(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 4 512 261 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
26.02.2025 Bulletin 2025/09

(21) Application number: **24193179.9**

(22) Date of filing: **06.08.2024**

(51) International Patent Classification (IPC):
A24F 40/40 *(2020.01)*

(52) Cooperative Patent Classification (CPC):
A24F 40/40; A24F 40/10; A24F 40/30

(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 ME MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA
Designated Validation States:
GE KH MA MD TN

(30) Priority: **09.08.2023 CN 202311001244**

(71) Applicant: **Shenzhen First Union Technology Co., Ltd.**
Shenzhen, Guangdong 518000 (CN)

(72) Inventors:
- **LIU, Yongqiang**
  Shenzhen (CN)
- **HU, Ruilong**
  Shenzhen (CN)
- **XU, Zhongli**
  Shenzhen (CN)
- **LI, Yonghai**
  Shenzhen (CN)

(74) Representative: **Ran, Handong et al**
Maucher Jenkins
Seventh Floor Offices
Artillery House
11-19 Artillery Row
London SW1P 1RT (GB)

(54) ELECTRONIC ATOMIZATION DEVICE

(57) Embodiments of the present invention relate to the field of electronic atomization technologies, and in particular, disclose an electronic atomization device, including a housing; a power supply assembly, having a plurality of connectors thereon, where the power supply assembly is configured to output power through the connectors; and a plurality of cartridges, accommodated in the housing, where all the cartridges are configured to be translatable between a first position and a second position in the housing; and the cartridges are configured to abut against a part of the connectors when being translated to the second position. Through the foregoing manner, in the embodiments of the present disclosure, different or the same cartridges of the plurality of cartridges can be replaced and used.

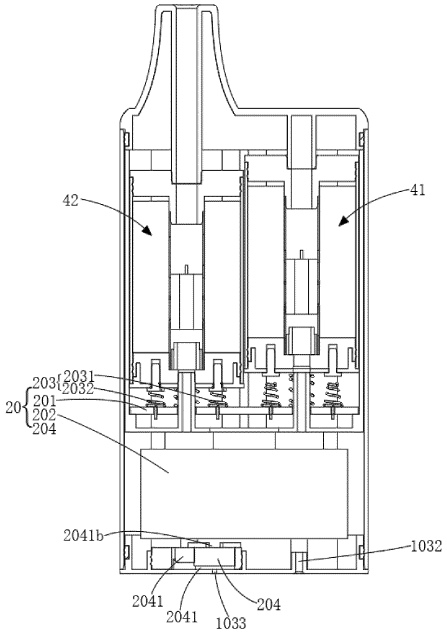

FIG. 3

EP 4 512 261 A1

Description

TECHNICAL FIELD

[0001] Embodiments of the present invention relate to the field of electronic atomization technologies, and in particular, to an electronic atomization device.

BACKGROUND

[0002] An electronic atomization device is a device that can vaporize a liquid substrate to generate an aerosol. Some existing electronic atomization devices include a plurality of atomizers. Each of the atomizers can separately generate an aerosol. During use, only one of the atomizers is in an operating state and is electrically connected to a power assembly, and the other atomizers are in a non-operating state. To switch between the plurality of atomizers, the plurality of atomizers are generally used as a whole and rotated relative to the power assembly synchronously, to switch the atomizer electrically connected to the power assembly. However, these arrangements lead to a complex internal structure of the electronic atomization device, which is not conducive to cost reduction.

SUMMARY

[0003] In view of the foregoing problems, embodiments of the present invention provide an electronic atomization device having a simple structure.

[0004] According to an aspect of the present invention, an electronic atomization device is provided, including a housing; and a power supply assembly, having a plurality of connectors thereon, where the power supply assembly is configured to output power through the connectors; and a plurality of cartridges, accommodated in the housing, where all the cartridges are configured to be translatable between a first position and a second position in the housing; and the cartridges are configured to abut against a part of the connectors when being translated to the second position.

[0005] In an optional manner, the electronic atomization device further includes a mouthpiece assembly, and the mouthpiece assembly is configured to have a plurality of different connecting directions with the housing; and a cartridge located at the first position is defined as a first cartridge, a cartridge located at the second position is defined as a second cartridge, and each of the cartridges is configured to be switched between the first cartridge and the second cartridge by changing a connecting direction between the mouthpiece assembly and the housing.

[0006] In an optional manner, the mouthpiece assembly includes a pressing column, and when the mouthpiece assembly is connected to the housing, the pressing column abuts against one of the cartridges and pushes the cartridge to translate from the first position to the second position.

[0007] In an optional manner, the mouthpiece assembly includes a mouthpiece with a proximal end open, one end of the pressing column is connected to the mouthpiece, and the other end of the pressing column abuts against one of the cartridges, where an airflow channel is formed in the pressing column, the airflow channel is in communication with the proximal end of the mouthpiece, and the airflow channel is in communication with an atomization cavity of the cartridge.

[0008] In an optional manner, one end of the pressing column is embedded into an atomization cavity of the second cartridge, and the pressing column is in clearance fit with the second cartridge.

[0009] In an optional manner, the cartridge includes an atomization cavity, a storage cavity configured to accommodate a liquid substrate, and a sealing plug sealing an end portion of the storage cavity, an atomization cavity of the second cartridge is in fluid communication with the mouthpiece assembly, and the pressing column is at least partially embedded into the sealing plug.

[0010] In an optional manner, the mouthpiece assembly further includes a limiting member, and when the mouthpiece assembly is connected to the housing, the limiting member abuts against the first cartridge.

[0011] In an optional manner, a direction in which translation is performed from the first position toward the second position is defined as a first direction, and in the first direction, an extended length of the pressing column is greater than an extended length of the limiting member.

[0012] In an optional manner, the limiting member includes a limiting column, and the limiting column is at least partially embedded into the first cartridge.

[0013] In an optional manner, the limiting column is in clearance fit with the first cartridge.

[0014] In an optional manner, the mouthpiece assembly is detachably connected to the housing, and the mouthpiece assembly is configured to change a connecting direction with the housing by being detached from the housing and then reconnected to the housing.

[0015] In an optional manner, the mouthpiece assembly further includes a shell, a filling member, and a sealing ring, the sealing ring provides a sealed connection between the shell and the housing, and the filling member is arranged in the shell to reduce an air storage space inside the shell; and when the mouthpiece assembly is connected to the housing, a gap between the filling member and the second cartridge is greater than a gap between the filling member and the first cartridge.

