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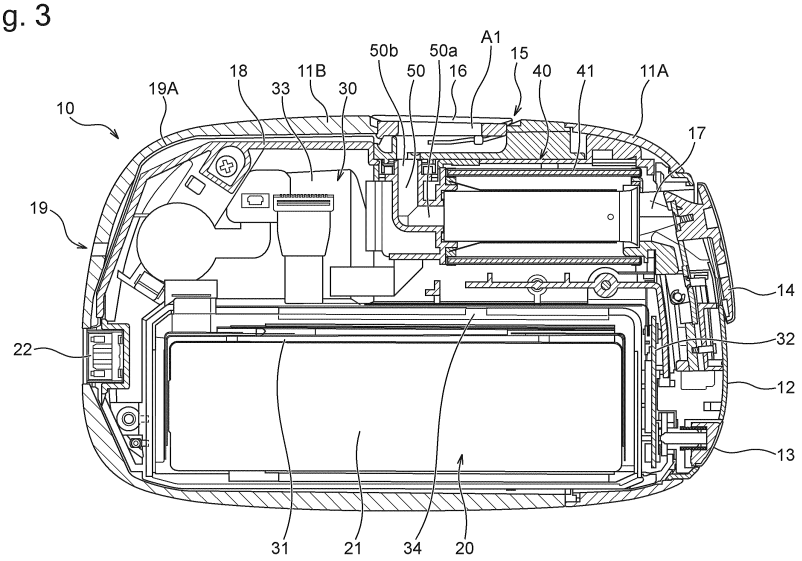
(54) **FLAVOR INHALER**

(57) Provided are a cartridge and a flavor inhaler which have novel structures. The flavor inhaler includes a flavor source receiving port, a heating chamber for heating a flavor source inserted from the flavor source receiving port, a first air inlet, and a second air inlet located away from the first air inlet in a direction the heating chamber extends.

Fig. 3



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Description

TECHNICAL FIELD

[0001] The invention relates to flavor inhalers.

BACKGROUND ART

[0002] Flavor inhalers for inhaling flavors or the like without burning materials have been known. Such flavor inhalers include, for example, a smoking material heating device that produces aerosol by heating smoking material comprising tobacco containing a volatile component (see Patent Literature 1). The smoking material heating device disclosed in Patent Literature 1 includes a first opening that receives smoking material and a second opening that is located on the opposite side to the first opening.

CITATION LIST

PATENT LITERATURE

[0003] PTL 1: Japanese Unexamined Patent Application Publication (Kohyo) No. 2018-522551

SUMMARY OF INVENTION

TECHNICAL PROBLEM

[0004] An object of the invention is to provide a flavor inhaler having a novel structure.

SOLUTION TO PROBLEM

[0005] According to one embodiment of the invention, there is provided a flavor inhaler. The flavor inhaler includes a flavor source receiving port, a heating chamber for heating a flavor source inserted from the flavor source receiving port, a first air inlet, and a second air inlet that is located away from the first air inlet in a direction the heating chamber extends.

[0006] According to another embodiment of the invention, there is provided a flavor inhaler. The flavor inhaler includes a flavor source receiving port, a heating chamber for heating a flavor source inserted from the flavor source receiving port, a tubular member including a first end portion connected to an end portion of the heating chamber which is located on an opposite side to the flavor source receiving port, a first air inlet in communication with the tubular member, and an inhibiting member configured to inhibit a solid or liquid produced by operation of the heating chamber from moving from the tubular member to the first air inlet.

BRIEF DESCRIPTION OF DRAWINGS

[0007]

Fig. 1A is an overall perspective view of a flavor inhaler according to the present embodiment.

Fig. 1B is an overall perspective view of the flavor inhaler according to the present embodiment in a position holding a flavor generating article.

Fig. 2 is a cross-sectional view of the flavor generating article.

Fig. 3 is a cross-sectional view taken along and viewed from an arrow 3 - 3 line shown in Fig. 1A.

Fig. 4 is an enlarged perspective view of a second end portion of a curved tube and the vicinity thereof.

DESCRIPTION OF EMBODIMENTS

[0008] Embodiments of the invention will be discussed below with reference to the attached drawings. In the drawings mentioned below, similar or corresponding constituent elements are provided with the same reference marks, and repetitive descriptions will be omitted.

[0009] Fig. 1A is an overall perspective view of a flavor inhaler according to the present embodiment. Fig. 1B is an overall perspective view of the flavor inhaler according to the present embodiment in a position holding a flavor generating article. A flavor inhaler 10 according to the present embodiment is configured, for example, to produce aerosol containing a flavor by heating a flavor generating article 110 including a flavor source containing an aerosol source.

[0010] As shown in Figs 1A and 1B, the flavor inhaler 10 comprises a top housing 11A, a bottom housing 11B, a cover 12, a switch 13, a lid portion 14, a second air inlet 15, and a cap 16. The top housing 11A and the bottom housing 11B are connected together to form an outer housing 11 located outermost in the flavor inhaler 10. The outer housing 11 is of a size adapted to fit in a user's hand. When using the flavor inhaler 10, the user can inhale a flavor while holding the flavor inhaler 10 in a hand.

[0011] The top housing 11A includes an opening, not shown. The cover 12 may be joined to the top housing 11A to close the opening, thereby forming a part of a housing. As shown in Fig. 1B, the cover 12 includes an opening 12a into which the flavor generating article 110 can be inserted. The lid portion 14 is configured to open/close the opening 12a of the cover 12. To be specific, the lid portion 14 is mounted on the cover 12 and configured to be movable along a surface of the cover 12 between a first position at which the opening 12a is closed and a second position at which the opening 12a is opened. The lid portion 14 thus allows or restricts the entry of the flavor generating article 110 into an interior portion of the flavor inhaler 10.

[0012] The switch 13 is used to switch between ON and OFF states of the flavor inhaler 10. For example, if the user operates the switch 13 with the flavor generating article 110 inserted in the opening 12a as shown in Fig. 1B, electric power is supplied from a power source, not shown, to a heating member, not shown. This makes it possible to heat, instead of burn, the flavor generating

article 110. After the flavor generating article 110 is heated, the user inhales a portion (shown in Fig. 1B) of the flavor generating article 110 which projects from the flavor inhaler 10, to thereby be able to inhale the flavor.

