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(71) Applicant: **Hainan Moore Brothers Technology Co., Ltd.**
Hainan 571900 (CN)

(72) Inventors:
- **LIAO, Caiwei**
  Hainan 571900 (CN)
- **WANG, Xinyu**
  Hainan 571900 (CN)

(74) Representative: **Herrero & Asociados, S.L.**
Edificio Aqua - Agustín de Foxá, 4-10
28036 Madrid (ES)

(54) **ELECTRONIC ATOMIZATION DEVICE**

(57) The present application provides an electronic atomization device (100). The electronic atomization device (100) includes: a top cover (20), provided with a cap structure (21); a holder, defining an atomization cavity (22) with the top cover (20) and provided with a start airway (41), where the cap structure (21) is disposed at and covers one end of the start airway (41), and a gap (23) communicated with the atomization cavity (22) is formed between the cap structure (21) and the sidewall of the start airway (41); and a pneumatic sensing component, communicated with the other end of the start airway (41), where the pneumatic sensing component (50) is communicated with the atomization cavity (22) through the start airway (41) and the gap (23).

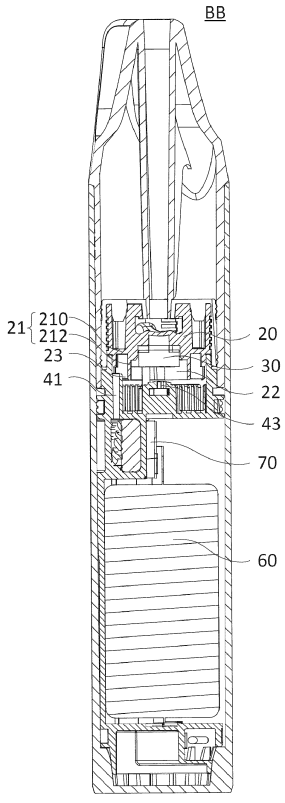

FIG. 3

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Description

TECHNICAL FIELD

[0001] This application relates to the field of atomization technologies, and in particular, to an electronic atomization device.

BACKGROUND

[0002] An electronic atomization device includes an atomizer and a main unit. The main unit supplies power to the atomizer. The atomizer is configured to atomize an aerosol medium stored in the atomizer to generate an inhalable aerosol.

[0003] In an existing electronic atomization device, after long-term use, a large amount of condensate is often easily accumulated in a start airway of an airflow sensor, causing difficulty in starting the airflow sensor or self-starting (spontaneous combustion) of the airflow sensor, making the electronic atomization device unable to function normally.

SUMMARY

[0004] This application mainly provides an electronic atomization device, to resolve a problem of abnormal starting of a start airway of the electronic atomization device due to condensate accumulation.

[0005] To resolve the foregoing technical problem, a technical solution used in this application is as follows. An electronic atomization device is provided. The electronic atomization device includes: a top cover, provided with a cap structure; a holder, defining an atomization cavity with the top cover and provided with a start airway, where the cap structure is disposed at and covers one end of the start airway, and a gap communicated with the atomization cavity is formed between the cap structure and the sidewall of the start airway; and a pneumatic sensing component, communicated with the other end of the start airway, where the pneumatic sensing component is communicated with the atomization cavity through the start airway and the gap.

[0006] In some embodiments, the cap structure includes a top wall and an annular wall, the annular wall is connected to the top wall, the top wall covers a port of the start airway, and the gap is formed between the annular wall and the sidewall of the start airway.

[0007] In some embodiments, the cap structure includes an annular wall, the sidewall of the start airway is provided with a port communicated with the atomization cavity, the annular wall covers a port of the start airway, and the gap is formed between the annular wall and the sidewall of the start airway.

[0008] In some embodiments, the electronic atomization device further includes an atomization core, the atomization core is connected to the top cover, and the start airway is offset relative to the atomization core.

[0009] In some embodiments, the holder includes a base, the atomization cavity is defined between the base and the top cover, the base includes a bottom part and a surrounding wall, the surrounding wall surrounds the bottom part, and the start airway is disposed on the surrounding wall.

[0010] In some embodiments, the base further includes an airway tube connected to the bottom part, and the airway tube is provided with the start airway.

[0011] In some embodiments, the bottom part is provided with a liquid collection cavity, and a port of the start airway communicated with the atomization cavity is higher than the liquid collection cavity.

[0012] In some embodiments, the bottom part is provided with an air inlet hole, and the air inlet hole is offset from the start airway and corresponds to the atomization core.

[0013] In some embodiments, the holder includes a base and a mounting holder disposed at one side of the base, the base is provided with the start airway, the mounting holder is further provided with a reflux prevention airway communicated with the start airway, and the pneumatic sensing component is communicated with the start airway through the reflux prevention airway.

[0014] In some embodiments, the reflux prevention airway is a Tesla valve, and a one-way flow direction defined by the Tesla valve is opposite to a guiding direction of the start airway from the atomization cavity to the pneumatic sensing component.

[0015] In some embodiments, the mounting holder is further provided with a pressure relief airway, one end of the pressure relief airway is communicated with the end of the reflux prevention airway away from the start airway, and the other end of the pressure relief airway is communicated with the air.

[0016] In some embodiments, the pressure relief airway includes a capillary part and a pressure relief hole part, the capillary part is disposed between and communicated with the reflux prevention airway and the pressure relief hole part, and the pressure relief hole part is further communicated with the air.

[0017] In some embodiments, the electronic atomization device further includes a seal member, the mounting holder is provided with an accommodating recess, the reflux prevention airway and the pressure relief airway are disposed on the bottom wall of the accommodating recess, and the seal member is in interference fit with the accommodating recess and seals the reflux prevention airway and the pressure relief airway. The seal member is provided with a through hole, the through hole is communicated with the end of the reflux prevention airway away from the start airway, and the pneumatic sensing component is disposed at the side of the seal member away from the reflux prevention airway and is communicated with the reflux prevention airway through the through hole.

[0018] In some embodiments, the start airway is communicated with the accommodating recess, a port of the

reflux prevention airway is spaced apart from a port of the start airway, the bottom wall of the accommodating recess is further provided with a liquid collection recess surrounding the reflux prevention airway, and the port of the start airway is further communicated with the liquid collection recess.

[0019] In some embodiments, the electronic atomization device further includes a control component, the control component is connected to the mounting holder and presses against the seal member, the pneumatic sensing component is electrically connected to the side of the control component away from the seal member, the control component is provided with a via hole, the via hole is correspondingly communicated with the through hole, and the pneumatic sensing component is communicated with the reflux prevention airway through the via hole and the through hole.

[0020] In some embodiments, the electronic atomization device further includes: a liquid storage tank, where the holder includes a base, the base covers one end of the liquid storage tank, and the atomization cavity is defined between the base and the top cover; and a shell, sleeved on the outside of the liquid storage tank and the base, where the shell is provided with a first air inlet hole, or the shell and the liquid storage tank jointly form a first air inlet hole. The base is provided with a second air inlet hole communicated with the atomization cavity, the shell and the base jointly form an air inlet passage, or the shell, the liquid storage tank, and the base jointly form an air inlet passage, and the air inlet passage is communicated with the first air inlet hole and the second air inlet hole. The air inlet passage includes at least two first airways, a raised structure is disposed at a junction of two adjacent first airways, and the raised structure is configured to divert, to the first airways on both sides, airflow entering from the first air inlet hole.

[0021] In some embodiments, the raised structure is an arc-shaped structure, a triangular structure, or a spherical structure.

[0022] In some embodiments, the outer wall surface of the arc-shaped structure facing the first air inlet hole is an arc surface, and two sides of the arc surface are respectively connected to the sidewall surfaces of the two adjacent first airways.

[0023] In some embodiments, the radius of the arc surface is greater than or equal to 0.5 mm and less than or equal to 3.0 mm.

[0024] In some embodiments, the symmetry plane of the arc surface directly faces the center of the first air inlet hole.

[0025] In some embodiments, the cross-sectional area of the first airway gradually decreases in a flow direction from the first air inlet hole to the second air inlet hole.

[0026] In some embodiments, the air inlet passage further includes a second airway, the second air inlet hole is communicated with the second airway, an air inlet end of the second airway is communicated with an air outlet end of the first airway, the cross-sectional area of the air inlet end of the second airway is larger than the cross-sectional area of the air outlet end of the first airway, and the cross-sectional areas are the cross-sectional areas in the flow direction from the first air inlet hole to the second air inlet hole.

[0027] In some embodiments, the ratio of the cross-sectional area of the air inlet end of the second airway to the cross-sectional area of the air outlet end of the first airway is greater than or equal to 2.0.

[0028] In some embodiments, the raised structure is disposed on the base, and the raised structure directly faces the first air inlet hole; the shell and the base jointly form the first airway, the first airway is disposed on the periphery of an atomizer in an arc shape, and each first airway is disposed around the second air inlet hole; and the base is provided with the second airway, the second airway runs through the base, and each first airway is communicated with the second airway.

[0029] In some embodiments, the quantity of first air inlet holes is more than one, the raised structure is in one-to-one correspondence with the first air inlet hole, and a plurality of first airways are of a connected-ring shape around the periphery of the atomizer.

[0030] In some embodiments, the shell and the liquid storage tank jointly form the first airway, and the raised structure is disposed on the liquid storage tank or the shell.

[0031] In some embodiments, the air inlet passage further includes an air inlet part, the shell and the liquid storage tank jointly form the air inlet part, the air inlet part is disposed between the first air inlet hole and the at least two first airways, and the raised structure directly faces the air inlet part.

[0032] In some embodiments, the cross-sectional area of the first airway is larger than the cross-sectional area of the air inlet part.

