid in time, thereby preventing the e-liquid from flowing out of the housing 10 to affect user experience.

[0083] A second aspect of the present disclosure provides an electronic cigarette, including the electronic-cigarette vaporization device 100 in the above embodiments. Since the electronic-cigarette vaporization device 100 according to the present disclosure has the above technical effects, the electronic cigarette according to the present disclosure should also have the corresponding technical effects. In other words, the electronic cigarette

according to the present disclosure can effectively prevent the leaked e-liquid and condensate from directly falling on the vaporization component 20 to cause e-liquid explosion or other problems, thereby greatly improving user experience.

[0084] Of course, other configurations and operating principles of the electronic cigarette are understandable and achievable to those skilled in the art and therefore will not be described in detail in the present disclosure.

[0085] Although some specific embodiments of this application have been described in detail by way of examples, a person skilled in the art should understand that the foregoing examples are only for description and are not intended to limit the scope of this application. A person skilled in the art should appreciate that modifications may be made to the foregoing embodiments without departing from the scope and spirit of this application. The scope of protection of the present disclosure is defined by the appended claims.

Claims

1. An electronic-cigarette vaporization device, comprising:

   a housing, comprising an e-liquid storage bin, the housing being provided with an airflow passage communicated with outside air;
   a vaporization component, comprising an e-liquid absorption body and a heating element, the heating element being arranged on the e-liquid absorption body, and the e-liquid absorption body being communicated with the e-liquid storage bin; and
   a first bracket, arranged in the housing, the vaporization component being arranged on the first bracket, the first bracket being provided with a first air guide hole communicated with the airflow passage, a barrier portion being arranged on an inner wall of the first bracket, and the barrier portion being corresponding to a position of the first air guide hole to change an airflow direction of air passing through the first air guide hole.

2. The electronic-cigarette vaporization device according to claim 1, wherein the inner wall of the first bracket is defined as a first side wall, the first air guide hole is arranged at a joint of a bottom wall of the first bracket and the first side wall, and the barrier portion is arranged on one side of the first air guide hole facing the e-liquid storage bin.

3. The electronic-cigarette vaporization device according to claim 1 or 2, wherein the e-liquid absorption body divides the airflow direction of the air passing through the first air guide hole into two airflow directions, and the air in the two airflow directions respectively contacts with two sides of the e-liquid absorption body and is then led out through the airflow passage.

4. The electronic-cigarette vaporization device according to claim 2 or 3, wherein the first air guide hole runs through the bottom wall along a thickness direction of the bottom wall.

5. The electronic-cigarette vaporization device according to any one of claims 2-4, wherein a cross section of the first air guide hole is rectangular, and the barrier portion is spaced apart from the first air guide hole.

6. The electronic-cigarette vaporization device according to any one of claims 2-5, wherein a side surface of the barrier portion facing the vaporization component is defined as a second side wall, and the first side wall is arranged opposite to the second side wall.

7. The electronic-cigarette vaporization device according to claim 6, wherein the barrier portion horizontally extends from the first side wall toward the vaporization component.

8. The electronic-cigarette vaporization device according to any one of claims 1-6, wherein a horizontal extending dimension of the barrier portion is smaller than a length dimension of the cross section of the first air guide hole.

9. The electronic-cigarette vaporization device according to any one of claims 1-8, wherein the length dimension of the cross section of the first air guide hole ranges from 1 mm to 2 mm.

10. The electronic-cigarette vaporization device according to any one of claims 1-9, wherein a distance between one side of the barrier portion close to the first air guide hole and the first air guide hole in a vertical direction ranges from 0.8 mm to 2.5 mm.

11. The electronic-cigarette vaporization device according to claim 6 or 7, wherein a distance between an extension line of one side of the barrier portion close to the second side wall and an extension line of one side of the first air guide hole away from the first side wall in a vertical direction ranges from 0.5 mm to 1.5 mm.

