



(11)

EP 4 046 504 A1

(12)

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

(43) Date of publication:

24.08.2022 Bulletin 2022/34

(51) International Patent Classification (IPC):

A24F 40/10 ^(2020.01) **A24F 40/42** ^(2020.01)
A24F 40/40 ^(2020.01)

(21) Application number: **21868598.0**

(86) International application number:

PCT/CN2021/118081

(22) Date of filing: **14.09.2021**

(87) International publication number:

WO 2022/057775 (24.03.2022 Gazette 2022/12)

(84) Designated Contracting States:

**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**

Designated Extension States:

BA ME

Designated Validation States:

KH MA MD TN

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

(72) Inventor: **WEN, Zhihua**
Shenzhen, Guangdong 518102 (CN)

(74) Representative: **Michalski Hüttermann & Partner**
Patentanwälte mbB
Kaistraße 16A
40221 Düsseldorf (DE)

(30) Priority: **16.09.2020 CN 202010974502**

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

(57) An atomizer (10) comprises an atomizing core (100) and a bottom cover (200), wherein the atomizer (10) is provided with a suction channel (600); at least part of the atomizing core (100) is located in the suction channel (600); the atomizing core (100) is configured to temporarily store a liquid and atomize the liquid to form an aerosol to be discharged into the suction channel (600); the bottom cover (200) is provided with a gas inlet channel (500); the gas inlet channel (500) is provided with an outlet port (510) for gas to flow out of; the suction channel (600) is provided with an inlet port (611) for gas to flow into; external gas entering the gas inlet channel (500) sequentially passes through the outlet port (510) and the inlet port (611), and then enters the suction channel (600) to carry the aerosol; and the orthographic projection of the inlet port (611) on the bottom cover (200) is located outside the contour of the outlet port (510).

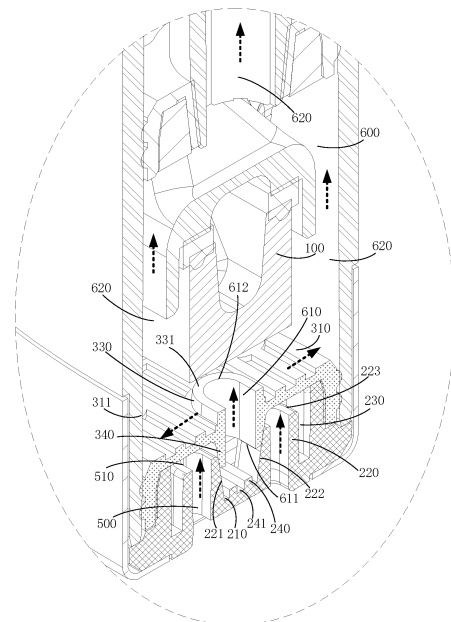


FIG. 3

EP 4 046 504 A1

Description

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims to the priority of Chinese Patent Application No. 202010974502.X, filed on September 16, 2020, entitled "ATOMIZER AND ELECTRONIC ATOMIZING DEVICE", the entire content of which is incorporated herein by reference.

TECHNICAL FIELD

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

BACKGROUND

[0003] There are dozens of carcinogenic substances in aerosols formed by burning atomized media. For example, tar will cause great harm to human health, and the aerosols will diffuse in the air to form second-hand aerosols, which will be harmful to the human body after inhalation by the surrounding people. Therefore, smoking is expressly prohibited in most public places. However, electronic atomizing devices usually do not contain harmful components such as tar, suspended particles and others, so the electronic atomizing devices are widely used.

[0004] The electronic atomizing device generally includes an atomizer and a power supply. When the electronic atomizing device is out of use, e-liquid or the liquor condensate stored in the atomizer will leak from the bottom of the atomizer to the power supply, and the leaked e-liquid or liquor condensate will erode the power supply, thereby affecting the life of the power supply.

SUMMARY

[0005] According to various embodiments of the present application, an atomizer and an electronic atomizing device including the atomizer are provided.

[0006] An atomizer includes an atomizing core and a bottom cover. The atomizer is provided with a vaping channel. At least a part of the atomizing core is located in the vaping channel. The atomizing core is configured to temporally store liquid, and atomize the liquid to form an aerosol that is dischargeable into the vaping channel. The bottom cover is provided with an air intake channel. The air intake channel has an outlet port through which air flows out. The vaping channel has an inlet port through which the air flows in. Outside air entering the air intake channel passes through the outlet port and the inlet port in sequence, and then enters the vaping channel to carry the aerosol. An orthographic projection of the inlet port on the bottom cover is located outside an outline of the outlet port.

[0007] In one of the embodiments, the bottom cover is

further provided with an air guiding cavity. The bottom cover has a mounting surface defining a part of a boundary of the air guiding cavity and disposed toward the inlet port, and further includes a protruding post located in the air guiding cavity. One end of the protruding post is connected to the mounting surface, and the other end of the protruding post protrudes from the mounting surface and has a free end surface. The free end surface is spaced apart from the mounting surface. The air intake channel is disposed in the protruding post. The outlet port is located at the free end surface. The outside air passes through the outlet port and the air guiding cavity in sequence, and then enters the inlet port. In this way, the outlet port on the free end surface is higher than the mounting surface by a certain distance, thereby preventing the liquid level of the leakage liquid from being flush with the free end surface, to prevent the leakage liquid from flowing out of the entire atomizer by entering the air intake channel through the outlet port, thereby preventing the atomizer from leaking.

[0008] In one of the embodiments, the bottom cover further includes protruding strips. The protruding strips are connected to the mounting surface and protrude from the mounting surface. A liquid storage groove capable of storing the liquid is formed between the protruding strips. And/or, the mounting surface is recessed to form a liquid storage groove capable of storing the liquid. By disposing the liquid storage groove, the space of the bottom cover for storing the leakage liquid can be increased.

[0009] In one of the embodiments, the inlet port is closer to the mounting surface than the outlet port. It can effectively prevent the floating leakage liquid due to the deviation from the straight dropping trajectory from entering the inlet port, to prevent leakage.

[0010] In one of the embodiments, a sealing member is further included. The sealing member seals and covers the air guiding cavity. The vaping channel includes a first air channel disposed on the sealing member. The inlet port is located at the first air channel. The sealing member has an upper surface disposed toward the atomizing core. The upper surface is provided with a sunken groove capable of storing the liquid. The sunken groove can store the leakage liquid, which further increases the space for storing the leakage liquid in the entire atomizer.

[0011] In one of the embodiments, the sealing member includes an upper protruding portion. One end of the upper protruding portion is connected to the upper surface, the other end of the upper protruding portion protrudes from the upper surface and has an upper end surface. The upper end surface is spaced apart from the upper surface. A part of the first air channel is located in the upper protruding portion, and has a guiding outlet through which the air is output. The guiding outlet is disposed on the upper end surface. The guiding outlet on the upper end surface can be disposed higher than the upper surface by a certain distance, so as to prevent the liquid level of the leakage liquid from being flush with the upper end surface, and prevent the leakage liquid from drop-

ping into the liquid storage groove of the bottom cover through the guiding outlet from the first air channel.

[0012] In one of the embodiments, the sealing member has a lower surface disposed toward bottom cover. The sealing member includes a lower protruding portion. One end of the lower protruding portion is connected to the lower surface, and the other end of the lower protruding portion protrudes from the lower surface. A part of the first air channel is located in the lower protruding portion. Two protruding posts are provided. The lower protruding portion is clamped between the two protruding posts. By clamping the lower protruding portion between the two protruding posts, the mounting stability of the sealing member can be improved.

[0013] In one of the embodiments, the other end of the lower protruding portion has a lower end surface. The lower end surface is spaced apart from the lower surface; and the inlet port is located at the lower end surface. In this way, the inlet port can be closer to the mounting surface than the outlet port, so as to effectively prevent the floating leakage liquid due to the deviation from the straight dropping trajectory from entering the inlet port, to prevent leakage.

[0014] In one of the embodiments, in a direction in which the atomizing core is directed toward the bottom cover, a distance between the two protruding posts and a cross-sectional size of the lower protruding portion gradually decrease. The mounting efficiency and stability of the sealing member can be improved by the guiding of the wedge-shaped lower protruding portion.

[0015] In one of the embodiments, a housing assembly is further included. The sealing member and the atomizing core are located in the housing assembly. The vaping channel includes a second air channel disposed in the housing assembly and communicating with the first air channel. The aerosol of the atomizing core is discharged to the second air channel. The second air channel is formed with a nozzle on the housing assembly. The housing assembly can protect the atomizing core, and also facilitate the vaping of the user for the aerosol at the nozzle.

[0016] In one of the embodiments, the sealing member includes a silicone sealing member. The silicone sealing member has a certain flexibility, so that the sealing effect of the sealing member can be improved.

[0017] In one of the embodiments, in a direction in which the atomizing core is directed toward the bottom cover, a cross-sectional size of the upper protruding portion gradually increases or remains unchanged.

[0018] In one of the embodiments, the protruding post is provided with an inclined surface. The inclined surface is connected to the free end surface of the protruding post, and an obtuse angle is formed between the inclined surface and the free end surface of the protruding post.

[0019] An electronic atomizing device includes a power supply and the atomizer according to any one of the above. The atomizer is detachably connected to the power supply. When the liquid in the atomizer is completely

consumed, this atomizer can be replaced with a new one, to cooperate with the power supply, so that the power supply can be recycled.

