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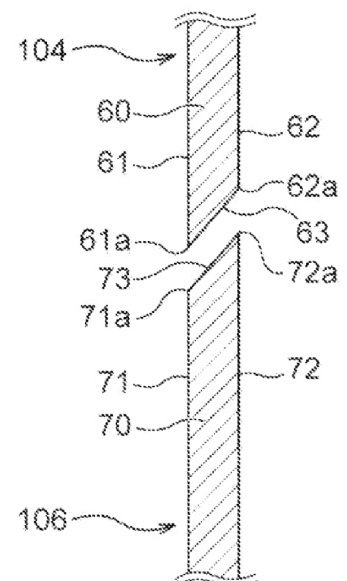
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(54) **FLAVOR INHALER**

(57) This flavor inhaler has a housing having a lower end and an upper end that is opposite to the lower end and is closer to a mouthpiece than the lower end. The housing includes a first housing and a second housing that is closer to the lower end than the first housing. The first housing has a first wall that extends between the upper end and the lower end. The first wall has a first outer surface and a first inner surface. In a cross section perpendicular to the first outer surface and extending between the upper end and the lower end, a first end portion on the lower end side of the first outer surface is located closer to the lower end than a second end portion on the lower end side of the first inner surface. The first housing has a first end surface connecting the first end portion and the second end portion.

[Figure 4]



EP 4 825 205 A1

Description

TECHNICAL FIELD

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

BACKGROUND ART

[0002] Flavor inhalers for inhaling flavors, etc., without combustion of materials are conventionally known. A flavor inhaler includes, for example, a chamber for accommodating a flavor generating article and a heater for heating the flavor generating article accommodated in the chamber (see, for example, PTL 1).

CITATION LIST

PATENT LITERATURE

[0003] PTL 1: WO 2020/035454 A1

SUMMARY OF INVENTION

TECHNICAL PROBLEM

[0004] In conventional flavor inhalers, a housing that internally accommodates a heater and a control unit may consist of a plurality of components. In such cases, it is preferable to prevent the ingress of liquid into the housing through gaps between the components, as far as possible.

[0005] The present invention relates to a flavor inhaler having a housing consisting of a plurality of components, and one objective of the present invention is to suppress the ingress of liquid into the housing through gaps between the components.

SOLUTION TO PROBLEM

[0006] According to a first aspect, a flavor inhaler is provided. The flavor inhaler has a housing having a lower end and an upper end that is opposite to the lower end and is closer to a mouthpiece than the lower end. The housing includes a first housing and a second housing that is closer to the lower end than the first housing. The first housing has a first wall that extends between the upper end and the lower end. The first wall has a first outer surface and a first inner surface. In a cross section perpendicular to the first outer surface and extending between the upper end and the lower end, a first end portion on the lower end side of the first outer surface is located closer to the lower end than a second end portion on the lower end side of the first inner surface. The first housing has a first end surface connecting the first end portion and the second end portion.

[0007] According to the first aspect, since the first

outer surface of the first housing closer to the mouthpiece extends farther toward the lower end side than the first inner surface, it is possible to suppress the ingress of liquid such as rain flowing from above through a gap between the first housing and the second housing when the flavor inhaler is held.

[0008] In the cross-section, the first end portion may extend at least 0.3 mm farther toward the lower end side than the second end portion.

[0009] In this case, since the first end portion extends a sufficient distance farther toward the lower end side than the second end portion, it is possible to further suppress the ingress of liquid such as rain flowing from above through the gap between the first housing and the second housing when the flavor inhaler is held.

[0010] The first end surface may be flat, and the angle between the first outer surface and the first end surface may be 30°-75°.

[0011] If the angle is less than 30°, the lower end portion of the first wall may become too thin and the lower end portion of the first wall may not have sufficient strength. If the angle is greater than 75°, the difference between the positions of the first end portion and second end portion in the vertical direction is reduced, and it may not be possible for the ingress of liquid into the housing to be sufficiently suppressed. Therefore, if the angle is within the above numerical range, the ingress of liquid into the housing can be suppressed while suppressing a reduction in the strength of the lower end portion of the first wall.

[0012] The configuration may be such that: the second housing has a second wall that extends between the upper end and the lower end; the second wall has a second outer surface and a second inner surface; in a cross section perpendicular to the second outer surface and extending between the upper end and the lower end, a third end portion on the upper end side of the second outer surface is located closer to the lower end than a fourth end portion on the upper end side of the second inner surface; the second housing has a second end surface connecting the third end portion and the fourth end portion; and the first end surface and the second end surface are arranged facing each other.

[0013] In this case, the shape of the second wall of the second housing can be formed to correspond to the shape of the first wall of the first housing, allowing the ingress of liquid through the gap between the first housing and the second housing to be further suppressed.

[0014] The gap between the first end surface and the second end surface may be 0.1-0.5 mm.

[0015] If the gap is less than 0.1 mm, the gap between the first end surface and the second end surface becomes too small, and, depending on the manufacturing tolerance of the housing, the first end surface and the second end surface may come into contact, preventing proper assembly of the first housing and the second housing. Furthermore, if the gap is greater than 0.5 mm, the gap between the first end surface and the

second end surface becomes larger, and this may prevent the ingress of liquid into the housing being sufficiently suppressed. Therefore, if the gap is within the above numerical range, the ingress of liquid into the housing can be suppressed while suppressing the occurrence of housing assembly failure.

[0016] The second end surface may be flat, and the angle between the second outer surface and the second end surface may be 105° - 150° .

