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(54) **AEROSOL-GENERATING DEVICE AND AEROSOL-GENERATING SYSTEM**

(57) Provided in the embodiments of the present disclosure are an aerosol-generating device and an aerosol-generating system. The aerosol-generating device comprises a mounting bracket and a heating assembly. The mounting bracket is provided with a mounting space. The heating assembly comprises a connector and a heating element fixed to the connector, the connector being connected to the mounting bracket, and the heating element being located in the mounting space and configured to heat and atomize an aerosol-generating product so as to generate aerosol. The aerosol-generating device provided in the embodiments of the present disclosure facilitates the realization of miniaturization of the aerosol-generating device, parts and components are saved on, the costs are reduced, the assembly efficiency is improved, and the user experience is also improved. Furthermore, no additional fixing holder is provided to fix the heating assembly, which is conducive to reducing heat that is generated by the heating assembly and transferred to the fixing holder, thereby enabling heat to be stored in the heating assembly as much as possible, and reducing energy consumption during heating, and thus the heating performance is improved.

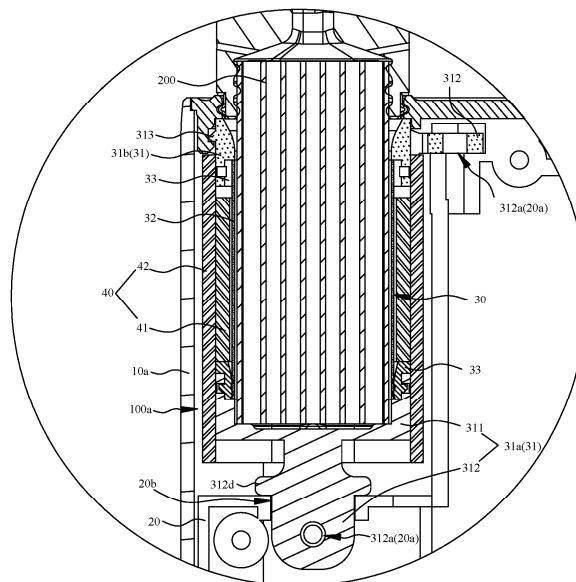


FIG. 3

Description

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims priority to Chinese Patent Application No. 202311861310.8, filed on December 29, 2023, the disclosure of which is hereby incorporated by reference in its entirety.

TECHNICAL FIELD

[0002] The present application relates to the field of an atomization technology, and in particular to an aerosol generating device and an aerosol generating system.

BACKGROUND

[0003] This section is intended to provide background or context for embodiments of the present application. The description here is not recognized as the prior art just because it is included in this section.

[0004] An aerosol generating device is an electronic delivery system which controls an operating state and an amount of smoke output through a control circuit and an atomizing member for use by a user.

[0005] In the existing heat generating assembly, a connecting member is usually adopted to clamp the heat generating assembly, and then a fixing support is arranged between the connecting member to fix the heat generating assembly. However, this structure is large in size, which leads to a poor user experience.

SUMMARY

[0006] In view of this, it is desirable in embodiments of the present application to provide a miniaturized aerosol generating device and an aerosol generating system.

[0007] To this end, an aspect of the embodiments of the present application provides an aerosol generating device, including a mounting support and a heating assembly.

[0008] The mounting support is provided with a mounting space.

[0009] The heating assembly includes a connecting member and a heating member fixed to the connecting member, the connecting member is connected to the mounting support, and the heating member is located in the mounting space and configured to heat an aerosol generating article to generate an aerosol.

[0010] In some embodiments, the connecting member includes at least two connecting supports, and the two connecting supports are arranged at two ends of the heating member in a height direction respectively and are connected to the mounting support.

[0011] Each connecting support includes a main body and a first mounting portion, one end of the first

mounting portion is connected to the main body, another end of the first mounting portion extends in a direction away from the main body, the main body is configured to fix the heating member, and the first mounting portion is provided with a connecting structure connected to the mounting support.

[0012] In some embodiments, in a cross section perpendicular to an extending direction of the first mounting portion, a cross-sectional area of at least a part of a region between the connecting structure and the main body is less than a cross-sectional area of an edge of the connecting structure.

[0013] In some embodiments, a through hole and/or a groove is arranged between the connecting structure and the main body.

[0014] In some embodiments, the aerosol generating device further includes a housing provided with an accommodation space, and the two connecting supports are arranged in the accommodation space.

[0015] Each connecting support further includes a second mounting portion arranged at a side of the main body away from the first mounting portion, and the second mounting portion is connected to the housing.

[0016] In some embodiments, the heating assembly further includes a seal, the main body is provided with an accommodation cavity, at least a part of the heating member is inserted into the accommodation cavity, and the seal is at least hermetically sandwiched between a wall of the accommodation cavity and an outer side wall of the heating member.

[0017] In some embodiments, the connecting support arranged at a top of the heating member is a first connecting component, the connecting support arranged at a bottom of the heating member is a second connecting component, the first connecting component is provided with an accommodation passage penetrating through the first connecting component in the height direction, the second connecting component is provided with an accommodation groove, one end of the heating member is inserted into the accommodation passage, and another end of the heating member is inserted into the accommodation groove.

[0018] In some embodiments, a first positioning surface is formed on a side wall of the accommodation passage, a second positioning surface is formed on a bottom or a side wall of the accommodation groove, the two connecting supports are connected to the mounting support, and two opposite ends of the heating member are clamped between the first positioning surface and the second positioning surface.

[0019] In some embodiments, the connecting support arranged at a top of the heating member is a first connecting component, the connecting support arranged at a bottom of the heating member is a second connecting component, the first mounting portion of the first connecting component extends in a first direction, and the first mounting portion of the second connecting component is arranged at a bottom of the main body of the

second connecting component and extends in the height direction, in which the first direction intersects with the height direction.

[0020] In some embodiments, the first mounting portion of the second connecting component is further provided with a limiting protrusion, an inserting opening is arranged at a top of the mounting support, the limiting protrusion abuts against a top wall of the mounting support, to limit the second connecting component in the height direction of the aerosol generating device, and the connecting structure of the second connecting component extends into an interior of the mounting support through the inserting opening and is connected to the mounting support.

[0021] In some embodiments, third positioning surfaces are arranged at two sides of the first mounting portion of the second connecting component in the first direction, and cooperate with a side wall of the inserting opening to limit the second connecting component in the first direction.

[0022] In some embodiments, the connecting member is fastened to the mounting support.

[0023] In some embodiments, the heating assembly further includes a thermal insulation assembly wrapping around an outer periphery of at least a part of the heating member.

[0024] In some embodiments, the aerosol generating device further includes a housing provided with an accommodation space, and a thermal insulation gap is formed between an inner wall of the housing and an outer side wall of the thermal insulation assembly.

[0025] In some embodiments, the connecting member includes at least two connecting supports, and the two connecting supports are arranged at two ends of the heating member in a height direction respectively and are connected to the mounting support.

[0026] The thermal insulation assembly includes a first thermal insulation member and a second thermal insulation member, the first thermal insulation member wraps around the outer periphery of the heating member and is located between the two connecting supports, and the second thermal insulation member wraps around an outer periphery of the first thermal insulation member and an outer periphery of at least a part of the connecting member.

[0027] In some embodiments, the thermal insulation assembly is an aerogel or a vacuum tube.

