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(54) **BLANKING-TYPE PARTICULATE AEROSOL GENERATING ARTICLE AND AEROSOL
GENERATING SYSTEM**

(57) The present disclosure discloses a blanking-type granular aerosol generating product, wherein, the product includes a main part and an outer sleeve located outside the main part (5); the main part includes an inner tube (1) as well as a filter component (2) and a hollow component (3) in the inner tube (1), the hollow

cavity of the hollow component (3) has an aerosol source-material granule component (4); the outer sleeve (5) has a top opening (51) and a sealing bottom surface (52), the sealing bottom surface (52) is used to plug the aerosol source-material granule component (4) in the hollow component (3); the outer sleeve (5) can axially

move relative to the main part to form a cavity (6) between the upstream end face of the hollow component (3) and the sealing bottom surface (52), the aerosol source-material granule component (4) contained in the hollow component (3) falls into the cavity (6) under the action of gravity, and the hollow cavity area of the hollow component (3) forms an airflow channel (7).

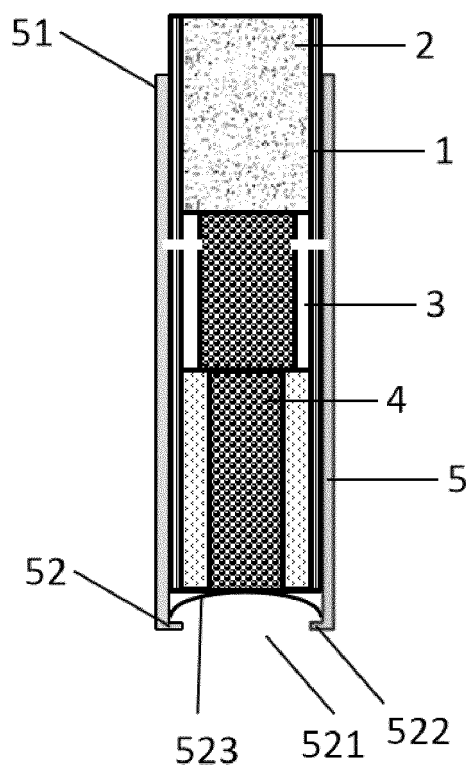


FIG.3

Description

TECHNICAL FIELD

[0001] The present disclosure belongs to the technical field of aerosol generating product, and in particular, to an aerosol generating product by using aerosol source-material granules, and more specifically, to a blanking-type granular aerosol generating product and an aerosol generating system.

BACKGROUND

[0002] Aerosol granular generating products are a new type of Heat-Not-Burn (HNB) aerosol generating products in recent years, using aerosol source-material granules instead of aerosol source-material flakes as aerosol generating materials, as aerosol source-material granules are heated more evenly than aerosol source-material flakes, and aerosols diffuse more smoothly along the gap among granules than that among flake materials, thus they are deeply welcomed by consumers.

[0003] Granular aerosol generating products are known on the market, the structure is illustrated with reference to FIG. 1: the main structure is an integrated outer sleeve X1, the distal lip is sealed by the sealing film X2, which is filled with aerosol source-material granules X3 to form the granule section, a multi-hole firmware section (commonly known as "gear") X4 is set in the downstream of the granule section, and an airflow channel section X5 is set aside for collecting and accommodating aerosol (the airflow channel section X5 is either a separate cavity or a hollow rod), the downstream of the airflow channel section X5 is a filtering section X6, which is also used as a cigarette holder for users to take in the mouth. When using aerosol generating products, the distal lip end is inserted into the heating appliance, the heating appliance has a heating element to heat aerosol source-material granules so as to release gaseous aroma components, gaseous aroma components in the airflow channel section X5 are condensed into visible aerosol by cold air, and the aerosol is filtered through the filtering section and enters users' mouths.

[0004] Wherein, the airflow channel section X5 is crucial for aerosol formation, according to scientific theories of aerosol, gaseous aroma components released by heat need to be cooled and condense into solid or liquid granules, such solid or liquid granules need to be suspended in the air to form visible aerosol (commonly known as "smoke" or "fog" or generally known as "smog"). Thus, the airflow channel section X5 must be left in the existing granular aerosol generating products.

[0005] Besides, as granules are loose and fluid, if they are not constrained, such granules may inevitably flow to the downstream of the airflow channel section X5 on a large scale when the aerosol generating products are placed horizontally or inverted, resulting in the fact that granules that can be directly heated by the heating ele-

ment are greatly reduced, the amount of aroma components and subsequent aerosol released may decrease; in order to ensure that granules are fully heated, such granules must be confined in a limited space near the heating element. Such constraint is currently achieved by setting a sealing film X2 in the upstream of the granule section and providing a multi-hole firmware section X4 in the downstream of the particle section, so that granules may not flow everywhere with constraints at both ends.

[0006] Wherein, the sealing film X2 is usually a high-permeability thin paper, it is pasted to the upstream end face of the outer sleeve X1 by bonding; however, the bonding process of the sealing film X2 is complex and inefficient, requiring special bonding sealing film equipment. Besides, due to the fact that the outer sleeve X1 end face is not in the same plane, which has burrs and defects on thin paper surface as well as uneven gluing, etc., the sealing film is not reliable, thus the sealing film sealing the lips of aerosol generating product is degummed in subsequent production processes, resulting in leakage of internal storage granule material, which not only pollutes production environment, but causes loss of other materials and affects production efficiency.

[0007] Current granular heating cigarette is made by sealing the film and filling granules. There are problems of low degree of automation, low success rate of sealing (also hard to detect), and low production efficiency of aerosol generating products. During use, the sealing film is pierced for heating, and granules are sprinkled out after the aerosol generating appliances are pulled out of the aerosol generating products, making it difficult to clean aerosol generating appliances.

[0008] Wherein the multi-hole firmware section X4 is usually made of ceramic or silica gel, the outer wall is firmly bonded to the inner wall of the paper cylinder by adhesive, there is at least one axial through-hole X41 in the center and/or at least one peripheral ventilation groove X42 on the periphery, their sizes can allow smog while not allowing aerosol source-material granules to pass through; thus, blocking aerosol source-material granules and transmitting flue gas can be realized.

[0009] However, the existence of multi-hole firmware section brings more costs and operational inconveniences to industrial manufacturing of granular aerosol generating products, thus, those skilled in the art have been hoping to eliminate the multi-hole firmware section. However, once eliminating the multi-hole firmware section, the airflow channel section must be set in the downstream of the granule section to gather and accommodate aerosols, and the section can also constrain scattered aerosol source-material granules, resulting in a dilemma. Besides, aerosol source-material granules of the existing granular aerosol generating products are located in the upstream of the aerosol generating products (the end face is separated from the outside only by a thin sealing film), during transportation and storage, aerosol source-material particles are easily affected by ambient conditions.

[0010] In order to ensure that aerosol source-material granules are more likely to be heated to produce aerosol during smoking, and to aerosol produced can be better released, aerosol source-material granules need to be stacked as loose as possible rather than tight. However, this may lead to a large contact area between aerosol source-material granules and the air during transportation and storage, resulting in loss of additives such as flavors or smoking agents added to aerosol source-material granules.

