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(54) AEROSOL GENERATING PRODUCT HAVING FLAVORED SUPPORT SECTION

AEROSOLERZEUGENDES PRODUKT MIT AROMATISIERTEM TRÄGERABSCHNITT

PRODUIT DE GÉNÉRATION D'AÉROSOL COMPORTANT UNE SECTION DE SUPPORT ARÔMATISÉE

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(56) References cited:
WO-A1-2022/035064
CN-A- 107 348 561
CN-A- 110 710 708
CN-A- 113 662 239
CN-A- 113 662 239
CN-A- 113 925 196
CN-U- 205 284 980
CN-U- 210 809 258

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CN-U- 216 292 985 CN-U- 216 393 033

Description

TECHNICAL FIELD

[0001] The present disclosure relates to the technical field of aerosol generating products, and in particular, to an aerosol generating product with flavoring in supporting section.

BACKGROUND

[0002] With increasing attention of consumers to health and increasing demand for personalized experiences of cigarette products, the tobacco industry has continuously responded to upgrading of consumers' needs, various smoking products with tar reduction have been developed so as to bring less harm to consumers. Among which, because of different heating methods compared with traditional cigarette products, heat-not-burn cigarettes can provide a healthier smoking experience while meeting consumers' sensory needs for cigarette products.

[0003] The existing aerosol generating products mainly include the smoking core-material section, the supporting section, the cooling section and the filter-rod section, wherein, the supporting section not only supports the smoking products, but also gathers smoke and assists the cooling section to cool the smoke. The tube wall of the supporting section as well as the forming paper and the tipping paper wrapping the tube wall are perforated to form an air vent by online laser drilling in the prior art, so that external air enters the supporting section and mixes with smoke, thereby increasing smoke amount and effectively reducing smoke temperature, however, such cooling effect on smoke and mixing effect of air and smoke are still insufficient, the reasons are as follows: 1. the radial support of the tube wall of the supporting section is insufficient, and the tube wall collapses to the center of the tube cavity after being subjected to external force, resulting in blockage of airflow channel for circulating air and smoke, leading to insufficient smoke volume; 2. as the contact area between the smoke and the tube wall of the supporting section is limited, effective cooling cannot be achieved; 3. due to short stay of smoke and air in the supporting section, as well as the smoke and air entering the cooling section through direct and quick passing through the supporting section, full mixing cannot be achieved; 4. as the smoke directly contacts the tube wall of the supporting section, and the smoke passing through the supporting section has not been effectively cooled, the smoke temperature is high and the tube wall is too hot to hold in hand.

[0004] Thus, in order to further realize cooling of smoke, the cooling materials in the cooling section are mainly improved or the amount of cooling materials is directly increased, however, as most of the cooling materials are phase-change materials, after a few suctions, the phase-change materials may collapse and block the airflow channel, thus greatly increasing suction resistance, which affects smoking experience.

[0005] Besides, the existing aerosol generating products are generally flavored by tobacco materials, filters and cigarette paper, the flavor loading process is difficult, inefficient with unstable flavor release.

[0006] In the existing aerosol generating products, flavored beads are usually placed into the filter, and consumers break the beads manually before smoking, to release its internal flavoring substances, which can flavor aerosols during smoking; however, the problem are that, since beads have been completely crushed to release flavoring substances before smoking, resulting in strong flavor in the early stage of smoking, which is significantly weakened later with almost no flavoring effect in the end. However, the disadvantages of flavor loading through tobacco materials or cigarette paper are that, due to strong volatility of many flavors, characteristic aromas are easily lost after users open the package, resulting in poor aroma quality of the last cigarettes of each package.

[0007] CN 113 662 239 A discloses an aerosol generating product with flavoring in supporting section, wherein, the product comprises a smoking core-material section, a supporting section, a permeable hollow section and a filtering section arranged in turn; the supporting section is provided with a hollow airflow channel and a plurality of flavoring channels inside; the plurality of flavoring channels surround the outer side of the hollow airflow channel, and the end of the plurality of flavoring channels that is close to the permeable hollow section is open; a flavoring capsule is provided in at least part of the flavoring channel, and the flavoring capsule is close to one side of the smoking core-material section; an air-vent hole that axially penetrates the permeable hollow section is provided on the permeable hollow section.

[0008] The present disclosure is proposed to solve the problems above.

SUMMARY

[0009] The present disclosure uses the method of preposing beads, and automatically adding flavors when using aerosol generating products to improve flavoring efficiency and stability of flavor release. Meanwhile, the flavoring channel of the supporting section 2 of the present disclosure adds flavor, and the permeable hollow section 3 introduces air, which can reduce suction resistance, improve comfort and further ensure the smoke volume and suitable smoke temperature.

[0010] The present disclosure provides an aerosol generating product with flavoring in supporting section, including a smoking core-material section 1, a supporting section 2, a permeable hollow section 3 and a filtering section 4 arranged in

turn.

[0011] The supporting section 2 has the function of adding flavor to the aerosol, it is provided with a hollow airflow channel 22 and a plurality of flavoring channels 21; the plurality of flavoring channels 21 surround the outer side of the hollow airflow channel 22, one end of the flavoring channels 21 that is closed to the smoking core-material section 1 is closed, and the other end that is close to the permeable hollow section 3 is open.

[0012] A flavoring capsule 11 is provided in at least part of the flavoring channel 21, and the flavoring capsule 11 is close to one side of the smoking core-material section 1;

An air-vent hole 31 that axially penetrates the permeable hollow section 3 is provided on the permeable hollow section 3.

[0013] Preferably, the smoking core-material section 1 is wrapped by anti-seepage cigarette paper 12;

The supporting section 2, the permeable hollow section 3 and the filtering section 4 are wrapped by forming paper 5 to form a filter tip, the smoking core-material section 1 and the filter tip are connected by tipping paper 6; or the smoking core-material section 1, the supporting section 2, the permeable hollow section 3 and the filtering section 4 are directly compounded by forming paper 5 to form aerosol generating products;

An anti-seepage layer is provided in the forming paper 5.

[0014] The smoking core-section in the present disclosure is the smoking core-material section 1.

[0015] Preferably, the smoking core-material section 1 can be filled with tobacco materials in filiform, strip and block shapes.

[0016] Preferably, the capsule wall of the flavoring capsule 11 ruptures at an ambient temperature of 80-200°C, releasing fragrances inside the flavoring capsule 11.

