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(54) **FLAVOR INHALER**

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CPC ***A24F 40/46*** (2020.01); ***A24F 40/20*** (2020.01); ***A24F 40/48*** (2020.01)

(57) **ABSTRACT**

To obtain a flavor inhaler including an accommodating portion exhibiting high workability. A flavor inhaler includes an accommodating portion that accommodates at least a part of a flavor generating article, and the accommodating portion includes a tubular portion that surrounds a circumference of the flavor generating article and an abutting portion that is formed of a member different from the tubular portion and abuts the flavor generating article accommodated in the accommodating portion.

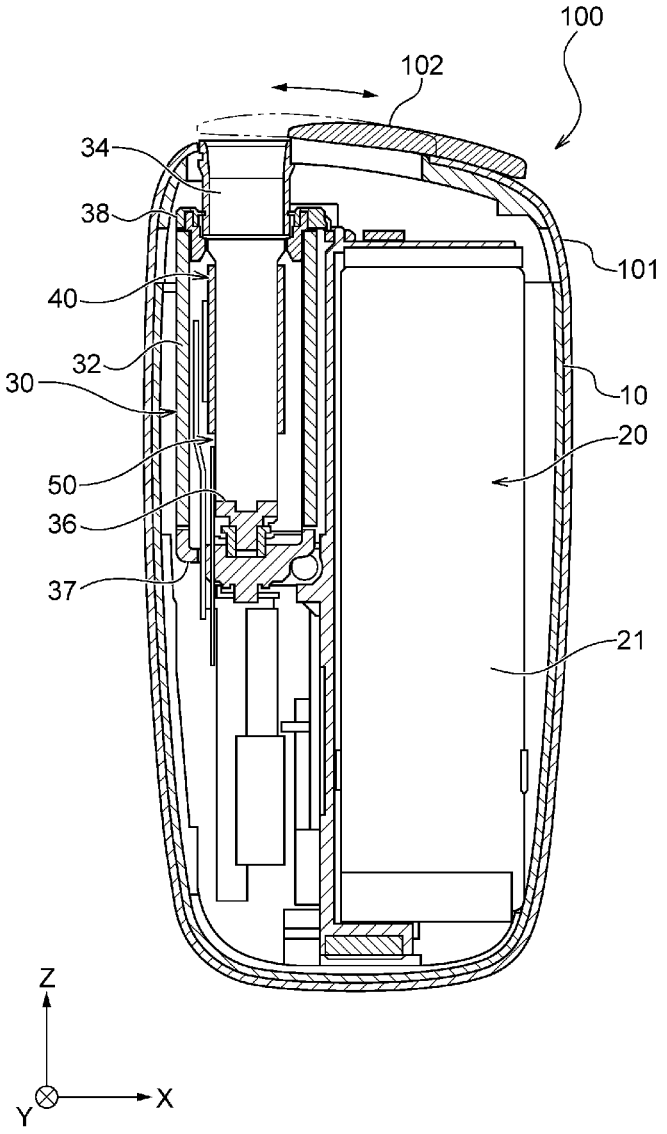


Fig. 1A

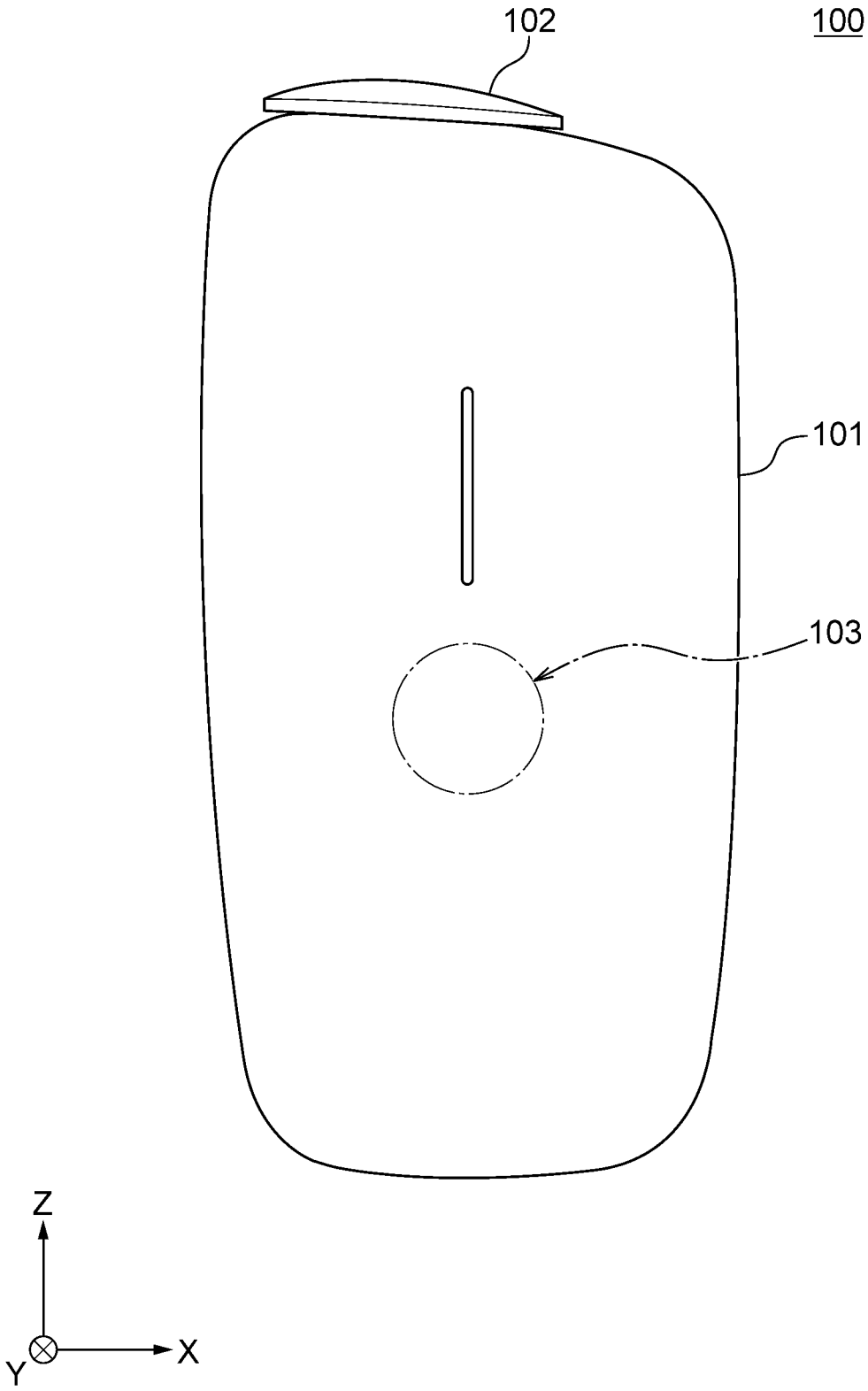


Fig. 1B

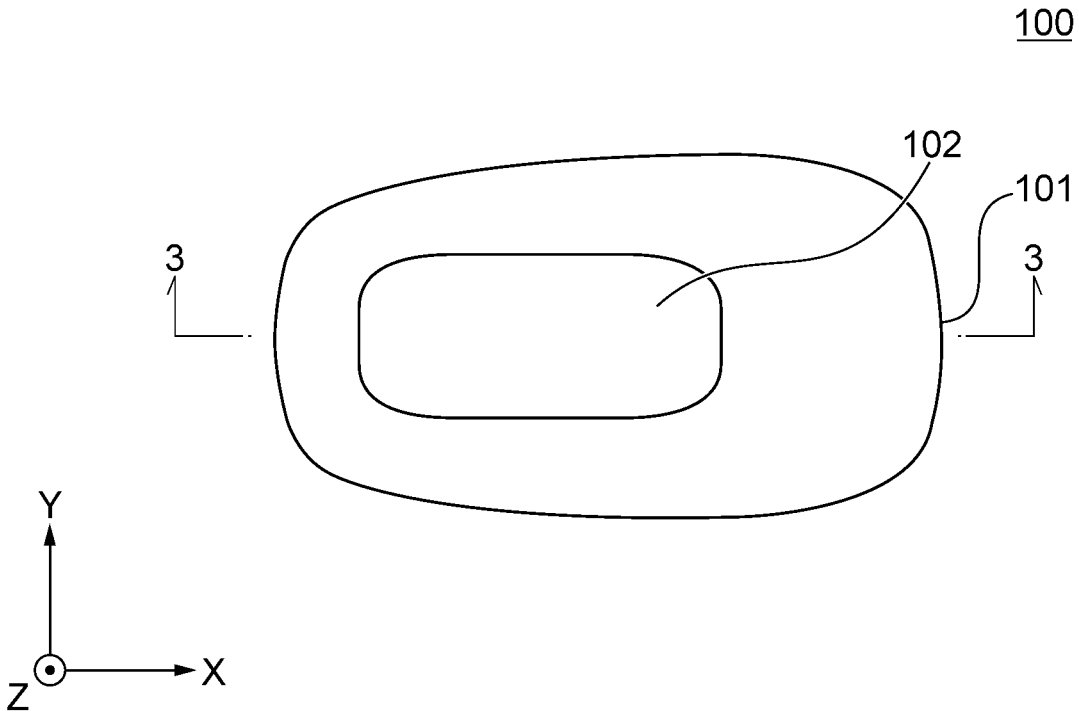
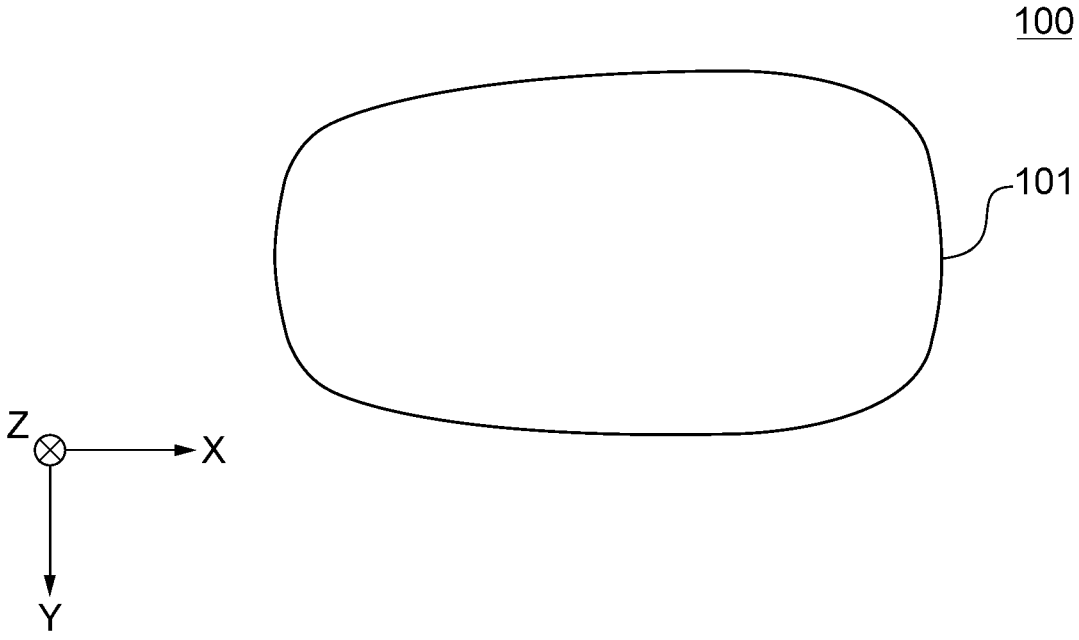