[0011] Moreover, in order to improve cooling effect of flue gas in existing products, it is usually necessary to form air vents on the side wall of aerosol generating products, so as to introduce external ambient air into the airflow channel inside the aerosol generating product to mix with and cool the flue gas. In case of non-smoking, in other words, during transportation or storage of aerosol products, the existence of air vents can make the air enter aerosol products and more or less contact with aerosol source-material granules, as a result, additives such as flavors or smoking agents added in aerosol source-material granules are lost, or that water in external air entering the interior of aerosol generating products through air vents may cause aerosol source-material granules to be wet, so that it is hard to preserve aerosol source-material granules.

[0012] Thus, eliminating the sealing film and the multi-hole firmware section as well as constraining scattered aerosol source-material granules, while ensuring that the aerosol generated can be successfully sent to the filtering section, besides, making sure that aerosol source-material granules are not in the upstream of aerosol generating products during transportation and storage, as well as setting of air vents are urgent problems to be solved.

[0013] The present disclosure aims to solve the problems above.

SUMMARY

[0014] A first aspect of the present disclosure provides a blanking-type granular aerosol generating product, wherein, the product includes a main part and an outer sleeve located outside the main part 5;

The main part includes an inner tube 1 and a filter component 2 and a hollow component 3 arranged in turn from the proximal lip end to the distal lip end in the inner tube 1, a hollow cavity of the hollow component 3 has an aerosol source-material granule component 4;

The outer sleeve 5 has a top opening 51 and a sealing bottom surface 52, wherein the top opening 51 is located on one side of the filter component 2, the sealing bottom surface 52 is located on one side of the hollow component 3, and the sealing bottom surface 52 is used to plug the aerosol source-material granule component 4 in the hollow component 3;

The outer sleeve 5 can axially move relative to the

main part, so that there is an axial distance between the upstream end face of the hollow component 3 and the sealing bottom surface 52, the axial distance is formed by the outer sleeve 5 into a cavity 6, and the aerosol source-material granule component 4 in the hollow component 3 moves into the cavity 6.

[0015] Wherein, the outer sleeve 5 or the main part can be manually pulled out to make the outer sleeve 5 move axially relative to the main part, the relative axial movement of the two can also be generated by setting a pulling device on the aerosol generating appliance. Of course, preferably, such function is achieved through the aerosol generating appliance described below.

[0016] The upstream and downstream mentioned in the present disclosure are determined by the direction of gas flow. Specifically, the distal lip is in the upstream and the proximal lip is in the downstream.

[0017] The arrangement in turn of the present disclosure is not limited to close connection of the two, but limitation of the order. That is to say, other forms of units can be inserted between the two.

[0018] In the present disclosure, the inner tube 1 and the outer sleeve 5 are fixed in the form of friction or slight adhesive, as long as relative movement between the two does not occur during transportation and storage, and the two can relatively move under the action of external force.

[0019] Preferably, in case the granular aerosol generating product is in a non-smoking state position, the sealing bottom surface 52 of the outer sleeve 5 plugs the aerosol source-material granule component 4 in the hollow component 3;

In case the granular aerosol generating product is in a smoking state position, the outer sleeve 5 moves axially relative to the main part, and there is an axial distance between the upstream end face of the hollow component 3 and the sealing bottom surface 52, the axial distance is formed by the outer sleeve 5 into a cavity 6, the aerosol source-material granule component 4 contained in the hollow component 3 falls into the cavity 6 under the action of gravity, and the hollow cavity area of the hollow component 3 forms an airflow channel 7.

[0020] That is, in case the granular aerosol generating product of the present disclosure is in the non-smoking and smoking state, the aerosol source-material granules and the sealing bottom surface 52 have two positions: in the non-smoking state, the sealing bottom surface 52 seals the aerosol source-material granule component 4 in the hollow component 3. In the smoking state, the outer sleeve 5 moves axially relative to the main part, and there is an axial distance between the upstream end face of the hollow component 3 and the sealing bottom surface 52, the axial distance is formed by the outer sleeve 5 into a cavity 6, the aerosol source-material granule component 4 contained in the hollow component 3 falls into the cavity 6 under the action of gravity, and the hollow cavity area of the hollow component 3 forms an airflow channel

7.

[0021] As aerosol source-material granules are located in the cavity of hollow component 3 during transportation and storage, aerosol source-material granules can be filled more closely with the least contact area with the air, so as to ensure better preservation of additives such as flavors or smoking agents added to aerosol source-material granules. In the smoking position, as the outer sleeve 5 moves axially relative to the main part, the aerosol source-material granule component 4 falls into the cavity 6 under the action of gravity, as the diameter of cavity 6 is larger, granules are relatively looser after falling here, which is conducive to generating and release of aerosol. While the hollow cavity that originally accommodates aerosol source-material granules forms an air-flow channel to provide space for flow and convergence of aerosol.

[0022] Preferably, an opening 521 is provided at the sealing bottom surface 52, a remaining part besides the opening 521 of the sealing bottom surface 52 is a protruding part 522, and the outer sleeve 5 has a sealing component 523, the protruding part 522 is to limit the sealing component 523 to the outer sleeve 5, and the sealing component 523 can plug the opening 521, the sealing component 523 can move axially relative to the outer sleeve 5 under the action of external force.

[0023] The sealing component 523 can axially move relative to the outer sleeve 5 under the action of external force, so that the locking plate N32 of the aerosol generating appliance moves close to the sealing component 523, it can enter the outer sleeve 5 by pushing the sealing component 523.

[0024] The outer side of the inner tube 1 has indication signs, which can be used to judge that the outer sleeve 5 and the main part move axially to the smoking state position.

[0025] Production processes of the blanking-type granular aerosol generating product of the present disclosure are not limited, which can be in the form of filling, that is, each component is successively filled into the inner tube; it can also be in the form of composite wrapping, that is, each unit is arranged in turn and the inner tube is formed by wrapping and rolling. The material of the inner tube is selected from but not limited to paper, ceramics, heat-resistant resin or clay.

[0026] At the other end of the aerosol generating product, the sealing bottom surface 52 of the outer sleeve 5 is directly selected to constrain aerosol source-material granules, avoiding the problem that the sealing film is not firmly pasted, which is easy to fall off.

[0027] Preferably, the inner tube 5 is selected from permeable materials, external air can enter the interior through the inner tube 5.

[0028] Preferably, the side wall of the hollow component 3 has an air vent 31 radially penetrating the side wall, after the main part and the outer sleeve 5 move axially to the smoking state position, ambient air can pass through the air vent 31 into the hollow cavity of the hollow

component 3, and the number of the air vent 31 can be one or more.

[0029] In order to improve cooling effect of flue gas, it is usually necessary to form air vents on the side wall of aerosol generating products, so as to introduce external ambient air into the airflow channel inside the aerosol generating product to mix with and cool the flue gas.

[0030] In case of non-smoking, in other words, during transportation or storage of aerosol products, existence of air vents can make the air enter aerosol products and more or less contact with aerosol source-material granules, as a result, additives such as flavors or smoking agents added in aerosol source-material granules are lost, or that water in external air enters the interior of aerosol generating products through air vents may cause aerosol source-material granules to be wet, so that it is hard to preserve aerosol source-material granules.