[0028] In some embodiments, a material of the vacuum tube is metal, ceramic, or plastic.

[0029] Another aspect of the embodiments of the present application provides an aerosol generating system, including an aerosol generating article and the aerosol generating device described above. The heating member is provided with a heating space, and at least a part of the aerosol generating article is arranged in the heating space.

[0030] In the aerosol generating device provided by the embodiments of the present application, the heat-

ing assembly includes a connecting member and a heating member fixed to the connecting member, the mounting support is provided with a mounting space, the heating member is located in the mounting space, and the connecting member is directly connected to the mounting support to achieve the fixation of the heating assembly. In the related art, the connecting member clamps two ends of the heating member, and a fixing support is arranged on an outer periphery of the heating member to fix the connecting member located at the two ends of the heating member, to achieve the fixation of the heating assembly. The aerosol generating device according to the embodiment of the present application can choose not to arrange a fixing support to fix the connecting member, but directly connect the connecting member to the mounting support, to achieve the fixation of the heating assembly. In this way, it is beneficial to achieving the miniaturization of the aerosol generating device, which saves the parts, reduces the costs, improves the assembly efficiency, and improves the user experience. In addition, since no additional fixing support is arranged to fix the heating assembly, it is beneficial to reducing the transfer of the heat generated by the heating assembly to the fixing support, and it is possible to keep the heat in the heating assembly as much as possible, thereby reducing the energy consumption during the heating, and improving the heating performance.

BRIEF DESCRIPTION OF THE DRAWINGS

[0031]

FIG. 1 is a schematic diagram of an aerosol generating device according to an embodiment of the present application.

FIG. 2 is a cross-sectional view of FIG. 1.

FIG. 3 is an enlarged view of a portion A shown in FIG. 2.

FIG. 4 is a schematic diagram of a connecting support according to an embodiment of the present application.

FIG. 5 is a schematic diagram of another connecting support according to an embodiment of the present application.

DETAILED DESCRIPTION

[0032] It should be noted that embodiments and features in the embodiments of the present application may be combined with each other without conflict, and the detailed description should be understood as an explanation of the present application and should not be regarded as an undue limitation of the present application.

[0033] In the description of the embodiments of the present application, it should be noted that orientation or positional relationships indicated by the terms

"upper", "lower", "top", "bottom", and the like are based on orientation or positional relationships shown in FIG. 2. These orientation terms are merely for the convenience of describing the embodiments of the present application and simplifying the description, and do not indicate or imply that the referred device or element must have a specific orientation, and must be constructed and operated in a specific orientation, and therefore should not be construed as a limitation of the embodiments of the present application. The present application will be further elaborated below in combination with the accompanying drawings and the specific embodiments.

[0034] An aspect of the embodiments of the present application provides an aerosol generating system. The aerosol generating system includes an aerosol generating article 200, and an aerosol generating device according to any of the embodiments described above. A heating member 32 of the aerosol generating device is provided with a heating space, and at least a part of the aerosol generating article 200 is arranged in the heating space.

[0035] The aerosol generating article 200 is arranged in the heating space, and the heating member is configured to heat the aerosol generating article 200 to generate an aerosol.

[0036] It should be noted that in the embodiment of the present application, referring to FIG. 3, the aerosol generating article 200 is in a solid form.

[0037] The type of the aerosol generating article 200 is not limited. For example, an aerosol generating article 200 with no paper or aluminum foil wrapping around the periphery thereof may be employed.

[0038] The structure of the aerosol generating article 200 is not limited. Exemplarily, in some embodiments, the aerosol generating article 200 may include a functional segment and an aerosol generating substance, and the functional segment is arranged at an end of the aerosol generating substance in a length direction. It should be noted that the aerosol generating article 200 generates an aerosol through the aerosol generating substance, and the functional segment does not generate an aerosol.

[0039] The functional segment may include a cooling segment configured to cool the aerosol to reduce a temperature of the aerosol, which can improve the phenomenon of "scalding the mouth" when the user inhales the aerosol. The functional segment may also include a support segment with a certain structural strength to limit the aerosol generating substance along an axial direction thereof. The functional segment may also include a filtering segment to filter the aerosol.

[0040] In other embodiments, the aerosol generating article 200 does not include a functional segment.

[0041] The aerosol generating article 200 may further include an outer wrapping layer wrapping around an outer peripheral side of the functional segment and the aerosol generating substance. Certainly, the aerosol

generating article 200 may not include an outer wrapping layer. Specifically, in the embodiment of the present application, an aerosol generating article 200 without an outer wrapping layer is exemplified.

[0042] The material of the aerosol generating substance is not limited. Exemplarily, the aerosol generating article 200 includes, but is not limited to, a pharmaceutical product, a nicotine-containing material or a nicotine-free material, and the like. In an example, the aerosol generating substance is provided with a macroscopic internal airflow passage, the aerosol generating substance may be manufactured by the extrusion, the die-casting, or the like, and the internal airflow passage may be directly formed by the extrusion, the die-casting, or the like. Certainly, the aerosol generating substance may also be provided with microscopic vent holes therein, which is not limited here.

[0043] The shape of the aerosol generating article 200 is not limited. Exemplarily, a cross section of the aerosol generating article 200 in a plane perpendicular to an axial direction thereof may be one of circular, polygonal, elliptical, track-shaped, and the like.

[0044] The track shape refers to a shape similar to a track and field track, which is formed by the alternation of two semicircles and two parallel straight sides.

[0045] Exemplarily, a heating assembly 30 is also provided with an opening communicating with the heating space, and the aerosol generating article 200 can enter the heating space through the opening.

[0046] The shape and dimension of the heating space are not limited. Exemplarily, the dimension of the heating space is designed to be slightly greater than the dimension of the aerosol generating article 200. In this way, a gap can be formed between the aerosol generating article 200 and a side wall of the heating space, and the air flow reaching the opening can reach a side of the heating space away from the opening through the gap, and flow through the interior of the aerosol generating article 200, to carry away the aerosol generated by the atomization of the aerosol generating article 200 for an inhaler to inhale.

[0047] An aspect of the embodiments of the present application provides an aerosol generating device. Referring to FIG. 1 to FIG. 2, the aerosol generating device includes a power supply device and the aerosol generating device 100 provided in any of the embodiments of the present application.

[0048] The power supply device is mainly configured to supply power to the aerosol generating device 100 and control the operations such as the opening or closing of the entire aerosol generating device. The aerosol generating device 100 is mainly configured to accommodate the aerosol generating article 200 and heat and atomize the aerosol generating article 200 after being energized. The aerosol generating article 200 includes, but is not limited to, materials for the medical treatment, health preservation, health, cosmetic, and the like purposes.

[0049] In some embodiments, the aerosol generating device 100 and the power supply device may be mechanically and electrically connected together in the axial direction (i.e., the height direction). Further, the aerosol generating device 100 and the power supply device may be detachably connected together by a magnetic connection, a screw connection, a snap fit connection, or the like. The aerosol generating device 100 and the power supply device can be separately replaced or upgraded, which reduces the replacement cost and saves the expenses of the user. Certainly, in other embodiments, the aerosol generating device 100 and the power supply device may also be connected together in a non-detachable manner.

