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

(11) **EP 4 176 740 A1**

(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
10.05.2023 Bulletin 2023/19

(21) Application number: **21943309.1**

(22) Date of filing: **14.09.2021**

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

(86) International application number:
PCT/CN2021/118241

(87) International publication number:
WO 2023/039718 (23.03.2023 Gazette 2023/12)

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

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(54) ATOMIZATION ASSEMBLY AND AEROSOL GENERATING DEVICE

(57) The application provides an atomization assembly and an aerosol generation device. The atomization assembly includes a first shell, a first airflow passage boring through the first shell; a second shell configured as a cavity structure having an end formed with an opening, the second shell sleeved around at least part of the first shell through the opening and connected to the first shell, a second airflow passage formed between the first shell and the second shell, and second airflow passage is in communication with the first airflow passage; and an aerosol generating unit disposed in the second shell and capable of generating aerosol. The first airflow passage is communicated with the second airflow passage, such that air can be circulated in the atomization assembly during vaping. The aerosol generating unit is disposed in the second shell having one end formed with the opening, such that the aerosol generating unit can be uniformly heated, and dirt generated after vaping is prevented from being adhered to components in the aerosol generation device provided with the atomization assembly, which is conducive to cleaning of the aerosol generation device.

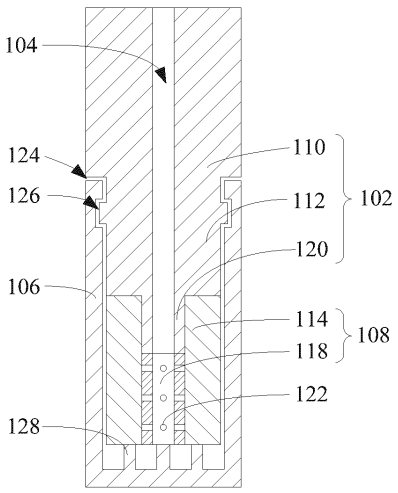

FIG. 2

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Description

FIELD

[0001] The application belongs to the technical field of electronic atomization, and particularly relates to an atomization assembly and an aerosol generation device.

BACKGROUND

[0002] A heat-not-burning (HNB) device is a kind of electronic equipment that heats, but does not burn, an aerosol generating substarte (which is a product of processed plant leaves). The heating device heats, at a high temperature, the aerosol generating substarte to a temperature that can generate an aerosol, but is not sufficient to cause burning, so that, without being caused to burn, the aerosol generating substarte generates an aerosol desired by a user.

[0003] The HNB devices that are currently available in the market generally adopts resistor heating means, namely a central heating plate or a heating pin penetrates, at a central location of the aerosol generating substarte , into the interior of the aerosol generating substarte to proceed with heating. Such a device takes a long time to wait for preheating before use, making it hard to freely start or stop vaping, and the aerosol generating substarte cannot be uniformly carbonized, leading to insufficient baking of the aerosol generating substarte and low efficiency of utilization. Secondly, the heating plate of the HNB device may easily causes generation of contaminants, which are hard to cleanse, in an aerosol generating substarte extractor and a heating plate holder, and a portion of the aerosol generating substarte that is in contact with the heating body may get locally excessively high temperature, causing partial decomposition and releasing undesired substances. Thus, the resistor heating means is gradually replaced by microwave heating technology, which becomes a new solution of heating. The microwave heating technology has advantages in respect of high efficiency, timeliness, optionality, and non-delay heating, and is only effective of heating for specific substances having certain dielectric properties. Advantages of microwave heating based atomization include: (a) instantaneous vaping or stopping being achievable as the microwave heating is radiation based heating, rather than heat conduction; (b) there being no plate breaking or heating plate cleansing issues as no heating plate is involved; and (c) the utilization efficiency of the aerosol generating substarte being high and mouthfeel being consistent, and the mouthfeel being much closer to cigarettes.

[0004] However, to realize microwave heating-based atomization, a conductor pillar for feeding microwaves has to be inserted into the aerosol generating substarte, and tobacco dirt generated due to high-temperature heating and combustion of the aerosol generating substarte after vaping may be adhered to the conductor pillar in an aerosol generation device, which makes cleaning difficult.

SUMMARY

[0005] The application aims to solve at least one of the technical problems of the prior art.

[0006] In one aspect, the present application provides an atomization assembly.

[0007] In another aspect, the present application provides an aerosol generation device.

[0008] In one aspect, the present application provides an atomization assembly which comprises a first shell, bored through by a first airflow passage; a second shell configured as a cavity structure having one end formed with an opening, the second shell sheeved around at least part of the first shell through the opening and connected with the first shell, a second airflow passage formed between the first shell and the second shell, and the second airflow passage in communication with the first airflow passage; and an aerosol generating unit disposed in the second shell and capable of generating aerosol.

[0009] Thus, the present application provides an atomization assembly comprising the first shell, the second shell and the aerosol generating unit. Wherein, the first shell is bored through by a first airflow passage. The second shell is of a cavity structure having one end formed with an opening, the second shell is sleeved around at least a part of the first shell through the opening and is connected with the first shell. A second airflow passage is formed between the first shell and the second shell, and the second airflow passage in communication with the first airflow passage. Thus, communicated airflow passages for vaping are formed in the atomization assembly such that air can be circulated in the atomization assembly during vaping.

[0010] Further, the second shell is a cavity structure having one end formed with an opening, and the aerosol generating unit is disposed in the second shell, and the second shell is sleeved around the first shell, such that the aerosol generating unit is located in a relatively highly enclosed environment. Thus, the aerosol generating unit can be heated uniformly, and the utilization rate of the aerosol generating unit is increased. In addition, the atomization assembly of the application is not provided with a conductor pillar, a heating plate, a heating pin or the like, so the problems of the aerosol generating unit adhered to the above components and difficult to clean the above components caused by insertion of the above components into the atomization assembly are avoided. Further, when the atomization assembly is disposed on an aerosol generation device, because the bottom of the atomization assembly is sealed, the aerosol generation device provided with the atomization assembly will not be contaminated.

