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(54) **NOVEL CIGARETTE WITH REDUCED TOBACCO VAPOR TEMPERATURE AND IMPROVED TASTE**

NEUARTIGE ZIGARETTE MIT VERMINDERTER TABAKDAMPFTEMPERATUR UND VERBESSERTEM GESCHMACK

NOUVELLE CIGARETTE AYANT UNE TEMPÉRATURE DE VAPEUR DE TABAC RÉDUITE ET UN GOUT AMÉLIORÉ

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(73) Proprietor: **Hubei China Tobacco Industry Co., Ltd.**
Wuhan, Hubei 430040 (CN)

(72) Inventors:
• **LIU, Huachen**
Wuhan
Hubei 430040 (CN)
• **CHEN, Yikun**
Wuhan
Hubei 430040 (CN)

- **KE, Weichang**
Wuhan
Hubei 430040 (CN)
- **LIU, Xianghao**
Wuhan
Hubei 430040 (CN)
- **LUO, Chenghao**
Wuhan
Hubei 430040 (CN)

(74) Representative: **IPrime Bonnekamp Sparing**
Patentanwalts-gesellschaft mbH
Malkastenstraße 7
40211 Düsseldorf (DE)

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Description

[0001] The invention relates to a cigarette with reduced tobacco vapor temperature and improved taste as defined in the preamble of an independent claim.

[0002] US 4 638 820 A describes a puff control cigarette which delivers to a smoker, during each puff, a flow stream having a higher concentration of smoke during a first portion of the puff and a lower concentration of smoke during a remainder of the puff. The cigarette comprises a tobacco segment, a filter tip segment consisting of a single fibrous filter and a flue gas reflux segment configured as a suction valve, having an inlet opening toward the tobacco segment and an outlet opening toward the filter tip segment, including baffles creating a serpentine flue gas reflux path comprising axial and radial path segments, wherein openings are radially provided in the inner wall surrounding the flue gas reflux segment.

[0003] US 2004 0231684 A1 teaches an improved filter for a cigarette, the filter including an amount of adsorbent, preferably activated carbon, where off-taste suppressants are added to the filter to suppress an off-taste consumers associate with the carbon-based adsorbent. The filter is designed as a complete solid cylinder over its entire length, which is wrapped by a paper. The content of the filter consists of different fibrous filter materials and sorbents, which can be arranged differently within the filter. The first layer can be a fibrous material, the second layer e. g. activated carbon or a chemisorbent and the third layer fibrous material. The arrangement of the filter material can be variable, but it is finally always a cylinder which is completely filled with solid filter material.

[0004] EP 0 930 024 A1 describes a cigarette filtering element to be embodied in the zone of the normal cellulose filter that greatly limits and filters the absorption of carbonized elements by the smoker and by persons near to him. The filter structure has the form of a labyrinth chamber that can have different forms, suitable for depositing the heavy carbonized products and tarry elements in the filter internal chamber. The cigarette comprises a tobacco segment, a filter tip segment and flue gas reflux segment having an inlet opening toward the tobacco segment configured as the end of a first pipe leading into a superior wall and an outlet opening toward the filter tip segment configured as the end of a second pipe leading into a lower wall. The pipes lead into an internal chamber having a diameter significantly superior to the diameters of the pipes, where a flue gas reflux path bridges a central portion of the internal chamber and accordingly stays at a maximum distance of the inner wall.

[0005] A cigarette heated through external heating but not a combustion of tobacco can obviously reduce a large number of hazardous substances generated during the combustion of the cigarette, so that the harm of passive smoking for non-smoking population is reduced. In the novel cigarette heated through an external heat source, one important constituent part is a cigarette of the heated

cigarette, and the cigarette is a tobacco product capable of releasing a vapor aerosol under low temperature heating conditions. The tobacco product reaches an atomization temperature at the temperature of 200°C to 400°C in general, the temperature of high temperature atomization vapor entering oral cavity through a filter tip can be higher than the temperature of ordinary cigarette combustion.

[0006] It is the object of the invention to provide a cigarette having an increased heat exchange efficiency.

[0007] This object is achieved according to the invention by a cigarette having the features of an independent claim.

[0008] According to the invention a novel cigarette with reduced tobacco vapor temperature and improved taste comprises a tobacco segment, a filter tip segment, and a flue gas reflux segment arranged between the tobacco segment and the filter tip segment. An air inlet opening communicating with the tobacco segment is provided on a first part of the flue gas reflux segment near to the tobacco segment. An air outlet opening communicating with the filter tip segment is provided on a second part of the flue gas reflux segment near to the filter tip segment. A plurality of air flow baffles are provided from top to bottom within the flue gas reflux segment in an alternating arrangement to create a serpentine flue gas reflux path. One end of the flue gas reflux path communicates with the air inlet opening, and the other end of the flue gas reflux path is connected to the air outlet opening. Tobacco vapor enters the air inlet opening and passes through the flue gas reflux path. A length of the flue gas reflux path of the flue gas reflux segment is increased. The temperature of the flue gas is reduced by means of heat exchange of a hot air flow with the air flow baffles and the inner wall of the flue gas reflux segment. The cigarette is characterized in that the cigarette comprises a fragrance strengthening segment between the tobacco segment and the flue gas reflux segment, wherein the fragrance strengthening segment is internally provided with a tobacco flavor fragile capsule or an adsorbent carrier and flavors and fragrances adsorbed onto the adsorbent carrier, and that the filter tip segment consists of a solid filter tip and a hollow filter tip, that the solid filter tip is connected with the flue gas reflux segment, and that the hollow filter tip is positioned at an outermost end.

[0009] According to the invention a novel cigarette with reduced tobacco vapor temperature and improved taste comprises a tobacco segment, a filter tip segment, and a flue gas reflux segment arranged between the tobacco segment and the filter tip segment. An air inlet opening communicating with the tobacco segment is provided on a first part of the flue gas reflux segment near to the tobacco segment. An air outlet opening communicating with the filter tip segment is provided on a second part of the flue gas reflux segment near to the filter tip segment. A plurality of air flow baffles are provided from top to bottom within the flue gas reflux segment in an alternating arrangement to create a serpentine flue gas reflux path.

One end of the flue gas reflux path communicates with the air inlet opening, and the other end of the flue gas reflux path is connected to the air outlet opening. Tobacco vapor enters the air inlet opening and passes through the flue gas reflux path. A length of the flue gas reflux path of the flue gas reflux segment is increased. The temperature of flue gas is reduced by means of heat exchange of a hot air flow with the air flow baffles and the inner wall of the flue gas reflux segment. The cigarette is characterized in that an adsorbent carrier is paved on surface layers of the air flow baffles and the adsorbent carrier is adsorbed with flavors and fragrances, and that the filter tip segment consists of a solid filter tip and a hollow filter tip, that the solid filter tip is connected with the flue gas reflux segment, and that the hollow filter tip is positioned at an outermost end.

[0010] Preferably, the filter tip segment can be a hollow filter tip bar, an ordinary filter tip bar or a countersunk head filter tip bar.

[0011] Furthermore, the flue gas reflux segment can be various air flow structures for increasing the circulation extension of vapor inside the cigarette such as a spiral air flow structure or a serpentine vapor path structure.

[0012] Furthermore, an air inlet opening is provided on the upper side and the lower side of the flue gas reflux segment near to the tobacco segment respectively, the flue gas reflux segment is provided with two flue gas reflux branched paths, the inlet of each flue gas reflux branched path corresponds to one air inlet opening, and the air outlet opening communicates with the outlets of the two flue gas reflux branched paths respectively.

[0013] Furthermore, the air inlet opening is provided on a first part of the flue gas reflux segment near to the tobacco segment, the air outlet opening is provided on a second part of the flue gas reflux segment near to the filter tip segment vertically respectively, the flue gas reflux path is provided with two flue gas reflux branched paths, the inlet of each flue gas reflux branch path corresponds to the air inlet opening, and the outlet of each flue gas reflux branch path corresponds to one air outlet opening.

