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(54) AEROSOL GENERATION DEVICE

(57) The present invention relates to an aerosol generation device, comprising a housing and a base assembly and a heating member arranged in the housing. An accommodation space for accommodating an aerosol generation substrate is formed in the housing. An upper end of the heating member extends into the accommodation space. A lower end of the heating member is inserted into the base assembly. An airflow channel communicating with the accommodation space is formed in the base assembly. At least one air inlet hole communicating with the airflow channel is provided on the housing. External air enters the airflow channel by means of the air inlet hole to cool the base assembly, and then the pre-heated air enters the aerosol generation matrix, thereby improving atomization efficiency, and enabling uniform temperature distribution in the aerosol generation matrix.

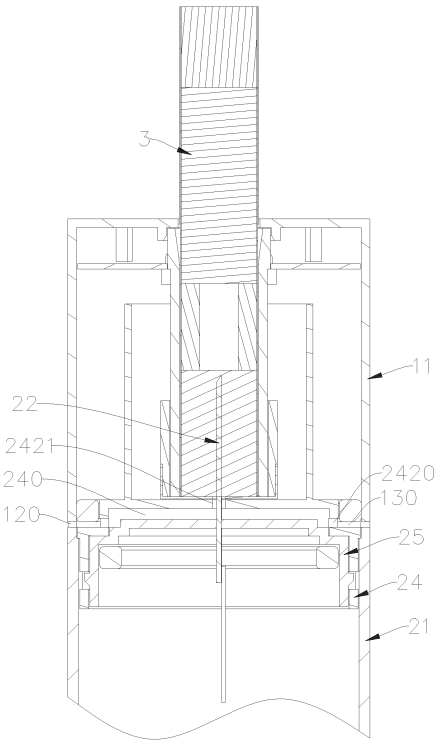

FIG.8

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Description

FIELD OF THE INVENTION

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

DESCRIPTION OF THE RELATED ART

[0002] A heat-not-burning device, also known as a low-temperature baking device, is a kind of aerosol generation device that applies a low temperature heating but not burning manner to heat up a smoke-forming material to form aerosol. Contemporarily, an aerosol generation device often applies a heater, such as a heating plate or a heating rod, to insert into the cigarette roll to heat the cigarette roll, and by controlling the heating temperature, the ingredients of the cigarette roll vaporize to generate smoke.

[0003] Usually, an aerosol generation device comprises a base for mounting a heater thereon. Due to the lower end of the heater being inserted into the base, heat generated by the heater can be easily transferred to the base to make the temperature of the base increased, which results in the base and the lower end of the heater being overheated.

SUMMARY OF THE INVENTION

[0004] The technical problem that the present invention is made to overcome is to provide an improved aerosol generation device.

[0005] The technical solution that the present invention adopts to overcome the technical problems is to provide an aerosol generation device which comprises a housing, and a seat assembly and a heater mounted in the housing. The housing forms in an interior thereof, with a receiving space for receiving an aerosol generation substrate therein. The heater comprises an upper end extended into the receiving space and a lower end inserted into the seat assembly. The seat assembly forms an air flow channel in communication with the receiving space, and the housing defines at least one air inlet hole in communication with the air flow channel.

[0006] In some embodiments, the housing comprises a first housing and a second housing arranged below the first housing in a longitudinal direction, the seat assembly fit in the top of the second housing.

[0007] In some embodiments, the at least one air inlet hole is defined at the joint between the first housing and the second housing; or the at least one air inlet hole is defined at the side wall or the bottom wall of the second housing.

[0008] In some embodiments, the at least one air inlet hole is formed by a portion of the bottom surface of the first housing recessed upwardly or by a portion of the top surface of the second housing recessed downwardly, the air flow channel surrounding the heater.

[0009] In some embodiments, the seat assembly comprises a seat and an internal seat fit inside the seat, the seat and the internal seat cooperatively defining the air flow channel.

[0010] In some embodiments, the at least one air inlet hole is defined in the second housing and located between the seat and the internal seat.

[0011] In some embodiments, the seat comprises a base fit into the second housing in the longitudinal direction, and a fitting section extending upward from the top wall of the base, the bottom end face of the fitting section and the top end face of the internal seat cooperatively defining the air flow channel therebetween.

[0012] In some embodiments, the sidewall of the fitting section defines at least one air flow hole in communication with at least one air inlet hole and the air flow channel.

[0013] In some embodiments, the aerosol generation device further comprises a first magnetic body embedded in the bottom of the first housing, the first magnetic body fit outside the fitting section, an air passage gap formed between the first magnetic body and the top end surface of the base and communicated with the at least one air inlet hole and the at least one air flow hole.

[0014] In some embodiments, positions of the at least one air inlet hole, the air passage gap and the at least one air flow hole are not higher than the bottom of the receiving space.

[0015] In some embodiments, the aerosol generation device further comprises a second magnetic body embedded in the internal seat, and the first magnetic body and the second magnetic body are close to and attract each other.

[0016] In some embodiments, the bottom of the receiving space abuts against the top wall of the fitting section, the fitting section defining a through hole through which the heater is insertable, the through hole communicated with the air flow channel and the receiving space.

[0017] In some embodiments, the bottom of the receiving space forms a bottom wall for supporting the aerosol generation substrate, the bottom wall defining an insertion opening for insertion of the heater.

[0018] In some embodiments, a shape of the insertion opening corresponds to a cross-sectional shape of the heater, and the heater is set in clearance fitting inside the insertion opening.

[0019] In some embodiments, the heater has a form of a plate or a bar, and a sharp guiding structure is provided on an end of the heater to facilitate insertion into the aerosol generation substrate.

[0020] In some embodiments, the aerosol generation device further comprises an extraction tube arranged in the first housing in a longitudinal direction, the inside wall of the extraction tube defining and delimiting the receiving space.

[0021] In some embodiments, the extraction tube is integrally extended downward from the top wall of the first housing, or the extraction tube and the first housing

are separately manufactured and then assembled together.

[0022] Implementing the present invention provides at least the following beneficial effects. External air enters the air flow channel after passing through the air inlet hole to cool down the seat assembly, and the preheated air then flows into the interior of the aerosol generation substrate to enhance the atomization efficiency and make the temperature distribution inside the aerosol generation substrate more uniform.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023] In the following, the present invention will be further described, with reference to the attached drawings and the embodiments, and in the drawings:

FIG. 1 is a schematic view, showing a cross-sectional structure of an aerosol generation device according to a first embodiment of the present invention, with an extractor being at a first position;

FIG. 2 is schematic view, showing a cross-sectional structure of the aerosol generation device of FIG. 1, with the extractor being at a second position;

FIG. 3 is a schematic view, showing a cross-sectional structure of an aerosol generation device according to a second embodiment of the present invention, with an extractor being at a first position;

FIG. 4 is schematic view, showing a cross-sectional structure of the aerosol generation device of FIG. 3, with the extractor being at a second position;

FIG. 5 is a schematic view, showing a cross-sectional structure of an aerosol generation device according to a third embodiment of the present invention, with an extractor being at a first position;

FIG. 6 is schematic view, showing a cross-sectional structure of the aerosol generation device of FIG. 5, with a raised platform abutting a flange;

FIG. 7 is schematic view, showing a cross-sectional structure of the aerosol generation device of FIG. 5, with the extractor being at a second position; and

FIG. 8 is schematic view, showing a cross-sectional structure of the aerosol generation device of FIG. 5 taken from a different direction.

