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

(11) **EP 3 834 641 A1**

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

(43) Date of publication:
16.06.2021 Bulletin 2021/24

(21) Application number: **19846600.5**

(22) Date of filing: **05.08.2019**

(51) Int Cl.:
A24F 47/00 *(2020.01)*

(86) International application number:
PCT/CN2019/099221

(87) International publication number:
WO 2020/029909 (13.02.2020 Gazette 2020/07)

(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
KH MA MD TN

(30) Priority: **08.08.2018 CN 201821273951 U**

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(54) PIPE BOWL STRUCTURE AND FLUE-CURED TOBACCO E-CIGARETTE

(57) The disclosure provides an aerosol generating device includes an aerosol generating body, a heating assembly and a housing, the aerosol generating body includes a storage part and a connecting part arranged on the outer periphery of the storage part; a storage chamber is formed in the inner cavity of the storage part, the connecting part is used to connect the housing, and the heating component is connected to the storage part, a heating chamber is formed in the heating assembly, the heating chamber is in communication with the storage chamber, and the heating assembly is at least partially housed in the housing. The disclosure also provides a baking-type electronic cigarette. The disclosure can effectively improve the heat transfer efficiency and smoke taste during heating.

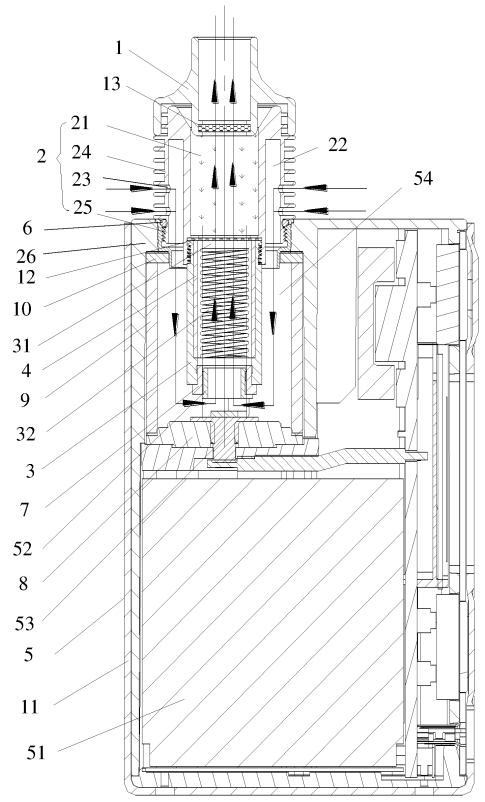

FIG.1

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Description

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application is a continuation-in-part of international application No. PCT/CN2019/099221 filed on Aug. 5, 2019, and claims priority to Chinese patent application No. 201821273951.6 filed on Aug. 8, 2018, and the entire disclosures of the foregoing applications are incorporated herein by reference.

FIELD OF TECHNOLOGY

[0002] The invention relates to the technical field of smoke simulation, and more particularly, relates to an aerosol generating device and an baking-type electronic cigarette.

BACKGROUND

[0003] The baking-type electronic cigarette is an electronic product that simulates smoking, it produces smoke by baking and heating tobacco leaves or tobacco paste, the smoke has a similar taste to traditional tobacco, users inhale the smoke produced by baking-type electronic cigarettes to simulate the feeling of smoking. Baking-type electronic cigarettes can greatly improve the aroma of cigarettes and reduce the tar content, and are generally used as smoking cessation products or alternative cigarettes for users. Existing baking-type electronic cigarettes usually use contact conduction heating, such as ceramic heating and PI film heating, this contact conduction heating method has a complicated structure, low thermal efficiency, and poor taste of the smoke produced by baking, which cannot meet user needs.

SUMMARY

[0004] The technical problem to be solved by the invention is to provide an aerosol generating device and an baking-type electronic cigarette, which can effectively improve the heat transfer efficiency and smoke taste during heating.

[0005] In order to solve the above technical problems, the technical solution provided by the disclosure is as follows:

An aerosol generating device includes an aerosol generating body, a heating assembly and a housing, the aerosol generating body includes a storage part and a connecting part arranged on the outer periphery of the storage part; a storage chamber is formed in the inner cavity of the storage part, the connecting part is used to connect the housing, and the heating component is connected to the storage part, a heating chamber is formed in the heating assembly, the heating chamber is in communication with the storage chamber, and the heating assembly is at least partially housed in the housing.

[0006] In one embodiment, the heating assembly includes a warehouse shell, a heating element, and a communication port provided on the warehouse shell, the heating chamber is defined in the inner cavity of the warehouse shell, the heating element is arranged in the heating chamber, and the communication port is in communication with the storage chamber.

[0007] In one embodiment, a heat insulating member is provided between the warehouse shell 3 and the heating element.

[0008] In one embodiment, a heat insulation tube is provided in the housing, and the heat insulation tube is provided between the housing and the heating assembly.

[0009] In one embodiment, the connecting part is sleeved on the outer periphery of the storage part.

[0010] In one embodiment, the outer wall of the connecting portion is provided with heat dissipation fins.

[0011] In one embodiment, the connecting part is provided with an air inlet, a first air inlet passage is formed between the connecting part and the storage part, the air inlet is in communication with the first air inlet passage, the air channel communicates with the heating chamber.