[0033] In some embodiments, the air inlet passage further includes an annular airway formed between the base and the shell and a second airway running through the base, the annular airway is disposed on the periphery of the electronic atomization device, each first airway is communicated with the annular airway, the second airway is communicated with the annular airway, and the second air inlet hole is communicated with the second airway.

[0034] In some embodiments, the first air inlet hole is an elliptical hole or a racetrack-shaped hole.

[0035] This application has the following beneficial effects. Different from conventional technologies, this application discloses an electronic atomization device. A cap structure is provided on a top cover, to cover a port of a start airway on a holder. In addition, a gap communicated with an atomization cavity is formed between the cap structure and the sidewall of the start airway, so that the port of the start airway is communicated with the atomization cavity through the gap, to prevent an aerosol in the atomization cavity from entering the start airway due to splashing or reflux. This can effectively block the

reflux of the aerosol while ensuring smooth start of a pneumatic sensing component. In addition, because the cap structure covers the start airway, condensate in the atomization cavity cannot flow into the start airway, and in this way, the risk of the start airway being blocked can be effectively reduced, thereby improve the reliability of the pneumatic sensing component.

BRIEF DESCRIPTION OF THE DRAWINGS

[0036] To describe the technical solution in embodiments of this application or conventional technologies more clearly, the following briefly describes the accompanying drawings required for describing embodiments or conventional technologies. Apparently, the accompanying drawings in the following descriptions show only some embodiments of this application, and a person of ordinary skill in the art may still obtain other accompanying drawings based on the accompanying drawings without creative efforts. In the accompanying drawings:

FIG. 1 is a schematic diagram of a structure of an embodiment of an electronic atomization device according to this application.

FIG. 2 is a schematic sectional view of a structure of the electronic atomization device shown in FIG. 1 in an AA view direction.

FIG. 3 is a schematic sectional view of a structure of the electronic atomization device shown in FIG. 1 in a BB view direction.

FIG. 4 is a schematic exploded view of a structure of components in a shell of the electronic atomization device shown in FIG. 1.

FIG. 5 is a schematic diagram of a structure of a top cover of the electronic atomization device shown in FIG. 3.

FIG. 6 is a schematic diagram of a structure of a holder of the electronic atomization device shown in FIG. 3.

FIG. 7 is a front view of a structure of the holder shown in FIG. 6.

FIG. 8 is a schematic sectional view of a structure of the electronic atomization device shown in FIG. 1 in a CC view direction.

FIG. 9 is a schematic diagram of a structure of another embodiment of an electronic atomization device according to this application.

FIG. 10 is a schematic exploded view of a structure of a shell of the electronic atomization device shown in FIG. 9.

DETAILED DESCRIPTION

[0037] The technical solutions in embodiments of this application are clearly and completely described below with reference to the accompanying drawings in embodiments of this application. Apparently, the described embodiments are merely some rather than all of embodiments of this application. All other embodiments obtained by a person of ordinary skill in the art based on embodiments of this application without creative efforts shall fall within the protection scope of this application.

[0038] Terms "first", "second", and "third" in embodiments of this application are merely for a purpose of description, and shall not be understood as an indication or implication of relative importance or implicit indication of the quantity of indicated technical features. Therefore, a feature restricted by "first", "second", and "third" can explicitly or implicitly include at least one of such features. In descriptions of this application, unless explicitly specified, "plurality of" means at least two, for example, two or three. In addition, terms "include", "have", and any variant thereof are intended to cover the non-exclusive inclusion. For example, a process, method, system, product, or device that includes a series of steps or units is not limited to the listed steps or units, but optionally further includes a step or unit that is not listed, or optionally further includes another step or unit inherent to the process, method, product, or device.

[0039] "Embodiment" mentioned in the specification means that particular features, structures, or characteristics described with reference to the embodiment may be included in at least one embodiment of this application. The term appearing at different positions of this specification does not necessarily means the same embodiment or an independent or alternative embodiment that is mutually exclusive with another embodiment. A person skilled in the art explicitly or implicitly understands that embodiments described in the specification may be combined with other embodiments.

[0040] This application provides an electronic atomization device 100. Referring to FIG. 1 to FIG. 2, FIG. 1 is a schematic diagram of a structure of an embodiment of an electronic atomization device according to this application, and FIG. 2 is a schematic sectional view of a structure of the electronic atomization device shown in FIG. 1 in an AA view direction.

[0041] The electronic atomization device 100 may include an atomizer and a main unit. The atomizer is detachably connected to the main unit, in other words, the atomizer is replaceable. The atomizer is configured to store an aerosol medium and atomize the aerosol medium. The main unit is configured to supply power to the atomizer.

[0042] The electronic atomization device 100 may alternatively be a disposable device. In other words, an aerosol medium carried in the electronic atomization device 100 can be thrown away after use. The electronic atomization device may alternatively include an atomizer and a main unit. The atomizer and the main unit are undetachable.

[0043] In this embodiment, the electronic atomization device 100 includes a liquid storage tank 10, a top cover 20, an atomization core 30, a holder 40, a pneumatic sensing component 50, a battery cell 60, a control component 70, a shell 80, and an electrode 90. The top cover

20 is connected to the liquid storage tank 10 to define a liquid storage cavity 12. The atomization core 30 is disposed on the top cover 20. One end of the holder 40 is connected to the end of the liquid storage tank 10, and an atomization cavity 22 is defined between the holder 40 and the top cover 20. The electrode 90 is connected to the holder 40 and is electrically connected to the atomization core 30. The electrode 90 may press the atomization core 30 on the top cover 20, or the atomization core 30 may be pressed on the top cover 20 by the holder 40. The pneumatic sensing component 50, the battery cell 60, and the control component 70 are all disposed on the holder 40. The electrode 90, the pneumatic sensing component 50, and the battery cell 60 are all electrically connected to the control component 70. The pneumatic sensing component 50 is configured to detect the usage status of electronic atomization device 100, so as to send a start signal when the electronic atomization device 100 is used. The control component 70 supplies power to the atomization core 30 based on the start signal. The shell 80 is disposed outside the liquid storage tank 10, the top cover 20, the atomization core 30, the holder 40, the pneumatic sensing component 50, the battery cell 60, the control component 70, and the electrode 90, for decoration and protection, to improve the aesthetics and the waterproof and dustproof capability of the electronic atomization device 100.

[0044] In this embodiment, the holder 40 is an integrated structural member and includes a base 42 and a mounting holder 44. The base 42 is connected to the end of the liquid storage tank 10. The pneumatic sensing component 50, the battery cell 60, and the control component 70 is mounted on the mounting holder 44. In this case, the electronic atomization device 100 a disposable device and the atomizer cannot be replaced.

[0045] In other implementations, the holder 40 may alternatively be a detachable or separable structural member and includes a base 42 and a mounting holder 44 that are detachable or separable. In this case, the atomizer may include the liquid storage tank 10, the top cover 20, the atomization core. 30, the base 42, and the electrode 90, and the main unit includes the remaining components. The atomizer is detachably connected to the main unit, in other words, the atomizer in the electronic atomization device 100 is replaceable.

[0046] After long-term observation and data collection of the usage of an existing product, the applicant has found that in an existing atomizer, a start airway in the atomizer is close to an atomization cavity or directly facing the atomization surface of the atomization core in most cases. As a result, a large amount of aerosol flows back into the start airway after the vaping is stopped. After long-term accumulation, a large amount of condensate is generated in the start airway, causing difficulty in starting the pneumatic sensing component or self-starting (spontaneous combustion) of the pneumatic sensing component, making the electronic atomization device unable to function normally. Therefore, improvement for the electronic atomization device is proposed to form the solution of this application.

[0047] Referring to FIG. 1 to FIG. 3, FIG. 3 is a schematic sectional view of a structure of the electronic atomization device shown in FIG. 1 in a BB view direction.

[0048] In this embodiment, the holder 40 is provided with a start airway 41. The top cover 20 is provided with a cap structure 21, the cap structure 21 is disposed at and covers one end of the start airway 41, and a gap 23 communicated with the atomization cavity 22 is formed between the cap structure 21 and the sidewall of the start airway 41. The pneumatic sensing component 50 is communicated with the other end of the start airway 41. The pneumatic sensing component 50 is communicated with the atomization cavity 22 through the start airway 41 and the gap 23, to sense a change state of airflow in the atomization cavity 22, so as to send a signal to the control component 70 when a user uses the electronic atomization device 100. The control component 70 controls the battery cell 60 to supply power to the atomization core 30, so that the atomization core 30 starts atomization, to generate an aerosol in the atomization cavity 22.

[0049] The pneumatic sensing component 50 may be an airflow sensor, an air pressure sensor, a pneumatic flow rate sensor, or the like. The pneumatic sensing component may be configured to detect an airflow state of the electronic atomization device 100, so as to determine whether the electronic atomization device 100 is in use, and to supply power to the electronic atomization device 100 in a timely manner.

[0050] For example, when the user directly vapes the electronic atomization device 100, the action can be detected by the pneumatic sensing component 50. Alternatively, when the user uses the electronic atomization device 100 by vaping using a machine device, the action can also be detected by the pneumatic sensing component 50.

[0051] In this application, the start airway 41 is a passage structure, and the cap structure 21 covers a port of the start airway 41, so that the port of the start airway 41 is communicated with the atomization cavity 22 through the gap 23, to prevent the aerosol in the atomization cavity 22 from entering the start airway 41 due to splashing or reflux. This can effectively block the reflux of the aerosol while ensuring smooth start of the pneumatic sensing component 50. In addition, because the cap structure 21 covers the start airway 41, condensate in the atomization cavity 22 cannot flow into the start airway 41, and in this way, the risk of the start airway 41 being blocked can be effectively reduced, thereby improve the reliability of the pneumatic sensing component 50.