[0017] Preferably, the capsule wall of the flavoring capsule 11 is selected from but not limited to gelatin, sodium alginate, chitosan or beeswax material.

[0018] Preferably, the diameter of the flavoring capsule 11 is less than or equal to that of the inscribed circle of the flavoring channel 21; the end of the flavoring channel 21 that is close to the smoking core-material section 1 is provided with a flavoring capsule 11, and each flavoring channel 21 can be provided with one or a plurality of flavoring capsule(s) 11.

[0019] Preferably, the anti-seepage cigarette paper 12 has an anti-seepage layer with one side close to the smoking core material; the forming paper 5 has an anti-seepage layer with one side close to the supporting section 2;

The anti-seepage layer includes a water-proof layer and / or an oil-proof layer; it is coated on the inner wall of the cigarette paper tube by spraying; the water-proof layer uses alkyl ketene dimer (AKD), cationic rosin gum, non-iron aluminum sulfate mix or paraffin material; the anti-oil layer uses fluorocarbon organic matter, modified starch, AKD and paraffin mixture, AKD and modified starch mixture material;

Or,

The anti-seepage layer is selected from an aluminum foil layer, which is added to the inner wall of the cigarette paper tube by paste; the aluminum foil layer can play the role of water-proof and / or oil-proof while preserving heat, so that the smoking material in the inner wall of the cigarette is evenly heated.

[0020] Preferably, the supporting section 2 includes a first material and a second material, wherein, the flavoring channel 21 is limited by the first material, the second material or combination of the first material and the second material, and the hollow airflow channel 22 is limited by the first material.

[0021] Preferably, the first material and the second material are selected from acetate fiber, polyethylene, paper, polypropylene, polyvinyl chloride, polylactic acid and non-woven fabrics. Here, the first material and the second material can be selected from the above materials, but not the same.

[0022] Preferably, the hollow airflow channel 22 is located at the center of the filter rod, and its cross-sectional area is 1/5-1/2 that of the filter rod, the number of the hollow airflow channel 22 is one, and the shape can be but not limited to circular, square, triangular or star.

[0023] Preferably, the flavoring channel 21 is dispersed on the outside of the hollow airflow channel 22, and there is a plurality of the flavoring channels, the total cross-sectional area of the flavoring channel 21 is 1/4-3/5 that of the filter tip, the flavoring channel 21 can be selected from but not limited to circular, square, triangle, arc, trapezoid, "U" shape or "V" shape.

[0024] Preferably, the permeable hollow section 3 is made of paper, silica gel, acetate fiber tow, polylactic acid, and non-woven fabric, the wall thickness of the permeable hollow section 3 is 0.8~2.5mm; the wall thickness of the supporting section 2 is 0.1~2.0mm, the wall thickness of the supporting section 2 is the radial distance from the outer surface of the supporting section to the inner surface of the airflow channel 22, that is, the wall thickness includes radial thickness of the flavoring channel 21, when the cross section of the airflow channel 22 is of a non-circular structure such as a triangle, wall thickness of the above supporting section 2 refers to the shortest radial distance from the outer surface of the supporting section to the inner surface of the airflow channel 22.

[0025] Preferably, the total length of the aerosol generating product is 45~90mm, and the diameter of the aerosol generating product is 5.0~7.7mm, the length of the filter rod composed of the supporting section 2, the permeable hollow section 3 and the filtering section 4 is 30~60mm, and the length of the supporting section 2 is 10~30 mm, the length of the permeable hollow section 3 is 10~30mm, and the length of the filtering section 4 is 5~15 mm.

[0026] Preferably, the filtering section 4 is a solid acetate fiber tow.

[0027] The aerosol generating product of the present disclosure is suitable for circumferential and central aerosol generating product smoking set.

[0028] The present disclosure has the following beneficial effects compared with the prior art:

1. The supporting section 2 of the present disclosure is provided with a hollow airflow channel 22 and a plurality of flavoring channels 21; the plurality of flavoring channels 21 surround the outer side of the hollow airflow channel 22, and one end of the flavoring channels 21 that is closed to the smoking core-material section 1 is closed, and the other end that is close to the permeable hollow section 3 is open, a flavoring capsule 11 is provided within the flavoring channel 21. That is, the airflow channel of supporting section 2 is divided into two types: one is the hollow airflow channel in the center for aerosol circulation, the other is a flavoring channel on the periphery, one end of the channel that is close to the smoking core-material section 1 is plugged, that is, the aerosol generated by heating of the smoking core-material section 1 cannot enter the flavoring channel. When hot aerosol flows through the hollow airflow channel 22, beads in the flavoring channel 21 rupture by heat, releasing aroma substances, and flowing along the flavoring channel to the permeable hollow section 3. The advantages of such structure are as follows:

   (1) Beads do not directly contact with hot aerosols, but transfer heat through the wall of the flavoring channel, so as to ensure that beads may not explode by strong heat and release all flavors in an instant, but slowly release flavor by heat;
   (2) As there is no hot smoke circulation in the flavoring channel 21, the flavoring channel 21 forms an air-insulation layer to prevent the supporting section wall from directly contacting the smoke and causing external surface temperature to be too high;
   (3) Beads in the flavoring channel 21 rupture by heat, releasing aroma substances and flowing along the flavoring channel to the permeable hollow section 3, as an air vent 31 is provided on the permeable hollow section 3 that axially runs through the wall of the permeable hollow section 3, external air enters the permeable hollow section through the air vent, external air first contacts with the surrounding fragrance vapor to condense it into small droplets, and contacts with the central mainstream smoke, the small fragrance droplets can be used as condensation nucleation points to promote condensation of smoke droplets around the fragrance droplets, forming a core-shell structure in which the smoke droplets wrap the fragrance droplets, rather than a disordered mixing of fragrance droplets and smoke droplets, resulting in long and lasting feeling of users.

2. The flavoring capsule 11 is placed at the end of the supporting section 2 in the downstream of the smoking core-material section 1, which is adjacent to the end of the smoking core-material section 1 for the first time in the present disclosure, the capsule wall of the flavoring capsule 11 is selected from materials that can rupture at an ambient temperature of 150-200°C, so that aroma substances inside the flavoring capsule 11 may not release due to protection of the capsule wall when suction is not performed, and the flavoring capsule is placed in the flavoring channel 21 of the supporting section 2, due to the protection of the wall of the supporting section 2 and the forming paper 5, loss of aroma substance during long-term placement can be further avoided. Besides, the flavoring capsule 11 of the present disclosure is different from the existing beads, which requires consumers to pinch to release flavoring substances inside, instead, the material that can rupture at an ambient temperature of 80-200°C is selected as the capsule wall, when consumers are smoking, temperature of the core-material section is the highest, which is 120°C, when hot aerosol flows through the hollow airflow channel 22, beads in the flavoring channel 21 rupture by heat, releasing aroma substances and flowing along the flavoring channel to the permeable hollow section 3.

