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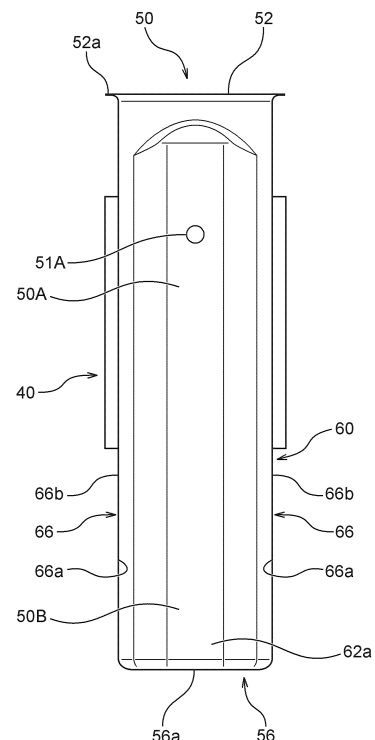
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(54) **FLAVOR SUCTION APPARATUS AND SMOKING SYSTEM**

(57) To prevent a flavor generating article from falling off from a chamber even in a case where a stress acts on the flavor generating article. An accommodating portion that includes an opening formed at one end, accommodates at least a part of the flavor generating article via the opening, and includes contact portions that pressurize a part of the accommodated flavor generating article in an axial direction of the accommodating portion and a separated portion that is separated from the accommodated flavor generating article; a heating portion that is disposed in the axial direction of the accommodating portion and heats the flavor generating article accommodated in the accommodating portion; and gripping portions that grip the flavor generating article accommodated in the accommodating portion are included, the accommodating portion includes a heating region that overlaps the heating portion and a non-heating region other than the heating region in a section perpendicularly intersecting the axial direction of the accommodating portion, and the gripping portions are provided at the contact portions and in the heating region.

Fig. 8



Description

TECHNICAL FIELD

[0001] The present invention relates to a flavor inhaler and a smoking system.

BACKGROUND ART

[0002] Conventionally, flavor inhalers for inhaling flavors or the like without burning materials are known. As such a flavor inhaler, a flavor inhaler including a non-circular chamber that compresses and holds an inserted flavor generating article, for example, is known (see PTL 1, for example).

CITATION LIST

PATENT LITERATURE

[0003] PTL 1: Chinese Utility Model Laid-Open No. 205052881

SUMMARY OF INVENTION

TECHNICAL PROBLEM

[0004] However, although the flavor inhaler described in PTL 1 prevents the flavor generating article from falling off by a chamber compressing and holding the inserted flavor generating article, there is a concern that the flavor generating article falls off from the chamber in a case where an unintended stress acts on the flavor generating article.

[0005] The present invention was made in order to solve at least a part of the problem as described above, and an object thereof is to obtain a flavor inhaler capable of preventing a flavor generating article from falling off from a chamber even in a case where a stress acts on the flavor generating article.

SOLUTION TO PROBLEM

[0006] According to a first aspect of the present invention, a flavor inhaler is provided. The flavor inhaler includes: an accommodating portion that includes an opening formed at one end and accommodates at least a part of a flavor generating article via the opening, the accommodating portion including contact portions that pressurize a part of the accommodated flavor generating article in an axial direction of the accommodating portion and a separated portion that is separated from the accommodated flavor generating article; a heating portion that is disposed in the axial direction of the accommodating portion and heats the flavor generating article accommodated in the accommodating portion; and gripping portions that grip the flavor generating article accommodated in the accommodating portion, in which the accommodating

portion has a heating region that overlaps the heating portion and a non-heating region other than the heating region in a section perpendicularly intersecting the axial direction of the accommodating portion, and the gripping portions are provided at the contact portions and in the heating region.

[0007] According to the first aspect of the present invention, it is possible to compress and hold the flavor generating article by the accommodating portion and to grip the flavor generating article by the gripping portions inside the accommodating portion by providing the gripping portions in the contact portions that pressurize the flavor generating article accommodated in the accommodating portion and in the heating region that overlaps the heating portion in the section perpendicularly intersecting the axial direction of the accommodating portion. Therefore, it is possible to prevent the flavor generating article from falling off from the accommodating portion even in a case where a stress acts on the flavor generating article. Also, it is possible to grip the region of the flavor generating article hardened by heating with the gripping portions and thereby to fixedly grip the flavor generating article.

[0008] In a second aspect of the present invention, the gripping portions are protrusions that project from an inner circumferential surface of the accommodating portion and pressurize the flavor generating article, in the first aspect.

[0009] According to the second aspect of the present invention, it is possible to pressurize and grip the flavor generating article inside the accommodating portion and to curb a damage on the outer surface of the flavor generating article by configuring the gripping portions with the protrusions that project from the inner circumferential surface of the accommodating portion and pressurize the flavor generating article.

[0010] In a third aspect of the present invention, the protrusions have a dot shape, in the second aspect.

[0011] According to the third aspect of the present invention, it is possible to pressurize and grip the flavor generating article inside the accommodating portion with a simple configuration by configuring the gripping portions with dot-shaped protrusions.

[0012] In a fourth aspect of the present invention, the contact portions are planes, and the protrusions are provided at positions that do not overlap a center axis of the accommodating portion when seen from a plane that is parallel with the contact portions, in the third aspect.

[0013] According to the fourth aspect of the present invention, it is possible to curb shaking of the flavor generating article supported by the protrusions serving as support points on the side of the separated portion, by providing the protrusions at positions that do not overlap the center axis of the accommodating portion when seen from a plane that is parallel with the contact portions.

[0014] In a fifth aspect of the present invention, the protrusions extend in the axial direction of the accommodating portion, in the second aspect.

[0015] According to the fifth aspect of the present invention, it is possible to stably grip the flavor generating article inside the accommodating portion by configuring the gripping portions with the protrusions extending in the axial direction of the accommodating portion.

[0016] In a sixth aspect of the present invention, the protrusions extend in a direction perpendicularly intersecting the axial direction of the accommodating portion, in the second aspect.

[0017] According to the sixth aspect of the present invention, it is possible to curb shaking of the flavor generating article on the side of the separated portion by configuring the gripping portion with the protrusions extending in the direction perpendicularly intersecting the axial direction of the accommodating portion.

[0018] In a seventh aspect of the present invention, the protrusions extend in a direction inclined with respect to the axial direction of the accommodating portion and a direction perpendicularly intersecting the axial direction of the accommodating portion, in the second aspect.

[0019] According to the seventh aspect of the present invention, it is possible to stably grip the flavor generating article inside the accommodating portion and to curb shaking of the flavor generating article on the side of the separated portion, by configuring the gripping portions with the protrusions that extend in the direction that is inclined with respect to the axial direction of the accommodating portion and the direction perpendicularly intersecting the axial direction of the accommodating portion.

[0020] In an eighth aspect of the present invention, the contact portions are a pair of mutually facing planes, the protrusions are provided on the pair of planes, respectively, end portions of the protrusions provided on the pair of planes, respectively, on a side opposite to the opening overlap each other when seen from a plane that is parallel with the contact portions, and end portions of the protrusions provided on the pair of planes, respectively, on a side of the opening extend in a direction in which the end portions are separated from each other when seen from the plane that is parallel with the contact portions, in the seventh aspect.

[0021] According to the eighth aspect of the present invention, it is possible to provide a feeling of resistance when the flavor generating article is inserted and to improve a feeling of insertion of the flavor generating article, by configuring the protrusions provided on the pair of planes, respectively such that the protrusions extend with the end portions on the side opposite to the opening overlapping each other and with the end portions on the side of the opening separated from each other when seen from the plane that is parallel with the contact portions.

[0022] In a ninth aspect of the present invention, the protrusions are formed by embossing, and at least a part of the protrusions is exposed on the side of the opening from the heating region, in any of the second aspect to the eighth aspect.

[0023] According to the ninth aspect of the present invention, it is possible to cause heated air between the

heating portion and the protrusions to escape and thereby to curb peeling-off of the heating portion by configuring the protrusions formed by embossing such that at least a part thereof is exposed on the side of the opening from the heating region.

[0024] In a tenth aspect of the present invention, the heating portion has a heat generating element that generates heat, and an insulating base element that supports the heat generating element, the heat generating element and the base element form, in the heating region, a heat generating region where the heat generating element is disposed and a non-heat generating region, which is adjacent to the heat generating region on the side of the opening, the heating generating element being not disposed in the non-heat generating region, and the gripping portions are provided in the non-heat generating region, in any of the first aspect to the ninth aspect.

[0025] According to the tenth aspect of the present invention, it is possible to uniformly heat the flavor generating article by providing the gripping portions in the non-heat generating region where the heat generating element is not disposed in the heating region.

[0026] In an eleventh aspect of the present invention, support portions that support the flavor generating article accommodated in the accommodating portion are further included, and the support portions are provided at the separated portion and in the heating region, in any of the first aspect to the tenth aspect.

[0027] According to the eleventh aspect of the present invention, it is possible to curb shaking of the flavor generating article on the side of the separated portion by providing the gripping portions at the separated portion that is separated from the flavor generating article accommodated in the accommodating portion and in the heating region that overlaps the heating portion in the section perpendicularly intersecting the axial direction of the accommodating portion.

[0028] In a twelfth aspect of the present invention, the support portions are protrusions formed by embossing, and at least a part of the support portions is exposed on the side of the opening from the heating region, in the eleventh aspect.

[0029] According to the twelfth aspect of the present invention, it is possible to cause heated air between the heating portion and the protrusion to escape and thereby to curb peeling-off of the heating portion by configuring the support portions that are the protrusions formed by embossing such that at least a part thereof is exposed on the side of the opening from the heating region.

[0030] In a thirteenth aspect of the present invention, the gripping portions include a pair of first protrusions aligned in a first direction, the support portions include a pair of second protrusions aligned in a second direction, and the first direction and the second direction intersect each other, in the eleventh aspect or the twelfth aspect.

[0031] According to the thirteenth aspect of the present invention, it is possible to stably grip the flavor generating article inside the accommodating portion and to curb

shaking of the flavor generating article on the side of the separated portion by configuring the gripping portions to include the pair of first protrusions aligned in the first direction and configuring the support portions to include the pair of second protrusions aligned in the second direction with the first direction and the second direction intersecting each other.

[0032] In a fourteenth aspect of the present invention, the first direction is a direction perpendicularly intersecting the axial direction of the accommodating portion, and the second direction is a direction along the axial direction of the accommodating portion, in the thirteenth aspect.

[0033] According to the fourteenth aspect of the present invention, it is possible to secure a wide contact area between the flavor generating article and the first protrusions when seen in the insertion direction of the flavor generating article and to obtain a high contact resistance, by aligning the first protrusions in the direction perpendicularly intersecting the axial direction of the accommodating portion. Also, it is possible to support the most protruding part by the second protrusions when the flavor generating article is deformed inside the accommodating portion and thereby to more fixedly grip the flavor generating article inside the accommodating portion by aligning the second protrusions in the axial direction of the accommodating portion.

[0034] In a fifteenth aspect of the present invention, a size of the first protrusions is smaller than a size of the second protrusions, in the thirteenth aspect or the fourteenth aspect.

[0035] According to the fifteenth aspect of the present invention, the second protrusions bite into the flavor generating article more deeply when the flavor generating article is deformed inside the accommodating portion by forming the second protrusions to be larger, and it is thus possible to more fixedly grip the flavor generating article inside the accommodating portion.

[0036] In a sixteenth aspect of the present invention, one of the pair of second protrusions is provided in the heat generating region in the heating region, and the other one of the pair of second protrusions is provided in the non-heat generating region in the heating region, in any of the thirteenth aspect to the fifteenth aspect.

[0037] According to the sixteenth aspect of the present invention, it is possible to grip the flavor generating article in both a region hardened by heating and a relatively soft region with elasticity by providing the other one of the pair of second protrusions in the non-heat generating region that is adjacent to the heat generating region on the side of the opening and thereby to more fixedly grip the flavor generating article inside the accommodating portion.

[0038] In a seventeenth aspect of the present invention, one and the other one of the pair of second protrusions are formed to be connected to each other by embossing, and at least a part of the pair of second protrusions is exposed on the side of the opening from the heating region, in any of the thirteenth aspect to the six-

teenth aspect.

[0039] According to the seventeenth aspect of the present invention, it is possible to cause heated air between the heating portion and the second protrusions to escape and to curb peeling-off of the heating portion by configuring the pair of second protrusions formed to be connected to each other by embossing such that at least a part thereof is exposed on the side of the opening from the heating region.

[0040] In an eighteenth aspect of the present invention, a smoking system is provided. The smoking system includes: a flavor inhaler; and a flavor generating article, the flavor inhaler includes an accommodating portion that includes an opening formed at one end and accommodates at least a part of the flavor generating article via the opening, the accommodating portion including contact portions that pressurize a part of the accommodated flavor generating article in an axial direction of the accommodating portion and a separated portion that is separated from the accommodated flavor generating article, a heating portion that is disposed in the axial direction of the accommodating portion and heats the flavor generating article accommodated in the accommodating portion, and gripping portions that grip the flavor generating article accommodated in the accommodating portion, the accommodating portion has a heating region that overlaps the heating portion and a non-heating region other than the heating region in a section perpendicularly intersecting the axial direction of the accommodating portion, the flavor generating article includes a filling portion that is filled with a smokable article, and a hollow tubular portion that is provided continuously with the filling portion, and the gripping portions are provided in the contact portion and the heating region and in the vicinity of a boundary between the filling portion and the tubular portion.

[0041] According to the eighteenth aspect of the present invention, it is possible to grip the flavor generating article with the gripping portions in the accommodating portion while compressing and holding the flavor generating article in the accommodating portion and to curb damage on the outer surface of the flavor generating article by providing the gripping portions in the contact portions that pressurizes the flavor generating article accommodated in the accommodating portion, in the heating region that overlaps the heating portion in the section perpendicularly intersecting the axial direction of the accommodating portion, and in the vicinity of the boundary between the filling portion and the tubular portion.

BRIEF DESCRIPTION OF DRAWINGS

[0042]

Fig. 1A is a schematic front view of a flavor inhaler according to a first embodiment of the present invention.

Fig. 1B is a schematic top view of the flavor inhaler

according to the first embodiment of the present invention.

Fig. 1C is a schematic bottom view of the flavor inhaler according to the first embodiment of the present invention.

Fig. 2 is a schematic side sectional view of a flavor generating article.

Fig. 3 is a sectional view of the flavor inhaler along the arrow 3-3 illustrated in Fig. 1B.

Fig. 4A is a perspective view of a chamber according to the first embodiment of the present invention.

Fig. 4B is a sectional view illustrating, along with a heating portion, the chamber along the arrow 4B-4B illustrated in Fig. 4A.

Fig. 4C is a sectional view illustrating, along with the heating portion, the chamber along the arrow 4C-4C illustrated in Fig. 4A.

Fig. 5A is a sectional view of the chamber along the arrow 5A-5A illustrated in Fig. 4B.

Fig. 5B is a sectional view of the chamber along the arrow 5B-5B illustrated in Fig. 4B.

Fig. 6 is a perspective view of the chamber and the heating portion according to the first embodiment of the present invention.

Fig. 7 is a sectional view illustrated in Fig. 5B in a state where the flavor generating article is disposed at a desired position in the chamber according to the first embodiment of the present invention.

Fig. 8 is a sectional view illustrating, along with the heating portion, another chamber according to the first embodiment of the present invention.

Fig. 9 is a sectional view of the chamber illustrated in Fig. 8.

Fig. 10 is a sectional view illustrating, along with the heating portion, another chamber according to the first embodiment of the present invention.

Fig. 11 is a sectional view of the chamber illustrated in Fig. 10.

Fig. 12 is a sectional view illustrating, along with the heating portion, another chamber according to the first embodiment of the present invention.

Fig. 13 is a sectional view of the chamber illustrated in Fig. 12.

Fig. 14 is a sectional view illustrating, along with the heating portion, another chamber according to the first embodiment of the present invention.

Fig. 15 is a sectional view of the chamber illustrated in Fig. 14.

Fig. 16 is another sectional view illustrating, along with the heating portion, the chamber along the arrow 4B-4B illustrated in Fig. 4A.

Fig. 17 is a perspective view of a chamber according to a second embodiment of the present invention.

Fig. 18 is a sectional view of the chamber illustrated in Fig. 17.

Fig. 19 is a sectional view illustrating, along with a heating portion, the chamber along the arrow 19-19 illustrated in Fig. 17.

Fig. 20 is a sectional view illustrating, along with the heating portion, the chamber along the arrow 20-20 illustrated in Fig. 17.

Fig. 21 is a sectional view of the chamber along the arrow 21-21 illustrated in Fig. 20.

Fig. 22 is another sectional view illustrating, along with the heating portion, the chamber along the arrow 19-19 illustrated in Fig. 17.

DESCRIPTION OF EMBODIMENTS

[0043] Hereinafter, each embodiment of the present invention will be described with reference to the drawings. In the drawings described below, the same reference signs will be applied to the same or corresponding components, and repeated description will be omitted. Note that an example in which a boss is formed by embossing will be described in each embodiment of the present invention.

First embodiment:

[0044] Fig. 1A is a schematic front view of a flavor inhaler 100 according to a first embodiment of the present invention. Fig. 1B is a schematic top view of the flavor inhaler 100 according to the first embodiment of the present invention. Fig. 1C is a schematic bottom view of the flavor inhaler 100 according to the first embodiment of the present invention. In the drawings described in the specification, an X-Y-Z orthogonal coordinate system may be added for convenience of description. In the coordinate system, the Z axis is directed vertically upward, the X-Y plane is disposed to cut the flavor inhaler 100 in the horizontal direction, and the Y axis is disposed to extend from the front surface to the rear surface of the flavor inhaler 100. The Z axis can also be called an insertion direction of a flavor generating article to be accommodated in a chamber 50 of an atomization portion 30, which will be described later, or an axial direction of the chamber 50. Additionally, the X axis is in a direction that perpendicularly intersects the Y axis and the Z axis.

[0045] The flavor inhaler 100 according to the present embodiment is configured to generate an aerosol containing a flavor by heating a flavor generating article of a stick type having a flavor source containing an aerosol source, for example.

