



(11)

EP 4 183 270 A1

(12)

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

(43) Date of publication:
24.05.2023 Bulletin 2023/21

(51) International Patent Classification (IPC):
A24D 1/20 ^(2020.01) **A24F 40/46** ^(2020.01)
A24F 40/40 ^(2020.01) **A24F 40/20** ^(2020.01)

(21) Application number: **21940008.2**

(86) International application number:
PCT/CN2021/120548

(22) Date of filing: **26.09.2021**

(87) International publication number:
WO 2023/044835 (30.03.2023 Gazette 2023/13)

(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) **AEROSOL GENERATING MATRIX, AND AEROSOL GENERATING APPARATUS AND SYSTEM**

(57) The application provides an aerosol generation base, and an aerosol generation device and system, wherein the aerosol generation base includes: an aerosol base material section. An aerosol base material is arranged in the interior of the aerosol base material section. The aerosol base material section is provided with an insertion section. The insertion section functions to receive insertion of a resonance pillar of the aerosol generation device therein, and is spaced from the resonance pillar. The resonance pillar is inserted into the insertion section, and the aerosol base material in each portion of the interior of the aerosol base material section is uniformly heated by a microwave transmitted through the resonance pillar to thereby enhance the utilization efficiency of the aerosol base material.

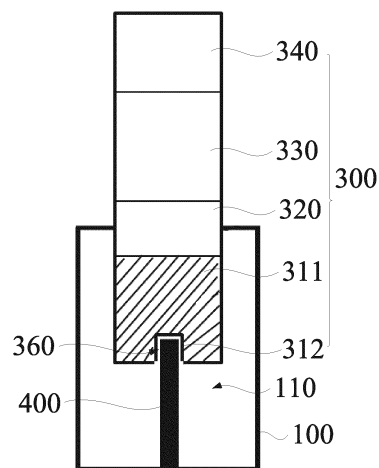


Fig. 1

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Description

FIELD OF THE INVENTION

[0001] The present invention relates to the technical field of electronic atomization, and particularly relates to an aerosol generation base material, and an aerosol generation device and system.

DESCRIPTION OF THE RELATED ART

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

[0003] The heat-not-burning devices that are currently available in the market generally adopts resistor heating means, namely a centered heating plate or a heating pin perforates, at a center location of the aerosol generation base material, into the interior of the aerosol generation base material to proceed with heating. Such a utensil takes a long time to wait for preheating before use, making it hard to freely start or stop vaping, and the aerosol generation base material cannot be uniformly carbonized, leading to insufficient baking of the aerosol generation base material 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 generation base material extractor and a heating plate holder, and a portion of the aerosol generation base material that is in contact with the heating body may get locally excessively high temperature, causing partial decomposition and releasing substances that are harmful to humans. 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 generation base material being high and mouthfeel being consistent, and the mouthfeel being much closer to cigarettes.

[0004] However, although the portion of the aerosol generation base material that is at a location close to a microwave emission end can be uniformly heated, yet portions of the aerosol generation base material that are

at locations away from the microwave emission end have relatively poor heating effect, leading to the utilization efficiency of the aerosol generation base material being relatively low.

SUMMARY OF THE INVENTION

[0005] The application is made to resolve one of the technical issues that the prior art or the related art is suffering.

[0006] In view of this, in a first aspect, the application provides an aerosol generation base, which comprises: an aerosol base material section. An aerosol base material is arranged in the interior of the aerosol base material section. The aerosol base material section is provided with an insertion section, the insertion section configured to receive insertion of a resonance pillar of an aerosol generation device therein, and spaced from the resonance pillar.

[0007] The aerosol base material section is provided therein with the aerosol base material, and when a microwave acts on the aerosol base material, the aerosol base material is heated as acted upon by the microwave, so that the aerosol base material generates an aerosol.

The aerosol base material section is formed with the insertion section, and the resonance pillar is inserted into the insertion section. Distances between the resonance pillar and two ends of the aerosol base material section are both reduced, and a portion of the aerosol base material section having a relatively large distance from the resonance pillar does not easily occur, meaning the aerosol base material in every portion of the aerosol base material section can be uniformly heated by the microwave transmitted through the resonance pillar, helping enhance the utilization efficiency of the aerosol base material.

[0008] The resonance pillar and the aerosol base material section are arranged to space from each other to prevent contact between the resonance pillar and the aerosol base material, so as to avoid contamination of the resonance pillar and reduce the working load of cleansing the resonance pillar.

[0009] Further, the aerosol generation base of the above technical solution provided according to the application may further comprise the following additional technical features:

[0010] In a feasible arrangement, the aerosol base material section further comprises: a isolation section. The aerosol base material is disposed in the isolation section. The isolation section is configured to isolate the aerosol base material and the resonance pillar from each other.

[0011] In the arrangement, the aerosol base material section comprises the aerosol base material and the isolation section, wherein the aerosol base material is located inside the isolation section, and the isolation section encloses the aerosol base material to prevent the aerosol base material from contacting the resonance pillar, so as to avoid contact between the aerosol base ma-

terial and the resonance pillar. Further, the aerosol base material, when heated, shows a relatively high temperature, and arranging the aerosol base material to be isolated from the resonance pillar helps prevent adhering and attaching of the aerosol base material to the resonance pillar, and the working load of cleansing the resonance pillar is reduced.

[0012] Certainly, to prevent adhering and attaching between the isolation section and the resonance pillar, the isolation section is necessarily made of a material that is not easy to react with the microwave, and, the isolation section is necessarily arranged to show an effect of supporting. Thus, the isolation section can be made of at least one of high permeability rigid paper sheet, white kraft paper, poly tetra fluoroethylene film, porous ceramic plate, synthetic resin, chemical fiber product, polylactic acid film, aluminum foil sheet, and nonwoven fabric.

[0013] In a feasible arrangement, the insertion section perforates completely through the aerosol base material section.

[0014] In the arrangement, the insertion section is set to completely penetrate through the aerosol base material section, and since the resonance pillar needs to be inserted into the aerosol base material section, directly forming a penetration section in the aerosol base material section could enhance easiness of machining of the insertion section. Further, since the resonance pillar may penetrate through the aerosol base material section, adjusting a size of the resonance pillar located inside the insertion section can be easily achieved. The size of the resonance pillar that is inserted into the insertion section can be varied according to the thickness of the aerosol base material section, so as to allow the aerosol base material in the aerosol base material section to be uniformly heated to improve the effect of heating to the aerosol base material and also to enhance the utilization efficiency of the aerosol base material.

[0015] In a feasible arrangement, the aerosol base material section further comprises: a constraining member, which is arranged in the insertion section and configured to abut the end of the resonance pillar.

[0016] In the arrangement, the receptacle section is provided internally with the constraining member, and the constraining member is configured to constrain and position the resonance pillar. Specifically, the constraining member constrains a maximum size of the resonance pillar that is insertable into the insertion section. Although insertion of the resonance pillar into the insertion section could help improve the effect of heating to the aerosol base material, yet the effect of heating is not bettered with the greater length of insertion, and instead, it is necessary to have the microwave transmitting through the end of the resonance pillar uniformly acting on the aerosol base material in each portion of the interior of the aerosol base material section. In case that the resonance pillar is extended to penetrate through the insertion section, there will be a situation that a great portion of the microwave transmitting through the end of the resonance pillar

does not act on the aerosol base material, resulting in wastage of microwave. If the end of the resonance pillar perforates through the insertion section, then there will be a situation that one side of the aerosol base material section that faces the resonance chamber is spaced by a relatively large distance from the end of the resonance pillar, and the heating effect that the end of the resonance pillar applied toward the side of the aerosol base material section that faces the resonance chamber will be lowered. To ensure that the resonance pillar can uniformly heat each portion of the aerosol base material, the constraining member constrains the maximum length that the resonance pillar is allowed to be inserted into the insertion section, so as to guarantee the effect of heating to the aerosol base material and enhance the utilization efficiency of the aerosol base material.

[0017] In a feasible arrangement, the constraining member comprises at least two parts, and the at least two parts of the constraining member are arranged at intervals in a circumferential direction of the insertion section; or alternatively, the constraining member is of an annular structure.

[0018] In the arrangement, the structure of the constraining member is set, and the constraining member comprises at least two parts, and the at least two parts of the constraining member are arranged at intervals in the circumferential direction of the insertion section. The at least two parts of the constraining member can constrain and position the end of the resonance pillar. Since the at least two parts of the constraining member are arranged at intervals, the end of the resonance pillar can be uniformly acted upon by resisting forces, so as to prevent situations of angular deviation of the resonance pillar with respect to the aerosol generation base, reducing damage rate of the aerosol generation base and the resonance pillar, and thus enhancing users' experience of using the aerosol generation device.

[0019] Certainly, the constraining member can possibly be made in an annular structure. The constraining member of an annular structure can also stably constrain and position the end of the resonance pillar, to prevent angular deviation of the resonance pillar with respect to the aerosol generation device.

[0020] In a second aspect, the application provides an aerosol generation device, which comprises: a housing, the housing formed with a resonance chamber; a microwave assembly, which is arranged in the housing, the microwave assembly configured to feed microwaves into the resonance chamber; and a resonance pillar, a first end of the resonance pillar being connected to a chamber bottom wall of the resonance chamber, a second end of the resonance pillar facing an opening of the resonance chamber, the resonance pillar configured to be inserted into the aerosol generation base, wherein when the resonance pillar is inserted into the aerosol generation base, the resonance pillar and the aerosol generation base are spaced from each other.