[0014] Furthermore, the adsorbent carrier is made from foam metals, plastic materials, molecular sieves, polypropylene, active carbon, Dacron, nylon fiber, porous ceramics, non-woven fabrics, carbon fiber, natural cellulose fiber or cellulose derivative fiber.

[0015] Furthermore, the tobacco segment consists of tobacco shreds, tobacco sheets, an atomizing agent, an auxiliary material, a tobacco extract and tobacco flavors and fragrances, the tobacco shreds account for 40% to 90% of the total weight of the tobacco product, the tobacco sheets account for 5% to 50% of the total weight of the tobacco product, the atomizing agent accounts for 2% to 35% of the total weight of the tobacco product, the auxiliary material accounts for 0 to 10% of the total weight of the tobacco product, the tobacco extract accounts for 0.1% to 20% of the total weight of the tobacco product, and the tobacco flavors and fragrances account for 0.01% to 8% of the total weight of the tobacco product.

[0016] Furthermore, the tobacco shreds account for 50% to 80% of the total weight of the tobacco product, the tobacco sheets account for 10% to 40% of the total weight of the tobacco product, the atomizing agent accounts for 5% to 30% of the total weight of the tobacco product, the auxiliary material accounts for 0.5% to 8% of the total weight of the tobacco product, the tobacco extract accounts for 0.5% to 15% of the total weight of the tobacco product, and the tobacco flavors and fragrances account for 0.05% to 5% of the total weight of the tobacco product.

[0017] Furthermore, the air inlet opening is designed in the shape of a horn mouth.

[0018] Furthermore, the flue gas reflux segment accounts for 1/6 to 2/3 of the cigarette length of the whole novel cigarette, appropriate length of the flue gas reflux segment can obviously reduce the vapor temperature of the cigarette, and the cigarette is appropriate in draw resistance.

[0019] Furthermore, the cigarette length of the novel cigarette is 35 mm to 100 mm, and the outer diameter of the cigarette is 3 mm to 12 mm.

[0020] The novel cigarette has the beneficial effects that firstly, the designed flue gas reflux segment can change the circulation path of the flue gas reflux, the length of a flue gas reflux path of the flue gas reflux segment is increased, the heat exchange efficiency of vapor and the cigarette is increased, and the temperature of the flue gas reflux of the external heating type novel cigarette is reduced effectively; and secondly, the fragrance strengthening segment tightly near to the tobacco product sufficiently utilizes the air flow heat of the tobacco segment, the vapor temperature is reduced, and simultaneously the comfort of the vapor is improved.

FIG. 1 is a structure diagram of the embodiment I of the novel cigarette with reduced tobacco vapor temperature and improved taste in the disclosure;

FIG. 2 is a structure diagram of the embodiment II of the novel cigarette with reduced tobacco vapor temperature and improved taste in the disclosure;

FIG. 3 is a structure diagram of the embodiment III of the novel cigarette with reduced tobacco vapor temperature and improved taste in the disclosure;

FIG. 4 is a structure diagram of the embodiment IV of the novel cigarette with reduced tobacco vapor temperature and improved taste in the disclosure; and

FIG. 5 is a structure diagram of the embodiment V of the novel cigarette with reduced tobacco vapor temperature and improved taste in the disclosure.

[0021] In the figures, 1, tobacco segment; 2, fragrance strengthening segment; 3, 12, air inlet opening; 4, flue gas reflux path; 5, air flow baffle; 6, 13, air outlet opening;

7, 10, solid filter tip; 8, 11, hollow filter tip; 9, fragile capsule
[0022] In combination with the accompanying drawings, the technical scheme in the disclosure is described clearly and completely.

Embodiment I

[0023] FIG. 1 shows a novel cigarette containing a fragrance strengthening segment 2 provided by the disclosure, the novel cigarette comprises a tobacco segment 1, the fragrance strengthening segment 2, a flue gas reflux segment 3, 4, 5, 6 and a filter tip segment 7, 8 which are connected in sequence, the filter tip segment 7, 8 consists of a solid filter tip 7 and a hollow filter tip 8, wherein the solid filter tip 7 is connected with the flue gas reflux segment 3, 4, 5, 6 and the hollow filter tip 8 is positioned at the outermost end. An air inlet opening 3 communicating with the fragrance strengthening segment 2 is provided on a part of the flue gas reflux segment 3, 4, 5, 6 near to the fragrance strengthening segment 2, and an air outlet opening 6 communicating with the filter tip segment 7, 8 is provided on a part of the flue gas reflux segment 3, 4, 5, 6 near to the filter tip segment 7, 8. A plurality of air flow baffles 5 are provided from top to bottom within the flue gas reflux segment 3, 4, 5, 6 in an alternating arrangement to create a serpentine flue gas reflux path 4, one end of the flue gas reflux path 4 communicates with the air inlet opening 3, and the other end of the flue gas reflux path 4 is connected to the air outlet opening 6. As shown in FIG. 1, the embodiment is provided with four air flow baffles 5 which comprise a first air flow baffle, a second air flow baffle, a third air flow baffle and a fourth air flow baffle from top to bottom in sequence.

[0024] An air inlet opening 3 is provided on the upper side and the lower side of the flue gas reflux segment 3, 4, 5, 6 near to the fragrance strengthening segment 2 respectively, the first air flow baffle positioned at the uppermost end is arranged below the air inlet opening 3, one end is in contact with the fragrance strengthening segment 2 for sealing, the other end and the filter tip segment 7, 8 are arranged at an interval to form an opening, one end of the second air flow baffle positioned below the opening is in contact with the filter tip segment 7, 8 for sealing, the other end and the fragrance strengthening segment 2 are arranged at an interval to form an opening, so that the first air flow baffle and the second air flow baffle are arranged in a staggered manner, a serpentine flue gas reflux path 4 is formed by the opening formed by the first air flow baffle and the filter tip segment 7, 8 and the opening formed between the second air flow baffle and the fragrance strengthening segment 2 between the first air flow baffle and the upper side wall of the flue gas reflux segment 3, 4, 5, 6, after the cigarette is heated, tobacco vapor enters the air inlet opening 3 and passes through the flue gas reflux path 4, the length of a flue gas reflux path 4 of the flue gas reflux segment 3, 4, 5, 6 is increased, the temperature of flue gas is reduced by

means of heat exchange of a hot air flow with the air flow baffles 5 and the inner wall of the flue gas reflux segment 3, 4, 5, 6, after the flue gas flows out through the air outlet opening 6, the tobacco vapor enters into the solid filter tip 7 and the hollow filter tip 8 in sequence, and finally the temperature of flue gas is lowered below 45°C.

[0025] The arrangement of the third air flow baffle, the fourth air flow baffle and the air inlet opening 3 on the lower side is similar to the above description, and does not need to be described in details herein.

[0026] In the embodiment, the tobacco segment 1 consists of tobacco shreds, tobacco sheets, an atomizing agent, an auxiliary material, a tobacco extract and tobacco flavors and fragrances, wherein the tobacco shreds account for 70% of the total weight, the tobacco sheets account for 14% of the total weight, the atomizing agent consists of glycerin and ethylene glycol in the mass ratio of 3: 1 and accounts for 12% of the total weight, the auxiliary material accounts for 1% of the total weight, the tobacco extract accounts for 2.8% of the total weight, and the flavors and fragrances account for 0.2% of the total weight.

[0027] In the embodiment, non-woven fabric serves as an adsorbing medium in the fragrance strengthening segment 2, a blended tobacco fragrance substance with low boiling point is added, and the addition amount accounts for 0.1% of the total weight of the tobacco segment.