[0046] As illustrated in Figs. 1A to 1C, the flavor inhaler 100 has an outer housing 101, a slide cover 102, a switch portion 103, and a terminal 104. The outer housing 101 configures the outermost housing of the flavor inhaler 100 and has a size with which it fits in a user's hand. The user can hold the flavor inhaler 100 with his/her hand and inhale the aerosol when the user uses the flavor inhaler 100. The outer housing 101 may be configured by assembling a plurality of members. The outer housing 101 may be formed of metal such as aluminum. Note that the outer housing 101 may have a member made of a resin, for example, polycarbonate (PC), an acrylonitrile-butadi-

ene-styrene (ABS) resin, or a polymer alloy or the like containing polyether ether ketone (PEEK) or a plurality of types of polymers.

[0047] The outer housing 101 has an opening, which is not illustrated, for receiving the flavor generating article, and the slide cover 102 is slidably attached to the outer housing 101 to close the opening. Specifically, the slide cover 102 is configured to be movable along an outer surface of the outer housing 101 between a closed position (the position illustrated in Figs. 1A and 1B) at which the opening of the outer housing 101 is closed and an open position at which the opening is open. It is possible to cause the slide cover 102 to move between the closed position and the open position by the user manually operating the slide cover 102, for example. In this manner, the slide cover 102 is able to permit or restrict access to the flavor generating article inside the flavor inhaler 100.

[0048] The switch portion 103 is used to switch ON and OFF of an operation of the flavor inhaler 100. For example, power is supplied from a power source, which is not illustrated, to a heating portion, which is not illustrated, and it is possible to heat the flavor generating article without burning the flavor generating article, by the user operating the switch portion 103 in a state where the flavor generating article is inserted into the flavor inhaler 100. Note that the switch portion 103 may be a switch provided outside the outer housing 101 or may be a switch located inside the outer housing 101. In a case where the switch is located inside the outer housing 101, the switch is indirectly pressed by pressing the switch portion 103 on the surface of the outer housing 101. In the present embodiment, an example in which the switch of the switch portion 103 is located inside the outer housing 101 will be described.

[0049] The terminal 104 is an interface, such as a USB, that connects the flavor inhaler 100 to an external power source, for example. In a case where the power source included in the flavor inhaler 100 is a chargeable battery, the external power source can cause a current to flow to the power source and charge the power source by connecting the external power source to the terminal 104. Also, the flavor inhaler 100 may be configured to be able to transmit data related to the operation of the flavor inhaler 100 to an external device by connecting a data transmission cable to the terminal 104.

[0050] Next, the flavor generating article used by the flavor inhaler 100 according to the present embodiment will be described. Fig. 2 is a schematic side sectional view of the flavor generating article 110. In the present embodiment, the flavor inhaler 100 and the flavor generating article 110 can configure a smoking system. In the example illustrated in Fig. 2, the flavor generating article 110 has a filling portion 111 that is filled with a smokable article, a hollow tubular member 114 (corresponding to an example of a tubular portion) that is provided continuously with the filling portion 111, a hollow filter portion 116, and a filter portion 115.

[0051] The filling portion 111 is wrapped by a first wrapping paper 112. The tubular member 114, the hollow filter portion 116, and the filter portion 115 are wrapped by a second wrapping paper 113 that is different from the first wrapping paper 112. The second wrapping paper 113 also wraps a part of the first wrapping paper 112 wrapping the filling portion 111. In this manner, the tubular member 114, the hollow filter portion 116, and the filter portion 115 are coupled to the filling portion 111. However, the second wrapping paper 113 may be omitted, and the tubular member 114, the hollow filter portion 116, and the filter portion 115 may be coupled to the filling portion 111 by using the first wrapping paper 112. A lip release agent 117 for facilitating releasing of a user's lip from the second wrapping paper 113 is applied to the outer surface of the second wrapping paper 113 in the vicinity of the end portion on the side of the filter portion 115. The part of the flavor generating article 110 to which the lip release agent 117 is applied functions as a mouthpiece of the flavor generating article 110.

[0052] The filling portion 111 can contain a flavor source such as tobacco, for example, and an aerosol source. Also, the first wrapping paper 112 for wrapping the filling portion 111 can be a sheet member with breathability. The tubular member 114 can be a paper pipe or a hollow filter. Although the flavor generating article 110 includes the filling portion 111, the tubular member 114, the hollow filter portion 116, and the filter portion 115 in the illustrated example, the configuration of the flavor generating article 110 is not limited thereto. For example, the hollow filter portion 116 may be omitted, and the tubular member 114 and the filter portion 115 may be disposed to be adjacent to each other.

[0053] Next, an inner structure of the flavor inhaler 100 will be described. Fig. 3 is a sectional view of the flavor inhaler 100 seen along the arrow 3-3 illustrated in Fig. 1B. As illustrated in Fig. 3, a placement portion 10 where accommodated elements such as a power source portion 20 and an atomization portion 30, which will be described later, are placed is provided inside the outer housing 101 of the flavor inhaler 100. The placement portion 10 is made of a resin, for example, and can be formed of polycarbonate (PC), acrylonitrile-butadiene-styrene (ABS) resin, or a polymer alloy or the like containing polyether ether ketone (PEEK) or a plurality of types of polymers. Note that the placement portion 10 may include a part formed of metal such as aluminum, for example. Here, the placement portion 10 is preferably polycarbonate from the viewpoint of heat resistance, workability, and strength. The power source portion 20 and the atomization portion 30 are provided in the inner space of the placement portion 10. Note that the power source portion 20 and the atomization portion 30 cannot be replaced after the flavor inhaler 100 is assembled. Also, the outer housing 101 and the placement portion 10 may be collectively referred to as a casing.

[0054] The power source portion 20 includes a power source 21. The power source 21 can be a chargeable

battery or a non-chargeable battery, for example. The power source 21 is electrically connected to the atomization portion 30. The power source 21 can thus supply power to the atomization portion 30 to appropriately heat the flavor generating article 110.

[0055] The atomization portion 30 has a chamber 50 (corresponding to an example of an accommodating portion) extending in an insertion direction (Z-axis direction) of the flavor generating article 110, a heating portion 40 disposed in the axial direction (Z-axis direction) of the chamber 50 and covering a part of the chamber 50, a heat insulating portion 32, and a substantially tubular insertion guide member 34 as illustrated in the drawing. The chamber 50 is configured to accommodate the flavor generating article 110 therein. The inner circumferential surface of the chamber 50 is provided with a boss 51 (corresponding to a gripping portion or a protrusion) to grip the accommodated flavor generating article 110. Details of the boss 51 will be described later.

[0056] The heating portion 40 is configured to come into contact with an outer circumferential surface of the chamber 50 and heat the flavor generating article 110 accommodated in the chamber 50. As illustrated in the drawing, a bottom member 36 may be provided at the bottom portion of the chamber 50. The bottom member 36 can function as a stopper that positions the flavor generating article 110 inserted into the chamber 50. The bottom member 36 has irregularity on a surface that the flavor generating article 110 abuts and can define a space into which air can be supplied on the surface that the flavor generating article 110 abuts. The bottom member 36 is made of a resin, for example, and may be formed of polycarbonate (PC), an acrylonitrile-butadiene-styrene (ABS) resin, a polymer alloy or the like containing polyether ether ketone (PEEK) or a plurality of types of polymers, or metal such as aluminum, in particular. Note that the bottom member 36 is preferably formed of a material with a low heat conductivity to prevent heat from being transmitted to the heat insulating portion 32 and the like.

[0057] The heat insulating portion 32 has a substantially tubular shape as a whole and is disposed to cover the chamber 50. The heat insulating portion 32 can include an aerogel sheet, for example. The insertion guide member 34 is provided between the outer housing 101 and the chamber 50. The insertion guide member 34 is configured not to be able to escape to the outside of the casing with a claw engaged with the casing if the insertion guide member 34 is inserted from the opening of the outer housing 101 into the casing. The insertion guide member 34 is made of a resin, for example, and may be formed of polycarbonate (PC), an acrylonitrile-butadiene-styrene (ABS) resin, or a polymer alloy or the like containing polyether ether ketone (PEEK) or a plurality of types of polymers, in particular. Note that the insertion guide member 34 may be formed of metal, glass, ceramics, or the like. Also, the insertion guide member 34 is preferably made of PEEK from the viewpoint of heat resistance. The

insertion guide member 34 communicates with the outside of the flavor inhaler 100 when the slide cover 102 is at the open position, and the insertion guide member 34 guides insertion of the flavor generating article 110 into the chamber 50 by inserting the flavor generating article 110 into a through-hole 34a in the insertion guide member 34. The slide cover 102 is configured to cover at least a part of the insertion guide member 34 in the axial direction (Z-axis direction) of the chamber 50 with the through-hole 34a in the insertion guide member 34 exposed to the outside when the slide cover 102 is at the open position. In Fig. 3, a state where the slide cover 102 is closed to cover the entire through-hole 34a in the insertion guide member 34 is illustrated by the two-dotted chain line.

[0058] The flavor inhaler 100 further has a first holding portion 37 and a second holding portion 38 that hold both ends of the chamber 50 and the heat insulating portion 32. The first holding portion 37 is disposed to hold the end portions of the chamber 50 and the heat insulating portion 32 on the negative direction side of the Z axis. The second holding portion 38 is disposed to hold the end portions of the chamber 50 and the heat insulating portion 32 on the side of the slide cover 102 (the positive direction side of the Z axis).

[0059] Next, a structure of the chamber 50 will be described. Fig. 4A is a perspective view of the chamber 50 according to the first embodiment of the present invention. Fig. 4B is a sectional view illustrating, along with the heating portion 40, the chamber 50 along the arrow 4B-4B illustrated in Fig. 4A. Fig. 4C is a sectional view illustrating, along with the heating portion 40, the chamber 50 along the arrow 4C-4C illustrated in Fig. 4A. Fig. 5A is a sectional view of the chamber 50 along the arrow 5A-5A illustrated in Fig. 4B. Fig. 5B is a sectional view of the chamber 50 along the arrow 5B-5B illustrated in Fig. 4B. Fig. 6 is a perspective view of the chamber 50 and the heating portion 40 according to the first embodiment of the present invention.

[0060] As illustrated in Figs. 4A, 4B and 4C, the chamber 50 can have a tubular shape including an opening 52 into which the flavor generating article 110 is inserted and a tubular side wall portion 60 that accommodates the flavor generating article 110. A flange portion 52a is formed at an end portion that defines the opening 52 of the chamber 50. The chamber 50 is disposed such that the flange portion 52a provided on the side opposite to a bottom portion 56 faces the opening of the outer housing 101. The chamber 50 is preferably formed of a material with heat resistance and a small coefficient of thermal expansion and can be formed of, for example, stainless steel. Note that the chamber 50 may be formed of a resin such as PEEK, glass, ceramics, or the like as well as metal. This enables effective heating of the flavor generating article 110 from the chamber 50. Note that the chamber 50 is not limited to the tubular shape and may have a cup shape.

[0061] As illustrated in Figs. 4B, 4C, and 5B, the side wall portion 60 includes contact portions 62 and a sepa-

rated portion 66. When the flavor generating article 110 is disposed at a desired position in the chamber 50, the contact portions 62 come into contact with or press a part of the flavor generating article 110 in the axial direction (Z-axis direction) of the chamber 50, and the separated portion 66 is separated from the flavor generating article 110. In other words, the chamber 50 compresses and grips the inserted flavor generating article 110. Note that in the specification, "the desired position in the chamber 50" means the position at which the flavor generating article 110 is appropriately heated or the position of the flavor generating article 110 when the user smokes. Each contact portion 62 has an inner surface 62a and an outer surface 62b. The separated portion 66 has an inner surface 66a and an outer surface 66b. As illustrated in Fig. 6, the heating portion 40 is disposed on the outer surface 62b of the contact portion 62. The heating portion 40 is preferably disposed with no clearance from the outer surface 62b of the contact portion 62. Note that the heating portion 40 may include an adhesive layer. In that case, the heating portion 40 including the adhesive layer is preferably disposed with no clearance from the outer surface 62b of the contact portion 62.

[0062] As illustrated in Figs. 4A and 5B, the outer surface 62b of the contact portion 62 is a planar surface. It is possible to prevent a strip-shaped electrode 48 from being bent in a case where the strip-shaped electrode 48 is connected to the heating portion 40 disposed on the outer surface 62b of the contact portion 62 as illustrated in Fig. 6 by the outer surface 62b of the contact portion 62 being a planar surface. As illustrated in Figs. 4B and 5B, the inner surface 62a of the contact portion 62 is a planar surface. Also, the thickness of the contact portion 62 is uniform as illustrated in Figs. 4B and 5B.

[0063] As illustrated in Figs. 4A, 4B, and 5B, the chamber 50 has two contact portions 62 in the circumferential direction of the chamber 50, and the two contact portions 62 face each other in parallel with each other. The distance of at least a part between the inner surfaces 62a of the two contact portions 62 is preferably shorter than the width of the flavor generating article 110 inserted into the chamber 50 at the location disposed between the contact portions 62.

[0064] As illustrated in Figs. 4C and 5B, the inner surface 66a of the separated portion 66 can have an arc-shaped section as a whole in the section that perpendicularly intersects the axial direction (Z-axis direction) of the chamber 50. Also, the separated portion 66 is disposed to be adjacent to the contact portions 62 in the circumferential direction. In other words, the contact portion 62 and the separated portion 66 configure a non-circular inner circumferential surface in the section perpendicularly intersecting the axial direction (Z-axis direction) of the chamber 50.

[0065] As illustrated in Figs. 4B and 4C, the chamber 50 can have a hole 56a at the bottom portion 56 thereof such that the bottom member 36 illustrated in Fig. 3 penetrates therethrough and is disposed inside the chamber

50. The bottom member 36 can be fixed to the inside of the bottom portion 56 of the chamber 50 with an adhesive or the like. Note that the adhesive intervening between the bottom member 36 and the bottom portion 56 can be configured of a resin material such as an epoxy resin. Instead of this, an inorganic adhesive such as cement or welding can also be used. The bottom member 36 provided at the bottom portion 56 can support a part of the flavor generating article 110 inserted into the chamber 50 with at least a part of an end surface of the flavor generating article 110 exposed. Also, the bottom portion 56 can support a part of the flavor generating article 110 with the exposed end surface of the flavor generating article 110 communicating with a clearance 67 (see Fig. 7), which will be described later. Here, a heating region 50A that is a region overlapping the heating portion 40 in a section perpendicularly intersecting the axial direction (Z-axis direction) of the chamber 50, that is, a region that corresponds to a location where the heating portion 40 is disposed and follows the Z-axis direction and a non-heating region 50B other than the heating region 50A are formed in the inner space of the chamber 50.

[0066] As illustrated in Figs. 4A, 4B, and 5A, the chamber 50 preferably has a tubular non-holding portion 54 between the opening 52 and the side wall portion 60. A clearance can be formed between the non-holding portion 54 and the flavor generating article 110 in a state where the flavor generating article 110 is positioned at a desired position in the chamber 50. Also, as illustrated in Figs. 4A and 4B, the chamber 50 preferably has a first guide portion 58 including a tapered surface 58a that connects the inner surface of the non-holding portion 54 to the inner surfaces 62a of the contact portions 62.

[0067] As illustrated in Fig. 6, the heating portion 40 has a heating element 42. The heating element 42 may be a heating resistor (corresponding to an example of a heat generating element), for example. The heating element 42 is preferably disposed to heat the contact portions 62 without coming into contact with the separated portion 66 of the chamber 50. In other words, the heating element 42 is preferably disposed only on the outer surfaces of the contact portions 62. The heating element 42 may have a difference in heating capability between a part heating the separated portion 66 of the chamber 50 and a part heating the contact portions 62. Specifically, the heating element 42 may be configured to heat the contact portions 62 to a higher temperature than that of the separated portion 66. For example, disposition densities of the heating resistor of the heating element 42 in the contact portions 62 and the separated portion 66 can be adjusted. Also, the heating element 42 may be wound around the outer circumference of the chamber 50 while exhibiting substantially the same heating capability over the entire circumference of the chamber 50. As illustrated in Fig. 6, the heating portion 40 preferably has an electrically insulating member 44 (corresponding to an example of a base element) that is configured of a resin or the like covering at least one surface of the heating ele-

ment 42 in addition to the heating element 42. In the present embodiment, the electrically insulating member 44 is disposed to cover both surfaces of the heating element 42.

[0068] Fig. 7 is a sectional view illustrated in Fig. 5B in a state where the flavor generating article 110 is disposed at a desired position in the chamber 50 according to the first embodiment of the present invention. In Fig. 7, the boss 51 illustrated in Fig. 5A is illustrated by a virtual line. As illustrated in Fig. 7, once the flavor generating article 110 is disposed at a desired position in the chamber 50, the flavor generating article 110 can come into contact with and be pressed by the contact portions 62 of the chamber 50. On the other hand, the clearance 67 is formed between the flavor generating article 110 and the separated portion 66. The clearance 67 can communicate with the opening 52 of the chamber 50 and the end surface of the flavor generating article 110 located in the chamber 50. In this manner, air flowing from the opening 52 of the chamber 50 can pass through the clearance 67 and flow to the inside of the flavor generating article 110. In other words, an air flow path (clearance 67) is formed between the flavor generating article 110 and the separated portion 66.

[0069] Here, although the flavor generating article 110 inserted into the chamber 50 is pressurized by the contact portions 62 of the chamber 50 and is thereby compressed and gripped, the flavor generating article 110 may fall off from the chamber 50 if an unintended action acts on the flavor generating article 110. Also, the flavor generating article 110 may shake on the side of the separated portion 66 due to the stress acting on the flavor generating article 110.

[0070] Thus, bosses 51 configured to pressurize and grip the outer circumferential surface of the flavor generating article 110 accommodated in the chamber 50 inward in the radial direction of the chamber 50 are formed on the inner circumferential surface of the chamber 50 as illustrated in Figs. 4B, 4C, 5A, and 7. The bosses 51 are provided on inner surfaces 62a of the contact portion 62 and in the heating region 50A on the inner circumferential surface of the chamber 50. Also, the boss 51 is provided on each of the mutually facing inner surfaces 62a. Also, the bosses 51 are protrusions that project from the inner circumferential surface of the chamber 50 and pressurize the flavor generating article 110 and extend in the direction perpendicularly intersecting the axial direction (Z-axis direction) of the chamber 50, specifically, a lateral direction (Y-axis direction). Although the bosses 51 are formed by embossing, the bosses 51 may be formed by projecting members attached to the inner circumferential surface of the chamber 50. Additionally, the boss 51 may be provided only on one of the mutually facing inner surfaces 62a, or a plurality of bosses 51 may be provided on one inner surface 62a.