[0029] The advantages of rupture of flavoring capsules by heating are as follows: ①By taking advantage of the flavoring capsule 11 is provided at the end of the supporting section 2, which is adjacent to the end of the smoking core-material section 1, if it is in other sections, the temperature is not high enough for beads to rupture; ②beads are mostly added to the acetate filter section in the prior art, as resilience of the wall of the supporting section is far less than that of acetate, acetate may rebound after pinching beads, there is almost no deformation; if beads rupture by pinching wall of the supporting section, the supporting section may deform, so that the structure of the supporting section and the airflow channel may be changed, affecting smoking effect and bringing bad experiences, while beads rupturing by heat can perfectly solve such problem; ③The capsule wall of flavoring capsule 11 can further reduce smoke temperature.

[0030] Further, the reasons and advantages that the flavoring capsule 11 is placed at the end of the supporting section 2 in the downstream of the smoking core-material section 1 in the present disclosure, which is adjacent to the end of the

smoking core-material section 1, rather than inside the smoking core-material are as follows: when consumers are smoking, the temperature of the core-material section is the highest, which is 120°C, if the flavoring capsule 11 is placed in the core-material section and wrapped by the smoking material, the flavoring capsule 11 may be subjected to continuous high temperature during smoking, the capsule wall of the flavoring capsule 11 ruptures rapidly, and flavors and fragrances inside quickly volatilize, leading to strong feeling at first few suctions and almost no feeling at the latter suctions. Moreover, due to high temperature of the flavoring capsule 11, although the capsule wall is indeed more likely to rupture, there are flavors and fragrances with low volatilization temperature inside the flavoring capsule 11, such as menthol, orange oil, rose essential oil, etc., leading to a dilemma that the capsule wall needs a certain temperature to rupture, and flavors in the capsule wall with low volatilization temperature may volatilize instantaneously when the temperature is too high.

[0031] The flavoring capsule 11 is placed at the end of the supporting section 2 in the downstream of the smoking core-material section 1, which is adjacent to the end of the smoking core-material section 1 in the present disclosure, which is inside the flavoring channel of the supporting section 2, as the end of the supporting section 2 is close to the smoking core-material section 1, the smoke generated by the smoking core-material section 1 still has a high temperature when it enters the hollow airflow channel, which can make the flavoring capsule 11 rupture. However, due to the flavoring capsule 11 is in the flavoring channel of the supporting section 2, beads do not directly contact with hot aerosol, but transfer heat through the flavoring channel wall, to ensure that beads do not burst and release all fragrances in an instant by strong heat, but slowly release fragrances by slow heating, so as to achieve the effect of stable and sustained release of aroma.

[0032] With reference to the structure of the supporting section, the permeable hollow section 3 in the downstream of the supporting section is perforated in the present disclosure, so that an air vent is formed to introduce air, rather than perforating on the wall of the supporting section 2 as in the prior art, the reasons and effects are as follows: without perforating in the supporting section 2 to introduce air can first ensure that the flavoring capsule 11 inside the supporting section 2 can rupture and add flavor with enough smoke temperature, after the smoke has been initially cooled and flavored, air is further introduced from the permeable hollow section 3, which can further cool and gather smoke.

3. The smoking core-material section 1 of the present disclosure is wrapped by anti-seepage cigarette paper 12, moisture in the smoking material seeps to the outside of the cigarette paper tube during storage of cigarettes and produces yellow spots; thus, it is necessary to add a water-proof layer to the inner wall of the cigarette paper tube filled with smoking materials. The water-proof layer can prevent moisture in the smoking material from seeping to the outside of the cigarette paper tube.

[0033] Similarly, smoking agents and other substances are added to the smoking material, during long-term placement, smoking agents in the smoking materials may carry flavors and fragrances to seep to the outside of the paper tube, resulting in yellow spots and affecting appearances of paper tubes, as smoking agents are oily, it is necessary to add an oil-proof layer to the inner wall of the cigarette paper tube filled with smoking materials. The oil-proof layer can prevent smoke agents in the smoking material from carrying flavors and fragrances to the outer wall of the paper tube and occurrence of yellow spots.

[0034] More importantly, a flavoring capsule 11 is placed at the end of the supporting section 2 in the downstream of the smoking core-material section 1 in the present disclosure, which is adjacent to the end of the smoking core material section 1, thus, the forming paper 5 has an anti-seepage layer on one side that is close to the supporting section 2, during smoking, after the capsule wall ruptures, fragrances inside the flavoring capsule 11 may also penetrate into the wall of the supporting section 2, while the anti-seepage layer can prevent flavors and fragrances from seeping to the forming paper.

4. The supporting section 2 of the present disclosure is provided with a flavoring channel 21 and a permeable airflow channel 22, wherein the flavoring channel 21 is used for flavoring and the permeable airflow channel 22 is used for gathering smoke. A flavoring capsule 11 is provided in part of the flavoring channel 21, and the flavoring capsule 11 is close to one side of the smoking core-material section 1, so as to control adding amount of the flavoring capsule 11. The permeable airflow channel 22 can be used to gather smoke, reduce adsorption of smoke and increase smoke amount. Moreover, the flavoring channel 21 is dispersed outside the permeable airflow channel 22, so that flavoring is uniform.

5. The aerosol generating product of the present disclosure also includes a supporting section 2 with a hollow structure, wherein, the supporting section can not only support the aerosol generating product, more importantly, it can gather smoke and reduce smoke temperature, to solve the problem of high temperature entering mouths of smokers.

6. An air vent 31 is provided on the permeable hollow section 3 of the present disclosure, when the air vent 31 of the present disclosure is consistent with shape and size of the holes drilled on the supporting section in the prior art, the air vent 31 is closer to smokers' mouths, and suction at the air vent 31 is significantly greater than that at the hole drilled on the supporting section in the prior art, thus, the air vent 31 of the present disclosure has better ventilation effect with a larger amount of ambient air introduced, so as to reduce smoke temperature. Meanwhile, the supporting section 2 of the present disclosure is provided with a cavity, the permeable hollow section 3 is also provided with a cavity, the air introduced can be better mixed with smoke to further reduce smoke temperature. The cooling section rather than the

supporting section is perforated in the present disclosure, further using the change of suction to increase air intake and reduce smoke temperature.