[0016] In an optional manner, elastic members are arranged between the power supply assembly and the cartridges, and at least a part of the elastic members is configured to abut against the first cartridge, to keep the first cartridge at the first position.

[0017] In an optional manner, the power supply assembly includes a circuit board, the plurality of connectors are bonded on the circuit board, and the elastic members are

bonded on the circuit board.

[0018] In an optional manner, a part of the elastic members abuts against the second cartridge, and the part of the elastic members abutting against the second cartridge is in an elastically compressed state.

[0019] The embodiments of the present invention have the following beneficial effects: A housing includes a plurality of cartridges, and the cartridges can be translated in the housing between a first position and a second position. A cartridge translated to the second position can be electrically connected to a power supply assembly, so that the cartridge can generate an aerosol. In this way, an internal structure of an electronic atomization device is simple, which is conducive to cost reduction, and a user has a simple operation of switching working states of the cartridge, which is conducive to improving user experience.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] To describe the technical solutions in specific embodiments of the present invention or in the related art more clearly, the following briefly describes the accompanying drawings required in descriptions of the specific embodiments of the present invention or descriptions of the related art. In all the accompanying drawings, similar elements or parts are generally identified by similar reference numerals. In the accompanying drawings, elements or parts are not necessarily drawn to actual scale.

FIG. 1 is a schematic diagram of an overall structure of an electronic atomization device according to an embodiment of the present invention;

FIG. 2 is a schematic exploded view of an overall structure of an electronic atomization device according to an embodiment of the present invention;

FIG. 3 is a side cross-sectional view of an electronic atomization device according to an embodiment of the present invention;

FIG. 4 is another schematic annotated side cross-sectional view of an electronic atomization device according to an embodiment of the present invention; and

FIG. 5 is still another schematic annotated side cross-sectional view of an electronic atomization device according to an embodiment of the present invention.

DETAILED DESCRIPTION

[0021] For ease of understanding the present invention, the present invention is described in more detail below with reference to the accompanying drawings and specific embodiments. It should be noted that, when an element is expressed as "being fixed to" another element, the element may be directly on the another element, or one or more intermediate elements may exist between the element and the another element. When an element is expressed as "being connected to" another element, the element may be directly connected to the another element, or one or more intermediate elements may exist between the element and the another element. The terms "vertical", "horizontal", "left", and "right", and similar expressions used in this specification are merely used for an illustrative purpose.

[0022] Unless otherwise defined, meanings of all technical and scientific terms used in the specification are the same as that usually understood by a person skilled in the technical field to which the present invention belongs. The terms used in the specification of the present invention are merely intended to describe objectives of the specific embodiments, but are not intended to limit the present invention. The term "and/or" used in this specification includes any or all combinations of one or more related listed items.

[0023] In addition, technical features involved in different embodiments of this application described below may be combined together provided that no conflict occurs.

[0024] Referring to FIG. 1 and FIG. 2, an electronic atomization device 1000 includes a housing 10, a power supply assembly 20, a mouthpiece assembly 30, and a plurality of cartridges 40. The plurality of cartridges 40 are arranged in the housing 10. The mouthpiece assembly 30 is connected to the housing 10, and the mouthpiece assembly 30 can be in fluid communication with at least one cartridge 40 in the housing 10.

[0025] For the housing 10, as shown in FIG. 1 and FIG. 2, an accommodation cavity 10a and a first opening 10b in communication with the accommodation cavity 10a are provided on the housing 10. The accommodation cavity 10a may be configured to accommodate the plurality of cartridges 40. The mouthpiece assembly 30 and the housing 10 can cover at least a part of the first opening 10b.

[0026] The housing 10 may include a packaging shell 101, a mounting frame 102, and a connecting end 103. The packaging shell 101 wraps an outer side of the mounting frame 102. A second opening 10c is provided on the packaging shell 101. The second opening 10c is provided opposite to the first opening 10b. The connecting end 103 covers the second opening 10c and is adjacent to an end portion of the packaging shell 101. It may be understood that, a connection manner between the connecting end 103 and the packaging shell 101 includes, but is not limited to, screwing, gluing, magnetic attraction, or the like. Optionally, to ensure airtightness of the accommodation cavity 10a, a sealant or another sealing structure is further arranged at a joint between the connecting end 103 and the packaging shell 101.

[0027] In some embodiments, to make a connection between the connecting end 103 and the packaging shell 101 more stable, a connecting portion 1021 is arranged at an end of the mounting frame 102 close to the connecting end 103. A first snap-in hole 1021a is provided on the connecting portion 1021, and a first hook 1031 is arranged at an end of the connecting end 103 close to

the mounting frame 102. When the connecting end 103 is connected to the packaging shell 101, the first hook 1031 is buckled on the first snap-in hole 1021a.

[0028] In some embodiments, the accommodation cavity 10a is at least partially located in the packaging shell 101. The accommodation cavity 10a may be divided to form a first space (not marked) and a second space (not marked). The mounting frame 102 is located in the first space. A mounting cavity 102a is provided on the mounting frame 102. The plurality of cartridges 40 are mounted in the mounting cavity 102a. The second space may be configured for placing at least a part of components of the power supply assembly 20. The second space is located close to the second opening 10c. The connecting end 103 covers the second opening, to ensure airtightness in the second space.

[0029] In some embodiments, referring to FIG. 3 together, the connecting end 103 is further provided with an air inlet hole 1032. External air may enter the second space from the air inlet hole 1032, then at least partially enter the cartridge 40 from the second space, and mix with a volatile formed by heating in the cartridge 40 to form an aerosol. The aerosol flows out of the mouthpiece assembly 30 and is inhaled by a user.

[0030] For the foregoing power supply assembly 20, as shown in FIG. 2 and FIG. 3, the power supply assembly 20 may be arranged in the accommodation cavity 10a. The power supply assembly 20 includes a circuit board 201, a power supply 202, and a plurality of connectors 203. The power supply assembly 20 is configured to output power through the connectors 203. The circuit board 201 is electrically connected to the power supply 202 and the plurality of connectors 203. The connectors 203 may be electrically connected to the cartridge 40, thereby implementing an electrical connection between the cartridge 40 and the power supply assembly 20. Optionally, the plurality of connectors 203 are bonded on the circuit board 201, or the plurality of connectors 203 are bonded on other components of the power supply assembly 20, or the plurality of connectors 203 are located between the cartridges 40 and the circuit board 201. It may be understood that, to output power through the connector 203, a manufacturing material of the connector 203 may be metal or another conductive material, and a specific shape of the connector 203 may not be limited. The connector 203 may be elastic or inelastic, for example, the connector 203 is a conductive spring.