[0011] Specifically, the first shell is in close contact with the aerosol generating unit, so as to, on the one hand,

guarantee the stability of the internal structure of the atomization assembly, on the other hand, ensure that air can flow in the first airflow passage during vaping to avoid air channeling in the atomization assembly.

[0012] Specifically, the first shell and the second shell are connected through a locking slot, such that the second shell is prevented from being separated from the first shell.

[0013] Specifically, the first shell is one of a rigid paper tube, a polylactic acid material tube, a polytetrafluoroethylene tube, a synthetic resin tube, a protein material tube, a vegetable gum material tube and a cellulose derivative material tube which demonstrates a function of supporting.

[0014] Specifically, the first shell and the second shell are made of a formable low-dielectric loss material with certain strength. The first shell and the second shell may be made of one of rigid paper tubes, polylactic acid material, polytetrafluoroethylene, synthetic resin, chemical fiber products, non-woven fabric, ceramic wafers, PEEK material and glass.

[0015] Specifically, the length of the atomization assembly is 30 mm-70 mm, preferably 40 mm-50 mm.

[0016] Thus, according to the atomization assembly provided by the application, communicated airflow passages for vaping are formed in the atomization assembly such that air can circulate in the atomization assembly during vaping. The second shell is of a cavity structure having an end formed with an opening, such that the interior of the atomization assembly is a highly enclosed environment, the aerosol generating unit can be heated uniformly, and the utilization rate of the aerosol generating unit is increased. In addition, the atomization assembly provided by the application is not provided with a conductor, a heating plate, a heating pin or the like, so the problems of the aerosol generating unit adhered to the above components and difficult to clean the above components caused by insertion of the above components into the atomization assembly are avoided. Further, when the atomization assembly is disposed on an aerosol generation device, because the bottom of the atomization assembly is sealed, the aerosol generation device provided with the atomization assembly will not be contaminated.

[0017] The atomization assembly according to the above technical solutions of the present application, may further comprise the following additional technical features:

[0018] In the above technical solutions, the first shell comprises a first body section and a second body section connected to an end of the first body section. The second shell is sleeved around the second body section. The second shell is spaced from the second body section with a first spacing. The second shell is spaced from an end of the second body section with a second spacing. Wherein, the first spacing forms the second airflow passage, and the second spacing forms an air inlet of the second airflow passage.

[0019] In the technical solution, the first shell comprises the first body section and the second body section. Wherein the second body section is connected to the end of the first body section. The second shell is sleeved around the second body section. The second shell is spaced from the second body section with the first spacing. The second shell is spaced from the end of the second body section with the second spacing. The second shell is lower than the end of the second body section.

[0020] Further, in the technical solution, the first spacing formed between the second shell and the second body section forms the second airflow passage, and the second spacing formed between the second shell and the end of the second body section forms an air inlet of the second airflow passage. During the vaping process, air outside the atomization assembly enters the second airflow passage through the air inlet and then enters inside the atomization assembly such that air can be circulated in the atomization assembly.

[0021] Specifically, the outer diameter of the first body section is equal to or approximately equal to that of the second shell, the outer diameter of the first body section is 6 mm-20 mm, preferably 8 mm-10 mm.

[0022] Specifically, the outer diameter of the second body section is slightly less than the inner diameter of the second shell, the outer diameter of the second body section is 4 mm-18 mm, preferably 7 mm-8.5 mm, and the inner diameter of the second shell 106 is 7.5 mm-19 mm, preferably 7.5 mm-9 mm.

[0023] In any one of the above technical solutions, a receiving chamber is formed between the second body section and the second shell, and the aerosol generating unit is disposed in the receiving chamber. The atomization assembly further comprises a plurality of protrusions which are disposed at intervals on the bottom wall of the second shell and located in the receiving chamber. The aerosol generating unit is supported by the plurality of protrusions such that the second airflow passage is communicated with the first airflow passage.

[0024] In the technical solution, the receiving chamber is formed between the second body section and the second shell and the atomization assembly further comprises a plurality of protrusions. Wherein, the aerosol generating unit and the plurality of protrusions are disposed in the receiving chamber, and the plurality of protrusions are disposed at intervals on the bottom wall of the second shell. Thus, the aerosol generating unit can be supported by the plurality of protrusions; the plurality of protrusions are disposed on the bottom wall of the second shell at intervals, such that a channel is formed between the second shell and the aerosol generating unit to interconnect the second airflow passage and the first airflow passage. In this way, the communicated passages are formed in the atomization assembly to allow air to pass through inside the atomization assembly during vaping, and the suction resistance is reduced.

[0025] In any one of the above technical solutions, the aerosol generating unit comprises an aerosol generating

substarte be configured as a structure provided with a first through hole; and a heating element disposed in the first through hole and capable of absorbing microwaves and heat the aerosol generating substarte.

[0026] In the technical solution, the aerosol generating unit comprises the aerosol generating substarte and the heating element. Wherein, the aerosol generating substarte is of a structure with a first through hole, and the heating element is disposed in the first through hole. During use, the heating element absorbs microwaves and heats the aerosol generating substarte with the microwaves, so as to enable the aerosol generating substarte to generate aerosol.

[0027] Further, in the technical solution, the heating element is disposed in the first through hole of the aerosol generating substarte, such that when the aerosol generating substarte is heated with microwaves, the edge of the aerosol generating substarte is also located in an intense microwave field and can be fully heated, ensuring that the whole aerosol generating substarte is uniformly heated, enhancing the atomization effect of the aerosol generating substarte, and increasing the utilization rate of the aerosol generating substarte.

[0028] Specifically, the aerosol generating substarte is mainly prepared from tobacco or herbals, and may be in the form of particulate, flake, powder, filament, paste, pancake-like matter, porous aerogel or capsule.

[0029] Specifically, the diameter of the aerosol generating substarte is 4 mm-17 mm, preferably 5 mm-8 mm, and the height of the aerosol generating substarte is 6 mm-25 mm, preferably 8 mm-12 mm.