12. The electronic-cigarette vaporization device according to any one of claims 2-11, further comprising:

    a second bracket, arranged in the housing, wherein the second bracket is provided with a

second air guide hole and at least one e-liquid guide hole, the second air guide hole is communicated with the airflow passage, the at least one e-liquid guide hole is communicated with the e-liquid storage bin, the e-liquid absorption body is arranged in the second bracket, and the e-liquid absorption body is connected to the at least one e-liquid guide hole; and

a cover, sleeved on one side of the second bracket close to the first bracket, wherein an accommodating cavity is defined between the cover and the second bracket, the vaporization component and the first bracket are arranged in the accommodating cavity, the cover is provided with an air inlet, and the air inlet is communicated with the airflow passage through the first air guide hole and the second air guide hole.

13. The electronic-cigarette vaporization device according to claim 12, wherein a quantity of the at least one e-liquid guide holes is two, the two e-liquid guide holes are arranged at intervals on two radial sides of the second air guide hole, the two e-liquid guide holes respectively form two e-liquid guide paths with the e-liquid storage bin, an air guide path is formed by the air inlet, the first air guide hole, the second air guide hole, and the airflow passage, and the two e-liquid guide paths are independent of the air guide path respectively.

14. The electronic-cigarette vaporization device according to claim 12 or 13, wherein a vaporization cavity communicated with the first air guide hole and the second air guide hole is defined between the second bracket and the first bracket, and the vaporization component is located in the vaporization cavity.

15. The electronic-cigarette vaporization device according to any one of claims 12-14, wherein the second bracket further comprises a beam, the beam is arranged in the second bracket, and the beam corresponds to the second air guide hole and the airflow passage.

16. The electronic-cigarette vaporization device according to any one of claims 12-15, wherein the e-liquid absorption body is columnar, and two ends of the e-liquid absorption body respectively abut against the two e-liquid guide holes of the second bracket.

17. The electronic-cigarette vaporization device according to claim 15 or 16, wherein the heating element is wound on a middle portion of the e-liquid absorption body, and an orthographic projection of the beam on the bottom wall of the first bracket covers the e-liquid absorption body.

18. The electronic-cigarette vaporization device according to any one of claims 12-17, wherein a central axis of the air inlet and a central axis of the first air guide hole are not in a same straight line.

19. The electronic-cigarette vaporization device according to any one of claims 12-18, further comprising: a liquid absorption body, wherein the liquid absorption body is arranged on a bottom wall of the cover, and a part of the liquid absorption body corresponds to the position of the first air guide hole.

20. The electronic-cigarette vaporization device according to claim 19, wherein the liquid absorption body is liquid absorption cotton.

21. The electronic-cigarette vaporization device according to any one of claims 12-20, further comprising a first sealing member, sleeved on the second air guide hole to seal a joint of the airflow passage and the second air guide hole.

22. The electronic-cigarette vaporization device according to any one of claims 12-21, further comprising: a second sealing member, arranged in the housing, wherein the second sealing member is sleeved on the second bracket, and an outer edge of the second sealing member abuts against an inner wall of the housing.

23. The electronic-cigarette vaporization device according to any one of claims 12-22, further comprising a third sealing member, sleeved on the cover, wherein an outer edge of the third sealing member abuts against an inner wall of the housing.

24. The electronic-cigarette vaporization device according to any one of claims 1-23, wherein the vaporization component is a cotton core vaporizer.

25. The electronic-cigarette vaporization device according to any one of claims 12-24, further comprising a conductive pin, passing through the cover and electrically connected to the heating element.

