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(54) **ATOMIZER AND AEROSOL GENERATION APPARATUS WITH SAME**

(57) Disclosed are an atomizer (100) and an aerosol generation apparatus with the atomizer (100). The atomizer (100) comprises a liquid storage part (10), a base (20) arranged at an end of the liquid storage part (10), and a vapor output pipe (11) arranged in the liquid storage part (10). The atomizer (100) further comprises a connecting part (30) arranged between the base (20) and the vapor output pipe (11), wherein an air intake pipe (261) is arranged in a protruding manner on the base (20), and the side of the connecting part (30) close to the vapor output pipe (11) is recessed to form a first collecting tank (311). In the atomizer (100), the connecting part (30) is arranged between the base (20) and the vapor output pipe (11), and corresponding to the vapor output pipe (11), the connecting part (30) is provided with the first collecting tank (311), such that condensate generated in the vapor output pipe (11) or an aerosol-forming substrate leaked from the atomizer (100) is collected in the first collecting tank (311), the aerosol-forming substrate is prevented from leaking to the outside of the aerosol generation apparatus from the air intake pipe (261), thereby preventing liquid leakage, and achieving good user experience.

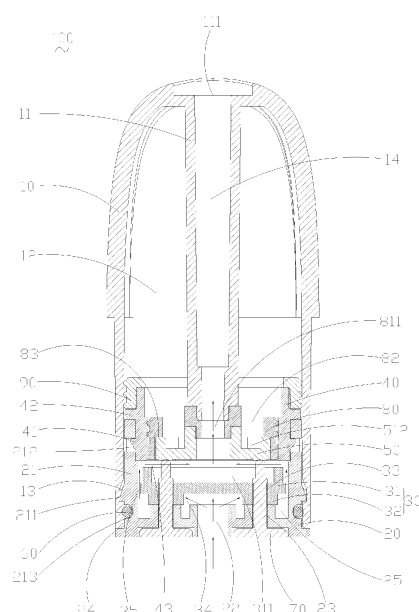


FIG. 7

Description**TECHNICAL FIELD**

- 5 **[0001]** The present disclosure relates to the technical field of simulated smoking, in particular to an atomizer and an aerosol generating device having the same.

BACKGROUND

- 10 **[0002]** The aerosol generating device includes an atomizer and a power supply device electrically connected to the atomizer. The atomizer is provided with a liquid storage chamber and a heating structure. Under the electric drive of the power supply device, the heating structure heats the aerosol-forming substrate supplied from the liquid storage chamber to form smoke for the user to inhale. However, during the use of the aerosol generating device, the aerosol-forming substrate adsorbed in the heating structure easily flows out of the air inlet of the atomizer under the action of gravity. At
15 the same time, the condensate generated in the atomizer also easily flows out from the air inlet of the atomizer to the outside of the aerosol generating device, which affects the user experience.

SUMMARY

- 20 **[0003]** In view of above, the present disclosure provides an atomizer and an aerosol generating device for preventing liquid leakage.

- [0004]** The technical solution adopted by the present disclosure to solve the problem is as follows: an atomizer includes a liquid storage member and a base disposed at one end of the liquid storage member, wherein a smoke outlet pipe is provided in the liquid storage member, the atomizer further includes a connecting member disposed between the base
25 and the smoke outlet pipe, an air intake pipe is protruded on the base, one end of the connecting member adjacent to the smoke outlet pipe is recessed to form a first collecting tank.

- [0005]** Further, an end surface of the base facing the connecting member is provided with a second collecting tank, a gap is provided between an outer peripheral wall of the connecting member and the base, and the gap forms a communication passage, the air intake pipe is provided with an air inlet, the communication passage is staggered from
30 the air inlet; the air inlet, the communication passage and an inner cavity of the smoke outlet pipe are communicated in sequence.

- [0006]** Further, an end surface of the base facing the connecting member is provided with a second collecting tank, the connecting member is provided with a communication passage, the air intake pipe is provided with an air inlet, the communication passage is staggered from the air inlet; the air inlet, the communication passage and an inner cavity of
35 the smoke outlet pipe are communicated in sequence.

- [0007]** Further, the connecting member includes a main body and two connecting protrusions, each connecting protrusion is protruded on the main body, the two connecting protrusions abut against the base, a lower end surface of the main body and an upper end surface of the base are enclosed to form an airflow passage, one end of the airflow passage is communicated with the air inlet, the other end of the airflow passage is communicated with the communication passage.

- 40 **[0008]** Further, the base includes a base body and a mounting protrusion, the mounting protrusion is protruded on the base body, the mounting protrusion has a hollow cylindrical structure, the connecting member is received in the cavity of the mounting protrusion, the communication passage is enclosed by an outer peripheral wall of the connecting member and an inner wall of the mounting protrusion.

- [0009]** Further, two abutting protrusions are protruded on the base body, the air intake pipe is protruded on the base body, the two abutting protrusions are located at two opposite sides of the air intake pipe; the second collecting tank is enclosed by an outer wall of the air intake pipe, an outer wall of the abutting protrusion, the inner wall of the mounting
45 protrusion and an upper end surface of the base body.