[0030] Specifically, the heating element is made of a good high-temperature resistant and microwave absorption material, having the characteristics of good impedance matching, wide bandwidth, small matching thickness, low weight and high absorbing ability, and can enhance the aerosol atomization effect of the aerosol generating substarte.

[0031] Specifically, the heating element may be made of one of ferrite, ceramic-based materials, silicon carbide, barium titanate, and magnetic metal micro-powder.

[0032] In any one of the above technical solutions, a preset distance is arranged between the end of the aerosol generating substarte and the end with the opeing of the second shell.

[0033] In the technical solution, the preset distance is arranged between the end of the aerosol generating substarte and the open end of the second shell to ensure that the second body section has a certain length. During vaping, air enters the second airflow passage from the air inlet in the open end of the second shell and flows through the aerosol generating substarte after passing through the preset distance, such that aerosol is driven to flow into the first airflow passage and is prevented from leaking via the air inlet.

[0034] In any one of the above technical solutions, the first shell further comprises a locating member which is disposed at the end of the second body section, the cross-sectional area of the locating member is less than that of the second body section, the aerosol generating substarte is sleeved around the locating member through the first through hole, and a free end of the locating member abuts against the heating element.

[0035] In the technical solution, the first shell further comprises the locating member. Wherein the locating member is disposed at the end of the second body section, the cross-sectional area of the locating member is less than that of the second body section, the aerosol generating substarte is sleeved around the locating member through the first through hole, and the free end of the locating member abuts against the heating element. Thus, a stepped structure is formed between the first body section, the second body section and the locating member, and the aerosol generating substarte is disposed around the locating member such that the second body section, the locating member and the aerosol generating substarte are connected orderly and tightly.

[0036] In any one of the above technical solutions, the first airflow passage penetrates through the first body section, the second body section, the locating member and the heating element.

[0037] In the technical solution, the first airflow passage penetrates through the first body section, the second body section, the locating member and the heating element. During vaping, air enters the second airflow passage from the air inlet, and directly enters the first airflow passage after passing through the channel formed among the plurality of protrusions, such that air can pass through the atomization assembly smoothly.

[0038] In any one of the above technical solutions, the heating element is formed with a plurality of second through holes which are in communication with the first airflow passage.

[0039] In the technical solution, the heating element is formed with a plurality of second through holes which are in communication with the first airflow passage. Thus, during vaping, aerosol generated by the aerosol generating substarte can directly enter the first airflow passage through the second through holes, and the aerosol atomization effect of the aerosol generating substarte is enhanced.

[0040] In any one of the above technical solutions, the atomization assembly further comprises an identification device which is disposed in the heating element and is configured to feedback identification signals to sense for a radio-frequency transmitting device.

[0041] In the technical solution, the atomization assembly further comprises the identification device. Wherein, the identification device is disposed in the heating element and is able to feedback identification signals to sense for a radio-frequency transmitting device. Thus, the identification matching of the atomization assembly and a microwave assembly can be improved, the atomization assembly has an anti-counterfeit function and is difficult to crack and recycle, which is benefit to protect the market order and legal interests of customers.

[0042] Specially, the identification device sends an identification signal to the radio-frequency transmitting device in the microwave assembly. When receiving the identification signal, the radio-frequency transmitting device verifies the identification signal. When the identification signal passes the verification, the microwave assembly enables the heating function of the atomization assembly. When the identification signal fails to pass the verification, the microwave assembly will not enable the heating function of the atomization assembly. Thus, the identification matching of the atomization assembly and the microwave assembly is improved, and whether the atomization assembly is a counterfeit can be recognized automatically.

[0043] Specially, the identification device is wrapped with a heat insulation material with high-temperature resistance for protecting the identification device. Wherein, the heat insulation material is one of heat insulation cotton, polyurethane foam and polyamide.

[0044] In another aspect, the present application provides an aerosol generation device, which comprises the atomization assembly in any one of the above embodiments, a microwave assembly, configured for feeding microwaves into the atomization assembly.

[0045] The aerosol generation device provided by the application comprises the atomization assembly in any one of the above embodiments, and thus has all beneficial effect of the atomization assembly, which will no longer be detailed here.

[0046] Further, the aerosol generation device further comprises the microwave assembly. The microwave assembly is configured for feeding microwaves into the atomization assembly to heat the aerosol generating substarte to generate aerosol.

[0047] Specially, the atomization assembly is disposable and is detachably disposed on the aerosol generation device. The atomization assembly is discarded after vaping is finished, does not need to be cleaned, and is easy to change, and the ease of use is guaranteed.

[0048] Specially, a microwave heating band is 300 MHz-300 GHz, preferably 915 MHz and 2450 MHz.

[0049] The aerosol generation device according to the above technical solutions of the present application, may further comprise the following additional technical features:

[0050] The aerosol generation device further comprises a radio-frequency transmitting device which can receive an identification signal feedbacked from the identification device to verify the atomization assembly, and a power storage device which is electrically connected to the microwave assembly and the radio-frequency transmitting device and configured for supplying power to the microwave assembly and the radio-frequency transmitting device.

[0051] In the technical solution, the aerosol generation device further comprises the radio-frequency transmitting device and the power storage device. Wherein, the power storage device is electrically connected to the microwave assembly and the radio-frequency transmitting device and configured for supplying power to the microwave assembly and the radio-frequency transmitting device. The radio-frequency transmitting device can receive an identification signal feedbacked from the identification device to verify the atomization assembly.

[0052] Specially, the radio-frequency transmitting device receives an identification signal feedbacked from the identification device and verifies the identification signal. When the identification signal passes the verification, the microwave assembly provides microwaves for the atomization assembly to heat the aerosol generating substarte. When the identification signal fails to pass the verification, the microwave assembly will not provide microwaves for the atomization assembly. Thus, the identification matching of the atomization assembly and the microwave assembly is improved, whether the atomization assembly is a counterfeit can be recognized automatically, which is benefit to protect the market order and legal interests of customers.