Fig. 1C



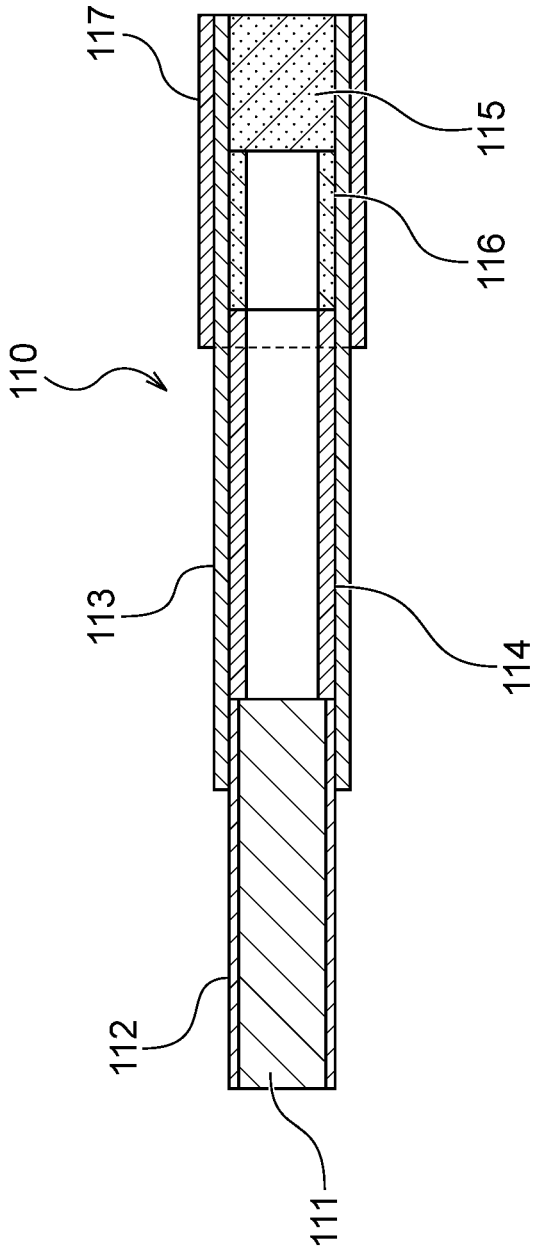


Fig. 2

Fig. 3

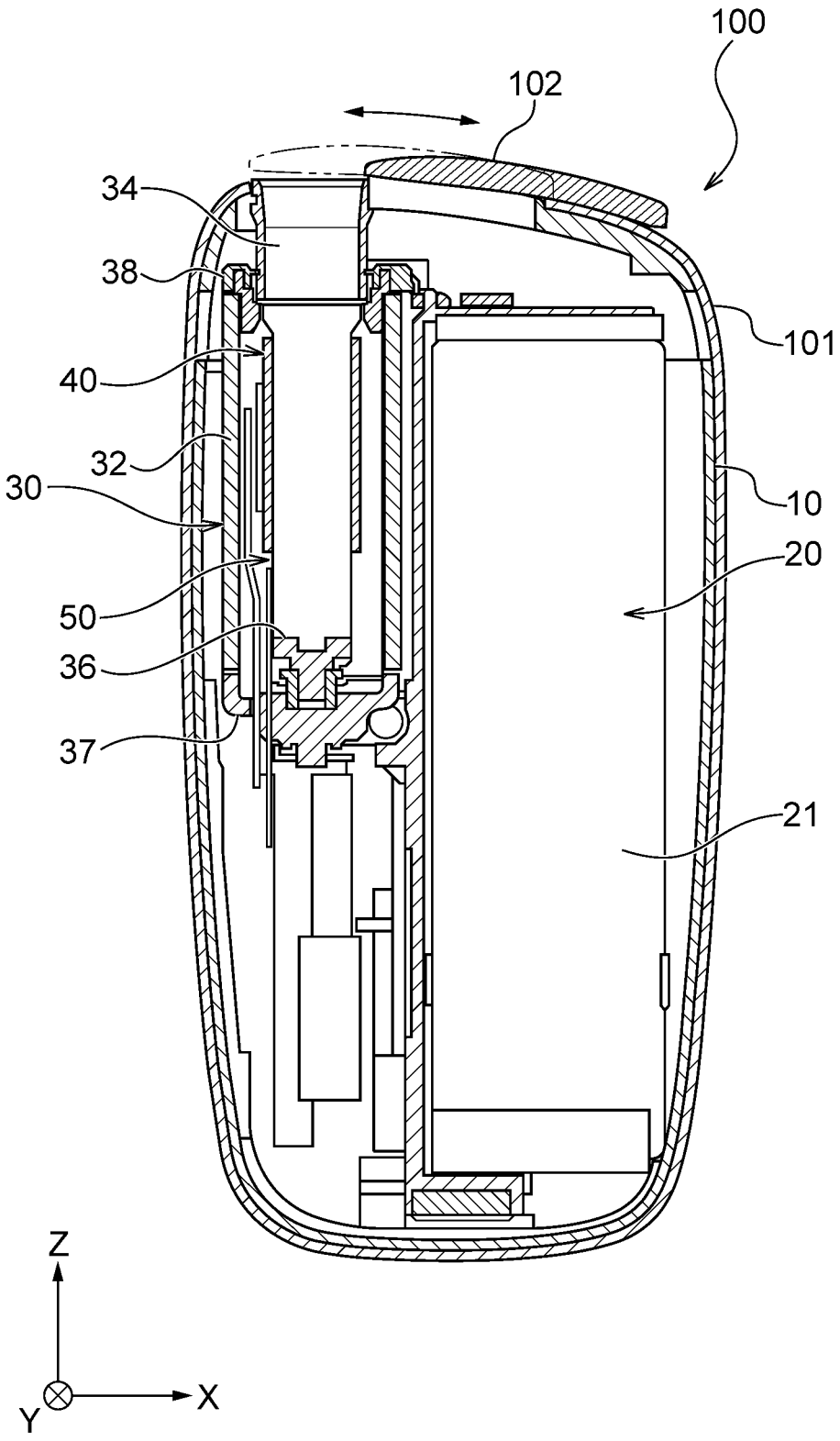


Fig. 4A

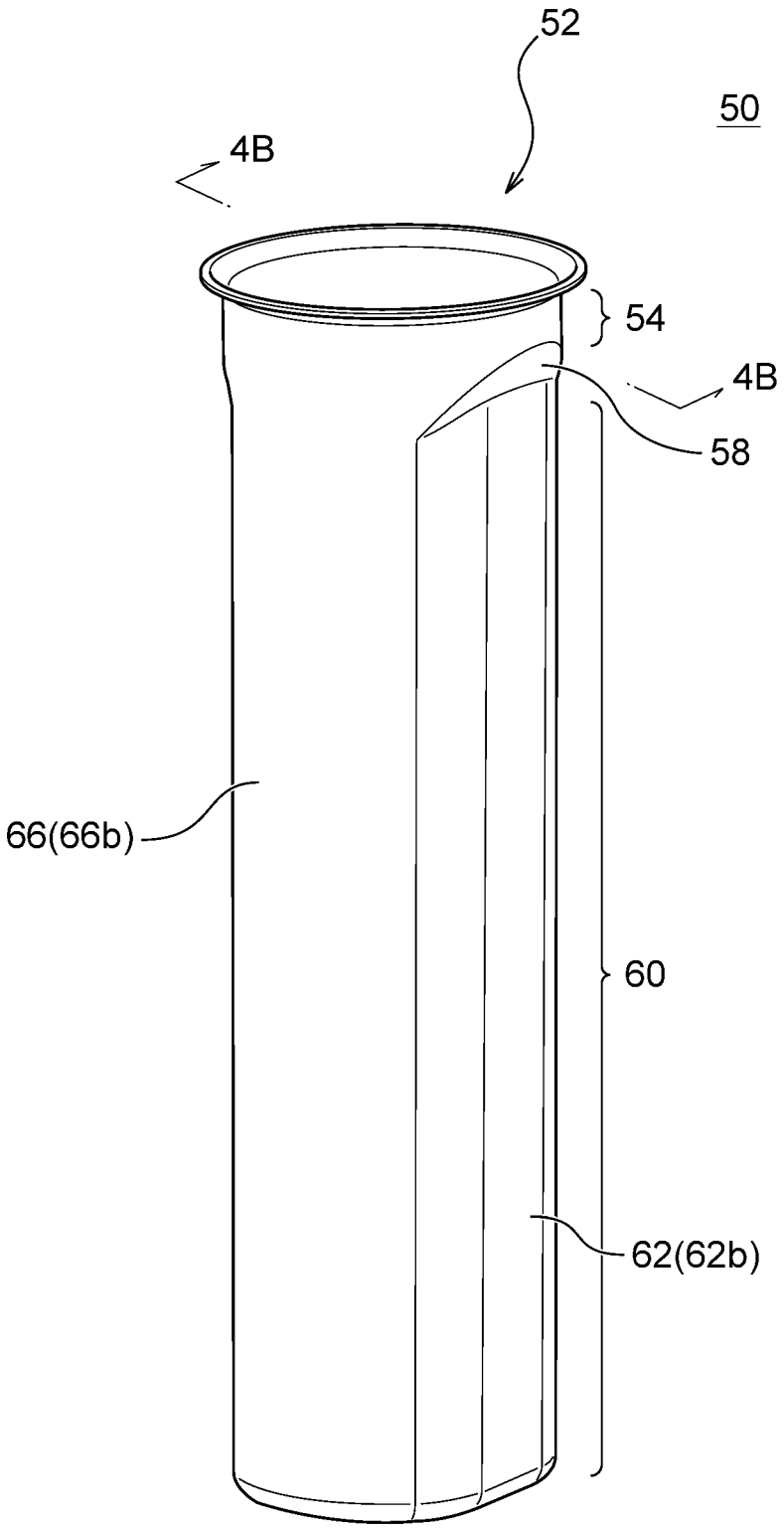


Fig. 4B

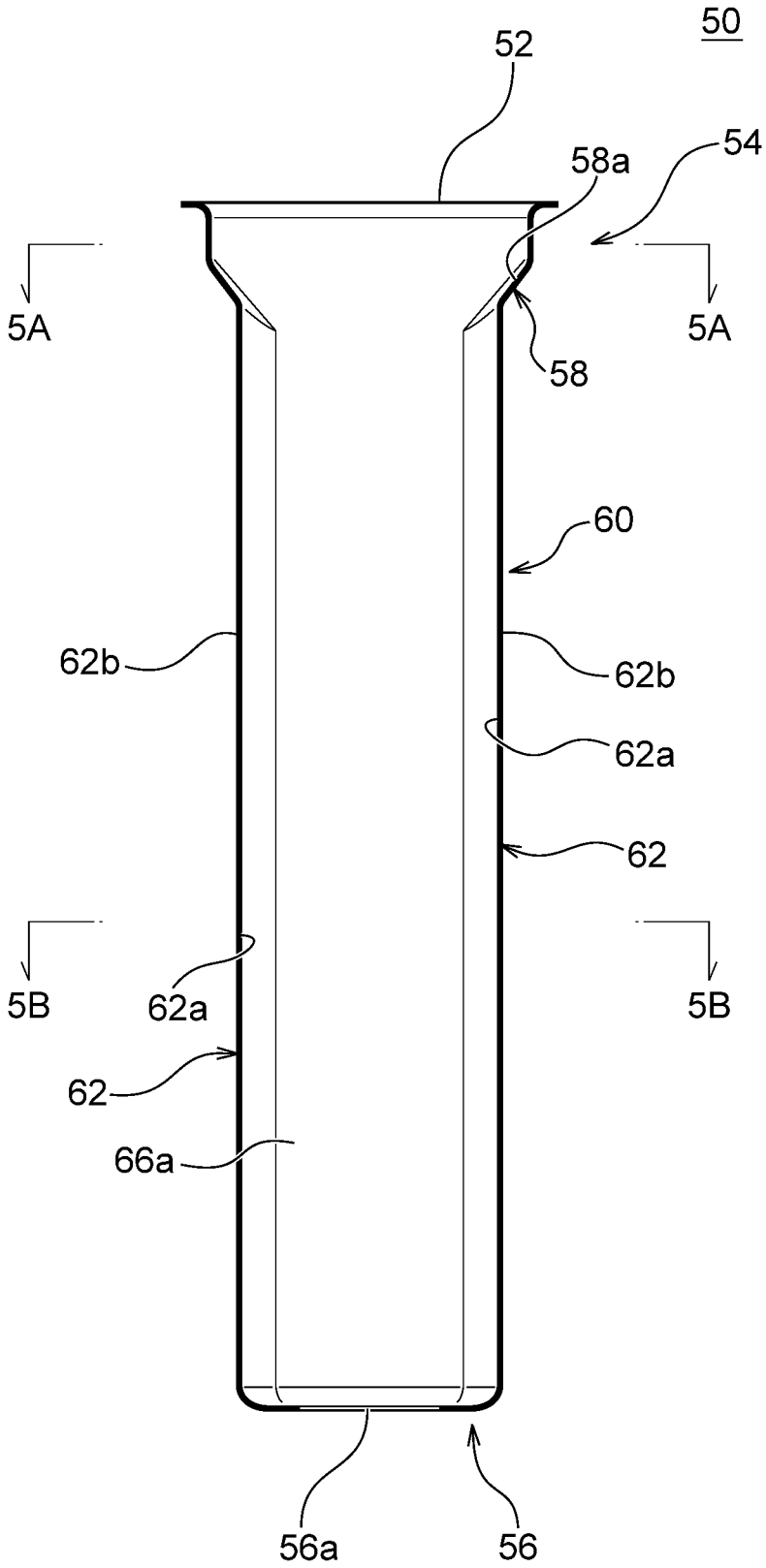


Fig. 5A

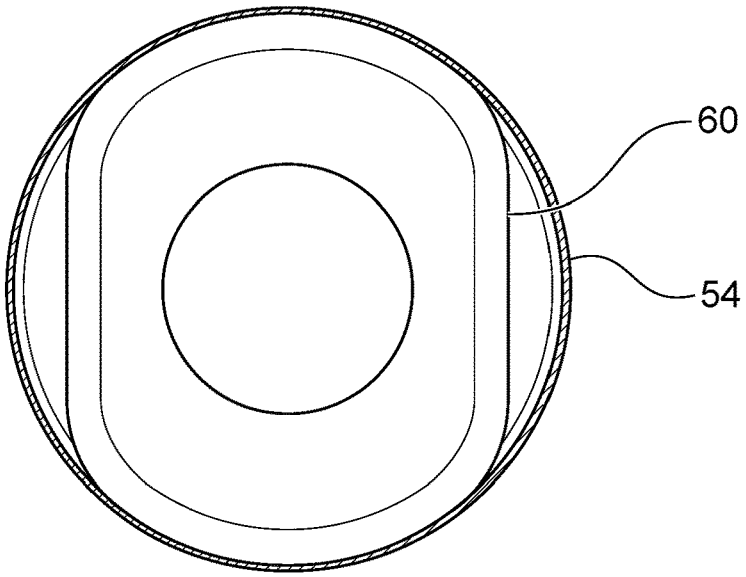


Fig. 5B

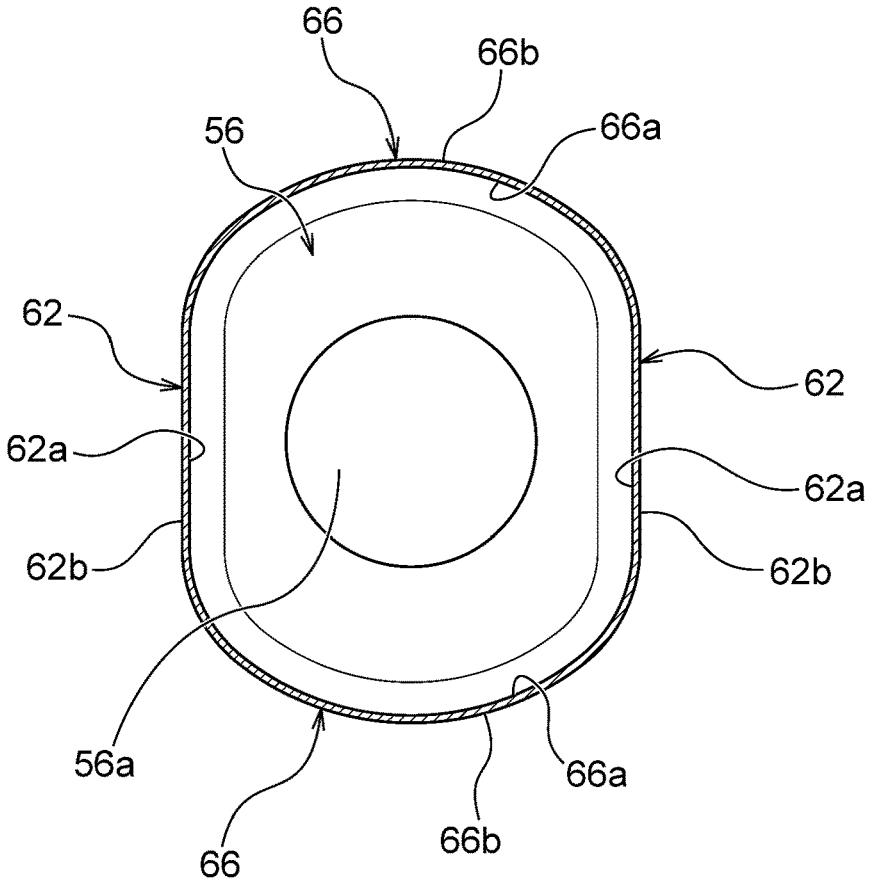


Fig. 6

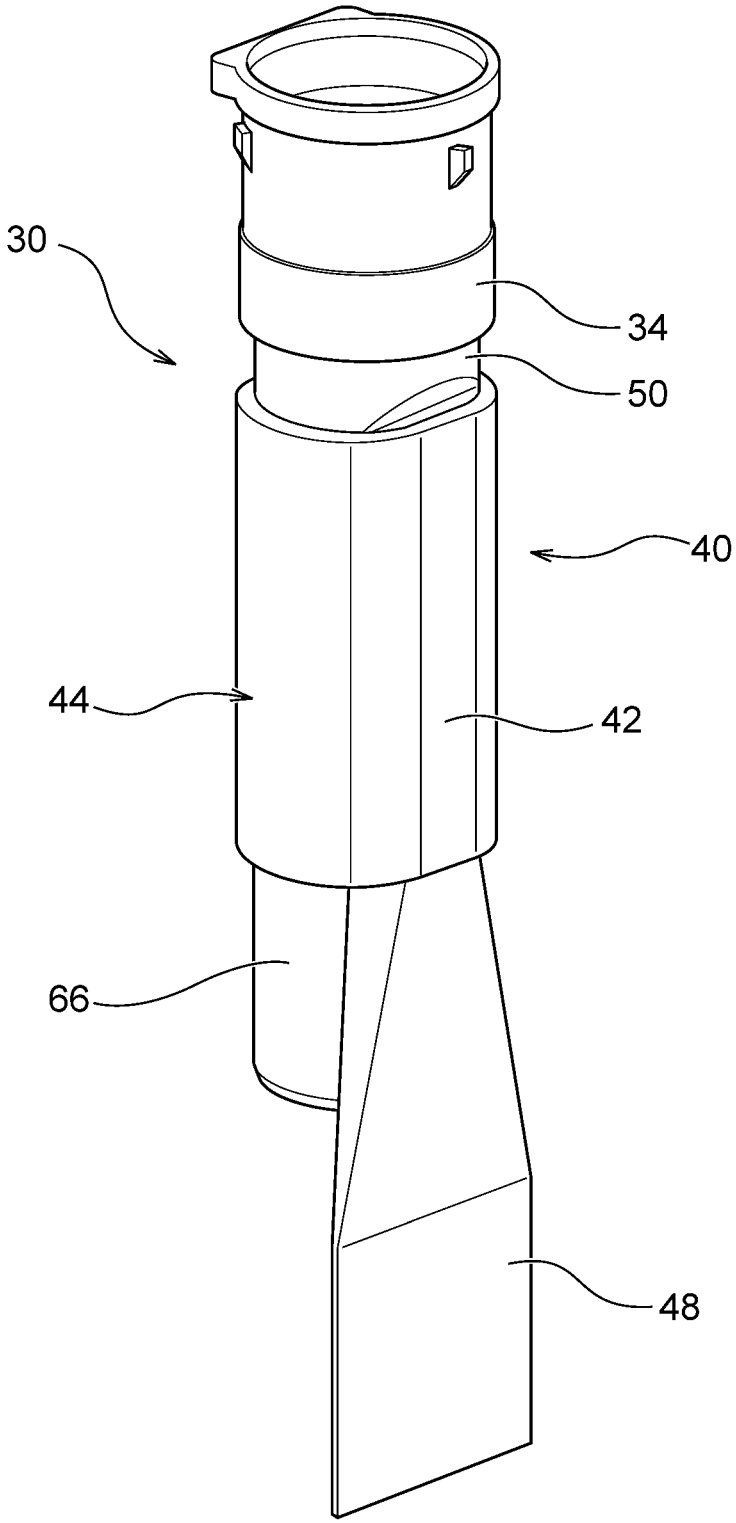


Fig. 7

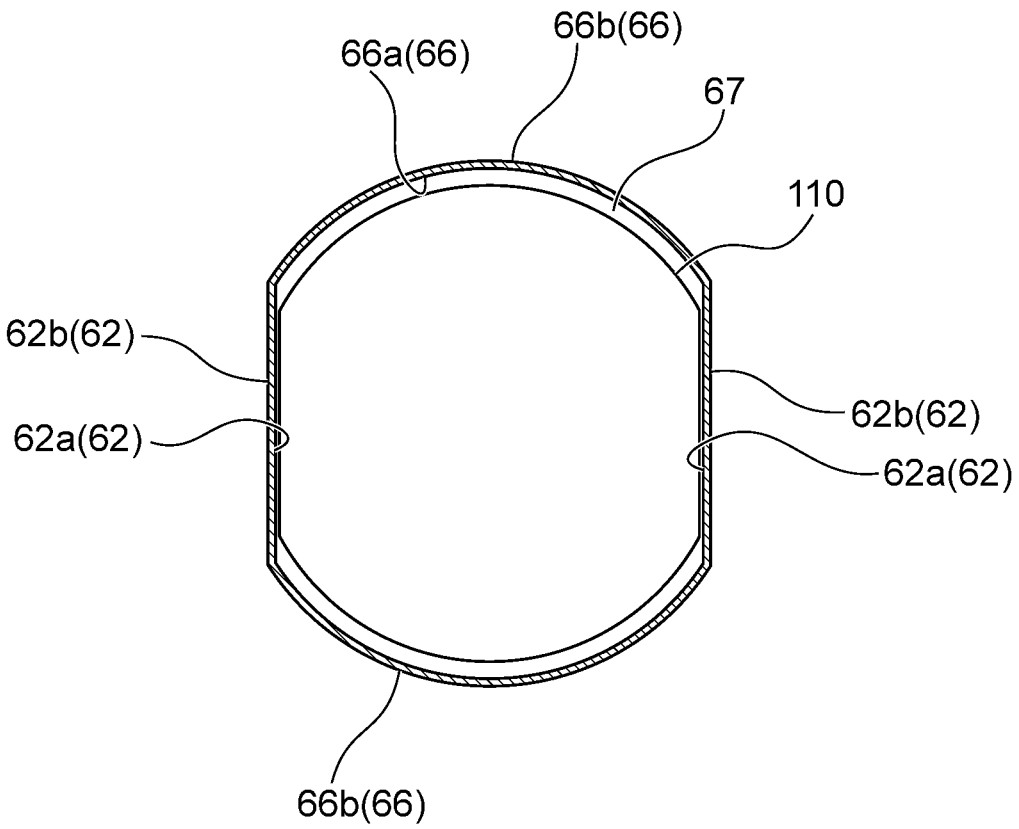


Fig. 8

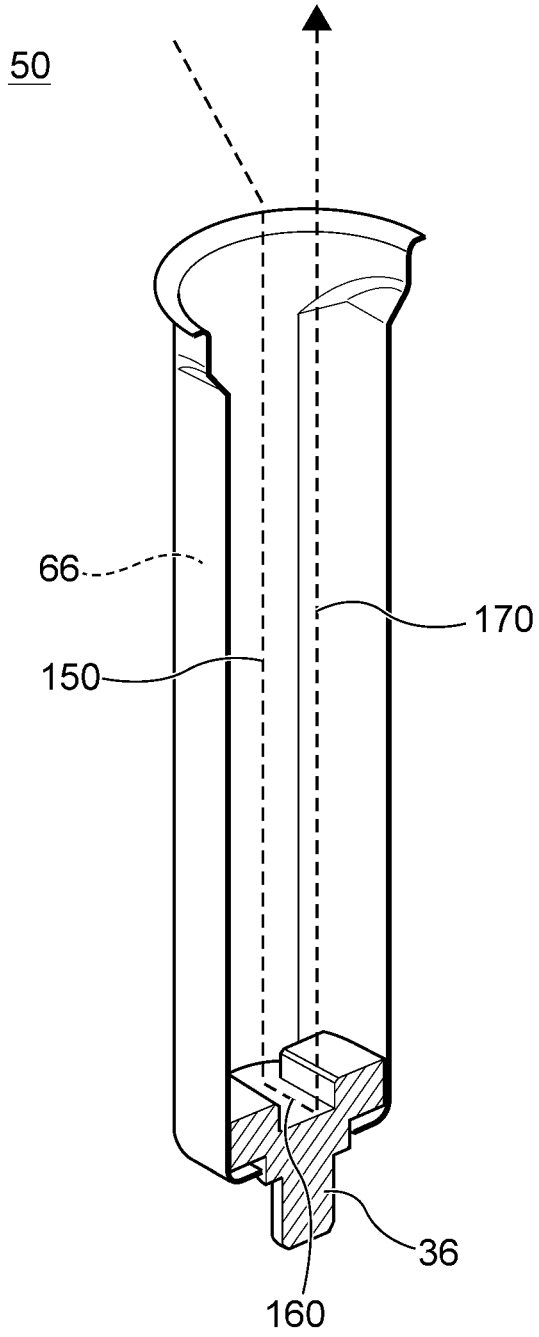


Fig. 9

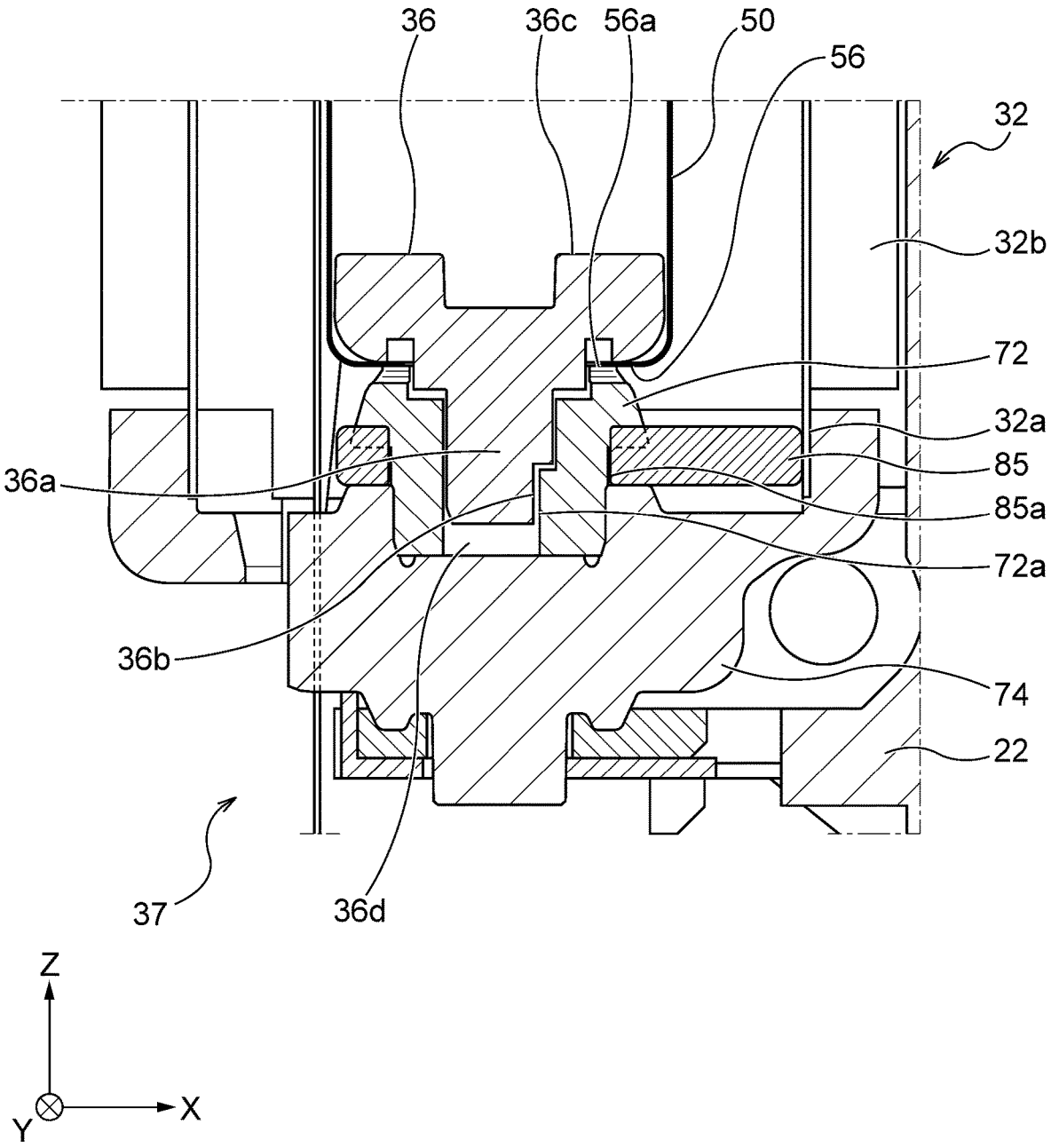


Fig. 10

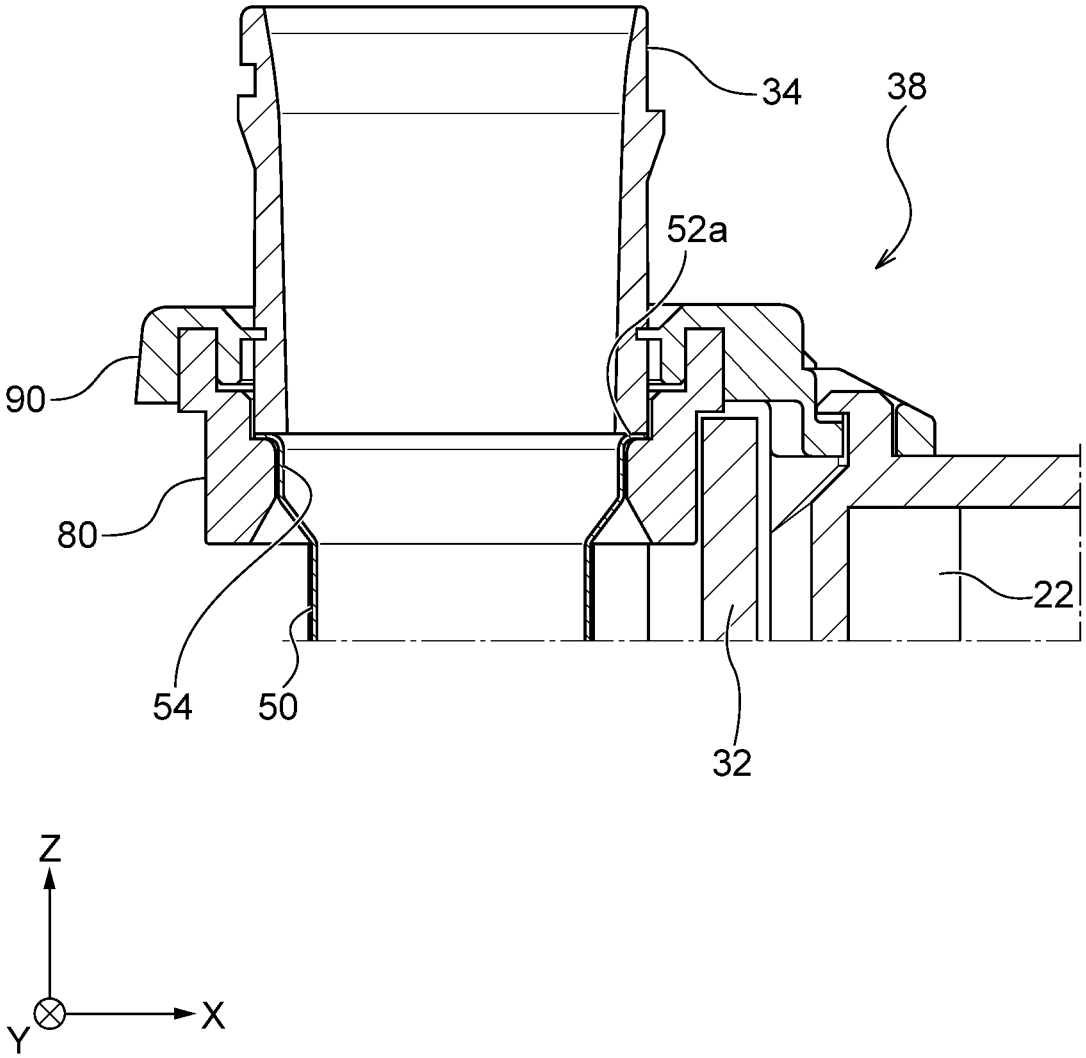
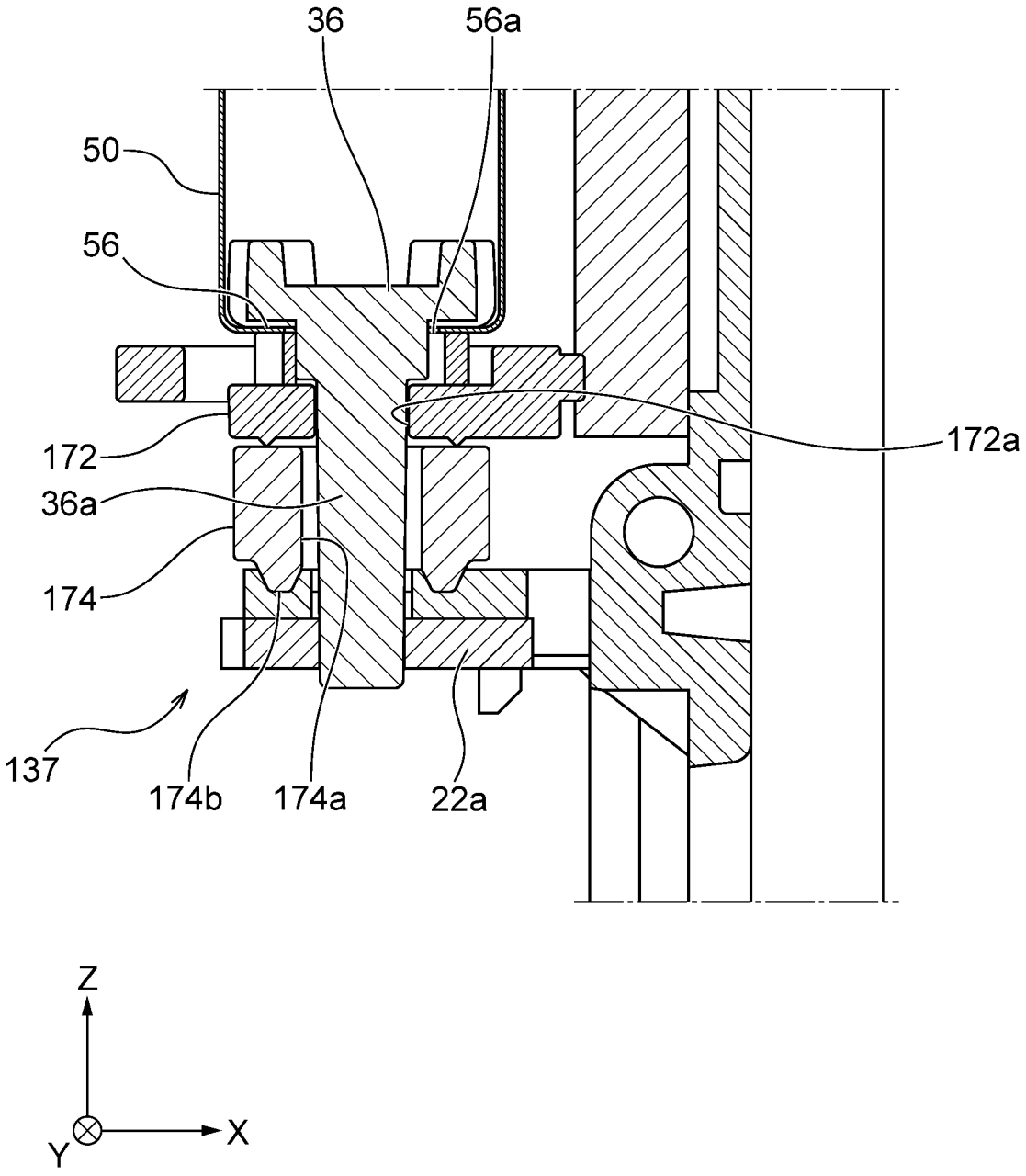


Fig. 11



FLAVOR INHALER

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] The present application is a continuation application of International Application No. PCT/JP2020/046198, filed on Dec. 11, 2020.

TECHNICAL FIELD

[0002] The present invention relates to a flavor inhaler.

BACKGROUND ART

[0003] Conventionally, flavor inhalers for inhaling flavors or the like without burning materials are known. As such a flavor inhaler, there is a flavor inhaler including an accommodating portion that accommodates a flavor generating article, the accommodating portion including a tubular portion that surrounds the circumference of the flavor generating article and a base portion that projects from a bottom portion of the accommodating portion and abuts an end portion of the flavor generating article, the tubular portion and the base portion being integrally molded by the same member, for example (see PTL 1, for example).

CITATION LIST

Patent Literature

[0004] PTL 1: International Publication No. WO 2020/074612

SUMMARY OF INVENTION

Technical Problem

