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(54) **AEROSOL GENERATING DEVICE**

(57) Disclosed is an aerosol generating device, comprising an extraction member and a heating member, the extraction member being internally provided with a hollow cavity for accommodating an aerosol generating substrate segment, and the hollow cavity comprising a first connecting end and a second connecting end which are oppositely arranged; and the heating member comprises a heating body for heating the aerosol generating substrate segment and a sealing plug that is mounted at one end of the heating body; when the heating body extends into the hollow cavity from the second connecting end, same is inserted into the aerosol generating substrate segment that extends from the first connecting end into the hollow cavity, and the sealing plug sealingly cooperates with an end surface opening of the second connecting end. The aerosol generating device provided in the present invention improves the sealing performance of an aerosol generating substrate segment area, reduces

the oxygen content in the aerosol generating substrate segment area, and reduces the generation of harmful substances when a consumer smokes a tobacco product.

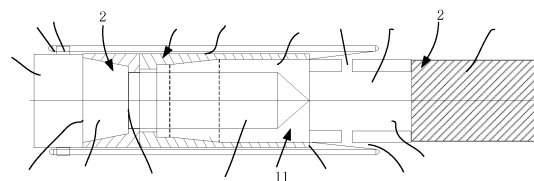


Fig. 1

Description

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of Chinese patent application No. 202110623745.3, filed on June 4, 2021, the entire content of which is incorporated herein by reference.

FIELD OF THE INVENTION

[0002] The present invention relates to the field of novel aerosol product technology, and more particularly to an aerosol generating device.

BACKGROUND OF THE INVENTION

[0003] Currently, in order to reduce the generation of harmful substances when consumers smoke tobacco products, aerosols are generally generated by heating rather than igniting the aerosol generating matrix. There are three ways to achieve non-combustion: the first is to replace the combustible; the second is to reduce the temperature below the ignition point of the combustible; and the third is to reduce the oxygen content of the combustion accelerant.

[0004] In the prior art, for example, patents 202010241328.8 and 202010241686.9 disclose an oxygen-depleted heated cigarette assembly and a closed heat-not-burn cigarette and assembly, respectively, which achieve aerosol generation and extraction of an aerosol generating substrate segment under a heat-not-burn state by hermetically sealing the aerosol generating substrate segment and changing the air flow path to reduce the oxygen content in the region of the aerosol generating substrate segment. However, the above-described arrangement is suitable for the provision of circumferential heating members, whereas for a centrally disposed heating type aerosol generating device, of which the sealing properties within the region of the aerosol generating substrate segment are poor and the oxygen content within the region of aerosol generating substrate segment cannot be effectively reduced.

[0005] Therefore, it is necessary to solve the above-mentioned technical problems.

SUMMARY OF THE INVENTION

[0006] In view of the above, it is an object of the present invention to provide an aerosol generating device that improves the sealing in the region of the aerosol generating substrate segment, reduces the oxygen content in the region of aerosol generating substrate segment, and reduces the generation of harmful substances when consumer smokes tobacco products.

[0007] In view of the above, the present invention provides an aerosol generating device comprising an extraction member and a heating member, wherein a hollow

cavity for accommodating an aerosol generating substrate segment is arranged within said extraction member, and said hollow cavity comprises a first connecting end and a second connecting end which are oppositely arranged; said heating member comprises a heating body for heating the aerosol generating substrate segment and a sealing plug arranged at one end of the heating body; when the heating body extends into the hollow cavity from the second connecting end, the heating body is inserted into the aerosol generation substrate segment extending into the hollow cavity from the first connecting end, and the sealing plug is sealed and fitted with an end face opening of the second connecting end.

[0008] Optionally, the sealing plug is a circular platform comprising a top surface and a bottom surface arranged back to each other, a diameter of said top surface is smaller than that of the bottom surface, the heating body is mounted on the top surface, and a tapered cavity structure sealed and fitted with an outer sidewall of the circular platform is provided in the second connecting end.

[0009] Optionally, the bottom surface is connected with a cylindrical protruding table, a diameter of said cylindrical protruding table is greater than that of the bottom surface, said cylindrical protruding table is abutted against a circumferential sidewall of the second connecting end.

[0010] Optionally, a first cavity structure, a gradually expanding cavity structure and a second cavity structure that are communicated in sequence are provided within the first connecting end, the first cavity structure is located between the tapered cavity structure and the gradually expanding cavity structure, the gradually expanding cavity structure is located between the first cavity structure and the second cavity structure, an internal diameter of the first cavity structure is smaller than an external diameter of the aerosol generating substrate segment, and an internal diameter of the second cavity structure having is greater than the external diameter of the aerosol generating substrate segment.