[0012] In one embodiment, a second air inlet passage is formed between the housing and the heating element, the first air inlet passage is in communication with the heating chamber through the second air inlet passage.

[0013] In one embodiment, a filter is provided at the connection between the storage chamber and the heating chamber.

[0014] In one embodiment, an baking-type electronic cigarette includes the aerosol generating device described in any one of the above.

[0015] Compared with the prior art, the disclosure has the following beneficial effects:

1.The disclosure adopts non-contact conduction heating, directly heats the air through the heating element, and the tobacco leaves or tobacco paste are heated by the heated air. This heating method has high heating efficiency, the heating speed is fast, the effective ingredients of the tobacco leaves or the tobacco paste can be roasted more efficiently, and the taste of the smoke is improved; the overall structure is simple, easy to install and disassemble, and the cost is low.

2. The disclosure uses the aerosol generating body is connected to the housing to completely separate the heating element and the housing, accumulate heat in the heating element, reduce the heat loss of the heating element caused by contact heat conduction, improve the heating efficiency of the heating element. At the same time, the heating rate of the heat accumulated in the housing is significantly reduced, the comfort of the user's grip is improved.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] Exemplary embodiments of the disclosure are described more fully hereinafter with reference to the ac-

companying drawings.

FIG. 1 is a schematic cross-sectional structure diagram of the baking-type electronic cigarette of the disclosure;

FIG. 2 is a schematic diagram of an exploded structure of the baking-type electronic cigarette of FIG. 1;

FIG. 3 is a front view of the baking-type electronic cigarette of FIG. 1;

FIG. 4 is a schematic diagram of an exploded structure of the baking-type electronic cigarette of FIG. 3;

FIG. 5 is a left side view of the baking-type electronic cigarette of FIG. 3;

FIG. 6 is a schematic diagram of an exploded structure of the baking-type electronic cigarette of FIG. 5.

[0017] In the FIGs 1-6: 1. Cigarette holder, 2. Aerosol generating body, 21, Storage chamber, 22, First intake passage, 23, Air inlet, 24, Radiating fins, 25, Connecting part, 26, Housing, 3. Warehouse shell, 31, Heating chamber, 32, Heating element, 4, Heat insulator, 5, Battery assembly, 51, Battery, 52, Electrode contact, 53, Electrode column, 54, Second intake passage, 6, Sealing ring , 7, Insulating member, 8, Electrode holder, 9, Heat insulation tube, 10, Sealing silicon member, 11, Silicone protective cover, 12, First filter, 13, Second filter, 14, Switch button, 15, Addition and subtraction button 16, Display screen.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0018] In order to facilitate understanding of the present invention, the present invention will be described more fully below with reference to the related drawings. The drawings show the preferred embodiments of the present invention. However, the present invention can be implemented in many different forms and is not limited to the embodiments described herein. Rather, these embodiments are provided to provide a thorough understanding of the disclosure of the present invention.

[0019] It should be noted that when an element is referred to as being "fixed to" another element, it may be directly on the other element or there may be a centered element. When an element is considered to be "connected" to another element, it can be directly connected to the other element or intervening elements may also be present.

[0020] Unless defined otherwise, all technical and scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which this invention belongs. The terms used herein in the description of the present invention are only for the purpose of describing specific embodiments, and are not intended to limit the present invention. The term "and / or" as used herein includes any and all combinations of one or more of the associated listed items.

[0021] Referring to FIG. 1-2, this embodiment discloses an aerosol generating device. The aerosol generating device includes an aerosol generating body 2, a heating assembly and a housing 26. The aerosol generating body 2 includes a storage part and a connecting part 25 arranged on the outer periphery of the storage part. A storage chamber 21 is formed in the inner cavity of the storage part, the storage chamber 21 is used to store tobacco leaves or tobacco paste. The connecting part 25 is used to connect the housing 26, and the heating component is connected to the storage part, a heating chamber 31 is formed in the heating assembly, the heating chamber 31 is located at the bottom of the storage chamber, and the heating chamber 31 is in communication with the storage chamber 21, and the heating assembly is at least partially housed in the housing 26. The heating assembly is used to heat air, the heated air enters the storage chamber 21 through the heating chamber 31, and then heats the tobacco leaves or tobacco paste in the storage chamber 21.

[0022] In one embodiment, the storage part has a cylindrical structure, and a storage chamber 21 having cylindrical structure is defined in the storage part. The heating chamber 31 and the aerosol generating device can also adopt a cylindrical structure.

[0023] In one embodiment, the connecting part 25 and the storage part can adopt an integrated structure, or the connecting part 25 can be sleeved on the outer periphery of the storage part, or the connecting part 25 and the outer periphery of the storage part can be connected by threads to facilitate replacement and removal.

[0024] In one embodiment, the heating assembly includes a warehouse shell 3, a heating element 32, and a communication port (not shown in the figure) provided on the warehouse shell 3, the connecting port is used for gas circulation, the heating chamber 31 is defined in the inner cavity of the warehouse shell 3, the heating element 32 is arranged in the heating chamber 31, and the communication port is in communication with the storage chamber 21. The upper end of the heating chamber 31 is connected to the storage chamber 21, and the lower end of the heating chamber 31 is connected to the outside air.