[0021] The microwave assembly is operable to gener-

ate a microwave, and the housing is formed with the resonance chamber, and the microwave assembly feeds the microwaves into the resonance chamber. The resonance pillar is disposed inside the resonance chamber, and the resonance pillar has a diameter that is smaller than a diameter of the resonance chamber, so that a gap is present between an external wall of the resonance pillar and an internal wall of the resonance chamber, and the microwave is transmittable in the gap. The resonance pillar can be made as a conducting body, and the resonance pillar can be made of a metallic material, and illustratively, the resonance pillar is made of copper, aluminum, iron, or an alloy thereof. The resonance pillar is configured to transmit the microwave and to enhance a transmission speed of the microwave, and the microwave does not easily deteriorate when transmitting in the resonance chamber, thereby enhancing the effect of the microwave acting on the aerosol generation base, making the microwave acting on the aerosol generation base with a high efficiency and a fast speed to facilitate satisfaction of users' needs of use. The aerosol generation base comprises the aerosol base material section, and the aerosol base material is disposed in the aerosol base material section. When the microwave acts on the aerosol base material, the aerosol base material is heated under the action of the microwave, so as to have the aerosol base material generating an aerosol. The resonance pillar is inserted into the aerosol base material section, and the distances between the resonance pillar and the two ends of the aerosol base material section are made relatively small, so that a portion of the aerosol base material section having a relatively large distance from the resonance pillar does not easily occur, meaning the aerosol base material in every portion of the interior of the aerosol base material section can be uniformly heated by the microwave transmitted through the resonance pillar, and the utilization efficiency of the aerosol base material can be advantageously enhanced.

[0022] The resonance pillar and the aerosol base material section are arranged to isolate from each other so as to prevent contact between the resonance pillar and the aerosol base material, thereby avoiding occurrence of contamination on the resonance pillar and the working load of cleansing the resonance pillar is reduced.

[0023] In a feasible arrangement, an internal wall of the resonance chamber at the opening is in contact with the aerosol generation base.

[0024] In the arrangement, the resonance chamber is provided with the opening, and the aerosol generation base is inserted, from the opening of the resonance chamber into the interior of the resonance chamber, and the internal wall of the resonance chamber at the opening is in contact with the aerosol generation base, so that the internal wall at the opening constrains and positions the aerosol generation base. Specifically, the aerosol generation base at the opening of the resonator is constrained and positioned, and when the resonance pillar is inserted into the insertion section, the resonance pillar

also constrains and positions the aerosol generation base, namely the internal wall at the opening and the resonance pillar together provide two-point constraining and positioning to the aerosol generation base, allowing the aerosol generation base to be securely mounted in the housing, preventing shaking of the aerosol generation base in the resonance chamber and enhancing stability when users operate the aerosol generation device.

[0025] In a feasible arrangement, the aerosol generation device further comprises: a holder, which is arranged in the housing. The holder is located in the resonance chamber. The holder is formed with a mounting compartment. The mounting compartment is configured to receive a portion of the aerosol generation base to insert thereinto.

[0026] In the arrangement, the housing is provided with the holder, and the holder is formed with the mounting compartment to allow a portion of the aerosol generation base to insert into the mounting compartment to mount the aerosol generation base to the holder, so that the aerosol generation base does not easily shake relative to the housing to thereby enhance stability when users operate the aerosol generation device. The holder is disposed inside the resonance chamber, so as to reduce the overall length of the housing, to help realize miniaturization of the aerosol generation device, easing carrying and stowing of the aerosol generation device by users.

[0027] The aerosol generation base is generally of a cylindrical structure, and the mounting compartment can be arranged as a cylindrical compartment. A radial dimension of the aerosol generation base is made equal to or smaller than a radial dimension of the mounting compartment. The aerosol assembly can be tightly inserted into the mounting compartment to make the aerosol generation base not readily detach from the holder, ensuring the security of mounting of the aerosol assembly.

[0028] By mounting the aerosol generation base with the arrangement of the holder, the users only need to cleanse the holder after uses of the aerosol generation base, so as to help reduce the working load of cleansing the housing.

[0029] In a feasible arrangement, the aerosol generation device further comprises: a raised section, which is arranged on a bottom wall of the mounting compartment and is extended into the insertion section of the aerosol generation base. The raised section is provided with a receptacle section, and the second end of the resonance pillar is inserted into the receptacle section.

[0030] In the arrangement, the raised section is set to be arranged on the bottom wall of the mounting compartment, and the raised section projects, in a direction away from the resonance pillar, out of the bottom wall of the mounting compartment, and the raised section is provided with the receptacle section, and the second end of the resonance pillar is inserted into the receptacle section, and further, the raised section is also extended into

the insertion section, so that the raised section is present between the insertion section and the resonance pillar, and the raised section isolates the insertion section and the resonance pillar, and the resonance pillar is not in contact with the aerosol generation base to prevent occurrence of damage to the resonance pillar, enhancing structural stability of the aerosol generation device. Further, arranging the holder to provide protection to the resonance pillar allows contaminants to only enter the holder and be prevented from entering the resonance chamber, to thereby better prevent the resonance pillar from contaminated and reducing the working load of users for cleansing.

[0031] In a feasible arrangement, the holder is detachably connected to the housing.

[0032] In the arrangement, a connection relationship between the holder and the housing is set, so that the holder is mountable to or detachable from the housing. After uses of the aerosol generation device, the holder can be detached from the housing for easing isolate cleansing of the holder, improving easiness of cleansing of the holder by the users and thus enhancing users' convenience of use of the aerosol generation device.

[0033] Illustratively, mounting holes can be formed in the holder and the housing, and fasteners, such as bolts, can be extended through the mounting holes to mount the holder to the housing. It is also feasible to arrange a snap fastener assembly on the holder and the housing, and the holder can be fastened on the housing by means of the snap fastener assembly.

[0034] In a third aspect, the application proposes an aerosol generation system, which comprises: a housing, the housing formed with a resonance chamber; a microwave assembly, which is arranged in the housing, the microwave assembly configured to feed microwaves into the resonance chamber; a resonance pillar, a first end of the resonance pillar being connected to the chamber bottom wall of the resonance chamber, a second end of the resonance pillar facing an opening of the resonance chamber; and an aerosol generation base, which comprises an aerosol base material section, an aerosol base material arranged in the interior of the aerosol base material section, the aerosol base material section extending from the opening of the resonance chamber into the resonance chamber, the aerosol base material section provided with an insertion section, the second end of the resonance pillar inserted into the insertion section and spaced from the aerosol base material.

[0035] In the aerosol generation device provided in the application, the housing is formed therein with the resonance chamber, and the microwave assembly can be arranged on the housing, and the microwave assembly is operable to generate a microwave. The housing is provided with the resonance chamber, and the microwave assembly is operable to feed the microwaves into the resonance chamber. The resonance pillar is disposed in the resonance chamber, and the resonance pillar has a diameter that is smaller than a diameter of the resonance

chamber, so that a gap is present between an external wall of the resonance pillar and an internal wall of the resonance chamber, and the microwave is transmittable in the gap. The resonance pillar can be made as a conducting body, and the resonance pillar can be made of a metallic material, and illustratively, the resonance pillar is made of copper, aluminum, iron, or an alloy thereof. The resonance pillar is configured to transmit the microwave and to enhance a transmission speed of the microwave, and the microwave does not easily deteriorate when transmitting in the resonance chamber, thereby enhancing the effect of the microwave acting on the aerosol generation base, making the microwave acting on the aerosol generation base with a high efficiency and a fast speed to facilitate satisfaction of users' needs of use. The aerosol generation base comprises the aerosol base material section, and the aerosol base material is disposed in the aerosol base material section. When the microwave acts on the aerosol base material, the aerosol base material is heated under the action of the microwave, so as to have the aerosol base material generating an aerosol. The aerosol base material section is provided therein with the insertion section, and the resonance pillar is insertable into the insertion section, and the distances between the resonance pillar and the two ends of the aerosol base material section are made relatively small, so that a portion of the aerosol base material section having a relatively large distance from the resonance pillar does not easily occur, meaning the aerosol base material in every portion of the interior of the aerosol base material section can be uniformly heated by the microwave transmitted through the resonance pillar, and the utilization efficiency of the aerosol base material can be advantageously enhanced.

[0036] The resonance pillar and the aerosol base material section are arranged to isolate from each other so as to prevent contact between the resonance pillar and the aerosol base material, thereby avoiding occurrence of contamination on the resonance pillar and the working load of cleansing the resonance pillar is reduced.

[0037] In a feasible arrangement, the aerosol generation system further comprises: a holder, which is arranged in the housing. The holder is located in the resonance chamber. The holder is formed with a mounting compartment. The mounting compartment is configured to receive a portion of the aerosol generation base to insert therein.

[0038] In the arrangement, the housing is provided with the holder, and the holder is formed with the mounting compartment to allow a portion of the aerosol generation base to insert into the mounting compartment to mount the aerosol generation base to the holder, so that the aerosol generation base does not easily shake relative to the housing to thereby enhance stability when users operate the aerosol generation device. The holder is disposed inside the resonance chamber, so as to reduce an overall length of the housing, to help realize miniaturization of the aerosol generation device, easing carrying

and stowing of the aerosol generation device by users.

[0039] The aerosol generation base is generally of a cylindrical structure, and the mounting compartment can be arranged as a cylindrical compartment. A radial dimension of the aerosol generation base is made equal to or smaller than a radial dimension of the mounting compartment. The aerosol assembly can be tightly inserted into the mounting compartment to make the aerosol generation base not readily detach from the holder, ensuring the security of mounting of the aerosol assembly.

[0040] By mounting the aerosol generation base with the arrangement of the holder, the users only need to cleanse the holder after uses of the aerosol generation base, so as to help reduce the working load of cleansing the housing.

[0041] The aerosol base material section has a height that is smaller than or equal to a height of the holder, wherein the height of the aerosol base material section is 3 millimeters to 25 millimeters, and the aerosol base material section has a diameter that is greater than a diameter of the resonance pillar, wherein the diameter of the aerosol base material section is 3 millimeters to 20 millimeters.

[0042] The mounting compartment is provided with a raised structure on a bottom wall, of which the purpose is to keep a gas flow smooth during vaping and reduce vaping resistance.

[0043] The holder and the resonance chamber are arranged coaxially, so that the resonance pillar is set at a center position of the resonance chamber to improve the effect of transmitting the microwave by the resonance pillar.