[0028] According to the novel cigarette prepared in the embodiment, the tobacco vapor temperature of the cigarette can be reduced obviously, and the taste of the added fragrance strengthening segment 2 is coordinated with the tobacco vapor.

Embodiment II

[0029] FIG. 2 shows a novel cigarette without containing a fragrance strengthening segment 2 provided by the disclosure and is basically similar to the structural form in the embodiment I, the novel cigarette comprises a tobacco segment 1, a flue gas reflux segment 3, 4, 5, 6 and a filter tip segment 7, 8 which are connected in sequence, the filter tip segment 7, 8 consists of a solid filter tip 7 and a hollow filter tip 8, wherein the solid filter tip 7 is connected with the flue gas reflux segment 3, 4, 5, 6, and the hollow filter tip 8 is positioned at the outermost end. Wherein, the flue gas reflux segment 3, 4, 5, 6 in the embodiment is the same as the flue gas reflux segment 3, 4, 5, 6 in the embodiment I, and just the flue gas reflux segment 3, 4, 5, 6 changes to be connected with the tobacco segment 1.

[0030] In the embodiment, the tobacco segment 1 consists of tobacco shreds, tobacco sheets, an atomizing agent, a tobacco extract and tobacco flavors and fragrances, wherein the tobacco shreds account for 65% of the total weight, the tobacco sheets account for 17% of the total weight, the atomizing agent consists of glycerin and ethylene glycol in the mass ratio of 4:1 and accounts for 15% of the total weight, the tobacco extract

accounts for 2.5% of the total weight, and the flavors and fragrances account for 0.5% of the total weight. Due to the fact that the cigarette is internally free of the fragrance strengthening segment, flavors and fragrances inside the tobacco product are appropriately added, so that the taste of the smoke vapor is improved.

[0031] Preferably, an adsorbent carrier can be paved on the surface layers of the air flow baffles 5, and the adsorbent carrier is adsorbed with the flavors and fragrances, so that the fragrance strengthening effect can be reached for tobacco vapor.

[0032] According to the novel cigarette structure prepared in the embodiment, the tobacco vapor temperature of the cigarette can be reduced obviously, and the fragrance of the tobacco is obvious.

Embodiment III

[0033] FIG. 3 shows a novel cigarette with a fragrance strengthening segment 2 containing a fragile capsule 9, the novel cigarette comprises a tobacco segment 1, the fragrance strengthening segment 2, a flue gas reflux segment 3, 4, 5, 6 and a filter tip segment 7, 8 which are connected in sequence, the filter tip segment 7, 8 consists of a solid filter tip 7 and a hollow filter tip 8, wherein the solid filter tip 7 is connected with the flue gas reflux segment 3, 4, 5, 6, and the hollow filter tip 8 is positioned at the outermost end. Wherein, the flue gas reflux segment 3, 4, 5, 6 in the embodiment is the same as the flue gas reflux segment 3, 4, 5, 6 in the embodiment I.

[0034] In the embodiment, the tobacco segment 1 consists of tobacco shreds, tobacco sheets, an atomizing agent, a tobacco extract and tobacco flavors and fragrances, wherein the tobacco shreds account for 60% of the total weight, the tobacco sheets account for 15% of the total weight, the atomizing agent consists of glycerin, ethylene glycol and water in the mass ratio of 10:10:1 and accounts for 20% of the total weight, the tobacco extract accounts for 4.9% of the total weight, and the flavors and fragrances account for 0.1% of the total weight.

[0035] In the embodiment, the fragrance strengthening segment 2 is internally provided with the fragile capsule 9, containing the blended tobacco flavors and fragrances, wrapped by cellulose acetate fiber, before the tobacco segment 1 is heated, the fragile capsule 9 is broken, the flavors and fragrances are released, and the flavors and fragrances are brought out by using a hot flow of the tobacco segment 1, so that the fragrance plumpness of the tobacco vapor is increased.

[0036] According to the novel cigarette structure prepared in the embodiment, the tobacco vapor temperature of the cigarette can be reduced obviously, and the fragrance of the substance contained in the capsule 9 is obvious.

Embodiment IV

[0037] FIG. 4 is a novel cigarette containing a fragrance strengthening segment 2 provided by the disclosure, the novel cigarette comprises a tobacco segment 1, the fragrance strengthening segment 2, a flue gas reflux segment 12, 4, 5, 13 and a filter tip segment 10, 11 which are connected in sequence, the filter tip segment consists of a solid filter tip 10 and a hollow filter tip 11, wherein the solid filter tip 10 is connected with the flue gas reflux segment 12, 4, 5, 13, and the hollow filter tip 11 is positioned at the outermost end.

[0038] Wherein, the flue gas reflux segment 12, 4, 5, 13 in the embodiment is the same as the flue gas reflux segment 3, 4, 5, 6 in the embodiment I, but a structural form arranged in an opposite direction in the embodiment I is adopted, the air inlet opening is 12, the air outlet opening is 13, namely the air inlet opening 12 is provided on a part of the flue gas reflux segment 12, 4, 5, 13 near to the fragrance strengthening segment 2, and an air outlet opening 13 is provided on a part of the flue gas reflux segment 12, 4, 5, 13 near to the filter tip segment 10, 11, a plurality of air flow baffles 5 are provided from top to bottom within the flue gas reflux segment 12, 4, 5, 13 in an alternating arrangement to create a serpentine flue gas reflux path 4, one end of the flue gas reflux path 4 communicates with the air inlet opening 12, and the other end of the flue gas reflux path 4 is connected to the air outlet opening 13. In the embodiment, the two air flow baffles 5 are arranged vertically respectively, a flue gas reflux branched path 4 is formed by one upper air flow baffle 5 and the corresponding lower air flow baffle 5 respectively, and the outlet of each flue gas reflux branched path 4 communicates with the corresponding air outlet opening 13 respectively.

[0039] The air inlet openings 12 are positioned between the upper air flow baffles 5 and the lower air flow baffles 5, after the tobacco vapor enters from the air inlet openings 12, the tobacco vapor enters into the two flue gas reflux branched paths 4 from the passages between the upper air flow baffles 5 and the lower air flow baffles 5 respectively, and then the flue gas flows out from the air outlet opening 13 after passing through the flue gas reflux branched paths 4.

[0040] In the embodiment, the tobacco segment 1 consists of tobacco shreds, tobacco sheets, an atomizing agent, a tobacco extract, a non-tobacco extract and tobacco flavors and fragrances, wherein the tobacco shreds account for 50% of the total weight, the tobacco sheets account for 28% of the total weight, the auxiliary material accounts for 2% of the total weight, the atomizing agent consists of glycerin, ethylene glycol and water in the mass ratio of 10: 10: 0.5 and accounts for 15% of the total weight, the tobacco extract and the non-tobacco extract account for 4.5% of the total weight, and the tobacco flavors and fragrances account for 0.5% of the total weight.

[0041] In the embodiment, non-woven fabric serves as

an adsorbing medium in the fragrance strengthening segment 2, a fragrance substance prepared by a Maillard reaction intermediate is added, and the addition amount accounts for 0.1% of the total weight of the tobacco segment.

[0042] According to the novel cigarette structure prepared in the embodiment, the tobacco vapor temperature of the cigarette can be reduced obviously, and the fragrance, generated by Maillard reaction, of the tobacco is obvious, and the fragrance strengthening effect is obvious and is coordinated with the tobacco vapor.

Embodiment V

[0043] FIG. 5 is a novel cigarette containing a fragrance strengthening segment 2 provided by the disclosure, the novel cigarette comprises a tobacco segment 1, the fragrance strengthening segment 2, a flue gas reflux segment 12, 4, 5, 13 and a filter tip segment 10, 11 which are connected in sequence, the filter tip segment 10, 11 consists of a solid filter tip 10 and a hollow filter tip 11, wherein the solid filter tip 10 is connected with the flue gas reflux segment 12, 4, 5, 13, and the hollow filter tip 11 is positioned at the outermost end.