[0013] The second air inlet 15 is a vent hole for introducing air into an interior portion of a heating assembly 41 (see Fig. 3) that is accommodated in an interior space of the outer housing 11. The cap 16 is configured to be attachable to and detachable from the bottom housing 11B. When the cap 16 is mounted on the bottom housing 11B, the second air inlet 15 is formed between the bottom housing 11B and the cap 16. The cap 16 may include, for example, a through-hole, a cutout or the like, not shown. In the present application, a longitudinal direction of the flavor inhaler 10 means a direction the flavor generating article 110 is inserted into the opening 12a. In the flavor inhaler 10 according to the present application, an upstream side is a side on which fluid, such as air, flows in (second air inlet 15-side, for example), and a downstream side is a side on which the fluid flows out (opening 12a-side, for example).

[0014] A configuration of the flavor generating article 110 used in the flavor inhaler 10 according to the present embodiment will be now discussed. Fig. 2 is a cross-sectional view of the flavor generating article 110. In the embodiment shown in Fig. 2, the flavor generating article 110 includes a base material portion 110A including filling 111 and a first wrapper 112 with which the filling 111 is wrapped, and a mouthpiece portion 110B that forms an opposite end portion to the base material portion 110A. The base material portion 110A and the mouthpiece portion 110B are coupled together through a second wrapper 113 that is a separate wrapper from the first wrapper 112. It is also possible to omit the second wrapper 113 and couple the base material portion 110A and the mouthpiece portion 110B to each other using the first wrapper 112.

[0015] The mouthpiece portion 110B in Fig. 2 includes a paper tube portion 114, a filter portion 115, and a hollow segment portion 116 disposed between the paper tube portion 114 and the filter portion 115. The hollow segment portion 116 comprises, for example, a filling layer including one or more hollow channels, and a plug wrapper that covers the filling layer. The filling layer has a high fiber packing density. Accordingly, air and aerosol, when inhaled, flow only through the hollow channels and seldom flow through the filling layer. It is effective in increasing an aerosol delivery amount to reduce the filter portion 115 in length and replace a reduced portion of the filter portion 115 with the hollow segment portion 116 to suppress a decrease in aerosol component in the flavor generating article 110 which is attributable to filtration by the filter portion 115.

[0016] The mouthpiece portion 110B in Fig. 2 comprises three segments. According to the present embodiment, however, the mouthpiece portion 110B may comprise one or two segments or may comprise four or more segments. For example, it is also possible to omit the hollow segment portion 116 and arrange the paper tube portion 114 and the filter portion 115 adjacent to each other, to thereby form the mouthpiece portion 110B.

[0017] According to the embodiment shown in Fig. 2, the flavor generating article 110 has a longitudinal length ranging preferably from 40 mm to 90 mm, more preferably from 50 mm to 75 mm, and further more preferably from 50 mm to 60 mm. The flavor generating article 110 has a circumference ranging preferably from 15 mm to 25 mm, more preferably from 17 mm to 24 mm, and further more preferably from 20 mm to 23 mm. In the flavor generating article 110, the base material portion 110A, the first wrapper 112, the hollow segment portion 116, and the filter portion 115 may respectively have lengths of 20 mm, 20 mm, 8 mm, and 7 mm. Each of the above-mentioned segments may be changed, as necessary, in light of manufacturability, quality requirement, and the like.

[0018] According to the present embodiment, the filling 111 of the flavor generating article 110 may include an aerosol source that is heated at a predetermined temperature and thus produces aerosol. The aerosol source is not particularly limited in kind. Substances extracted from different natural products and/or constituents thereof may be selected, depending on the intended use. Examples of the aerosol source include glycerin, propylene glycol, triacetin, 1,3-Butanediol, and a mixture of the above-mentioned substances. A content of the aerosol source in the filling 111 is not particularly limited. From a perspective of sufficient aerosol generation and addition of a good smoking flavor, the content of the aerosol source is generally 5% by weight or more but preferably 10% by weight or more, and generally 50% by weight or less but preferably 20% by weight or less.

[0019] The filling 111 of the flavor generating article 110 according to the present embodiment may contain shred tobacco as a flavor source. The shred tobacco may be of any kind and may be made of publicly-known materials, such as laminae and stems. If the flavor generating article 110 has a circumference of 22 mm and a length of 20 mm, the content of the filling 111 in the flavor generating article 110 ranges, for example, from 200 mg to 400 mg and preferably from 250 mg to 320 mg. A moisture content of the filling 111 ranges, for example, from 8% by weight to 18% by weight and preferably from 10% by weight to 16% by weight. The moisture content in the above ranges suppresses the adhesion of a stain on wrapper and improves a winding efficiency at the time of manufacture of the base material portion 110A. There is no particular limitation in size or preparation method for the shred tobacco used as the filling 111. For example, the shred tobacco may be prepared using dried tobacco leaves that are cut into pieces each having a width ranging from 0.8 mm to 1.2 mm. The dried tobacco leaves also may be pulverized into particles with an average particle diameter ranging from about 20 μm to about 200 μm to be equalized in size, processed into a sheet, and then shredded into pieces each having a width ranging from 0.8 mm to 1.2 mm. The dried tobacco leaves sub-

jected to the above-described sheet processing may be gathered together, instead of being shredded, and used as the filling 111. The filling 111 may include one or more kinds of aroma chemicals. The aroma chemical may be of any kind but is preferably menthol from a perspective of addition of a good smoking flavor.

[0020] According to the present embodiment, the first and second wrappers 112 and 113 of the flavor generating article 110 may be made of base paper having a basis weight ranging, for example, from 20 gsm to 65 gsm, and preferably from 25 gsm to 45 gsm. The first wrapper 112 and the second wrapper 113 are not particularly limited in thickness. From a perspective of rigidity, air permeability, and adjustability during paper manufacturing, however, the thickness ranges from 10 μm to 100 μm, preferably from 20 μm to 75 μm, and more preferably from 30 μm to 50 μm.

[0021] According to the present embodiment, the first and second wrappers 112 and 113 of the flavor generating article 110 may contain a loading filler. The content of the loading filler may range from 10% by weight to 60% by weight relative to total weight of the first and second wrappers 112 and 113, and preferably ranges from 15% by weight to 45% by weight. According to the present embodiment, the loading filler preferably ranges from 15% by weight to 45% by weight relative to the preferable range of basis weight (from 25 gsm to 45 gsm). The loading filler may be, for example, calcium carbonate, titanium dioxide, kaolin, and the like. The paper containing the above-mentioned loading fillers shows a bright white color that is preferable in view of appearance of the paper used as wrapper for the flavor generating article 110, and can permanently maintain whiteness. If a good deal of such loading fillers is included in wrapper, for example, the wrapper has an ISO brightness of 83% or more. Considering a utilitarian purpose of the paper to be used as the wrapper of the flavor generating article 110, the first and second wrappers 112 and 113 preferably have a tensile strength of 8 N/15 mm or higher. The tensile strength can be increased by reducing the content of the loading fillers. Specifically, the tensile strength can be increased by reducing the content of the loading fillers lower than upper limits of the content of the loading fillers which are exemplified in the foregoing base weight ranges.