[0044] The holder, except the opening formed in an upper end thereof for receiving the insertion of the aerosol generation base therein, is closed and has no hole in the remaining portion thereof.

[0045] To prevent the microwave from acting on the holder, the material of the holder must be a low dielectric loss material, such as polyether ether ketone, poly tetra fluoroethylene, microwave transparency ceramics, glass, aluminum oxide, zirconium oxide, or silicon oxide.

[0046] In a feasible arrangement, the mounting compartment has a height that is greater than the length of the aerosol base material section.

[0047] In the arrangement, a relationship between the height of the mounting compartment and the length of the aerosol base material section is set, and since the holder is located inside the resonance chamber, in the case that the height of the mounting compartment is greater than the length of the aerosol base material section, the entirety of the aerosol base material section is located inside the resonance chamber, so that the aerosol base material is also entirely located inside the resonance chamber, and when the microwave is applied to heat the aerosol base material, the heat generated by the aerosol base material does not easily dissipate away thereby helping increase the rate of temperature rising

for the aerosol base material to facilitate realizing the function of instantaneous inhaling and instantaneous vaping. The rate with which the aerosol base material generates aerosol is relatively fast, helping improve users' experience of uses of the aerosol generation device.

[0048] In a feasible arrangement, the length of the resonance pillar inserted into the insertion section is L , and the length of the aerosol base material section is H , L and H satisfying $L \leq 1/3H$.

[0049] In the arrangement, the maximum length of the resonance pillar that is allowed to be inserted into the insertion section is set. Specifically, the length of insertion of the resonance pillar is constrained according to the constraining member, or the length of the resonance pillar that is inserted can be limited by means of the raised section. If the insertion length of the resonance pillar is excessively large, there will be a situation that a great portion of the microwave transmitting through the end of the resonance pillar does not act on the aerosol base material. To ensure that the resonance pillar can uniformly heat every portion of the aerosol base material, the length of the aerosol into the insertion section is limited to be smaller than or equal to one third of the thickness of the aerosol so as to ensure the effect of heating to the aerosol base material and enhance the utilization efficiency of the aerosol base material.

[0050] In a feasible arrangement, the microwave assembly comprises: a microwave lead-in section, which is arranged on a sidewall of the housing; a microwave emission source, which is connected to the microwave lead-in section, a microwave outputted from the microwave emission source fed through the microwave lead-in section into the resonance chamber, in order to have the microwave transmitted in a direction from the first end of the resonance pillar toward the second end of the resonance pillar.

[0051] In the arrangement, the microwave emission source is operable to generate a microwave, and the microwave is transmitted through the microwave lead-in section into the interior of the resonance chamber. By means of the arrangement of the microwave lead-in section, the entry location of the microwaves into the resonance chamber can be varied, so as to avoid components inside the resonance chamber and also to ensure the microwave stably transmitting from the first end of the resonance pillar toward the second end of the resonance pillar.

[0052] In a feasible arrangement, the microwave lead-in section comprises: a first lead-in part, which is arranged on the sidewall of the housing; and a second lead-in part, a first end of the second lead-in part being connected to the first lead-in part, the second lead-in part located inside the resonance chamber, a second end of the second lead-in part facing the chamber bottom wall of the resonance chamber.

[0053] In the arrangement, the microwave lead-in section is made up of two portions, namely the first lead-in part and the second lead-in part. The first lead-in part is

arranged on the sidewall of the housing, and the first lead-in part is connected to the microwave emission source, so that the microwave generated by the microwave emission source is fed through the first lead-in part into the resonance chamber. The second lead-in part is configured to change the direction of transmission of the microwave. Since the second lead-in part faces toward the bottom wall of the resonance chamber, the microwave is transmitted toward the bottom wall of the resonance chamber, and the microwave at the bottom wall of the resonance chamber is transmitted by means of the resonance pillar toward the aerosol base material. Arranging the second lead-in part to face toward the bottom wall of the resonance chamber ensures the microwave can be transmitted such that the transmission of the microwave in the resonance pillar starts from the first end thereof. When the microwave is transmitted through the first lead-in part and the second lead-in part, the direction of transmission of the microwave is changed. This arrangement allows a major portion of the microwave transmitted through the microwave lead-in section to be fed into the resonance chamber, enhancing the rate of feeding of the microwave, allowing the microwave to be efficiently acting on the aerosol base material.

[0054] In a feasible arrangement, the aerosol generation device further comprises: a recessed section, which is arranged in the chamber bottom wall of the resonance chamber, and the second end of the second lead-in part is located in the recessed section.

[0055] In the arrangement, the second end of the second lead-in part is located in the recessed section, and the recessed section provides an effect of protecting the end of the second lead-in part to prevent the end of the second lead-in part from contacting with other components and thus enhancing the structural stability of the aerosol generation device.

[0056] In a feasible arrangement, the microwave lead-in section comprises: a first lead-in part, which is arranged on the sidewall of the housing; a second lead-in part, a first end of the second lead-in part being connected to the first lead-in part, the second lead-in part located inside the resonance chamber, a second end of the second lead-in part facing the resonance pillar.

[0057] In the arrangement, the microwave lead-in section is made up of two portions, namely the first lead-in part and the second lead-in part. The first lead-in part is arranged on the sidewall of the housing, and the first lead-in part is connected to the microwave emission source, so that the microwave generated by the microwave emission source is fed through the first lead-in part into the resonance chamber. The second lead-in part faces toward the resonance pillar, meaning the second lead-in part is parallel with the bottom wall of the resonance chamber. This arrangement allows a major portion of the microwave transmitted through the microwave lead-in section to be fed into the resonance chamber, enhancing the rate of feeding of the microwave, allowing the microwave to be efficiently acting on the aerosol base material.

[0058] Additional aspects and advantages of the application will become obvious from the following description section or can be appreciated through implementation of the application.

BRIEF DESCRIPTION OF THE DRAWINGS

[0059] The above and/or additional aspects and advantages of the application will become clearer and readily understandable from the following description of embodiments, with reference to the attached drawings, in which:

FIG. 1 illustrates a first one of schematic structure diagrams showing an aerosol generation system according to embodiments of the application;

FIG. 2 illustrates a second one of schematic structure diagrams showing the aerosol generation systems according to the embodiments of the application;

FIG. 3 illustrates a third one of schematic structure diagrams showing the aerosol generation systems according to the embodiments of the application;

FIG. 4 illustrates a fourth one of schematic structure diagrams showing the aerosol generation systems according to the embodiments of the application;

FIG. 5 illustrates a fifth one of schematic structure diagrams showing the aerosol generation systems according to the embodiments of the application; and

FIG. 6 illustrates a schematic diagram showing a relationship between frequency and return loss of the embodiments of the application; wherein a corresponding relationship between the reference signs adopted in FIGS. 1-5 and the parts is as follows:

100 housing; 110 resonance chamber; 200 microwave assembly; 210 microwave lead section; 211 first lead-in part; 212 second lead-in part; 220 microwave emission source; 300 aerosol generation base; 310 aerosol base material section; 311 aerosol base material; 312 isolation section; 320 hollow segment; 330 temperature dropping segment; 340 filter segment; 350 constraining member; 360 insertion section; 400 resonance pillar; 500 holder; 510 raised section.

DETAILED DESCRIPTION OF EMBODIMENTS

[0060] 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.

[0061] 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.

[0062] In the following, reference is made to FIGS. 1-6 for describing an aerosol generation base, and an aerosol generation device and system provided according to some embodiments of the application.

[0063] Referring jointly to FIGS. 1 and 2, in some embodiments of the application, an aerosol generation base 300 is provided, comprising: an aerosol base material section 310. The aerosol base material section 310 is provided therein with an aerosol base material 311. The aerosol base material section 310 is provided with an insertion section 360, and the insertion section 360 is configured for receiving a resonance pillar 400 of an aerosol generation device to insert thereinto and spaced from the resonance pillar 400.

[0064] The aerosol base material section 310 is provided therein with the aerosol base material 311, and when a microwave acts on the aerosol base material 311, the aerosol base material 311 is heated as acted upon by the microwave, so that the aerosol base material 311 generates an aerosol. The aerosol base material section 310 is formed with the insertion section 360, and the resonance pillar 400 is inserted into the insertion section 360. Distances between the resonance pillar 400 and two ends of the aerosol base material section 310 are small, and a portion of the aerosol base material section 310 having a relatively large distance from the resonance pillar 400 does not easily occur, meaning the aerosol base material 311 in every portion of the aerosol base material section 310 can be uniformly heated by the microwave transmitted through the resonance pillar 400, helping enhance the utilization efficiency of the aerosol base material 311.

[0065] The resonance pillar 400 and the aerosol base material section 310 are arranged to space from each other to prevent contact between the resonance pillar 400 and the aerosol base material 311, so as to avoid contamination of the resonance pillar 400 and reduce the working load of cleansing the resonance pillar 400.

[0066] The resonance pillar 400 is a hollow or solid structure having an external wall that is electrically conductive. To realize such a purpose, the resonance pillar 400 can be made of a metallic material or other materials having excellent electrical conductivity; and it is also feasible to coat a metal film, such as gold coating, silver coating, or copper coating, on an external surface of a nonmetallic material. The resonance pillar 400 is connected to a bottom of a resonance chamber 110 and is in electrical conduction therewith.

[0067] The resonance chamber 110 has an internal wall that is electrically conductive, and to realize such a

purpose, the chamber can be made of an electrically conductive material, preferably metals, and it is also feasible to provide an electrically conductive coating, such as gold coating, silver coating, or copper coating, on the interior of the resonance chamber 110.