- [0010]** Further, the abutting protrusion is provided with a mounting hole penetrating through the base body, the connecting protrusion is provided with two through holes, each of the abutting protrusions corresponds to one of the connecting protrusions, each of the connecting protrusions abuts against a corresponding abutting protrusion; the atomizer further includes two electrodes, each of the electrodes corresponds to one of the mounting holes, one end of each of the electrodes is received in a corresponding mounting hole, the other end of each of the electrodes passes through the mounting hole and the through hole in sequence and is received in the cavity of the mounting protrusion; an upper end surface of the electrode is higher than an upper end surface of the connecting member.

- 55 **[0011]** Further, the atomizer further includes a mounting member and a heating structure received in the mounting member, a liquid storage chamber is provided in the liquid storage member, the mounting member is received in one end of the mounting protrusion away from the base body, one end of the mounting member away from the base is connected with the smoke outlet pipe and communicated with the liquid storage chamber, one end of the heating structure

abuts against the electrode.

[0012] Further, the heating structure includes a liquid guiding member and a heating member which are in contact with each other, the heating member is arranged at one end of the liquid guiding member adjacent to the electrodes, the heating member is provided with two pins, one of the pins is electrically connected to one of the electrodes, the other pin is electrically connected to the other electrode.

[0013] An aerosol generating device includes the atomizer described in any one of the foregoing.

[0014] The beneficial effects of the present disclosure are: in the atomizer or aerosol generating device provided by the present disclosure, the connecting member is provided between the base and the smoke outlet pipe, the connecting member is provided with the first collecting tank corresponding to the smoke outlet pipe, so that the condensate generated in the smoke outlet pipe or the aerosol-forming substrate leaked in the atomizer is collected in the first collecting tank, to avoid that the aerosol-forming substrate leaks from the air intake pipe to the outside of the aerosol generating device, so as to prevent liquid leakage and provide a better user experience.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] The following further describes the present disclosure with reference to the accompanying drawings and embodiments.

FIG. 1 is a schematic diagram of the atomizer of the present disclosure;

FIG. 2 is an exploded view of the atomizer of the present disclosure;

FIG. 3 is a schematic diagram of the base of the atomizer shown in FIG. 1;

FIG. 4 is a schematic diagram of the connecting member of the atomizer shown in FIG. 1;

FIG. 5 is another schematic diagram of the connecting member shown in FIG. 3;

FIG. 6 is a schematic diagram of the heating structure of the atomizer shown in FIG. 1;

FIG. 7 is a cross-sectional view of the atomizer of the present disclosure;

[0016] The part names and reference signs shown in the figures are as follows:

atomizer 100	liquid storage member 10	base 20
connecting member 30	mounting member 40	heating structure 50
smoke outlet pipe 11	air outlet 111	liquid storage chamber 12
first latching groove 13	mounting protrusion 21	air inlet 22
mounting hole 23	step surface 24	second collecting tank 25
first latching tab 211	second latching groove 212	groove 213
first sealing ring 60	main body 31	connecting protrusion 32

first collecting tank 311	through hole 33	airflow passage 34
communication passage 35	electrode 70	second latching tab 41
limiting ring 42	smoke passage 43	liquid guiding member 51
heating member 52	communication hole 511	accommodating groove 512
sealing member 80	second sealing ring 90	fixing hole 811
liquid inlet 82	mounting groove 83	smoke outlet passage 14
abutting portion 214	base body 26	air intake pipe 261
abutting protrusion 262		

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0017] The present disclosure will now be described in detail with reference to the accompanying drawings. These figures are simplified schematic diagrams, which only illustrate the basic structure of the present disclosure in a schematic

manner, so they only show the structures related to the present disclosure.

[0018] As shown in FIG. 1 and FIG. 7, the present disclosure provides an aerosol generating device. The aerosol generating device includes an atomizer 100 and a power supply device electrically connected to the atomizer 100. Specifically, the atomizer 100 includes a liquid storage member 10, a base 20 disposed at one end of the liquid storage member 10, a connecting member 30 disposed on the base 20, a mounting member 40 received in the liquid storage member 10, and a heating structure 50 mounted to the mounting member 40. In use, the aerosol-forming substrate in the liquid storage member 10 enters into the heating structure 50, the power supply device supplies power to the heating structure 50, and the heating structure 50 atomizes the aerosol-forming substrate to generate smoke for the user to inhale.

[0019] The liquid storage member 10 is substantially cylindrical with an opening at one end thereof. The liquid storage member 10 is provided with a smoke outlet pipe 11 therein, the smoke outlet pipe 11 has a hollow cylindrical structure with openings at opposite ends, the upper end of the smoke outlet pipe 11 penetrates through the liquid storage member 10 and is opened to form an air outlet 111. The space between the inner wall of the liquid storage member 10 and the outer wall of the smoke outlet pipe 11 forms a liquid storage chamber 12 for storing the aerosol-forming substrate, the inner cavity of the smoke outlet pipe 11 forms a smoke outlet passage 14. The inner walls at opposite sides of the liquid storage member 10 are provided with first latching grooves 13.