[0052] Specifically, the holder 40 includes the base 42, the base 42 covers one end of the liquid storage tank 10, and the atomization cavity 22 is defined between the base 42 and the top cover 20. The base 42 is provided with an air inlet hole 43 and the start airway 41, and the air inlet hole 43 is communicated with the air and the ato-

mization cavity 22, to supply the air to the atomization cavity 22.

[0053] The start airway 41 is offset from the air inlet hole 43. In this embodiment, the air inlet hole 43 corresponds to the atomization core 30, so that the air can be efficiently supplied to an atomization surface of the atomization core 30, to improve the atomization effect. The start airway 41 is offset relative to the atomization core 30. In other words, the projected areas of the start airway 41 and the atomization core 30 in the direction from the top cover 20 to the base 42 do not overlap. In this way, the start airway 41 does not have to directly face the atomization surface of the atomization core 30, to avoid a high-risk reflux region directly below the atomization surface, thereby reducing the risk of the aerosol entering the start airway 41 due to splashing or reflux.

[0054] In other implementations, the projected areas of the start airway 41 and the atomization core 30 in the direction from the top cover 20 to the base 42 may overlap.

[0055] Referring to FIG. 3 to FIG. 6, FIG. 4 is a schematic exploded view of a structure of components in a shell of the electronic atomization device shown in FIG. 1, FIG. 5 is a schematic diagram of a structure of a top cover of the electronic atomization device shown in FIG. 3, and FIG. 6 is a schematic diagram of a structure of a holder of the electronic atomization device shown in FIG. 3.

[0056] The base 42 includes a bottom part 420 and a surrounding wall 422. The surrounding wall 422 surrounds the bottom part 420. The start airway 41 may be disposed on the surrounding wall 422. The port of the start airway 41 communicated with the atomization cavity 22 may be provided on the inner side surface of the surrounding wall 422 or face to the top of the top cover 20.

[0057] In this embodiment, as shown in FIG. 6, the base 42 further includes an airway tube 427 connected to the bottom part 420. The airway tube 427 is provided with the start airway 41. The airway tube 427 is located within the surrounding circle of the surrounding wall 422 and is adjacent to the surrounding wall 422 is provided. Further, the airway tube 427 is connected to the inner side surface of the surrounding wall 422, and may be further away from the air inlet hole 43 to stay away from the high-risk reflux region below the atomization surface.

[0058] The bottom part 42 is further provided with a liquid collection cavity 45 provided around the air inlet hole 43. The port of the start airway 41 communicated with the atomization cavity 22 is higher than the liquid collection cavity 45, to prevent the condensate formed by the aerosol reflux from entering the start airway 41 along the wall surface, thereby reducing the risk of the aerosol or the condensate entering the start airway 41.

[0059] A plurality of capillary grooves are further distributed on the wall surface of the liquid collection cavity 45, to adsorb and collect the condensate formed by the aerosol reflux.

[0060] In this embodiment, as shown in FIG. 3 and FIG. 5, the cap structure 21 includes a top wall 210 and an annular wall 212. The annular wall 212 is connected to one side of the top wall 210 and may be disposed in a semi-surrounding manner or a fully-surrounding manner. The top wall 210 covers one end of the airway tube 427 to cover the port of the start airway 41. A gap 23 is formed between the annular wall 212 and the sidewall of the start airway 41, in other words, a gap 23 is formed between the annular wall 212 and the sidewall of the airway tube 427.

[0061] The port of the start airway 41 may alternatively be provided on the sidewall of the airway tube 427, so that the annular wall 212 covers the port of the start airway 41.

[0062] Optionally, the start airway 41 is disposed on the surrounding wall 422. For example, the port of the start airway 41 is provided on the inner side surface of the surrounding wall 422. In this case, the cap structure 21 may be the annular wall 212, the annular wall 212 covers the port, and the gap 23 is formed between the annular wall and the inner side surface. Alternatively, the port of the start airway 41 is provided on the top of the surrounding wall 422 toward the top cover 20. The cap structure 21 still includes a top wall 210 and an annular wall 212. The top wall 210 covers the port of the start airway 41, and the gap 23 is formed between the annular wall 212 and the inner wall surface of the surrounding wall 422.

[0063] It may be understood that when the airway tube 427 is provided with the start airway 41, the sidewall of the start airway 41 means the sidewall of the airway tube 427; and when the surrounding wall 422 is provided with the start airway 41, the sidewall of the start airway 41 means the inner sidewall of the surrounding wall 422.

[0064] Referring to FIG. 4 to FIG. 7, FIG. 7 is a front view of a structure of the holder shown in FIG. 6.

[0065] The holder 40 further includes a mounting holder 44 disposed at one side of the base 42. The base 42 is provided with the start airway 41. The mounting holder 44 is further provided with a reflux prevention airway 46 communicated with the start airway 41. The pneumatic sensing component 50 is communicated with the start airway 41 through the reflux prevention airway 46. The reflux prevention airway 46 functions as a one-way valve and is configured to prevent the aerosol from entering the airway, so as to prevent the aerosol from contacting the pneumatic sensing element 50 or to prevent the formed condensate from contacting the pneumatic sensing component 50, thereby effectively enhance the protection of the pneumatic sensing component 50, and improving the start reliability of the pneumatic sensing component 50.

[0066] The pneumatic sensing component 50, the battery cell 60, and the control component 70 are all mounted on the mounting holder 44. The pneumatic sensing component 50 and the control component 70 are disposed between the battery cell 60 and the base 42, and both the pneumatic sensing component 50 and the battery cell 60 are electrically connected to the control component 70.

[0067] In this embodiment, the reflux prevention airway 46 is a Tesla valve. The Tesla valve is a passage structure

that can limit the one-way fluidity of the fluid. A one-way flow direction defined by the Tesla valve is opposite to a guiding direction of the start airway 41 from the atomization cavity 22 to the pneumatic sensing component 50, to prevent the aerosol and the condensate from entering the airway.

[0068] Optionally, the reflux prevention airway 46 may alternatively be an airway structure provided with a breathable film, so that only gas is allowed to pass through but does not liquid macromolecules are not allowed to pass through, to effectively enhance the protection of the pneumatic sensing component 50.

[0069] Specifically, the mounting holder 44 is provided with an accommodating recess 440, the reflux prevention airway 46 is disposed at the bottom of the accommodating recess 440, the start airway 41 is communicated with the accommodating recess 440, and a port of the reflux prevention airway 46 is spaced apart from the port of the start airway 41. The bottom wall of the accommodating recess 440 is further provided with a liquid collection recess 47 surrounding the reflux prevention airway 46, and the port of the start airway 41 is communicated with the liquid collection recess 47. In this case, though the condensate is formed in start airway 41, the condensate can enter the liquid collection recess 47, to prevent the condensate from blocking the port of the reflux prevention airway 46, so as to ensure the smooth start of the pneumatic sensing component 50.

[0070] Further, the mounting holder 44 is provided with a pressure relief airway 48, and the pressure relief airway 48 is also provided at the bottom of the accommodating recess 440. One end of the pressure relief airway 48 is communicated with the end of the reflux prevention airway 46 away from the start airway 41, and the other end of the pressure relief airway 48 is communicated with the air. The pressure relief airway 48 is configured to keep balance with the atmospheric pressure, to prevent the pneumatic sensing component 50 from being unintendedly triggered due to slight changes in a state of the gas in the atomization cavity 22.

[0071] Due to the environment and the state, when a user is not using the electronic atomization device 100, the state of the gas in the atomization cavity 22 may change. For example, if the electronic atomization device 100 is dropped or placed close to a high-temperature object, a state of the gas in the electronic atomization device is caused to change but the user is not using the electronic atomization device, there is a risk of causing the pneumatic sensing component 50 to be unintendedly triggered if the pressure relief airway 48 is not provided.

[0072] The pressure relief airway 48 is provided to keep balance with the atmospheric pressure. In this case, when the air pressure in the atomization cavity 22 changes due to non-human factors, the atmospheric pressure sensed through the pressure relief airway 48 also changes. This can eliminate unintended triggering and reduce the probability of unintended triggering of the pneumatic sensing component 50.

[0073] The pressure relief airway 48 includes a capillary part 480 and a pressure relief hole part 482. The capillary part 480 is disposed between and communicated with the reflux prevention airway 46 and the pressure relief hole part 482, and the pressure relief hole part 482 is further communicated with the air. The capillary part 480 is configured to prevent water vapor from entering the reflux prevention airway 46.

[0074] In other implementations, the pressure relief airway 48 may alternatively be a non-capillary hole or a non-capillary groove.

[0075] Referring to FIG. 4 and FIG. 7, the electronic atomization device 100 may further include a seal member 52. The reflux prevention airway 46 and the pressure relief airway 48 are recess structures disposed on the bottom wall of the accommodating recess 440. The seal member 52 is in interference fit with the accommodating recess 440 and seals the reflux prevention airway 46 and the pressure relief airway 48, so that the reflux prevention airway 46 and the pressure relief airway 48 are isolated from the liquid collection recess 47. The seal member 52 is provided with a through hole 520. The through hole 520 is communicated with the end of the reflux prevention airway 46 away from the start airway 41. The pneumatic sensing component 50 is disposed at the side of the seal member 52 away from the reflux prevention airway 46 and is communicated with the reflux prevention airway 46 through the through hole 520.

[0076] The seal member 52 can prevent liquid that may exist in the start airway 41 from entering the side of the control component 70 and the battery cell 60. In addition, the seal member can further prevent the liquid from being directed to the pneumatic sensing component 50.

