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(54) **AEROSOL GENERATING DEVICE**

(57) This application provides an aerosol generation device, configured to heat an aerosol-forming article to generate an aerosol for inhalation, the device including a housing, where the housing is internally provided with: a cavity; at least one heater, configured to heat the aerosol-forming article; and a support mechanism, constructed to surround at least a part of the cavity, where an inner surface of the support mechanism is provided with a plurality of first protrusions and a plurality of second protrusions spaced along a circumferential direction to clamp the aerosol-forming article received in the cavity; and the plurality of first protrusions and the plurality of second protrusions are arranged sequentially along an axial direction of the support mechanism. The above aerosol generation device simultaneously clamps the aerosol-forming article at different heights through double-layer protrusions inside, so that the aerosol-forming article can be stably received in the aerosol generation device, and then stably transfer heat with a heater.

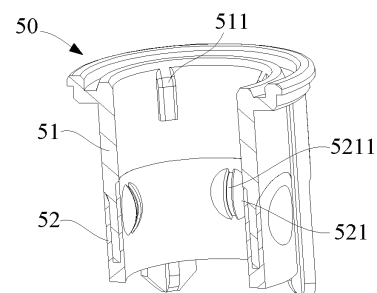


FIG. 7

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Description

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to Chinese Patent Application No. 2020221482170, filed with the China National Intellectual Property Administration on September 25, 2020 and entitled "AEROSOL GENERATION DEVICE", which is incorporated herein by reference in its entirety.

TECHNICAL FIELD

[0002] This application relates to the field of heat-not-burn cigarette device technologies, and in particular, to an aerosol generation device.

BACKGROUND

[0003] Tobacco products (such as cigarettes and cigars) burn tobacco during use to produce tobacco smoke. Attempts are made to replace these tobacco-burning products by manufacturing products that release compounds without being burnt.

[0004] An example of this type of products is a heating device that releases compounds by heating rather than burning materials. For example, the material may be tobacco or other non-tobacco products, where the non-tobacco products may or may not contain nicotine. As another example, there is a heating device that heats the tobacco products circumferentially to cause the tobacco products to release compounds to generate an aerosol, and the tobacco products are received in the heating device through a heating cavity. As a known prior art, in order to ensure that the tobacco products can be smoothly received in the heating device, a size of an inner diameter of a receiving cavity is usually slightly greater than an outer diameter of the tobacco products. As a result, the tobacco products shake after being received in the receiving cavity, which affects heat transfer with a heater.

SUMMARY

[0005] An embodiment of this application provides an aerosol generation device, configured to heat an aerosol-forming article to generate an aerosol for inhalation, the device including a housing, where the housing is internally provided with:

- a cavity, configured to receive the aerosol-forming article;
- at least one heater, configured to heat the aerosol-forming article; and
- a support mechanism, constructed to surround at least a part of the cavity, where an inner surface of the support mechanism is provided with a plurality of first protrusions and a plurality of second protrusions

spaced along a circumferential direction, configured to provide support along a radial direction for inhalable materials received in the cavity to clamp the aerosol-forming article received in the cavity; and the plurality of first protrusions and the plurality of second protrusions are arranged sequentially along an axial direction of the support mechanism.

[0006] In an optional implementation, the plurality of first protrusions and the plurality of second protrusions are staggered from each other along the axial direction of the support mechanism.

[0007] In an optional implementation, one of the plurality of first protrusions and the plurality of second protrusions is rigid, and the other is flexible.

[0008] In an optional implementation, the housing is provided with a receiving hole at one end, and the aerosol-forming article is received detachably in the cavity through the receiving hole;

the plurality of first protrusions are closer to the receiving hole than the plurality of second protrusions; and the plurality of first protrusions are constructed as long and thin strips extending along the axial direction of the support mechanism, and the second protrusion is constructed in a circular shape.

[0009] In an optional implementation, a surface of the second protrusion is provided with a long and thin slit or groove extending along the axial direction of the support mechanism.

[0010] In an optional implementation, the support mechanism includes an annular rigid support member and an annular flexible support member arranged coaxially; and

the plurality of first protrusions are formed on the inner surface of the rigid support member, and the plurality of second protrusions are formed on the inner surface of the flexible support member.

[0011] In an optional implementation, the flexible support member includes an inner wall and an outer wall arranged sequentially from inside to outside along the radial direction, and a clamping cavity formed between the inner wall and the outer wall; and the rigid support member is at least partially retained in the clamping cavity.