[0044] Wherein, the flue gas reflux segment 12, 4, 5, 13 in the embodiment is the same as the flue gas reflux segment 12, 4, 5, 13 in the embodiment IV, and the air inlet openings 12 are in the forms of horn mouths, so that the draw resistance can be reduced obviously.

[0045] In the embodiment, the tobacco segment 1 consists of tobacco shreds, tobacco sheets, an atomizing agent, a tobacco extract, a non-tobacco extract and tobacco flavors and fragrances, wherein the tobacco shreds account for 65% of the total weight, the tobacco sheets account for 15% of the total weight, the auxiliary material accounts for 1% of the total weight, the atomizing agent consists of glycerin and ethylene glycol in the mass ratio of 3: 2 and accounts for 15% of the total weight, the tobacco extract and the non-tobacco extract account for 3.5% of the total weight, and the tobacco flavors and fragrances account for 0.5% of the total weight.

[0046] In the embodiment, non-woven fabric serves as an adsorbing medium in the fragrance strengthening segment 2, a fragrance substance prepared by a mint ester substance is added, and the addition amount accounts for 0.2% of the total weight of the tobacco segment.

[0047] According to the novel cigarette structure prepared in the embodiment, the tobacco vapor temperature of the cigarette can be reduced obviously, and the precursor-flavor substances such as mint esters can be heated to decompose flavor substances with mint flavor, so that the taste of the smoke vapor is improved.

Claims

1. A cigarette with reduced tobacco vapor temperature

and improved taste, comprising

a tobacco segment (1),
 a filter tip segment (7, 8; 10, 11), and
 a flue gas reflux segment (3, 4, 5, 6; 12, 4, 5, 13) arranged between the tobacco segment (1) and the filter tip segment (7, 8; 10, 11), and having an inner wall;
 wherein an air inlet opening (3; 12) communicating with the tobacco segment (1) is provided on a first part of the flue gas reflux segment (3, 4, 5, 6; 12, 4, 5, 13) near to the tobacco segment (1);
 wherein an air outlet opening (6; 13) communicating with the filter tip segment (7, 8; 10, 11) is provided on a second part of the flue gas reflux segment (3, 4, 5, 6; 12, 4, 5, 13) near to the filter tip segment (7, 8; 10, 11);
 wherein a plurality of air flow baffles (5) are provided from top to bottom within the flue gas reflux segment (3, 4, 5, 6; 12, 4, 5, 13) in an alternating arrangement to create a serpentine flue gas reflux path (4) for a flue gas;
 wherein one end of the flue gas reflux path (4) communicates with the air inlet opening (3; 12), and the other end of the flue gas reflux path (4) is connected to the air outlet opening (6; 13);
 wherein tobacco vapor enters the air inlet opening (3; 12) and passes through the flue gas reflux path (4);
 wherein a length of the flue gas reflux path (4) of the flue gas reflux segment (3, 4, 5, 6; 12, 4, 5, 13) is increased and the temperature of the flue gas is reduced by means of heat exchange of a hot air flow with the air flow baffles (5) and the inner wall of the flue gas reflux segment (3, 4, 5, 6; 12, 4, 5, 13),
characterized in
that the cigarette comprises a fragrance strengthening segment (2) between the tobacco segment (1) and the flue gas reflux segment (3, 4, 5, 6; 12, 4, 5, 13), wherein the fragrance strengthening segment (2) is internally provided with a tobacco flavor fragile capsule (9) or an adsorbent carrier and flavors and fragrances adsorbed onto the adsorbent carrier, and
that the filter tip segment (7, 8; 10, 11) consists of a solid filter tip (7; 10) and a hollow filter tip (8; 11),
that the solid filter tip (7; 10) is connected with the flue gas reflux segment (3, 4, 5, 6; 12, 4, 5, 13), and
that the hollow filter tip (8; 11) is positioned at an outermost end.

2. A cigarette with reduced tobacco vapor temperature and improved taste, comprising

a tobacco segment (1),

- a filter tip segment (7, 8; 10, 11), and
 a flue gas reflux segment (3, 4, 5, 6; 12, 4, 5, 13)
 arranged between the tobacco segment (1) and
 the filter tip segment (7, 8; 10, 11), and having an
 inner wall;
 wherein an air inlet opening (3; 12) communicat-
 ing with the tobacco segment (1) is provided on a
 first part of the flue gas reflux segment (3, 4, 5, 6;
 12, 4, 5, 13) near to the tobacco segment (1);
 wherein an air outlet opening (6; 13) commu-
 nicating with the filter tip segment (7, 8; 10, 11) is
 provided on a second part of the flue gas reflux
 segment (3, 4, 5, 6; 12, 4, 5, 13) near to the filter
 tip segment (7, 8; 10, 11);
 wherein a plurality of air flow baffles (5) are
 provided from top to bottom within the flue gas
 reflux segment (3, 4, 5, 6; 12, 4, 5, 13) in an
 alternating arrangement to create a serpentine
 flue gas reflux path (4) for a flue gas;
 wherein one end of the flue gas reflux path (4)
 communicates with the air inlet opening (3; 12),
 and the other end of the flue gas reflux path (4) is
 connected to the air outlet opening (6; 13);
 wherein tobacco vapor enters the air inlet open-
 ing (3; 12) and passes through the flue gas reflux
 path (4);
 wherein a length of the flue gas reflux path (4) of
 the flue gas reflux segment (3, 4, 5, 6; 12, 4, 5,
 13) is increased and the temperature of the flue
 gas is reduced by means of heat exchange of a
 hot air flow with the air flow baffles (5) and the
 inner wall of the flue gas reflux segment (3, 4, 5,
 6; 12, 4, 5, 13),
characterized in
that an adsorbent carrier is paved on the surface
 layers of the air flow baffles (5) and the adsor-
 bent carrier is adsorbed with flavors and fra-
 grances, and
that the filter tip segment (7, 8; 10, 11) consists of
 a solid filter tip (7; 10) and a hollow filter tip (8;
 11),
that the solid filter tip (7; 10) is connected with
 the flue gas reflux segment (3, 4, 5, 6; 12, 4, 5,
 13), and
that the hollow filter tip (8; 11) is positioned at an
 outermost end.
3. The cigarette according to claim 1 or 2, **character-
 ized in that** the air inlet opening (3) is provided on an
 upper side and a lower side of the first part of the flue
 gas reflux segment (3, 4, 5, 6) near to the tobacco
 segment (1) respectively, wherein the flue gas reflux
 segment (3, 4, 5, 6) is provided with two flue gas
 reflux branched paths (4), wherein an inlet of each
 flue gas reflux branched path (4) corresponds to one
 of the air inlet openings (3), and wherein the air outlet
 opening (6) communicates with outlets of the two flue
 gas reflux branched paths (4) respectively.
4. The cigarette according to claim 1, **characterized in
 that** the air inlet opening (12) is provided on the first
 part of the flue gas reflux segment (12, 4, 5, 13) near
 to the tobacco segment (1), wherein air outlet open-
 ings (13) are provided on the second part of the flue
 gas reflux segment (12, 4, 5, 13) near to the filter tip
 segment (7, 8; 10, 11) vertically offset respectively,
 wherein the flue gas reflux path (4) is provided with
 two flue gas reflux branched paths (4), wherein an
 inlet of each flue gas reflux branch path (4) corre-
 sponds to the air inlet opening (12), and wherein an
 outlet of each flue gas reflux branch path (4) corre-
 sponds to one of the air outlet openings (13).
5. The cigarette according to any one of claims 1 to 4,
characterized in that the adsorbent carrier is made
 from foam metals, plastic materials, molecular
 sieves, polypropylene, active carbon, Dacron, nylon
 fiber, porous ceramics, non-woven fabrics, carbon
 fiber, natural cellulose fiber or cellulose derivative
 fiber.
6. The cigarette according to any one of claims 1 to 5,
characterized in that the tobacco segment (1) con-
 sists of tobacco shreds, tobacco sheets, an atomiz-
 ing agent, an auxiliary material, a tobacco extract
 and tobacco flavors and fragrances, wherein the
 tobacco shreds account for 40% to 90% of the total
 weight of the tobacco product, wherein the tobacco
 sheets account for 5% to 50% of the total weight of
 the tobacco product, wherein the atomizing agent
 accounts for 2% to 35% of the total weight of the
 tobacco product, wherein the auxiliary material ac-
 counts for 0% to 10% of the total weight of the
 tobacco product, wherein the tobacco extract ac-
 counts for 0.1% to 20% of the total weight of the
 tobacco product, and wherein the tobacco flavors
 and fragrances account for 0.01% to 8% of the total
 weight of the tobacco product.
7. The cigarette according to claim 6, **characterized in
 that** the tobacco shreds account for 50% to 80% of
 the total weight of the tobacco product, wherein the
 tobacco sheets account for 10% to 40% of the total
 weight of the tobacco product, wherein the atomizing
 agent accounts for 5% to 30% of the total weight of
 the tobacco product, wherein the auxiliary material
 accounts for 0.5% to 8% of the total weight of the
 tobacco product, the tobacco extract accounts for
 0.5% to 15% of the total weight of the tobacco
 product, and wherein the tobacco flavors and fra-
 grances account for 0.05% to 5% of the total weight
 of the tobacco product.
8. The cigarette according to claim 1 **characterized in
 that** the air inlet opening (12) is designed in a shape
 of a horn mouth.