[0050] Further, the aerosol generating device 100 and/or the power supply device are not limited to a cylindrical shape, and may have other shapes such as an elliptical cylindrical shape or a square cylindrical shape.

[0051] It should be noted that the specific type of the aerosol generating device provided by the embodiment of the present application is not limited. Exemplarily, the aerosol generating device may be a medical atomizing device, an air humidifier, or an atomizing device such as an electronic cigarette.

[0052] Another aspect of the embodiments of the present application provides an aerosol generating device 100. Referring to FIG. 1 to FIG. 5, the aerosol generating device 100 includes a mounting support 20 and a heating assembly 30. The mounting support 20 is provided with a mounting space. The heating assembly 30 includes a connecting member and a heating member 32 fixed to the connecting member. The connecting member is connected to the mounting support 20. The heating member 32 is located in the mounting space, and is configured to heat and atomize the aerosol generating article 200 to generate an aerosol.

[0053] Exemplarily, the aerosol generating device 100 further includes a housing 10 provided with an accommodation space 10a.

[0054] The housing 10 and the mounting support 20 can be understood as a part of a main body 311 of the aerosol generating device, and the housing 10 and the mounting support 20 constitute the general frame of the aerosol generating device.

[0055] At least a part of the housing 10 may serve as an appearance portion of the aerosol generating device, and the accommodation space 10a may facilitate the arrangement of the mounting support 20 and the heating assembly 30.

[0056] The type of the heating member is not limited. Exemplarily, the heating member is a heat generating tube, and the internal space of the heat generating tube is the heating space.

[0057] The material of the heat generating tube is not limited. For example, the heat generating tube may be a stainless steel or quartz tube. The heat generating tube is configured to heat the aerosol generating article 200 and cause the aerosol generating article 200 to

generate an aerosol. That is, the aerosol generating article 200 according to the embodiment of the present application is circumferentially heated.

[0058] The heating technology of the heat generating tube is not limited. For example, it may be electromagnetic induction heating or resistive film heating.

[0059] In the aerosol generating device provided by the embodiment of the present application, the heating assembly 30 includes a connecting member and a heating member 32 fixed to the connecting member, the mounting support 20 is provided with a mounting space, the heating member 32 is located in the mounting space, and the connecting member is directly connected to the mounting support 20 to achieve the fixation of the heating assembly 30. In the related art, the connecting member clamps two ends of the heating member 32, and a fixing support is arranged on an outer periphery of the heating member 32 to fix the connecting member located at the two ends of the heating member 32, to achieve the fixation of the heating assembly 30. The aerosol generating device 100 according to the embodiment of the present application can choose not to arrange a fixing support to fix the connecting member, but directly connect the connecting member to the mounting support 20, to achieve the fixation of the heating assembly 30. In this way, it is beneficial to achieving the miniaturization of the aerosol generating device 100, which saves the parts, reduces the costs, improves the assembly efficiency, and improves the user experience. In addition, since no additional fixing support is arranged to fix the heating assembly 30, it is beneficial to reducing the transfer of the heat generated by the heating assembly 30 to the fixing support, and it is possible to keep the heat in the heating assembly 30 as much as possible, thereby reducing the energy consumption during the heating, and improving the heating performance.

[0060] It should be noted that the specific configuration of the connecting member is not limited here as long as it can be connected to the mounting support 20 and can fix the heating member 32 in the mounting space.

[0061] In some embodiments, referring to FIG. 2 to FIG. 5, the connecting member includes at least two connecting supports 31. The two connecting supports 31 are arranged at two ends of the heating member 32 in the height direction respectively, and are connected to the mounting support 20 respectively. The connecting support 31 includes a main body 311 and a first mounting portion 312. The main body 311 is configured to fix the heating member 32, one end of the first mounting portion 312 is connected to the main body 311, and another end of the first mounting portion 312 extends in a direction away from the main body 311. The first mounting portion 312 is provided with a connecting structure 312a, and the connecting structure 312a is connected to the mounting support 20.

[0062] That is, the two connecting supports 31 are

arranged at two ends of the heating member 32 in the height direction respectively, to achieve the fixation of the heating member 32, and the two connecting supports 31 are connected to the mounting support 20 respectively, to achieve the fixation of the heating member 30. This connecting structure 312a is simple and reliable, and there is no need to arrange additional components for fixing the connecting supports 31, which is beneficial to realizing the miniaturization of the aerosol generating device 100, saving the components, reducing the cost and improving the user experience.

[0063] The specific configuration of the connecting support 31 is not limited here. Exemplarily, referring to FIG. 3 to FIG. 5, the connecting support 31 includes a main body 311 configured to fix the heating member 32, and a first mounting portion 312 connected to the mounting support 20.

[0064] In some embodiments, referring to FIG. 3 to FIG. 5, in a cross section perpendicular to the extending direction of the first mounting portion 312, the cross-sectional area of at least a part of a region between the connecting structure 312a and the main body 311 is less than the cross-sectional area of an edge of the connecting structure 312a.

[0065] It can be understood that the main body 311 is configured to fix the heating member 32, and the heat generated by the heating member 32 is transferred to the main body 311, and the heat of the main body 311 is transferred to the mounting support 20 through the connecting structure 312a of the first mounting portion 312. Therefore, by reducing the passage area in which the heat of the heating body is transferred to the mounting support 20 as soon as possible, it is beneficial to reducing the transfer of the heat generated by the heating assembly 30 to the mounting support 20, so that the heat is kept in the heating assembly 30 as much as possible, which reduces the energy consumption during the heating is reduced, and improves the heating performance.

[0066] The cross-sectional area of at least a part of a region between the connecting structure 312a and the main body 311 is less than the cross-sectional area of an edge of the connecting structure 312a, to reduce the passage area in which the heat of the heating body is transferred to the mounting support 20.

[0067] It should be noted that there are various specific ways in which the cross-sectional area of at least a part of a region between the connecting structure 312a and the main body 311 is less than the cross-sectional area of the edge of the connecting structure 312a. Exemplarily, in some embodiments, referring to FIG. 4, a through hole 312b and/or a groove 312c is arranged between the connecting structure 312a and the main body 311.

[0068] The fact that the through hole 312b and/or the groove 312c is arranged between the connecting structure 312a and the main body 311 means that the through hole 312b may be arranged between the con-

necting structure 312a and the main body 311, or the groove 312c may be arranged between the connecting structure 312a and the main body 311, or the through hole 312b and the groove 312c may be arranged between the connecting structure 312a and the main body 311.

[0069] It should be noted that when the connecting structure 312a is a fastening hole, that is, the first mounting portion 312 and the mounting support 20 are fastened to each other, the edge of the connecting structure 312a does not pass through the fastening hole.

[0070] That is, through the arrangement of the through hole 312b and/or the groove 312c between the connecting structure 312a and the main body 311, the cross-sectional area of at least a part of a region between the connecting structure 312a and the main body 311 is less than the cross-sectional area of an edge of the connecting structure 312a, to reduce the passage area in which the heat of the heating body is transferred to the mounting support 20.

[0071] In other embodiments, referring to FIG. 3, a through hole 312b and/or a groove 312c may not be arranged, and the cross-sectional area of an end of the first mounting portion 312 close to the main body 311 may be reduced, so that the cross-sectional area of at least a part of a region between the connecting structure 312a and the main body 311 is less than the cross-sectional area of the edge of the connecting structure 312a.