[0017] If the angle is less than 105° , the difference between the positions of the third end portion and the fourth end portion in the vertical direction is reduced, and it may not be possible for the ingress of liquid into the housing to be sufficiently suppressed. If the angle is greater than 150° , the upper end portion of the second wall may become too thin and the upper end portion of the second wall may not have sufficient strength. Therefore, if the angle is within the above numerical range, the ingress of liquid into the housing can be suppressed while suppressing a reduction in the strength of the upper end portion of the second wall.

[0018] There may be a heating assembly which is accommodated in the housing and is configured to heat a consumable, and a battery which is accommodated in the housing and supplies power to the heating assembly.

[0019] In this case, failure of the heating assembly and the battery accommodated in the housing can be suppressed by suppressing the ingress of liquid such as rain flowing from above through the gap between the first housing and the second housing when the flavor inhaler is held.

[0020] The housing has an opening through which the consumable can be inserted, and the cross section thereof may be parallel to the direction of insertion of the consumable.

[0021] The direction parallel to the direction of insertion of the consumable is usually oriented substantially vertically when the user is using the flavor inhaler (is smoking). As a result, in the direction parallel to the direction of insertion of the consumable, since the first end portion is located closer to the lower end than the second end portion, the ingress of liquid such as rain flowing from above through the gap between the first housing and the second housing can be further suppressed when the flavor inhaler is held.

[0022] The upper end may be located in the first housing and the lower end may be located in the second housing.

[0023] In this case, the housing can be configured from only the first housing and the second housing.

[0024] The first end surface may extend around the entire periphery of the first housing.

[0025] In this case, since the first outer surface extends farther toward the lower end side than the first inner surface around the entire periphery of the first housing, it is possible to further suppress the ingress of liquid such as rain flowing from above through the

gap between the first housing and the second housing when the flavor inhaler is held.

BRIEF DESCRIPTION OF DRAWINGS

[0026]

Fig. 1 is an oblique view of a flavor inhaler according to an embodiment of the present invention.

Fig. 2 is an oblique view of the flavor inhaler accommodating a consumable inserted through the opening.

Fig. 3 is a cross-sectional view of the flavor inhaler as viewed in the direction of the arrows 3-3 shown in fig. 1.

Fig. 4 is a partial cross-sectional view of the housing.

Fig. 5 is a partial cross-sectional view of the housing according to another embodiment.

Fig. 6 is a partial cross-sectional view of the housing according to another embodiment.

DESCRIPTION OF EMBODIMENTS

[0027] Embodiments of the present invention will be described below with reference to the drawings. In the drawings described below, identical or corresponding components are assigned the same reference symbols and duplicate descriptions will not be given.

[0028] Fig. 1 is an oblique view of a flavor inhaler 100 according to an embodiment of the present invention. Fig. 2 is an oblique view of the flavor inhaler 100 accommodating a consumable 120 inserted through an opening 110. An X-Y-Z orthogonal coordinate system may be applied to the drawings described in the present specification for convenience of description. In this coordinate system, the Z-axis is oriented vertically upward, the X-Y plane is arranged cutting across the flavor inhaler 100 in a horizontal direction, and the Y-axis is arranged extending from a front face to a rear face of the flavor inhaler 100. The Z-axis may also refer to the direction of insertion of the consumable 120, which is accommodated in a chamber 50, described hereinafter. Furthermore, the X-axis direction may also refer to a device longitudinal direction in a plane orthogonal to the direction of insertion of the consumable 120. The Y-axis direction may also refer to a device lateral direction in a plane orthogonal to the direction of insertion of the consumable 120.

[0029] The flavor inhaler 100 is configured to generate an aerosol containing a flavor by, for example, heating a stick-type consumable 120 having a flavor source containing an aerosol source. As an example, the consumable 120 may be a cigarette provided with a smokable substance that contains a flavor source such as tobacco and an aerosol source at the tip end in the Z-axis negative direction, and provided with a filter in another location. Examples of aerosol sources that may

be cited include glycerol, propylene glycol, triacetin, 1,3-butanediol, and mixtures thereof. It should be noted that, in the present embodiment, the consumable 120 is described as being stick-shaped, but the consumable 120 used in the flavor inhaler 100 is not limited to that shape. For example, the consumable may also be configured to contain a tank that accommodates a liquid aerosol source. Furthermore, the consumable may include a heating unit. The flavor inhaler 100 may be configured to use a stick-type consumable 120 together with a consumable containing a liquid aerosol source.

[0030] As shown in fig. 1 and fig. 2, the flavor inhaler 100 includes a housing 102 having a lower end b1 and an upper end t1. The upper end t1 is located closer to the mouthpiece than the lower end b1 and opposite to the lower end b1. It should be noted that, in the example shown in fig. 2, the mouthpiece is provided in the consumable 120, but the configuration is not limited thereto, and the mouthpiece may be provided in the flavor inhaler 100. The housing 102 includes a first housing 104 and a second housing 106 that is closer to the lower end b1 than the first housing 104. In the illustrated example, the flavor inhaler 100 has a slide cover 108. The housing 102 forms the outermost housing of the flavor inhaler 100 and is of a size that fits in a user's hand. When the user is using the flavor inhaler 100, the user can inhale the aerosol while holding the flavor inhaler 100 in their hand. The first housing 104 and the second housing 106 may engage with each other using a known structure. Specifically, the first housing 104 may mate with the second housing 106, may engage therewith by means of a snap fit such as a hook, or may engage therewith by means of the magnetic force of a magnet.

[0031] The material of the housing 102 may, for example, be a metal such as aluminum, or a resin. Specifically, as the resin, any suitable material can be selected, such as a polycarbonate (PC) or acrylonitrile butadiene styrene (ABS) resin, polyether ether ketone (PEEK), or a polymer alloy containing a plurality of types of polymer.