9. The cigarette according to any one of claims 1 to 8, **characterized in that** the flue gas reflux segment (3, 4, 5, 6; 12, 4, 5, 13) accounts for 1/6 to 2/3 of a length of the cigarette.
10. The cigarette according to any one of claims 1 to 9, **characterized in that** a length of the cigarette is 35 mm to 100 mm, and an outer diameter of the cigarette is 3 mm to 12 mm.
11. The cigarette according to any one of claims 1 to 10, **characterized in that** the flue gas reflux path (4) comprises a first 180° deflection at an end of the flue gas reflux segment (3, 4, 5, 6; 12, 4, 5, 13) near to the filter tip segment (7, 8; 10, 11), and that the flue gas reflux path (4) comprises a second 180° deflection at another end of the flue gas reflux segment (3, 4, 5, 6; 12, 4, 5, 13) near to the tobacco segment (1).
12. The cigarette according to any one of claims 1 to 11, **characterized in that** a first baffle (5) is attached to the first part of the flue gas reflux segment (3, 4, 5, 6; 12, 4, 5, 13) in which the air inlet opening (3; 12) is provided, and that a second baffle (5) is attached to the second part of the flue gas reflux segment (3, 4, 5, 6; 12, 4, 5, 13) in which the air outlet opening (6; 13) is provided.

Patentansprüche

1. Zigarette mit reduzierter Tabakdampftemperatur und verbessertem Geschmack, umfassend

ein Tabaksegment (1)
 ein Filterspitzensegment (7, 8; 10, 11), und
 ein Rauchgasrückflussegment (3, 4, 5, 6; 12, 4, 5, 13), das zwischen dem Tabaksegment (1) und dem Filterspitzensegment (7, 8; 10, 11) angeordnet ist und eine Innenwand aufweist
 wobei eine Lufteinlassöffnung (3; 12), die mit dem Tabaksegment (1) in Verbindung steht, an einem ersten Teil des Rauchgasrückflussegments (3, 4, 5, 6; 12, 4, 5, 13) nahe dem Tabaksegment (1) vorgesehen ist wobei eine Luftauslassöffnung (6; 13), die mit dem Filterspitzensegment (7, 8; 10, 11) in Verbindung steht, an einem zweiten Teil des Rauchgasrückflussegments (3, 4, 5, 6; 12, 4, 5, 13) nahe dem Filterspitzensegment (7, 8; 10, 11) vorgesehen ist,
 wobei eine Vielzahl von Luftstromleitblechen (5) von oben nach unten innerhalb des Rauchgasrückflussegments (3, 4, 5, 6; 12, 4, 5, 13) in einer abwechselnden Anordnung vorgesehen sind, um einen serpentinenförmigen Rauchgasrückfluspfad (4) für ein Rauchgas zu erzeugen; wobei ein Ende des Rauchgasrückfluspfades (4) mit der Lufteinlassöffnung (3; 12) in Verbin-

dung steht und das andere Ende des Rauchgasrückfluspfades (4) mit der Luftauslassöffnung (6; 13) verbunden ist
 wobei Tabakdampf in die Lufteinlassöffnung (3; 12) eintritt und den Rauchgasrückfluspfad (4) durchläuft
 wobei eine Länge des Rauchgasrückfluspfades (4) des Rauchgasrückflussegments (3, 4, 5, 6; 12, 4, 5, 13) vergrößert und die Temperatur des Rauchgases durch Wärmeaustausch eines Heißluftstroms mit den Luftstromleitblechen (5) und der Innenwand des Rauchgasrückflussegments (3, 4, 5, 6; 12, 4, 5, 13) reduziert wird, **gekennzeichnet durch**
 dass die Zigarette ein duftverstärkendes Segment (2) zwischen dem Tabaksegment (1) und dem Rauchgasrückflussegment (3, 4, 5, 6; 12, 4, 5, 13) umfasst, wobei das duftverstärkende Segment (2) im Inneren mit einer tabakaromatischen fragilen Kapsel (9) oder einem Adsorptionsträger und auf dem Adsorptionsträger adsorbierten Aromen und Duftstoffen versehen ist, und
 dass das Filterspitzensegment (7, 8; 10, 11) aus einer massiven Filterspitze (7; 10) und einer hohlen Filterspitze (8; 11) besteht,
 dass die massive Filterspitze (7; 10) mit dem Rauchgasrückflussegment (3, 4, 5, 6; 12, 4, 5, 13) verbunden ist, und
 dass die hohle Filterspitze (8; 11) an einem äußersten Ende angeordnet ist.

2. Zigarette mit reduzierter Tabakdampftemperatur und verbessertem Geschmack, umfassend

ein Tabaksegment (1)
 ein Filterspitzensegment (7, 8; 10, 11), und
 ein Rauchgasrückflussegment (3, 4, 5, 6; 12, 4, 5, 13), das zwischen dem Tabaksegment (1) und dem Filterspitzensegment (7, 8; 10, 11) angeordnet ist und eine Innenwand aufweist
 wobei eine Lufteinlassöffnung (3; 12), die mit dem Tabaksegment (1) in Verbindung steht, an einem ersten Teil des Rauchgasrückflussegments (3, 4, 5, 6; 12, 4, 5, 13) nahe dem Tabaksegment (1) vorgesehen ist wobei eine Luftauslassöffnung (6; 13), die mit dem Filterspitzensegment (7, 8; 10, 11) in Verbindung steht, an einem zweiten Teil des Rauchgasrückflussegments (3, 4, 5, 6; 12, 4, 5, 13) nahe dem Filterspitzensegment (7, 8; 10, 11) vorgesehen ist
 wobei eine Vielzahl von Luftstromleitblechen (5) von oben nach unten innerhalb des Rauchgasrückflussegments (3, 4, 5, 6; 12, 4, 5, 13) in einer abwechselnden Anordnung vorgesehen sind, um einen serpentinenförmigen Rauchgasrückfluspfad (4) für ein Rauchgas zu erzeugen; wobei ein Ende des Rauchgasrückfluspfades