[0077] The control component 70 is connected to the mounting holder 44 and presses against the seal member 52. The pneumatic sensing component 50 is disposed on the control component 70 and electrically connected to the side of the control component 70 away from the seal member 52. The control component 70 is provided with a via hole, the via hole is correspondingly communicated with the through hole 520, and the pneumatic sensing component 50 is communicated with the reflux prevention airway 46 through the via hole and the through hole 520. In this way, the pneumatic sensing component 50 can quickly transmit a signal to the control component 70, to improve the start efficiency.

[0078] Further, it is also found that there are problems such as howling and excessively loud noise caused by poor air intake flow when a user uses an existing electronic atomization device, making the user deeply troubled by the noise in use. The electronic atomization device 100 provided in this application can also resolve this problem.

[0079] Referring to FIG. 1 and FIG. 6 to FIG. 8, FIG. 8 is a schematic sectional view of a structure of the electronic atomization device shown in FIG. 1 in a CC view direction.

[0080] In this embodiment, the electronic atomization

device 100 is provided with a first air inlet hole 101, a second air inlet hole 102, and an air inlet passage 103. The air inlet passage 103 is communicated with the first air inlet hole 101 and the second air inlet hole 102. The second air inlet hole 102 is communicated with the atomization cavity 22, and the second air inlet hole 102 is the foregoing air inlet hole 43. The air inlet passage 103 includes at least two first airways 104. A raised structure 105 is disposed at a junction of two adjacent first airways 104. The raised structure 105 is configured to divert, to the first airways 104 on both sides, airflow entering from the first air inlet hole 101.

[0081] The first air inlet hole 101 may be provided on the shell 80, or the shell 80 and the outer wall of the liquid storage tank 10 jointly form the first air inlet hole 101, or the outer wall of the liquid storage tank 10 is provided with the first air inlet hole 101.

[0082] The first air inlet hole 101 may be a circular hole, a square hole, or the like.

[0083] In this embodiment, the first air inlet hole 101 is a quasi-circular air inlet hole, for example, an elliptical hole or a racetrack-shaped hole.

[0084] In an existing technical solution, due to the size limitation of the electronic atomization device, the first air inlet hole 101 is often configured as a circular air inlet hole. The cross-sectional area of the circular air inlet hole is small, and this is likely to cause fast airflow during air intake, resulting in the generation of loud noise. After the first air inlet hole 101 is optimized into a quasi-circular air inlet hole, for example, an elliptical hole or a racetrack-shaped hole, the air intake area of the first air inlet hole 101 can be significantly enlarged while meeting the structural size constraints of the electronic atomization device 100. This can reduce the flow rate of the first air inlet hole 101 at the inlet position, to effectively suppress the generation of the noise.

[0085] In a specific embodiment, after the first air inlet hole 101 is optimized from a circular hole to an elliptical hole, the cross-sectional area of the first air inlet hole increases from 0.79 to 1.84. This effectively reduces the flow rate at the inlet, and is also beneficial to increase the air intake volume per unit time.

[0086] The second air inlet hole 102 is provided on the base 42. The air inlet passage 103 is communicated with the first air inlet hole 101 and the second air inlet hole 102. The air inlet passage 103 may be provided on the base 42, or the base 42 and the shell 80 jointly form the air inlet passage, or the outer wall of the liquid storage tank 10, the base 42, and the inner wall of the shell 80 jointly form the air inlet passage.

[0087] The raised structure 105 relatively raises from the inner wall surface of the air inlet passage 103 and may be disposed opposite to the first air inlet hole 101. Alternatively, a passage is further provided between the first airways 104 and the first air inlet hole 101, and the raised structure 105 directly faces the passage to divert the airflow to the first airways 104 on both sides of the raised structure.

[0088] In existing product solutions on the market, the air inlet passage is not provided with a raised structure 105 in this application. As a result, there is no structure for correcting and restricting the large size of the passage at the inlet, the turning points, and the like of the air inlet passage, and consequently, severe vortex flows is generated due to turbulent airflow at the inlet and the turning points, causing poor air intake and loud noise.

[0089] In this application, the raised structure 105 is disposed at the airway inlet close to the first air inlet hole 101, the airflow can be smoothly diverted into two parts to separately enter the first airways 104 on both sides of the raised structure 105, to reduce the impact of the incoming gas on the wall surface at the inlet of the air inlet passage 103 using the raised structure 105. This can make the airflow smooth to reduce the airflow rate and the generation of the turbulence, and greatly reduce the noise, make the incoming airflow smoother, and reduce the generated noise.

[0090] The raised structure 105 may be an arc-shaped structure, a triangular structure, or a spherical structure. The apex of the arc-shaped structure or the spherical structure corresponds to the first air inlet hole 101, or the sharp corner of the triangular structure corresponds to the first air inlet hole 101. This can divert the airflow into two parts more smoothly, and can effectively reduce the impact of the airflow on the raised structure 105, thereby reducing the generation of the turbulence and the noise.

[0091] In this embodiment, the raised structure 105 is the arc-shaped structure. The outer wall surface of the arc-shaped structure facing the first air inlet hole 101 is an arc surface 106. Two sides of the arc surface 106 are respectively connected to the sidewall surfaces of the two adjacent first airways 104. The arc surface 106 can effectively relieve the force by using its external structure, to reduce the impact force of the incoming gas on the arc surface, so that the airflow can enter the first airways 104 on both sides more smoothly, thereby effectively reducing the noise or even eliminating the noise.

[0092] The radius of the arc surface 106 is greater than or equal to 0.5 mm and less than or equal to 3.0 mm. For example, the radius of the arc surface 106 may be 0.5 mm, 1.0 mm, 1.5 mm, 2.0 mm, 2.5 mm, or 3.0 mm. Within the size range, the airflow can pass more smoothly when being diverted, the generated noise can be reduced, and interfering with other structural dimensions on the electronic atomization device 100 can be avoided.

[0093] In an implementation, the shell 80 is provided with the first air inlet hole 101, and the base 42 is provided with the second air inlet hole 102. At least part of the base 42 is disposed in the shell 80, and the based and the shell 80 jointly form the air inlet passage 103.The raised structure 105 is provided on the shell 80 or the base 42. This can make the way for forming the air inlet passage 103 and the raised structure 105 simple, and the manufacturing process of the corresponding structure is also simple.

[0094] In this embodiment, both the raised structure

105 and the first airway 104 are disposed on the base 42, the first airway 104 is disposed on the periphery of the electronic atomization device 100 in an arc shape, and the raised structure 105 directly faces the first air inlet hole 101.

[0095] Further, the raised structure 105 is the arc-shaped structure, and the symmetry plane of the arc surface 106 directly faces the center of the first air inlet hole 101, to divert the airflow more evenly.

[0096] The first airway 104 is a recess structure disposed on the outer peripheral wall of the base 42. The shell 80 covers the recess structure. The first airway 104 is disposed in an arc shape, so that the extension length of the first airway 104 is longer, and the curved arrangement is beneficial to reduce the turbulence.

[0097] The air inlet passage 103 further includes a second airway 107. The base 42 is further provided with the second airway 107, and the second airway 107 runs through the base 42. The second air inlet hole 102 is communicated with the second airway 107. Each first airway 104 is disposed around the second air inlet hole 102, and each first airway 104 is communicated with the second airway 107 to supply the air to the second air inlet hole 102 through the second airway 107.

[0098] In other words, in this application, the quantity of first air inlet holes 101 may be more than one, and a plurality of first airways 104 are of a connected-ring shape around the periphery of the electronic atomization device 100. The first airway 104 is disposed between the first air inlet hole 101 and the second airway 107, to avoid blockage of the first air inlet hole 101 and the air inlet passage 103.

[0099] In this embodiment, the shell 80 is provided with two first air inlet holes 101. The raised structures 105 are in one-to-one correspondence with the first air inlet holes 101, and the quantity of raised structures 105 is also two. The quantity of first airways 104 is four, and the first airways are distributed in pairs on two sides of the raised structure 105. The four first airways 104 are of a connected-ring shape around the periphery of the electronic atomization device 100. One end of the first airway 104 is communicated with the first air inlet hole 101, and the other end of the first airway is communicated with an end of the second airway 107.

[0100] In other embodiments, the quantity of first air inlet holes 101 may alternatively be four, the quantity of first airways 104 is eight, and the quantity of second airways 107 may be two.

[0101] In this embodiment, the first air inlet hole 101 and the air inlet passage 103 are located at the same horizontal position. In other words, the first air inlet hole 101, the first airway 104, the raised structure 105, and the second airway 107 are all located at the same horizontal position.

[0102] Further, the cross-sectional area of the first airway 104 gradually decreases in a flow direction from the first air inlet hole 101 to the second air inlet hole 102. To be specific, the first airway 104 is in a variable cross-section design, the cross-sectional area at the inlet of the first airway 104 is large, and the cross-sectional area at the outlet is small. The cross-sectional area at the inlet of the first airway 104 is set to be large, so that the flow rate of the airflow after the airflow enters the first airway can be effectively reduced, and the size of the vortex formed by the airflow can be increased, to prevent the formation of more small vortex flows. The small vortex flows are more likely to be broken, and after the small vortex flows are broken, the kinetic energy is converted into the internal energy to generate the noise. The variable cross-section design of the first airway 104 can improve the stability of the generated small vortex flows and reduce the breakup ratio of the small vortex flows, to enable the airflow to flow more stably in the first airway 104, thereby reducing the intake noise. In other words, in this application, the generation of the small vortex flows at the inlet of the first airway 104 is further reduced, and the breakup ratio of the small vortex flows when flowing in the first airway 104 is reduced, thereby significantly reducing the intake noise.