DRAWINGS OF THE DESCRIPTION

[0035]

FIG.1 is a structural schematic view of an aerosol generating product with flavoring in supporting section of the present disclosure.

FIG.2 is a cross-sectional view of one side of the supporting section that is close to of the smoking core-material section of the aerosol generating product with flavoring in supporting section of embodiment 1 of the present disclosure.

FIG.3 is a cross-sectional view of one side of the supporting section that is close to the permeable hollow section of the aerosol generating product with flavoring in supporting section of embodiment 1 of the present disclosure.

FIG.4 is a cross-sectional view of one side of the supporting section that is close to the smoking core-material section of the aerosol generating product with flavoring in supporting section of embodiment 2 of the present disclosure.

FIG.5 is a cross-sectional view of one side of the supporting section that is close to the permeable hollow section of the aerosol generating product with flavoring in supporting section of embodiment 2 of the present disclosure.

[0036] List of the reference signs of figures in the description of figures: 1-Smoking core-material section, 2-Supporting section, 3-Permeable hollow section, 4-Filtering section, 11-Flavoring capsule, 12-Anti-seepage cigarette paper, 21-Flavoring channel, 22-Hollow airflow channel, 31-Air vent.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0037] The present disclosure is illustrated in detail with the following embodiments and figures, the embodiments are only to explain the present disclosure, rather than limitations of the present disclosure.

Embodiment 1

[0038] As is shown in FIGS.1-3, the embodiment provides an aerosol generating product with flavoring in supporting section, including a smoking core-material section 1, a supporting section 2, a permeable hollow section 3 and a filtering section 4 arranged in turn, the supporting section 2 has the function of adding flavor to the aerosol, it has a hollow airflow channel 22 and a plurality of flavoring channels 21; the plurality of flavoring channels 21 surround the outer side of the hollow airflow channel 22, and one end of the flavoring channels 21 that is closed to the smoking core-material section 1 is closed, and the other end that is close to the permeable hollow section 3 is open; a flavoring capsule 11 is provided in at least part of the flavoring channel 21, and the flavoring capsule 11 is close to one side of the smoking core-material section 1; an air-vent hole 31 that axially penetrates the permeable hollow section 3 is provided on the permeable hollow section 3.

[0039] The smoking core-material section 1 is wrapped by anti-seepage cigarette paper 12; the supporting section 2, the permeable hollow section 3 and the filtering section 4 are wrapped by forming paper 5 to form a filter tip, the smoking core-material section 1 and the filter tip are connected by tipping paper 6; an anti-seepage layer is provided within the forming paper 5.

[0040] The smoking core-material section 1 can be filled with filamentous tobacco material; the capsule wall of the flavoring capsule 11 ruptures at an ambient temperature of 120°C, releasing fragrances inside the flavoring capsule 11.

[0041] The capsule wall of the flavoring capsule 11 is selected from gelatin material.

[0042] The anti-seepage cigarette paper 12 is a cigarette paper with an anti-seepage layer that one side is close to the smoking core-material; the forming paper 5 has an anti-seepage layer with one side close to the supporting section 2;

The anti-seepage layer includes a water-proof layer and / or an oil-proof layer; it is coated on the inner wall of the cigarette paper tube by spraying; the water-proof layer uses alkyl ketene dimer (AKD), cationic rosin gum, non-iron aluminum sulfate mix or paraffin material; the anti-oil layer uses fluorocarbon organic matter, modified starch, AKD and paraffin mixture, AKD and modified starch mixture material;

The supporting section 2 includes a first material and a second material, wherein, the flavoring channel 21 is limited by the first material, the second material or combination of the first material and the second material, and the hollow airflow channel 22 is limited by the first material.

[0043] The first material is selected from paper; the second material is selected from non-woven fabric.

[0044] The hollow airflow channel 22 is located at the center of the filter rod, and its cross-sectional area is 1/4 that of the

filter rod, the number of airflow channels 22 is one with the shape of triangle.

[0045] The flavoring channel 21 is dispersed on the outer side of the hollow airflow channel 22, there is a plurality, the total cross-sectional area of the flavoring channel 21 is 1/2 that of the filter tip, and the flavoring channel 21 is circular. The diameter of the flavoring capsule 11 is less than or equal to that of the inscribed circle of the flavoring channel 21; the flavoring capsule 11 is provided at the end that is close to one side of the smoking core-material section 1 inside the two flavoring channels 21, and two flavoring capsules 11 are provided in each flavoring channel 21. As is shown in FIGS. 2-3, the adjacent flavoring channel 21 is solid.

[0046] The permeable hollow section 3 is made of acetate fiber tow, the wall thickness of the permeable hollow section 3 is 1.0mm, and the thinnest wall thickness of the supporting section 2 is 0.1mm.

[0047] The total length of the aerosol generating product is 60mm, the diameter of the aerosol generating product is 6.4mm; the length of the filter tip composed of the supporting section 2, the permeable hollow section 3 and the filtering section 4 is 30mm, wherein, the length of the supporting section 2, the permeable hollow section 3 and the filtering section 4 is 10 mm respectively.

[0048] The filtering section 4 is a solid acetate fiber tow.

Embodiment 2

[0049] As is shown in FIGS.4-5, the embodiment is preparation of aerosol generating product sample 2, which is similar to the structure of aerosol generating product sample 1 in embodiment 1, the difference only lies in the structure of the supporting section. The supporting section of the aerosol generating product sample 2 is combination of the flavoring channel of a corrugated structure and the hollow airflow channel inside the inner cavity.

[0050] The supporting section 2 includes a first material and a second material, wherein, the flavoring channel 21 is limited by the first material, the second material or combination of the first material and the second material, and the hollow airflow channel 22 is limited by the first material.

[0051] The first material is selected from paper; the second material is selected from non-woven fabric.

[0052] The hollow airflow channel 22 is located at the center of the filter rod, and its cross-sectional area is 1/5-1/2 that of the filter rod, the number of the hollow airflow channel 22 is one, which is circular.