[0020] For the leakage liquid formed by the liquid leaked from the atomizing core and the liquor condensate in the entire vaping channel, when the leakage liquid flows out from the inlet port of the vaping channel, since the orthographic projection of the inlet port on the bottom cover is completely outside the outline of the outlet port, the leakage liquid can be effectively prevented from entering the air intake channel via the inlet port through the outlet port, and finally, the leakage liquid can be prevented from flowing out of the entire atomizer via the air intake channel, so as to prevent the atomizer from leaking.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] In order to more clearly illustrate the technical solutions in the embodiments of the present application or in the conventional art, the drawings that are required in the description of the embodiments or the conventional art are briefly introduced below. Apparently, the drawings in the following description illustrates only some embodiments of the present application, for those of ordinary skill in the art, other drawings can also be obtained according to these drawings without any creative effort.

FIG. 1 is a perspective schematic view of an atomizer according to an embodiment.

FIG. 2 is a perspective cross-sectional schematic view of the atomizer shown in FIG. 1.

FIG. 3 is an enlarged schematic view of a portion A of FIG. 2.

FIG. 4 is a partial perspective schematic view of the atomizer shown in FIG. 1, where a housing assembly is removed.

FIG. 5 is an exploded schematic view of FIG. 4.

FIG. 6 is a perspective cross-sectional schematic view of FIG. 4.

FIG. 7 is a planar cross-sectional schematic view of FIG. 4.

FIG. 8 is a perspective cross-sectional schematic view of a bottom cover of the atomizer shown in FIG. 1.

FIG. 9 is a perspective cross-sectional schematic view of a sealing member of the atomizer shown in FIG. 1.

FIG. 10 is a perspective schematic view of an electronic atomizing device according to an embodiment.

FIG. 11 is an exploded schematic view of the electronic atomizing device of FIG. 10.

FIG. 12 is a schematic view showing a distance between an orthographic projection of an inlet port and an orthographic projection of an outlet port in the atomizer shown in FIG. 1, when being greater than zero.

FIG. 13 is a schematic view showing a distance between an orthographic projection of an inlet port and

an orthographic projection of an outlet port in the atomizer shown in FIG. 1, when being equal to zero.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0022] In order to facilitate the understanding of the present application, the present application will be described more comprehensively with reference to the relevant drawings. Preferred embodiments of the present application are shown in the drawings. However, the present application can be implemented in many different forms and is not limited to the embodiments described herein. On the contrary, the purpose of providing these embodiments is to make the disclosure of the present application more thorough and comprehensive.

[0023] It should be noted that when an element is referred to as being "fixed to" another element, it can be directly on another element or an intermediate element may also be present. When an element is considered to be "connected to" another element, it can be directly connected to another element or an intermediate element may be present at the same time. Terms "inner", "outer", "left", "right" and similar expressions used herein are for illustrative purposes only, and do not mean that they are the only embodiments.

[0024] Referring to FIGS. 1, 2, and 3, an atomizer 10 according to an embodiment of the present invention is configured for atomizing an aerosol-generating substrate such as a liquid to form an aerosol that can be vaped by a user. The atomizer 10 includes an atomizing core 100, a bottom cover 200, a sealing member 300, and a housing assembly 400. The bottom cover 200 is provided at an end of the housing assembly 400. Both the sealing member 300 and the atomizing core 100 are disposed inside the housing assembly 400. The atomizing core 100 is located above the bottom cover 200. The sealing member 300 is located between the bottom cover 200 and the atomizing core 100. The housing assembly 400 and the sealing member 300 are provided with a vaping channel 600. The vaping channel 600 includes an inlet port 611. When the atomizer 10 is operated, air first flows into the entire vaping channel 600 from the inlet port 611. The bottom cover 200 is provided with an air intake channel 500. The air intake channel 500 communicates with the vaping channel 600 and the outside. The air intake channel 500 includes an outlet port 510 corresponding to the inlet port 611. When the atomizer 10 is operated, the air in the air intake channel 500 finally flows out from the outlet port 510.

[0025] The vaping channel 600 includes a first air channel 610 and a second air channel 620. The first air channel 610 is disposed on the sealing member 300, and the second air channel 620 is provided on the housing assembly 400. The second air channel 620 extends through an outer surface of the housing assembly 400, thereby forming a nozzle 621 on the outer surface. The nozzle 621 is located at an end of the housing assembly 400 away from the bottom cover 200. The second air channel

620 communicates with the outside through the nozzle 621. The user can vape the aerosol generated by the atomizer 10 by touching the nozzle 621. A liquid storage cavity is further opened in the housing assembly 400, and is used for storing liquid.

[0026] In some embodiments, at least a part of the atomizing core 100 is located in the second air channel 620, and the liquid storage cavity can supply the liquid to the atomizing core 100. The atomizing core 100 includes a heating element and a liquid penetrating element. The heating element can be a metal wire, a resistance material, and the like. The liquid penetrating element can be a ceramic material, various fiber materials, cotton or non-woven materials, and the like. The atomizing core 100 can atomize the liquid supplied by the liquid storage cavity to form the aerosol. The aerosol can be vaped out by the user through the second air channel 620.

[0027] Referring to FIGS. 4, 6, and 8, in some embodiments, the bottom cover 200 is provided with an air guiding cavity 230. The air guiding cavity 230 is actually an open cavity. The bottom cover 200 has a mounting surface 210. The mounting surface 210 is disposed toward the atomizing core 100. Generally speaking, the mounting surface 210 is actually a bottom wall surface of the air guiding cavity 230. The bottom cover 200 further includes a protruding post 220. The protruding post 220 is accommodated in the air guiding cavity 230. The protruding post 220 is vertically disposed relative to the mounting surface 210. One end of the protruding post 220 (hereinafter collectively referred to as a lower end of the protruding post 220) is fixedly connected to the mounting surface 210, and the other end of the protruding post 220 (hereinafter collectively referred to as an upper end of the protruding post 220) protrudes from the mounting surface 210 by a certain height. The upper end of the protruding post 220 includes a free end surface 223. The free end surface 223 is spaced apart from the mounting surface 210 in a vertical direction of the protruding post 220, so that the free end surface 223 is located above the mounting surface 210. The air intake channel 500 is disposed in the protruding post 220. The lower end of the air intake channel 500 extends through an outer surface of the bottom cover 200 and directly communicates with the outside. The upper end of the air intake channel 500 extends through the free end surface 223, so that the above-mentioned outlet port 510 is formed on the free end surface 223. Obviously, the outlet port 510 of the air intake channel 500 is located above the mounting surface 210 and is higher than the mounting surface 210. After the outside air enters the air intake channel 500, the outside air will pass through the outlet port 510 and the air guiding cavity 230 in sequence, and then enter the inlet port 611 of the vaping channel 600.

[0028] A liquid storage groove 241 is formed on the bottom cover 200. The liquid storage groove 241 can be formed in various ways. For example, the bottom cover 200 may further include protruding strips 240. The pro-

truding strips 240 are connected to the mounting surface 210. The protruding strip 240 protrudes from the mounting surface 210 by a certain height. A protruding height of the protruding strip 240 relative to the mounting surface 210 is less than a protruding height of the protruding post 220 relative to the mounting surface 210. The liquid storage groove 241 is formed between two adjacent protruding strips 240. For another example, a part of the mounting surface 210 may be recessed downward by a certain depth to form the liquid storage groove 241. For another example, the liquid storage groove 241 can be formed by disposing the protruding strips 240 and recessing the mounting surface 210.

[0029] Referring to FIG. 7, two protruding posts 220 may be provided. The two protruding posts 220 may have approximately the same size. Each protruding post 220 is provided with an air intake channel 500 therein, and thus two air intake channels 500 are provided. The air intake channel 500 may be a circular hole. The two protruding posts 220 are respectively denoted as a first protruding post and a second protruding post. A first inclined surface 221 is disposed on the first protruding post. The first inclined surface 221 is connected to the free end surface 223 of the first protruding post, and thus an obtuse angle is formed between the first inclined surface 221 and the free end surface 223 of the first protruding post. Therefore, in a direction in which the atomizing core 100 is directed toward the bottom cover 200, that is, in a direction from top to bottom, a distance from the first inclined surface 221 to a central axis of the air intake channel 500 in the first protruding post gradually increases. Similarly, a second inclined surface 222 is disposed on the second protruding post. The second inclined surface 222 is connected with the free end surface 223 of the second protruding post, and thus an obtuse angle is formed between the second inclined surface 222 and the free end surface 223 of the second protruding post. In the direction from top to bottom, a distance from the second inclined surface 222 to a central axis of the air intake channel 500 in the second protruding post gradually increases. The first inclined surface 221 is spaced apart from the second inclined surface 222 in a horizontal direction. A distance between the first inclined surface 221 and the second inclined surface 222 is a distance between the first protruding post and the second protruding post. In the direction from top to bottom, the distance H between the first inclined surface 221 and the second inclined surface 222 gradually decreases, so the distance between the first protruding post and the second protruding post gradually decreases. According to actual needs, the number of the protruding posts 220 can be appropriately increased or decreased, for example, one, three, or four protruding posts 220 can be provided.

[0030] Referring to FIGS. 3 and 5, in some embodiments, the sealing member 300 includes a silicone sealing member, that is, the sealing member 300 is made of a silicone material, so that the sealing member 300 can have a certain flexibility. The sealing member 300 can

be sleeved on the bottom cover 200. The sealing member 300 is compressed between the bottom cover 200 and the housing assembly 400, so that the sealing member 300 can seal and cover the air guiding cavity 230.