[0011] Optionally, a first transition cavity structure and a second transition cavity structure are further disposed in the second connecting end, the first transition cavity structure is located between the second transition cavity structure and the tapered cavity structure, the second transition cavity structure is located between the first transition cavity structure and the first cavity structure, an inner wall of the first transition cavity structure is adapted to connect to an outer wall of the heating body, and an inner diameter of the second transition cavity structure is larger than an outer diameter of the heating body.

[0012] Optionally, the extraction member comprises a first body and a second body which are detachably and sealably connected, the tapered cavity structure is disposed within the first body, the first cavity structure, the tapered cavity structure and the second cavity structure are all disposed within the second body, the first body is made of a flexible material, and the second body is made of a rigid material.

[0013] Optionally, the aerosol generating device further comprises an aerosol medium configured as an independent and replaceable unitary body for use with the aerosol generating device, said aerosol medium comprises the aerosol generating substrate segment, the aerosol extraction section and the functional filter of which end surfaces abutting each other in turn, the aerosol extraction section is located between the aerosol generating substrate segment and the functional filter, an outer sidewall of aerosol generating substrate segment is sealably attached onto the inner wall inside the first connecting end, the aerosol extraction section is located outside the first connecting end.

[0014] Optionally, a cavity penetrating the length direction of the aerosol extraction section is provided within the aerosol extraction section, and at least one through hole communicating with said cavity is opened on an outer sidewall of the aerosol extraction section, said at least one through hole penetrates said aerosol extraction section in a direction perpendicular to the length of the aerosol extraction section.

[0015] Optionally, said extraction member further comprises a first housing, the first housing includes an installation end surface on which is provided with a gradually expanding opening structure, one end of the gradually expanding opening structure is mounted on a circumferential sidewall of the installation end surface, the other end of the gradually expanding opening structure expandingly extends in a direction away from the installation end surface, and when aerosol generating substrate segment is mounted within the first connecting end, said at least one through hole is located within the gradually expanding opening structure.

[0016] Optionally, the first housing further comprises a sealing end surface arranged opposite to the installation end surface, a limiting member is arranged on an inner wall of the sealing end surface, and when the cylindrical protruding table is mounted within the second connecting end, the limiting member is abutted against an outer sidewall of the cylindrical protruding table.

[0017] Optionally, said extraction member further comprises a second housing detachably connected to the first housing, a power supply and a control module, said cylindrical protruding table is mounted within the second housing, the control module is in communication with the power supply to control the heating body to start or stop and to maintain the temperature of the heating body during use.

[0018] The aerosol generating device provided in the present invention comprises an extraction member and a heating member, by extending the aerosol generating substrate segment into the hollow cavity from the first connecting end, extending the heating body into the hollow cavity from the second connecting end, and inserting the heating body into the aerosol generating substrate segment, a sealing plug blocks an end face opening of the second connecting end. When the heating body heats the aerosol generating substrate segment, one end of

the aerosol generating substrate segment far away from the oral cavity of a consumer is sealed by the sealing plug, when the consumer smokes, the gas diffuses along one end toward the oral cavity of the consumer, thereby prevent outside air entering the aerosol generating substrate segment from one end close to the oral cavity of the consumer, so that the region of the aerosol generating substrate segment is sealed, and the sealing performance in the region of the aerosol generating substrate segment is improved, the oxygen content in the region of the aerosol generating substrate segment is reduced, thereby reducing the generation of harmful substances when the consumer smokes the tobacco product.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] The objects and advantages of the present invention will be understood by the following detailed description of the preferred embodiments of the invention, taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a schematic structural diagram of an embodiment of the present invention;

Fig. 2 is a schematic cross-sectional view of an extraction member according to an embodiment of the present invention;

FIG. 3 is a schematic structural diagram of a heating member according to an embodiment of the present invention;

FIG. 4 is a schematic view of an aerosol media construction according to an embodiment of the present invention;

FIG. 5 is a schematic structural diagram of an aerosol generating device in operation according to an embodiment of the present invention;

FIG. 6 is a schematic structural diagram of an extraction member and an aerosol medium of an aerosol generating device according to an embodiment of the invention.

[0020] Explanation of the reference numerals:

1: an extraction member; 2: a heating member; 3: an aerosol medium;
10: a first body; 11: a hollow cavity; 12: a first connecting end; 13: a second connecting end; 14: a tapered cavity structure; 15: a first cavity structure; 16: a gradually expanding cavity structure; 17: a second cavity structure; 18: a first transition cavity structure; 19: a second transition cavity structure; 20: a second body;
21: a heating body; 22: a sealing plug; 23: a top surface; 24: a bottom surface; 25: a cylindrical protruding table;
31: an aerosol generating substrate segment; 32: an aerosol extraction section; 33: a functional filter; 34: a through hole; 35: a cavity;

41: a first housing; 42: an installation end surface; 43: a gradually expanding opening structure; 44: a second housing; 45: a sealing end surface; 46: a limiting member; 47: a power supply; 48: a control module; and 49: a magnet.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0021] The present invention will be described in detail with reference to examples. In which like parts are designated by like reference numerals. It should be noted that as used in the following description, the terms "front," "back," "left," "right," "upper" and "lower" refer to directions in the drawings, and the terms "inner" and "outer" refer to directions toward and away from, respectively, the geometric center of a particular component.