[0053] Other aspects and advantages of the application will become obvious in the following description, or be known in the practice of the application.

BRIEF DESCRIPTION OF THE DRAWINGS

[0054] The above and/or other aspects and advantages of the application will become obvious and be easily understood in the following description of embodiments with accompanying drawings, wherein:

FIG. 1 is a schematic structure diagram of an atomization assembly according to an embodiment of the application;

FIG. 2 is a sectional view of the atomization assembly of FIG. 1;

FIG. 3 is a sectional view of a first shell of the atomization assembly according to an embodiment of the application;

FIG. 4 is a schematic structure diagram of a second shell of the atomization assembly according to an embodiment of the application;

FIG. 5 is a schematic structure diagram of an aerosol generating substarte of the atomization assembly according to an embodiment of the application;

FIG. 6 is a schematic structure diagram of a heating element of the atomization assembly according to an embodiment of the application.

[0055] Reference signs of components in FIG. 1 to FIG. 6 are as follows:

102, first shell; 104, first airflow passage; 106, second shell; 108, aerosol generating unit; 110, first body sec-

tion; 112, second body section; 114, aerosol generating substarte; 116, first through hole; 118, heating element; 120, locating member; 122, second through hole; 134, air inlet; 126, second airflow passage; 128, protrusion.

DESCRIPTION OF THE EMBODIMENTS

[0056] For better understanding of the above objectives, features, and advantages of the application, a detailed description of the application will be provided below with reference to the attached drawings and specific ways of embodiment. It is noted that without causing conflicts, embodiments of the application and features of the embodiments are combinable with each other.

[0057] The description provided below gives an explanation to a lot of specifics and details for the purposes of better understanding of the application. However, the application can also be implemented by adopting other ways that are not described herein. Thus, the scope of protection that the application pursues is not limited to the specific embodiments disclosed below.

[0058] An atomization assembly and an aerosol generation device according to some embodiments of the application will be described below with reference to FIG. 1 to FIG. 6.

[0059] As shown in FIG. 1 and FIG. 2, a first embodiment of the application provides an atomization assembly, which comprises a first shell 102, a second shell 106 and an aerosol generating unit 108.

[0060] In this embodiment, as shown in FIG. 2, a first airflow passage 104 bores through the first shell 102. The second shell 106 is of a cavity structure having one end formed with an opening, the second shell 106 is sleeved around at least a part of the first shell 102 through the opening and is connected with the first shell 102. A second airflow passage 126 is formed between the first shell 102 and the second shell 106, and the second airflow passage 126 in communication with the first airflow passage 104. Thus, communicated airflow passages for passage of drawn air are formed inside the atomization assembly to guarantee airflow circulation in the atomization assembly during vaping.

[0061] In this embodiment, further, as shown in FIG. 2 and FIG. 4, the second shell 106 is a cavity structure having one end formed with an opening, and the aerosol generating unit 108 is disposed in the second shell 106, and the second shell 106 is sleeved around the first shell 102, such that the aerosol generating unit 108 is located in a relatively highly enclosed environment. In this way, the aerosol generating unit 108 can be heated uniformly, and the utilization rate of the aerosol generating unit 108 is increased. In addition, the atomization assembly of the application is not provided with a conductor pillar, a heating plate, a heating pin or the like, so the problems of the aerosol generating unit 108 adhered to the above components and difficult to clean the above components caused by insertion of the above components into the atomization assembly are avoided. Further, when the atomization assembly is disposed on an aerosol generation device, because the bottom of the atomization assembly is sealed, the aerosol generation device provided with the atomization assembly will not be contaminated, and the service life of the aerosol generation device is prolonged.

[0062] In a specific embodiment, the first shell 102 is in close contact with the aerosol generating unit 108, such that the stability of the internal structure of the atomization assembly is guaranteed, air can circulate in the first airflow passage 104 during vaping, and air is prevented from channeling in the atomization assembly.

[0063] In a specific embodiment, the first shell and the second shell are connected through a locking slot, such that the second shell is prevented from being separated from the first shell.

[0064] In a specific embodiment, the first shell is one of a rigid paper tube, a polylactic acid material tube, a polytetrafluoroethylene tube, a synthetic resin tube, a protein material tube, a vegetable gum material tube and a cellulose derivative material tube which demonstrates a function of supporting.

[0065] In a specific embodiment, the first shell 102 and the second shell 106 are made of a formable low-dielectric loss material with certain strength. Specifically, the first shell 102 and the second shell 106 may be made of one of rigid paper tubes, polylactic acid material, polytetrafluoroethylene, synthetic resin, chemical fiber products, non-woven fabric, ceramic wafers, PEEK material and glass.

[0066] In a specific embodiment, the length of the atomization assembly is 30 mm-70 mm, preferably 40 mm-50 mm. Specifically, the length of the atomization assembly may be 40 mm, 45 mm, 50 mm, or the like. The application has no specific limitation in this aspect.

[0067] According to the atomization assembly provided by the application, communicated airflow passages for vaping are formed in the atomization assembly such that air can circulate in the atomization assembly during vaping. The second shell 106 is of a cavity structure having an end formed with an opening, such that the interior of the atomization assembly is a highly enclosed environment, the aerosol generating unit 108 can be heated uniformly, and the utilization rate of the aerosol generating unit 108 is increased. In addition, the atomization assembly provided by the application is not provided with a conductor pillar, a heating plate, a heating pin or the like, so the problems of the aerosol generating unit 108 adhered to the above components and difficult to clean the above components caused by insertion of the above components into the atomization assembly are avoided. Further, when the atomization assembly is disposed on an aerosol generation device, because the bottom of the atomization assembly is sealed, the aerosol generation device provided with the atomization assembly will not be contaminated, and the service life of the aerosol generation device is prolonged.

[0068] A second embodiment of the application pro-

vides an atomization assembly. Based on the first embodiment, further:

[0069] As shown in FIG. 1 and FIG. 2, the first shell 102 comprises a first body section 110 and a second body section 112.