[0031] The outside of the main part of the aerosol generating product of the present disclosure also has an outer sleeve 5, and air vents are located on the main part, in case aerosol generating products are in the non-smoking state during transportation and storage, the outer sleeve 5 can seal air vents; in case aerosol generating products are in the smoking state, the outer sleeve 5 moves a certain distance axially relative to the main part, so that air vents are exposed. At this time, external air can enter the interior of aerosol generating products through air vents.

[0032] Besides, air vents can also be used as indicators of relative axial movement of the outer sleeve 5 and the main part to the smoking state, that is, in case the outer sleeve 5 and the main part move axially relative to each other until air vents are completely exposed, it means that the smoking state position is reached.

[0033] That is, the inner tube can be made of permeable or impermeable materials. In case the inner tube is made of permeable materials, air can be introduced into the inner tube with its own permeability; in case the inner tube is made of impermeable materials, air can be introduced into the inner tube by drilling holes on the inner tube. Of course, preferably, air vents are used to be directly as indicators of the pull-out distance, so as to achieve two purposes at one stroke.

[0034] Preferably, the hollow component 3 has one or more sections. The hollow components are hollow rods with hollow structures, such as hollow cellulose acetate rods, hollow corrugated groove rods, hollow tubes with gear structures, or hollow paper tubes. Please refer to patent application for structures of hollow corrugated groove rods and hollow tubes with gear structures by the applicant, with application No. 2021226872810, and the name of A FILLING-TYPE AEROSOL GENERATING PRODUCT WITH LIMIT PARTS, the technical solutions and technical effects of hollow corrugated groove rods and hollow tubes with gear structure in the patent are applicable to the present disclosure.

[0035] Preferably, The sealing component 523 is made of paper, polylactic acid sheet, cellulose acetate or high-

temperature resistant materials, among which high-temperature resistance means that the material can withstand 250-320 °C. The sealing component 523 is made of permeable or non-permeable materials, permeable materials can be applied to ordinary heating aerosol generating appliances that allow air to enter from the upstream end of aerosol generating products; non-permeable materials can be applied to airtight heating aerosol generating appliances that does not allow air to enter from the upstream end of the aerosol generating products.

[0036] A second aspect of the present disclosure provides an aerosol generating system, including an aerosol generating product of the first aspect of the present disclosure and an aerosol generating appliance;

The aerosol generating appliance includes an aerosol generating appliance shell N1 and an aerosol generating product accommodation cavity N2 located in the aerosol generating appliance shell N1, the aerosol generating product accommodation cavity N2 has a locking component N3 inside that matches the protruding part 522, and the locking component N3 is fixed with the outer sleeve 5 through the protruding part 522.

[0037] The locking component N3 can move axially to drive the outer sleeve 5 to move axially relative to the main part of the aerosol generating product.

[0038] Preferably, the locking component N3 includes a support rod N31 and a locking plate N32 located on the support rod N31, the locking plate N32 has a notch N33 with the same shape of the protruding part 522, and the locking plate N32 can rotate relative to the outer sleeve 5; the way that the locking plate N32 rotates relative to the outer sleeve 5 is not limited here, the outer sleeve 5 can be manually rotated after the aerosol generating product is inserted, thereby realizing relative rotation between the locking plate N32 and the outer sleeve 5. Of course, the support rod N31 of the aerosol generating appliance can also drive the locking plate N32 to rotate, thereby realizing relative rotation between the locking plate N32 and the outer sleeve 5.

[0039] After the aerosol generating product is inserted into the aerosol generating product accommodation cavity N2, the notch N33 corresponds to the position of the protruding part 522, so that the locking plate N32 passes through the protruding part 522 into the interior of the outer sleeve 5, the locking plate N32 and the outer sleeve 5 counterrotate with each other, the notch N33 and the protruding part 522 dislocate, the locking plate N32 fixes the outer sleeve 5 through the protruding part 522, so that the locking component N3 pulls the outer sleeve 5 through the protruding part 522 to move axially relative to the main part of the aerosol generating product.

[0040] Preferably, the aerosol generating appliance shell N1 also has a locking start button, after the aerosol generating product is inserted into the aerosol generating product accommodation cavity N2, press the locking start button, the locking component N3 can be controlled to lock the outer sleeve 5, pull the outer sleeve 5 to move

axially relative to the main part of the aerosol generating product until it reaches the smoking state position.

[0041] Preferably, aerosol generating appliances and aerosol generating products also have signs facilitating alignment of the notch N33 with the protruding part 522, so that when aerosol generating products are inserted, consumers directly make sure positions of aerosol generating products and aerosol generating appliances, and ensures that the notch N33 and the protruding part 522 are directly aligned after aerosol generating products are inserted.

[0042] The outer sleeve 5 is made of paper, stainless steel or metal that can receive electromagnetic induction. Preferably, the outer sleeve 5 also has a mesh structure.

More preferably, the outer sleeve 5 is selected from metal mesh receiving electromagnetic induction, and the corresponding inner tube has a magnetic-proof material layer on one side near the sealing bottom surface 52. Such case is especially suitable for electromagnetic heating appliances, when aerosol generating products are inserted into aerosol generating product accommodation cavity, heating programs of aerosol generating appliances can be initiated, at this time, as the inner tube has an magnetic-proof material layer on one side near the sealing bottom surface, the outer sleeve 5 may not heat up by receiving from electromagnetic generator of aerosol generating appliances, when the locking component has locked the outer sleeve 5 of the aerosol generating product and formed the cavity 6, the inner tube is far away from the electromagnetic induction area, blocking of electromagnetic receiving of the outer sleeve 5 is relieved, and the outer sleeve 5 is heated through normally receiving magnetic induction, that is, at this time, the outer sleeve 5 is equivalent to a sensor of the electromagnetic heating appliance. The purpose of such setting is also to facilitate direct starting of aerosol generating appliances after inserting aerosol generating products, avoiding tedious steps of starting the locking component first and the heating component.

[0043] Preferably, the using methods of the aerosol generating system are as follows:

A, In case the granular aerosol generating product is in a non-smoking state position, the sealing bottom surface 52 of the outer sleeve 5 plugs the aerosol source-material granule component 4 in the hollow component 3; insert the aerosol generating product in a non-smoking state position into the aerosol generating product accommodation cavity N2, the notch N33 corresponds to the position of the protruding part 522, so that the locking plate N32 passes through the protruding part 522 to the interior of the outer sleeve 5;

B, Start the locking component N3, the locking plate N32 and the outer sleeve 5 counterrotate with each other, the notch N33 and the protruding part 522 dislocate, the locking plate N32 fixes the outer sleeve 5 through the protruding part 522, so that the locking

component N3 pulls the outer sleeve 5 to move axially relative to the main part of the aerosol generating product through the protruding part 522, there is an axial distance between the upstream end face of the hollow component 3 and the sealing bottom surface 52, and the axial distance forms a cavity 6 by the outer sleeve 5, the aerosol source-material granule component 4 contained in the hollow component 3 falls into the cavity 6 under the action of gravity, and the hollow cavity area of the hollow component 3 forms an airflow channel 7, the aerosol generating product is in a smoking position;
C, As the heating component of the aerosol generating appliance starts, the aerosol source-material granule component 4 of the aerosol generating product can be heated to produce aerosol.

[0044] Heating elements of the aerosol generating appliance used in conjunction with the aerosol generating product of the present disclosure can be a circumferential heating cylinder or a central heating rod; while heat generated by the heating element can be electromagnetic heating or resistance heating.