[0022] As shown in Figs 1, 2 and 3, an aerosol generating device provided in the present invention comprises an extraction member 1 and a heating member 2, wherein: a hollow cavity 11 for accommodating the aerosol generating substrate segment 31 is arranged within the extraction member 1, and the hollow cavity 11 comprises a first connecting end 12 and a second connecting end 13 which are oppositely arranged; the heating member 2 comprises a heating body 21 for heating the aerosol generating substrate segment 31 and a sealing plug 22 mounted on one end of the heating body 21; when the heating body 21 extends into the hollow cavity 11 from the second connecting end 13, it is inserted into the aerosol generating substrate segment 31 extending into the hollow cavity 11 from the first connecting end 12, and the sealing plug 22 is sealed and fitted with the end face opening of the second connecting end 13.

[0023] It should be noted that the aerosol generating substrate segment 31 is detachably connected with the heating body 21, that is, the aerosol generating substrate segment 31 may also be pulled out from the heating body 21 and the first connecting end 12, and when the aerosol generating substrate segment 31 needs to be replaced, the aerosol generating substrate segment 31 can be pulled out from the first connecting end 12, so that the aerosol generating substrate segment 31 that drops or remains on the heating body 21 can be cleaned.

[0024] The aerosol generating device provided in the present invention comprises an extraction member 1 and a heating member 2, by extending the aerosol generating substrate segment 31 from the first connecting end 12 into the hollow cavity 11, extending the heating body 21 from the second connecting end 13 into the hollow cavity 11, and when the heating body is inserted into the aerosol generating substrate segment 31, the sealing plug 22 seals and blocks the end face opening of the second connecting end 13, when the heating body 21 heats the aerosol generating substrate segment 31, one end of the aerosol generating substrate segment 31 far away from the oral cavity of a consumer is sealed by the sealing plug 22, when the consumer smokes, the gas diffuses along one end toward the oral cavity of the consumer,

thereby preventing the external air from entering the aerosol generating substrate segment 31 from one end close to the oral cavity of the consumer, so that the region of the aerosol generating substrate segment 31 is sealed, and the sealing performance in the region of the aerosol generating substrate segment 31 is improved, the oxygen content in the region of the aerosol generating substrate segment 31 is reduced, thereby reducing the generation of harmful substances when the consumer smokes the tobacco product.

[0025] As shown in Fig. 2 and Fig. 3, a circular platform includes a top surface 23 and a bottom surface 24 which are arranged back to each other, the diameter of the top surface 23 is smaller than that of the bottom surface 24, the heating body 21 is installed on the top surface 23, and a tapered cavity structure 14 which is sealed and fitted with the outer sidewall of the circular platform is arranged within the second connecting end 13. In this embodiment, the tapered cavity structure 14 within the cavity 11 is adapted to connect with the tapered sidewall of the circular platform, and the tapered mouth structure improves the structural connection stability of the aerosol generation device, and thereby improving the sealing performance of blocking the end face opening of the second connecting end 13.

[0026] As shown in Fig. 2 and 3, the bottom surface 24 is connected with a cylindrical protruding table 25, the diameter of the cylindrical protruding table 25 is larger than that of the bottom surface 24, and the cylindrical protruding table 25 abuts on the circumferential sidewall of the second connecting end 13. In this embodiment, on the one hand, the cylindrical protruding table 25 increases the structural strength of the heating member 2, increases the structural stability of the heating member 2, and further improves the structural stability of the aerosol generating device; on the other hand, the end face of the cylindrical protruding table 25 further blocks the end face opening of the second connecting end 13, thereby further improving the sealing performance in the region of the aerosol generating substrate segment 31.

[0027] As shown in Fig. 2, a first cavity structure 15, a gradually expanding cavity structure 16 and a second cavity structure 17 which are communicated in sequence are arranged in the first connecting end 12, the first cavity structure 15 is located between the tapered cavity structure 14 and the gradually expanding cavity structure 16, the gradually expanding cavity structure 16 is located between the first cavity structure 15 and the second cavity structure 17, the inner diameter of the first cavity structure 15 is smaller than the outer diameter of the aerosol generating substrate segment 31, and the inner diameter of the second cavity structure 17 is greater than the outer diameter of the aerosol generating substrate segment 31. It should be noted that the first cavity structure 15, the gradually expanding cavity structure 16, and the second cavity structure 17 are all provided with smooth inner walls. In this embodiment, specifically, the first cavity structure 15 may be a cylindrical cavity structure, the in-