[0020] As shown in FIG. 2, FIG. 3 and FIG. 7, the base 20 includes a base body 26 and a mounting protrusion 21, the mounting protrusion 21 is protruded from the base body 26, the mounting protrusion 21 has a hollow cylindrical structure, and the base body 26 is protruded with an air intake pipe 261 and two abutting protrusions 262. In this embodiment, the air intake pipe 261 is approximately provided at the center of the base body 26, the two abutting protrusions 262 are located at opposite sides of the air intake pipe 261, the air intake pipe 261 is provided with an air inlet 22 extending through the base body 26, each abutting protrusion 262 is provided with a mounting hole 23 extending through the base body 26. The outer wall of the air intake pipe 261, the outer walls of the abutting protrusions 262, the inner wall of the mounting protrusion 21 and the upper end surface of the base body 26 are jointly enclosed to form a second collecting tank 25. There is a preset height difference between the bottom groove wall of the second collecting tank 25 and the upper end surface of the air intake pipe 261. In addition, a step surface 24 is formed between the outer peripheral wall of the mounting protrusion 21 and the outer peripheral wall of the base 20.

[0021] First latching tabs 211 and second latching grooves 212 are provided at the opposite side walls of the mounting protrusion 21. The first latching tabs 211 are corresponding to the first latching grooves 13. An annular groove 213 is concavely formed on the outer peripheral wall of the mounting protrusion 21. When the base 20 is installed at one end of the liquid storage member 10, the mounting protrusion 21 is inserted into the liquid storage member 10, the bottom wall of the liquid storage member 10 abuts against the step surface 24, the first latching tab 211 is engaged in the first latching groove 13 to enhance the connection strength. The mounting protrusion 21 is also provided with an abutting portion 214. The atomizer 100 further includes a first sealing ring 60, the first sealing ring 60 is received in the groove 213 and sandwiched between the liquid storage member 10 and the base 20 to enhance sealing performance. It can be understood that, the first sealing ring 60 is made of a sealing material such as rubber or silicone.

[0022] As shown in FIG. 4, FIG. 5 and FIG. 7, the connecting member 30 is disposed between the base 20 and the smoke outlet pipe 11. The connecting member 30 includes a main body 31 and two connecting protrusions 32. The connecting protrusion 32 is protruded from the main body 31. One end of the main body 31 adjacent to the smoke outlet pipe 11 is recessed to form a first collecting tank 311. The first collecting tank 311 is corresponding to the smoke outlet passage 14, that is, the first collecting tank 311 is located under the smoke outlet passage 14. Each connecting protrusion 32 is provided with a through hole 33, the through hole 33 penetrates through the main body 31 and the connecting protrusion 32. Each connecting protrusion 32 corresponds to one of the abutting protrusions 262. The connecting member 30 is received in the cavity of the mounting protrusion 21, each connecting protrusion 32 abuts against a corresponding abutting protrusion 262. An airflow passage 34 is formed between the lower end surface of the main body 31 and the upper end surface of the base body 26. A communication passage 35 is formed between the outer peripheral wall of the connecting member 30 and the inner wall of the mounting protrusion 21. One end of the airflow passage 34 is communicated with the air inlet 22. The other end of the airflow passage 34 is communicated with the communication passage 35.

[0023] The atomizer 100 further includes two electrodes 70, each of the electrodes 70 corresponds to one of the mounting holes 23. One end of each electrode 70 is received in the corresponding mounting hole 23, the other end of the electrode 70 passes through the mounting hole 23 and the through hole 33 in sequence and is received in the inner cavity of the mounting protrusion 21. The upper end surface of the electrode 70 is higher than the upper end surface of the connecting member 30. One of the electrodes 70 is electrically connected to one of the positive and negative electrodes of the power supply device, the other electrode 70 is electrically connected to the other one of the positive and negative electrodes of the power supply device.

[0024] The mounting member 40 is generally in the shape of a hollow cylinder with two ends open. The inner cavity of the mounting member 40 is communicated with the liquid storage chamber 12. Second latching tabs 41 and a limiting ring 42 are protruded from the outer peripheral wall of the two opposite sides of the mounting member 40. One end of

the mounting member 40 is inserted into the mounting protrusion 21 and abuts against the abutting portion 214. The second latching tab 41 is clamped in the second latching groove 212. The limiting ring 42 abuts against the upper end surface of the mounting protrusion 21. A smoke passage 43 communicated with the communication passage 35 is formed between the lower end surface of the mounting member 40 and the upper end surface of the connecting member 30. One end of the smoke passage 43 is communicated with the communication passage 35, the other end of the smoke passage 43 is communicated with the smoke outlet passage 14. In this embodiment, a gap is provided between the lower end surface of the mounting member 40 and the upper end surface of the connecting member 30 to form the smoke passage 43. It can be understood that, in other embodiments not shown, the smoke passage 43 can also be provided at the upper end surface of the connecting member 30.