[0071] In this manner, it is possible to grip the flavor generating article 110 with the bosses 51 inside the chamber 50 while compressing and holding the flavor

generating article 110 by the chamber 50 by providing the bosses 51 on the inner surfaces 62a of the contact portion 62 and in the heating region 50A. Therefore, it is possible to prevent the flavor generating article 110 from falling off from the chamber 50 even in a case where a stress acts on the flavor generating article 110. Moreover, it is possible to grip the region of the flavor generating article hardened by heating with the gripping portions and thereby to fixedly grip the flavor generating article.

[0072] In addition, it is possible to pressurize and grip the flavor generating article 110 inside the chamber 50 by configuring the bosses 51 with the protrusions that project from the inner circumferential surface of the chamber 50 and pressurize the flavor generating article 110. Therefore, it is possible to curb damage on the outer surface of the flavor generating article 110 as compared with a case where the flavor generating article 110 is gripped with a claw, for example.

[0073] Also, rotation of the flavor generating article 110 about the Y axis is restricted by configuring the bosses 51 with the protrusions extending in the lateral direction (Y-axis direction). Therefore, it is possible to curb shaking of the flavor generating article 110 on the side of the separated portion 66.

[0074] Note that the shape of the bosses is not limited to the one illustrated in Figs. 4B, 4C, 5A, and 7. Hereinafter, a shape of the bosses that is different from the shape illustrated in Figs. 4B, 4C, 5A, and 7 will be described with reference to Figs. 8 and 9. Fig. 8 is a sectional view illustrating, along with the heating portion 40, another chamber 50 according to the first embodiment of the present invention. Fig. 9 is a sectional view of the chamber 50 illustrated in Fig. 8. Figs. 8 and 9 illustrate sections corresponding to Figs. 4C and 5A, respectively.

[0075] As illustrated in Figs. 8 and 9, bosses 51A configured to pressurize and grip the outer circumferential surface of the flavor generating article 110 accommodated in the chamber 50 inward in the radial direction of the chamber 50 are formed on the inner circumferential surface of the chamber 50. The bosses 51A are provided on the inner surfaces 62a of the contact portion 62 in the inner circumferential surface of the chamber 50 and in the heating region 50A. Also, the boss 51A is provided on each of the mutually facing inner surfaces 62a. Moreover, the bosses 51A are dot-shaped protrusions that project from the inner circumferential surface of the chamber 50 and pressurize the flavor generating article 110. It is possible to pressurize and grip the flavor generating article 110 inside the chamber 50 with a simple configuration by configuring the bosses 51A with the dot-shaped protrusions.

[0076] Note that although the bosses 51A are provided at positions at which the bosses 51A overlap the center axis of the chamber 50 when seen from the plane that is parallel with the contact portions 62 in Figs. 8 and 9, the present invention is not limited thereto. Hereinafter, arrangement of the bosses 51A will be described with reference to Figs. 10 and 11. Fig. 10 is a sectional view

illustrating, along with the heating portion, another chamber according to the first embodiment of the present invention. Fig. 11 is a sectional view of the chamber illustrated in Fig. 10. Figs. 10 and 11 illustrate sections corresponding to Figs. 4C and 5A, respectively.

[0077] As illustrated in Figs. 10 and 11, the bosses 51A configured to pressurize and grip the outer circumferential surface of the flavor generating article 110 accommodated in the chamber 50 inward in the radial direction of the chamber 50 are formed on the inner circumferential surface of the chamber 50. Here, the bosses 51A are provided at positions at which the bosses 51A do not overlap the center axis of the chamber 50 when seen from the plane that is parallel with the contact portions 62. It is possible to cause the bosses 51A and the separated portion 66 to be located closer by providing the bosses 51A at the positions at which the bosses 51A do not overlap the center axis of the chamber 50, and thereby to curb shaking of the flavor generating article 110 supported by the bosses 51A serving as support points on the side of the separated portion 66.

[0078] Next, the shape of the bosses that is different from the one illustrated in Figs. 4B, 4C, 5A, and 7 will be described with reference to Figs. 12 and 13. Fig. 12 is a sectional view illustrating, along with the heating portion 40, another chamber 50 according to the first embodiment of the present invention. Fig. 13 is a sectional view of the chamber 50 illustrated in Fig. 12. Figs. 12 and 13 illustrate sections corresponding to Figs. 4C and 5A, respectively.

[0079] As illustrated in Figs. 12 and 13, bosses 51B configured to pressurize and grip the outer circumferential surface of the flavor generating article 110 accommodated in the chamber 50 inward in the radial direction of the chamber 50 are formed on the inner circumferential surface of the chamber 50. The bosses 51B are provided on the inner surfaces 62a of the contact portion 62 in the inner circumferential surface of the chamber 50 and in the heating region 50A. Also, the boss 51B is provided on each of the mutually facing inner surfaces 62a. Also, the bosses 51B are protrusions that project from the inner circumferential surface of the chamber 50 and pressurize the flavor generating article 110 and extend in the axial direction (Z-axis direction) of the chamber 50. It is possible to stably grip the flavor generating article 110 inside the chamber 50 as compared with a case where the flavor generating article 110 is gripped with dot-shaped bosses, for example, by configuring the bosses 51B with the protrusions extending in the axial direction (Z-axis direction) of the chamber 50.

[0080] Next, the shape of the bosses that is different from the shape illustrated in Figs. 4B, 4C, 5A, and 7 will be described with reference to Figs. 14 and 15. Fig. 14 is a sectional view illustrating, along with the heating portion 40, another chamber 50 according to the first embodiment of the present invention. Fig. 15 is a sectional view of the chamber 50 illustrated in Fig. 14. Figs. 14 and 15 illustrate sections corresponding to Figs. 4C and 5A,

respectively.

[0081] As illustrated in Figs. 14 and 15, the bosses 51C configured to pressurize and grip the outer circumferential surface of the flavor generating article 110 accommodated in the chamber 50 inward in the radial direction of the chamber 50 are formed on the inner circumferential surface of the chamber 50. The bosses 51C are provided on the inner surfaces 62a of the contact portion 62 in the inner circumferential surface of the chamber 50 and in the heating region 50A. Also, the boss 51C is provided on each of the mutually facing inner surfaces 62a. Also, the bosses 51C are protrusions that project from the inner circumferential surface of the chamber 50 and pressurize the flavor generating article 110 and extend in a direction (oblique direction) inclined with respect to the axial direction (Z-axis direction) of the chamber 50 and the lateral direction (Y-axis direction). Note that the aspect ratio of the bosses 51C is equal to or greater than one. Moreover, the pair of bosses 51C are configured such that the end portions thereof on the side opposite to the opening 52 overlap each other and the end portions thereof on the side of the opening 52 are separated from each other when seen from the plane that is parallel with the contact portions 62. Here, the inclination angles of the pair of bosses 51C with respect to the center axis of the chamber 50 are preferably equal to each other.

[0082] It is possible to stably grip the flavor generating article 110 inside the chamber 50 and to curb shaking of the flavor generating article 110 on the side of the separated portion 66 as compared with a case where the flavor generating article 110 is gripped with dot-shaped bosses, for example, by configuring the bosses 51C with the protrusions extending in the direction inclined with respect to the axial direction (Z-axis direction) of the chamber 50 and the lateral direction (Y-axis direction).

[0083] Also, a rotating force of the flavor generating article 110 works while the surfaces of the contact portions 62 generate a resistance force of curbing the rotating force when the flavor generating article 110 is inserted into the chamber 50, by configuring the pair of bosses 51C such that the end portions thereof on the side opposite to the opening 52 overlap each other and the end portions thereof on the side of the opening 52 are separated from each other when seen from the plane that is parallel with the contact portions 62. Therefore, it is possible to provide a sense of resistance to the user and to improve a feeling of insertion of the flavor generating article 110 when the flavor generating article 110 is inserted.

[0084] Note that at least a part of the bosses may be exposed on the side of the opening from the heating region. Fig. 16 is another sectional view illustrating, along with the heating portion, the chamber along the arrow 4B-4B illustrated in Fig. 4A. As illustrated in Fig. 16, at least a part of the bosses 51 is exposed on the side of the opening 52 from the heating region 50A. In this manner, it is possible to cause heated air between the heating portion 40 and the bosses 51 to escape and thereby to

curb peeling-off of the heating portion 40 from the chamber 50 by configuring the bosses 51 such that at least a part thereof is exposed on the side of the opening 52 from the heating region 50A. The same applies to the bosses 51A to 51C having different shapes from that of the bosses 51.

[0085] Next, a relationship between the positions of the bosses 51 in the axial direction (Z-axis direction) of the chamber 50 and the flavor generating article 110 will be described with reference to Figs. 2, 3, 4B, and 4C. The positions of the bosses in the axial direction (Z-axis direction) of the chamber 50 are preferably in the vicinity of the boundary between the filling portion 111 and the tubular member 114 of the flavor generating article 110, specifically, on a virtual plane where the boundary is located when the flavor generating article 110 is disposed at a desired position in the chamber 50.

[0086] Note that if the bosses 51 are disposed on the side close to the filter portion 115 than the virtual plane, there may be a case where it is not possible to obtain a preferable gripping force from the bosses 51. In other words, the flavor generating article 110 is thinned due to heating, and the opening portion of the tubular member 114 that is the boundary between the filling portion 111 and the tubular member 114 experiences the largest deformation. Therefore, there may be a case where the bosses 51 slips along the outer surface of the tubular member 114 inclined toward the opening portion, sufficient gripping cannot be achieved, and a preferable gripping force does not appear. Also, although the bosses 51 may be disposed on the side closer to the filling portion 111 than the virtual plane, there may be a case where damage occurs on the flavor generating article 110 if gripping is achieved with the bosses 51 at the positions away from the virtual plane. In other words, the strength of the flavor generating article 110 tends to become the weakest in the vicinity of the virtual plane, and if the flavor generating article 110 is gripped at positions away from the virtual plane, the flavor generating article 110 may break in the vicinity of the virtual plane when it is attempted to pull out the flavor generating article 110 or when the flavor generating article 110 shakes.

[0087] Thus, it is possible to grip the flavor generating article 110 with the bosses 51 inside the chamber 50 while compressing and holding the flavor generating article 110 in the chamber 50 and to curb damage on the outer surface of the flavor generating article 110 by providing the bosses 51 in the vicinity of the boundary between the filling portion 111 and the tubular member 114.

Second embodiment:

[0088] Fig. 17 is a perspective view of a chamber according to a second embodiment of the present invention. Fig. 18 is a sectional view of the chamber illustrated in Fig. 17. Fig. 19 is a sectional view illustrating, along with a heating portion, a chamber along the arrow 19-19 illustrated in Fig. 17. Fig. 20 is a sectional view illustrating,

along with the heating portion, the chamber along the arrow 20-20 illustrated in Fig. 17. Fig. 21 is a sectional view of the chamber along the arrow 21-21 illustrated in Fig. 20. In Figs. 17 to 21, description of configurations that are similar to those in the aforementioned first embodiment will be omitted.

[0089] As illustrated in Figs. 17 to 21, a heat generating region 40A and a non-heat generating region 40B that is adjacent to the heat generating region 40A on the side of the opening 52 are formed in a heating portion 40. Here, the heat generating region 40A is a region where a heat generating element such as the heating element 42 illustrated in Fig. 6, and the non-heat generating region 40B is a region, which is formed by a base element such as an electrically insulating member 44 illustrated in Fig. 6, in which the heat generating element is not disposed.

[0090] Also, bosses 51D (corresponding to an example of gripping portions or protrusions) configured to pressurize and grip the outer circumferential surface of the flavor generating article 110 accommodated in the chamber 50 inward in the radial direction of the chamber 50 are formed on the inner circumferential surface of the chamber 50. The bosses 51D are provided on inner surfaces 62a of contact portions 62 and in the heating region 50A on the inner circumferential surface of the chamber 50. Moreover, two bosses 51D are disposed in an aligned manner in the direction perpendicularly intersecting the axial direction (Z-axis direction) of the chamber 50, specifically, in the lateral direction (Y-axis direction) thereby to form a pair of bosses 51D (corresponding to an example of first protrusions). Also, each of the pair of bosses 51D is provided on each of the mutually facing inner surfaces 62a. Furthermore, the pair of bosses 51D are provided at positions corresponding to the non-heat generating region 40B in the heating portion 40.

[0091] Also, bosses 51E (corresponding to an example of support portions) configured to support the flavor generating article 110 accommodated in the chamber 50 are formed on the inner circumferential surface of the chamber 50. The bosses 51E are provided on inner surfaces 66a of the separated portion 66 and in the heating region 50A on the inner circumferential surface of the chamber 50. Also, two bosses 51E are disposed in an aligned manner in the axial direction (Z-axis direction) of the chamber 50 thereby to form a pair of bosses 51E (corresponding to an example of second protrusions). Also, each of the pair of bosses 51E is provided on each of the mutually facing inner surfaces 66a. Here, one of the pair of bosses 51E is provided at a position corresponding to the heat generating region 40A in the heating portion 40 while the other one of the pair of bosses 51E is provided at a position corresponding to the non-heat generating region 40B in the heating portion 40. Moreover, at least a part of the other one of the pair of bosses 51E is exposed on the side of the opening 52 from the heating region 50A. It is possible to prevent the pair of bosses 51E from blocking an air flow path (clearance 67) formed between the flavor generating article 110 and the separated portion

66 by disposing the pair of bosses 51E in the axial direction (Z-axis direction) of the chamber 50. Note that the pair of bosses 51E may be disposed such that two bosses 51E are aligned in the direction perpendicularly intersecting the axial direction (Z-axis direction) of the chamber 50, specifically, in the lateral direction (X-axis direction).

[0092] In this manner, it is possible to uniformly heat the flavor generating article 110 by providing the bosses 51D in the non-heat generating region 40B where the heat generating element is not disposed. In other words, there may be a case where a part of the flavor generating article 110 pressurized by the bosses 51D is locally heated in a case where the bosses 51D are provided in the heat generating region 40A. Thus, it is possible to uniformly heat the flavor generating article 110 by providing the bosses 51D in the non-heat generating region 40B.

[0093] Also, it is possible to support and restrict movement of the flavor generating article 110 on the side of the separated portion 66 by providing the bosses 51E on the inner surfaces 66a of the separated portion 66 and in the heating region 50A. Therefore, it is possible to curb shaking of the flavor generating article 110 on the side of the separated portion 66 even in a case where a stress acts on the flavor generating article 110.

[0094] Also, it is possible to grip both the region hardened by heating and the relatively soft region with elasticity of the flavor generating article 110 and thereby to more fixedly grip the flavor generating article 110 inside the chamber 50 by providing the other one of the pair of bosses 51E at a position corresponding to the non-heat generating region 40B in the heating portion 40.

[0095] Also, it is possible to cause heated air between the heating portion 40 and the bosses 51E to escape and thereby to curb peeling-off of the heating portion 40 from the chamber 50 by configuring the other one of the pair of bosses 51E such that at least a part thereof is exposed on the side of the opening 52 from the heating region 50A. Note that the bosses 51D may be configured such that at least a part thereof is exposed on the side of the opening 52 from the heating region 50A.

[0096] Also, it is possible to stably grip the flavor generating article 110 inside the chamber 50 and to curb shaking of the flavor generating article 110 on the side of the separated portion 66 by configuring the pair of bosses 51D and the pair of bosses 51E such that the direction in which the pair of bosses 51D are aligned and the direction in which the pair of bosses 51E are aligned intersect each other, specifically, such that the pair of bosses 51D are aligned in the lateral direction (Y-axis direction) while the pair of bosses 51E are aligned in the axial direction (Z-axis direction) of the chamber 50. Also, it is possible to secure a wide contact area between the flavor generating article 110 and the bosses 51D when seen in the insertion direction of the flavor generating article 110 and to obtain a high contact resistance, by aligning the bosses 51D in the lateral direction (Y-axis direction) of the chamber 50. Moreover, it is possible to support the most projecting part with the bosses 51E

when the flavor generating article 110 is deformed inside the chamber 50 and thereby to more fixedly grip the flavor generating article 110 inside the chamber 50 by aligning the bosses 51E in the axial direction (Z-axis direction) of the chamber 50.

[0097] Also, the bosses 51D are configured to have a smaller size than the size of the bosses 51E here. Since the bosses 51E bite into the flavor generating article 110 more deeply when the flavor generating article 110 is deformed inside the chamber 50 and thereby to more fixedly grip the flavor generating article 110 inside the chamber 50 by forming the bosses 51E to be large.

[0098] Note that one and the other one of the pair of bosses 51E may be formed to be connected to each other and at least a part of the pair of bosses 51E may be exposed on the side of the opening from the heating region. Fig. 22 is another sectional view illustrating, along with the heating portion, the chamber along the arrow 19-19 illustrated in Fig. 17. As illustrated in Fig. 22, at least a part of the pair of bosses 51E is exposed on the side of the opening 52 from the heating region 50A. It is possible to cause heated air between the heating portion 40 and the bosses 51E to escape and thereby to curb peeling-off of the heating portion 40 from the chamber 50 by configuring the pair of bosses 51E such that at least a part thereof is exposed on the side of the opening 52 from the heating region 50A.

[0099] Although the embodiment of the present invention has been described above, the present invention is not limited to the above embodiment, and various modification can be made within the scope of the technical idea described in the claims, the specification, and the drawings. Note that any shapes and materials that are not directly described in the specification and the drawings also fall within the scope of the technical idea of the invention of the present application as long as the effects and the advantages of the invention of the present application can be achieved.