26. An electronic cigarette, comprising an electronic-cigarette vaporization device according to any one of claims 1-25.

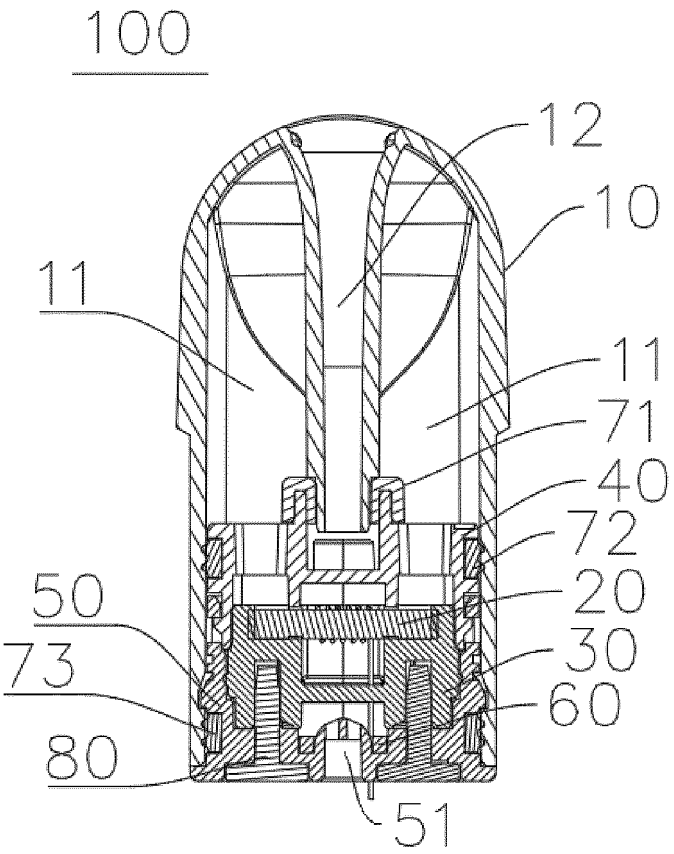

FIG. 1

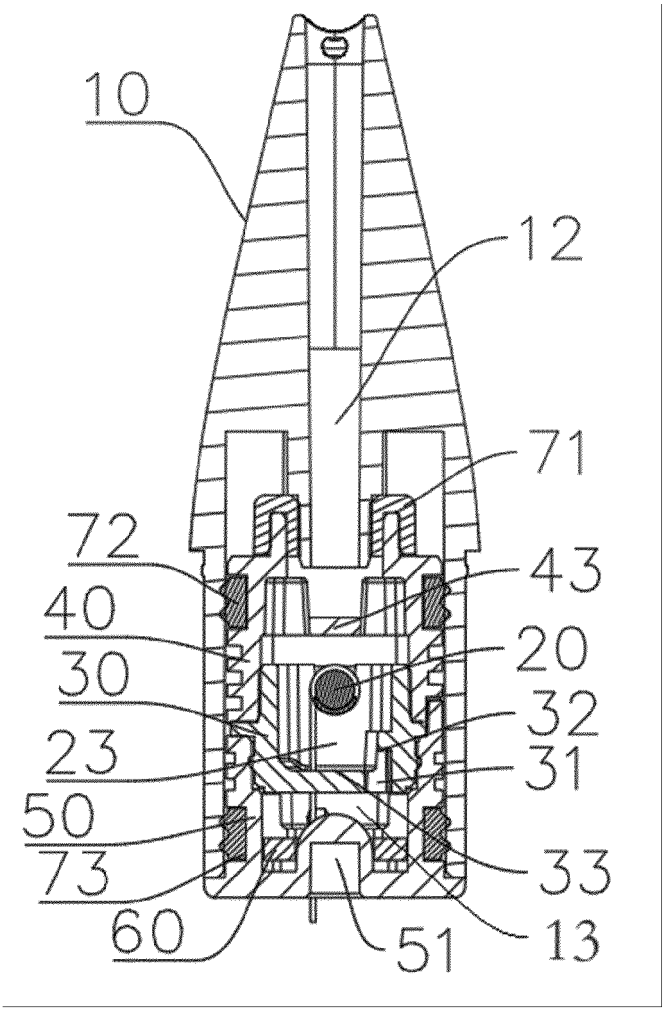

FIG. 2

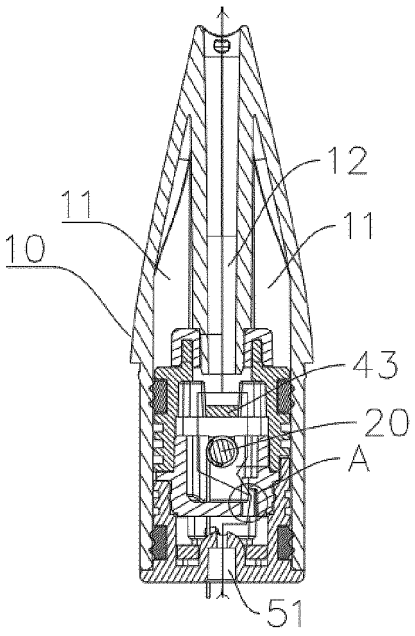

FIG. 3

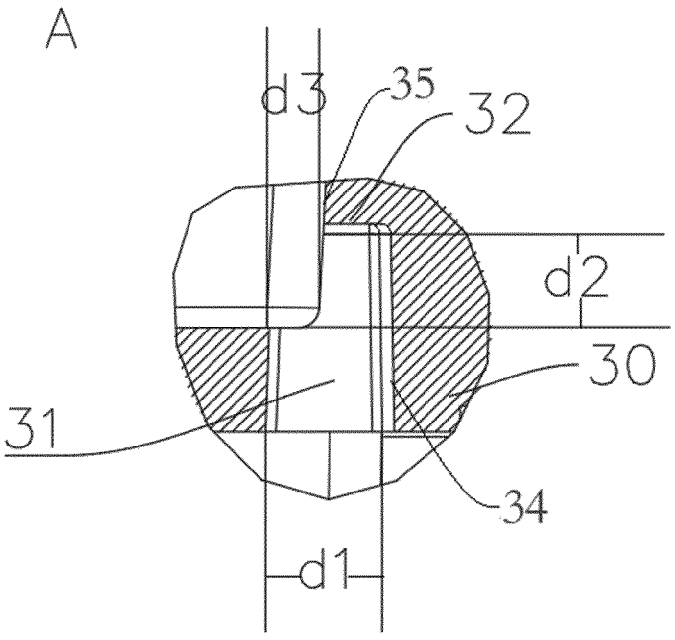

FIG. 4

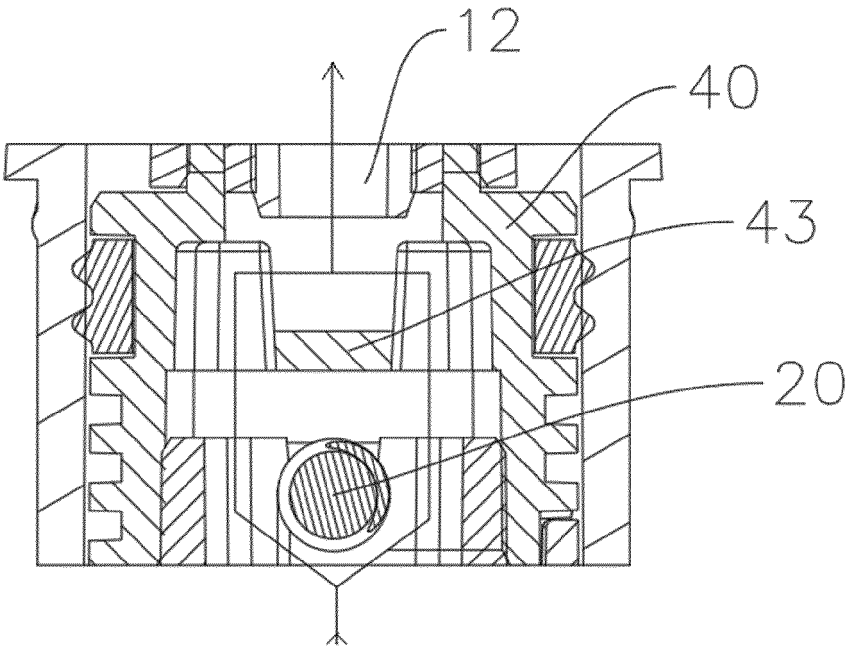

FIG. 5

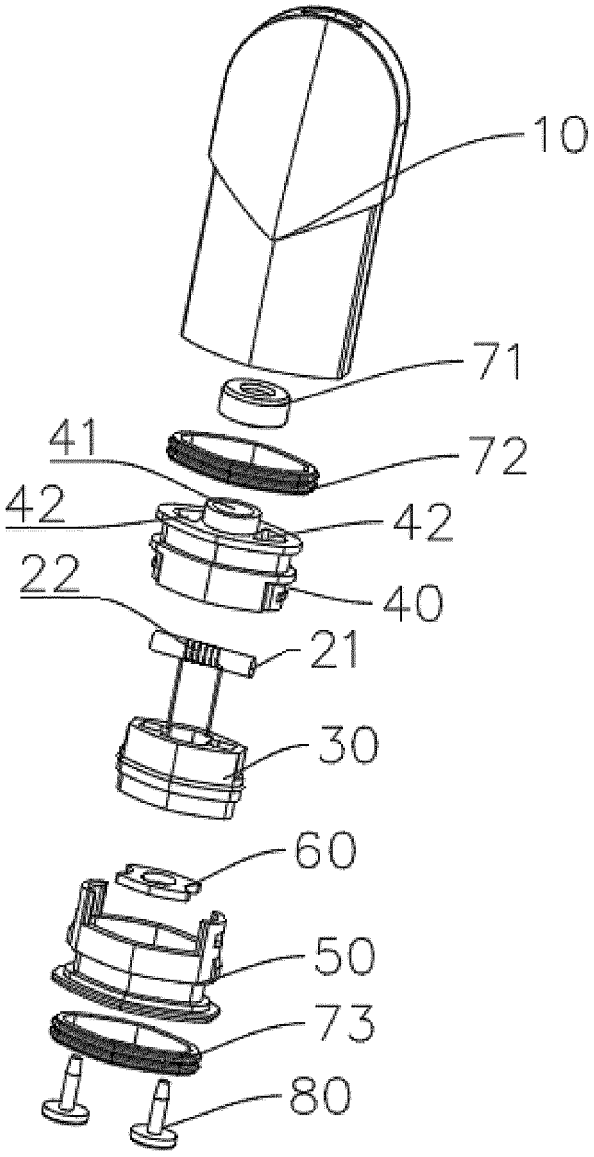

FIG. 6

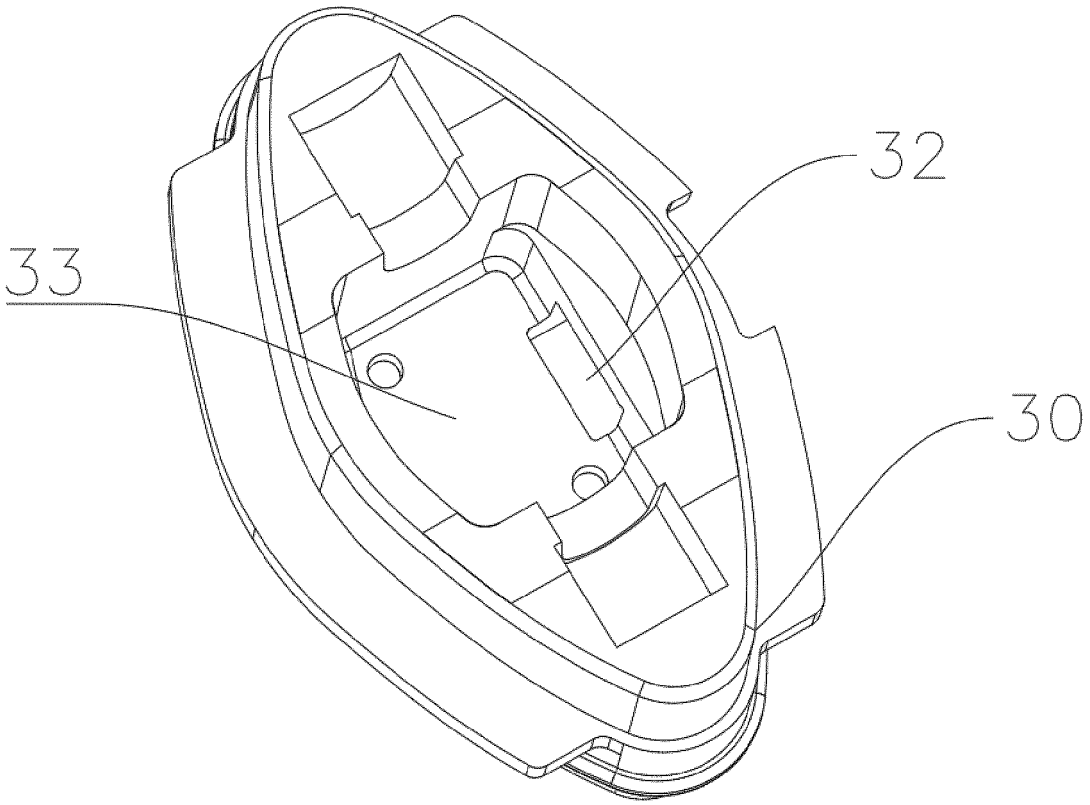

FIG. 7

