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(54) **ATOMIZER AND ELECTRONIC CIGARETTE COMPRISING THE SAME**
ZERSTÄUBER UND ELEKTRONISCHE ZIGARETTE DAMIT
ATOMISEUR ET CIGARETTE ÉLECTRONIQUE LE COMPRENANT

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Description

[0001] The disclosure relates to an atomizer and an electronic cigarette comprising the same.

[0002] An electronic cigarette is a device that heats an e-liquid to produce an aerosol; the electronic cigarette includes a cartomizer (cartridge atomizer), which is connected to a battery that powers a heating element to heat up the e-liquid. The e-liquid is atomized to create the aerosol, which is then released from an e-liquid tank and inhaled by a user.

[0003] A conventional electronic cigarette is pre-filled with an e-liquid from original manufacturers, and then is packaged and transported for sale elsewhere. Generally, the conventional electronic cigarette includes only one seal ring for sealing an e-liquid tank. No seals are arranged in the gaps between an atomizing core and an air pipe, resulting in e-liquid leakage due to bumpy roads and external shocks during transportation. Dust and humid air may get into the atomizing core and the air pipe when the electronic cigarette is not in use. As a result, the e-liquid deteriorates and ash or rust grows on the atomizing core, all of which are hazardous to human body while smoking. For example, the atomizer in US 2017/233114 A1 or US 2017/276342 A1 includes a seal member for sealing the liquid tank; the seal member includes an elastic material that is penetrable by a sharp object for liquid injection and the seal member is restorable to its original shape after the sharp object is removed. The atomizer in CN 210538920 U includes a sealing film for covering the oil storage cavity.

[0004] In addition, a conventional e-liquid filling method is time-consuming because it involves disassembly and reassembly of the atomizer.

[0005] To solve the aforesaid problems, the first objective of the invention is to provide an atomizer, as defined in claim 1.

[0006] The atomizer comprises an e-liquid tank and a seal member; the e-liquid tank comprises an e-liquid chamber and the seal member seals the e-liquid chamber; the seal member comprises at least one e-liquid inlet unit comprising an elastic material that is penetrable by a sharp object and is restorable to its original shape after the sharp object is removed.

[0007] In a class of this embodiment, the at least one e-liquid inlet unit is a film.

[0008] In a class of this embodiment, the elastic material comprises rubber, silica gel, latex or plastic.

[0009] In a class of this embodiment, the e-liquid inlet unit is opposite to the e-liquid chamber.

[0010] In a class of this embodiment, the e-liquid inlet unit of the seal member comprises a bottom wall comprising a groove for receiving the sharp object.

[0011] In a class of this embodiment, the e-liquid inlet unit has a thickness ranging from 1 mm to 3 mm.

[0012] In a class of this embodiment, the e-liquid inlet unit has a thickness ranging from 1.5 mm to 2.5 mm.

[0013] According to the invention, the atomizer further

comprises a heating core and a smoke pipe; the e-liquid tank comprises an opening functioning as a mouthpiece through which the vapor is inhaled; the smoke pipe is disposed in the e-liquid tank and comprises a first open end communicating with the mouthpiece.

[0014] According to the invention, the heating core is disposed in the smoke pipe and the smoke pipe comprises at least one e-liquid inlet; or the smoke pipe comprises a second open end away from the mouthpiece, and the heating core is disposed outside the second open end.

[0015] According to the invention, the seal member further comprises a top portion that is concaved to form a female connector; a residual area of the top portion slopes down to the female connector to form a sloped top surface; the female connector is opposite to the e-liquid chamber and is connected to the smoke pipe, so that the e-liquid inlet faces the sloped top surface.

[0016] In a class of this embodiment, the seal member further comprises a base and a boss; the boss protrudes from the base and comprises one end away from the base; the female connector and the sloped top surface are disposed on the one end of the boss; the base is inserted into the e-liquid chamber, so that an outer wall of the base abuts against the inner wall of the e-liquid tank.

[0017] In a class of this embodiment, the atomizer further comprises at least one partition; the at least one partition is disposed in and divides the e-liquid tank into a plurality of separate e-liquid chambers; each smoke pipe is disposed in a corresponding e-liquid chamber; the base comprises a plurality of bosses each corresponding to a separate e-liquid chamber; and each boss is inserted into the corresponding e-liquid chamber.

[0018] In a class of this embodiment, the seal member further comprises a first air inlet; each partition or smoke pipe comprises an air passage communicating with the first air inlet and the mouthpiece.

[0019] In a class of this embodiment, the air passage communicates with the first air inlet; or the seal member further comprises a second air inlet communicating with the air passage.

[0020] The second objective of the invention is to provide an electronic cigarette comprising the atomizer.

[0021] The following advantages are associated with the atomizer and the electronic cigarette of the disclosure: the atomizer comprises an e-liquid inlet unit made of an elastic material that allows the electronic cigarette to be filled with e-liquid after transport. The e-liquid is separated from the atomizing core and the air outlet, preventing e-liquid leakage during transportation and allowing users to fill the electronic cigarette with their preferred flavor of e-liquid. The e-liquid injection component reduces e-liquid waste while increasing sales.

BRIEF DESCRIPTION OF THE DRAWINGS

[0022]

FIG. 1 is a cross sectional view of an atomizer according to one example of the disclosure;
 FIG. 2 is a top view of a seal member according to one example of the disclosure;
 FIG. 3 is a perspective view of a seal member according to one example of the disclosure;
 FIG. 4 is a sectional view taken from line A-A in FIG. 3;
 FIG. 5 is a projection of an e-liquid chamber and an e-liquid inlet unit onto a bottom surface of a seal member according to one example of the disclosure;
 FIG. 6 is a perspective view of a seal member with two smoke pipes according to one example of the disclosure;
 FIG. 7 is a cross sectional view of a seal member according to one example of the disclosure;
 FIG. 8 shows other structures in FIG. 3;
 FIG. 9 shows other structures in FIG. 1;
 FIG. 10 is a cross sectional view of an atomizer comprising only one e-liquid chamber according to one example of the disclosure; and
 FIG. 11 is a cross sectional view of an atomizer comprising two e-liquid chambers according to one example of the disclosure.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0023] To further illustrate the disclosure, embodiments detailing an atomizer and an electronic cigarette comprising the same are described below. It should be noted that the following embodiments are intended to describe and not to limit the disclosure.