[0053] The flavoring channel 21 is dispersed on the outer side of the hollow airflow channel 22, there is a plurality, the total cross-sectional area of the flavoring channel 21 is 1/2 that of the filter tip, The flavoring channel 21 is a groove corrugated structure with a "V" shape. The diameter of the flavoring capsule 11 is less than or equal to that of the inscribed circle of the flavoring channel 21; the flavoring capsule 11 is provided at the end that is close to one side of the smoking core-material section 1 inside the two flavoring channels 21, and two flavoring capsules 11 are provided in each flavoring channel 21, the wall thickness of the supporting section 2 is 0.3mm. As is shown in FIGS. 2-3.

Embodiment 3

[0054] The aerosol generating product sample 1 and the aerosol generating product sample 2 are smoked in the same conditions in conjunction with HNB cigarette smoking set, during smoking, the smoking core-material section 1 of the aerosol generating product is 200°C. Sensory evaluation of aerosol generating products is carried out by a plurality of evaluators based on the following six indicators: smoke amount, fragrance, strength, harmony, irritant and taste; score ranges of the six quality indicators are as follows: smoke amount 0-10 points, fragrance 0-30 points, strength 0-10 points, harmony 0-10 points, irritant 0-15 points, taste 0-25 points, the total score is 100 points, the higher the scores of five evaluation indicators including smoke amount, fragrance, strength, harmony and taste, the stronger the feeling of evaluation indicators during smoking, the higher the score of irritant evaluation indicator, the less obvious sensation of such evaluation indicator during smoking, while the higher total score of the six evaluation indicators, the better smoking sensation of aerosol generating products. Wherein, sensory evaluation scores of the aerosol generating product sample 1 and the aerosol generating product sample 2 are shown in table 1.

[0055] The basis is Q/YNZY.J07.022.

Table 1 Sensory evaluation scores of various aerosol generating products during smoking

Sample	**Smoke amount 10**	**Fragrance 30**	**Strength 10**	**Harmony 10**	**Irritant 15**	**Taste 25**	**Total 100**
Sample 1	9.0	26.5	9.0	8.5	12.0	22.0	87.0
Sample 2	8.5	26.5	9.0	8.5	12.0	22.0	86.5

[0056] It can be seen from Table 1 that, sample 1 and sample 2 show different degrees of increase in fragrance, irritant

improvement, taste and other aspects compared with aerosol generating products in the prior art; besides, the two samples generate sufficient smoke amount to meet smokers' needs during heating.

[0057] Besides, the smoke temperature of sample 1 entering smokers' mouth is 39.2°C, while that of sample 2 is 38.9°C, the reason is as follows: the permeable hollow section 3 of the present disclosure is provided with an air vent 31, in case the shape and size of the air vent 31 in the present disclosure are the same as those of the holes drilled on the supporting section in the prior art, the air vent 31 in the present disclosure is closer to smokers' mouths, suction at the air vent 31 is significantly greater than that at the holes drilled on the supporting section in the prior art, thus, ventilation effect of the air vent 31 is better and the amount of ambient air introduced is larger, so as to reduce smoke temperature. Meanwhile, the supporting section 2 of the present disclosure is provided with a cavity, and the permeable hollow section 3 is also provided with a cavity, so that the air introduced can be better mixed with smoke to further reduce smoke temperature.

[0058] Besides, as there is no circulation of hot smoke in the flavoring channel 21, the flavoring channel 21 forms an air-insulation layer, sensory evaluators obviously feel that, compared with the existing aerosol generating products, the outer surface temperature of the supporting section of the present disclosure is lower, there is no such problem of scalding hands during smoking. Meanwhile, whether it is at the early, middle or late stage of smoking, fragrance evaluation scores given by sensory evaluators are basically the same, there is no such problem of strong feeling in the early stage and weak in the later stage.

Claims

1. An aerosol generating product with flavoring in supporting section, wherein, the product comprises a smoking core-material section (1), a supporting section (2), a permeable hollow section (3) and a filtering section (4) arranged in turn;

   the supporting section (2) is provided with a hollow airflow channel (22) and a plurality of flavoring channels (21) inside; the plurality of flavoring channels (21) surround the outer side of the hollow airflow channel (22), and one end of the plurality of flavoring channels (21) that is close to the smoking core-material section (1) is closed, and the other end that is close to the permeable hollow section (3) is open;
   a flavoring capsule (11) is provided in at least part of the flavoring channel (21), and the flavoring capsule (11) is close to one side of the smoking core-material section (1);
   an air-vent hole (31) that axially penetrates the permeable hollow section (3) is provided on the permeable hollow section (3).

2. The aerosol generating product with flavoring in supporting section of claim 1, wherein, the smoking core-material section (1) is wrapped by anti-seepage cigarette paper (12);

   the supporting section (2), the permeable hollow section (3) and the filtering section (4) are wrapped by forming paper (5) to form a filter tip, and the smoking core-material section (1) and the filter tip are connected by tipping paper (6); or the smoking core-material section (1), the supporting section (2), the permeable hollow section (3) and the filtering section (4) are directly compounded by the forming paper (5) to form an aerosol generating product;
   an anti-seepage layer is provided inside the forming paper.

3. The aerosol generating product with flavoring in supporting section of claim 1, wherein, the smoking core-material section (1) can be filled with tobacco materials in filiform, strip and block shapes.

4. The aerosol generating product with flavoring in supporting section of claim 1, wherein, the capsule wall of the flavoring capsule (11) ruptures at an ambient temperature of 80-200°C, releasing fragrances inside the flavoring capsule (11); the capsule wall of the flavoring capsule (11) is selected from gelatin, sodium alginate, chitosan or beeswax material.

5. The aerosol generating product with flavoring in supporting section of claim 1, wherein, the diameter of the flavoring capsule (11) is less than or equal to that of the inscribed circle of the flavoring channel (21); each flavoring channel 21 can be provided with one or a plurality of flavoring capsule(s) (11).

6. The aerosol generating product with flavoring in supporting section of claim 2, wherein, the anti-seepage cigarette paper (12) has an anti-seepage layer with one side close to the smoking core material; the forming paper (5) has an anti-seepage layer on one side close to the supporting section (2);

the anti-seepage layer comprises a water-proof layer and / or an oil-proof layer; it is coated on the inner wall of the cigarette paper tube by spraying; the water-proof layer uses alkyl ketene dimer (AKD), cationic rosin gum, non-iron aluminum sulfate mix or paraffin material; the anti-oil layer uses fluorocarbon organic matter, modified starch, AKD and paraffin mixture, AKD and modified starch mixture material;
Or,
the anti-seepage layer is selected from an aluminum foil layer, which is added to the inner wall of the cigarette paper tube by paste; the aluminum foil layer can play the role of water-proof and / or oil-proof while preserving heat, so that the smoking material in the inner wall of the cigarette is evenly heated.