[0031] Referring to FIGS. 7 and 9, the sealing member 300 has an upper surface 310 and a lower surface 320. The upper surface 310 and the lower surface 320 are facing oppositely. The upper surface 310 is disposed toward the atomizing core 100, and the lower surface 320 is disposed toward the bottom cover 200. The sealing member 300 includes an upper protruding portion 330 and a lower protruding portion 340. The upper protruding portion 330 is connected to the upper surface 310, and the upper protruding portion 330 protrudes upward from the upper surface 310 by a certain height. For example, a lower end of the upper protruding portion 330 is fixedly connected to the upper surface 310, and an upper end of the upper protruding portion 330 protrudes from the upper surface 310 by a certain height. The upper end of the upper protruding portion 330 has an upper end surface 331. The upper end surface 331 is also disposed toward the atomizing core 100, so that the upper end surface 331 is spaced apart from the upper surface 310 in the vertical direction, and the upper end surface 331 is located above the upper surface 310. In the direction from top to bottom, a cross-sectional size of the upper protruding portion 330 can gradually increase, so that the upper protruding portion 330 can be in a shape of truncated cone. Certainly, the cross-sectional size of the upper protruding portion 330 can remain unchanged to be in a cylindrical shape. A part of the first air channel 610 is located in the upper protruding portion 330. The first air channel 610 extends through the upper end surface 331 to form a guiding outlet 612. That is, the guiding outlet 612 is located on the upper end surface 331. The first air channel 610 communicates with the second air channel 620 through the guiding outlet 612. The air entering the first air channel 610 finally flows out from the guiding outlet 612, so that the air in the first air channel 610 flows into the second air channel 620 via the guiding outlet 612.

[0032] Sunken grooves 311 may be formed on the sealing member 300. The sunken groove 311 is used for storing liquid. The sunken groove 311 may be formed in various ways. For example, a part of the upper surface 310 may be recessed downward by a certain depth to form the sunken groove 311. For another example, the sealing member 300 may further include protrusions. The protrusions are connected to the upper surface 310, and protrude from the upper surface 310 by a certain height. The protruding height of the protrusions relative to the upper surface 310 is less than that of the upper protruding portion 330 relative to the upper surface 310. The sunken groove 311 is formed between two adjacent protrusions. For another example, the sunken groove 311 can be formed by disposing the protrusions and recessing the upper surface 310.

[0033] The lower protruding portion 340 is connected

with the lower surface 320. The lower protruding portion 340 protrudes downward relative to the lower surface 320 by a certain height. For example, an upper end of the lower protruding portion 340 is fixedly connected to the lower surface 320, a lower end of the lower protruding portion 340 protrudes from the lower surface 320 by a certain height. The lower end of the lower protruding portion 340 includes a lower end surface 341. The lower end surface 341 is disposed toward the bottom cover 200, so that the lower end surface 341 and the lower surface 320 are spaced apart from each other in the vertical direction, and the lower end surface 341 is located below the lower surface 320. In the direction from top to bottom, a cross-sectional size h of the lower protruding portion 340 may gradually decrease, so that the lower protruding portion 340 can be in a shape of truncated cone. Certainly, the cross-sectional size of the lower protruding portion 340 may remain unchanged to be in a cylindrical shape. The other part of the first air channel 610 is located in the lower protruding portion 340. The first air channel 610 extends through the lower end surface 341 to form the above-mentioned inlet port 611. The first air channel 610 communicates with the air guiding cavity 230 of the bottom cover 200 via the inlet port 611.

[0034] One upper protruding portion 330 and one lower protruding portion 340 may be provided. During mounting the sealing member 300 and the bottom cover 200, the lower protruding portion 340 is clamped in a gap between the two protruding posts 220, so that the lower protruding portion 340 abuts against the first inclined surface 221 and the second inclined surface 222. Therefore, the two protruding posts 220 play a good role in positioning when mounting the sealing member 300, and the mounting stability and reliability of the sealing member 300 are also improved. In addition, in the direction from top to bottom, the cross-sectional size of the lower protruding portion 340 gradually decreases, and the distance between the first inclined surface 221 and the second inclined surface 222 decreases. During the mounting process, the lower protruding portion 340 can be smoothly inserted in the gap between the first inclined surface 221 and the second inclined surface 222 to ensure that the two protruding posts 220 smoothly form a clamping effect on the lower protruding portion 340. After the sealing member 300 is mounted, the inlet port 611 is closer to the mounting surface 210 than the outlet port 510, in other words, the inlet port 611 is located below the outlet port 510. In addition, an orthographic projection of the inlet port 611 on the bottom cover 200 is located outside an outline of the outlet port 510, so that both the inlet port 611 and the outlet port 510 are completely misaligned in the horizontal direction. Certainly, referring to FIG. 12, a distance R between the orthographic projection 611a of the inlet port 611 on the bottom cover 200 and the orthographic projection 510a of the outlet port 510 on the bottom cover 200 is greater than zero. In this case, the orthographic projection 611a of the inlet port 611 and the orthographic projection 510a of the outlet port 510 are in a "separated"

state. Referring to FIG. 13, the distance R between the orthographic projection 611a of the inlet port 611 on the bottom cover 200 and the orthographic projection 510a of the outlet port 510 on the bottom cover 200 is equal to zero. In this case, the orthographic projection 611a of the inlet port 611 and the orthographic projection 510a of the outlet port 510 are in a "tangent" state. The above-mentioned "separated" and "tangent" states can also cause both the inlet port 611 and the outlet port 510 to be in a misaligned state in the horizontal direction. In other embodiments, both the inlet port 611 and the outlet port 510 may be located at the same height relative to the mounting surface 210, or the inlet port 611 may also be located above the outlet port 510.

[0035] Referring to FIGS. 3, 6, and 7, when the user vapes at the nozzle 621, the outside air first enters the air intake channel 500, and then passes through the outlet port 510, the air guiding cavity 230 and the inlet port 611 in sequence, and enters the first air channel 610, and then enters the second air channel 620 from the guiding outlet 612 to carry the aerosol out of the nozzle 621. Therefore, the flow trajectory of the air is roughly a "labyrinth" trajectory. For the leakage liquid formed by the liquid leaked from the atomizing core 100 and the liquor condensate in the entire vaping channel 600, when the leakage liquid flows out from the inlet port 611 of the first air channel 610, since the orthographic projection of the inlet port 611 on the bottom cover 200 is completely outside the outline of the outlet port 510, the leakage liquid can be effectively prevented from entering the air intake channel 500 via the inlet port 611 through the outlet port 510, and finally, the leakage liquid can be prevented from flowing out of the entire atomizer 10 via the air intake channel 500, so as to prevent the atomizer 10 from leaking. Certainly, when the orthographic projection 611a of the inlet port 611 and the orthographic projection 510a of the outlet port 510 are in the above-mentioned "separated" state or "tangent" state, the atomizer 10 can also be prevented from leaking.

[0036] Since the bottom cover 200 is formed with the liquid storage groove 241, the leakage liquid dropping from the inlet port 611 will be stored in the liquid storage groove 241. When the leakage liquid in the liquid storage groove 241 reaches saturation, the leakage liquid can overflow to the air guiding cavity 230, and thus, both the liquid storage groove 241 and the air guiding cavity 230 can store the leakage liquid. In addition, the free end surface 223 of the protruding post 220 is located above the mounting surface 210, so that the outlet port 510 on the free end surface 223 is higher than the mounting surface 210 by a certain distance, thereby preventing the liquid level of the leakage liquid in the liquid storage groove 241 and the air guiding cavity 230 from being flush with the free end surface 223, to prevent the leakage liquid from flowing out of the entire atomizer 10 by entering the air intake channel 500 through the outlet port 510, thereby preventing the atomizer 10 from leaking.

[0037] For the leakage liquid dropping from the inlet

port 611, in the case that the dropping trajectory of the leakage liquid is a straight line extending in the vertical direction, since the inlet port 611 and the outlet port 510 are completely misaligned, it is obvious that the leakage liquid will directly fall into the liquid storage groove 241. When the leakage liquid deviates from the straight dropping trajectory to drop floatingly, since the lower protruding portion 340 is clamped between the two protruding posts 220, and the inlet port 611 is located below the outlet port 510, the protruding posts 220 will block the leakage liquid, so that the leakage liquid that drops floatingly cannot enter the outlet port 510 and flows into the liquid storage groove 241 along the outer surface of the protruding post 220, which finally prevents the leakage liquid that drops floatingly from entering the intake channel 500 via the outlet port 510 and causing leakage.

[0038] Therefore, a part of the leakage liquid drops into the liquid storage groove 241 through the outlet port 510 from the first air channel 610, and the liquid storage groove 241 stores the part of the leakage liquid to prevent leakage. In addition, since the upper surface 310 of the sealing member 300 is recessed to form the sunken groove 311, another part of the leakage liquid will not be able to drop into the first air channel 610, and this part of the leakage liquid will drop directly into the sunken groove 311, so that the sunken groove 311 stores this part of the leakage liquid. In addition, the upper end surface 331 of the upper protruding portion 330 is located above the upper surface 310, so that the guiding outlet 612 on the upper end surface 331 is higher than the upper surface 310 by a certain distance, thereby preventing the liquid level of the leakage liquid in the sunken groove 311 from being flush with the upper end surface 331 to prevent the leakage liquid from dropping into the liquid storage groove 241 through the first air channel 610 via the guiding outlet 612. In this way, the leakage liquid stored in the liquid storage groove 241 and the air guiding cavity 230 will not be too much, so as to prevent the liquid level of the leakage liquid from being flush with the free end surface 223 due to excessive leakage liquid, and finally prevent the leakage occurring when the leakage liquid enters the air intake channel 500 from the outlet port 510. Therefore, a part of the leakage liquid is stored in the sunken groove 311 on the sealing member 300, and the liquid storage groove 241 will not store all the leakage liquid, thereby greatly reducing the storage burden of the liquid storage groove 241 for the leakage liquid, and further improving the anti-leakage capability of the atomizer 10.

