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(54) AEROSOL GENERATION APPARATUS

(57) This application relates to an aerosol generation apparatus, including: a power supply assembly, including a power supply and a circuit board, where a plurality of power supply modules respectively connected to the power supply are arranged on the circuit board, and the power supply assembly is configured to output power through the power supply modules; an atomization assembly, including a plurality of atomizers, where each of the atomizers is electrically connected to a different power supply module, and the atomizer is configured to start operating when the power supply module corresponding to the atomizer outputs the power; and a conductive member, configured to be drivable and simultaneously change a position relative to the circuit board and the atomization assembly, so as to selectively connect to one of the power supply modules. The conductive member is able to establish a conductive path between the power supply module selectively connected to the conductive member and the corresponding atomizer, so that the atomizer is in a standby state or an operating state.

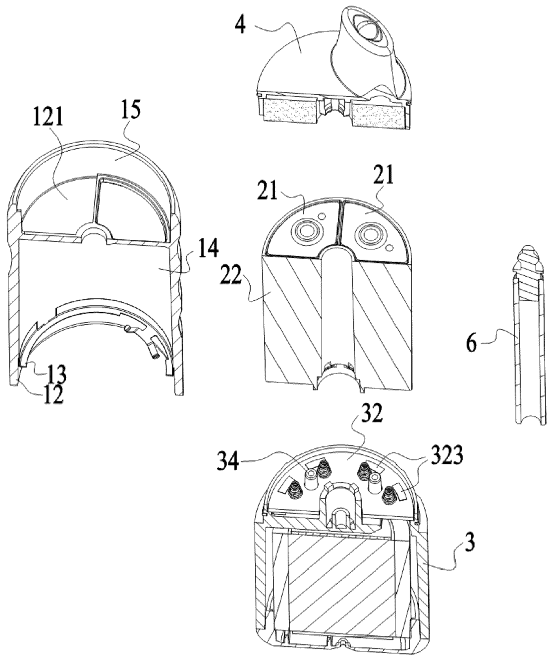

FIG. 5

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Description

TECHNICAL FIELD

[0001] Embodiments of this application relate to the field of aerosol generation technologies, and in particular, to an aerosol generation apparatus.

BACKGROUND

[0002] An aerosol generation apparatus is an apparatus that can atomize a liquid formulation to form an aerosol. However, in some exemplary prior art, the aerosol generation apparatus often has only one atomizer configured to store the liquid formulation. Due to the limitation on a volume of a single atomizer, a capacity and a type of a liquid substrate stored by the aerosol generation apparatus is limited, thus affecting user experience.

SUMMARY

[0003] Embodiments of this application provide an aerosol generation apparatus, which has a large liquid substrate storage capacity.

[0004] An embodiment of this application provides an aerosol generation apparatus, including:

a power supply assembly, including a power supply and a circuit board, where a plurality of power supply modules respectively connected to the power supply are arranged on the circuit board, and the power supply assembly is configured to output power through the power supply modules;

an atomization assembly, including a plurality of atomizers, where each of the atomizers is electrically connected to a different power supply module, and the atomizer is configured to start operating when the power supply module corresponding to the atomizer outputs the power; and

a conductive member, configured to be drivable and simultaneously change a position relative to the circuit board and the atomization assembly, so as to selectively connect to one of the power supply modules, where

the conductive member is able to establish a conductive path between the power supply module selectively connected to the conductive member and the corresponding atomizer, so that the atomizer is in a standby state or an operating state.

[0005] In an example, the power supply module includes a first electrode set and a second electrode set associated with each other, the power supply module outputs the power to the atomizer through the first electrode set, the conductive member is configured to connect to the power supply module by abutting against the second electrode set, and the conductive member is connected in series between the power supply and the first electrode set in the power supply module.

[0006] In an example, the aerosol generation apparatus further includes a plurality of identity circuits, where the plurality of identity circuits are associated with the plurality of power supply modules or the plurality of atomizers in one-to-one correspondence, and each of the identity circuits is configured to identify the corresponding power supply module or the corresponding atomizer; and

an identification circuit is arranged on the circuit board, and the identification circuit is configured to identify the identity circuit corresponding to the power supply module or the atomizer when the conductive member is connected to one of the power supply modules.

[0007] In an example, different identity circuits include identification resistors with different impedances.

[0008] In an example, the aerosol generation apparatus further includes a sensory prompter, where the identification circuit is configured to obtain a usage parameter of the corresponding atomizer based on the identified identity circuit, and the sensory prompter is configured to generate a sensory prompt signal when the usage parameter of the atomizer reaches a threshold.

[0009] In an example, the usage parameter includes a cumulative time used or a remaining time available of the atomizer; or

the usage parameter includes a quantity of cumulative puffs taken or a quantity of remaining puffs available of the atomizer.

[0010] In an example, the identity circuit is arranged on the circuit board or the atomizer.

[0011] In an example, the second electrode set includes two electrodes, the conductive member is configured to connect to the power supply module associated with the second electrode set by simultaneously abutting against the two electrodes in the second electrode set, and one electrode in the second electrode set is simultaneously connected to the first electrode set associated with the second electrode set and the identity circuit associated with the second electrode set.

[0012] In an example, the aerosol generation apparatus further includes a switch assembly, where the switch assembly includes a first switch and a second switch arranged in parallel, and further includes a detection resistor connected in series with the second switch;

the plurality of atomizers are connected in parallel with each other and maintain a one-to-one connection with a plurality of first electrode sets, and are all connected to the power supply through the switch assembly; and

the atomizer associated with the second electrode set against which the conductive member abuts starts operating when the first switch is turned on, the identification circuit starts operating when the second switch is turned on, and the first switch and the second switch are configured to be not

turned on simultaneously.

[0013] In an example, the second electrode set includes three electrodes, the conductive member is configured to connect to the power supply module associated with the second electrode set by simultaneously abutting against the three electrodes in the second electrode set, and two electrodes in the second electrode set are respectively connected to the first electrode set associated with the second electrode set and the identity circuit associated with the second electrode set.

[0014] In an example, the aerosol generation apparatus further includes a switch, where the plurality of atomizers are connected in parallel with each other and are all connected to the power supply through the switch; and when the switch is turned on, the atomizer associated with the second electrode set against which the conductive member abuts starts operation.

[0015] In an example, the aerosol generation apparatus further includes a smoking detector for detecting whether the aerosol generation apparatus is smoked, where the smoking detector is connected to the power supply module on the circuit board, and when the smoking detector detects that the aerosol generation apparatus is smoked, the power supply is controlled to output the power through the power supply module.

[0016] In an example, the atomization assembly includes a first support, and the plurality of atomizers are integrated on the first support;

the power supply assembly includes a second support, and the circuit board is integrated on the second support; and

the conductive member is rotatable relative to the first support and/or the second support.

[0017] In an example, a first positioning mechanism is arranged on the conductive member, a second positioning mechanism is arranged on the first support or the second support, and when the conductive member abuts against the power supply module, the first positioning mechanism and the second positioning mechanism are interlocked to prevent the conductive member from rotating relative to the first support and/or the second support.

[0018] In an example, a first positioning mechanism is arranged on the conductive member, a second positioning mechanism is arranged on the first support or the second support, and the aerosol generation apparatus is configured to generate a sensory prompt signal when the first positioning mechanism is rotated to correspond to the second positioning mechanism, to prompt the conductive member to abut against at least one power supply module.

[0019] In an example, the aerosol generation apparatus further includes a suction nozzle assembly, where each of the atomizers includes an air supply channel for guiding an aerosol generated by the atomizer to the suction nozzle assembly; and

the suction nozzle assembly is configured to be rotatable relative to the atomization assembly, to switch the air supply channel in fluid communication with the suction nozzle assembly.

[0020] In an example, the aerosol generation apparatus further includes a connector, where the conductive member and the suction nozzle assembly are held on the connector; and

the suction nozzle assembly is configured to be statically connected to the connector, so as to rotate synchronously with the connector relative to the atomization assembly.

[0021] In an example, a first accommodation cavity is formed inside the connector, and at least part of the atomization assembly is accommodated in the first accommodation cavity.

[0022] In an example, a second accommodation cavity is formed inside the connector, and at least part of the suction nozzle assembly is accommodated in the second accommodation cavity.

[0023] In an example, the aerosol generation apparatus further includes a rotating member, where at least part of the rotating member extends into an interior of the atomization assembly, and the rotating member is configured to be rotatable relative to the atomization assembly; and the suction nozzle assembly is statically connected to the rotating member.

[0024] In an example, the aerosol generation apparatus further includes a suction nozzle assembly, where the atomizer includes an air supply channel for guiding an aerosol generated by the atomizer to the suction nozzle assembly; and

the suction nozzle assembly is configured to be simultaneously in fluid communication with the air supply channels of the plurality of atomizers.

[0025] In an example, the conductive member includes a body and at least two abutting pins extending from the body, each of the abutting pins is configured to abut against the power supply module, and the body is constructed in the shape of a ring or an arc.

[0026] In the foregoing aerosol generation apparatus, the plurality of atomizers are arranged in the atomization assembly, so that more liquid substrates may be accommodated in the aerosol generation apparatus by breaking through the limitation on a volume of a single atomizer. The conductive member is rotated relative to the atomization assembly and the circuit board, to switch the power supply module against which the conductive member abuts, and then switch the atomizer in the standby state or the operating state. Therefore, on a premise that the atomization assembly and the circuit board are kept relatively stationary, it is convenient for a user to switch the plurality of atomizers in the aerosol generation apparatus to respectively generate the aerosol.

BRIEF DESCRIPTION OF THE DRAWINGS

[0027] One or more embodiments are exemplarily de-

scribed with reference to pictures in accompanying drawings corresponding to the embodiments, and the exemplary descriptions do not constitute a limitation on the embodiments. Elements in the accompanying drawings that have same reference numerals are represented as similar elements, and unless otherwise particularly stated, the figures in the accompanying drawings are not drawn to scale.

FIG. 1 is a schematic diagram of an aerosol generation apparatus according to an embodiment of this application.

FIG. 2 is a cross-sectional view of an aerosol generation apparatus according to an embodiment of this application.

FIG. 3 is another cross-sectional view of an aerosol generation apparatus according to an embodiment of this application.

FIG. 4 is a schematic exploded view of an aerosol generation apparatus according to an embodiment of this application.

FIG. 5 is a cross-sectional exploded view of an aerosol generation apparatus according to an embodiment of this application.

FIG. 6 is a schematic diagram of a conductive member according to an embodiment of this application.

FIG. 7 is a cross-sectional exploded view of an aerosol generation apparatus according to another embodiment of this application.

FIG. 8 is a schematic exploded view of an aerosol generation apparatus according to another embodiment of this application.

FIG. 9 is a cross-sectional view of an aerosol generation apparatus according to another embodiment of this application.

FIG. 10 is a schematic diagram showing that a conductive member abuts against a circuit board according to an embodiment of this application.

FIG. 11 is a schematic diagram of connection between a conductive member and a power supply assembly according to an embodiment of this application.

FIG. 12 is a schematic diagram showing that a conductive member does not abut against a power supply module according to an embodiment of this application.

FIG. 13 is a schematic diagram showing that a conductive member abuts against a power supply module according to an embodiment of this application.

FIG. 14 is a schematic diagram of a power supply module having an identification circuit and an identity circuit according to an embodiment of this application.

FIG. 15 is a schematic diagram of a layout of a circuit board having a plurality of power supply modules according to an embodiment of this application.

FIG. 16 is a schematic diagram of a power supply module having an identification circuit and an atomizer having an identity circuit according to an embodiment of this application.

FIG. 17 is a schematic diagram of a layout of a circuit board having a plurality of power supply modules according to another embodiment of this application.

FIG. 18 is a schematic exploded view of a conductive member and a power supply assembly according to an embodiment of this application.

[0028] In the figures:

1. Rotating assembly; 11. First positioning mechanism; 12. Connector; 121. Separator; 13. Conductive member; 131. Abutting pin; 132. Body; 14. First accommodation cavity; 15. Second accommodation cavity;
2. Atomization assembly;
21. Atomizer; 211. Storage cavity; 212. Atomization core; 213. Air supply channel; 214. First flexible member; 2141. First air channel; 215. Second flexible member; 2151. Second air channel; 216. Third electrode set; 22. First support;
3. Power supply assembly; 31. Power supply; 32. Circuit board; 321. Power supply module; 322. First electrode set; 323. Second electrode set; 33. Second support; 34. Anti-rotation member; 341. Third air channel; 35. Second positioning mechanism;
4. Suction nozzle assembly; 41. Air channel tube;
5. Threaded connector;
6. Rotating member; and
7. Smoking detector.

DETAILED DESCRIPTION

[0029] Technical solutions in embodiments of this application are clearly and completely described below with reference to accompanying drawings in the embodiments of this application. Apparently, the described embodiments are merely some rather than all of the embodiments of this application. All other embodiments derived by a person of ordinary skill in the art based on the embodiments of this application without creative efforts shall fall within the protection scope of this application.

[0030] Terms "first", "second", and "third" in this application are merely intended for a purpose of description, and shall not be understood as an indication or implication of relative importance or implicit indication of a quantity or an order of indicated technical features. All directional indications (for example, up, down, left, right, front, and back) in the embodiments of this application are only used for explaining relative position relationships, movement situations, or the like among the various components in a specific posture (as shown in the accompanying drawings). If the specific posture changes, the directional indication changes accordingly. In addition, terms "include", "have", and any variant thereof are intended to cover a non-exclusive inclusion. For example, a process, a method, a system, a product, or a device that includes a

series of steps or units is not limited to the listed steps or units, and instead, further optionally includes a step or unit that is not listed, or further optionally includes another step or unit that is intrinsic to the process, the method, the product, or the device.

[0031] Embodiments mentioned in the specification mean that particular features, structures, or characteristics described with reference to the embodiments may be included in at least one embodiment of this application. The phrase appearing at various locations in this specification does not necessarily indicate a same embodiment, and is not an independent or alternative embodiment exclusive to another embodiment. A person skilled in the art explicitly or implicitly understands that the embodiments described in this specification may be combined with other embodiments.

[0032] It should be noted that, when an element is referred to as "being fixed to" another element, the element may be directly located on the another element, or an intermediate element may exist. When an element is considered to be "connected to" another element, the element may be directly connected to another element, or one or more intermediate elements may simultaneously exist between the element and another element. Terms "vertical", "horizontal", "left", "right", and similar expressions used in this specification are only for purpose of illustration, and do not represent a unique implementation.