ner diameter of the first cavity structure 15 is smaller than the outer diameter of the aerosol generating substrate segment 31, and the first cavity structure 15 and the aerosol generating substrate segment 31 are in interference fit, so that the structural stability of the aerosol generating substrate segment 31 being inserted into the hollow cavity 11 is improved, specifically, the second cavity structure 17 may also be a columnar cavity structure, and the inner diameter of the second cavity structure 17 is larger than the outer diameter of the aerosol generating substrate segment 31, so that the operation convenience of pulling the aerosol generating substrate segment 31 out of the hollow cavity 11 is improved; the gradually expanding cavity structure 16 enables the aerosol generating substrate segment 31 to move smoothly between the first cavity structure 15 and the second cavity structure 17, which improves the structural stability and the operation convenience of the aerosol generating device.

[0028] As shown in Fig. 2 and Fig. 3, the second connecting end 13 further provided with a first transition cavity structure 18 and a second transition cavity structure 19, the first transition cavity structure 18 is located between the second transition cavity structure 19 and the tapered cavity structure 14, the second transition cavity structure 19 is located between the first transition cavity structure 18 and the first cavity structure 15, and the inner wall of the first transition cavity structure 18 is adapted to connect with the outer wall of the heating body 21, and the inner diameter of the second transition cavity structure 19 is greater than the outer diameter of the heating body 21. It should be noted that the heating body 21 may be shaped in a sheet, a needle, or an anisotropic column, and correspondingly, the first transition cavity structure 18 and the second transition cavity structure 19 are both only need to be adapted to connect with the heating body 21. In this embodiment, specifically, the inner diameter of the first transition cavity structure 18 is smaller than the outer diameter of the heating body 21, and when the heating body 21 is installed in the hollow cavity 11, the outer wall of the heating body 21 is tightly attached to the inside of the hollow cavity 11, so that the structural stability of the aerosol generating device is improved; the inner diameter of the second transition cavity structure 19 is larger than the outer diameter of the heating body 21, so that the operation convenience of pulling the heating body 21 out of the hollow cavity 11 is improved.

[0029] As shown in Fig. 2, the extraction member 1 may include the first body 10 and the second body 20 that are detachably and sealingly connected. The tapered cavity structure 14 is disposed in the first body 10. The first cavity structure 15, the gradually expanding cavity structure 16, and the second cavity structure 17 are disposed in the second body 20. The first body 10 is made of a flexible material, and the second body 20 is made of a rigid material. Specifically, the first body 10 and the second body 20 may be sealed and connected by meshing, gluing, concave-convex fitting, or the like. In this embodiment, the first body 10 is made of a flexible

material, specifically, it may be silica gel, when the heating member 2 is inserted into the hollow cavity 11, the inner wall of the first body 10 is elastically deformed to realize the sealing connection between the circular platform and the first body 10 through the interference fit with the outer sidewall of the circular platform, so that convenience of sealing operation of the end surface of the aerosol generating device is improved. The second body 20 is made of a rigid material, the aerosol generating substrate segment 31 is made of a flexible material, and the mounting between the aerosol generating substrate segment 31 and the hollow cavity 11 may be also preferably realized through the interference fit between the second body 20 and the aerosol generating substrate segment 31, so that the structural stability of region of the aerosol generating substrate segment 31 is improved.

[0030] As shown in Fig. 4, the aerosol generating device further comprises an aerosol medium 3, which is configured as an independent and replaceable unitary body that can be used in cooperation with the aerosol generating device. The aerosol medium 3 comprises the aerosol generating substrate segment 31, an aerosol extraction section 32 and a functional filter 33, of which the end faces abut one another in turn. The aerosol extraction section 32 is located between the aerosol generating substrate segment 31 and the functional filter 33. The outer sidewall of the aerosol generating substrate segment 31 is sealably attached onto the inner wall inside the first connecting end 12, and the aerosol extraction section 32 is located outside the first connecting end 12. In this embodiment, specifically, the aerosol medium 3 may be a cylindrical structure, and may be a cigarette or a cigarette cartridge. The aerosol generating substrate segment 31, the aerosol extraction section 32 and the functional filter 33 may be arranged coaxially. When a consumer inhales the aerosol medium 3, the aerosol gas diffuses along one end toward the oral cavity of the consumer, thereby preventing outside air from entering the aerosol generating substrate segment 31 from the end close to the oral cavity of the consumer, so that the further sealing for the region of the aerosol generating substrate segment 31 is achieved, which is able to improve the sealing performance in the region of the aerosol generating substrate segment 31 is improved, reduce the oxygen content in the region of the aerosol generating substrate segment 31, and thereby further reduces the generation of harmful substances when the consumers smoke tobacco products. The functional filter can effectively filter the harmful substance in the aerosol gases, which is able to reduce aerosol damage to consumers' health.