[0070] In this embodiment, as shown in FIG. 2 and FIG. 3, the second body section 112 is connected to an end of the first body section 110, the second shell 106 is sleeved around the second body section 112, a first spacing is formed between the second shell 106 and the second body section 112, a second spacing is formed between the second shell 106 and an end of the second body section 112, and the second shell 106 is lower than the end of the second body section 112.

[0071] In this embodiment, further, as shown in FIG. 1 and FIG. 2, the first spacing between the second shell 106 and the second body section 112 is configured to form the second airflow passage 126, the second spacing between the second shell 106 and the end of the second body section 112 is configured to form an air inlet 124 of the second airflow passage 126. During the vaping process, air outside the atomization assembly enters the second airflow passage 126 through the air inlet 124 and then enters inside the atomization assembly such that air can be circulated in the atomization assembly.

[0072] In a specific embodiment, the outer diameter of the first body section 110 is equal to or approximately equal to that of the second shell 106, and the outer diameter of the first body section 110 is 6 mm-20 mm, preferably 8 mm-10 mm. Specifically, the outer diameter of the first body section 110 may be 8 mm, 9 mm, 10 mm, or the like. The present application has no specific limitation in this aspect.

[0073] In a specific embodiment, the outer diameter of the second body section 112 is slightly less than the inner diameter of the second shell 106, the outer diameter of the second body section 112 is 4 mm-18 mm, preferably 7 mm-8.5 mm, and the inner diameter of the second shell 106 is 7.5 mm-19 mm, preferably 7.5 mm-9 mm. Specifically, the outer diameter of the second body section 112 may be 7 mm, 7.5 mm, 8 mm, 8.5 mm, or the like, and the inner diameter of the second shell 106 may be 7.5 mm, 8 mm, 8.5 mm, 9 mm, or the like. The present application has no limitation in this aspect.

[0074] In addition, the atomization assembly provided by this embodiment has all beneficial effects of the atomization assembly provided in the first embodiment: communicated airflow passages are formed in the atomization assembly, such that air can circulate in the atomization assembly smoothly; the interior of the atomization assembly is a highly enclosed environment, such that the aerosol generating unit 108 can be heated uniformly, and the utilization rate of the aerosol generating unit 108 is increased; in addition, the atomization assembly is not provided with a conductor pillar, a heating plate, a heating pin or the like, so the problems of the aerosol generating unit 108 adhered to the above components and difficult to clean the above components caused by insertion of the above components into the atomization assembly are avoided. Further, the aerosol generation device assembled with the atomization assembly will not be contaminated, and the service life of the aerosol generation device is prolonged. These advantages will not be detailed here.

[0075] A third embodiment of the application provides an atomization assembly. Based on the second embodiment, further:

[0076] As shown in FIG. 2, a receiving chamber is formed between the second body section 112 and the second shell 106, and the atomization assembly further comprises a plurality of protrusions 128.

[0077] In this embodiment, as shown in FIG. 2, the aerosol generating unit 108 and the plurality of protrusions 128 are disposed in the receiving chamber, and the plurality of protrusions 128 are disposed at intervals on the bottom wall of the second shell 106. In this way, the aerosol generating unit 108 can be supported by the plurality of protrusions 128; the plurality of protrusions 128 are disposed on the bottom wall of the second shell 106 at intervals, such that a channel is formed between the second shell 106 and the aerosol generating unit 108 to interconnect the second airflow passage 126 and the first airflow passage 104. In this way, the communicated passages are formed in the atomization assembly to allow air to pass through inside the atomization assembly during vaping, and the suction resistance is reduced.

[0078] In addition, the atomization assembly in this embodiment has all beneficial effects of the atomization assembly in the second embodiment, which will no longer be detailed here.

[0079] A fourth embodiment of the application provides an atomization assembly. Based on the first embodiment to the third embodiment, further:

[0080] As shown in FIG. 2, the aerosol generating unit 108 comprises an aerosol generating substarte 114 and a heating element 118.

[0081] In this embodiment, as shown in FIG. 2 and FIG. 5, the aerosol generating substarte 114 is of a structure with a first through hole 116, and the heating element 118 is disposed in the first through hole 116. During use, the heating element 118 absorbs microwaves and heats the aerosol generating substarte 114 with the microwaves, so as to enable the aerosol generating substarte to generate aerosol.

[0082] Further, in this embodiment, as shown in FIG. 2, the heating element 118 is disposed in the first through hole 116 of the aerosol generating substarte 114, such that when the aerosol generating substarte 114 is heated with microwaves, the edge of the aerosol generating substarte 114 is also located in an intense microwave field and can be fully heated, ensuring that the whole aerosol generating substarte 114 is uniformly heated, enhancing the atomization effect of the aerosol generating substarte 114, and increasing the utilization rate of the aerosol generating substarte 114.

[0083] In a specific embodiment, the aerosol generat-

ing substarte 114 is mainly prepared from tobacco or herbals, and may be in the form of particulate, flake, powder, filament, paste, pancake-like matter, porous aerogel or capsule.

[0084] In a specific embodiment, the diameter of the aerosol generating substarte 114 is 4 mm-17 mm, preferably 5 mm-8 mm, and the height of the aerosol generating substarte 114 is 6 mm-25 mm, preferably 8 mm-12 mm. Specifically, the diameter of the aerosol generating substarte 114 may be 5 mm, 6 mm, 7 mm, 8 mm, or the like, and the height of the aerosol generating substarte 114 may be 8 mm, 9 mm, 10 mm, 11 mm, 12 mm, or the like. The invention has no specific limitation in this aspect.

[0085] In a specific embodiment, the heating element 118 is made of a good high-temperature resistant and microwave absorption material, having the characteristics of good impedance matching, wide bandwidth, small matching thickness, low weight and high absorbing ability, and can enhance the aerosol atomization effect of the aerosol generating substarte 114.