[0005] In the flavor inhaler described in PTL 1, the tubular portion and the base portion are integrally molded by the same member to form the accommodating portion. Therefore, there is a problem that it is difficult to finely work the base portion.

[0006] 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 including an accommodating portion exhibiting high workability and obtained to have a desired fine shape at low cost.

Solution to Problem

[0007] 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 a tubular portion that surrounds a circumference of the flavor generating article, and an abutting portion that is disposed at the other end of the accommodating portion inside the tubular portion, is formed of a member that is different from the tubular portion, and abuts the flavor generating article accommodated in the accommodating portion.

[0008] According to the first aspect of the present invention, the accommodating portion is configured of the tubular portion and the abutting portion that is formed of a member different from the tubular portion, and it is thus possible to form the accommodating portion by combining the abutting portion that has been finely worked in advance with the tubular portion. Therefore, it is possible to obtain a flavor inhaler including the accommodating portion exhibiting high workability and obtained to have a desired fine shape at low cost.

[0009] In a second aspect of the present invention, the abutting portion is configured of a resin in the first aspect.

[0010] According to the second aspect of the present invention, the abutting portion is configured of a resin, and it is thus possible to realize high workability.

[0011] In a third aspect of the present invention, a first air flow path that communicates with the flavor generating article accommodated in the accommodating portion is formed at the abutting portion in the second aspect.