DETAILED DESCRIPTION OF EMBODIMENTS

[0024] For better understanding of the technical features, objectives, and the efficacy of the present invention, a detailed description of specific embodiments of the present invention will be provided with reference to the attached drawings.

[0025] FIGS. 1-2 show an aerosol generation device according to a first embodiment of the present invention, which is generally of a cylindrical form and comprises an extractor 1, a main body 2 that is mounted in a detachable manner on the extractor 1 in a longitudinal direction, and a heater 22 mounted to the main body 2. The aerosol generation device is capable of heating, in a low temperature heating but not burning manner, an aerosol generation substrate 3 to generate smoke to be inhaled by users. It is appreciated that the aerosol generation device is not limited to the cylindrical form and can be of other shapes, such as a form of a square prism. In the embodiment, the aerosol generation substrate 3 is a rolled cigarette.

[0026] The extractor 1, in some embodiments, may comprise a first housing 11 and a first magnetic body 13 in a form of a circular ring tightly embedded in a bottom of the first housing 11. The first housing 11 has an inside wall surface that defines a receiving space 110 for receiving the aerosol generation substrate 3 therein. The receiving space 110 has an opening on its top, and the receiving space 110 has a bottom that forms a bottom wall 112. The bottom wall 112 is formed with an insertion opening 111 into which the heater 22 is insertable. The aerosol generation substrate 3 is insertable from the top opening of the receiving space 110 into the interior of the receiving space 110 and contacting the bottom wall 112.

[0027] The main body 2, in some embodiments, may comprise a second housing 21, the heater 22, a seat 24, and a second magnetic body 23. The second housing 21 has an interior in which electronic components, such as a battery and a circuit board, can be disposed for supplying electricity power to the heater 22 and controlling operations of activation and deactivation of the aerosol generation device.

[0028] The seat 24 is fit, in the longitudinal direction, into an upper end of the second housing 21, and comprises a sidewall 2411 which is cylindrical, and a top wall 2412 which is integrally formed with a top of the sidewall 2411 and in the form of a circular plate. The sidewall 2411 is raised outwards from two sides thereof in a circumferential direction to each form a snap platform 2413, and an inner wall surface of the second housing 21 is recessed to form snap troughs 211 respectively corresponding to the snap platforms 2413. The snap platforms 2413 and the snap troughs 211 are mutually snap engageable with each other, therefore the seat 24 is fixed in a snap manner in the interior of the second housing 21. The fixing between the seat 24 and the second housing 21 that is achieved with insertion and internal snap engagement is easy and reliable and makes no exposure of any external engagement outside the main body 2, so as to be more aesthetically pleasing. The second magnetic body 23 is in a form of a circular ring, which is tightly embedded inside the sidewall 2411 and abutting against a lower end face of the seat 24. The first magnetic body 13 and the second magnetic body 23 are magnets that

attract each other, or can be any other elements that exhibit magnetic properties (such as iron-cobalt- nickel).

[0029] The heater 22 is fit, in the longitudinal direction, into the top wall 2412 and comprises a heating section 221 that extends into the receiving space 110 to heat the aerosol generation substrate 3. The heating section 221 is extended through the insertion opening 111 in the bottom of the receiving space 110 into the receiving space 110 and inserted into the aerosol generation substrate 3 in order to heat and bake the aerosol generation substrate 3. The heater 22 can be in a form of a plate or a bar. An upper end of the heater 22 is provided with a sharpened guide structure to facilitate insertion into the aerosol generation substrate 3. A shape of the insertion opening 111 can correspond to a cross-sectional shape of the heating section 221, and a cross-sectional size of the insertion opening 111 can be slightly greater than a cross-sectional size of the heating section 221 to make clearance fitting between the heating section 221 and the insertion opening 111 and facilitating the insertion and withdrawal of the heating section 221, and also to have residues, such as the aerosol forming base that sticks to the heating section 221 after heating, remaining on the heating section 221 to be scraped off by the bottom wall 112 through friction in separating the heating section 221 from the aerosol generation substrate 3, so as to carry out cleansing of the heating section 221. In the instant embodiment, the heater 22 is made in the form of a plate, and the insertion opening 111 is a rectangle of which the cross-sectional size is slightly greater than the cross-sectional size of the heating section 221. It is appreciated that in other embodiments, the heater 22 can be mounted to the main body 2 in a removable and detachable manner.

[0030] The extractor 1 has a first position in which the extractor 1 is connected to the main body 2 and a second position in which the extractor 1 is separated from the main body 2. When the extractor 1 and the main body 2 are connected, the first housing 11 and the second housing 21 are positioned each other and abut against each other, and the first magnetic body 13 in the bottom of the first housing 11 and the second magnetic body 23 in the top of the second housing 21 are placed close to each other and attract each other, so that by means of the attraction force between the first magnetic body 13 and the second magnetic body 23, the extractor 1 and the main body 2 are fixed to each other. The heater 22 penetrates inward through the insertion opening 111 in the bottom of the extractor 1, so as to have the heating section 221 completely inserted into the receiving space 110. The aerosol generation substrate 3 is disposed into the extractor 1 from the top thereof. The battery in the main body 2 supplies electricity to the heater 22, and the heater 22, after being supplied with electricity, heats up to subject the aerosol generation substrate 3 to heating and baking (at this moment, the extractor 1 and the main body 2 are located at the first position where they are connected).

[0031] When heating of the aerosol generation substrate 3 is completed, pulling upward the extractor 1 makes the first magnetic body 13 and the second magnetic body 23 separating from each other and the extractor 1 and the main body 2 are then separated from each other (at this moment, the extractor 1 and the main body 2 are located at the second position where they are separated from each other), and at this moment, there is no connection between the extractor 1 and the main body 2, the extractor 1 drives, by means of the bottom wall 112 of the receiving space 110, the aerosol generation substrate 3 to move upwards, causing the heating section 221 to withdraw from the aerosol generation substrate 3 and, at the same time, the bottom wall 112 scrapes off residue substances sticked to an outside of the heating section 221.

[0032] FIGS. 3-4 show an aerosol generation device according to a second embodiment of the present invention, and the embodiment is primarily different from the first embodiment in that in the instant embodiment, an extraction tube 12 in the form of a circular tube extends downward from the top wall of the first housing 11. An inside wall of the extraction tube 12 defines and delimits the receiving space 110 in which the aerosol generation substrate 3 is receivable. Further, in the instant embodiment, the seat 24 may comprise a base 241 that is fit inside the second housing 21 and a cover 243 in the form of a cylinder extending from a top wall 2412 of the base 241. The cover 243 is sleeved around the heater 22 to prevent the heater 22 from being damaged due to impact by lateral shifting of the first housing 11 during connecting of the extractor 1 and the main body 2. The cover 243 is arranged between the first housing 11 and the extraction tube 12 and forms spacing with respect to each of an inner wall surface of the first housing 11 and an outer wall surface of the extraction tube 12. In some embodiments, spacing distances of the cover 243 from the inner wall surface of the first housing 11 and the outer wall surface of the extraction tube 12 can be 0.5-5mm, preferably 3-5mm.