[0032] The first housing 104 includes an opening 110 into which the consumable 120 can be inserted, and the slide cover 108 is slidably attached to the first housing 104 so as to close the opening 110. Specifically, the slide cover 108 is configured to be movable along the outer surface of the first housing 104 between a closed position for closing the opening 110 of the first housing 104, and an open position (the position shown in fig. 1 and fig. 2) for opening the opening 110. For example, the user can manually operate the slide cover 108 to move the slide cover 108 between the closed position and the open position. As a result, the slide cover 108 can permit or restrict access of the consumable 120 to the inside of the flavor inhaler 100.

[0033] Fig. 1 and fig. 2 show the housing 102 of the flavor inhaler 100 in such a way that joining surfaces of the first housing 104 and the second housing 106 ex-

tend substantially parallel to the X-Y plane, but the housing 102 is not limited to such a configuration. For example, the joining surfaces may extend in such a way as to be inclined relative to the X-Y plane. Furthermore, in the example shown in fig. 1 and fig. 2, the housing 102 consists only of the first housing 104 and the second housing 106. In other words, the upper end t1 of the housing 102 is located in the first housing 104 and the lower end b1 is located in the second housing 106. The configuration of the housing 102 is not limited thereto, and the housing 102 may comprise three or more members.

[0034] The flavor inhaler 100 may further include a terminal, which is not shown. The terminal may be an interface for connecting the flavor inhaler 100 to an external power source, for example. If the power source of the flavor inhaler 100 is a rechargeable battery, the power source can be charged by connecting the external power source to the terminal so that a current flows from the external power source to the power source. Furthermore, it is also possible to enable data relating to the operation of the flavor inhaler 100 to be sent to an external device by connecting a data transmission cable to the terminal.

[0035] The internal structure of the flavor inhaler 100 according to an embodiment of the present invention will be described next. Fig. 3 is a cross-sectional view of the flavor inhaler 100 as viewed in the direction of the arrows 3-3 shown in fig. 1. As shown in fig. 3, a power source unit 20, a heating assembly 30, and a control unit 80 are provided in an internal space of the housing 102 of the flavor inhaler 100.

[0036] The control unit 80 includes a circuit board 82. The circuit board 82 may include a microprocessor, etc., for example, and may control the supply of power from the power source unit 20 to the heating assembly 30. This enables the control unit 80 to control the heating of the consumable 120 by the heating assembly 30. Furthermore, the control unit 80 may include a Bluetooth (registered trademark) interface 28. The control unit 80 can communicate with external equipment via the Bluetooth interface 28.

[0037] The power source unit 20 comprises a battery 21 which is electrically connected to the circuit board 82 of the control unit 80. The battery 21 may be a rechargeable battery or a non-rechargeable battery, for example. The battery 21 is electrically connected to the heating assembly 30 via the circuit board 82. By this means, the battery 21 can supply the heating assembly 30 with power to appropriately heat the consumable 120.

[0038] The heating assembly 30 comprises: the chamber 50 that extends in the longitudinal direction of the consumable 120; a heating unit (not depicted) surrounding a portion of the chamber 50; a heat insulating portion 32; and a substantially cylindrical insertion guide member 34. The chamber 50 is configured to accommodate the consumable 120. The heating unit is

configured to contact the outer circumferential surface of the chamber 50 and to heat the consumable 120 accommodated in the chamber 50. It should be noted that, as an example, a susceptor may be provided inside or around the consumable 120, and the heating unit may be configured to include an induction coil for inductively heating the susceptor.

[0039] The heat insulating portion 32 is configured to surround the chamber 50 and the heating unit. The heat insulating portion 32 may be an aerogel, for example. The insertion guide member 34 is formed by a resin material such as PEEK, PC or ABS, for example, and is provided between the slide cover 108 in the closed position and the chamber 50. The insertion guide member 34 communicates with the outside of the flavor inhaler 100 when the slide cover 108 is in the open position, and guides the insertion of the consumable 120 into the chamber 50 when the consumable 120 is inserted into the insertion guide member 34.

[0040] If the housing 102 consists of a plurality of components (the first housing 104 and the second housing 106), as shown in fig. 1 to fig. 3, it is preferable to suppress the ingress of liquid into the housing 102 through gaps between the components. To this end, the flavor inhaler 100 according to the present embodiment is characterized by the structure of the first housing 104.

[0041] Fig. 4 is a partial cross-sectional view of the housing 102. Specifically, fig. 4 shows a cross-section (X-Z cross-section) perpendicular to the first outer surface 61 and the second outer surface 71 of the housing 102, discussed hereinafter, and extending between the upper end t1 and the lower end b1 of the housing 102. As shown in fig. 4, the first housing 104 has a first wall 60 extending between the upper end t1 and the lower end b1. The first wall 60 has a first outer surface 61 and a first inner surface 62. The first outer surface 61 constitutes a portion of the outer surface of the housing 102, and the first inner surface 62 constitutes a portion of the inner surface of the housing 102. In the present embodiment, in the cross-section shown in fig. 4, a first end portion 61a on the lower end side of the first outer surface 61 is located closer to the lower end b1 than a second end portion 62a on the lower end side of the first inner surface 62. Furthermore, the first housing 104 has a first end surface 63 connecting the first end portion 61a and the second end portion 62a. As a result, since the first outer surface 61 of the first housing 104 closer to the mouthpiece extends farther toward the lower end b1 side than the first inner surface 62, it is possible to suppress the ingress of liquid such as rain flowing from above through the gap between the first housing 104 and the second housing 106 when the flavor inhaler 100 is held.