[0033] Referring to FIG. 1 to FIG. 11, an embodiment of this application provides an aerosol generation apparatus. The aerosol generation apparatus includes a conductive member 13, a power supply assembly 3, and an atomization assembly 2 having a plurality of atomizers 21. The conductive member 13 can be driven, so that the conductive member 13 can change a position. Therefore, the conductive member 13 can be configured to select the atomizer 21 electrically connected to the power supply assembly 3, so that the power supply assembly 3 can supply power to the atomizer 21 selected by the conductive member 13, and the selected atomizer 21 can generate an aerosol. It should be noted that, the "electrical connection" and the "electrical conduction" described in this application are two different concepts. The "electrical connection" means that a conductive line between two elements is connected, with a premise that a current flows from one element to the other element. The "electrical conduction" means that a current is flowing from one element to the other element.

[0034] The atomization assembly 2 includes a plurality of atomizers 21 independently of each other. Each atomizer 21 is configured to operate independently when obtaining the power. The atomizer 21 may be provided with a storage cavity 211 that can accommodate a liquid substrate. The liquid substrate stored in each atomizer 21 may not exceed 5 ml, for example, may be approximately 2 ml. The liquid substrate may include a liquid containing a tobacco substance containing a volatile tobacco flavor ingredient, and may further be a liquid containing a non-tobacco substance. The liquid substrate may include water, a medicinal liquid, a solvent, ethanol, a plant extract, a perfume, a flavoring agent, or a vitamin mixture. The perfume may include a betel nut extracting solution, menthol, peppermint, spearmint oil, various fruity aroma ingredients, and the like, but is not limited thereto. The flavoring agent may include ingredients that may provide various aromas or flavors to a user. The vitamin mixture may be a mixture mixed with at least one of a vitamin A, a vitamin B, a vitamin C, and a vitamin E, but is not limited thereto. Based on different properties of the liquid substrate, the aerosol generation apparatus may be used in different fields, for example, medical treatment and electronic aerosol atomization.

[0035] The "plurality of" refers to two or more. In embodiments shown in FIG. 4 and FIG. 8, 4 atomizers 21 are arranged, but is not limited thereto. At least two atomizers 21 of the plurality of atomizers 21 may be configured to accommodate different liquid substrates. Different liquid substrates include liquid substrates with different flavors or liquid substrates with different ingredients and proportions, so that different sensory experiences may be provided to the user by switching the atomizers 21. Certainly, in an embodiment, all of the atomizers 21 may contain the same liquid substrate.

[0036] Each atomizer 21 may further have an atomization core 212. The atomization core 212 is in fluid communication with the storage cavity 211. The atomization core 212 is configured to atomize the liquid substrate, so that the liquid substrate generates an aerosol. The atomization core 212 may include a liquid absorbing element and a heating element. The liquid absorbing element may be a porous body or fiber, which can absorb the liquid substrate and guide the liquid substrate into an atomization range of the heating element. The heating element is configured to at least partially atomize the liquid substrate on the liquid absorbing element to form an aerosol. The heating element may be integrated on the liquid absorbing element, so that the heating element and the liquid absorbing element can form a whole.

[0037] Each atomizer 21 may further have an air supply channel 213. The air supply channel 213 provides at least part of an airflow channel in fluid communication with the atomization core 212 and a suction nozzle assembly 4. The aerosol generated through atomization of the atomization core 212 enters the suction nozzle assembly 4 through the airflow channel. The storage cavity 211 may be arranged around the air supply channel 213, or the air supply channel 213 may be arranged on a side of the storage cavity 211. At least part of the suction nozzle assembly 4 may be held in a mouth of the user. The user inhales the aerosol through inhaling the suction nozzle assembly.

[0038] In an example, an atomization compartment in fluid communication with the storage cavity 211 may be arranged in the atomizer 21. The atomization core 212 is accommodated in the atomization compartment. The air supply channel 213 is in fluid communication with the

atomization compartment. The storage cavity 211 is located between the suction nozzle assembly 4 and the atomization compartment. For example, the suction nozzle assembly 4 is located above the storage cavity 211, and the atomization compartment is located below the storage cavity 211.

[0039] Alternatively, in another example, reference may be made to FIG. 3. At least part of the atomization core 212 is arranged in the air supply channel 213. A liquid guide hole is provided on the air supply channel 213. The atomization core 212 is in fluid communication with the storage cavity 211 through the liquid guide hole. The liquid substrate in the storage cavity 211 may pass through the liquid guide hole to be absorbed by the liquid absorbing element and atomized by the heating element, or a part of the liquid absorbing element may pass through the liquid guide hole into the storage cavity 211 to absorb and transfer the liquid substrate.

[0040] Referring to FIG. 3, each atomizer 21 may further include a first flexible member 214 having a first air channel 2141. The first flexible member 214 is arranged adjacent to the suction nozzle assembly 4, and the first air channel 2141 is in fluid communication with the atomization core 212 in the atomizer 21. To be specific, the first air channel 2141 provides at least part of the airflow channel that communicates the atomization core 212 with the suction nozzle assembly 4, and the first flexible member 214 may seal an upper end of the corresponding storage cavity 211. In an example, the first air channel 2141 is in fluid communication with the air supply tube 213, the first air channel 2141 is in fluid communication with the atomization core 212 through the air supply channel 213, and an upper end of the air supply channel 213 is fixed through the first flexible member 214. For example, the upper end of the air supply channel 213 is in communication with the first air channel 2141 while being embedded in the first flexible member 214 and fixed therein.

[0041] Referring to FIG. 3, each atomizer 21 may further include a second flexible member 215 having a second air channel 2151. The second flexible member 215 is arranged at an end opposite to the first flexible member 214. The second flexible member 215 may seal a lower end of the corresponding storage cavity 211. The storage cavity 211 is located between the first flexible member 214 and the second flexible member 215. The second air channel 2151 is in fluid communication with the atomization core 212 in the atomizer 21. Air outside the atomizer 21 may enter the air supply channel 213 through the second air channel 2151. Volatiles formed by atomizing the liquid substrate by the atomization core 212 are combined with the air entering from the second air channel 2151 to form an aerosol.

[0042] Reference may be made to FIG. 2. The power supply assembly 3 includes a power supply 31 and a circuit board 32. The power supply 31 may include any suitable battery. The battery may be a rechargeable battery, or the battery may be a disposable battery. In an embodiment, the battery is a lithium-ion battery. Alternatively, the battery may be a nickel metal hydride battery, a nickelcadmium battery, or a lithium-based battery, for example, a lithium cobalt battery, a lithium iron phosphate battery, a lithium titanate battery, or a lithium polymer battery.

[0043] One or more control circuits are arranged on the circuit board 32. The control circuit may control power outputted by the battery. For example, the battery is enabled to output an alternating current, a direct current, or the like. Alternatively, for example, the battery is enabled to output a current or a voltage in the form of a pulse.

[0044] A plurality of power supply modules 321 are arranged on the circuit board 32, and the power supply assembly 3 supplies power to a corresponding atomizer 21 through the power supply modules 321. In an example, a quantity of power supply modules 321 is less than a quantity of atomizers 21. Therefore, the atomizers 21 and the power supply modules 321 may be moved or rotated relative to each other, to enable the power supply modules 321 to switch the atomizers 21 electrically connected thereto. In an example, the quantity of power supply modules 321 may be greater than the quantity of atomizers 21. In an example, a plurality of power supply modules 321 may be arranged, and a quantity of power supply modules 321 is equal to the quantity of atomizers 21. Therefore, the plurality of power supply modules 321 and the plurality of atomizers may be electrically connected in a one-to-one manner or associated in a one-to-one manner. Each atomizer 21 may be electrically connected to different power supply modules 321.

[0045] Based on a first aspect of this application, the plurality of atomizers 21 are electrically connected to the plurality of power supply modules in one-to-one correspondence. After the aerosol generation apparatus is assembled, the atomizer 21 is configured to be non-switchable with the power supply module 321 electrically connected thereto. The aerosol generation apparatus is configured such that all of the atomizers 21 cannot simultaneously operate to generate the aerosol, and only some of the atomizers 21 can obtain power from the power supply modules 321 associated therewith and generate the aerosol at the same moment.

[0046] Based on this, in an embodiment, switching elements 321 in one-to-one correspondence with the plurality of power supply modules are arranged. The user may control a selected switching element by inputting an instruction, so that the power supply module 321 corresponding to the switching element can supply power to the corresponding atomizer 21, and the corresponding atomizer 21 can obtain the power to start the operation and enter a standby state or an operating state.

[0047] It should be noted that, the "standby state" of the atomizer described in this application means that as long as the power supply supplies power to the power supply module, the power supply module may supply power to the corresponding atomizer. In other words, the atomizer

in the standby state needs to wait for a further instruction. The further instruction is configured for allowing the power supply to supply power to the corresponding atomizer through the power supply module. After the further instruction is obtained, the atomizer may enter the operating state. The further instruction may be a smoking action of the user, or the like. For example, when the atomizer is in the standby state, the user may input a start instruction through an instruction input member (the instruction input member includes, but is not limited to, a smoking detector, a key switch, a sliding switch, a touch switch, an inductive switch, a remote switch, a touch screen, or the like). The power supply assembly electrically connects the power supply to the corresponding power supply module based on the start instruction, and therefore the power supply assembly can supply power to the corresponding atomizer through the power supply module, so that the atomizer is in the operating state and generates the aerosol.

[0048] The "operating state" of the atomizer described in this application means that the power supply has already supplied power to the corresponding atomizer through the power supply module, and the atomizer is in a state of generating the aerosol by using the power.

[0049] Alternatively, in another embodiment, each power supply module 321 includes a first electrode set 322 and a second electrode set 323. The plurality of atomizers 21 are electrically connected to different first electrode sets 322. The power supply module 321 is configured to output power to the atomizer 21 associated therewith through the first electrode set 322 included therein.

[0050] The first electrode set 322 and the second electrode set 323 in the same power supply module 321 are associated with each other. To be specific, an electrical connection between electrodes in the second electrode set 323, a magnitude of an impedance of a line between electrodes in the second electrode set 323, or the like determines whether a line between the first electrode set 322 associated therewith and the power supply 31 is cut off, or determines whether the power supply 31 can output the power through the first electrode set 322 associated with the second electrode set 323. For example, when the connection between two electrodes in the second electrode set 323 is cut off, the line between the power supply 31 and the first electrode set 322 associated with the second electrode set 323 is therefore cut off. Accordingly, the power supply 31 cannot supply power to the first electrode set 322, and cannot output power to the corresponding atomization assembly 2 through the first electrode set 322.

[0051] In an example, the plurality of atomizers 21 are electrically connected to a plurality of first electrode sets 322 in one-to-one correspondence. When the power supply assembly 3 outputs the power through one of the first electrode sets 322, the atomizer 21 electrically connected to the first electrode set 322 may obtain power from the first electrode set 322, so that the atomizer 21 starts operating and enters the operating state. The heating element in the atomizer 21 can atomize the liquid substrate, and then the atomizer 21 may generate the aerosol.

[0052] Each atomizer 21 may include a third electrode set 216. A quantity of electrodes in the third electrode set 216 may be equal to a quantity of electrodes in the first electrode set 322 electrically connected to the atomizer 21. In the embodiments shown in FIG. 12 to FIG. 14, there are two electrodes in the third electrode set 316 and two electrodes in the first electrode set 322. In the embodiment shown in FIG. 16, there are three electrodes in the third electrode set 216 and three electrodes in the first electrode set 322. The electrodes in the third electrode set 216 may be connected in one-to-one correspondence with the electrodes in the first electrode set 322 electrically connected to the atomizer 21. The connection may be a separable connection, for example, may be elastic abutment, or the connection may be an inseparable connection, for example, welding.

[0053] Alternatively, there is no third electrode set 216 in the atomizer 21. Instead, each atomizer 21 further includes a lead connected to the heating element. The lead extends out of the atomizer 21, and then is electrically connected to the first electrode set 322 corresponding to the atomizer.

[0054] Referring to FIG. 3, the atomization assembly 2 is connected to the circuit board 32, so that the atomization assembly 2 and the circuit board 32 cannot rotate relative to each other.

[0055] More specifically, the atomization assembly 2 includes a first support 22. The plurality of atomizers 21 are fixed to the first support 22, so that the plurality of atomizers 21 simultaneously remain stationary with respect to the first support 22. The power supply assembly 3 includes a second support 33. The circuit board 32 may be integrated on the second support 33, so that the circuit board 32 may remain stationary with respect to the second support 33.

[0056] In an example, an anti-rotation member 34 extending to be inserted into the atomization assembly 2 is arranged on the second support 33, or an anti-rotation member extending to be inserted into the power supply assembly 3 is arranged on the first support 22, or the first support 22 and the second support 33 are integrally formed. Therefore, the first support 22 and the second support 33 cannot rotate relative to each other, so that the atomizer 21 and the circuit board 32 cannot rotate relative to each other.

[0057] As shown in FIG. 3, the anti-rotation member 34 may extend through the circuit board 32.

[0058] In the embodiment shown in FIG. 3, the anti-rotation member 34 has a third air channel 341. The anti-rotation member 34 extends from the second support 33, and an end thereof is inserted into the second flexible member 215 of the atomizer 21 correspondingly arranged thereto. In addition, the third air channel 341 in the anti-rotation member 34 is in fluid communication with

the second air channel 2151 in the second flexible member 215, and air enters the second air channel 2151 through the third air channel 341, and then enters the air supply channel 213. A plurality of anti-rotation members 34 having the third air channel 341 may be arranged. At least two anti-rotation members 34 are respectively inserted into two different atomizers 21, so that the third air channels 341 in the different anti-rotation members 34 are respectively in fluid communication with different air supply channels 213.

[0059] In an example, reference may be made to FIG. 9. The aerosol generation apparatus further includes a threaded connector. The threaded connector 5 is connected to the first support 22 and the second support 33, so that the first support 22 and the second support 33 are fixed to each other and cannot rotate relative to each other.

[0060] The threaded connector 5 may be threadably connected to both a first connector 22 and a second connector 33. The threaded connector 5 may be connected to a center of the first support 22 and a center of the second support 33. The anti-rotation member 34 shown in the foregoing embodiment may be arranged on the second support 33, and the threaded connector 5 may extend through the anti-rotation member 34. The threaded connector 5 may be spaced apart from the atomizer 21.