[0033] FIGS. 5-7 show an aerosol generation device according to a third embodiment of the present invention, and the embodiment is primarily different from the second embodiment in that in the instant embodiment, the extraction tube 12 comprises a stationary tube 121 and a movable tube 122 that are sleeved over each other and is slidable with respect to each other in an axial direction. Inner wall surfaces of the stationary tube 121 and the movable tube 122 jointly define and delimit the receiving space 110 in which the aerosol generation substrate 3 is receivable.

[0034] Specifically, in the instant embodiment, the stationary tube 121 is tightly fit, at an upper end thereof, into the top wall of the first housing 11, and is fixed to the first housing 11 by means of various ways, such as screw connection and snap connection. The movable tube 122 is sleeved over a lower end of the stationary tube 121 in a manner of being axially slidable up and down. The mov-

able tube 122 has a bottom wall that forms the bottom wall 112 of the receiving space 110. A top of the movable tube 122 is extended inwardly to form a flange 1221. An outer circumference of the lower end of the stationary tube 121 is raised outward to form a raised/convex platform 1211. The flange 1221 and the raised platform 1211 cooperate with each other to prevent the stationary tube 121 and the movable tube 122 from detaching from each other during relative sliding therebetween. In some embodiments, a sliding stroke of the movable tube 122 relative to the stationary tube 121 is 2.5-5.5mm, such as around 4.5mm.

[0035] A first snap engagement section is formed on an outside of a top end of the main body 2, and a second snap engagement section is formed in an inside of a bottom end of the extractor 1 and is engageable with the first snap engagement section, wherein the first snap engagement section has an axial length that is smaller than or equal to the sliding stroke of the movable tube 122 relative to the stationary tube 121. Specifically, in the instant embodiment, the seat 24 comprises a base 241 that is fit into the second housing 21, a fitting section 242 extending upward from a top wall of the base 241, and a cover 243 extending from a top wall of the fitting section 242. The base 241, the fitting section 242, and the cover 243 having inside diameters and outside diameters that are sequentially reduced in a step-by-step manner. The fitting section 242 has an outer wall surface that forms the first snap engagement section. The first magnetic body 13 forms the second snap engagement section. When the extractor 1 and the main body 2 are connected together, the first magnetic body 13 is tightly fit outside the fitting section 242 to thereby enhance stability of the connection between the extractor 1 and the main body 2. The fitting section 242 has an axial length that is smaller than the sliding stroke of the movable tube 122 relative to the stationary tube 121. In some embodiments, the axial length of the fitting section 242 is 1-2.5mm, preferably around 2mm. In other embodiments, the first magnetic body 13 and the second magnetic body 23 can be omitted, and the connection between the extractor 1 and the main body 2 is achieved through the two fitting to each other, such as the bottom of the first housing 11 being directly fit over the outside of the fitting section 242, and under this condition, the second snap engagement section can be formed by inward extension from an inner wall surface of a bottom end of the first housing 11.

[0036] The fitting section 242 is formed with a through hole 2421 through which the heating section 221 is insertable. The heating section 221 is capable of extending, in sequence, through the through hole 2421 and the insertion opening 111 to insert upward into the aerosol generation substrate 3. In the instant embodiment, a cross-sectional shape and size of the through hole 2421 are consistent with a cross-sectional shape and size of the insertion opening 111. When the heating section 221 is separated from the aerosol generation substrate 3, a hole wall of the through hole 2421 applies an effect of friction to scrape off residual substances remaining on the heating section 221. In other embodiments, the cross-sectional size of the through hole 2421 can be greater than the cross-sectional size of the insertion opening 111. In some other embodiments, the cross-sectional shape of the through hole 2421 can be different from the cross-sectional shape of the insertion opening 111.

[0037] Considering an example, where the sliding stroke of the movable tube 122 relative to the stationary tube 121 is 4.5mm, and the axial length of the fitting section 242 is 2mm, as shown in FIG. 5, when the extractor 1 is at the first position, the extractor 1 and the main body 2 are positioned against each other, and at this moment, the first magnetic body 13 of the extractor 1 is fit over and around the outside of the fitting section 242 of the main body 2 and attracts the second magnetic body 23, the lower end face of the movable tube 122 abutting against the top wall of the fitting section 242, the lower end face of the stationary tube 121 abutting against the bottom wall 112 of the movable tube 122. The aerosol generation substrate 3 is mounted into the stationary tube 121 from the top thereof to abut against the bottom wall 112 of the movable tube 122, and the heating section 221 of the heater 22 extends from the insertion opening 111 on the bottom of the movable tube 122 to insert into the aerosol generation substrate 3, so that after electricity is supplied and heating is carried out, the aerosol generation substrate 3 is heated and baked.

[0038] After heating of the aerosol generation substrate 3 is finished, the first housing 11 is pulled upward first, and the first housing 11 drives the stationary tube 121 and the first magnetic body 13 to move upwards. When the upward movement exceeds 2mm, the first magnetic body 13 and the fitting section 242 are separated from each other, so as to separate the extractor 1 and the main body 2 from each other. At this moment, since the raised platform 1211 of the stationary tube 121 has not yet being moved upward to contact with the flange 1221 of the movable tube 122, the movable tube 122, the aerosol generation substrate 3, and the heater 22 are kept relatively immobile. As shown in FIG. 6, continuing pulling the first housing 11 upward to reach a displacement of 4.5mm makes the raised platform 1211 upward moving to get into contact with the flange 1221, and at this moment, further pulling the first housing 11 would cause the stationary tube 121 to drive the movable tube 122 to move upward together and the movable tube 122 in turn drives, through the bottom wall 112, the aerosol generation substrate 3 to move upward; and then, further pulling upward the first housing 11 would make the aerosol generation substrate 3 separating from the heating section 221, as shown in FIG. 7, and at the same time, the bottom wall 112 may scrape off the residual substances sticking to the outside of the heating section 221.

[0039] As shown in FIG. 8, the aerosol generation device in the instant embodiment may further comprises an internal seat 25 fit inside the seat 24. The internal seat 25 and the seat 24 jointly form a seat assembly for re-

ceiving the heater 22 to insert therein and for supporting the extractor 1. The second magnetic body 23 is tightly fit inside the internal seat 25. The first magnetic body 13 is fit outside the fitting section 242 and forms an air passage gap 130 with respect to a top end surface of the base 241. A top end face of the internal seat 25 and a bottom end face of the fitting section 242 define therebetween an air flow channel 240 surrounding the heater 22. Two opposite sides of a sidewall on the bottom of the fitting section 242 are each formed with an air flow hole 2420 in communication with the air flow channel 240. Two opposite sides of a bottom part of the sidewall of the first housing 11 are each formed with an air inlet hole 120. External air moves, in sequence, through the air inlet hole 120, the air passage gap 130, and the air flow hole 2420 to get into the air flow channel 240 for cooling down the seat assembly, and then, the air carrying heat moves, in sequence, through the through hole 2421 and the insertion opening 111 to get into the interior of the aerosol generation substrate 3 in the receiving space 110. The air so preheated helps enhance the atomization efficiency and makes a temperature distribution inside the aerosol generation substrate 3 more uniform.

