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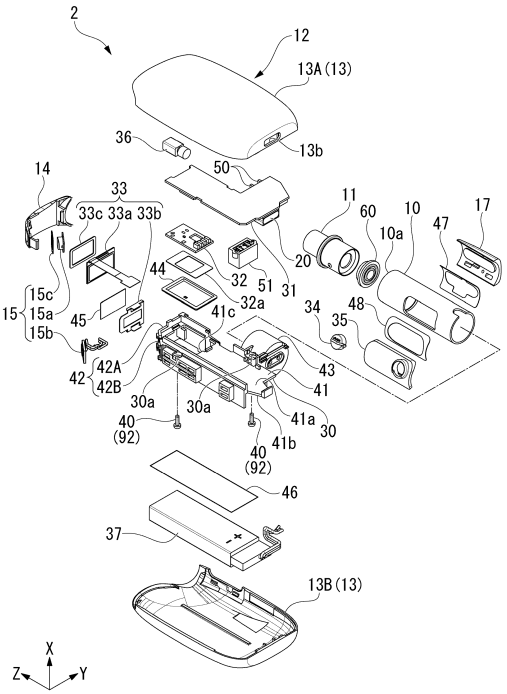
(54) BODY UNIT FOR AEROSOL GENERATION DEVICE, AEROSOL GENERATION DEVICE, AND NON-COMBUSTION-TYPE SUCTION DEVICE

(57) A main body unit of an aerosol generation device includes a cartridge accommodation portion that accommodates a cartridge; an outer case that surrounds at least a part of an outside of the cartridge accommodation portion; and a holder being accommodated in the outer case, wherein the holder includes a main plate that holds at least one of members provided inside the outer case; and a receiving portion that is integrally formed with the main plate and to receive an end portion of the cartridge accommodation portion.

FIG. 7



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Description

[Technical Field]

[0001] The present invention relates to a main body unit of an aerosol generation device, an aerosol generation device, and a non-combustion suction device.

[Background Art]

[0002] Conventionally, a non-combustion suction device configured to taste a flavor by suctioning an aerosol is known. There is a device as this type of non-combustion suction device, for example, including a cartridge that houses an aerosol source, a main body unit of an aerosol generation device that houses the cartridge so as to be insertable and removable, and a flavor source container that imparts flavor to the aerosol atomized by the main unit.

[0003] For example, in Patent Document 1 shown below, a configuration in which a cartridge accommodation portion (slot) to accommodate a cartridge (tank) is provided in an outer case (flame) of a main body unit (power component) is disclosed.

[Citation List]

[Patent Document]

[0004] [Patent Document 1]
United States Patent No. 10251425

[Summary of Invention]

[Technical Problem]

[0005] In the above-described conventional technique, there is still room for improvement in the assembly of configuration members (integrability).

[0006] An object of the present invention is to make the assembly to become easy.

[Solution to Problem]

[0007] In order to achieve the above-described object, a main body unit of an aerosol generation device according to an aspect of the present invention includes a cartridge accommodation portion that accommodates a cartridge; an outer case that surrounds at least a part of an outside of the cartridge accommodation portion; and a holder being accommodated in the outer case, wherein the holder includes a main plate that holds at least one of members provided inside the outer case; and a receiving portion that is integrally formed with the main plate and to receive an end portion of the cartridge accommodation portion.

[0008] According to the present aspect, both the members inside the outer case and the cartridge accommodation portion are assembled in the holder so as to make the assembly to be easy.

[0009] In the main body unit of an aerosol generation device, an insertion hole for inserting a salient electrode inside the cartridge accommodation portion may be formed in the receiving portion.

[0010] According to the present aspect, it becomes easy to arrange the salient electrode inside the cartridge accommodation portion.

[0011] In the main body unit of an aerosol generation device, the receiving portion may be formed in a cylindrical shape with a bottom in an end portion in a short direction of the main plate to be parallel to a longitudinal direction of the main plate.

[0012] According to the present aspect, the main plate and the cartridge accommodation portion are arranged to be paraellel to each other in the longitudinal direction such that the total length of the main body unit becomes shorter.

[0013] In the main body unit of an aerosol generation device, the holder may include a sub plate that extends from the end portion of the main plate in a direction intersecting to a plate surface of the main plate and holds at least one of the members provided along an outer surface of the outer case.

[0014] According to the present aspect, the rigidity of the holder can be improved.

[0015] In the main body unit of an aerosol generation device, the sub plate may extend in a direction orthogonal to the plate surface of the main plate.

[0016] According to the present aspect, the cross section of the holder becomes the L shape (or T shape) such that it is possible to improve the rigidity of the holder.

[0017] In the main body unit of an aerosol generation device, the sub plate may extend to two sides in the direction orthogonal to the plate surface of the main plate.

[0018] According to the present aspect, the cross section of the holder becomes the T shape such that it is possible to improve the rigidity of the holder.

[0019] In the main body unit of an aerosol generation device, the holder may include, as the sub plate, a first sub plate provided on a first end side of the end portion of the main plate and a second sub plate provided on a second end side being adjacent to the first end side of the end portion of the main plate, and the first sub plate and the second sub plate may be connected to each other.

[0020] According to the present aspect, the first sub plate and the second sub plate are connected such that it is possible to improve the rigidity of the holder.

[0021] In the main body unit of an aerosol generation device, the first sub plate and the second sub plate may be connected at an obtuse angle.

[0022] According to the present aspect, even in a case in which the outer case includes the corner portion with a rounded shape or the inclined corner portion, it becomes easy to arrange the input device in the corner portion.

[0023] In the main body unit of an aerosol generation device, a display device may be held on the sub plate.

[0024] According to the present aspect, it is possible to save the space by holding the display device on the sub plate.

[0025] In the main body unit of an aerosol generation device, an input device may be held on the sub plate.

[0026] According to the present aspect, it is possible to save the space by holding the input device on the sub plate.

[0027] In the main body unit of an aerosol generation device, the main plate may include a first plate surface holding a first member and a second plate surface that is on the opposite side of the first plate surface and holds a second member different from the first member.

[0028] According to the present aspect, the members are held on the front and back of the main plate such that it is possible to save the space.

[0029] In the main body unit of an aerosol generation device, either of the first member or the second member may be a power source, and the other of the first member or the second member may be an electronic member electrically connected to the power source.

[0030] According to the present aspect, the power source and the electronic member are individually held on the front and back of the main plate such that it is possible to realize both goals of enlarging the capacity of the power source and securing the space for arranging the electronic members.

[0031] An aerosol generation device according to an aspect of the present invention includes the main body unit described above; and a cartridge accommodating an aerosol source while being inserted into the cartridge accommodation portion of the main body unit to be insertable to and removable from the cartridge accommodation portion of the main body unit.

[0032] According to the present aspect, the main body unit in which various members are assembled in the holder is provides such that it is possible to increase the productivity of the device.

[0033] A non-combustion type suction device according to an aspect of the present invention includes the aerosol generation device described above and a flavor source container mounted on a suction port portion of the aerosol generation device.

[0034] According to the present aspect, it is possible to add the flavor to the aerosol.

[0035] A main body unit of an aerosol generation device according to an aspect of the present invention includes a solid-aerosol-source accommodation portion that accommodates a solid aerosol source accommodation portion; an outer case that surrounds at least a part of an outside of the solid-aerosol-source-accommodation portion; and a holder being accommodated in the outer case, wherein the holder includes a main plate that holds at least one of members provided inside the outer case; and a receiving portion that is integrally formed with the main plate and to receive an end portion of the solid-aerosol-source accommodation portion.

[0036] According to the present aspect, the members inside the outer case and the solid-aerosol-source-accommodation portion are assembled in the holder so as to make the assembly to be easy.

[Advantageous Effects of Invention]

[0037] According to an aspect of the present invention, it is possible to make the assembly to become easy.

[Brief Description of Drawings]

[0038]

Fig. 1 is a left-side perspective view showing a suction device according to an embodiment.

Fig. 2 is a right-side perspective view showing the suction device according to the embodiment.

Fig. 3 is a front view showing the suction device according to the embodiment.

Fig. 4 is a planar view showing the suction device according to the embodiment.

Fig. 5 is an exploded perspective view showing the suction device that is viewed from a bottom surface side according to the embodiment.

Fig. 6 is a cross-sectional view along an arrow line A-A as shown in Fig. 4.

Fig. 7 is an exploded perspective view showing a main body unit according to the embodiment.

Fig. 8 is a front view showing a state in which a first case is detached from the main body unit according to the embodiment.

Fig. 9 is a rear view showing a state in which a second case is detached from the main body unit according to the embodiment.

Fig. 10 is a perspective view showing a first plate surface side of a holder according to the embodiment.

Fig. 11 is a perspective view showing a second plate surface side of the holder according to the embodiment.

Fig. 12 is a cross-sectional view along an arrow line B-B as shown in Fig. 4.

Fig. 13 is a perspective view showing an attachment structure of a vibrator according to the embodiment.

Fig. 14 is a perspective view showing an attachment structure of a display cover according to the embodiment.

Fig. 15 is a planar view showing the holder according to the embodiment.

Fig. 16 is a cross-sectional view along an arrow line C-C as shown in Fig. 15.

Fig. 17 is a front planar view showing a cartridge accommodation portion according to the embodiment.

Fig. 18 is a right-side planar view of the cartridge accommodation portion according to the embodi-

ment.
Fig. 19 is a left-side planar view of the cartridge accommodation portion according to the embodiment.
Fig. 20 is a cross-sectional view along an arrow line D-D as shown in Fig. 18.
Fig. 21 is a right-side planar view of the suction port portion according to the embodiment.
Fig, 22 is a cross-sectional view along an arrow line E-E as shown in Fig. 21.
Fig. 23 is a perspective view showing a main board according to the embodiment.
Fig. 24 is a perspective view showing a state in which a salient electrode cover is detached from a salient electrode of the main board according to the embodiment.
Fig. 25 is a cross-sectional view along an arrow line F-F as shown in Fig. 9.
Fig. 26 is a view of a cover member viewed from outside in a radial direction according to the embodiment.
Fig. 27 is a view of the cover member viewed from inside in the radial direction according to the embodiment.
Fig. 28 is a perspective view showing the cover member according to the embodiment.
Fig. 29 is a cross-sectional view along an arrow line G-G as shown in Fig. 3.
Fig. 30 is a view of a sensor holder viewed from outside in a radial direction according to the embodiment.
Fig. 31is a view of the sensor holder viewed from inside in the radial direction according to the embodiment.
Fig. 32 is a perspective view showing the sensor holder according to the embodiment.
Fig. 33 is a perspective view showing an assembly method of the main body unit according to the embodiment.
Fig. 34 is a rear view showing a configuration of the inside of the first case according to the embodiment.
Fig. 35 is a front view showing a configuration of the inside of the second case according to the embodiment.
Fig. 36 is a front view showing the main body unit in a state in which the suction port portion is detached therefrom according to the embodiment.
Fig. 37 is a descriptive view showing a state in which the cartridge is accommodated in the cartridge accommodation portion according to the embodiment.
Fig. 38 is a descriptive view showing a state in which the suction port portion is mounted on the cartridge accommodation portion according to the embodiment.
Fig. 39 is a perspective view showing a modification example of a suction port connection portion according to the embodiment.
Fig. 40 is a perspective view showing a modification example of the cartridge accommodation portion according to the embodiment.
Fig. 41 is a cross-sectional view along an arrow line H-H as shown in Fig. 39.

[Description of Embodiments]

[0039] Hereinafter, a non-combustion suction device (hereinafter simply referred to as a suction device) according to an embodiment of the present invention will be described with reference to figures.

[Suction device]

[0040] Fig. 1 is a left-side perspective view of a suction device 1 according to an embodiment. Fig. 2 is a right-side perspective view of the suction device 1 according to the embodiment.
[0041] Fig. 3 is a front view of the suction device 1 according to the embodiment. Fig. 4 is a planar view of the suction device 1 according to the embodiment. FIG. 5 is an exploded perspective view of the suction device 1 according to the embodiment as viewed from the bottom surface side.
[0042] The suction device 1 is a so-called non-combustion suction device, and obtains a flavor by suctioning an aerosol atomized by heating through a flavor source.
[0043] As shown in Fig. 5, the suction device 1 includes a main body unit 2, a cartridge 3 (also referred to as an atomization unit), and a flavor source container 4. The cartridge 3 is accommodated in the cartridge accommodation portion 10 of the main body unit 2 so as to be removable. The flavor source container 4 is detachably attached to a suction port portion 11 (also referred to as a suction port portion) of the main body unit 2.
[0044] The main body unit 2 is provided with an outer case 12. The outer case 12 is formed in a flat box shape having a rounded shape as a whole. The outer case 12 has a pair of main surface portions 12A and a peripheral wall portion 12B. Here, the "pair" of main surface portions 12A means that one main surface portion (first main surface portion 12A1) and the other main surface portion (second main surface portion 12A2) are arranged so as to face each other, and it is not limited to the meaning that the first main surface portion 12A1 and the second main surface portion 12A2 are the same with each other in detailed shape.
[0045] The pair of main surface portions 12A are portions that form a pair of opposite surfaces (the surface having the largest area according to the present embodiment) of a hexahedrons when the outer case 12 is imitated as a hexahedron surrounded by six quadrangles. Also, the peripheral wall portion 12B refers to the portions forming the remaining four surfaces of the hexahedron excluding the pair of main surface portions 12A. The peripheral wall portion 12B is also referred to as the portion connecting the peripheral edges of the pair of main surface portions 12A arranged to face each other.
[0046] As shown in Fig. 1, the outer case 12 includes

a main body case 13 and a display cover 14. The main body case 13 is formed by combining a first case 13A and a second case 13B. The first case 13A has the first main surface portion 12A1 and a first peripheral wall portion 12B1 provided on the peripheral edge of the first main surface portion 12A1. Also, the second case 13B has the second main surface portion 12A2 and a second peripheral wall portion 12B2 provided on the peripheral edge of the second main surface portion 12A2.

[0047] The first peripheral wall portion 12B1 of the first case 13A, the second peripheral wall portion 12B2 of the second case 13B, and the display cover 14 form the peripheral wall portion 12B. The peripheral wall portion 12B is formed with a mating surface of the first peripheral wall portion 12B1 of the first case 13A and the second peripheral wall portion 12B2 of the second case 13B. Four corner portions 12C (corner portions) are formed on the peripheral wall portion 12B.

[0048] The four corner portions 12C include a first corner portion 12C1 in which an input device 15 (push button) is arranged, a second corner portion 12C2 in which the cartridge accommodation portion 10 is arranged, a third corner portion 12C3 that is arranged diagonally of the first corner portion 12C1, and a fourth corner portion 12C4 arranged diagonally of the second corner portion 12C2.

[0049] As shown in Fig. 3, a raised portion 12D, which will be described later, is formed between the first corner portion 12C1 and the second corner portion 12C2 on the peripheral wall portion 12B. On the other hand, a flat surface is formed between the third corner portion 12C3 and the fourth corner portion 12C4 of the peripheral wall portion 12B. That is, the peripheral wall portion 12B opposite to the raised portion 12D is flat. As shown in Fig. 1 and Fig. 2, the raised portion 12D refers to a surface portion of the main body case 13 that is relatively higher than the display cover 14.

[0050] The peripheral wall portion 12B has an outer surface 12b1 continuous with the pair of main surface portions 12A, and a recess portion 12b2 recessed with respect to the outer surface 12b1. A part of the outer surface 12b1 forms the raised portion 12D. The recess portion 12b2 is formed by the display cover 14. The display cover 14 is formed with a through hole 14a for arranging the input device 15. That is, the input device 15 is arranged in the recess portion 12b2. The input device 15 may be arranged at a position below the outer surface 12b1. That is, at least a part of the input device 15 may be arranged at a position below the outer surface 12b 1. Preferably, all of the input devices 15 are arranged at positions below the outer surface 12b1. In other words, it is preferable that a contact detection portion (button surface) of the input device 15 is arranged at a position that does not reach the outer surface 12b1.

[0051] As shown in Fig. 2, a window portion 16 is provided between the second corner portion 12C2 and the third corner portion 12C3 of the peripheral wall portion 12B. From the window portion 16, the remaining amount of the aerosol source of the cartridge 3 that is accommodated inside the cartridge accommodation portion 10 can be confirmed. The window portion 16 is formed of an opening portion 13a provided in the main body case 13 and a cover member 17 that covers the opening portion 13a.

[0052] An air inlet 18 for taking in outside air into the outer case 12 is formed in the gap between the cover member 17 and the opening portion 13a. Further, inside the main body case 13, an air hole 19 for fluid communication between the air inlet 18 and the inside of the cartridge accommodation portion 10 is formed in the cover member 17 (see Fig. 29 described later).

[0053] As shown in Fig. 5, a charging terminal 20 is provided between the third corner portion 12C3 and the fourth corner portion 12C4 of the peripheral wall portion 12B. The main body case 13 is formed with an opening portion 13b that exposes the charging terminal 20. The opening portion 13b is formed on the first case 13A side of the main body case 13.

[0054] In the following description, among the pair of main surface portions 12A (first main surface portion 12A1 and second main surface portion 12A2) described above, the side on which the first main surface portion 12A1 is arranged is referred to as a front side, and the side on which the second main surface portion 12A2 is arranged is referred to as a rear side. Further, in the planar view shown in Fig. 4, the side on which the input device 15 is arranged is referred to as a left side, and the side on which the cartridge accommodation portion 10 and the window portion 16 are arranged is referred to as a right side.

[0055] As shown in Fig. 3, the cartridge accommodation portion 10 has a cartridge insertion-removal port 10a protruding from the outer case 12. That is, a part of the cartridge accommodation portion 10 including the cartridge insertion-removal port 10a protrudes from the outer case 12. The side on which the cartridge accommodation portion 10 protrudes is referred to as an upper side, and the side opposite to the side on which the cartridge accommodation portion 10 protrudes is referred to as a lower side.

[0056] Further, in the figures, an XYZ Cartesian coordinate system is set, and the positional relationship of each member is explained with reference to this XYZ Cartesian coordinate system. The X-axis direction is the front-rear direction (also referred to as the thickness direction) of the suction device 1, the Y-axis direction is the left-right direction (also referred to as the width direction) of the suction device 1, and the Z-axis direction is the up-down direction (also referred to as the height direction) of the suction device 1.

[0057] Further, the positional relationship of each member may be described with reference to a main axis O of the cartridge accommodation portion 10. The main axis O is the central axis of the cartridge accommodation portion 10 passing through the center of the cartridge insertion-removal port 10a. The direction in which the

main axis O extends is referred to as a main axis direction (Z-axis direction described above), the direction orthogonal to the main axis O is referred to as a radial direction, and the direction around the main axis O is referred to as a circumferential direction.

<Cartridge>

[0058] The cartridge 3 stores a liquid aerosol source and atomizes the liquid aerosol source. As shown in Fig. 5, the cartridge 3 is formed in a columnar shape and is accommodated inside the cartridge accommodation portion 10 from the cartridge insertion-removal port 10a described above.

[0059] Fig. 6 is a cross-sectional view taken along the arrow line A-A shown in Fig. 4.

[0060] As shown in Fig. 6, the cartridge 3 includes a tank 21, a gasket 22, a mesh body 23, an atomizing container 24, a heating portion 25, and a heater holder 26. The tank 21 stores an aerosol source. The tank 21 has translucency, and the remaining amount of liquid in the aerosol source can be confirmed.

[0061] Here, the "translucency" refers to a property of a substance through which the light passes that the transmittance is extremely high such that the other side through the substance is seen to be "transparent", and allows the light to pass through the substance in the same manner as "transparent". However, since the transmitted light is diffused or the transmission rate is low, a state in which a shape or the like of the substance on the other side cannot be clearly recognized through the material is included. That is, even if as the frosted glass, milky white plastic, or the like has the translucency.

[0062] The tank 21 is formed in a cylinder shape with a top. A through hole 21b is formed in the top wall 21a of the tank 21. A flow path pipe 21c (also referred to as an inner peripheral wall) connected to the through hole 21b is vertically installed on the top wall 21a. The flow path pipe 21c serves as a flow path for the atomized aerosol. The flow path pipe 21c is connected to the outer peripheral wall 21d of the tank 21 via a plurality of ribs 21e. The ribs 21e are arranged at equal intervals in the circumferential direction so as to be radial when viewed from the main axis direction (see Fig. 29 described later).

[0063] As shown in Fig. 6, the outer peripheral wall 21d of the tank 21 extends below (-Z side) from the lower end of the flow path pipe 21c. Two engagement holes 21f are formed in the vicinity of the lower end portion of the outer peripheral wall 21d. The two engagement holes 21f are formed for fixing the heater holder 26 to the tank 21. The two engagement holes 21f are arranged to face each other on both sides of the outer peripheral wall 21d with the main axis O interposed therebetween. In the state where the cartridge 3 is accommodated in the cartridge accommodation portion 10, the central axis of the cartridge 3 coincides with the main axis O of the cartridge accommodation portion 10.

[0064] The gasket 22 is an annular plate member that covers the bottom portion of the annular space (liquid storage chamber 21g) formed between the outer peripheral wall 21d of the tank 21 and the flow path pipe 21c. The gasket 22 determines the position of the mesh body 23 and maintains the orientation of the mesh body 23. A plurality of opening portions 22a are formed in the gasket 22. The opening portions 22a are arranged at equal intervals in the circumferential direction. The mesh body 23 is in contact with the liquid storage chamber 21g through the opening portions 22a of the gasket 22 to be wet.

[0065] The mesh body 23 is a porous and liquid-absorbent member. The mesh body 23 is formed of, for example, a cotton-based fiber material or a glass-based fiber. The mesh body 23 is also formed in the annular shape substantially the same as that of the gasket 22. That is, the flow path pipe 21c can be inserted in the radial center of the mesh body 23. The mesh body 23 closes the opening portion 22a of the gasket 22 and forms a liquid storage chamber 21g inside the tank 21. The liquid aerosol source is stored in the liquid storage chamber 21g.