[0024] Before a conventional electronic cigarette leaves its factory, it is pre-filled with an e-liquid only from original manufacturers, and then is packaged and transported for sale elsewhere. The conventional electronic cigarette generally includes only one seal ring for sealing an e-liquid tank. No seals are arranged in the gaps between an atomizing core and an air pipe, resulting in e-liquid leakage due to road bumps and external shocks during transportation. Dust and humid air may get into the atomizing core and the air pipe while user is not using the conventional electronic cigarette. As a result, the e-liquid deteriorates and ash rusts the atomizing core, all of which are hazardous to human body during smoking.

[0025] As shown in FIGS. 1 and 2, an atomizer comprises an e-liquid tank 11 and a seal member 30; the e-liquid tank 11 comprises an e-liquid chamber 12; the seal member 30 is used to seal the e-liquid chamber 12; the seal member 30 comprises at least one e-liquid inlet unit comprising an elastic material that is penetrable and capable of restoring its original shape after deformation.

[0026] The elastic material comprises rubber, silica gel, latex or plastic. The term "elastic material" as used herein refers to a material capable of restoring its original shape after deformation when the external forces are removed. The at least one e-liquid inlet unit 31 comprises rubber, silica gel, latex, plastic, or sponge. Preferably, the

seal member 30 comprises rubber, silica gel or latex.

[0027] In certain examples, the at least one e-liquid inlet unit 31 is formed integrally with the seal member 30 and hence both comprise the same material, such as rubber, silica gel, latex, plastic, or sponge.

[0028] In certain examples, the at least one e-liquid inlet unit 31 is a film; preferably, the film is transparent so that users can observe whether the e-liquid is injected into the atomizer.

[0029] In certain examples, the seal member 30 has a thickness h_1 ranging from 5 mm to 20 mm, such as 5 mm, 7 mm, 9 mm, 11 mm, 13 mm, 15 mm, 17 mm, 19 mm, and 20 mm. In an alternative preferred embodiment of the disclosure, the seal member 30 has a thickness ranging from 7.0 mm to 15 mm, such as 7 mm, 9 mm, 11 mm, 13 mm, and 15 mm.

[0030] FIG. 3 is a perspective view of the seal member 30, and FIG. 4 is a sectional view taken from line A-A in FIG. 3. In certain examples, the e-liquid is injected through the at least one e-liquid inlet unit 31 without leaking out of the seal member; when the at least one e-liquid inlet unit 31 is too thick, it is unable to be pierced by a needle; when the at least one e-liquid inlet unit 31 is too thin, it is unable to go back to its original shape, causing e-liquid leakage. The e-liquid inlet unit 31 has a thickness h_2 ranging from 1 mm to 3 mm, such as 1.0 mm, 1.5 mm, 2.0 mm, 2.5 mm, and 3.0 mm.

[0031] In an alternative preferred embodiment of the disclosure, the e-liquid inlet unit 31 has a thickness h_2 ranging from 1.5 mm to 2.5 mm, such as 1.5 mm, 1.7 mm, 1.9 mm, 2.1 mm, 2.3 mm, and 2.5 mm.

[0032] As shown in FIG. 7, in certain examples, the seal member 30 comprises a groove 32 for locating an injection site; the groove 32 comprises a bottom surface functioning as the e-liquid inlet unit 31; the groove 32 is in the shape of a blind hole and has a depth ranging from 6.0 mm - 7.0 mm, such as 3.0 mm, 6.5 mm, and 7.0 mm. The groove 32 facilitates aligning a needle with the e-liquid inlet unit, preventing e-liquid leakage.

[0033] As shown in FIG. 5, in certain examples, the atomizer further comprises at least one smoke pipe 322, and e-liquid inlet unit is opposite to the e-liquid chamber. A first projection H1 of the e-liquid inlet unit 31 in the direction of a longitudinal axis Y falls in a second projection H2 of the e-liquid chamber 12 in the direction of the longitudinal axis Y. The e-liquid chamber 12 is formed by the inner wall of the e-liquid chamber 11, the outer wall of at least one smoke pipe 322, and the top portion of the seal member 3, and is projected onto the bottom surface of the seal member to form a third projection H3. When the e-liquid is injected directly into the at least one smoke pipe, it may leak out of the e-liquid chamber.

[0034] In an alternative preferred embodiment of the disclosure, as shown in FIGS. 2 and 6, the seal member further comprises a top portion that is concaved to form at least one female connector 3220; a residual area of the top portion slopes down to the at least one female connector to form at least one sloped top surface; the at least

one female connector is opposite to the e-liquid chamber and is connected to the smoke pipe **322**, so that the at least one e-liquid inlet faces the sloped top surface.

[0035] The sloped top surface comprises a bottom edge opposite to the at least one e-liquid inlet **321**, so that the e-liquid collects at the bottom edge and flows through the at least one e-liquid inlet **321**, thereby improving the utilization of the e-liquid.

[0036] In an alternative preferred embodiment of the disclosure, the atomizer further comprises a heating core **320** disposed in the at least one smoke pipe **322** and used to heat the e-liquid; and the at least one smoke pipe **322** comprises at least one e-liquid inlet **321**.

[0037] In an alternative preferred embodiment of the disclosure, the atomizer further comprises a heating core **320** disposed on one end of the at least one smoke pipe **322** that is away from a mouthpiece.

[0038] In an alternative preferred embodiment of the disclosure, the heating core **320** further comprises a heating element **326** and an e-liquid guide member **325**. The heating element **326** is used to heat the e-liquid. The e-liquid in the e-liquid chamber **12** flows through the at least one e-liquid inlet **321** and the e-liquid guide chamber **325** successively, and is heated by the heating element **326**. The heating element **326** is heated by electricity or electromagnetic induction. The heating element **326** is wrapped in or around the e-liquid guide member **325**. The heating element **326** is in the shape of a wire, a mesh, a sheet, a needle, a rod, or a cup. The heating element **326** comprises metal or a carbonaceous material. The e-liquid guide chamber **325** comprises cotton, an e-liquid absorption material, a porous ceramic, or mica.

[0039] In an alternative preferred embodiment of the disclosure, the heating element **326** is disposed in or on the e-liquid guide chamber **325**.

[0040] In certain examples, the cross section of the e-liquid inlet unit **31** is a geometric shape such as circle, square and trapezoid, preferably, circle. The circular cross section is easy to create, has a larger area than other shapes with the same perimeter, and provides better utilization of space than others.

[0041] In an alternative preferred embodiment of the disclosure, the e-liquid inlet unit **31** has a circular cross section and a diameter φ ranging from 1.0 mm to 2.0 mm, such as 1.0 mm, 1.2 mm, 1.4 mm, 1.6 mm, 1.8 mm, and 2.0 mm.