7. The aerosol generating product with flavoring in supporting section of claim 1, wherein, the supporting section (2) comprises a first material and a second material, wherein, the flavoring channel (21) is limited by the first material, the second material or combination of the first material and the second material, and the hollow airflow channel (22) is limited by the first material;
the first material and the second material are selected from acetate fiber, polyethylene, paper, polypropylene, polyvinyl chloride, polylactic acid and non-woven fabrics.

8. The aerosol generating product with flavoring in supporting section of claim 1, wherein, the hollow airflow channel (22) is located in the center of the filter rod, and its cross-sectional area is 1/5-1/2 that of the filter rod, the number of the hollow airflow channel (22) is one, and the shape can be circular, square, triangular or star.

9. The aerosol generating product with flavoring in supporting section of claim 1, wherein, the total cross-sectional area of the flavoring channel (21) is 1/4-3/5 that of the filter tip, the flavoring channel (21) can be of circular, square, triangle, arc, trapezoid, "U" shape or "V" shape.

10. The aerosol generating product with flavoring in supporting section of claim 1, wherein, the permeable hollow section (3) is made of paper, silica gel, acetate fiber tow, polylactic acid and non-woven fabric, the wall thickness of the permeable hollow section (3) is 0.8~2.5mm; the wall thickness of the supporting section (2) is 0.1~2.0 mm.

Patentansprüche

1. Ein Aerosolerzeugungsprodukt mit Aroma im Stützabschnitt, wobei das Produkt einen Rauchkernmaterialabschnitt (1), einen Stützabschnitt (2), einen durchlässigen hohlen Abschnitt (3) und einen Filterabschnitt (4) umfasst, die hintereinander angeordnet sind;

der Stützabschnitt (2) ist mit einem hohlen Luftströmungskanal (22) und einer Vielzahl von Aromakanälen (21) im Inneren versehen; die Vielzahl von Aromakanälen (21) umgeben die Außenseite des hohlen Luftströmungskanals (22), und ein Ende der Vielzahl von Aromakanälen (21), das sich in der Nähe des Rauchkernmaterialabschnitts (1) befindet, ist geschlossen, und das andere Ende, das sich in der Nähe des durchlässigen hohlen Abschnitts (3) befindet, ist offen;
eine Aromakapsel (11) ist in mindestens einem Teil des Aromakanals (21) bereitgestellt, und die Aromakapsel (11) ist in der Nähe einer Seite des Rauchkernmaterialabschnitts (1);
ein Lüftungsloch (31), das den durchlässigen hohlen Abschnitt (3) axial durchdringt, ist an dem durchlässigen hohlen Abschnitt (3) bereitgestellt.

2. Das Aerosolerzeugungsprodukt mit Aroma im Stützabschnitt nach Anspruch 1, wobei der Rauchkernmaterialabschnitt (1) mit Anti-Sicker-Zigarettenpapier (12) umwickelt ist;

der Stützabschnitt (2), der durchlässige hohle Abschnitt (3) und der Filterabschnitt (4) sind mit Formpapier (5) umwickelt, um eine Filterspitze zu bilden, und der Rauchkernmaterialabschnitt (1) und die Filterspitze sind durch Mundstückpapier (6) verbunden; oder der Rauchkernmaterialabschnitt (1), der Stützabschnitt (2), der durchlässige hohle Abschnitt (3) und der Filterabschnitt (4) sind direkt durch das Formpapier (5) verbunden, um ein Aerosolerzeugungsprodukt zu bilden;
eine Anti-Sicker-Schicht ist im Inneren des Formpapiers bereitgestellt.

3. Das Aerosolerzeugungsprodukt mit Aroma im Stützabschnitt nach Anspruch 1, wobei der Rauchkernmaterialabschnitt (1) mit Tabakmaterialien in Faden-, Streifen- und Blockform befüllt werden kann.

4. Das Aerosolerzeugungsprodukt mit Aroma im Stützabschnitt nach Anspruch 1, wobei die Kapselwand der Aromakapsel (11) bei einer Umgebungstemperatur von 80-200°C aufbricht und Duftstoffe im Inneren der Aromakapsel (11) freisetzt; die Kapselwand der Aromakapsel (11) ist ausgewählt aus Gelatine, Natriumalginat, Chitosan oder Bienenwachsmaterial.

5. Das Aerosolerzeugungsprodukt mit Aroma im Stützabschnitt nach Anspruch 1, wobei der Durchmesser der Aromakapsel (11) kleiner oder gleich dem des eingeschriebenen Kreises des Aromakanals (21) ist; jeder Aromakanal 21 kann mit einer oder einer Vielzahl von Aromakapsel(n) (11) versehen werden.

6. Das Aerosolerzeugungsprodukt mit Aroma im Stützabschnitt nach Anspruch 2, wobei das Anti-Sicker-Zigarettenpapier (12) eine Anti-Sicker-Schicht mit einer Seite nahe dem Rauchkernmaterial aufweist; das Formpapier (5) weist eine Anti-Sicker-Schicht auf einer Seite nahe dem Stützabschnitt (2) auf;

die Anti-Sicker-Schicht umfasst eine wasserdichte Schicht und/oder eine öldichte Schicht; sie ist auf die Innenwand der Zigarettenpapierhülse durch Sprühen aufgebracht; die wasserdichte Schicht verwendet Alkylketendimer (AKD), kationisches Kolophoniumgummi, eisenfreies Aluminiumsulfatgemisch oder Paraffinmaterial; die Anti-Öl-Schicht verwendet organisches Fluorkohlenstoffmaterial, modifizierte Stärke, AKD und Paraffingemisch, AKD und modifiziertes Stärkemischmaterial;
oder,
die Anti-Sicker-Schicht ist aus einer Aluminiumfolienschicht ausgewählt, die der Innenwand der Zigarettenpapierhülse durch Kleister hinzugefügt wird; die Aluminiumfolienschicht kann die Rolle der Wasserdichtigkeit und / oder Öldichtigkeit spielen, während sie die Wärme bewahrt, so dass das Rauchmaterial in der Innenwand der Zigarette gleichmäßig erhitzt wird.