[0031] As shown in Fig. 1 and 4, a cavity 35 penetrating the length direction of the aerosol extraction section 32 is provided in the aerosol extraction section 32, and at least one through hole 34 communicated with the cavity 35 is provided on the outer sidewall of the aerosol extraction section 32, the through hole 34 penetrates the

aerosol extraction section 32 in a direction perpendicular to the length of the aerosol extraction section 32. In this embodiment, there may be a plurality of through holes 34, and the plurality of through holes 34 are arranged circumferentially along the outer sidewall of the aerosol extraction section 32. As the air current passage, above-mentioned through holes 34 can effectively extract the aerosol which is generated by heating the aerosol generation substrate segment 31, and at the same time, the air resistance is reduced when the consumer smokes, thereby improving the comfort level of the consumer's experience.

[0032] As shown in Fig. 1 and 4, the extraction member 1 further comprises a first housing 41, the first housing 41 comprises an installation end surface 42, the installation end surface 42 is provided with a gradually expanding opening structure 43, one end of the gradually expanding opening structure 43 is mounted on the circumferential sidewall of the installation end surface 42, and the other end of the gradually expanding opening structure 43 expandingly extends in a direction away from the installation end surface 42, and when the aerosol generating substrate segment 31 is mounted within the first connecting end 12, the through holes 34 are located inside the gradually expanding opening structure 43. It should be noted that the through holes 34 may be located outside the gradually expanding opening structure 43. In this embodiment, the gradually expanding opening structure 43 provides a relatively convenient operation space for extracting the aerosol medium 3, thereby improving the operation convenience of the aerosol generating device; when locating above-mentioned through holes 34 inside the region covered by the gradually expanding opening structure 43, the decorative effect of aerosol generation device is improved, thereby improving the comfort level of the consumer's experience.

[0033] As shown in Fig. 1, the first housing 41 further includes a sealing end surface 45 disposed opposite to the installation end surface 42, a limiting member 46 is disposed on the inner wall of the sealing end surface 45, and when the circular platform is mounted inside the second connecting end 13, the limiting member 46 is abutted against and mounted on the outer sidewall of the cylindrical protruding table 25. In this embodiment, the limiting member 46 may be a magnet, an electromagnet, a concave-convex structure, etc., and the extraction member 1 may be releasably or movably coupled coaxially into the heating member 2 through the limiting member 46, which improves the structural stability of the aerosol generating device.

[0034] As shown in Figs. 5 and 6, the extraction member 1 further comprises a second housing 44 detachably connected to the first housing 41, a power supply 47 and a control module 48, the cylindrical protruding table 25 is mounted within the second housing 44, and the control module 48 is in communication with the power supply 47 to control the heating body to start or stop heating, and to maintain the temperature of the heating body 21 during

use. It should be noted that maintaining the temperature of the heating body 21 during use refers to the temperature at which the aerosol generating substrate segment 31 is able to generate aerosol; the control module 48 controls the power supply 47 to supply power to the heating body 21. In this embodiment, the first housing 41 and the second housing 44 are coaxially and cooperatively connected, specifically, the first housing 41 may be detachably connected to the second housing 44 through the magnet 49, so that the structural stability and the operation convenience of the aerosol generating device are improved; the control module 48 controls the heating body 21 to be started or stopped, so that the operation convenience of the aerosol generating device is improved through .

[0035] The aerosol generating device provided by the present invention comprises an extraction member 1 and a heating member 2, by extending the aerosol generating substrate segment 31 into the hollow cavity 11 from the first connecting end 12, extending the heating body 21 into the hollow cavity 11 from the second connecting end 13, and inserting the heating body 21 into the aerosol generating substrate segment 31, a sealing plug 22 blocks an end face opening of the second connecting end 13. When the heating body 21 heats the aerosol generating substrate segment 31, one end of the aerosol generating substrate segment 31 far away from the oral cavity of a consumer is sealed by the sealing plug 22, when the consumer smokes, the gas diffuses along one end toward the oral cavity of the consumer, thereby prevent outside air entering the aerosol generating substrate segment 31 from one end close to the oral cavity of the consumer, so that the region of the aerosol generating substrate segment 31 is sealed, and the sealing performance in the region of the aerosol generating substrate segment 31 is improved, the oxygen content in the region of the aerosol generating substrate segment 31 is reduced, thereby reducing the generation of harmful substances when the consumer smokes the tobacco product.

[0036] Finally, it should be noted that: the above examples are only intended to illustrate the technical solution of the present invention, and not to limit it; although the present invention has been described in detail with reference to the foregoing embodiments, it should be understood by those of ordinary skill in the art that: the technical solutions described in the foregoing embodiments may still be modified, or some technical features may be equivalently replaced; and these modifications or substitutions do not depart from the spirit of the corresponding technical solutions of the embodiments of the present invention.