[0042] Understandably, the term "thickness h_2 " as used herein refers to an average thickness of the e-liquid inlet unit **31**.

[0043] As shown in FIG. 8, in an alternative preferred embodiment of the disclosure, the seal member **30** comprises a base and a boss **33** disposed on the base; the boss **33** abuts against the inner wall of the e-liquid tank **11**; at least one seal ring **331** is disposed between the boss **33** and the e-liquid tank **11** to improve the sealing effect of the seal member **30**.

[0044] In an alternative preferred embodiment of the

disclosure, the boss **33** is detachably connected to the e-liquid tank **11**, which allows for an easy disassembly of the atomizer.

[0045] In an alternative preferred embodiment of the disclosure, as shown in FIG. 8, the boss **33** protrudes from the base **332** and comprises one end away from the base; the at least one female connector and the at least one sloped top surface are disposed on the one end of the boss; the base is inserted into the e-liquid chamber, so that an outer wall of the base abuts against the inner wall of the e-liquid tank. The seal member **30** is an elastic member for sealing the e-liquid chamber.

[0046] In an alternative preferred embodiment of the disclosure, a seal ring **331** is disposed between the boss **33** and the e-liquid tank **11** to improve the sealing effect of the seal member **30**.

[0047] In an alternative preferred embodiment of the disclosure, the boss **33** comprises a side wall comprising an elastic fastener for easy assembly and disassembly of the atomizer.

[0048] In an alternative preferred embodiment of the disclosure, as shown in FIG. 11, the seal member **30** further comprises a first air inlet **324**; the atomizer comprises at least one partition **327**; the at least one partition is disposed in the e-liquid tank to create the plurality of separate e-liquid chambers; each smoke pipe is disposed in a corresponding e-liquid chamber; each partition or smoke pipe comprises an air passage for communicating with the first air inlet and the mouthpiece. A microphone head is triggered in the mouthpiece whether the smoking pipe is blocked.

[0049] In an alternative preferred embodiment of the disclosure, the first air inlet **324** communicates with the air passage; optionally, the seal member further comprises a second air inlet **328** communicating with the air passage.

[0050] The second air inlet **328** allows more air to flow smoothly into the atomizer, facilitating the flow of the e-liquid.

[0051] To further illustrate the disclosure, embodiments detailing the atomizer and the electronic cigarette are described below.

[0052] As shown in FIG. 9, an atomizer comprises an e-liquid tank **11** and a seal member **30**; the e-liquid tank **11** comprises an e-liquid chamber **12**; the seal member **30** is used to seal the e-liquid chamber **12**; the e-liquid tank **11** comprises an opening functioning as a mouthpiece **323**; the atomizer further comprises at least one smoke pipe **322** disposed in the e-liquid tank; the at least one smoke pipe comprises a first open end communicating with the mouthpiece **323**; the at least one smoke pipe **322** comprises at least one e-liquid inlet **321**; the seal member **30** is disposed between the at least one smoke pipe **322** and the e-liquid tank **11** to seal the e-liquid chamber **12**; the seal member **30** comprises at least one e-liquid inlet unit **31**.

[0053] The atomizer further comprises a heating core **320**.

[0054] The heating core **320** is disposed in the at least

one smoke pipe **322** and the at least one e-liquid inlet **321** is disposed on the at least one smoke pipe **322**; or the at least one smoke pipe comprises a second open end away from the mouthpiece, and the heating core is disposed outside the second open end. The heating core comprises a hollow ceramic core and a helix heating wire disposed in the hollow ceramic core; the hollow ceramic core functions as an e-liquid guide member **325**; and the helix heating wire functions as a heating element **326**. In use, by using a needle, the e-liquid is injected through the e-liquid inlet unit **31** into the e-liquid chamber **12**, flows through the at least one e-liquid inlet **321** and the e-liquid guide member **325** successively, and is heated by the heating element **326**; the e-liquid evaporates to a vapor state and inhaled through the mouthpiece **323** by the user.

[0055] In an alternative preferred embodiment of the disclosure, the atomizer comprises one or more e-liquid chambers **12**, and are described below.

[0056] In certain examples, the e-liquid tank comprises a plurality of separate e-liquid chambers; the atomizer further comprises at least one partition; the at least one partition is disposed in the e-liquid tank to create the plurality of separate e-liquid chambers; each smoke pipe is disposed in a corresponding e-liquid chamber; the base comprises a plurality of bosses each corresponding to a separate e-liquid chamber; and each boss is inserted into the corresponding e-liquid chamber.

Example 1

[0057] As shown in FIG. **10**, the atomizer comprises an e-liquid tank **11** and a seal member **30**; only one e-liquid chamber **12** is formed in the e-liquid tank **11**; the seal member **30** comprises an e-liquid inlet unit **31** opposite to the e-liquid chamber **12**; the e-liquid chamber **12** is formed by the e-liquid tank **11** and a smoke pipe **322**; the e-liquid inlet unit **31** is disposed on a projection of the e-liquid chamber onto a bottom part of the seal member.

Example 2

[0058] A second example of the atomizer is illustrated and similar to Example **1**, except for the following specific differences: a partition **327** is disposed in the e-liquid tank **11** to create two separate e-liquid chambers **12** that is parallel to the at least one smoke pipe; one or two types of e-liquid are injected into the two separate e-liquid chambers to meet consumer taste.

[0059] Understandably, the number of the e-liquid chamber increases with increases in the partition **327** (not shown in figures), and hence is not described in greater detail herein.

[0060] The atomizer is used in an electronic cigarette.

[0061] An electronic cigarette comprises a cigarette rod and the atomizer of the disclosure.

[0062] The following advantages are associated with the atomizer and the electronic cigarette of the disclo-

sure: the atomizer comprises an e-liquid inlet unit made of an elastic material that allows the electronic cigarette to be filled with e-liquid after transport. The e-liquid is separated from the atomizing core and the air outlet, preventing e-liquid leakage during transportation and allowing users to fill the electronic cigarette with their preferred flavor of e-liquid. The e-liquid injection component reduces e-liquid waste while increasing sale.