[0025] The warehouse shell 3 may be a cylindrical structure, and the warehouse shell 3 and the storage part can be detachably connected, for example, the warehouse shell 3 and the storage part are connected by threaded connection, sleeve connection or snap connection.

[0026] Specifically, when the warehouse shell 3 and the storage part are connected by threads, the outer wall of the warehouse shell 3 is provided with an external thread, the inner wall of the storage chamber 21 is provided with an internal thread, and the external thread and

the internal thread are screwed together.

[0027] In one embodiment, the housing 26 is detachably connected to the connecting part 25 of the aerosol generating body 2, for example, the housing 26 and the connecting part 25 can be connected or sleeved by threads. A sealing ring is provided between the housing 26 and the connecting part 25 to avoid air leakage.

[0028] In one embodiment, the connecting part 25 is provided with an air inlet 23, a first air inlet passage 22 is formed between the connecting part 25 and the storage part, the air inlet 23 is in communication with the first air inlet passage 22. The air channel 22 communicates with the heating chamber 31.

[0029] The external air enters the first air inlet passage 22 from the air inlet 23, and then enters the heating chamber 31 from the bottom of the warehouse shell 3, the heating element 32 heats the air, and the heated air enters the storage chamber 21, and then heats the tobacco leaves or tobacco paste in the storage chamber 21.

[0030] In addition, the air inlet 23 is located at the upper part of the heating chamber 31, so that the cold air enters the periphery of the heating chamber 31 through the first air inlet passage 22, and then enters the heating chamber 31 for heating, which improves the heating efficiency.

[0031] In one embodiment, the heating element 32 includes a plurality of bending parts to increase the heating area of the air and improve the heating efficiency.

[0032] In one embodiment, the heating element 32 has a spiral shape.

[0033] In one embodiment, the heating element 32 is made of a heating wire, a heating tube or a heating chip.

[0034] In one embodiment, a heat insulating member 4 is provided between the warehouse shell 3 and the heating element 32 to avoid contact heat conduction between the warehouse shell 3 and the storage silo 21; at the same time, the heat can be concentrated in the heating chamber 31, reducing heat loss, and improving the heating efficiency of the heating element 32 to the air, thereby improving the heating effect of the tobacco leaf or the tobacco paste.

[0035] In one embodiment, the heat insulation member 4 is made of mica or ceramic, which not only has better heat insulation and high temperature resistance effects, but also has better insulation properties.

[0036] In one embodiment, the warehouse shell 3 is made of a conductor with poor thermal conductivity, for example, the warehouse shell 3 can be made of non-metal, or one or more of steel, aluminum or copper with higher specific heat capacity, which can better prevent the heat of the heating chamber 31 from diffusing to the battery assembly 5, on the other hand, the heat can also be concentrated inside the warehouse shell 3, which is convenient to improve the heating efficiency of the heating element 32 to the air.

[0037] In one embodiment, the outer wall of the connecting portion 25 is provided with heat dissipation fins 24 to enhance the heat dissipation of the outer wall of the aerosol generating body 2. Further, in order to better enhance the heat dissipation of the outer wall, the connecting portion 25 can be a good thermal conductor, for example, a metal material with a lower specific heat capacity can be selected.

[0038] In one embodiment, a heating chamber 31 is stored in the the housing 26, a second air inlet passage 54 is formed between the housing 26 and the warehouse shell 3, the first air inlet passage 22 is in communication with the heating chamber 31 through the second air inlet passage 54, so that the external air enters the first air inlet passage 22 from the air inlet 23 and then enters the heating chamber 31 through the second air inlet passage 54.

[0039] In one embodiment, the aerosol generating device further includes a battery assembly 5, which includes a battery 51 and an electrode column 53 arranged in the housing 26. The battery 51 and the electrode column 53 are electrically connected, and the electrode column 53 and the electrode contact 52 are electrically connected. connection.

[0040] In one embodiment, the heating chamber 31 is provided with an insulating member 7 and an electrode contact 52, the electrode contact 52 is sleeved on one end of the warehouse shell 3 away from the storage chamber 21, the insulating member 7 is provided between the warehouse shell 3 and the electrode contact 52 to insulate the warehouse shell 3 from the electrode contact 52. A vent hole (not shown in the figure) is defined on the side wall of the electrode contact 52. When the electrode contact 52 and the electrode column 53 are electrically connected, the Second intake passage 54 communicates with the inner cavity of the warehouse shell 3 through the vent hole. The housing 26 is provided with an electrode holder 8, the electrode holder 8 is provided with an electrode column 53. The electrode holder 8 is made of insulating material, for example, plastic or silica gel.

[0041] In one embodiment, one end of the heating element is electrically connected to one of the positive electrode or the negative electrode of the battery 51 through the chambershell 3, the aerosol generating body 2 connected to the chambershell 3, and the housing 26 connected to the aerosol generating body 2 in sequence. The other end of the heating assembly is electrically connected to the other of the positive electrode or the negative electrode of the battery 51 through the electrode contact 52 and the electrode column 53 in turn.