[0103] An air inlet end of the second airway 107 is communicated with an air outlet end of the first airway 104, the cross-sectional area of the air inlet end of the second airway 107 is larger than the cross-sectional area of the air outlet end of the first airway 104, and the cross-sectional areas are the cross-sectional areas in the flow direction from the first air inlet hole 101 to the second air inlet hole 102. In this way, when the airflow enters the second airway 107 from the first airway 104, due to the sudden change in the cross-sectional area through which the airflow passes, the noise can be further reduced using the principle of resistive silencer. In other words, a resistive silencer is formed at the connecting inflection point between the first airway 104 and the second airway 107, to further reduce the noise.

[0104] The ratio of the cross-sectional area of the air inlet end of the second airway 107 to the cross-sectional area of the air outlet end of the first airway 104 is greater than or equal to 2.0. For example, the ratio of the cross-sectional area of the air inlet end of the second airway 107 to the cross-sectional area of the air outlet end of the first airway 104 may be 2.0, 2.5, 3.0, or the like, that is, the extension ratio may be 2.0, 2.5, 3.0, or the like. In addition, the variable cross-section design is used in the first airway 104, and this is more conducive to increasing the extension ratio at the connecting inflection point between the first airway 104 and the second airway 107. The larger extension ratio indicates the better silencing effect.

[0105] In this embodiment, the periphery of the outer wall of the base 42 is provided with a recess, and the shell 80 covers the recess to form the first airway 104. The cross-sectional area of the recess gradually decreases in the flow direction from the first air inlet hole 101 to the second air inlet hole 102, and the inner wall surface of the shell 80 is a smooth wall surface, to facilitate the formation of the first airway 104.

[0106] Referring to FIG. 9 and FIG. 10, FIG. 9 is a schematic diagram of a structure of another embodiment

of an electronic atomization device according to this application, and FIG. 10 is a schematic exploded view of a structure of a shell of the electronic atomization device shown in FIG. 9.

[0107] In another implementation, the electronic atomization device 200 includes a liquid storage tank 230, a base 240, and a shell 250. The shell 250 is sleeved on the outside of the liquid storage tank 230. The shell 250 is provided with a first air inlet hole 201, or the shell 250 and the liquid storage tank 230 jointly form a first air inlet hole 201. The base 240 is provided with a second air inlet hole (not shown) communicated with an atomization cavity (not shown) and covers one end of the liquid storage tank 230. The shell 250 and the outer sidewall of the liquid storage tank 230 jointly form a first airway 204. A raised structure 205 is disposed on the liquid storage tank 230 or the shell 250.

[0108] In this embodiment, the shell 250 and the liquid storage tank 230 jointly form the first air inlet hole 201. The liquid storage tank 230, the base 240, and the shell 250 jointly form an air inlet passage 203, and the air inlet passage 203 is communicated with the first air inlet hole 201 and the second air inlet hole. The air inlet passage 203 includes at least two first airways 204, and the raised structure 205 is disposed at a junction of two adjacent first airways 204.

[0109] The raised structure 205 is disposed on the outer wall of the liquid storage tank 230. The air inlet passage 203 further includes an air inlet part 209. The shell 250 and the liquid storage tank 230 jointly form the air inlet part 209. The air inlet part 209 is disposed between the first air inlet hole 201 and the at least two first airways 204. The raised structure 205 directly faces the air inlet part 209 to guide the airflow via the air inlet part 209 to be diverted to the two first airways 204 through the raised structure 205.

[0110] Specifically, a recess for forming the air inlet part 209 and the first airway 204 is provided on the outer wall of the liquid storage tank 230, and the inner wall surface of the shell 250 covers the recess to form the air inlet part 209 and the first airway 204 correspondingly.

[0111] The cross-sectional area of the first airway 204 is larger than the cross-sectional area of the air inlet part 209. The cross-sectional area at the inlet of the first airway 204 is set to be large, so that the flow rate of the airflow after the airflow enters the first airway can be effectively reduced, and the size of the vortex formed by the airflow can be increased, to prevent the formation of more small vortex flows, thereby reducing the noise.

[0112] The air inlet passage 203 further includes an annular airway 208 formed between the base 240 and the shell 250 and a second airway 207 running through the base 240. The annular airway 208 is disposed on the periphery of the electronic atomization device 200. Each first airway 204 is communicated with the annular airway 208. The second airway 207 is communicated with the annular airway 208, and the second air inlet hole 202 is communicated with the second airway 207.

[0113] Different from conventional technologies, this application discloses an electronic atomization device. A cap structure is provided on a top cover, to cover a port of a start airway on a holder. In addition, a gap communicated with an atomization cavity is formed between the cap structure and the sidewall of the start airway, so that the port of the start airway is communicated with the atomization cavity through the gap, to prevent an aerosol in the atomization cavity from entering the start airway due to splashing or reflux. This can effectively block the reflux of the aerosol while ensuring smooth start of a pneumatic sensing component. In addition, because the cap structure covers the start airway, condensate in the atomization cavity cannot flow into the start airway, and in this way, the risk of the start airway being blocked can be effectively reduced, thereby improve the reliability of the pneumatic sensing component.

[0114] The foregoing descriptions are merely embodiments of this application, and the patent scope of this application is not limited thereto. All equivalent structure or process changes made according to the content of this specification and accompanying drawings in this application or by directly or indirectly applying this application in other related technical fields shall fall within the patent protection scope of this application.

Claims

1. An electronic atomization device, **characterized by** comprising:

   a top cover, provided with a cap structure;
   a holder, defining an atomization cavity with the top cover and provided with a start airway, wherein the cap structure is disposed at and covers one end of the start airway, and a gap communicated with the atomization cavity is formed between the cap structure and the sidewall of the start airway; and
   a pneumatic sensing component, communicated with the other end of the start airway, wherein the pneumatic sensing component is communicated with the atomization cavity through the start airway and the gap.

2. The electronic atomization device of claim 1, wherein the cap structure comprises a top wall and an annular wall, the annular wall is connected to the top wall, the top wall covers a port of the start airway, and the gap is formed between the annular wall and the sidewall of the start airway.

3. The electronic atomization device of claim 1, wherein the cap structure comprises an annular wall, the sidewall of the start airway is provided with a port communicated with the atomization cavity, the annular wall covers a port of the start airway, and the

gap is formed between the annular wall and the sidewall of the start airway.

4. The electronic atomization device of claim 1, wherein the electronic atomization device further comprises an atomization core, the atomization core is connected to the top cover, and the start airway is offset relative to the atomization core.

5. The electronic atomization device of claim 4, wherein the holder comprises a base, the atomization cavity is defined between the base and the top cover, the base comprises a bottom part and a surrounding wall, the surrounding wall surrounds the bottom part, and the start airway is disposed on the surrounding wall; or
the base further comprises an airway tube connected to the bottom part, and the airway tube is provided with the start airway.

6. The electronic atomization device of claim 5, wherein the bottom part is provided with a liquid collection cavity, and a port of the start airway communicated with the atomization cavity is higher than the liquid collection cavity.

7. The electronic atomization device of claim 5, wherein the bottom part is provided with a second air inlet hole, and the second air inlet hole is offset from the start airway and corresponds to the atomization core.

8. The electronic atomization device of claim 1, wherein the holder comprises a base and a mounting holder disposed at one side of the base, the base is provided with the start airway, the mounting holder is further provided with a reflux prevention airway communicated with the start airway, and the pneumatic sensing component is communicated with the start airway through the reflux prevention airway.

9. The electronic atomization device of claim 8, wherein the reflux prevention airway is a Tesla valve, and a one-way flow direction defined by the Tesla valve is opposite to a guiding direction of the start airway from the atomization cavity to the pneumatic sensing component.

10. The electronic atomization device of claim 8, wherein the mounting holder is further provided with a pressure relief airway, one end of the pressure relief airway is communicated with the end of the reflux prevention airway away from the start airway, and the other end of the pressure relief airway is communicated with the air.

11. The electronic atomization device of claim 10, wherein the pressure relief airway comprises a capillary part and a pressure relief hole part, the capillary part is disposed between and communicated with the reflux prevention airway and the pressure relief hole part, and the pressure relief hole part is further communicated with the air.

12. The electronic atomization device of claim 10, wherein the electronic atomization device further comprises a seal member, the mounting holder is provided with an accommodating recess, the reflux prevention airway and the pressure relief airway are disposed on the bottom wall of the accommodating recess, and the seal member is in interference fit with the accommodating recess and seals the reflux prevention airway and the pressure relief airway, wherein
the seal member is provided with a through hole, the through hole is communicated with the end of the reflux prevention airway away from the start airway, and the pneumatic sensing component is disposed at the side of the seal member away from the reflux prevention airway and is communicated with the reflux prevention airway through the through hole.

13. The electronic atomization device of claim 12, wherein the start airway is communicated with the accommodating recess, a port of the reflux prevention airway is spaced apart from a port of the start airway, the bottom wall of the accommodating recess is further provided with a liquid collection recess surrounding the reflux prevention airway, and the port of the start airway is further communicated with the liquid collection recess.

14. The electronic atomization device of claim 12, wherein the electronic atomization device further comprises a control component, the control component is connected to the mounting holder and presses against the seal member, the pneumatic sensing component is electrically connected to the side of the control component away from the seal member, the control component is provided with a via hole, the via hole is correspondingly communicated with the through hole, and the pneumatic sensing component is communicated with the reflux prevention airway through the via hole and the through hole.