[0086] In a specific embodiment, the heating element 118 may be made of one of ferrite, ceramic-based materials, silicon carbide, barium titanate, and magnetic metal micro-powder.

[0087] In addition, the atomization assembly in this embodiment has all beneficial effect of the atomization assembly in the first embodiment to the third embodiment, which will no longer be detailed here.

[0088] A fifth embodiment of the application provides an atomization assembly. Based on the fourth embodiment, further:

[0089] As shown in FIG. 2, a preset distance is arranged between the end of the aerosol generating substarte 114 and the end with the opening of the second shell 106.

[0090] In this embodiment, as shown in FIG. 2, the preset distance is arranged between the end of the aerosol generating substarte 114 and the open end of the second shell 106 to ensure that the second body section 112 has a certain length. During vaping, air enters the second airflow passage 126 from the air inlet 124 in the open end of the second shell 106 and flows through the aerosol generating substarte 114 after passing through the preset distance, such that aerosol is driven to flow into the first airflow passage 104 and is prevented from leaking via the air inlet 124.

[0091] In addition, the atomization assembly in this embodiment has all beneficial effect of the atomization assembly in the fourth embodiment, which will no longer be detailed here.

[0092] A sixth embodiment of the application provides an atomization assembly. Based on the fourth embodiment, further:

[0093] As shown in FIG. 2 and FIG. 3, the first shell 102 further comprises a locating member 120.

[0094] In this embodiment, as shown in FIG. 2 and FIG. 3, the locating member 120 is disposed at an end of the second body section 112, the cross-sectional area of the locating member 120 is less than that of the second body section 112, the aerosol generating substarte 114 is sleeved around the locating member 120 through the first through hole 116, and a free end of the locating member 120 abuts against the heating element 118. Thus, a stepped structure is formed between the first body section 110, the second body section 112 and the locating member 120, and the aerosol generating substarte 114 is disposed around the locating member 120 such that the second body section 112, the locating member 120 and the aerosol generating substarte 114 are connected orderly and tightly.

[0095] Further, in this embodiment, as shown in FIG. 2 and FIG. 3, the first airflow passage 104 penetrates through the first body section 110, the second body section 112, the locating member 120 and the heating element 118. During vaping, air enters the second airflow passage 126 from the air inlet 124, and directly enters the first airflow passage 104 after passing through the channel formed among the plurality of protrusions 128, such that air can pass through the atomization assembly smoothly.

[0096] In addition, the atomization assembly in this embodiment has all beneficial effect of the atomization assembly in the fourth embodiment, which will no longer be detailed here.

[0097] A seventh embodiment of the application provides an atomization assembly. Based on the fourth embodiment, further:

[0098] As shown in FIG. 6, the heating element 118 is formed with a plurality of second through holes 122 which are in communication with the first airflow passage 104.

[0099] In this embodiment, as shown in FIG. 6, the heating element 118 is formed with a plurality of second through holes 122 which are in communication with the first airflow passage 104. Thus, during vaping, aerosol generated by the aerosol generating substarte 114 can directly enter the first airflow passage 104 through the second through holes 122, and the aerosol atomization effect of the aerosol generating substarte 114 is enhanced.

[0100] In addition, the atomization assembly in this embodiment has all beneficial effect of the atomization assembly in the fourth embodiment, which will no longer be detailed here.

[0101] An eighth embodiment of the application provides an atomization assembly. Based on the fourth embodiment, further:

[0102] The atomization assembly further comprises an identification device (not shown).

[0103] In this embodiment, the identification device is disposed in the heating element 118 and is able to feedback an identification signal to sense for a radio-frequency transmitting device. In this way, the identification matching of the atomization assembly and a microwave assembly can be improved, the atomization assembly has an anti-counterfeit function and is difficult to crack and recycle, which is benefit to protect the market order

and legal interests of customers.

[0104] In this embodiment, the identification device sends an identification signal to the radio-frequency transmitting device in the microwave assembly. When receiving the identification signal, the radio-frequency transmitting device verifies the identification signal. When the identification signal passes the verification, the microwave assembly enables the heating function of the atomization assembly. When the identification signal fails to pass the verification, the microwave assembly will not enable the heating function of the atomization assembly. In this way, the identification matching of the atomization assembly and the microwave assembly is improved, and whether the atomization assembly is a counterfeit can be recognized automatically. In a specific embodiment, the identification device is wrapped with a heat insulation material with high-temperature resistance for protecting the identification device. Wherein, the heat insulation material is one of heat insulation cotton, polyurethane foam and polyamide.

[0105] In addition, the atomization assembly in this embodiment has all beneficial effect of the atomization assembly in the fourth embodiment, which will no longer be detailed here.

[0106] A ninth embodiment of the application provides an aerosol generation device, which comprises the atomization assembly in any one of the above embodiments, a microwave assembly, a radio-frequency transmitting device and a power storage device.

[0107] The aerosol generation device provided by the application comprises the atomization assembly in any one of the above embodiments, and thus has all beneficial effect of the atomization assembly, which will no longer be detailed here.

[0108] Further, in this embodiment, the aerosol generation device further comprises the microwave assembly, the radio-frequency transmitting device and the power storage device. The microwave assembly is configured for feeding microwaves into the atomization assembly to heat the aerosol generating substarte 114 to generate aerosol. The power storage device is electrically connected to the microwave assembly and the radio-frequency transmitting device and is configured for supplying power to the microwave assembly and the radio-frequency transmitting device. The radio-frequency transmitting device can receive an identification signal feedbacked from the identification device to verify and match the atomization assembly to realize an anti-counterfeit effect.

[0109] In a specific embodiment, the radio-frequency transmitting device receives an identification signal feedbacked from the identification device and verifies the identification signal. When the identification signal passes the verification, the microwave assembly provides microwaves for the atomization assembly to heat the aerosol generating substarte 114. When the identification signal fails to pass the verification, the microwave assembly will not provide microwaves for the atomization assembly. In this way, the identification matching of the atomization assembly and the microwave assembly is improved, whether the atomization assembly is a counterfeit can be recognized automatically, which is benefit to protect the market order and legal interests of customers.