[0042] In one embodiment, a heat insulation tube 9 is provided in the housing 26, and the heat insulation tube 9 is provided between the housing 26 and the heating assembly. A heating chamber 31 is provided in the heat insulation tube 9. The heat insulation tube 9 has good insulation and heat insulation properties, and can prevent the heat of the heating chamber 31 from spreading to the battery assembly 5, thereby ensuring the use effect and service life of the battery assembly 5. In one embodiment, the insulating tube 9 is a glass tube.

[0043] Further, the two ends of the heat insulation tube

9 abuts against between the housing 26 and the electrode holder 8 respectively, a sealing silica gel 10 is provided at the junction of the heat insulation tube 9 and the housing 26 to improve the gas tightness.

[0044] The housing 26 is made of poor thermal conductor, which helps prevent the waste heat of the aerosol generating body 2 from being conducted to the shell of the battery assembly 5, and also can better prevent the heat of the heating chamber 31 from diffusing to the battery assembly 5 through the housing 26, and it is also beneficial to improve the user's holding comfort during use. In addition, the heating chamber 31 and the battery assembly 5 is air isolated therebetween, which can further prevent the heat of the heating chamber 31 from spreading to the battery assembly 5.

[0045] In one embodiment, the housing 26 is also covered with a silicone protective cover 11.

[0046] In one embodiment, a first filter 12 is provided at the connection between the storage chamber 21 and the heating chamber 31.

[0047] This embodiment also discloses a baking-type electronic cigarette. Refer to FIG. 3-6, the baking-type electronic cigarette includes the aerosol generating device described in any one of the above, the cigarette holder 1 connected with the aerosol generating device, the cigarette holder 1 is in communication with the storage chamber21.

[0048] In one embodiment, a second filter 13 is arranged at the connection between the cigarette holder 1 and the storage chamber 21 to filter the smoke flowing out of the storage chamber 21.

[0049] The cigarette holder 1 can be made of plastic material, the cigarette holder 1 is sleeved on the upper part of the aerosol generating body 2.

[0050] In one embodiment, the baking-type electronic cigarette further includes a controller and a temperature sensing element. The temperature sensing element and the battery assembly 5 are electrically connected to the controller. The temperature sensing element can be arranged close to the heating element 32, the temperature sensing element is used for induction heating. The temperature change of the element 32 is fed back to the controller. Further, the heating element 32 has a temperature coefficient of resistance characteristic. That is, the controller, the temperature sensing element, the heating element 32 and the battery assembly 5 jointly constitute a temperature control system, which adopts a TCR (temperature coefficient of resistance) mode for temperature control.

[0051] Further, referring to Figures 3 to 4, the surface of the baking-type electronic cigarette is provided with a switch button 14 and an addition and subtraction button 15. The switch button 14 is used to turn on or off heating, and the addition and subtraction button 15 is used to control the heating temperature of the heating element 32 , That is, increase or decrease the heating temperature of the heating element 32 through the addition and subtraction button 15. The surface of the baking-type electronic cigarette is also provided with a display screen 16 for displaying the working information of the electronic cigarette.

[0052] The switch button 14, the addition and subtraction button 15, and the display screen 16 are all electrically connected to the controller.

[0053] Refer to FIG. 1, when the baking-type electronic cigarette is in use, the external air enters the first air intake passage 22 from the air inlet 23 and flows into the second air intake passage 54 defined on the periphery of the heating chamber 31, then enters the heating chamber 31 from the bottom of the warehouse shell 3, and enter the storage chamber 21 after being heated by the heating element 32. Thus, the tobacco leaves or tobacco paste in the storage chamber 21 is convectively heated, the smoke generated by the heating and evaporation flows out through the cigarette holder 1 for smoking. The direction of air flow in this process is the direction of the arrow in FIG. 1.

[0054] In this embodiment, the aerosol generating body 2 and the heating element 32 are separately arranged, and a non-contact, heat conduction heating method is adopted. That is, the air is directly heated by the heating element 32, and the tobacco leaves or tobacco paste are heated by the heated air. This heating method has high heating efficiency, the heating speed is fast, the effective ingredients of the tobacco leaves or the tobacco paste can be roasted more efficiently, and the taste of the smoke is improved; the overall structure is simple, easy to install and disassemble, and the cost is low.

[0055] In this embodiment, the aerosol generating body 2 is connected to the housing 26 to completely separate the heating element and the housing 26, accumulate heat in the heating element, reduce the heat loss of the heating element caused by contact heat conduction, improve the heating efficiency of the heating element. At the same time, the heating rate of the heat accumulated in the housing 26 is significantly reduced, the comfort of the user's grip is improved.

[0056] The embodiments described above are merely preferred embodiments, but not intended to limit the application. Any modifications, alternatives or improvements made within the principle and spirit of the present application should be interpreted as falling within the protection scope of the present application. The claims are not limited to the features or acts described above. Rather, the proper scope of the disclosure is defined by the appended claims.

Claims

1. An aerosol generating device comprising an aerosol generating body, a heating assembly and a housing, the aerosol generating body comprises a storage part and a connecting part arranged on the outer periphery of the storage part; a storage chamber is formed in the inner cavity of the storage part, the

connecting part is used to connect the housing, and the heating component is connected to the storage part, a heating chamber is formed in the heating assembly, the heating chamber is in communication with the storage chamber, and the heating assembly is at least partially housed in the housing.