[0040] It is appreciated that in other embodiments, the air inlet hole 120 can be formed in the sidewall or the bottom wall of the second housing 21. The air passage gap 130 between the bottom surface of the first magnetic body 13 and the top end surface of the base 241 can be omitted, provided a gas flow is conducted to flow over the surface of the seat assembly to cool down the seat assembly, such as the air inlet hole 120 can be formed in the second housing 21 and located between the seat 24 and the internal seat 25, and then enters the air flow channel 240 through the gap between the seat 24 and the internal seat 25. The air flow channel 240 may not surround the heater 22, such as the air inlet hole 120 may be formed in a bottom of the second housing 21 and the air flow channel 240 extends in the longitudinal direction and parallel with the longitudinal direction of the heater 22.

[0041] It is appreciated that the technical features described above can be combined in an arbitrary way for use, without being limited.

[0042] It is appreciated that the embodiments provided above illustrate only the preferred embodiments of the present invention and should not be construed as being limitative to limit the patent scope of the present invention. It is noted that for those having ordinary skill in the field, the technical features described above can be freely combined provided they do not depart from the inventive concept of the present invention, and various deformations and improvements can also be made, all these being considered belonging to the scope of protection that the present invention pursues. Thus, equivalent substitutions and modifications, which are made within the scope of the claims of the present invention should be construed falling within the scope of protection of the claims of the present invention.

Claims

1. An aerosol generation device, **characterized by** comprising a housing, and a seat assembly and a heater (22) mounted in the housing, the housing forming, in an interior thereof, with a receiving space (110) for receiving an aerosol generation substrate (3) therein, the heater (22) comprising an upper end extended into the receiving space (110) and an lower end inserted into the seat assembly; the seat assembly forming an air flow channel (240) in communication with the receiving space (110), the housing defining at least one air inlet hole (120) in communication with the air flow channel (240).

2. The aerosol generation device according to claim 1, **characterized in that** the housing comprises a first housing (11) and a second housing (21) arranged below the first housing (11) in a longitudinal direction, the seat assembly fit into the top of the second housing (21).

3. The aerosol generation device according to claim 2, **characterized in that** the at least one air inlet hole (120) is defined at the joint between the first housing (11) and the second housing (21); or
the at least one air inlet hole (120) is defined at the side wall or the bottom wall of the second housing (21).

4. The aerosol generation device according to claim 2, **characterized in that** the at least one air inlet hole (120) is formed by a portion of the bottom surface of the first housing (11) recessed upwardly or by a portion of the top surface of the second housing (21) recessed downwardly, the air flow channel (240) surrounding the heater (22).

5. The aerosol generation device according to claim 2, **characterized in that** the seat assembly comprises a seat (24) and an internal seat (25) fit inside the seat (24), the seat (24) and the internal seat (25) cooperatively defining the air flow channel (240).

6. The aerosol generation device according to claim 5, **characterized in that** the at least one air inlet hole (120) is defined in the second housing (21) and located between the seat (24) and the internal seat (25).

7. The aerosol generation device according to claim 5, **characterized in that** the seat (24) comprises a base (241) fit into the second housing (21) in the longitudinal direction, and a fitting section (242) extending upward from the top wall of the base (241), the bottom end face of the fitting section (242) and the top end face of the internal seat (25) cooperatively defining the air flow channel (240) therebe-

tween.

8. The aerosol generation device according to claim 7, **characterized in that** the sidewall of the fitting section (242) defines at least one air flow hole (2420) in communication with the air flow channel (240) and at least one air inlet hole (120).

9. The aerosol generation device according to claim 8, **characterized in that** the aerosol generation device further comprises a first magnetic body (13) fit into the bottom of the first housing (11), the first magnetic body (13) fit outside the fitting section (242), an air passage gap (130) formed between the first magnetic body (13) and the top end surface of the base (241) and communicated with the at least one air inlet hole (120) and the at least one air flow hole (2420).

10. The aerosol generation device according to claim 9, **characterized in that** positions of the at least one air inlet hole (120), the air passage gap (130) and the at least one air flow hole (2420) are not higher than the bottom of the receiving space (110).

11. The aerosol generation device according to claim 9, **characterized in that** the aerosol generation device further comprises a second magnetic body (23) fit into the internal seat (25), and the first magnetic body and the second magnetic body are close to and attract each other.

12. The aerosol generation device according to claim 7, **characterized in that** the bottom of the receiving space (110) abuts against the top wall of the fitting section (242), the fitting section (242) defining a through hole (2421) through which the heater (22) is insertable, the through hole (2421) communicated with the air flow channel (240) and the receiving space (110).

13. The aerosol generation device according to any one of claims 1 to 12, **characterized in that** the bottom of the receiving space (110) forms a bottom wall (112) for supporting the aerosol generation substrate (3) thereon, the bottom wall (112) defining an insertion opening (111) for insertion of the heater (22).

14. The aerosol generation device according to claim 13, **characterized in that** the shape of the insertion opening (111) corresponds to the cross-sectional shape of the heater (22), and the heater (22) is set in clearance fitting inside the insertion opening (111).

15. The aerosol generation device according to claim 13, **characterized in that** the heater (22) has a form of a plate or a bar, and a sharp guiding structure is provided on an end of the heater (22) to facilitate insertion into the aerosol generation substrate (3).

16. The aerosol generation device according to any one of claims 2-12, **characterized in that** the aerosol generation device further comprises an extraction tube (12) arranged in the first housing (11) in the longitudinal direction, the inside wall of the extraction tube (12) defining and delimiting the receiving space (110).

17. The aerosol generation device according to claim 16, **characterized in that** the extraction tube (12) is integrally extended downward from the top wall of the first housing (11), or the extraction tube (12) and the first housing (11) are separately manufactured and then assembled together.