[0012] In an optional implementation, the cavity includes a near end and a far end facing away from each other along the axial direction;

the support mechanism includes a first support member with the first protrusion and a second support member with the second protrusion; and the first support member is adjacent to the near end of the cavity, and the second support member is adjacent to the far end of the cavity.

[0013] In an optional implementation, the plurality of first protrusions have a surface friction coefficient different from that of the plurality of second protrusions.

[0014] In an optional implementation, the plurality of first protrusions and/or the plurality of second protrusions are symmetrically arranged along a central axis of the

support mechanism.

[0015] In an optional implementation, at least a part of the surfaces of the plurality of first protrusions is constructed to be inclined, so as to provide guidance when the inhalable materials are received in the cavity.

[0016] The above aerosol generation device simultaneously clamps the aerosol-forming article at different heights through double-layer protrusions inside, so that the aerosol-forming article can be stably received in the aerosol generation device, and then stably transfer heat with a heater.

[0017] Another embodiment of this application further provides an aerosol generation device, configured to heat an aerosol-forming article to generate an aerosol for inhalation, the device including a housing, where the housing is internally provided with:

- a cavity, configured to receive the aerosol-forming article;
- at least one heater, configured to heat the aerosol-forming article; and
- a support mechanism, including a rigid support member and a flexible support member, at least a part of the rigid support member surrounding the cavity, where the flexible support member is provided with an outer surface and an inner surface opposite to each other along a radial direction, the inner surface is provided with a plurality of protrusions spaced along a circumferential direction of the cavity, and the protrusion protrudes from the inner surface toward the cavity to provide an elastically retractable support along the radial direction for inhalable materials received in the cavity, so as to clamp the aerosol-forming article.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] One or more embodiments are exemplarily described with reference to the corresponding figures in the accompanying drawings, and the descriptions do not constitute a limitation to the embodiments. Components in the accompanying drawings that have same reference numerals are represented as similar components, and unless otherwise particularly stated, the figures in the accompanying drawings are not drawn to scale.

FIG. 1 is a schematic diagram of an aerosol generation device during use according to an embodiment; FIG. 2 is a schematic diagram of the aerosol generation device in FIG. 1 from another perspective; FIG. 3 is a schematic diagram of an internal structure of the aerosol generation device in FIG. 1; FIG. 4 is a schematic cross-sectional view of the aerosol generation device in FIG. 3 along a width direction; FIG. 5 is a schematic structural diagram of an embodiment of a heater in FIG. 4;

FIG. 6 is a schematic structural diagram of an embodiment of a lower support mechanism in FIG. 4; FIG. 7 is a schematic three-dimensional cross-sectional view of an upper support mechanism in FIG. 5; FIG. 8 is a schematic cross-sectional view of each part of the upper support mechanism in FIG. 7 before assembly;

FIG. 9 is a schematic exploded view of each part of the upper support mechanism in FIG. 8 before assembly; and

FIG. 10 is a schematic diagram of an upper support mechanism and a lower support mechanism respectively clamping an aerosol-forming article at an upper end and a lower end close to a cavity according to another embodiment.

DETAILED DESCRIPTION

[0019] For ease of understanding of this application, this application is described in further detail below with reference to the accompanying drawings and specific implementations. It should be noted that, when an element is expressed as "being fixed to" another element, the element may be directly on the another element, or one or more intermediate elements may exist between the element and the another element. When an element is expressed as "being connected to" another element, the element may be directly connected to the another element, or one or more intermediate elements may exist between the element and the another element. The terms "upper", "lower", "left", "right", "inner", "outer", and similar expressions used in this specification are merely used for an illustrative purpose.

[0020] Unless otherwise defined, meanings of all technical and scientific terms used in this specification are the same as that usually understood by a person skilled in the technical field to which this application belongs. The terms used in this specification of this application are merely intended to describe objectives of the specific implementations, and are not intended to limit this application. The term "and/or" used in this specification includes any or all combinations of one or more related listed items.

[0021] An embodiment of this application provides an aerosol generation device that heats but not burns an aerosol-forming article, such as a cigarette, so as to volatilize or release at least one component of the aerosol-forming article to form an aerosol for inhalation.

[0022] Based on a preferred implementation, the aerosol generation device heats the aerosol-forming article by irradiating a far-infrared ray having a heating effect, for example, a far-infrared ray of 3 μm to 15 μm . During use, when a wavelength of the infrared ray matches an absorption wavelength of a volatile component of the aerosol-forming article, the energy of the infrared ray is easily absorbed by the aerosol-forming article, and the aerosol-forming article is then heated to volatilize at least one volatile component to generate an aerosol for inhalation.