15. The electronic atomization device of claim 1, wherein the electronic atomization device further comprises:

a liquid storage tank, wherein
the holder comprises a base, the base covers one end of the liquid storage tank, and the atomization cavity is defined between the base and the top cover; and
a shell, sleeved on the outside of the liquid storage tank and the base, wherein the shell

is provided with a first air inlet hole, or the shell and the liquid storage tank jointly form a first air inlet hole;

the base is provided with a second air inlet hole communicated with the atomization cavity, the shell and the base jointly form an air inlet passage, or the shell, the liquid storage tank, and the base jointly form an air inlet passage, and the air inlet passage is communicated with the first air inlet hole and the second air inlet hole; and

the air inlet passage comprises at least two first airways, a raised structure is disposed at a junction of two adjacent first airways, and the raised structure is configured to divert, to the first airways on both sides, airflow entering from the first air inlet hole.

16. The electronic atomization device of claim 15, wherein the raised structure is an arc-shaped structure, a triangular structure, or a spherical structure.

17. The electronic atomization device of claim 16, wherein the outer wall surface of the arc-shaped structure facing the first air inlet hole is an arc surface, and two sides of the arc surface are respectively connected to the sidewall surfaces of the two adjacent first airways.

18. The electronic atomization device of claim 17, wherein the radius of the arc surface is greater than or equal to 0.5 mm and less than or equal to 3.0 mm.

19. The electronic atomization device of claim 17, wherein the symmetry plane of the arc surface directly faces the center of the first air inlet hole.

20. The electronic atomization device of claim 15, wherein the cross-sectional area of the first airway gradually decreases in a flow direction from the first air inlet hole to the second air inlet hole.

21. The electronic atomization device of claim 20, wherein the air inlet passage further comprises a second airway, the second air inlet hole is communicated with the second airway, an air inlet end of the second airway is communicated with an air outlet end of the first airway, the cross-sectional area of the air inlet end of the second airway is larger than the cross-sectional area of the air outlet end of the first airway, and the cross-sectional areas are the cross-sectional areas in the flow direction from the first air inlet hole to the second air inlet hole.

22. The electronic atomization device of claim 21, wherein the ratio of the cross-sectional area of the air inlet end of the second airway to the cross-sectional area of the air outlet end of the first airway is greater than or equal to 2.0.

23. The electronic atomization device of claim 21, wherein the raised structure is disposed on the base, and the raised structure directly faces the first air inlet hole; the shell and the base jointly form the first airway, the first airway is disposed on the periphery of an atomizer in an arc shape, and each first airway is disposed around the second air inlet hole; and the base is provided with the second airway, the second airway runs through the base, and each first airway is communicated with the second airway.

24. The electronic atomization device of claim 23, wherein the quantity of first air inlet holes is more than one, the raised structure is in one-to-one correspondence with the first air inlet hole, and a plurality of first airways are of a connected-ring shape around the periphery of the atomizer.

25. The electronic atomization device of claim 15, wherein the shell and the liquid storage tank jointly form the first airway, and the raised structure is disposed on the liquid storage tank or the shell.

26. The electronic atomization device of claim 25, wherein the air inlet passage further comprises an air inlet part, the shell and the liquid storage tank jointly form the air inlet part, the air inlet part is disposed between the first air inlet hole and the at least two first airways, and the raised structure directly faces the air inlet part.

27. The electronic atomization device of claim 26, wherein the cross-sectional area of the first airway is larger than the cross-sectional area of the air inlet part.

28. The electronic atomization device of claim 25, wherein the air inlet passage further comprises an annular airway formed between the base and the shell and a second airway running through the base, the annular airway is disposed on the periphery of the electronic atomization device, each first airway is communicated with the annular airway, the second airway is communicated with the annular airway, and the second air inlet hole is communicated with the second airway.

29. The electronic atomization device of claim 15, wherein the first air inlet hole is an elliptical hole or a racetrack-shaped hole.