[0068] In the instant embodiment, the aerosol generation base 300 further comprises: a hollow segment 320, a temperature dropping segment 330, and a filter segment 340. The aerosol base material section 310 is arranged at an end portion, and the aerosol base material section 310 is connected to the hollow segment 320. The hollow segment 320 is configured for buffering the aerosol, so that the aerosol can flow smoothly and moderately. The hollow segment 320 is also connected to the temperature dropping segment 330. The temperature dropping segment 330 is configured to drop a temperature of the aerosol, so as to enhance the comfortability of a user. The filter segment 340 is connected to the temperature dropping segment 330. The filter segment 340 is configured for filtering the aerosol. The aerosol generation base 300 is further provided with an enclosure which is configured to enclose and house the aerosol base material section 310, the hollow segment, the temperature dropping segment 330, and the filter segment 340. The enclosure can be one of a rigid paper tube, a polylactic acid material tube, a protein material tube, a vegetable gum material tube, and a cellulose derivate material tube that demonstrates a function of supporting.

[0069] In the instant embodiment, the aerosol base material 311 uses tobacco or herbs as a raw material and is made into a base material of following various forms: pellet, flake, powder and chip, filament, paste, cake, porous aerogel, capsule and so on.

[0070] The temperature dropping segment 330 has a material that is selected as one of polylactic acid/aluminum foil composite film, paper filter bar, polylactic acid nonwoven fabric, polylactic acid particle, polylactic acid filament bundle braided tube, sawtooth-like polylactic acid folded film, temperature-reducing active carbon composite material.

[0071] The filter segment 340 is one of polylactic acid filament bundle and cellulose acetate filament bundle.

[0072] Referring jointly to FIGS. 1 and 2, in a feasible embodiment, the aerosol base material section 310 further comprises a isolation section 312, and the aerosol base material 311 is located inside the isolation section 312. The isolation section 312 functions to isolate the aerosol base material 311 and the resonance pillar 400 from each other.

[0073] In the embodiment, the aerosol base material section 310 comprises the aerosol base material 311 and the isolation section 312, wherein the aerosol base material 311 is located inside the isolation section 312, and the isolation section 312 encloses the aerosol base material 311 to prevent the aerosol base material 311 from contacting the resonance pillar 400. Further, the aerosol base material 311, when heated, shows a relatively high temperature, and arranging the aerosol base material

311 to be isolated from the resonance pillar 400 helps prevent adhering and attaching of the aerosol base material 311 to the resonance pillar 400, and the working load of cleansing the resonance pillar 400 is reduced.

[0074] Certainly, to prevent adhering and attaching between the isolation section 312 and the resonance pillar 400, the isolation section 312 is necessarily made of a material that is not easy to react with the microwave, and, the isolation section 312 is necessarily arranged to show an effect of supporting. Thus, the isolation section 312 can be made of at least one of high permeability rigid paper sheet, white kraft paper, poly tetra fluoroethylene film, porous ceramic plate, synthetic resin, chemical fiber product, polylactic acid film, aluminum foil sheet, and nonwoven fabric.

[0075] Referring jointly to FIGS. 1 and 2, in a feasible embodiment, the insertion section 360 extends completely through the aerosol base material section 310.

[0076] In the embodiment, the insertion section 360 is set to completely penetrate through the aerosol base material section 310, and since the resonance pillar 400 needs to be inserted into the aerosol base material section 310, directly forming a penetration section in the aerosol base material section 310 could enhance easiness of machining of the insertion section 360. Further, since the resonance pillar 400 may penetrate through the aerosol base material section 310, adjusting a size of the resonance pillar 400 located inside the insertion section 360 can be easily achieved. The size of the resonance pillar 400 that is inserted into the insertion section 360 can be varied according to the thickness of the aerosol base material section 310, so as to allow the aerosol base material 311 in the aerosol base material section 310 to be uniformly heated to improve the effect of heating to the aerosol base material 311 and also to enhance the utilization efficiency of the aerosol base material 311.

[0077] In a feasible embodiment, the aerosol base material section 310 further comprises a constraining member 350. The constraining member 350 is arranged in the insertion section 360 to abut the end of the resonance pillar 400.

[0078] In the embodiment, the receptacle section is provided internally with the constraining member 350, and the constraining member 350 functions to constrain and position the resonance pillar 400. Specifically, the constraining member 350 constrains a maximum size of the resonance pillar 400 that is insertable into the insertion section 360. Although insertion of the resonance pillar 400 into the insertion section 360 could help improve the effect of heating to the aerosol base material 311, yet the effect of heating is not bettered with the greater length of insertion, and instead, it is necessary to have the microwave transmitting through the end of the resonance pillar 400 uniformly acting on the aerosol base material 311 in each portion of the interior of the aerosol base material section 310. In case that the resonance pillar 400 is extended to penetrate through the insertion section 360, there will be a situation that a great portion of the

microwave transmitting through the end of the resonance pillar 400 does not act on the aerosol base material 311, resulting in wastage of microwave. If the end of the resonance pillar 400 perforates through the insertion section 360, then there will be a situation that one side of the aerosol base material section 310 that faces the resonance chamber 110 is spaced by a relatively large distance from the end of the resonance pillar 400, and the heating effect that the end of the resonance pillar 400 applied toward the side of the aerosol base material section 310 that faces the resonance chamber 110 will be lowered. To ensure that the resonance pillar 400 can uniformly heat each portion of the aerosol base material 311, the constraining member 350 constrains the maximum length that the resonance pillar 400 is allowed to insert into the insertion section 360, so as to guarantee the effect of heating to the aerosol base material 311 and enhance the utilization efficiency of the aerosol base material 311.

[0079] In a feasible embodiment, the constraining member 350 comprises at least two parts, and the at least two parts of the constraining member 350 are arranged at intervals in a circumferential direction of the insertion section 360; or alternatively, the constraining member 350 is of an annular structure.

[0080] In the embodiment, the structure of the constraining member 350 is set, and the constraining member 350 comprises at least two parts, and the at least two parts of the constraining member 350 are arranged at intervals in the circumferential direction of the insertion section 360. The at least two parts of the constraining member 350 can constrain and position the end of the resonance pillar 400. Since the at least two parts of the constraining member 350 are arranged at intervals, the end of the resonance pillar 400 can be uniformly acted upon by resisting forces, so as to prevent situations of angular deviation of the resonance pillar 400 with respect to the aerosol generation base 300, reducing damage rate of the aerosol generation base 300 and the resonance pillar 400, and thus enhancing users' experience of using the aerosol generation device.

[0081] Certainly, the constraining member 350 can possibly be made in an annular structure. The constraining member 350 of an annular structure can also stably constrain and position the end of the resonance pillar 400, to prevent angular deviation of the resonance pillar 400 with respect to the aerosol generation device.

[0082] In some embodiments of the application, an aerosol generation device is provided, comprising: a housing 100, the housing 100 formed with a resonance chamber 110; a microwave assembly 200 arranged in the housing 100, the microwave assembly 200 operable to feed microwaves into the resonance chamber 110; a resonance pillar 400, a first end of the resonance pillar 400 being connected to the chamber bottom wall of the resonance chamber 110, a second end of the resonance pillar 400 facing an opening of the resonance chamber 110, the resonance pillar 400 being insertable into the aerosol

generation base 300, such that when the resonance pillar 400 is inserted into the aerosol generation base 300, the resonance pillar 400 and the aerosol generation base 300 are spaced from each other.

[0083] The microwave assembly 200 is operable to generate a microwave, and the housing 100 is formed with the resonance chamber 110, and the microwave assembly is capable of feeding the microwaves into the resonance chamber 110. The resonance pillar 400 is disposed inside the resonance chamber 110, and the resonance pillar 400 has a diameter that is smaller than a diameter of the resonance chamber 110, so that a gap is present between an external wall of the resonance pillar 400 and an internal wall of the resonance chamber 110, and the microwave is transmittable in the gap. The resonance pillar 400 can be made as a conducting body, and the resonance pillar 400 can be made of a metallic material, and illustratively, the resonance pillar 400 is made of copper, aluminum, iron, or an alloy thereof. The resonance pillar 400 is configured to transmit the microwave and to enhance a transmission speed of the microwave, and the microwave does not easily deteriorate when transmitting in the resonance chamber 110, thereby enhancing the effect of the microwave acting on the aerosol generation base 300, making the microwave acting on the aerosol generation base 300 with a high efficiency and a fast speed to facilitate satisfaction of users' needs of use. The aerosol generation base 300 comprises the aerosol base material section 310, and the aerosol base material 311 is disposed in the aerosol base material section 310. When the microwave acts on the aerosol base material 311, the aerosol base material 311 is heated under the action of the microwave, so as to have the aerosol base material 311 generating an aerosol. The resonance pillar 400 is inserted into the aerosol base material section 310, and the distances between the resonance pillar 400 and the two ends of the aerosol base material section 310 are made relatively small, so that a portion of the aerosol base material section 310 having a relatively large distance from the resonance pillar 400 does not easily occur, meaning the aerosol base material 311 in every portion of the interior of the aerosol base material section 310 can be uniformly heated by the microwave transmitted through the resonance pillar 400, and the utilization efficiency of the aerosol base material 311 can be advantageously enhanced.

[0084] The resonance pillar 400 and the aerosol base material section 310 are arranged to isolate from each other so as to prevent contact between the resonance pillar 400 and the aerosol base material 311, thereby avoiding occurrence of contamination on the resonance pillar 400 and the working load of cleansing the resonance pillar 400 is reduced.

[0085] Referring jointly to FIGS. 1 and 2, in a feasible embodiment, an internal wall of the resonance chamber 110 at the opening is in contact with the aerosol generation base 300.

[0086] In the embodiment, the resonance chamber

110 is provided with the opening, and the aerosol generation base 300 is inserted, from the opening of the resonance chamber 110, into the interior of the resonance chamber 110, and the internal wall of the resonance chamber 110 at the opening is in contact with the aerosol generation base 300, so that the internal wall at the opening constrains and positions the aerosol generation base 300. Specifically, the opening of the resonator constrains and positions the aerosol generation base 300, and when the resonance pillar 400 is inserted into the insertion section 360, the resonance pillar 400 also constrains and positions the aerosol generation base 300, namely the internal wall at the opening and the resonance pillar 400 together provide two-point constraining and positioning to the aerosol generation base 300, allowing the aerosol generation base 300 to be securely mounted in the housing 100, preventing shaking of the aerosol generation base 300 in the resonance chamber 110 and enhancing stability when users operate the aerosol generation device.