[0072] In some embodiments, referring to FIG. 3, the aerosol generating device 100 further includes a housing 10 provided with an accommodation space 10a. The connecting support 31 further includes a second mounting portion 313 arranged at a side of the main body 311 away from the first mounting portion 312, and the second mounting portion 313 is connected to the housing 10.

[0073] The specific manner in which the second mounting portion 313 is connected to the housing 10 is not limited here. Exemplarily, the second mounting portion 313 may be connected to the housing 10 by, for example, a magnetic connection, a snap fit connection, a fastening connection, a plug-in connection, or the like.

[0074] The fastening connection includes, but is not limited to, a screw connection, a bolt connection, a rivet connection, and the like.

[0075] In this way, the second mounting portion 313 is arranged at a side of the main body 311 away from the first mounting portion 312, and the second mounting portion 313 is connected to the housing 10, which improves the reliability of the connection between the connecting member and the housing 10 and/or the mounting support 20.

[0076] In some embodiments, referring to FIG. 2 to FIG. 3, the heating assembly 30 further includes a seal 33. The main body 311 is provided with an accommo-

ation cavity 311a, and at least a part of the heating member 32 is inserted into the accommodation cavity 311a. The seal 33 is at least hermetically sandwiched between a wall of the accommodation cavity 311a and an outer side wall of the heating member 32.

[0077] It should be noted that the accommodation cavity 311a inside the main body 311 may be an accommodation passage penetrating through the main body 311, or may be an accommodation groove provided with an opening at an end thereof.

[0078] The seal 33 is at least hermetically sandwiched between the wall of the accommodation cavity 311a and the outer side wall of the heating member 32. That is, the seal 33 can seal at least a mounting gap between the wall of the accommodation cavity 311a and the outer side wall of the heating member 32, which improves the sealing performance between the main body 311 and the heating member 32, prevents the aerosol or aerosol condensate from flowing into the mounting gap to a certain extent, and improves the user experience. Further, the arrangement of the seal 33 facilitates the improvement of the reliability of the connecting structure 312a of the connecting member and the heating member 32.

[0079] The seal 33 is at least hermetically sandwiched between the wall of the accommodation cavity 311a and the outer side wall of the heating member 32. Exemplarily, the seal 33 may be hermetically sandwiched between an end of the main body 311 and a thermal insulation member of the aerosol generating device 100 in addition to being hermetically sandwiched between the wall of the accommodation cavity 311a and the outer side wall of the heating member 32, which further improves the sealing performance between the main body 311 and the thermal insulation member.

[0080] Specifically, the seal 33 includes a seal body, and a flange formed on a peripheral side wall of the seal body. The seal body is arranged around the heating member 32 and hermetically sandwiched between the wall of the accommodation cavity 311a and the outer side wall of the heating member 32. The flange is hermetically sandwiched between the end of the main body 311 and the thermal insulation member of the aerosol generating device 100.

[0081] Exemplarily, one of the seal 33 and the wall of the accommodation cavity 311a is provided with a snapping member, another one of the seal 33 and the wall of the accommodation cavity 311a is provided with a snapping slot, and the seal 33 and the main body 311 are connected to each other by a cooperation of the snapping member and the snapping slot.

[0082] The specific material of the seal 33 is not limited here. Since the seal 33 at least is hermetically sandwiched between the wall of the accommodation cavity 311a and the outer side wall of the heating member 32, the seal 33 needs to have a certain high temperature resistance.

[0083] In some embodiments, referring to FIG. 3 to FIG. 5, the connecting support 31 arranged at the top of the heating member 32 is a first connecting component 31a, and the connecting support 31 arranged at the bottom of the heating member 32 is a second connecting component 31b. The first connecting component 31a is provided with an accommodation passage penetrating through the first connecting component 31a in the height direction, and the second connecting component 31b is provided with an accommodation groove. One end of the heating member 32 is inserted into the accommodation passage, and another end of the heating member 32 is inserted into the accommodation groove.

[0084] For convenience of description, the connecting support 31 arranged at the top of the heating member 32 is designated as a first connecting component 31a, and the connecting support 31 arranged at the bottom of the heating member 32 is designated as a second connecting component 31b.

[0085] The first connecting component 31a is provided with an accommodation passage penetrating through the first connecting component 31a in the height direction, and the second connecting component 31b is provided with an accommodation groove. One end of the heating member 32 is inserted into the accommodation passage, and another end of the heating member 32 is inserted into the accommodation groove. In this manner, the heating member 32 may be fixed, and the aerosol generating article 200 can be inserted into the heating space via the accommodation passage.

[0086] Exemplarily, a seal 33 may be arranged between a side wall of the accommodation passage and the outer side wall of the heating member 32, and a seal 33 may be arranged between a wall of the accommodation groove and the outer side wall of the heating member 32.

[0087] The way in which the heating member 32 is mounted and positioned in the accommodation passage and the accommodation groove is not limited.

[0088] In some embodiments, referring to FIG. 3 to FIG. 5, a first positioning surface 311b is formed on the side wall of the accommodation passage. A second positioning surface 311c is formed on the bottom or side wall of the accommodation groove. The two connecting supports 31 are connected to the mounting support 20 respectively, and two opposite ends of the heating member 32 is clamped between the first positioning surface 311b and the second positioning surface 311c.

[0089] The fact that the second positioning surface 311c is formed on the bottom or side wall of the accommodation groove means that the second positioning surface 311c may be formed on the bottom of the accommodation groove, or the second positioning surface 311c may be formed on the side wall of the accommodation groove, or the second positioning surface 311c

may be formed on the bottom and the side wall of the accommodation groove.

[0090] In this embodiment, the two opposite ends of the heating member 32 are respectively inserted into the first connecting component 31a and the second connecting component 31b, and the first connecting component 31a and the second connecting component 31b are respectively connected to the mounting support 20, so that the two opposite ends of the heating member 32 are clamped between the first positioning surface 311b and the second positioning surface 311c. When the assembling is required, the first connecting component 31a and the second connecting component 31b can be respectively connected to the mounting support 20, so that the disassembling and assembling are relatively convenient.

[0091] In some embodiments, referring to FIG. 2 to FIG. 5, the first mounting portion 312 of the first connecting component 31a extends in a first direction. The first mounting portion 312 of the second connecting component 31b is arranged at the bottom of the main body 311 of the second connecting component 31b, and extends in the height direction. The first direction intersects with the height direction.

[0092] The first direction intersects with the height direction, that is, the first direction is not parallel to the height direction. Exemplarily, in some embodiments, the first direction is perpendicular to the height direction. Certainly, in other embodiments, the first direction is oblique to the height direction.

[0093] The first mounting portions 312 of the first connecting component 31a and the second connecting component 31b are arranged to extend in different directions, to form a stable triangular connecting structure 312a, which ensures the assembly stability of the entire heating assembly.

[0094] Exemplarily, referring to FIG. 3 to FIG. 5, the first mounting portions 312 of the first connecting component 31a and the second connecting component 31b are fastened to the mounting support 20. Specifically, the first mounting portion 312 is provided with a first fastening hole, the top and bottom of the mounting support 20 are provided with second fastening holes 20a, the first connecting component 31a is fastened to the second fastening hole 20a at the top of the mounting support 20 through the first fastening hole, and the second connecting component 31b is fastened to the second fastening hole 20a at the bottom of the mounting support 20 through the first fastening hole.