[0023] In another optional implementation, the aerosol generation device heats the aerosol-forming article by electric resistance or electromagnetic induction heating.

[0024] A construction of the aerosol generation device according to an embodiment of this application may be shown in FIG. 1 and FIG. 2. The overall shape of the device is generally constructed into a flat cylinder shape, and an external member thereof includes:

a main housing 10, having a hollow structure inside, so as to form an assembling space for assembling each necessary functional component. The main housing 10 has a near end 110 and a far end 120 opposite to each other along a length direction, where

the near end 110 is provided with a receiving hole 111, through which an aerosol-forming article A may be received in the main housing 10 to be heated or removed from the main housing 10; and

the far end 120 is provided with an air inlet hole 121 and a charging interface 122. The air inlet hole 121 is configured to allow external air to enter the main housing 10 during inhalation; and the charging interface 122, such as a USB type-C interface or a pin interface, is used for charging the aerosol generation device by being connected to an external power source or an adapter.

[0025] Further, an internal construction of the main housing 10 is shown in FIG. 3 and FIG. 4, including a first compartment 130 and a second compartment 140 arranged sequentially along a width direction, where the first compartment 130 is an assembling space used for installing an electronic device, such as an electric core and a circuit board (not shown in the figure), while the second compartment 140 is an assembling space used for installing and maintaining a heating mechanism.

[0026] Referring to a preferred embodiment shown in FIG. 4, the heating mechanism includes:

a heater 30, constructed into a tubular shape, a tubular hollow being constructed as a cavity for receiving and heating the aerosol-forming article A. In an optional implementation, the heater 30 is a resistance heating tube with a resistance coefficient, or a metal induction heating tube that is penetrated by a magnetic field to generate heat, or an infrared transmitter that radiates infrared rays to the aerosol-forming article A to heat the aerosol-forming article A.

[0027] A heat insulation mechanism 40 is used for heat insulation of the heater 30 to prevent the heat of the heater 30 from being transferred outward to other components or a surface of the main housing 10 to cause heat damage; and in the preferred implementation of FIG. 4, the heat insulation mechanism 40 is a vacuum tube arranged around the heater 30, which conducts heat insulation through a vacuum region formed between two layers of tube walls.

[0028] The main housing 10 is further internally pro-

vided with:

an upper support mechanism 50 and a lower support mechanism 60, respectively providing support for the heater 30 and the heat insulation mechanism 40 at upper ends and lower ends thereof. In an implementation, the upper support mechanism 50 and the lower support mechanism 60 are both constructed into a hollow annular shape, and positioned coaxially with the heater 30.

[0029] An air inlet pipe 20 is positioned between the lower support mechanism 60 and the air inlet hole 121 to provide an air flow path between the air inlet hole 121 and the heater 30. The air inlet pipe 20 is also used to provide support for the lower support mechanism 60, so that the lower support mechanism 60 can be stably maintained in the main housing 10. In the process of inhalation, the air flow is as shown by an arrow R4 in FIG. 4. After entering the air inlet pipe 20 from the air inlet hole 121, the external air flows into the aerosol-forming article A held in the heater 30, and then is outputted carrying the generated aerosol.

[0030] Further, FIG. 5 shows a schematic structural diagram of a preferred embodiment of the heater 30 heating by radiating infrared rays.

[0031] The heater 30 includes: a tubular substrate 31, an inner space of the tubular substrate 31 forming a cavity for receiving and heating the aerosol-forming article A; an infrared emission coating 32, formed on an outer surface of the tubular substrate 31, configured to radiate infrared rays to the aerosol-forming article A received in the tubular substrate 31, thereby heating the aerosol-forming article A; and an electrode coating 33, formed on the infrared emission coating 32 and conducting electricity with the infrared emission coating 32, and then connected to the positive pole/negative pole of the electric core by ways of welding pins, conductive rings and the like to supply power to the infrared emission coating 32.

[0032] Generally, in an implementation, the tubular substrate 31 is made of materials with excellent infrared transmission, such as quartz, glass, silicon carbide, ceramics, or mica. The infrared emission coating 32 is preferably composed of oxides of at least one metal element, such as Mg, Al, Ti, Zr, Mn, Fe, Co, Ni, Cu, Cr, and Zn. These metal oxides can radiate far-infrared rays with heating effect when heated to an appropriate temperature. A coating thickness may preferably be controlled between 30 μm to 50 μm . The electrode coating 33 is made of a metal or alloy with low resistivity, such as silver, gold, palladium, platinum, copper, nickel, molybdenum, tungsten, niobium, or the above metal alloy materials.