[0045] More preferably, the aerosol generating product of the present disclosure is suitable for circumferential-type resistance heating and electromagnetic heating aerosol generating appliance. In case the aerosol generating appliance used in conjunction is a circumferential-type resistance heating aerosol generating appliance, it is only necessary to place the heating cylinder (heating element) axially on the outside of the aerosol source-material granules. In case the aerosol generating appliance used in conjunction is an electromagnetic heating aerosol generating appliance, it is only necessary to place the receptor receptive of magnetic fields axially on the outside the aerosol source-material granules, or set to the aerosol source-material granules, or more simply, directly set the receptor materials on the outer sleeve 5 that wraps the aerosol source-material granules.

[0046] The technical solutions above can be freely combined without contradiction.

[0047] The present disclosure has the following beneficial effects:

1, The aerosol generating product of the present disclosure eliminates the multi-hole firmware section and sealing film, while granules can still be restrained at both ends through the sealing bottom surface 52 of outer sleeve 5 during transportation and storage; in case the granular aerosol generating product of the present disclosure is in a non-smoking and smoking state, the aerosol source-material granules and the sealing bottom surface 52 have two positions: in the non-smoking state, the sealing bottom surface 52 seals the aerosol source-material granule component 4 in the hollow component 3. In the smoking state, the outer sleeve 5 moves axially relative to the main part, and there is an axial distance between

the upstream end face of the hollow component 3 and the sealing bottom surface 52, the axial distance is formed by the outer sleeve 5 into a cavity 6, the aerosol source-material granule component 4 contained in the hollow component 3 falls into the cavity 6 under the action of gravity, and the hollow cavity area of the hollow component 3 forms an airflow channel 7.

2, As aerosol source-material granules are located in the cavity of hollow component 3 during transportation and storage, aerosol source-material granules can be filled more closely with the least contact area with the air, so as to ensure better preservation of additives such as flavors or smoking agents added to aerosol source-material granules. In the smoking position, as the outer sleeve 5 moves axially relative to the main part, the aerosol source-material granule component 4 falls into the cavity 6 under the action of gravity, as the diameter of cavity 6 is larger, granules are relatively looser after falling here, which is conducive to generating and release of aerosol. While the hollow cavity that originally accommodates aerosol source-material granules forms an airflow channel to provide space for flow and convergence of aerosol.

3, In order to improve cooling effect of flue gas, it is usually necessary to form air vents on the side wall of aerosol generating products, so as to introduce external ambient air into the airflow channel inside the aerosol generating product to mix with and cool the flue gas. In case of non-smoking, in other words, during transportation or storage of aerosol products, the existence of air vents can make the air enter aerosol products and more or less contact with aerosol source-material granules, as a result, additives such as flavors or smoking agents added in aerosol source-material granules are lost, or that water in the external air enters the interior of aerosol generating products through air vents may cause aerosol source-material granules to be wet, so that it is hard to preserve aerosol source-material granules. The outside of the main part of the aerosol generating product of the present disclosure also has an outer sleeve 5, and air vents are located on the main part, in case aerosol generating products are in the non-smoking state during transportation and storage, the outer sleeve 5 can seal air vents; in case aerosol generating products are in the smoking state, the outer sleeve 5 moves a certain distance axially relative to the main part, so that air vents are exposed. At this time, external air can enter the interior of aerosol generating products through air vents.

Besides, air vents can also be used as indicators of relative axial movement of the outer sleeve 5 and the main part to the smoking state, that is, in case the outer sleeve 5 and the main part move axially relative to each other until air vents are completely exposed, it means that the smoking state position is

reached.

4, The inner tube of the aerosol generating product of the present disclosure can be made of permeable or impermeable materials. In case the inner tube is made of permeable materials, air can be introduced into the inner tube with its own permeability; in case the inner tube is made of impermeable materials, air can be introduced into the inner tube by drilling holes on the inner tube. Of course, preferably, air vents are used to be directly as indicators of the pull-out distance, so as to achieve two purposes at one stroke.

5, More preferably, the aerosol generating product of the present disclosure is suitable for circumferential-type resistance and electromagnetic heating aerosol generating appliance. In case the aerosol generating appliance used in conjunction is a circumferential-type resistance heating aerosol generating appliance, it is only necessary to place the heating cylinder (heating element) axially on the outside of the aerosol source-material granules. In case the aerosol generating appliance used in conjunction is an electromagnetic heating aerosol generating appliance, it is only necessary to place the receptor receptive of magnetic fields axially on the outside the aerosol source-material granules, or set to the aerosol source-material granules, or more simply, directly set the receptor materials on the outer sleeve that wraps the aerosol source-material granules. The present disclosure greatly improves production efficiency. Circumferential-type heating or electromagnetic heating is used to avoid granules falling into the aerosol generating appliance, thus, there is no need of cleaning of the aerosol generating appliance.

6, The locking component N3 of the aerosol generating appliance and the outer sleeve 5 of the aerosol generating product of the present disclosure can counterrotate to fix the outer sleeve 5; furthermore, the locking component N3 of the aerosol generating appliance can move axially to drive the outer sleeve 5 to move axially relative to the main part of the aerosol generating product, so that locking of the outer sleeve 5 and pulling the outer sleeve 5 relative to the main part of the aerosol generating product can be achieved.

DRAWINGS OF THE DESCRIPTION

[0048]

FIG. 1 is a structural schematic view of granular aerosol generating products in the prior art.

FIG.2 is a three-dimensional schematic view of multi-hole firmware section in granular aerosol generating products in the prior art.

FIG.3 is a structural schematic view of the blanking-type granular aerosol generating product in a non-

smoking state of the present disclosure.

FIG.4 is a structural schematic view of the blanking-type granular aerosol generating product in a smoking state of the present disclosure.

FIG.5 is a structural schematic view (during the blanking process) after combination of the aerosol generating appliance and the aerosol generating product of the present disclosure.

FIG. 6 is a top view of the locking component of the aerosol generating appliance of the present disclosure.

FIG.7 is a top view of the locking component of the aerosol generating appliance and the sealing bottom surface 52 of the aerosol generating product in an unlocked state of the present disclosure.

FIG.8 is a top view of the locking component of the aerosol generating appliance and the sealing bottom surface 52 of the aerosol generating product in a locked state of the present disclosure.

List of the reference signs of figures:

[0049]

In FIGS1-2: X1-Outer sleeve, X2-Sealing film, X3-Aerosol source-material granules, X4-Multi-hole firmware section, X5-Airflow channel section, X6-Filtering section, X41-Axial through hole, X42-Peripheral ventilation groove;

In FIGS3-8: 1-Inner tube, 2-Filtering component, 3-Hollow component, 31-Air vent, 4-Aerosol source-material granule component, 5-Outersleeve, 51-Top opening, 52-Sealing bottom surface, 521-Opening, 522-Protruding part, 523-Sealing component, 6-Cavity, 7-Airflow channel;

N1-Aerosol generating appliance shell, N2-Aerosol generating product accommodation cavity, N3-Locking component, N31-Support rod, N32-Locking plate, N3 3-Notch.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0050] The present disclosure is further illustrated through specific embodiments.