[0066] The atomizing container 24 is made of an elastic member, for example, a resin material such as the silicone resin. The atomizing container 24 is formed in the shape of a cylinder with a bottom. The upper end opening edge of the peripheral wall 24a of the atomizing container 24 is in contact with the outer peripheral edge of the mesh body 23 in the main axis direction. That is, the mesh body 23 is sandwiched between the gasket 22 and the atomizing container 24. On the outer surface of the peripheral wall 24a of the atomizing container 24, a fitting portion 24b that fits into the inner surface of the outer peripheral wall 21d of the tank 21 is formed.

[0067] An atomization chamber 24c is formed inside the peripheral wall 24a of the atomization container 24. The atomization chamber 24c communicates with the flow path pipe 21c of the tank 21. An opening portion 24e is formed in the bottom wall 24d of the atomizing container 24. A heating portion 25 is arranged in the atomization chamber 24c.

[0068] The heating portion 25 is configured for atomizing the liquid aerosol source. The heating portion 25 includes a wick 25a connected to the mesh body 23 and an electrical heating wire 25b for heating the wick 25a.

[0069] The wick 25a is a substantially columnar member that is porous and has liquid absorbency. The wick 25a is curved and deformed in a substantially U shape. More specifically, the wick 25a has two main-axis-direction extending portions extending in the main axis direction and a radial-direction extending portion connecting the two main-axis-direction extending portions to each other. The two main-axis-direction extending portions are arranged to overlap each other in the X-axis direction (front-rear direction in Fig. 6), and each thereof is connected to the mesh body 23. As a result, the aerosol source absorbed by the mesh body 23 is suctioned by the wick 25a.

[0070] The electrical heating wire 25b is spirally wound around the radial-direction extending portion of the wick 25a. Both end portions of the electrical heating wire 25b extend toward the heater holder 26 side along the main axis direction. Both ends of the electrical heating wire 25b are electrically connected to two planar electrodes 26h provided on the lower surface of the bottom wall 26d of the heater holder 26, respectively. When the electrical heating wire 25b is energized through the two planar electrodes 26h, the wick 25a is heated. When the wick 25a is heated, the aerosol source absorbed by the wick 25a is atomized.

[0071] The heater holder 26 is formed in a cylindrical shape with a bottom. The peripheral wall 26a of the heater holder 26 is inserted into the outside of the peripheral wall 24a of the atomizing container 24 and the inside of the outer peripheral wall 21d of the tank 21. The upper end opening edge of the peripheral wall 26a abuts on the fitting portion 24b of the atomizing container 24 in the main axis direction. At the upper end of the peripheral wall 26a, two engaging pieces 26b that engage with the two engagement holes 21f of the outer peripheral wall 21d of the tank 21 are formed. The gasket 22, the mesh body 23, and the atomizing container 24 are incorporated in this order between the tank 21 and the heater holder 26 in the main axis direction.

[0072] The lower side of the peripheral wall 26a of the heater holder 26 is exposed from the tank 21. The lower side of the peripheral wall 26a has substantially the same outer diameter as that of the outer peripheral wall 21d of the tank 21. Further, two intake holes 26c penetrating in the radial direction are formed on the lower side of the peripheral wall 26a. The two intake holes 26c are arranged to face each other on both sides of the peripheral wall 26a with the main axis O interposed therebetween. The two intake holes 26c communicate the outside of the cartridge 3 (inside the cartridge accommodation portion 10) with the atomization chamber 24c. The bottom wall 26d of the heater holder 26 may have an intake hole 26e penetrating in the main axis direction; however, the intake hole 26e may not be formed. The intake hole 26e also communicates the outside of the cartridge 3 (inside the cartridge accommodation portion 10) with the atomization chamber 24c.

[0073] On the bottom wall 26d of the heater holder 26, a plate-shaped isolation wall 26f is erected in the main axis direction. Further, the isolation wall 26f extends in the radial direction, and both ends thereof are connected to the inner surface of the peripheral wall 26a. The bottom wall 26d is formed with two slits 26g penetrating in the main axis direction. The two slits 26g are arranged to sandwich the isolation wall 26f. Bent portions of the two planar electrodes 26h are inserted into the two slits 26g. The isolation wall 26f prevents short circuits at both ends of the electrical heating wire 25b connected to the two planar electrodes 26h and the two planar electrodes 26h.

[0074] Returning to Fig. 5, three engagement groove portions 26i are formed on the bottom wall 26d of the heater holder 26. The three engagement groove portions 26i are arranged at equal intervals in the circumferential direction (at intervals of 120 degrees in the circumferential direction). The engagement groove portion 26i is formed to open at the outer side in the radial direction and at the lower side in the main axis direction. The engagement groove portion 26i is formed in an isosceles trapezoidal shape when viewed from the radial direction, and has a tapered leg (slope) whose width in the circumferential direction gradually increases toward the lower side in the main axis direction. A number of the engagement groove portions 25i only has to be equal to or more than 2, and the number is not limited to 3. For example, the number of engagement groove portions 25i may be 6.

<Flavor source container>

[0075] The flavor source container 4 accommodates the flavor source, and the flavor is added to the aerosol atomized by the cartridge 3. Chopped tobacco or a molded product achieved by forming the tobacco raw material into granules can be used as the raw material piece constituting the flavor source. Also, the flavor source may be composed of plants other than the tobacco (for example, mint, Chinese herbs, herbs, or the like). Also, a fragrance such as menthol may be added to the flavor source. Also, the flavor source may be a carrier derived from a plant (cellulose or the like) or another carrier (including an inorganic carrier) on which the fragrance can be supported. The flavor source container 4 is attached to the suction port portion 11 of the main body unit 2.

[0076] As shown in Fig. 6, the flavor source container 4 includes a bottomed cylindrical container body 27 and a filter 28 that covers the opening portion of the container body 27. The peripheral wall 27a of the container body 27 is inserted at the inside of the peripheral wall 11a1 of the suction port portion 11. The upper side of the peripheral wall 27a of the container body 27 is exposed from the peripheral wall 11a1 of the suction port portion 11. The upper side of the peripheral wall 27a has substantially the same outer diameter as that of the peripheral wall 11a1 of the suction port portion 11. A step 27b is formed on the outer surface of the peripheral wall 27a to abut on the upper end opening edge of the peripheral wall 11a1 of the suction port portion 11.

[0077] A flavor source storage chamber 27c is formed at the inside of the peripheral wall 27a of the container body 27. A plurality of micropores 27e penetrating in the main axis direction are formed on the bottom wall 27d of the container body 27.

[0078] The filter 28 is made of, for example, a nonwoven fabric. The filter 28 is arranged at the inside of the peripheral wall 27a of the container body 27. The filter 28 closes the opening portion of the container body 27, and the flavor source storage chamber 27c is formed inside the flavor source container 4. The above-mentioned flavor source is accommodated in the flavor source storage chamber 27c.

<Main unit>

[0079] Fig. 7 is an exploded perspective view of the main body unit 2 according to the embodiment. Fig. 8 is a front view showing a state in which the first case 13A is detached from the main body unit 2 according to the embodiment. Fig. 9 is a rear view showing a state in which the second case 13B is detached from the main body unit 2 according to the embodiment.

[0080] As shown in Fig. 7, the main body unit 2 includes a holder 30, a main board 31, a sub board 32, a display device 33, a sensor 34, a sensor holder 35, a vibrator 36, and a power supply 37 in addition to the cartridge accommodating part 10, the suction port portion 11, the outer case 12, and the input device 15 described above.

[0081] The power supply 37 is formed in a substantially rectangular parallelepiped shape with the Z-axis direction as the longitudinal direction. The power supply 37 is electrically connected to the main board 31 provided with the charging terminal 20 via wirings. The power source 37 is a storage battery (secondary battery) and can be charged via the charging terminal 20. The power supply 37 is not limited to the rechargeable secondary battery, but may be a supercapacitor or the like. Further, the power supply 37 may be a primary battery. When the power supply 37 is the primary battery, the charging terminal 20 is unnecessary.

[0082] The holder 30 has a main plate 41 and a sub plate 42. The main plate 41 has a first plate surface 41a facing the +X side and a second plate surface 41b facing the opposite side (-X side). The main plate 41 is formed in a substantially elongated plate shape with the Z-axis direction as the longitudinal direction, the Y-axis direction as the short direction, and the X-axis direction as the thickness direction. The sub plate 42 extends from the end portion of the main plate 41 in a direction (the thickness direction of the main plate 41 (X-axis direction) according to the present embodiment) intersecting the plate surface of the main plate 41 (first plate surface 41a and second plate surface 41b).

[0083] The main board 31 and the sub board 32 are held on the first plate surface 41a side of the main plate 41. An opening portion 41c is formed on the upper side (+Z side) of the main plate 41 in the longitudinal direction. A tray 44 engages with the opening portion 41c. The sub board 32 is adhered to the tray 44 via an adhesive sheet 32a and is held by the main plate 41 via the tray 44. On the other hand, the power supply 37 is held on the second plate surface 41b side (-X side) of the main plate 41. The power supply 37 is held on the main plate 41 via an adhesive sheet 46.

[0084] The sub plate 42 has a first sub plate 42A that holds the display device 33 and a second sub plate 42B that holds the input device 15. The display device 33 is an organic EL display, a liquid crystal display, or the like. The display device 33 is arranged on the lower side (-Z side) of the display cover 14. The display cover 14 has the translucency, and the display surface of the display device 33 can be confirmed. The display device 33 includes a display device main body 33a, a display device holder 33b, and a cushion material 33c.

[0085] The display device holder 33b supports the display device main body 33a and holds the first sub plate 42A so as to hold the first sub plate 42A in the front-rear direction (X-axis direction). Further, the display device holder 33b is adhered to the display device main body 33a via the adhesive sheet 45. The cushion material 33c is a frame-shaped sponge body that surrounds the display surface of the display device main body 33a, and is arranged between the display cover 14 and the display device main body 33a.

[0086] The input device 15 is a push button. The input device 15 has a switch button 15a, a switch board 15b, and a switch holder 15c. The switch board 15b is held by the second sub plate 42B. The switch button 15a is arranged on the switch board 15b. The switch button 15a is incorporated in the display cover 14 side via the switch holder 15c (see Fig. 14 described later). The input device may be a touch panel. That is, the input device 15 only has to be a contact detection portion.

[0087] Further, the holder 30 has a receiving portion 43 that receives the end portion of the cartridge accommodation portion 10. The receiving portion 43 is formed in a tubular shape with a bottom extending in parallel along the longitudinal direction (Z-axis direction) of the main plate 41 at the end portion of the main plate 41 in the short direction (Y-axis direction).

[0088] A cover member 17 is adhered to the peripheral surface of the cartridge accommodation portion 10 via an adhesive sheet 47. Also, a sensor holder 35 is adhered to the peripheral surface of the cartridge accommodation portion 10 via an adhesive sheet 48.

[0089] The sensor holder 35 holds the sensor 34. The sensor 34 is a so-called puff sensor that detects the suction of the user. Examples of the sensor 34 include a pressure sensor for detecting pressure, an air flow sensor for detecting an air flow, a temperature sensor for detecting a temperature, and the like.

[0090] On the main board 31, a salient electrode 50 inserted into the inside of the cartridge accommodation portion 10 (specifically, an internal space formed by the cartridge accommodation portion 10 and the receiving portion 43) via the charging terminal 20 and the receiving portion 43 described above is provided. The vibrator 36 is not held on the main board 31 or the sub board 32, but is held on the first case 13A side (see Fig. 13 described later).

[0091] The component members of the main body unit 2 excluding the first case 13A, the second case 13B, and the vibrator 36 are assembled around the holder 30. The holder 30 has two through holes 30a penetrating in the front-rear direction (X-axis direction). Two screws 40 are inserted through the two through holes 30a. The two screws 40 secure the holder 30 to the first case 13A. That is, the holder 30 is screwed to the first case 13A side (see Fig. 9).

<Holder>

[0092] Fig. 10 is a perspective view of the holder 30 on the first plate surface 41a side according to the present embodiment. Fig. 11 is a perspective view of the holder 30 on the second plate surface 41b side according to the present embodiment.

[0093] As shown in Fig. 10 and Fig. 11, the holder 30 includes the first rib 42C, the second rib 42D, and the case fitting portion 42E in addition to the main plate 41, the sub plate 42, and the receiving portion 43 described above.

[0094] Similar to the sub plate 42, the first rib 42C and the second rib 42D extends in a direction (the thickness direction (X-axis direction) according to the present embodiment) intersecting the plate surface (first plate surface 41a and second plate surface 41b) of the main plate 41 from the end portion of the main plate 41. The first rib 42C and the second rib 42D extend in parallel with the longitudinal direction (Z-axis direction) of the main plate 41, and are arranged to face each other in the short direction (Y-axis direction) of the main plate 41. With regard to the sub plate 42, it is similar for the first rib 42C and the second rib 42D in the sense of a "main plate intersection portion" extending in the direction intersecting the plate surface of the main plate 41 from the end portion of the main plate 41; however, the first rib 42C and the second rib 42D differ from each other in the point of holding the members of the input device 15 and the display device 33 respectively.

[0095] As shown in Fig. 10, a plurality of board support pieces 41d are formed on the main plate 41 along the peripheral edge of the first plate surface 41a. The board support piece 41d supports the peripheral edge of the main board 31 (see Fig. 7) and forms a space between the board support piece 41d and the first plate surface 41a. As a result, the holder 30 can hold the main board 31 to which the electronic components are mounted on both sides thereof.

[0096] On the first rib 42C (not shown, the same applies to the second rib 42D) surrounding the first plate surface 41a, a clamping piece 42a that sandwiches the main board 31 supported by the board support piece 41d in the thickness direction (X-axis direction) is formed. Also, the board support piece 41d is also formed in the vicinity of the second rib 42D in the same arrangement as that of the first rib 42C. The bottom wall 43b of the receiving portion 43 is also formed with a board support piece 43e that supports the main board 31 and a clamping piece 43f that sandwiches the main board 31 in the thickness direction (X-axis direction).

[0097] Two engaging claws 41f for engaging the tray 44 described above with the opening portion 41c (see Fig. 7) of the main plate 41 are formed on the upper side in the longitudinal direction (+Z side) of the first plate surface 41a. The two engaging claws 41f are arranged to face each other in the longitudinal direction (Z-axis direction) of the main plate 41 at the peripheral edge portion of the opening portion 41c. The tray 44 is formed in a rectangular shape extending in the Z-axis direction when viewed from the X-axis direction.

[0098] Fig. 12 is a cross-sectional view taken along the arrow line B-B shown in Fig. 3. Fig. 12 shows a cross section passing through the two engaging claws 41f and the tray 44.

[0099] As shown in Fig. 12, the two engaging claws 41f are engaged with the peripheral portions of the tray 44 on the upper side (+Z side) and the lower side (-Z side) in the longitudinal direction. The peripheral portions of the tray 44 that are not engaged with the two engaging claws 41f on the right side (+Y side) and the left side (-Y side) in the short direction are placed on the first plate surface 41a.

[0100] The tray 44 is recessed on the -X side with respect to the first plate surface 41a of the main plate 41 in order to escape from the thickness of the vibrator 36 in the X-axis direction. The sub board 32 is arranged in the recessed portion of the tray 44. The sub board 32 is electrically connected to a connection terminal (not shown) of the vibrator 36. Also, the sub board 32 is formed with an opening portion 32b for avoiding interference with an eccentric weight 36a of the vibrator 36. As shown in Fig. 12, it is not necessary to make the sub board 32 into contact with the vibrator 36, and only the connection terminal (not shown) of the vibrator 36 has to be electrically connected to the sub board 32.

[0101] The main board 31 extends in the Z-axis direction to overlap a part of the sub board 32 (tray 44) in the X-axis direction. That is, a part of the main board 31 is arranged to overlap with a part of the sub board 32 in the Z-axis direction. A connection terminal 32c is provided at a portion where the main board 31 and the sub board 32 overlap each other. The connection terminal 32c electrically connects the main board 31 and the sub board 32.

[0102] Fig. 13 is a perspective view showing a mounting structure of the vibrator 36 according to the present embodiment.

[0103] As shown in Fig. 13, the first case 13Ais formed with a mounting portion 13D for mounting the vibrator 36. The mounting portion 13D is formed on an opposite surface 13a1 facing the second main surface portion 12A2 in the first main surface portion 12A1 in the first case 13A. The opposite surface 13a1 is an inner wall surface facing the inside (-X side) of the outer case 12.

[0104] The mounting portion 13D has a mounting wall 13d1 that surrounds the main body portion (motor portion) of the vibrator 36, and a notch portion 13d2 that cuts out a part of the mounting wall 13d1 and passes the rotation axis of the vibrator 36. The mounting wall 13d1 surrounds all four sides of the main body of the vibrator 36 from both sides in the Y-axis direction and both sides in the Z-axis direction. The notch portion 13d2 is formed in the wall portion on the -Z side of the mounting wall 13d1. The eccentric weight 36a is arranged outside the mounting wall 13d1.

[0105] The main body of the vibrator 36 is fitted inside

the mounting wall 13d1. An adhesive sheet or an adhesive may be interposed between the main body of the vibrator 36 and the first case 13A. In order to make the transmission of the vibration of the vibrator 36 to the first case 13A to be easy, a part or all of the main body of the vibrator 36 may be brought into direct contact with the first case 13A.

[0106] Returning to Fig. 10, the sub plate 42 extends in a direction (X-axis direction) orthogonal to the plate surface (first plate surface 41a and second plate surface 41b) of the main plate 41. The sub plate 42 according to the present embodiment extends on both sides (+X side and -X side) in a direction orthogonal to the plate surface of the main plate 41 (see Fig. 12). As a result, the cross section of the holder 30 becomes a T shape, and the rigidity of the holder 30 can be increased.

[0107] As shown in Fig. 10, the sub plate 42 includes a first sub plate 42A provided on a first end side 41h1 of the end portion of the main plate 41 and a second sub plate 42B provided on a second end side 41h2 that is adjacent to the first end side 41h1 of the end portion of the main plate 41. The first end side 41h1 extends parallel to the X-Y plane at the upper end (+Z side) in the longitudinal direction of the main plate 41.

[0108] The second end side 41h2 is tilted approximately 45 degrees around the Z axis with respect to the X-Y plane from the end portion at the left end (-Y side) of the first end side 41h1. The end portion at the left end (-Y side) of the second end side 41h2 is located on the lower side (-Z side) in the longitudinal direction of the main plate 41 with respect to the end portion at the right end (+Y side) of the second end side 41h2. It can be said that the second end side 41h2 is a notch portion extending diagonally so as not to interfere with the rounded first corner portion 12C1 as shown in Fig. 1.

[0109] As shown in Fig. 11, the first sub plate 42A provided on the first end side 41h1 and the second sub plate 42B provided on the second end side 41h2 are connected to each other. By connecting the first sub plate 42A and the second sub plate 42B having a T-shaped cross section to each other, the rigidity of the holder 30 can be further increased. The first sub plate 42A and the second sub plate 42B are connected at an obtuse angle. As a result, the second sub plate 42B can be slanted so as to face the rounded first corner portion 12C1 to hold the input device 15.

[0110] The angle formed by the first sub plate 42A and the second sub plate 42B is the angle formed by the first end side 41h1 and the second end side 41h2 in the main plate 41. That is, the first sub plate 42A and the second sub plate 42B are connected at an obtuse angle of approximately 135 degrees. The first sub plate 42A and the second sub plate 42B are not limited to a configuration in which they are connected at approximately 135 degrees as long as they are connected within a range larger than 90 degrees and smaller than 180 degrees.

[0111] As shown in Fig. 11, a position-determination convex portion 42a1 is formed on the first sub plate 42A. The position-determination convex portion 42a1 is a protrusion for determining the position of the frame-shaped display device holder 33b (see Fig. 7) described above. As shown in Fig. 12, the position-determination convex portion 42a1 forms the same plane (X-Y plane) as the display device holder 33b. This makes it easier to attach the adhesive sheet 45 that adheres the display device body 33a.

[0112] Also, as shown in Fig. 11, a sub-plate extending portion 42a2 is formed on the first sub plate 42A. The sub-plate extending portion 42a2 is arranged at the end of the first sub plate 42A on the side opposite to the end portion connected to the second sub plate 42B. The sub-plate extending portion 42a2 extends to the +Y side of the second rib 42D. As shown in Fig. 8, the engaging claw 14b1 of the display cover 14 engages with the sub-plate extending portion 42a2.

[0113] As shown in Fig. 11, a wiring groove 42b1 and a board holding piece 42b2 are formed on the second sub plate 42B. The board holding pieces 42b2 are four L-shaped protrusions that hold the four corners of the switch board 15b (see Fig. 7) described above. The wiring groove 42b1 is a groove through which the wirings connecting the switch board 15b and the main board 31 is passed. The wiring groove 42b1 is formed to cross the region surrounded by the four board holding pieces 42b2.

[0114] Also, the sub-plate extending portion 42b3 is also formed on the second sub plate 42B. The sub-plate extending portion 42b3 is arranged at the end portion of the second sub plate 42B on the side opposite to the end portion connected to the first sub plate 42A. The sub-plate extending portion 42b3 extends to the -Y side with respect to the first rib 42C. As shown in Fig. 8, another engaging claw 14b2 of the display cover 14 engages with the sub-plate extending portion 42b3.

[0115] Fig. 14 is a perspective view showing a mounting structure of the display cover 14 according to the present embodiment.

[0116] As shown in Fig. 14, the display cover 14 has a convex curved shape on the upper side (+Z side). The above-mentioned engaging claw 14b1 is arranged at the right end (+Y side) of the display cover 14. The above-mentioned engaging claw 14b2 is arranged at the left end (-Y side) of the display cover 14 on the opposite side of the engaging claw 14b1.

[0117] The engaging claw 14b1 engages with the sub-plate extending portion 42a2 of the first sub plate 42A. Also, the engaging claw 14b2 engages with the sub-plate extending portion 42b3 of the second sub plate 42B. As shown in Fig. 8, the assembled display cover 14 is engaged with the holder 30 to cross over the first sub plate 42A and the second sub plate 42B from end to end.

[0118] As shown in Fig. 14, the display cover 14 is formed with a through hole 14a in which the switch button 15a of the input device 15 is arranged. The switch button 15a has a base portion 15a1 that abuts on the switch board 15b, and a columnar button portion 15a2 that protrudes from the base portion 15a1. The button portion

15a2 is arranged by inserting the through hole 14a.