[0012] According to the third aspect of the present invention, the abutting portion is configured of a resin, and it is thus possible to precisely design the air flow path.

[0013] In a fourth aspect of the present invention, the tubular portion includes a contact portion that comes into contact with the flavor generating article when the flavor generating article is accommodated in the accommodating portion and a separated portion that is adjacent to the contact portion in a circumferential direction and is separated from the flavor generating article, and when the flavor generating article is accommodated in the accommodating portion, a second air flow path that communicates with the first air flow path is formed between the separated portion and the flavor generating article, in the third aspect.

[0014] According to the fourth aspect of the present invention, air introduced into the accommodating portion can be supplied to the flavor generating article through the second air flow path and the first air flow path and reach the inside of a user's mouth, and it is thus not necessary to separately provide, in the flavor inhaler, a flow path for introducing the air supplied to the flavor generating article. Therefore, it is possible to simplify the structure of the flavor inhaler and to reduce the size of the flavor inhaler.

[0015] In a fifth aspect of the present invention, the tubular portion is configured of metal in any of the first to fourth aspects.

[0016] According to the fifth aspect of the present invention, the tubular portion is configured of metal, and it is thus possible to effectively transmit heat from the tubular portion to the flavor generating article.

[0017] In a sixth aspect of the present invention, the tubular portion has a non-cylindrical shape in any of the first to fifth aspects.