[0022] An internal structure of the flavor inhaler 10 shown in Figs. 1A and 1B will be discussed below. Fig. 3 is a cross-sectional view taken along and viewed from an arrow 3 - 3 line shown in Fig. 1A. As shown in Fig. 3, the flavor inhaler 10 includes an inner housing 18 provided on an inner side of the outer housing 11. The inner housing 18 has an interior space in which a power source portion 20, a circuit portion 30, and a heating device 40 are provided.

[0023] The circuit portion 30 includes a first circuit board 31, a second circuit board 32, and a third circuit board 33 which are electrically connected to one another. The first circuit board 31 is disposed, for example, adjacent to one surface of a substantially columnar power source 21 and extends in the longitudinal direction as shown in the drawing. Provided between the first circuit board 31 and the heating device 40 is a partition wall 34, which defines at least a part of an area in which the power source portion 20 and the first circuit board 31 are accommodated. The partition wall 34 may be provided with a cutout, a through-hole or the like for allowing fluid communication between a space on the power source portion 20 side and a space on the heating device 40 side.

[0024] The second circuit board 32 is disposed between the cover 12 and the power source portion 20 on an inner side of the top housing 11A and extends in a direction orthogonal to a direction the first circuit board 31 extends. The switch 13 is disposed adjacent to the second circuit board 32. When pushed down by the user, the switch 13 partially contacts the second circuit board 32. The third circuit board 33 is disposed to extend in the longitudinal direction in a space formed on an opposite side of the heating device 40 from the opening 12a (see Fig. 1B).

[0025] The third circuit board 33 includes a main surface on which various kinds of electronic components are mounted. For example, the third circuit board 33 may be disposed within the bottom housing 11B so that the main surface is inclined with respect to the longitudinal direction. This makes it possible to enlarge the main surface of the third circuit board 33, thereby making effective use of a space in the bottom housing 11B.

[0026] The first circuit board 31, the second circuit board 32, and the third circuit board 33 each include, for example, a microprocessor and the like and are capable of controlling power supply from the power source portion 20 to the heating device 40. This enables the first circuit board 31, the second circuit board 32, and the third circuit board 33 to control the heating of the flavor generating article 110 which is performed by the heating device 40.

[0027] The power source portion 20 includes a power source 21 that is electrically connected to the first circuit board 31, the second circuit board 32, and the third circuit board 33. The power source 21 may be, for example, a rechargeable or non-rechargeable battery. The power source 21 is electrically connected to the heating device 40 through at least one of the first circuit board 31, the second circuit board 32, and the third circuit board 33. The power source 21 is thus capable of supplying electric power to the heating device 40 so that the heating device 40 may properly heat the flavor generating article 110. As shown in the drawing, the power source 21 is disposed in parallel with and adjacent to the heating device 40 in a direction orthogonal to the longitudinal direction. Even if the power source 21 is increased in size, therefore, the flavor inhaler 10 is prevented from increasing in longitudinal length.

[0028] The flavor inhaler 10 includes a terminal 22 that is connectable to an external power source. The terminal 22 can be connected, for example, to a cable of a micro USB or the like. If the power source 21 is a rechargeable

battery, it is possible to connect an external power source to the terminal 22 and pass current from the external power source to the power source 21 to recharge the power source 21. A data transmission cable of a micro USB or the like may be connected to the terminal 22 so that data relevant to the operation of the flavor inhaler 10 may be transmitted to an external device.

[0029] The heating device 40 includes a heating assembly 41 extending in the longitudinal direction, a curved tube 50 having a substantially L-shaped section, and a substantially cylindrical insertion guide member 17, as shown in the drawing. The heating assembly 41 includes a plurality of cylindrical members and is formed into a cylindrical body as a whole. The heating assembly 41 forms a heating chamber in which a part of the flavor generating article 110 can be accommodated. The heating assembly 41 functions to define a channel of air to be supplied to the flavor generating article 110 and also functions to heat the flavor generating article 110 from an outer periphery of the flavor generating article 110 which is inserted from the opening 12a (see Fig. 1B). The insertion guide member 17 is made, for example, of resin material. The insertion guide member 17 is provided between the cover 12 with the opening 12a (see Fig. 1B) and a downstream end of the heating assembly 41, and guides the insertion of the flavor generating article 110 into the heating assembly 41.

[0030] The curved tube 50 is made, for example, of resin material. The curved tube 50 includes a first end portion 50a and a second end portion 50b. The first end portion 50a of the curved tube 50 is connected to an upstream end portion of the heating assembly 41, that is, an end portion located on an opposite side to the opening 12a (see Fig. 1B). The second end portion 50b opens at an angle to the longitudinal direction of the heating chamber of the heating assembly 41. To be specific, since the curved tube 50 has the L-like shape in the present embodiment as discussed above, the second end portion 50b opens in a direction substantially orthogonal to the longitudinal direction of the heating chamber of the heating assembly 41. The second end portion 50b is therefore located to face the cap 16 mounted on the bottom housing 11B. In other words, the cap 16 is capable of covering at least a part of the second end portion 50b of the curved tube 50 in an openable/closable manner. The curved tube 50 introduces air supplied from the second end portion 50b through the first end portion 50a into the heating chamber of the heating assembly 41. The curved tube 50 does not necessarily have to have the L-like shape, and may be bent at any angle so that the second end portion 50b is directed to a side face of the outer housing 11.

[0031] In a state where the cap 16 is mounted on the outer housing 11 as shown in the drawing, a predetermined space A1 is formed between the cap 16 and the inner housing 18. The second end portion 50b of the curved tube 50 is in communication with the space A1. When the cap 16 is removed from the outer housing 11, an interior portion of the curved tube 50 becomes accessible from the second end portion 50b. Therefore, the interior portion of the curved tube 50 can be cleaned, for example, with an arbitrary cleating tool if the cap 16 is removed from the outer housing 11. It is likely that a solid or liquid produced by the operation of the heating chamber is accumulated in a corner portion (corner portion on a bottom side) of the curved tube 50, which is located on a longitudinally distal side to the heating assembly 41. It is therefore preferable, as shown in the drawing, to chamfer an inner surface of the curved tube 50 at the corner portion that is located on a longitudinally distal side to the heating assembly 41. This allows the arbitrary cleaning tool to contact the corner portion of the curved tube 50 without difficulty.