Claims

1. An atomizer, comprising: an e-liquid tank (11) and a seal member (30); wherein:

the e-liquid tank (11) comprises an e-liquid chamber (12) and the seal member (30) seals the e-liquid chamber (12);

the seal member (30) comprises at least one e-liquid inlet unit (31) comprising an elastic material that is penetrable by a sharp object and is restorable to its original shape after the sharp object is removed;

the atomizer further comprises a heating core (320) and a smoke pipe (322);

the e-liquid tank (11) comprises an opening functioning as a mouthpiece (323) through which the vapor is inhaled; the smoke pipe (322) is disposed in the e-liquid tank (11) and comprises a first open end communicating with the mouthpiece (323);

the heating core (320) is disposed in the smoke pipe (322) and the smoke pipe (322) comprises at least one e-liquid inlet (321); or the smoke pipe (322) comprises a second open end away from the mouthpiece (323), and the heating core (320) is disposed outside the second open end;

characterised in that:

the seal member (30) further comprises a top portion that is concaved to form a female connector (3220); a residual area of the top portion slopes down to the female connector (3220) to form a sloped top surface; the female connector (3220) is opposite to the e-liquid chamber (12) and is connected to the smoke pipe (322), so that the e-liquid inlet (321) faces the sloped top surface.

2. The atomizer of claim 1, wherein the at least one e-liquid inlet unit (31) is a film.
3. The atomizer of claim 1, wherein the elastic material comprises rubber, silica gel, latex, or plastic.
4. The atomizer of claim 3, wherein the e-liquid inlet unit (321) is communicated with the e-liquid chamber (12).

5. The atomizer of claim 1, wherein the e-liquid inlet unit (321) of the seal member (30) comprises a bottom wall comprising a groove (32) for receiving the sharp object. 5
6. The atomizer of claim 2, wherein the e-liquid inlet unit (321) has a thickness ranging from 1 mm to 3 mm. 10
7. The atomizer of claim 6, wherein the e-liquid inlet unit (321) has a thickness ranging from 1.5 mm to 2.5 mm. 15
8. The atomizer of claim 1, wherein the seal member (30) further comprises a 20
 - base and a boss (33); the boss (33) protrudes from the base and comprises one end away from the base; the female connector (3220) and the sloped top surface are disposed on the one end of the boss (33); the base is inserted into the e-liquid chamber (12); so that an outer wall of the base abuts against the inner wall of the e-liquid tank (11). 25
9. The atomizer of claim 8, wherein the atomizer further comprises at least one partition (327); the at least one partition (327) is disposed in and divides the e-liquid tank (11) into a plurality of separate e-liquid chambers (12); each smoke pipe (322) is disposed in a corresponding e-liquid chamber (12); the base comprises a plurality of bosses (33) each corresponding to a separate e-liquid chamber (12); and each boss (33) is inserted into the corresponding e-liquid chamber (12). 30
10. The atomizer of claim 9, wherein the seal member (30) further comprises a first air inlet (324); each partition (327) or smoke pipe (322) comprises an air passage communicating with the first air inlet (324) and the mouthpiece (323). 35
11. The atomizer of claim 10, wherein the air passage communicates with the first air inlet (324); or the seal member (30) further comprises a second air inlet (328) communicating with the air passage. 40
12. An electronic cigarette, comprising the atomizer of any one of claims 1-13. 45

Patentansprüche

1. Zerstäuber, umfassend: einen E-Liquid-Tank (11) und ein Dichtungselement (30); wobei: 50
 - der E-Liquid-Tank (11) eine E-Liquid-Kammer (12) umfasst und das Dichtungselement (30)

die E-Liquid-Kammer (12) abdichtet; das Dichtungselement (30) mindestens eine E-Liquid-Einlasseinheit (31) umfasst, die ein elastisches Material umfasst, das von einem spitzen Gegenstand durchdringbar ist und nach dem Entfernen des spitzen Gegenstands in seine ursprüngliche Form wiederherstellbar ist; der Zerstäuber ferner einen Heizkern (320) und eine Rauchröhre (322) umfasst; der E-Liquid-Tank (11) eine Öffnung umfasst, die als ein Mundstück (323) fungiert, durch das der Dampf inhaliert wird; die Rauchröhre (322) im E-Liquid-Tank (11) angeordnet ist und ein erstes offenes Ende umfasst, das mit dem Mundstück (323) in Verbindung steht; der Heizkern (320) in der Rauchröhre (322) angeordnet ist und die Rauchröhre (322) mindestens einen E-Liquid-Einlass (321) umfasst; oder die Rauchröhre (322) ein zweites offenes Ende abseits des Mundstücks (323) umfasst und der Heizkern (320) außerhalb des zweiten offenen Endes angeordnet ist;

dadurch gekennzeichnet, dass:

das Dichtungselement (30) ferner einen oberen Abschnitt umfasst, der konkav ist, um eine Steckerbuchse (3220) zu bilden; sich ein Restbereich des oberen Abschnitts nach unten zur Steckerbuchse (3220) neigt, um eine geneigte obere Oberfläche zu bilden; die Steckerbuchse (3220) der E-Liquid-Kammer (12) gegenüberliegt und mit der Rauchröhre (322) verbunden ist, sodass der E-Liquid-Einlass (321) der geneigten oberen Oberfläche zugewandt ist.

2. Zerstäuber nach Anspruch 1, wobei die mindestens eine E-Liquid-Einlasseinheit (31) eine Folie ist.
3. Zerstäuber nach Anspruch 1, wobei das elastische Material Gummi, Kieselgel, Latex oder Kunststoff umfasst.
4. Zerstäuber nach Anspruch 3, wobei die E-Liquid-Einlasseinheit (321) mit der E-Liquid-Kammer (12) in Verbindung steht.
5. Zerstäuber nach Anspruch 1, wobei die E-Liquid-Einlasseinheit (321) des Dichtungselements (30) eine Bodenwand umfasst, die eine Nut (32) zum Aufnehmen des scharfen Gegenstands umfasst.
6. Zerstäuber nach Anspruch 2, wobei die E-Liquid-Einlasseinheit (321) eine Dicke im Bereich von 1 mm bis 3 mm aufweist.
7. Zerstäuber nach Anspruch 6, wobei die E-Liquid-Einlasseinheit (321) eine Dicke im Bereich von 1,5 mm bis 2,5 mm aufweist.