7. Das Aerosolerzeugungsprodukt mit Aroma im Stützabschnitt nach Anspruch 1, wobei der Stützabschnitt (2) ein erstes Material und ein zweites Material umfasst, wobei der Aromakanal (21) durch das erste Material, das zweite Material oder eine Kombination aus dem ersten Material und dem zweiten Material begrenzt ist, und der hohle Luftstromkanal (22) durch das erste Material begrenzt ist;
das erste Material und das zweite Material sind ausgewählt aus Acetatfaser, Polyethylen, Papier, Polypropylen, Polyvinylchlorid, Polymilchsäure und Vliesstoffen.

8. Das Aerosolerzeugungsprodukt mit Aroma im Stützabschnitt nach Anspruch 1, wobei der hohle Luftströmungskanal (22) in der Mitte des Filterstabs angeordnet ist und seine Querschnittsfläche 1/5-1/2 derjenigen des Filterstabs beträgt, die Anzahl des hohlen Luftströmungskanals (22) eins ist und die Form kreisförmig, quadratisch, dreieckig oder sternförmig sein kann.

9. Das Aerosolerzeugungsprodukt mit Aroma im Stützabschnitt nach Anspruch 1, wobei die Gesamtquerschnittsfläche des Aromakanals (21) 1/4-3/5 derjenigen der Filterspitze beträgt, der Aromakanal (21) kreisförmig, quadratisch, dreieckig, bogenförmig, trapezförmig, "U"-förmig oder "V"-förmig sein kann.

10. Das Aerosolerzeugungsprodukt mit Aroma im Stützabschnitt nach Anspruch 1, wobei der durchlässige hohle Abschnitt (3) aus Papier, Kieselgel, Acetatwergfaser, Polymilchsäure und Vliesstoff hergestellt ist, die Wandstärke des durchlässigen hohlen Abschnitts (3) 0,8~2,5 mm beträgt; die Wandstärke des Stützabschnitts (2) 0,1~2,0 mm beträgt.

Revendications

1. Produit générateur d'aérosol avec aromatisant dans section de support, dans lequel le produit comprend une section de matériau central de fumage (1), une section de support (2), une section creuse perméable (3) et une section de filtrage (4) disposées à tour de rôle ;

la section de support (2) est fournie d'un canal d'écoulement d'air creux (22) et d'une pluralité de canaux d'aromatisant (21) à l'intérieur ; la pluralité de canaux d'aromatisant (21) entoure le côté extérieur du canal d'écoulement d'air creux (22), et une extrémité de la pluralité de canaux d'aromatisant (21) qui est proche de la section de matériau central de fumage (1) est fermée, et l'autre extrémité qui est proche de la section creuse perméable (3) est ouverte
une capsule d'aromatisant (11) est fournie dans au moins une partie du canal d'aromatisant (21), et la capsule

d'aromatisant (11) est proche d'un côté de la section de matériau central de fumage (1) ;
un trou d'évent d'air (31) qui pénètre axialement dans la section creuse perméable (3) est fourni sur la section creuse perméable (3).

2. Le produit générateur d'aérosol avec aromatisant dans section de support de la revendication 1, dans lequel la section de matériau central de fumage (1) est enveloppée par du papier à cigarette anti-suintement (12) ;

la section de support (2), la section creuse perméable (3) et la section de filtrage (4) sont enveloppées par du papier de formage (5) pour former une pointe de filtre, et la section de matériau central de fumage (1) et la pointe de filtre sont reliées par du papier de basculement (6) ; ou la section de matériau central de fumage (1), la section de support (2), la section creuse perméable (3) et la section de filtrage (4) sont directement composées par le papier de formage (5) pour former un produit générateur d'aérosol ;
une couche anti-suintement est fournie à l'intérieur du papier de formage.

3. Le produit générateur d'aérosol avec aromatisant dans section de support de la revendication 1, dans lequel la section de matériau central de fumage (1) peut être remplie de matériaux de tabac en formes filiformes, de bande et de bloc.

4. Le produit générateur d'aérosol avec aromatisant dans section de support de la revendication 1, dans lequel la paroi de capsule de la capsule d'aromatisant (11) se rompt à une température ambiante de 80-200°C, libérant des parfums à l'intérieur de la capsule d'aromatisant (11) ; la paroi de capsule de la capsule d'aromatisant (11) est choisie parmi la gélatine, l'alginate de sodium, le chitosane ou le matériau de cire d'abeille.

5. Le produit générateur d'aérosol avec aromatisant dans section de support de la revendication 1, dans lequel le diamètre de la capsule d'aromatisant (11) est inférieur ou égal à celui du cercle inscrit du canal d'aromatisant (21) ; chaque canal d'aromatisant 21 peut être fourni d'une ou de plusieurs capsule(s) d'aromatisant (11).

6. Le produit générateur d'aérosol avec aromatisant dans section de support de la revendication 2, dans lequel le papier à cigarette anti-suintement (12) possède une couche anti-suintement avec un côté proche du matériau central de fumage ; le papier de formage (5) a une couche anti-suintement sur un côté proche de la section de support (2) ;

la couche anti-suintement comprend une couche imperméable à l'eau et/ou une couche imperméable à l'huile ; elle est enduite sur la paroi intérieure du tube de papier à cigarette par pulvérisation ; la couche imperméable à l'eau utilise le dimère d'alkylcétène (AKD), la gomme colophane cationique, le mélange de sulfate d'aluminium non ferreux ou le matériau de paraffine ; la couche anti-huile utilise la matière organique fluorocarbonée, l'amidon modifié, le mélange d'AKD et de paraffine, le matériau de mélange d'AKD et d'amidon modifié ;
Ou,
la couche anti-suintement est choisie parmi une couche de feuille d'aluminium, qui est ajoutée à la paroi intérieure du tube de papier à cigarette par une pâte ; la couche de feuille d'aluminium peut jouer le rôle d'imperméable à l'eau et/ou d'imperméable à l'huile tout en préservant la chaleur, de sorte que le matériau de fumage dans la paroi intérieure de la cigarette est chauffé de manière uniforme.