[0033] Referring to the lower support mechanism 60 shown in FIG. 6, the lower support mechanism 60 includes: an annular protrusion 61 extending into the heater 30, and an annular port 62 formed between the annular protrusion 61 and an outer wall of the lower support mechanism 60. During use, after the annular protrusion 61 extends into the heater 30, the aerosol-forming article A abuts against the annular protrusion 61 to provide a stop for the aerosol-forming article A. In addition, the low-

er end of the heater 30 is inserted into the port 62 to be fixed.

[0034] Further, referring to FIG. 7 to FIG. 9, the upper support mechanism 50 includes: a rigid support member 51 and a flexible support member 52, constructed into an annular shape, where

the rigid support member 51 is usually made of hard plastic materials, such as PEEK, and an inner wall thereof is provided with several long and thin strip protrusions 511 arranged in a spaced manner along the circumferential direction thereof around the aerosol-forming article A of the cavity. The long and thin strip protrusions 511 are designed to be inclined from top to bottom, so as to provide guidance for inclination during the operation in which the aerosol-forming article A passes through the rigid support member 51 when the aerosol-forming article A is received into the heater 30; and when the aerosol-forming article A is received into the cavity, the long and thin strip protrusions 511 can also clamp the aerosol-forming article A.

[0035] The flexible support member 52 is flexible, for example, made of silica gel, and an inner wall thereof is provided with several circular protrusions 521 arranged around the aerosol-forming article A in the cavity; and the circular protrusions 521 are roughly in a circular shape, and also clamps and fixes the received aerosol-forming article A.

[0036] Further, referring to a schematic cross-sectional view of the upper support mechanism 50 after the assembly of the rigid support member 51 and the flexible support member 52 shown in FIG. 7. The long and thin strip protrusions 511 are arranged closer to the upper end, while the circular protrusions 521 are relatively farther away and closer to the lower end. During use, the highest protruding heights of the long and thin strip protrusions 511 and the circular protrusions 521 are different. Specifically, since the circular protrusions 521 are flexible and can be elastically retracted, the protruding height of the circular protrusions 521 is slightly greater than the protruding height of the strip protrusions 511 in the structure, usually about 1 mm to 3 mm higher; and when the aerosol-forming article A is received in the cavity, the protrusions hold the aerosol-forming article A together at different axial positions with appropriate tightness, so as to keep the central axis of the aerosol-forming article A coincident with the heater 30 as much as possible.

[0037] In the implementation, the long and thin strip protrusions 511 and the circular protrusions 521 have different surface friction coefficients, which makes the resistance gradually increase during the process in which the aerosol-forming article A is received in the cavity, and can keep the received aerosol-forming article A stable without slightly shaking or falling out of the receiving hole 111 during inclined use.

[0038] Certainly, in a preferred implementation shown in the figure, quantities of the long and thin strip protrusions 511 and the circular protrusions 521 are both even,

and are all arranged symmetrically along the central axis of the upper support mechanism 50. In this way, the aerosol-forming article A is clamped more stably.

[0039] In addition, the long and thin strip protrusions 511 and the circular protrusions 521 are relatively staggered along the axial direction, which is beneficial to preventing the inclination or eccentricity of the aerosol-forming article A.

[0040] Further, in the preferred embodiment shown in FIG. 7 and FIG. 8, a long and thin slit or groove 5211 extending along the length direction of the upper support mechanism 50 is arranged on the surface of the circular protrusions 521. The long and thin slit or groove 5211 can reduce a contact area between the surface of the circular protrusions 521 and the aerosol-forming article A, which is beneficial to reducing the friction resistance during the movement of the aerosol-forming article A.

[0041] Further, in order to facilitate the assembly of the rigid support member 51 and the flexible support member 52, referring to FIG. 8. The flexible support member 52 has an inner wall 522 and an outer wall 523 arranged sequentially from inside to outside along the radial direction, and a clamping cavity 524 formed between the inner wall 522 and the outer wall 523. The rigid support member 51 includes a portion 513 with a reduced thickness. During the assembly, the portion 513 with a reduced thickness of the rigid support member 51 is extended into the clamping cavity 524 and is clamped by the inner wall 522 and the outer wall 523.

[0042] In addition, the upper support mechanism 50 further includes a positioning mechanism, which provides positioning assistance and prevents detachment during the assembly of the rigid support member 51 and the flexible support member 52. For example, in the implementation shown in FIG. 8, the positioning mechanism includes a groove or hole 512 formed on the portion 513 with a reduced thickness of the rigid support member 51, and correspondingly, includes a convex 525 matching the groove or hole 512 and arranged on the flexible support member 52.