[0031] In some embodiments, the power supply assembly 20 further includes a control switch 204. The control switch 204 is electrically connected to the circuit board 201 or the power supply 202. The control switch 204 is configured to control whether the power supply 202 provides power to the cartridge 40 electrically connected to the power supply 202. It may be understood that, the control switch 204 may be an external switch or an internal switch. The external switch is a switch exposed on a surface of the electronic atomization device. The user may directly contact the external switch to control whether the power supply 202 provides power to the cartridge 40 electrically connected to the power supply 202. The internal switch is a switch hidden inside the electronic atomization device. When the control switch 204 is an internal switch, as shown in FIG. 3, the internal switch may be arranged in the accommodation cavity 10a. The internal switch may be an airflow sensor. The airflow sensor is mounted in a fixed cavity of a fixed block 2041. The fixed block 2041 may be fixed to the connecting end 103. The fixed block 2041 is provided with a third opening 2041b in fluid communication with the second space and the fixed cavity. The connecting end 103 is provided with a vent hole 1033. One side of the airflow sensor is close to the third opening 2041b, and the other side of the airflow sensor is close to the vent hole 1033. When the user inhales through the mouthpiece assembly 30, an airflow in the accommodation cavity 10a flows toward the mouthpiece assembly 30, so that a pressure difference is produced between the side of the airflow sensor close to the third opening 2041b and the side of the airflow sensor close to the vent hole 1033. When the pressure difference between the two sides of the airflow sensor reaches a threshold range, the airflow sensor functions as a switched-on switch, causing the power supply 202 to provide power to the cartridge 40 electrically connected to the power supply 202. When the user does not inhale, the pressure difference between the two sides of the airflow sensor does not reach the threshold range. In this case, the airflow sensor functions as a switched-off switch, causing the power supply 202 to stop providing power to the cartridge 40 electrically connected to the power supply 202.

[0032] In some embodiments, the plurality of connectors 203 include a first connector 2031 and a second connector 2032. The first connector 2031 and the second connector 2032 are respectively configured to connect different electrodes on the cartridge 40, thereby implementing an electrical connection between the cartridge 40 and the power supply assembly 20.

[0033] For the cartridge 40, as shown in FIG. 2 to FIG. 4, a plurality of cartridges 40 are provided, and at least a part of the plurality of cartridges 40 may be cartridges 40 of the same taste or cartridges 40 of different tastes, which may be set by the user based on actual requirements. The plurality of cartridges 40 are mounted in the mounting cavity of the mounting frame 102. The plurality of cartridges 40 may be arranged in a preset direction, for example, the plurality of cartridges 40 are arranged in a straight shape, or the plurality of cartridges 40 are arranged in a rectangle, or the plurality of cartridges 40 are arranged in a triangle, or the like. In the embodiment shown in FIG. 2, a quantity of the plurality of cartridges 40 is two, and the two cartridges 40 are arranged in a straight shape.

[0034] In an embodiment of this application, the cartridge 40 is configured to be translatable between a first position and a second position in the housing 10. The "translatable" means a movement traj ectory of the car-

tridge 40 is a straight line. The cartridge 40 is configured to abut against a part of the connectors 203 when being translated to the second position, to implement an electrical connection between the cartridge 40 and the power supply assembly 20. The cartridge 40 may be moved in a first direction in the accommodation cavity 10a of the housing 10. It should be noted that, the first direction is a direction from the first opening 10b toward a bottom of the accommodation cavity 10a, or a direction moving from the first position to the second position. The first position may be an initial position of the cartridge 40 accommodated in the accommodation cavity 10a, and the second position may be a stop position after the cartridge 40 slides in the accommodation cavity 10a for a preset distance in the first direction. It is defined that a cartridge 40 located at the first position is a first cartridge 41, and a cartridge 40 located at the second position is a second cartridge 42. Therefore, when the cartridge 40 moves from the first position to the second position, the first cartridge 41 is changed into the second cartridge 42. On the contrary, the second cartridge 42 is changed into the first cartridge 41.

[0035] It may be understood that, in some other embodiments, the first position and the second position may alternatively be re-defined, for example, the first position is defined as a position of the cartridge 40 sliding for a distance d from the initial position in the first direction, and the second position is defined as a position of the cartridge 40 sliding for a distance D from the initial position in the first direction, where D is greater than d, provided that the cartridge 40 at the first position is not connected to the connector 203, and the cartridge 40 at the second position is connected to the connector 203.

[0036] Specifically, the cartridge 40 may include an encapsulation shell 401, a connecting pipe 402, an atomization core 403, and a sealing plug 404. The encapsulation shell 401 is provided with a storage cavity for accommodating a liquid substrate. The sealing plug 404 is configured to seal an end portion of the storage cavity. A liquid storage cotton or another liquid storage substance may be arranged in the storage cavity, so that the liquid substrate is stored by using the liquid storage cotton or the another liquid storage substance. Alternatively, the storage cavity may directly store the liquid substrate without the liquid storage cotton or the another liquid storage substance. The connecting pipe 402 may pass through the storage cavity, the connecting pipe 402 may be provided with an atomization cavity, and the atomization core 403 is arranged in the atomization cavity. The atomization cavity is in communication with the storage cavity, and the liquid substrate in the storage cavity may enter the atomization cavity to be heated by the atomization core 403 to generate an aerosol. The sealing plug 404 may include a first sealing plug 4041 and a second sealing plug 4042. The first sealing plug 4041 is located at an end of the cartridge 40 close to the first opening 10b. The second sealing plug 4042 is located at an end of the cartridge 40 away from the first opening 10b. The storage cavity is provided between the first sealing plug 4041 and the second sealing plug 4042. Two opposite ends of the connecting pipe 402 may be respectively fixed to the first sealing plug 4041 and the second sealing plug 4042. The connecting pipe 402 is in fluid communication with the mouthpiece assembly 30, and the connecting pipe 402 can transfer the aerosol to the mouthpiece assembly 30.

[0037] In some embodiments, the cartridge 40 further includes a first electrode column 405 and a second electrode column 406. Both the first electrode column 405 and the second electrode column 406 may be at least partially located on the second sealing plug 4042, and the first electrode column 405 and the second electrode column 406 may be partially exposed on an outer surface of the second sealing plug 4042. The atomization core 403 includes a heating element and a liquid absorbing element. The liquid absorbing element is configured to guide the liquid substrate in the storage cavity to the heating element. The heating element is configured to heat at least a part of the liquid substrate on the liquid absorbing element, to generate an aerosol for the user to inhale. The heating element may be a resistive heating element, including a first electrode and a second electrode. The first electrode of the heating element is electrically connected to the first electrode column 405, and the second electrode of the heating element is electrically connected to the second electrode column 406. When the cartridge 40 is located at the second position, the first electrode column 405 on the cartridge 40 abuts against the first connector 2031, and the second electrode column 406 on the cartridge 40 abuts against the second connector 2032, thereby implementing an electrical connection between the cartridge 40 and the power supply assembly 20. Optionally, the heating element is a heating wire, a heating mesh, or another component or apparatus that can implement heating, and the liquid absorbing element is a liquid absorbing cotton or another liquid absorbing substance.