[0039] Referring to FIGS. 10 and 11, the present invention further provides an electronic atomizing device 20. The electronic atomizing device 20 includes a power supply 30 and the above-mentioned atomizer 10. The atomizer 10 is detachably connected to the power supply 30. Since the atomizer 10 has a good anti-leakage capability, on the one hand, waste of liquid caused by leakage can be avoided, on the other hand, it is possible to prevent the leakage liquid from entering the inside of the

power supply 30 to erode the battery and electronic components, thereby improving the service life of the electronic atomizing device 20.

[0040] The technical features of the above described embodiments can be combined arbitrarily. To simplify the description, not all possible combinations of the technical features in the above embodiments are described. However, all of the combinations of these technical features should be considered as being fallen within the scope of the present application, as long as such combinations do not contradict with each other.

[0041] The foregoing embodiments merely illustrate some embodiments of the present application, and descriptions thereof are relatively specific and detailed. However, it should not be understood as a limitation to the patent scope of the present application. It should be noted that, for those skilled in the art, without departing from the concept of the present application, several modifications and improvements can be made, which all fall within the protection scope of the present application. The protection scope of the present application shall be subject to the appended claims.

Claims

1. An atomizer, comprising an atomizing core and a bottom cover,

wherein the atomizer is provided with a vaping channel; at least a part of the atomizing core is located in the vaping channel;

the atomizing core is configured to temporally store liquid, and atomize the liquid to form an aerosol that is dischargeable into the vaping channel;

the bottom cover is provided with an air intake channel; the air intake channel has an outlet port through which air flows out; the vaping channel has an inlet port through which the air flows in; outside air entering the air intake channel passes through the outlet port and the inlet port in sequence, and then enters the vaping channel to carry the aerosol; and

an orthographic projection of the inlet port on the bottom cover is located outside an outline of the outlet port.

2. The atomizer according to claim 1, wherein the bottom cover is further provided with an air guiding cavity; the bottom cover has a mounting surface defining a part of a boundary of the air guiding cavity and disposed toward the inlet port, the bottom cover further comprises a protruding post located in the air guiding cavity; and wherein one end of the protruding post is connected to the mounting surface, and the other end of the protruding post protrudes from the mounting surface and has a free end surface; the

free end surface is spaced apart from the mounting surface; the air intake channel is disposed in the protruding post; the outlet port is located at the free end surface; the outside air passes through the outlet port and the air guiding cavity in sequence, and then enters the inlet port.

3. The atomizer according to claim 2, wherein the bottom cover further comprises protruding strips; the protruding strips are connected to the mounting surface and protrude from the mounting surface; a liquid storage groove capable of storing the liquid is formed between the protruding strips. 5
4. The atomizer according to claim 2, wherein the mounting surface is recessed to form a liquid storage groove capable of storing the liquid. 10
5. The atomizer according to claim 2, wherein the inlet port is closer to the mounting surface than the outlet port. 15
6. The atomizer according to claim 2, further comprising a sealing member; wherein the sealing member seals the air guiding cavity; the vaping channel comprises a first air channel disposed on the sealing member; the inlet port is located at the first air channel; the sealing member has an upper surface disposed toward the atomizing core; and the upper surface is provided with a sunken groove capable of storing the liquid. 20
7. The atomizer according to claim 6, wherein the sealing member comprises an upper protruding portion; one end of the upper protruding portion is connected to the upper surface, the other end of the upper protruding portion protrudes from the upper surface and has an upper end surface; the upper end surface is spaced apart from the upper surface; a part of the first air channel is located in the upper protruding portion, and has a guiding outlet through which the air is output; and the guiding outlet is disposed on the upper end surface. 25
8. The atomizer according to claim 6, wherein the sealing member has a lower surface disposed toward bottom cover; the sealing member comprises a lower protruding portion; one end of the lower protruding portion is connected to the lower surface, and the other end of the lower protruding portion protrudes from the lower surface; a part of the first air channel is located in the lower protruding portion; two protruding posts are provided; and the lower protruding portion is clamped between the two protruding posts. 30
9. The atomizer according to claim 8, wherein the other end of the lower protruding portion has a lower end surface; the lower end surface is spaced apart from 35

the lower surface; and the inlet port is located at the lower end surface.

10. The atomizer according to claim 8, wherein in a direction in which the atomizing core is directed toward the bottom cover, a distance between the two protruding posts and a cross-sectional size of the lower protruding portion gradually decrease. 40
11. The atomizer according to claim 6, further comprising a housing assembly, wherein the sealing member and the atomizing core are located in the housing assembly; the vaping channel comprises a second air channel disposed in the housing assembly and communicating with the first air channel; the aerosol of the atomizing core is discharged to the second air channel; and the second air channel is formed with a nozzle on the housing assembly. 45
12. The atomizer according to claim 6, wherein the sealing member comprises a silicone sealing member. 50
13. The atomizer according to claim 7, wherein in a direction in which the atomizing core is directed toward the bottom cover, a cross-sectional size of the upper protruding portion gradually increases or remains unchanged. 55
14. The atomizer according to claim 2, wherein the protruding post is provided with an inclined surface; the inclined surface is connected to the free end surface of the protruding post, and an obtuse angle is formed between the inclined surface and the free end surface of the protruding post.
15. An electronic atomizing device, comprising:
 - a power supply; and
 - the atomizer according to claim 1, wherein the atomizer is detachably connected to the power supply.