[0025] As shown in FIG. 6 and FIG. 7, the heating structure 50 includes a liquid guiding member 51 and a heating member 52 which are in contact with each other. The liquid guiding member 51 is provided with a communication hole 511. One end surface of the liquid guiding member 51 is recessed to form an annular accommodating groove 512. In this embodiment, the communication hole 511 is provided approximately at the center of the liquid guiding member 51. The accommodating groove 512 is arranged around the communication hole 511. The liquid guiding member 51 is a porous ceramic. The liquid guiding member 51 is provided with a plurality of capillary holes, so that the liquid guiding member 51 can absorb and store the aerosol-forming substrate. The heating member 52 is arranged on the bottom of the liquid guiding member 51. That is, the heating member 52 is arranged at one end of the liquid guiding member 51 adjacent to the electrodes 70. The heating member 52 is a heating wire sintered on the liquid guiding member 51. The liquid guiding member 51 is received in the mounting member 40, and the liquid guiding member 51 is sleeved on the outside of the smoke outlet pipe 11. The communication hole 511 is communicated with the smoke outlet passage 14. One end of the liquid guiding member 51 where the heating member 52 is installed is abutted against the electrodes 70, and the heating member 52 is provided with two pins, one of the pins is electrically connected to one of the electrodes 70, and the other pin is electrically connected to the other electrode 70, so that the heating member 52 is electrically connected to the power supply device. When the user uses the aerosol generating device, the aerosol-forming substrate in the liquid storage chamber 12 flows through the upper end of the mounting member 40 to the accommodating grooves 512 of the liquid guiding member 51; under the electric driving action of the power supply device, the heating member 52 generates heat, and heats the aerosol-forming substrate stored at the liquid guiding member 51. The aerosol-forming substrate is atomized to generate smoke that is emitted into the smoke passage 43. The arrangement of the accommodating grooves 512 increases the contact area between the liquid guiding member 51 and the aerosol-forming substrate, and improves the liquid guiding capability of the liquid guiding member 51.

[0026] In one embodiment, in order to further enhance the sealing between the mounting member 40 and the heating structure 50 and between the mounting member 40 and the liquid storage member 10, and prevent liquid leakage, the atomizer 100 further includes a sealing member 80 and a second sealing ring 90. The sealing member 80 is protruded with a fixing protrusion 81. The fixing protrusion 81 is provided with a fixing hole 811. The sealing member 80 is provided with two liquid inlets 82 which are located at the opposite sides of the fixing protrusion 81, respectively. In this embodiment, the fixing protrusion 81 is arranged approximately at the center of the sealing member 80. The lower end surface of the sealing member 80 is recessed upward along the axial direction to form a mounting groove 83 which is communicated with the liquid inlet 82. The sealing member 80 is received in the mounting member 40, and the sealing member 80 is sandwiched between the heating structure 50 and the mounting member 40. The fixing hole 811 is communicated with the communication hole 511. The second sealing ring 90 is sandwiched between the mounting member 40 and the liquid storage member 10.

[0027] When the atomizer 100 is in use, the aerosol-forming substrate in the liquid storage chamber 11 flows to the liquid guiding member 51 through the liquid inlets 82. When the user activates the aerosol generating device, the heating member 52 generates heat under the electric driving of the power supply device, and heats the aerosol-forming substrate stored in the liquid guiding member 51, so that the aerosol-forming substrate is atomized to generate smoke that is emitted to the smoke passage 43. The outside air enters the airflow passage 34 through the air inlet 22, then flows through the communication passage 35 and the smoke passage 43 in turn, and carries the smoke to flow through the smoke outlet passage 14 and the air outlet 111 so as to enter the user's mouth. During the use of the atomizer 100, the condensate in the smoke outlet pipe 11, the leaked aerosol-forming substrate and the aerosol-forming substrate that is not atomized timely by the heating structure 50 can be collected by the first collecting tank 311. The condensate in the communication passage 35 and the condensate on the inner wall of the mounting protrusion 21 and the bottom wall of the connecting member 30 can be collected by the second collecting tank 25. In addition, when the condensate in the first collecting tank 311 is full, the condensate overflowing from the first collecting tank 311 can flow into the second collecting tank 25 through the communication passage 35 so as to prevent the condensate in the first collecting tank 311 from flowing to the outside of the aerosol generating device. It can be understood that when the user tilts the atomizer, the condensate collected in the first collecting tank 311 can also flow into the second collecting tank 25 through the communication passage 35. In this way, it can also be avoided that the collection effect of the first collecting tank 311 is affected by too much condensate in the first collecting tank 311.

[0028] It can be understood that in other embodiments not shown, the communication passage 35 can also be provided in the connecting member 30. It only needs to satisfy that the heating structure 50 is arranged between the communication passage 35 and the smoke outlet passage 14, and the air after passing through the communication passage 35 flows through the heating structure 50 to the smoke outlet passage 14, and the communication passage 35 is staggered from the air inlet 22.