- (4) mit der Lufteinlassöffnung (3; 12) in Verbindung steht und das andere Ende des Rauchgasrückflussespfades (4) mit der Luftauslassöffnung (6; 13) verbunden ist
wobei Tabakdampf in die Lufteinlassöffnung (3; 12) eintritt und durch den Rauchgasrückflussespfad (4) strömt
wobei eine Länge des Rauchgasrückflussespfades (4) des Rauchgasrückflussessegments (3, 4, 5, 6; 12, 4, 5, 13) vergrößert und die Temperatur des Rauchgases durch Wärmeaustausch eines Heißluftstroms mit den Luftstromleitblechen (5) und der Innenwand des Rauchgasrückflussessegments (3, 4, 5, 6; 12, 4, 5, 13) reduziert wird, **gekennzeichnet durch** dass auf den Oberflächenschichten der Luftstromleitbleche (5) ein Adsorptionsträger aufgebracht wird und der Adsorptionsträger mit Aromen und Duftstoffen adsorbiert wird, und dass das Filterspitzensegment (7, 8; 10, 11) aus einer massiven Filterspitze (7; 10) und einer hohlen Filterspitze (8; 11) besteht, dass die massive Filterspitze (7; 10) mit dem Rauchgasrückflussessegment (3, 4, 5, 6; 12, 4, 5, 13) verbunden ist, und dass die hohle Filterspitze (8; 11) an einem äußersten Ende angeordnet ist.
3. Zigarette nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die Lufteinlassöffnung (3) an einer Oberseite und einer Unterseite des ersten Teils des Rauchgasrückflussessegments (3, 4, 5, 6) in der Nähe des Tabaksegments (1) vorgesehen ist, wobei das Rauchgasrückflussessegment (3, 4, 5, 6) mit zwei verzweigten Rauchgasrückflussespfaden (4) versehen ist, wobei ein Einlass jedes verzweigten Rauchgasrückflussespfades (4) mit einer der Lufteinlassöffnungen (3) korrespondiert, und wobei die Luftauslassöffnung (6) jeweils mit Auslässen der beiden verzweigten Rauchgasrückflussespfade (4) in Verbindung steht.
4. Zigarette nach Anspruch 1, **dadurch gekennzeichnet, dass** die Lufteinlassöffnung (12) am ersten Teil des Rauchgasrückflussessegments (12, 4, 5, 13) nahe dem Tabaksegment (1) vorgesehen ist, wobei Luftauslassöffnungen (13) am zweiten Teil des Rauchgasrückflussessegments (12, 4, 5, 13) nahe dem Filterspitzensegment (7, 8; 10, 11) jeweils vertikal versetzt vorgesehen sind, wobei der Rauchgasrückflussespfad (4) mit zwei verzweigten Rauchgasrückflussespfaden (4) versehen ist, wobei ein Einlass von jedem Rauchgasrückflusseszweigweg (4) der Lufteinlassöffnung (12) entspricht, und wobei ein Auslass jedes Rauchgasrückflusseszweigpfades (4) einer der Luftauslassöffnungen (13) entspricht.
5. Zigarette nach einem der Ansprüche 1 bis 4, **dadurch gekennzeichnet, dass** der Adsorptionsträger aus Schaummetallen, Kunststoffen, Molekularsieben, Polypropylen, Aktivkohle, Dacron, Nylonfasern, porösen Keramiken, Vliesstoffen, Kohlenstofffasern, natürlichen Zellulosefasern oder Zellulosederivatfasern besteht.
6. Zigarette nach einem der Ansprüche 1 bis 5, **dadurch gekennzeichnet, dass** das Tabaksegment (1) aus Tabakschnitzeln, Tabakblättern, einem Zerstäubungsmittel, einem Hilfsmaterial, einem Tabakextrakt und Tabakaromen und -düften besteht, wobei die Tabakschnitzel 40% bis 90% des Gesamtgewichts des Tabakerzeugnisses ausmachen, wobei die Tabakblätter 5% bis 50% des Gesamtgewichts des Tabakerzeugnisses ausmachen, wobei das Zerstäubungsmittel 2% bis 35% des Gesamtgewichts des Tabakerzeugnisses ausmacht, wobei das Hilfsmaterial 0% bis 10% des Gesamtgewichts des Tabakerzeugnisses ausmacht, wobei der Tabakextrakt 0.1% bis 20% des Gesamtgewichts des Tabakerzeugnisses ausmacht, und wobei die Tabakaromen und -düfte 0,01% bis 8% des Gesamtgewichts des Tabakerzeugnisses ausmachen.
7. Zigarette nach Anspruch 6, **dadurch gekennzeichnet, dass** die Tabakschnitzel 50 % bis 80 % des Gesamtgewichts des Tabakerzeugnisses ausmachen, wobei die Tabakblätter 10 % bis 40 % des Gesamtgewichts des Tabakerzeugnisses ausmachen, wobei das Zerstäubungsmittel 5 % bis 30 % des Gesamtgewichts des Tabakerzeugnisses ausmacht, wobei das Hilfsmaterial 0.5 % bis 8 % des Gesamtgewichts des Tabakerzeugnisses ausmacht, wobei der Tabakextrakt 0,5 % bis 15 % des Gesamtgewichts des Tabakerzeugnisses ausmacht und wobei die Tabakaromen und -düfte 0,05 % bis 5 % des Gesamtgewichts des Tabakerzeugnisses ausmachen.
8. Zigarette nach Anspruch 1, **dadurch gekennzeichnet, dass** die Lufteinlassöffnung (12) in Form eines Hornmundes ausgebildet ist.
9. Zigarette nach einem der Ansprüche 1 bis 8, **dadurch gekennzeichnet, dass** der Rauchgasrückflussessegment (3, 4, 5, 6; 12, 4, 5, 13) 1/6 bis 2/3 einer Länge der Zigarette ausmacht.
10. Zigarette nach einem der Ansprüche 1 bis 9, **dadurch gekennzeichnet, dass** die Länge der Zigarette 35 mm bis 100 mm beträgt und der Außendurchmesser der Zigarette 3 mm bis 12 mm beträgt.
11. Zigarette nach einem der Ansprüche 1 bis 10, **dadurch gekennzeichnet, dass** der Rauchgasrückflussespfad (4) eine erste 180°-Umlenkung an einem Ende des Rauchgasrückflussessegments (3, 4, 5, 6;

12, 4, 5, 13) in der Nähe des Filterspitzensegments (7, 8; 10, 11) aufweist, und dass der Rauchgasrückflusspfad (4) eine zweite 180°-Umlenkung an einem anderen Ende des Rauchgasrückflussegments (3, 4, 5, 6; 12, 4, 5, 13) in der Nähe des Tabaksegments (1) aufweist. 5

12. Zigarette nach einem der Ansprüche 1 bis 11, **dadurch gekennzeichnet, dass** an dem ersten Teil des Rauchgasrückflussegments (3, 4, 5, 6; 12, 4, 5, 13), in dem die Lufteinlassöffnung (3; 12) vorgesehen ist, ein erstes Umlenklech (5) angebracht ist, und dass an dem zweiten Teil des Rauchgasrückflussegments (3, 4, 5, 6; 12, 4, 5, 13), in dem die Luftauslassöffnung (6; 13) vorgesehen ist, ein zweites Umlenklech (5) angebracht ist. 10 15