[0119] The button portion 15a2 is formed of, for example, a rigid resin material or the like. An elastic body (spring or the like) that is not shown is provided inside the button portion 15a2 such that the button portion 15a2 returns to the original position thereof when the button portion 15a2 is released. The button portion 15a2 may be an elastic body that can be elastically deformed by pressing. In that case, a rigid body that can be displaced by pressing (such as a column body that assists in pushing the switch board 15b) may be included inside the elastic body. An insertion hole 15a3 is formed on the peripheral surface of the button portion 15a2. The insertion hole 15a3 is formed at a root portion of the button portion 15a2 (in the vicinity of the connection portion of the button portion 15a2 with the base portion 15a1).

[0120] The switch holder 15c is formed in an annular shape that can be externally fitted to the button portion 15a2. The switch holder 15c is made of a flexible material that can be deformed in response to the pressing of the button portion 15a2. The switch holder 15c may be made of an elastically deformable material. On the inner diameter side of the switch holder 15c, an inner-diameter-side protrusion piece 15c1 that is insertable into the insertion hole 15a3 of the button portion 15a2 is formed. Also, on the outer diameter side of the switch holder 15c, two outer-diameter-side protrusion pieces 15c2 protruding on both sides in the X-axis direction are formed. There is a 90 degrees phase shift between the inner-diameter-side protrusion piece 15c1 and the two outer-diameter-side protrusion pieces 15c2 around the central axis of the switch holder 15c. The switch holder 15c covers the base portion 15a1 of the switch button 15a. Therefore, the base portion 15a1 can be hidden from being viewed from the display cover 14 side.

[0121] The side walls 14c are vertically installed on both sides in the X-axis direction in the vicinity of the through hole 14a of the display cover 14. The side wall 14c is formed with two insertion holes 14c1 into which the two outer-diameter-side protrusion pieces 15c2 of the switch holder 15c can be inserted. The component members other than the switch holder 15c and the switch button 15a, that is, the switch board 15b of the input device 15, are assembled on the display cover 14 side. When the display cover 14 to which the switch holder 15c and the switch button 15a are assembled engages with the holder 30, the switch button 15a is placed on the switch board 15b and the input device 15 is assembled.

[0122] Returning to Fig. 11, the first rib 42C of the holder 30 extends in the longitudinal direction (Z-axis direction) along the -Y side end of the main plate 41. The end portion at the upper side (+Z side) of the first rib 42C in the longitudinal direction is connected to the second sub plate 42B. By connecting the first rib 42C having the T-shaped cross section together with the main plate 41 to the second sub plate 42B, the rigidity of the holder 30 can be further increased. A case fitting portion 42E is projected from the side surface of the first rib 42C facing the opposite side (-Y side) to the main plate 41.

[0123] The case fitting portion 42E is formed with a first fitting hole 42e1 and a second fitting hole 42e2. The first fitting hole 42e1 and the second fitting hole 42e2 are open on the -Y side. The first fitting hole 42e1 is arranged on the +X side of the case fitting portion 42E. The above-mentioned first case 13A is claw-fitted into the first fitting hole 42e1. The second fitting hole 42e2 is arranged on the -X side of the case fitting portion 42E. The above-mentioned second case 13B is claw-fitted into the second fitting hole 42e2.

[0124] Two case fitting portions 42E are formed to be separated from each other in the longitudinal direction of the first rib 42C. A set of the first fitting hole 42e1 and the second fitting hole 42e2 are formed in the case fitting portion 42E arranged on the lower side (-Z side) in the longitudinal direction of the first rib 42C. A plurality of sets of first fitting holes 42e1 and second fitting holes 42e2 are formed in the case fitting portion 42E arranged on the upper side (+Z side) in the longitudinal direction of the first rib 42C to be separated from each other in the longitudinal direction. The case fitting portion 42E arranged on the +Z side is formed with a through hole 30a for screwing the holder 30.

[0125] The case fitting portion 42E arranged on the +Z side is provided with a clamped piece 42e3 that linearly partitions a gap between the first fitting hole 42e1 and the second fitting hole 42e2. The clamped piece 42e3 is clamped between the first peripheral wall portion 12B1 of the first case 13A and the second peripheral wall portion 12B2 of the second case 13B. As shown in Fig. 1, the clamped piece 42e3 is not exposed on the outer surface 12b1 of the peripheral wall portion 12B of the outer case 12. That is, a step for clamping the clamped piece 42e3 is formed at the inner side of the first peripheral wall portion 12B1 and the second peripheral wall portion 12B2.

[0126] As shown in Fig. 11, the second rib 42D of the holder 30 extends in the longitudinal direction (Z-axis direction) along the +Y-side end portion of the main plate 41. The end portion at the upper side (+Z side) of the second rib 42D in the longitudinal direction is connected to the first sub plate 42A. By connecting the second rib 42D having the T-shaped cross section together with the main plate 41 to the first sub plate 42A, the rigidity of the holder 30 can be further increased.

[0127] The second rib 42D includes a branch portion 42D1 bent in an L shape toward the opposite side (+Y side) of the main plate 41. The branch portion 42D1 is connected to the peripheral wall 43a of the receiving portion 43. As a result, the rigidity of the connection portion between the main plate 41 and the receiving portion 43 can be increased. As shown in Fig. 10, the through hole 30a for screwing the holder 30 is formed in the connection portion between the main plate 41 and the receiving portion 43.

[0128] The second rib 42D is formed with a stepped notch portion 42d. The notch portion 42d includes a first

notch portion 42d1 and a second notch portion 42d2. The first notch portion 42d1 is formed from the end portion at the +X-side of the second rib 42D toward the end portion at the -X-side until the front of the main plate 41. The second notch portion 42d2 is arranged on the -Z side of the first notch portion 42dl. The second notch portion 42d2 is formed from the end portion at the +X side of the second rib 42D toward the end portion at the - X side until the rear surface side (position beyond the second plate surface 41b) of the main plate 41 (see Fig. 11).

[0129] The first notch portion 42d1 is formed in order to avoid interference with the optical path of a light source 52 (see Fig. 29 described later) provided on the main board 31. The light source 52 is, for example, an LED light or the like. As shown in Fig. 29, the second notch portion 42d2 is formed to avoid interference with the sensor holder 35 attached to the cartridge accommodation portion 10 and the sensor 34 held by the sensor holder 35.

[0130] Fig. 15 is a planar view of the holder 30 according to the present embodiment. Fig. 16 is a cross-sectional view taken along the arrow line C-C shown in Fig. 15.

[0131] As shown in Fig. 15, the receiving portion 43 of the holder 30 is formed in a cylindrical shape with a bottom. The bottom wall 43b of the receiving portion 43 is formed with two insertion holes 43c for arranging two salient electrodes 50 (see Fig. 7) inside the cartridge accommodation portion 10.

[0132] The two insertion holes 43c are arranged to be separated from each other in the Y-axis direction with the main axis O interposed therebetween. The two insertion holes 43c penetrate the bottom wall 43b in the main axis direction (Z-axis direction). As shown in Fig. 10, an annular wall 43d is provided to project on the lower surface side (-Z side) of the bottom wall 43b. The annular wall 43d surrounds the circumference of the two insertion holes 43c. The annular wall 43d is formed in a long hole shape in which both ends of two parallel lines extending in the Y-axis direction are connected by an arc as viewed in the bottom view.

[0133] As shown in Fig. 16, a step 43g (annular-shaped receiving surface) that abuts with the cartridge accommodation portion 10 in the main axis direction (Z-axis direction) is formed inside the peripheral wall 43a of the receiving portion 43. The peripheral wall 43a on the lower side (-Z side) of the step 43g has a smaller diameter than that of the upper side (+Z side) of the step 43g. As shown in Fig. 15, the peripheral wall 43a at the lower side of the step 43g has an inner diameter D1. The inner diameter D1 corresponds to the inner diameter of the cartridge accommodation portion 10.

[0134] On the upper surface side (+Z side) of the bottom wall 43b of the receiving portion 43, an engaging protrusion portion 43h that engages with the engagement groove portion 26i (see Fig. 5) of the cartridge 3 described above is formed. The engagement groove portion 26i and the engaging protrusion portion 43h form a position determination mechanism 90 for determining the position of the cartridge 3 in the circumferential direction and the radial direction. Three engaging protrusion portions 43h are formed at equal intervals in the circumferential direction (at intervals of 120 degrees in the circumferential direction). The number of the engaging protrusion portions 43h is not limited to the same number of engagement groove portions 26i. The number of engaging protrusion portions 43h may be the same as or less than the number of engagement groove portions 26i.

[0135] As shown in Fig. 16, the engaging protrusion portion 43h has a curved surface shape protruding upward (+Z side) in the main axis direction. That is, the width of the engaging protrusion portion 43h in the circumferential direction becomes smaller as toward the upper side in the main axis direction. The engaging protrusion portion 43h may have an isosceles trapezoidal shape similar to that of the engagement groove portion 26i, or an isosceles triangle, as long as the width in the circumferential direction decreases toward the upper side in the main axis direction. Also, the engaging protrusion portion 43h may have an asymmetrical shape such as a right triangle. For example, in a case in which the engaging protrusion portion 43h is the right triangle, when the suction port portion 11 is connected to the cartridge accommodating part 10, the side facing the rotation direction of the suction port portion 11 may be the right angle side. Such configuration makes it difficult for the cartridge accommodation portion 10 to get over the engaging protrusion portion 43h when the suction port portion 11 is connected to the cartridge accommodation portion 10.

[0136] As shown in Fig. 15, the outer diameter D2 of the cartridge 3 accommodated inside the cartridge accommodation portion 10 is smaller than the inner diameter D1 of the cartridge accommodation portion 10. It is suitable that the gap generated between the inner diameter D1 of the cartridge accommodation portion 10 (that is, the inner diameter D1 of the receiving portion 43 below the step 43g) and the outer diameter D2 of the cartridge 3 is larger than 2.6% of the inner diameter D1 of the cartridge accommodation portion 10. As a result, the clearance between the cartridge accommodation portion 10 and the cartridge 3 becomes large, and it becomes easy to invite the engaging protrusion portion 43h into the engagement groove portion 26i at the time of setting the cartridge 3 described later. The gap generated between the cartridge accommodation portion 10 and the cartridge 3 hereinafter is calculated by the difference between the inner diameter D1 of the cartridge accommodation portion 10 and the outer diameter D2 of the cartridge 3. For example, when the inner diameter D1 is 11.8 mm and the outer diameter D2 is 11.5 mm, the gap is 0.3 mm. This gap corresponds to 2.54% of the inner diameter D1 and is excluded from the above-described condition in this case.

[0137] More preferably, the gap generated between the inner diameter D1 of the cartridge accommodation portion 10 and the outer diameter D2 of the cartridge 3

is larger than 7.0% of the inner diameter D1 of the cartridge accommodation portion 10. As a result, the clearance between the cartridge accommodation portion 10 and the cartridge 3 becomes further larger, and it becomes easier to invite the engaging protrusion portion 43h into the engagement groove portion 26i at the time of setting the cartridge 3 described later. For example, when the inner diameter D1 is 12.4 mm and the outer diameter D2 is 11.5 mm, the gap is 0.9 mm. This gap corresponds to 7.26% of the inner diameter D1, and in this case, the above-described condition is satisfied.

[0138] It is preferable that the radial dimension D3 of the engaging protrusion portion 43h is larger than the gap generated between the cartridge accommodation portion 10 and the cartridge 3. When the above-described two conditions are defined by the radial dimension D3 of the engaging protrusion portion 43h, the next situation follows. It is preferable for the engaging protrusion portion 43h to extend in the radial direction from the inner peripheral wall of the cartridge accommodation portion 10 (that is, the inner peripheral wall of the peripheral wall 43a below the step 43g) toward the inside of the cartridge accommodation portion 10 with the dimension D3 that is larger than 2.6% of the inner diameter D1 of the cartridge accommodation portion 10. More preferably, the engaging protrusion portion 43h may extend in the radial direction from the inner peripheral wall of the cartridge accommodation portion 10 toward the inside of the cartridge accommodation portion 10 with the dimension D3 that is larger than 7.0% of the inner diameter D1 of the cartridge accommodation portion 10.

[0139] As shown in Fig. 15, an engaging protrusion portion 43i for determining the position of the cartridge accommodation portion 10 in the circumferential direction is formed on the step 43g of the receiving portion 43. There is one engaging protrusion portion 43i formed on the inner wall surface on the front side (+X side) of the peripheral wall 43a of the receiving portion 43. The engaging protrusion portion 43i does not protrude radially inward from the step 43g of the receiving portion 43, and the engaging protrusion portion 43i is formed to the same protrusion degree as that of the peripheral wall 43a below the step 43g. As shown in Fig. 16, the engaging protrusion portion 43i has a curved surface shape protruding upward (+Z side) in the main axis direction, similarly to the engaging protrusion portion 43h. That is, the width of the engaging protrusion portion 43i in the circumferential direction becomes smaller as toward the upper side in the main axis direction.

<Cartridge housing>

[0140] Fig. 17 is a front view showing the cartridge accommodation portion 10 according to the present embodiment. Fig. 18 is a right-side view showing the cartridge accommodation portion 10 according to the present embodiment. Fig. 19 is a left-side view showing the cartridge accommodation portion 10 according to the present embodiment. Fig. 20 is a cross-sectional view taken along the arrow line D-D as shown in Fig. 18.

[0141] As shown in Fig. 17, the cartridge accommodation portion 10 is a cylindrical member and extends in the main axis direction (Z-axis direction). The cartridge accommodation portion 10 is made of a metal tubular member while the outer case 12 and the holder 30 are made of resin.

[0142] A cartridge insertion-removal port 10a is formed at an end portion of the cartridge accommodation portion 10 on the upper side (+Z side) in the main axis direction. On the other hand, an engagement groove portion 10b that engages with the above-mentioned engaging protrusion portion 43i is formed at an end portion of the cartridge accommodation portion 10 on the lower side (-Z side) in the main axis direction. There is one engagement groove portion 10b formed on the front side (+X side) of the lower end portion of the cartridge accommodation portion 10.

[0143] As shown in Fig. 18, a through hole 10c and two air communication holes 10e are formed on the right side (+Y side) of the peripheral surface of the cartridge accommodation portion 10. A cartridge-accommodation-portion-side protrusion 17C, which will be described later, provided in the cover member 17 (see Fig. 7) is inserted into the through hole 10c (see Fig. 29 described later). The two air communication holes 10e communicate with the two air holes 19 provided in the cover member 17 (see Fig. 29 described later).

[0144] As shown in Fig. 18, the through hole 10c is an elongated hole extending in the main axis direction (Z-axis direction). A rectangular groove 10c1 is formed at the end edge of the through hole 10c on the -X side. The rectangular groove 10c1 is formed to make the shape of the through hole 10c to be asymmetrical in the X-axis direction in order to prevent any mistake in assembling the cover member 17 to the cartridge accommodation portion 10. The two air communication holes 10e are arranged to sandwich the through hole 10c in the X-axis direction. The air communication hole 10e is formed larger than the air hole 19 as shown in Fig. 29, which will be described later. This configuration makes it possible to prevent the non-communication between the air hole 19 and the air communication hole 10e and the position shift so as to narrow the flow path area. That is, at the time of assembling the main body unit 2, the air holes 19 are less likely to be blocked.

[0145] As shown in Fig. 19, another through hole 10d is also formed on the left side (-Y side) of the peripheral surface of the cartridge accommodation portion 10. A cartridge-accommodation-portion-side protrusion 35D, which will be described later, provided in the sensor holder 35 (see Fig. 7) is inserted into the through hole 10d (see Fig. 29 described later). The through hole 10d is an elongated hole extending in the main axis direction (Z-axis direction). The through hole 10d is arranged diagonally to the left front side (+X side) of the cartridge accommodation portion 10, and as shown in Fig. 29 de-

scribed later, the through hole 10d does not have a point-symmetrical positional relationship about the main axis O as the center with respect to the through hole 10c on the right side (+Y side).

[0146] As shown in Fig. 20, in the cartridge accommodation portion 10, an insert ring 10A is internally fitted by press fitting on the upper side (+Z side) in the main axis direction with respect to the through hole 10c and the through hole 10d. The insert ring 10A is a tubular member made of a resin. The insert ring 10A is formed with a suction port connection portion 10B for connecting the suction port portion 11 (see Fig. 5) to the cartridge insertion-removal port 10a. A recess 10f is formed on the inner wall surface of the cartridge accommodation portion 10 on the upper side (+Z side) in the main axis direction such that the inner diameter is not reduced by the inner fitting of the insert ring 10A.

[0147] Two suction port connection portions 10B are formed at equal intervals (180 degrees) in the circumferential direction of the insert ring 10A. The suction port connection portion 10B is a groove (notch) formed in the insert ring 10A. The suction port connection portion 10B has a first groove portion 10b1, a second groove portion 10b2, and a third groove portion 10b3. A width of the first groove portion 10b1 increases in the circumferential direction as toward the upper side (+Z side) in the main axis direction. The second groove portion 10b2 extends downward (-Z side) in the main axis direction with a constant width from the lower end of the first groove portion 10b1. The third groove portion 10b3 is bent 90 degrees in the circumferential direction from the lower end of the second groove portion 10b2, and rotates the insert ring 10A approximately 1/4 circle in a constant width.

<Suction port portion>

[0148] Fig. 21 is a right side view of the suction port portion 11 according to the present embodiment. Fig. 22 is a cross-sectional view taken along the arrow line E-E as shown in Fig. 21.

[0149] As shown in Fig. 21, the suction port portion 11 has a protrusion portion 11b1 that engages with the suction port connection portion 10B of the cartridge accommodation portion 10 described above. The suction port portion 11 includes a resin suction port portion main body 11A and, as shown in Fig. 22, a tubular body 11B made of a metal and having two protrusion portions 11b1 formed therein.

[0150] As shown in Fig. 22, the suction port portion main body 11A is formed in a cylindrical shape with a bottom. The above-mentioned flavor source container 4 (see Fig. 6) is inserted inside the peripheral wall 11a1 of the suction port portion main body 11A. On the outer surface of the peripheral wall 11a1, a flange portion 11a2 extending radially outward is provided in an annular shape. As shown in Fig. 6, the flange portion 11a2 abuts on the upper end opening edge of the cartridge accommodation portion 10 (opening edge of the cartridge insertion-removal port 10a) in the main axis direction (Z-axis direction).

[0151] A through hole 11a4 penetrating in the main axis direction is formed in the bottom wall 11a3 of the suction port portion main body 11A. A cartridge contact portion 60 is internally fitted in the through hole 11a4 (see Fig. 6). The cartridge contact portion 60 is an elastic body formed of a resin material such as a silicone resin. The cartridge contact portion 60 includes a first ring portion 60a, a cylindrical portion 60b, and a second ring portion 60c.

[0152] The first ring portion 60a is arranged on the upper side (+Z side) in the main axis direction with respect to the bottom wall 11a3 of the suction port portion main body 11A. The first ring portion 60a has a larger outer diameter than the through hole 11a4 and extends to the inner wall surface of the peripheral wall 11a1 of the suction port portion main body 11A. The first ring portion 60a abuts on the bottom wall 27d of the flavor source container 4 inside the peripheral wall 11a1. A surface at the side of the first ring portion 60a facing the bottom wall 27d of the flavor source container 4 may be a flat surface, or may be formed as a groove following the shape of the legs of the bottom wall 27d. The first ring portion 60a serves as a non-slip in the circumferential direction of the flavor source container 4 and a seal chamber of the micropores 27e of the flavor source container 4. The first ring portion 60a does not have to come into contact with the bottom wall 27d of the flavor source container 4. In that case, a seal portion that prevents the introduction of outside air can be formed at the contact portion between the flavor source container 4 and the suction port portion 11 at the step 27b. The cylindrical portion 60b is arranged by inserting the through hole 11a4 of the bottom wall 11a3. The cylindrical portion 60b connects the inner diameter side of the first ring portion 60a and the inner diameter side of the second ring portion 60c in the main axis direction.

[0153] The second ring portion 60c is arranged on the lower side (-Z side) in the main axis direction with respect to the bottom wall 11a3 of the suction port portion main body 11A. The second ring portion 60c has a larger outer diameter than the through hole 11a4 and extends to the inner wall surface of the tubular body 11B. The second ring portion 60c is formed with an annular protrusion 61 protruding downward in the main axis direction toward the cartridge 3. Due to the annular protrusion 61, the contact of the second ring portion 60c with the cartridge 3 is no longer a planar contact, the contact pressure with respect to the cartridge 3 increases, and the frictional force in the circumferential direction and the pressing force in the main axis direction, which will be described later, are likely to occur.

[0154] A communication hole 62 is formed at the center of the first ring portion 60a, the cylindrical portion 60b, and the second ring portion 60c. The communication hole 62 communicates the through hole 21b of the tank 21 of the cartridge 3 described above with the micropores 27e

of the flavor source container 4. The annular protrusion 61 of the second ring portion 60c is formed in a double annular shape. The annular protrusion 61 abuts on the top wall 21a of the tank 21 in the circumference of the through hole 21b of the cartridge 3 such that a double seal with a high airtight property can be formed.

[0155] Returning to Fig. 22, the tubular body 11B is outwardly fitted onto the peripheral wall 11a1 below the flange portion 11a2 of the suction port portion main body 11A by press fitting. Two protrusion portions 11b1 are arranged on the peripheral surface of the tubular body 11B at equal intervals (180 degrees) in the circumferential direction. The tubular body 11B extends downward (-Z side) in the main axis direction from the peripheral wall 11a1 of the suction port portion main body 11A. The above-mentioned second ring portion 60c is arranged in the space below the bottom wall 11a3 surrounded by the tubular body 11B. As shown in Fig. 6, the inner diameter of the tubular body 11B is larger than the outer diameter of the cartridge 3. As a result, even if the suction port portion 11 is strongly pushed toward the cartridge 3 and the second ring portion 60c is elastically deformed so as to be crushed in the main axis direction as in a state shown in Fig. 37, which will be described later, the tubular body 11B remains to not to interfere with the cartridge 3.