[0042] More specifically, the cross-section shown in fig. 4 may be a cross-section parallel to the direction of insertion of the consumable 120. The direction parallel to the direction of insertion of the consumable 120 is

usually oriented substantially vertically when the user is using the flavor inhaler 100 (is smoking). As a result, in the direction parallel to the direction of insertion of the consumable 120, since the first end portion 61a is located closer to the lower end b1 than the second end portion 62a, the ingress of liquid such as rain flowing from above through the gap between the first housing 104 and the second housing 106 can be further suppressed when the flavor inhaler 100 is held.

[0043] The first end surface 63 preferably extends around the entire periphery of the first housing 104. In this case, since the first outer surface 61 extends farther toward the lower end b1 side than the first inner surface 62 around the entire periphery of the first housing 104, it is possible to further suppress the ingress of liquid such as rain flowing from above through the gap between the first housing 104 and the second housing 106 when the flavor inhaler 100 is held. The configuration is not limited thereto, and the first end surface 63 may extend partially in the circumferential direction of the first housing 104.

[0044] In the cross-section shown in fig. 4, the first end portion 61a preferably extends at least 0.3 mm farther toward the lower end b1 side than the second end portion 62a. In this case, since the first end portion 61a extends a sufficient distance farther toward the lower end b1 side than the second end portion 62a, it is possible to further suppress the ingress of liquid such as rain flowing from above through the gap between the first housing 104 and the second housing 104 when the flavor inhaler 100 is held.

[0045] In the example shown in fig. 4, the first end surface 63 is flat. In this case, the angle between the first outer surface 61 and the first end surface 63 is preferably 30°-75°. If the angle is less than 30°, the lower end portion of the first wall 60 may become too thin and the lower end portion of the first wall 60 may not have sufficient strength. If the angle is greater than 75°, the difference between the positions of the first end portion 61a and second end portion 62a in the vertical direction is reduced, and it may not be possible for the ingress of liquid into the housing 102 to be sufficiently suppressed. Therefore, if the angle is within the above numerical range, the ingress of liquid into the housing 102 can be suppressed while suppressing a reduction in the strength of the lower end portion of the first wall 60.

[0046] As shown in fig. 4, the second housing 106 has a second wall 70 extending between the upper end t1 and the lower end b1. The second wall 70 has a second outer surface 71 and a second inner surface 72. The second outer surface 71 constitutes a portion of the outer surface of the housing 102, and the second inner surface 72 constitutes a portion of the inner surface of the housing 102. In the present embodiment, in the cross-section shown in fig. 4, a third end portion 71a on the upper end side of the second outer surface 71 is located closer to the lower end b1 than a fourth

end portion 72a on the upper end side of the second inner surface 72. Furthermore, the second housing 106 has a second end surface 73 connecting the third end portion 71a and the fourth end portion 72a, and the first end surface 63 and the second end surface 73 are arranged facing each other. In this case, the shape of the second wall 70 of the second housing 106 can be formed to correspond to the shape of the first wall 60 of the first housing 104, allowing the ingress of liquid through the gap between the first housing 104 and the second housing 106 to be further suppressed.

[0047] The second end surface 73 preferably extends around the entire periphery of the second housing 106. In this case, since the shape of the second wall 70 of the second housing 106 can be formed to correspond to the shape of the first wall 60 of the first housing 104 over the entire periphery of the second housing 106, the ingress of liquid through the gap between the first housing 104 and the second housing 106 can be further suppressed. The configuration is not limited thereto, and the second end surface 73 may extend partially in the circumferential direction of the second housing 106.

[0048] The gap between the first end surface 63 and the second end surface 73 is preferably 0.1-0.5 mm. If the gap is less than 0.1 mm, the gap between the first end surface 63 and the second end surface 73 becomes too small, and, depending on the manufacturing tolerance of the housing 102, the first end surface 63 and the second end surface 73 may come into contact, preventing proper assembly of the first housing 104 and the second housing 106. Furthermore, if the gap is greater than 0.5 mm, the gap between the first end surface 63 and the second end surface 73 becomes larger, and this may prevent the ingress of liquid into the housing being sufficiently suppressed. Therefore, if the gap is within the above numerical range, the ingress of liquid into the housing 102 can be suppressed while suppressing the occurrence of housing 102 assembly failure. There may be substantially no gap between the first end surface 63 and the second end surface 73.

[0049] In the example shown in fig. 4, the second end surface 73 is flat. In this case, the angle between the second outer surface 71 and the second end surface 73 is preferably 105°-150°. If the angle is greater than 105°, the difference between the positions of the third end portion 71a and fourth end portion 72a in the vertical direction is reduced, and it may not be possible for the ingress of liquid into the housing 102 to be sufficiently suppressed. If the angle is greater than 150°, the upper end portion of the second wall 70 may become too thin and the upper end portion of the second wall 70 may not have sufficient strength. Therefore, if the angle is within the above numerical range, the ingress of liquid into the housing 102 can be suppressed while suppressing a reduction in the strength of the upper end portion of the second wall 70.

[0050] As discussed hereinabove, the flavor inhaler

100 includes the heating assembly 30, which is accommodated in the housing 102 and is configured to heat the consumable 120, and the battery 21, which is accommodated in the housing 102 and supplies power to the heating assembly 30. Therefore, according to the present embodiment, since it is possible to suppress the ingress of liquid such as rain flowing from above through the gap between the first housing 104 and the second housing 106 when the flavor inhaler 100 is held, failure of the heating assembly 30 and the battery 21 accommodated in the housing 102 can be suppressed.