[0018] According to the sixth aspect of the present invention, the accommodating portion is configured of the tubular portion and the abutting portion that is formed of a member different from the tubular portion, and it is thus possible to finely work the abutting portion regardless of the shape of the tubular portion and to improve workability of the accommodating portion even in a case where the tubular portion has an irregular shape such as an oval shape or a square tube shape, for example.

[0019] In a seventh aspect of the present invention, a sealing portion that seals a part between the tubular portion and the abutting portion is further included in any of the first to sixth aspects.

[0020] According to the seventh aspect of the present invention, the part between the tubular portion and the abutting portion is sealed by the sealing portion, the tubular

portion and the abutting portion are thus firmly fixed to each other, and high robustness can be achieved.

[0021] In an eighth aspect of the present invention, a heating portion that is disposed at an outer circumference of the tubular portion and is configured to heat the flavor generating article accommodated in the accommodating portion is further included, and the abutting portion and the heating portion do not overlap each other in an axial direction of the accommodating portion in any of the first to seventh aspects.

[0022] According to the eighth aspect of the present invention, the abutting portion and the heating portion do not overlap each other in the axial direction of the accommodating portion, heat from the heating portion is thus unlikely to be transmitted to the abutting portion, and it is possible to prevent degradation of the abutting portion due to the heat.