<Main board>

[0156] Fig. 23 is a perspective view of the main board 31 according to the present embodiment. Fig. 24 is a perspective view showing a state in which the salient electrode cover 51 is removed from the salient electrode 50 of the main board 31 according to the embodiment.

[0157] As shown in Fig. 23, the main board 31 has a plate shape extending along a Y-Z plane, and has a first plate surface 31a facing the front side (+X side) and a second plate surface 31b facing the rear side (-X side). In the second plate surface 31b of the main board 31, the salient electrode 50 inserted into the cartridge storage chamber, which is an internal space formed by the cartridge accommodation portion 10 and the receiving portion 43 described above, and a light source 52 illuminating the inside of the cartridge accommodation portion 10 are arranged. The salient electrode 50 may reach the inside of the cartridge accommodation portion 10 in the cartridge accommodating chamber, or may reach only the inside of the receiving portion 43. Also, in a case in which the receiving portion 43 is formed in a flat plate shape, the salient electrode 50 can easily reach the inside of the cartridge accommodation portion 10.

[0158] Here, the "main board" means the largest board among the boards housed inside the outer case 12. The main board 31 is larger than the sub board 32 and the switch board 15b of the input device 15 described above. In a case in which only one board is housed inside the outer case 12, the board is referred to as the "main board". In a case in which two boards having the same size are housed inside the outer case 12, the board provided with an electronically controlled arithmetic unit such as a CPU or a microcomputer is referred to as the "main board".

[0159] The main board 31 has a first portion 31A extending in the main axis direction (Z-axis direction) and a second portion 31B extending in a direction intersecting the first portion 31A. The second portion 31B extends in the Y-axis direction orthogonal to the direction in which the first portion 31A extends. That is, the main board 31 is formed in an L shape when viewed from the X-axis direction. The second portion 31B does not necessarily have to be bent at a right angle to the first portion 31A as long as the second portion 31B can extend to the lower side (-Z side) of the receiving portion 43 as shown in Fig. 10. That is, the shape of the main board 31 is not limited to the L shape.

[0160] The first portion 31A is a portion that overlaps with the main plate 41 of the holder 30 as shown in Fig. 10. The first portion 31A is held on the main plate 41 by the board support piece 41d and the clamping piece 42a. The first portion 31A extends in the main axis direction along the main plate 41. That is, the first portion 31A extends in parallel with the cartridge accommodation portion 10. The light source 52 is arranged on the cartridge accommodation portion 10 side (+Y side) of the first portion 31A (see Fig. 23).

[0161] The second portion 31B is a portion extending from the main plate 41 of the holder 30 shown in Fig. 10 to the receiving portion 43 side (+Y side). The second portion 31B is held by the board support piece 43e and the clamping piece 43f of the bottom wall 43b of the receiving portion 43. The second portion 31B is arranged to face the receiving portion 43 (that is, the end portion of the cartridge accommodation portion 10) in the main axis direction (Z-axis direction). In other words, the second portion 31B is arranged side by side with the receiving portion 43 in the main axis direction. The salient electrode 50 is arranged on the side (+Z side) facing the receiving portion 43 of the second portion 31B (see Fig. 23).

[0162] As shown in Fig. 24, the salient electrode 50 is supported by a pedestal portion 50A provided on the second plate surface 31b of the main board 31. The pedestal portion 50A supports the salient electrode 50 so as to be parallel to the plate surface (first plate surface 31a, second plate surface 31b, that is, the Y-Y plane) of the main board 31. That is, the two "+" and "-" terminals of the salient electrode 50 supported by the pedestal portion 50A extend in parallel along the Y-Z plane.

[0163] The main board 31 is provided with a salient electrode cover 51 that covers a portion where the salient electrode 50 is provided. The portion where the salient electrode 50 is provided includes the pedestal portion 50A. Specifically, the portion where the salient electrode 50 is provided includes the pedestal portion 50A, the root portion of the salient electrode 50, and the peripheral region of the pedestal portion 50A on the second plate surface 31b. The salient electrode cover 51 is formed in a substantially box shape with an opening on the side

facing the second plate surface 31b. The salient electrode cover 51 has a cover end wall 51a arranged on the -X side of the pedestal portion 50A, and a cover peripheral wall 51b that surrounds four sides of the pedestal portion 50A including both sides in the Y-axis direction and both sides in the Z-axis direction.

[0164] Two through holes 51c are formed in the wall portion on the +Z side of the cover peripheral wall 51b through which the salient electrode 50 is arranged to penetrate therethrough. The tip portion of the salient electrode 50 is biased to the +Z side by a spring member (not shown) housed in the root portion of the salient electrode 50, and is freely displaceable in the Z-axis direction. That is, the salient electrode 50 extends toward the cartridge 3 and is displaced in the -Z direction when the cartridge 3 is inserted. Even in that state, the salient electrode 50 is biased in the +Z direction such that contact with the cartridge 3 can be ensured. The inner wall surface of the through hole 51c is in close contact with a portion that does not constrain the displacement of the tip portion of the salient electrode 50, for example, the outer periphery of the root portion of the salient electrode 50 in the present embodiment.

[0165] Fig. 25 is a cross-sectional view taken along the arrow line F-F shown in Fig. 9.

[0166] As shown in Fig. 25, the salient electrode cover 51 is in contact with the receiving portion 43 of the holder 30 in which the insertion hole 43c is formed. The salient electrode 50 is inserted into the insertion hole 43c. The wall portion on the +Z side of the cover peripheral wall 51b of the salient electrode cover 51 is in contact with the annular wall 43d of the bottom wall 43b of the receiving portion 43 in the main axis direction. The salient electrode cover 51 is made of a silicone resin. The wall portion on the +Z side of the cover peripheral wall 51b is elastically deformed due to contact with the annular wall 43d.

[0167] A board contact portion 43j is provided on the bottom wall 43b of the receiving portion 43. The board contact portion 43j is arranged on the +X side of the annular wall 43d. The board contact portion 43j is provided to protrude from the bottom wall 43b of the receiving portion 43 toward the -Z side, and is in contact with the main board 31 in the main axis direction. As shown in Fig. 10, the board contact portion 43j is arranged between the board support piece 43e and the clamping piece 43f provided on the bottom wall 43b, and extends linearly in the Y-axis direction.

[0168] As shown in Fig. 25, the annular wall 43d extends to the -Z side with respect to the board contact portion 43j. The elastic deformation of the salient electrode cover 51 due to the annular wall 43d is limited to a certain amount by the contact between the board contact portion 43j and the main board 31. That is, the contact pressure between the annular wall 43d and the salient electrode cover 51 can be managed by the board contact portion 43j. Therefore, the sealing property between the annular wall 43d and the salient electrode cover 51 can be ensured without excessively pressing the salient electrode cover 51 against the annular wall 43d.

[0169] The salient electrode cover 51 is provided on the main board 31 together with the salient electrode 50. That is, the salient electrode cover 51 is not held by a structure other than the main board 31 (for example, the outer case 12 or the like). Also, as shown in Fig. 25, the salient electrode cover 51 is incorporated in the outer case 12 in a non-contact state. As a result, it is possible to prevent the salient electrode cover 51 from coming into contact with the outer case 12 to be deformed or misaligned such that the sheath property is not impaired.

<Cover member>

[0170] Fig. 26 is a view showing the cover member 17 as viewed from the outside in the radial direction according to the embodiment. Fig. 27 is a view showing the cover member 17 as viewed from the inside in the radial direction according to the embodiment. Fig. 28 is a perspective view showing the cover member 17 according to the embodiment.

[0171] As shown in Fig. 26, the cover member 17 is provided with a main-body-case-side protrusion 17A on the outer side in the radial direction, that is, on the right side (+Y side) facing the main body case 13. As shown in Fig. 2, the main-body-case-side protrusion 17A is inserted into the opening portion 13a of the main body case 13. The cover member 17 has the translucency, and the remaining amount of the aerosol source of the cartridge 3 housed in the cartridge accommodation portion 10 can be confirmed through the main-body-case-side protrusion 17A.

[0172] The main-body-case-side protrusion 17A is formed in an elongated hole shape extending in the main axis direction (Z-axis direction) similar to the opening portion 13a of the main body case 13. The main-body-case-side protrusion 17A is slightly smaller than the opening portion 13a. An air inlet 18 is formed in the gap between the main-body-case-side protrusion 17A and the opening portion 13a. A part of the main-body-case-side protrusion 17A may be in contact with the inner wall surface of the opening portion 13a. The air inlet 18 is an inlet of an intake flow path that takes in outside air into the inside of the outer case 12 due to the suction of the user.

[0173] The air inlet 18 is formed in an annular shape along the opening edge (also referred to as the peripheral edge of the main-body-case-side protrusion 17A) of the opening portion 13a of the main body case 13. It is suitable that a dimension of the air inlet 18 is set to a value such that the air inlet 18 cannot be completely blocked by the user's finger. For example, the dimension of the air inlet 18 in the main axis direction (Z-axis direction) may be equal to or larger than the first finger indirect width (for example, equal to or more than 2.0 cm) of the average thumb of a general adult. Also, the distance between the two slits extending parallel to the main axis direction of the air inlet 18 in the X-axis direction may be equal to or larger than the indirect width of the first finger

of the average thumb of a general adult.

[0174] It is suitable that the air inlet 18 has only one slit or two slits extending in parallel to the main axis direction as long as the dimension thereof makes the air inlet 18 to not be blocked by the user's finger. That is, the air inlet 18 may be formed in the slit shape along the opening edge of the opening portion 13a of the main body case 13.

[0175] As shown in Fig. 28, the cover member 17 has a plate portion 17B that supports the main-body-case-side protrusion 17A. The plate portion 17B is arranged to overlap the inside of the main body case 13. The plate portion 17B is interposed between the main body case 13 and the cartridge accommodation portion 10. The cartridge accommodation portion 10 side (-Y side) of the plate portion 17B is curved along the peripheral surface of the cartridge accommodation portion 10. Also, the main body case 13 side (+Y side) of the plate portion 17B is curved along the inner wall surface of the peripheral wall portion 12B (see Fig. 2). The curved shape (curvature or the like) of the plate portion 17B is different between the cartridge accommodation portion 10 side (-Y side) and the main body case 13 side (+Y side).

[0176] Further, the upper side (+Z side) in the main axis direction of the plate portion 17B on the main body case 13 side is curved along the inner wall surface of the second corner portion 12C2 of the peripheral wall portion 12B. That is, the thickness of the plate portion 17B decreases as toward the upper side (+Z side) in the main axis direction. The above-mentioned air hole 19, the air groove 70, and the case fitting hole 17b1 are formed in the plate portion 17B. The two air holes 19 are formed to sandwich the main-body-case-side protrusion 17A in the X-axis direction.

[0177] Fig. 29 is a cross-sectional view taken along the arrow line G-G shown in Fig. 3.

[0178] As shown in Fig. 29, the air holes 19 are arranged at locations where the cover member 17 and the main body case 13 overlap each other. That is, the air holes 19 are arranged inside the main body case 13 and are covered by the main body case 13. Therefore, the air hole 19 cannot be visually recognized from the outside of the main body case 13. Also, the air hole 19 cannot be directly blocked with the finger unless the main body case 13 is removed.

[0179] The air hole 19 allows fluid communication between the air inlet 18 and the inside of the cartridge accommodation portion 10. The air hole 19 is a main flow path of the intake flow path that takes in the outside air inside the outer case 12. The air hole 19 according to the present embodiment communicates with the air communication hole 10e formed in the cartridge accommodation portion 10, and allows the air inlet 18 and the inside of the cartridge accommodation portion 10 to communicate with each other in a short distance. In a case in which the air communication hole 10e is not formed, the air taken into the inside of the outer case 12 from the air hole 19 flows into the inside of the cartridge accommodation portion 10 through all of the gaps of the cartridge accommodation portion 10.

[0180] Returning to Fig. 26, two sets of case fitting holes 17b1 are formed in the plate portion 17B on the upper side and the lower side of the air hole 19 to sandwich the main-body-case-side protrusion 17A in the X-axis direction. The main body case 13 is claw-fitted into a total of four case fitting holes 17b1. Specifically, the fitting claw 13E of the first case 13A (see Fig. 34 described later) is claw-fitted into the two case fitting holes 17b1 arranged on the +X side of the main-body-case-side protrusion 17A. Also, the fitting claw 131 (see Fig. 35 described later) of the second case 13B is claw-fitted into the two case fitting holes 17b1 arranged on the -X side of the main-body-case-side protrusion 17A.

[0181] The air groove 70 forms a space connecting between the air inlet 18 and the air hole 19. As shown in Fig. 28, the air groove 70 includes an annular groove portion 71 and two stepped groove portions 72. The annular groove portion 71 is formed in an annular shape in the circumference of the main-body-case-side protrusion 17A in the plate portion 17B. The annular groove portion 71 is recessed on the -Y side with respect to the outer surface of the plate portion 17B on the main body case 13 side (+Y side). As shown in Fig. 29, the width of the annular groove portion 71 is preferably larger than the width of the air inlet 18 (distance from the inner peripheral edge to the outer peripheral edge).

[0182] The two step groove portions 72 are formed on the +X side edge and the -X side edge of the annular groove portion 71. The step groove portion 72 has a lower bottom surface than the annular groove portion 71. That is, the step groove portion 72 is recessed on the -Y side with respect to the annular groove portion 71. The air hole 19 is formed on the bottom surface of the step groove portion 72. The bottom surface of the step groove portion 72 is formed wider than the opening area of the air hole 19.

[0183] As shown in FIG. 27, the cover member 17 has a cartridge-accommodation-portion-side protrusion 17C on the cartridge accommodation portion 10 side (-Y side) of the plate portion 17B. The cartridge-accommodation-portion-side protrusion 17C is inserted into a through hole 10c (see Fig. 18) formed on the peripheral surface of the cartridge accommodation portion 10. The cartridge-accommodation-portion-side protrusion 17C is formed in the shape of an elongated hole extending in the main axis direction (Z-axis direction) similar to the through hole 10c of the cartridge accommodation portion 10.

[0184] Further, as shown in Fig. 27, the cover member 17 has a cover-position-determination protrusion 17D on the cartridge accommodation portion 10 side (-Y side) of the plate portion 17B. The cover-position-determination protrusion 17D is arranged on the -X side of the cartridge-accommodation-portion-side protrusion 17C. The cover-position-determination protrusion 17D is a rectangular protrusion extending in the X-axis direction. The cover-position-determination protrusion 17D is inserted into the

rectangular groove 10c1 of the cartridge accommodation portion 10 shown in Fig. 18. This configuration makes it possible to prevent any mistake in assembling the cover member 17 to the cartridge accommodation portion 10.

<Sensor holder>

[0185] Fig. 30 is a view showing the sensor holder 35 as viewed from the outside in the radial direction according to the present embodiment. Fig. 31 is a view showing the sensor holder 35 as viewed from the inside in the radial direction according to the embodiment. Fig. 32 is a perspective view showing the sensor holder 35 according to the present embodiment.

[0186] As shown in Fig. 32, the sensor holder 35 includes a bent plate portion 35A having a shape following the peripheral surface of the cartridge accommodation portion 10. As shown in Fig. 29, the bent plate portion 35A is in close contact with the peripheral surface of the cartridge accommodation portion 10 via the adhesive sheet 48. The bent plate portion 35A is arranged in a narrow gap between the cartridge accommodation portion 10 and the holder 30.

[0187] As shown in Fig. 29, the sensor holder 35 is provided with a holder-side protrusion 35B protruding toward the holder 30 side on the outer surface of the bent plate portion 35A on the opposite side of the cartridge accommodation portion 10. The holder-side protrusion 35B is formed in a cylindrical shape. The sensor 34 is held inside the holder-side protrusion 35B. The holder-side protrusion 35B (and the sensor 34) is arranged to be inserted into the second notch portion 42d2 of the second rib 42D of the holder 30.

[0188] The holder-side protrusion 35B is formed with an air flow path 80 that connects the inside of the cartridge accommodation portion 10 and the sensor 34. The air flow path 80 extends radially from the sensor 34 to the inner wall surface of the bent plate portion 35A. A holding portion 35C for holding the sensor 34 is provided on the cartridge accommodation portion 10 side of the air flow path 80. As shown in Fig. 31, the holding portions 35C are arranged in pairs on the inner wall surface of the air flow path 80 so as to face each other on the inner side in the radial direction of the sensor 34. When the sensor 34 comes into contact with the holding portion 35C, the sensor 34 is prevented from falling into the inside of the cartridge accommodation portion 10.

[0189] In the sensor 34, a portion at the cartridge accommodating unit 10 side is formed as a detection unit. The detection unit detects, for example, the behavior of the diaphragm that deforms in response to pressure fluctuation as a change in capacitance. The detection portion is covered with a waterproof-breathable member 81. The waterproof-breathable member 81 is made of a material having both waterproofness and breathability properties. The material of the waterproof-breathable member 81 is formed with innumerable micropores having a size such that water droplets cannot pass therethrough but the air can pass therethrough. The waterproof -breathable member 81 partitions the space between the inside of the cartridge accommodation portion 10 and the sensor 34. That is, the waterproof-breathable member 81 does not allow the fluid communication from the inside of the cartridge accommodation portion 10 to the sensor 34 while allowing the air only to pass therethrough.

[0190] As shown in Fig. 32, a cartridge-accommodation-portion-side protrusion 35D protruding toward the cartridge accommodation portion 10 side is provided on the inner wall surface of the bent plate portion 35A on the cartridge accommodation portion 10 side. As shown in Fig. 31, the cartridge-accommodation-portion-side protrusion 35D is formed in a substantially C shape when viewed from the inside in the radial direction. The cartridge-accommodation-portion-side protrusion 35D is inserted into a through hole 10d (see Fig. 19) formed on the peripheral surface of the cartridge accommodation portion 10.

[0191] The sensor holder 35 has translucency and also serves as a light guide member that guides the light of the light source 52 to the inside of the cartridge accommodation portion 10, as shown in Fig. 6. The sensor holder 35 is made of, for example, a polycarbonate resin. The polycarbonate resin adds appropriate rigidness and good translucency for serving as the light guide member to the sensor holder 35 that holds the sensor 34. As the translucency of the sensor holder 35, it is preferable that the transmittance is lower than that of transparency such that the transmitted light is diffused.

[0192] As shown in Fig. 6, the sensor holder 35 is interposed between the light source 52 and the cartridge accommodation portion 10. The light source 52 is arranged on the upper side (+Z side) with respect to the sensor 34 in the main axis direction (Z-axis direction) of the cartridge accommodation portion 10 so as to not to overlap the sensor 34. The light source 52 is arranged on the side opposite to the cartridge insertion-removal port 10a in the main axis direction of the cartridge accommodation portion 10. In addition, "the side opposite to the cartridge insertion-removal port" means a region within the range of L/2 from the end portion on the opposite side of the cartridge insertion-removal port 10a, wherein L is defined as the dimension of the cartridge accommodation portion 10 in the main axis direction.

[0193] The light source 52 is arranged so as to overlap at least a part of the window portion 16. That is, when viewed from the Y-axis direction, the window portion 16 and the light source 52 are arranged to overlap each other. The tank 21 of the cartridge 3 is arranged between the window portion 16 and the light source 52. The light source 52 illuminates at least the lower half of the liquid storage chamber 21g inside the tank 21. Between the window portion 16 and the light source 52, the cover member 17, the through hole 10c of the cartridge accommodation portion 10, the tank 21, the through hole 10d of the cartridge accommodation portion 10, the sensor holder 35, and the first notch portion 42d1 of the second

rib 42D of the holder 30 are arranged.

<Assembly method of main body unit>

[0194] Fig. 33 is a perspective view showing an assembly method of the main body unit 2 according to the embodiment. Fig. 34 is a rear view showing the inner configuration of the first case 13A according to the embodiment. Fig. 35 is a front view showing the inner configuration of the second case 13B according to the embodiment.

[0195] As shown in Fig. 33, the main body unit 2 is assembled by screwing the holder unit 100 to which various components mainly including the holder 30 have been incorporated to the first case 13A to which the vibrator 36 is mounted, then combining the first case 13A and the second case 13B, and finally performing a welding process. It is suitable to adopt the ultrasonic welding as the welding process.

[0196] The holder unit 100 includes components of the main body unit 2 excluding the first case 13A, the second case 13B, and the vibrator 36. Specifically, the holder unit 100 includes the holder 30, the cartridge accommodation portion 10, the suction port portion 11, the display cover 14, the input device 15, the main board 31, the sub board 32, the display device 33, the sensor 34, the sensor holder 35, and the power supply 37. The suction port portion 11 may be detached from the cartridge accommodation portion 10 at the time of assembling the main body unit 2.

[0197] As shown in Fig. 34, on the opposite surface 13a1 facing the second case 13B in the first main surface portion 12A1 of the first case 13A, the mounting portion 13D of the above-described vibrator 36, the two boss portions 13C for screwing the holder 30, a plurality of case-side protrusions 13G that abut on the first rib 42C and the second rib 42D of the holder 30, and the groove portion 13H that abuts on the receiving portion 43 of the holder 30 are formed.

[0198] Screw holes are formed in the two boss portions 13C. Two screws 40 (see Fig. 33) that have passed through the two through holes 30a of the holder 30 are screwed into the two boss portions 13C. The case-side protrusions 13G are configurations that abut on the first rib 42C, wherein as shown in Fig. 34, the case-side protrusions 13G are arranged at the -Y side with respect to the mounting portion 13D on the opposite surface 13a1, and exist in a dotted manner in the main axis direction (Z-axis direction).

[0199] The case-side protrusions 13G that abut on the second rib 42D are arranged at the +Y side of the mounting portion 13D on the opposite surface 13b1 and exist in a dotted manner in the main axis direction (Z-axis direction). The case-side protrusion 13G1 arranged at the lower end (-Z side) in the main axis direction is bent in an L shape corresponding to the branch portion 42D1 of the second rib 42D. The groove portion 13H is recessed on the +X side along the peripheral surface of the receiving portion 43.

[0200] The inner wall surface of the first peripheral wall portion 12B1 of the first case 13A is provided with the fitting claws 13E provided on both the left and right sides and the fitting claws 13F provided on the lower side. The two fitting claws 13E provided on the +Y side of the first peripheral wall portion 12B1 are claw-fitted into the case fitting holes 17b1 (see Fig. 26 and Fig. 28) of the cover member 17 described above.