[0038] In some embodiments, referring to FIG. 5 together, elastic members 40a are arranged between the power supply assembly 20 and the cartridge 40. At least a part of the elastic members 40a is configured to support the first cartridge 41 to keep the first cartridge 41 at the first position. The elastic member 40a may elastically support the first cartridge 41. One end of the elastic member 40a abuts against the cartridge 40, and the other end of the elastic member 40a may be fixed to the housing 10, or the other end of the elastic member 40a may be bonded on the circuit board 201, or the other end of the elastic member 40a may be bonded at another position. Optionally, the elastic member 40a is a spring. It should be noted that, in other embodiments, one end of the elastic member 40a may be bonded on the cartridge 40, and the other end of the elastic member 40a may be separated from or connected to the power supply assembly 20.

[0039] In some embodiments, a part of the elastic

members 40a abuts against the second cartridge 42, and the second cartridge 41 and the power supply assembly 20 may jointly compress the elastic member 40a, so that the elastic member 40a is in an elastically compressed state. In this case, if compression of the second cartridge 40 is canceled, for example, the user removes the mouthpiece assembly 30 from the housing 10, the second cartridge 42 springs to the first position or the initial position under action of elastic force. That is, the second cartridge 42 becomes the first cartridge 41.

[0040] For the foregoing mouthpiece assembly 30, as shown in FIG. 2 and FIG. 4, the mouthpiece assembly 30 is connected to the housing 10 and can compress at least one cartridge 40 in the housing 10, so that at least one cartridge 40 is pushed to the second position by the mouthpiece assembly 30. The mouthpiece assembly 30 further facilitates the user inhaling gas generated in the cartridge 40. The mouthpiece assembly 30 is configured to have a plurality of different connecting directions with the housing 10, to push different cartridges 40 to the second position in the different connecting directions. For example, the mouthpiece assembly 30 may be connected to the housing 10 after being rotated to a preset angle outside or inside the housing 10. The preset angle may be 180 degrees, 60 degrees, 30 degrees, or the like. In some embodiments, the mouthpiece assembly 30 is detachably connected to the housing 10. In this case, the mouthpiece assembly 30 is configured to change a connecting direction with the housing 10 by being detached from the housing 10 and then reconnected to the housing 10.

[0041] Specifically, the mouthpiece assembly 30 includes a shell 301, a mouthpiece 302 with a proximal end open, and a pressing column 303. The mouthpiece 302 and the pressing column 303 are both connected to the shell 301. The mouthpiece 302 is located on one side of the shell 301, and the pressing column 303 is located on the other side of the shell 301. When the mouthpiece assembly 30 is connected to the housing 10, the pressing column 303 abuts against one of the cartridges 40 and pushes the cartridge 40 to translate from the first position to the second position. The cartridge 40 located at the second position is electrically connected to the circuit board 201. The user may inhale at the mouthpiece 302, and in this case, an internal switch (the airflow sensor) on the power supply assembly 20 is in an open state, so that the power supply assembly 20 provides power to the second cartridge 42. Therefore, the second cartridge 42 generates the aerosol for the user to inhale.

[0042] In some embodiments, one end of the pressing column 303 is connected to the mouthpiece 302, and the other end of the pressing column 303 abuts against one of the cartridges 40. An airflow channel 303a is formed in the pressing column 303. The airflow channel 303a is in communication with the proximal end (an aerosol inhalation opening) of the mouthpiece 302, and the airflow channel 303a is in communication with the atomization cavity 401a of the cartridge 40. In this case, gas generated in the atomization cavity of the cartridge 40 may flow to the proximal end of the mouthpiece 302 through the airflow channel 303a, for the user to inhale.

[0043] In some embodiments, one end of the pressing column 303 is embedded into the atomization cavity of the second cartridge 42, and the pressing column 303 is in clearance fit with the second cartridge 42. Through such arrangement, assembly and fit between the mouthpiece assembly 30 and the second cartridge 42 are convenient. One end of the pressing column 303 is embedded into the second cartridge 42, and can limit the mouthpiece 302.

[0044] It may be understood that, the gas generated in the second cartridge 42 is not limited to flow from the pressing column 303 to the mouthpiece 302, that is, the airflow channel 303a is not limited to being located on the pressing column 303. The pressing column 303 may be solid, or may be blocked or closed. The airflow channel 303a may alternatively be located on another component of the mouthpiece assembly 30, provided that the airflow channel 303a is in communication with the mouthpiece 302 and the atomization cavity of the second cartridge 42. For example, the airflow channel 303a is located on the shell 301.

[0045] In some embodiments, the mouthpiece assembly 30 further includes a filling member 304 and a sealing ring 305. The sealing ring 305 provides a sealed connection between the shell 301 and the housing 10. The filling member 304 is arranged in the shell 301, to reduce an air storage space inside the shell 301. When a connection between the airflow channel 303a and the connecting pipe 402 of the second cartridge 42 is an unsealed connection, a small air storage space in the shell 301 can reduce air mixed in the mouthpiece, thereby avoiding thinning taste of the aerosol. This is conducive to improving smoking taste of the user. In addition, when the control switch 204 is the internal switch (the airflow sensor), reducing the internal air storage space can improve sensing accuracy of the airflow sensor. It may be understood that, in this application, a cavity is provided in the shell 301, and the filling member 304 is mounted in the cavity. The filling member 304 may be a sealant or another filler. In some other embodiments, the cavity is not provided in the shell 301, and the shell 301 is a solid structure.

[0046] In some embodiments, when the mouthpiece assembly 30 is connected to the housing 10, a gap between the filling member 304 and the second cartridge 42 is greater than a gap between the filling member 304 and the first cartridge 41.