8. Zerstäuber nach Anspruch 1, wobei das Dichtungselement (30) ferner eine Basis und einen Vorsprung (33) umfasst; der Vorsprung (33) von der Basis hervorsteht und ein Ende abseits der Basis umfasst; die Steckerbuchse (3220) und die geneigte obere Oberfläche an dem einen Ende des Vorsprungs (33) angeordnet sind; die Basis in die E-Liquid-Kammer (12) eingesetzt ist; sodass eine Außenwand der Basis an der Innenwand des E-Liquid-Tanks (11) anliegt.
9. Zerstäuber nach Anspruch 8, wobei der Zerstäuber ferner mindestens eine Trennwand (327) umfasst; die mindestens eine Trennwand (327) im E-Liquid-Tank (11) angeordnet ist und diesen in eine Vielzahl von separaten E-Liquid-Kammern (12) unterteilt; jede Rauchröhre (322) in einer entsprechenden E-Liquid-Kammer (12) angeordnet ist; die Basis eine Vielzahl von Vorsprüngen (33) umfasst, die jeweils einer separaten E-Liquid-Kammer (12) entsprechen; und jeder Vorsprung (33) in die entsprechende E-Liquid-Kammer (12) eingesetzt ist.
10. Zerstäuber nach Anspruch 9, wobei das Dichtungselement (30) ferner einen ersten Lufteinlass (324) umfasst; jede Trennwand (327) oder Rauchröhre (322) einen Luftdurchgang umfasst, der mit dem ersten Lufteinlass (324) und dem Mundstück (323) in Verbindung steht.
11. Zerstäuber nach Anspruch 10, wobei der Luftdurchgang mit dem ersten Lufteinlass (324) in Verbindung steht; oder das Dichtungselement (30) ferner einen zweiten Lufteinlass (328) umfasst, der mit dem Luftdurchgang in Verbindung steht.
12. Elektronische Zigarette, umfassend den Zerstäuber nach einem der Ansprüche 1-13.

Revendications

1. Atomiseur, comprenant : un réservoir de e-liquide (11) et un élément d'étanchéité (30) ; dans lequel :

le réservoir de e-liquide (11) comprend une chambre de e-liquide (12) et l'élément d'étanchéité (30) assure l'étanchéité de la chambre de e-liquide (12) ;

l'élément d'étanchéité (30) comprend au moins une unité d'entrée de e-liquide (31) comprenant un matériau élastique qui peut être pénétré par un objet pointu et qui peut reprendre sa forme d'origine après le retrait de l'objet pointu ;

l'atomiseur comprend en outre un noyau chauffant (320) et un tuyau de fumée (322) ; le réservoir de e-liquide (11) comprend une ouverture fonctionnant comme un embout buccal (323) à

travers lequel la vapeur est inhalée ; le tuyau de fumée (322) est disposé dans le réservoir de e-liquide (11) et comprend une première extrémité ouverte communiquant avec l'embout buccal (323) ;

le noyau chauffant (320) est disposé dans le tuyau de fumée (322) et le tuyau de fumée (322) comprend au moins une entrée de e-liquide (321) ; ou le tuyau de fumée (322) comprend une seconde extrémité ouverte éloignée de l'embout buccal (323), et le noyau chauffant (320) est disposé à l'extérieur de la seconde extrémité ouverte ;

caractérisé en ce que :

l'élément d'étanchéité (30) comprend en outre une partie supérieure qui est concave pour former un élément de liaison femelle (3220) ; une zone résiduelle de la partie supérieure descend de manière inclinée vers l'élément de liaison femelle (3220) pour former une surface supérieure inclinée ; l'élément de liaison femelle (3220) est opposé à la chambre de e-liquide (12) et est relié au tuyau de fumée (322), afin que l'entrée de e-liquide (321) soit face à la surface supérieure inclinée.

2. Atomiseur de la revendication 1, dans lequel l'au moins une unité d'entrée de e-liquide (31) est un film.
3. Atomiseur de la revendication 1, dans lequel le matériau élastique comprend du caoutchouc, du gel de silice, du latex ou du plastique.
4. Atomiseur de la revendication 3, dans lequel l'unité d'entrée de e-liquide (321) est en communication avec la chambre de e-liquide (12).
5. Atomiseur de la revendication 1, dans lequel l'unité d'entrée de e-liquide (321) de l'élément d'étanchéité (30) comprend une paroi inférieure comprenant une rainure (32) pour recevoir l'objet pointu.
6. Atomiseur de la revendication 2, dans lequel l'unité d'entrée de e-liquide (321) comporte une épaisseur allant de 1 mm à 3 mm.
7. Atomiseur de la revendication 6, dans lequel l'unité d'entrée de e-liquide (321) comporte une épaisseur allant de 1,5 mm à 2,5 mm.
8. Atomiseur de la revendication 1, dans lequel l'élément d'étanchéité (30) comprend en outre une base et un bossage (33) ; le bossage (33) fait saillie à partir de la base et comprend une extrémité éloignée de la base ; l'élément de liaison femelle (3220) et la surface supérieure inclinée sont disposés sur l'une extrémité du bossage (33) ; la base est insérée dans la chambre de e-liquide (12) ; afin qu'une paroi exté-

rieure de la base vienne en butée contre la paroi intérieure du réservoir de e-liquide (11).

9. Atomiseur de la revendication 8, dans lequel l'atomiseur comprend en outre au moins une cloison (327) ; l'au moins une cloison (327) est disposée dans le réservoir de e-liquide (11) et divise celui-ci en une pluralité de chambres de e-liquide séparées (12) ; chaque tuyau de fumée (322) est disposé dans une chambre de e-liquide correspondante (12) ; la base comprend une pluralité de bossages (33) correspondant chacun à une chambre de e-liquide séparée (12) ; et chaque bossage (33) est inséré dans la chambre de e-liquide correspondante (12). 5 10 15
10. Atomiseur de la revendication 9, dans lequel l'élément d'étanchéité (30) comprend en outre une première entrée d'air (324) ; chaque cloison (327) ou tuyau de fumée (322) comprend un passage d'air communiquant avec la première entrée d'air (324) et l'embout buccal (323). 20
11. Atomiseur de la revendication 10, dans lequel le passage d'air communique avec la première entrée d'air (324) ; ou l'élément d'étanchéité (30) comprend en outre une seconde entrée d'air (328) communiquant avec le passage d'air. 25
12. Cigarette électronique, comprenant l'atomiseur de l'une quelconque des revendications 1 à 13. 30