[0095] Exemplarily, referring to FIG. 2 and FIG. 3, the first mounting portion 312 of the second connecting component 31b is further provided with a limiting protrusion 312d, an inserting opening 20b is arranged at the top of the mounting support 20, and the limiting protrusion 312d abuts against a top wall of the mounting support 20, to limit the second connecting component 31b in the height direction of the aerosol generating device 100. The connecting structure 312a of the

second connecting component 31b extends into the interior of the mounting support 20 through the inserting opening 20b, and is connected to the mounting support 20.

[0096] The top wall of the mounting support 20 refers to an outer wall of the mounting support 20 facing towards the top of the aerosol generating device 100.

[0097] The first mounting portion 312 of the second connecting component 31b is further provided with the limiting protrusion 312d, and the limiting protrusion 312d cooperates with the mounting support 20 to limit the second connecting component 31b in the height direction.

[0098] The first mounting portion 312 of the second connecting component 31b is provided with the limiting protrusion 312d to position and limit the second connecting component 31b, which improves the mounting efficiency and connection reliability between the second connecting component 31b and the mounting support 20.

[0099] Exemplarily, the connecting member is fastened to the mounting support.

[0100] The limiting protrusion 312d abuts against the top wall of the mounting support 20, to limit the second connecting component 31b in the height direction of the aerosol generating device 100. At this time, the connecting structure 312a of the second connecting component 31b extends into the interior of the mounting support 20 through the inserting opening 20b and is fastened to the mounting support 20, which further improves the connection reliability between the second connecting component 31b and the mounting support 20.

[0101] Exemplarily, third positioning surfaces are arranged at two sides of the first mounting portion 312 of the second connecting component 31b in the first direction, and cooperate with the side wall of the inserting opening 20b to limit the second connecting component 31b in the first direction.

[0102] The third positioning surfaces are arranged at two sides of the first mounting portion 312 of the second connecting component 31b in the first direction, and cooperate with the side wall of the inserting opening 20b, to limit the second connecting component 31b in the first direction by the surface-to-surface cooperation, thereby achieving the positioning and connection of the second connecting component 31b, improving the mounting accuracy of the second connecting component 31b, and further improving the reliability of the aerosol generating device 100.

[0103] In some embodiments, referring to FIG. 2 to FIG. 3, the aerosol generating device 100 further includes a thermal insulation assembly 40. The thermal insulation assembly 40 wraps around an outer periphery of at least a part of the heating assembly 30.

[0104] The fact that the thermal insulation assembly 40 wraps around an outer periphery of at least a part of the heating assembly 30 means that the thermal insula-

tion assembly 40 may wrap around the outer periphery of a part of the heating assembly 30, or may wrap around the outer periphery of the entire heating assembly 30.

[0105] That is, the thermal insulation assembly 40 is arranged so that the thermal insulation assembly 40 wraps around the outer periphery of at least a part of the heating assembly 30, which is benefit to keeping the heat in the heating assembly 30 as much as possible, reduces the transfer of heat of the heating assembly 30 to components on the peripheral side of the heating assembly 30, reduces the energy consumption during the heating, avoids the influence of the heat on the components on the peripheral side, and improves the heating performance.

[0106] In some embodiments, referring to FIG. 2 to FIG. 3, a thermal insulation gap 100a is formed between an inner wall of the housing 10 and an outer side wall of the thermal insulation assembly 40.

[0107] The thermal insulation gap 100a may be formed between a part of the inner wall of the housing 10 and the outer side wall of the thermal insulation assembly 40, and another part of the inner wall of the housing 10 may be in contact with the outer side wall of the thermal insulation assembly 40, or the thermal insulation gap 100a may be formed between the entire inner wall of the housing 10 and the outer side wall of the thermal insulation assembly 40.

[0108] The thermal insulation gap 100a is formed between the inner wall of the housing 10 and the outer side wall of the thermal insulation assembly 40, that is, the thermal insulation gap 100a is formed between a side wall of the accommodation space 10a and the outer side wall of the thermal insulation assembly 40, so that an air layer is formed in the gap between the inner wall of the housing 10 and the outer side wall of the thermal insulation assembly 40, which further improves the thermal insulation effect.

[0109] In some embodiments, referring to FIG. 2 to FIG. 3, the thermal insulation assembly 40 includes a first thermal insulation member 41 and a second thermal insulation member 42. The first thermal insulation member 41 wraps around the outer periphery of the heating member 32, and is located between the two connecting supports 31. The second thermal insulation member 42 wraps around the outer periphery of the first thermal insulation member 41 and the outer periphery of at least a part of the connecting member.

[0110] The thermal insulation assembly 40 is arranged to include the first thermal insulation member 41 and the second thermal insulation member 42. The thermal insulation effect can be further improved by the double thermal insulation.

[0111] The first thermal insulation member 41 wraps around the outer periphery of the heating member 32 and is located between the two connecting supports 31, and the flange of the seal 33 is hermetically sandwiched between the ends of the two connecting sup-

ports 31 and two ends of the first thermal insulation member 41 in the height direction, which can improve the sealing performance and the thermal insulation performance.

[0112] The second thermal insulation member 42 wraps around the outer periphery of the first thermal insulation member 41 and the outer periphery of at least a part of the connecting member, that is, the heat of the heating member 32 and the heat of the connecting member can be isolated at the same time, which further improves the thermal insulation performance.

[0113] It should be noted that the specific type of the thermal insulation assembly 40 is not limited herein. Exemplarily, in some embodiments, the thermal insulation assembly 40 is an aerogel. For example, the aerogel is a composite of organic fibers. The thermal conductivity of the aerogel is relatively low, and it will not be damaged by a high temperature, and at the same time, it has a good thermal insulation effect.

[0114] In other embodiments, the thermal insulation assembly 40 may also be made of ceramic fiber, the thermal insulation cotton of ceramic fiber has high temperature resistance and relatively low thermal conductivity, and can directly wraps the surface of the heating assembly 30 without being damaged by the high temperature on the surface of the heating assembly 30.

[0115] In yet other embodiments, the thermal insulation assembly 40 may also be in the form of a combination of ceramic fibers and aerogels.

[0116] In still yet other embodiments, the thermal insulation assembly 40 is a vacuum tube.

[0117] The material of the vacuum tube is, for example, metal, ceramic, or plastic.

[0118] In a specific embodiment, the seal 33 is first assembled in the first connecting component 31a and the second connecting component 31b, and then two ends of the heating member 32 are respectively inserted into the first connecting component 31a and the second connecting component 31b where the seal 33 is installed. The first thermal insulation member 41 wraps around the outside of the heating member 32. The second thermal insulation member 42 wraps around the outer periphery of the first connecting component 31a and the outer periphery of a part of the connecting member. Then, the assembled heating assembly 30 is placed in the mounting space defined by the mounting support 20 and the housing 10, and the first connecting component 31a and the second connecting component 31b are respectively fastened to the mounting support 20. The assembling of the heating assembly 30 is completed.