[0043] The rigid support member 51 is provided with several extending parts 514 in a sheet shape which are located at the outermost layer along the radial direction and extend along the axial direction. The surface of the extending part 514 is used to abut against the heat insulation mechanism 40, so as to be fixed with the heat insulation mechanism 40.

[0044] In another variant implementation shown in FIG. 10, an inner wall of an upper support mechanism 50b is provided with a circular protrusion 511b; and a lower support mechanism 60b provides a stop along the axial direction for the aerosol-forming article A, and further has a protrusion 611b with an inclined surface clamping and abutting in the radial direction. Therefore, the aerosol-forming article A is supported in the radial direction at different heights respectively near the upper end and the lower end of the cavity, so as to clamp the aerosol-forming article A received in the cavity.

[0045] It should be noted that, the specification of this application and the accompanying drawings thereof illustrate preferred embodiments of this application. However, this application may be implemented in various different forms, and is not limited to the embodiments described in this specification. These embodiments are not intended to be an additional limitation on the content of this application, and are described for the purpose of providing a more thorough and comprehensive understanding of the content disclosed in this application. Moreover, the foregoing technical features are further combined to form various embodiments not listed above, and all such embodiments shall be construed as falling within the scope of this application. Further, a person of ordinary skill in the art may make improvements or modifications according to the foregoing description, and all the improvements and modifications shall fall within the protection scope of the attached claims of this application.

Claims

1. An aerosol generation device, configured to heat an aerosol-forming article to generate an aerosol for inhalation, the device comprising a housing, wherein the housing is internally provided with:

a cavity, configured to receive the aerosol-forming article;
 at least one heater, configured to heat the aerosol-forming article; and
 a support mechanism, constructed to surround at least a part of the cavity, wherein an inner surface of the support mechanism is provided with a plurality of first protrusions and a plurality of second protrusions spaced along a circumferential direction of the cavity, configured to provide support along a radial direction for inhalable materials received in the cavity to clamp the aerosol-forming article received in the cavity; and the first protrusion and the second protrusion are arranged in a spaced manner along an axial direction of the cavity.

2. The aerosol generation device according to claim 1, wherein the plurality of first protrusions and the plurality of second protrusions are staggered from each other on the inner surface of the support mechanism along the axial direction of the cavity.
3. The aerosol generation device according to claim 1 or 2, wherein one of the plurality of first protrusions and the plurality of second protrusions is rigid, and the other is flexible.
4. The aerosol generation device according to claim 1 or 2, wherein the housing is provided with a receiving hole at one end, and the aerosol-forming article is

received detachably in the cavity through the receiving hole; and
 the plurality of first protrusions are closer to the receiving hole than the plurality of second protrusions.

5. The aerosol generation device according to claim 4, wherein a surface of the second protrusion is provided with a long and thin slit or groove extending along the axial direction of the support mechanism.
6. The aerosol generation device according to claim 1 or 2, wherein the support mechanism comprises an annular rigid support member and an annular flexible support member arranged coaxially; and the plurality of first protrusions are formed on the inner surface of the rigid support member, and the plurality of second protrusions are formed on the inner surface of the flexible support member.
7. The aerosol generation device according to claim 6, wherein the flexible support member comprises an inner wall and an outer wall arranged sequentially from inside to outside along the radial direction, and a clamping cavity formed between the inner wall and the outer wall; and the rigid support member is at least partially retained in the clamping cavity.
8. The aerosol generation device according to claim 1 or 2, wherein the cavity comprises a near end and a far end facing away from each other along the axial direction;
 the support mechanism comprises a first support member with the first protrusion and a second support member with the second protrusion; and the first support member is adjacent to the near end of the cavity, and the second support member is adjacent to the far end of the cavity.
9. The aerosol generation device according to claim 1 or 2, wherein the plurality of first protrusions have a surface friction coefficient different from that of the plurality of second protrusions.
10. The aerosol generation device according to claim 1 or 2, wherein the plurality of first protrusions and/or the plurality of second protrusions are symmetrically arranged along a central axis of the cavity.
11. An aerosol generation device, configured to heat an aerosol-forming article to generate an aerosol for inhalation, the device comprising a housing, wherein the housing is internally provided with:
 a cavity, configured to receive the aerosol-forming article;
 at least one heater, configured to heat the aerosol-forming article; and
 a support mechanism, comprising a rigid sup-

port member and a flexible support member, at least a part of the rigid support member surrounding the cavity, wherein the flexible support member is provided with an outer surface and an inner surface opposite to each other along a radial direction, the inner surface is provided with a plurality of protrusions spaced along a circumferential direction of the cavity, and the protrusion protrudes from the inner surface toward the cavity to provide an elastically retractable support along the radial direction for inhalable materials received in the cavity, so as to clamp the aerosol-forming article.