[0051] It is understood by those skilled in the art that, the following embodiments are only for illustrating the present disclosure and should not be interpreted as limiting the scope of the present disclosure. In case no specific technique or condition is indicated in the embodiment, the technique or condition described in the literature in the field or the product specification is based on. In case the materials or equipment used are not indicated with manufacturers, they are all ordinary products that can be obtained through purchase.

[0052] It can be understood by those skilled in the art that, the singular forms "a", "an" and "the" used herein can include the plural forms as well, unless expressly stated otherwise. It should be further understood that "in-

cluding" used in the description of the present disclosure means that the features, integers, steps, operations, elements and/or components exist; however, the existence or addition of one or more other features, integers, steps, operations, elements, components and/or groups thereof is not excluded. It should be understood that, when an element is referred to be "connected" to another one, it may be directly connected to another element, or there may be intermediate elements as well. Moreover, "connection" as used herein may include wireless connections.

[0053] In the description of the present disclosure, unless otherwise stated, "a plurality of" means two or more. The orientation or state relationship indicated by the terms "inside", "above", "below", etc. is based on that shown in the figures, which is only for convenience of describing the present disclosure and simplifying description, rather than indicating or implying that the device or element must have a particular orientation, or must be constructed and operated in a particular orientation, and thus should not be interpreted as limitations of the present disclosure.

[0054] In the description of the present disclosure, it should be noted that, the terms "mount", "connect" and "provided with" should be interpreted broadly unless otherwise expressly specified and defined, such as fixed connection, detachable connection, or integral connection; either mechanical connection or electrical connection; direct connection or indirect connection through intermediate media. The specific meanings of the terms above in the present disclosure can be understood by persons skilled in the art in actual conditions.

[0055] It is understood by those skilled in the art that, unless otherwise defined, all terms including technical and scientific terms used herein have the same meanings as commonly understood by the ordinary persons skilled in the art to the technical field to which the present disclosure belongs. It should also be understood that terms such as those defined in the general dictionary should be understood to have meanings consistent with those in the context of the prior art; moreover, unless defined as herein, the terms may not be explained with idealized or overly formal senses.

Embodiment 1

[0056] As is shown in FIGS 3-4, the blanking-type granular aerosol generating product of the embodiment includes a main part and an outer sleeve located outside the main part 5;

The main part includes an inner tube 1 and a filter component 2 and a hollow component 3 arranged in turn from the proximal lip end to the distal lip end in the inner tube 1, a hollow cavity of the hollow component 3 has an aerosol source-material granule component 4;

The outer sleeve 5 has a top opening 51 and a seal-

ing bottom surface 52, wherein the top opening 51 is located on one side of the filter component 2, the sealing bottom surface 52 is located on one side of the hollow component 3, and the sealing bottom surface 52 is used to plug the aerosol source-material granule component 4 in the hollow component 3;

The outer sleeve 5 can axially move relative to the main part, so that there is an axial distance between the upstream end face of the hollow component 3 and the sealing bottom surface 52, the axial distance is formed by the outer sleeve 5 into a cavity 6, and the aerosol source-material granule component 4 in the hollow component 3 moves into the cavity 6.

[0057] The upstream and downstream mentioned in the embodiment are determined by the direction of gas flow. More specifically, the distal lip is in the upstream and the proximal lip is in the downstream.

[0058] In case the granular aerosol generating product is in a non-smoking state position, the sealing bottom surface 52 of the outer sleeve 5 plugs the aerosol source-material granule component 4 in the hollow component 3; In case the granular aerosol generating product is in a smoking state position, the outer sleeve 5 moves axially relative to the main part, and there is an axial distance between the upstream end face of the hollow component 3 and the sealing bottom surface 52, the axial distance is formed by the outer sleeve 5 into a cavity 6, the aerosol source-material granule component 4 contained in the hollow component 3 falls into the cavity 6 under the action of gravity, and the hollow cavity area of the hollow component 3 forms an airflow channel 7.

[0059] An opening 521 is provided at the sealing bottom surface 52, a remaining part besides the opening 521 of the sealing bottom surface 52 is a protruding part 522, and the outer sleeve 5 has a sealing component 523, the protruding part 522 limits the sealing component 523 to the outer sleeve 5, and the sealing component 523 can plug the opening 521, the sealing component 523 can move axially relative to the outer sleeve 5 under the action of external force. The sealing component 523 can axially move relative to the outer sleeve 5 under the action of external force, so that the locking plate N32 of the aerosol generating appliance can enter the outer sleeve 5 by pushing the sealing component 523.

[0060] The side wall of the hollow component 3 has an air vent 31 radially penetrating the side wall, after the main part and the outer sleeve 5 move axially to the smoking state position, ambient air can pass through the air vent 31 into the hollow cavity of the hollow component 3, and the number of the air vent 31 can be one or more. In order to improve cooling effect of flue gas, it is usually necessary to form air vents on the side wall of aerosol generating products, so as to introduce external air into the airflow channel inside the aerosol generating product to mix with and cool the flue gas. In case of non-smoking, in other words, during transportation or storage of aerosol products, the existence of air vents can make the air enter

aerosol products and more or less contact with aerosol source-material granules, as a result, additives such as flavors or smoking agents added in aerosol source-material granules are lost, or that water in the external air enters the interior of aerosol generating products through air vents may cause aerosol source-material granules to be wet, so that it is hard to preserve aerosol source-material granules.

[0061] The outside of the main part of the aerosol generating product of the present disclosure also has an outer sleeve 5, and air vents are located on the main part, in case aerosol generating products are in the non-smoking state during transportation and storage, the outer sleeve 5 can seal air vents; in case aerosol generating products are in the smoking state, the outer sleeve 5 moves a certain distance axially relative to the main part, so that air vents are exposed. At this time, external air can enter the interior of aerosol generating products through air vents.

[0062] Besides, air vents can also be used as indicators of relative axial movement of the outer sleeve 5 and the main part to the smoking state, that is, in case the outer sleeve 5 can move axially relative to the main part until air vents are completely exposed, it means that the smoking state position is reached. At this time, air vents can also be directly used as indicators of the pull-out distance, so as to achieve two purposes at one stroke.

[0063] The hollow component 3 has two sections.

[0064] The sealing component 523 is made of paper material.

[0065] As is shown in FIGS5-8, the embodiment also includes an aerosol generating system for aerosol generating products, aerosol generation appliances used in conjunction with aerosol generating products include an aerosol generating appliance shell N1 and an aerosol generating product accommodation cavity N2 in the aerosol generating appliance shell N1, the aerosol generating product accommodation cavity N2 has a locking component N3 matched with the protruding part 522, and the locking component N3 is fixed with the outer sleeve 5 through the protruding part 522;

The locking component N3 can move axially to drive the outer sleeve 5 to move axially relative to the main part of the aerosol generating product.

[0066] The locking component N3 includes a support rod N31 and a locking plate N32 located on the support rod N31. The locking plate N32 is provided with a notch N33 with the same shape of the protruding part 522, and the support rod N31 can drive the locking plate N32 to rotate.

