

(19)



(11)

EP 2 965 641 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention of the grant of the patent:
28.08.2024 Bulletin 2024/35

(51) International Patent Classification (IPC):
A24F 40/485 ^(2020.01) **A24F 40/48** ^(2020.01)
A24F 40/10 ^(2020.01) **A24F 40/44** ^(2020.01)

(21) Application number: **15173037.1**

(52) Cooperative Patent Classification (CPC):
A24F 40/485; A24F 40/10; A24F 40/50

(22) Date of filing: **20.06.2015**

(54) **ATOMIZING HEAD, ATOMIZER AND ELECTRONIC CIGARETTE HAVING SAME**

ZERSTÄUBUNGSKOPF, ZERSTÄUBER UND ELEKTRONISCHE ZIGARETTE

TÊTE D'ATOMISATION, ATOMISEUR ET CIGARETTE ÉLECTRONIQUE COMPORTANT CELUI-CI

(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

- **XU, Zhongli**
518104 Shenzhen, Guangdong (CN)
- **HE, Youlin**
518104 Shenzhen Guangdong (CN)

(30) Priority: **07.07.2014 CN 201410319453**

(74) Representative: **Proi World Intellectual Property GmbH**
Obermattweg 12
6052 Hergiswil, Kanton Nidwalden (CH)

(43) Date of publication of application:
13.01.2016 Bulletin 2016/02

(73) Proprietor: **Shenzhen First Union Technology Co., Ltd.**
Shenzhen, Guangdong 518104 (CN)

(56) References cited:
EP-A1- 2 260 733 **EP-A1- 2 489 391**
WO-A1-2013/159245 **CN-U- 202 276 831**
CN-U- 203 105 624

(72) Inventors:
• **LI, Yonghai**
518104 Shenzhen Guangdong (CN)

EP 2 965 641 B1

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

TECHNICAL FIELD

[0001] The present invention relates to electronic cigarettes, and particularly to an atomizing head, an atomizer and an electronic cigarette using same.

BACKGROUND ART

[0002] In a typical atomizer with a piercing structure, the piercing structure includes a hollow liquid passage. After the piercing structure pricks a liquid supply, tobacco liquid flows to an atomizing cavity through the liquid passage. To prevent liquid leakage, a liquid blocking element is provided at the bottom of the liquid passage. The liquid blocking element is configured for absorbing and storing the tobacco liquid flowed from the liquid passage. However, in the atomizer, the tobacco liquid may leak from the liquid blocking element. EP2260733A1 discloses an atomizing head for an atomizer, according to the preamble of claim 1. Another atomizer is known from EP2489391A1.

[0003] What is needed, therefore, is an atomizing head, an atomizer and an electronic cigarette using same, which can overcome the above shortcomings.

SUMMARY

[0004] An exemplary atomizer includes an atomizing tube and an atomizing head. The atomizing tube defines a space configured for receiving a liquid supply filled with tobacco liquid. The atomizing head includes a holder, an air inlet, an air outlet, a piercing element, a buffer chamber, an atomizing cavity, and an atomizing component. The piercing element is configured for piercing the liquid supply. The piercing element defines a liquid inlet. The buffer chamber is configured for storing the tobacco liquid flowed from the liquid supply via the liquid inlet after the liquid supply is pierced. The liquid inlet is in communication with the buffer chamber and the liquid supply. Both of the air inlet and the air outlet communicates with the atomizing cavity. The atomizing component is configured for absorbing the tobacco liquid in the buffer chamber and heating the tobacco liquid to vaporize.

[0005] The invention is set out in the appended set of claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] Many aspects of the present disclosure can be better understood with reference to the following drawings. The components in the drawings are not necessarily drawn to scale, the emphasis instead being placed upon clearly illustrating the principles of the present disclosure. Moreover, in the drawings, like reference numerals designate corresponding parts throughout the several views.

FIG. 1 is a perspective view of an atomizing head according to a first embodiment, not showing a liquid conducting body, which is an essential feature of the present invention (see fig.6).

FIG. 2 is a cross-sectional view of the atomizing head of FIG. 1.

FIG. 3 is an exploded perspective view of the atomizing head of FIG. 1.

FIG. 4 is a perspective view of a piercing element of FIG. 3.

FIG. 5 is a perspective view of a fixing cover of FIG. 3. FIG. 6 is an embodiment of the atomizing head including a liquid conducting body, in accordance with the invention.

FIG. 7 is a perspective view of an atomizing head according to a second embodiment.

FIG. 8 is a cross-sectional view of the atomizing head of FIG. 7.

FIG. 9 is a perspective view of a piercing element of FIG. 8.

FIG. 10 is a cross-sectional view of the piercing element of FIG. 8.

FIG. 11 is a perspective view of a liquid blocking sleeve of FIG. 8.

FIG. 12 is a cross-sectional view of the liquid blocking sleeve of FIG. 11.

FIG. 13 is an assembled cross-sectional view of the piercing element and the liquid blocking sleeve.

FIG. 14 is a side view of an atomizer according to a third embodiment.

FIG. 15 is a cross-sectional view of the atomizer of FIG. 14.

FIG. 16 is a partially cross-sectional view of the atomizer of FIG. 14.

FIG. 17 is a cross-sectional view of a threaded electrode of FIG. 15.

FIG. 18 is a cross-sectional view of a connector of the atomizer of FIG. 15.

FIG. 19 is a cross-sectional view of a liquid cup of the atomizer of FIG. 15.

FIG. 20 is another side view of the atomizer of FIG. 14.

FIG. 21 is a cross-sectional view of an atomizer according to a fourth embodiment.

FIG. 22 is a cross-sectional view of an electronic cigarette according to a fifth embodiment.

DETAILED DESCRIPTION

[0007] It will be appreciated that for simplicity and clarity of illustration, where appropriate, reference numerals have been repeated among the different figures to indicate corresponding or analogous elements. In addition, numerous specific details are set forth in order to provide a thorough understanding of the embodiments described herein. However, it will be understood by those of ordinary skill in the art that the embodiments described herein can be practiced without these specific details. In other

instances, methods, procedures and components have not been described in detail so as not to obscure the related relevant feature being described. Also, the description is not to be considered as limiting the scope of the embodiments described herein. The drawings are not necessarily to scale and the proportions of certain parts have been exaggerated to better illustrate details and features of the present disclosure.

[0008] The disclosure is illustrated by way of example and not by way of limitation in the figures of the accompanying drawings in which like references indicate similar elements. It should be noted that references to "an" or "one" embodiment in this disclosure are not necessarily to the same embodiment, and such references mean at least one.

[0009] Several definitions that apply throughout this disclosure will now be presented.

[0010] The term "outside" refers to a region that is beyond the outermost confines of a physical object. The term "inside" indicates that at least a portion of a region is partially contained within a boundary formed by the object. The term "substantially" is defined to be essentially conforming to the particular dimension, shape or other word that substantially modifies, such that the component need not be exact. For example, substantially cylindrical means that the object resembles a cylinder, but can have one or more deviations from a true cylinder. The term "comprising," when utilized, means "including, but not necessarily limited to"; it specifically indicates open-ended inclusion or membership in the so-described combination, group, series and the like.

First Embodiment

[0011] Referring to FIGS. 1-2, an atomizing head 100 for an electronic cigarette is shown. The atomizing head 100 includes a holder 110, an air inlet 151, an air outlet 141, a piercing element 120, a first electrode 160, a second electrode 150, a buffer chamber 111, an atomizing cavity 1232, and an atomizing component 170. The piercing element 120 is configured for pricking a liquid supply. The atomizing component 170 is configured (i.e., structured and arranged) for absorbing heating tobacco liquid in the buffer chamber 111 and heating the tobacco liquid. Both of the air outlet 141 and the air inlet 151 are in communication with the atomizing cavity 1232. The air inlet 151 is defined in the second electrode 150. The first electrode 160 and the second electrode 150 are configured for connecting to an external power supply. An insulating body 180 is sandwiched between the first electrode 160 and the second electrode 150. The piercing element 120 includes a liquid inlet 121, and the liquid inlet 121 communicates with the buffer chamber 111.