[0201] Also, the three fitting claws 13E provided on the -Y side of the first peripheral wall portion 12B1 are claw-fitted into the first fitting hole 42el (see Fig. 11 and Fig. 29) of the holder 30 described above. Also, the two fitting claws 13F provided on the -Z side of the first peripheral wall portion 12B1 are claw-fitted to the claw receiving portion 13K (see Fig. 35) of the second case 13B described later.

[0202] As shown in Fig. 35, on the opposite surface 13b1 facing the first case 13A in the second main surface portion 12A2 of the second case 13B, a plurality of case-side protrusions 13J that abut the first rib 42C and the second rib 42D of the holder 30, and a groove portion 13L that abuts on the receiving portion 43 of the holder 30 are formed.

[0203] The case-side protrusions 13J that abut on the first rib 42C exist in a dotted manner in the main axis direction (Z-axis direction) on the -Y side of the opposite surface 13b1. The case-side protrusion 13J that abuts on the second rib 42D extends linearly in the main axis direction (Z-axis direction) at the substantially central portion of the opposite surface 13b1 in the Y-axis direction. The groove portion 13L is recessed on the -X side along the peripheral surface of the receiving portion 43.

[0204] On the inner wall surface of the second peripheral wall portion 12B2 of the second case 13B, fitting claws 13I provided on both the left and right sides and a claw receiving portion 13K provided on the lower side are provided. The two fitting claws 131 provided on the +Y side of the second peripheral wall portion 12B2 are claw-fitted into the case fitting holes 17b1 (see Fig. 26 and Fig. 28) of the cover member 17 described above.

[0205] Also, the three fitting claws 131 provided on the -Y side of the second peripheral wall portion 12B2 are claw-fitted into the second fitting hole 42e2 (see Fig. 11 and Fig. 29) of the holder 30 described above. Also, the fitting claws 13F (see Fig. 34) of the first case 13A described above are claw-fitted to the two claw receiving portions 13K provided on the -Z side of the second peripheral wall portion 12B2.

[0206] The main body unit 2 includes a first connection portion 91 connecting the first peripheral wall portion 12B1 of the first case 13A and the second peripheral wall portion 12B2 of the second case 13B, a second connection portion 92 connecting the holder 30 to the opposite surfaces 13a1, 13b1 of either of the first main surface portion 12A1 or the second main surface portion 12A2, and a third connection portion 93 connecting the holder 30 to the opposite surfaces 13a1, 13b1 of the other one

of the first main surface portion 12A1 and the second main surface portion 12A2.

[0207] The first connection portion 91 includes a claw fitting between the fitting claw 13F (see Fig. 34) of the first case 13A and the claw receiving portion 13K (see Fig. 35) of the second case 13B described above. As described above, the connection method of the first connection portion 91 includes the claw fitting.

[0208] The second connecting portion 92 includes the screw fixing (see Fig. 33) of the holder 30 to the boss portion 13C (see Fig. 34) provided on the opposite surface 13a1 (one opposite surface) of the first main surface portion 12A1 of the first case 13A described above. In this way, the connection method of the second connection portion 92 includes the screw fixing.

[0209] The third connection portion 93 includes the welding (see Fig. 29) of the case-side protrusion 13J (see Fig. 35) provided on the opposite surface 13b1 (the other opposite surface) of the second main surface portion 12A2 of the second case 13B described above, and the first rib 42C and the second rib 42D provided on the holder 30. In this way, the connection method of the third connection portion 93 includes the welding. The peripheral surface of the receiving portion 43 is also welded to the groove portion 13L (see Fig. 35) of the second case 13B.

[0210] Further, in the present embodiment, the first rib 42C and the second rib 42D are also welded (See Fig. 29) to the case-side protrusion 13G provided on the opposite surface 13a1 (one opposite surface) of the first main surface portion 12A1 of the first case 13A. In this way, the connection method of the second connection portion 92 also includes the welding. The peripheral surface of the receiving portion 43 is also welded to the groove portion 13H (see Fig. 34) of the first case 13A.

[0211] Also, in the present embodiment, the fitting claw 13E (see Fig. 34) provided on the -Y side of the first peripheral wall portion 12B1 of the first case 13A is claw fitted into the first fitting hole 42e1 (see Fig. 11) provided in the holder 30. In this way, the connection method of the second connection portion 92 also includes the claw fitting.

[0212] Also, in the present embodiment, the fitting claw 13E (see Fig. 35) provided on the -Y side of the second peripheral wall portion 12B2 of the second case 13B is claw fitted into the second fitting hole 42e2 (see Fig. 11). In this way, the connection method of the third connection portion 93 also includes the claw fitting.

[0213] That is, the connection method of the first connection portion 91 is one type of the claw fitting. The connection methods of the second connection portion 92 include three types of claw fitting, screwing, and welding. The connection methods of the third connection portion 93 include two types of claw fitting and welding. Therefore, the first connection portion 91, the second connection portion 92, and the third connection portion 93 are different from each other in the number of connection methods.

[0214] In this way, it is difficult for the user to disassemble since the numbers of the connection methods of the three connection portions (first connection portion 91, second connection portion 92, and third connection portion93) of the main body unit 2 are not the same. Even if the number of connection methods of the three connection portions is the same, if the types of the connection methods are different, it can be difficult for the user to disassemble. For example, it is suitable that the connection method of the first connection portion 91 is only one type of claw fitting, the connection method of the second connection portion 92 is only one type of screwing, and the connection method of the third connection portion 93 is only one type of welding.

[0215] Also, even if the number and types of connection methods of two among the three connection portions are the same, if the number or type of connection methods of the remaining one connection portion is different, it is difficult for the user to disassemble. That is, at least one of the three connection portions may have a different number of connection methods. Also, at least one of the three connection portions may have a different type of connection method.

[0216] Also, the main body unit 2 according to the present embodiment has a fourth connection portion 94 that connects the first peripheral wall portion 12B1 of the first case 13A and the second peripheral wall portion 12B2 of the second case 13B via the cover member 17. The fourth connection portion 94 has a claw fitting between a case fitting hole 17b1 (see Fig. 26) provided in the cover member 17 described above with a fitting claw 13E (see Fig. 34) provided on the +Y side of the first peripheral wall portion 12B1 of the first case 13A and the fitting claw 13E (see Fig. 35) provided on the +Y side of the second peripheral wall portion 12B2 of the second case 13B. As described above, the connection method of the fourth connection portion 94 includes the claw fitting.

<Appearance of the main body unit>

[0217] Fig. 36 is a front view showing the main body unit 2 with the suction port portion 11 in a state of being detached according to the embodiment.

[0218] As shown in Fig. 36, the main body unit 2 includes a cartridge accommodation portion 10 having a cartridge insertion-removal port 10a protruding from the outer case 12. That is, a part of the cartridge accommodation portion 10 including the cartridge insertion-removal port 10a protrudes from the outer case 12 such that it becomes easy to see the location where the cartridge 3 is inserted and removed.

[0219] A part of the cartridge accommodation portion 10 protruding from the outer case 12 includes a suction port connection portion 10B (see Fig. 6 and Fig. 20) for connecting the suction port portion 11 to the cartridge insertion-removal port 10a. That is, at least a part of the suction port connection portion 10B protrudes from the outer case 12. As a result, the first groove portion 10b1

of the suction port connection portion 10B and the like can be easily seen from the cartridge insertion-removal port 10a.

[0220] The outer case 12 is provided with a raised portion 12D on the upper side (+Z side) in the main axis direction. The cartridge accommodation portion 10 protrudes upward in the main axis direction from a deformation transition portion 12D1 of the raised portion 12D. The deformation transition portion 12D1 is a portion from the second corner portion 12C2 to the top portion P of the raised portion 12D. It can be said that the deformation transition portion 12D1 is a portion in which the dimension of the outer case 12 in the Z-axis direction increases from the second corner portion 12C2 to the top portion P of the raised portion 12D. Also, it can be said that the deformation transition portion 12D1 is a portion inclined with respect to the main axis direction. The deformation transition portion 12D1 is not limited to the curved surface as shown in Fig. 36, and may be a slope surface.

[0221] Due to the deformation transition portion 12D1, a portion (+Y side) that is largely exposed from the outer case 12 and a portion (-Y side) that is slightly exposed from the outer case 12 are formed in the cartridge accommodation portion 10. The visibility of the cartridge accommodation portion 10 can be ensured in the largely exposed portion of the cartridge accommodation portion 10. It is possible to secure an area for protecting the cartridge accommodation portion 10 by the outer case 12 in the slightly exposed portion of the cartridge accommodation portion 10. Also, since the contact length between the edge of the outer case 12 and the peripheral surface of the cartridge accommodation portion 10 becomes long, it becomes easy to secure the connection strength when the two portions are bonded to each other.

[0222] As shown in Fig. 36, the cartridge insertion-removal port 10a is arranged at a position below the top P of the raised portion 12D in the main axis direction (Z-axis direction) in which the cartridge accommodation portion 10 extends. That is, the cartridge insertion-removal port 10a is lowered to the lower side (-Z side) in the main axis direction with respect to the top portion P of the raised portion 12D. For example, when the main body unit 2 is turned upside down and dropped, the raised portion 12D comes into contact with the ground or the like before the cartridge insertion-removal port 10a so as to protect the cartridge insertion-removal port 10a.

[0223] The raised portion 12D has a deformation transition portion 12D2 in which the input device 15 is arranged on the opposite side (-Y side) thereof with the deformation transition portion 12D1 and the top portion P being interposed therebetween. The input device 15 is arranged at a position below the top portion P of the raised portion 12D in the main axis direction (Z-axis direction) in which the cartridge accommodation portion 10 extends. For example, when the main body unit 2 is turned upside down and dropped, the raised portion 12D comes into contact with the ground or the like before the input device 15 so as to prevent the input device 15 from malfunctioning.

[0224] The input device 15 is arranged toward an acute angle direction with respect to the main axis O of the cartridge accommodation portion 10 passing through the center of the cartridge insertion-removal port 10a. Specifically, the angle θ at which the main axis O intersects the diagonal line O1 connecting the first corner portion 12C1 (input device 15) and the third corner portion 12C3 is less than 90 degrees. According to this configuration, it becomes easy for the user to put a finger on the input device 15 while holding the suction port portion 11 attached to the cartridge insertion-removal port 10a in his/her mouth.

[0225] The main body unit 2 is provided with a movement restricting member (cover member 17, sensor holder 35) that restricts the movement of the cartridge accommodation portion 10 as a measure for preventing the cartridge accommodation portion 10 that partially protrudes from the outer case 12 from being extracted therefrom. The movement restricting member at least restricts the movement of the cartridge accommodation portion 10 in the extraction direction in which the cartridge accommodation portion 10 is extracted from the outer case 12. Here, the "extraction direction" refers to one direction toward the upper side (+Z side) of the main axis direction (Z-axis direction).

[0226] As shown in Fig. 6, the outer case 12 includes a main body case 13 in which the opening portion 13a is formed. The cover member 17 (movement restricting member) has a main-body-case-side protrusion 17A inserted into the opening portion 13a. The main-body-case-side protrusion 17A is locked to the outer case 12 to restrict the movement of the cartridge accommodation portion 10 at least in the extraction direction.

[0227] Also, the cover member 17 has a cartridge-accommodation-portion-side protrusion 17C inserted into the through hole 10c of the cartridge accommodation portion 10. The cartridge-accommodation-portion-side protrusion 17C is caught by the cartridge accommodation portion 10 even if the adhesion of the cover member 17 is peeled off from the peripheral surface of the cartridge accommodation portion 10 by the pulling of the user so as to prevent the cartridge accommodation portion 10 from being pulled out from the outer case 12.

[0228] Also, the cover member 17 has a plate portion 17B interposed between the cartridge accommodation portion 10 and the outer case 12. The thickness of the plate portion 17B decreases toward the extraction direction of the cartridge accommodation portion 10 (see Fig. 28). The plate portion 17B is inserted into a wedge space between the cartridge accommodation portion 10 and the outer case 12 (more specifically, the space where the rounded inner wall surface of the second corner portion 12C2 of the outer case 12 gradually approaches a peripheral surface of the cartridge accommodation portion 10). That is, the plate portion 17B becomes the wedge to prevent the cartridge accommodation portion 10 from being pulled out from the outer case 12.

[0229] As shown in Fig. 29, a second notch 42d2 is formed in the second rib 42D in the holder 30 fixed to the outer case 12. The sensor holder 35 (movement restricting member) has a holder-side protrusion 35B inserted into the second notch 42d2. The holder-side protrusion 35B is locked to the holder 30 to limit the movement of the cartridge accommodation portion 10 at least in the extraction direction.

[0230] Also, the sensor holder 35 has a cartridge-accommodation-portion-side protrusion 35D inserted into the through hole 10d of the cartridge accommodation portion 10. The cartridge-accommodation-portion-side protrusion 35D is caught by the cartridge accommodation portion 10 even if the adhesion of the sensor holder 35 is peeled off from the peripheral surface of the cartridge accommodation portion 10 by the pulling of the user so as to prevent the cartridge accommodation portion 10 from being pulled out from the outer case 12.

<Assembly method of suction device>

[0231] Fig. 37 is an explanatory view showing a state in which the cartridge 3 is accommodated in the cartridge accommodation portion 10 according to the embodiment. Fig. 38 is an explanatory view showing how the suction port portion 11 is attached to the cartridge accommodation portion 10 according to the embodiment.

[0232] As shown in Fig. 37, when assembling the suction device 1, the cartridge 3 is accommodated in the cartridge accommodation portion 10 of the main body unit 2. As shown in Fig. 5, the cartridge 3 is inserted from the cartridge insertion-removal port 10a of the cartridge accommodation portion 10 protruding from the outer case 12 with the planar electrode 26h facing the main body unit 2.

[0233] Since the cartridge 3 is shorter than the cartridge accommodation portion 10, the cartridge 3 freely falls when inserted. At this time, since there is nothing around the cartridge 3 that hinders the movement of the cartridge 3 in the rotational direction, and the cartridge 3 is also falling with a certain force, even in a case in which the circumferential positions of the engaging protrusion portion 43h of the position determination mechanism 90 and the engagement groove portion 26i of the cartridge 3 do not match each other, the engaging protrusion portion 43h enters the engagement groove portion 26i since the cartridge 3 bounces and rotates due to the collision with the engagement protrusion 43h, or the cartridge 3 slides down along the curved surface of the engagement protrusion 43h.

[0234] Here, in the present embodiment, the gap generated between the inner diameter D1 of the cartridge accommodation portion 10 and the outer diameter D2 of the cartridge 3 is larger than 2.6% of the inner diameter of the cartridge accommodation portion 10. Therefore, the clearance between the cartridge accommodation portion 10 and the cartridge 3 is large, and the engaging protrusion portion 43h can be easily introduced into the engagement groove portion 26i. That is, when the cartridge 3 is inserted, the cartridge 3 is assembled in the proper position even if the circumferential positions of the engaging protrusion portion 43h and the engagement groove portion 26i do not match each other. As a result, the planar electrode 26h of the cartridge 3 comes into contact with the salient electrode 50.

[0235] There is a case in which the cartridge 3 may not be assembled in the proper position when the cartridge 3 is inserted as described above. In this case, the cartridge 3 is in a state of riding on the engaging protrusion portion 43h (hereinafter, simply referred to as a "riding state"). In the riding state of the cartridge 3, the movement of the cartridge 3 on the lower side (-Z side) in the main axis direction is restricted. Therefore, the planar electrode 26h and the salient electrode 50 are separated from each other in the main axis direction, and the conduction between the cartridge 3 and the main body unit 2 is not ensured.

[0236] If the suction port portion 11 is attached to the cartridge accommodation portion 10 while the cartridge 3 is in the riding state, the cartridge contact portion 60 comes into contact with the cartridge 3 before the attachment of the suction port portion 11 is completed. Specifically, the cartridge contact portion 60 comes into contact with the cartridge 3 while the protrusion portion 11b1 of the suction port portion 11 passes through the first groove portion 10b1 or the second groove portion 10b2 of the suction port connection portion 10B. Then, the cartridge contact portion 60 is compressed in the main axis direction, and the cartridge 3 is pressed against the engaging protrusion portion 43h. Since the engaging protrusion portion 43h has a curved surface shape, even if the positions of the center of the engaging protrusion portion 43h and the center of the engagement groove portion 26i do not match in the circumferential direction, the cartridge 3 slides down diagonally along the curved surface of the engaging protrusion portion 43h such that the cartridge 3 is assembled in the proper position if the tip of the engaging protrusion portion 43h is engaged with the engagement groove portion 26i.

[0237] Further, if the cartridge 3 is still in the riding state even when the cartridge 3 is pressed, as shown in Fig. 38, the suction port portion 11 is rotated with the cartridge contact portion 60 in contact with the cartridge 3. Accordingly, the cartridge 3 rotates together while the protrusion portion 11b1 passes through the third groove portion 10b3 of the suction port connection portion 10B. The cartridge 3 rotates due to the frictional force generated between the cartridge 3 and the cartridge contact portion 60. When the tip (apex) of the engaging protrusion portion 43h faces the engagement groove portion 26i due to the rotation of the cartridge 3, the cartridge 3 slides down along the curved surface of the engaging protrusion portion 43h, and the engaging protrusion portion 43h enters the engagement groove portion 26i. As described above, in the present embodiment, the cartridge 3 can be assembled in the proper position in three stages of free fall

of the cartridge 3, pressing of the cartridge 3, and rotation of the cartridge 3.

[0238] When the suction port portion 11 is rotated to the end and the suction port portion 11 is attached to the cartridge accommodation portion 10, the cartridge contact portion 60 is in a compressed state in the main axis direction, the planar electrode 26h is pressed against the salient electrode 50, and the position of the cartridge 3 is determined. In this way, by mounting the suction port portion 11, the position of the cartridge 3 is determined, and the cartridge 3 and the main body unit 2 are electrically connected to each other. In addition, the annular protrusion 61 of the cartridge contact portion 60 is compressed in the main axis direction such that the gap between the cartridge 3 and the suction port portion 11 is sealed.

[0239] As described above, the assembly of the suction device 1 is completed. As shown in Fig. 37 and Fig. 38, the flavor source container 4 may be inserted into the suction port portion 11 in advance; however, if this is not the case, after the suction port portion 11 is attached to the cartridge accommodating part 10, then the flavor source container 4 is inserted into the suction port portion 11 to complete the assembly of the suction device 1.

<Usage method of suction device>

[0240] When using the suction device 1 described above, the user first presses the input device 15 shown in Fig. 1. At this time, for example, the main body unit 2 may be programmed to start by pressing the input device 15 for a plurality of times.

[0241] Subsequently, the user suctions the suction port portion 11 or the flavor source container 4 while holding the suction port portion 11 in the mouth. Then, the air inside the cartridge accommodation portion 10 flows, and the sensor 34 shown in Fig. 29 detects the puff. When the sensor 34 detects the puff, the electrical heating wire 25b of the cartridge 3 shown in Fig. 6 is energized, and the electrical heating wire 25b generates heat. When the electrical heating wire 25b generates heat, the aerosol source of the liquid impregnated in the wick 25a is heated and atomized. The atomized aerosol is suctioned up together with the air (outside air) taken in by the suction.

[0242] As shown in Fig. 29, the air (outside air) is taken in from the air inlet 18 in the gap between the main body case 13 and the cover member 17. The air taken in from the air inlet 18 flows into the inside of the cartridge accommodation portion 10 through the annular groove portion 71, the step groove portion 72, the air hole 19, and the air communication hole 10e of the air groove 70. As shown in Fig. 6, the air flowing into the cartridge accommodation portion 10 flows into the atomization chamber 24c through the intake hole 26c and the opening 24e of the cartridge 3.

[0243] The atomized aerosol fills the atomization chamber 24c, and the atomized aerosol is suctioned up together with the air flowing into the atomization chamber 24c to the suction port portion 11 side through the flow path pipe 21c, the through hole 21b, and the communication hole 62 of the cartridge contact portion 60. After that, the mixed gas that is mixed by the atomized aerosol and the air enter the mouth of the user through the flavor source container 4 attached to the suction port portion 11. This allows the user to taste the flavor.

<Modification example>

[0244] In the present embodiment, the following modification examples can be adopted. In the following description, the same or equivalent configurations as those in the above-described embodiment are designated by the same reference signs, and the description thereof will be simplified or omitted.

[0245] Fig. 39 is a perspective view showing a modification example of the suction port connection portion 10B according to the embodiment. Fig. 40 is a perspective view showing a modification example of the cartridge accommodation portion 10 according to the embodiment. Fig. 41 is a cross-sectional view taken along the arrow line H-H shown in Fig. 39.

[0246] The suction port connection portion 10B shown in Fig. 39 includes a fitting hole 10b4 in addition to the above-mentioned first groove portion 10b1, second groove portion 10b2, and third groove portion 10b3.

[0247] The fitting hole 10b4 is arranged on an extension line of the third groove portion 10b3. The fitting hole 10b4 and the third groove portion 10b3 are formed so as to be separated from each other. That is, a part 10A1 of the insert ring 10A is interposed between the fitting hole 10b4 and the third groove portion 10b3. When the protrusion portion 11b1 of the suction port portion 11 is attached to the suction port portion connection part 10B, the protrusion portion 11b1 gets over the part 10A1 of the insert ring 10A from the terminal end of the third groove portion 10b3 and fits into the fitting hole 10b4. As a result, the suction port portion 11 is held by the suction port connection portion 10B.

[0248] As shown in Fig. 40, the cartridge accommodation portion 10 is formed with an escape groove 10g for the insert ring 10A to escape radially outward due to elastic deformation when the protrusion portion 11b1 gets over the part 10A1 of the insert ring 10A. The escape groove 10g is recessed radially outward from the recess 10f in which the insert ring 10A is arranged. Two escape grooves 10g are provided corresponding to the two suction port connection portions 10B provided in the insert ring 10A. The two escape grooves 10g are arranged to face each other on both radial sides of the inner wall surface of the cartridge accommodation portion 10.