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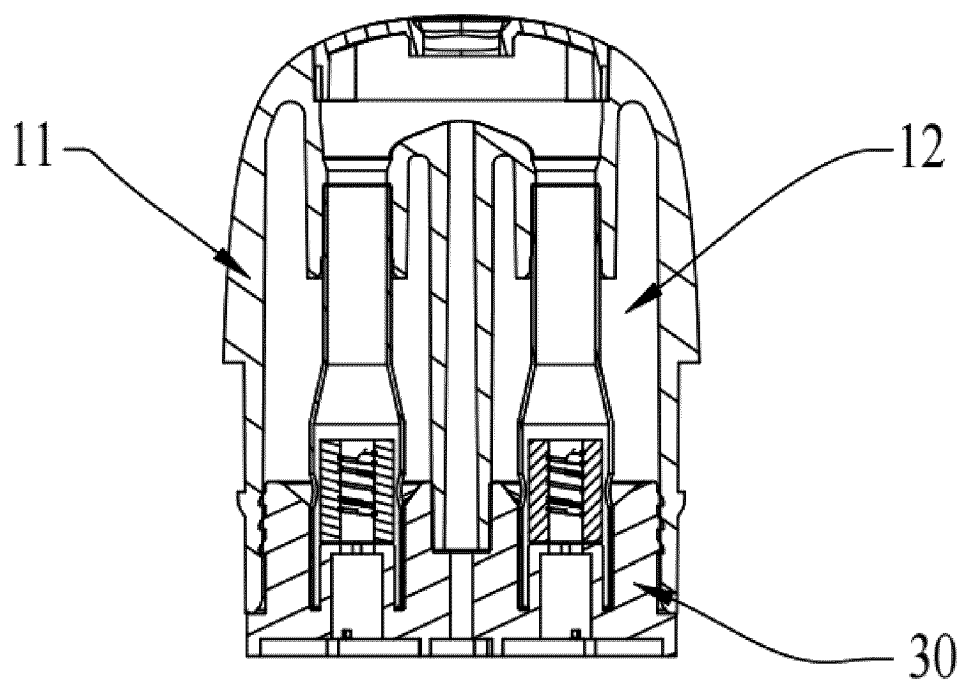