[0087] Referring jointly to FIGS. 3 and 4, in a feasible embodiment, the aerosol generation device further comprises: a holder 500. The holder 500 is arranged in the housing 100, and the holder 500 is located inside the resonance chamber 110. The holder 500 comprises a mounting compartment, and the mounting compartment is configured to receive a portion of the aerosol generation base 300 to insert thereinto.

[0088] In the embodiment, the housing 100 is provided with the holder 500, and the holder 500 is formed with the mounting compartment, a portion of the aerosol generation base 300 to insert into the mounting compartment to mount the aerosol generation base 300 to the holder 500, so that the aerosol generation base 300 does not easily shake relative to the housing 100 to thereby enhance stability when users operate the aerosol generation device. The holder 500 is disposed inside the resonance chamber 110, so as to reduce an overall length of the housing 100, to help realize miniaturization of the aerosol generation device, easing carrying and stowing of the aerosol generation device by users.

[0089] The aerosol generation base 300 is generally of a cylindrical structure, and the mounting compartment can be arranged as a cylindrical compartment. A radial dimension of the aerosol generation base 300 is made equal to or smaller than a radial dimension of the mounting compartment. The aerosol assembly can be tightly inserted into the mounting compartment to make the aerosol generation base 300 not readily detach from the holder 500, ensuring the security of mounting of the aerosol assembly.

[0090] By mounting the aerosol generation base 300 with the arrangement of the holder 500, the users only need to cleanse the holder 500 after uses of the aerosol generation base 300, so as to help reduce the working load of cleansing the housing 100.

[0091] The aerosol base material section 310 has a height that is smaller than or equal to a height of the

holder 500, wherein the height of the aerosol base material section 310 is 3 millimeters to 25 millimeters, and the aerosol base material section 310 has a diameter that is greater than a diameter of the resonance pillar 400, wherein the diameter of the aerosol base material section 310 is 3 millimeters to 20 millimeters.

[0092] The mounting compartment is provided with a raised structure on a bottom wall, of which the purpose is to keep a gas flow smooth during vaping and reduce vaping resistance.

[0093] The holder 500 and the resonance chamber 110 are arranged coaxially, so that the resonance pillar 400 is set at a center position of the resonance chamber 110 to improve the effect of transmitting the microwave by the resonance pillar 400.

[0094] The holder 500, except for the opening formed in an upper end thereof for insertion of the aerosol generation base 300 therein, is closed and has no hole in the remaining portion thereof.

[0095] To prevent the microwave from acting on the holder 500, the material of the holder 500 must be a low dielectric loss material, such as polyether ether ketone, poly tetra fluoroethylene, microwave transparency ceramics, glass, aluminum oxide, zirconium oxide, or silicon oxide.

[0096] Referring jointly to FIGS. 3 and 4, in a feasible embodiment, the aerosol generation device further comprises: a raised section 510. The raised section 510 is arranged on a bottom wall of the mounting compartment and extends into the interior of the insertion section 360. The raised section 510 is provided with a receptacle section, and the second end of the resonance pillar 400 is inserted into the receptacle section.

[0097] In the embodiment, the raised section 510 is set to be arranged on the bottom wall of the mounting compartment, and the raised section 510 projects, in a direction away from the resonance pillar 400, out of the bottom wall of the mounting compartment, and the raised section 510 is provided with the receptacle section, and the second end of the resonance pillar 400 can be inserted into the receptacle section, and further, the raised section 510 is also extended into the insertion section 360, so that the raised section 510 is present between the insertion section 360 and the resonance pillar 400, and the raised section 510 isolates the insertion section 360 from the resonance pillar 400, and the resonance pillar 400 is not in contact with the aerosol generation base 300 to prevent occurrence of damage to the resonance pillar 400, enhancing structural stability of the aerosol generation device. Further, arranging the holder 500 to provide protection to the resonance pillar 400 allows contaminants to only enter the holder 500 and be prevented from entering the resonance chamber 110, to thereby better prevent the resonance pillar 400 from contaminated and reducing the working load of users for cleansing.

[0098] In a feasible embodiment, the holder 500 is detachably connected to the housing 100.

[0099] In the embodiment, a connection relationship

between the holder 500 and the housing 100 is set, so that the holder 500 is mountable to or detachable from the housing 100. After uses of the aerosol generation device, the holder 500 can be detached from the housing 100 for easing isolate cleansing of the holder 500, improving easiness of cleansing of the holder 500 by the users and thus enhancing users' convenience of use of the aerosol generation device.

[0100] Illustratively, mounting holes can be formed in the holder 500 and the housing 100, and fasteners, such as bolts, can be extended through the mounting holes to mount the holder 500 to the housing 100. It is also feasible to arrange a snap fastener assembly on the holder 500 and the housing 100, and the holder 500 can be fastened on the housing 100 by means of the snap fastener assembly.

[0101] In some embodiments of the application, an aerosol generation system is provided, comprising: a housing 100, the housing 100 formed with a resonance chamber 110; a microwave assembly 200 mounted on the housing 100, the microwave assembly 200 being operable to feed microwaves into the resonance chamber 110; a resonance pillar 400, a first end of the resonance pillar 400 being connected to the chamber bottom wall of the resonance chamber 110, a second end of the resonance pillar 400 facing an opening of the resonance chamber 110; an aerosol generation base 300, comprising an aerosol base material section 310, the generation base 311 section 310 provided with an aerosol base material 311, the generation base 311 section 310 extended from an opening of the resonance chamber 110 into the interior of the resonance chamber 110, the generation base 311 section 310 provided with an insertion section, the second end of the resonance pillar 400 being insertable into the insertion section, the second end of the resonance pillar 400 and the aerosol base material 311 arranged to space from each other.

[0102] In the aerosol generation device provided in the application, the housing 100 is formed therein with the resonance chamber 110, and the microwave assembly 200 is arranged on the housing 100, and the microwave assembly 200 is operable to generate a microwave. The housing 100 is provided with the resonance chamber 110, and the microwave assembly 200 is operable to feed the microwaves into the resonance chamber 110. The resonance pillar 400 is disposed in the resonance chamber 110, and the resonance pillar 400 has a diameter that is smaller than a diameter of the resonance chamber 110, so that a gap is present between an external wall of the resonance pillar 400 and an internal wall of the resonance chamber 110, and the microwave is transmittable in the gap. The resonance pillar 400 can be made as a conducting body, and the resonance pillar 400 can be made of a metallic material, and illustratively, the resonance pillar 400 is made of copper, aluminum, iron, or an alloy thereof. The resonance pillar 400 is configured to transmit the microwave and to enhance a transmission speed of the microwave, and the microwave

does not easily deteriorate when transmitting in the resonance chamber 110, thereby enhancing the effect of the microwave acting on the aerosol generation base 300, making the microwave acting on the aerosol generation base 300 with a high efficiency and a fast speed to facilitate satisfaction of users' needs of use. The aerosol generation base 300 comprises the generation base 311 section 310, and the aerosol base material 311 is disposed in the generation base 311 section 310. When the microwave acts on the aerosol base material 311, the aerosol base material 311 is heated under the action of the microwave, so as to have the aerosol base material 311 generating an aerosol. The generation base 311 section 310 is provided therein with the insertion section, and the resonance pillar 400 is insertable into the insertion section, and the distances between the resonance pillar 400 and the two ends of the generation base 311 section 310 are made relatively small, so that a portion of the generation base 311 section 310 having a relatively large distance from the resonance pillar 400 does not easily occur, meaning the aerosol base material 311 in every portion of the interior of the generation base 311 section 310 can be uniformly heated by the microwave transmitted through the resonance pillar 400, and the utilization efficiency of the aerosol base material 311 can be advantageously enhanced.

[0103] The resonance pillar 400 and the generation base 311 section 310 are arranged to isolate from each other so as to prevent contact between the resonance pillar 400 and the aerosol base material 311, thereby avoiding occurrence of contamination on the resonance pillar 400 and the working load of cleansing the resonance pillar 400 is reduced.

[0104] In a feasible embodiment, the aerosol generation system further comprises: a holder, which is arranged in the housing 100, and the holder is located inside the resonance chamber 110. The holder comprises a mounting compartment, and the mounting compartment is configured to receive a portion of the aerosol generation base 300 to insert thereinto.

[0105] The housing 100 is provided with the holder 500, and the holder 500 is formed with the mounting compartment to allow a portion of the aerosol generation base 300 to insert into the mounting compartment to mount the aerosol generation base 300 to the holder 500, so that the aerosol generation base 300 does not easily shake relative to the housing 100 to thereby enhance stability when users operate the aerosol generation device. The holder 500 is disposed inside the resonance chamber 110, so as to reduce an overall length of the housing 100, to help realize miniaturization of the aerosol generation device, easing carrying and stowing of the aerosol generation device by users.

[0106] The aerosol generation base 300 is generally of a cylindrical structure, and the mounting compartment can be arranged as a cylindrical compartment. A radial dimension of the aerosol generation base 300 is made equal to or smaller than a radial dimension of the mount-

ing compartment. The aerosol assembly can be tightly inserted into the mounting compartment to make the aerosol generation base 300 not readily detach from the holder 500, ensuring the security of mounting of the aerosol assembly.

[0107] By mounting the aerosol generation base 300 with the arrangement of the holder 500, the users only need to cleanse the holder 500 after uses of the aerosol generation base 300, so as to help reduce the working load of cleansing the housing 100.

[0108] The aerosol base material section 310 has a height that is smaller than or equal to a height of the holder 500, wherein the height of the aerosol base material section 310 is 3 millimeters to 25 millimeters, and the aerosol base material section 310 has a diameter that is greater than a diameter of the resonance pillar 400, wherein the diameter of the aerosol base material section 310 is 3 millimeters to 20 millimeters.