[0100] For example, although the flavor inhaler 100 according to the present embodiment has a so-called counterflow-type air flow path through which air flowing from the opening 52 of the chamber 50 is supplied to the end surface of the flavor generating article 110, the present invention is not limited thereto, and the flavor inhaler 100 may have a so-called bottom flow-type air flow path through which air is supplied from the bottom portion 56 of the chamber 50 to the inside of the chamber 50. Also, the heating element 42 is not limited to a resistance heating type and may be an induction heating type. In that case, the heating element 42 can heat the chamber 50 through induction heating. Also, in a case where the flavor generating article 110 has a susceptor, the heating element 42 can heat the susceptor of the flavor generating article 110 through induction heating. Note that the structure in which the heating element 42 is disposed in the surroundings of the chamber 50 to raise the temperature of the flavor generating article 110 in the chamber 50 has been described, a method of raising the temperature of

the flavor generating article 110 in the chamber 50 may be a method of bringing the heating element 42 to direct contact with the flavor generating article 110 or may be a method of generating frictional heat due to vibration of substances in the flavor generating article 110.

REFERENCE SIGNS LIST

[0101]

40 Heating portion
40A Heat generating region
40B Non-heat generating region
42 Heating element
44 Electrically insulating member
50 Chamber
50A Heating region
50B Non-heating region
51, 51A to 51E Boss
62 Contact portion
66 Separated portion
100 Flavor inhaler
110 Flavor generating article
111 Filling portion
114 Tubular member

Claims

1. A flavor inhaler comprising:

an accommodating portion that includes an opening formed at one end and accommodates at least a part of a flavor generating article via the opening, the accommodating portion including contact portions that pressurize a part of the accommodated flavor generating article in an axial direction of the accommodating portion and a separated portion that is separated from the accommodated flavor generating article;
a heating portion that is disposed in the axial direction of the accommodating portion and heats the flavor generating article accommodated in the accommodating portion; and
gripping portions that grip the flavor generating article accommodated in the accommodating portion,
wherein the accommodating portion has a heating region that overlaps the heating portion and a non-heating region other than the heating region in a section perpendicularly intersecting the axial direction of the accommodating portion, and
the gripping portions are provided at the contact portions and in the heating region.

2. The flavor inhaler according to claim 1, wherein the gripping portions are protrusions that

project from an inner circumferential surface of the accommodating portion and pressurize the flavor generating article.

3. The flavor inhaler according to claim 2, wherein the protrusions have a dot shape.

4. The flavor inhaler according to claim 3,

wherein the contact portions are planes, and the protrusions are provided at positions that do not overlap a center axis of the accommodating portion when seen from a plane that is parallel with the contact portions.

5. The flavor inhaler according to claim 2, wherein the protrusions extend in the axial direction of the accommodating portion.

6. The flavor inhaler according to claim 2, wherein the protrusions extend in a direction perpendicularly intersecting the axial direction of the accommodating portion.

7. The flavor inhaler according to claim 2, wherein the protrusions extend in a direction inclined with respect to the axial direction of the accommodating portion and a direction perpendicularly intersecting the axial direction of the accommodating portion.

8. The flavor inhaler according to claim 7,

wherein the contact portions are a pair of mutually facing planes,
the protrusions are provided on the pair of planes, respectively,
end portions of the protrusions provided on the pair of planes, respectively, on a side opposite to the opening overlap each other when seen from a plane that is parallel with the contact portions, and
end portions of the protrusions provided on the pair of planes, respectively, on a side of the opening extend in a direction in which the end portions are separated from each other when seen from the plane that is parallel with the contact portions.

9. The flavor inhaler according to any one of claims 2 to 8,

wherein the protrusions are formed by embossing, and
at least a part of the protrusions is exposed on the side of the opening from the heating region.

10. The flavor inhaler according to any one of claims 1

to 9,

wherein the heating portion has

a heat generating element that generates heat, and
an insulating base element that supports the heat generating element,

the heat generating element and the base element form, in the heating region, a heat generating region where the heat generating element is disposed and a non-heat generating region, which is adjacent to the heat generating region on the side of the opening, the heating generating element being not disposed in the non-heat generating region, and
the gripping portions are provided in the non-heat generating region.

11. The flavor inhaler according to any one of claims 1 to 10, further comprising:

support portions that support the flavor generating article accommodated in the accommodating portion,
wherein the support portions are provided at the separated portion and in the heating region.

12. The flavor inhaler according to claim 11,

wherein the support portions are protrusions formed by embossing, and
at least a part of the support portions is exposed on the side of the opening from the heating region.

13. The flavor inhaler according to claim 11 or 12,

wherein the gripping portions include a pair of first protrusions aligned in a first direction, the support portions include a pair of second protrusions aligned in a second direction, and the first direction and the second direction intersect each other.

14. The flavor inhaler according to claim 13,

wherein the first direction is a direction perpendicularly intersecting the axial direction of the accommodating portion, and
the second direction is a direction along the axial direction of the accommodating portion.

15. The flavor inhaler according to claim 13 or 14, wherein a size of the first protrusions is smaller than a size of the second protrusions.

16. The flavor inhaler according to any one of claims 13 to 15,

wherein one of the pair of second protrusions is provided in the heat generating region in the heating region, and
the other one of the pair of second protrusions is provided in the non-heat generating region in the heating region.

17. The flavor inhaler according to any one of claims 13 to 16,

wherein one and the other one of the pair of second protrusions are formed to be connected to each other by embossing, and
at least a part of the pair of second protrusions is exposed on the side of the opening from the heating region.

18. A smoking system comprising:

a flavor inhaler; and a flavor generating article, wherein the flavor inhaler includes

an accommodating portion that includes an opening formed at one end and accommodates at least a part of the flavor generating article via the opening, the accommodating portion including contact portions that pressurize a part of the accommodated flavor generating article in an axial direction of the accommodating portion and a separated portion that is separated from the accommodated flavor generating article, a heating portion that is disposed in the axial direction of the accommodating portion and heats the flavor generating article accommodated in the accommodating portion, and
gripping portions that grip the flavor generating article accommodated in the accommodating portion,

the accommodating portion has a heating region that overlaps the heating portion and a non-heating region other than the heating region in a section perpendicularly intersecting the axial direction of the accommodating portion, the flavor generating article includes

a filling portion that is filled with a smokable article, and
a hollow tubular portion that is provided continuously with the filling portion, and

the gripping portions are provided in the contact portion and the heating region and in the vicinity

of a boundary between the filling portion and the tubular portion.