FIG. 1

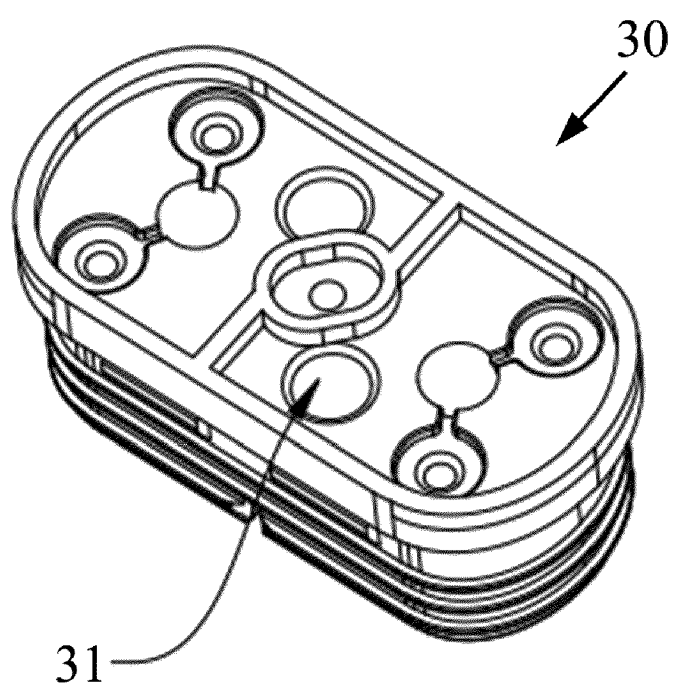


FIG. 2

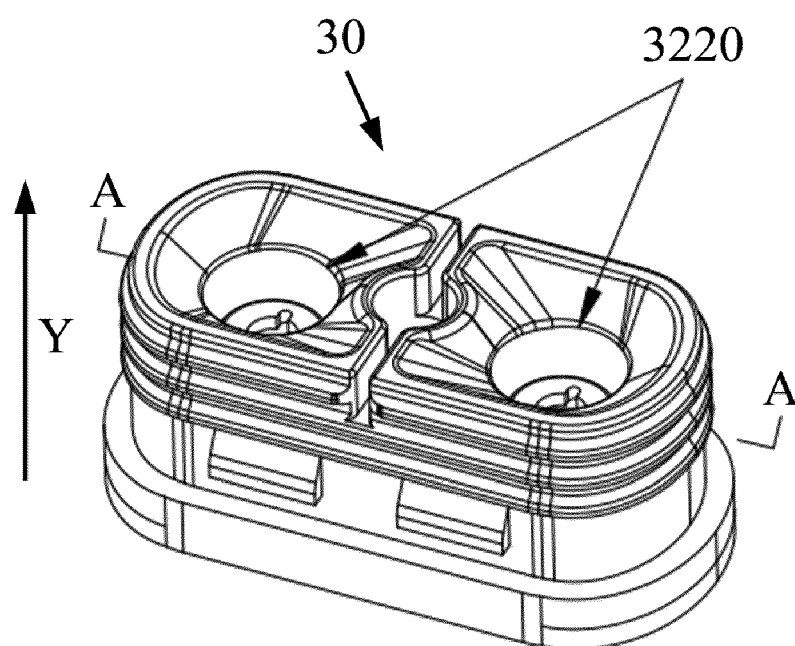


FIG. 3

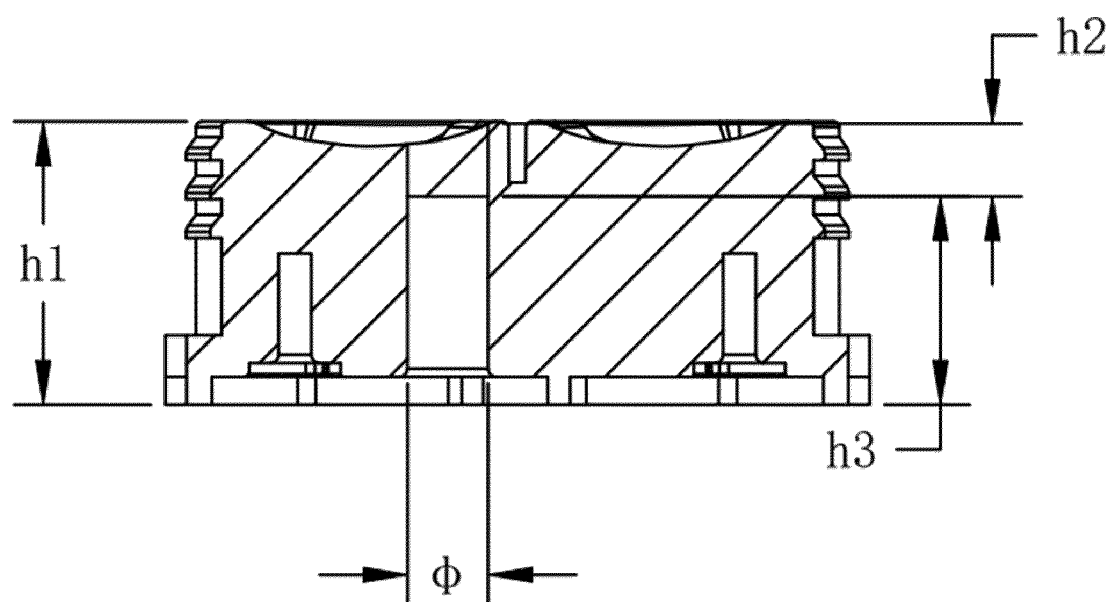


FIG. 4

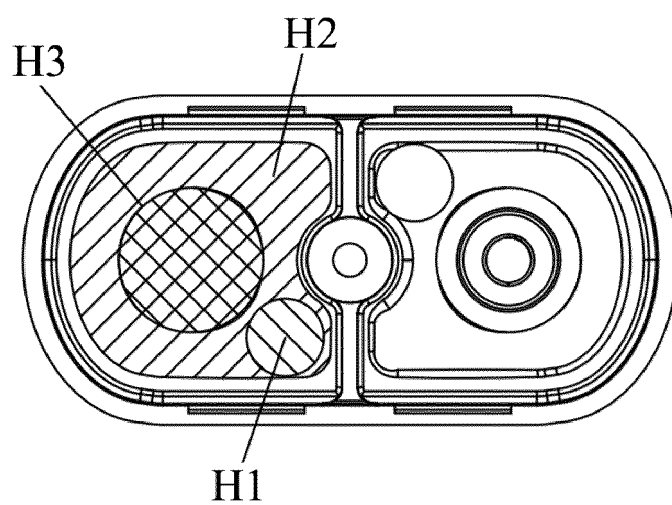


FIG. 5

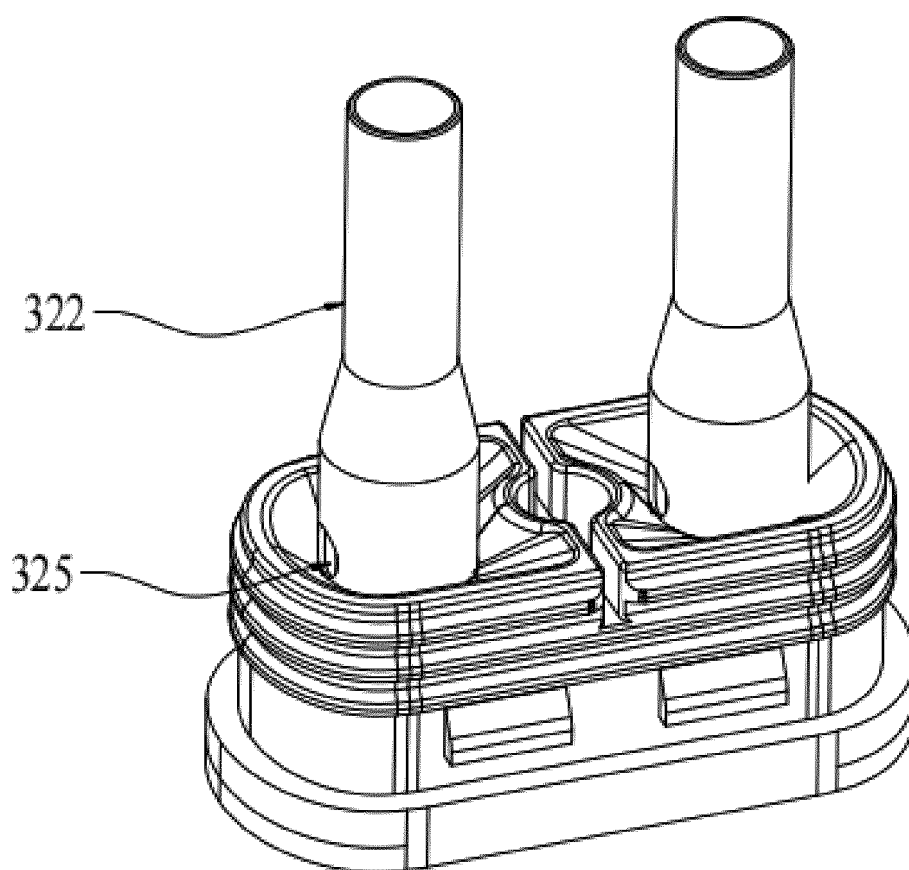


FIG. 6

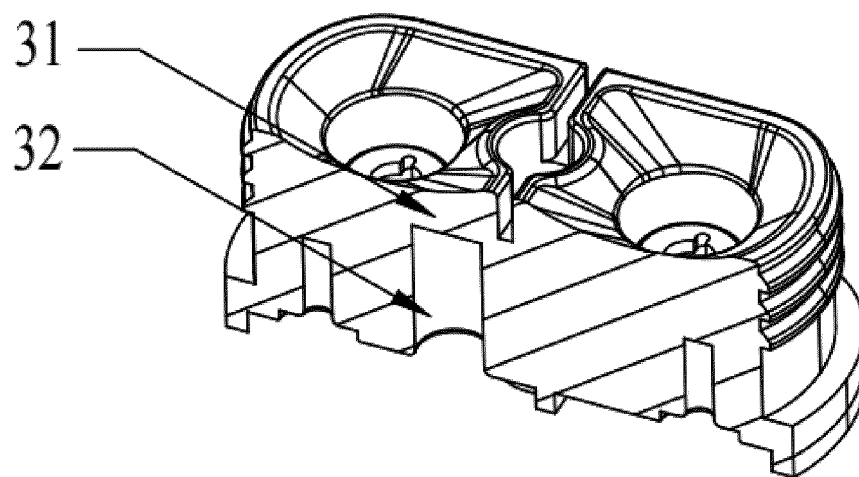