[0067] After the aerosol generating product is inserted into the aerosol generating product accommodation cavity N2, the notch N33 corresponds to the position of the protruding part 522, so that the locking plate N32 passes through the protruding part 522 into the interior of the outer sleeve 5, the support rod N31 drives the locking plate N32 to rotate, the notch N33 and the protruding part 522 dislocate, the locking plate N32 fixes the outer sleeve

5 through the protruding part 522, so that the locking component N3 pulls the outer sleeve 5 through the protruding part 522 to move axially relative to the main part of the aerosol generating product.

[0068] The using methods of the aerosol generating system are as follows:

A, In case the granular aerosol generating product is in a non-smoking state position, the sealing bottom surface 52 of the outer sleeve 5 plugs the aerosol source-material granule component 4 in the hollow component 3; insert the aerosol generating product in a non-smoking state position into the aerosol generating product accommodation cavity N2, the notch N33 corresponds to the position of the protruding part 522, so that the locking plate N32 passes through the protruding part 522 to the interior of the outer sleeve 5;

B, Start the locking component N3, the support rod drives the locking plate N32 to rotate, the notch N33 and the protruding part 522 dislocate, the locking plate N32 fixes the outer sleeve 5 through the protruding part 522, so that the locking component N3 pulls the outer sleeve 5 to move axially relative to the main part of the aerosol generating product through the protruding part 522, there is an axial distance between the upstream end face of the hollow component 3 and the sealing bottom surface 52, and the axial distance forms a cavity 6 by the outer sleeve 5, the aerosol source-material granule component 4 contained in the hollow component 3 falls into the cavity 6 under the action of gravity, and the hollow cavity area of the hollow component 3 forms an air-flow channel 7, the aerosol generating product is in a smoking position;

C, As the heating component of the aerosol generating appliance starts, aerosol source-material granule component 4 of the aerosol generating product can be heated to produce aerosol.

Claims

1. A blanking-type granular aerosol generating product, wherein, the product comprises a main part and an outer sleeve located outside the main part (5);

The main part comprises an inner tube (1) and a filter component (2) and a hollow component (3) arranged in turn from the proximal lip end to the distal lip end in the inner tube (1), the hollow cavity of the hollow component (3) has an aerosol source-material granule component (4); The outer sleeve (5) has a top opening (51) and a sealing bottom surface (52), wherein the top opening (51) is located on one side of the filter component (2), the sealing bottom surface (52) is located on one side of the hollow component

- (3), and the sealing bottom surface (52) is used to plug the aerosol source-material granule component (4) in the hollow component (3); The outer sleeve (5) can axially move relative to the main part, so that there is an axial distance between the upstream end face of the hollow component (3) and the sealing bottom surface (52), the axial distance is formed by the outer sleeve (5) into a cavity (6), and the aerosol source-material granule component (4) in the hollow component (3) moves to the cavity (6).
2. The granular aerosol generating product of claim 1, wherein, in case the granular aerosol generating product is in a non-smoking state position, the sealing bottom surface (52) of the outer sleeve (5) plugs the aerosol source-material granule component (4) in the hollow component (3); In case the granular aerosol generating product is in a smoking state position, the outer sleeve (5) moves axially relative to the main part, and there is an axial distance between the upstream end face of the hollow component (3) and the sealing bottom surface (52), the axial distance is formed by the outer sleeve (5) into a cavity (6), the aerosol source-material granule component (4) contained in the hollow component (3) falls into the cavity (6) under the action of gravity, and the hollow cavity area of the hollow component (3) forms an airflow channel (7).
3. The granular aerosol generating product of claim 1, wherein, an opening (521) is provided at the sealing bottom surface (52), a remaining part besides the opening (521) of the sealing bottom surface (52) is a protruding part (522), and the outer sleeve (5) has a sealing component (523), the protruding part (522) is to limit the sealing component (523) to the outer sleeve (5), and the sealing component (523) can plug the opening (521), the sealing component (523) can move axially relative to the outer sleeve (5) under the action of external force.
4. The granular aerosol generating product of claim 1, wherein, the outer side of the inner tube (1) has an indicator sign, which can be used to judge relative axial movement of the outer sleeve (5) and the main part to the smoking state position;
- The hollow component (3) has one section or more sections;
- The sealing component (523) is made of paper, polylactic acid sheet, cellulose acetate or high-temperature resistant materials, among which high-temperature resistance means that the material can withstand 250-320 °C;
- The outer sleeve (5) is made of paper, stainless-steel or metal that can receive electromagnetic induction.
5. The granular aerosol generating product of claim 1, wherein, the inner tube (5) is made of a permeable material, so that external air can enter the interior through the inner tube (5).
6. The granular aerosol generating product of claim 1, wherein, the side wall of the hollow component (3) has an air vent (31) radially penetrating the side wall, after the main part and the outer sleeve (5) move axially to the smoking state position, ambient air can pass through the air vent (31) into the hollow cavity of the hollow component (3), and the number of the air vent (31) can be one or more.
7. An aerosol generating system, wherein, the system comprises the aerosol generating product of claim 3 and an aerosol generation appliance;
- The aerosol generating appliance includes an aerosol generating appliance shell (N1) and an aerosol generating product accommodation cavity (N2) located in the aerosol generating appliance shell (N1), the aerosol generating product accommodation cavity (N2) has a locking component (N3) inside that matches the protruding part (522), and the locking component (N3) is fixed with the outer sleeve (5) through the protruding part (522). The locking component (N3) can move axially to drive the outer sleeve (5) to move axially relative to the main part of the aerosol generating product.
8. The aerosol generating system of claim 7, wherein, the locking component (N3) comprises a support rod (N31) and a locking plate (N32) located on the support rod (N31), the locking plate (N32) has a notch (N33) with the same shape of the protruding part (522), and the locking plate (N32) can rotate relative to the outer sleeve (5); After the aerosol generating product is inserted into the aerosol generating product accommodation cavity (N2), the notch (N33) corresponds to the position of the protruding part (522), so that the locking plate (N32) passes through the protruding part (522) into the interior of the outer sleeve (5), the locking plate (N32) and the outer sleeve (5) counterrotate with each other, the notch (N33) and the protruding part (522) dislocate, the locking plate (N32) fixes the outer sleeve (5) through the protruding part (522), so that the locking component (N3) pulls the outer sleeve (5) through the protruding part (522) to move axially relative to the main part of the aerosol generating product.
9. The aerosol generating system of claim 8, wherein, the aerosol generating appliance shell (N1) also has a locking start button, after the aerosol generating

product is inserted into the aerosol generating product accommodation cavity (N2), press the locking start button, the locking component (N3) can be controlled to lock the outer sleeve (5) and pull the outer sleeve (5) to move axially relative to the main part of the aerosol generating product until it reaches the smoking state position.

10. The aerosol generating system of claim 8, wherein, the using methods are as follows:

A, In case the granular aerosol generating product is in a non-smoking state position, the sealing bottom surface (52) of the outer sleeve (5) plugs the aerosol source-material granule component (4) in the hollow component (3); insert the aerosol generating product in a non-smoking state position into the aerosol generating product accommodation cavity (N2), the notch (N33) corresponds to the position of the protruding part (522), so that the locking plate (N32) passes through the protruding part (522) to the interior of the outer sleeve (5);

B, Start the locking component (N3), the locking plate (N32) and the outer sleeve (5) counterrotate with each other, the notch (N33) and the protruding part (522) dislocate, the locking plate (N32) fixes the outer sleeve (5) through the protruding part (522), so that the locking component (N3) pulls the outer sleeve (5) to move axially relative to the main part of the aerosol generating product through the protruding part (522), there is an axial distance between the upstream end face of the hollow component (3) and the sealing bottom surface (52), and the axial distance forms a cavity (6) by the outer sleeve (5), the aerosol source-material granule component (4) contained in the hollow component (3) falls into the cavity (6) under the action of gravity, and the hollow cavity area of the hollow component (3) forms an airflow channel (7), the aerosol generating product is in a smoking position;

C, As the heating component of the aerosol generating appliance starts, aerosol source-material granule component (4) of the aerosol generating product can be heated to produce aerosol.