[0249] A position-determination protrusion 10h is formed in the escape groove 10g. The position-determination groove portion 10C of the insert ring 10A shown in Fig. 39 engages with the position-determination protrusion 10h. The position-determination groove portion 10C has a tapered slope 10C1 whose width in the cir-

cumferential direction gradually increases toward the lower side (-Z side) in the main axis direction. By the position-determination groove portion 10C engaging with the position-determination protrusion 10h shown in Fig. 40, the fitting hole 10b4 of the insert ring 10A can be aligned with the escape groove 10g.

[0250] As shown in Fig. 41, the protrusion portion 11b1 of the suction port portion 11 is fitted into the fitting hole 10b4 in a state where the insert ring 10A is bent outward in the radial direction. As a result, the suction port portion 11 can be held by the suction port connection portion 10B without any rattling. The gap S1 between the insert ring 10A and the cartridge accommodation portion 10 due to the escape groove 10g only has to be large enough such that the protrusion portion 11b1 of the suction port portion 11 can get over the part 10A1 of the insert ring 10A. Also, in order to hold the suction port portion 11 to the suction port portion connection part 10B without rattling, it is preferable that the gap S2 between the insert ring 10A in the non-bending state shown by the alternate long and short dash line in Fig. 41 and the tubular body 11B of the suction port portion 11 is smaller than the protrusion amount T1 of the protrusion portion 11b1 with respect to the tubular body 11B.

[0251] The gap S1 is larger than the difference T2 between the protrusion amount T1 and the gap S2. Also, the gap S1 is larger than the bending amount T3 of the insert ring 10A in the state of holding the protrusion portion 11b1.

[Operations and effect]

[0252] The main body unit 2 according to the present embodiment described above includes the outer case 12 and the holder 30 provided inside the outer case 12, and the holder 30 includes the main plate 41 holding at least a part of members provided inside the outer case 12, and the sub plate 42 extending from the end portion of the main plate 41 to the plate surface (first plate surface 41a, second plate surface 41b) of the main plate 41, and holding at least one of the members (input device 15, display device 33) provided to extend along the outer surface of the outer case 12.

[0253] According to this configuration, the members provided inside the outer case 12 and the members provided along the outer surface of the outer case 12 are held in one holder 30. Also, the holder 30 includes the main plate 41 and the sub plate 42 extending in a direction intersecting the main plate 41 so as to increase the rigidity of the holder 30 while saving the space inside the apparatus.

[0254] Also, in the present embodiment, the sub plate 42 extends to at least one side in the direction orthogonal to the plate surface of the main plate 41.

[0255] According to this configuration, the cross section of the holder 30 is at least in an L shape to increase the rigidity of the holder 30.

[0256] Also, in the present embodiment, the sub plate 42 extends to both sides in a direction orthogonal to the plate surface of the main plate 41.

[0257] According to this configuration, the cross section of the holder 30 becomes a T shape, and the rigidity of the holder 30 can be increased.

[0258] Also, in the present embodiment, the holder 30 includes, as the sub plate 42, the first sub plate 42A provided on the first end side 41h1 of the end portion of the main plate 41, and the second sub plate 42B provided on the second end side 41h2 of the end portion of the main plate 41 adjacent to the first side 41h1, and the first sub plate 42A and the second sub plate 42B are connected to each other.

[0259] According to this configuration, since the first sub plate 42A and the second sub plate 42B are connected, the rigidity of the holder 30 can be increased.

[0260] Also, in the present embodiment, the first sub plate 42A and the second sub plate 42B are connected at an obtuse angle.

[0261] According to this configuration, even when the outer case 12 has a rounded corner portion 12C or an inclined corner portion 12C, it is easy to arrange members in the corner portion 12C.

[0262] Also, in the present embodiment, the display device 33 is held on the sub plate 42.

[0263] According to this configuration, space can be saved by holding the display device 33 on the sub plate 42.

[0264] Also, in the present embodiment, the display device 33 is an organic EL display or a liquid crystal display.

[0265] According to this configuration, the organic EL display or the liquid crystal display can be installed to save the space.

[0266] Also, in the present embodiment, the input device 15 is held on the sub plate 42.

[0267] According to this configuration, it is possible to save the space by holding the input device 15 on the sub plate 42.

[0268] Also, in the present embodiment, the input device 15 is a push button.

[0269] According to this configuration, the push button can be installed to save the space. Also, since the holder 30 has the high rigidity, the holder 30 can receive the load applied to the push button.

[0270] Also, in the present embodiment, the main plate 41 includes the first plate surface holding the first member (main board 31, sub board 32), and the second plate surface 41b on the opposite side of the first plate 41a and holding the second member (power supply 37) that is different from the first member.

[0271] According to this configuration, the members are held on the front and back of the main plate 41 so as to save the space.

[0272] Also, in the present embodiment, either of the first member and the second member (second member) is the power supply 37, and the other of the first member and the second member (first member) is the electronic

member as the first member (main board 31, sub board 32) that is electrically connected to the power supply 37.

[0273] According to this configuration, by separately holding the power supply 37 and the electronic members on the front and back of the main plate 41, it is possible to increase the capacity of the power supply 37 and secure the installation space for the electronic members at the same time.

[0274] Also, in the present embodiment, the outer case 12 is provided with the cartridge accommodation portion 10 in which at least a part thereof is covered.

[0275] According to this configuration, the cartridge accommodation portion 10 can be protected by the outer case 12.

[0276] Also, in the present embodiment, the holder 30 is formed integrally with the main plate 41 and has a receiving portion 43 that receives the end portion of the cartridge accommodation portion 10.

[0277] According to this configuration, the cartridge accommodation portion 10 is further assembled to the holder 30 so as to make the assembly to become easy.

[0278] Also, in the present embodiment, the receiving portion 43 is formed with the insertion hole 43c for inserting the salient electrode 50 inside the cartridge accommodation portion 10.

[0279] According to this configuration, the salient electrode 50 can be easily arranged inside the cartridge accommodation portion 10.

[0280] The aerosol generation device according to the present embodiment includes the main body unit 2 described above, and the cartridge 3 that accommodates the aerosol source while being insertable into and removable from the cartridge accommodation portion 10 of the main body unit 2.

[0281] According to this configuration, since the main body unit 2 in which the members are incorporated to save the space is provided, it is possible to reduce the size of the entire device.

[0282] The suction device 1 according to the present embodiment includes the aerosol generation device described above and the flavor source container 4 attached to the suction port portion 11 of the aerosol generation device.

[0283] According to this configuration, the flavor can be added to the aerosol.

[0284] Also, in the present embodiment, the following effects can be achieved.

[0285] The main body unit 2 according to the present embodiment described above includes the outer case 12 having the peripheral wall portion 12B connecting between the pair of main surface portions 12A, and the input device 15 arranged on the peripheral wall portion 12B, and the input device 15 has the outer surface 12b1 continuous with the pair of main surface portions 12A and the recess portion 12b2 recessed with respect to the outer surface 12b1, and the input device 15 is arranged in the recess portion 12b2.

[0286] According to this configuration, since the input device 15 is arranged in the recess portion 12b2 of the peripheral wall portion 12B, it becomes difficult to unintentionally touch the input device 15 so as to prevent the malfunction of the input device 15.

[0287] Also, in the present embodiment, the input device 15 is arranged at the corner portion 12C of the outer case 12 in the peripheral wall portion 12B.

[0288] According to this configuration, the input device 15 can be easily operated.

[0289] Also, in the present embodiment, the holder 30 provided inside the outer case 12 is provided, and the holder 30 has the sub plate 42 (second sub plate 42B) facing the corner portion 12C, and the input device 15 is held on the sub plate 42.

[0290] According to this configuration, the input device 15 can be easily arranged in the corner portion 12C.

[0291] Also, in the present embodiment, the holder 30 includes the main plate 41 that holds at least a part of the members provided inside the outer case 12, and the sub plate 42 extends from the end portion of the main plate 41 in the direction intersecting the plate surface of the main plate 41.

[0292] According to this configuration, since the main plate 41 and the sub plate 42 are connected and intersected with each other, the rigidity of the holder 30 can be increased.

[0293] Also, in the present embodiment, the sub plate 42 extends in at least one side in the direction orthogonal to the plate surface of the main plate 41.

[0294] According to this configuration, the cross section of the holder 30 is at least in the L shape, and the rigidity of the holder 30 can be increased.

[0295] Also, in the present embodiment, the sub-plate 42 extends to both sides in the direction orthogonal to the plate surface of the main plate 41.

[0296] According to this configuration, the cross section of the holder 30 becomes the T shape, and the rigidity of the holder 30 can be increased.

[0297] Also, in the present embodiment, the holder 30 includes, as the sub plate 42, the first sub plate 42A provided on the first end side 41h1 of the end portion of the main plate 41, and the second sub plate 42B provided on the second end side 41h2 adjacent to the side 41h1 of the end portion of the main plate 41, and the first sub plate 42A and the second sub plate 42B are connected to each other.

[0298] According to this configuration, since the first sub plate 42A and the second sub plate 42B are connected, the rigidity of the holder 30 can be increased.

[0299] Also, in the present embodiment, the first sub plate 42A and the second sub plate 42B are connected at the obtuse angle.

[0300] According to this configuration, even when the outer case 12 has the rounded corner portion 12C or the inclined corner portion 12C, it is easy to arrange the input device 15 in the corner portion 12C.

[0301] Also, in the present embodiment, the input device 15 is the push button.

[0302] According to this configuration, the malfunction of the push button can be prevented.

[0303] Also, in the present embodiment, the outer case 12 includes the cartridge accommodation portion 10 in which at least a part thereof is covered.

[0304] According to this configuration, the cartridge accommodation portion 10 can be protected by the outer case 12.

[0305] Also, in the present embodiment, the cartridge accommodation portion 10 is arranged in the second corner portion 12C2 of the peripheral wall portion 12B, which is the closest to the first corner portion 12C1 of the outer case 12 in which the input device 15 is arranged.

[0306] According to this configuration, since the cartridge accommodation portion 10 and the input device 15 are arranged close to each other, the operability can be improved.

[0307] Also, in the present embodiment, the cartridge accommodation portion 10 includes the cartridge insertion-removal port 10a to which the suction port portion 11 can be attached, and the input device 15 is arranged toward the acute angle direction with respect to the main axis O of the cartridge accommodation portion 10 passing through the center of the cartridge insertion-removal port 10a.

[0308] According to this configuration, it becomes easy for the user to operate the input device 15 while holding the suction port portion 11 in the mouth.

[0309] The aerosol generation device according to the present embodiment includes the main body unit 2 described above, and the cartridge 3 that accommodates the aerosol source while being insertable into and removable from the cartridge accommodation portion 10 of the main body unit 2.

[0310] According to this configuration, since the main body unit 2 capable of preventing the malfunction of the input device 15 is provided, the safety of the device can be enhanced.

[0311] The suction device 1 according to the present embodiment includes the aerosol generation device described above and the flavor source container 4 attached to the suction port portion 11 of the aerosol generation device.

[0312] According to this configuration, the flavor can be added to the aerosol.

[0313] Also, in the present embodiment, the following effects can be achieved.

[0314] The main body unit 2 according to the present embodiment described above includes the cartridge accommodation portion 10 accommodating the cartridge 3, the outer case 12 surrounding at least a part of the outside of the cartridge accommodation portion 10, and the holder 30 that is accommodated in the outer case 12, and the holder 30 is integrally formed with the main plate 41 that holds at least one of the members provided inside the outer case 12, and the receiving portion 43 that receives the end portion of the cartridge accommodation portion 10.

[0315] According to this configuration, both the internal members of the outer case 12 and the cartridge accommodation portion 10 are incorporated into the holder 30 so as to make the assembly to become easy.

[0316] Also, in the present embodiment, the receiving portion 43 is formed with the insertion hole 43c for inserting the salient electrode 50 inside the cartridge accommodation portion 10.

[0317] According to this configuration, the salient electrode 50 can be easily arranged inside the cartridge accommodation portion 10.

[0318] Also, in the present embodiment, the receiving portion 43 is a cylinder with a bottom extending in parallel along the longitudinal direction (Z-axis direction) of the main plate 41 at the end portion of the main plate 41 in the lateral direction (Y-axis direction).

[0319] According to this configuration, since the main plate 41 and the cartridge accommodation portion 10 are arranged in parallel in the longitudinal direction, the total length of the main body unit 2 can be shortened.

[0320] Also, in the present embodiment, the holder 30 extends from the end portion of the main plate 41 in a direction intersecting the plate surface of the main plate 41, and includes a sub plate 42 holding at least one of the members provided along the outer surface of the outer case 12 is provided.

[0321] According to this configuration, the rigidity of the holder 30 can be increased.

[0322] Also, in the present embodiment, the sub plate 42 extends to at least one side in the direction orthogonal to the plate surface of the main plate 41.

[0323] According to this configuration, the cross section of the holder 30 is at least the L shape, and the rigidity of the holder 30 can be increased.

[0324] Also, in the present embodiment, the sub plate 42 extends to both sides in a direction orthogonal to the plate surface of the main plate 41.

[0325] According to this configuration, the cross section of the holder 30 becomes the T shape, and the rigidity of the holder 30 can be increased.

[0326] Also, in the present embodiment, the holder 30 includes, as the sub plate 42, the first sub plate 42A provided on the first end side 41h1 of the end of the main plate 41, and the second sub plate 42B provided on the second end side 41h2 adjacent to the side 41h1 of the end portion of the main plate 41, and the first sub plate 42A and the second sub plate 42B are connected to each other.

[0327] According to this configuration, since the first sub plate 42A and the second sub plate 42B are connected, the rigidity of the holder 30 can be increased.

[0328] Also, in the present embodiment, the first sub plate 42A and the second sub plate 42B are connected at the obtuse angle.

[0329] According to this configuration, even when the outer case 12 has the rounded corner portion 12C or the inclined corner portion 12C, it becomes easy to arrange members in the corner portion 12C.

[0330] Also, in the present embodiment, the display device 33 is held on the sub plate 42.

[0331] According to this configuration, it is possible to save the space by holding the display device 33 on the sub plate 42.

[0332] Also, in the present embodiment, the input device 15 is held on the sub plate 42.

[0333] According to this configuration, it is possible to save the space by holding the input device 15 on the sub plate 42.

[0334] Also, in the present embodiment, the main plate 41 has a first plate surface 41a for holding the first member and the second plate surface 41b on the opposite side of the first plate surface 41a and for holding the second member different from the first member.

[0335] According to this configuration, the members are held on the front side and back side of the main plate 41 so as to save the space.

[0336] Also, in the present embodiment, one of the first member and the second member is the power supply 37, and the other of the first member and the second member is the electronic member electrically connected to the power source 37.

[0337] According to this configuration, by separately holding the power supply 37 and the electronic member on the front side and back side of the main plate 41, it is possible to increase the capacity of the power supply 37 and secure the installation space for the electronic members at the same time.

[0338] The aerosol generation device according to the present embodiment includes the main body unit 2 described above, and the cartridge 3 that accommodates the aerosol source while being insertable into and removable from the cartridge accommodation portion 10 of the main body unit 2.

[0339] According to this configuration, since the holder 30 includes the main body unit 2 in which various members are incorporated, the productivity of the device can be increased.

[0340] The suction device 1 according to the present embodiment includes the aerosol generation device described above and the flavor source container 4 attached to the suction port portion 11 of the aerosol generation device.

[0341] According to this configuration, the flavor can be added to the aerosol.

[0342] Also, according to the present embodiment, the following effects can be achieved.

[0343] The main body unit 2 according to the present embodiment described above includes the cartridge accommodation portion 10 for accommodating the cartridge 3, and the outer case 12 that surrounds at least a part of the outside of the cartridge accommodation portion 10, and the outer case 12 includes the main body case 13 in which the window portion 16 is provided, and the light source 52 that illuminates the inside of the cartridge accommodation portion 10 from a place other than the window portion 16.

[0344] According to this configuration, the remaining amount of liquid can be confirmed even if there is no through window for taking in external light.

[0345] The "window portion" includes the simple opening portion 13a without the cover member 17.

[0346] Also, in the present embodiment, the light guide member is provided between the light source 52 and the cartridge accommodation portion 10.

[0347] According to this configuration, the inside of the cartridge accommodation portion 10 can be illuminated brightly.

[0348] Also, in the present embodiment, the sensor 34 for detecting the suction of the user and the sensor holder 35 for holding the sensor 34 are provided, and the sensor holder 35 also serves as the light guide member.

[0349] According to this configuration, since the sensor holder 35 also serves as the light guide member, the number of members can be reduced and the space can be saved.

[0350] Also, in the present embodiment, the cartridge accommodation portion 10 includes the cartridge insertion-removal port 10a, and the light source 52 is on the opposite side of the cartridge insertion-removal port 10a in the main axis direction of the cartridge accommodation portion 10 passing through the center of the cartridge insertion-removal port 10a.

[0351] According to this configuration, the bottom portion (opposite side of the cartridge insertion-removal port side) of the cartridge accommodation portion 10 can be illuminated, and it becomes easy to check the remaining amount of liquid.

[0352] Further, in the present embodiment, the light source 52 is arranged to overlap at least a part of the window portion 16.

[0353] According to this configuration, since the light source 52 and the window portion 16 at least partially overlap each other, it is easy to check the remaining amount of liquid.

[0354] Also, in the present embodiment, the window portion 16 is formed of the opening portion 13a provided in the main body case 13 and the cover member 17 covering the opening portion 13a.

[0355] According to this configuration, it is possible to prevent foreign matter from entering the inside of the cartridge accommodation portion 10 by the cover member 17.

[0356] Also, in the present embodiment, the cartridge accommodation portion 10 is a tubular member having the through hole 10c formed on the peripheral surface, and the cover member 17 has the cartridge-accommodation-portion-side protrusion 17C to be inserted into the through hole 10c.

[0357] According to this configuration, it is possible to prevent the cartridge accommodation portion 10 and the cover member 17 (window portion 16) from being displaced from each other.

[0358] Also, in the present embodiment, the cover member 17 has the main-body-case-side protrusion 17A

inserted into the opening portion 13a of the main body case 13.

[0359] According to this configuration, the cover member 17 becomes the retainer of the cartridge accommodation portion 10 with respect to the main body case 13.

[0360] The aerosol generation device according to the present embodiment includes the main body unit 2 described above, and the cartridge 3 that accommodates the aerosol source while being insertable into and removable from the cartridge accommodation portion 10 of the main body unit 2.

[0361] According to this configuration, since the main body unit 2 capable of illuminating the inside of the cartridge accommodation portion 10 is provided, the remaining amount of liquid can be easily confirmed.

[0362] The suction device 1 according to the present embodiment includes the aerosol generation device described above and the flavor source container 4 attached to the suction port portion 11 of the aerosol generation device.

[0363] According to this configuration, the flavor can be added to the aerosol.

[0364] Also, in the present embodiment, the following effects can be achieved.

[0365] The main body unit 2 according to the present embodiment described above includes the cartridge accommodation portion 10 accommodating a cartridge 3, and the outer case 12 surrounding at least a part of the outside of the cartridge accommodation portion 10, wherein the outer case 12 has the main body case 13 in which the opening portion 13a is formed and the cover member 17 provided in the opening portion 13a, wherein the air inlet 18 is formed in the gap between the cover member 17 and the opening portion 13a, and the air hole 19 for fluid communication between the air inlet 18 and the inside of the cartridge accommodation portion 10 is formed at a position where the cover member 17 and the main body case 13 overlap each other.

[0366] According to this configuration, it is possible to prevent the air hole 19 from being blocked by the finger so as to make the puffing (suction) to be difficult.

[0367] The cover member 17 may be arranged on the outside of the main body case 13 and overlap with each other. In this case, the air hole 19 is formed on the main body case 13 side.

[0368] Also, in the present embodiment, the air inlet 18 is formed in the annular shape along the opening edge of the opening portion 13a of the main body case 13.

[0369] According to this configuration, it becomes difficult for the entire air inlet 18 to be blocked by the finger, and even if a part of the air inlet 18 is blocked by the finger, the puffing is still possible.

[0370] Also, in the present embodiment, the air inlet 18 is formed in the slit shape along the opening edge of the opening portion 13a of the main body case 13.

[0371] According to this configuration, it becomes difficult for the entire air inlet 18 to be blocked by the finger, and even if a part of the air inlet 18 is blocked by the finger, the puffing is still possible.

[0372] Also, in the present embodiment, the air groove 70 connecting the air inlet 18 and the air hole 19 is formed in at least one of the main body case 13 and the cover member 17.

[0373] According to this configuration, the fluid resistance between the air inlet 18 and the air hole 19 can be lowered, and it is possible to make the puffing to be easy.

[0374] Also, in the present embodiment, the cover member 17 includes the main-body-case-side protrusion 17A inserted into the opening portion 13a of the main body case 13 and the plate portion 17B supporting the main-body-case-side protrusion 17A while overlapping the inside of the main body case 13, and the air groove 70 has the annular groove portion 71 formed in the annular shape in the circumference around the main-body-case-side protrusion 17A in the plate portion 17B.

[0375] According to this configuration, the air can be guided to the air hole 19 from the entire circumference of the main-body-case-side protrusion 17A. Also, due to the main-body-case-side protrusion 17A, it is possible to prevent the position shift between the main body case 13 and the cover member 17.

[0376] Also, in the present embodiment, the air groove 70 is connected to the annular groove portion 71 and has the step groove portion 72 having the lower bottom surface than the annular groove portion 71, and the air hole 19 is formed in the step groove portion 72.

[0377] According to this configuration, since the air hole 19 is formed in the step groove portion 72, it is possible to widen the space with respect to the main body case 13 than the annular groove portion 71, and it is possible to make it easy for the air to enter the air hole 19.

[0378] Also, in the present embodiment, the cartridge accommodation portion 10 is the tubular member, and the air communication hole 10e that penetrates the peripheral surface of the tubular member and communicates with the air hole 19 is formed.

[0379] According to this configuration, the air can be taken directly into the inside of the cartridge accommodation portion 10 from the air hole 19 through the air communication hole 10e, the intake flow path can be shortened, and it is possible to make the puffing to be easy.

[0380] Also, in the present embodiment, the through hole 10c is formed on the peripheral surface of the cartridge accommodation portion 10 at a position different from that of the air communication hole 10e, and the cover member 17 includes the cartridge-accommodation-portion-side protrusion 17C inserted into the through hole 10c.