[0047] In some embodiments, the mouthpiece assembly 30 further includes a limiting member 306. When the mouthpiece assembly 30 is connected to the housing 10, the limiting member 306 abuts against the first cartridge 41, and is configured to limit the first cartridge 41. It should be noted that, the limiting member 306 may be a structure extending from the filling member 304 in the first direction, or the limiting member 306 may be a structure

extending from the shell 301 in the first direction. Optionally, the limiting member 306 includes a limiting column 3061. The limiting column 3061 is formed by extending from the shell 301 in the first direction. The limiting column 3061 may be at least partially embedded into the first cartridge 41, to limit the first cartridge 41. The limiting column 3061 may be in a hollow state or a solid state, which may not be specifically limited in this application. Fit between the limiting column 3061 and the first cartridge 41 may be clearance fit or interference fit. When the fit between the limiting column 3061 and the first cartridge 41 is the interference fit, the limiting column 3061 may reduce convection of gas inside and outside the first cartridge 41.

[0048] The limiting member 306 is configured to abut against the first cartridge 41, and the first cartridge 41 is kept at the first position by the elastic member 40a and the limiting member 306. The limiting member 306 can prevent the first cartridge 41 from at least partially being detached from the accommodation cavity 10a when the mouthpiece assembly 30 is detached from the housing 10. The limiting member 306 can block the connecting column 402 of the first cartridge, to keep the connecting column 402 clean. The filling member 304 may be a part included in the limiting member 306.

[0049] In some embodiments, in the first direction, an extended length of the pressing column 303 is greater than an extended length of the limiting member 306, thereby ensuring that the plurality of cartridges 40 form the first cartridge 41 and the second cartridge 42 in the first direction.

[0050] It may be understood that, when a quantity of the cartridges 40 is more than two, because the cartridges 40 may be arranged in a plurality of manners, a plurality of pressing columns 303 and limiting columns 3061 may be arranged on the mouthpiece assembly 30, and the plurality of pressing columns 303 and the limiting columns 3061 are correspondingly arranged according to arrangement positions of the cartridges 40. For example, when the quantity of the cartridges 40 is four, and the cartridges 40 are arranged in a rectangle, a quantity of the pressing columns 303 may be 1, 2, or 3, and a quantity of the limiting columns 3061 may be 0, 1, 2, or 3. When the quantity of the pressing columns 303 is 1, only one cartridge 40 generates the aerosol for the user to inhale. When the quantity of the pressing columns 303 is 2 or 3, the aerosols generated by the plurality of cartridges 40 may be mixed with each other in the mouthpiece assembly 30, to form a gas with a mixed taste for the user to inhale, and in this case, the mouthpiece assembly 30 is in fluid communication with the connecting pipes 402 in the plurality of cartridges 40 at the same time.

[0051] In the embodiments of the present disclosure, a housing 10, a power supply assembly 20, and a plurality of cartridges 40 are provided. The power supply assembly 20 includes a plurality of connectors 203, and the power supply assembly 20 is configured to output power through the connectors 203. The plurality of cartridges 40 are accommodated in the housing 10, the cartridges 40 are all configured to be translatable in the housing 10 between a first position and a second position, and the cartridges 40 are configured to abut against a part of the connectors 203 when being translated to the second position. The plurality of cartridges 40 in the embodiments of this application are configured to be translatable between the first position and the second position in the housing 10, and a cartridge 40 located at the second position abuts against a part of the connectors 203, thereby implementing an electrical connection between the cartridge 40 and the power supply assembly 20. In this way, different or the same cartridges of the plurality of cartridges 40 can be replaced and used. Compared with the related art in which tastes between the plurality of cartridges 40 are replaced by using a rotating mechanism, in the embodiments of this application, a structure is simple, processing is convenient, and cost is low.

[0052] The foregoing descriptions are merely embodiments of the present invention, and are not intended to limit the patent scope of the present invention. Any equivalent structure or equivalent process transformation made by using the content of the specification and the accompanying drawings of the present invention, or directly or indirectly applied in other related technical fields, shall fall within the patent protection scope of the present invention.

Claims

1. An electronic atomization device (1000), comprising:

a housing (10);
a power supply assembly (20), having a plurality of connectors (203) thereon, wherein the power supply assembly (20) is configured to output power through the connectors (203); and
a plurality of cartridges (40), accommodated in the housing (10), wherein all the cartridges (40) are configured to be translatable between a first position and a second position in the housing (10),
wherein the cartridges (40) are configured to abut against a part of the connectors (203) when being translated to the second position.

2. The electronic atomization device (1000) according to claim 1, wherein

the electronic atomization device (1000) further comprises a mouthpiece assembly (30), and the mouthpiece assembly (30) is configured to have a plurality of different connecting directions with the housing (10); and
a cartridge (40) located at the first position is defined as a first cartridge (41), a cartridge (40) located at the second position is defined as a

second cartridge (42), and each of the cartridges is configured to be switched between the first cartridge (41) and the second cartridge (42) by changing a connecting direction between the mouthpiece assembly (30) and the housing (10).

3. The electronic atomization device (1000) according to claim 2, wherein
the mouthpiece assembly (30) comprises a pressing column (303), and when the mouthpiece assembly (30) is connected to the housing (10), the pressing column (303) abuts against one of the cartridges (40) and pushes the cartridge (40) to translate from the first position to the second position.

4. The electronic atomization device (1000) according to claim 3, wherein

the mouthpiece assembly (30) comprises a mouthpiece (302) with a proximal end thereof open, one end of the pressing column (303) is connected to the mouthpiece (302), and the other end of the pressing column (303) abuts against one of the cartridges (40), wherein
an airflow channel (303a) is formed in the pressing column (303), the airflow channel (303a) is in communication with the proximal end of the mouthpiece (302), and the airflow channel (303a) is in communication with an atomization cavity (401a) of the cartridge (40).

5. The electronic atomization device (1000) according to claim 4, wherein
one end of the pressing column (303) is embedded into an atomization cavity of the second cartridge (42), and the pressing column (303) is in clearance fit with the second cartridge (42).

6. The electronic atomization device (1000) according to claim 3, wherein
the cartridge (40) comprises an atomization cavity (401a), a storage cavity configured to accommodate a liquid substrate, and a sealing plug (404) sealing an end portion of the storage cavity, wherein an atomization cavity of the second cartridge (42) is in fluid communication with the mouthpiece assembly (30), and the pressing column (303) is at least partially embedded into the sealing plug (404).

7. The electronic atomization device (1000) according to any one of claims 3-6, wherein
the mouthpiece assembly (30) further comprises a limiting member (306), and when the mouthpiece assembly (30) is connected to the housing (10), the limiting member (306) abuts against the first cartridge (41).

8. The electronic atomization device (1000) according to claim 7, wherein
a direction in which translation is performed from the first position toward the second position is defined as a first direction, and in the first direction, an extended length of the pressing column (303) is greater than an extended length of the limiting member (306).