[0032] Formed in the bottom housing 11B are a first air inlet 19 and a second air inlet 15 for introducing air into the heating assembly 41. The first air inlet 19 is formed on a bottom portion side of the bottom housing 11B. Specifically, according to the present embodiment, the first air inlet 19 is formed in an inclined surface of the bottom housing 11B. In other words, the first air inlet 19 is formed in a surface of the bottom housing 11B which is angled with respect to the longitudinal direction of the heating chamber of the heating assembly 41 (longitudinal direction of the flavor generating article 110 inserted into the heating chamber). The first air inlet 19 is not covered with a cap or the like and is normally open.

[0033] The second air inlet 15 is formed in a side face of the bottom housing 11B. The first air inlet 19 is thus disposed away from the second air inlet 15 in the direction the heating chamber of the heating assembly 41 extends. More specifically, the first air inlet 19 is provided on a more distal side to the opening 12a (see Fig. 1B) than the second air inlet 15. According to the present embodiment, the second end portion 50b of the curved tube 50 is situated between the first air inlet 19 and the second air inlet 15 in the longitudinal direction. The second air inlet 15 is more proximal to the opening 12a than the second end portion 50b of the curved tube 50.

[0034] A channel 19A is formed between the outer housing 11 and the inner housing 18. The channel 19A is in communication with the first air inlet 19. As shown in the drawing, the channel 19A establishes communication between the first air inlet 19 and the space A1. The air that enters from the first air inlet 19 is supplied to the heating chamber of the heating assembly 41 through the channel 19A, the space A1, and the curved tube 50. In other words, the channel 19A, the space A1, and an interior space of the curved tube 50 form a first air channel that establishes communication between the first air inlet 19 and the heating chamber of the heating assembly 41.

[0035] As shown in the drawing, the heating assembly 41 extends from the opening 12a to a substantially center portion of the flavor inhaler 10 in the longitudinal direction. The heating assembly 41 does not occupy a space (space in which the third circuit board 33 is disposed) expanding from a longitudinally center portion to the bot-

tom portion. The channel 19A is provided to extend from the first air inlet 19 to the space A1 so as not to stretch near the heating assembly 41. In other words, the channel 19A is situated away from the heating chamber of the heating assembly 41 in the direction the heating chamber extends. Accordingly, the air passing through the channel 19A is prevented from being affected by the heating assembly 41.

[0036] The second air inlet 15 is a vent hole that is formed in a gap between the cap 16 and the outer housing 11. The second air inlet 15 is in communication with the space A1. The air that enters from the second air inlet 15 is supplied to the heating chamber of the heating assembly 41 through the space A1 and the curved tube 50. In other words, the space A1 and the interior space of the curved tube 50 form a second air channel that establishes communication between the second air inlet 15 and the heating chamber of the heating assembly 41.

[0037] The first air channel and the second air channel join together between the heating chamber of the heating assembly 41 on one hand and the first air inlet 19 and the second air inlet 15 on the other. Specifically, according to the present embodiment, the first air channel and the second air channel join together in the space A1. The air that enters from the first air inlet 19 is mixed with air that enters from the second air inlet 15 in the space A1 to reach the heating chamber through the curved tube 50. In other words, the air that enters from the first air inlet 19 and the second air inlet 15 passes through the heating chamber to be used to deliver aerosol. An air supply ratio between the air that enters the heating chamber from the first air inlet 19 and the air that enters the heating chamber from the second air inlet 15 preferably falls in a range from 1:2 to 1:10, and more preferably from 1:3 to 1:5. If an amount of the air that enters from the first air inlet 19 is set to a predetermined or smaller value, dust or the like in atmospheric air is inhibited from entering the air channels. The first air channel has a longer channel length than the second air channel.

[0038] After being inserted into the flavor inhaler 10 from the opening 12a of the cover 12 as shown in Fig. 1B, the flavor generating article 110 passes through the insertion guide member 17, and a part of the flavor generating article 110 is disposed inside the heating assembly 41. The insertion guide member 17 is therefore preferably formed so that an opening on the cover 12 side is larger than an opening on the heating assembly 41 side. This facilitates the insertion of the flavor generating article 110 from the opening 12a into the insertion guide member 17.

[0039] If the user inhales from a portion of the flavor generating article 110 which projects from the flavor inhaler 10, or the filter portion 115 shown in Fig. 2, with the flavor generating article 110 inserted in the flavor inhaler 10 from the opening 12a as shown in Fig. 1B, air enters the heating assembly 41 from the first air inlet 19 and the second air inlet 15. After entering the heating assembly 41, the air passes through the heating assembly 41 and reaches into the user's mouth together with the aerosol produced from the flavor generating article 110.

[0040] In the flavor inhaler 10 according to the present embodiment, when the flavor generating article 110 is heated by the heating chamber of the heating assembly 41, a solid such as heated shred tobacco and a liquid resulted from condensation of an evaporated aerosol source might be produced from the flavor generating article 110. Such a solid or a liquid might move out of the heating assembly 41 and reach the space A1 through the curved tube 50. As described above, the space A1 is in communication with the first air inlet 19 through the channel 19A, and the first air inlet 19 is situated on a lower side in a direction of gravitational force when the flavor inhaler 10 is in use. If the solid or liquid that reaches the space A1 enters the channel 19A, the solid or the liquid is likely to move downward in the direction of gravitational force to reach outside the outer housing 11 through the first air inlet 19. To solve this issue, the flavor inhaler 10 according to the present embodiment includes an inhibiting member 60 that inhibits the solid or the liquid from moving from the curved tube 50 to the first air inlet 19. The inhibiting member 60 is disposed in the first air channel between the heating chamber of the heating assembly 41 and the first air inlet. Specifically, according to the present embodiment, the inhibiting member 60 is provided in the vicinity of the second end portion 50b of the curved tube 50.

[0041] Fig. 4 is an enlarged perspective view of the second end portion 50b of the curved tube 50 and the vicinity thereof. In Fig. 4, the outer housing 11 is omitted. As shown in the drawing, the inner housing 18 includes an edge portion 18B that defines the space A1 with the cap 16 shown in Fig. 3 and the like, and a surface 18D of the inner housing 18 which is surrounded by the edge portion 18B. The edge portion 18B of the present embodiment projects from the surface of the inner housing 18 toward the cap 16 along a substantially arc-like shape of narrow sides and a substantially linear shape of wide sides. The inner housing 18 includes a pair of edge portions 18A that defines the channel 19A with the outer housing 11. The edge portion 18A extends from the edge portion 18B to the vicinity of the first air inlet 19. The edge portion 18A is configured to guide to the space A the air that enters from the first air inlet 19.