Revendications 20

1. Cigarette dont la température de la vapeur de tabac est réduite et dont le goût est amélioré, comprenant

un segment de tabac (1),
un segment de l'extrémité du filtre (7, 8 ; 10, 11), et
un segment de reflux des gaz de combustion (3, 4, 5, 6 ; 12, 4, 5, 13) disposé entre le segment de tabac (1) et le segment de l'extrémité du filtre (7, 8 ; 10, 11), et comportant une paroi intérieure ; dans laquelle une ouverture d'entrée d'air (3 ; 12) communiquant avec le segment de tabac (1) est prévue sur une première partie du segment de reflux des gaz de combustion (3, 4, 5, 6 ; 12, 4, 5, 13) à proximité du segment de tabac (1) ; dans laquelle une ouverture de sortie d'air (6 ; 13) communiquant avec le segment de l'extrémité du filtre (7, 8 ; 10, 11) est prévue sur une deuxième partie du segment de reflux des gaz de combustion (3, 4, 5, 6 ; 12, 4, 5, 13) à proximité du segment de l'extrémité du filtre (7, 8 ; 10, 11) ; dans laquelle une pluralité de déflecteurs d'écoulement d'air (5) sont disposés de haut en bas dans le segment de reflux des gaz de combustion (3, 4, 5, 6 ; 12, 4, 5, 13) en agencement alternant pour créer un trajet de reflux des gaz de combustion en serpentín (4) pour les gaz de combustion ; dans laquelle l'une extrémité du trajet de reflux des gaz de combustion (4) communique avec l'ouverture d'entrée d'air (3 ; 12), et l'autre extrémité de le trajet de reflux des gaz de combustion (4) est reliée à l'ouverture de sortie d'air (6 ; 13) ; dans laquelle la vapeur de tabac pénètre dans l'ouverture d'entrée d'air (3 ; 12) et passe par le trajet de reflux des gaz de combustion (4) ; 25 30 35 40 45 50 55

dans laquelle une longueur du trajet de reflux des gaz de combustion (4) du segment de reflux des gaz de combustion (3, 4, 5, 6 ; 12, 4, 5, 13) est augmentée et la température des gaz de combustion est réduite par échange de chaleur d'un flux d'air chaud avec les déflecteurs d'écoulement d'air (5) et la paroi intérieure du segment de reflux des gaz de combustion (3, 4, 5, 6 ; 12, 4, 5, 13),

caractérisée en ce

que la cigarette comprend un segment de renforcement des parfums (2) entre le segment de tabac (1) et le segment de reflux des gaz de combustion (3, 4, 5, 6 ; 12, 4, 5, 13), dans laquelle le segment de renforcement des parfums (2) est pourvu intérieurement d'une capsule fragile d'arôme de tabac (9) ou d'un support adsorbant et d'arômes et de parfums adsorbés sur le support adsorbant, et

que le segment de l'extrémité du filtre (7, 8 ; 10, 11) se compose d'une extrémité de filtre solide (7 ; 10) et d'une extrémité de filtre creuse (8 ; 11), **que** l'extrémité de filtre solide (7 ; 10) est reliée au segment de reflux des gaz de combustion (3, 4, 5, 6 ; 12, 4, 5, 13), et

que l'extrémité de filtre creuse (8 ; 11) est positionnée à une extrémité extérieure.

2. Cigarette dont la température de la vapeur de tabac est réduite et dont le goût est amélioré, comprenant

un segment de tabac (1),
un segment de l'extrémité du filtre (7, 8 ; 10, 11), et
un segment de reflux des gaz de combustion (3, 4, 5, 6 ; 12, 4, 5, 13) disposé entre le segment de tabac (1) et le segment de l'extrémité du filtre (7, 8 ; 10, 11), et comportant une paroi intérieure ; dans laquelle une ouverture d'entrée d'air (3 ; 12) communiquant avec le segment de tabac (1) est prévue sur une première partie du segment de reflux des gaz de combustion (3, 4, 5, 6 ; 12, 4, 5, 13) à proximité du segment de tabac (1) ; dans laquelle une ouverture de sortie d'air (6 ; 13) communiquant avec le segment de l'extrémité du filtre (7, 8 ; 10, 11) est prévue sur une deuxième partie du segment de reflux des gaz de combustion (3, 4, 5, 6 ; 12, 4, 5, 13) à proximité du segment de l'extrémité du filtre (7, 8 ; 10, 11) ; dans laquelle une pluralité de déflecteurs d'écoulement d'air (5) sont disposés de haut en bas dans le segment de reflux des gaz de combustion (3, 4, 5, 6 ; 12, 4, 5, 13) en agencement alternant pour créer un trajet de reflux des gaz de combustion en serpentín (4) pour les gaz de combustion ; dans laquelle l'une extrémité du trajet de reflux

des gaz de combustion (4) communique avec l'ouverture d'entrée d'air (3 ; 12), et l'autre extrémité de le trajet de reflux des gaz de combustion (4) est reliée à l'ouverture de sortie d'air (6 ; 13) ;

dans laquelle la vapeur de tabac pénètre dans l'ouverture d'entrée d'air (3 ; 12) et passe par le trajet de reflux des gaz de combustion (4) ;

dans laquelle une longueur du trajet de reflux des gaz de combustion (4) du segment de reflux des gaz de combustion (3, 4, 5, 6 ; 12, 4, 5, 13) est augmentée et la température des gaz de combustion est réduite par échange de chaleur d'un flux d'air chaud avec les déflecteurs d'écoulement d'air (5) et la paroi intérieure du segment de reflux des gaz de combustion (3, 4, 5, 6 ; 12, 4, 5, 13),

caractérisée en ce

qu'un support adsorbant est déposé sur des couches superficielles des déflecteurs d'écoulement d'air (5) et que le support adsorbant est adsorbé d'arômes et de parfums, et

que le segment de l'extrémité du filtre (7, 8 ; 10, 11) se compose d'une extrémité de filtre solide (7 ; 10) et d'une extrémité de filtre creuse (8 ; 11),

que l'extrémité de filtre solide (7 ; 10) est reliée au segment de reflux des gaz de combustion (3, 4, 5, 6 ; 12, 4, 5, 13), et

que l'extrémité de filtre creuse (8 ; 11) est positionnée à une extrémité extérieure.

3. Cigarette selon la revendication 1 ou 2, **caractérisée en ce que** l'ouverture d'entrée d'air (3) est prévue respectivement sur un côté supérieur et un côté inférieur de la première partie du segment de reflux des gaz de combustion (3, 4, 5, 6) près du segment de tabac (1), dans laquelle le segment de reflux des gaz de combustion (3, 4, 5, 6) est pourvu de deux trajets ramifiés de reflux des gaz de combustion (4), dans laquelle une entrée de chaque trajet ramifié de reflux des gaz de combustion (4) correspond à l'une des ouvertures d'entrée d'air (3), et dans laquelle l'ouverture de sortie d'air (6) communique respectivement avec des sorties des deux trajets ramifiés de reflux des gaz de combustion (4).

4. Cigarette selon la revendication 1, **caractérisée en ce que** l'ouverture d'entrée d'air (12) est prévue sur la première partie du segment de reflux des gaz de combustion (12, 4, 5, 13) près du segment de tabac (1), des ouvertures de sortie d'air (13) étant prévues sur la deuxième partie du segment de reflux des gaz de combustion (12, 4, 5, 13) près du segment de l'extrémité du filtre (7, 8 ; 10, 11) respectivement décalés verticalement, dans laquelle le trajet de reflux des gaz de combustion (4) est pourvu de deux trajets ramifiés de reflux des gaz de combustion (4), dans laquelle une entrée de chaque trajet ramifié de

reflux des gaz de combustion (4) correspond à l'ouverture d'entrée d'air (12), et dans laquelle une sortie de chaque trajet ramifié de reflux des gaz de combustion (4) correspond à l'une des ouvertures de sortie d'air (13).

5. Cigarette selon l'une quelconque des revendications 1 à 4, **caractérisée par** en ce que le support adsorbant est constitué de métaux alvéolaires, de matières plastiques, de tamis moléculaires, de polypropylène, de charbon actif, de Dacron, de fibres de nylon, de céramiques poreuses, de tissus non tissés, de fibres de carbone, de fibres de cellulose naturelle ou de fibres dérivées de la cellulose.