[0023] In a ninth aspect of the present invention, the abutting portion is engaged with a bottom portion of the tubular portion formed on the other end side of the accommodating portion in any of the first to eighth aspects.

[0024] According to the ninth aspect of the present invention, the abutting portion is engaged with the bottom portion of the tubular portion, and it is thus possible to position and support the abutting portion inside the tubular portion.

[0025] In a tenth aspect of the present invention, a support portion that is engaged with the abutting portion via the tubular portion is further included in any of the first to ninth aspects.

[0026] According to the tenth aspect of the present invention, the support portion is engaged with the abutting portion, and it is thus possible to support the tubular portion by the abutting portion and the support portion.

[0027] In an eleventh aspect of the present invention, a rotation preventing mechanism that prevents relative rotation of the support portion with respect to the tubular portion about an axial direction of the accommodating portion as a rotation axis is further included in the tenth aspect.

[0028] According to the eleventh aspect of the present invention, the rotation preventing mechanism is provided, and it is thus possible to prevent relative rotation of the support portion with respect to the tubular portion.

[0029] In a twelfth aspect of the present invention, the abutting portion forms an air layer on a side opposite to an abutting surface that abuts the flavor generating article accommodated in the accommodating portion in a state where the abutting portion is engaged with the support portion in the tenth or eleventh aspect.

[0030] According to the twelfth aspect of the present invention, the air layer is formed on the side opposite to the abutting surface of the abutting portion that abuts the flavor generating article, and it is thus possible to prevent a heat loss due to heat transmission from the abutting portion.

[0031] In a thirteenth aspect of the present invention, a bottom portion of the tubular portion formed on the other end side of the accommodating portion is sandwiched between and supported by the abutting portion and the support portion in any of the tenth to twelfth aspects.

[0032] According to the thirteenth aspect of the present invention, the abutting portion and the support portion sandwich and support the bottom portion of the tubular portion, the tubular portion is thus firmly fixed, and high robustness can be achieved.

[0033] In a fourteenth aspect of the present invention, a guide portion that abuts the opening of the tubular portion and guides insertion of the flavor generating article into the tubular portion is further included in any of the first to thirteenth aspects.

[0034] According to the fourteenth aspect of the present invention, the guide portion is provided at the opening of the tubular portion, and it is thus possible to easily insert the flavor generating article into the tubular portion.

[0035] In a fifteenth aspect of the present invention, a cover portion that is disposed to cover a circumference of an abutting location between the tubular portion and the guide portion is further included in the fourteenth aspect.

[0036] According to the fifteenth aspect of the present invention, the cover portion is provided at the abutting location between the tubular portion and the guide portion, and it is thus possible to prevent an aerosol generated in the accommodating portion from leaking from the abutting location between the tubular portion and the guide portion to the inside of a casing of the flavor inhaler.

BRIEF DESCRIPTION OF DRAWINGS

[0037] FIG. **1**A is a schematic front view of a flavor inhaler according to an embodiment.

[0038] FIG. **1**B is a schematic top view of the flavor inhaler according to the embodiment.

[0039] FIG. **1**C is a schematic bottom view of the flavor inhaler according to the embodiment.

[0040] FIG. **2** is a schematic side sectional view of a flavor generating article.

[0041] FIG. **3** is a sectional view of the flavor inhaler along the arrow **3**-**3** illustrated in FIG. **1**B.

[0042] FIG. **4**A is a perspective view of a chamber.

[0043] FIG. **4**B is a sectional view of the chamber along the arrow **4**B-**4**B illustrated in FIG. **4**A.

[0044] FIG. **5**A is a sectional view of the chamber along the arrow **5**A-**5**A illustrated in FIG. **4**B.

[0045] FIG. **5**B is a sectional view of the chamber along the arrow **5**B-**5**B illustrated in FIG. **4**B.

[0046] FIG. **6** is a perspective view of the chamber and the heating portion.

[0047] FIG. **7** is a sectional view illustrated in FIG. **5**B in a state where the flavor generating article is disposed at a desired position in the chamber.

[0048] FIG. **8** is a perspective view illustrating an air flow path of the flavor inhaler according to the embodiment.

[0049] FIG. **9** is an enlarged sectional view of a first holding portion.

[0050] FIG. **10** is an enlarged sectional view of a second holding portion.

[0051] FIG. **11** is an enlarged sectional view illustrating another embodiment of the first holding portion.

DESCRIPTION OF EMBODIMENTS

[0052] Hereinafter, embodiments 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.

[0053] FIG. **1**A is a schematic front view of a flavor inhaler **100** according to an embodiment. FIG. **1**B is a schematic top view of the flavor inhaler **100** according to the embodiment. FIG. **1**C is a schematic bottom view of the flavor inhaler **100** according to the embodiment. In the drawings described in the specification, an X-Y-Z orthogo-

nal 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, it is also possible to state that the X axis is a direction that perpendicularly intersects the Y axis and the Z axis and the X axis and the Y axis are radial directions that perpendicularly intersect the axial direction, or the radial directions of the chamber **50**.

[0054] 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.

[0055] As illustrated in FIGS. **1**A to **1**C, the flavor inhaler **100** has an outer housing **101** (corresponding to an example of a casing), a slide cover **102**, and a switch portion **103**. 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** 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, or metal such as aluminum, in particular.

[0056] 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. **1**A and **1**B) 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**.

[0057] 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 heater, 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.

[0058] The flavor inhaler **100** may further have a terminal, which is not illustrated. The terminal can be an interface 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. Also, data related to the operation of the flavor inhaler **100** may be transmitted to an external device by connecting a data transmission cable to the terminal.

[0059] 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 smokable article **111**, a tubular member **114**, a hollow filter portion **116**, and a filter portion **115**.

[0060] The smokable article **111** is rolled by a first roll paper **112**. The tubular member **114**, the hollow filter portion **116**, and the filter portion **115** are rolled by a second roll paper **113** that is different from the first roll paper **112**. The second roll paper **113** also rolls a part of the first roll paper **112** that rolls the smokable article **111**. In this manner, the tubular member **114**, the hollow filter portion **116**, and the filter portion **115** are coupled to the smokable article **111**. However, the second roll 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 smokable article **111** by using the first roll paper **112**. A lip release agent **117** for promoting the user's lip release from the second roll paper **113** is applied to the outer surface of the second roll paper **113** in the vicinity of an end portion thereof 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**.

[0061] The smokable article **111** can contain a flavor source such as tobacco, for example, and an aerosol source. Also, the first roll paper **112** for rolling the smokable article **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 smokable article **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.

[0062] Next, an internal structure of the flavor inhaler **100** will be described. FIG. **3** is a sectional view of the flavor inhaler **100** along the arrow **3**-**3** illustrated in FIG. **1**B. As illustrated in FIG. **3**, an inner housing **10** (corresponding to an example of a casing) is provided inside the outer housing **101** of the flavor inhaler **100**. The inner housing **10** 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, or metal such as aluminum, in particular. Note that the inner housing **10** is preferably made of PEEK in terms of heat resistance and

strength. A power source portion **20** and the atomization portion **30** are provided in the inner space of the inner housing **10**.

[0063] 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**.

[0064] The atomization portion **30** includes a chamber **50** (corresponding to an example of a tubular portion) made of metal and extending in the insertion direction of the flavor generating article **110** (Z-axis direction), a heater **40** that covers a part of the chamber **50**, a heat insulating portion **32**, and a substantially tubular insertion guide member **34** (corresponding to an example of a guide portion) that abuts an opening **52** (see FIG. **4**A) of the chamber **50** as illustrated in the drawing. The chamber **50** is configured to surround the circumference of the flavor generating article **110**. The heater **40** is configured to include a heating portion **42** (see FIG. **6**) that comes into contact with the outer circumferential surface of the chamber **50** and heats the flavor generating article **110** inserted into the chamber **50**.

[0065] Also, a bottom member **36** (corresponding to an example of an abutting portion) is provided at the bottom portion of the chamber **50** as illustrated in the drawing. The bottom member **36** may function as a stopper that abuts the flavor generating article **110** inserted into the chamber **50** in the insertion direction of the flavor generating article **110** and positions the flavor generating article **110**. Here, the chamber **50** and the bottom member **36** configure an accommodating portion that accommodates at least a part of the flavor generating article **110**. The bottom member **36** may be formed of a resin material, for example. The bottom member **36** has irregularity on the surface which the flavor generating article **110** abuts and may define a first air flow path, which the flavor generating article **110** abuts, through which air may be supplied to an air inlet port of the flavor generating article **110**, that is, a first air flow path that communicates with the flavor generating article **110** accommodated in the accommodating portion. 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.

[0066] It is possible to form the accommodating portion in combination of the bottom member **36** that has been finely worked in advance with the chamber **50** by configuring the accommodating portion by the chamber **50** and the bottom member **36** formed of a member that is different from the chamber **50**. It is thus possible to obtain the flavor inhaler **100** including the accommodating portion exhibiting high workability and obtained to have a desired fine shape at low cost. Also, it is possible to realize high workability by configuring the bottom member **36** of a resin and thereby to precisely design the first air flow path.

[0067] 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 slide cover **102** at the closed position and the chamber **50**. 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 in terms 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 the insertion guide member **34**. It is possible to easily insert the flavor generating article **110** into the chamber **50** by providing the insertion guide member **34**.

[0068] 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). Details of the first holding portion **37** and the second holding portion **38** will be described later.

[0069] Next, a structure of the chamber **50** will be described. FIG. **4**A is a perspective view of the chamber **50**. FIG. **4**B is a sectional view of the chamber **50** along the arrow **4**B-**4**B illustrated in FIG. **4**A. FIG. **5**A is a sectional view of the chamber **50** along the arrow **5**A-**5**A illustrated in FIG. **4**B. FIG. **5**B is a sectional view of the chamber **50** along the arrow **5**B-**5**B illustrated in FIG. **4**B. FIG. **6** is a perspective view of the chamber **50** and the heater **40**.

[0070] As illustrated in FIGS. **4**A and **4**B, the chamber **50** may be a tubular member including the opening **52** into which the flavor generating article **110** is inserted and a tubular side wall portion **60** in which the flavor generating article **110** is accommodated. A flange portion **52***a* is formed at an end portion that defines the opening **52** of the chamber **50**. The chamber **50** is preferably formed of a material with heat resistance and a small coefficient of thermal expansion and may 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 in addition to metal. It is thus possible to effectively heat the flavor generating article **110** from the chamber **50**.

[0071] As illustrated in FIGS. **4**B and **5**B, the side wall portion **60** includes a contact portion **62** and a separated portion **66**. When the flavor generating article **110** is disposed at a desired position in the chamber **50**, the contact portion **62** comes into contact with or pressurizes a part of the flavor generating article **110** on the surface that intersects the insertion direction of the flavor generating article **110**, and the separated portion **66** is separated from the 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.