[0061] The power supply 31 may be fixed to the second support 33. A part of the second support 33 may form a part of a shell of the aerosol generation apparatus, that is, the part of the second support 33 may be exposed and may be grasped or touched by the user.

[0062] Referring to FIG. 5 to FIG. 8, the aerosol generation apparatus further includes a conductive member 13. The conductive member 13 is configured to simultaneously rotate relative to the circuit board 32 and the atomization assembly 2, so that the conductive member 13 can be selectively connected to at least one of the power supply modules 321. Alternatively, a position of the conductive member 13 may be changed by driving the conductive member 13 to enable the conductive member 13 to successively abut against the plurality of power supply modules 321. In addition, the conductive member 13 is rotated, so that the conductive member 13 can switch the power supply module 321 abutting against the conductive member. When the power supply module 321 abuts against the conductive member, the conductive member 13 can establish a conductive path between the power supply module 321 selectively connected to the conductive member and the corresponding atomizer 21, so that the atomizer 21 associated with the power supply module 321 is in a standby state or an operating state. Therefore, the conductive member 13 may be rotated to abut against different power supply modules 321 or successively abut against different power supply modules 321, so that different atomizers 21 may be in the standby state or in the operating state. In this way, the user may select the atomizer 21 in the standby state or the operating state to generate the aerosol after receiving the further instruction or directly generate the aerosol.

[0063] The conductive member 13 may abut against the power supply module 321 by abutting against the second electrode set 323 in the power supply module 321.

[0064] In an example, reference may be made to FIG. 13. When the conductive member 13 abuts against the second electrode set 323, the conductive member 13 is connected in series between the first electrode set 322/atomizer 21 and the power supply 31 that are associated. Therefore, when the power supply 31 outputs power to the atomizer 21 through the first electrode set 322, an output current/voltage of the power supply 31 needs to be transmitted to the corresponding first electrode set 322 through the conductive member 13. When the conductive member 13 is removed from the second electrode set 323, a line between the power supply 31 and the first electrode set 322 associated with the second electrode set 323 is cut off.

[0065] There is only one conductive member 13, or the conductive member 13 may abut against only one of the second electrode sets 323 at a same moment. Therefore, at the same moment, only one atomizer 21 among the plurality of atomizers 21 may be enabled to be in the standby state or in the operating state.

[0066] It should be noted that, the only one conductive member 13 is optional rather than mandatory. That the conductive member 13 abuts against only one of the second electrode sets 323 at the same moment is optional rather than mandatory. In another embodiment, a plurality of conductive members 13 may be arranged. Alternatively, the conductive member 13 can simultaneously abut against a plurality of second electrode sets 323, so that the power supply 31 can simultaneously supply power to the plurality of power supply modules 321. Therefore, the plurality of atomizers 21 can simultaneously be in the standby state or in the operating state.

[0067] In an example, the conductive member 13 may simultaneously rotate relative to the first support 22 and the second support 33. However, the conductive member 13 may be spaced apart from each of the first support 22 and the second support 33.

[0068] In an example, reference may be made to FIG. 2. The conductive member 13 is rotatably connected to the first support 22 and/or the second support 33, so that the conductive member 13 may rotate simultaneously relative to the first support 22 and the second support 33.

[0069] Based on this, reference may be made to FIG. 11. A first positioning mechanism 11 may be arranged on the conductive member 13, and a second positioning mechanism 35 may be arranged on the first support 22 or the second support 33. When the conductive member 13 abuts against at least one second electrode set 323, the first positioning mechanism 11 and the second positioning mechanism 35 are interlocked to prevent the conductive member 13 from continuing to rotate relative to the first support 22 and/or the second support 33, so as

to ensure that the conductive member 13 maintains a stable electrical connection with the corresponding second electrode set 323, and ensure that the power supply 31 can stably supply power to the first electrode set 322 associated with the second electrode set.

[0070] There are a plurality of manners of releasing the interlocking of the first positioning mechanism 11 and the second positioning mechanism 35. One manner may be applying a greater force to drive the conductive member 13 to rotate relative to the first support 22 and/or the second support 33.

[0071] Alternatively, based on this, reference may be made to FIG. 11. The first positioning mechanism 11 may be arranged on the conductive member 13, and a second positioning mechanism 35 may be arranged on the first support 22 or the second support 33. The first positioning mechanism 11 may be rotated to correspond to the second positioning mechanism 35. For example, the first positioning mechanism 11 may be rotated to engage with the second positioning mechanism 35. The aerosol generation apparatus is configured to generate a sensory prompt signal when the first positioning mechanism 11 is rotated to correspond to the second positioning mechanism 35, to prompt that the conductive member 13 abuts against the at least one second electrode set 323.

[0072] The sensory prompt signal may be one or more of sound, light, or vibration. The sensory prompt signal may be a vibration signal or a sound signal generated when the first positioning mechanism 11 is rotated to engage with the second positioning mechanism 35. Alternatively, a signal collection circuit on the circuit board 32 may generate an electrical parameter change when the first positioning mechanism 11 is rotated to correspond to the second positioning mechanism 35. Then the control circuit can control an LED light, a player, a motor, or the like to generate one or more signals including sound, light, and vibration based on the change in the electrical parameter.

[0073] In an example, reference may be made to FIG. 2. The aerosol generation apparatus further includes a connector 12. The conductive member 13 is held on the connector 12, and the conductive member 13 can synchronously rotate with the connector 12. A first accommodation cavity 14 is formed inside the connector 12. At least part of the atomization assembly 2 is accommodated in the first accommodation cavity 14, and the atomization assembly 2 accommodated in the first accommodation cavity 14 cannot rotate relative to the circuit board 32 in the first accommodation cavity 14. In the embodiment shown in FIG. 5, the aerosol generation apparatus includes a rotating assembly 1. The conductive member 13 is fixed to the connector 12. The conductive member 13 and the connector 12 are both parts of the rotating assembly 1, so that the conductive member 13 and the connector 12 can rotate synchronously or be stationary synchronously.

[0074] Based on the second aspect of this application, the suction nozzle assembly 4 is configured to rotate relative to the atomization assembly 2. When the suction nozzle assembly 4 rotates relative to the atomization assembly 2, the atomizer 21 in fluid communication with the suction nozzle assembly 4 can be switched. Therefore, the air supply channels 213 of different atomizers 21 may be in fluid communication with the suction nozzle assembly 4 through rotation.

[0075] Based on this, in an example, reference may be made to FIG. 3. The suction nozzle assembly 4 includes an air channel tube 41. When the user holds at least part of the suction nozzle assembly 4, a first end of the air channel tube 41 is in a mouth of the user, and a second end opposite to the first end is arranged in a direction of the atomization assembly 2. A separator 121 is arranged on the aerosol generation apparatus. The separator 121 extends along a radial direction of the atomization assembly 1, and the separator 121 is located between the air channel tube 41 and the atomization assembly 2. The separator 121 is partially open, so that at least one atomizer 21 of the plurality of atomizers 21 can be in fluid communication with the air channel tube 41. Meanwhile, the separator 121 can simultaneously block an airflow channel between one or more of the remaining atomizers 21 and the air channel tube 41.

[0076] More specifically, reference may be made to FIG. 3. The first air channel 2141 on the first flexible member 214 of one of the atomizers 21 is not blocked by the separator 121. Therefore, the atomizer 21 is in fluid communication with the suction nozzle assembly 4. The aerosol generated by the atomizer 21 can be transferred to the air channel tube 41 through the airflow channel, and then smoked into a mouth by the user. The first flexible members 214 of the remaining atomizers 21 all elastically abut against the separator 121, so that the first air channels 2141 of the first flexible members 214 on the atomizers 21 are sealed or blocked by the separator 121. Therefore, at the same time, only one atomizer 21 of the plurality of atomizers 21 may be enabled to be in fluid communication with the suction nozzle assembly 4, and the remaining atomizers 21 are in an enclosed state.

[0077] In an example, reference may be made to FIG. 3. The suction nozzle assembly 4 is configured to be statically connected to the connector 12, so that the conductive member 13 can rotate together with the suction nozzle assembly 4 relative to the circuit board 32 and the atomization assembly 2. Therefore, while rotating the suction nozzle assembly 4 and enabling the suction nozzle assembly 4 to select the atomizer 21 in fluid communication with the suction nozzle assembly, the conductive member 13 may be enabled to select the second electrode set 323 abutting against the conductive member, and vice versa.

[0078] Through arrangement, the atomizer 21 corresponding to the second electrode set 323 abutting against the conductive member 13 and the atomizer 21 in fluid communication with the suction nozzle assembly 4 are the same atomizer 21. Therefore, a rotation operation may cause the atomizer 21 to be in the operat-

ing state when the first electrode set 322 associated with the second electrode set 323 supplies power to the corresponding atomizer 21. In addition, the aerosol generated by the atomizer 21 can be guided into the suction nozzle assembly 4 through the airflow channel, and finally smoked into the mouth by the user.

[0079] When the suction nozzle assembly 4 is statically connected to the conductive member 13, the conductive member 13 may be driven to rotate relative to the atomization assembly 2 and the circuit board 32 by driving the suction nozzle assembly 4 to rotate. Alternatively, the suction nozzle assembly 4 may be driven to rotate relative to the atomization assembly 2 by driving the conductive member 13 to rotate.

[0080] More specifically, the conductive member 13 may be made of a conductive material. The conductive member 13 abuts against the second electrode set 323. The connector 12 is connected to the conductive member 13 and the suction nozzle assembly 4.

[0081] At least part of the connector 12 and the conductive member 13 may be made of a same material. At least part of the connector 12 may be made of an insulating material. The connector 12 and the conductive member 13 may form an integrated structure by using an injection molding process. The connector 12 and the conductive member 13 may be integrally formed by stamping. The conductive member 13 may be assembled with the connector 12. For example, the conductive member 13 may be connected to the connector 12 by a snap, or may be embedded in the connector.

[0082] In an example, reference is made to FIG. 6 and FIG. 8. The conductive member 13 is made of metal, for example, copper. The conductive member 13 has an abutting pin 131 and a body 132. The body 132 is configured to connect to the connector 12. The abutting pin 131 is configured to abut against the power supply module 3231, and the abutting pin 131 can synchronously rotate with the connector 12 through the body 132. The abutting pin 131 and the body 132 may be integrally formed. Referring to FIG. 6, the body 132 may be constructed as a ring. The ring is in a closed shape. The abutting pin 131 extends toward an inner side of the ring. Alternatively, referring to FIG. 8, the body 132 may be constructed as an arc. The arc is in a curved but not closed shape. The abutting pin 131 extends toward an inner side of the arc. It should be noted that, the body 132 may further be in another shape.

[0083] A quantity of abutting pins 131 may be equal to a quantity of electrodes in the second electrode set 323. Each abutting pin 131 may abut against each electrode in the second electrode set 323 in one-to-one correspondence. In an example shown in FIG. 6, two abutting pins 131 are arranged. Correspondingly, two electrodes are also arranged in the second electrode set 323. In an example shown in FIG. 8, three abutting pins 131 are arranged. Correspondingly, three electrodes are also arranged in the second electrode set 323.

[0084] The abutment between the abutting pin 131 and the power supply module 321 may be elastic abutment, to ensure that the electrical connection between the conductive member 13 and the corresponding power supply module 321 is stable. Based on this, the electrodes in the abutting pin 131 and/or the second electrode set 323 are elastic. For example, the abutting pin 131 may include an elastic piece and a contact arranged on the elastic piece for abutting against the power supply module.

[0085] An interior of the connector 12 may be provided with the first accommodation cavity 14 for accommodating at least part of the atomization assembly. The first accommodation cavity 14 may be arranged between the suction nozzle assembly 4 and the circuit board 32.

[0086] The interior of the connector 12 may be provided with a second accommodation cavity 15. At least part of the suction nozzle assembly 4 may be accommodated in the second accommodation cavity 15, and the suction nozzle assembly 4 is configured to be unable to rotate in the second accommodation cavity 15. In the embodiment shown in FIG. 5, a part of the connector 12 forms the separator 121 described in any of the foregoing embodiments. The separator 121 defines at least part of a boundary of a bottom of the second accommodation cavity 15.

[0087] In an example, reference may be made to FIG. 2 and FIG. 5. The aerosol generation apparatus further includes a rotating member 16. At least part of the rotating member 16 may extend into an interior of the atomization assembly 2. The rotating member 6 is configured to rotate relative to the atomization assembly 2. The suction nozzle assembly 4 and the conductive member 13 are both statically connected to the rotating member 6, so that the suction nozzle assembly 4 and the conductive member 13 also rotate relative to the atomization assembly 2 when the rotating member 6 rotates relative to the atomization assembly 2.

[0088] The rotating member 6 may be driven to rotate by driving the suction nozzle assembly 4 to rotate, and then the conductive member 13 is driven to rotate through the rotation of the rotating member 6. Alternatively, the rotating member 6 may be driven to rotate by driving the conductive member 13 to rotate, and then the suction nozzle assembly 4 is driven to rotate through the rotation of the rotating member 6. Alternatively, the atomization assembly 2 is arranged around the rotating member 6.

[0089] In this way, the conductive member 13 can rotate together with the suction nozzle assembly 4 relative to the circuit board 32 and the atomization assembly 2. Therefore, while rotating the suction nozzle assembly 4 and enabling the suction nozzle assembly 4 to select the atomizer 21 in fluid communication with the suction nozzle assembly, the conductive member 13 may be enabled to select the second electrode set 323 abutting against the conductive member, and vice versa.

[0090] In the embodiment shown in FIG. 2, an end of the rotating member 6 is statically connected to the suction nozzle assembly 4, an other end of the rotating member 6 extends through the atomization assembly 2

and is rotatably connected to the power supply assembly 3, and the conductive member 13 is arranged on a periphery of the rotating member 6.

[0091] It should be noted that, the rotating member 6 is optional rather than mandatory. In the embodiment shown in FIG. 9 inner side of the atomization assembly 2 is not provided with a rotating member that may rotate with the suction nozzle assembly 4.

[0092] Based on a third aspect of this application, the suction nozzle assembly 4 is configured to be simultaneously in fluid communication with the air supply channels of the plurality of atomizers 21.