[0012] After the piercing element 120 pierces the liquid supply, the tobacco liquid in the liquid supply first flows into the buffer chamber 111 via the liquid inlet 121, and is then absorbed by the atomizing component 170. Accordingly, liquid leakage of the atomizing head is greatly

improved.

[0013] The present embodiment, however, does not show a liquid conducting body, which is an essential feature of the present invention (see fig.6).

5 **[0014]** Referring to FIGS. 3-4, the piercing element 120 includes a connecting part 123 and a piercing part 122. The piercing part 122 is configured for pricking the liquid supply. The connecting part 123 is configured for fixedly connecting with the holder 110. The liquid inlet 121 is defined in the piercing part 122. In the present embodiment, the connecting part 123 and the piercing part 122 are integrally formed. The connecting part 123 defines a liquid passage 1233, and the liquid inlet 121 is in communication with the buffer chamber 111 via the liquid passage 1233. The connecting part 123 further defines an air hole 1231 in a sidewall thereof. The air hole 1231 communicates with the atomizing cavity 1232 and the air outlet 141.

10 **[0015]** Referring to FIG. 3, the atomizing component 170 includes a heating element 172, and a liquid absorbing element 171. Two ends of the heating element 172 are respectively connected to the first and the second electrodes 150, 160. The heating element 172 is in contact with the liquid absorbing element 171.

15 **[0016]** Referring to FIG. 2, the buffer chamber 111 surrounds the atomizing cavity 1232. The buffer chamber 111 does not communicate with the atomizing cavity 1232.

20 **[0017]** Referring to FIGS. 2 and 5, the holder 110 is further provided with a fixing cover 140, and the air outlet 141 is defined in the fixing cover 140. The fixing cover 140 further defines an assembling hole 143 and a slot 142. The slot 142 is configured for giving way to the liquid passage 1233, so that the tobacco liquid can flow into the buffer chamber 111 via the liquid passage smoothly. The assembling hole 143 allows the piercing element 122 to pass through. The atomizing head 100 further includes a liquid blocking gasket 130. The liquid blocking gasket 130 is laminated on the fixing cover 140. The liquid blocking gasket 130 nests the piercing part 122, and is configured for sealing the liquid supply after the liquid supply is pierced. In the present embodiment, the liquid inlet 121 and the air outlet 141 are arranged on an identical side of the atomizing head 100.

25 **[0018]** Referring to FIG. 2, the atomizing head 100 further includes a threaded connection structure for connecting with an external structure. Therefore, the atomizing head 100 can be replaced conveniently.

30 **[0019]** Referring to FIGS. 2-3, the first electrode 160 extends to form a bracket 161, and the atomizing component 170 is supported by the bracket 161. The atomizing cavity 1232 is received in the bracket 161. The connecting part 123 nests the bracket 161. The atomizing head 100 further includes a liquid blocking element 190 in the atomizing cavity 1232. The liquid blocking element 190 prevents tobacco liquid dropped from the atomizing component 170 from flowing out of the air inlet 151. In the present embodiment, the liquid blocking element 190

may be made of glass fiber material or ceramic material.

[0020] Referring to FIG. 6, in accordance with the invention, a liquid conducting body 12331 is arranged in the liquid passage 1233. One end of the liquid conducting body 12331 is positioned in the liquid inlet 121, and an opposite end of the liquid conducting body 12331 is positioned in the buffer chamber 111. The liquid conducting body 12331 is configured for conveying the tobacco liquid in the liquid supply to the buffer chamber 111. The liquid conducting body 12331 may be made of glass fiber core, or cotton cloth.

Second Embodiment

[0021] Referring to FIGS. 7-8, an atomizing head 300 according to a second embodiment is shown. The atomizing head 300 includes a holder 310, an air inlet 351, an air outlet 331, a piercing element 320, a first electrode 360, a second electrode 350, a buffer chamber 311, an atomizing cavity 3232, an atomizing component 370. The air outlet 331 and the air inlet 351 are all in communication with the atomizing cavity 3232. The air inlet 351 is defined in the second electrode 350. An insulating body 380 is arranged between the first and the second electrodes 350, 360. The piercing element 320 defines a liquid inlet 321. As shown in FIG. 8 and 11, the air outlet 331 and the liquid inlet 3321 are arranged on one side of the atomizing head 300.

[0022] Referring to FIGS. 9-10, the piercing element 320 includes a connecting part 323 and a piercing part 322. The liquid inlet 321 is defined in the piercing part 322. The connecting part 323 defines an air hole 3231 in a top surface. The air hole 3231 communicates with the atomizing cavity 3232 and the air outlet 331.

[0023] Referring to FIG. 8, FIG. 12 and FIG. 13, the atomizing head 300 further includes a liquid blocking sleeve 330 wrapping around the holder 310. The liquid blocking sleeve 330 defines a liquid passage 333. The liquid inlet 321 is in communication with the buffer chamber 311 via the liquid passage 333. The liquid blocking sleeve 333 defines an assembling hole 332 allowing the piercing part 322 to pass through. The liquid passage 333 is a gap defined in the liquid blocking sleeve 330. In other embodiments, the liquid passage 333 may be a through hole defined in the liquid blocking sleeve 330. In the present embodiment, the liquid blocking sleeve 330 is made of flexible material.

[0024] Referring to FIG. 8, the first electrode 360 extends to form a bracket 361, and the atomizing component 370 is supported by the bracket 361. The piercing element 320 nests the bracket 361. The atomizing cavity 232 is received in the bracket 361. The atomizing head 300 further includes a pluggable structure for detachably connecting with an external component.

[0025] It is to be understood that, in accordance with the invention, the atomizing head 300 also includes a liquid conducting body 12331 similarly arranged in the liquid passage 333.

Third Embodiment

[0026] Referring to FIGS. 14-15, an atomizer 200 for an electronic cigarette is shown. The atomizer 200 includes an atomizing head 100 according to the first embodiment, an atomizing tube 210, a mouthpiece 220, a connector 230, and a threaded electrode 240. The mouthpiece 220 and the connector 230 are arranged at two opposite ends of the atomizing tube 210. The threaded electrode 240 is adapted for connecting with an external power supply. The atomizing tube 210 defines an accommodating space for receiving a liquid supply. In the present embodiment, the liquid supply is a liquid cup 270 made of transparent material.

[0027] Referring to FIG. 16, the atomizing head 100 is detachably engaged in the connector 230.

[0028] Referring to FIGS. 16-18, the connector 230 includes a plurality of first screw threads 231, and a plurality of second screw threads 231. The threaded electrode 240 includes a plurality of third screw threads 241, a plurality of fourth screw threads 242, and a plurality of fifth screw threads 243. The third screw threads 241 are configured for coupling with the second screw threads 232, so that the connector 230 is detachably connected with the threaded electrode 240. The fourth screw threads 242 are adapted for engaging with the atomizing head 100, so that the atomizing head 100 can be detached and replaced. The fifth screw threads 243 are configured for connecting with the external power supply. In other embodiments, the threaded electrode 240 may be integrally formed with the connector 230.

[0029] Referring to FIG. 15 and FIGS. 18-19, the atomizer 200 further includes a fixing holder 250 fixedly mounted in the connector 230. The liquid cup 270 includes a bottleneck 271 defining a plurality of sixth screw threads 2711. The sixth screw threads 2711 are configured for engaging with the fixing holder 250. The liquid cup 270 defines a liquid chamber 273 for storing tobacco liquid. The liquid cup 270 includes a sealing element 272 at one end of the bottleneck 271. The sealing element 272 is configured for sealing the tobacco liquid. After the piercing part 122 pierces the sealing element 272, the piercing part 122 inserts the liquid cup 270, the liquid inlet 121 communicates with the liquid cup 270, and an end surface of the sealing element 272 abuts against the liquid blocking gasket 130.

[0030] Referring to FIG. 20, in the present embodiment, the atomizing tube 210 is made of transparent material. The atomizer 200 further includes a metallic tube 260 nesting the atomizing tube 210. The metallic tube 260 defines a window, through which the tobacco liquid in the liquid cup 270 can be seen.