[0119] In the description of the present application, an expression with reference to the terms "in an embodiment", "in some embodiments", "in other embodiments", "in still other embodiments", "exemplarily" or the like means that specific features, structures, materials, or characteristics described in combination with the embodiment or example are included in at least one

embodiment or example of the embodiments of the present application. In the present application, the schematic expression of the above terms is not necessarily directed to the same embodiment or example. Moreover, the specific features, structures, materials, or characteristics described may be combined with each other in any one or more embodiments or examples in a suitable manner. Furthermore, those skilled in the art can combine different embodiments or examples described in the present application and features of different embodiments or examples without contradicting each other.

[0120] The foregoing is merely a preferred embodiment of the present application, and is not intended to limit the present application, and various modifications and variations can be made for those skilled in the art. Any modifications, substitutions and improvements made within the spirit and principles of the present application should be included within the scope of protection of the present application.

Claims

1. An aerosol generating device, comprising:

a mounting support provided with a mounting space; and

a heating assembly comprising a connecting member and a heating member fixed to the connecting member, wherein the connecting member is connected to the mounting support, and the heating member is located in the mounting space and configured to heat an aerosol generating article to generate an aerosol.

2. The aerosol generating device according to claim 1, wherein the connecting member comprises at least two connecting supports, and the two connecting supports are arranged at two ends of the heating member in a height direction respectively and are connected to the mounting support;

each connecting support comprises a main body and a first mounting portion, one end of the first mounting portion is connected to the main body, another end of the first mounting portion extends in a direction away from the main body, the main body is configured to fix the heating member, and the first mounting portion is provided with a connecting structure connected to the mounting support.

3. The aerosol generating device according to claim 2, wherein in a cross section perpendicular to an extending direction of the first mounting portion, a cross-sectional area of at least a part of a region between the connecting structure and the main

body is less than a cross-sectional area of an edge of the connecting structure.

4. The aerosol generating device according to claim 3, wherein a through hole and/or a groove is arranged between the connecting structure and the main body.

5. The aerosol generating device according to claim 2, wherein the aerosol generating device further comprises a housing provided with an accommodation space, and the two connecting supports are arranged in the accommodation space; each connecting support further comprises a second mounting portion arranged at a side of the main body away from the first mounting portion, and the second mounting portion is connected to the housing.

6. The aerosol generating device according to claim 2, wherein the heating assembly further comprises a seal, the main body is provided with an accommodation cavity, at least a part of the heating member is inserted into the accommodation cavity, and the seal is at least hermetically sandwiched between a wall of the accommodation cavity and an outer side wall of the heating member.

7. The aerosol generating device according to claim 2, wherein the connecting support arranged at a top of the heating member is a first connecting component, the connecting support arranged at a bottom of the heating member is a second connecting component, the first connecting component is provided with an accommodation passage penetrating through the first connecting component in the height direction, the second connecting component is provided with an accommodation groove, one end of the heating member is inserted into the accommodation passage, and another end of the heating member is inserted into the accommodation groove.

8. The aerosol generating device according to claim 7, wherein a first positioning surface is formed on a side wall of the accommodation passage, a second positioning surface is formed on a bottom or a side wall of the accommodation groove, the two connecting supports are connected to the mounting support, and two opposite ends of the heating member are clamped between the first positioning surface and the second positioning surface.

9. The aerosol generating device according to claim 2, wherein the connecting support arranged at a top of the heating member is a first connecting component, the connecting support arranged at a bottom of the heating member is a second con-

necting component, the first mounting portion of the first connecting component extends in a first direction, and the first mounting portion of the second connecting component is arranged at a bottom of the main body of the second connecting component and extends in the height direction, wherein the first direction intersects with the height direction.

10. The aerosol generating device according to claim 9, wherein the first mounting portion of the second connecting component is further provided with a limiting protrusion, an inserting opening is arranged at a top of the mounting support, the limiting protrusion abuts against a top wall of the mounting support, to limit the second connecting component in the height direction of the aerosol generating device, and the connecting structure of the second connecting component extends into an interior of the mounting support through the inserting opening and is connected to the mounting support. 5 10
11. The aerosol generating device according to claim 10, wherein third positioning surfaces are arranged at two sides of the first mounting portion of the second connecting component in the first direction, and cooperate with a side wall of the inserting opening to limit the second connecting component in the first direction. 15 25 30
12. The aerosol generating device according to claim 1, wherein the connecting member is fastened to the mounting support.
13. The aerosol generating device according to claim 1, wherein the heating assembly further comprises a thermal insulation assembly wrapping around an outer periphery of at least a part of the heating member. 35 40
14. The aerosol generating device according to claim 13, wherein the aerosol generating device further comprises a housing provided with an accommodation space, and a thermal insulation gap is formed between an inner wall of the housing and an outer side wall of the thermal insulation assembly. 45
15. The aerosol generating device according to claim 13, wherein the connecting member comprises at least two connecting supports, and the two connecting supports are arranged at two ends of the heating member in a height direction respectively and are connected to the mounting support; the thermal insulation assembly comprises a first thermal insulation member and a second thermal insulation member, the first thermal insulation member wraps around the outer periphery of the 50 55

heating member and is located between the two connecting supports, and the second thermal insulation member wraps around an outer periphery of the first thermal insulation member and an outer periphery of at least a part of the connecting member.

16. The aerosol generating device according to claim 13, wherein the thermal insulation assembly is an aerogel or a vacuum tube.
17. The aerosol generating device according to claim 16, wherein a material of the vacuum tube is metal, ceramic, or plastic.
18. An aerosol generating system, comprising an aerosol generating article and the aerosol generating device according to any one of claims 1 to 17, wherein the heating member is provided with a heating space, and at least a part of the aerosol generating article is arranged in the heating space.