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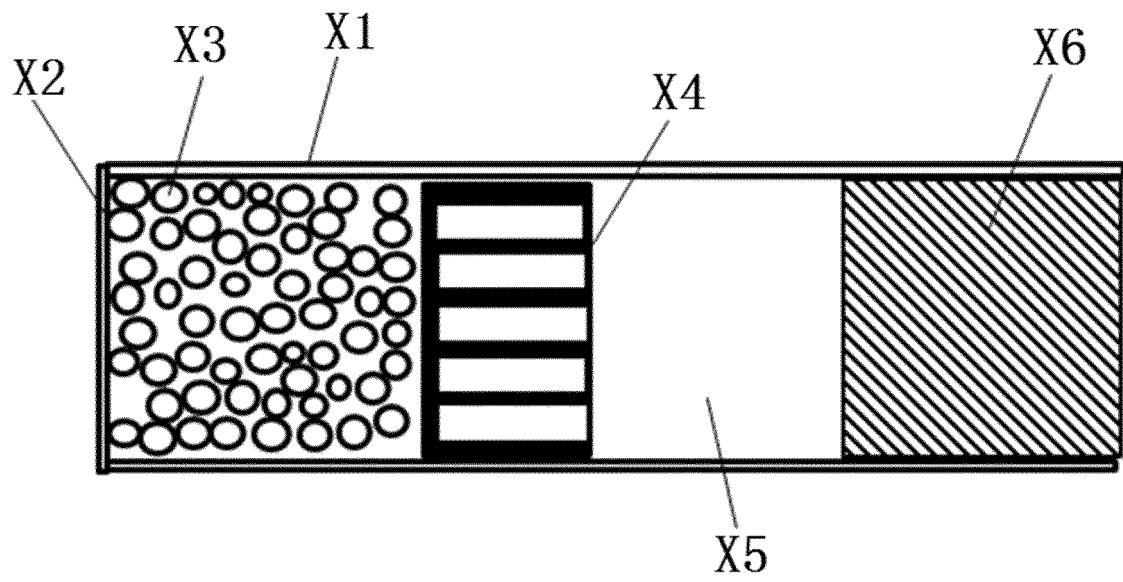