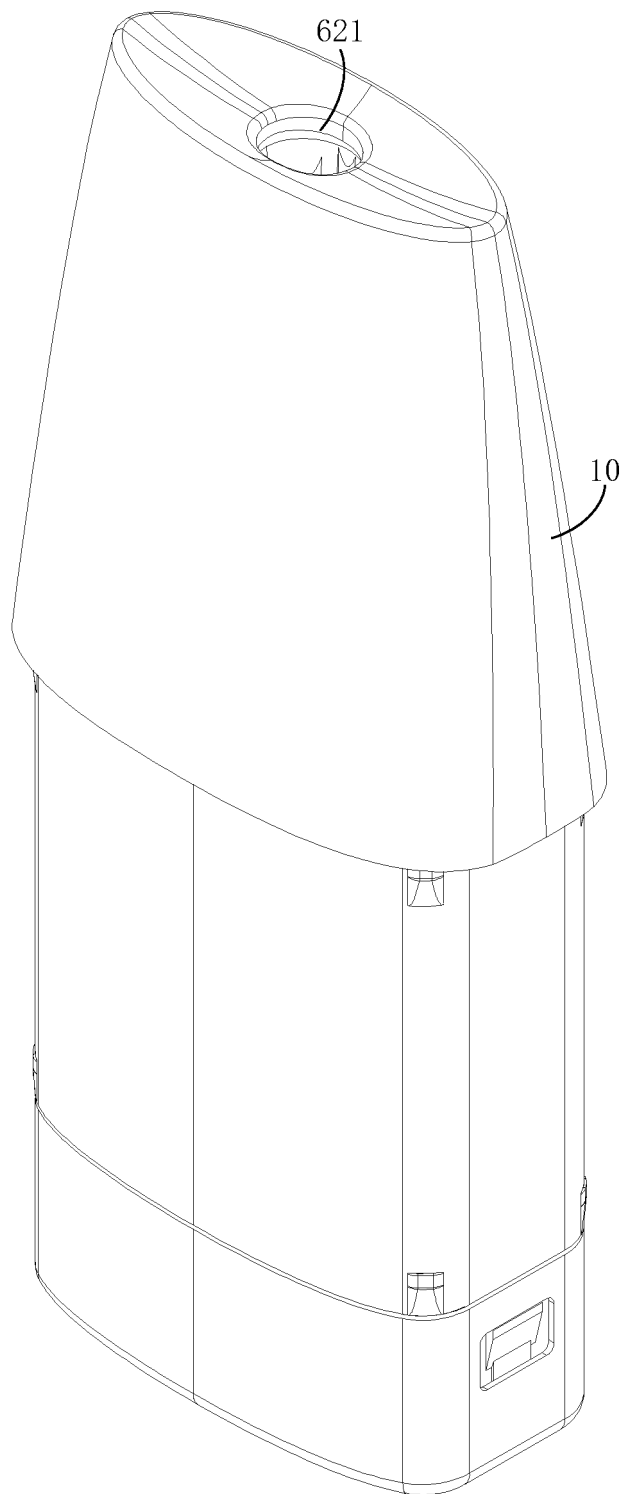


FIG. 1

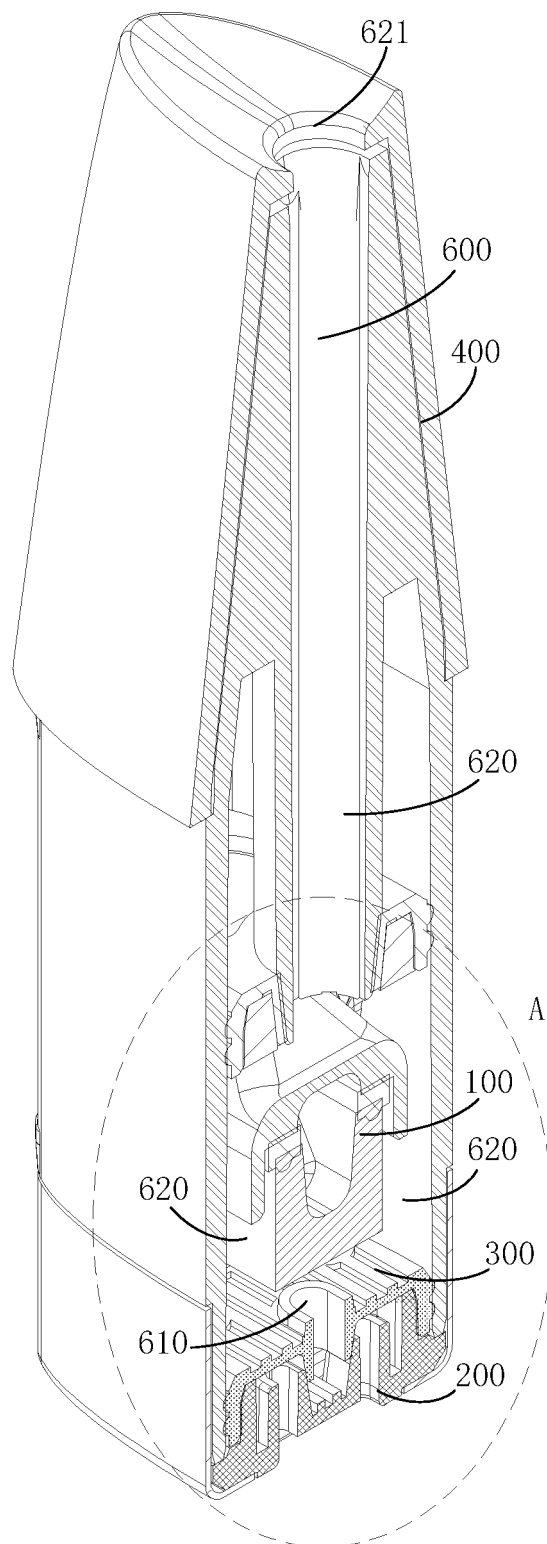


FIG. 2

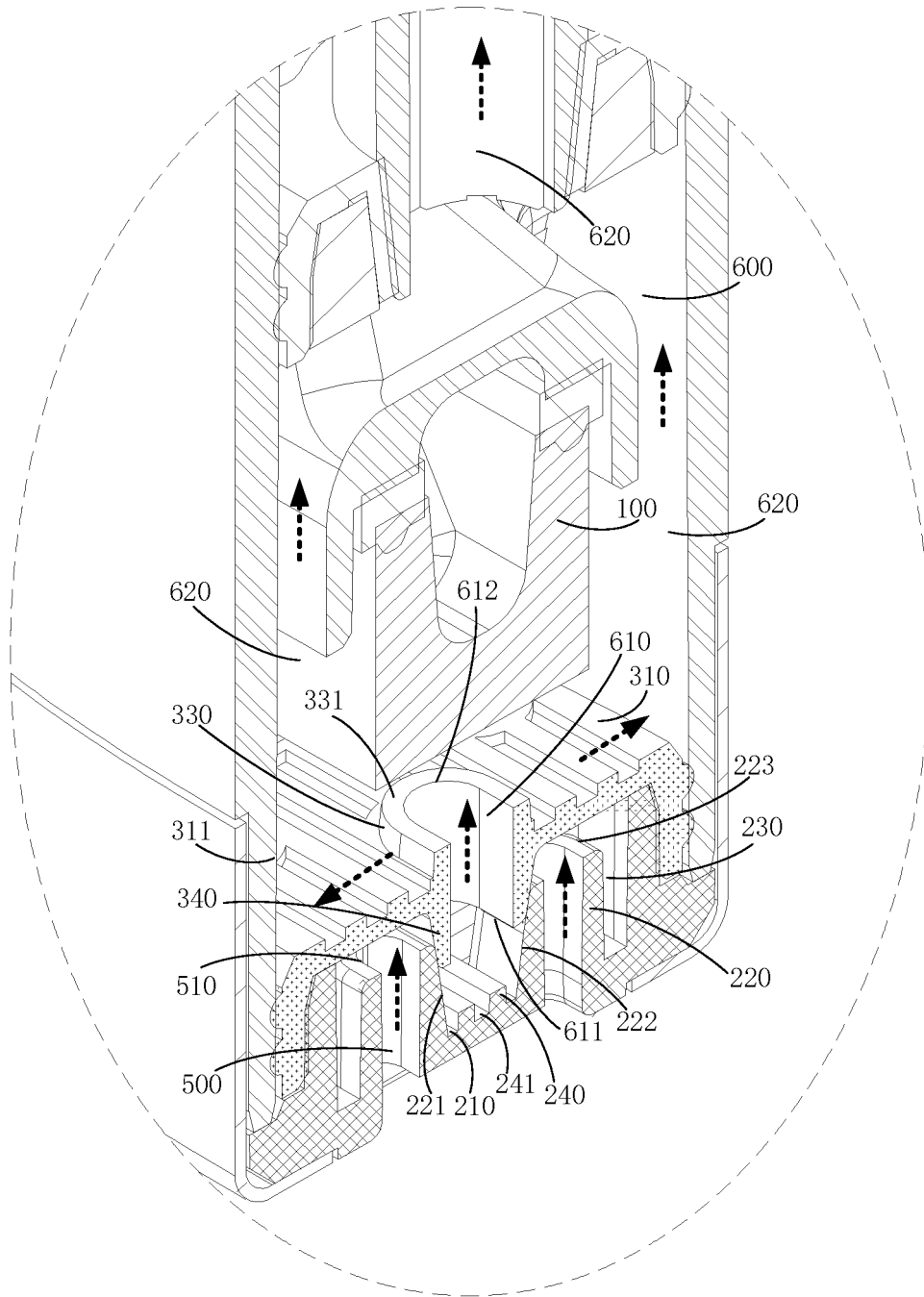


FIG. 3

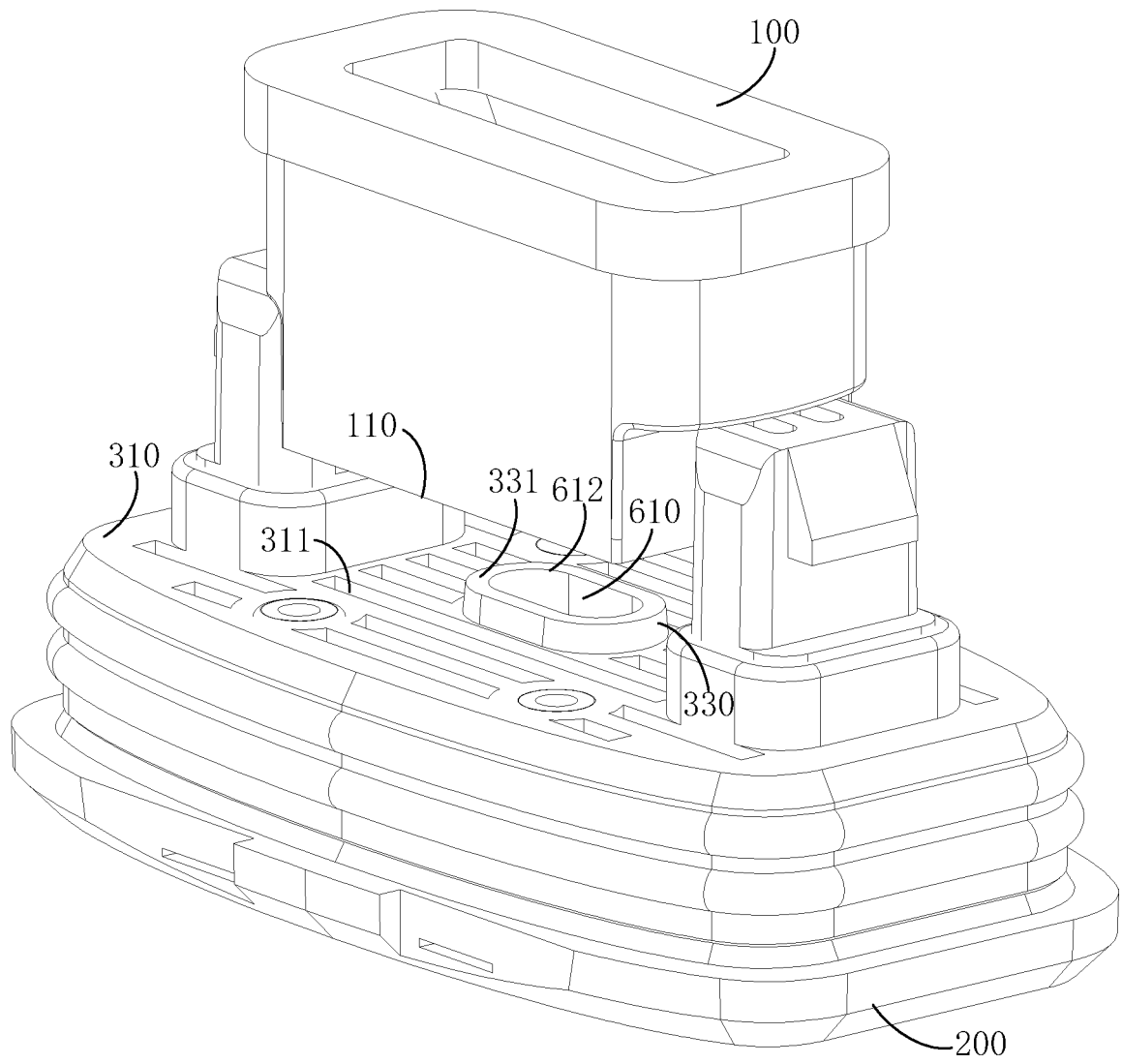


FIG. 4

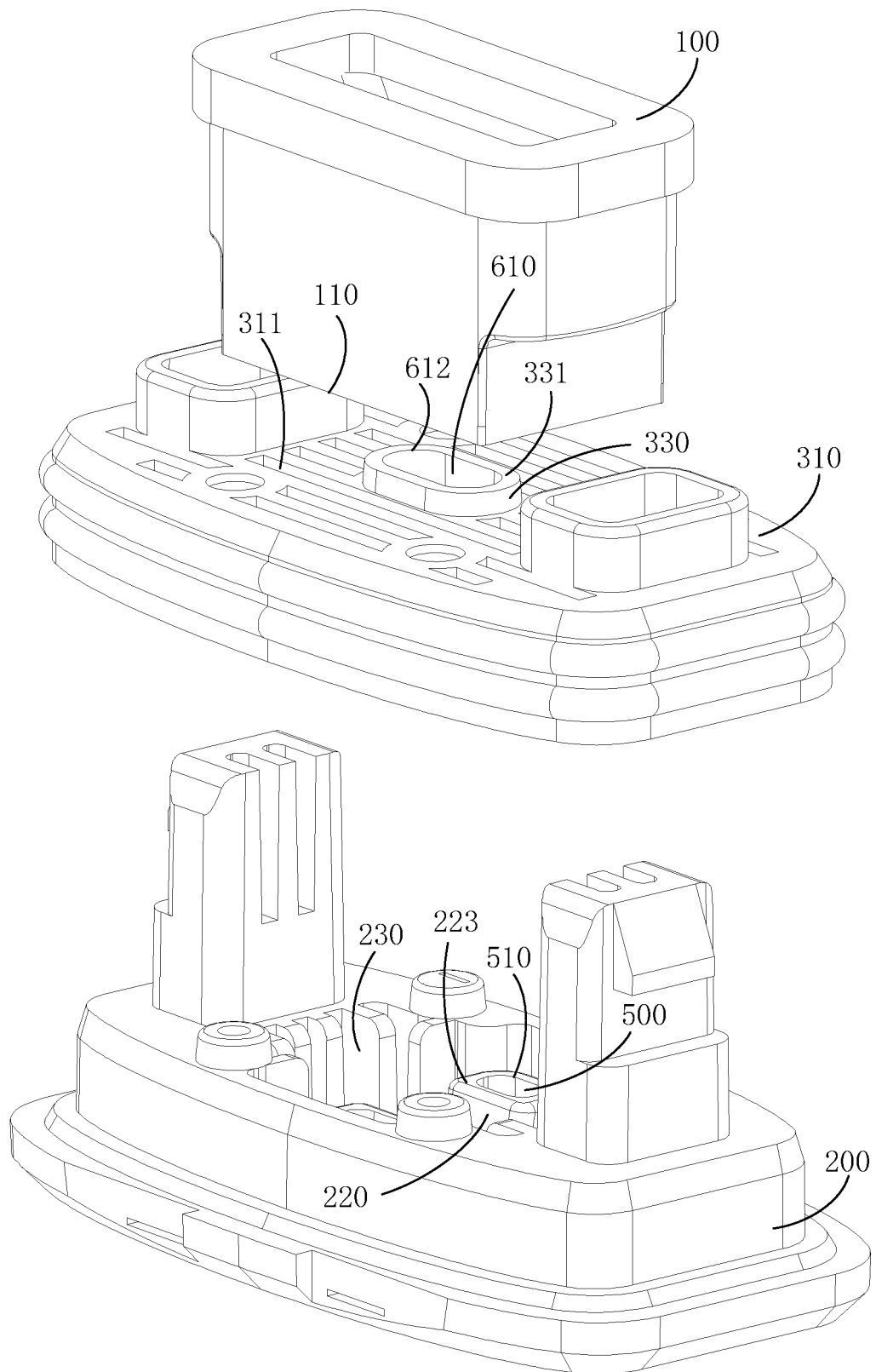


FIG. 5

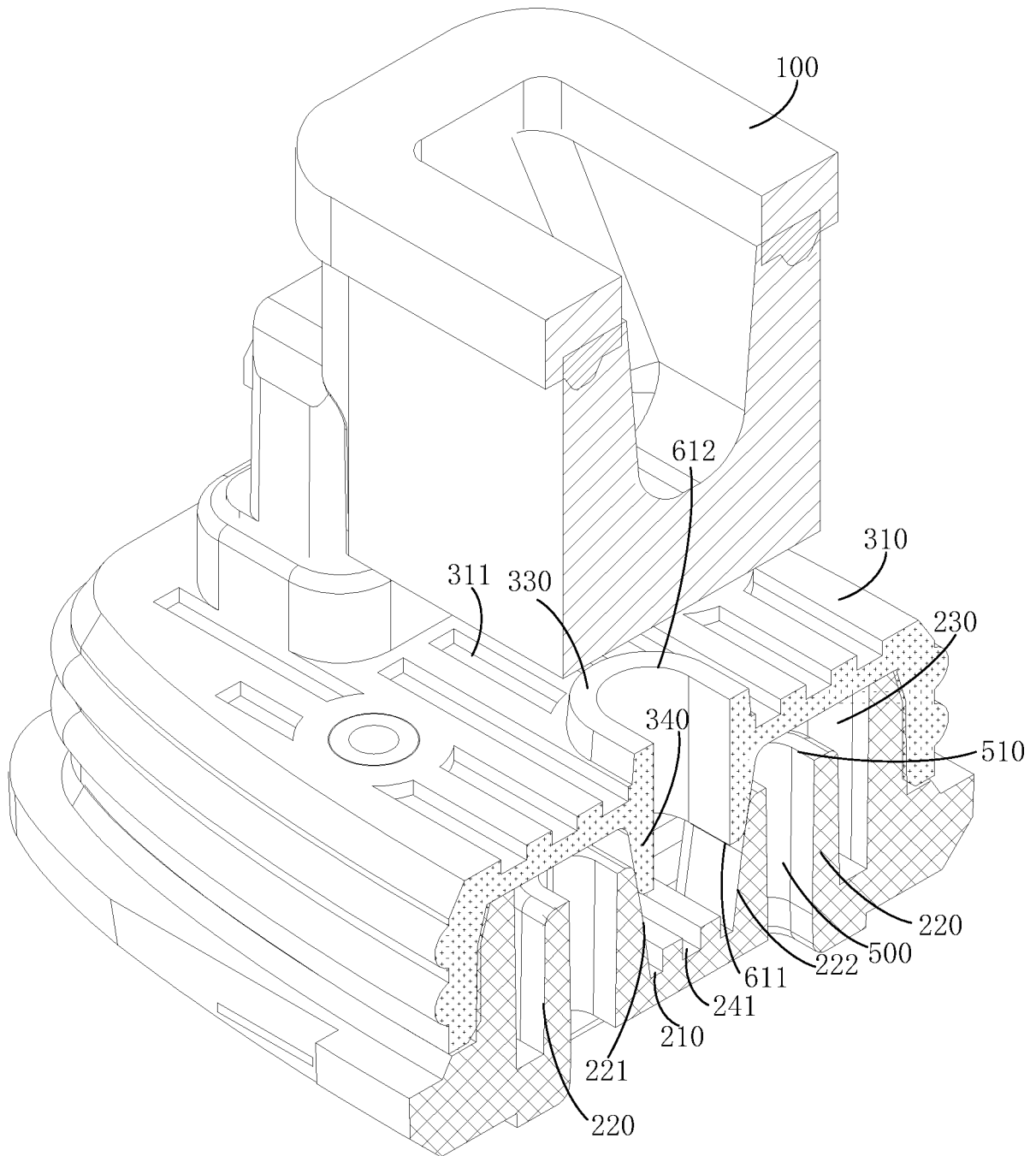


FIG. 6

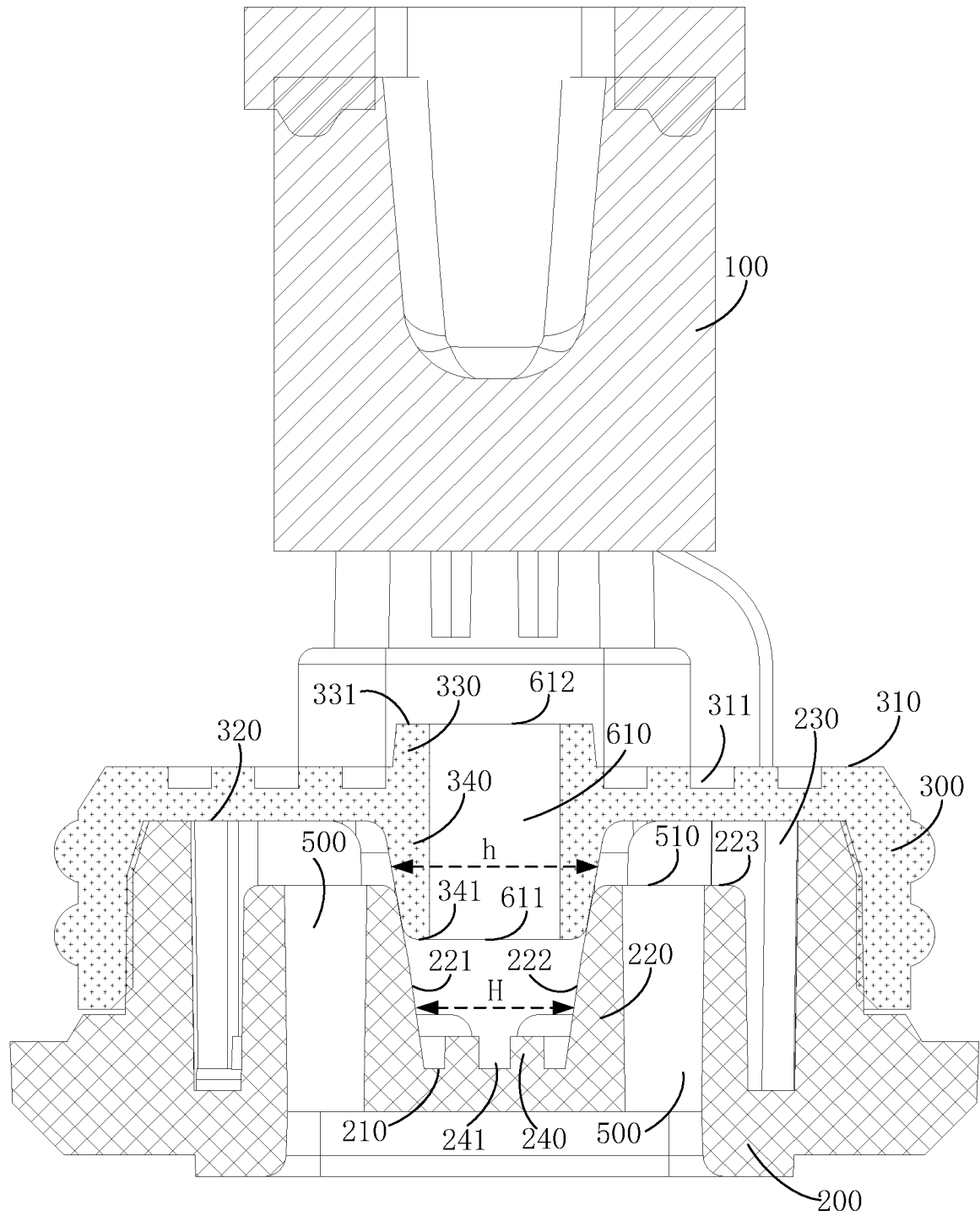


FIG. 7

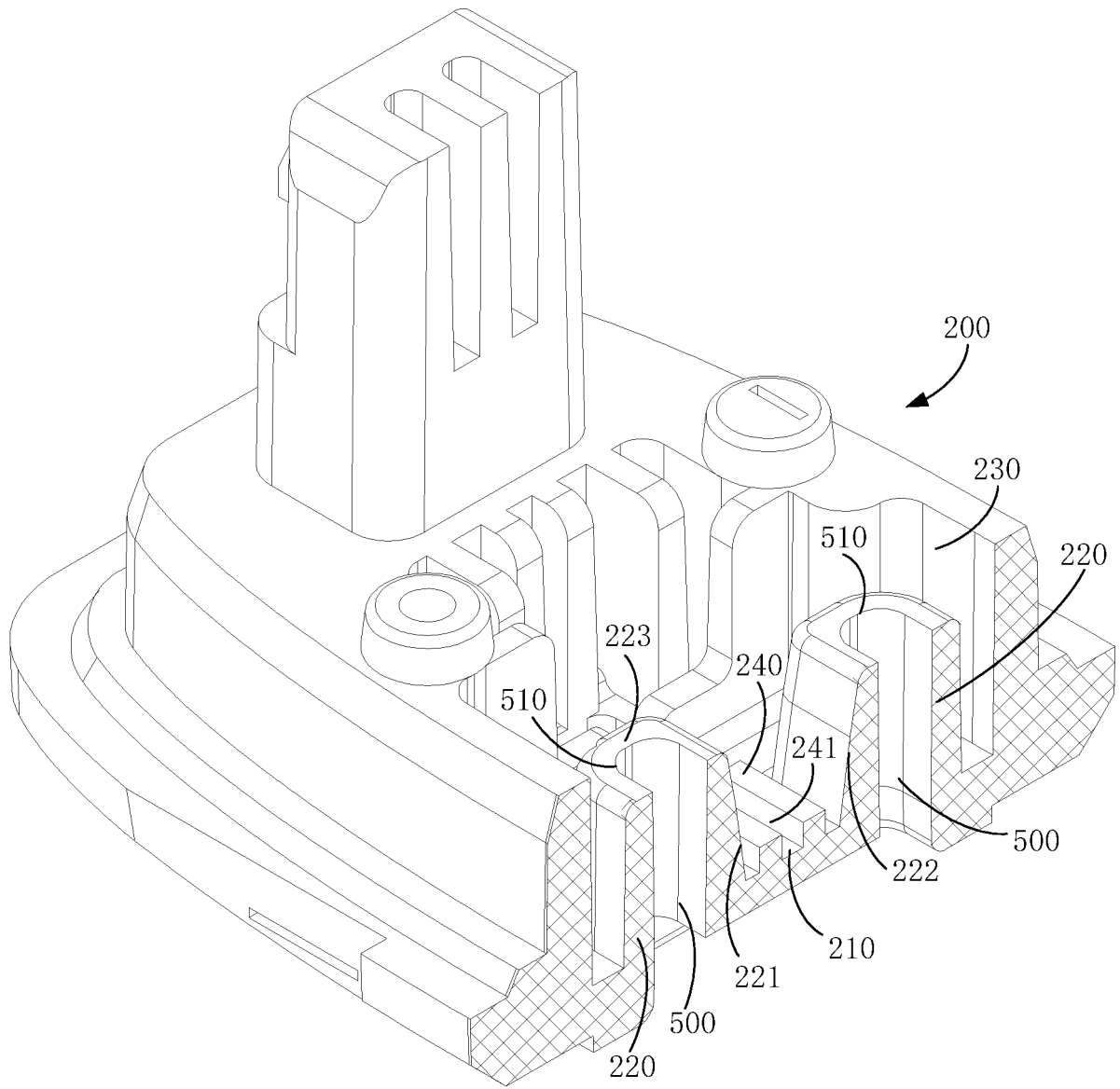


FIG. 8

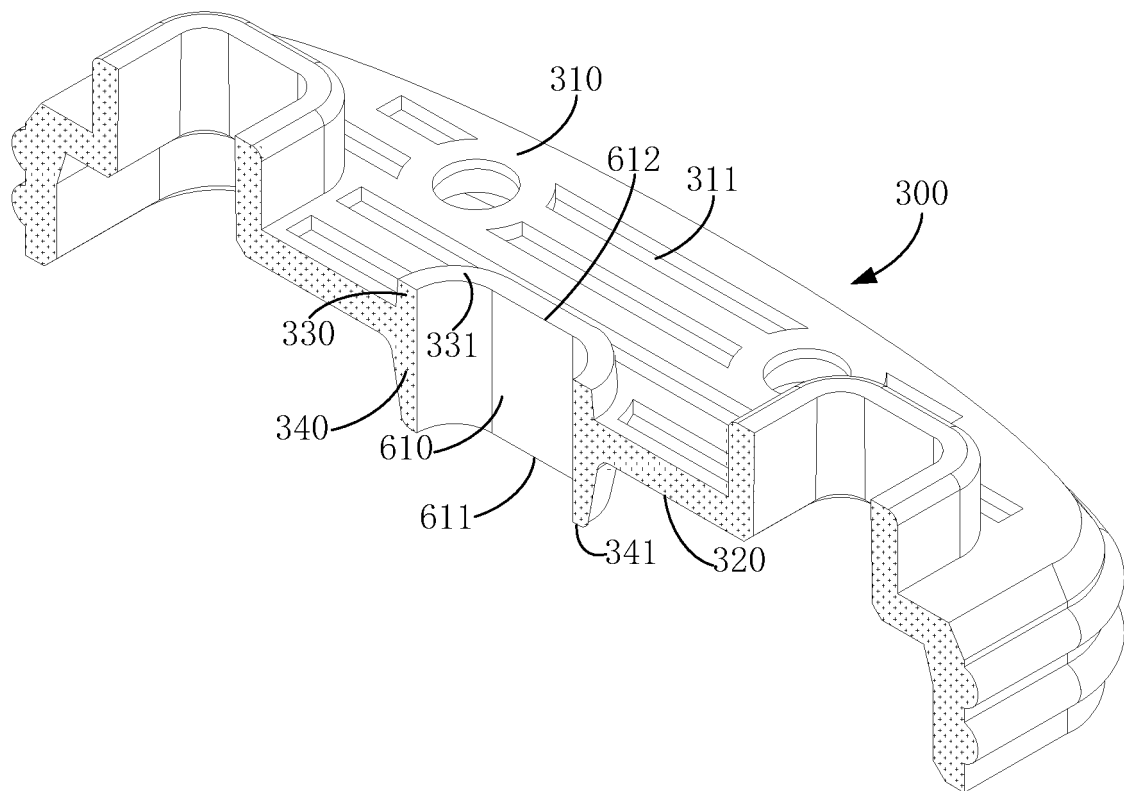


FIG. 9

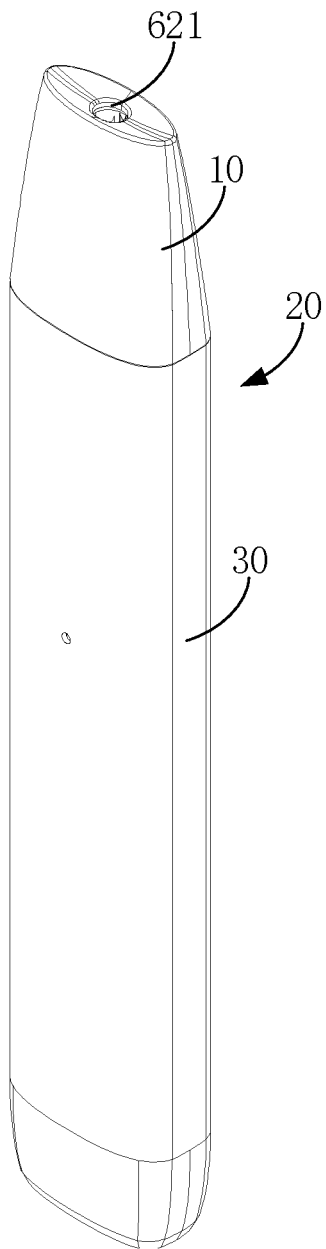


FIG. 10

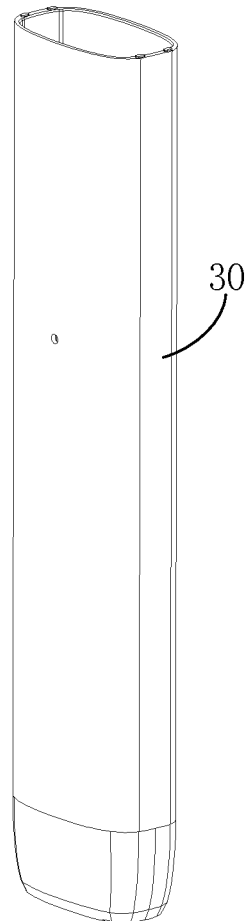
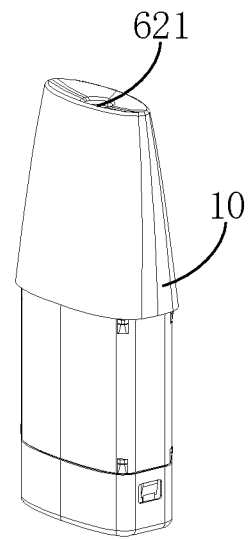


FIG. 11

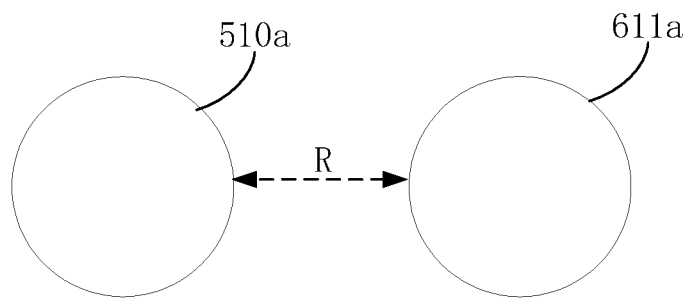


FIG. 12

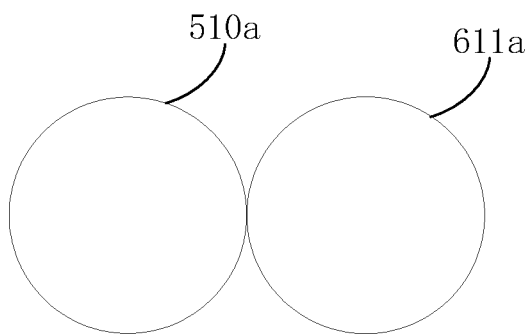


FIG. 13

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2021/118081

A. CLASSIFICATION OF SUBJECT MATTER A24F 40/10(2020.01)i; A24F 40/42(2020.01)i; A24F 40/40(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: 电子烟, 雾化, 底座, 底盖, 底板, 进气, 孔, 口, 凸, 柱, 漏, 油, 液, 槽, 密封, electronic, cigarette, atomiz+, base, bottom, cover, plate, intake, channel, air, gas, hole, port, protruding, leak, oil, liquid, groove, seal																					
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 112021659 A (SHENZHEN SMOORE TECHNOLOGY LIMITED) 04 December 2020 (2020-12-04) claims 1-12, description paragraphs [0033]-[0048], figures 1-13</td> <td>1-15</td> </tr> <tr> <td>X</td> <td>CN 