[0042] The inner housing 18 includes an opening portion 18C in communication with an opening of the second end portion 50b of the curved tube 50 as shown in the drawing. According to the present embodiment, the inhibiting member 60 is provided around the opening portion 18C of the inner housing 18. The inhibiting member 60 includes an arc-like protruding portion 60A situated on the first air inlet 19 side of the opening portion 18C along an opening shape of the opening portion 18C, and a pair of linear protruding portions 60B extending from the arc-like protruding portion 60A toward the second air inlet 15. The arc-like protruding portion 60A and the linear protruding portion 60B both protrude from the surface

18D of the inner housing 18 toward the cap 16. In other words, at least a part (arc-like protruding portion 60A in the example shown in the drawing) of the inhibiting member 60 is located on a more distal side to the opening 12a than the second end portion 50b of the curved tube 50 in the longitudinal direction of the heating chamber of the heating assembly 41. The linear protruding portion 60B extends beyond the opening portion 18C toward the second air inlet 15 in the example shown in the drawing. Accordingly, the inhibiting member 60 surrounds the opening portion 18C and the second end portion 50b of the curved tube 50 and yet opens the opening 12a side (upper side on the drawing) of the second end portion 50b.

[0043] According to the present embodiment, air is divided into two streams by the arc-like protruding portion 60A while running from the first air inlet 19 toward the second end portion 50b. However, the inhibiting member 60 does not necessarily have to be thus configured and may be so configured that the air running from the first air inlet 19 toward the second end portion 50b is not divided into two streams. Specifically, for example, either one of the pair of linear protruding portions 60B may be joined to the edge portion 18B to block an air flow, to thereby make the air flow in a single stream. It is also possible to provide, instead of the arc-like protruding portion 60A, a protruding portion extending in a crosswise direction on Fig. 4 and join one of end portions of the protruding portion to the edge portion 18B to block the air flow. This enables the air to enter the second end portion 50b of the curved tube 50 from the other end portion side of the protruding portion.

[0044] The air that enters from the first air inlet 19, passes through the channel 19A extending between the pair of edge portions 18A, and flows into the space A1 collides with the arc-like protruding portion 60A. The air then runs along the arc-like protruding portion 60A and the linear protruding portion 60B toward the second air inlet 15 and enters the opening portion 18C and the second end portion 50b of the curved tube 50. In short, the air that enters from the first air inlet 19 flows around the inhibiting member 60 and enters the curved tube 50. In other words, the air that enters from the first air inlet 19 flows into the curved tube 50 from an open region on the opening 12a side of the inhibiting member 60.

[0045] Although the inhibiting member 60 is provided in the inner housing 18 according to the present embodiment, the inhibiting member 60 does not necessarily have to be provided in the inner housing 18. The inhibiting member 60 may also be provided, for example, in the cap 16 so that the solid or liquid produced by the operation of the heating chamber is prevented from moving from the curved tube 50 to the first air inlet 19.

[0046] As discussed above, the flavor inhaler 10 according to the present embodiment includes the first air inlet 19 and the second air inlet 15 located away from the first air inlet 19 in the longitudinal direction. When using the flavor inhaler 10 of the present embodiment, the user holds the side faces of the outer housing 11. At this point, if the user's hand covers a part of the second air inlet 15, this might increase airflow resistance in the second air channel through which the air that enters from the second air inlet 15 passes. According to the present embodiment, even if the second air inlet 15 is partially covered by the user's hand, it is possible to supply a stable amount of air from the first air inlet 19 to the heating assembly 41. Depending on the way the user holds the flavor inhaler 10, the first air inlet 19 might be partially covered. In such a case, even if there is an increase in airflow resistance of the first air channel through which the air that enters from the first air inlet 19 passes, a stable amount of air can be supplied from the second air inlet 15 to the heating assembly 41.

[0047] Since the flavor inhaler 10 of the present embodiment includes the inhibiting member 60, it is possible to prevent the solid or liquid produced by the operation of the heating chamber from moving from the curved tube 50 to the first air inlet 19. Although the flavor generating article 110 has a stick-like shape according to the present embodiment, it is also possible instead to use, for example, a cartridge in which a flavor source and an aerosol source are contained in a capsule.

[0048] According to the present embodiment, the second end portion 50b of the curved tube 50 faces the side face of the outer housing 11, so that distance between the opening of the second end portion 50b and the outer housing 11 is relatively short. This makes it easy to access the interior portion of the curved tube 50 from the opening of the second end portion 50b and facilitates the maintenance of the interior portion of the curved tube 50.

[0049] The embodiments of the invention have been discussed. The invention, however, does not necessarily have to be made in accordance with the above-described embodiments. The invention may be modified in various ways within the scope of the technical ideas discussed in the claims, description and drawings. Any shape and material that provide the operation and advantageous effects of the invention fall in the scope of technical ideas of the invention even if no direct reference is made to such a shape and material in the description, claims and drawings.

[0050] Some of modes disclosed by the present application will be described below.

[0051] In a first mode, a flavor inhaler is provided. The flavor inhaler includes a flavor source receiving port, a heating chamber for heating a flavor source inserted from the flavor source receiving port, a first air inlet, and a second air inlet located away from the first air inlet in a direction the heating chamber extends.

[0052] In a second mode according to the first mode, the first air inlet is provided on a more distal side to the flavor source receiving port than the second air inlet.

[0053] In a third mode according to the first or second mode, the flavor inhaler includes a first air channel in communication with the first air inlet and a second air channel in communication with the second air inlet. The

first air channel and the second air channel join together.

[0054] In a fourth mode according to the third mode, the first air channel establishes communication between the first air inlet and the heating chamber, and the second air channel establishes communication between the second air inlet and the heating chamber. The first air channel and the second air channel join together between the heating chamber on one hand and the first air inlet and the second air inlet on the other.

[0055] In a fifth mode according to any one of the first to fourth modes, the flavor inhaler includes a housing provided with the flavor source receiving port and the first air inlet. The first air inlet is formed in a surface of the housing which is angled with respect to a longitudinal direction of the heating chamber.