[0051] Fig.5 and fig. 6 are partial cross-sectional views of the housing 102 according to other embodiments. The examples shown in fig. 5 and fig. 6 differ from the example shown in fig. 4 in the shape of the first end surface 63 and the second end surface 73. In the example shown in fig. 5, the first end surface 63 and the second end surface 73 are curved rather than flat. In the example shown in fig. 5, the first end surface 63 and the second end surface 73 are curved so as to bend toward the upper end t1, but the configuration is not limited thereto, and they may be curved so as to bend toward the lower end b1. Further, in the example shown in fig. 6, the first end surface 63 and the second end surface 73 are formed with a stepped shape rather than being flat.

[0052] Equally, only one of the first end surface 63 and the second end surface 73 may be curved, or only one of them may be formed with a stepped shape. The shapes of the first end surface 63 and the second end surface 73 disclosed in fig. 4 to fig. 6 may be combined in any way.

[0053] While embodiments of the present invention have been described above, the embodiments of the invention described above are for ease of understanding of the present invention and do not limit the present invention. The present invention may be modified and improved without departing from the spirit thereof, and equivalents thereof are included in the present invention. Furthermore, components described in the claims and specification may be combined or omitted within a scope that enables at least some of the problems described above to be solved, or within a scope that demonstrates at least some of the advantageous effects.

[0054] A number of aspects disclosed in the present specification are given below.

(1) A flavor inhaler including a housing having a lower end and an upper end that is opposite to the lower end and is closer to a mouthpiece than the lower end, wherein:

the housing includes a first housing and a second housing that is closer to the lower end than the first housing;

the first housing has a first wall that extends between the upper end and the lower end;

the first wall has a first outer surface and a first inner surface;

in a cross section perpendicular to the first outer surface and extending between the upper end and the lower end, a first end portion on the lower end side of the first outer surface is located closer to the lower end than a second end portion on the lower end side of the first inner surface; and

the first housing has a first end surface connecting the first end portion and the second end portion.

(2) The flavor inhaler according to (1), wherein, in the cross-section, the first end portion extends at least 0.3 mm farther toward the lower end side than the second end portion.

(3) The flavor inhaler according to (1) or (2), wherein:

the first end surface is flat; and
the angle between the first outer surface and the first end surface is 30°-75°.

(4) The flavor inhaler according to any one of (1) to (3), wherein:

the second housing has a second wall that extends between the upper end and the lower end;
the second wall has a second outer surface and a second inner surface;
in a cross section perpendicular to the second outer surface and extending between the upper end and the lower end, a third end portion on the upper end side of the second outer surface is located closer to the lower end than a fourth end portion on the upper end side of the second inner surface;
the second housing has a second end surface connecting the third end portion and the fourth end portion; and
the first end surface and the second end surface are arranged facing each other.

(5) The flavor inhaler according to (4), wherein a gap between the first end surface and the second end surface is 0.1-0.5 mm.

(6) The flavor inhaler according to (4) or (5), wherein:

the second end surface is flat; and
the angle between the second outer surface and the second end surface is 105°-150°.

(7) The flavor inhaler according to any one of (1) to (6), comprising:

a heating assembly which is accommodated in the housing and is configured to heat a consumable; and

a battery which is accommodated in the housing and supplies power to the heating assembly.

(8) The flavor inhaler according to any one of (1) to (7), wherein:

the housing has an opening through which the consumable can be inserted; and
the cross-section is a cross-section parallel to the direction of insertion of the consumable.

(9) The flavor inhaler according to any one of (1) to (8), wherein

the upper end is located in the first housing and the lower end is located in the second housing.

(10) The flavor inhaler according to any one of (1) to (9), wherein
the first end surface extends around the entire periphery of the first housing.

REFERENCE SIGNS LIST

[0055]