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Fig. 1A

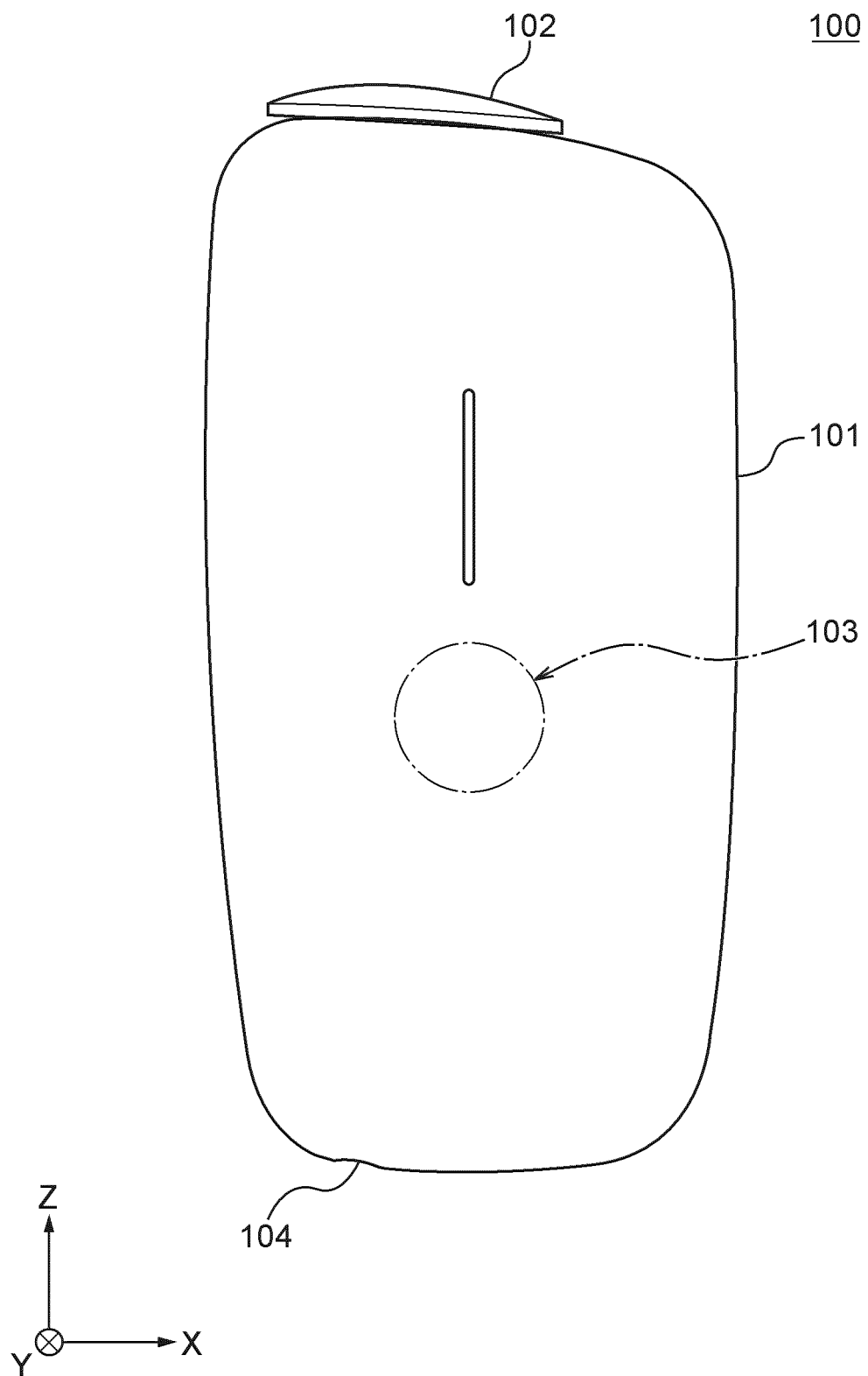


Fig. 1B

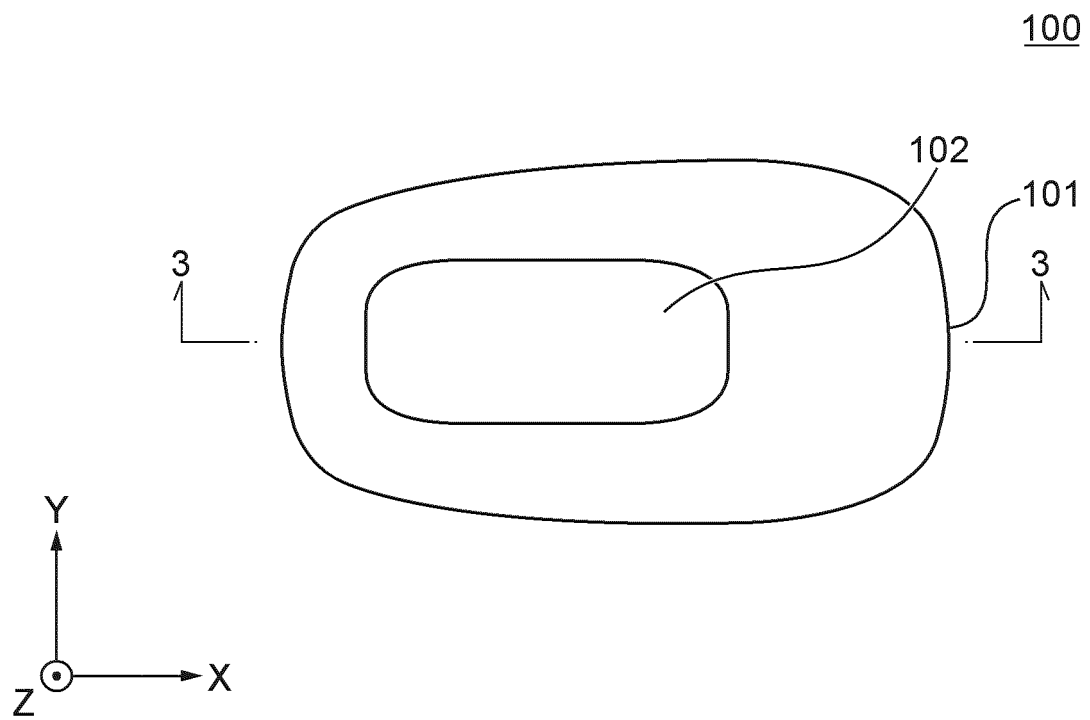


Fig. 1C

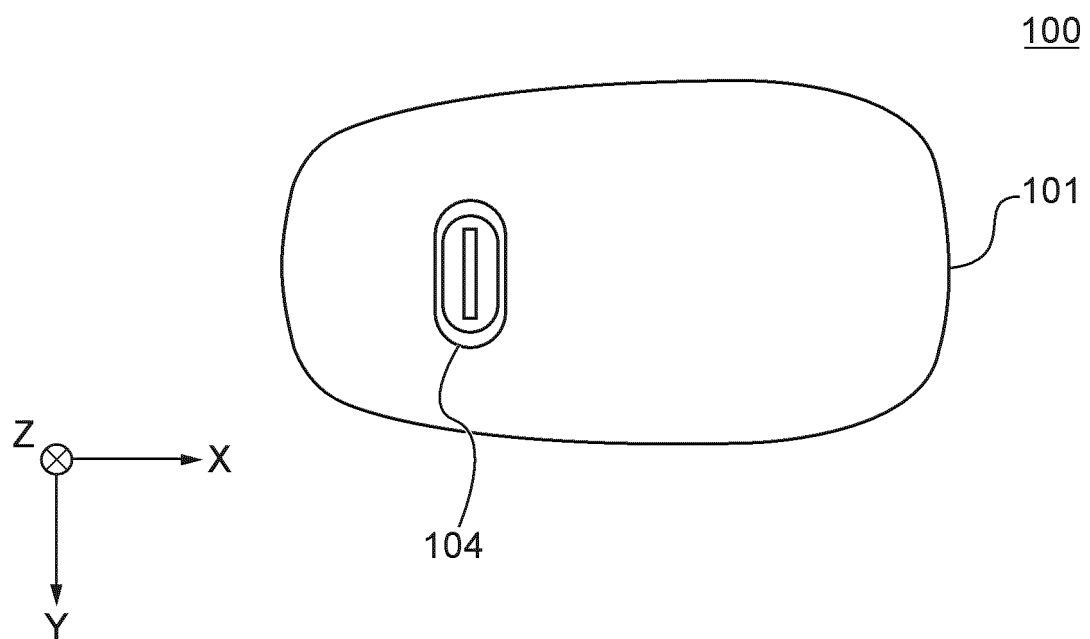


Fig. 2

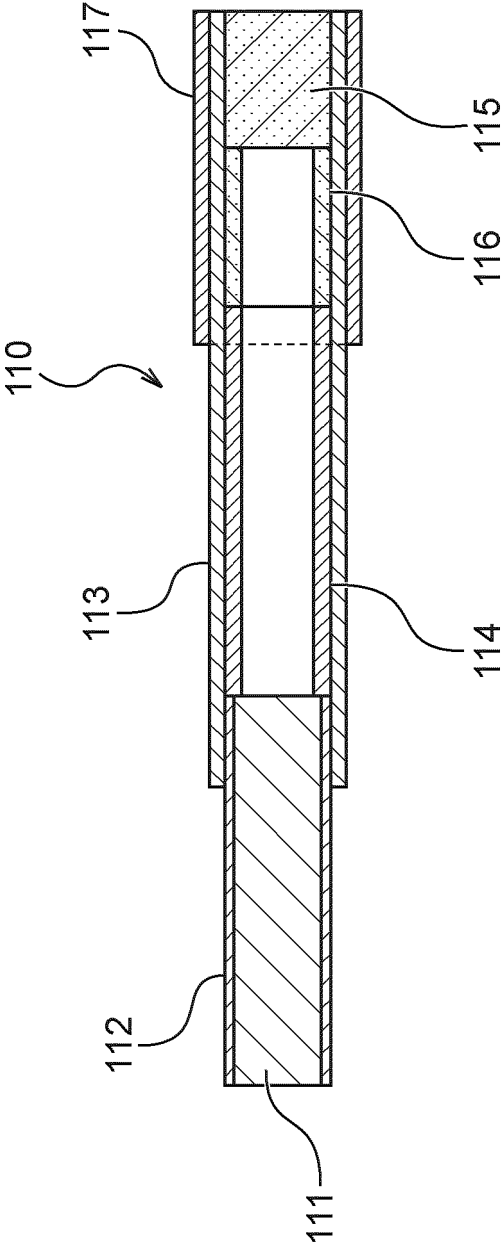


Fig. 3

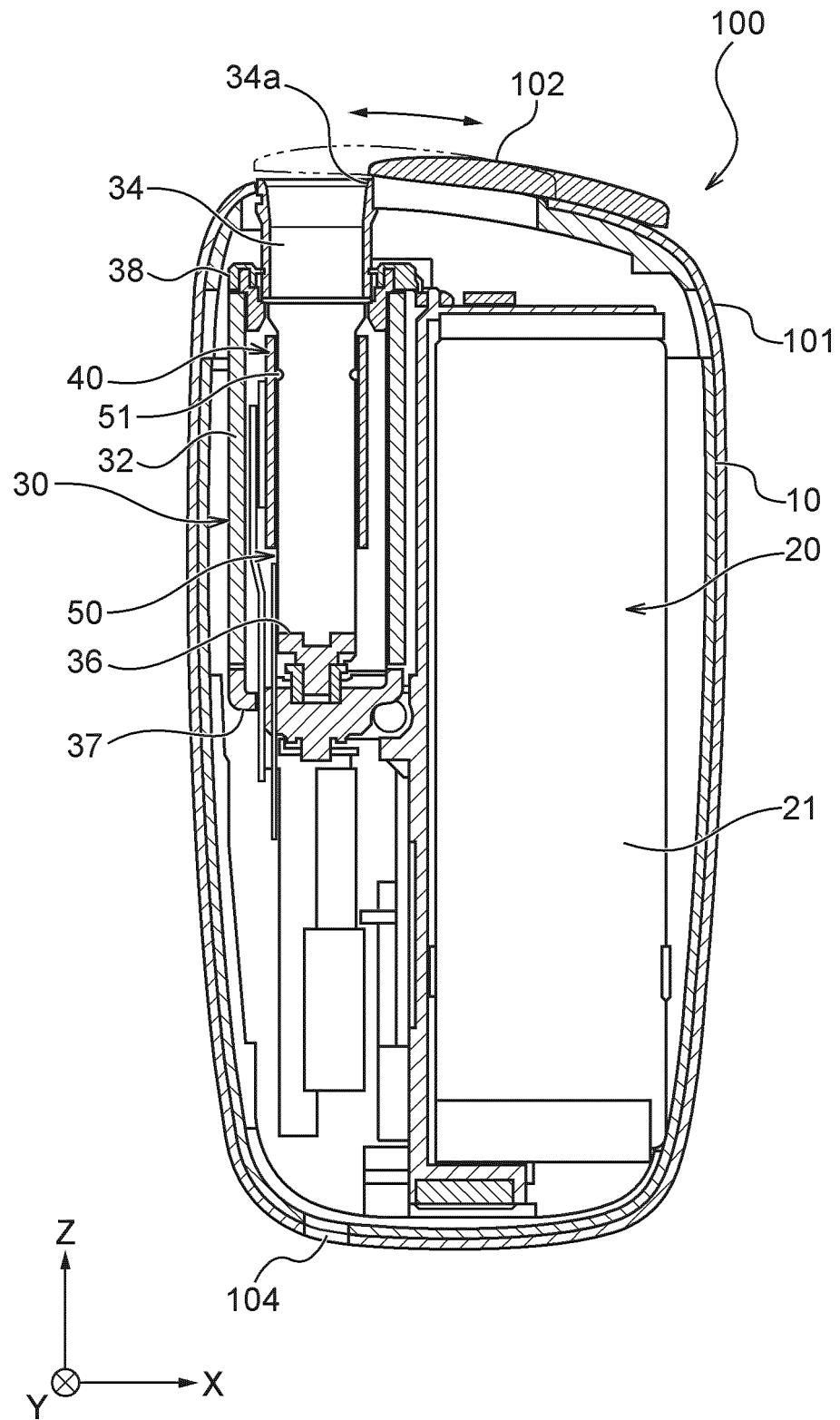


Fig. 4A

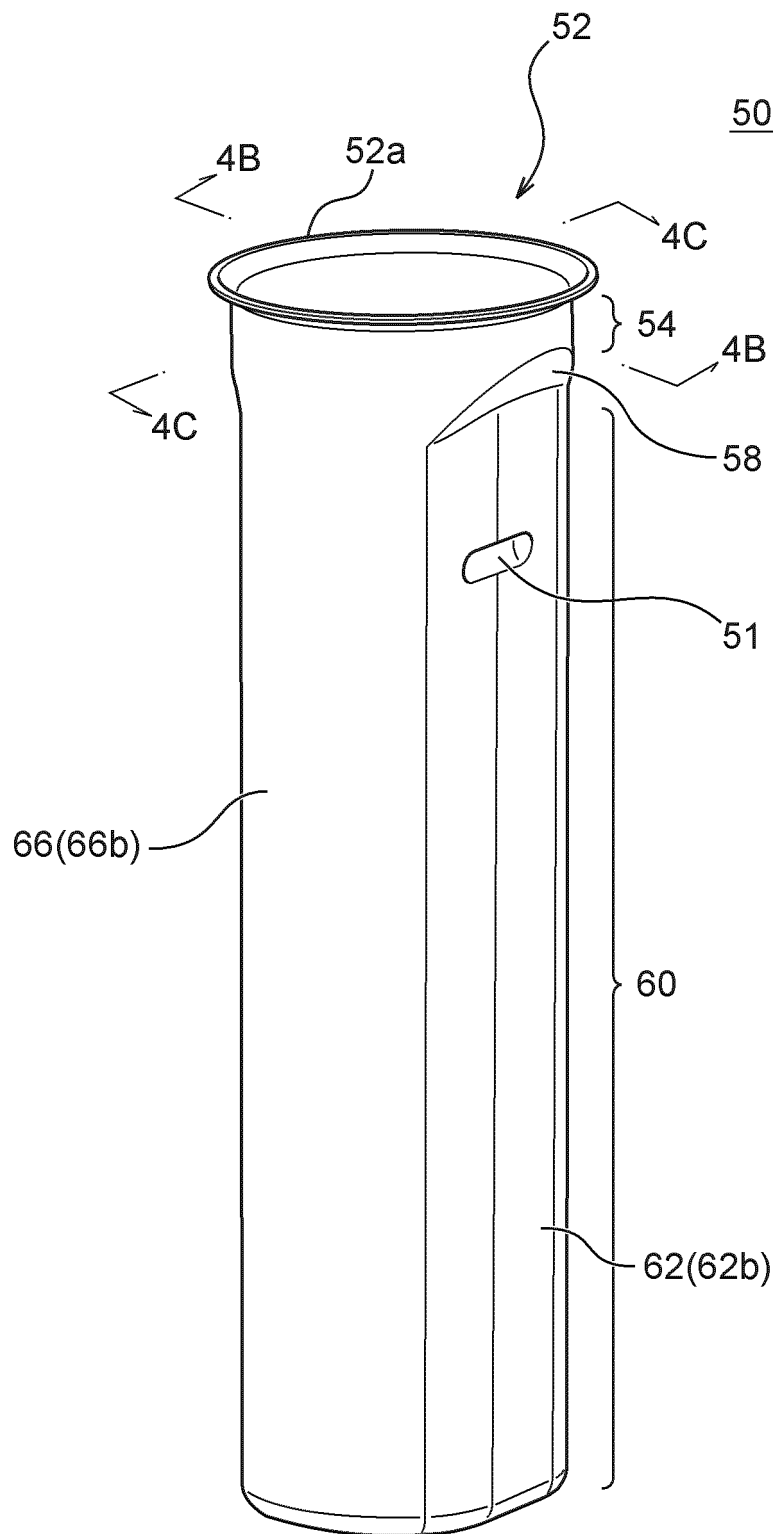


Fig. 4B

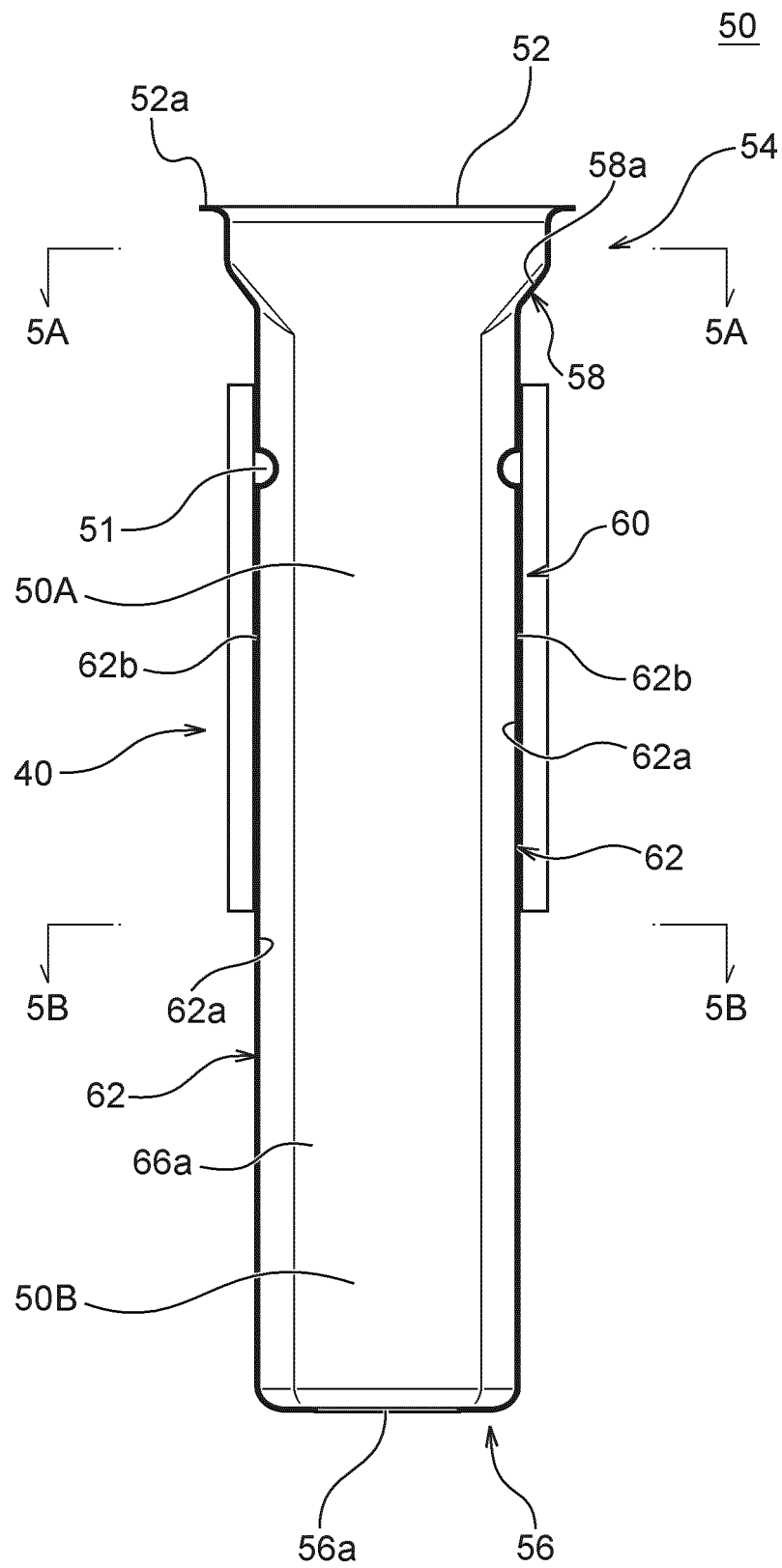


Fig. 4C

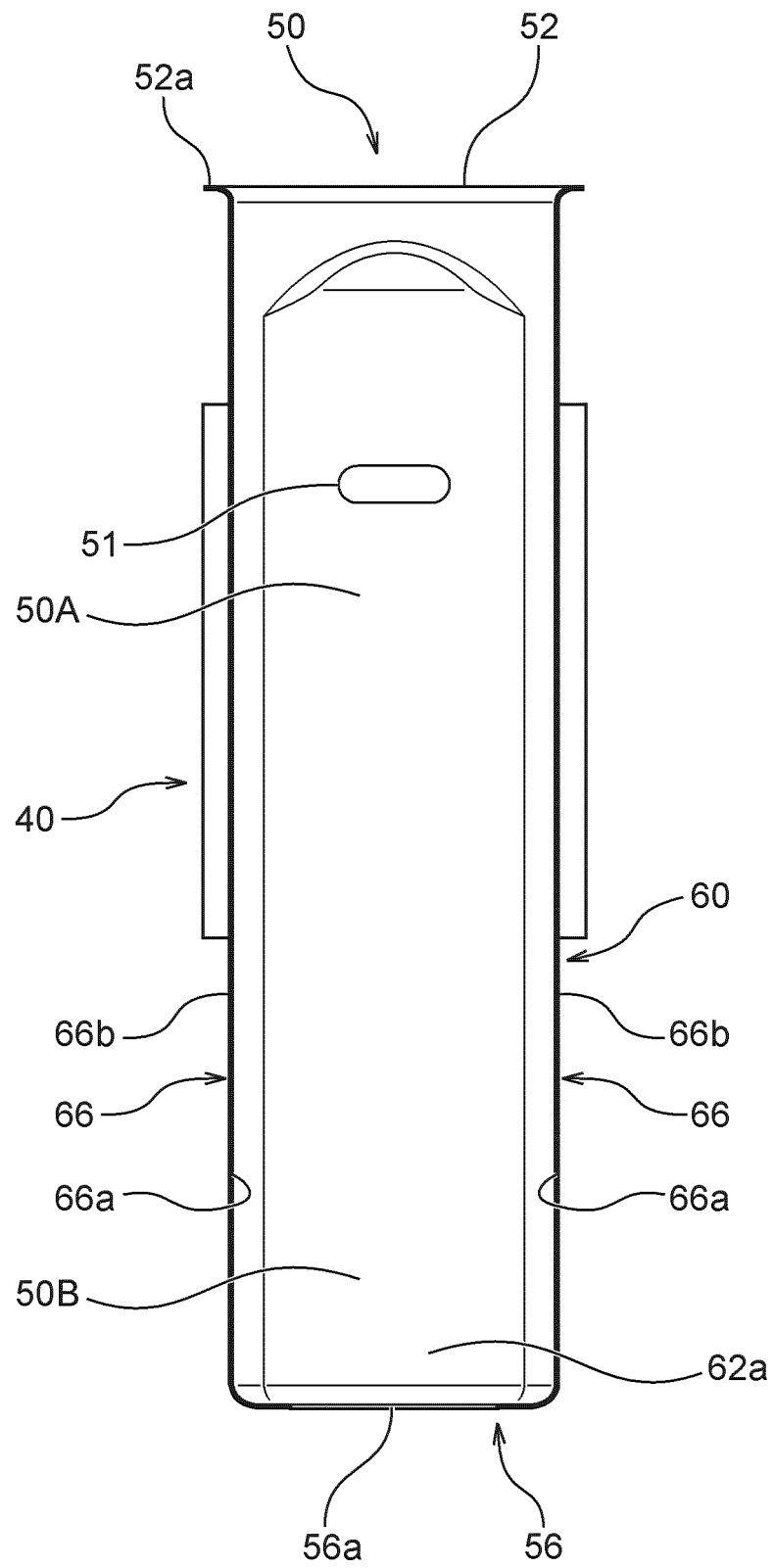


Fig. 5A

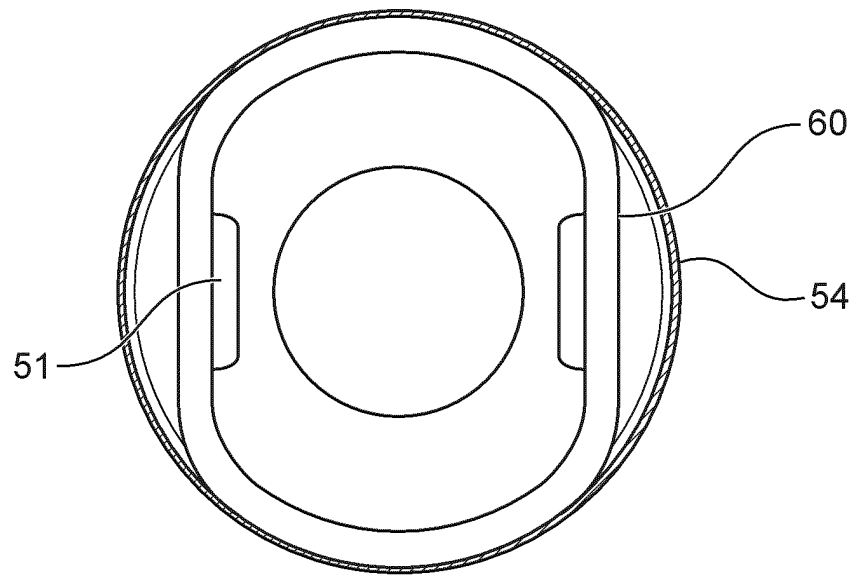


Fig. 5B

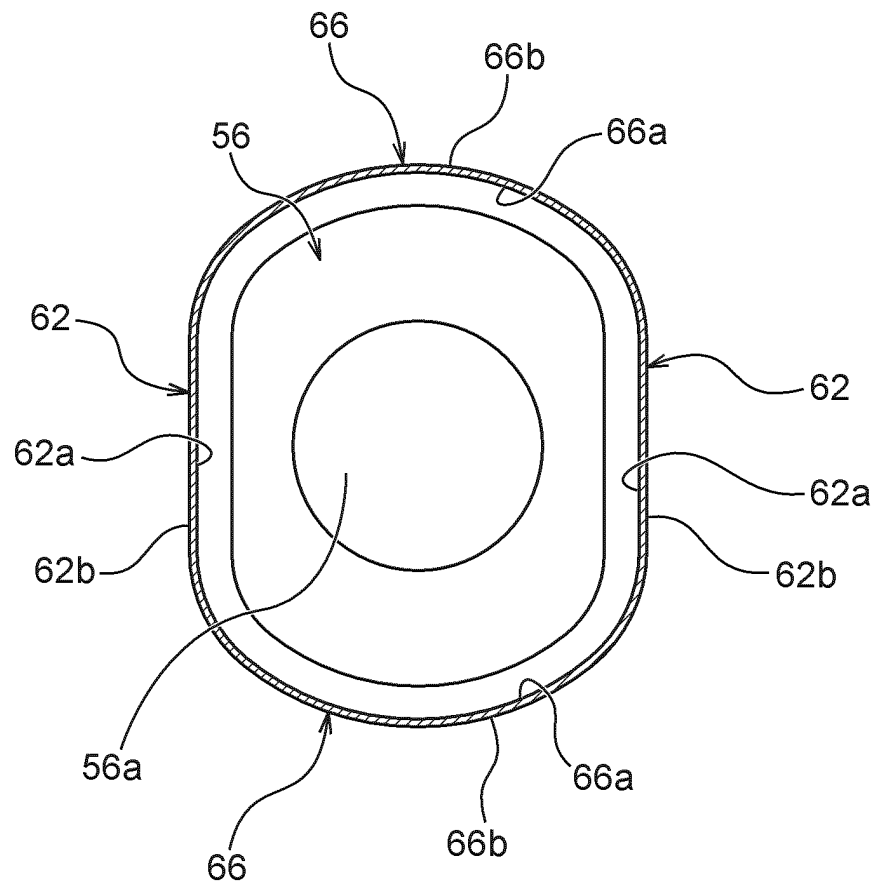


Fig. 6

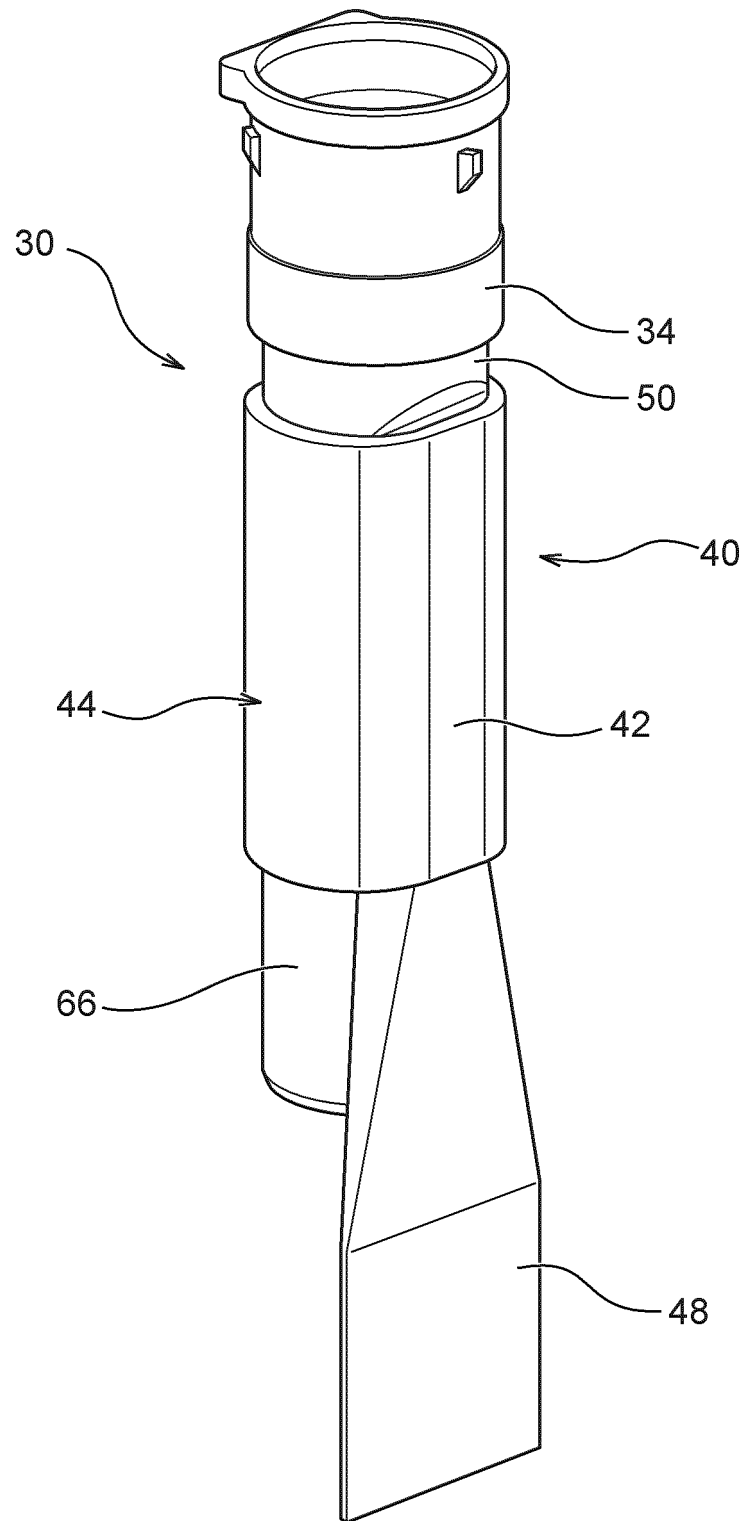


Fig. 7

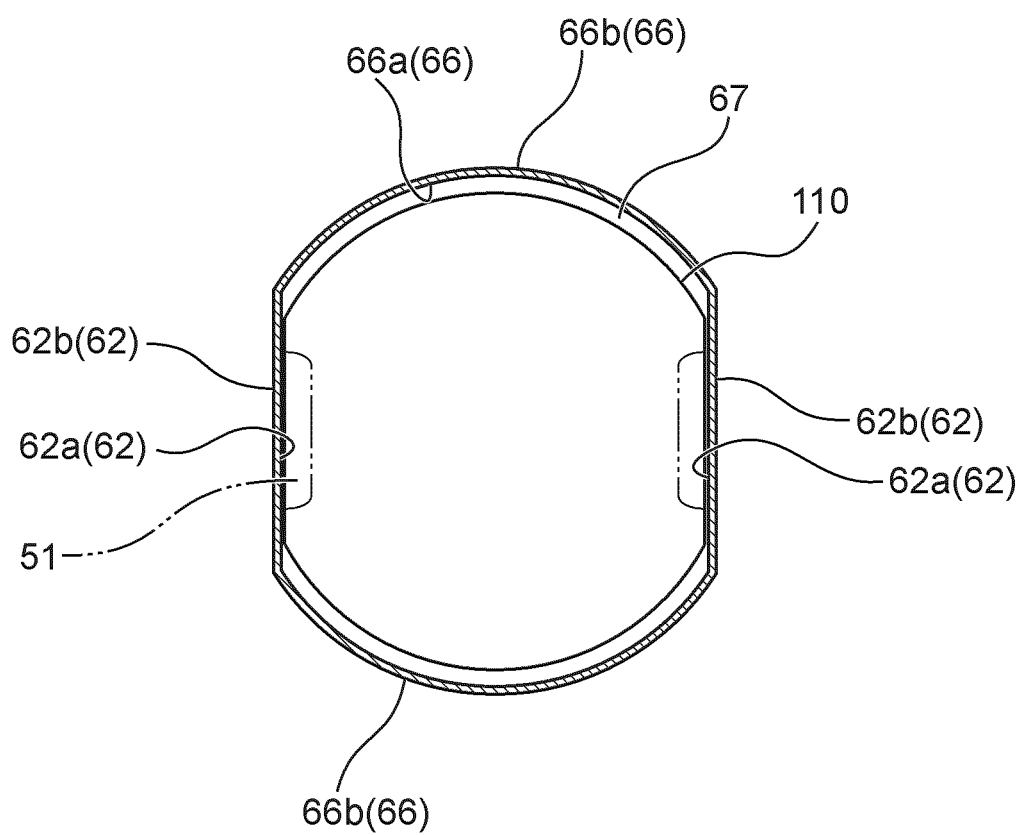


Fig. 8

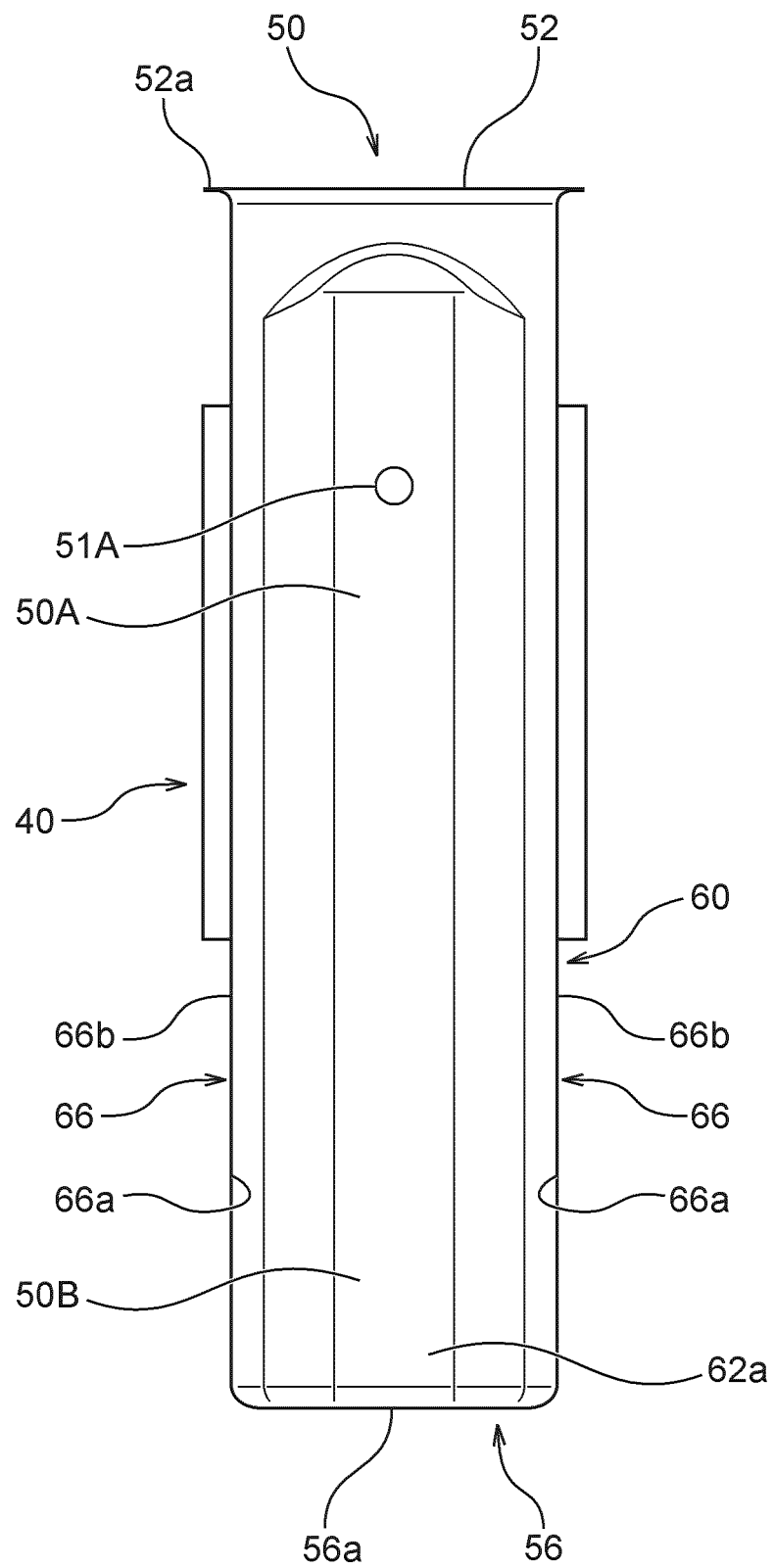


Fig. 9

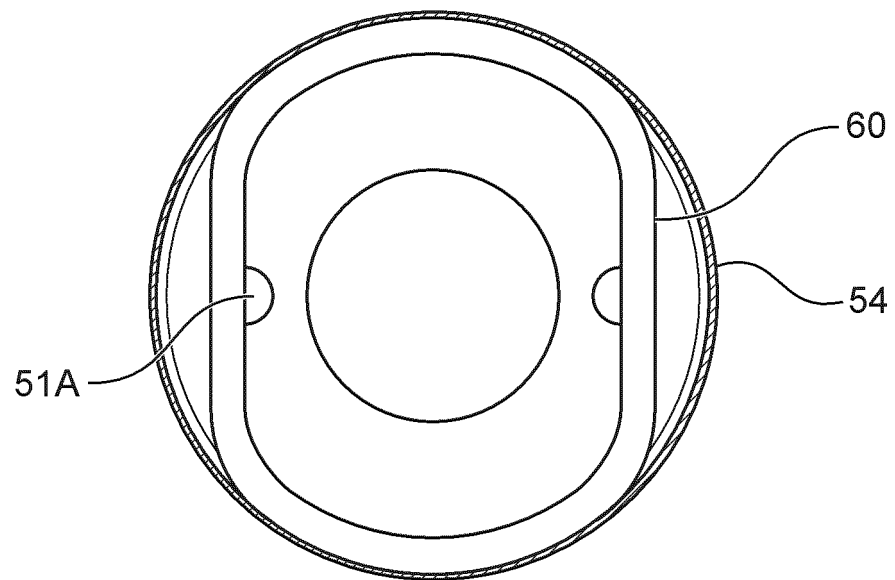


Fig. 10

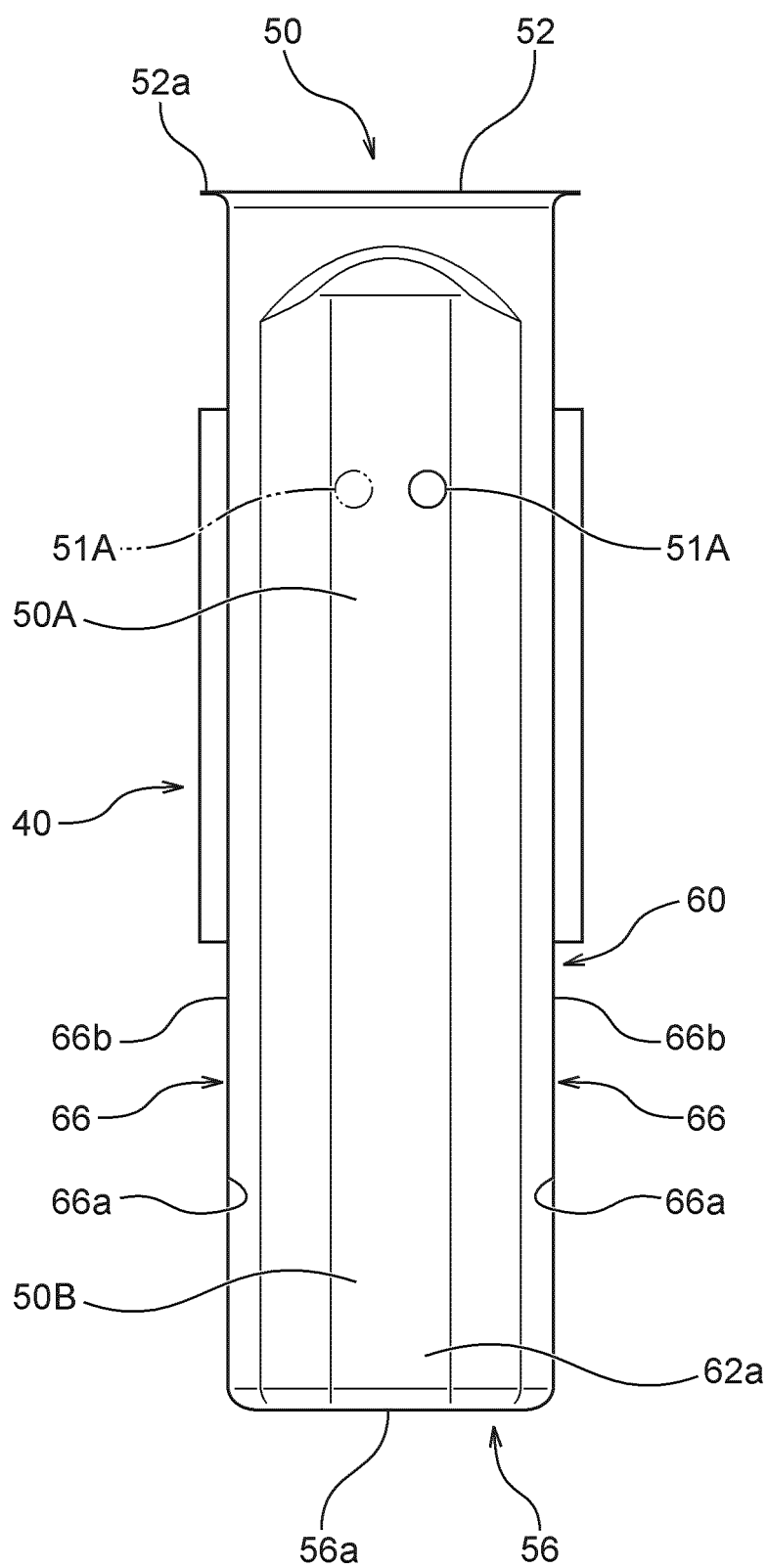


Fig. 11

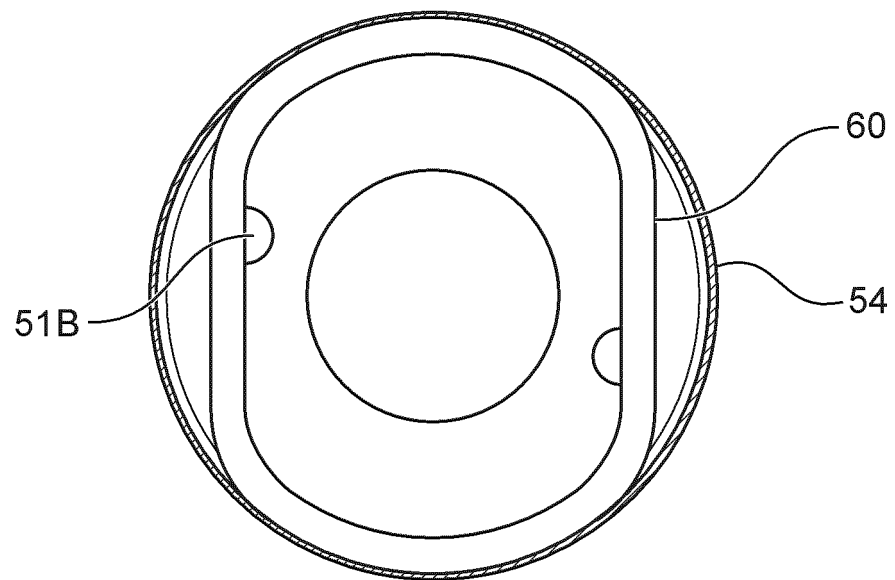


Fig. 12

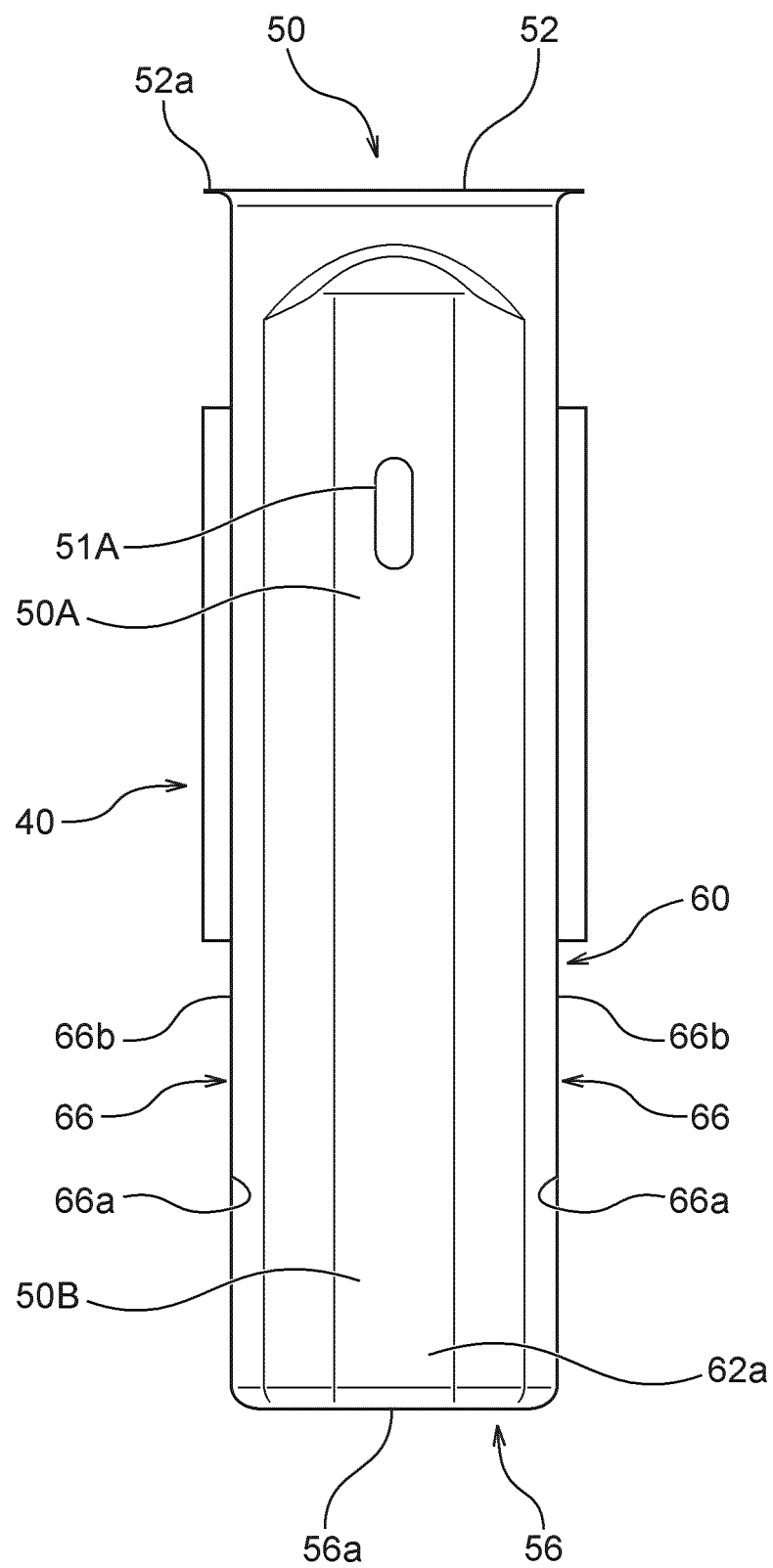


Fig. 13

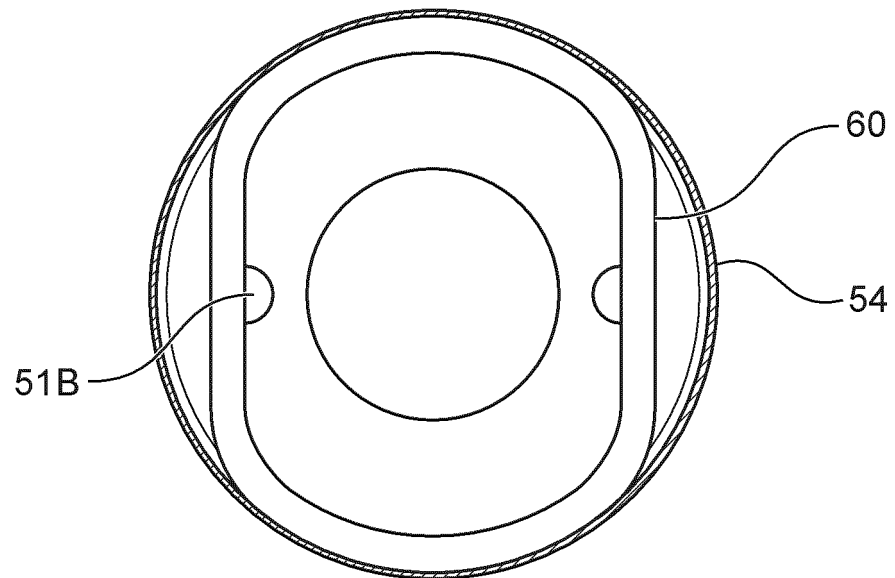


Fig. 14

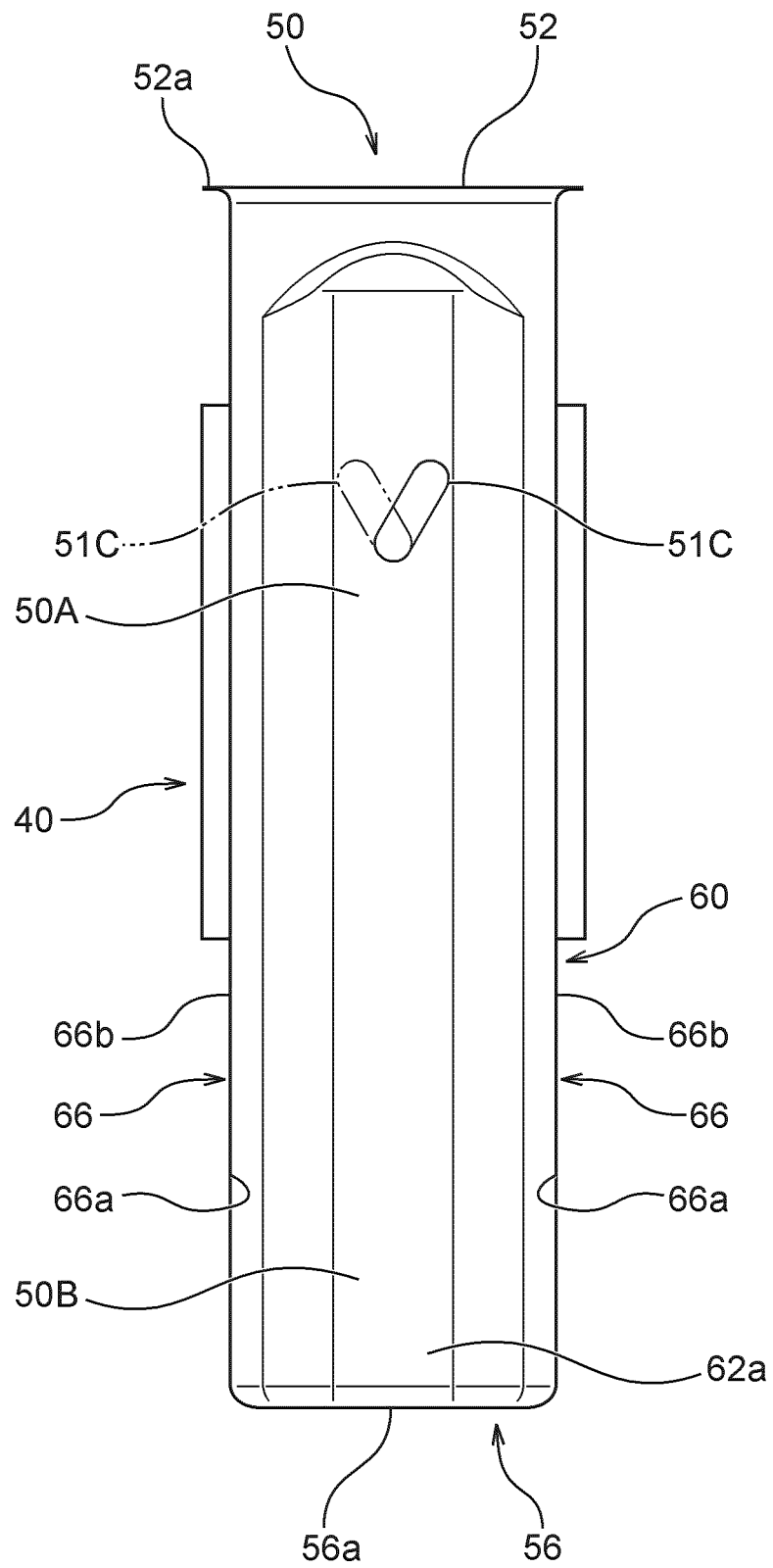


Fig. 15

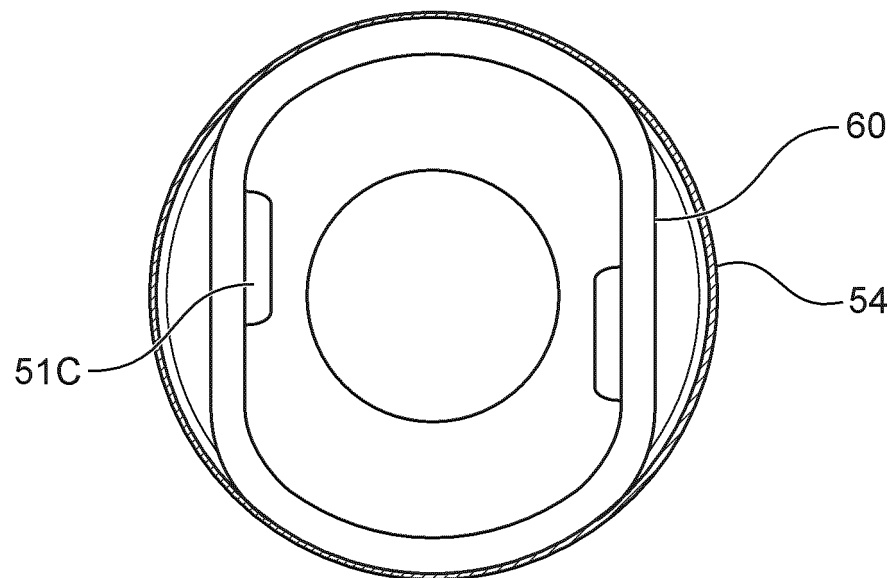


Fig. 16

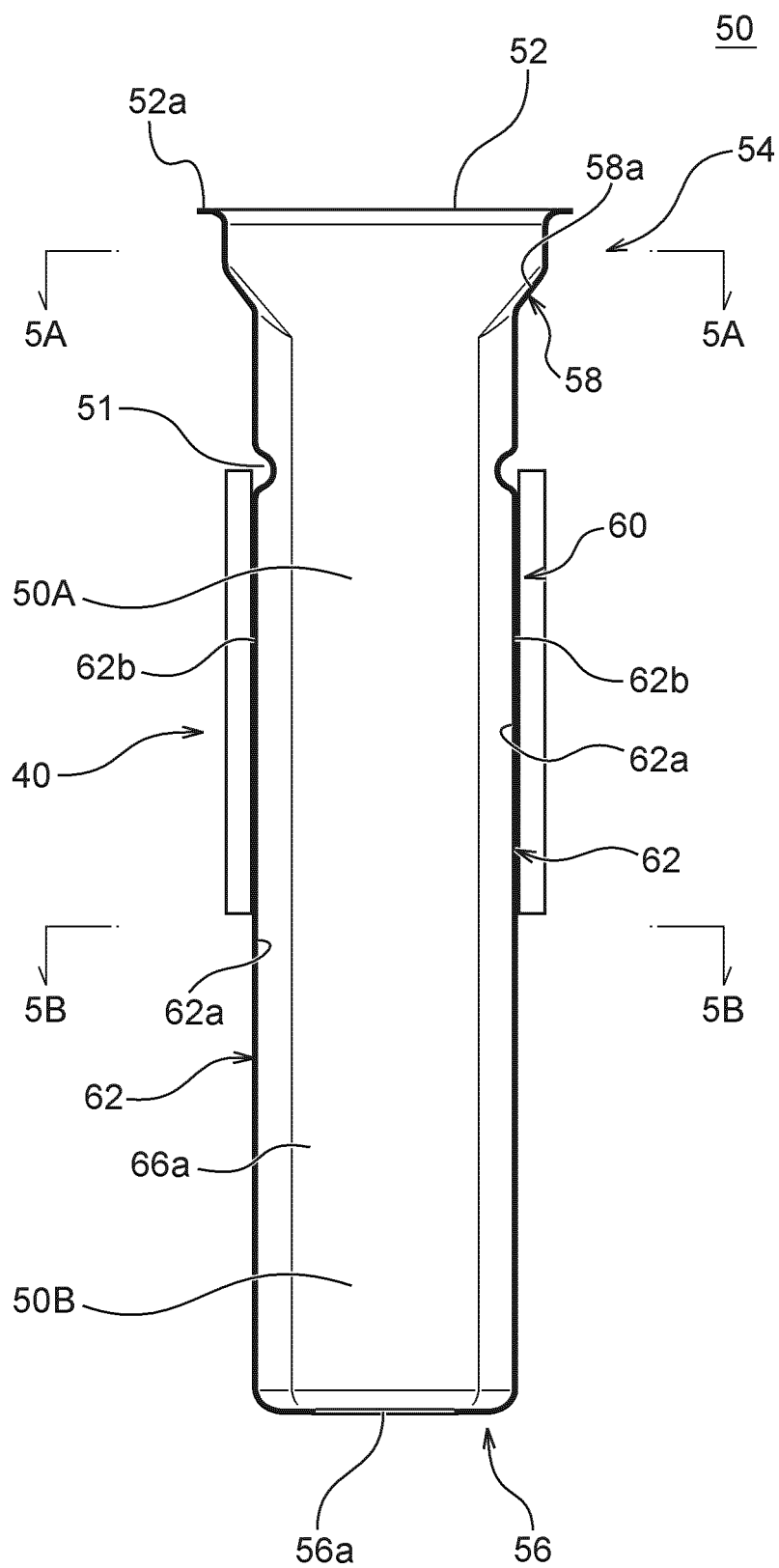


Fig. 17

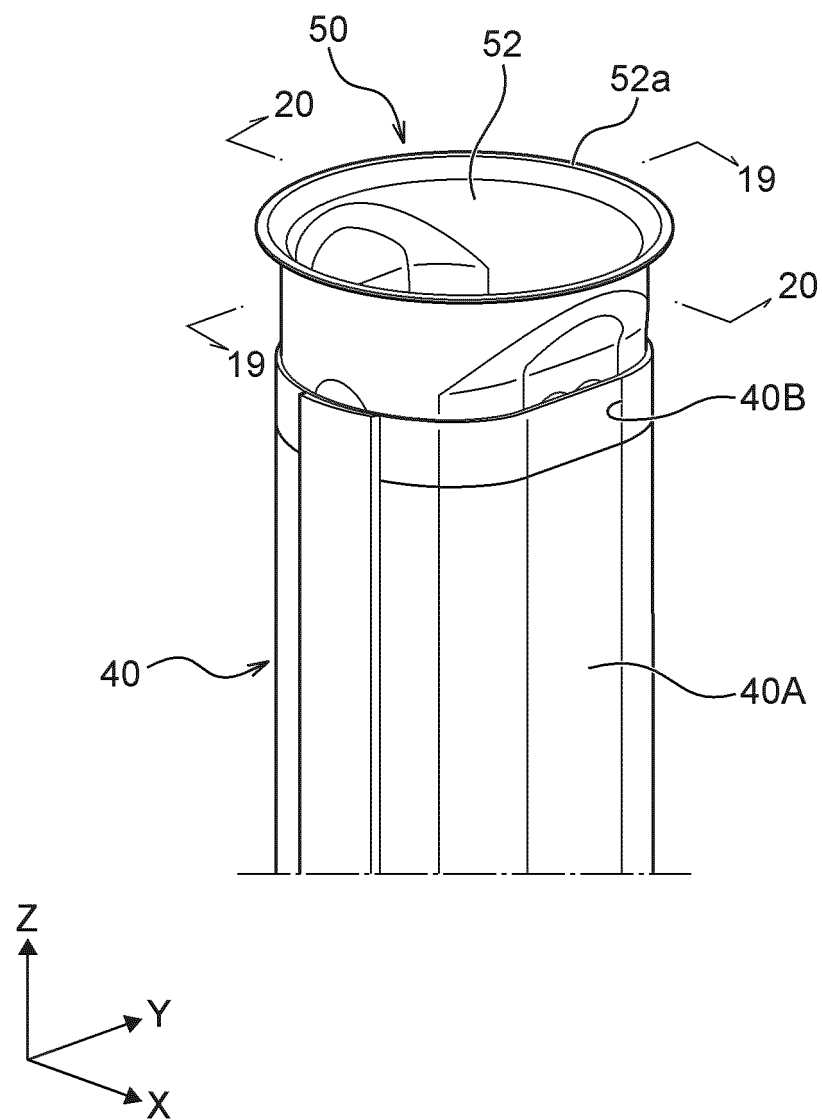