9. The electronic atomization device (1000) according to claim 7, wherein
the limiting member (306) comprises a limiting column (3061), and the limiting column (3061) is at least partially embedded into the first cartridge (41).

10. The electronic atomization device (1000) according to claim 9, wherein the limiting column (3061) is in clearance fit with the first cartridge (41).

11. The electronic atomization device (1000) according to claim 2, wherein
the mouthpiece assembly (30) is detachably connected to the housing (10), and the mouthpiece assembly (30) is configured to change a connecting direction with the housing (10) by being detached from the housing (10) and then reconnected to the housing (10).

12. The electronic atomization device (1000) according to claim 2, wherein the mouthpiece assembly (30) further comprises a shell (301), a filling member (304), and a sealing ring (305), wherein:

the sealing ring provides a sealed connection between the shell (301) and the housing (10), and the filling member (304) is arranged in the shell (301) to reduce an air storage space inside the shell (301); and
when the mouthpiece assembly (30) is connected to the housing (10), a gap between the filling member (304) and the second cartridge (42) is greater than a gap between the filling member (304) and the first cartridge (41).

13. The electronic atomization device (1000) according to claim 2, wherein
elastic members (40a) are arranged between the power supply assembly (20) and the cartridges (40), and at least one of the elastic members (40a) is configured to abut against the first cartridge (41), to keep the first cartridge (41) at the first position.

14. The electronic atomization device (1000) according to claim 13, wherein
the power supply assembly (20) comprises a circuit board (201), the plurality of connectors (203) are bonded on the circuit board, and the elastic members (40a) are bonded on the circuit board.

15. The electronic atomization device (1000) according

to claim 13, wherein
at least one of the elastic members (40a) abuts against the second cartridge (42), and the at least one elastic member (40a) abutting against the second cartridge (42) is in an elastically compressed state.