6. Cigarette selon l'une des revendications 1 à 5, **caractérisée par** en ce que le segment de tabac (1) est constitué de copeaux de tabac, de feuilles de tabac, d'un agent de vaporisation, d'une matière auxiliaire, d'un extrait de tabac et d'arômes et de parfums de tabac, dans laquelle les copeaux de tabac représentent 40 % à 90 % du poids total du produit du tabac, dans laquelle les feuilles de tabac représentent 5 % à 50 % du poids total du produit du tabac, dans laquelle l'agent de vaporisation représente 2 % à 35 % du poids total du produit du tabac, dans laquelle la matière auxiliaire représente 0 % à 10 % du poids total du produit du tabac, dans laquelle l'extrait de tabac représente 0,1 % à 20 % du poids total du produit du tabac, et dans laquelle les arômes et les parfums de tabac représentent 0,01 % à 8 % du poids total du produit du tabac.

7. Cigarette selon la revendication 6, **caractérisée en ce que** les copeaux de tabac représentent 50 % à 80 % du poids total du produit du tabac, dans laquelle les feuilles de tabac représentent 10 % à 40 % du poids total du produit du tabac, dans laquelle l'agent de vaporisation représente 5 % à 30 % du poids total du produit du tabac, dans laquelle la matière auxiliaire représente 0,5 % à 8 % du poids total du produit du tabac, dans laquelle l'extrait de tabac représente 0,5 % à 15 % du poids total du produit du tabac, et dans laquelle les arômes et parfums de tabac représentent 0,05 % à 5 % du poids total du produit du tabac.

8. Cigarette selon la revendication 1, **caractérisée en ce que** l'ouverture d'entrée d'air (12) a la forme d'une bouche de corne.

9. Cigarette selon l'une quelconque des revendications 1 à 8, **caractérisée en ce que** le segment de reflux des gaz de combustion (3, 4, 5, 6 ; 12, 4, 5, 13) représente 1/6 à 2/3 de la longueur de la cigarette.

10. Cigarette selon l'une quelconque des revendications 1 à 9, **caractérisée en ce qu'une** longueur de la

cigarette est de 35 mm à 100 mm et un diamètre extérieur est de 3 mm à 12 mm.

11. Cigarette selon l'une quelconque des revendications 1 à 10, **caractérisée en ce que** le trajet de reflux des gaz de combustion (4) comprend une première inflexion de 180° à une extrémité du segment de reflux des gaz de combustion (3, 4, 5, 6 ; 12, 4, 5, 13) près du segment de l'extrémité du filtre (7, 8 ; 10, 11), et que le trajet de reflux des gaz de combustion (4) comprend une deuxième inflexion de 180° à une autre extrémité du segment de reflux des gaz de combustion (3, 4, 5, 6 ; 12, 4, 5, 13) près du segment du tabac (1).
12. Cigarette selon l'une quelconque des revendications 1 à 11, **caractérisée en ce qu'un** premier déflecteur (5) est fixé à la première partie du segment de reflux des gaz de combustion (3, 4, 5, 6 ; 12, 4, 5, 13) dans laquelle l'ouverture d'entrée d'air (3 ; 12) est prévue, et qu'un deuxième déflecteur (5) est fixé à la deuxième partie du segment de reflux des gaz de combustion (3, 4, 5, 6 ; 12, 4, 5, 13) dans laquelle l'ouverture de sortie d'air (6 ; 13) est prévue.

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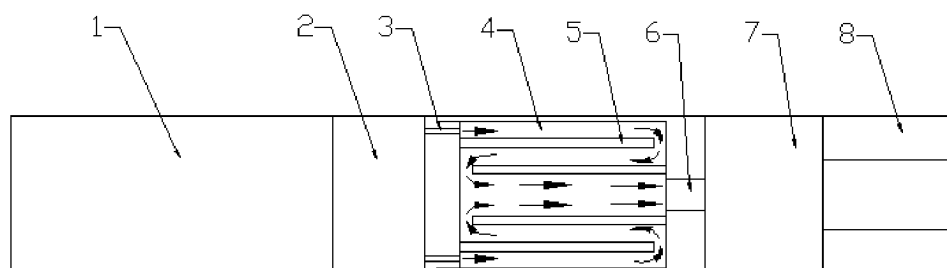


FIG. 1

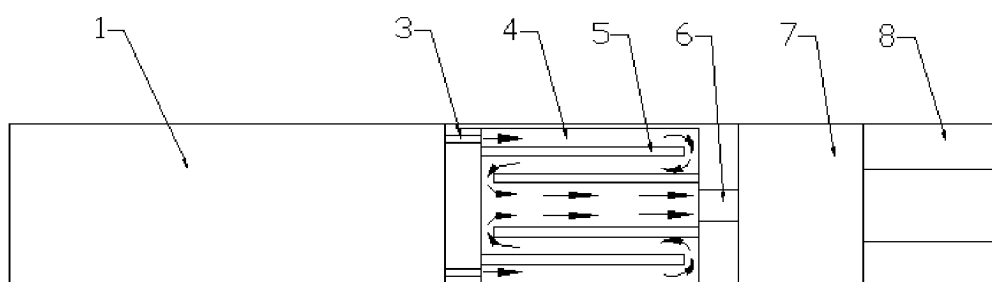


FIG. 2

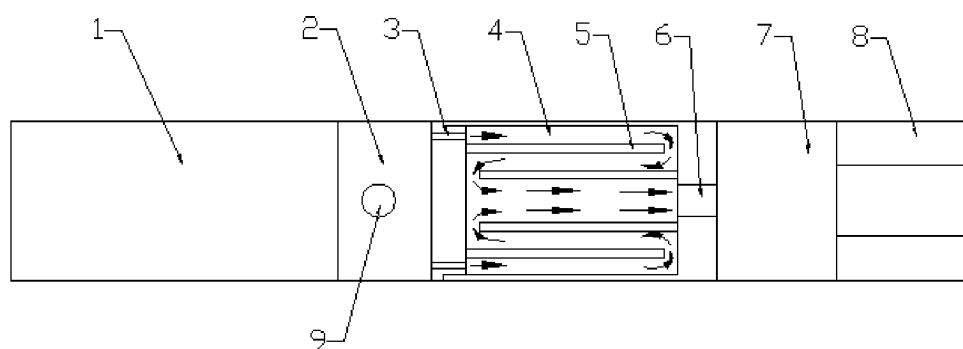


FIG. 3

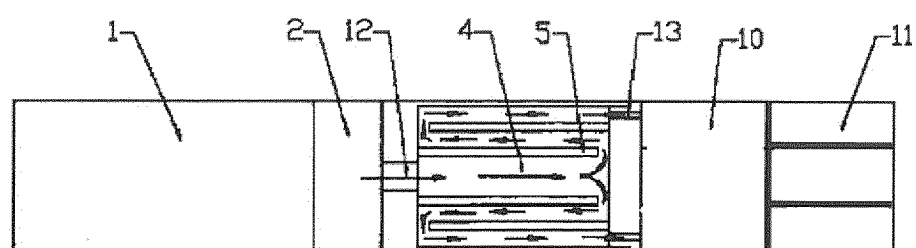


FIG. 4

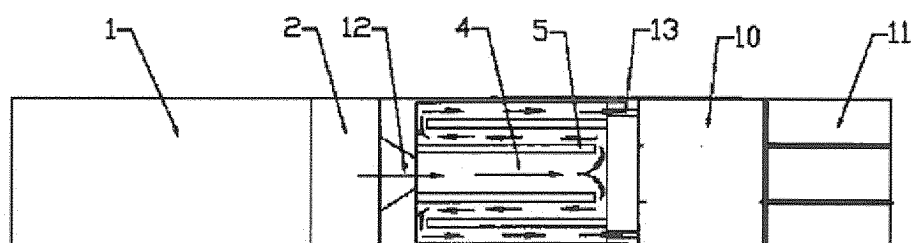


FIG. 5

REFERENCES CITED IN THE DESCRIPTION

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