[0110] In a specific embodiment, a microwave heating band is 300 MHz-300 GHz, preferably 915 MHz and 2450 MHz.

[0111] In a specific embodiment, the atomization assembly is disposable and is detachably disposed on the aerosol generation device. The atomization assembly is discarded after vaping is finished, does not need to be cleaned, and is easy to change, and the ease of use is guaranteed.

[0112] Thus, the aerosol generation device provided by the application can realize uniform heating of the aerosol generating substarte 114 and can automatically recognize whether the atomization assembly is a counterfeit, which is benefit to protect market order and legal interests of customers.

[0113] In the description of the application, the term "plurality of' refers to two or more, unless otherwise specifically stated. Terms such as "upper" and "lower" are used to indicate directional or positional relations based on the accompanying drawings merely for the purpose of facilitating and simplifying the description of the application, do not indicate or imply that a device or an element referred to must be in a specific direction, or be configured and operated in a specific direction, and thus should not be construed as limitations of the application. Terms such as "connect", "install" and "fix" should be broadly understood. For example, "connect" may refer to fixed connection, detachable connection or integrated connection; or, direct connection, or indirect connection through an intermediate medium. Those ordinarily skilled in the art can appreciate the specific meanings of these terms in the application as the case may be.

[0114] In this specification, the description of terms such as "one embodiment", "some embodiments" and "specific embodiment" implies that specific features, structures, materials or characteristics described in conjunction with said embodiment or example are included in at least one embodiment or example of the application. In this specification, illustrative statements of these terms do not definitely refer to the same embodiment or example. In addition, the specific features, structures, materials or characteristics may be combined in any one or more embodiments or examples in any appropriate manners.

[0115] The above embodiments are merely preferred ones of the application, and are not used to limit the application. Various modifications and changes can be made to the application by those skilled in the art. Any modifications, equivalent substations and improvements made based on the spirit and principle of the application should fall within the protection scope of the application.

Claims

1. An atomization assembly, comprising:

   a first shell bored through by a first airflow passage;
   a second shell configured as a cavity structure having one end formed with an opening, the second shell sleeved around at least part of the first shell through the opening and connected with the first shell, a second airflow passage formed between the first shell and the second shell, and the second airflow passage in communication with the first airflow passage; and
   an aerosol generating unit disposed in the second shell and capable of generating aerosol.

2. The atomization assembly according to Claim 1, wherein the first shell comprises:

   a first body section;
   a second body sectionconnected to an end of the first body section, the second shell sleeved around the second body section, the second shell spaced from the second body section (112) with a first spacing, and the second shell spaced from an end of the second body section with a second spacing;
   wherein the first spacing forms the second airflow passage, and the second spacing forms an air inlet of the second airflow passage.

3. The atomization assembly according to Claim 2, wherein a receiving chamber is formed between the second body section and the second shell, and the aerosol generating unit is located in the receiving chamber; and
   the atomization assembly further comprises:
   a plurality of protrusions disposed at intervals on the bottom wall of the second shell and located in the receiving chamber, the aerosol generating unit supported by the plurality of protrusions to interconnect the second airflow passage and the first airflow passage.

4. The atomization assembly according to Claim 2 or 3, wherein the aerosol generating unit comprises:

   an aerosol generating substratestructured with a first through hole; and
   a heating element disposed in the first through hole and capable of absorbing microwaves and heat the aerosol generating substrate .

5. The atomization assembly according to Claim 4, wherein
   the end of the aerosol generating substarte is spaced from the end with the opening of the second shell with a preset distance.

6. The atomization assembly according to Claim 4, wherein the first shell further comprises:

   a locating memberdisposed at the end of the second body section, with its cross-sectional area less than that of the second body section;
   wherein the aerosol generating substrate is sleeved around the locating member through the first through hole, and a free end of the locating member abuts against the heating element.

7. The atomization assembly according to Claim 6, wherein:
   the first airflow passage bores through the first body section, the second body section, the locating member and the heating element.

8. The atomization assembly according to Claim 4, wherein:
   a plurality of second through holes are formed in the heating element and in communication with the first airflow passage.

9. The atomization assembly according to Claim 4, wherein the atomization assembly further comprises:
   an identification device disposed in the heating element and capable of feeding back an identification signal for a radio-frequency transmitting device to sense.

10. An aerosol generation device, wherein the aerosol generation device comprises:

    the atomization assembly according to any one of Claims 1-9; and
    a microwave assembly configured for feeding microwaves into the atomization assembly.

11. The aerosol generation device according to Claim 10, wherein the aerosol generation device further comprises:

    a radio-frequency transmitting device capable of receiving an identification signal fed back from an identification device to verify the atomization assembly; and
    a power storage device electrically connected to the microwave assembly and the radio-frequency transmitting device and configured for supplying power to the microwave assembly and the radio-frequency transmitting device.