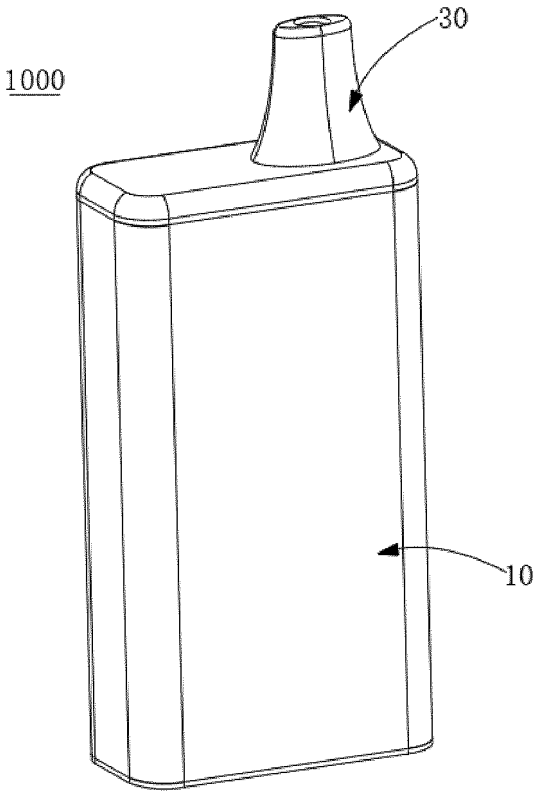

FIG. 1

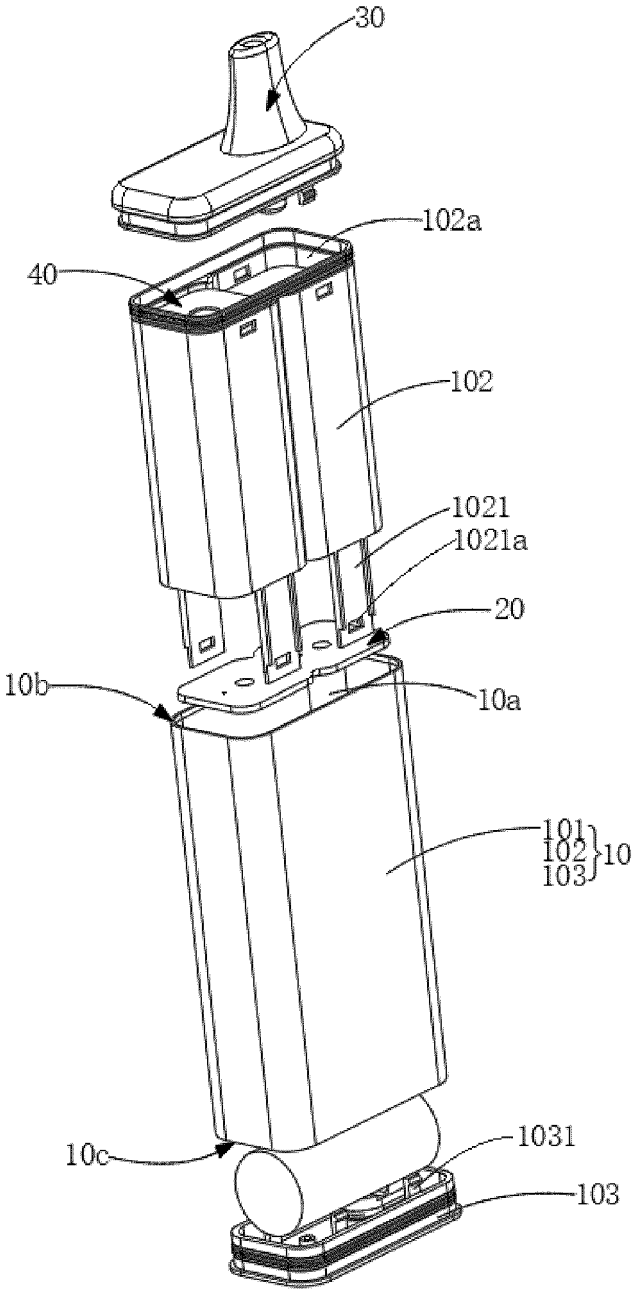

FIG. 2

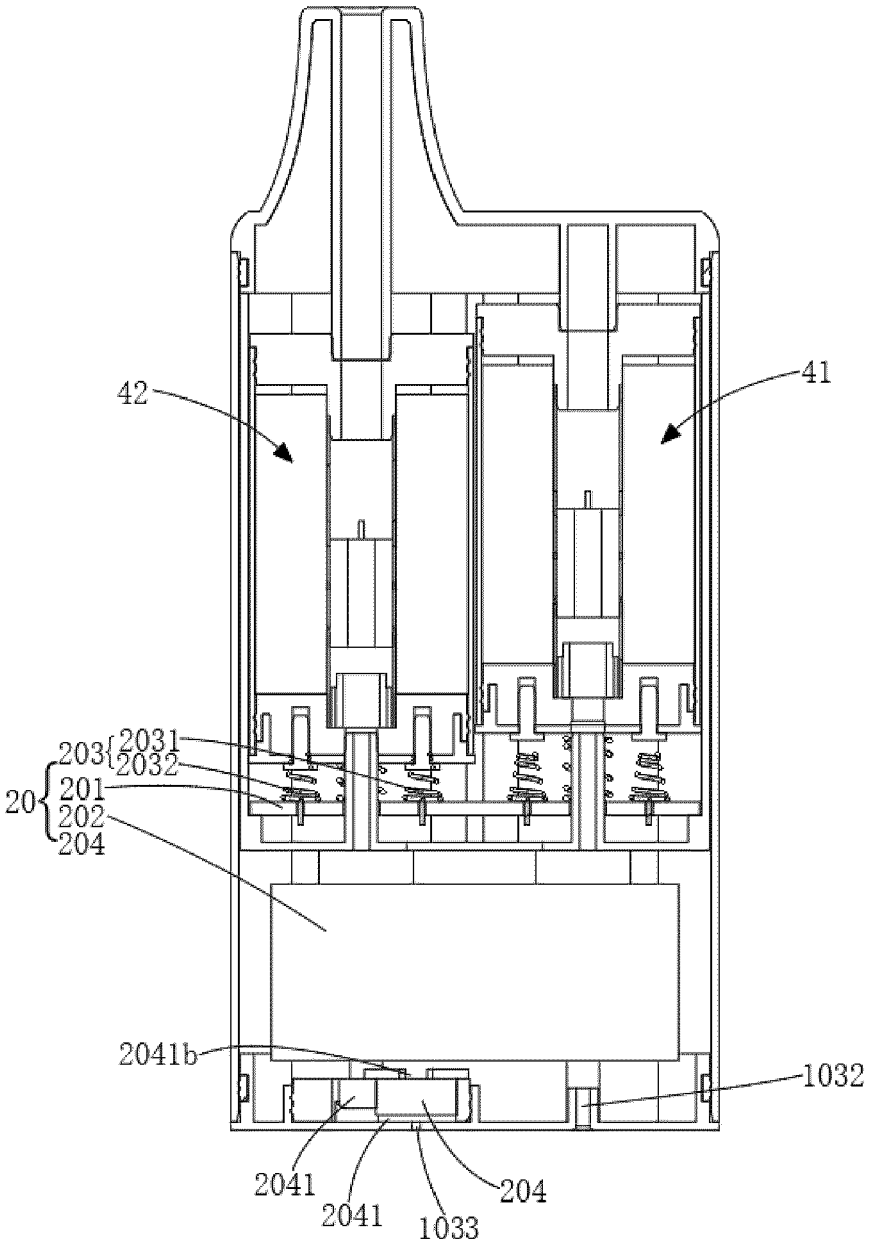
42
41
203
2031
2032
20
201
202
204
2041b
1032
2041
2041
1033
204

FIG. 3

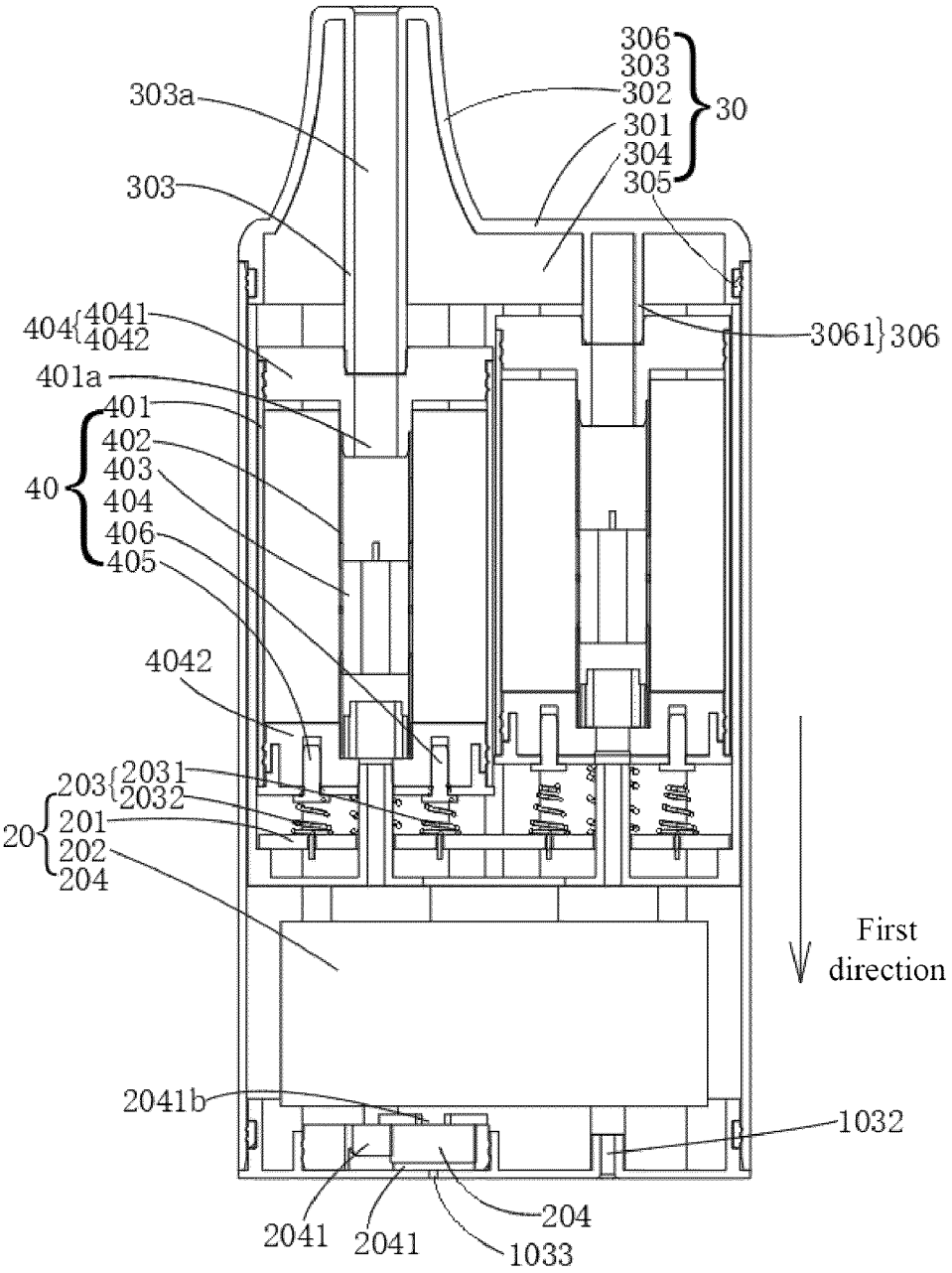
306
303
302
301
304
305
30
303a
303
404
4041
4042
3061
306
401a
401
402
403
404
406
405
40
4042
203
2031
2032
201
202
204
20
First direction
2041b
1032
2041
2041
204
1033