Fourth Embodiment

[0031] Referring to FIG. 21, an atomizer 400 as shown is substantially similar to that of the first embodiment, except that the atomizer 400 employs the atomizing head

300 according to the second embodiment.

Fifth Embodiment

[0032] Referring to FIG. 22, an electronic cigarette includes an atomizer 200, and a power supply 500 threadly coupled with the atomizer 200. The power supply 500 is adapted for supplying the atomizer 200 power.

[0033] It is understood that the above-described embodiments are intended to illustrate rather than limit the disclosure. Variations may be made to the embodiments and methods without departing from the scope of the appended claims.

Claims

1. An atomizing head (100) for an atomizer, comprising:

a holder (110);
 an air inlet (151);
 an air outlet (141);
 a piercing element (120) received in the holder (110), the piercing element (120) being configured for piercing a liquid supply filled with tobacco liquid, the piercing element (120) defining a liquid inlet (121);
 a buffer chamber (111) in the holder (110), the buffer chamber (111) being configured for storing the tobacco liquid flowed from the liquid supply via the liquid inlet (121) after the liquid supply is pierced, the liquid inlet (121) being in communication with the buffer chamber (111) and the liquid supply;
 an atomizing cavity (1232) defined in the holder (110), both of the air inlet (151) and the air outlet (141) communicating with the atomizing cavity (1232); and
 an atomizing component (170) received in the atomizing cavity (1232), the atomizing component (170) being configured for absorbing the tobacco liquid only from the buffer chamber (111) and heating the tobacco liquid to vaporize; wherein the piercing element comprises a connecting part (123) and a piercing part (122), the connecting part (123) is fixedly connected with the holder, the piercing part (122) is adapted for piercing the liquid supply, and the liquid inlet (121) is defined in the piercing part (122);

characterized in that:

the atomizing head further comprises a liquid conducting body (12331), wherein one end of the liquid conducting body (12331) is positioned in the liquid inlet (121), and an opposite end of the liquid conducting body (12331) is arranged in the buffer chamber (111).

2. The atomizing head according to claim 1, wherein

the connecting part defines a liquid passage, and the liquid inlet is in communication with the buffer chamber via the liquid passage.

3. The atomizing head according to claim 1, further comprising a liquid blocking sleeve wrapping around the holder, wherein the liquid blocking sleeve defines an assembling hole allowing the piercing part to pass through, and a liquid passage communicating the liquid inlet and the buffer chamber.

4. The atomizing head according to claim 1, wherein the buffer chamber surrounds the atomizing cavity.

5. The atomizing head according to claim 1, further comprising a fixing cover configured for fixing the piercing element to the holder, wherein the air outlet is defined in the fixing cover.

6. The atomizing head according to claim 1, wherein the connecting part defines an air hole in a sidewall thereof, and the air hole communicates with the atomizing cavity and the air outlet.

7. The atomizing head according to claim 1, wherein the atomizing component comprises a liquid absorbing element and a heating element, the liquid absorbing element is configured for absorbing tobacco liquid only in the buffer chamber, the heating element is in contact with the liquid absorbing element, and the heating element is configured for heating the tobacco liquid absorbed in the liquid absorbing element to form aerosol.

8. The atomizing head according to claim 1, further comprising a liquid blocking gasket nesting the piercing part, wherein the liquid blocking gasket is configured for sealing the liquid supply after the liquid supply is pierced.

9. An atomizer, comprising:

an atomizing tube defining a space configured for receiving a liquid supply filled with tobacco liquid; and
 the atomizing head according to any preceding claim.

10. The atomizer according to claim 9, wherein the atomizing tube is made of transparent material.

11. The atomizer according to claim 9, wherein the atomizer further comprises a metallic tube nesting the atomizing tube, and the metallic tube defines a window, through which the tobacco liquid in the liquid supply can be seen.

12. An electronic cigarette, comprising:

an atomizer according to any of claims 9-11; and a power supply for providing the atomizer power.

Patentansprüche

1. Ein Zerstäuberkopf (100) für einen Zerstäuber, der Folgendes umfasst:

einen Halter (110);
 einen Lufteinlass (151);
 einen Luftauslass (141);
 ein Stechelement (120), das in dem Halter (110) aufgenommen ist, wobei das Stechelement (120) zum Durchstechen eines mit Tabakflüssigkeit gefüllten Flüssigkeitsvorrats konfiguriert ist, wobei das Stechelement (120) einen Flüssigkeitseinlass (121) definiert;
 eine Pufferkammer (111) in der Halterung (110), wobei die Pufferkammer (111) so konfiguriert ist, dass sie die Tabakflüssigkeit speichert, die von der Flüssigkeitszufuhr über den Flüssigkeitseinlass (121) fließt, nachdem die Flüssigkeitszufuhr durchstoßen wurde, wobei der Flüssigkeitseinlass (121) in Verbindung mit der Pufferkammer (111) und der Flüssigkeitszufuhr steht;
 einen Zerstäubungshohlraum (1232), der in dem Halter (110) definiert ist, wobei sowohl der Lufteinlass (151) als auch der Luftauslass (141) mit dem Zerstäubungshohlraum (1232) in Verbindung stehen; und
 eine Zerstäubungskomponente (170), die in dem Zerstäubungshohlraum (1232) aufgenommen wird, wobei die Zerstäubungskomponente (170) so konfiguriert ist, dass sie nur die Tabakflüssigkeit aus der Pufferkammer (111) absorbiert und die Tabakflüssigkeit zum Verdampfen erhitzt;
 wobei das Stechelement ein Verbindungsteil (123) und ein Stechteil (122) umfasst, das Verbindungsteil (123) fest mit dem Halter verbunden ist, das Stechteil (122) zum Durchstechen der Flüssigkeitszufuhr angepasst ist und der Flüssigkeitseinlass (121) in dem Stechteil (122) definiert ist;

dadurch gekennzeichnet:

der Zerstäuberkopf ferner einen flüssigkeitsleitenden Körper (12331) umfasst, wobei ein Ende des flüssigkeitsleitenden Körpers (12331) in dem Flüssigkeitseinlass (121) positioniert ist und ein gegenüberliegendes Ende des flüssigkeitsleitenden Körpers (12331) in der Pufferkammer (111) angeordnet ist.

2. Zerstäuberkopf nach Anspruch 1, wobei das Verbindungsteil einen Flüssigkeitsdurchgang definiert und der Flüssigkeitseinlass über den Flüssigkeitsdurch-

gang mit der Pufferkammer in Verbindung steht.

3. Zerstäuberkopf nach Anspruch 1, der ferner eine Flüssigkeitssperrhülse umfasst, die den Halter umgibt, wobei die Flüssigkeitssperrhülse ein Montage Loch definiert, durch das das Piercingteil hindurchgehen kann, sowie einen Flüssigkeitsdurchlass, der den Flüssigkeitseinlass und die Pufferkammer verbindet.

4. Zerstäuberkopf nach Anspruch 1, wobei die Pufferkammer den Zerstäuberhohlraum umgibt.

5. Zerstäuberkopf nach Anspruch 1, der ferner eine Befestigungsabdeckung umfasst, die so konfiguriert ist, dass sie das Stechelement an dem Halter befestigt, wobei der Luftauslass in der Befestigungsabdeckung definiert ist.

6. Zerstäuberkopf nach Anspruch 1, wobei das Verbindungsteil in einer Seitenwand ein Luftloch aufweist und das Luftloch mit dem Zerstäuberhohlraum und dem Luftauslass in Verbindung steht.

7. Zerstäuberkopf nach Anspruch 1, wobei die Zerstäuberkomponente ein flüssigkeitsabsorbierendes Element und ein Heizelement umfasst, das flüssigkeitsabsorbierende Element so konfiguriert ist, dass es Tabakflüssigkeit nur in der Pufferkammer absorbiert, das Heizelement in Kontakt mit dem flüssigkeitsabsorbierenden Element steht und das Heizelement so konfiguriert ist, dass es die in dem flüssigkeitsabsorbierenden Element absorbierte Tabakflüssigkeit erhitzt, um Aerosol zu bilden.