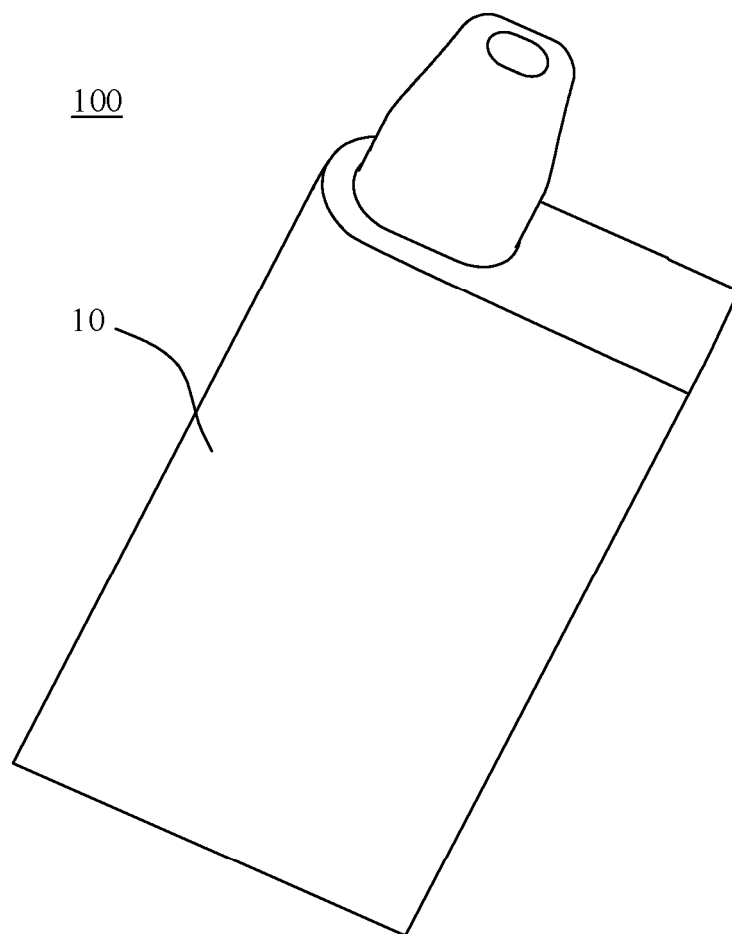


FIG. 1

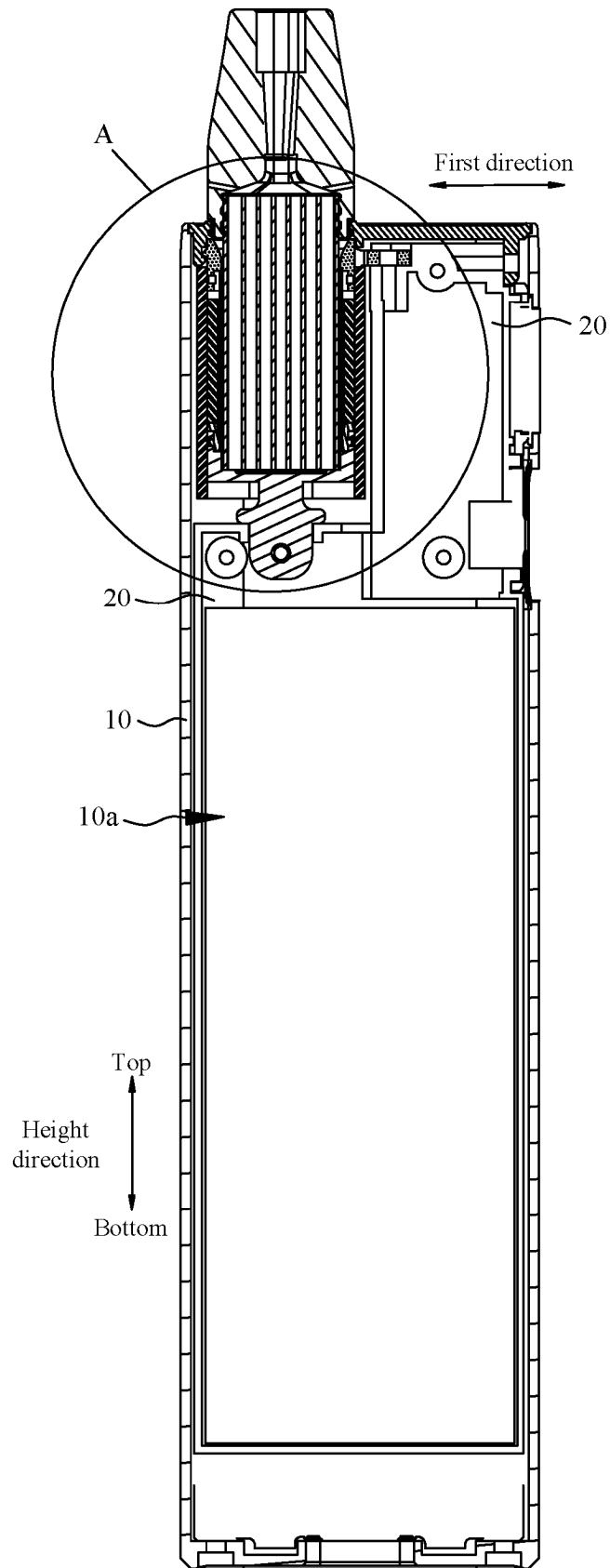


FIG. 2

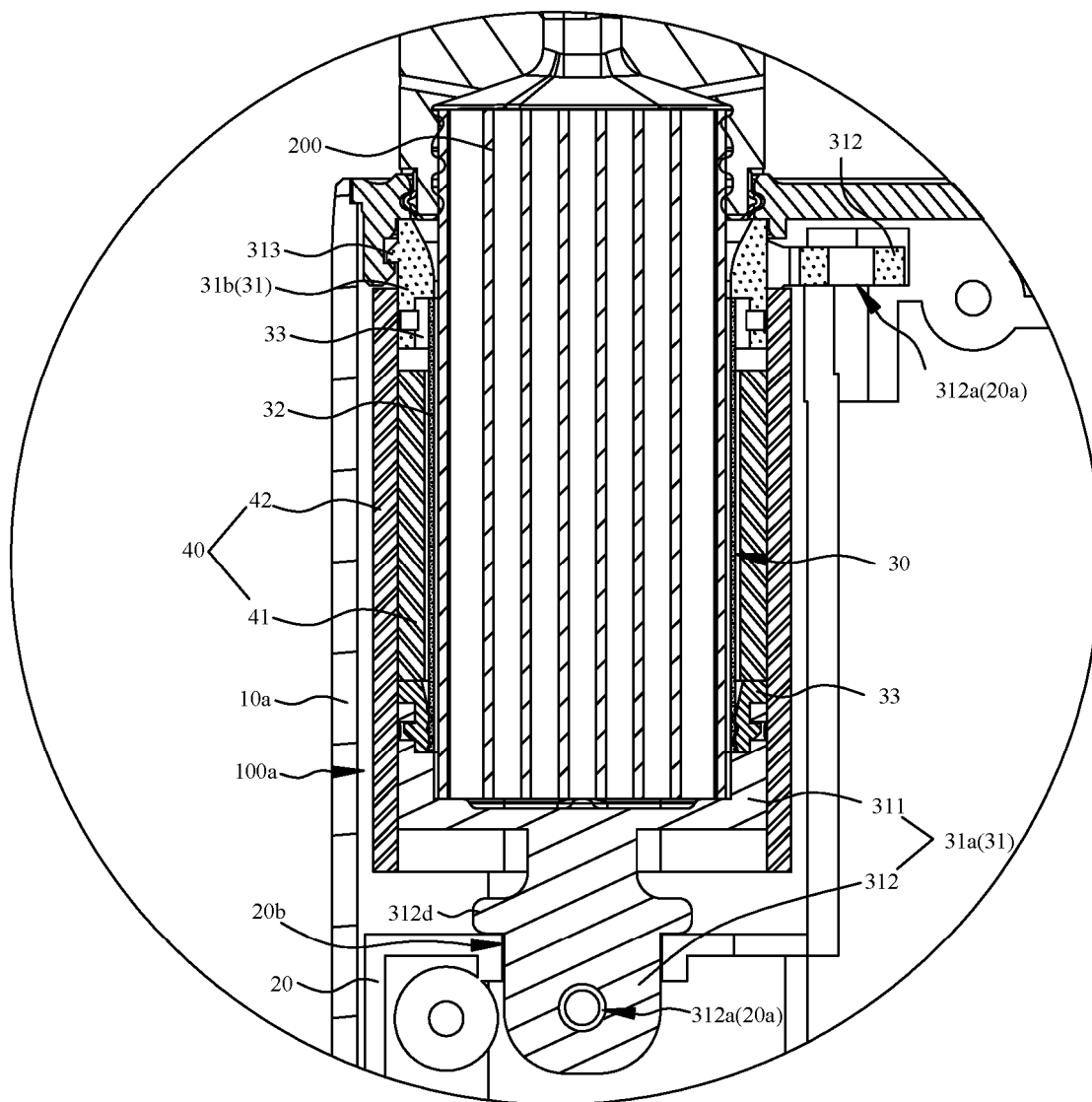


FIG. 3

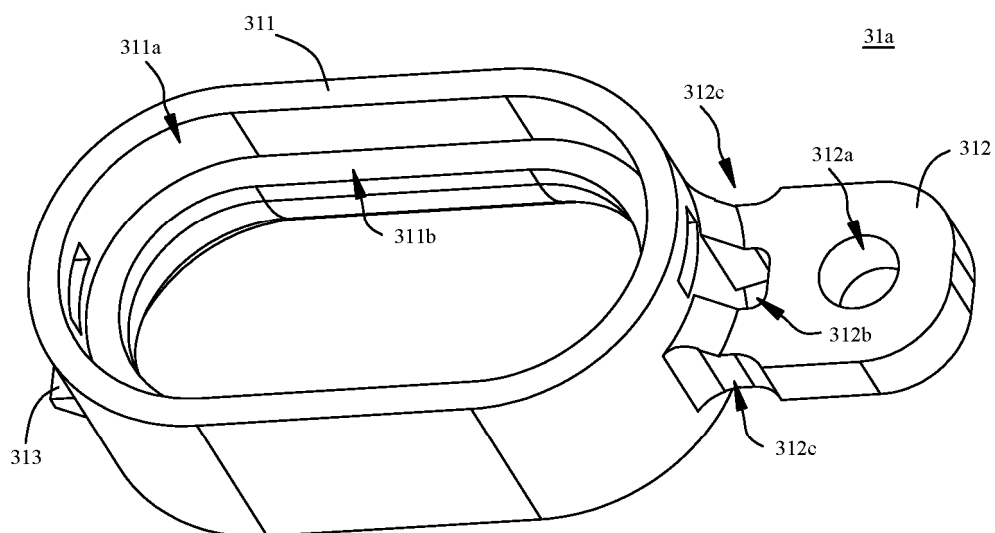


FIG. 4

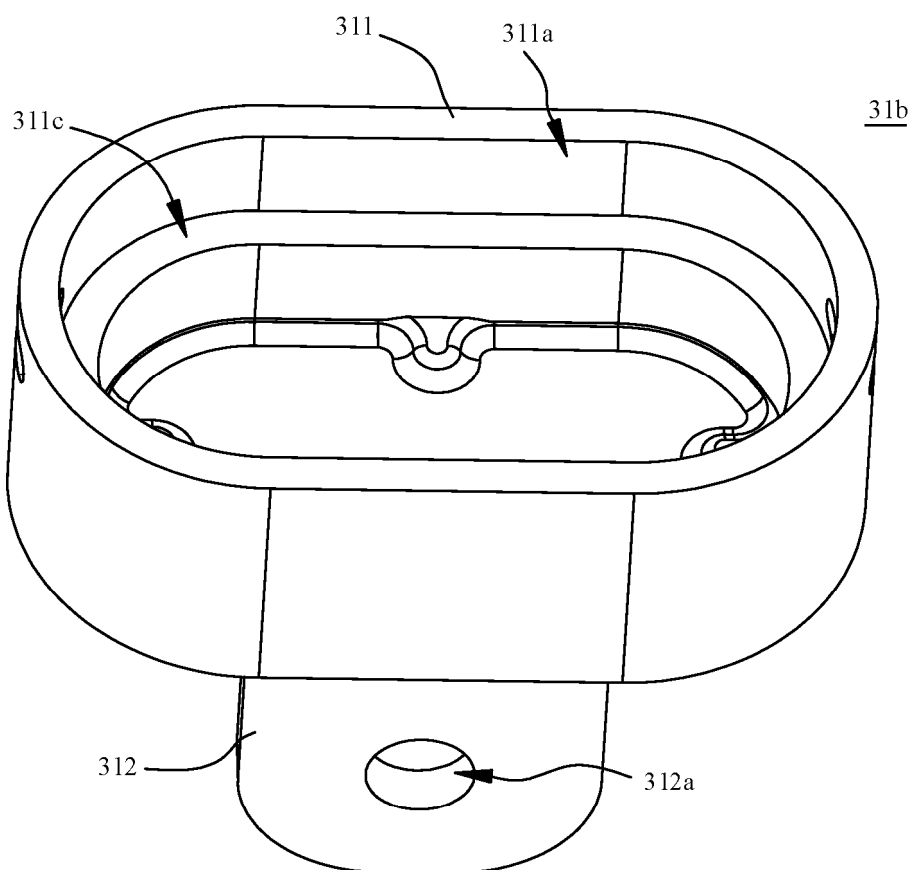


FIG. 5

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2024/131555

A. CLASSIFICATION OF SUBJECT MATTER

A24F40/46(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:A24F40/-

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, DWPI, CNABS, WPABS, WPABSC: 气溶胶, 安装, 支架, 加热件, 发热件, 固定, 连接, aerosol, installation, support, heat+, fixed, attachment

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CN 217771496 U (ALD GROUP LTD.) 11 November 2022 (2022-11-11) description, paragraphs [0003]-[0049], and figures 1-8	1-18
A	CN 216147240 U (SHENZHEN MAISHI TECHNOLOGY CO., LTD.) 01 April 2022 (2022-04-01) entire document	1-18
A	CN 218245654 U (SHENZHEN MAISHI TECHNOLOGY CO., LTD.) 10 January 2023 (2023-01-10) entire document	1-18
A	CN 218790592 U (CHINA TOBACCO ZHEJIANG INDUSTRIAL CO., LTD.) 07 April 2023 (2023-04-07) entire document	1-18
A	CN 220044933 U (SHENZHEN MAISHI TECHNOLOGY CO., LTD.) 21 November 2023 (2023-11-21) entire document	1-18

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

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"D" document cited by the applicant in the international application	"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
"E" earlier application or patent but published on or after the international filing date	"&" document member of the same patent family