7. Le produit générateur d'aérosol avec aromatisant dans section de support de la revendication 1, dans lequel la section de support (2) comprend un premier matériau et un second matériau, dans lequel le canal d'aromatisant (21) est limité par le premier matériau, le second matériau ou la combinaison du premier matériau et du second matériau, et le canal d'écoulement d'air creux (22) est limité par le premier matériau ;
le premier matériau et le second matériau sont choisis parmi la fibre d'acétate, le polyéthylène, le papier, le polypropylène, le chlorure de polyvinyle, l'acide polylactique et les tissus non tissés.

8. Le produit générateur d'aérosol avec aromatisant dans section de support de la revendication 1, dans lequel le canal d'écoulement d'air creux (22) est situé au centre de la tige de filtre, et sa section transversale est de 1/5 - 1/2 de celle de la tige de filtre, le nombre de canaux d'écoulement d'air creux (22) est un, et la forme peut être circulaire, carrée, triangulaire ou étoilée.

9. Le produit générateur d'aérosol avec aromatisant dans section de support de la revendication 1, dans lequel la surface totale de la section transversale du canal d'aromatisant (21) est de 1/4 - 3/5 de celle de la pointe de filtre, le canal d'aromatisant (21) peut être de forme circulaire, carré, triangulaire, en arc, trapézoïdal, en forme de « U » ou en forme de « V ».

10. Le produit générateur d'aérosol avec aromatisant dans section de support de la revendication 1, dans lequel la section creuse perméable (3) est faite de papier, de gel de silice, de fibre d'acétate, d'acide polylactique et de tissu non tissé, l'épaisseur de la paroi de la section creuse perméable (3) est de 0,8 ~ 2,5 mm ; l'épaisseur de paroi de la section de support (2) est de 0,1 ~ 2,0 mm.

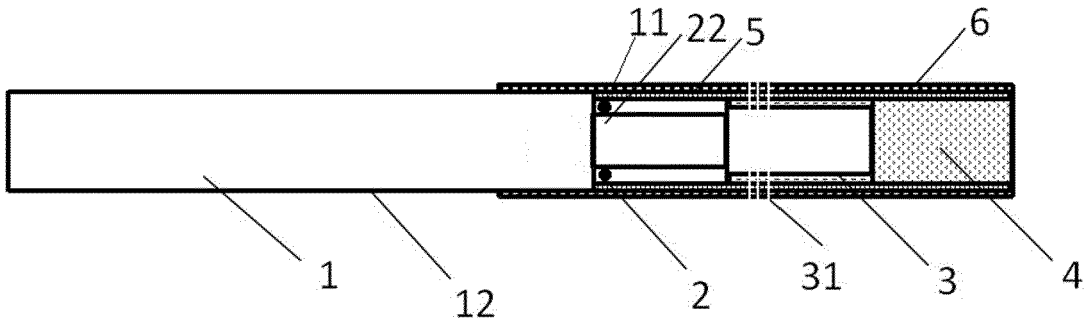

FIG.1

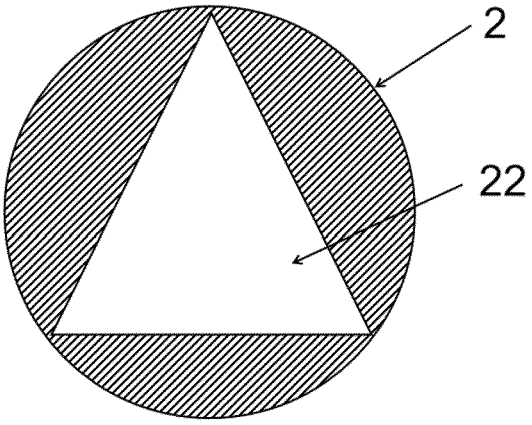

FIG.2

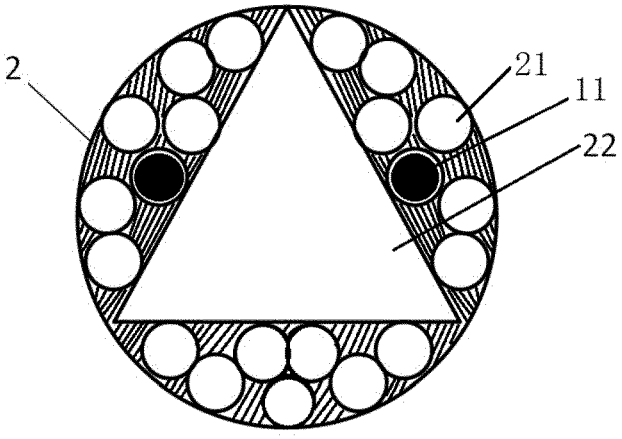

FIG.3

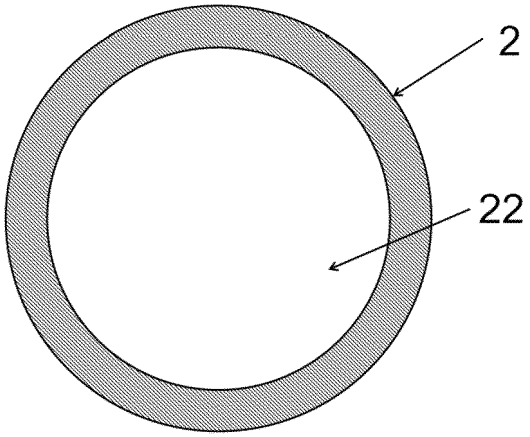

FIG.4

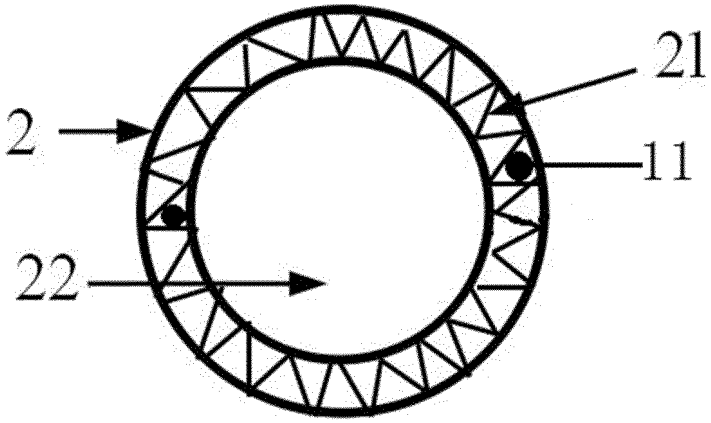

FIG.5

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- CN 113662239 A **[0007]**