FIG.1

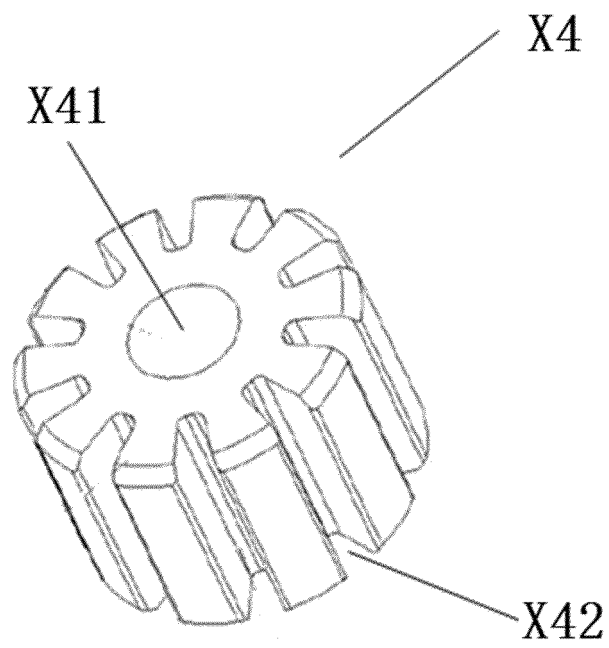


FIG.2

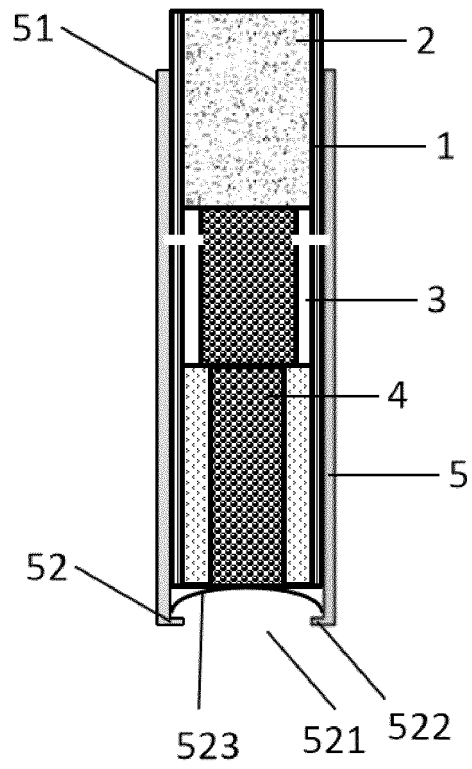


FIG.3

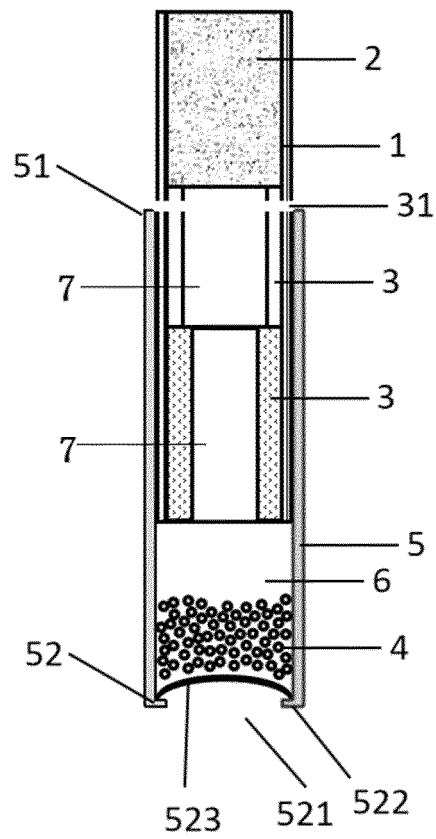


FIG.4

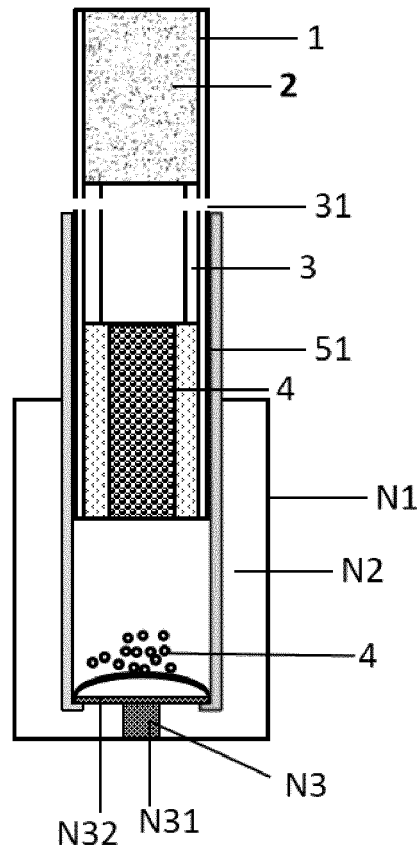


FIG. 5

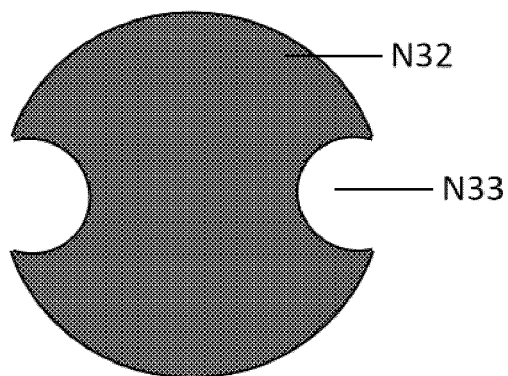


FIG. 6

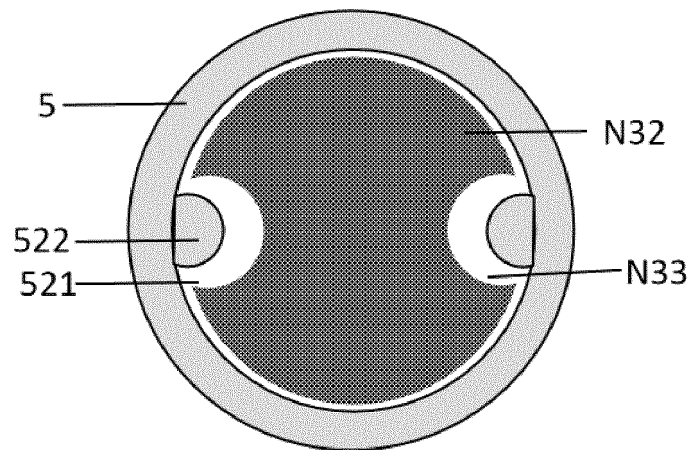


FIG. 7

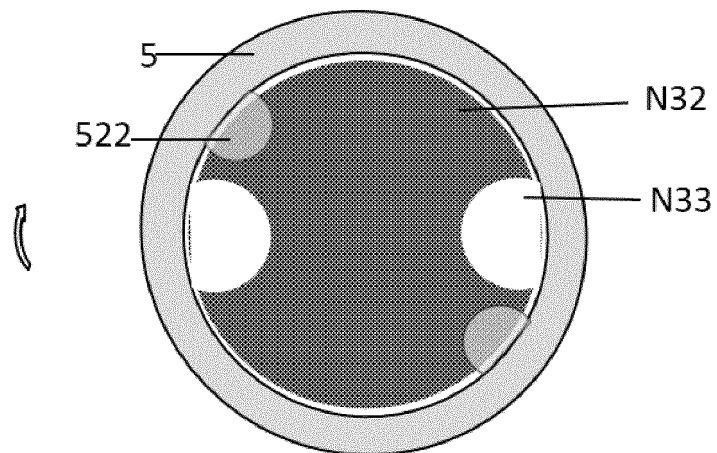


FIG. 8

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2022/082993

A. CLASSIFICATION OF SUBJECT MATTER A24F 40/40(2020.01)i; A24F 40/20(2020.01)i; A24F 40/42(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; A24D; 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) CNTXT; ENTXTC; ENTXT; DWPI; WPABS: 气溶胶, 颗粒, 烟草, 固体, 中空, 腔, 槽, 封口, 封堵, 卡封, 约束, 流动, 运输, 存储, 储存, 移动, 运动, 旋转, 转动, 拉, 拔, 重力, 掉, 落, 错位, aerosol, granul+, particle?, grain?, solid, cavit???, hollow, groove, seal+, block+, transport+, pull+, mov+, rotat+, fall+, gravit+, dislocat+																		
C. DOCUMENTS CONSIDERED TO BE RELEVANT																		
<table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>CN 215583156 U (SHENZHEN ZHIYUAN ZHICHUANG TECHNOLOGY CO., LTD.) 21 January 2022 (2022-01-21) description, paragraphs 4-14, and figures 3-4</td> <td>1-10</td> </tr> <tr> <td>A</td> <td>CN 112641135 A (XINHUO INTELLIGENT MANUFACTURING (SHENZHEN) CO., LTD.) 13 April 2021 (2021-04-13) entire document</td> <td>1-10</td> </tr> <tr> <td>A</td> <td>CN 113208186 A (SHENZHEN SMACO TECHNOLOGY LIMITED) 06 August 2021 (2021-08-06) entire document</td> <td>1-10</td> </tr> <tr> <td>A</td> <td>CN 113133546 A (CHINA TOBACCO HUNAN INDUSTRIAL CO., LTD.) 20 July 2021 (2021-07-20) entire document</td> <td>1-10</td> </tr> <tr> <td>A</td> <td>CN 211910514 U (SHENZHEN FIRST UNION TECHNOLOGY CO., LTD.) 13 November 2020 (2020-11-13) entire document</td> <td>1-10</td> </tr> </tbody> </table>	Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	A	CN 215583156 U (SHENZHEN ZHIYUAN ZHICHUANG TECHNOLOGY CO., LTD.) 21 January 2022 (2022-01-21) description, paragraphs 4-14, and figures 3-4	1-10	A	CN 112641135 A (XINHUO INTELLIGENT MANUFACTURING (SHENZHEN) CO., LTD.) 13 April 2021 (2021-04-13) entire document	1-10	A	CN 113208186 A (SHENZHEN SMACO TECHNOLOGY LIMITED) 06 August 2021 (2021-08-06) entire document	1-10	A	CN 113133546 A (CHINA TOBACCO HUNAN INDUSTRIAL CO., LTD.) 20 July 2021 (2021-07-20) entire document	1-10	A	CN 211910514 U (SHENZHEN FIRST UNION TECHNOLOGY CO., LTD.) 13 November 2020 (2020-11-13) entire document	1-10
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Date of the actual completion of the international search 18 November 2022	Date of mailing of the international search report 15 December 2022																	
Name and mailing address of the ISA/CN China National Intellectual Property Administration (ISA/CN) No. 6, Xitucheng Road, Jimenqiao, Haidian District, Beijing 100088, China Facsimile No. (86-10)62019451	Authorized officer Telephone No.																	

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2022/082993

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
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A	CA 2888890 A1 (BOSE SUSHANT K.) 27 August 2016 (2016-08-27) entire document	1-10
A	US 4257432 A (GRIFFITH DENIS J. et al.) 24 March 1981 (1981-03-24) entire document	1-10
A	US 2019373948 A1 (ZHAO XUE) 12 December 2019 (2019-12-12) entire document	1-10

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

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CN 113208186 A	06 August 2021	CN 215224770 U	21 December 2021
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CN 211910514 U	13 November 2020	None	
CN 215992726 U	11 March 2022	None	
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Form PCT/ISA/210 (patent family annex) (January 2015)

REFERENCES CITED IN THE DESCRIPTION

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