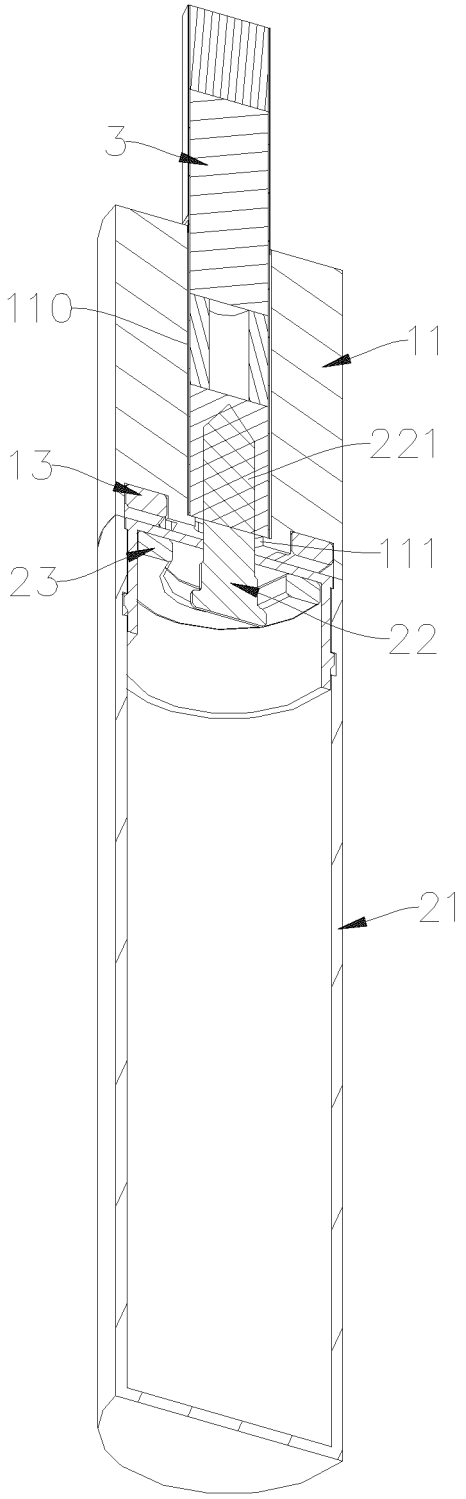

FIG.1

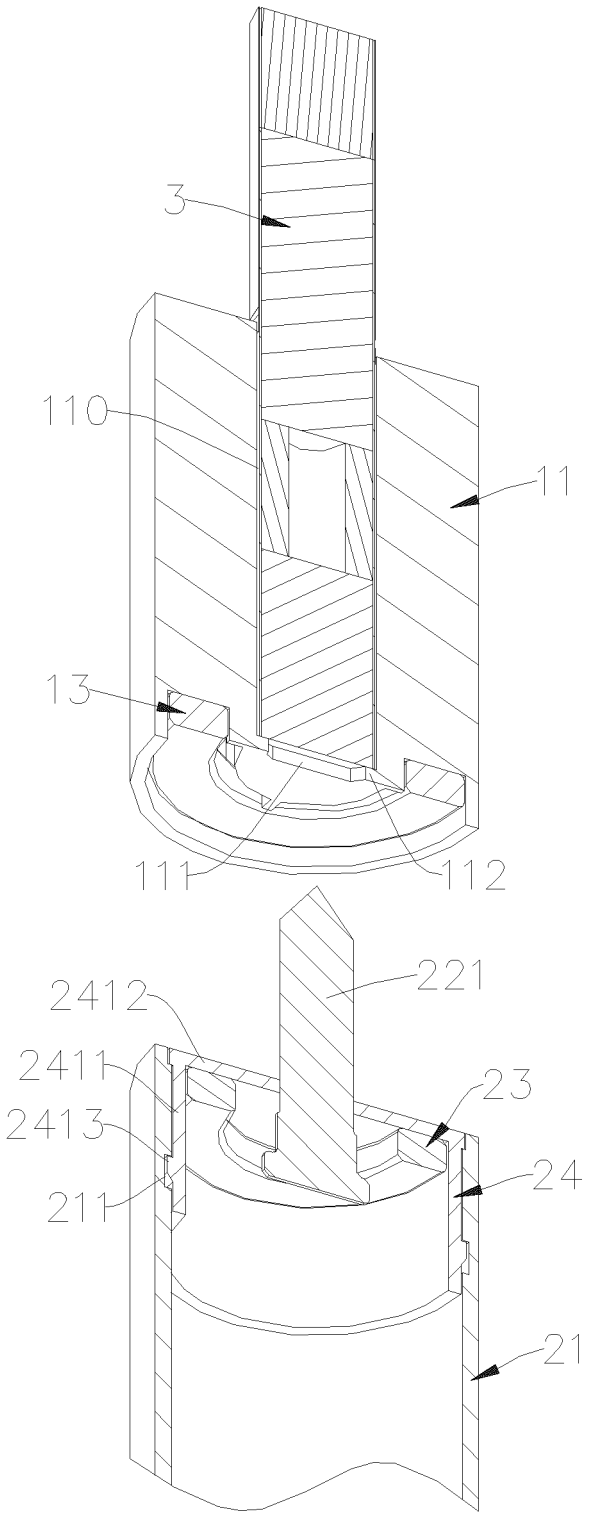

FIG.2

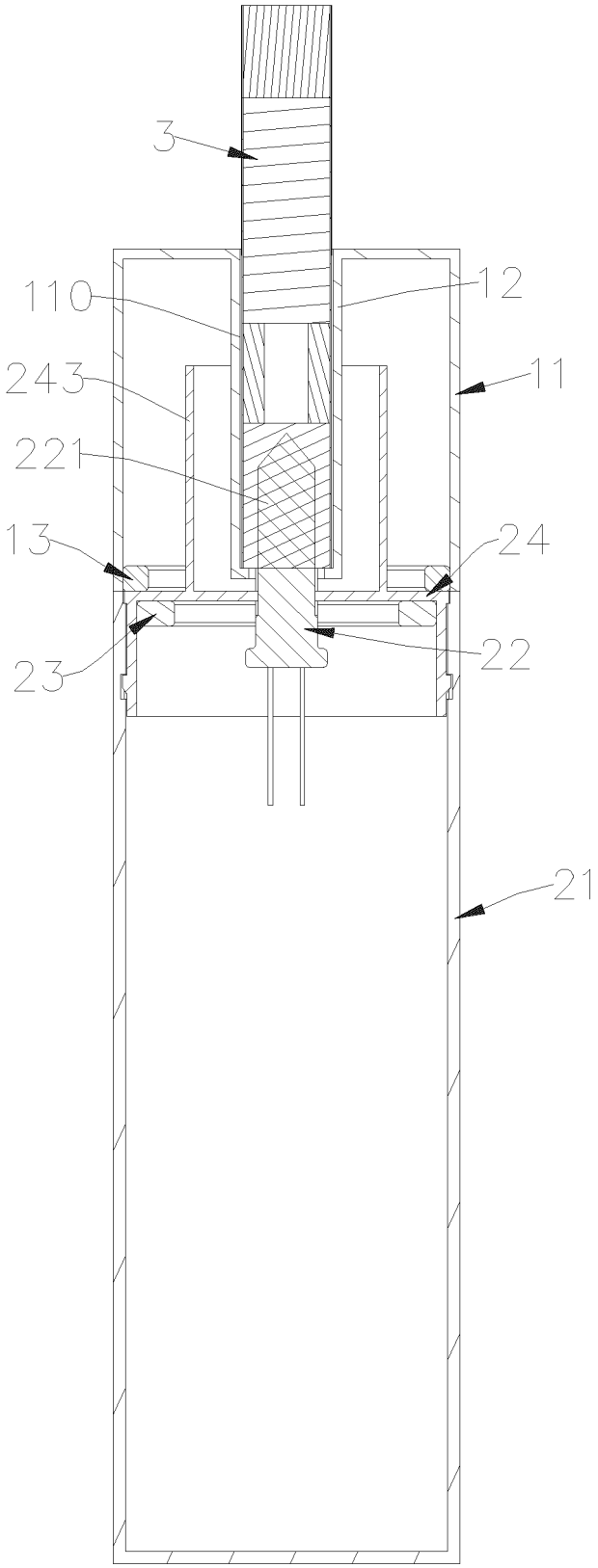

FIG.3

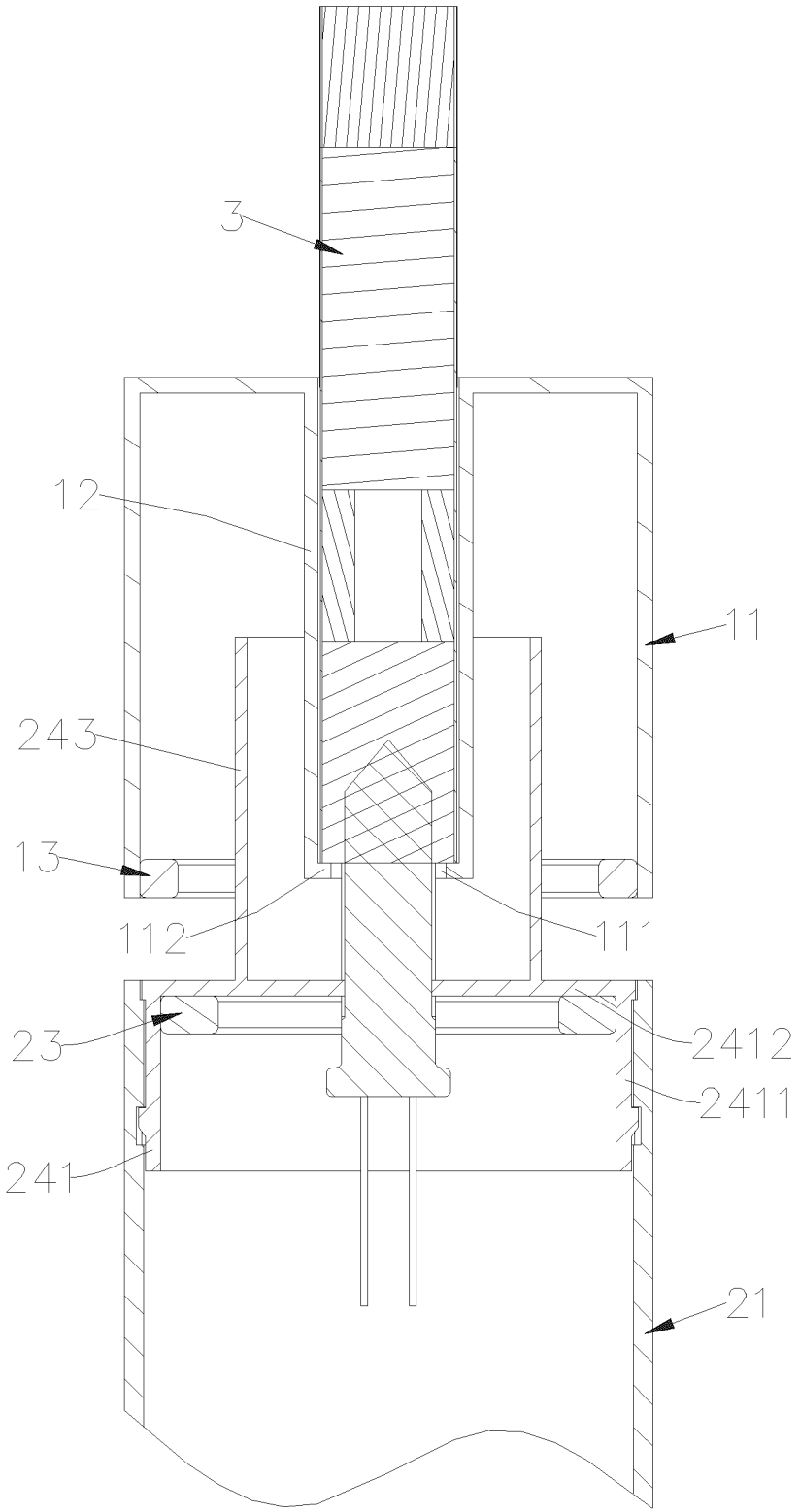

FIG.4

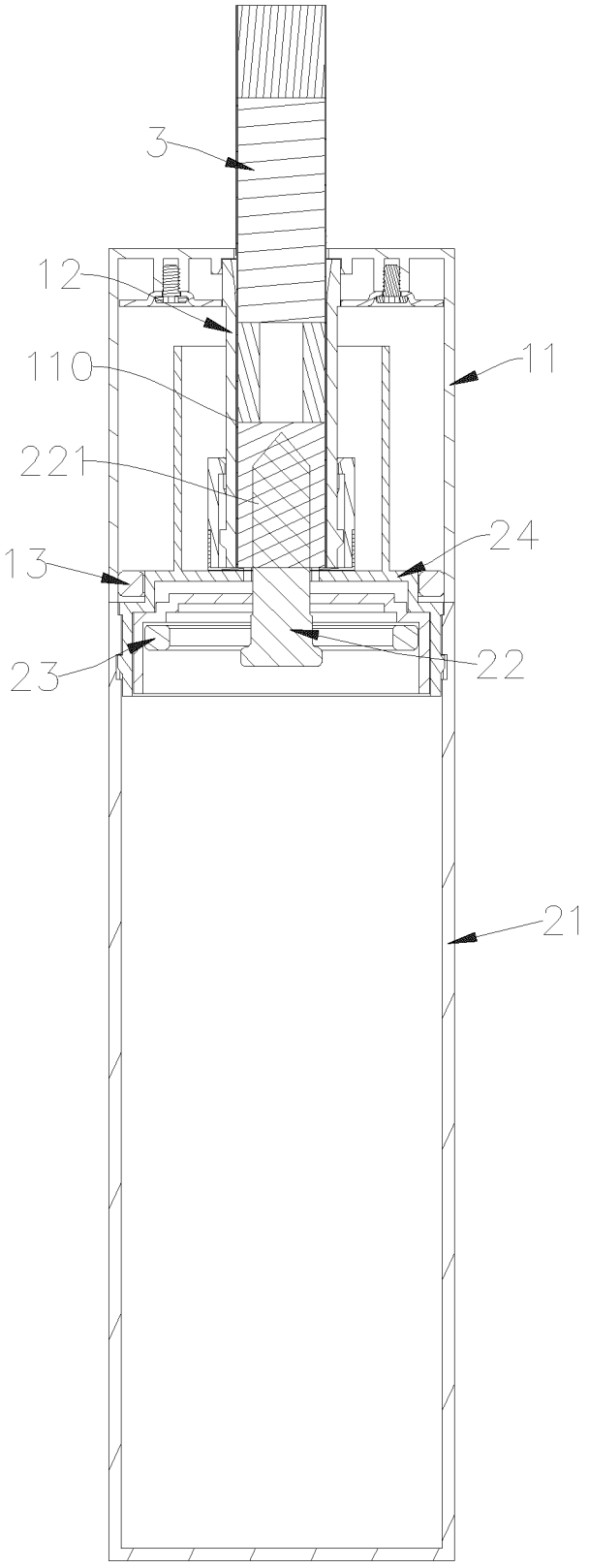

FIG.5

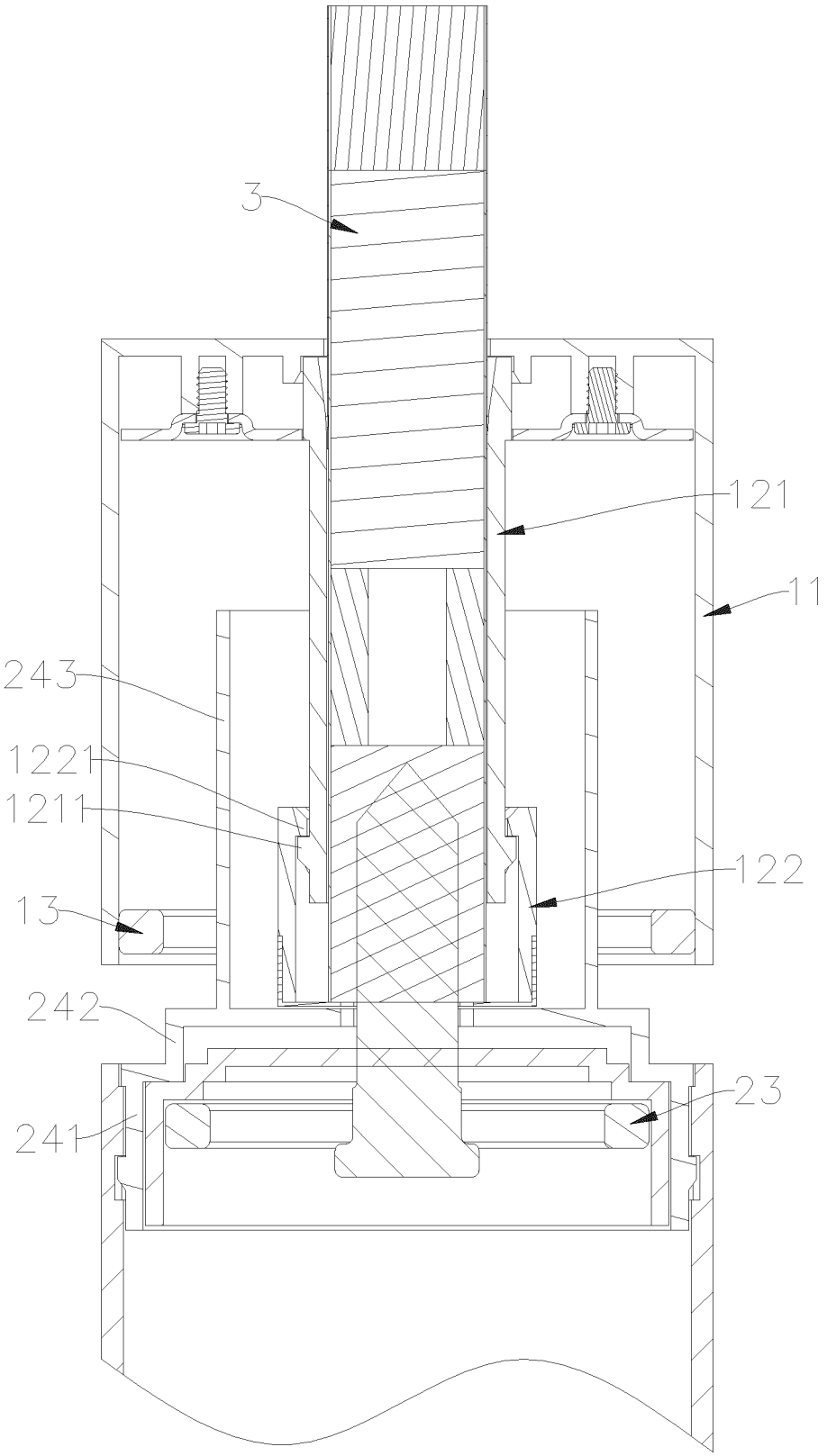

FIG.6

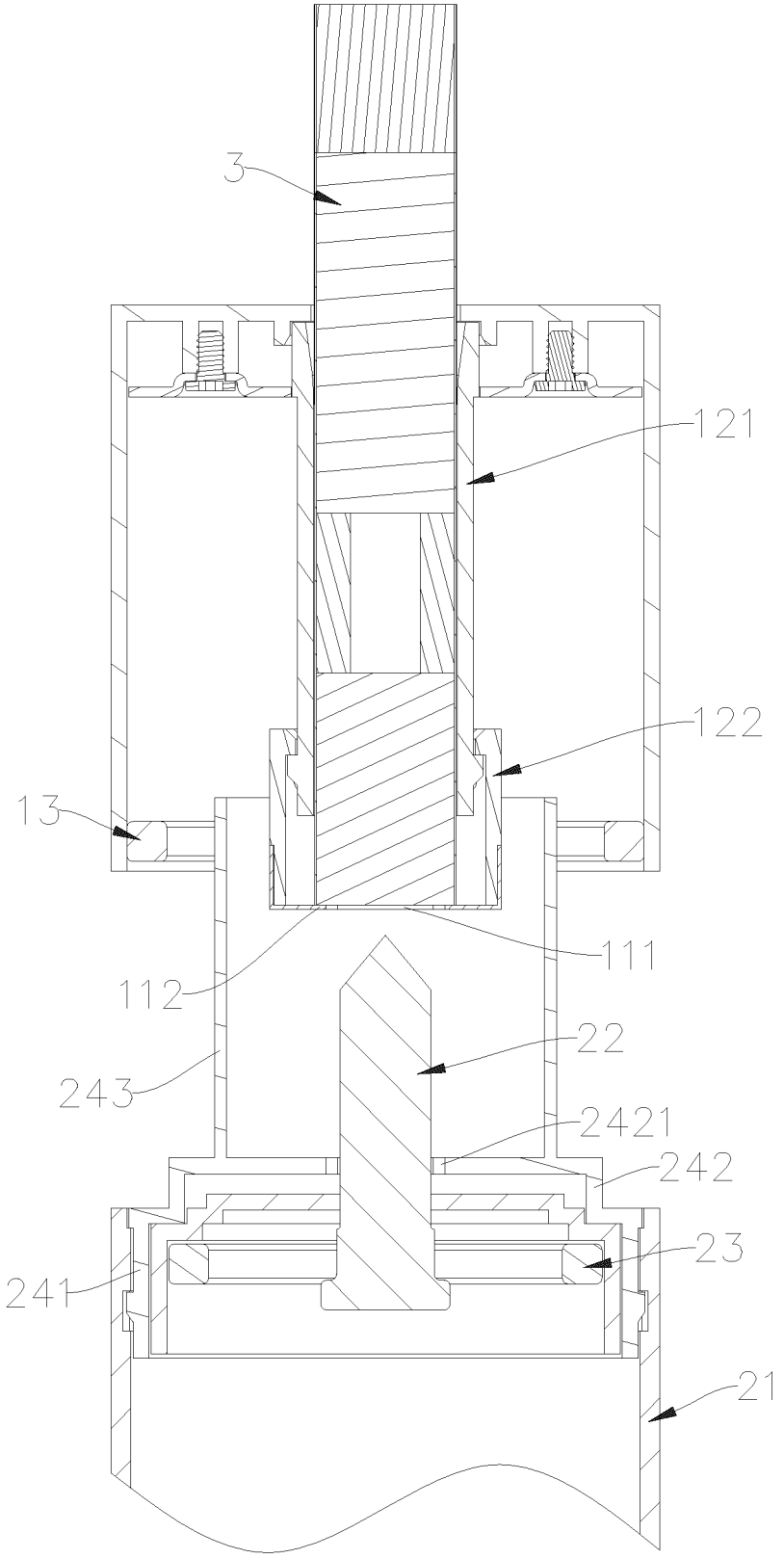

FIG.7

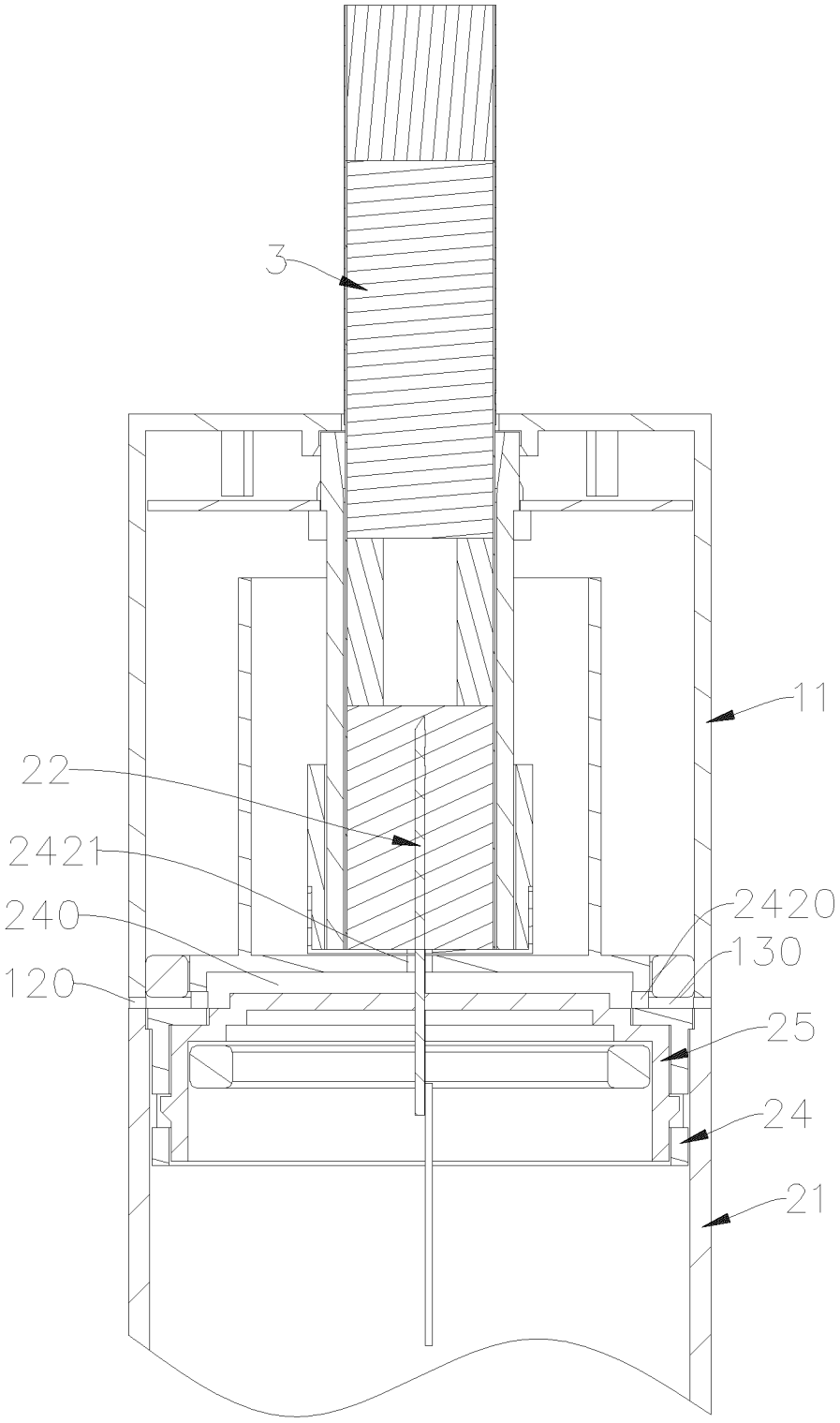

FIG.8

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2021/074930

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; USTXT; WOTXT; EPTXT: 深圳麦时科技有限公司, 张幸福, 廖焱程, 黄鹏飞, 气流通道, 气体通道, 空气通道, 进气孔, 进气口, 加热, 