[0029] In the atomizer 100 provided by the present disclosure, the connecting member 30 is provided between the base 20 and the smoke outlet pipe 11. The connecting member 30 is provided with the first collecting tank 311 corresponding to the smoke outlet pipe 11, so that the condensate generated in the smoke outlet pipe 11 or the aerosol-forming substrate leaked in the atomizer 100 is collected in the first collecting tank 311, to avoid that the aerosol-forming substrate leaks from the air intake pipe 261 to the outside of the aerosol generating device, so as to prevent liquid leakage. Further, the second collecting tank 25 is provided in the base 20, the communication passage 35 staggered from the air inlet 22 is provided between the connecting member 30 and the base 20, and the communication passage 35 is communicated with the smoke outlet passage 14, so that the aerosol-forming substrate overflowing from the first collecting tank 311 can flow into the second collecting tank 25 through the communication passage 35, thereby further preventing liquid leakage.

[0030] The aerosol generating device provided by the present disclosure has the same technical effects as the above-mentioned atomizer 100 because it has all the technical features of the above-mentioned atomizer 100.

[0031] Taking the above-mentioned ideal embodiments according to the present disclosure as enlightenment, through the above description, the relevant persons can make various changes and modifications without departing from the concept of the present disclosure. The technical scope of the present disclosure is not limited to the content of the specification, and its technical scope should be determined according to the scope of the claims.

Claims

1. An atomizer comprising a liquid storage member and a base disposed at one end of the liquid storage member, wherein a smoke outlet pipe is provided in the liquid storage member, the atomizer further comprises a connecting member disposed between the base and the smoke outlet pipe, an air intake pipe is protruded on the base, one end of the connecting member adjacent to the smoke outlet pipe is recessed to form a first collecting tank.
2. The atomizer according to claim 1, wherein an end surface of the base facing the connecting member is provided with a second collecting tank, a gap is provided between an outer peripheral wall of the connecting member and the base, and the gap forms a communication passage, the air intake pipe is provided with an air inlet, the communication passage is staggered from the air inlet; the air inlet, the communication passage and an inner cavity of the smoke outlet pipe are communicated in sequence.
3. The atomizer according to claim 1, wherein an end surface of the base facing the connecting member is provided with a second collecting tank, the connecting member is provided with a communication passage, the air intake pipe is provided with an air inlet, the communication passage is staggered from the air inlet; the air inlet, the communication passage and an inner cavity of the smoke outlet pipe are communicated in sequence.
4. The atomizer according to claim 2 or 3, wherein the connecting member comprises a main body and two connecting protrusions, each connecting protrusion is protruded on the main body, the two connecting protrusions abut against the base, a lower end surface of the main body and an upper end surface of the base are enclosed to form an airflow passage, one end of the airflow passage is communicated with the air inlet, the other end of the airflow passage is communicated with the communication passage.
5. The atomizer according to claim 4, wherein the base comprises a base body and a mounting protrusion, the mounting protrusion is protruded on the base body, the mounting protrusion has a hollow cylindrical structure, the connecting member is received in the cavity of the mounting protrusion, the communication passage is enclosed by an outer peripheral wall of the connecting member and an inner wall of the mounting protrusion.
6. The atomizer according to claim 5, wherein two abutting protrusions are protruded on the base body, the air intake pipe is protruded on the base body, the two abutting protrusions are located at two opposite sides of the air intake pipe; the second collecting tank is enclosed by an outer wall of the air intake pipe, an outer wall of the abutting protrusion, the inner wall of the mounting protrusion and an upper end surface of the base body.
7. The atomizer according to claim 6, wherein the abutting protrusion is provided with a mounting hole penetrating

through the base body, the connecting protrusion is provided with two through holes, each of the abutting protrusions corresponds to one of the connecting protrusions, each of the connecting protrusions abuts against a corresponding abutting protrusion; the atomizer further comprises two electrodes, each of the electrodes corresponds to one of the mounting holes, one end of each of the electrodes is received in a corresponding mounting hole, the other end of each of the electrodes passes through the mounting hole and the through hole in sequence and is received in the cavity of the mounting protrusion; an upper end surface of the electrode is higher than an upper end surface of the connecting member.

8. The atomizer according to claim **7**, wherein the atomizer further comprises a mounting member and a heating structure received in the mounting member, a liquid storage chamber is provided in the liquid storage member, the mounting member is received in one end of the mounting protrusion away from the base body, one end of the mounting member away from the base is connected with the smoke outlet pipe and communicated with the liquid storage chamber, one end of the heating structure abuts against the electrode.

9. The atomizer according to claim **8**, wherein the heating structure comprises a liquid guiding member and a heating member which are in contact with each other, the heating member is arranged at one end of the liquid guiding member adjacent to the electrodes, the heating member is provided with two pins, one of the pins is electrically connected to one of the electrodes, the other pin is electrically connected to the other electrode.