[0109] The mounting compartment is provided with a raised structure on a bottom wall, of which the purpose is to keep a gas flow smooth during vaping and reduce vaping resistance.

[0110] The holder 500 and the resonance chamber 110 are arranged coaxially, so that the resonance pillar 400 is set at a center position of the resonance chamber 110 to improve the effect of transmitting the microwave by the resonance pillar 400.

[0111] The holder 500, except the opening formed in an upper end thereof for receiving the insertion of the aerosol generation base 300 therein, is closed and has no hole in the remaining portion thereof.

[0112] In a feasible embodiment, the mounting compartment has a height that is greater than the length of the aerosol base material section 310.

[0113] In the embodiment, a relationship between the height of the mounting compartment and the length of the aerosol base material section 310 is set, and since the holder 500 is located inside the resonance chamber 110, in the case that the height of the mounting compartment is greater than the length of the aerosol base material section 310, the entirety of the aerosol base material section 310 is located inside the resonance chamber 110, so that the aerosol base material 311 is also entirely located inside the resonance chamber 110, and when the microwave is applied to heat the aerosol base material 311, the heat generated by the aerosol base material 311 does not easily dissipate away thereby helping increase the rate of temperature rising for the aerosol base material 311 to facilitate realizing the function of instantaneous inhaling and instantaneous vaping. The rate with which the aerosol base material 311 generates aerosol is relatively fast, helping improve users' experience of uses of the aerosol generation device.

[0114] In a feasible embodiment, a length L of the resonance pillar 400 that is inserted into the insertion section 360 and a length H of the aerosol base material section 310 satisfy $L \leq 1/3H$.

[0115] In the embodiment, the maximum length of the

resonance pillar 400 that is allowed to be inserted into the insertion section 360 is set. Specifically, the length of insertion of the resonance pillar 400 is constrained according to the constraining member 350, or the length of the resonance pillar 400 that is inserted can be limited by means of the raised section 510. If the insertion length of the resonance pillar 400 is excessively large, there will be a situation that a great portion of the microwave transmitting through the end of the resonance pillar 400 does not act on the aerosol base material 311. To ensure that the resonance pillar 400 can uniformly heat every portion of the aerosol base material 311, the length of the insertion section 360 is limited to be smaller than or equal to one third of the thickness of the aerosol base material 311 so as to ensure the effect of heating to the aerosol base material 311 and enhance the utilization efficiency of the aerosol base material 311.

[0116] As shown in FIG. 5, in a feasible embodiment, the microwave assembly 200 comprises: a microwave lead-in section 210 and a microwave emission source 220. The microwave lead-in section 210 is arranged on a sidewall of the housing 100; and the microwave emission source 220 and the microwave lead-in section 210 are connected. The microwave outputted from the microwave emission source 220 is fed through the microwave lead-in section 210 into the resonance chamber 110, in order to have the microwave transmitted in a direction from the first end of the resonance pillar 400 toward the second end of the resonance pillar 400.

[0117] In the embodiment, the microwave emission source 220 is operable to generate a microwave, and the microwave is transmitted through the microwave lead-in section 210 into the interior of the resonance chamber 110. By means of the arrangement of the microwave lead-in section 210, the entry location of the microwave into the resonance chamber 110 can be varied, so as to avoid components inside the resonance chamber 110 and also to ensure the microwave stably transmitting from the first end of the resonance pillar 400 toward the second end of the resonance pillar 400.

[0118] As shown in FIG. 6, return loss is affected by the frequency of the microwave. With the increase of the frequency of the microwave, the return loss is first reduced and the increased. For the frequency of the microwave close to 244GHz, the return loss is relatively small, and under this situation, the feeding of the microwave is of a better effect.

[0119] As shown in FIG. 5, in a feasible embodiment, the microwave lead-in section 210 comprises: a first lead-in part 211 and a second lead-in part 212. The first lead-in part 211 is arranged on the sidewall of the housing 100; and a first end of the second lead-in part 212 is connected to the first lead-in part 211, and the second lead-in part 212 is located inside the resonance chamber 110, and a second end of the second lead-in part 212 faces toward the chamber bottom wall of the resonance chamber 110.

[0120] In the embodiment, the microwave lead-in sec-

tion 210 is made up of two portions, namely the first lead-in part 211 and the second lead-in part 212. The first lead-in part 211 is arranged on the sidewall of the housing 100, and the first lead-in part 211 is connected to the microwave emission source 220, so that the microwave generated by the microwave emission source 220 is fed through the first lead-in part 211 into the resonance chamber 110. The second lead-in part 212 is configured to change the direction of transmission of the microwave. Since the second lead-in part 212 faces toward the bottom wall of the resonance chamber 110, the microwave is transmitted toward the bottom wall of the resonance chamber 110, and the microwave at the bottom wall of the resonance chamber 110 is transmitted by means of the resonance pillar 400 toward the aerosol base material 311. Arranging the second lead-in part 212 to face toward the bottom wall of the resonance chamber 110 ensures the microwave can be transmitted such that the transmission of the microwave in the resonance pillar 400 starts from the first end thereof. When the microwave is transmitted through the first lead-in part 211 and the second lead-in part 212, the direction of transmission of the microwave is changed. This arrangement allows a major portion of the microwave transmitted through the microwave lead-in section 210 to be fed into the resonance chamber 110, enhancing the rate of feeding of the microwave, allowing the microwave to be efficiently acting on the aerosol base material 311.

[0121] In a feasible embodiment, the aerosol generation device further comprises: a recessed section, which is arranged in the chamber bottom wall of the resonance chamber 110, and the second end of the second lead-in part 212 is located in the recessed section.

[0122] In the embodiment, the second end of the second lead-in part 212 is located in the recessed section, and the recessed section provides an effect of protecting the end of the second lead-in part 212 to prevent the end of the second lead-in part 212 from contacting with other components and thus enhancing the structural stability of the aerosol generation device.

[0123] As shown in FIG. 5, in a feasible embodiment, the microwave lead-in section 210 comprises: a first lead-in part 211 and a second lead-in part 212. The first lead-in part 211 is arranged on the sidewall of the housing 100; and a first end of the second lead-in part 212 is connected to the first lead-in part 211, and the second lead-in part 212 is located inside the resonance chamber 110, and a second end of the second lead-in part 212 faces toward the resonance pillar 400.

[0124] In the embodiment, the microwave lead-in section 210 is made up of two portions, namely the first lead-in part 211 and the second lead-in part 212. The first lead-in part 211 is arranged on the sidewall of the housing 100, and the first lead-in part 211 is connected to the microwave emission source 220, so that the microwave generated by the microwave emission source 220 is fed through the first lead-in part 211 into the resonance chamber 110. The second lead-in part 212 faces toward

the resonance pillar 400, meaning the second lead-in part 212 is parallel with the bottom wall of the resonance chamber 110. This arrangement allows a major portion of the microwave transmitted through the microwave lead-in section 210 to be fed into the resonance chamber 110, enhancing the rate of feeding of the microwave, allowing the microwave to be efficiently acting on the aerosol base material 311.

[0125] In the application, unless otherwise indicated, the term "multiple" means two or more than two. The terms "mounting", "interconnecting", "connecting", and "fixing" should be interpreted in the broadest sense. For example, "connecting" can be fixedly connected and can also be detachably connected, or integrally connected. "Interconnecting" can be directly interconnecting, and can also be interconnected by means of an intermediate medium. For those having ordinary skill in the art, the specific meanings of such terms as used in the application can be understood according to specific scenarios.

[0126] In the description of the disclosure, the terms "one embodiment", "some embodiments", and "specific embodiments" as used herein indicate a combination of specific characteristics, structures, materials, or features described in the embodiment or example is included in at least one embodiment or example of the application. In the disclosure, an illustrative reference to the above terms does not suggest applied to the same embodiment or example. Further, the description of the specific characteristics, structures, materials, or features can be combined, in any appropriate form, in any one or multiple embodiments or examples.

[0127] The description provided above illustrate only the preferred embodiments of the application and is not intended to limit the application. For artisans having ordinary skill, the application can be modified and varies in various ways. Thus, all modifications, equivalent substitutions, and improvements, which are made within the spirit and scope of the application should be construed falling within the scope of protection that the application pursues.

Claims

1. An aerosol generation base, comprising:
an aerosol base material section, an aerosol base material arranged in the interior of the aerosol base material section, the aerosol base material section provided with an insertion section, the insertion section configured to receive insertion of a resonance pillar of an aerosol generation device therein, and spaced from the resonance pillar.
2. The aerosol generation base according to claim 1, wherein the aerosol base material section further comprises:
an isolation section, the aerosol base material disposed in the isolation section, the isolation section

configured to isolate the aerosol base material and the resonance pillar from each other.

3. The aerosol generation base according to claim 2, wherein:
the insertion section perforates completely through the aerosol base material section.
4. The aerosol generation base according to claim 3, wherein the aerosol base material section further comprises:
a constraining member, arranged in the insertion section and configured to abut the end of the resonance pillar.
5. The aerosol generation base according to claim 4, wherein:
the constraining member comprises at least two parts, the at least two parts of the constraining member arranged at intervals in the circumferential direction of the insertion section; or the constraining member is of an annular structure.
6. An aerosol generation device, comprising:

a housing, the housing formed with a resonance chamber;
a microwave assembly, which is arranged in the housing, the microwave assembly configured to feed microwaves into the resonance chamber ;
and
a resonance pillar, a first end of the resonance pillar connected to the chamber bottom wall of the resonance chamber, a second end of the resonance pillar facing the opening of the resonance chamber, the resonance pillar configured to be inserted into an aerosol generation base, wherein when the resonance pillar is inserted into the aerosol generation base , the resonance pillar and the aerosol generation base are spaced from each other.