[0381] According to this configuration, it is possible to prevent the position shift between the cartridge accommodation portion 10 and the cover member 17.

[0382] Also, in the present embodiment, the cover member 17 has the translucency.

[0383] According to this configuration, the remaining amount of liquid inside the cartridge accommodation por-

tion 10 can be confirmed via the cover member 17 (window portion 16).

[0384] The aerosol generation device according to the present embodiment includes the main body unit 2 described above, and the cartridge 3 that accommodates the aerosol source while being insertable into and removable from the cartridge accommodation portion 10 of the main body unit 2.

[0385] According to this configuration, since the main body unit 2 that can prevent the air hole 19 from being blocked by the finger is provided, it is possible to prevent the puffing (suction) from becoming difficult.

[0386] The suction device 1 according to the present embodiment includes the aerosol generation device described above and the flavor source container 4 attached to the suction port portion 11 of the aerosol generation device.

[0387] According to this configuration, the flavor can be added to the aerosol.

[0388] Further, in the present embodiment, the following effects can be achieved.

[0389] The main body unit 2 according to the present embodiment described above includes the cartridge accommodation portion 10 for accommodating the cartridge 3, the outer case 12 surrounding at least a part of the outside of the cartridge accommodation portion 10, and the movement restricting member (cover member 17, sensor holder 35) that is locked to the case 12 and restricts the movement of the cartridge accommodation portion 10 in the extraction direction that is at least extracted from the outer case 12.

[0390] According to this configuration, it is possible to prevent the cartridge accommodation portion 10 from being pulled out from the outer case 12 by using the members arranged around the cartridge accommodation portion 10. Since the cartridge accommodation portion 10 does not require a fixing device such as a screw, the size thereof can be reduced.

[0391] Also, in the present embodiment, the outer case 12 includes the main body case 13 in which the opening portion 13a is formed, and the movement restricting member includes the main-body-case-side protrusion 17A inserted into the opening portion 13a.

[0392] According to this configuration, by inserting the main-body-case-side protrusion 17A of the movement restricting member into the opening portion 13a formed in the main body case 13, it is possible to prevent the cartridge accommodation portion 10 from being pulled out from the outer case 12.

[0393] Also, in the present embodiment, as the movement restricting member, the cover member 17 having the translucency and covering the opening portion 13a is provided.

[0394] According to this configuration, since the movement restricting member also serves as the cover member 17 (window portion 16) for checking the remaining amount of liquid and the like, the number of members can be reduced and the space can be saved.

[0395] Also, in the present embodiment, the cartridge accommodation portion 10 is a tubular member having a through hole 10c formed on the peripheral surface thereof, and the movement restricting member has the cartridge-accommodation-portion-side protrusion 17C inserted into the through hole 10c.

[0396] According to this configuration, the cartridge-accommodation-portion-side protrusion 17C of the movement restricting member is inserted into the through hole 10c formed in the cartridge accommodation portion 10 to prevent the cartridge accommodation portion 10 from being pulled out from the outer case 12.

[0397] Also, in the present embodiment, the holder 30 is fixed to the outer case 12 is provided, the holder 30 is formed with the notch portion 42d, and the movement restricting member includes the holder-side protrusion 35B locked to the notch portion 42d.

[0398] According to this configuration, by inserting the holder-side protrusion 35B of the movement restricting member into the notch portion 42d formed in the holder 30, it is possible to prevent the cartridge accommodation portion 10 from being pulled out from the outer case 12.

[0399] Also, in the present embodiment, the sensor 34 for detecting the suction of the user and the sensor holder 35 for holding the sensor 34 are provided, and the sensor holder 35 is provided as the movement restricting member.

[0400] According to this configuration, since the movement restricting member also serves as the sensor holder 35 for holding the sensor 34 that detects the suction of the user, the number of members can be reduced and the space can be saved.

[0401] Also, in the present embodiment, the movement restricting member has the plate portion 17B interposed between the cartridge accommodation portion 10 and the outer case 12, and the thickness of the plate portion 17B decreases as toward the direction of the extraction direction from the cartridge accommodation portion 10.

[0402] According to this configuration, the plate portion 17B of the movement restricting member becomes a wedge so as to prevent the cartridge accommodation portion 10 from being pulled out from the outer case 12.

[0403] Also, in the present embodiment, the outer case 12 side is provided with the receiving portion 43 for receiving the end portion of the cartridge accommodation portion 10 on the side in the counter-extraction direction, and the receiving portion 43 includes the engaging protrusion portion 43i provided at either side of the end portion of the cartridge accommodation portion 10 or the receiving portion 43 while protruding toward the other side thereof and the engagement groove portion 10b provided at the other side of the end portion of the cartridge accommodation portion 10 or the receiving portion 43 for restricting the rotation of the cartridge accommodation portion 10 by the engaging protrusion portion 43i being inserted.

[0404] According to this configuration, the position of the cartridge accommodation portion 10 with respect to

the outer case 12 in the circumferential direction can be easily determined.

[0405] The aerosol generation device according to the present embodiment includes the main body unit 2 described above, and the cartridge 3 that accommodates the aerosol source and is insertable into and removable from the cartridge accommodation portion 10 of the main body unit 2.

[0406] According to this configuration, since the main body unit 2 that can prevent the cartridge accommodation portion 10 from being pulled out from the outer case 12 without providing the fixing device such as a screw, the entire device can be miniaturized.

[0407] The suction device 1 of the present embodiment includes the aerosol generation device described above and the flavor source container 4 attached to the suction port portion 11 of the aerosol generation device.

[0408] According to this configuration, flavor can be added to the aerosol.

[0409] Also, in the present embodiment, the following effects can be achieved.

[0410] The main body unit 2 according to the present embodiment described above includes the cartridge accommodation portion 10 accommodating the cartridge, the outer case 12 surrounding at least a part of the outside of the cartridge accommodation portion 10, the sensor 34 accommodated in the outer case 12 and detects the suction of the user, and the sensor holder 35 accommodated in the outer case 12 to hold the sensor 34, wherein the sensor holder 35 has the shape following the peripheral surface of the cartridge accommodation portion 10 and in airtightly close contact with the circumference of the cartridge accommodation portion 10.

[0411] According to this configuration, since the sensor holder 35 can be arranged following the peripheral surface of the cartridge accommodation portion 10, the sensor 34 and the sensor holder 35 can be incorporated within a small space. As a result, it is not necessary to separately provide the air flow path 80 of the sensor 34 other than the sensor holder 35, and the air flow path 80 itself can be shortened.

[0412] Also, in the present embodiment, the cartridge accommodation portion 10 is a tubular member having the through hole 10d formed on the peripheral surface, and the sensor holder 35 includes the cartridge-accommodation-portion-side protrusion 35D inserted into the through hole 10d.

[0413] According to this configuration, it is possible to prevent the position shift between the cartridge accommodation portion 10 and the sensor holder 35.

[0414] Also, in the present embodiment, the sensor holder 35 includes the holder-side protrusion 35B (counter-cartridge-accommodation-portion-side protrusion) on the side opposite to the cartridge accommodation portion 10, and the holder-side protrusion 35B is formed with the air flow path 80 connecting the inside of the cartridge accommodation portion 10 and the sensor 34.

[0415] According to this configuration, the air flow path 80 to the sensor 34 can be shortened.

[0416] Also, in the present embodiment, the sensor holder 35 includes the holding portion 35C for holding the sensor 34 in the air flow path 80.

[0417] According to this configuration, the sensor 34 can be held in the air flow path 80 to shorten the air flow path 80.

[0418] Also, in the present embodiment, the sensor holder 35 is airtightly adhered to the peripheral surface of the cartridge accommodation portion 10 via the adhesive member (adhesive sheet 48).

[0419] According to this configuration, the adhesion between the sensor holder 35 and the cartridge accommodation portion 10 is enhanced.

[0420] Also, in the present embodiment, the sensor holder 35 has the bent plate portion 35A bent along the peripheral surface of the cartridge accommodation portion 10.

[0421] According to this configuration, the sensor holder 35 can be easily arranged in a narrow gap around the cartridge accommodation portion 10.

[0422] Also, in the present embodiment, the light source 52 that illuminates the inside of the cartridge accommodation portion 10 is provided, and the sensor holder 35 also serves as a light guide member that guides the light of the light source 52 to the inside of the cartridge accommodation portion 10.

[0423] According to this configuration, since the sensor holder 35 also serves as the light guide member such that the number of members can be reduced and the space can be saved.

[0424] Also, in the present embodiment, the sensor holder 35 is made of the polycarbonate resin.

[0425] According to this configuration, it is possible to add appropriate rigidness and suitable light guide property to the sensor holder 35 that also serves as the light guide member.

[0426] Also, in the present embodiment, the waterproof-breathable member 81 that partitions the space between the inside of the cartridge accommodation portion 10 and the sensor 34 is provided.

[0427] According to this configuration, it is possible to take measures against liquid leakage to the sensor 34.

[0428] The aerosol generation device according to the present embodiment includes the main body unit 2 described above, and the cartridge 3 that accommodates the aerosol source while being insertable into and removable from the cartridge accommodation portion 10 of the main body unit 2.

[0429] According to this configuration, since the main body unit 2 into which the sensor 34 and the sensor holder 35 can be incorporated is provided in the small space, the device can be miniaturized.

[0430] The suction device 1 according to the present embodiment includes the aerosol generation device described above and the flavor source container 4 attached to the suction port portion 11 of the aerosol generation device.

[0431] According to this configuration, the flavor can be added to the aerosol.

[0432] Further, in the present embodiment, the following effects can be achieved.

[0433] The main body unit 2 according to the present embodiment described above includes the cartridge accommodation portion 10 accommodating the cartridge, the outer case 12 surrounding at least a part of the outside of the cartridge accommodation portion 10, and the main board 31 accommodated in the outer case 12, wherein the main board 31 is provided with the salient electrode 50 to be inserted into the cartridge accommodating chamber formed inside the cartridge accommodation portion 10.

[0434] According to this configuration, since the salient electrode 50 is directly attached to the main board 31, it is not necessary to separately prepare a sub board for the salient electrode 50, and the space inside the outer case 12 can be saved.

[0435] Also, in the present embodiment, the main board 31 has the salient electrode cover 51 that covers a portion where the salient electrode 50 is provided.

[0436] According to this configuration, the connection portion between the main board 31 and the salient electrode 50 can be protected.

[0437] Also, in the present embodiment, the portion provided with the salient electrode 50 includes the pedestal portion 50A arranged on the main board 31 and supporting the salient electrode 50.

[0438] According to this configuration, the salient electrode cover 51 can protect the portion including the pedestal portion 50A that supports the salient electrode 50.

[0439] Also, in the present embodiment, the salient electrode cover 51 is in contact with the holder 30 in which the insertion hole 43c for holding the cartridge accommodation portion 10 and inserting the salient electrode 50 is formed.

[0440] According to this configuration, the salient electrode cover 51 and the holder 30 come into contact with each other to prevent any unexpected liquid leakage from the cartridge accommodation portion 10.

[0441] Also, in the present embodiment, the salient electrode cover 51 is formed with the through hole 51c through which the salient electrode 50 is arranged.

[0442] According to this configuration, since the salient electrode cover 51 covers the portions other than the place where the salient electrode 50 needs to be passed, it is possible to prevent any unexpected liquid leakage from the cartridge accommodation portion 10.

[0443] Also, in the present embodiment, the salient electrode cover 51 is provided on the main board 31 together with the salient electrode 50.

[0444] According to this configuration, since the salient electrode 50 and the salient electrode cover 51 are assembled to the main board 31, the assembly of the main body unit 2 becomes easy.

[0445] Also, in the present embodiment, the salient electrode cover 51 is incorporated in the outer case 12 in a non-contact state.

[0446] According to this configuration, it is possible to prevent the salient electrode cover 51 from coming into contact with the outer case 12 and being deformed or displaced when the outer case 12 is mounted.

[0447] Also, in the present embodiment, the salient electrode cover 51 is made of the silicone resin.

[0448] According to this configuration, the adhesion of the salient electrode cover 51 can be enhanced, and the liquid leakage can be prevented more reliably.

[0449] Also, in the present embodiment, the salient electrode 50 extends in parallel with the plate surface of the main board 31.

[0450] According to this configuration, the thickness of the main body unit 2 can be made thinner and the space can be saved as compared with the aspect in which the salient electrode 50 extends perpendicularly to the plate surface of the main board 31.

[0451] Also, in the present embodiment, the main board 31 includes the first portion 31A extending along the cartridge accommodation portion 10 and the second portion 31B extending in the direction intersecting with the first portion 31A and facing the end portion of the cartridge accommodation portion 10, wherein the salient electrode 50 is provided on the second portion 31B.

[0452] According to this configuration, since the first portion 31A of the main board 31 is arranged along the cartridge accommodation portion 10, the total length of the main body unit 2 can be shortened, and the second portion 31B is extended from the first portion 31A to directly attach the salient electrode 50, it becomes easy to arrange the salient electrode 50 at the end portion of the cartridge accommodation portion 10.

[0453] The aerosol generation device according to the present embodiment includes the main body unit 2 described above, and the cartridge 3 that accommodates the aerosol source while being insertable into and removable from the cartridge accommodation portion 10 of the main body unit 2.

[0454] According to this configuration, since the main body unit 2 in which the members are incorporated in the small space is provided, the size of the entire device can be reduced.

[0455] The suction device 1 according to the present embodiment includes the aerosol generation device described above and the flavor source container 4 attached to the suction port portion 11 of the aerosol generation device.

[0456] According to this configuration, the flavor can be added to the aerosol.

[0457] Further, in the present embodiment, the following effects can be achieved.

[0458] The main body unit 2 according to the present embodiment described above has the outer case 12 having the first main surface portion 12A1 and the second main surface portion 12A2 facing the first main surface portion 12A1, and the accommodating member (holder 30) accommodated in the outer case 12, wherein the

outer case 12 includes the first case 13A having the first main surface portion 12A1 and the first peripheral wall portion 12B1 provided on the peripheral edge of the first main surface portion 12A1, and the second case 13B having the second main surface portion 12A2 and the second peripheral wall portion 12B2 provided on the peripheral edge of the second main surface portion 12A2, and wherein the main body unit 2 includes the first connection portion 91connecting the first peripheral wall portion 12B1 and the second peripheral wall portion 12B2, the second connection portion 92 connecting the accommodating members to the opposite surface 13a1 of either of the first main surface portion 12A1 or the second main surface portion 12A1, and the third connection portion 93 connecting the same accommodating members to the opposite surface 13b1 of the other side of the first main surface portion 12A1 and the second main surface portion 12A2.

[0459] According to this configuration, since the first main surface portion 12A1 and the second main surface portion 12A2 are connected inside the outer case 12, it is possible to prevent the disassembly by the user. Also, since the first main surface portion 12A1 and the second main surface portion 12A2 are connected inside the outer case 12, the strong connection between the first peripheral wall portion 12B1 and the second peripheral wall portion 12B2 outside the outer case 12 becomes unnecessary, and the thickness of the first peripheral wall portion 12B1 and the second peripheral wall portion 12B2 can be reduced.

[0460] Here, the "accommodating members" are not limited to the holder 30, and may be any members as long as at least a part thereof is accommodated in the outer case 12.

[0461] Also, in the present embodiment, the connection method of the first connection portion 91 includes the claw fitting.

[0462] According to this configuration, since the outside of the outer case 12 is connected by the claw fitting, the outer case 12 can be temporarily fixed and the like, and the subsequent assembly process becomes easy. Further, in a case of the claw fitting, the outer case 12 can be repetitively (reversibly) and easily assembled without using tools.

[0463] Also, in the present embodiment, the connection method of at least one of the second connection portion 92 and the third connection portion 93 includes the welding.

[0464] According to this configuration, since the inside of the outer case 12 is permanently (irreversibly) connected by welding, it is possible to prevent the disassembly by the user. Even if the outer case 12 is disassembled, it is difficult for the user to reassemble it because the connection is irreversible.

[0465] Also, in the present embodiment, the other connection method of the second connection portion 92 and the third connection portion 93 includes the screwing.

[0466] According to this configuration, the accommodating members are repeatedly (reversibly) attached to the outer case 12 by screwing so as to make the assembly easy.

[0467] Also, in the present embodiment, at least one of the first connection portion 91, the second connection portion 92, and the third connection portion 93 has a different number of connection methods.

[0468] According to this configuration, since the connection methods of the three connection portions of the outer case 12 are not the same, it becomes difficult for the user to disassemble. Further, even if the outer case 12 is disassembled, it is difficult for the user to reassemble it because the connection methods of the three connection portions of the outer case 12 are not the same.

[0469] Also, in the present embodiment, the accommodating members includes the holder 30 that holds at least a part of the members provided inside the outer case 12.

[0470] According to this configuration, since the first main surface portion 12A1 and the second main surface portion 12A2 can be connected inside the outer case 12 by using the holder 30, the space inside the outer case 12 can be saved.

[0471] Also, in the present embodiment, the holder 30 includes the main plate 41 and the main plate intersection portion (first rib 42C, second rib 42D, receiving portion 43) extending in a direction intersecting the plate surface of the main plate 41.

[0472] According to this configuration, the first main surface portion 12A1 and the second main surface portion 12A2 can be connected via the main plate intersection portion while increasing the rigidity of the holder 30 without impairing the member holding function of the holder 30.

[0473] Also, in the present embodiment, the main plate intersection portion may extend to at least one side in the direction orthogonal to the plate surface of the main plate 41.

[0474] According to this configuration, the cross section of the holder 30 becomes at least the L shape, and the rigidity of the holder 30 can be increased.

[0475] Also, in the present embodiment, the case-side protrusion 13G, 13J to which the main plate intersection portion is connected are formed on the opposite surfaces 13a1, 13b1 of at least one of the first main surface portion 12A1 and the second main surface portion 12A2.

[0476] According to this configuration, it is not necessary to extend the main plate intersection portion to the opposite surfaces 13a1, 13b1 of either the first main surface portion 12A1 or the second main surface portion 12A2 such that the deformation of the main plate intersection portion can be suppressed.

[0477] The aerosol generation device according to the present embodiment includes the main body unit 2 described above, and the cartridge 3 that accommodates the aerosol source while being insertable into and removable from the cartridge accommodation portion 10 of the main body unit 2.

[0478] According to this configuration, since the main body unit 2 that can be prevented from being disassembled by the user is provided, the safety of the entire device can be improved.

[0479] The suction device 1 according to the present embodiment includes the aerosol generation device described above and the flavor source container 4 attached to the suction port portion 11 of the aerosol generation device.

[0480] According to this configuration, the flavor can be added to the aerosol.

[0481] Also, in the present embodiment, the following effects can be achieved.

[0482] The main body unit 2 according to the present embodiment described above includes the cartridge accommodation portion 10 for accommodating the cartridge 3, and the cartridge accommodation portion 10 including the cartridge insertion-removal port 10a protruding from the outer case 12 of the main body unit 2.

[0483] According to this configuration, since the location where the cartridge is inserted and removed is easily visible, the top and bottom can be easily understood, and the insertion and removal of the cartridge can be easy.

[0484] Also, in the present embodiment, the cartridge accommodation portion 10 has the suction port connection portion 10B for connecting the suction port portion 11 to the cartridge insertion-removal port 10a, and at least a part of the suction port connection portion 10B protrudes from the outer case 12.

[0485] According to this configuration, since the location where the suction port portion 11 is connected is easily visible, the connection of the suction port portion 11 to the cartridge accommodation portion 10 becomes easy.

[0486] Also, in the present embodiment, the outer case 12 has the raised portion 12D, and the cartridge accommodation portion 10 protrudes from the deformation transition portion 12D1 of the raised portion 12D.

[0487] According to this configuration, the cartridge accommodation portion 10 is formed with a portion that is largely exposed from the outer case 12 and a portion that is slightly exposed therefrom. It is possible to secure the area for protecting the cartridge accommodation portion 10 in the slightly exposed portion while ensuring the visibility in the largely exposed portion of the cartridge accommodation portion 10. Also, since the contact length between the edge of the outer case 12 and the peripheral surface of the cartridge accommodation portion 10 becomes long, it becomes easy to secure the connection strength when adhering the two configurations.

[0488] Also, in the present embodiment, the cartridge insertion-removal port 10a is arranged at a position below the top portion P of the raised portion 12D in the main axis direction in which the cartridge accommodation portion 10 extends.

[0489] According to this configuration, when the outer case 12 is dropped or collided and the like, the raised portion 12D of the outer case 12 comes into contact with the outside before the cartridge insertion-removal port 10a, and the cartridge insertion-removal port 10a can be prevented from being deformed.

[0490] Also, in the present embodiment, the input device 15 is arranged in the deformation transition portion 12D1 and the deformation transition portion 12D2 on the opposite side of the deformation transition portion 12D1 of the raised portion 12D from which the cartridge accommodation portion 10 protrudes, and the input device 15 is arranged at the position below the top portion P of the raised portion 12D in the extending main axis direction.

[0491] According to this configuration, when the outer case 12 is dropped or collided and the like, the raised portion 12D of the outer case 12 comes into contact with the outside before the input device 15, and the malfunction of the input device 15 can be prevented.

[0492] Also, in the present embodiment, the input device 15 is arranged toward the acute angle direction with respect to the main axis O of the cartridge accommodation portion 10 passing through the center of the cartridge insertion-removal port 10a.

[0493] According to this configuration, it becomes easy for the user to operate the input device 15 while holding the suction port portion 11.

[0494] Also, in the present embodiment, the holder 30 is provided in the outer case 12 is provided and the holder 30 includes the main plate 41 for holding at least one of the members provided inside the outer case 12 and the receiving portion 43 which is integrally formed with the main plate 41 and receives the end portion of the cartridge accommodation portion 10.

[0495] According to this configuration, both the members inside the outer case 12 and the cartridge accommodation portion 10 are assembled to the holder 30 so as to make the assembly easy.

[0496] Also, in the present embodiment, the receiving portion 43 is formed with the insertion hole 43c for inserting the salient electrode 50 inside the cartridge accommodation portion 10.

[0497] According to this configuration, the salient electrode 50 can be easily arranged inside the cartridge accommodation portion 10.