8. Zerstäuberkopf nach Anspruch 1, der ferner eine flüssigkeitssperrende Dichtung umfasst, die in den Durchstoßteil eingebettet ist, wobei die flüssigkeitssperrende Dichtung so konfiguriert ist, dass sie die Flüssigkeitszufuhr abdichtet, nachdem die Flüssigkeitszufuhr durchstoßen wurde.

9. Ein Zerstäuber, bestehend aus:

ein Zerstäuberrohr, das einen Raum definiert, der zur Aufnahme eines mit Tabakflüssigkeit gefüllten Flüssigkeitsvorrats konfiguriert ist; und den Zerstäuberkopf nach einem der vorhergehenden Ansprüche.

10. Zerstäuber nach Anspruch 9, wobei das Zerstäuberrohr aus transparentem Material besteht.

11. Zerstäuber nach Anspruch 9, wobei der Zerstäuber ferner ein Metallrohr umfasst, in das das Zerstäuberrohr eingebettet ist, und das Metallrohr ein Fenster definiert, durch das die Tabakflüssigkeit in der Flüssigkeitszufuhr gesehen werden kann.

12. Eine elektronische Zigarette, bestehend aus:

einen Zerstäuber nach einem der Ansprüche 9-11; und
eine Stromversorgung für den Nachweis der Zerstäuberleistung.

Revendications

1. Tête d'atomisation (100) pour un atomiseur, comprenant :

un support (110) ;
une entrée d'air (151) ;
une sortie d'air (141) ;
un élément de perçage (120) reçu dans le support (110), l'élément de perçage (120) étant configuré pour percer une réserve de liquide remplie de tabac liquide, l'élément de perçage (120) définissant une entrée de liquide (121) ;
une chambre tampon (111) dans le support (110), la chambre tampon (111) étant configurée pour stocker le tabac liquide provenant de l'alimentation en liquide via l'entrée de liquide (121) après que l'alimentation en liquide a été percée, l'entrée de liquide (121) étant en communication avec la chambre tampon (111) et l'alimentation en liquide ;
une cavité d'atomisation (1232) définie dans le support (110), l'entrée d'air (151) et la sortie d'air (141) communiquant toutes deux avec la cavité d'atomisation (1232) ; et
un composant d'atomisation (170) reçu dans la cavité d'atomisation (1232), le composant d'atomisation (170) étant configuré pour absorber le liquide de tabac uniquement à partir de la chambre tampon (111) et chauffer le liquide de tabac pour le vaporiser ;
dans lequel l'élément de perçage comprend une partie de connexion (123) et une partie de perçage (122), la partie de connexion (123) est reliée de manière fixe au support, la partie de perçage (122) est adaptée pour percer l'alimentation en liquide, et l'entrée de liquide (121) est définie dans la partie de perçage (122) ;
caractérisé dans ce domaine :
la tête d'atomisation comprend en outre un corps conducteur de liquide (12331), dans lequel une extrémité du corps conducteur de liquide (12331) est positionnée dans l'entrée de liquide (121), et une extrémité opposée du corps conducteur de liquide (12331) est disposée dans la chambre tampon (111).

2. La tête d'atomisation selon la revendication 1, dans laquelle la partie de connexion définit un passage de liquide, et l'entrée de liquide est en communi-

tion avec la chambre tampon via le passage de liquide.

3. La tête d'atomisation selon la revendication 1, comprenant en outre un manchon de blocage du liquide enveloppant le support, dans lequel le manchon de blocage du liquide définit un trou d'assemblage permettant le passage de la pièce à percer, et un passage de liquide communiquant avec l'entrée de liquide et la chambre tampon.

4. Tête d'atomisation selon la revendication 1, dans laquelle la chambre tampon entoure la cavité d'atomisation.

5. La tête d'atomisation selon la revendication 1, comprenant en outre un couvercle de fixation configuré pour fixer l'élément de perçage au support, dans lequel la sortie d'air est définie dans le couvercle de fixation.

6. La tête d'atomisation selon la revendication 1, dans laquelle la partie de connexion définit un trou d'air dans une de ses parois latérales, et le trou d'air communique avec la cavité d'atomisation et la sortie d'air.

7. La tête d'atomisation selon la revendication 1, dans laquelle le composant d'atomisation comprend un élément absorbant le liquide et un élément chauffant, l'élément absorbant le liquide est configuré pour absorber le liquide de tabac uniquement dans la chambre tampon, l'élément chauffant est en contact avec l'élément absorbant le liquide, et l'élément chauffant est configuré pour chauffer le liquide de tabac absorbé dans l'élément absorbant le liquide pour former l'aérosol.

8. La tête d'atomisation selon la revendication 1, comprenant en outre un joint de blocage du liquide imbriqué dans la partie de perçage, le joint de blocage du liquide étant configuré pour sceller l'alimentation en liquide après le perçage de l'alimentation en liquide.

9. Un atomiseur comprenant

un tube d'atomisation définissant un espace configuré pour recevoir une réserve de liquide remplie de tabac liquide ; et
la tête d'atomisation selon toute revendication précédente.

10. L'atomiseur selon la revendication 9, dans lequel le tube d'atomisation est fait d'un matériau transparent.

11. L'atomiseur selon la revendication 9, dans lequel l'atomiseur comprend en outre un tube métallique

imbriqué dans le tube d'atomisation, et le tube métallique définit une fenêtre à travers laquelle le tabac liquide dans la réserve de liquide peut être vu.

12. Cigarette électronique comprenant 5
- un atomiseur selon l'une des revendications 9 à 11 ; et
 - une alimentation électrique pour alimenter l'atomiseur. 10