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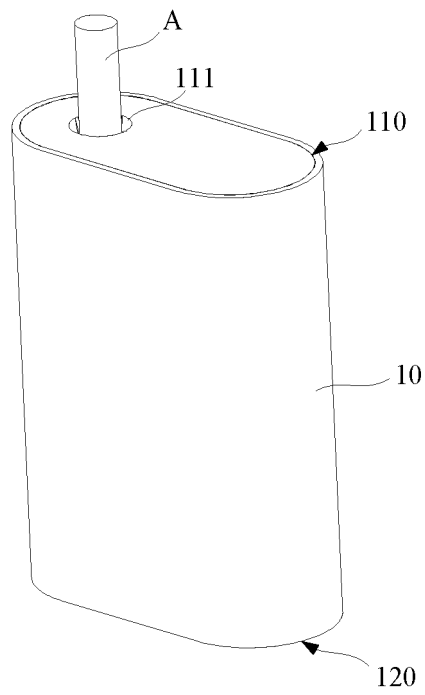


FIG. 1

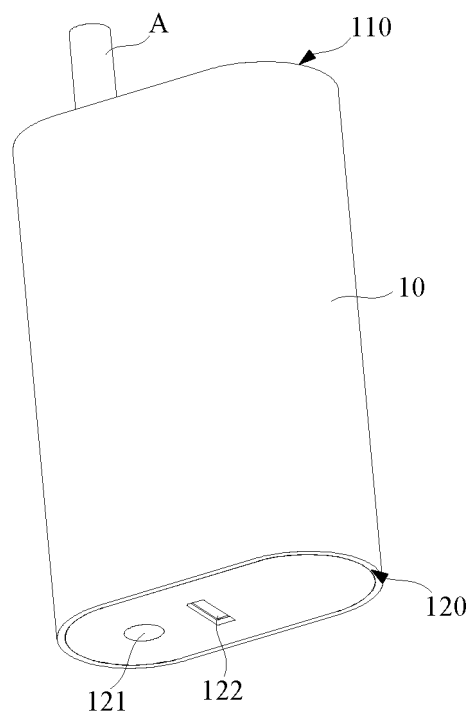


FIG. 2

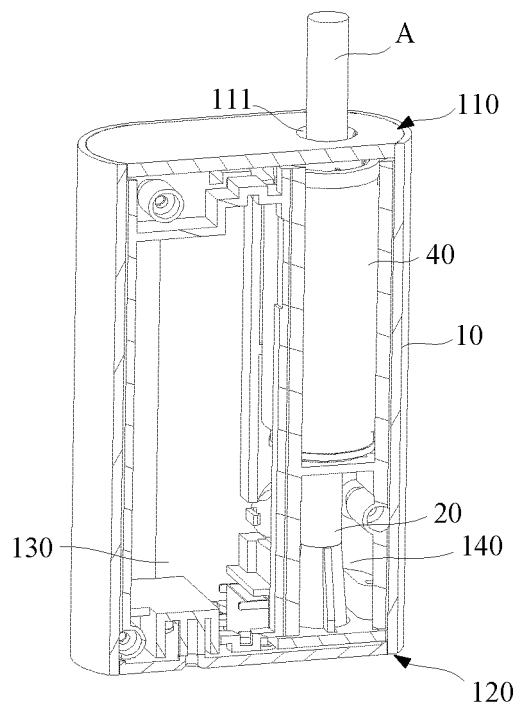


FIG. 3

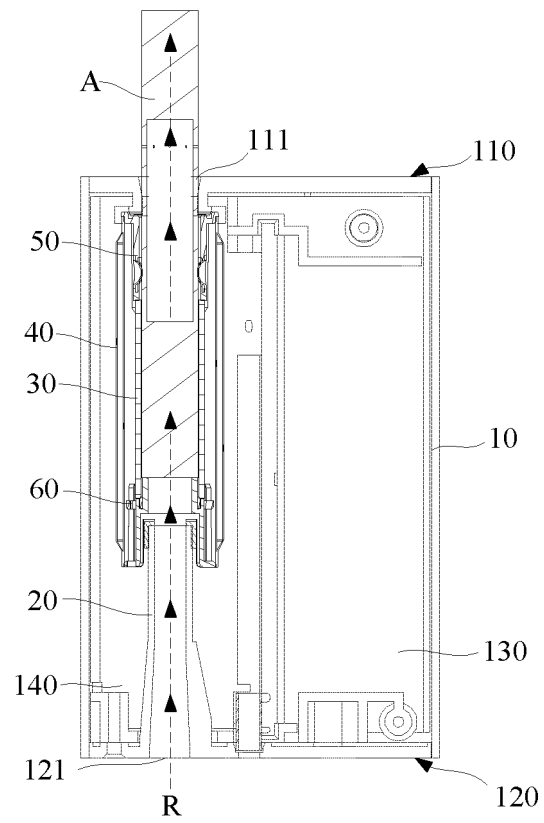


FIG. 4

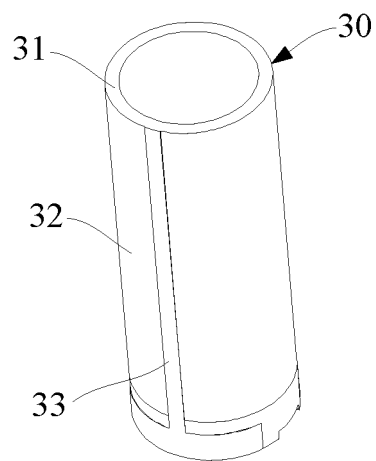


FIG. 5

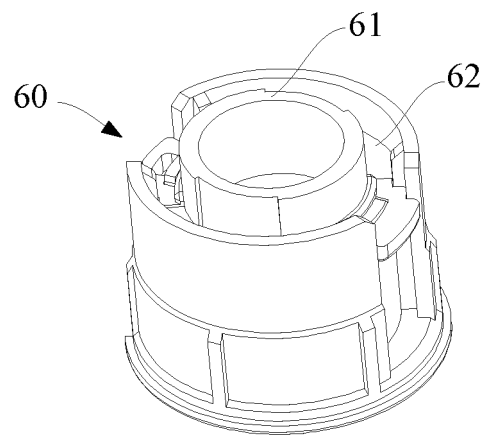


FIG. 6

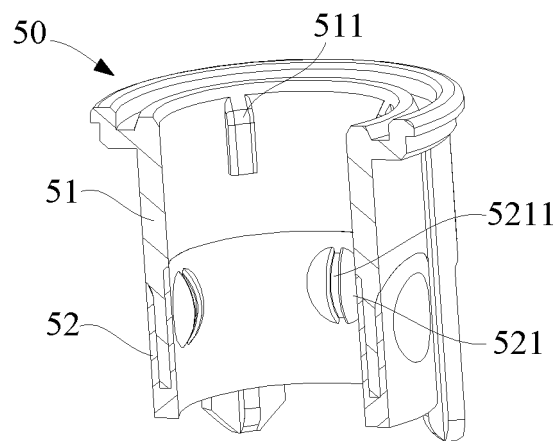


FIG. 7

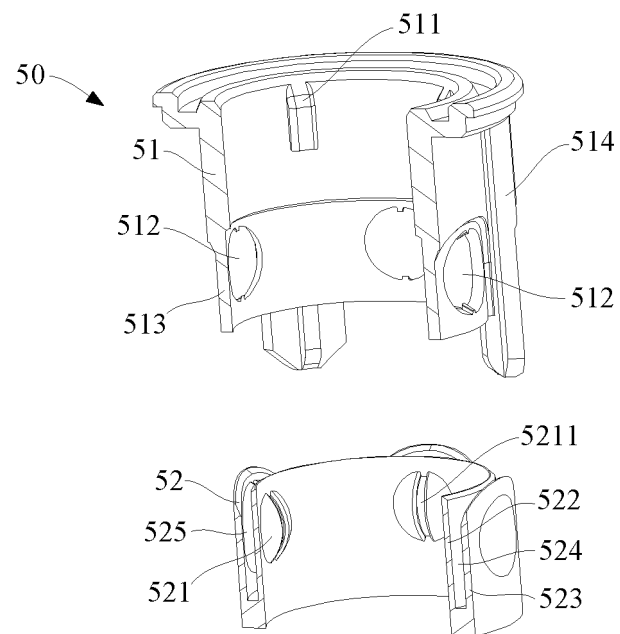


FIG. 8

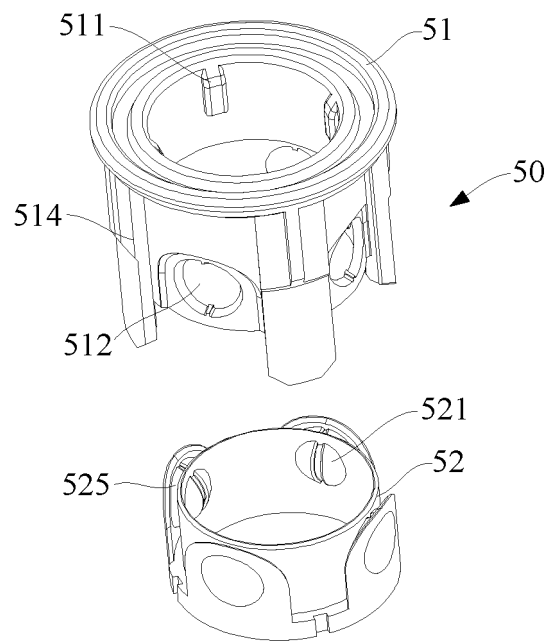


FIG. 9

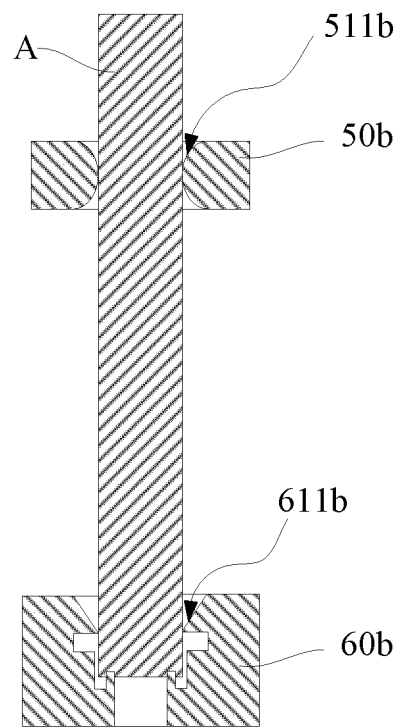


FIG. 10

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2021/120353

A. CLASSIFICATION OF SUBJECT MATTER

A24F 40/42(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)

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)