[0072] The sectional shape of the side wall portion **60** that perpendicularly intersects the axial direction of the chamber **50** is an oval shape, that is, a non-cylindrical shape since the side wall portion **60** includes the contact portion **62** and the separated portion **66**. At this time, since the accommodating portion is configured of the chamber **50** and the bottom member **36** that is formed of a member different from the chamber **50**, it is possible to finely work the bottom member **36** regardless of the shape of the chamber **50** and to improve workability of the accommodating portion even in a case where the chamber **50** has an irregular shape such as an oval shape or a square tube shape, for example.

[0073] The contact portion **62** includes an inner surface **62***a* and an outer surface **62***b*. The separated portion **66** includes an inner surface **66***a* and an outer surface **66***b*. As illustrated in FIG. **6**, the heater **40** is disposed on the outer surface **62***b* of the contact portion **62**. In this manner, heat generated by the heating portion **42** of the heater **40** is transmitted to the flavor generating article **110** in contact with the contact portion **62**. The heater **40** is preferably disposed on the outer surface **62***b* of the contact portion **62** with no gap therebetween. Note that the heater **40** may include an adhesive layer. In that case, the heater **40** including the adhesive layer is preferably disposed on the outer surface **62***b* of the contact portion **62** with no gap therebetween.

[0074] As illustrated in FIGS. **4**A and **5**B, the outer surface **62***b* 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 heater **40** disposed on the outer surface **62***b* of the contact portion **62** as illustrated in FIG. **6** by the outer surface **62***b* of the contact portion **62** being a planar surface. As illustrated in FIGS. **4**B and **5**B, the inner surface **62***a* of the contact portion **62** is a planar surface. Also, the thickness of the contact portion **62** is uniform as illustrated in FIGS. **4**B and **5**B.

[0075] As illustrated in FIGS. **4**A, **4**B, and **5**B, 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 **62***a* 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**.

[0076] As illustrated in FIG. **5**B, the inner surface **66***a* of the separated portion **66** can have an arc-shaped section as a whole in the plane that perpendicularly intersects the longitudinal 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.

[0077] As illustrated in FIG. **4**B, the chamber **50** can have a hole **56***a* 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. The adhesive may function as a sealing portion that seals the part between the chamber **50** and the bottom member **36**. Note that the adhesive interposed between the bottom member **36** and the bottom portion **56** may be configured of a resin material such as an epoxy resin. Instead of this, an inorganic adhesive such as cement or welding may also be used. In this manner, the chamber **50** and the bottom member **36** are firmly fixed to each other, and high robustness can thus be achieved.

[0078] The bottom member **36** provided at the bottom portion **56** supports a part of the flavor generating article **110** inserted into the chamber **50** such that at least a part of the end surface of the flavor generating article **110** is exposed. Also, the bottom portion **56** may support a part of the flavor generating article **110** such that the exposed end surface of the flavor generating article **110** communicates with a clearance **67** (see FIG. **7**), which will be described later.

[0079] As illustrated in FIGS. **4**A and **4**B, 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. **4**A and **4**B, the chamber **50** preferably has a first guide portion **58** including a tapered surface **58***a* that connects the inner surface of the non-holding portion **54** to the inner surfaces **62***a* of the contact portions **62**.

[0080] As illustrated in FIG. **6**, the heater **40** has a heating portion **42**. The heating portion **42** may be a heating track, for example. The heating portion **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 portion **42** is preferably disposed only on the outer surfaces of the contact portions **62**. The heating portion **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 portion **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 track of the heating portion **42** in the contact portions **62** and the separated portion **66** can be adjusted. Also, the heating portion **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**.

[0081] As illustrated in FIG. **6**, the heater **40** preferably includes an electrically insulating member **44** that covers at least one surface of the heating portion **42** in addition to the heating portion **42**. In the embodiment, the electrically insulating member **44** is disposed to cover both surfaces of the heating portion **42**. Here, the bottom member **36** may be disposed not to overlap the heating portion **42** in the axial direction of the chamber **50**. In this manner, heat from the heating portion **42** is unlikely to be transmitted to the bottom member **36**, and it is thus possible to prevent degradation of the bottom member **36** due to the heat.

[0082] FIG. **7** is a sectional view illustrated in FIG. **5**B in a state where the flavor generating article **110** is disposed at a desired position in the chamber **50**. 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, a second air flow path (clearance 67) is formed between the flavor generating article 110 and the separated portion 66.

[0083] Next, the air flow paths in the flavor inhaler 100 according to the embodiment will be described. FIG. 8 is a perspective view illustrating the air flow paths in the flavor inhaler according to the embodiment. In FIG. 8, illustration of the flavor generating article 110 is omitted. As illustrated in FIG. 8, the second air flow path 150 formed between the flavor generating article 110 and the separated portion 66 communicates with the first air flow path 160 formed at the bottom member 36, and the first air flow path 160 communicates with a third air flow path 170 passing through the inside of the flavor generating article 110.

[0084] In this manner, air introduced into the accommodating portion is supplied to the flavor generating article 110 through the second air flow path 150 and the first air flow path 160 and can reach the inside of a user's mouth, and it is thus not necessary to separately provide, in the flavor inhaler 100, a flow path for introducing the air supplied to the flavor generating article 110. Therefore, it is possible to simplify the structure of the flavor inhaler 100 and to reduce the size of the flavor inhaler 100.

[0085] Next, the structures of the first holding portion 37 and the second holding portion 38 that hold the chamber 50 and the heat insulating portion 32 will be described. FIG. 9 is an enlarged sectional view of the first holding portion 37. FIG. 10 is an enlarged sectional view of the second holding portion 38.

[0086] First, if the heat insulating portion 32 that covers the chamber 50 is completely fixed to the inner housing 10 or the outer housing 101, there is a concern that when an impact from the outside is applied to the flavor inhaler 100, the impact may not be able to be buffered and the heat insulating portion 32 may break. Also, in a case where the heat insulating portion 32 expands due to heat of the chamber 50 (or the heater 40), there is also a concern that the fixed heat insulating portion 32 causes buckling due to the thermal expansion.

[0087] Thus, the first holding portion 37 and the second holding portion 38 according to the embodiment hold the heat insulating portion 32 such that the heat insulating portion 32 can move in the axial direction of the chamber 50 or the radial direction (for example, the X-axis direction or the Y-axis direction) of the chamber 50 that perpendicularly intersects the axial direction. Note that the first holding portion 37 and the second holding portion 38 may hold the heat insulating portion 32 such that the heat insulating portion 32 can move only in the axial direction of the chamber 50 or may hold the heat insulating portion 32 such that the heat insulating portion 32 can move only in the radial direction that perpendicularly intersects the axial direction.

[0088] As illustrated in FIG. 9, the bottom member 36 is engaged with the bottom portion 56 of the chamber 50. It is thus possible to position and support the bottom member 36 inside the chamber 50. Also, the bottom member 36 provided inside the bottom portion 56 of the chamber 50 includes a shaft portion 36*a* that projects to the outside of the chamber 50 through a hole 56*a* of the chamber 50. Additionally, the shaft portion 36*a* has a flat surface 36*b* (corresponding to an example of a rotation preventing mechanism) at an end portion. The first holding portion 37 includes a support portion 72, a heater cushion 74 (corresponding to an example of a first restricting portion and one end-side restricting portion), and a ring 85 (corresponding to an example of a second restricting portion).

[0089] The support portion 72 is configured to receive the shaft portion 36*a* of the bottom member 36 and support the chamber 50. Specifically, the bottom portion 56 of the chamber 50 is sandwiched between and supported by the bottom member 36 and the support portion 72. The support portion 72 is made of a resin, for example, and may be formed of polycarbonate (PC), an acrylonitrile-butadiene-styrene (ABS) resin, a polymer alloy containing polyether ether ketone (PEEK) or a plurality of types of polymers, or the like, in particular. Note that the support portion 72 may be formed of metal, glass, ceramics, or the like. In addition, the support portion 72 is preferably made of PEEK in terms of heat resistance. In this manner, the chamber 50, specifically, the bottom portion 56 of the chamber 50 is sandwiched between and supported by the bottom member 36 and the support portion 72 engaged with the bottom member 36. Therefore, the chamber 50 is firmly fixed, and high robustness can thus be achieved.

[0090] Also, the support portion 72 includes a flat surface 72*a* (corresponding to an example of a rotation preventing mechanism) to face the flat surface 36*b* of the shaft portion 36*a*. It is possible to prevent relative rotation of the support portion 72 with respect to the chamber 50 by the flat surface 36*b* of the shaft portion 36*a* and the flat surface 72*a* of the support portion 72 being engaged with each other.

[0091] Also, the bottom member 36 forms an air layer 36*d* on a side opposite to an abutting surface 36*c* that abuts the flavor generating article 110 accommodated in the accommodating portion in a state where the bottom member 36 is engaged with the support portion 72. In other words, the bottom member 36 does not come into direct contact with the heater cushion 74. It is thus possible to prevent a heat loss due to heat transmission from the bottom member 36.

[0092] The heater cushion 74 is configured to accommodate and support one end of the support portion 72. The heater cushion 74 can be formed of an elastic member such as silicone rubber, for example. Note that in a case where silicone rubber is used, a preferred range of Shore A hardness is 40 to 60 and can be appropriately selected in accordance with deformation of the heater cushion 74. Also, the heater cushion 74 is configured to be positioned at and fixed to the fixed portion 22 that is fixed to the inner housing, which is not illustrated. Note that the fixed portion 22 may be the inner housing itself.

[0093] Here, the heater cushion 74 is formed of an elastic member such as silicon, for example, as described above and is configured to bias the chamber 50 toward the insertion guide member 34, that is, on the positive direction side of the Z axis via the support portion 72. In this manner, sealing is formed between the flange portion 52*a* of the chamber 50 and the insertion guide member 34, and it is thus possible to prevent an aerosol generated in the chamber 50 due to heating of the flavor generating article 110 from leaking to the inside of the inner housing from a part between the chamber 50 and the insertion guide member 34.

[0094] The heater cushion 74 is disposed to face the heat insulating portion 32 with a gap therebetween and restricts movement of the heat insulating portion 32 in the axial direction of the chamber 50. Therefore, the heat insulating

portion **32** is prevented from moving with no limit in the axial direction of the chamber **50**, and the heat insulating portion **32** is thus prevented from colliding against another member (such as the inner housing **10**, for example). Also, since the heater cushion **74** is formed of an elastic member, it is possible to alleviate a stress applied to the heat insulating portion **32** and thereby to prevent the heat insulating portion **32** from breaking even in a case where the heater cushion **74** comes into contact with the heat insulating portion **32**.