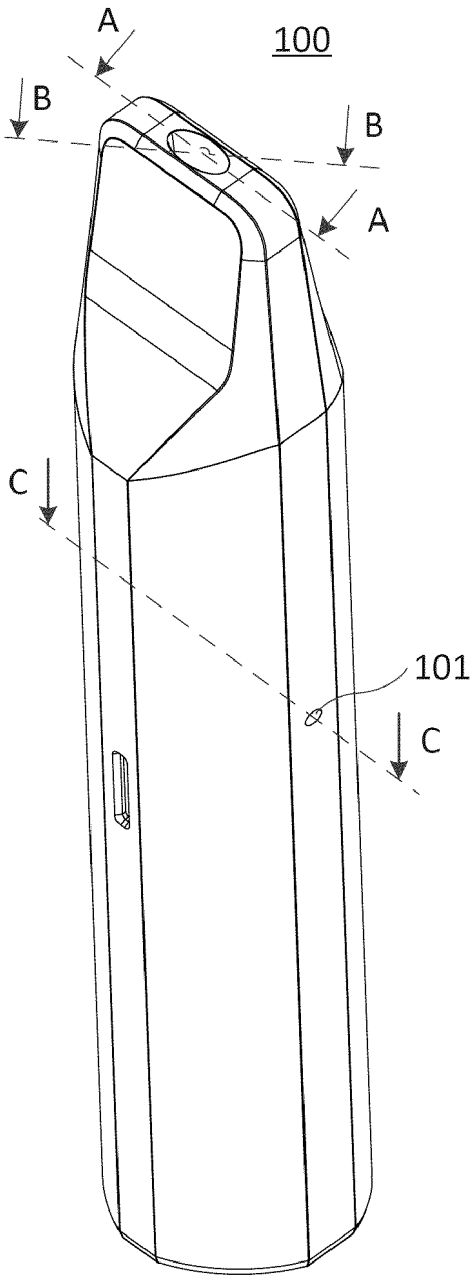


FIG. 1

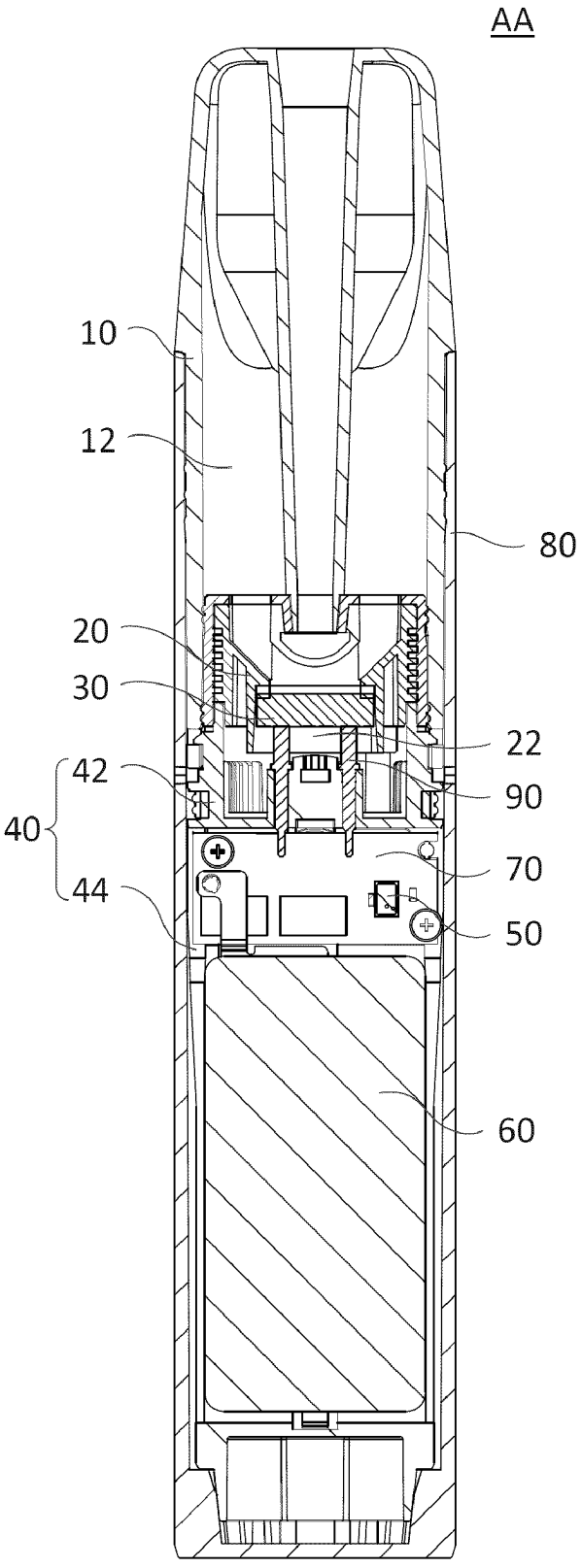


FIG. 2

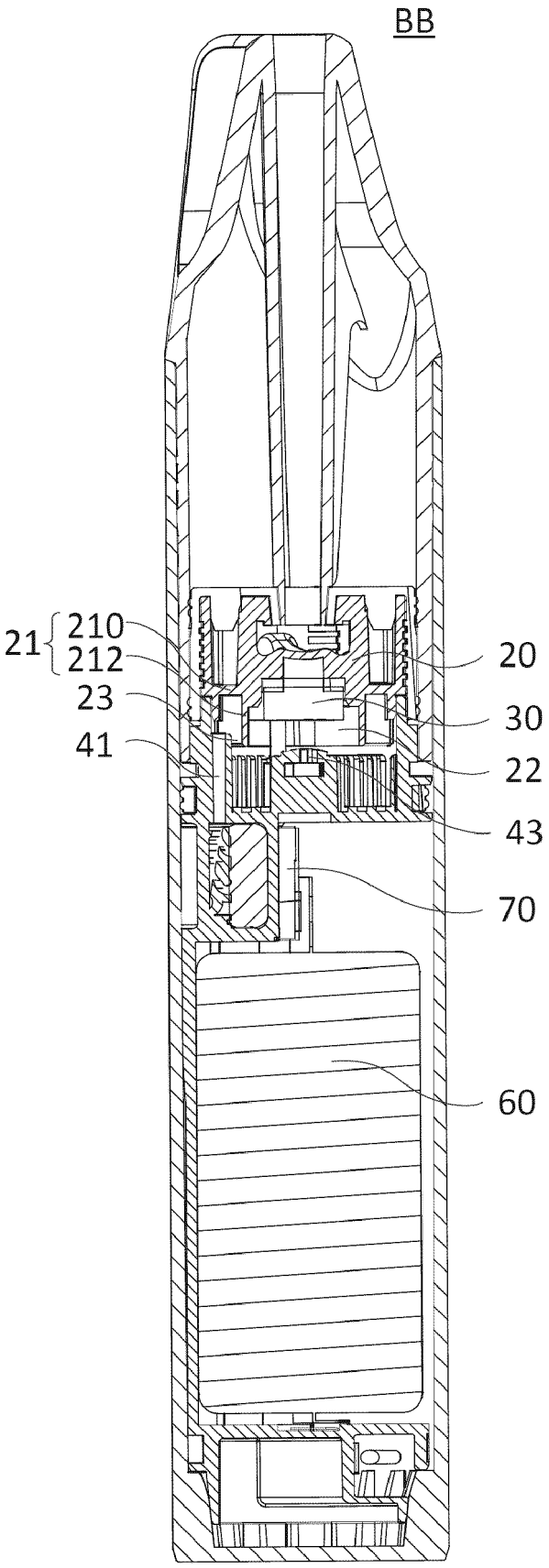


FIG. 3

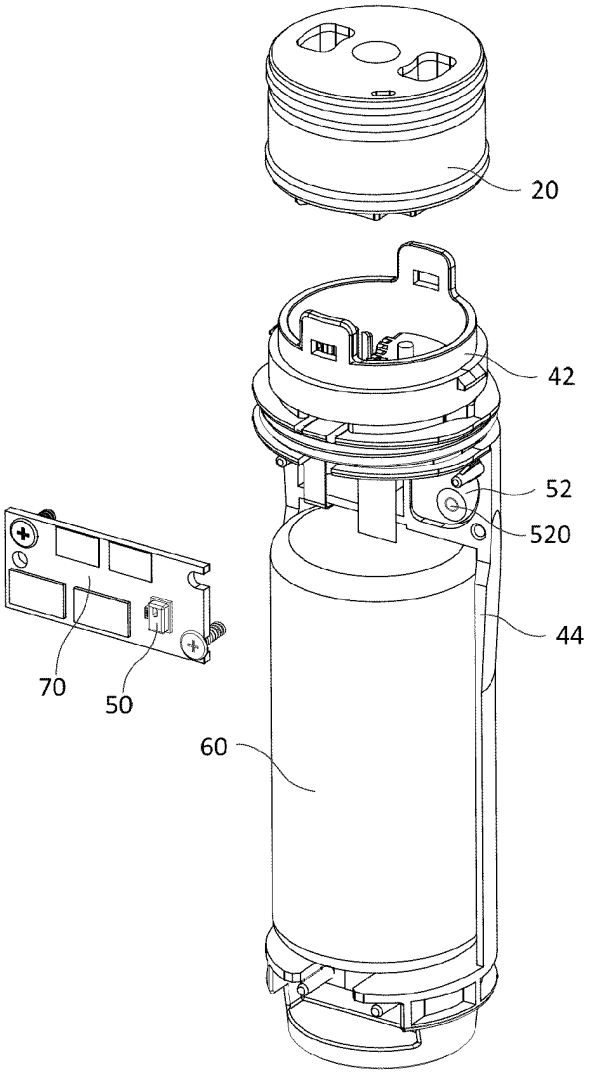


FIG. 4

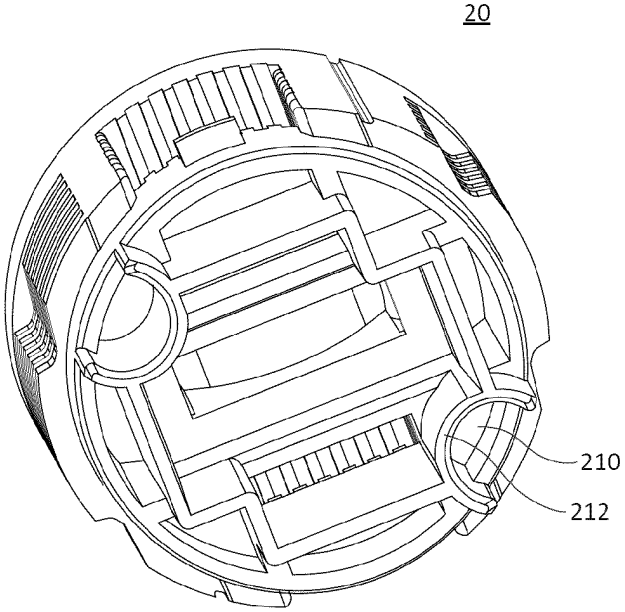


FIG. 5

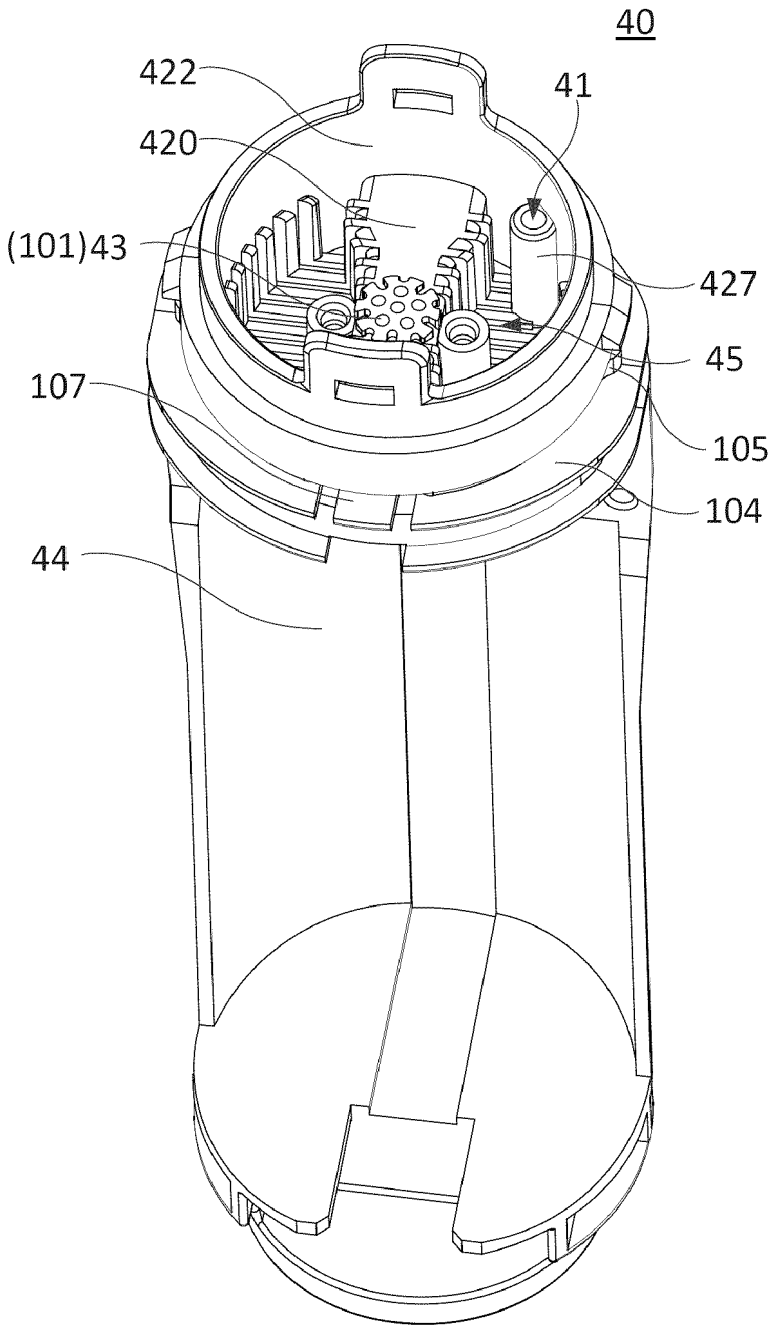


FIG. 6

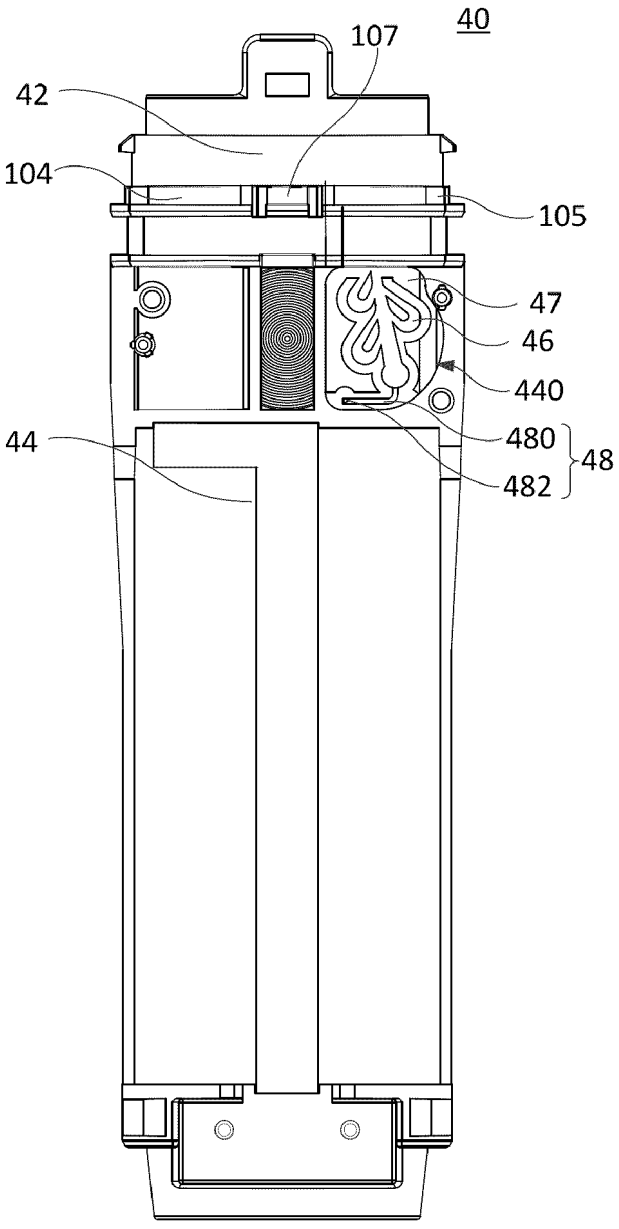
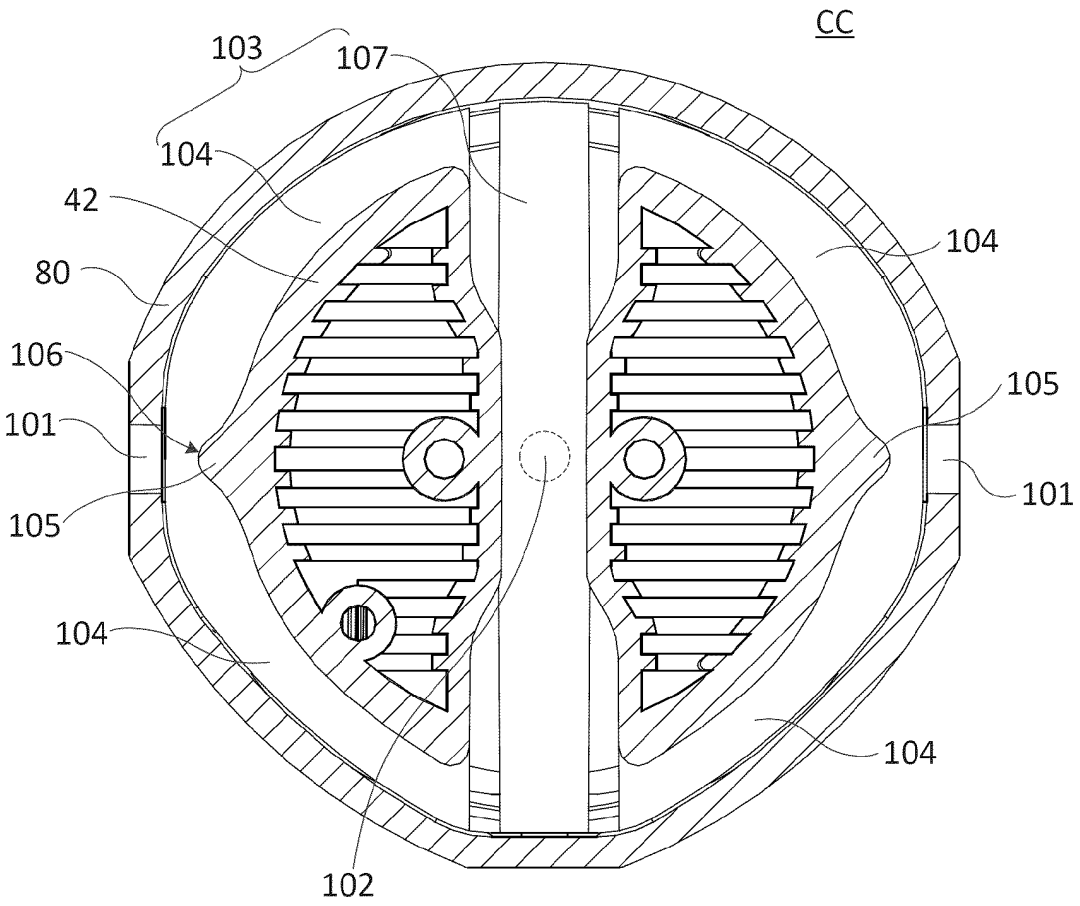


FIG. 7


CC
103
107
104
42
80
106
101
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105
101
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102

FIG. 8

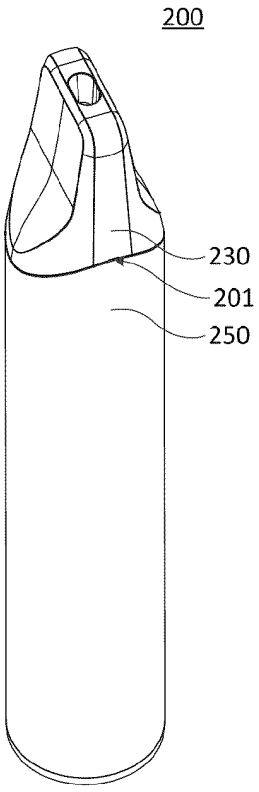
200
230
201
250

FIG. 9

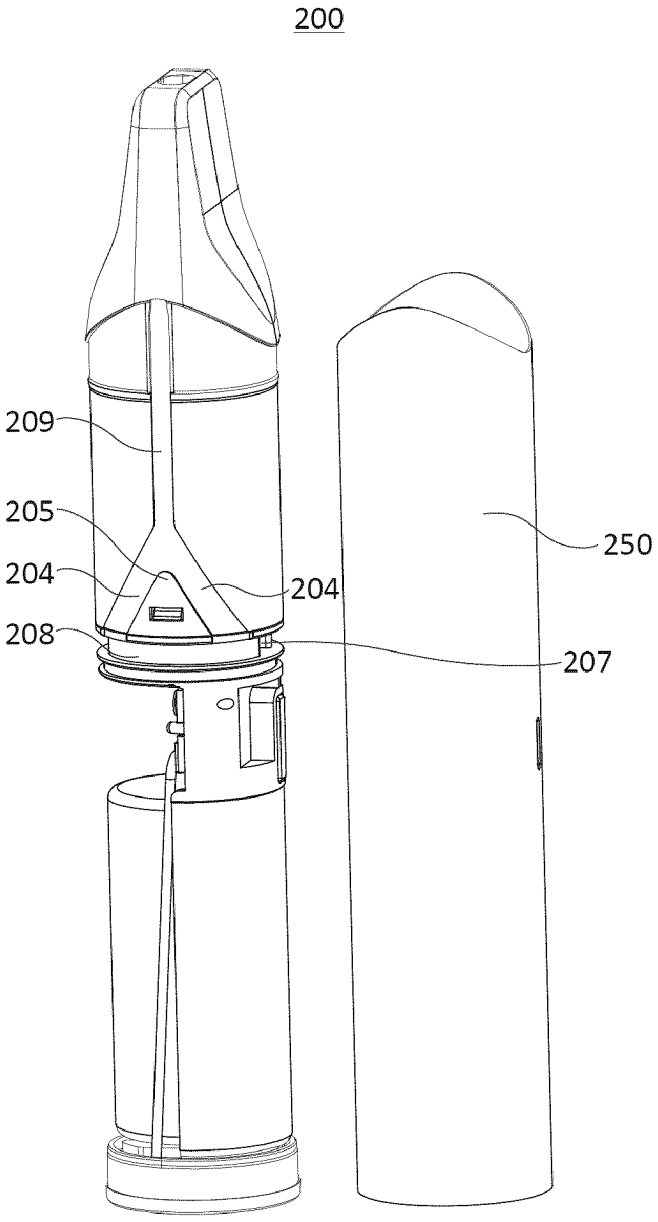

FIG. 10

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2022/117639

A. CLASSIFICATION OF SUBJECT MATTER

A24F47/00(2020.01)i;A24F40/00(2020.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC:A24F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNTXT; CNKI; WPABSC; ENTXTC; WPABS; ENTXT: 雾化, 盖, 帽, 启动气道, 间隙, 气, 感应, 泄露, atomiz+, cover, lid, air passage, sensor

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CN 112273728 A (SHENZHEN SMOORE TECHNOLOGY LIMITED) 29 January 2021 (2021-01-29) description, paragraphs [0032]-[0045] and [0048]-[0055], and figures 1-9	1-29