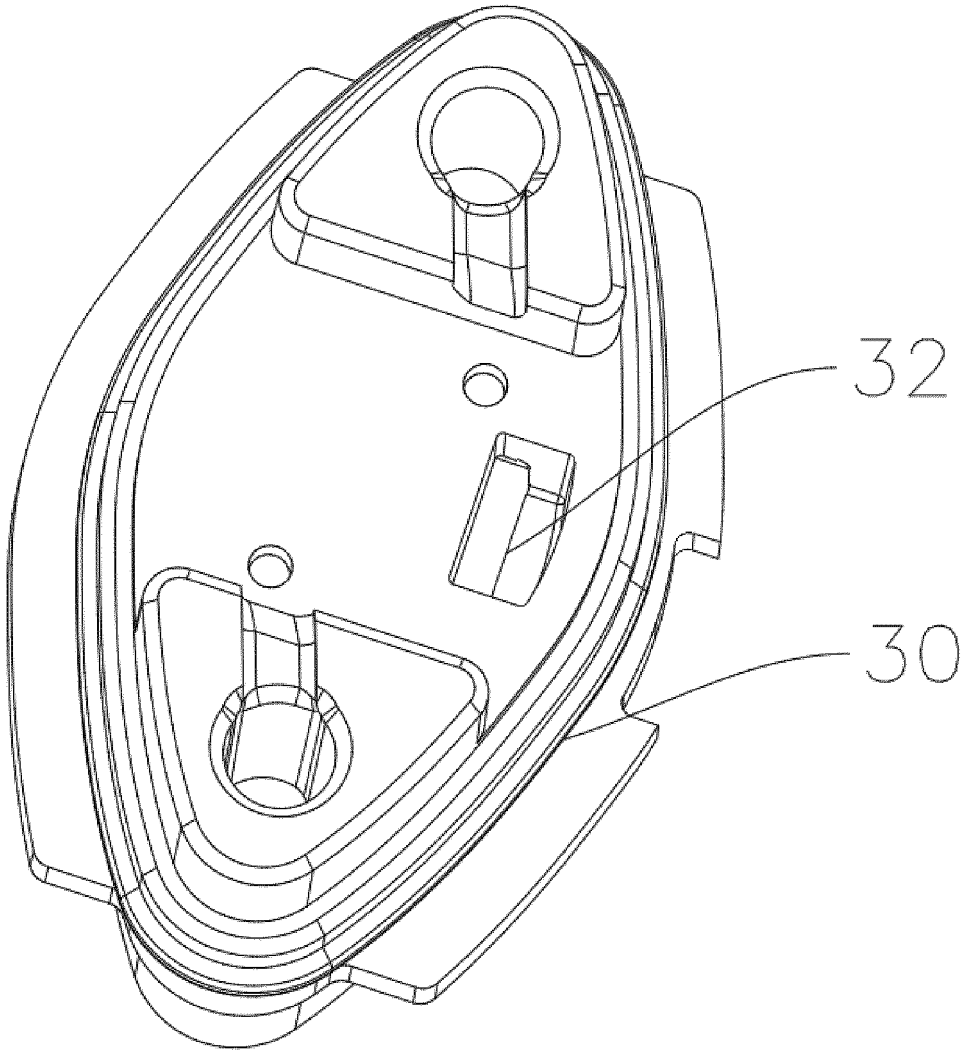

FIG. 8

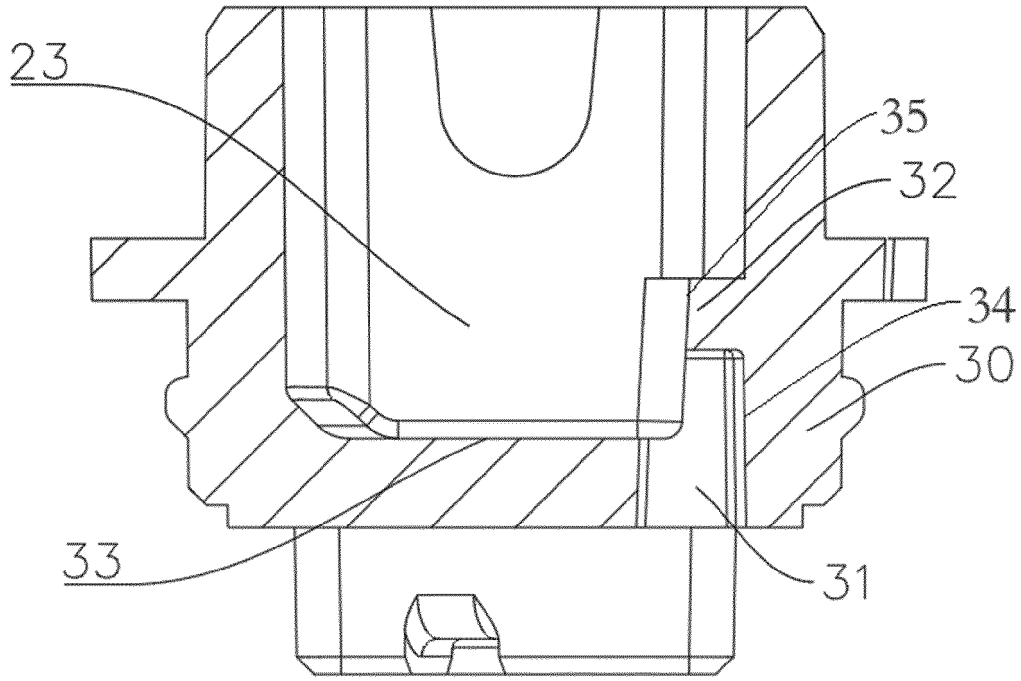

FIG. 9

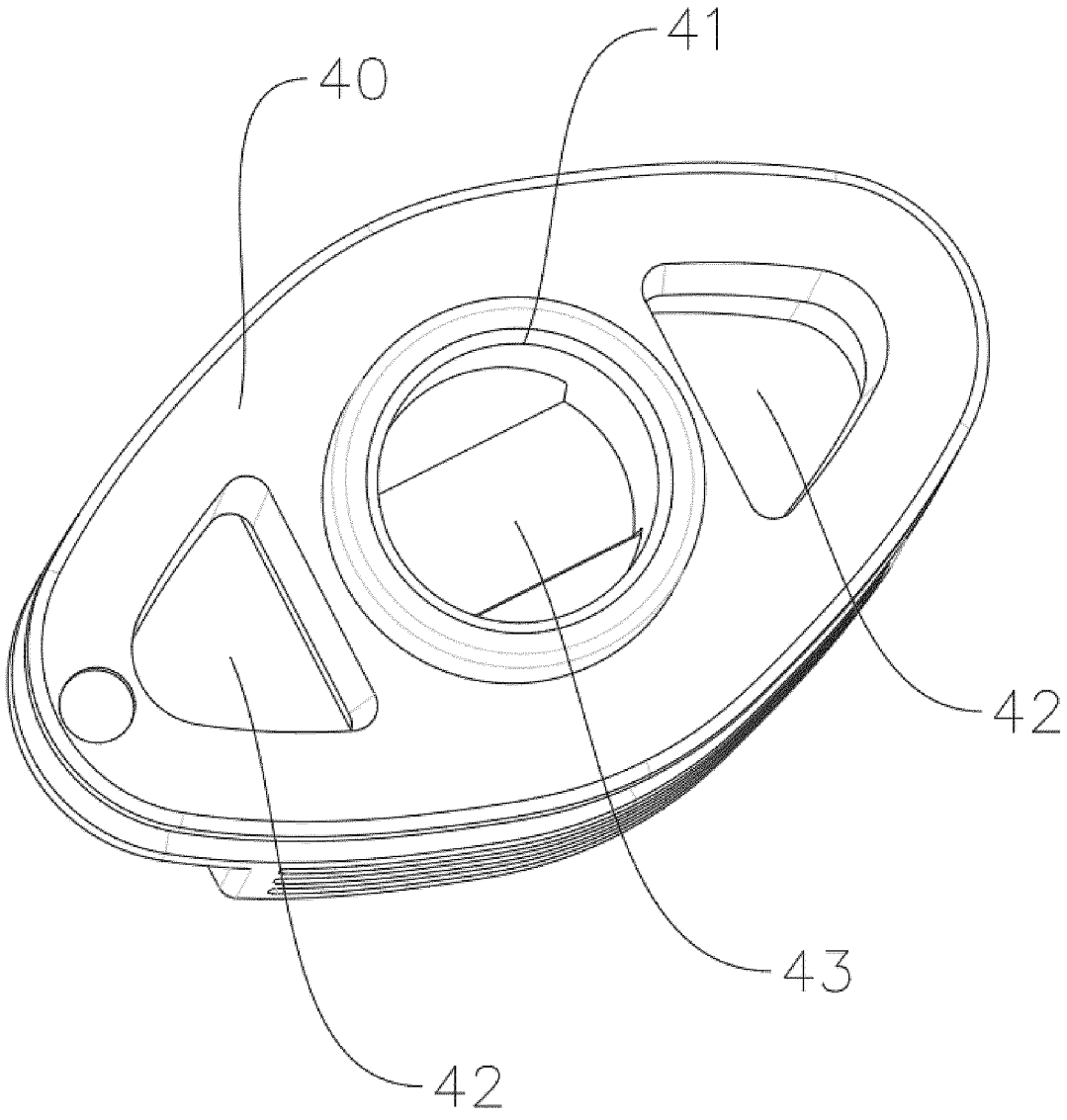

FIG. 10

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2022/097150

A. CLASSIFICATION OF SUBJECT MATTER

A24F 40/46(2020.01)i; A24F 40/10(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)

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)

CNPAT, CNKI, WPI, EPODOC: 调整, 壁, 流, 弯折, 进气, 吸油, 拐角, 漏, 阻力, 缓, 导气, 拐弯, 隔, 气, 孔, 渗, 变, 墙, 储油, 气流, 