2. The aerosol generating device according to claim 1, wherein the heating assembly comprises a warehouse shell, a heating element, and a communication port provided on the warehouse shell, the heating chamber is defined in the inner cavity of the warehouse shell, the heating element is arranged in the heating chamber, and the communication port is in communication with the storage chamber.

3. The aerosol generating device according to claim 2, wherein a heat insulating member is provided between the warehouse shell 3 and the heating element.

4. The aerosol generating device according to claim 1, wherein a heat insulation tube is provided in the housing, and the heat insulation tube is provided between the housing and the heating assembly.

5. The aerosol generating device according to claim 1, wherein the connecting part is sleeved on the outer periphery of the storage part.

6. The aerosol generating device according to claim 1, wherein the outer wall of the connecting portion is provided with heat dissipation fins.

7. The aerosol generating device according to claim 1, wherein the connecting part is provided with an air inlet, a first air inlet passage is formed between the connecting part and the storage part, the air inlet is in communication with the first air inlet passage, the air channel communicates with the heating chamber.

8. The aerosol generating device according to claim 7, wherein a second air inlet passage is formed between the housing and the heating element, the first air inlet passage is in communication with the heating chamber through the second air inlet passage.

9. The aerosol generating device according to claim 1, wherein a filter is provided at the connection between the storage chamber and the heating chamber.