210869884 U (CHANGZHOU PAITENG ELECTRONIC TECHNOLOGY SERVICE CO., LTD.) 30 June 2020 (2020-06-30) description paragraphs [0041]-[0044], [0049], [0053]-[0054], [0059]-[0071], figures 1-12</td> <td>1-2, 4-15</td> </tr> <tr> <td>Y</td> <td>CN 210869884 U (CHANGZHOU PAITENG ELECTRONIC TECHNOLOGY SERVICE CO., LTD.) 30 June 2020 (2020-06-30) description paragraphs [0041]-[0044], [0049], [0053]-[0054], [0059]-[0071], figures 1-12</td> <td>3</td> </tr> <tr> <td>Y</td> <td>CN 209234987 U (SHENZHEN SMOORE TECHNOLOGY LIMITED) 13 August 2019 (2019-08-13) description, paragraphs [0040]-[0043], and figures 1-11</td> <td>3</td> </tr> <tr> <td>A</td> <td>CN 210929624 U (SHENZHEN MEIZHONGLIAN TECHNOLOGY CO., LTD.) 07 July 2020 (2020-07-07) entire document</td> <td>1-15</td> </tr> <tr> <td>A</td> <td>US 2012152238 A1 (MEDINVENT, LLC) 21 June 2012 (2012-06-21) 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 112021659 A (SHENZHEN SMOORE TECHNOLOGY LIMITED) 04 December 2020 (2020-12-04) claims 1-12, description paragraphs [0033]-[0048], figures 1-13	1-15	X	CN 210869884 U (CHANGZHOU PAITENG ELECTRONIC TECHNOLOGY SERVICE CO., LTD.) 30 June 2020 (2020-06-30) description paragraphs [0041]-[0044], [0049], [0053]-[0054], [0059]-[0071], figures 1-12	1-2, 4-15	Y	CN 210869884 U (CHANGZHOU PAITENG ELECTRONIC TECHNOLOGY SERVICE CO., LTD.) 30 June 