[0095] The ring **85** has an opening **85***a* into which the support portion **72** is inserted and may be sandwiched between and fixed to the support portion **72** and the heater cushion **74**. The ring **85** is made of a resin, for example, and may be formed of polycarbonate (PC), an acrylonitrile-butadiene-styrene (ABS) resin, a polymer alloy containing polyether ether ketone (PEEK) or a plurality of types of polymers, or the like, in particular. Note that the ring **85** may be formed of metal, glass, ceramics, or the like. Also, the ring **85** is preferably made of PEEK in terms of heat resistance. The ring **85** is disposed to face a support material **32***a* provided at an inner circumferential surface of the heat insulating portion **32** as will be described later with a gap therebetween and restricts movement of the heat insulating portion **32** in the radial direction of the chamber **50**. Therefore, the heat insulating portion **32** is prevented from moving with no limit in the radial direction of the chamber **50**, and the heat insulating portion **32** is thus prevented from colliding against another member (such as the inner housing **10**, for example). Also, it is possible to restrict, from the inside of the heat insulating portion **32**, movement of the heat insulating portion **32** in the radial direction of the chamber **50** and thereby to reduce the size of the flavor inhaler **100**.

[0096] The heat insulating portion **32** includes the support material **32***a* and a heat insulating layer **32***b* provided on the outer circumferential surface of the support material **32***a*. The support material **32***a* has a substantially tubular shape, for example, and is disposed to surround the chamber **50**. The support material **32***a* is made of a resin, for example, and may be formed of polycarbonate (PC), an acrylonitrile-butadiene-styrene (ABS) resin, a polymer alloy containing polyether ether ketone (PEEK) or a plurality of types of polymers, or the like, in particular. The heat insulating layer **32***b* may be an aerogel sheet, for example. Here, the support material **32***a* is formed to be thinner than the heat insulating layer **32***b* and has a thickness of equal to or less than 1 mm, preferably equal to or less than 0.5 mm. In this manner, it is possible to reduce the heat capacity of the heat insulating portion **32** itself and thereby to curb a heat loss at the heat insulating portion **32**.

[0097] As illustrated in FIG. **10**, the flange portion **52***a* of the chamber **50** is configured to abut the insertion guide member **34** over the entire circumference. Also, the second holding portion **38** includes a gasket **80** (corresponding to an example of a cover portion) and an annular member **90** (corresponding to an example of a cover portion).

[0098] The gasket **80** is disposed in the surroundings of the non-holding portion **54** of the chamber **50** and is configured to support the chamber **50**. The gasket **80** 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 gasket **80** may be formed of metal, glass, ceramics, or the like. Also, the gasket **80** is preferably made of PEEK in terms of heat resistance. The annular member **90** is configured to be engaged with and support the insertion guide member **34** and the gasket **80**. The annular member **90** can be formed of an elastic member such as silicone rubber, for example. In a case where silicone rubber is used, a preferred range of Shore A hardness is 40 to 60 and can be appropriately selected in accordance with deformation of the annular member **90**. Also, the annular member **90** is configured to be positioned at and fixed to the fixed portion **22** that is fixed to the inner housing, which is not illustrated.

[0099] The gasket **80** and the annular member **90** are disposed to cover the circumference at the abutting location between the chamber **50** and the insertion guide member **34**. It is thus possible to prevent an aerosol generated in the camber **50** from leaking from the abutting location between the chamber **50** and the insertion guide member **34** to the inside of the inner housing of the flavor inhaler **100**.

[0100] Also, the gasket **80** and the annular member **90** are disposed to face the heat insulating portion **32** with a gap therebetween and restricts movement of the heat insulating portion **32** in the axial direction of the chamber **50**. Therefore, the heat insulating portion **32** is prevented from moving with no limit in the axial direction of the chamber **50**, and the heat insulating portion **32** is thus prevented from colliding against another member (such as the inner housing **10**, for example). Moreover, since the annular member **90** is formed of an elastic member, it is possible to alleviate a stress applied to the heat insulating portion **32** and thereby to prevent the heat insulating portion **32** from breaking even in a case where the annular member **90** comes into contact with the heat insulating portion **32**.

[0101] Also, the gasket **80** is disposed to face the inner circumferential surface of the heat insulating portion **32** with a gap therebetween and restricts movement of the heat insulating portion **32** in the radial direction of the chamber **50**. Therefore, the heat insulating portion **32** is prevented from moving with no limit in the radial direction of the camber **50**, and the heat insulating portion **32** is thus prevented from colliding against another member (such as the inner housing **10**, for example). Additionally, it is possible to restrict, from the inside of the heat insulating portion **32**, movement of the heat insulating portion **32** in the radial direction of the chamber **50** and thereby to reduce the size of the flavor inhaler **100**.

[0102] Here, when the distance from the heater cushion **74** to the gasket **80** and the annular member **90**, specifically, the distance from the heater cushion **74** to the gasket **80** and the annular member **90** at the position facing the heat insulating portion **32** is defined as L**1**, and the length of the heat insulating portion **32** in the axial direction is defined as L**2**, a relationship of L**1**>L**2** is preferably satisfied. According to this, it is possible to dispose the heat insulating portion **32** at a non-contact position with respect to the heater cushion **74**, the gasket **80**, and the annular member **90**. Therefore, it is possible to prevent a stress from the heater cushion **74**, the gasket **80**, and the annular member **90** from being applied to the heat insulating portion **32**.

[0103] Note that the heater cushion **74** is positioned at and fixed to the fixed portion **22** in the present embodiment according to the above description, the present invention is not limited thereto. FIG. **11** is an enlarged sectional view illustrating another aspect of the first holding portion. As illustrated in FIG. **12**, the first holding portion **137** has a ring

172 (corresponding to an example of a support portion) and a heater cushion **174**. Also, the bottom member **36** provided at the bottom portion **56** of the chamber **50** has a shaft portion **36***a* projecting to the outside of the chamber **50** through the hole **56***a* of the chamber **50**.

[0104] The ring **172** is configured to abut the bottom portion **56** of the chamber **50** and support the chamber **50**. Also, the ring **172** has, at its center part, a hole **172***a* through which the shaft portion **36***a* of the bottom member **36** penetrates. The ring **172** is made of a resin, for example, and may be made of polycarbonate (PC), an acrylonitrile-butadiene-styrene (ABS) resin, or a resin such as PEEK from a polymer alloy or the like containing polyether ether ketone (PEEK) or a plurality of types polymers, in particular.

[0105] The heater cushion **174** is configured to accommodate and support one end of the ring **172**. Also, the heater cushion **174** has, at its center part, a hole **174***a* through which the shaft portion **36***a* of the bottom member **36** penetrates. The heater cushion **174** may be formed of an elastic member such as silicon, for example.

[0106] The bottom member **36** is configured such that the shaft portion **36***a* is positioned at and fixed to the fixed portion **22** that is fixed to the inner housing, which is not illustrated. Note that the fixed portion **22** may be the inner housing itself.

[0107] Even with the first holding portion **137** with such a structure, sealing is formed between the flange portion **52***a* of the chamber **50** and the insertion guide member **34** by the heater cushion **174** biasing the chamber **50** toward the insertion guide member **34**, and it is thus possible to prevent an aerosol generated in the chamber **50** due to heating of the flavor generating article **110** from leaking to the inside of the inner housing from the part between the chamber **50** and the insertion guide member **34**.

[0108] 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.

[0109] 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 portion **42** is not limited to a resistance heating type and may be an induction heating type. In that case, the heating portion **42** can heat the chamber **50** through induction heating. Also, in a case where the flavor generating article **110** has a susceptor, the heating portion **42** can heat the susceptor of the flavor generating article **110** through induction heating.

REFERENCE SIGNS LIST

[0110] **32** Heat insulating portion
[0111] **34** Insertion guide member
[0112] **36** Bottom member
[0113] **36***b* Flat surface
[0114] **36***d* Air layer
[0115] **37** First holding portion
[0116] **38** Second holding portion
[0117] **42** Heating portion
[0118] **50** Chamber
[0119] **52** Opening
[0120] **62** Contact portion
[0121] **66** Separated portion
[0122] **72** Support portion
[0123] **72***a* Flat surface
[0124] **74** Heater cushion
[0125] **80** Gasket
[0126] **85** Ring
[0127] **90** Annular member
[0128] **100** Flavor inhaler
[0129] **110** Flavor generating article
[0130] **150** Second air flow path
[0131] **160** First air flow path
[0132] **137** First holding portion
[0133] **172** Ring
[0134] **174** Heater cushion

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,

wherein the accommodating portion includes

a tubular portion that surrounds a circumference of the flavor generating article, and

an abutting portion that is disposed at the other end of the accommodating portion inside the tubular portion, is formed of a member that is different from the tubular portion, and abuts the flavor generating article accommodated in the accommodating portion.

2. The flavor inhaler according to claim **1**, wherein the abutting portion is configured of a resin.

3. The flavor inhaler according to claim **2**, wherein a first air flow path that communicates with the flavor generating article accommodated in the accommodating portion is formed at the abutting portion.

4. The flavor inhaler according to claim **3**,

wherein the tubular portion includes a contact portion that comes into contact with the flavor generating article when the flavor generating article is accommodated in the accommodating portion and a separated portion that is adjacent to the contact portion in a circumferential direction and is separated from the flavor generating article, and

when the flavor generating article is accommodated in the accommodating portion, a second air flow path that communicates with the first air flow path is formed between the separated portion and the flavor generating article.

5. The flavor inhaler according to claim **1**, wherein the tubular portion is configured of metal.

6. The flavor inhaler according to claim **1**, wherein the tubular portion has a non-cylindrical shape.

7. The flavor inhaler according to claim 1, further comprising:

a sealing portion that seals a part between the tubular portion and the abutting portion.

8. The flavor inhaler according to claim 1, further comprising:

a heating portion that is disposed at an outer circumference of the tubular portion and is configured to heat the flavor generating article accommodated in the accommodating portion,

wherein the abutting portion and the heating portion do not overlap each other in an axial direction of the accommodating portion.

9. The flavor inhaler according to claim 1, wherein the abutting portion is engaged with a bottom portion of the tubular portion formed on the other end side of the accommodating portion.

10. The flavor inhaler according to claim 1, further comprising:

a support portion that is engaged with the abutting portion via the tubular portion.

11. The flavor inhaler according to claim 10, further comprising:

a rotation preventing mechanism that prevents relative rotation of the support portion with respect to the tubular portion about an axial direction of the accommodating portion as a rotation axis.

12. The flavor inhaler according to claim 10, wherein the abutting portion forms an air layer on a side opposite to an abutting surface that abuts the flavor generating article accommodated in the accommodating portion in a state where the abutting portion is engaged with the support portion.

13. The flavor inhaler according to claim 10, wherein a bottom portion of the tubular portion formed on the other end side of the accommodating portion is sandwiched between and supported by the abutting portion and the support portion.

14. The flavor inhaler according to claim 1, further comprising:

a guide portion that abuts the opening of the tubular portion and guides insertion of the flavor generating article into the tubular portion.

15. The flavor inhaler according to claim 14, further comprising:

a cover portion that is disposed to cover a circumference of an abutting location between the tubular portion and the guide portion.

* * * * *