"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	

Date of the actual completion of the international search

25 December 2024

Date of mailing of the international search report

09 January 2025

Name and mailing address of the ISA/CN

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Authorized officer

Telephone No.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2024/131555

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C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	CN 220109132 U (SMOORE INTERNATIONAL HOLDINGS LTD.) 01 December 2023 (2023-12-01) entire document	1-18
A	KR 20230052191 A (INNO-IT CO., LTD.) 19 April 2023 (2023-04-19) entire document	1-18
A	RU 2023102439 A (KT & G CORP.) 02 March 2023 (2023-03-02) entire document	1-18

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Information on patent family members

International application No.
PCT/CN2024/131555

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CN	218245654	U	10 January 2023	None			
CN	218790592	U	07 April 2023	None			
CN	220044933	U	21 November 2023	None			
CN	220068891	U	24 November 2023	None			
CN	220109132	U	01 December 2023	None			
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				KR	20230052172	A	19 April 2023
				KR	20230052187	A	19 April 2023
				KR	102667291	B1	21 May 2024
				KR	20230052181	A	19 April 2023
				KR	102637951	B1	19 February 2024
				KR	20230052188	A	19 April 2023
				KR	20230052190	A	19 April 2023
RU	2023102439	A	02 March 2023	None			

REFERENCES CITED IN THE DESCRIPTION

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