[0056] In a sixth mode according to any one of the first to fifth modes, the flavor inhaler includes a curved tube that is connected to an end portion of the heating chamber which is located on an opposite side to the flavor source receiving port. The first air inlet and the second air inlet are in communication with the curved tube.

[0057] In a seventh mode according to the sixth mode, the curved tube is formed into an L-like shape. The curved tube includes an open end portion that opens in a direction substantially orthogonal to a longitudinal direction of the heating chamber. The flavor inhaler includes a lid that covers at least a part of the open end portion in an openable/closable manner.

[0058] In an eighth mode according to the sixth mode referring to the second mode, the curved tube includes a first end portion connected to the heating chamber, and an open end portion on an opposite side to the first end portion. The flavor inhaler includes a space in which the first air channel and the second air channel join together, and a lid that covers at least a part of the space in an openable/closable manner.

[0059] In a ninth mode according to any one of the first to eighth modes, the flavor source is tobacco.

[0060] In a tenth mode, there is provided a flavor inhaler. The flavor inhaler includes a flavor source receiving port, a heating chamber for heating a flavor source inserted from the flavor source receiving port, a tubular member including a first end portion that is connected to an end portion of the heating chamber which is located on an opposite side to the flavor source receiving port, a first air inlet in communication with the tubular member, and an inhibiting member configured to inhibit a solid or liquid produced by operation of the heating chamber from moving from the tubular member to the first air inlet.

[0061] In an 11th mode according to the tenth mode, the air that enters from the first air inlet flows around the inhibiting member and enters the tubular member.

[0062] In a 12th mode according to the tenth or 11th mode, the tubular member includes a second end portion on an opposite side to the first end portion, and the second end portion opens at an angle to a longitudinal direction of the heating chamber.

[0063] In a 13th mode according to the 12th mode, at least a part of the inhibiting member is located on a more distal side to the flavor source receiving port than the second end portion of the tubular member in the longitudinal direction of the heating chamber.

[0064] In a 14th mode according to the 12th or 13th mode, the tubular member is formed into an L-like shape, and the second end portion of the tubular member opens in a direction substantially orthogonal to the longitudinal direction of the heating chamber.

[0065] In a 15th mode according to any one of the 12th to 14th modes, the flavor inhaler includes a lid configured to cover at least a part of the second end portion of the tubular member in an openable/closable manner.

[0066] In a 16th mode according to the 15th mode, the flavor inhaler includes a housing in which the flavor source receiving port and the first air inlet are formed, and a second air inlet formed in a gap between the lid and the housing.

[0067] In a 17th mode according to any one of the 12th to 16th modes, the inhibiting member surrounds the second end portion of the tubular member and yet opens on the flavor source receiving port side of the second end portion.

REFERENCE SIGN LIST

[0068]

10: Flavor inhaler
11: Outer housing
12: Cover
12a: Opening
15: Second air inlet
19: First air inlet
19A: Channel
41: Heating assembly
50: Curved tube
50a: First end portion
50b: Second end portion
60: Inhibiting member
110: Flavor generating article
A1: Space

Claims

1. A flavor inhaler comprising:

a flavor source receiving port;
a heating chamber for heating a flavor source inserted from the flavor source receiving port;
a first air inlet; and
a second air inlet located away from the first air inlet in a direction the heating chamber extends.

2. The flavor inhaler according to Claim 1, wherein the first air inlet is provided on a more distal side to the flavor source receiving port than the sec-

ond air inlet.

3. The flavor inhaler according to Claim 1 or 2, comprising:

a first air channel in communication with the first air inlet, and
a second air channel in communication with the second air inlet,
wherein the first air channel and the second air channel are configured to join together.

4. The flavor inhaler according to Claim 3,

wherein the first air channel establishes communication between the first air inlet and the heating chamber;
wherein the second air channel establishes communication between the second air inlet and the heating chamber; and wherein the first air channel and the second air channel join together between the heating chamber on one hand and the first air inlet and the second air inlet on the other.

5. The flavor inhaler according to any one of Claims 1 to 4, comprising:

a housing provided with the flavor source receiving port and the first air inlet,
wherein the first air inlet is formed in a surface of the housing which is angled with respect to a longitudinal direction of the heating chamber.

6. The flavor inhaler according to any one of Claims 1 to 5, comprising:

a curved tube that is connected to an end portion of the heating chamber which is located on an opposite side to the flavor source receiving port,
wherein the first air inlet and the second air inlet are in communication with the curved tube.

7. The flavor inhaler according to Claim 6,

wherein the curved tube is formed into an L-like shape;
wherein the curved tube includes an open end portion that opens in a direction substantially orthogonal to a longitudinal direction of the heating chamber; and
wherein the flavor inhaler includes a lid that covers at least a part of the open end portion in an openable/closable manner.

8. The flavor inhaler according to Claim 6 referring to Claim 2,

wherein the curved tube includes a first end portion connected to the heating chamber, and an open end portion on an opposite side to the first end portion, and
wherein the flavor inhaler includes a space in which the first air channel and the second air channel join together, and a lid that covers at least a part of the space in an openable/closable manner.