7. The aerosol generation device according to claim 6, wherein:
the internal wall of the resonance chamber at the opening is in contact with the aerosol generation base .
8. The aerosol generation device according to claim 6, further comprising:
a holder, which is arranged in the housing, the holder located in the resonance chamber, the holder formed with a mounting compartment, the mounting compartment configured to receive a portion of the aerosol generation base to insert thereinto.

9. The aerosol generation device according to claim 8, further comprising:
 a raised section, which is arranged on the bottom wall of the mounting compartment and is extended into an insertion section of the aerosol generation base, the raised section provided with a receptacle section, the second end of the resonance pillar inserted into the receptacle section. 5
10. The aerosol generation device according to claim 8, wherein:
 the holder is detachably connected to the housing. 10
11. An aerosol generation system, comprising: 15
 a housing, the housing formed with a resonance chamber;
 a microwave assembly, which is arranged in the housing, the microwave assembly configured to feed microwaves into the resonance chamber; 20
 a resonance pillar, a first end of the resonance pillar being connected to the chamber bottom wall of the resonance chamber, a second end of the resonance pillar facing the opening of the resonance chamber; and 25
 an aerosol generation base, which comprises an aerosol base material section, an aerosol base material arranged in the interior of the aerosol base material section, the aerosol base material section extending from the opening of the resonance chamber into the resonance chamber, the aerosol base material section provided with an insertion section, the second end of the resonance pillar inserted into the insertion section, the second end of the resonance pillar spaced from the aerosol base material. 30 35
12. The aerosol generation system according to claim 11, further comprising:
 a holder, which is arranged in the housing, the holder located in the resonance chamber, the holder formed with a mounting compartment, the mounting compartment configured to receive a portion of the aerosol generation base to insert therein. 40 45
13. The aerosol generation system according to claim 12, wherein:
 the mounting compartment has a height that is greater than the length of the aerosol base material section. 50
14. The aerosol generation system according to any one of claims 11-13, wherein
 the length of the resonance pillar inserted into the insertion section is L, and the length of the aerosol base material section is H, L and H satisfying $L \leq 1/3H$. 55