[0093] Based on the third aspect, in an example, the suction nozzle assembly 4 is configured to be able to rotate relative to the atomization assembly 2. However, during the rotation of the suction nozzle assembly 4 relative to the atomization assembly 2, the suction nozzle assembly being simultaneously in fluid communication with the air supply channels of the plurality of atomizers 21 is not affected. Based on this, the conductive member 13 may be statically connected to the suction nozzle assembly 4, so that the conductive member 13 can rotate together with the suction nozzle assembly 4 relative to the atomization assembly 2. Alternatively, based on this, the rotation of the conductive member 13 relative to the atomization assembly 2 and the rotation of the suction nozzle assembly 4 relative to the atomization assembly 2 are independent and unrelated. There may be no connection or transmission relationship between the suction nozzle assembly 4 and the conductive member 13.

[0094] Based on the third aspect, in an example, the suction nozzle assembly 4 is configured to be unable to rotate relative to the atomization assembly 2 and the circuit board 32.

[0095] In a fourth aspect of this application, the aerosol generation apparatus further includes a smoking detector 7 for detecting whether the aerosol generation apparatus is smoked. The smoking detector 7 is connected to a circuit board 32. The circuit board 32 is configured to control a power supply 31 to output power to a corresponding atomizer 21 through a power supply module 321 against which a conductive member 13 abuts when the smoking detector 7 detects that the aerosol generation apparatus is smoked, so that the atomizer generates an aerosol.

[0096] Based on the fourth aspect, in an example, the aerosol generation apparatus has an air intake channel inside. The air intake channel is in fluid communication with air outside the aerosol generation apparatus and an air supply channel of the atomizer 21. When the aerosol generation apparatus is smoked, the air outside the aerosol generation apparatus enters the air supply channel 213 through the air intake channel, and an air flow rate, an air flow direction, or an air pressure in the air intake channel changes.

[0097] The smoking detector 7 is arranged at a position in fluid communication with the air intake channel, or the smoking detector 7 is arranged in the air intake channel. The smoking detector 7 is configured to detect the air flow rate, the air flow direction, or detect the air pressure. Therefore, when the aerosol generation apparatus is smoked, the smoking detector 7 can generate an electrical parameter change due to the change in the air flow rate, the air flow direction, or the air pressure at the position where the smoking detector is located, so as to determine whether the aerosol generation apparatus is smoked based on the electrical parameter change.

[0098] The smoking detector 7 may form a start switch for the power supply 31 to supply power to the atomization assembly 2. When the conductive member 13 abuts against at least one power supply module 321, that is, the atomizer 21 has been in a standby state, the smoking detector 7 can detect the smoking due to the electrical parameter change generated by the smoking if the user inhales the aerosol generation apparatus. The circuit board 32 controls the power supply 31 to supply power to the power supply module 321 based on a result that the smoking is detected. The power supply module 321 further supplies power to the corresponding atomizer through the first electrode set 322 therein, so that the atomizer 21 is in the operating state and generates the aerosol. After the smoking is stopped, based on the detection result of the smoking detector 7, the circuit board 32 controls to automatically interrupt power supply of the power supply 31 to the power supply module 321, so that the corresponding atomizer 21 stops continuously generating the aerosol.

[0099] The air intake channel may be simultaneously in fluid communication with the air supply channels 213 of the plurality of atomizers 21. In addition, when the smoking detector 7 is configured as a start switch for the power supply 31 to supply power to the atomization assembly 2, if the smoking detector 7 is arranged at a position in fluid communication with the air intake channel, or the smoking detector 7 is arranged in the air intake channel, only one smoking detector 7 is required to enable the power supply 31 to output power to the corresponding atomizer 21 through the power supply module 321 against which the conductive member 13 abuts.

[0100] It should be noted that, the smoking detector 7 being configured as the start switch for the power supply 31 to supply power to the atomization assembly 2 is optional rather than mandatory. The start instruction may further be inputted through another instruction input member (the instruction input member includes, but is not limited to, a key switch, a sliding switch, a touch switch, an inductive switch, a remote switch, a touch screen, or the like), to enable the power supply 31 to output the power to the corresponding atomizer 21 through the power supply module 321 against which the conductive member 13 abuts.

[0101] Based on a fifth aspect of this application, each atomizer 21 or each power supply module 321 in the aerosol generation apparatus has unique identity information. A circuit on the circuit board 32 can identify the identity information and distinguish between different

atomizers 21 or different power supply modules 321 based on different identity information. Then the circuit on the circuit board 32 may correspondingly record, store, and use usage parameters such as states, attributes, degrees of usage, or the remaining service life of different atomizers 21 or different power supply modules 321.

[0102] An identification circuit is arranged on the circuit board 32. The identification circuit is configured to identify the identity information of the power supply module 321 or the atomizer 21 when the conductive member 13 abuts against at least one power supply module 321, and then identify the power supply module 321 or the atomizer 21. The control circuit is configured to obtain an identification result of the identification circuit to determine the power supply module 321 or the atomizer 21 supplied with power based on the identification result, and synchronously obtain the usage parameters of the determined power supply module 321 or the determined atomizer 21.

[0103] Based on this, the aerosol generation apparatus includes a plurality of identity circuits. The plurality of identity circuits are associated with the plurality of power supply modules 321 or the plurality of atomizers 21 in one-to-one correspondence. Different identity circuits carry different identity information. For example, each identity circuit has identity information for identifying the corresponding power supply module 321 or the corresponding atomizer 21. Different power supply modules 321 or atomizers 21 may be identified through the identity circuit. Therefore, the identification circuit may identify the power supply module 321 or the atomizer 21 corresponding to the identity information by identifying the identity information. In an example, the identity information includes an impedance of the identity circuit corresponding to the identity information. The impedance includes at least one of a reactance, a capacitive reactance, and an inductive reactance. Different identity circuits have different impedances. Therefore, the identification circuit may identify the identity circuit by identifying the impedance of different identity circuits, and identify the power supply module 321 or the atomizer 21 associated with the identity circuit.

[0104] Reference may be made to FIG. 14 and FIG. 16. An identification resistor Rx is arranged on the identity circuit. For convenience of description, only 4 power supply modules are used for description. The 4 power supply modules 321 are respectively defined as a first power supply module, a second power supply module, a third power supply module, and a fourth power supply module. Identity circuits in one-to-one correspondence with the 4 power supply modules are respectively a first identity circuit, a second identity circuit, a third identity circuit, and a fourth identity circuit. The identification resistors on the first identity circuit, the second identity circuit, the third identity circuit, and the fourth identity circuit are respectively a first identification resistor R1, a second identification resistor R2, a third identification resistor R3, and a fourth identification resistor R4. The impedances of the first identification resistor R1, the second identification resistor R2, the third identification resistor R3, and the fourth identification resistor R4 are different.

[0105] In an example, reference may be made to FIG. 14 to FIG. 16. The identity circuit is connected in parallel with at least part of the power supply module 321 associated therewith, or with the atomizer 21 associated therewith, or with the heating element in the atomizer 21 associated therewith. Therefore, when the identity circuit operates, a voltage outputted by the power supply module 321 to the atomizer 21 corresponding thereto is not affected, or a voltage obtained by the atomizer 21 from the power supply module 321 corresponding thereto is not affected, or an operating voltage of the heating element in the atomizer 21 is not affected. It is intended not to affect an electric power of the heating element in the atomizer 21 for atomizing the liquid substrate.

[0106] More specifically, reference may be made to FIG. 14 to FIG. 16. The identity circuit may be connected in series with the second electrode set 323 in the power supply module 321 associated therewith. Therefore, when the conductive member 13 abuts against the second electrode set 323, at least two electrodes in the second electrode set 323 are electrically connected. In this case, the conductive member 13 is connected in series with the identity circuit, the conductive member 13 is simultaneously connected in series with the first electrode set 322, and the identity circuit is connected in parallel with the first electrode set 322. Therefore, when the conductive member 13 is rotated to abut against at least one second electrode set 323, the identity circuit associated with the second electrode set 323 is therefore electrically connected to the identification circuit on the circuit board 32, so that the identification circuit may enable identification of the identity circuit, and the circuit board 32 starts recording and storing corresponding data of the associated power supply module 321 and/or atomizer 21. When the conductive member 13 is rotated to be disengaged from the second electrode set 323 in the power supply module 321, a line between the identification circuit and the identity circuit associated with the power supply module 321 is therefore cut off, and the identification circuit stops recording the usage parameters of the power supply module 321 and/or the atomizer 21. In this example, the identity circuit is connected in parallel with the first electrode set 322 while being connected in series with the second electrode set 323, so that the operation of the identity circuit does not affect the power outputted by the first electrode set 322 to the atomizer 21, and does not affect the electric power of the heating element in the atomizer 21 for atomizing the liquid substrate.

[0107] It should be noted that, other circuit connection manners may further be used to ensure that the operation of the identity circuit does not affect the electric power of the heating element in the atomizer 21 for atomizing the liquid substrate, which are not illustrated herein one by

one in this application.

[0108] In an example, the identity circuit is arranged on the circuit board 32. Each power supply module 321 has an identity circuit uniquely connected thereto. The identification circuit on the circuit board 32 includes a controller MCU and a sampling resistor R5. The controller MCU is configured to obtain a first electrical parameter of the sampling resistor R5. The first electrical parameter may be a voltage at both ends of the sampling resistor R5 or a current flowing through the sampling resistor R5. Then the controller MCU obtains, based on the first electrical parameter of the sampling resistor R5, identity information of the identity circuit corresponding to the power supply module 321 against which the conductive member 13 is abutting. For example, an impedance of the identity circuit corresponding to the power supply module 321 against which the conductive member 13 is abutting is calculated based on the first electrical parameter of the sampling resistor R5.

[0109] More specifically, reference may be made to FIG. 15 and FIG. 17. The identity circuit may be connected in series with the sampling resistor R5, so that the controller MCU may calculate the voltage on the identity circuit based on a partial voltage on the sampling resistor R5, and then calculate the impedance of the identity circuit. The calculation formula may be roughly rx = r5 * $\frac{Ux}{U5}$, where r5 is a resistance value of the sampling resistor, U5 is a voltage at both ends of the sampling resistor, Ux = U-U5, U is a total voltage applied to a corresponding power supply module 321, and rx is an impedance of the identification resistor on each identity circuit. In other words, the impedance rx of the first identification resistor R1 on the first identity circuit is r1, the impedance rx of the second identification resistor R2 on the second identity circuit is r2, the impedance rx of the third identification resistor R3 on the third identity circuit is r3, and the impedance rx of the fourth identification resistor R4 on the fourth identity circuit is r4.

[0110] The plurality of identity circuits are connected in parallel with each other, so as not to interfere with each other. Only one identification circuit may be arranged on the circuit board 32, or only one sampling resistor R5 may be arranged thereon. Therefore, the plurality of identity circuits may be connected in series with the same sampling resistor R5. Alternatively, a plurality of sampling resistors R5 may be arranged on the circuit board 32, and the plurality of sampling resistors R5 are connected in series with the plurality of identity circuits in one-to-one correspondence.

[0111] A line where the identity circuit is located is defined as a first line. The first electrode set 322 may be arranged on a second line connected in parallel with the first line. The heating element in the atomizer 21 is electrically connected between two electrodes in the first electrode set 322. Therefore, the heating element in the atomizer 21 is connected in parallel with the first line, and a resistance value of the second line includes a resistance value of the heating element in the atomizer 21.

[0112] Therefore, the resistance value on the first line may be made much greater than the resistance value on the second line. For example, the resistance value on the first line may be made at least 800 times greater than the resistance value on the second line. In this way, the first line is almost short-circuited by the second line, or the first circuit is nearly open-circuited, thereby reducing power consumption of the first line.

[0113] In an example, the resistance value of the heating element of the atomizer 21 is between 0.75 Ω and 1.5 Ω, the resistance value on the second line is less than 3 Ω, and the resistance value r5 of the sampling resistor R5 is about 300 KS2 or about 100 KΩ.

[0114] In an example, reference may be made to FIG. 15. The resistance value of the heating element of the atomizer 21 is between 0.75 Ω and 1.5 Ω, and the resistance value of the identification resistor Rx in the identity resistor is between 0.8 KS2 and 30 KS2. For example, the resistance value r1 of the first identification resistor R1 on the first identity circuit may be about 1 KS2, the resistance value r2 of the second identification resistor R2 on the second identity circuit may be about 1.5 KS2, the resistance value r3 of the third identification resistor R3 on the third identity circuit may be about 3 KS2, and the resistance value r4 of the fourth identification resistor R4 on the fourth identity circuit may be about 25.5 KΩ.

[0115] In an example, reference may be made to FIG. 15. A detection resistor R6 may further be arranged on the second line. The detection resistor R6 and the heating element of the atomizer 21 are connected in series with each other on the second line. The controller 21 is configured to detect a second electrical parameter of the detection resistor R6. The second electrical parameter may be a voltage at both ends of the detection resistor R6, or may be a current flowing through the detection resistor R6. It is determined based on the second electrical parameter of the detection resistor R6 whether an abnormality occurs in the second line or the atomizer 21. For example, a voltage supplied by the power supply module 321 to the atomizer 21 is obtained based on the second electrical parameter of the detection resistor R6, and then the control circuit may determine whether the atomizer 21 is short-circuited or open-circuited based on the voltage supplied by the power supply module 321 to the atomizer 21. The control circuit may make a corresponding response when an abnormality (for example, a short circuit or an open circuit) occurs in the second line or the atomizer 21, for example, control the aerosol generation apparatus to send an alarm signal, or control to terminate electrical conduction between the power supply 31 and the power supply module 321, to protect the atomizer 21 and/or the power supply module 321 from the short circuit or the open circuit. When the second electrical parameter of the detection resistor R6 is normal, a first switch Q1 may be controlled to be turned on.

[0116] Based on this, reference may be made to FIG. 15. The aerosol generation apparatus further includes a switch assembly. The switch assembly includes a first switch Q1 and a second switch Q2 arranged in parallel. The switch assembly is arranged on the second line. The detection resistor R6 is a part of the switch assembly, and the detection resistor R6 is connected in series with the second switch Q2. In other words, the first switch Q1 and a second switch Q2 are arranged on the second line. The second switch Q2 is connected in series with the detection resistor R6, and the second switch Q2 and the detection resistor R6 connected in series with each other are connected in parallel with the first switch Q1 as a whole. Therefore, if one of the first switch Q1 and the second switch Q2 is turned on, the second line is closed, and the power supply 31 may supply power to the corresponding atomizer 21. In addition, when the first switch Q1 is turned on, the detection resistor R6 is short-circuited.