10. A baking-type electronic cigarette comprising the aerosol generating device according to any one of claims 1-9.

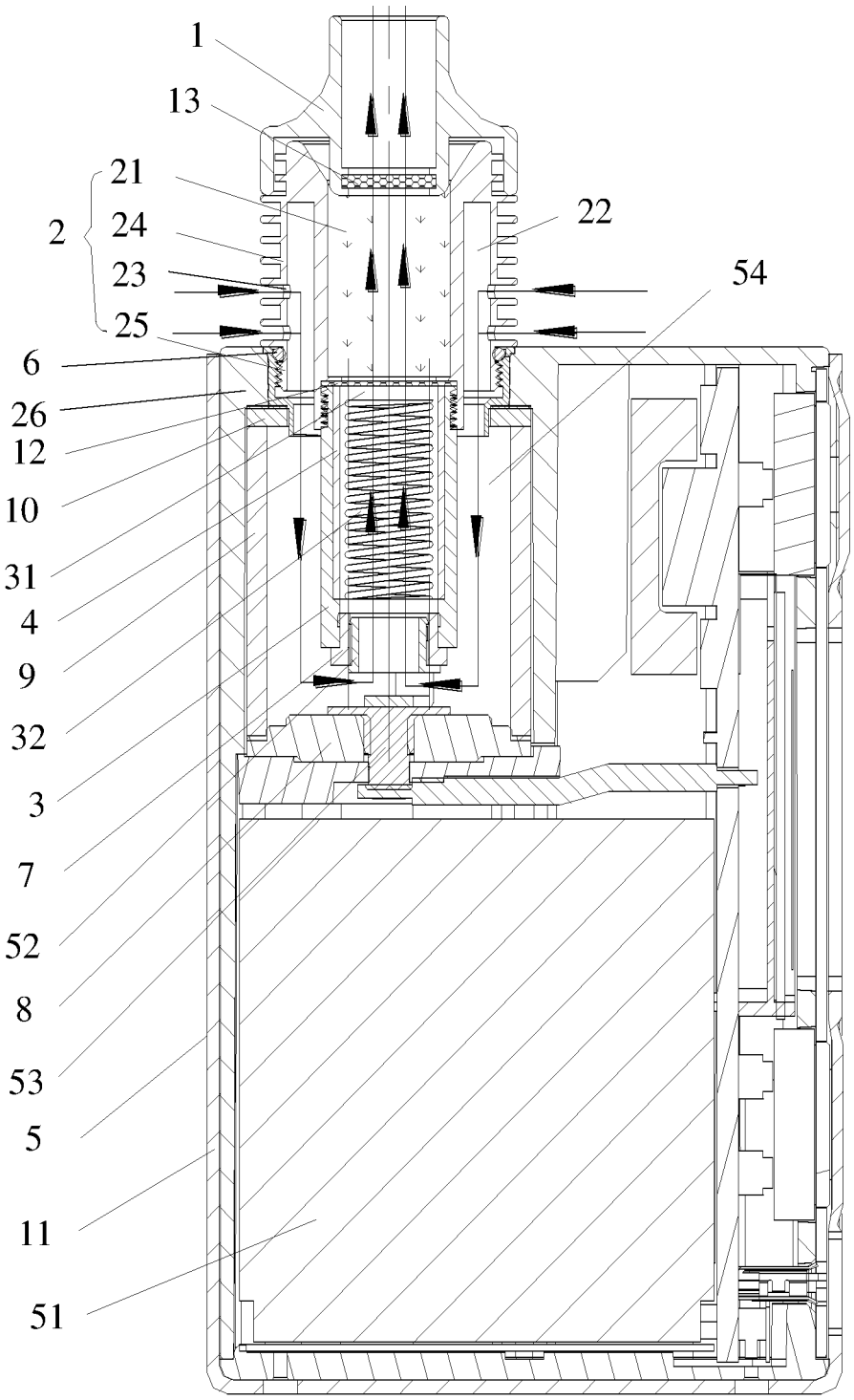

FIG.1

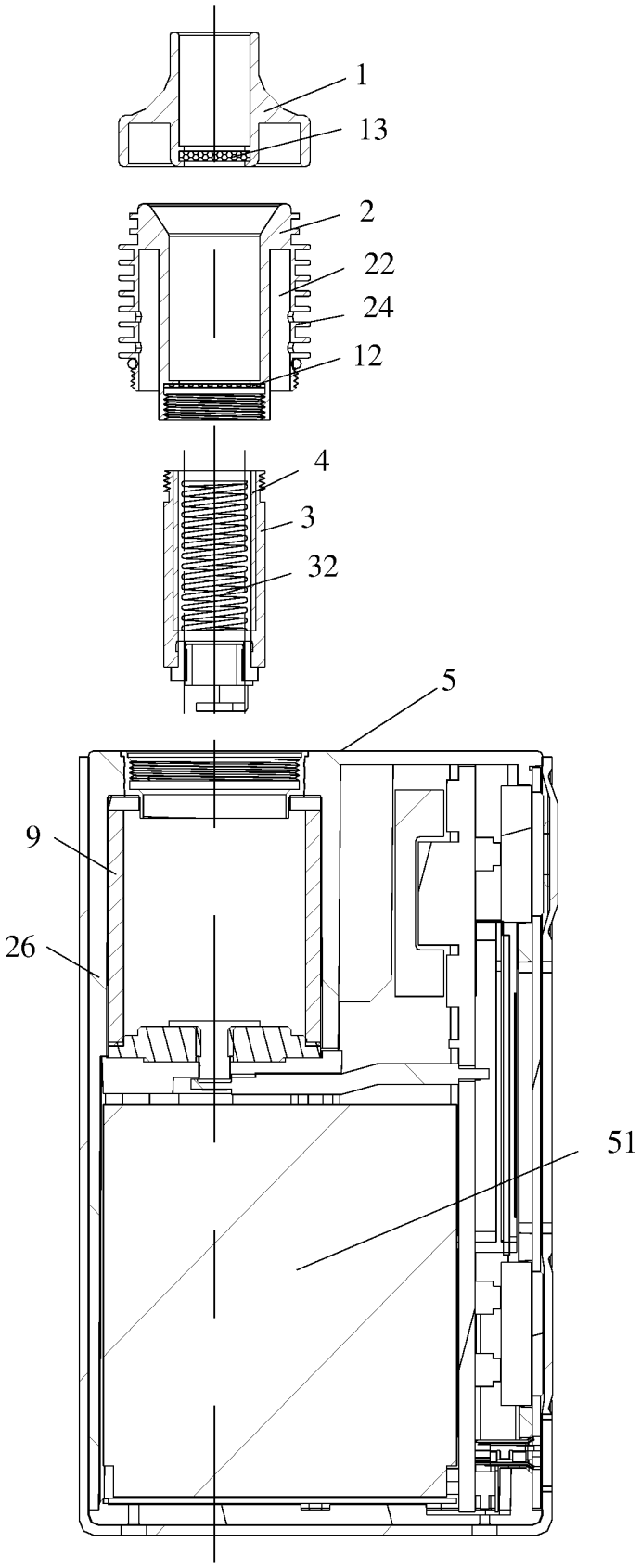

FIG.2

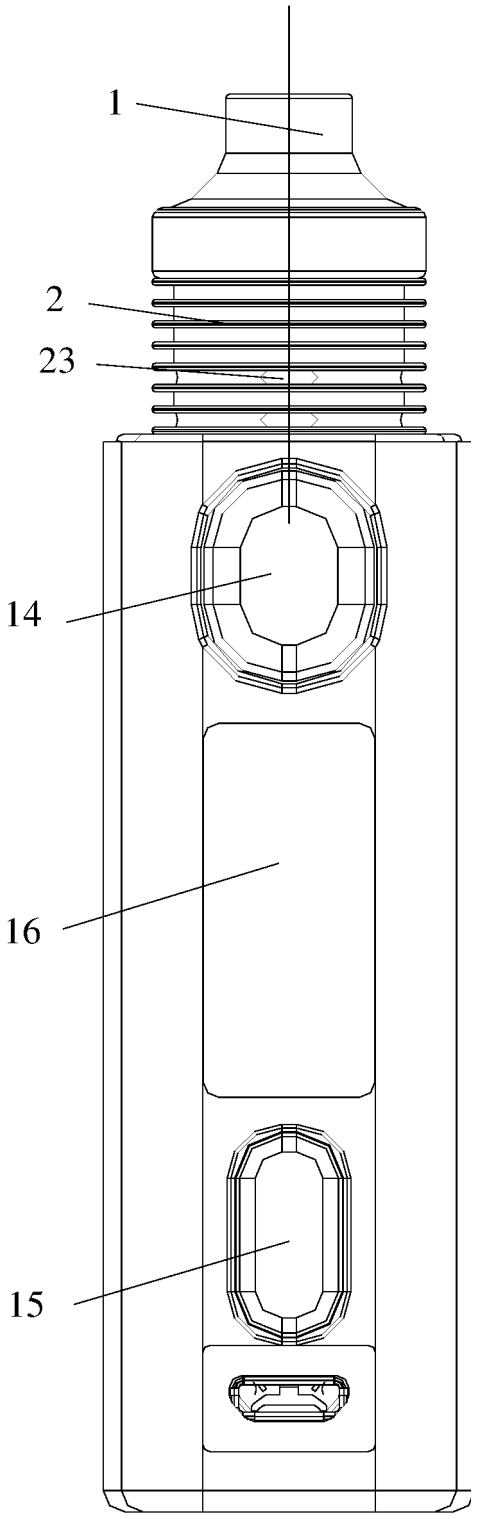

FIG.3

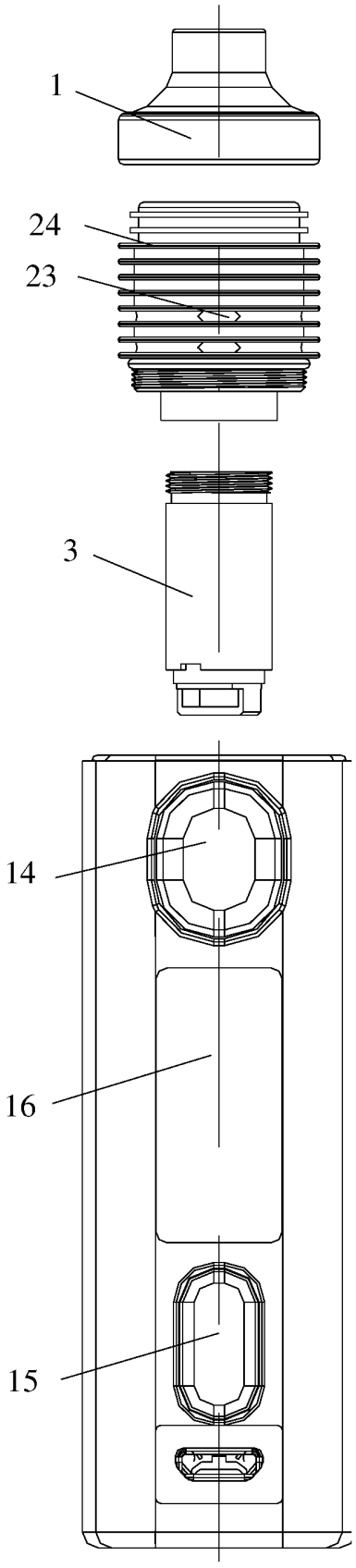

FIG.4

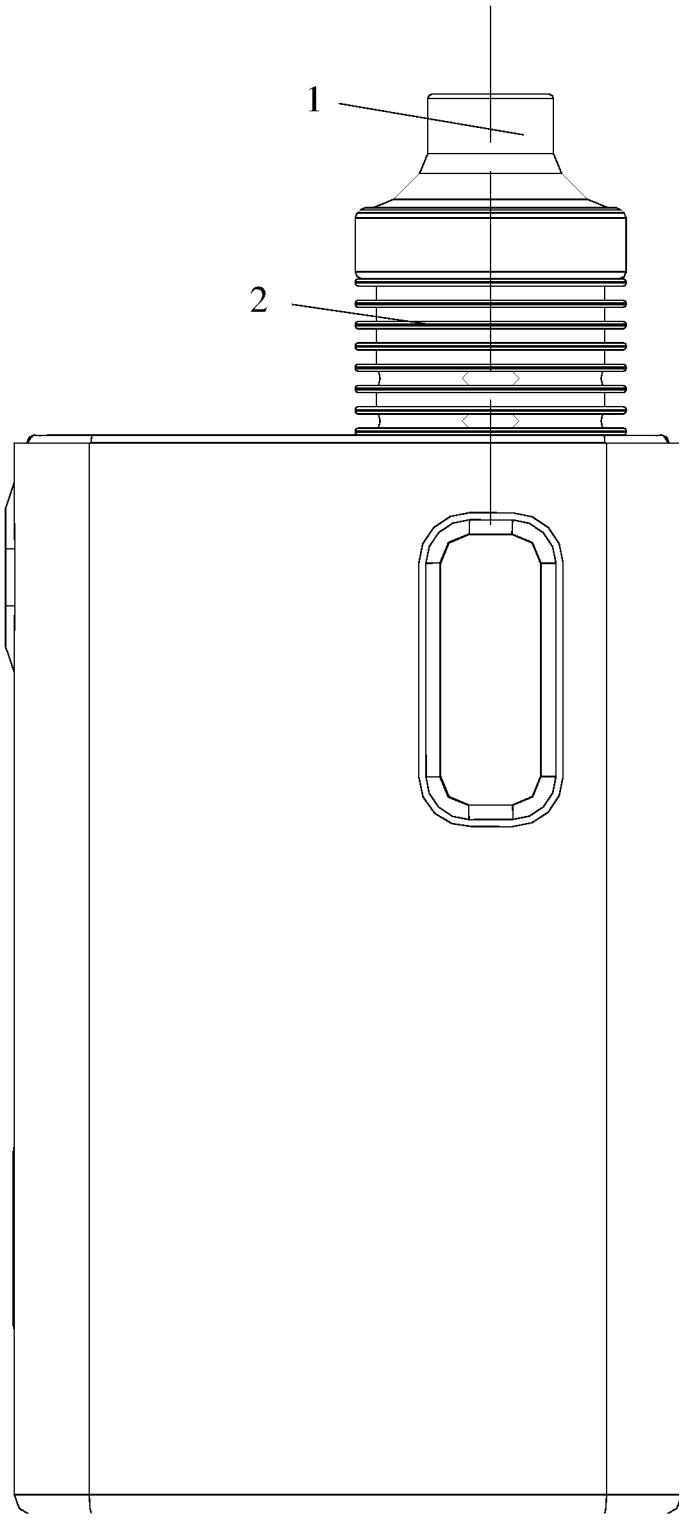

FIG.5

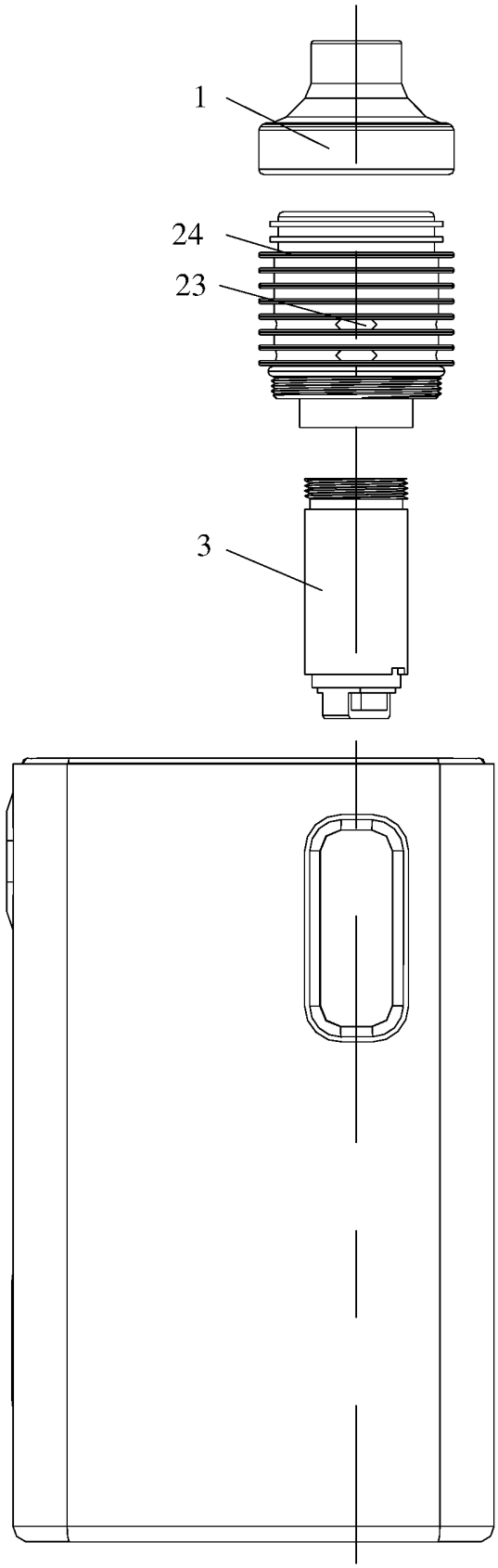

FIG.6

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2019/099221

A. CLASSIFICATION OF SUBJECT MATTER

A24F 47/00(2006.01)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)

A24F

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

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

CNABS; CNTXT; VEN: 烟锅, 电子烟, 烤烟, 加热, 储料, 加热, 壳, electronic, cigarette, tobacco, heat, frame