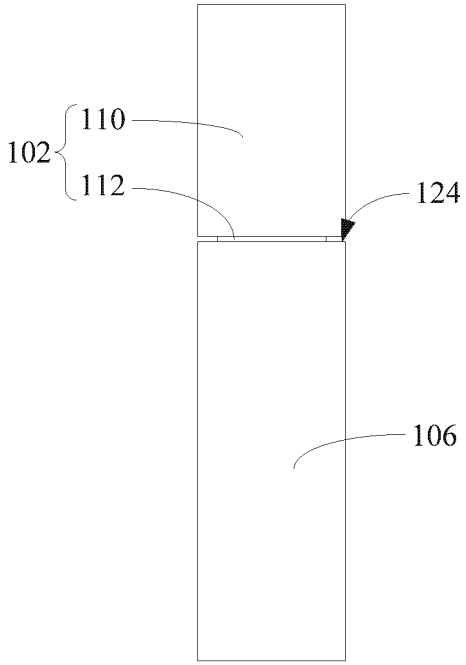

FIG. 1

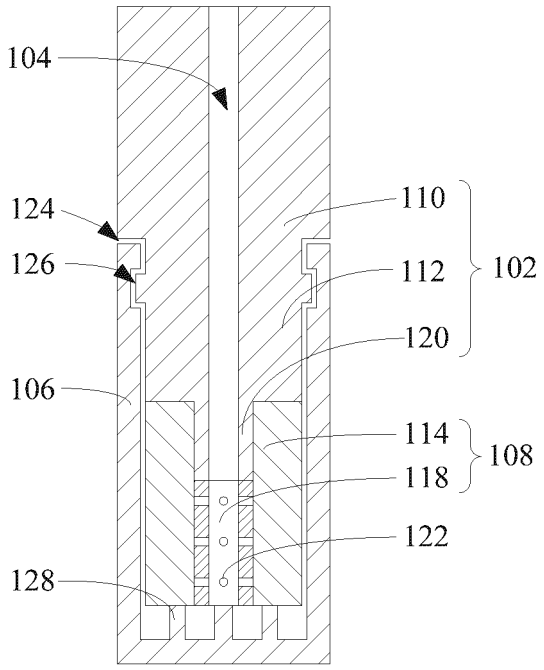

FIG. 2

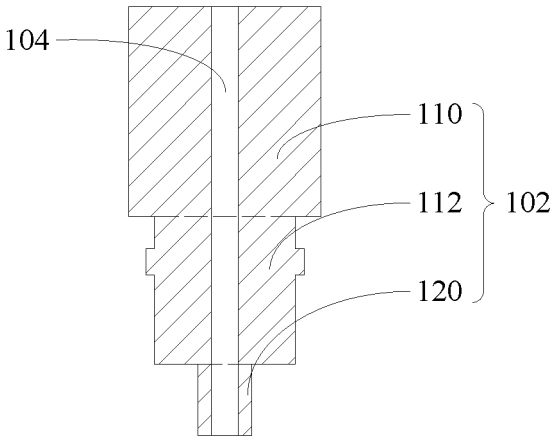

FIG. 3

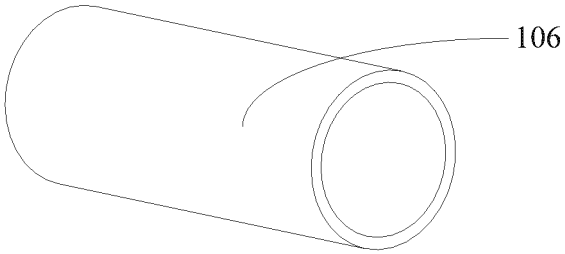

FIG. 4

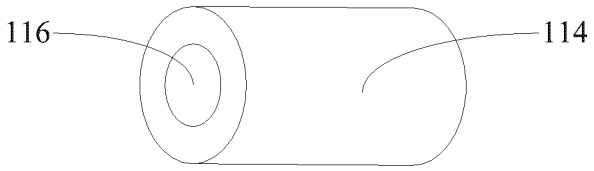

FIG. 5

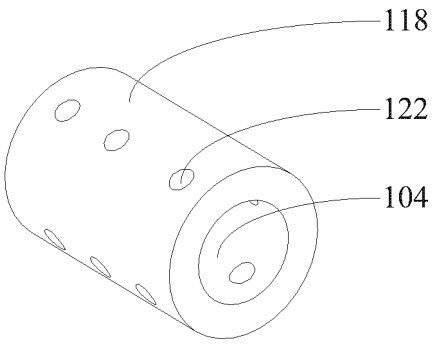

FIG. 6

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2021/118241

A. CLASSIFICATION OF SUBJECT MATTER

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

A24F40/-; A24F47/-

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

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

CNABS, CNTXT, CNKI, VEN: 进气, 气道, 壳体, 间隙, 清洁, atomize+, chamber, enter+, in+, out+, channel+, through, interval, gap, clean+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CN 211458857 U (SHENZHEN RELX TECHNOLOGY CO., LTD.) 11 September 2020 (2020-09-11) description, paragraphs 44 and 128-129, and figures 24-25	1-11
X	CN 112273720 A (ALD GROUP LTD.) 29 January 2021 (2021-01-29) description, paragraphs 54 and 87-89, and figures 1-3b	1-11
X	US 2021084989 A1 (JOHNSON MYA) 25 March 2021 (2021-03-25) description, paragraphs 100-101, and figures 2A-2B	1-11
X	CN 208941044 U (CHANGZHOU PATENT ELECTRONIC TECHNOLOGY CO., LTD.) 07 June 2019 (2019-06-07) description, paragraphs 37-41, and figure 1	1-11
A	US 2017164655 A1 (SHENZHEN SMOORE TECHNOLOGY LTD.) 15 June 2017 (2017-06-15) entire document	1-11
A	US 2020229512 A1 (HAVA HEALTH INC.) 23 July 2020 (2020-07-23) entire document	1-11

☑ 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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"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
09 June 2022	**17 June 2022**
Name and mailing address of the ISA/CN **China National Intellectual Property Administration (ISA/CN)** **No. 6, Xitucheng Road, Jimenqiao, Haidian District, Beijing 100088, China** Facsimile No. **(86-10)62019451**	Authorized officer Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2021/118241

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	TW M593161 U (CHENG UEI PRECISION INDUSTRY CO., LTD.) 11 April 2020 (2020-04-11) entire document	1-11
A	CN 212814261 U (SHENZHEN SMOORE TECHNOLOGY LTD.) 30 March 2021 (2021-03-30) entire document	1-11
A	CN 212650383 U (SHENZHEN SIYONGWEI TECHNOLOGY CO., LTD.) 05 March 2021 (2021-03-05) entire document	1-11

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2021/118241

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CN 212088092 U	08 December 2020	None	
CN 212814261 U	30 March 2021	None	
CN 212650383 U	05 March 2021	None	

Form PCT/ISA/210 (patent family annex) (January 2015)