[0117] Therefore, when short-circuit or open-circuit detection needs to be performed on the atomizer 21, the first switch Q1 may be turned off, and the second switch Q2 may be turned on. At other times, the second switch Q2 may be controlled to be turned off, and the first switch Q1 may be controlled to be turned on, to reduce energy consumption on the second line.

[0118] The first switch Q1 and the second switch Q2 may be both connected to the controller MCU. In addition, the controller MCU may control the first switch Q1 to be turned on or off, and the controller MCU may control the second switch Q2 to be turned on and off. The controller MCU may control the first switch Q1 and the second switch Q2 to be not turned on simultaneously.

[0119] In an example, reference may be made to FIG. 14 to FIG. 16. An anode terminal VCC and a cathode terminal GND are arranged on the circuit board 32. The plurality of power supply modules 321 are connected in parallel between the anode terminal VCC and the cathode terminal GND, and the power supply 31 supplies power to the power supply module 321 through the anode terminal VCC and the cathode terminal GND.

[0120] In an example, as shown in FIG. 15, the controller MCU may be connected to an anode side of the detection resistor R6, and a cathode side of the detection resistor R6 is connected to the cathode terminal GND, so that the controller MCU may detect the voltage at both ends of the detection resistor R6.

[0121] In an example, as shown in FIG. 15, the plurality of atomizers 21 connected to the circuit board 32 may share a common cathode. An end of the plurality of identity circuits may be connected to a common anode, and an other end is connected to the cathode terminal GND through the sampling resistor R5. The controller MCU may be connected to an anode side of the sampling resistor R5, and a cathode side of the sampling resistor R5 is connected to the cathode terminal GND, so that the controller MCU may detect the voltage at both ends of the sampling resistor R5.

[0122] The plurality of atomizers 21 are connected to the common cathode, or the atomizer 21 and the sampling resistor R5 are connected to the common cathode. Therefore, to prevent current backflow on the first line from causing inability to identify the identity circuit, the controller MCU may control the second switch Q2 to be turned on and control the first switch Q1 to be turned off when the identification circuit needs to identify the identity circuit. Upon completion of the identification of the identity circuit and confirmation of the identity of the corresponding power supply module 321 or the corresponding atomizer 21, the controller MCU may control the first switch Q1 to be turned on, and may further control the second switch Q2 to be turned off.

[0123] In an embodiment, reference may be made to FIG. 15. The second electrode set 323 includes two electrodes. The conductive member 13 is configured to connect the power supply module 321 associated with the second electrode set 323 by simultaneously abutting against the two electrodes in the second electrode set 323, so that the conductive member 13 is connected in series between the power supply 31 and the atomizer 21/first electrode set 322 associated with the second electrode set 323. In addition, one electrode in the second electrode set 323 is simultaneously connected to the first electrode set 322 associated with the second electrode set 323 and the identity circuit associated therewith.

[0124] Further, the plurality of atomizers 21 are connected in parallel with each other and maintain a one-to-one connection with the plurality of first electrode sets 322, and the plurality of atomizers 21 are all connected to the power supply 31 through the switch assembly. The switch assembly includes a first switch Q1 and a second switch Q2 arranged in parallel, the second switch Q2 is connected in series with the detection resistor R6, and ends of the plurality of first electrode sets 322 are connected to each other. Therefore, if the first switch Q1 and the second switch Q2 are simultaneously turned on, the plurality of atomizers 21 have a communication function, so that a part of a current flowing through the conductive member 13 flows to the identity circuit associated with the second electrode set 323 against which the conductive member 13 abuts. The remaining part of the current flows through the atomizer 21 associated with the second electrode set 323 against which the conductive member 13 abuts and then respectively flows through other atomizers 21 to other identity circuits. To be specific, a current backflow is caused, causing the controller MCU or the identification circuit to be unable to perform identity identification on a current atomizer 21 (the current atomizer 21 is the atomizer 21 associated with the second electrode set 323 against which the conductive member 13 abuts).

[0125] Therefore, the first switch Q 1 and the second switch Q2 cannot be turned on simultaneously. Therefore, the atomizer 21 associated with the second electrode set 323 against which the conductive member 13 abuts may be enabled to start operation when the first

switch Q1 is turned on, so that the identification circuit starts operation when the second switch Q2 is turned on. During the identity identification, the current is guided through the second switch Q2 and the detection resistor R6 that are connected to avoid the current backflow, thereby ensuring that the controller MCU or the identification circuit cannot accurately perform identity identification on the current atomizer 21.

[0126] A conductive structure 13 adapted to the second electrode set 323 shown in FIG. 15 may be as shown in FIG. 6. To be specific, the conductive structure 13 may have two abutting pins 131. The two abutting pins 131 are respectively configured to abut against the two electrodes in the second electrode set 323, so that the two electrodes in the second electrode set 323 are in communication with each other through the body 132 connecting the two abutting pins 131.

[0127] In an embodiment, reference may be made to FIG. 17. The second electrode set 323 includes three electrodes. The conductive member 13 is configured to connect the power supply module 321 associated with the second electrode set 323 by simultaneously abutting against the three electrodes in the second electrode set 323, so that the conductive member 13 is connected in series between the power supply 31 and the atomizer 21/first electrode set 322 associated with the second electrode set 323. In addition, the two electrodes in the second electrode set 323 are respectively connected to the first electrode set 322 associated with the second electrode set 323 and the identity circuit associated therewith, so that the plurality of identity circuits are disconnected in two phases. The connection between the atomizer 21 and the identification circuit that are not associated with the second electrode set 323 against which the conductive member 13 abuts is cut off. In this way, the current may be prevented from flowing back through another atomizer 21, and it can be ensured that the identification circuit performs identity identification on the current identity circuit and the atomizer 21.

[0128] Therefore, for the embodiment shown in FIG. 17, the switch assembly may include a switch Q3. The switch Q3 connects the power supply 31 to the plurality of atomizers 21 connected in parallel with each other. When the switch Q3 is turned on, the atomizer 21 associated with the second electrode set 323 against which the conductive member 13 abuts starts operation. When the switch Q3 is turned on, the atomizer 21 associated with the second electrode set 323 against which the conductive member 13 abuts stops the operation. Therefore, a circuit structure is made simple.

[0129] In addition, for the embodiment shown in FIG. 17, when one or more atomizers 21 of the plurality of atomizers 21 in the aerosol generation apparatus are separated from the first electrode set 322 corresponding to the atomizers, the identification circuit and the atomizer 21 can start and operate normally as long as at least one atomizer 21 is electrically connected to the first electrode set 322 corresponding to the atomizer.

[0130] For the embodiment shown in FIG. 17, the identity resistor may have a relatively great resistance value. For example, when the aerosol generation apparatus accommodates at most three atomizers 21 and has three identity circuits, the resistance values of the identity resistors on the three identity circuits may be respectively 10 KΩ, 51 KΩ, and 100 KS2, and the resistance value of the sampling resistors R5 connected to all of the three identity resistors may be 100 KS2. Compared with the embodiment shown in FIG. 15, a difference in the resistance values between the sampling resistor R5 and the identity resistor in the embodiment shown in FIG. 17 is smaller.

[0131] A conductive structure 13 adapted to the second electrode set 323 shown in FIG. 17 may be as shown in FIG. 18. To be specific, the conductive structure 13 may have three abutting pins 131. The three abutting pins 131 are respectively configured to abut against the three electrodes in the second electrode set 323, so that the three electrodes in the second electrode set 323 are in communication with each other through the body 132 connecting the three abutting pins 131.

[0132] After the controller MCU confirms the identity of the power supply module 321 against which the conductive member 13 abuts, or after the controller MCU confirms the identity of the atomizer 21 associated with the power supply module 321 against which the conductive member 13 abuts, the controller MCU may control a control circuit on the circuit board 32 to collect the usage parameters of the power supply module 321 or the atomizer 21. The usage parameters include a cumulative time used, a remaining time available, a quantity of cumulative puffs taken, a quantity of remaining puffs available, or the like. The usage parameters may be used to determine whether the liquid substrate in the corresponding atomizer 21 is exhausted, the remaining service life, or the like, or determine whether the power supply module 321 against which the conductive member 13 abuts needs to be switched.

[0133] The control circuit may further be configured to stop the power supply assembly 3 from supplying power to the atomizer 21 or provide an indication when the usage parameter of the atomizer 21 is below a threshold or exceeds a preset threshold range.

[0134] When the usage parameter includes the quantity of cumulative puffs taken, the smoking detector 7 may assist the control circuit in detecting whether the aerosol generation apparatus is smoked. The control circuit may accumulate the quantity of puffs based on the detection result of the smoking detector 7, to form the quantity of cumulative puffs taken. When the quantity of cumulative puffs taken reaches the threshold, the control circuit may control a sensory prompter to make a response to prompt the user. In addition, the control circuit may control the power supply 31 to be electrically disconnected from the power supply module 321, so that the power supply 31 cannot output the power to the atomizer 21 through the power supply module 321.

[0135] When the usage parameter includes the quantity of remaining puffs available, a storage unit corresponding to each power supply module 321 or each atomizer 21 is further arranged in the circuit board 32, and the storage unit stores a total quantity of puffs available of the atomizer 21. The quantity of remaining puffs available is a difference between the total quantity of puffs available and the quantity of cumulative puffs taken. When the quantity of remaining puffs available decreases to the threshold, the control circuit may control the sensory prompter to make a response to prompt the user. In addition, the control circuit may control the power supply 31 to be electrically disconnected from the power supply module, so that the power supply 31 cannot output the power to the atomizer 31 through the power supply module 321.

[0136] When the usage parameter includes the cumulative time used, the control circuit may obtain a cumulative duration of the power outputted from the corresponding first electrode set 322. The cumulative duration may be used as a basis for determining the cumulative time used. When the cumulative time used reaches the threshold, the control circuit may control the sensory prompter to make a response to prompt the user. In addition, the control circuit may control the power supply 31 to be electrically disconnected from the power supply module 321, so that the power supply 31 cannot output the power to the atomizer 21 through the power supply module 321.

[0137] When the usage parameter includes the remaining time available, a storage unit corresponding to each power supply module 321 or each atomizer 21 is further arranged in the circuit board 32, and the storage unit stores a total time available of the atomizer 21. The remaining time available is a difference between the total time available and the cumulative time used. When the remaining time available decreases to the threshold, the control circuit may control the sensory prompter to make a response to prompt the user. In addition, the control circuit may control the power supply 31 to be electrically disconnected from the power supply module 321, so that the power supply 31 cannot output the power to the atomizer 21 through the power supply module 321.

[0138] It should be noted that, the usage parameter may further be another parameter that can indicate usage data or a degree of usage of the corresponding power supply module 321 or the corresponding atomizer 21. Alternatively, the usage parameter may be a parameter for indicating an amount of the liquid substrate in the storage cavity 211 or a remaining amount of the liquid substrate in the storage cavity 211.

[0139] When the control circuit detects that the atomizer 21 corresponding to a piece of identity information reaches a condition of inability to continue to generate the aerosol or reaches a condition that the atomizer needs to be switched, the sensory prompter is controlled to make a response to prompt the user. In addition, the control circuit may control the power supply 31 to be electrically disconnected from the power supply module 321, so that the power supply 31 cannot output the power to the atomizer 21 through the power supply module 321.

[0140] The conductive member 13 is rotated relative to the atomization assembly 2 and the circuit board 32. When the conductive member 13 is rotated to abut again against the power supply module 321 against which the conductive member has abutted, the control circuit may immediately control the sensory prompter to make a response again to prompt the user after the atomizer 21 is identified by the identification circuit through the identity circuit associated with the atomizer 21 if the atomizer 21 associated with the power supply module 321 has previously reached the condition of inability to continue to generate the aerosol or has reached the condition that the atomizer needs to be switched. In addition, the control circuit may control the power supply 31 to be electrically disconnected from the power supply module 321, so that the power supply 31 cannot output the power to the atomizer 21 through the power supply module 321.

[0141] It should be noted that, in another embodiment, reference may be made to FIG. 16. The identity circuit may be arranged in the atomizer 21. The identity circuit may be connected in parallel with the heating element in the atomizer 21. Alternatively, in another embodiment, the identification circuit may be arranged in the atomizer 21. Alternatively, in another embodiment, the identity circuit and the identification circuit may be both arranged in the atomizer 21.

[0142] It should be noted that, in another embodiment, a quantity of power supply modules 321 on the circuit board 32 is less than a quantity of atomizers 21. For example, there are 4 atomizers 21 and only one power supply module 321. Therefore, only part of the atomizers 21 can be electrically connected to the power supply module 321. Therefore, the power supply module 321 may switch the atomizer 21 electrically connected thereto by causing the atomization assembly 2 and the circuit board 32 to move relative to each other. In this embodiment, the identity circuit is arranged on the atomization assembly 2. The identification circuit may be arranged on the circuit board 32 or may be arranged on the atomization assembly 2. When the power supply module 321 is moved to be electrically connected to the atomizer 21 in the atomization assembly 2, the control circuit may control the identification circuit to identify the identity information of the atomizer 21 to identify the usage parameter of the atomizer 21. In addition, after the identification is completed, the control circuit may control recording and storing the usage parameter of the atomizer 21. When the usage parameter of the atomizer 21 reaches a preset value, the control circuit may control the sensory prompter to make a response to prompt the user. In addition, the control circuit may control the power supply 31 to be electrically disconnected from the power supply module 321, so that the power supply 31 cannot output the power to the atomizer 21 through the power supply module 321.

[0143] It should be noted that, the preferred embodiments of this application are provided in the specification and the accompanying drawings of this application, but are not limited to the embodiments described in this specification. Further, a person of ordinary skill in the art may make improvements or modifications according to the foregoing descriptions, and all of the improvements and modifications shall fall within the protection scope of the appended claims of this application.

Claims

1. An aerosol generation apparatus, comprising:

a power supply assembly (3), comprising a power supply (31) and a circuit board (32), wherein a plurality of power supply modules (321) each connected to the power supply (31) are arranged on the circuit board (32), and the power supply assembly (3) is configured to output power through the power supply modules (321);
an atomization assembly (2), comprising a plurality of atomizers (21), wherein each of the atomizers (21) is electrically connected to a different power supply module (321), and the atomizer (21) is configured to start operating when the power supply module (321) corresponding to the atomizer (21) outputs the power; and
a conductive member (13), configured to be drivable and simultaneously change a position relative to the circuit board (32) and the atomization assembly (2), so as to selectively connect to one of the power supply modules (321), wherein:
the conductive member (13) is able to establish a conductive path between the power supply module (321) selectively connected to the conductive member (13) and the corresponding atomizer (21), so that the atomizer (21) is in a standby state or an operating state.