Y	CN 114158774 A (SHENZHEN SMOORE TECHNOLOGY LIMITED) 11 March 2022 (2022-03-11) description, paragraphs [0041]-[0115], and figures 1-11	1-29
Y	CN 214229840 U (SHENZHEN SMOORE TECHNOLOGY LIMITED) 21 September 2021 (2021-09-21) description, paragraphs [0028]-[0054], and figures 1-7	1-29
Y	CN 112263020 A (SHENZHEN SMOORE TECHNOLOGY LIMITED) 26 January 2021 (2021-01-26) description, paragraphs [0034]-[0056], and figures 1-5	1-29
A	CN 211960908 U (SHENZHEN SMOORE TECHNOLOGY LIMITED) 20 November 2020 (2020-11-20) entire document	1-29

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

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
10 May 2023	**25 May 2023**
Name and mailing address of the ISA/CN **China National Intellectual Property Administration (ISA/CN)** **China No. 6, Xitucheng Road, Jimenqiao, Haidian District, Beijing 100088**	Authorized officer Telephone No.

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INTERNATIONAL SEARCH REPORT
Information on patent family members

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Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
CN 112273728 A	29 January 2021	None	
CN 114158774 A	11 March 2022	None	
CN 214229840 U	21 September 2021	None	
CN 112263020 A	26 January 2021	None	
CN 211960908 U	20 November 2020	None	

Form PCT/ISA/210 (patent family annex) (July 2022)