CNABS; CNTXT; CNKI; VEN; WOTXT; USTXT; JPTXT; EPTXT; 电子烟, 雾化, 夹持, 夹紧, 卡, 定位, 凸块, 突块, 弹性, 柔性, 变形, 压缩, 插, 接触, 碰, 伸, 防止, 避免, 减少, 摩擦, 周, 径向, 内壁, 晃动, 倾斜, 脱离, 缝, 槽, 阻, 烟草制品, 烟支, 烟体, aerosol, protrusion+, axial, support+, bump+, cigarette, flexib+, friction, clamp+, inclinat+, slosh

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 213604392 U (SHENZHEN FIRST UNION TECHNOLOGY CO., LTD.) 06 July 2021 (2021-07-06) claims 1-10, description paragraphs [0052]-[0063]	1-11
X	CN 208160043 U (HUIZHOU XINHONGWEI TECHNOLOGY CO., LTD.) 30 November 2018 (2018-11-30) description, paragraphs [0023]-[0029], and figures 1-6	1, 2, 4, 9, 10
Y	CN 208160043 U (HUIZHOU XINHONGWEI TECHNOLOGY CO., LTD.) 30 November 2018 (2018-11-30) description, paragraphs [0023]-[0029], and figures 1-6	3
X	CN 207940349 U (SHANGHAI NEW TOBACCO PRODUCT RES INSTITUTE CO., LTD. et al.) 09 October 2018 (2018-10-09) description paragraphs [0061], [0087]-[0090], figure 5	11
Y	CN 207940349 U (SHANGHAI NEW TOBACCO PRODUCT RES INSTITUTE CO., LTD. et al.) 09 October 2018 (2018-10-09) description paragraphs [0061], [0087]-[0090], figure 5	3

☒ 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

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2021/120353

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C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 207821113 U (HUBEI CHINA TOBACCO INDUSTRY CO., LTD.) 07 September 2018 (2018-09-07) entire document	1-11
A	CN 206994432 U (HUIZHOU KIMREE TECHNOLOGY CO., LTD. SHENZHEN BRANCH) 13 February 2018 (2018-02-13) entire document	1-11

INTERNATIONAL SEARCH REPORT
Information on patent family members

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REFERENCES CITED IN THE DESCRIPTION

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