FIG. 4

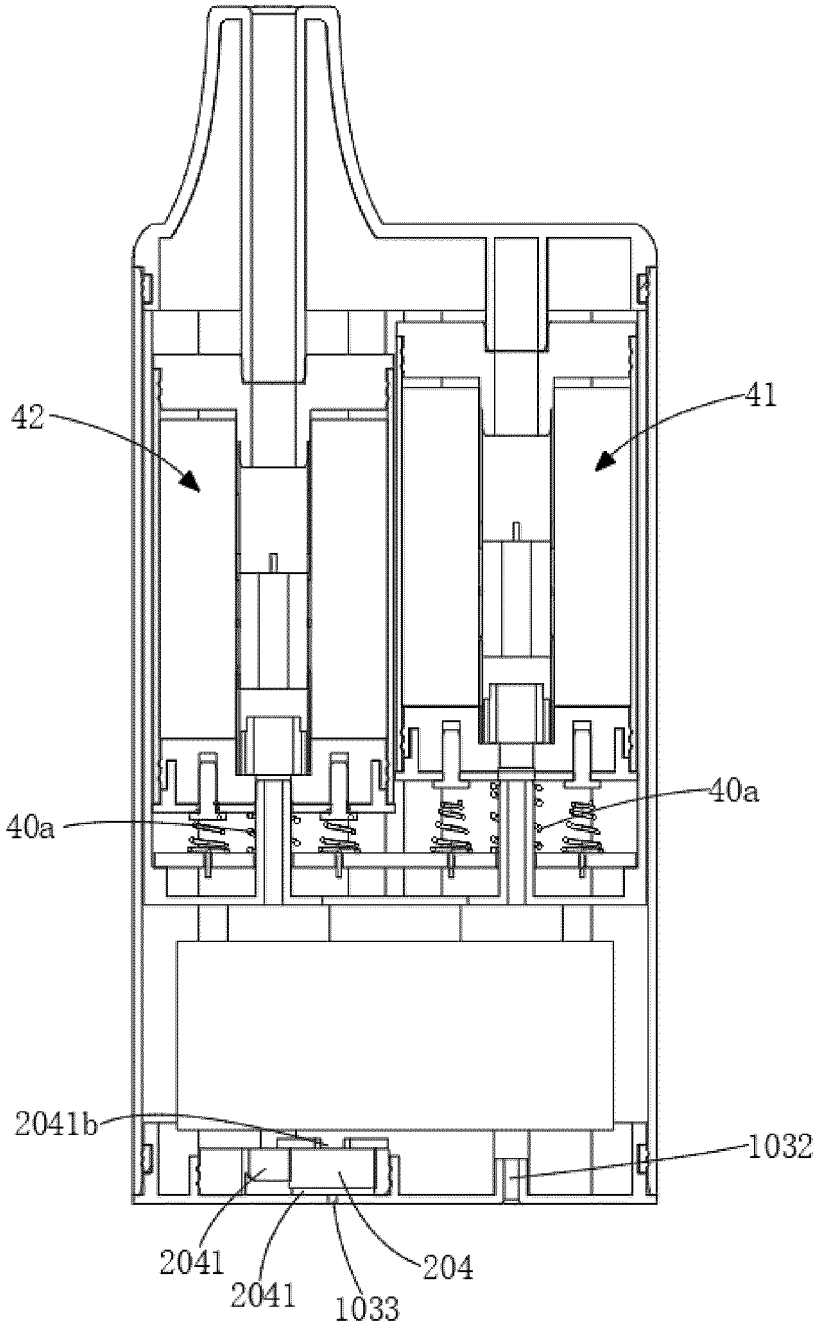

FIG. 5

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 24 19 3179

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 2 754 361 B1 (SHENZHEN FIRST UNION TECH CO [CN]) 7 March 2018 (2018-03-07)	1	INV. A24F40/40
A	* abstract; figures 5,6,9 * * two atomizers, mouthpiece asy.; paragraph [0006] * * selective connection; paragraph [0017] * * translation between first and second position; paragraph [0027] *	2-14	

X	US 2016/366940 A1 (LIU QIUMING [CN]) 22 December 2016 (2016-12-22)	1	
A	* abstract; figures 6,7 * * two atomizers; paragraph [0004] * * selective connection; paragraph [0022] *	2-15	

A	CN 218 354 648 U (SHENZHEN OUKE ELECTRONIC TECH CO LTD) 24 January 2023 (2023-01-24) * abstract; figures 3,4 * * mouthpiece rotation; paragraph [0006] *	1-15	TECHNICAL FIELDS SEARCHED (IPC) A24F

A	US 9 333 311 B2 (LIU QIUMING [CN] ET AL.) 10 May 2016 (2016-05-10) * abstract; figures 3,4,5 * * multiple atomizers w electrical connection; column 2, line 42 - line 53 *	1-15	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	9 January 2025	Schnitzhofer, Markus

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 24 19 3179

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

09-01-2025

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 2754361 B1	07-03-2018	EP 2754361 A1	16-07-2014
		US 2014190503 A1	10-07-2014
US 2016366940 A1	22-12-2016	CN 106028856 A	12-10-2016
		US 2016366940 A1	22-12-2016
		WO 2015127663 A1	03-09-2015
CN 218354648 U	24-01-2023	NONE	
US 9333311 B2	10-05-2016	AU 2012388597 A1	16-04-2015
		CA 2882773 A1	06-03-2014
		CN 104023570 A	03-09-2014
		EP 2740371 A1	11-06-2014
		JP 2014528717 A	30-10-2014
		KR 20140058507 A	14-05-2014
		RU 2015111363 A	10-10-2015
		US 2014060527 A1	06-03-2014
		WO 2014032275 A1	06-03-2014

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82