Fig. 18

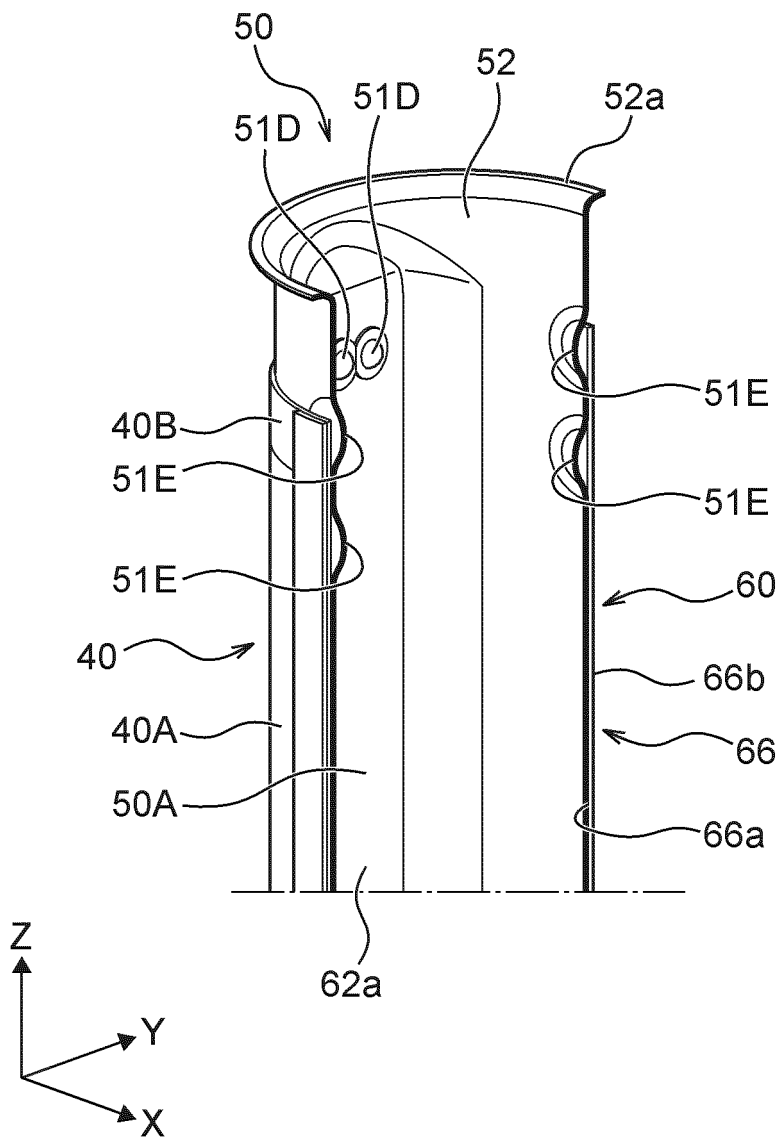


Fig. 19

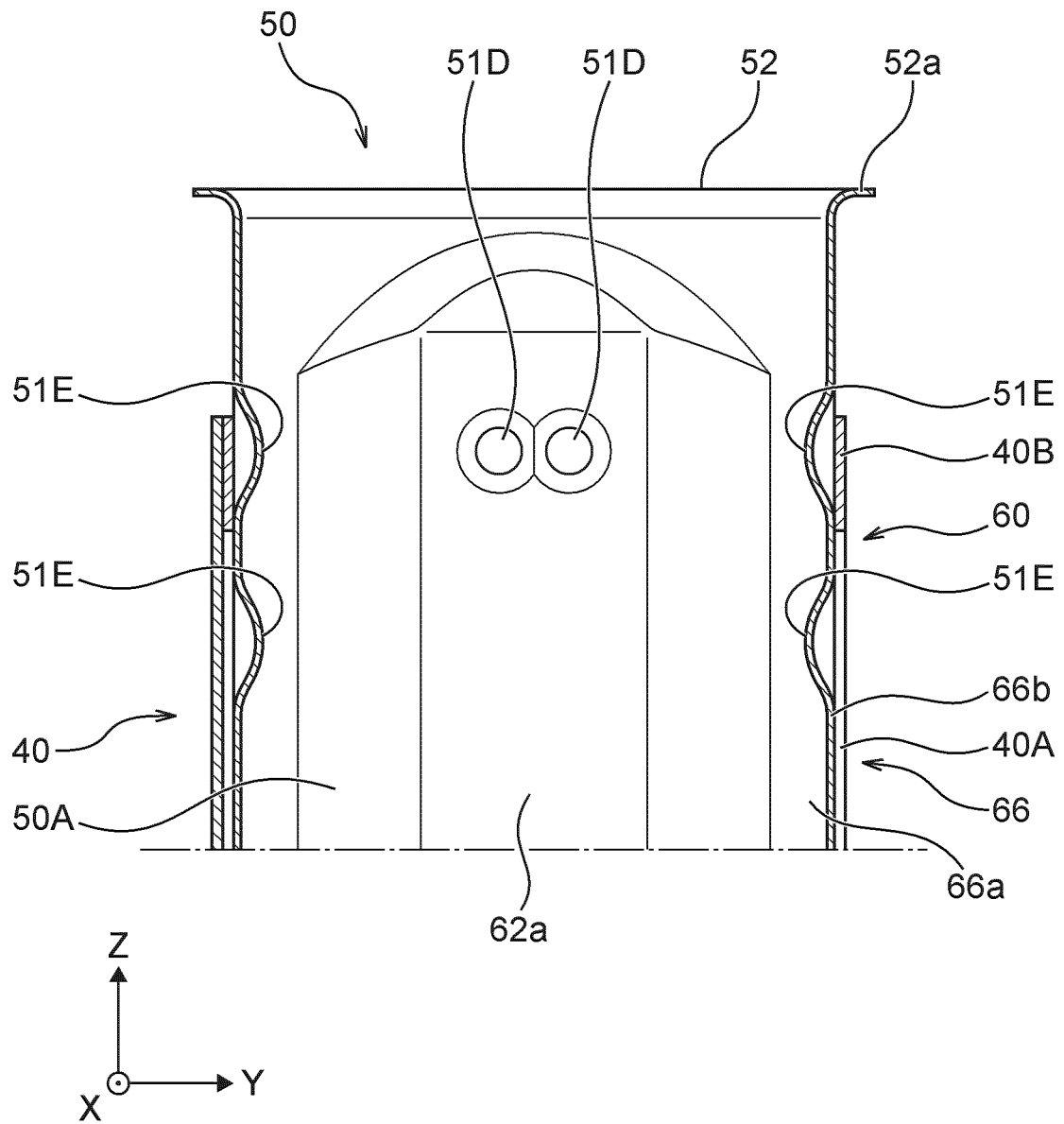


Fig. 20

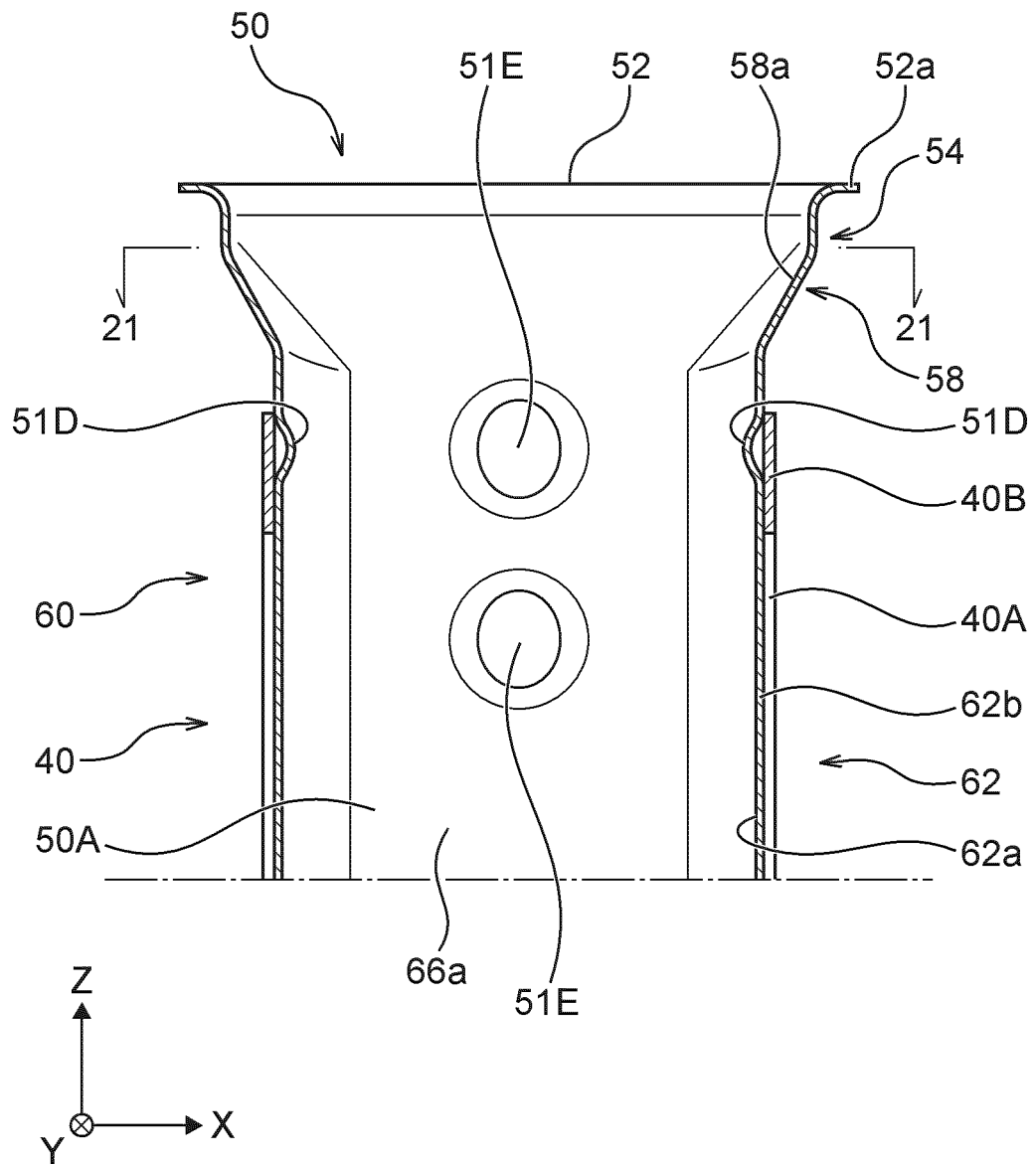


Fig. 21

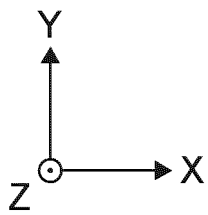
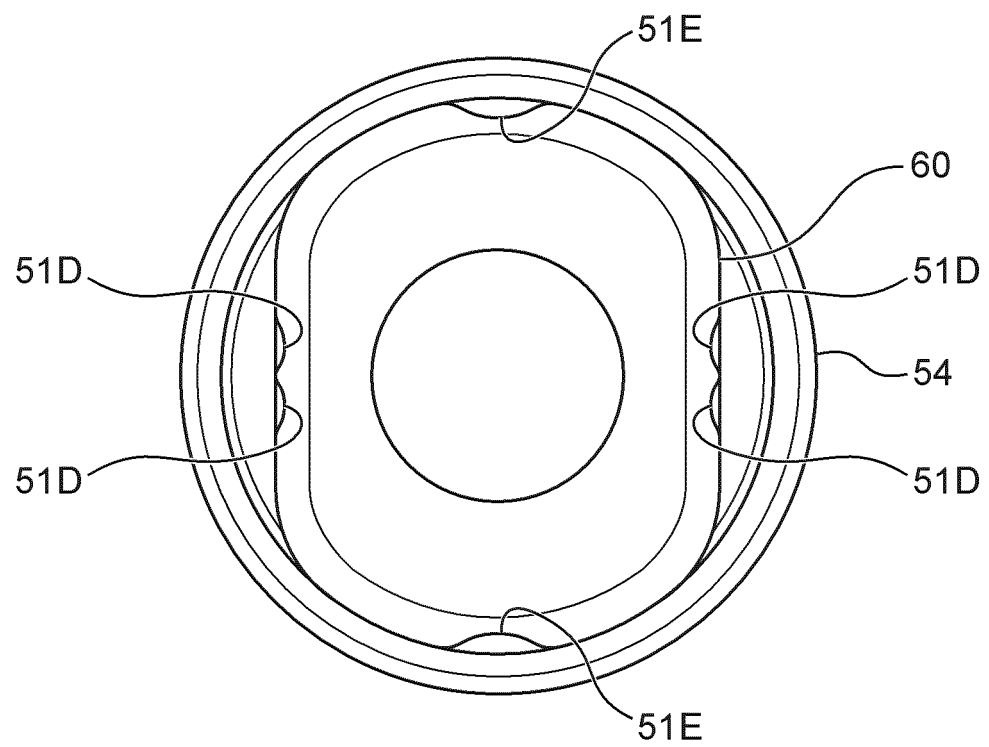
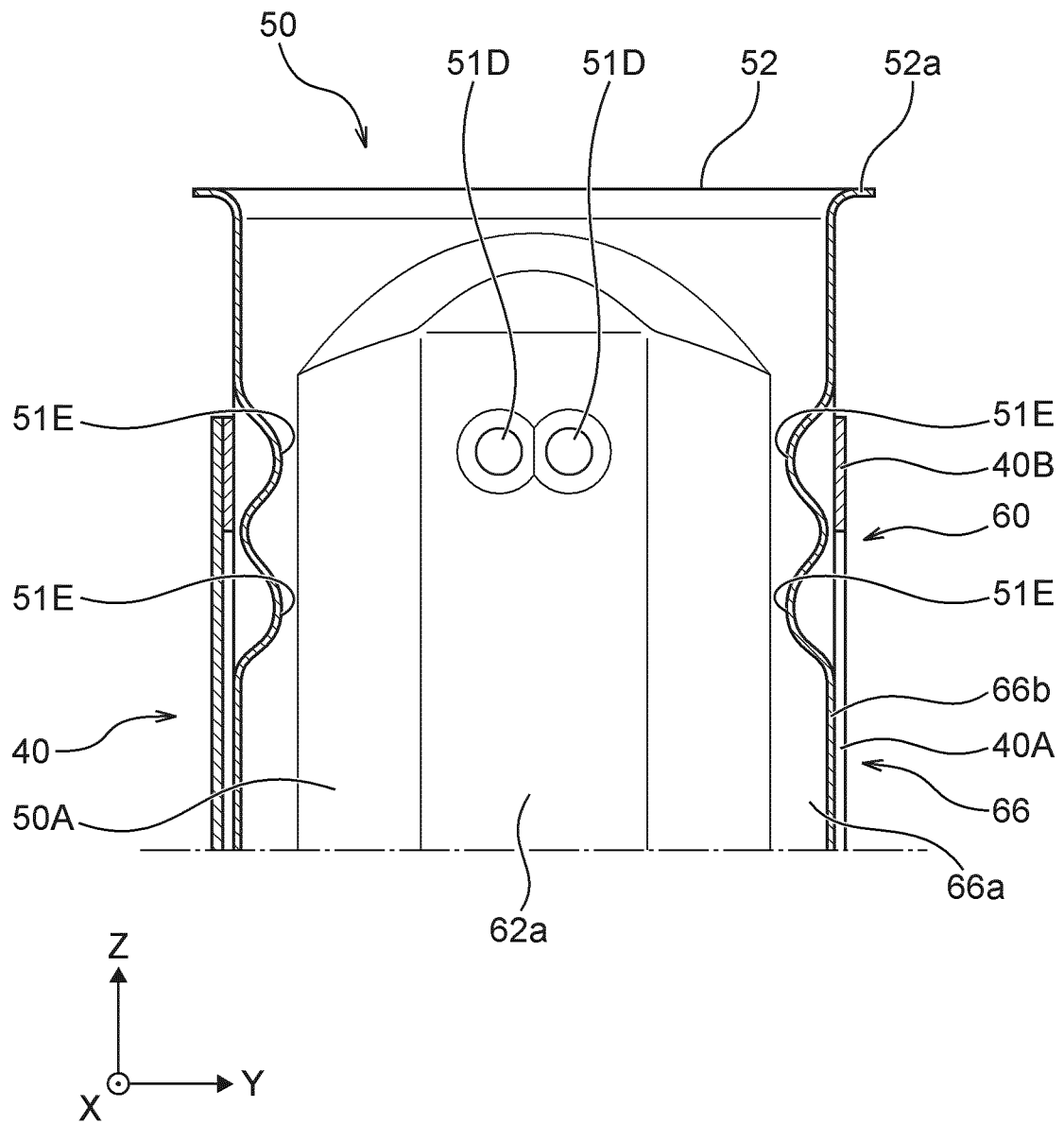


Fig. 22



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2021/016904

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A. CLASSIFICATION OF SUBJECT MATTER

A24F 40/40(2020.01)i

FI: A24F40/40

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

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A24F40/40

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 1971-2021

Registered utility model specifications of Japan 1996-2021

Published registered utility model applications of Japan 1994-2021

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2019-521656 A (BRITISH AMERICAN TOBACCO (INVESTMENTS) LIMITED) 08 August 2019 (2019-08-08) paragraph [0033]	1-18
A	JP 2014-533513 A (PHILIP MORRIS PRODUCTS S.A) 15 December 2014 (2014-12-15) entire text, all drawings	1-18
A	JP 2020-516268 A (KT & G CORP) 11 June 2020 (2020-06-11) entire text, all drawings	1-18