挡, 碰撞, 弯曲, 开口, 缩, 圆弧, 支架, 接触, 遮, 液, 流速, 方向, 速度, 导油, 油, 减速, 阻, 导, partition, gas, electronic cigarette, e-cigarette, aerosol generating, leakage, shielding

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CN 211211432 U (SHENZHEN FIRST UNION TECHNOLOGY CO., LTD.) 11 August 2020 (2020-08-11) description, paragraphs 33-39 and 46, and figures 1-4 and 9	1-26
PX	CN 215347062 U (BYD PRECISION MANUFACTURE CO., LTD.) 31 December 2021 (2021-12-31) description, paragraphs 59-99, and figures 1-10	1-26
A	CN 109068744 A (CHANGZHOU PAITENG ELECTRONIC TECHNOLOGY SERVICE CO., LTD.) 21 December 2018 (2018-12-21) entire document	1-26
A	US 2021022393 A1 (HONG KONG IVPS INTERNATIONAL LTD.) 28 January 2021 (2021-01-28) entire document	1-26
A	CN 210226908 U (SHENZHEN IJOY TECHNOLOGY CO., LTD.) 03 April 2020 (2020-04-03) entire document	1-26

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

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
14 July 2022	**27 July 2022**
Name and mailing address of the ISA/CN **China National Intellectual Property Administration (ISA/CN)** **No. 6, Xitucheng Road, Jimenqiao, Haidian District, Beijing 100088, China** Facsimile No. **(86-10)62019451**	Authorized officer Telephone No.

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2022/097150

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 209931493 U (SHENZHEN FIRST UNION TECHNOLOGY CO., LTD.) 14 January 2020 (2020-01-14) entire document	1-26
A	CN 210203366 U (SHENZHEN YOUME NETWORK TECHNOLOGY CO., LTD.) 31 March 2020 (2020-03-31) entire document	1-26

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2022/097150

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CN 215347062 U	31 December 2021	None	
CN 109068744 A	21 December 2018	EP 3610737 A1	19 February 2020
		WO 2018188231 A1	18 October 2018
		WO 2018188353 A1	18 October 2018
		US 2020163381 A1	28 May 2020
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