15

20

25

30

35

40

45

50

55

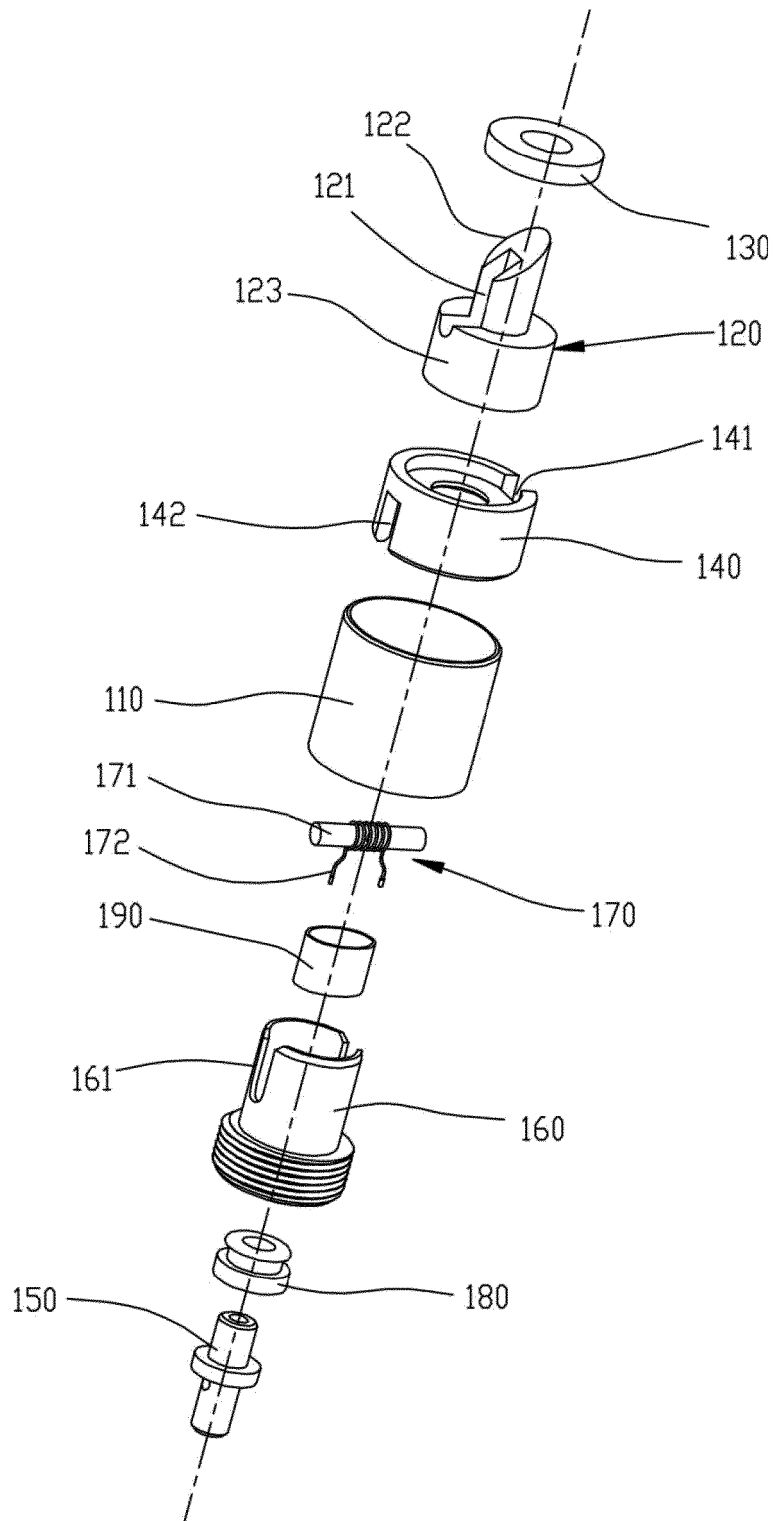


FIG. 3

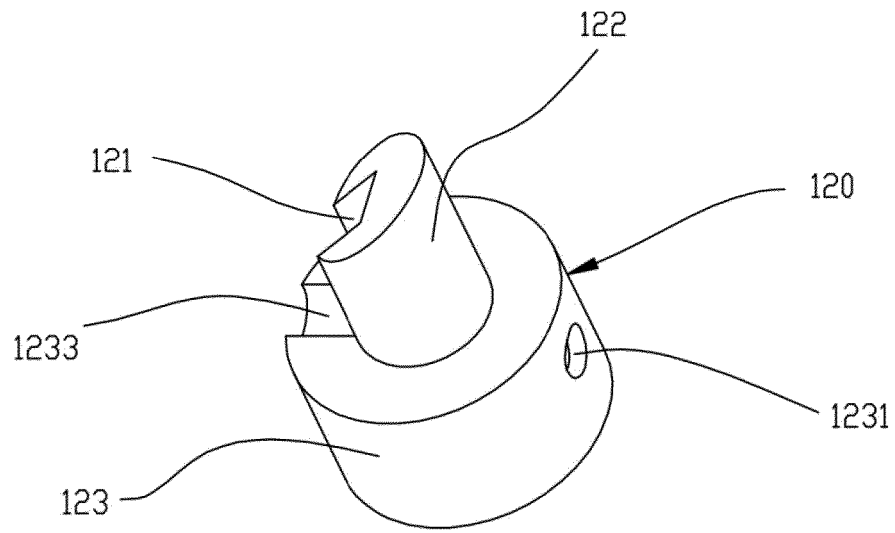


FIG. 4

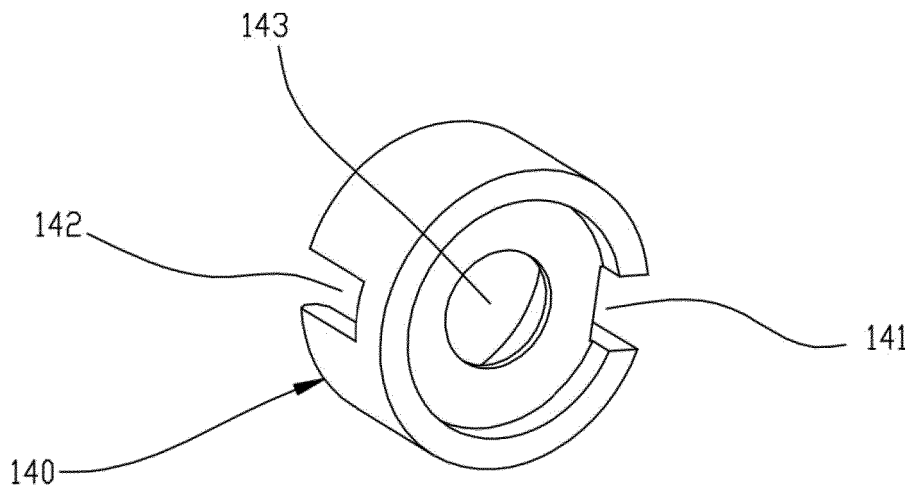


FIG. 5

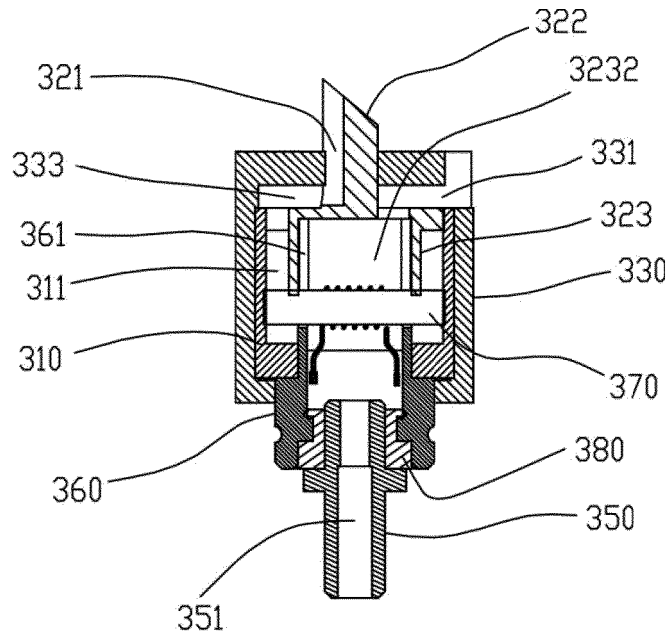


FIG. 8

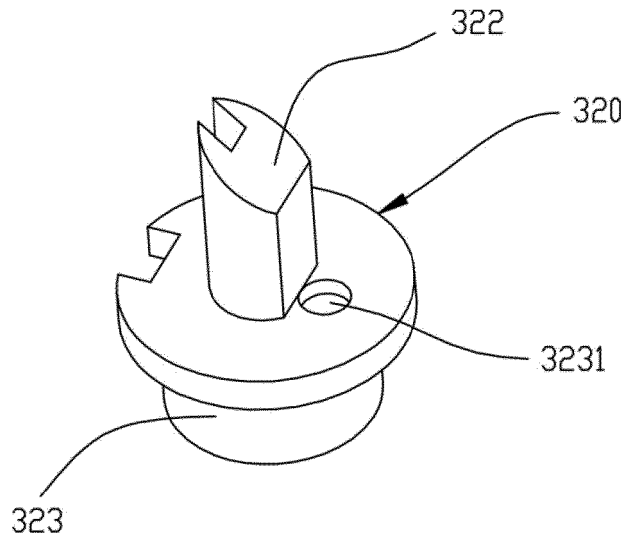