9. The flavor inhaler according to any one of Claims 1 to 8,
wherein the flavor source is tobacco.

Fig. 1A

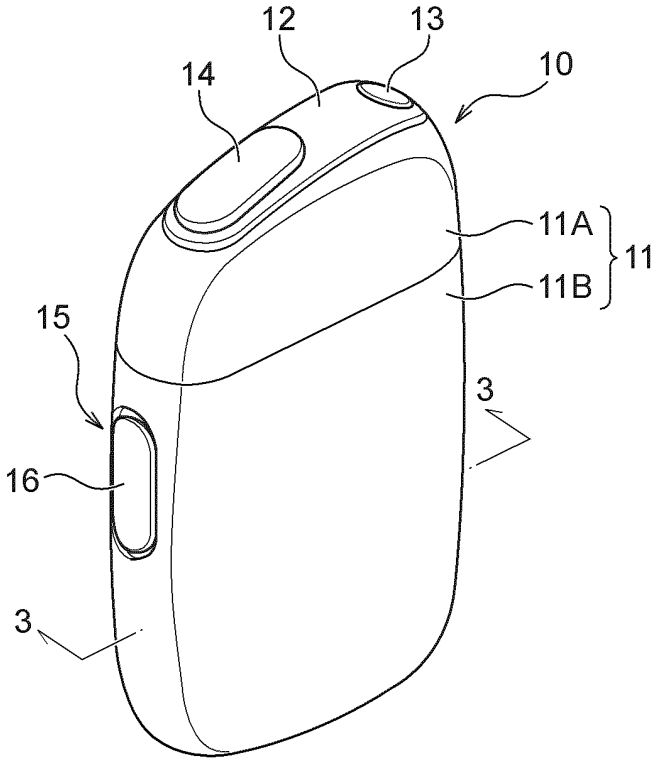


Fig. 1B

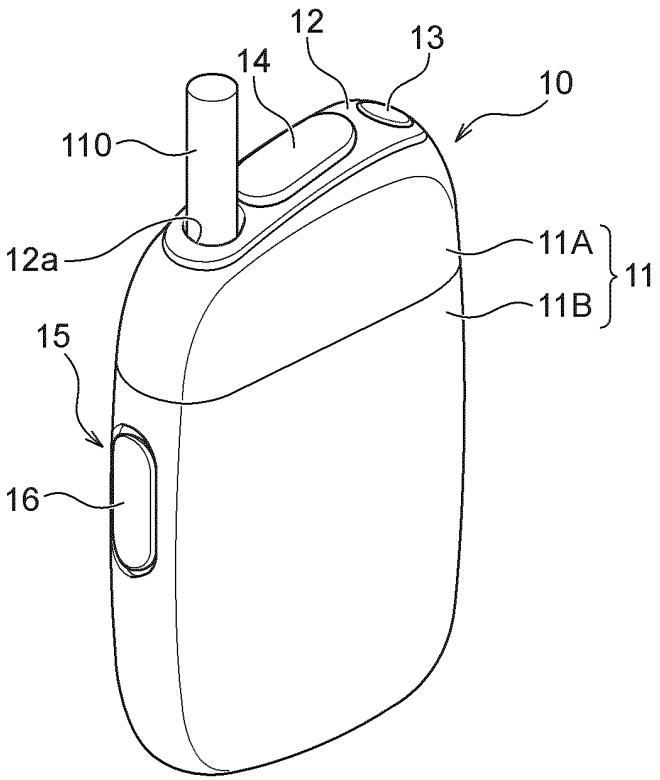
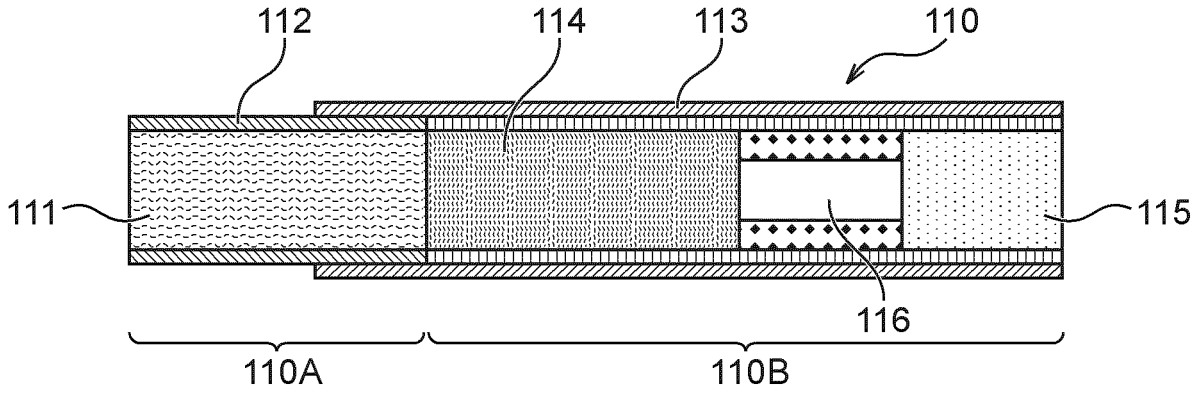