Claims

1. An aerosol generating device comprising an extraction member and a heating member, wherein:

- a hollow cavity for accommodating an aerosol generating substrate segment is arranged within said extraction member, and said hollow cavity comprises a first connecting end and a second connecting end which are oppositely arranged; said heating member comprises a heating body for heating the aerosol generating substrate segment and a sealing plug arranged at one end of the heating body; when the heating body extends into the hollow cavity from the second connecting end, the heating body is inserted into the aerosol generation substrate segment extending into the hollow cavity from the first connecting end, and the sealing plug is sealed and fitted with an end face opening of the second connecting end.
2. The aerosol generating device according to claim 1, wherein the sealing plug is a circular platform comprising a top surface and a bottom surface arranged back to each other, a diameter of said top surface is smaller than that of the bottom surface, the heating body is mounted on the top surface, and a tapered cavity structure sealed and fitted with an outer sidewall of the circular platform is provided in the second connecting end.
 3. The aerosol generating device according to claim 2, wherein the bottom surface is connected with a cylindrical protruding table, a diameter of said cylindrical protruding table is greater than that of the bottom surface, said cylindrical protruding table is abutted against a circumferential sidewall of the second connecting end.
 4. The aerosol generating device according to claim 3, **characterized in that**, a first cavity structure, a gradually expanding cavity structure and a second cavity structure that are communicated in sequence are provided within the first connecting end, the first cavity structure is located between the tapered cavity structure and the gradually expanding cavity structure, the gradually expanding cavity structure is located between the first cavity structure and the second cavity structure, an internal diameter of the first cavity structure is smaller than an external diameter of the aerosol generating substrate segment, and an internal diameter of the second cavity structure having is greater than the external diameter of the aerosol generating substrate segment.
 5. The aerosol generating device according to claim 4, **characterized in that**, a first transition cavity structure and a second transition cavity structure are further disposed in the second connecting end, the first transition cavity structure is located between the second transition cavity structure and the tapered cavity structure, the second transition cavity structure is located between the first transition cavity structure and the first cavity structure, an inner wall of the first transition cavity structure is adapted to connect to an outer wall of the heating body, and an inner diameter of the second transition cavity structure is larger than an outer diameter of the heating body.
 6. The aerosol generating device according to claim 5, **characterized in that**, the extraction member comprises a first body and a second body which are detachably and sealably connected, the tapered cavity structure is disposed within the first body, the first cavity structure, the tapered cavity structure and the second cavity structure are all disposed within the second body, the first body is made of a flexible material, and the second body is made of a rigid material.
 7. The aerosol generating device according to claim 6, **characterized in that**, the aerosol generating device further comprises an aerosol medium configured as an independent and replaceable unitary body for use with the aerosol generating device, said aerosol medium comprises the aerosol generating substrate segment, the aerosol extraction section and the functional filter of which end surfaces abutting each other in turn, the aerosol extraction section is located between the aerosol generating substrate segment and the functional filter, an outer sidewall of aerosol generating substrate segment is sealably attached onto the inner wall inside the first connecting end, the aerosol extraction section is located outside the first connecting end.
 8. The aerosol generating device according to claim 7, **characterized in that**, a cavity penetrating the length direction of the aerosol extraction section is provided within the aerosol extraction section, and at least one through hole communicating with said cavity is opened on an outer sidewall of the aerosol extraction section, said at least one through hole penetrates said aerosol extraction section in a direction perpendicular to the length of the aerosol extraction section.
 9. The aerosol generating device according to claim 8, **characterized in that**, said extraction member further comprises a first housing, the first housing includes an installation end surface on which is provided with a gradually expanding opening structure, one end of the gradually expanding opening structure is mounted on a circumferential sidewall of the installation end surface, the other end of the gradually expanding opening structure expandingly extends in a direction away from the installation end surface, and when aerosol generating substrate segment is mounted within the first connecting end, said at least one through hole is located within the grad-

ually expanding opening structure.

10. The aerosol generating device according to claim 9, **characterized in that**, the first housing further comprises a sealing end surface arranged opposite to the installation end surface, a limiting member is arranged on an inner wall of the sealing end surface, and when the cylindrical protruding table is mounted within the second connecting end, the limiting member is abutted against an outer sidewall of the cylindrical protruding table.
11. The aerosol generating device according to claim 10, **characterized in that**, said extraction member further comprises a second housing detachably connected to the first housing, a power supply and a control module, said cylindrical protruding table is mounted within the second housing, the control module is in communication with the power supply to control the heating body to start or stop and to maintain the temperature of the heating body during use.