FIG. 9

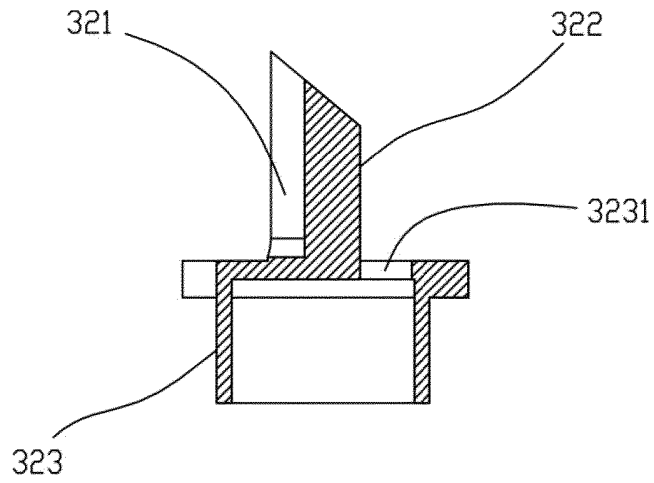


FIG. 10

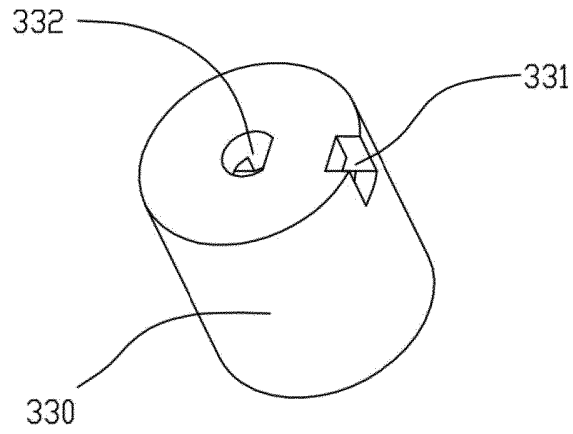


FIG. 11

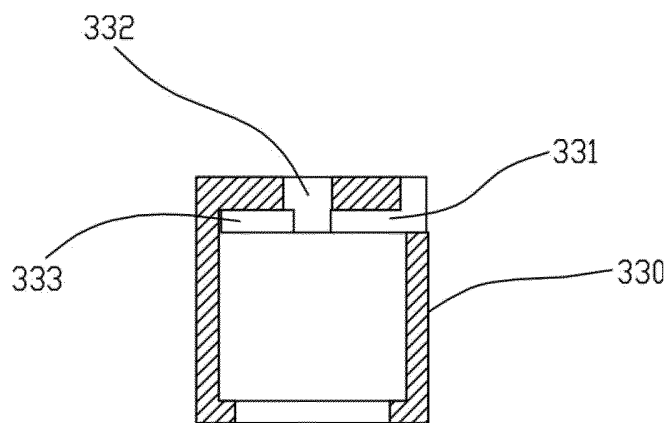


FIG. 12

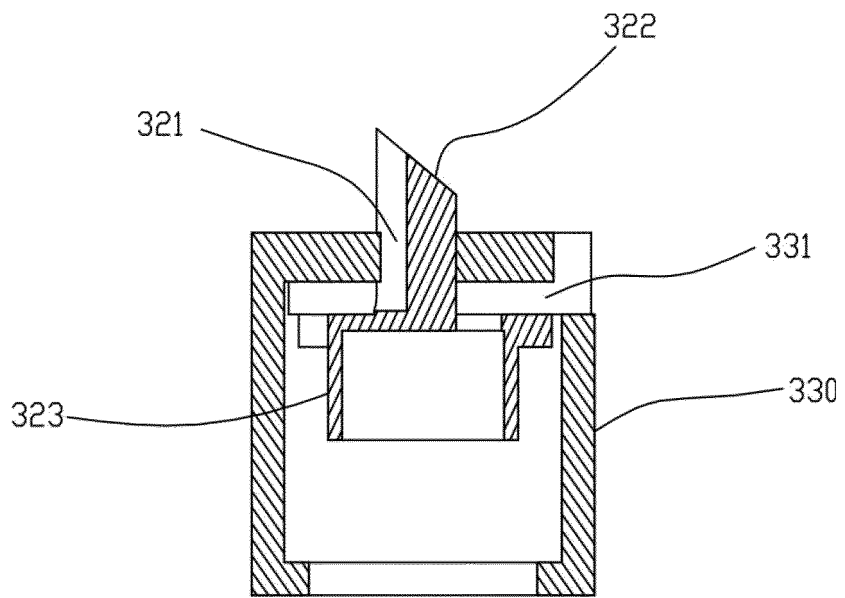


FIG. 13

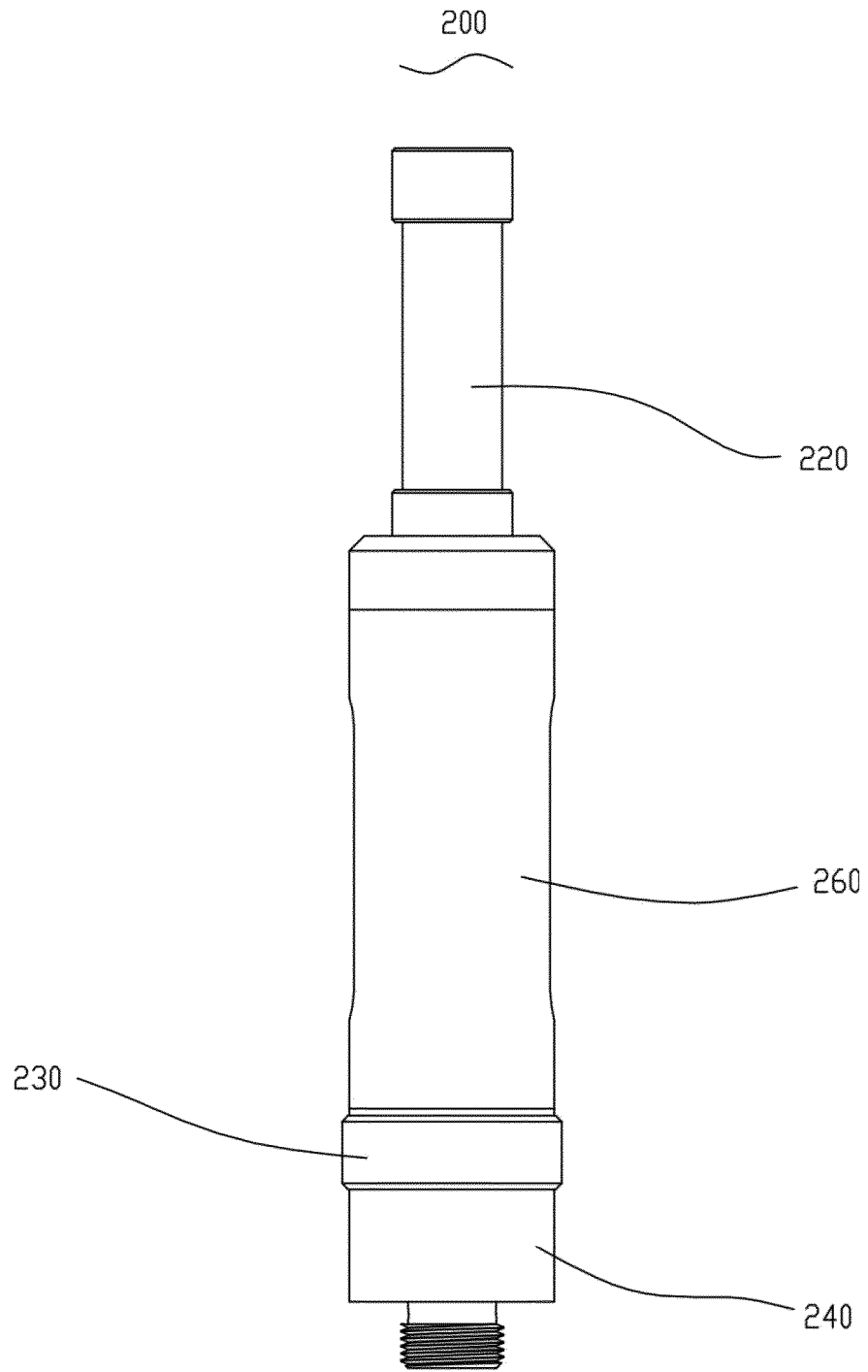