Fig. 2



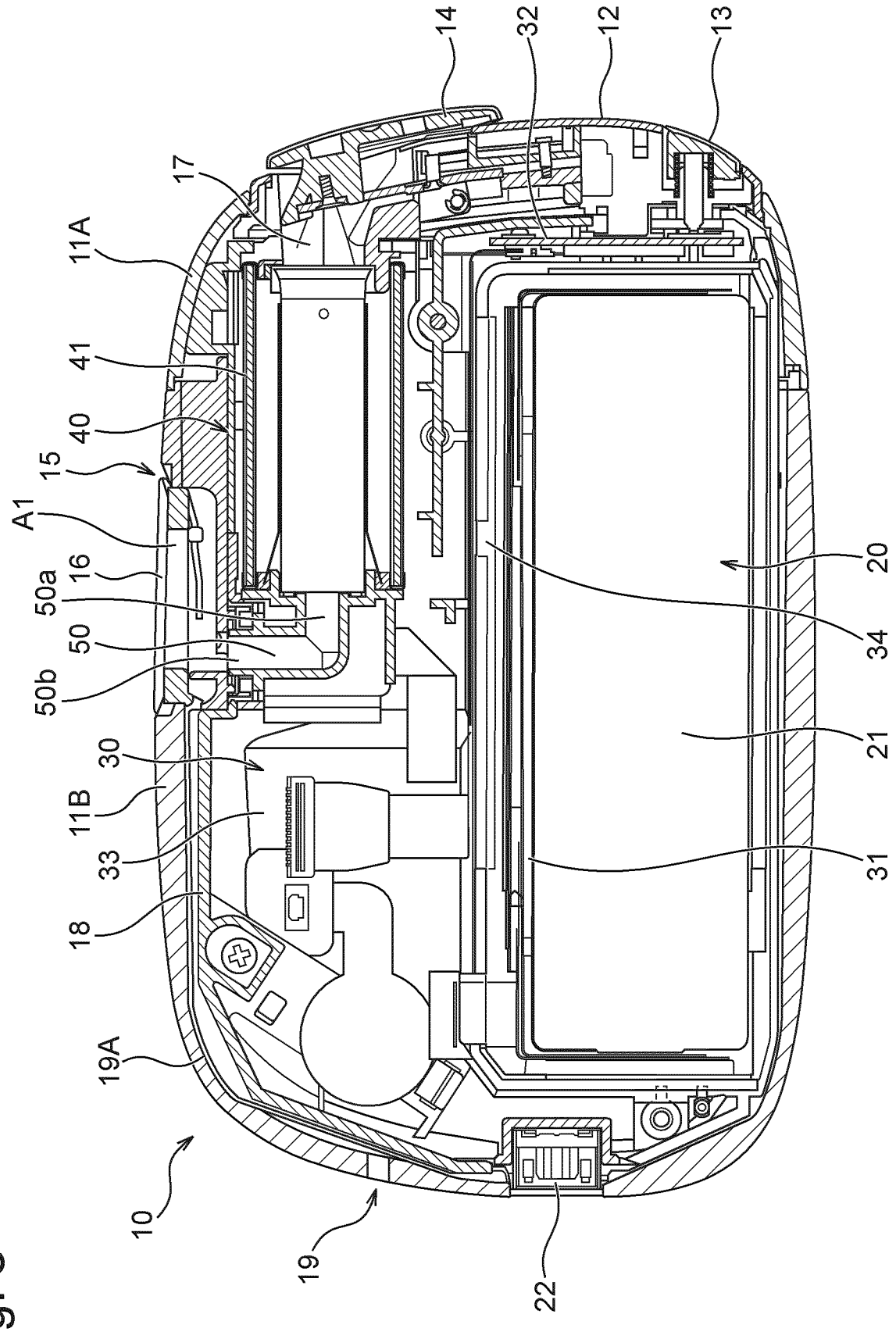

14
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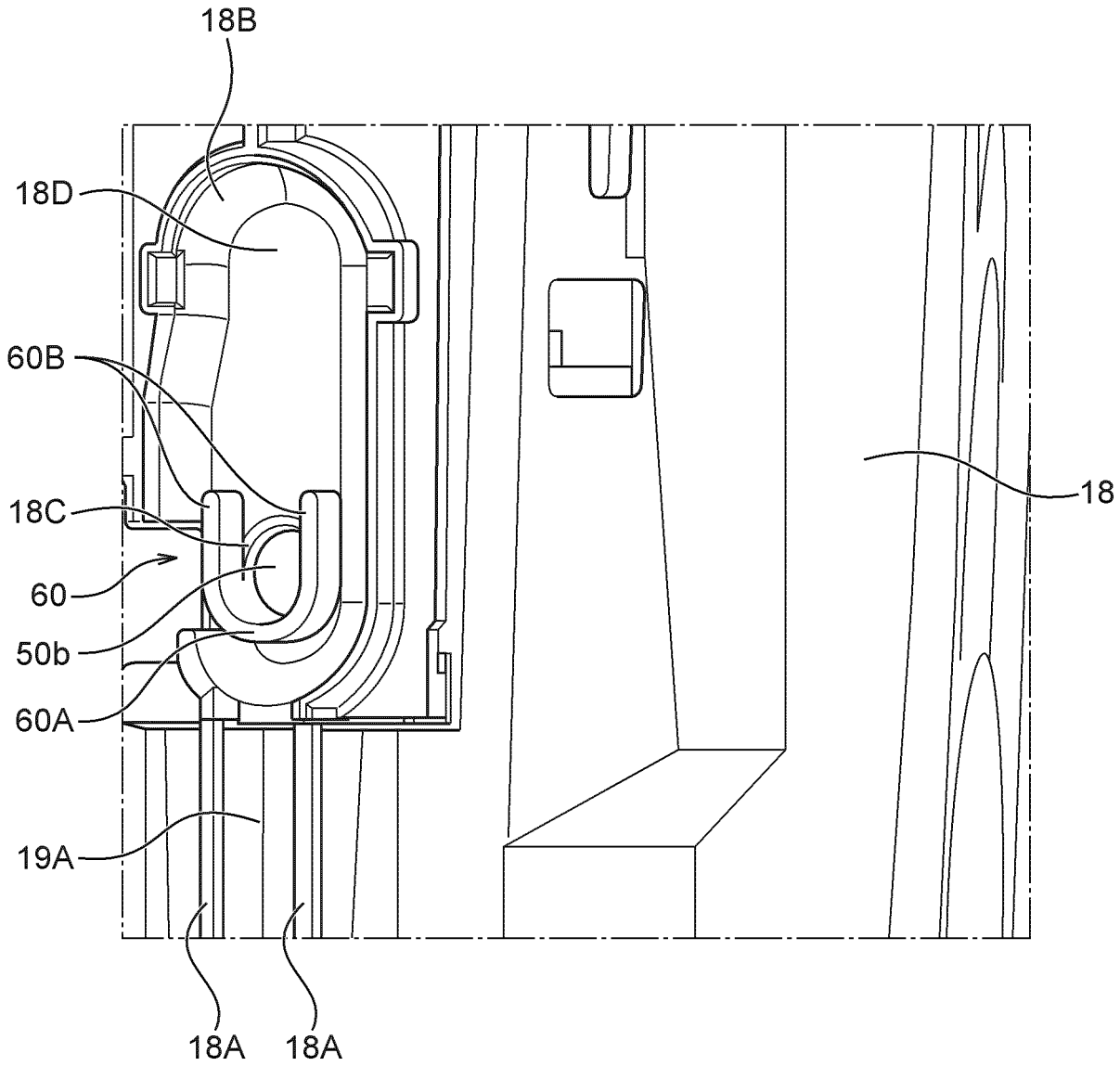
Fig. 3

Fig. 4



INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2019/026163

A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl. A24F47/00(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
Int.Cl. A24F47/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Published examined utility model applications of Japan	1922-1996
Published unexamined utility model applications of Japan	1971-2019
Registered utility model specifications of Japan	1996-2019
Published registered utility model applications of Japan	1994-2019

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2014-533932 A (SIS RESOURCES LTD.) 18 December 2014, paragraphs [0024]-[0031], [0036]-[0037], fig. 1, 5 & US 2014/0202472 A1, paragraphs [0028]-[0035], [0040]-[0041], fig. 5 & WO 2013/050934 A1 & EP 2750529 A1 & CN 103917119 A & KR 10-2014-0101728 A	1-9

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

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Date of the actual completion of the international search	Date of mailing of the international search report
11 September 2019 (11.09.2019)	24 September 2019 (24.09.2019)

Name and mailing address of the ISA/	Authorized officer
Japan Patent Office 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan	Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2019/026163

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2018-522551 A (BRITISH AMERICAN TOBACCO (INVESTMENTS) LTD.) 16 August 2018, paragraphs [0021]-[0030], fig. 4 & US 2018/0168224 A1, paragraphs [0029]-[0038], fig. 4 & WO 2016/207407 A1 & EP 3313217 A1 & KR 10-2018-0014026 A & CN 107809919 A	1-9
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A	WO 2018/055761 A1 (JAPAN TOBACCO INC.) 29 March 2018 & US 2019/0217028 A1 & EP 3513667 A1 & TW 201813529 A & CN 109788804 A & KR 10-2019-0052703 A	1-9

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