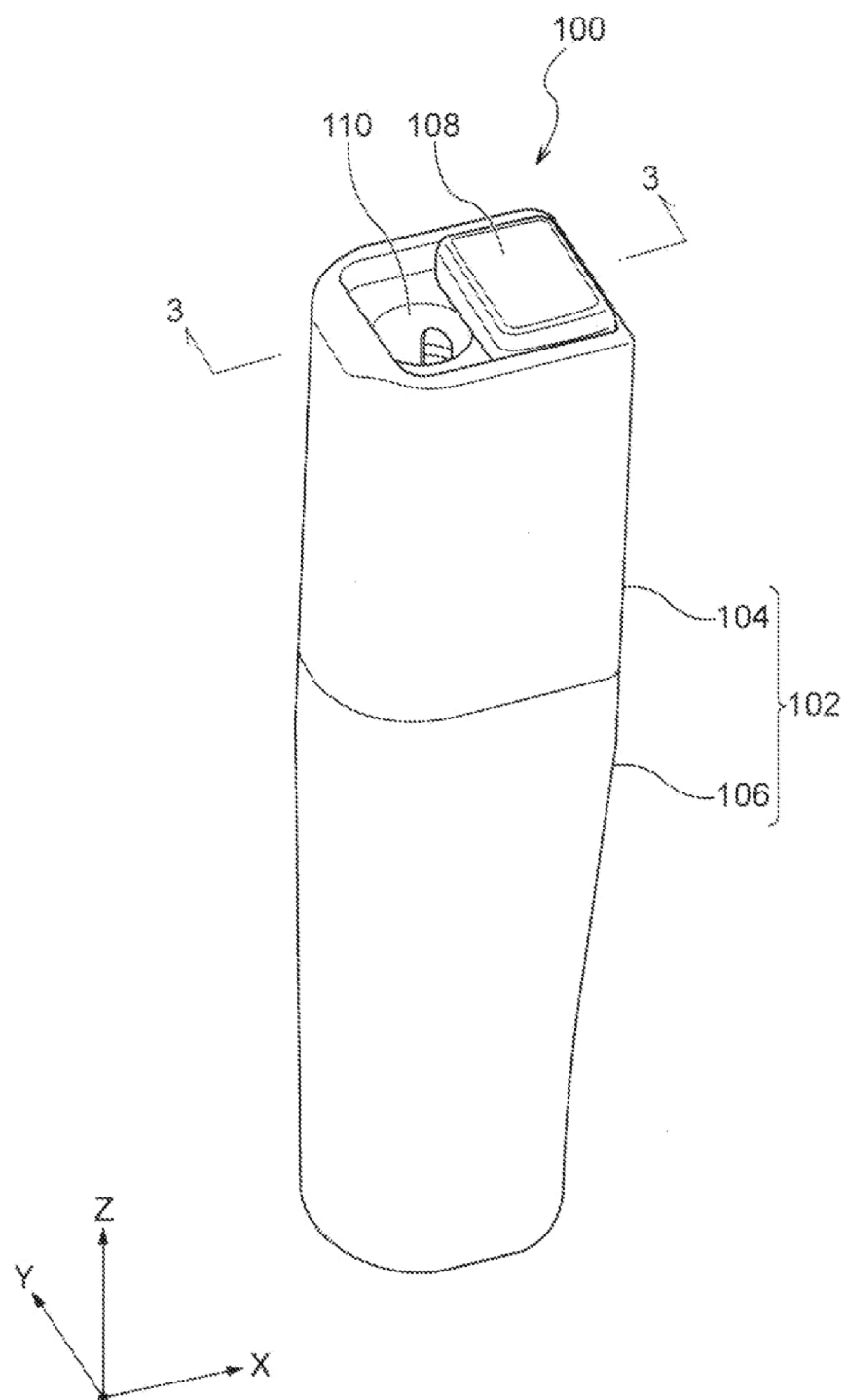
21: Battery
30: Heating assembly
60: First wall
61: First outer surface
61a: First end portion
62: First inner surface
62a: Second end portion
63: First end surface
70: Second wall
71: Second outer surface
71a: Third end portion
72: Second inner surface
72a: Fourth end portion
73: Second end surface
100: Flavor inhaler
102: Housing
104: First housing
106: Second housing
110: Opening
120: Consumable
b1: Lower end
t1: Upper end

Claims

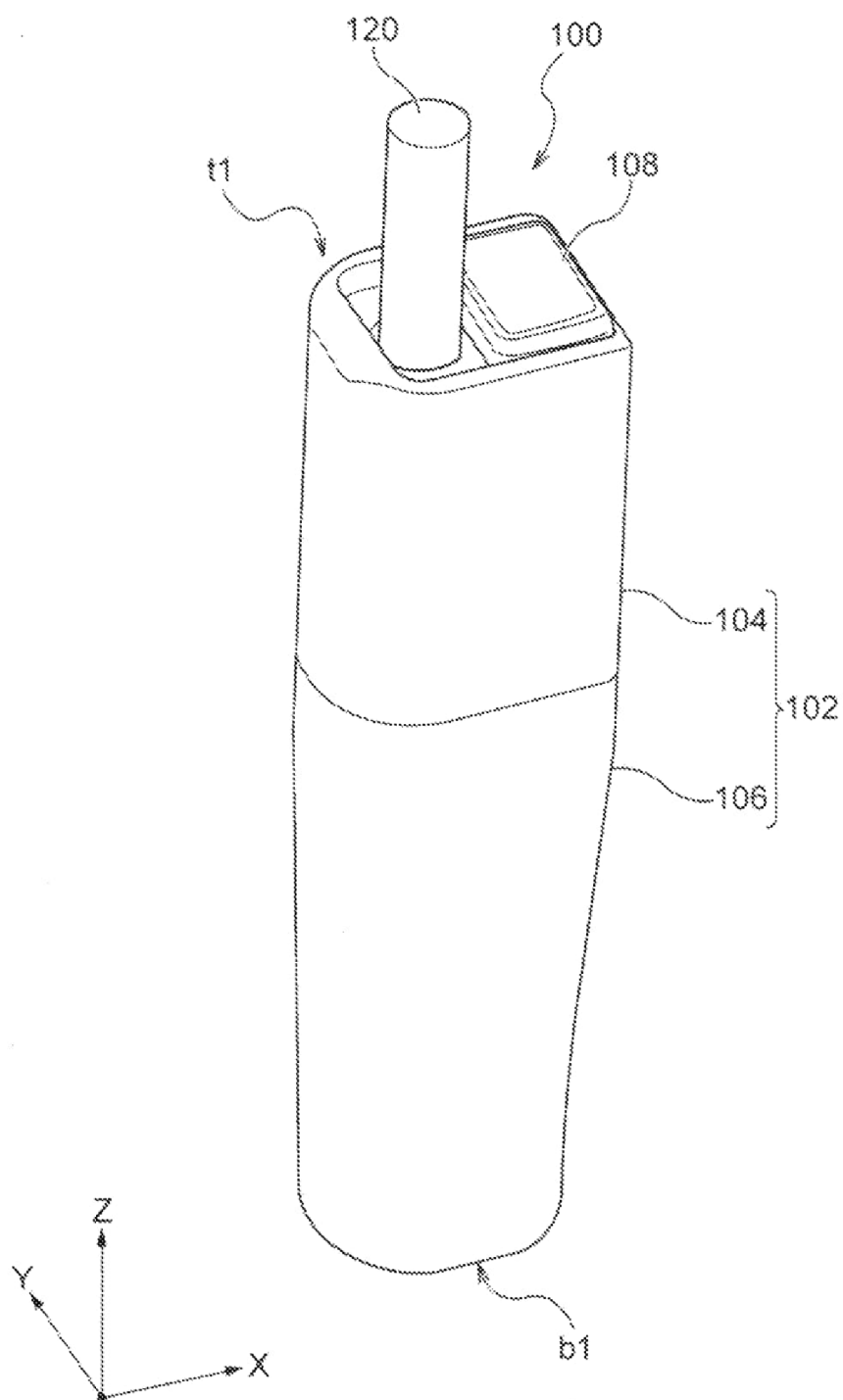
1. A flavor inhaler including a housing having a lower end and an upper end that is opposite to the lower end and is closer to a mouthpiece than the lower end, wherein:

- the housing includes a first housing and a second housing that is closer to the lower end than the first housing;
the first housing has a first wall that extends between the upper end and the lower end;
the first wall has a first outer surface and a first inner surface;
in a cross section perpendicular to the first outer surface and extending between the upper end and the lower end, a first end portion on the lower end side of the first outer surface is located closer to the lower end than a second end portion on the lower end side of the first inner surface; and
the first housing has a first end surface connecting the first end portion and the second end portion.
2. The flavor inhaler as claimed in claim 1, wherein, in the cross-section, the first end portion extends at least 0.3 mm farther toward the lower end side than the second end portion.
3. The flavor inhaler as claimed in claim 1 or 2, wherein:
the first end surface is flat; and
the angle between the first outer surface and the first end surface is 30°-75°.
4. The flavor inhaler as claimed in any one of claims 1 to 3, wherein:
the second housing has a second wall that extends between the upper end and the lower end;
the second wall has a second outer surface and a second inner surface;
in a cross section perpendicular to the second outer surface and extending between the upper end and the lower end, a third end portion on the upper end side of the second outer surface is located closer to the lower end than a fourth end portion on the upper end side of the second inner surface;
the second housing has a second end surface connecting the third end portion and the fourth end portion; and
the first end surface and the second end surface are arranged facing each other.
5. The flavor inhaler as claimed in claim 4, wherein a gap between the first end surface and the second end surface is 0.1-0.5 mm.
6. The flavor inhaler as claimed in claim 4 or 5, wherein:
- the second end surface is flat; and
the angle between the second outer surface and the second end surface is 105°-150°.
7. The flavor inhaler as claimed in any one of claims 1 to 6, comprising:
a heating assembly which is accommodated in the housing and is configured to heat a consumable; and
a battery which is accommodated in the housing and supplies power to the heating assembly.
8. The flavor inhaler as claimed in any one of claims 1 to 7, wherein:
the housing has an opening through which the consumable can be inserted; and
the cross-section is a cross-section parallel to the direction of insertion of the consumable.
9. The flavor inhaler as claimed in any one of claims 1 to 8, wherein
the upper end is located in the first housing and the lower end is located in the second housing.
10. The flavor inhaler as claimed in any one of claims 1 to 9, wherein
the first end surface extends around the entire periphery of the first housing.

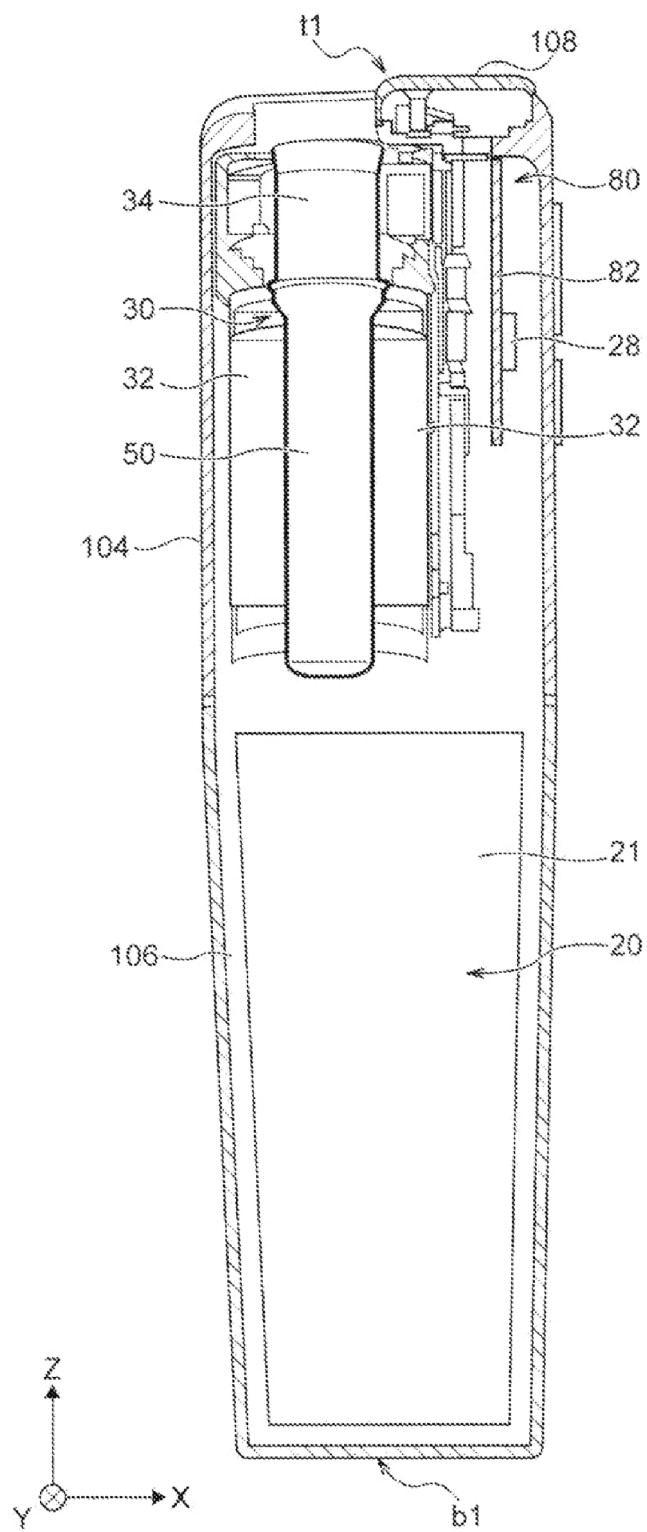
[Figure 1]