FIG. 14

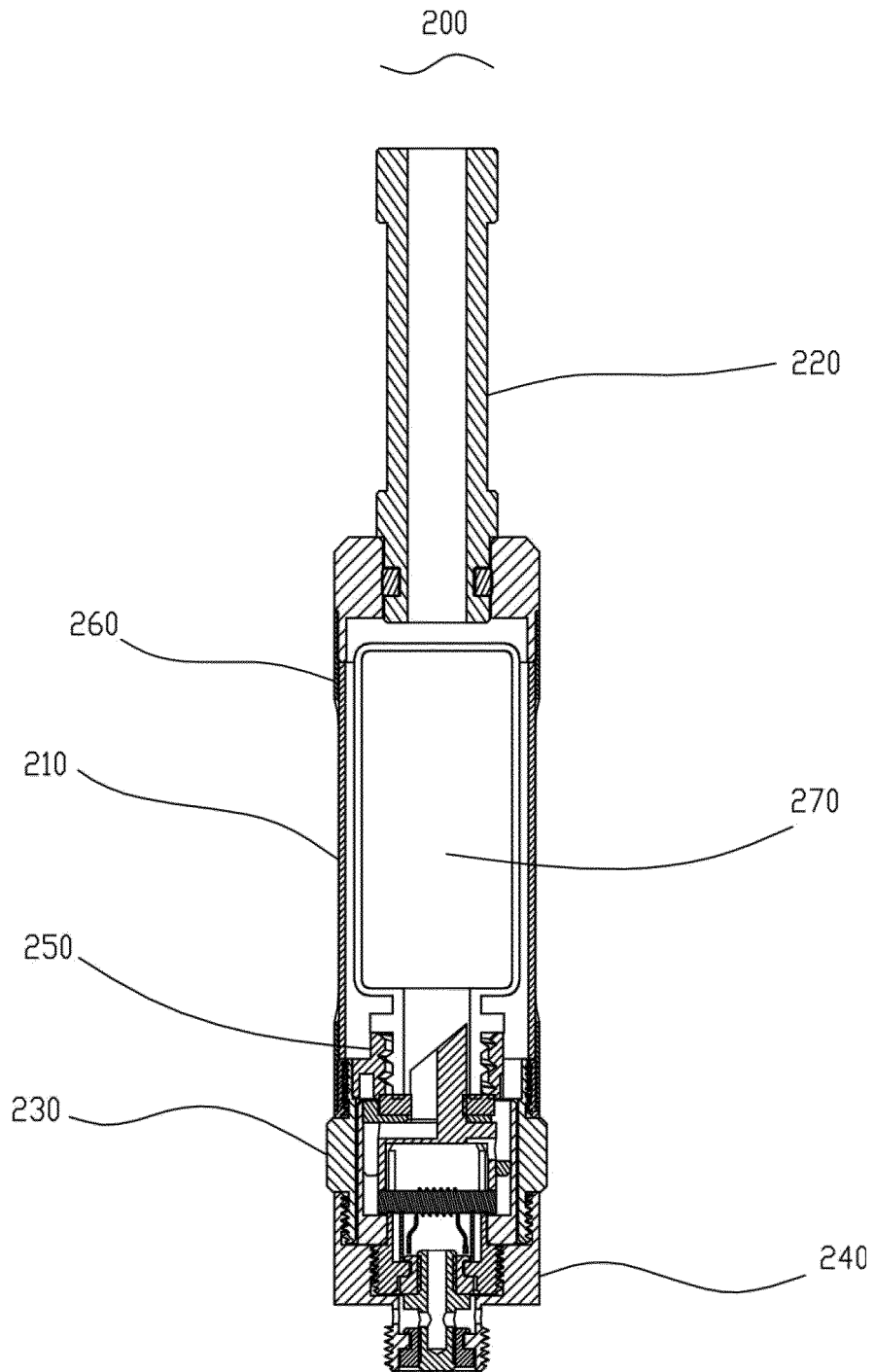


FIG. 15

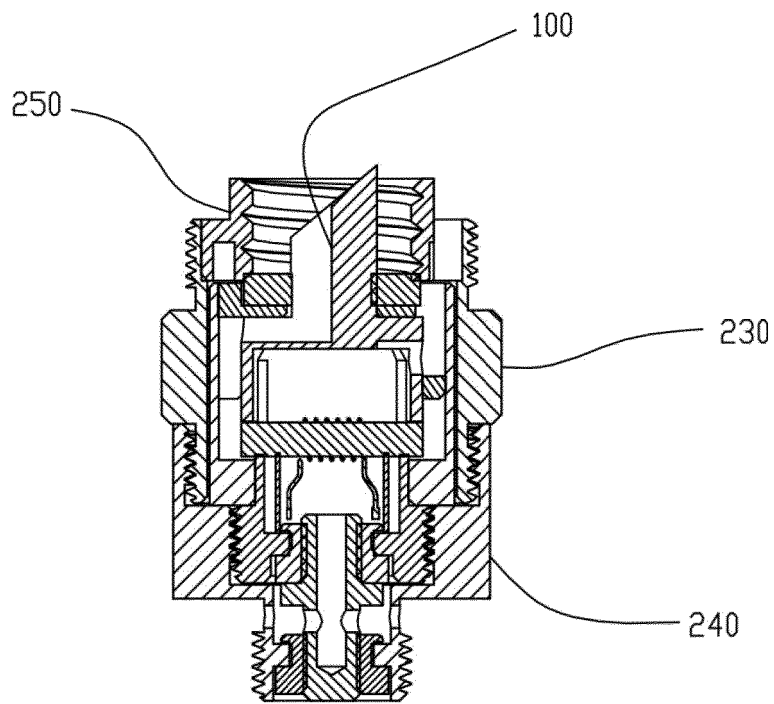


FIG. 16

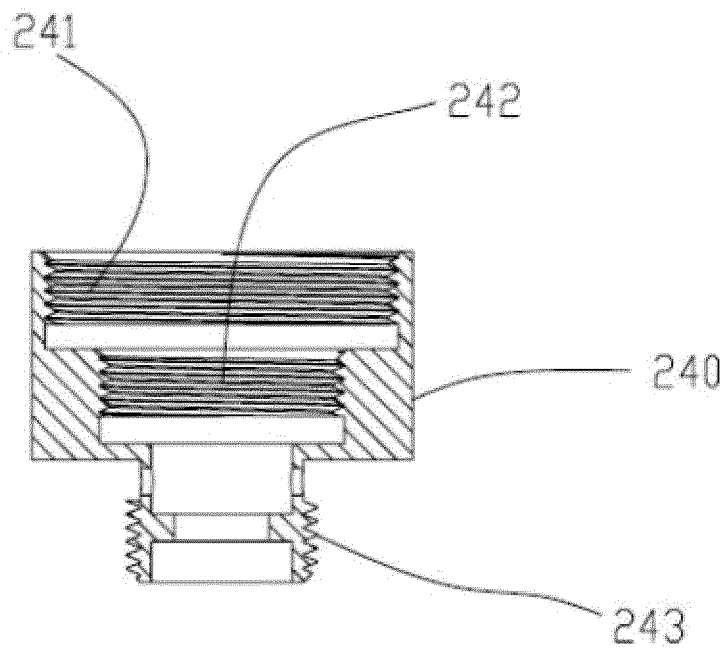


FIG. 17

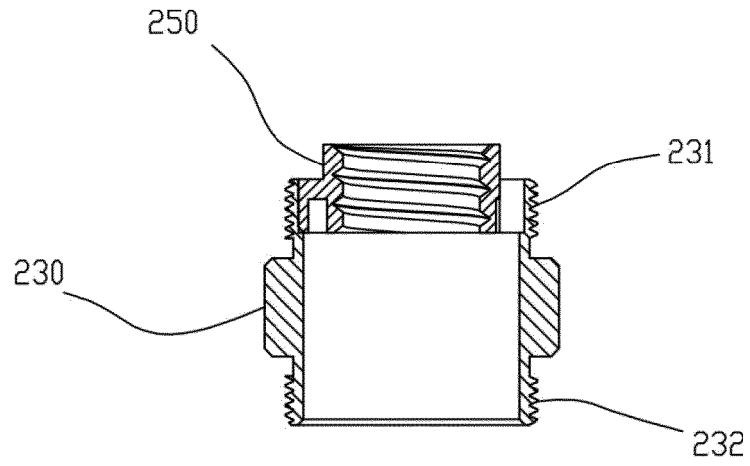


FIG. 18

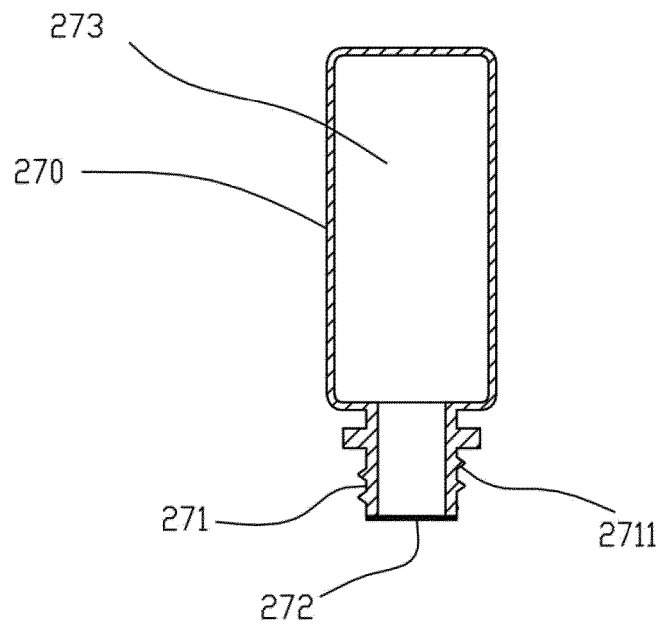