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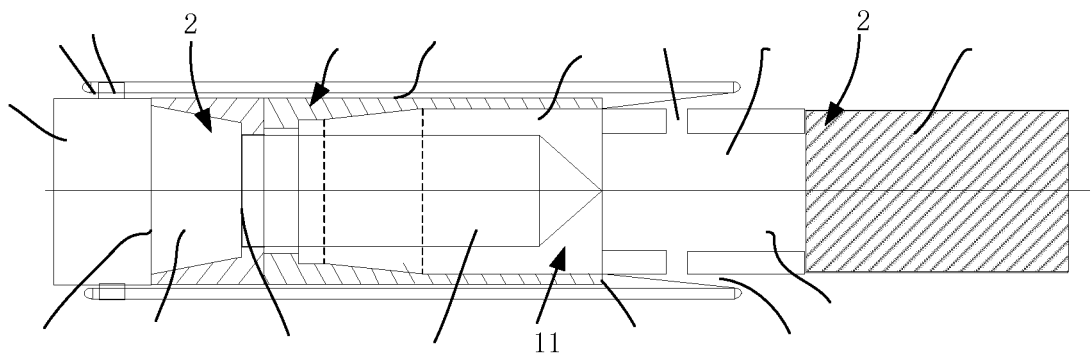


Fig. 1

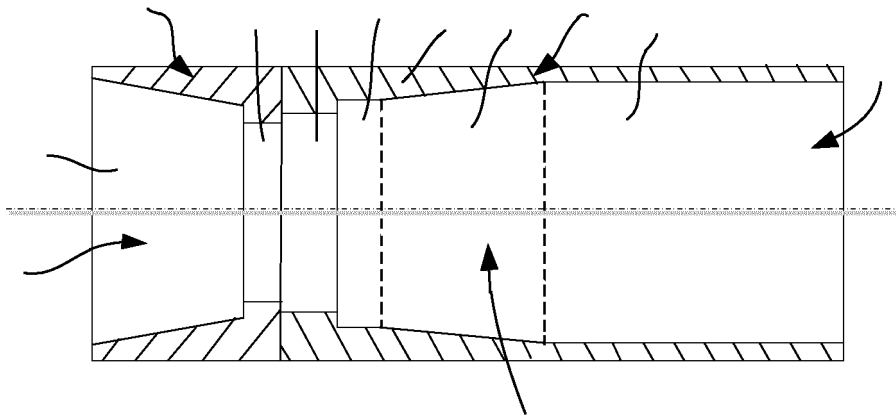


Fig. 2

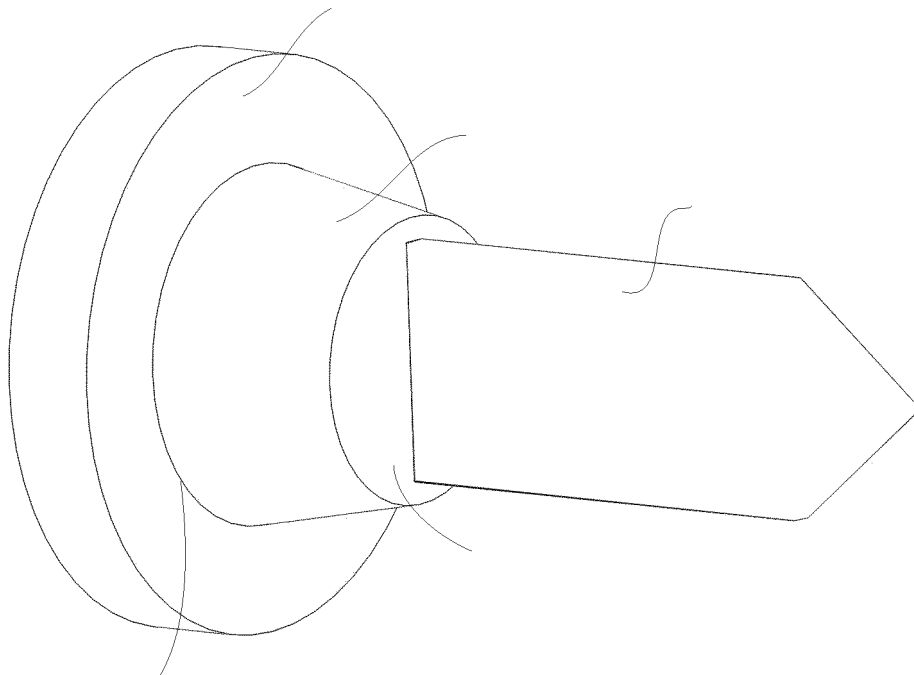


Fig. 3

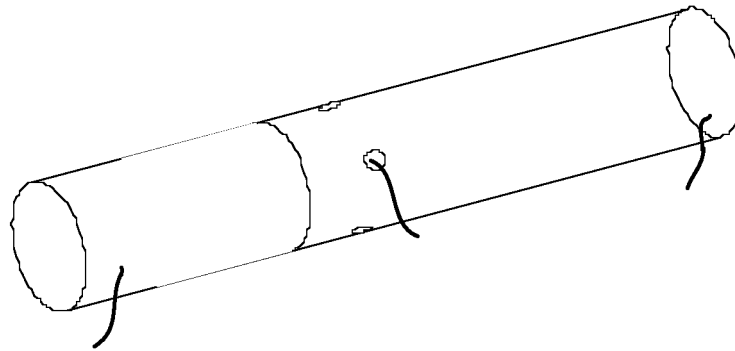


Fig. 4

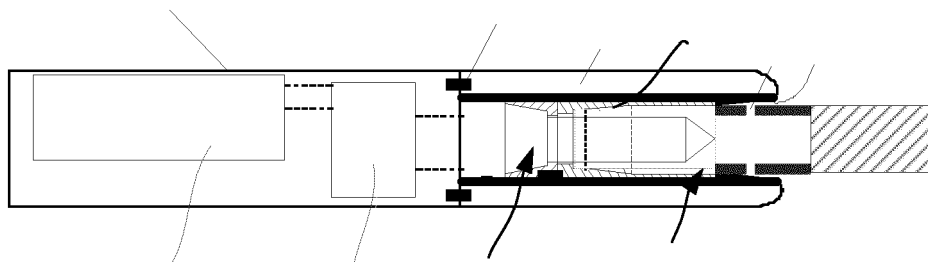


Fig. 5

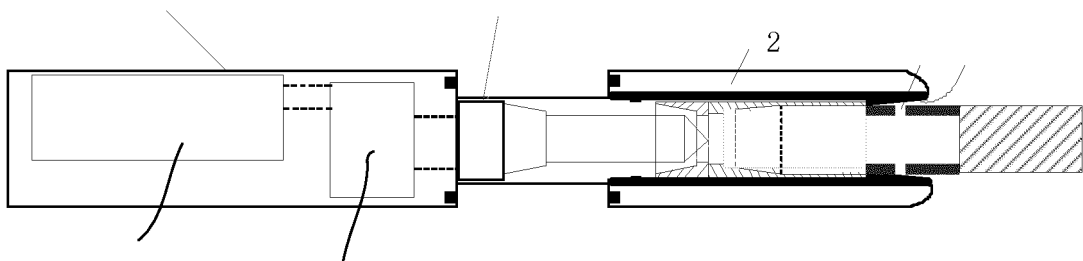


Fig. 6

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2022/094912

A. CLASSIFICATION OF SUBJECT MATTER

A24F 40/48(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

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; VEN; CNKI; CNTXT; USTXT; EPTXT; WOTXT; JPTXT: 郑州烟草, 电子烟, 加热不燃烧, 低温, 贫氧, 低氧, 密封, Electronic cigarette, e-cigarette, Oxygen deficient, hypoxia

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CN 111567877 A (CHINA TOBACCO YUNNAN INDUSTRIAL CO., LTD. et al.) 25 August 2020 (2020-08-25) description, paragraphs [0049]-[0075], and figure 1	1-3
Y	CN 111567877 A (CHINA TOBACCO YUNNAN INDUSTRIAL CO., LTD. et al.) 25 August 2020 (2020-08-25) description, paragraphs [0049]-[0075], and figure 1	4-11
Y	CN 121590255 U (CHINA TOBACCO YUNNAN INDUSTRIAL CO., LTD. et al.) 26 February 2021 (2021-02-26) description, paragraphs [0038]-[0046], and figure 1	4-11
Y	CN 212754231 U (CHINA TOBACCO YUNNAN INDUSTRIAL CO., LTD. et al.) 23 March 2021 (2021-03-23) description, paragraphs [0033]-[0057], and figure 1	7-11
A	CN 212877608 U (CHINA TOBACCO YUNNAN INDUSTRIAL CO., LTD. et al.) 06 April 2021 (2021-04-06) entire document	1-11

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

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“O” document referring to an oral disclosure, use, exhibition or other means

“P” document published prior to the international filing date but later than the priority date claimed

“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

“&” document member of the same patent family

Date of the actual completion of the international search

09 July 2022

Date of mailing of the international search report

17 August 2022

Name and mailing address of the ISA/CN

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Telephone No.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2022/094912

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 212697669 U (CHINA TOBACCO YUNNAN INDUSTRIAL CO., LTD. et al.) 16 March 2021 (2021-03-16) entire document	1-11

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2022/094912

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Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)			Publication date (day/month/year)
CN	111567877	A	25 August 2020	CN	213128000	U	07 May 2021
CN	212590255	U	26 February 2021	CN	113679106	A	23 November 2021
CN	212754231	U	23 March 2021	None			
CN	212877608	U	06 April 2021	None			
CN	212697669	U	16 March 2021	CN	113693284	A	26 November 2021

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- CN 202110623745 [0001]
- CN 202010241328 [0004]
- CN 202010241686 [0004]