A	JP 2020-505040 A (PHILIP MORRIS PRODUCTS S.A) 20 February 2020 (2020-02-20) entire text, all drawings	1-18
A	JP 2019-528734 A (PHILIP MORRIS PRODUCTS S.A) 17 October 2019 (2019-10-17) entire text, all drawings	1-18



Further documents are listed in the continuation of Box C.



See patent family annex.

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

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

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

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

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"&" document member of the same patent family

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Date of the actual completion of the international search
02 July 2021 (20.07.2021)Date of mailing of the international search report
13 July 2021 (13.07.2021)

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Name and mailing address of the ISA/
Japan Patent Office
3-4-3, Kasumigaseki, Chiyoda-ku,
Tokyo 100-8915, Japan

Authorized officer

Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No. PCT/JP2021/016904
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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 108323823 A (WEITAO ELECTRONIC TECH SHENZHEN CO LTD) 27 July 2018 (2018-07-27) entire text, all drawings	1-18

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INTERNATIONAL SEARCH REPORT
 Information on patent family members

International application No.

PCT/JP2021/016904

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JP 2019-521656 A	08 Aug. 2019	WO 2017/194763 A2 page 8, line 22 to page 9, line 6 US 2019/0208816 A1 CN 109195463 A	
JP 2014-533513 A	15 Dec. 2014	KR 10-2018-0134974 A WO 2013/076098 A2 entire text, all drawings US 2015/0013696 A1 EP 2782463 B1 CN 103997922 A	
JP 2020-516268 A	11 Jun. 2020	KR 10-2014-0093694 A US 2020/0154765 A1 entire text, all drawings EP 3610741 A1 CN 110494053 A	
JP 2020-505040 A	20 Feb. 2020	WO 2018/190606 A1 KR 10-2018-0070454 A WO 2018/141467 A1 entire text, all drawings US 2018/0214645 A1 EP 3576554 B1 CN 110167368 A	
JP 2019-528734 A	17 Oct. 2019	KR 10-2019-0111018 A WO 2018/050735 A1 entire text, all drawings US 2019/0230989 A1 CN 109640717 A	
CN 108323823 A	27 Jul. 2018	KR 10-2019-0046974 A (Family: none)	

Form PCT/ISA/210 (patent family annex) (January 2015)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- CN 205052881 [0003]