FIG. 19

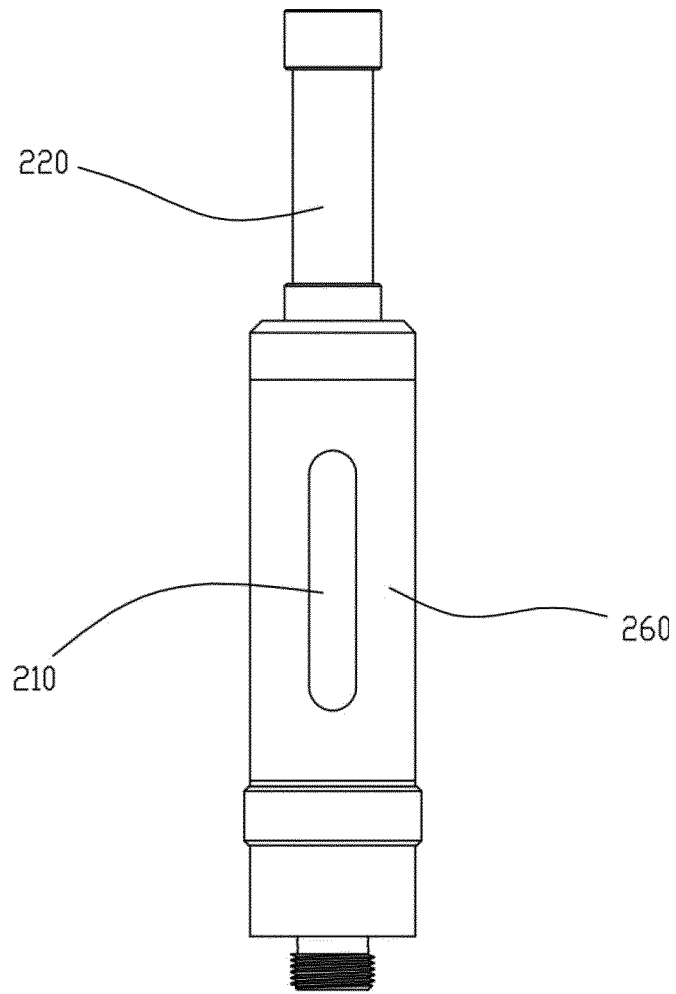


FIG. 20

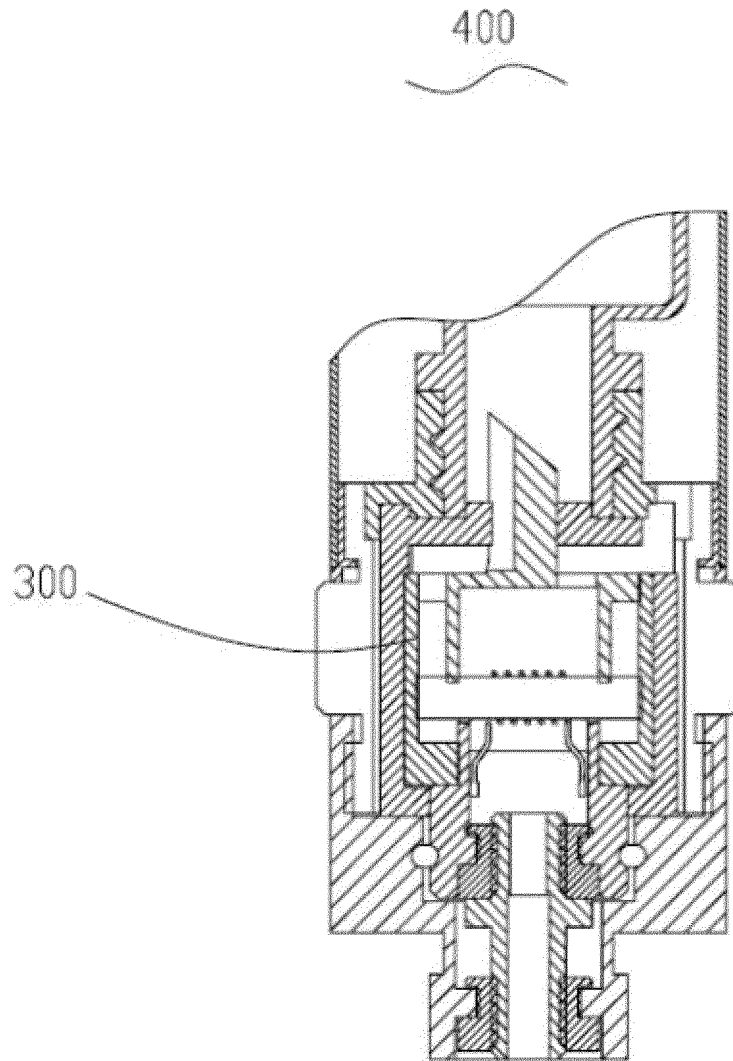


FIG. 21

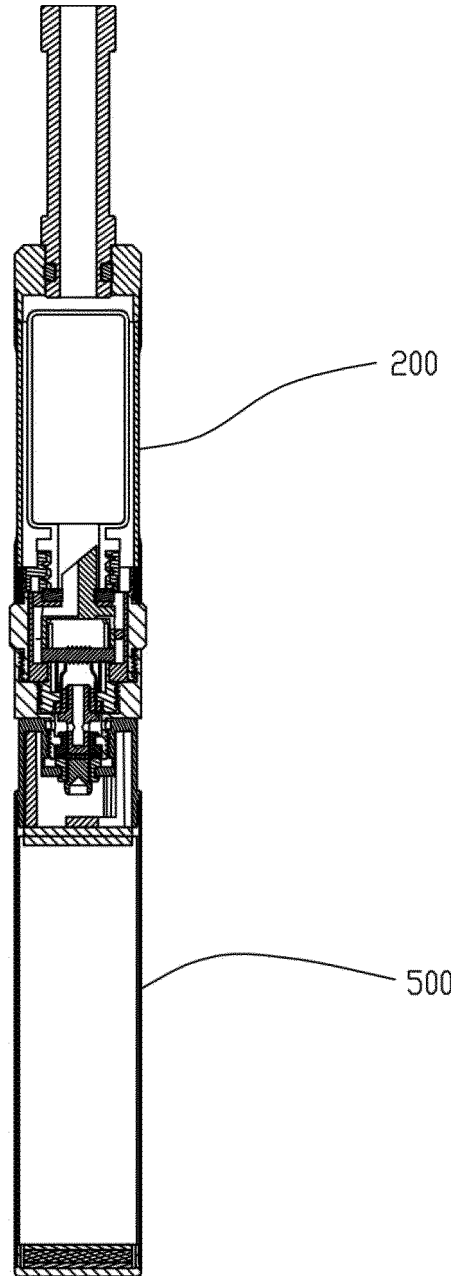


FIG. 22

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

- EP 2260733 A1 [0002]
- EP 2489391 A1 [0002]