FIG. 7

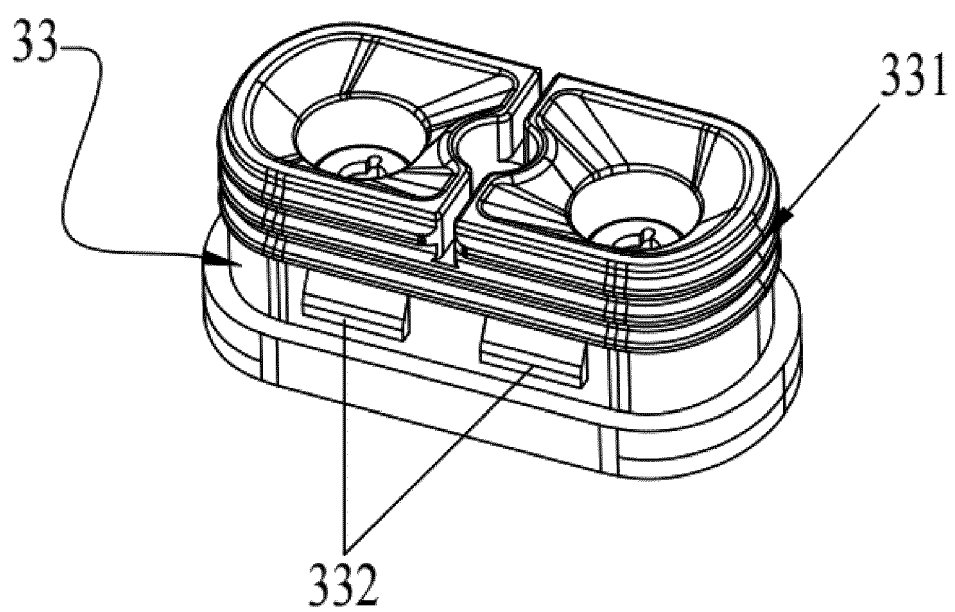


FIG. 8

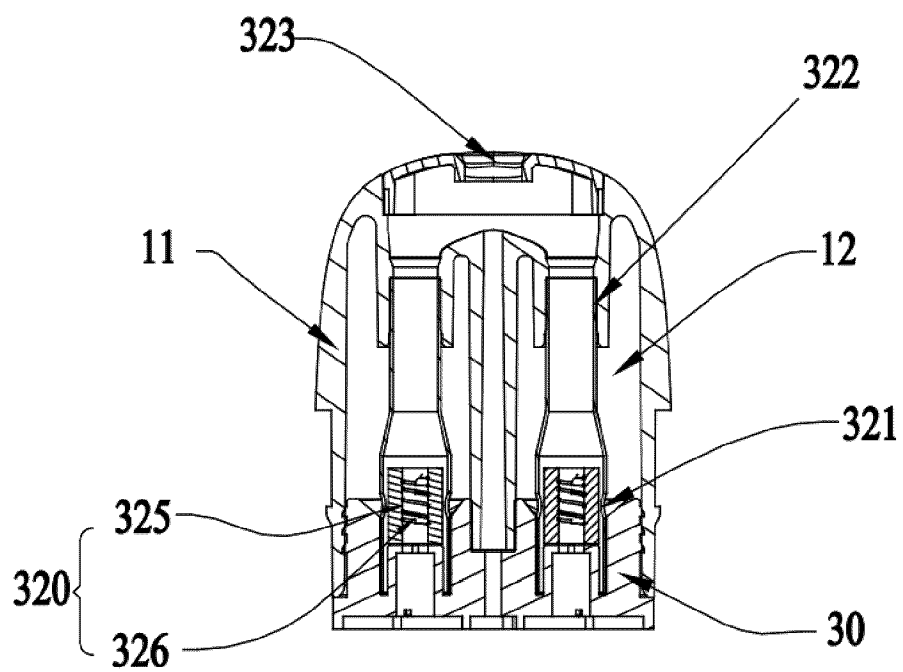


FIG. 9

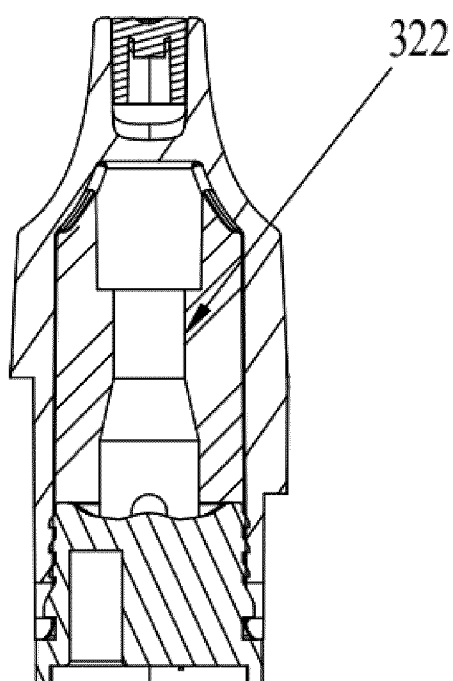


FIG. 10

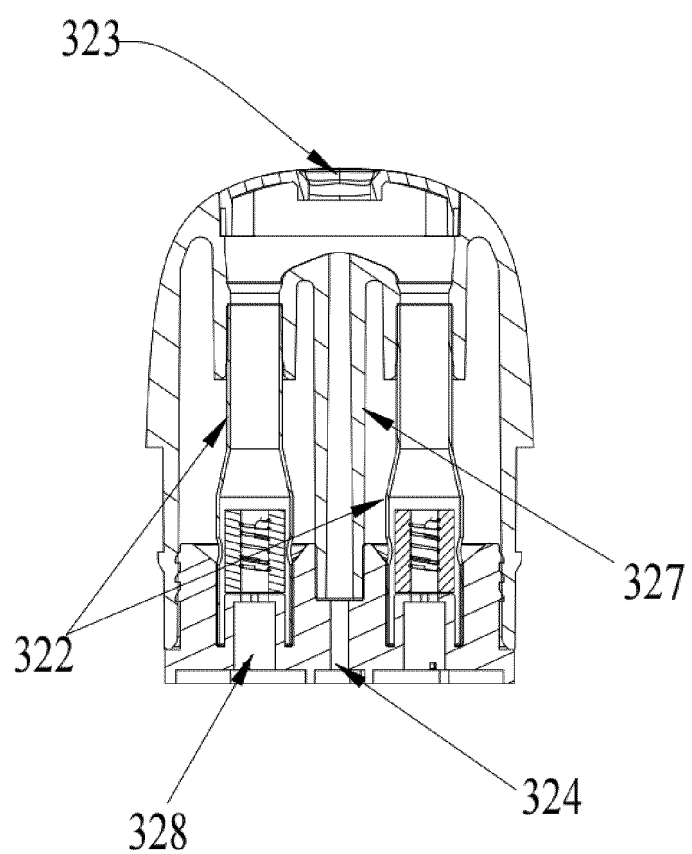


FIG. 11

REFERENCES CITED IN THE DESCRIPTION

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