2. The aerosol generation apparatus according to claim 1, wherein:

the power supply module (321) comprises a first electrode set (322) and a second electrode set (323) associated with each other;
the power supply module (321) is configured to output the power to the atomizer (21) through the first electrode set (322);
the conductive member (13) is configured to connect to the power supply module (321) by abutting against the second electrode set (323); and
the conductive member (13) is connected in series between the power supply (31) and the first electrode set (322) in the power supply module (321).

3. The aerosol generation apparatus according to claim 2, further comprising a plurality of identity circuits, wherein:

the plurality of identity circuits are associated with the plurality of power supply modules (321) or the plurality of atomizers (21) in one-to-one correspondence;
each of the identity circuits is configured to identify the corresponding power supply module (321) or the corresponding atomizer (21); and
an identification circuit is arranged on the circuit board (32);
the identification circuit is configured to identify the identity circuit corresponding to the power supply module (321) or the atomizer (21) when the conductive member (13) is connected to one of the power supply modules (321).

4. The aerosol generation apparatus according to claim 3, wherein:

different identity circuits comprise identification resistors with different impedances; or
the identity circuit is arranged on the circuit board (32) or the atomizer (21).

5. The aerosol generation apparatus according to claim 3, further comprising a sensory prompter, wherein:

the identification circuit is configured to obtain a usage parameter of the corresponding atomizer (21) based on the identified identity circuit; and the sensory prompter is configured to generate a sensory prompt signal when the usage parameter of the atomizer (21) reaches a threshold, wherein preferably:

the usage parameter comprises a cumulative time used or a remaining time available of the atomizer (21); or
the usage parameter comprises a quantity of cumulative puffs taken or a quantity of remaining puffs available of the atomizer (21).

6. The aerosol generation apparatus according to claim 3, wherein:

the second electrode set (323) comprises two electrodes;
the conductive member (13) is configured to connect to the power supply module (321) associated with the second electrode set (323) by

simultaneously abutting against the two electrodes in the second electrode set (323); and
one electrode in the second electrode set (323) is simultaneously connected to the first electrode set (322) associated with the second electrode set (323) and the identity circuit associated with the second electrode set (323).

7. The aerosol generation apparatus according to claim 6, further comprising a switch assembly, wherein:

the switch assembly comprises a first switch (Q1) and a second switch (Q2) arranged in parallel, and further comprises a detection resistor (R6) connected in series with the second switch (Q2);
the plurality of atomizers (21) are connected in parallel with each other and maintain a one-to-one connection with a plurality of first electrode sets (322), and are all connected to the power supply (31) through the switch assembly;
the atomizer (21) associated with the second electrode set (323) against which the conductive member (13) abuts starts operating when the first switch (Q1) is turned on;
the identification circuit starts operating when the second switch (Q2) is turned on; and
the first switch (Q1) and the second switch (Q2) are configured to be not turned on simultaneously.

8. The aerosol generation apparatus according to claim 3, wherein:

the second electrode set (323) comprises three electrodes;
the conductive member (13) is configured to connect to the power supply module (321) associated with the second electrode set (323) by simultaneously abutting against the three electrodes in the second electrode set (323); and
two electrodes in the second electrode set (323) are respectively connected to the first electrode set (322) associated with the second electrode set (323) and the identity circuit associated with the second electrode set (323), and
wherein preferably:

the aerosol generation apparatus further comprises a switch;
the plurality of atomizers (21) are connected in parallel with each other and are all connected to the power supply (31) through the switch; and
when the switch is turned on, the atomizer (21) associated with the second electrode set (323) against which the conductive member (13) abuts starts operation.

9. The aerosol generation apparatus according to claim 1, further comprising a smoking detector (7) for detecting whether the aerosol generation apparatus is smoked, wherein:

the smoking detector (7) is connected to the power supply module (321) on the circuit board (32); and
when the smoking detector (7) detects that the aerosol generation apparatus is smoked, the power supply (31) is controlled to output the power through the power supply module (321).

10. The aerosol generation apparatus according to claim 1, wherein:

the atomization assembly (2) comprises a first support (22);
the plurality of atomizers (21) are integrated on the first support (22);
the power supply assembly (3) comprises a second support (33);
the circuit board (32) is integrated on the second support (33); and
the conductive member (13) is rotatable relative to the first support (22) and/or the second support (33).

11. The aerosol generation apparatus according to claim 10, wherein:

a first positioning mechanism (11) is arranged on the conductive member (13);
a second positioning mechanism (35) is arranged on the first support (22) or the second support (33); and
when the conductive member (13) abuts against the power supply module (321), the first positioning mechanism (11) and the second positioning mechanism (35) are interlocked to prevent the conductive member (13) from rotating relative to the first support (22) and/or the second support (33);
or wherein:

a first positioning mechanism (11) is arranged on the conductive member (13);
a second positioning mechanism (35) is arranged on the first support (22) or the second support (33); and
the aerosol generation apparatus is configured to generate a sensory prompt signal when the first positioning mechanism (11) is rotated to correspond to the second positioning mechanism (35), to prompt the conductive member (13) to abut against at least

one power supply module (321).

12. The aerosol generation apparatus according to claim 1, further comprising a suction nozzle assembly (4), wherein:

each of the atomizers (21) comprises an air supply channel (213) for guiding an aerosol generated by the atomizer (21) to the suction nozzle assembly (4); and
the suction nozzle assembly (4) is configured to be rotatable relative to the atomization assembly (2), to switch the air supply channel (213) in fluid communication with the suction nozzle assembly (4).

13. The aerosol generation apparatus according to claim 12, further comprising a connector (12), wherein:

the conductive member (13) and the suction nozzle assembly (4) are held on the connector (12); and
the suction nozzle assembly (4) is configured to be statically connected to the connector (12), so as to rotate synchronously with the connector (12) relative to the atomization assembly (2), and
wherein preferably:

a first accommodation cavity is formed inside the connector (12), and at least part of the atomization assembly (2) is accommodated in the first accommodation cavity; or a second accommodation cavity is formed inside the connector (12), and at least part of the suction nozzle assembly (4) is accommodated in the second accommodation cavity.

14. The aerosol generation apparatus according to claim 12, further comprising a rotating member, wherein:

at least part of the rotating member extends into an interior of the atomization assembly (2);
the rotating member is configured to be rotatable relative to the atomization assembly (2); and
the suction nozzle assembly (4) is statically connected to the rotating member.

15. The aerosol generation apparatus according to claim 1, wherein:

the aerosol generation apparatus further comprises a suction nozzle assembly (4);
the atomizer (21) comprises an air supply channel (213) for guiding an aerosol generated by the atomizer (21) to the suction nozzle assembly (4); and
the suction nozzle assembly (4) is configured to be simultaneously in fluid communication with the air supply channels (213) of the plurality of atomizers (21),
or
wherein:

the conductive member (13) comprises a body and at least two abutting pins extending from the body;
each of the abutting pins is configured to abut against the power supply module (321), and
the body is constructed in the shape of a ring or an arc.