2020 (2020-06-30) description paragraphs [0041]-[0044], [0049], [0053]-[0054], [0059]-[0071], figures 1-12	3	Y	CN 209234987 U (SHENZHEN SMOORE TECHNOLOGY LIMITED) 13 August 2019 (2019-08-13) description, paragraphs [0040]-[0043], and figures 1-11	3	A	CN 210929624 U (SHENZHEN MEIZHONGLIAN TECHNOLOGY CO., LTD.) 07 July 2020 (2020-07-07) entire document	1-15	A	US 2012152238 A1 (MEDINVENT, LLC) 21 June 2012 (2012-06-21) entire document	1-15
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.																			
PX	CN 112021659 A (SHENZHEN SMOORE TECHNOLOGY LIMITED) 04 December 2020 (2020-12-04) claims 1-12, description paragraphs [0033]-[0048], figures 1-13	1-15																			
X	CN 210869884 U (CHANGZHOU PAITENG ELECTRONIC TECHNOLOGY SERVICE CO., LTD.) 30 June 2020 (2020-06-30) description paragraphs [0041]-[0044], [0049], [0053]-[0054], [0059]-[0071], figures 1-12	1-2, 4-15																			
Y	CN 210869884 U (CHANGZHOU PAITENG ELECTRONIC TECHNOLOGY SERVICE CO., LTD.) 30 June 2020 (2020-06-30) description paragraphs [0041]-[0044], [0049], [0053]-[0054], [0059]-[0071], figures 1-12	3																			
Y	CN 209234987 U (SHENZHEN SMOORE TECHNOLOGY LIMITED) 13 August 2019 (2019-08-13) description, paragraphs [0040]-[0043], and figures 1-11	3																			
A	CN 210929624 U (SHENZHEN MEIZHONGLIAN TECHNOLOGY CO., LTD.) 07 July 2020 (2020-07-07) entire document	1-15																			
A	US 2012152238 A1 (MEDINVENT, LLC) 21 June 2012 (2012-06-21) entire document	1-15																			
☒ 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 17 November 2021	Date of mailing of the international search report 01 December 2021																				
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/CN2021/118081

5

10

15

20

25

30

35

40

45

50

55

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 109875128 A (HUIZHOU XINHONGWEI TECHNOLOGY CO., LTD.) 14 June 2019 (2019-06-14) entire document	1-15
A	CN 106418728 A (CHANGZHOU PAITENG ELECTRONIC TECHNOLOGY SERVICE CO., LTD.) 22 February 2017 (2017-02-22) entire document	1-15

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/CN2021/118081

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
CN 112021659 A	04 December 2020	CN 212545548 U	19 February 2021
CN 210869884 U	30 June 2020	None	
CN 209234987 U	13 August 2019	None	
CN 210929624 U	07 July 2020	None	
US 2012152238 A1	21 June 2012	US 9440020 B2	13 September 2016
		WO 2013126650 A1	29 August 2013
CN 109875128 A	14 June 2019	WO 2020199950 A1	08 October 2020
		CN 209862317 U	31 December 2019
CN 106418728 A	22 February 2017	None	

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

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- CN 202010974502X [0001]