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 208676379 U (CHANGZHOU PATENT ELECTRONIC TECHNOLOGY CO., LTD.) 02 April 2019 (2019-04-02) description, paragraphs [0026]-[0060], and figures 1-6	1-10
X	CN 104799434 A (LIU, TUANFANG) 29 July 2015 (2015-07-29) description, paragraphs [0020]-[0030], and figures 1-3	1-6, 9, 10
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Y	CN 107772540 A (JOYETECH EUROPE HOLDING GMBH) 09 March 2018 (2018-03-09) description, paragraphs [0028]-[0038], and figures 1-3	7, 8
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A	CN 106723384 A (SHENZHEN BAUWAY TECHNOLOGY CO., LTD.) 31 May 2017 (2017-05-31) entire document	1-10
A	CN 205757176 U (SHENZHEN FIRSTUNION TECHNOLOGY CO., LTD.) 07 December 2016 (2016-12-07) entire document	1-10

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

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Date of the actual completion of the international search	Date of mailing of the international search report
24 September 2019	**08 October 2019**
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**	Authorized officer
Facsimile No. **(86-10)62019451**	Telephone No.

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

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2019/099221

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 63239211 A (P TAA TSUERUNITSUSHIYU KG) 05 October 1988 (1988-10-05) entire document	1-10

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

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2019/099221

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REFERENCES CITED IN THE DESCRIPTION

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