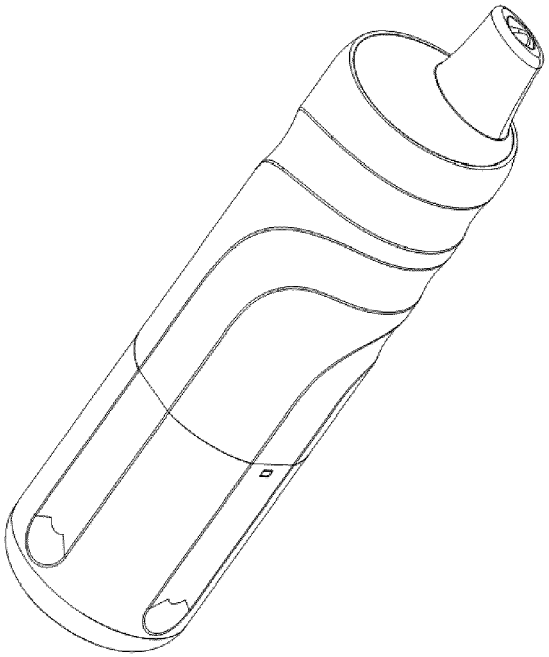

FIG. 1

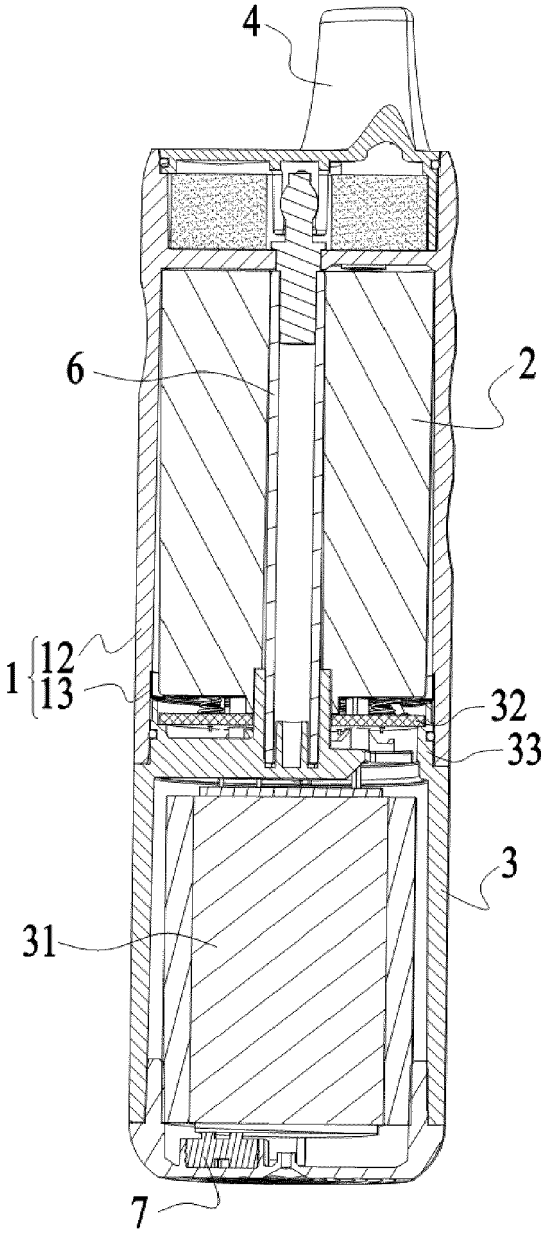

FIG. 2

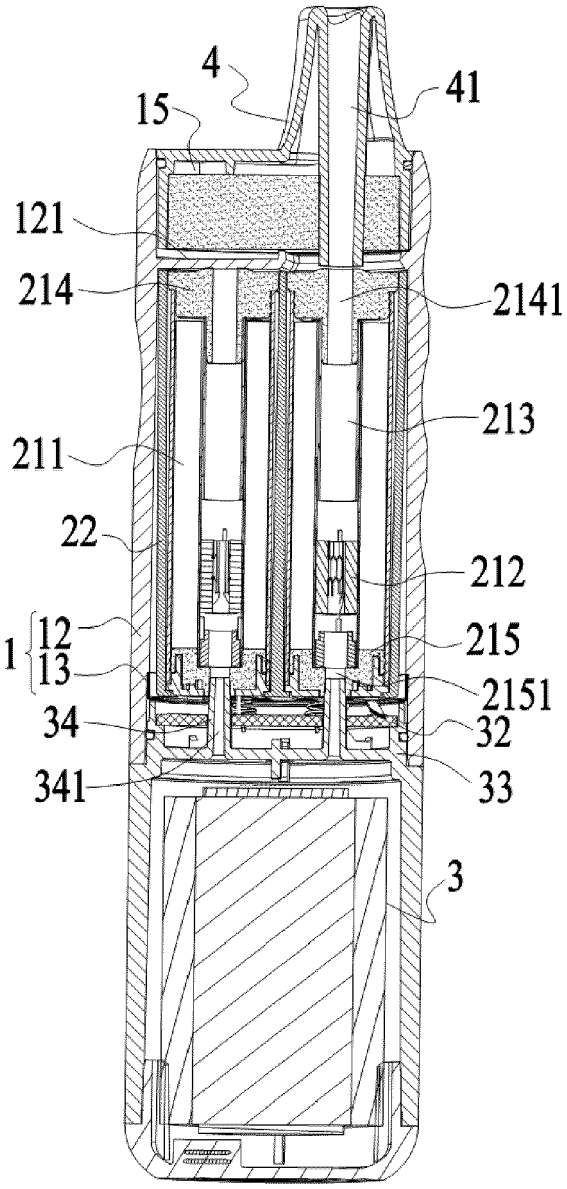

FIG. 3

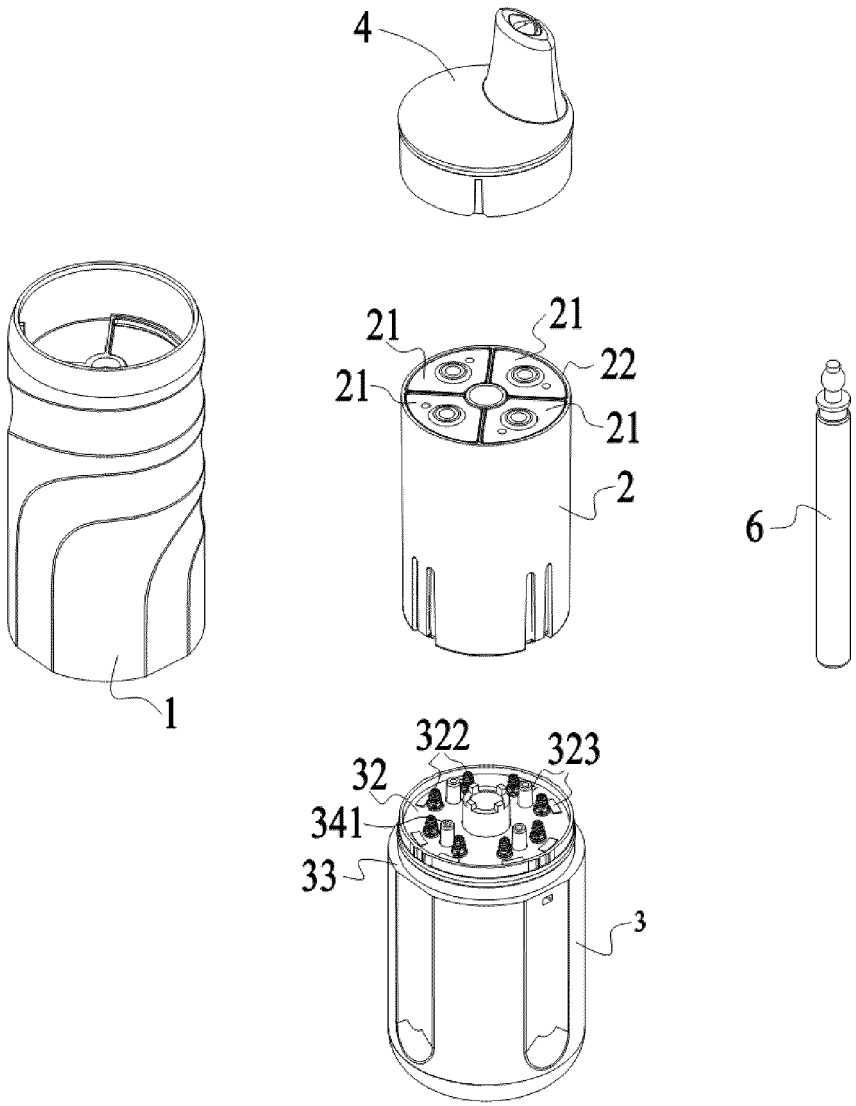

FIG. 4

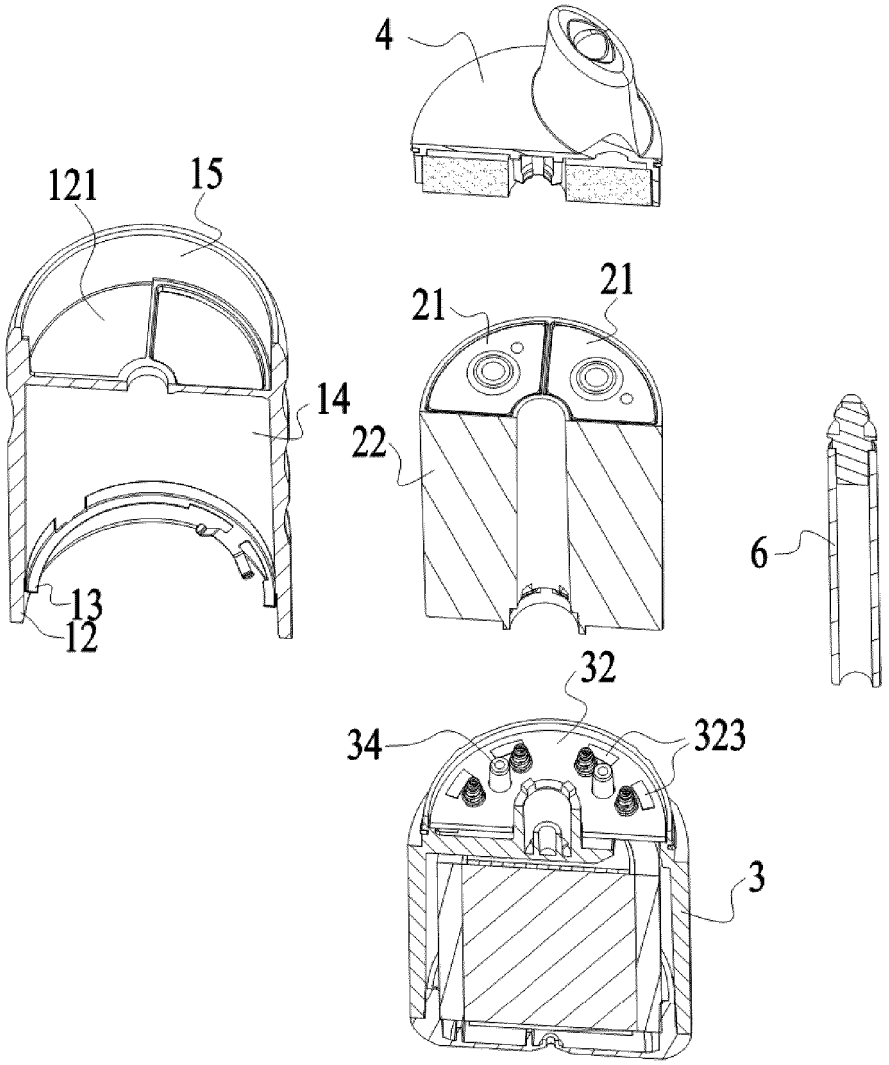

FIG. 5

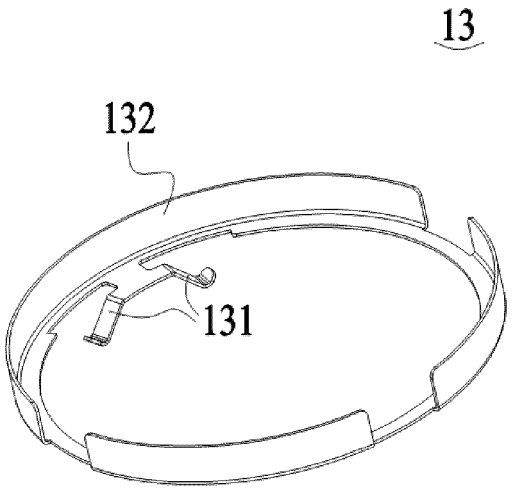

FIG. 6

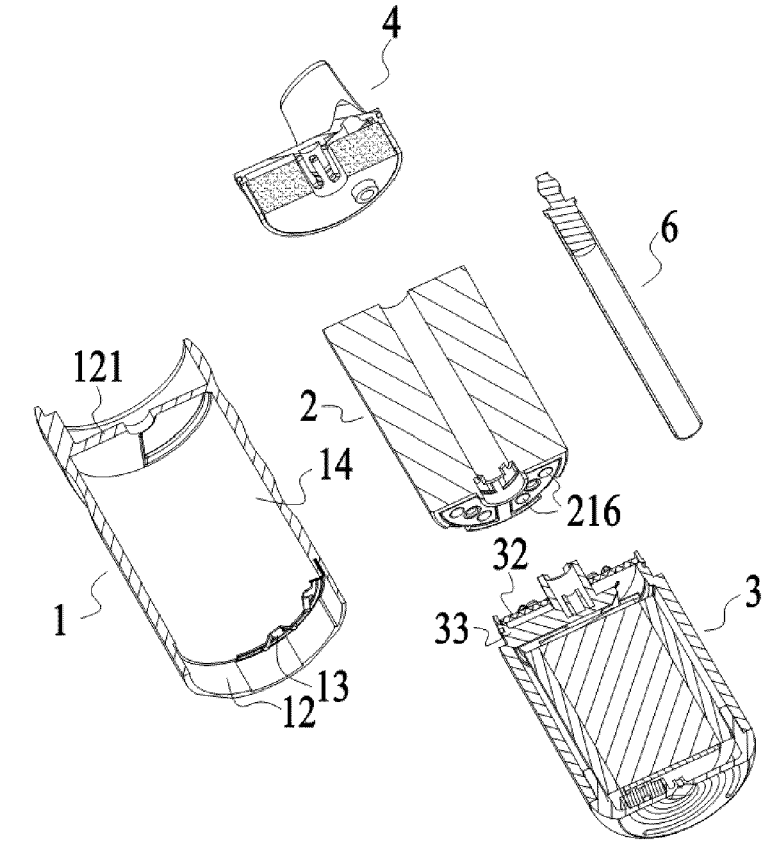

FIG. 7

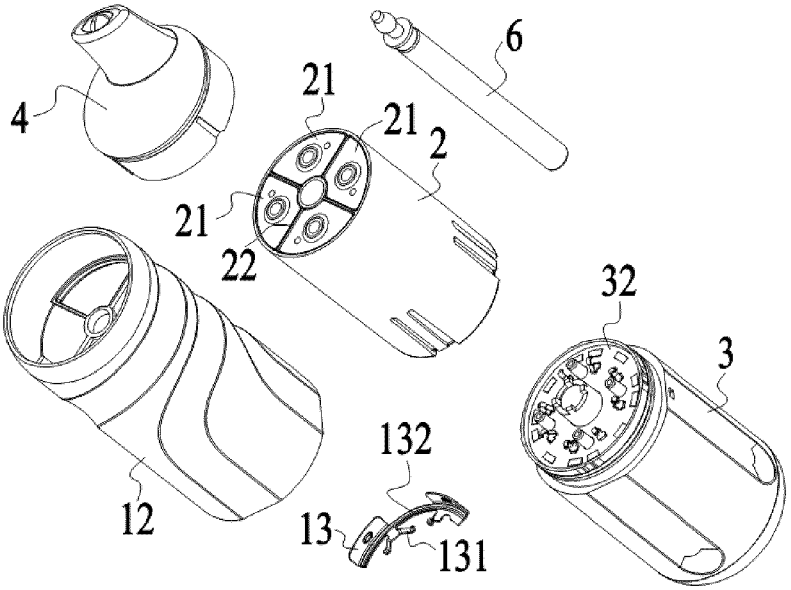

FIG. 8

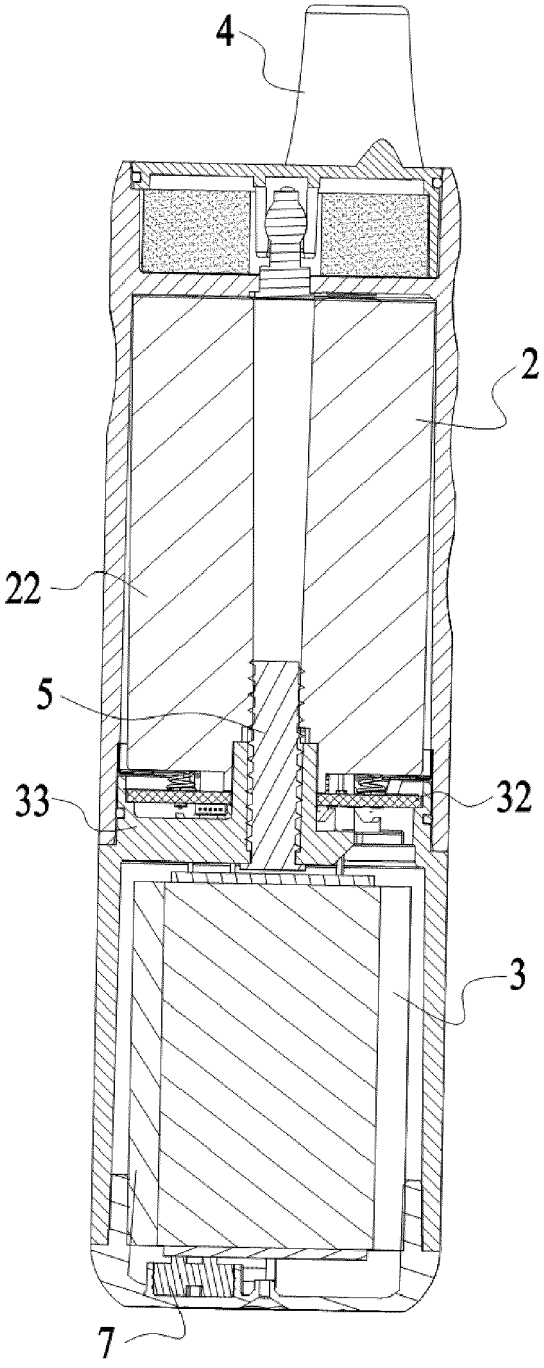

FIG. 9

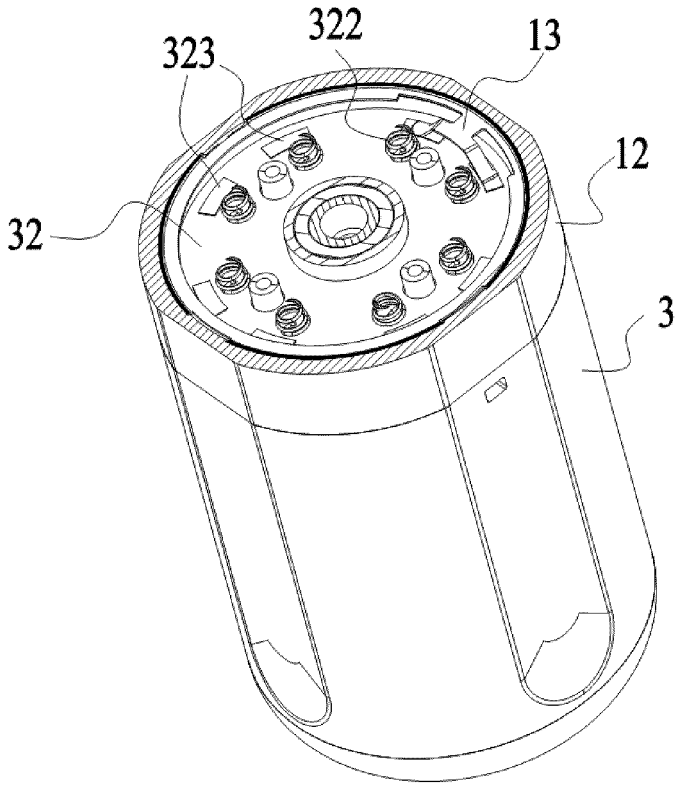

FIG. 10

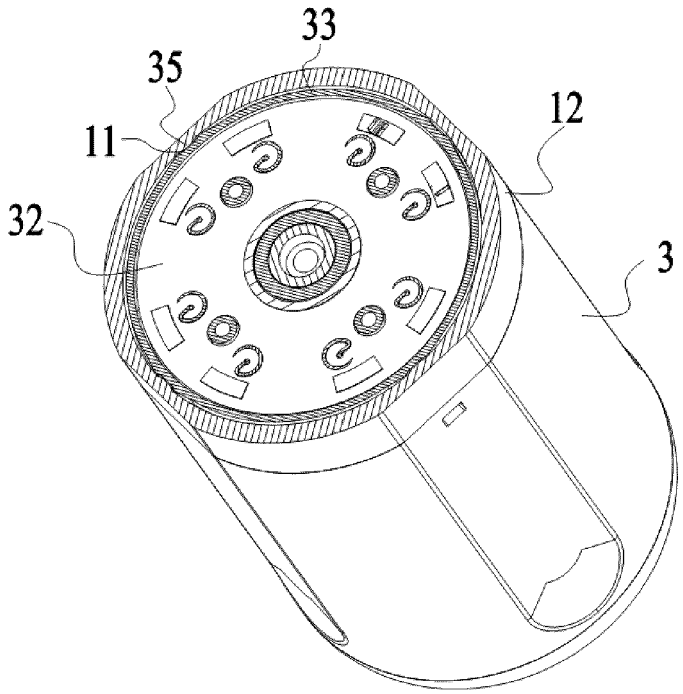

FIG. 11

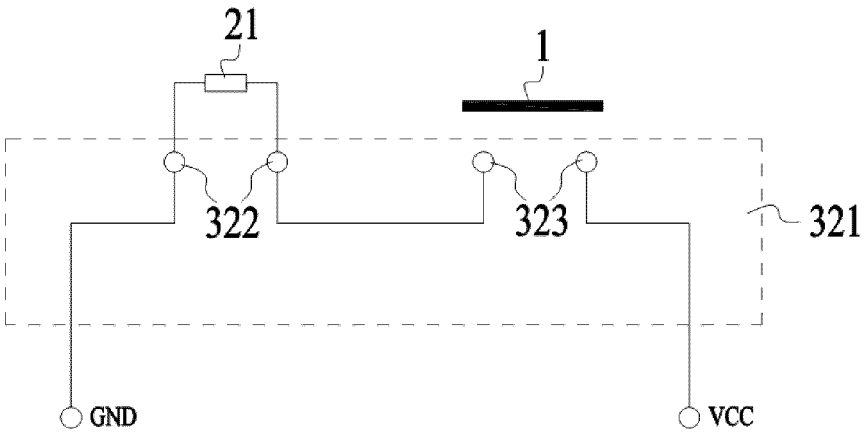

FIG. 12

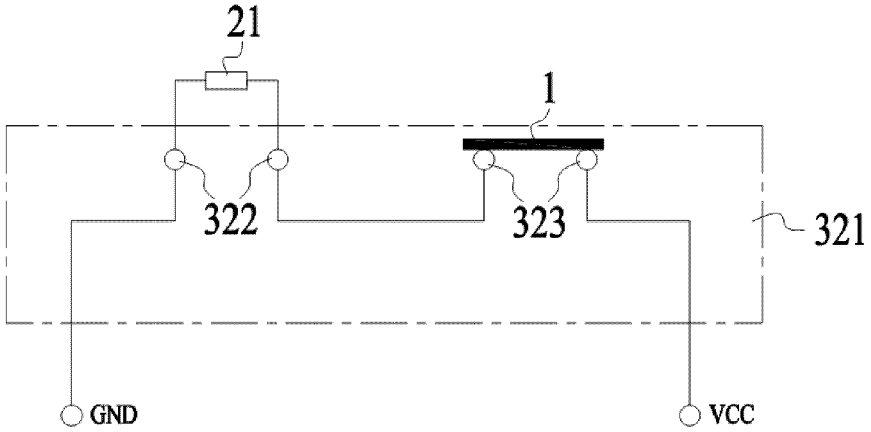

FIG. 13

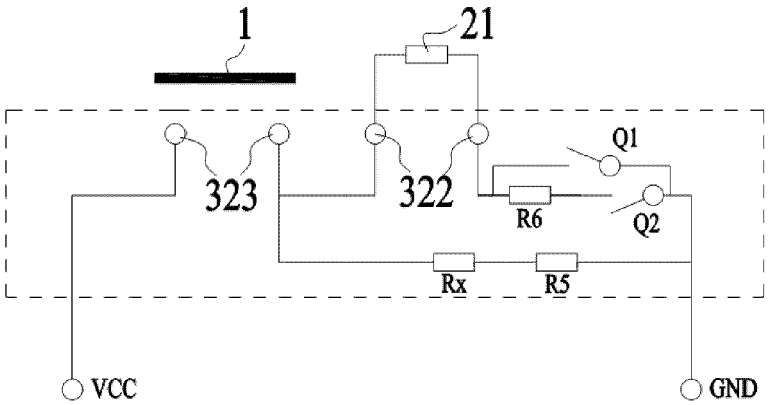

FIG. 14

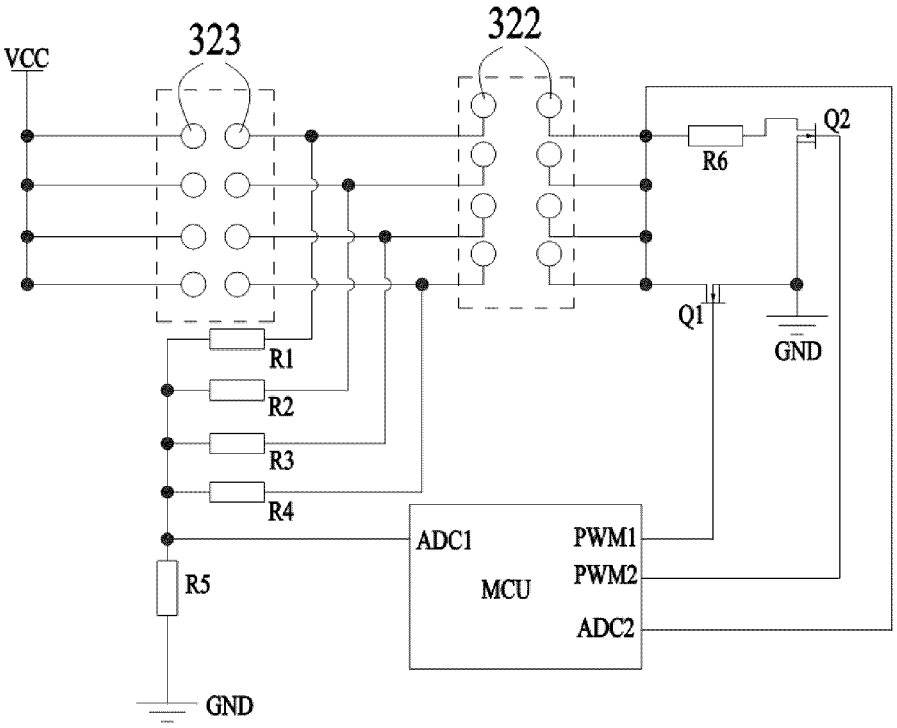
VCC
323
322
Q2
R6
Q1
GND
R1
R2
R3
R4
ADC1
PWM1
PWM2
MCU
ADC2
R5
GND

FIG. 15

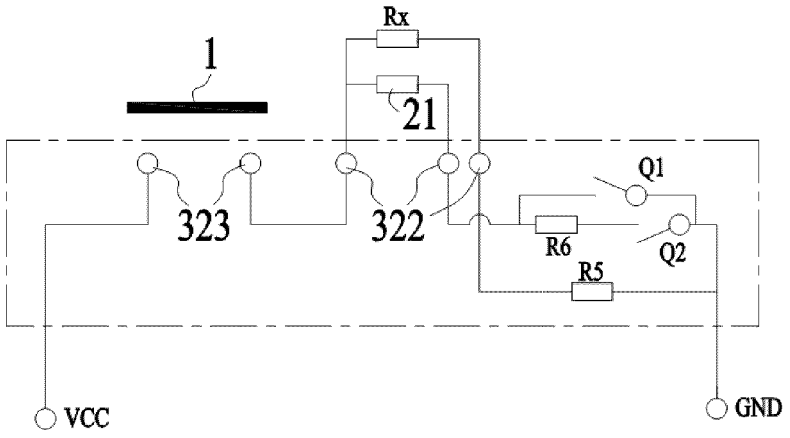
Rx
1
21
Q1
323
322
R6
Q2
R5
VCC
GND

FIG. 16

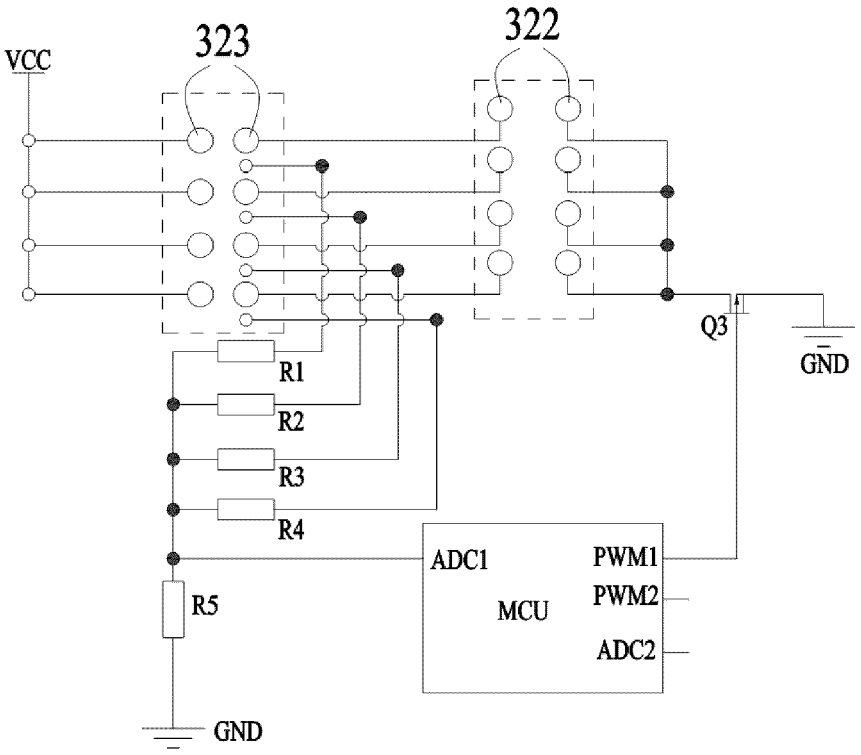
VCC
323
322
Q3
GND
R1
R2
R3
R4
ADC1
PWM1
PWM2
MCU
ADC2
R5
GND

FIG. 17

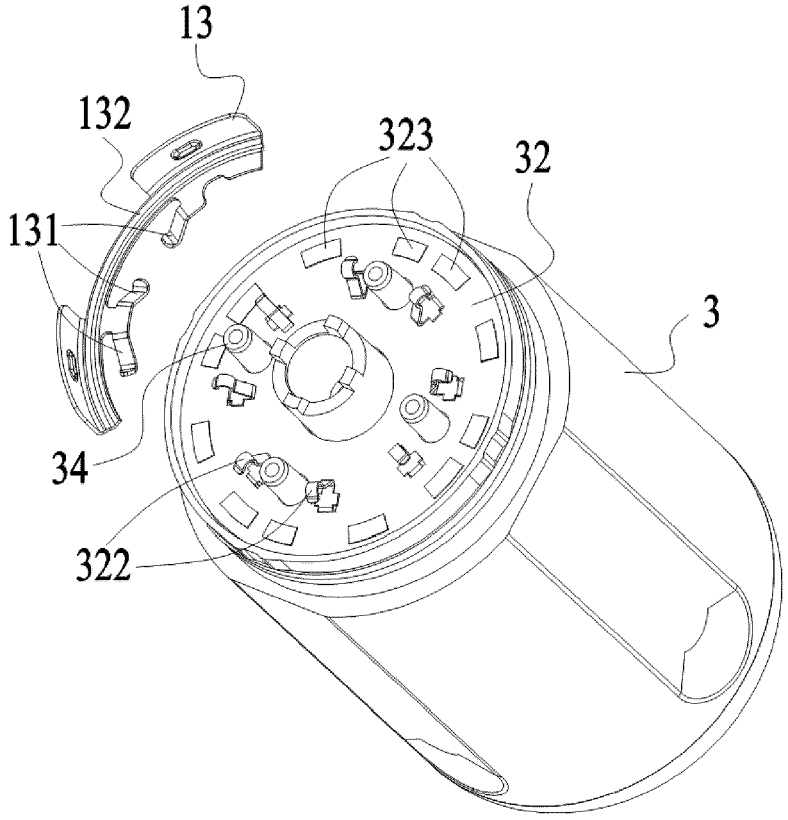
13
132
323
32
131
3
34
322

FIG. 18

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 24 19 3169

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 A	US 2020/146358 A1 (STEPHENS TANYA M [US] ET AL) 14 May 2020 (2020-05-14) * abstract; figures 1,7,8 * * Plurality of batteries, cartridges; paragraphs [0011], [0012] * * coductive attachment; paragraph [0023] * * control; paragraph [0047] * * conductive member; paragraph [0055] *	1,2,10, 15 3-9, 11-14	INV. A24F40/30
A	US 11 583 001 B2 (NICOVENTURES TRADING LTD [GB]) 21 February 2023 (2023-02-21) * abstract; figures 6a,6b * * 2 power supplies, 2 vaporizers; column 2, line 13 - line 34 * * PCB; column 4, line 43 - line 58 *	1-15	