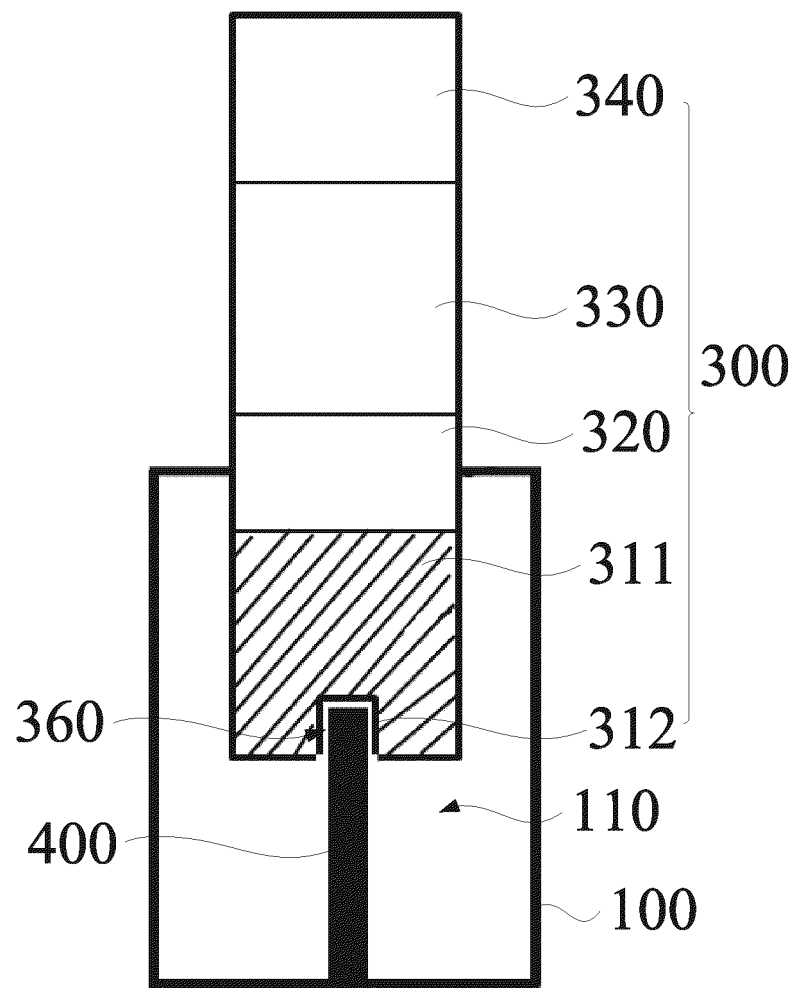


Fig. 1

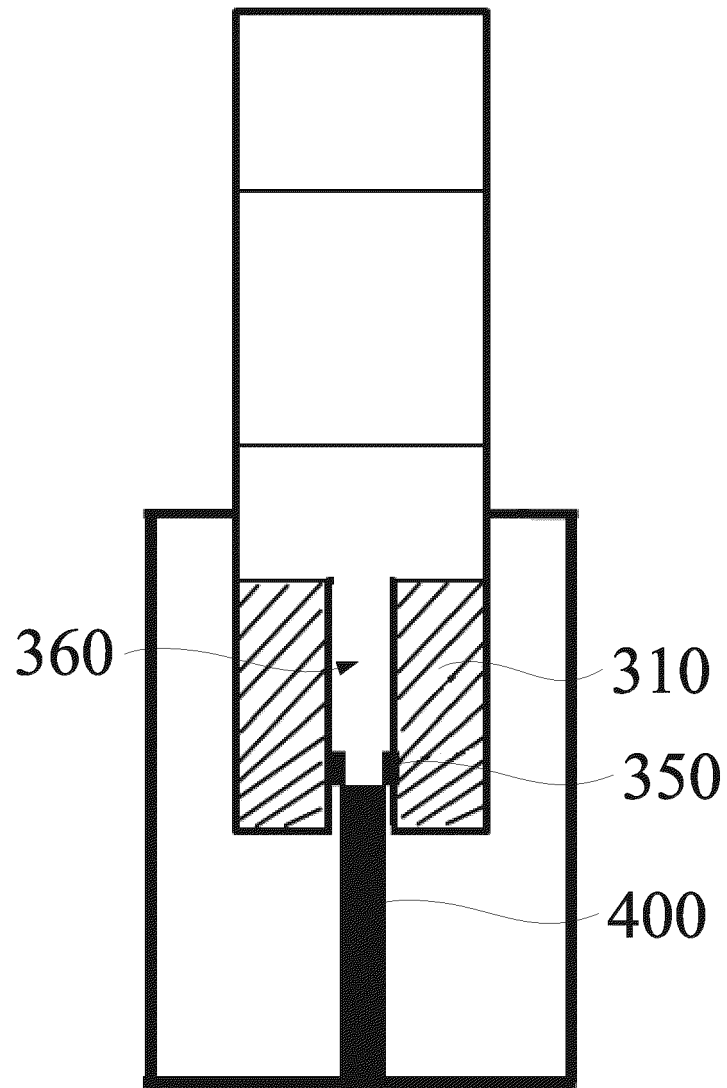


Fig. 2

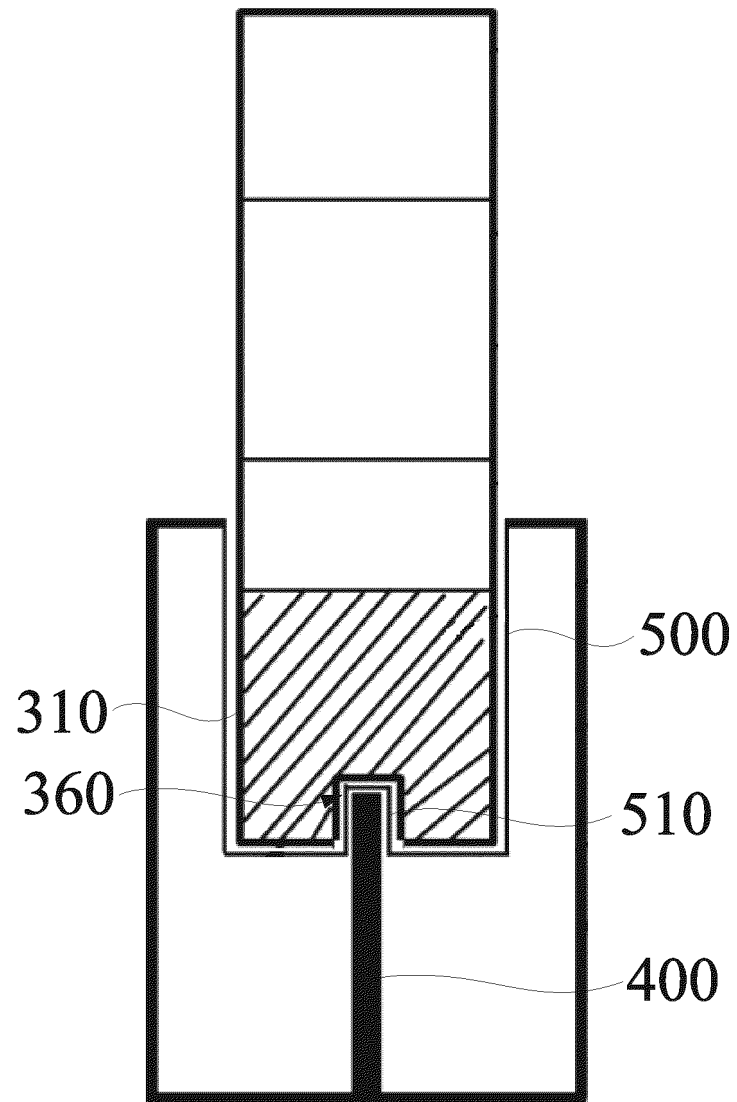


Fig. 3

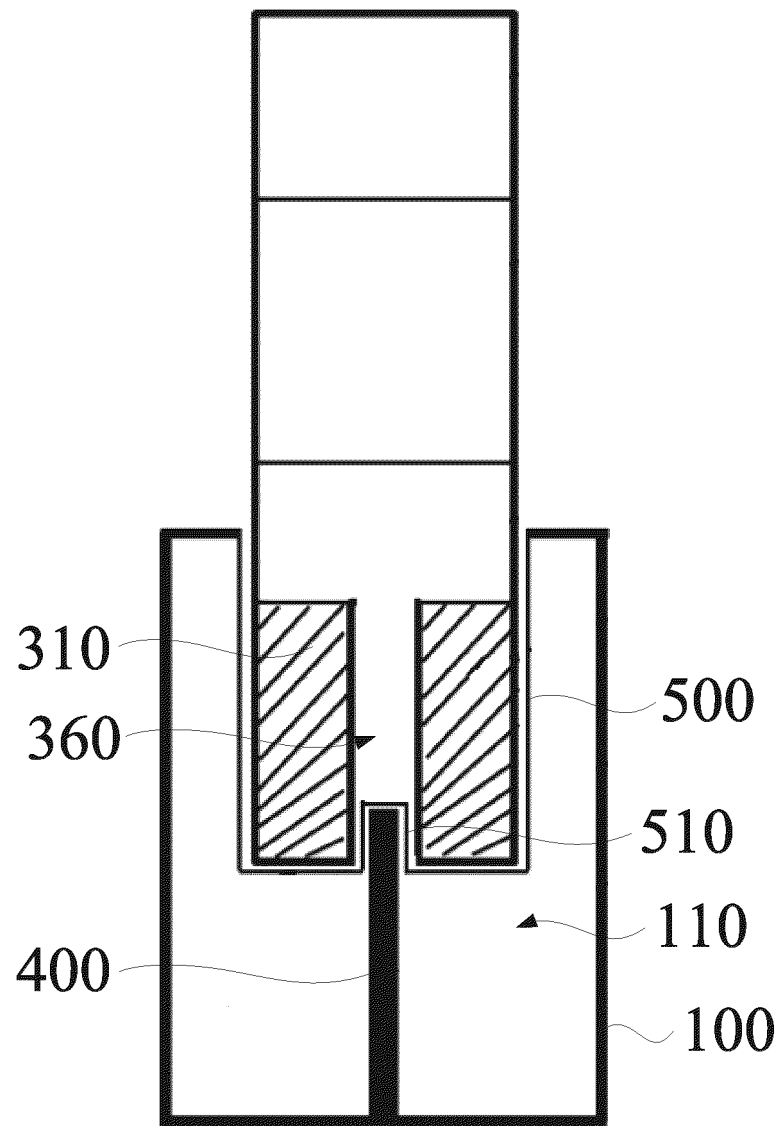


Fig.4

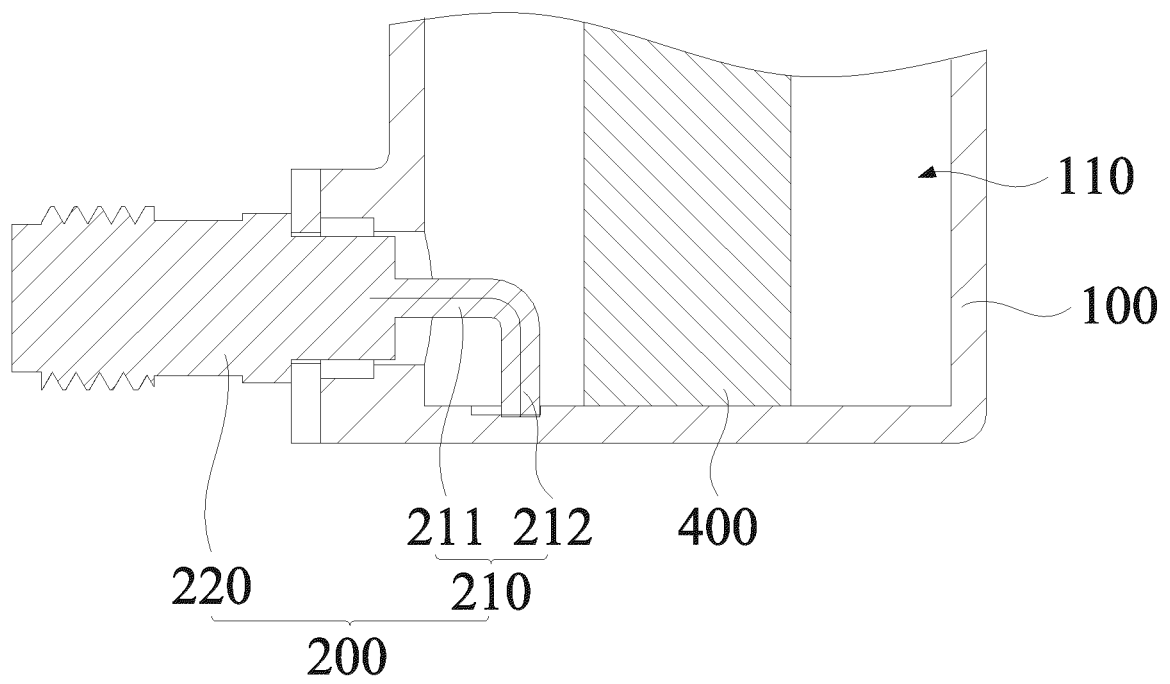


Fig.5

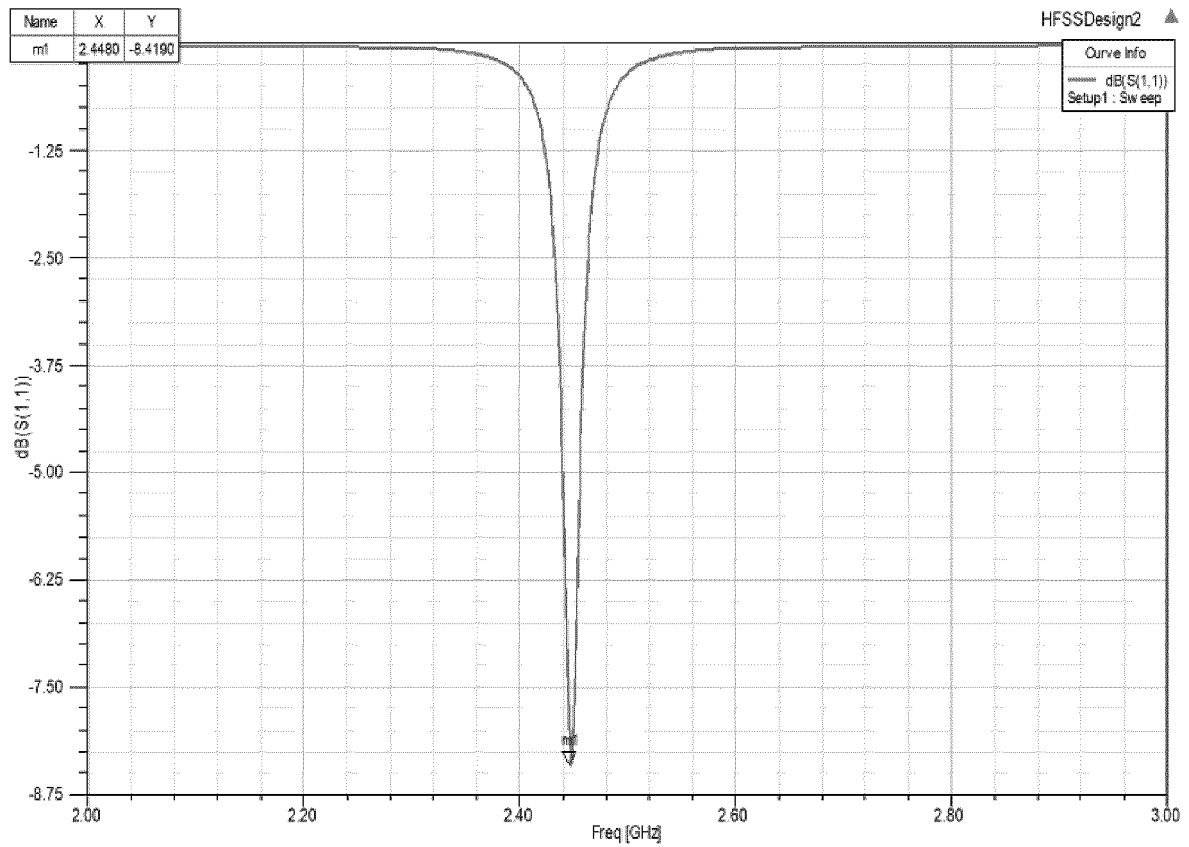


Fig. 6

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2021/120548

A. CLASSIFICATION OF SUBJECT MATTER

A24D 1/20(2020.01)i; A24F 40/46(2020.01)i; A24F 40/40(2020.01)i; A24F 40/20(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)

A24D, A24F, A61M

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)

WPABS; CNTXT; ENTXT; CNKI; ISI Web of Knowledge: 气, 雾, 烟, 热, 低温, 不燃, 不可燃, 非燃, 微波, 辐射, 射频, 谐振, 共振, 振动, 振荡, 谐波, 共震, 震动, 震荡, air, gas, flow+, outlet+, breath+, heat+, low?temperature, HNB, no+, non+, not+, +burn+, incombust+, microwave?, radiat+, radio+, frequen+, resona+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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Y	CN 110141002 A (YUNNAN TOBACCO BIOLOGICAL TECHNOLOGY CO., LTD. et al.) 20 August 2019 (2019-08-20) description, paragraphs 5 and 32-82, and figures 1-2	1-14
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☒ 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
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"&" document member of the same patent family
"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

21 June 2022

Date of mailing of the international search report

28 June 2022

Name and mailing address of the ISA/CN

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Telephone No.

INTERNATIONAL SEARCH REPORT

International application No.

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