10. An aerosol generating device comprising the atomizer according to any one of claims **1** to **9**.

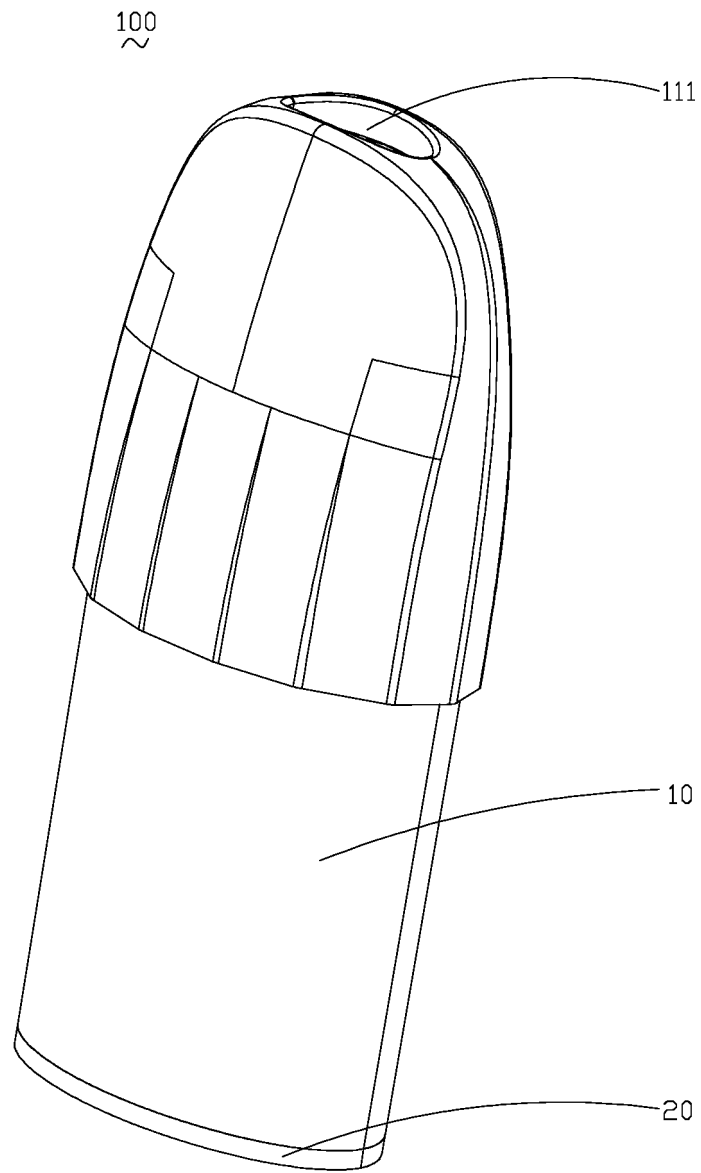


FIG. 1

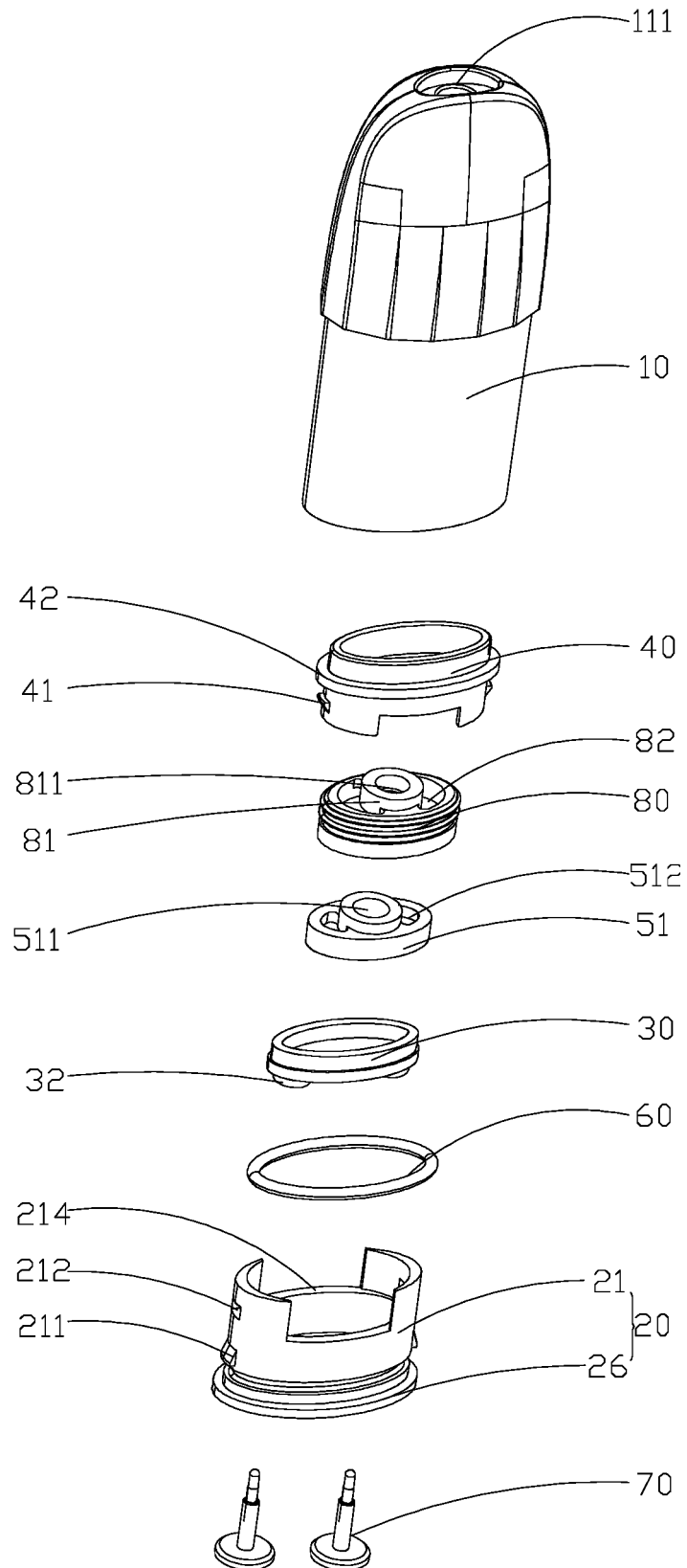


FIG. 2

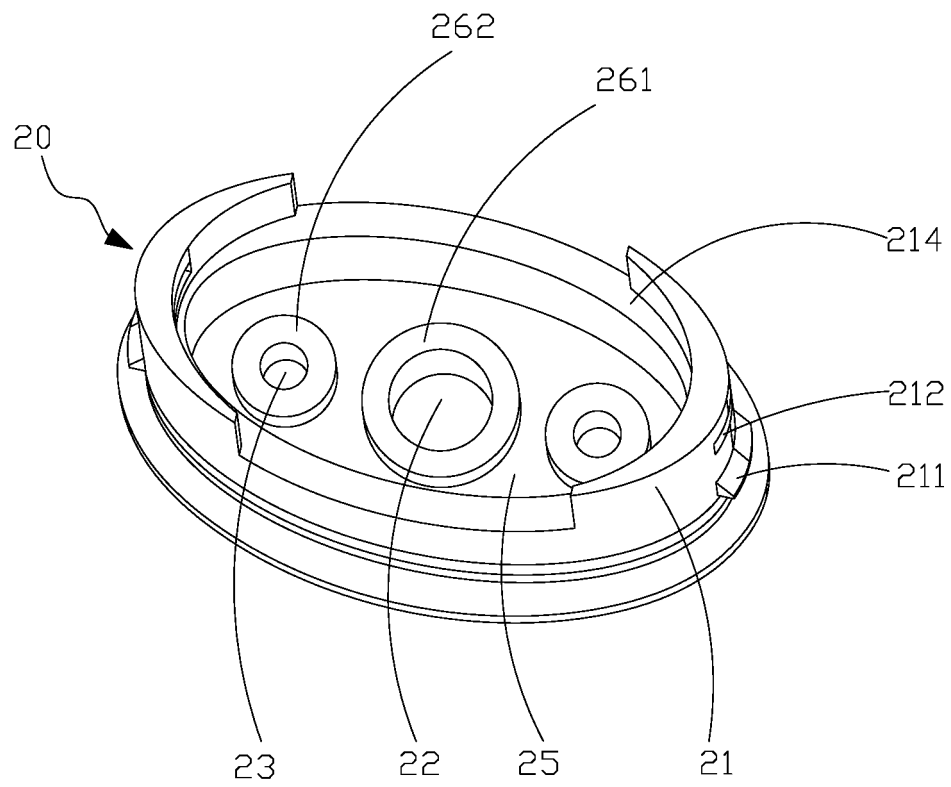


FIG. 3

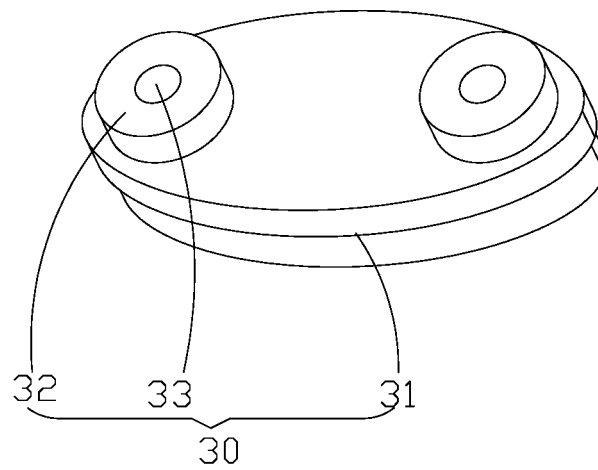


FIG. 4

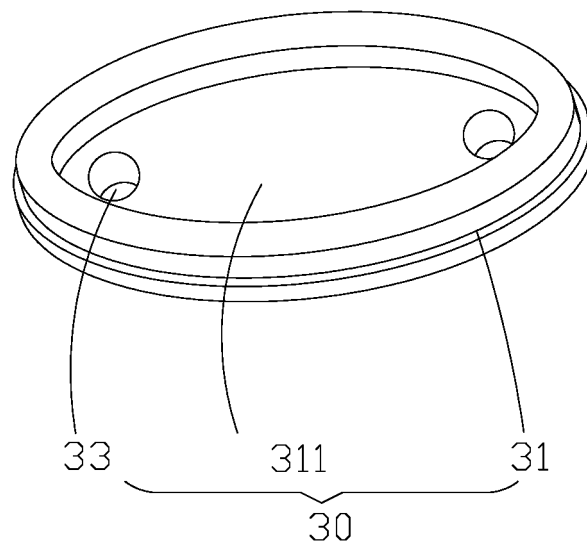


FIG. 5

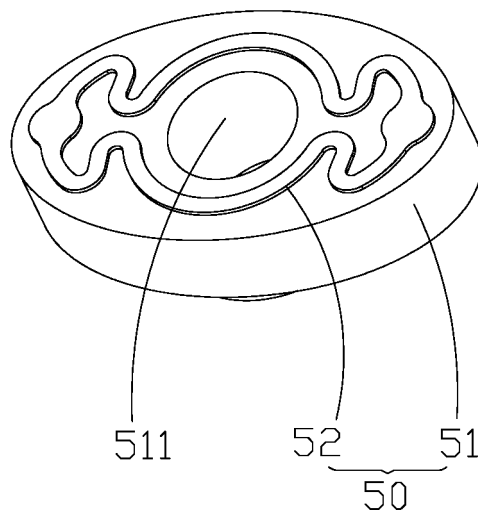


FIG. 6

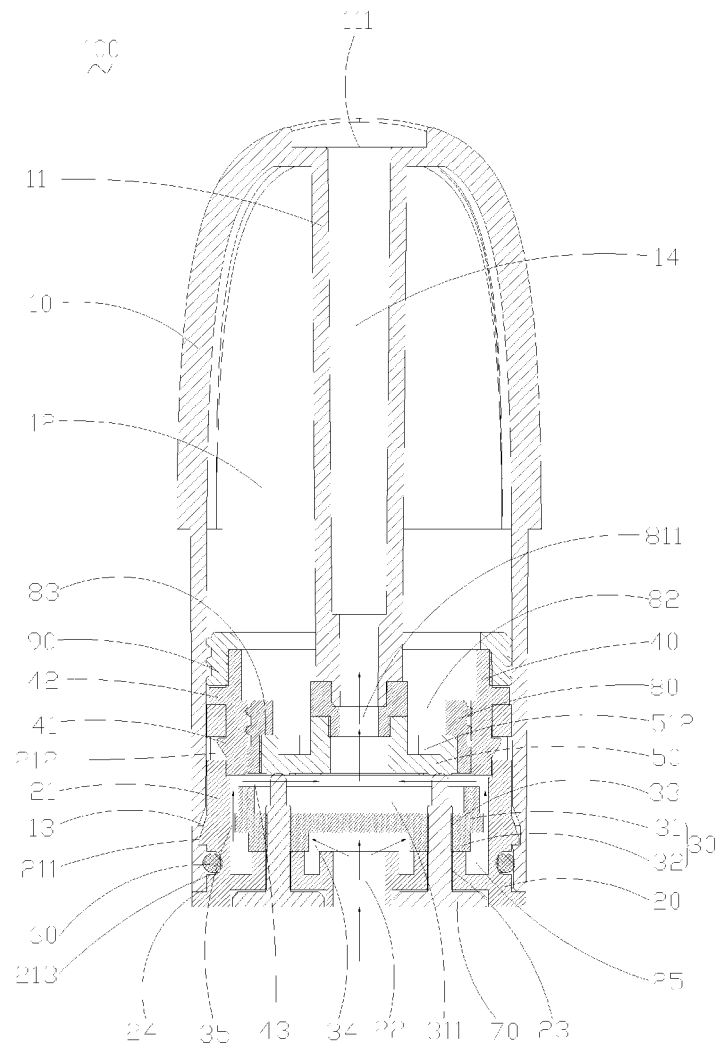


FIG. 7

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2021/071993

A. CLASSIFICATION OF SUBJECT MATTER

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

CNABS&CNTXT&CNKI: 电子烟, 雾化器, 收集槽, 集液槽, 收纳槽, 漏液 VEN: atomizer, electronic cigarette, e-cigarette, liquid storage, collect+, groove, leak+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 211746937 U (CHANGZHOU PAITENG ELECTRONIC TECHNOLOGY SERVICE CO., LTD.) 27 October 2020 (2020-10-27) claims 1-10, and figures 1-9	1-10
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Y	CN 208048026 U (SHENZHEN SMOORE TECHNOLOGY LIMITED) 06 November 2018 (2018-11-06) description, paragraphs 38-50, figures 1-7	2-9
Y	CN 207613191 U (SHENZHEN FIRST UNION TECHNOLOGY CO., LTD.) 17 July 2018 (2018-07-17) description, paragraphs 22-31, figures 1-5	2-9

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

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Date of the actual completion of the international search 12 April 2021	Date of mailing of the international search report 19 April 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.

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