A	EP 3 257 385 A1 (JOYETECH (CHANGZHOU) ELECTRONICS CO LTD [CN]) 20 December 2017 (2017-12-20) * abstract; figures 4-7 * * plurality of battery modules and atomization modules; paragraph [0005] * * paragraph [0036] *	1-15	TECHNICAL FIELDS SEARCHED (IPC) A24F
A	US 2016/366940 A1 (LIU QIUMING [CN]) 22 December 2016 (2016-12-22) * abstract; figures 6,7 * * two atomizers; paragraph [0022] *	1-15	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	5 December 2024	Schnitzhofer, Markus

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
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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

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 24 19 3169

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
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05-12-2024

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2020146358 A1	14-05-2020	US 2020146358 A1	14-05-2020
		WO 2020097435 A1	14-05-2020
US 11583001 B2	21-02-2023	AU 2018244637 A1	17-10-2019
		BR 112019020583 A2	28-04-2020
		CA 3057948 A1	04-10-2018
		CN 110691522 A	14-01-2020
		EP 3599907 A1	05-02-2020
		JP 6849098 B2	24-03-2021
		JP 2020511975 A	23-04-2020
		KR 20190116532 A	14-10-2019
		RU 2721087 C1	15-05-2020
		US 2020376208 A1	03-12-2020
		US 2023148662 A1	18-05-2023
		WO 2018178628 A1	04-10-2018
EP 3257385 A1	20-12-2017	CN 104770888 A	15-07-2015
		CN 105077594 A	25-11-2015
		EP 3257385 A1	20-12-2017
		US 2017333651 A1	23-11-2017
		WO 2016127473 A1	18-08-2016
US 2016366940 A1	22-12-2016	CN 106028856 A	12-10-2016
		US 2016366940 A1	22-12-2016
		WO 2015127663 A1	03-09-2015

EPO FORM P0459

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