发热, 冷却, 降温, 基座, 基部, 固定座, 底座, 磁铁, 磁性, air, gas, channel, path, passage, Base, Fix+, cool+, heat+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 111904031 A (SHENZHEN MAISHI TECHNOLOGY CO., LTD.) 10 November 2020 (2020-11-10) description, paragraphs [0035]-[0050], and figures 1-8	1-17
X	CN 108323823 A (VAPETALK ELECTRONIC TECHNOLOGY (SHENZHEN) COMPANY LIMITED.) 27 July 2018 (2018-07-27) description, paragraphs [0025]-[0039], and figures 1-3	1
Y	CN 108323823 A (VAPETALK ELECTRONIC TECHNOLOGY (SHENZHEN) COMPANY LIMITED.) 27 July 2018 (2018-07-27) description, paragraphs [0025]-[0039], and figures 1-3	2-17
Y	CN 111387566 A (SHENZHEN MAISHI TECHNOLOGY CO., LTD.) 10 July 2020 (2020-07-10) description, paragraphs [0029]-[0046], and figures 2-6	2-17
A	CN 109123807 A (HUBEI CHINA TOBACCO INDUSTRY CO., LTD.) 04 January 2019 (2019-01-04) entire document	1-17

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

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"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
28 March 2021	**22 April 2021**
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/CN2021/074930

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 206744572 U (CHINA TOBACCO HUNAN INDUSTRIAL CO., LTD.) 15 December 2017 (2017-12-15) entire document	1-17

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2021/074930

Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)			Publication date (day/month/year)
CN	111904031	A	10 November 2020	None			
CN	108323823	A	27 July 2018	CN	208211470	U	11 December 2018
CN	111387566	A	10 July 2020	CN	212306813	U	08 January 2021
CN	109123807	A	04 January 2019	CN	208941055	U	07 June 2019
CN	206744572	U	15 December 2017	CN	108685174	A	23 October 2018

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