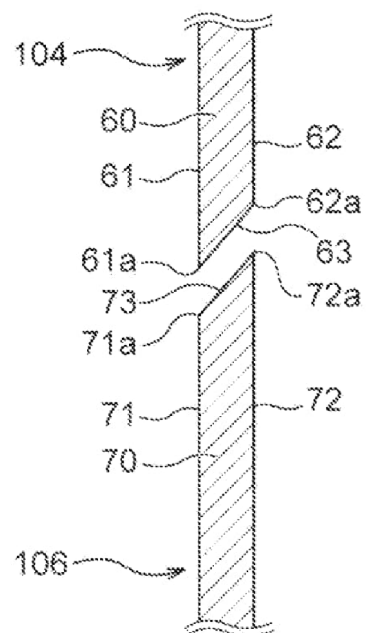
[Figure 2]



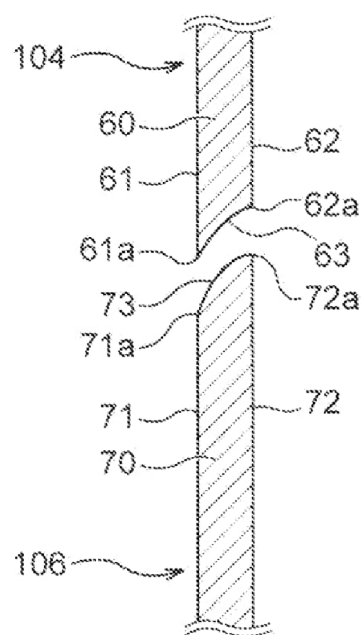
[Figure 3]



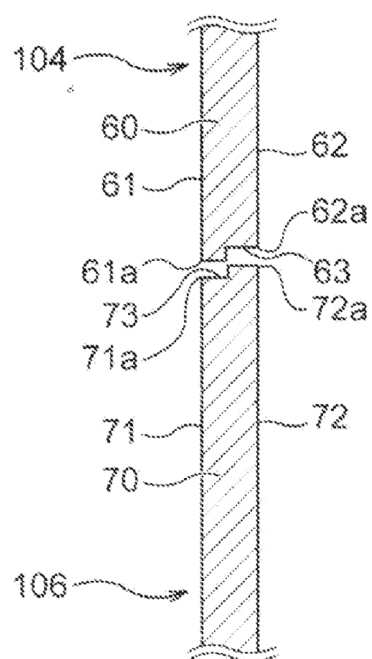
[Figure 4]



[Figure 5]



[Figure 6]



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2023/044576

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A24F40/00 - 47/00; H05K5/00-5/06

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 1971-2024
Registered utility model specifications of Japan 1996-2024
Published registered utility model applications of Japan 1994-2024

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2023/286195 A1 (JAPAN TOBACCO INC.) 19 January 2023 (2023-01-19) in particular, see paragraphs [0038]-[0055], fig. 1-4C	1-9
A		10
Y	JP 2017-501805 A (FAX LABS, INC.) 19 January 2017 (2017-01-19) in particular, see paragraph [0155], fig. 7B	1-9
Y	JP 2021-513842 A (NICOVENTURES TRADING LTD.) 03 June 2021 (2021-06-03) in particular, see paragraphs [0021]-[0029], fig. 1	1-10
Y	JP 2006-12877 A (SYNCLAYER INC.) 12 January 2006 (2006-01-12) in particular, see fig. 6	1-10
A	CN 108078015 A (SHENZHEN IVPS TECHNOLOGY CO., LTD.) 29 May 2018 (2018-05-29) in particular, see paragraphs [0035], [0057], fig. 1, 5	1-10

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

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“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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Date of the actual completion of the international search

24 January 2024

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06 February 2024

Name and mailing address of the ISA/JP

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Authorized officer

Telephone No.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/JP2023/044576

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
WO 2023/286195 A1	19 January 2023	(Family: none)	
JP 2017-501805 A	19 January 2017	US 2015/0208729 A1 in particular, see paragraph [0179], fig. 7B see WO 2015/100361 A1 KR 10-2016-0102293 A CN 106028846 A	
JP 2021-513842 A	03 June 2021	US 2021/0100284 A1 in particular, see paragraphs [0024]-[0032], fig. 1 WO 2019/158698 A1 KR 10-2020-0105721 A CN 111712145 A	
JP 2006-12877 A	12 January 2006	(Family: none)	
CN 108078015 A	29 May 2018	(Family: none)	

Form PCT/ISA/210 (patent family annex) (July 2022)

REFERENCES CITED IN THE DESCRIPTION

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