[0498] Also, in the present embodiment, the receiving portion 43 is formed in a bottomed tubular shape extending in parallel along the longitudinal direction of the main plate 41 at the end portion in the short direction of the main plate 41.

[0499] According to this configuration, since the main plate 41 and the cartridge accommodation portion 10 are arranged in parallel in the longitudinal direction, the total length of the main body unit 2 can be shortened.

[0500] Also, in the present embodiment, the holder 30 includes the sub plate 42 extending from the end portion of the main plate 41 in the direction intersecting the plate surface of the main plate 41, and holding at least one of the members provided along the outer surface of the outer case 12.

[0501] According to this configuration, the rigidity of the holder 30 can be increased and space can be saved.

[0502] The aerosol generation device of the present embodiment includes the main body unit 2 described above, and the cartridge 3 that accommodates the aerosol source while being insertable into and removable from the cartridge accommodation portion 10 of the main body unit 2.

[0503] According to this configuration, the main body unit 2 is provided to make the location where the cartridge is inserted and removed to be easy to be visibly confirmed such that it is easy to use.

[0504] The suction device 1 according to the present embodiment includes the aerosol generation device described above and the flavor source container 4 attached to the suction port portion 11 of the aerosol generation device.

[0505] According to this configuration, the flavor can be added to the aerosol.

[0506] Further, in the present embodiment, the following effects can be achieved.

[0507] The aerosol generation device according to the present embodiment described above has the tubular cartridge 3 for accommodating the aerosol source, the tubular cartridge accommodation portion 10 for accommodating the cartridge 3, and the position determination mechanism 90 for determining the position of the cartridge 3 with respect to the cartridge accommodation portion 10, wherein the position determination mechanism 90 includes the engaging protrusion portion 43h that is provided in one of the cartridge 3 and the cartridge accommodation portion 10 (cartridge accommodation portion 10) and protrudes toward the other side thereof (cartridge 3) in the main axis direction in which the main axis O of the cartridge accommodation portion 10 extends while the width thereof in the circumferential direction around the main axis O decreasing as toward the other side, and the engagement groove portion 26i that is provided in the other of the cartridge 3 and the cartridge accommodation portion 10 and into which the engaging protrusion portion 43h is insertable therein in the main axis direction.

[0508] According to this configuration, the position of the cartridge 3 can be determined smoothly.

[0509] The engaging protrusion portion 43h may be provided on the cartridge 3 side, and the engagement groove portion 26i may be provided on the cartridge accommodation portion 10 side.

[0510] Also, in the present embodiment, the gap generated between the inner diameter of the cartridge accommodation portion 10 and the outer diameter of the cartridge 3 is larger than 2.6% of the inner diameter of the cartridge accommodation portion 10.

[0511] According to this configuration, the clearance between the cartridge accommodation portion 10 and the cartridge 3 becomes large, and the engaging protrusion portion 43h can be easily introduced into the engagement groove portion 26i.

[0512] Also, in the present embodiment, the gap generated between the inner diameter of the cartridge accommodation portion 10 and the outer diameter of the cartridge is larger than 7.0% of the inner diameter of the cartridge accommodation portion 10.

[0513] According to this configuration, the clearance between the cartridge accommodation portion 10 and the cartridge 3 becomes further larger, and the engaging protrusion portion 43h can be further easily introduced into the engagement groove portion 26i.

[0514] Also, in the present embodiment, a plurality of engaging protrusion portions 43h and engaging grooves 26i are formed on the same radius centered on the main axis O.

[0515] According to this configuration, the engaging protrusion portion 43h is inserted into the engagement groove portion 26i by the relative rotation of the engaging protrusion portion 43h and the engagement groove portion 26i around the main axis O.

[0516] Also, in the present embodiment, the suction port portion 11 is provided with the suction port that engages with the cartridge accommodation portion 10 for suctioning the aerosol in which the aerosol source is atomized.

[0517] According to this configuration, it is possible to suction the aerosol from the cartridge accommodation portion 10 in which the cartridge 3 is accommodated.

[0518] Also, in the present embodiment, the suction port portion 11 includes the cartridge contact portion 60 that comes into contact with the cartridge 3 during the process of engaging with the cartridge accommodation portion 10.

[0519] According to this configuration, the position shift of the cartridge 3 can be suppressed during the process when the suction port portion 11 is engaged with the cartridge accommodation portion 10.

[0520] Also, in the present embodiment, the cartridge contact portion 60 presses the cartridge 3 in the main axis direction in the state in which the suction port portion 11 engaged with the cartridge accommodation portion 10.

[0521] According to this configuration, the position of the cartridge 3 can be determined in the main axis direction by the pressing of the cartridge contact portion 60.

[0522] Also, in the present embodiment, the cartridge contact portion 60 is formed of the elastic resin material.

[0523] According to this configuration, due to the elastic deformation of the cartridge contact portion 60, it is easy to generate the frictional force that rotates the cartridge 3 in the circumferential direction, and also makes it easy to generate the pressing force to press the cartridge 3 in the main axis direction.

[0524] Also, in the present embodiment, the annular protrusion 61 is formed on the opposite surface of the cartridge contact portion 60 facing the cartridge 3.

[0525] According to this configuration, since the contact of the cartridge contact portion 60 with respect to the cartridge 3 is not a planar contact due to the annular

protrusion 61, the contact pressure increases, and the frictional force in the circumferential direction and the pressing force in the main axis direction are more likely to be generated.

[0526] Also, in the present embodiment, the holder 30 having the receiving portion 43 that is attachable to and detachable from the end portion of the cartridge accommodation portion 10 and receives the end portion of the cartridge accommodation portion 10 is provided.

[0527] According to this configuration, the cartridge accommodation portion 10 is attachable to and detachable from the receiving portion 43 to make the assembly and the maintenance to be easy.

[0528] The suction device 1 according to the present embodiment includes the aerosol generation device described above and the flavor source container 4 attached to the suction port portion 11 of the aerosol generation device.

[0529] According to this configuration, the flavor can be added to the aerosol.

<Other modification examples>

[0530] Although the preferred embodiments of the present invention have been described above, the present invention is not limited to these embodiments. It is possible to add, omit, replace, and make other changes to the configuration without departing from the spirit of the present invention. The present invention is not limited by the above description, but only by the appended claims.

[0531] For example, in the above-described embodiment, as an example of the aerosol generation device that generates the aerosol without combustion, the suction device 1 configured such that the flavor source container 4 is attachable to and detachable from has been described as an example; however, the present invention is not limited to this configuration. As another example of the aerosol generation device, a configuration without the flavor source container 4 such as an electronic cigarette (a configuration with only a mouthpiece that does not accommodate a flavor source) may be used. In this case, the aerosol source containing the flavor is accommodated in the cartridge 3, and the aerosol containing the flavor is generated by the aerosol generation device.

[0532] That is, in the above-described embodiment, the configuration provided with the main body unit 2 and the cartridge 3 without the flavor source container 4 may be referred to as the aerosol generation device. Also, a device having only the main body unit 2 without the flavor source container 4 and the cartridge 3 may be referred to as the main body unit of the aerosol generation device.

[0533] The aerosol source is not limited to the liquid and may be a solid. That is, the main body unit of the aerosol generation device may include a solid aerosol source accommodation portion for accommodating the solid aerosol source, an outer case surrounding at least a part outside the solid aerosol source accommodation portion, and a holder accommodated in the outer case, wherein the holder may include a main plate that holds at least one of the members provided inside the outer case, and a receiving portion integrally formed with the main plate and receives the end portion of the solid aerosol source accommodating portion.

[0534] In the above-described embodiment, the case where the main body unit 2 is separable from the suction port portion 11 has been described, however the present invention is not limited to this configuration. For example, the power supply 37 or the like may be unitized and separable from the main body unit 2. Also, the suction port portion 11 and the flavor source container 4 may be integrated into a unit.

[0535] In the above-described embodiment, the configuration in which the cartridge accommodation portion 10 is formed in the cylindrical shape surrounding the periphery of the cartridge 3 has been described, however the present invention is not limited to this configuration. The cartridge accommodation portion 10 may have a configuration capable of holding the cartridge 3. That is, the cartridge accommodation portion 10 is not limited to the cylindrical shape, and may have a different shape other than a triangular cylinder shape, a square cylinder shape, another polygonal cylinder shape, or a polygonal cylinder shape.

[0536] In the above-described embodiment, the configuration in which the outer case 12 is formed in the shape of the flat box having a rounded shape as a whole has been described, however the present invention is not limited to this configuration. The shape of the outer case 12 may be a rectangular parallelepiped, another polyhedron, or a solid other than the polyhedron.

[0537] In the above-described embodiment, the configuration in which the main unit 2 is activated by pressing the input device 15 has been described, a configuration in which the main unit 2 is activated only by the puffing detection of the sensor 34 without including the input device 15 may be configured.

[0538] A part or all of the above-described embodiment may be described as in the following appendix, however is not limited to the following appendix.

(Appendix 1)

[0539] A main body unit of an aerosol generation device, comprises an outer case and a holder provided inside the outer case, wherein the holder includes a first plate surface that holds a first member, and a second plate surface on the opposite side of the first plate surface and holds a second member different from the first member.

(Appendix 2)

[0540] A main body unit of an aerosol generation device, comprises an outer case having a peripheral wall portion connecting a gap between a pair of main wall

portions, and n input device arranged on the peripheral wall portion, wherein the peripheral wall portion includes an outer surface portion that is coincided with the outer surface of the pair of main wall portions and a recess portion that is recessed with respect to the outer surface portion, and the input device is arranged in the recess portion.

(Appendix 3)

[0541] A main body unit of an aerosol generation device, comprises a cartridge accommodation portion that accommodates a cartridge, a window portion provided in at least a part of the cartridge accommodation portion, and an outer case provided such that at least a part of the window portion is exposed and surround at least a part of the cartridge accommodation portion, and a light source provided inside the outer case to illuminate the cartridge.

(Appendix 4)

[0542] A main body unit of an aerosol generation device, comprises a cartridge accommodation portion accommodates a cartridge, and an outer case that surrounds at least a part of the outside of the cartridge accommodation portion, wherein a slit-shaped air inlet is formed on the outer surface of the outer case, and the air inlet communicates with the inside of the cartridge accommodation portion via a meandering air flow path.

(Appendix 5)

[0543] A main body unit of an aerosol generation device, comprises a cartridge accommodation portion that accommodates a cartridge, an outer case surrounds at least a part of the outside of the cartridge accommodation portion and has an opening portion formed therein, and a fitting member that is fitted into the opening portion, wherein an air inlet is formed in a gap between the fitting member and the opening portion, and an air hole is formed at a position where the fitting member and the outer case overlap each other to communicate the air inlet and the inside of the cartridge accommodation portion.

(Appendix 6)

[0544] A main body unit of an aerosol generation device, comprises a cartridge accommodation portion that accommodates a cartridge, an outer case surrounds at least a part of the outside of the cartridge accommodation portion, and a fitting member that is fitted into the outer case, wherein the fitting member has a protrusion portion that protrudes toward the cartridge accommodation portion, and the cartridge accommodation portion has an engagement portion that engages with the protrusion portion.

(Appendix 7)

[0545] A main body unit of an aerosol generation device, comprises an outer case, a cartridge accommodation portion that at least a part thereof is surrounded by the outer case, a holder accommodated inside the outer case, and a movement restricting member that is locked to the holder and restricts a movement of the cartridge accommodation portion in an extraction portion of at least pulling out from the outer case.

(Appendix 8)

[0546] A main body unit of an aerosol generation device, comprises a cartridge accommodation portion that accommodates a cartridge, an outer case surrounds at least a part of the outside of the cartridge accommodation portion, a detection sensor that is accommodated in the outer case to detect a suction of an user, and a sensor holder that is accommodated in the outer case to hold the sensor, wherein the sensor holder is bent along a peripheral surface of the cartridge accommodation portion and is in close contact with the peripheral surface of the cartridge accommodation portion.

(Appendix 9)

[0547] A main body unit of an aerosol generation device, comprises a cartridge accommodation portion in which a cartridge insertion-removal port for inserting and removing a cartridge is formed and accommodates the cartridge, and an outer case that accommodates members, wherein a part of the cartridge accommodation portion including the cartridge insertion-removal port protrudes from the outer case.

(Appendix 10)

[0548] A main body unit of an aerosol generation device, comprises a cylindrical cartridge accommodation portion that accommodates a cartridge, and an engagement protrusion portion that determines a position of the cartridge with respect to the cartridge accommodation portion, wherein the engagement protrusion portion extends in the radial direction of the cartridge accommodation portion from an inner peripheral wall of the cartridge accommodation portion toward the inside of the cartridge accommodation portion with a dimension larger than 2.6% of the inner diameter of the cartridge accommodation portion.

(Appendix 11)

[0549] A main body unit of an aerosol generation device, comprises a cylindrical cartridge accommodation portion that accommodates a cartridge, and an engagement protrusion portion that determines a position of the cartridge with respect to the cartridge accommodation

portion, wherein the engagement protrusion portion extends in the radial direction of the cartridge accommodation portion from an inner peripheral wall of the cartridge accommodation portion toward the inside of the cartridge accommodation portion with a dimension larger than 7.0% of the inner diameter of the cartridge accommodation portion

[0550] In addition, it is possible to replace the configurational elements in the above-described embodiment with well-known configurational elements as appropriate without departing from the spirit of the present invention, and each of the above-mentioned modification examples may be appropriately combined.

[Industrial Applicability]

[0551] The present invention relates to a main body unit of an aerosol generation device, an aerosol generation device, and a non-combustion type suction device, and it is possible to make the assembly to become easy.

[Reference sign list]

[0552] 1 suction device, 2 main body unit, 3 cartridge, 4 flavor source container, 10 cartridge accommodation portion, 10a cartridge insertion-removal port 10a, 10A insert ring, 10A1 portion, 10b engagement groove portion, 10B suction portion connection portion, 10b1 first groove portion, 10b2 second groove portion, 10b3 third groove portion, 10b4 fitting hole, 10c through hole, 10C groove portion, 10c1 rectangular groove, 10C1 slope surface, 10d through hole, 10e air communication hole, 10g escape groove, 10h protrusion, 11 suction port portion, 11A suction port portion main body, 11a1 peripheral wall, 11a2 flange portion, 11 a3 bottom wall, 11a4 through hole, 11B tubular body, 11b1 protrusion portion, 12 outer case, 12A main surface portion, 12A1 first main surface portion, 12A2 second main surface portion, 12B peripheral wall portion, 12b1 outer surface, 12B1 first peripheral wall portion, 12b2 recess portion, 12B2 second peripheral wall portion, 12C corner portion, 12C1 first corner portion, 12C2 second corner portion, 12C3 third corner portion, 12C4 fourth corner portion, 12D raised portion, 12D1 deformation transition portion, 12D2 deformation transition portion, 13 main body case, 13a opening portion, 13A first case, 13a1 opposite surface, 13b opening portion, 13B second case, 13b1 opposite surface, 13C boss portion, 13D mounting portion, 13d1 mounting wall, 13d2 notch portion, 13E fitting claw, 13F fitting claw, 13G case side protrusion portion, 13G1 case side protrusion portion, 13H groove portion, 13I fitting claw, 13J case side protrusion portion, 13K claw receiving portion, 13L groove portion, 14 display cover, 14a through hole, 14b1 engaging claw, 14b2 engaging claw, 14c side wall, 14c1 insertion hole, 15 input device, 15a switch button, 15a1 base portion, 15a2 button portion, 15a3 insertion hole, 15b switch board, 15c switch holder, 15c1 inner-diameter-side protrusion piece, 15c2 outer-diameter-side protrusion piece, 16 window portion, 17 cover member, 17A main-body-case-side protrusion, 17B plate portion, 17b1 case fitting hole, 17C cartridge-accommodation-portion-side protrusion, 17D protrusion, 18 air inlet, 19 air hole, 20 charging terminal, 21 tank, 21a top wall, 21b through hole, 21c flow path pipe, 21d outer peripheral wall, 21e rib, 21f engagement hole, 21g liquid storage chamber, 22 gasket, 22a opening portion, 23 mesh body, 24 atomization container, 24a peripheral wall, 24b fitting portion, 24c atomization chamber, 24d bottom wall, 24e opening portion, 25 heating portion, 25a wick, 25b electrical heating wire, 25i engagement groove portion, 26 heater holder, 26a peripheral wall, 26b engagement piece, 26c intake hole, 26d bottom wall, 26e intake hole, 26f partition wall, 26g slit, 26h planar electrode, 26i engagement groove portion, 27 container body, 27a peripheral wall, 27b step, 27c flavor source containment chamber, 27d bottom wall, 27e micropore, 28 filter, 30 holder, 30a through hole, 31 main board, 31a first plate surface, 31A first portion, 31b second plate surface, 31B second portion, 32 sub board, 32a adhesive sheet, 32b opening portion, 32c connection terminal, 33 display device, 33a display device main body, 33b display device holder, 33c cushion material, 34 sensor, 35 sensor holder, 35A bent plate portion, 35B holder-side protrusion, 35C holding portion, 35D cartridge-accommodation-portion-side protrusion, 36 vibrator, 36a eccentric weight, 37 power supply, 41 main plate, 41a first plate surface, 41b second plate surface, 41c opening portion, 41d board support piece, 41f engaging claw, 41h1 first end side, 41h2 second end side, 42 sub plate, 42a clamping piece, 42A first sub plate, 42a1 position-determination convex portion, 42a2 sub plate extension portion, 42B second sub plate, 42b1 wiring groove, 42b2 board holding piece, 42b3 sub plate extension portion, 42C first rib, 42d notch portion, 42D second rib, 42d1 first notch portion, 42D1 branch portion, 42d2 second notch portion, 42E case fitting portion, 42e1 first fitting hole, 42e2 second fitting hole, 42e3 clamped piece, 43 receiving portion, 43a peripheral wall, 43b bottom wall, 43c insertion hole, 43d annular wall, 43e board support piece, 43f clamping piece, 43g step, 43h engagement protrusion portion, 43i engagement protrusion portion, 43j board contact part, 44 tray, 45 omitted, 45 adhesive sheet, 46 adhesive sheet, 47 adhesive sheet, 48 adhesive sheet, 50 salient electrode, 50A pedestal portion, 51 salient electrode cover, 51a cover end wall, 51b cover peripheral wall, 51c through hole, 52 light source, 60 cartridge contact portion, 60a first ring portion, 60b cylindrical portion, 60c second ring portion, 61 annular protrusion, 62 communication hole, 70 air groove, 71 annular groove portion, 72 step groove portion, 80 air flow path, 81 waterproof-breathable member, 90 position determination mechanism, 91 first connection portion, 92 second connection portion, 93 third connection portion, 94, fourth connection portion, 100 holder unit, D1 inner diameter, D2 outer diameter, D3 dimension, D-D arrow view, O main axis, O1 diagonal line, P top portion, S1 gap, S2 gap, T1 protrusion amount, T2

difference, T3 bending amount, θ angle

Claims

1. A main body unit of an aerosol generation device, comprising:

   a cartridge accommodation portion that accommodates a cartridge;
   an outer case that surrounds at least a part of an outside of the cartridge accommodation portion; and
   a holder being accommodated in the outer case, wherein the holder comprises:

   a main plate that holds at least one of members provided inside the outer case; and
   a receiving portion that is integrally formed with the main plate and to receive an end portion of the cartridge accommodation portion.

2. The main body unit of an aerosol generation device according to claim 1, wherein an insertion hole for inserting a salient electrode inside the cartridge accommodation portion is formed in the receiving portion.

3. The main body unit of an aerosol generation device according to claim 1 or claim 2, wherein the receiving portion is formed in a cylindrical shape with a bottom in an end portion in a short direction of the main plate to be parallel to a longitudinal direction of the main plate.

4. The main body unit of an aerosol generation device according to any one from claim 1 to claim 3, wherein the holder includes a sub plate that extends from the end portion of the main plate in a direction intersecting to a plate surface of the main plate and holds at least one of the members provided along an outer surface of the outer case.

5. The main body unit of an aerosol generation device according to claim 4, wherein the sub plate extends in a direction orthogonal to the plate surface of the main plate.

6. The main body unit of an aerosol generation device according to claim 5, wherein the sub plate extends to two sides in the direction orthogonal to the plate surface of the main plate.

7. The main body unit of an aerosol generation device according to any one from claim 4 to claim 6,

   wherein the holder includes, as the sub plate, a first sub plate provided on a first end side of the end portion of the main plate and a second sub plate provided on a second end side being adjacent to the first end side of the end portion of the main plate, and
   the first sub plate and the second sub plate are connected to each other.

8. The main body unit of an aerosol generation device according to claim 7, wherein the first sub plate and the second sub plate are connected at an obtuse angle.

9. The main body unit of an aerosol generation device according to any one from claim 4 to claim 8, wherein a display device is held on the sub plate.

10. The main body unit of an aerosol generation device according to any one from claim 4 to claim 9, wherein an input device is held on the sub plate.

11. The main body unit of an aerosol generation device according to any one from claim 1 to claim 10, wherein the main plate includes a first plate surface holding a first member and a second plate surface that is on the opposite side of the first plate surface and holds a second member different from the first member.

12. The main body unit of an aerosol generation device according to claim 11,

    wherein either of the first member or the second member is a power source, and
    the other of the first member or the second member is an electronic member electrically connected to the power source.

13. An aerosol generation device, comprising:

    the main body unit according to any one from claim 1 to claim 12; and
    a cartridge accommodating an aerosol source while being inserted into the cartridge accommodation portion of the main body unit to be insertable to and removable from the cartridge accommodation portion of the main body unit.

14. A non-combustion suction device, comprising:

    the aerosol generation device according to claim 13; and
    a flavor source container mounted on a suction port portion of the aerosol generation device.

15. A main body unit of an aerosol generation device, comprising:

    a solid-aerosol-source accommodation portion

that accommodates a solid aerosol source accommodation portion;
an outer case that surrounds at least a part of an outside of the solid-aerosol-source accommodation portion; and
a holder being accommodated in the outer case, wherein the holder comprises:

a main plate that holds at least one of members provided inside the outer case; and
a receiving portion that is integrally formed with the main plate and to receive an end portion of the solid-aerosol-source accommodation portion.

FIG. 1

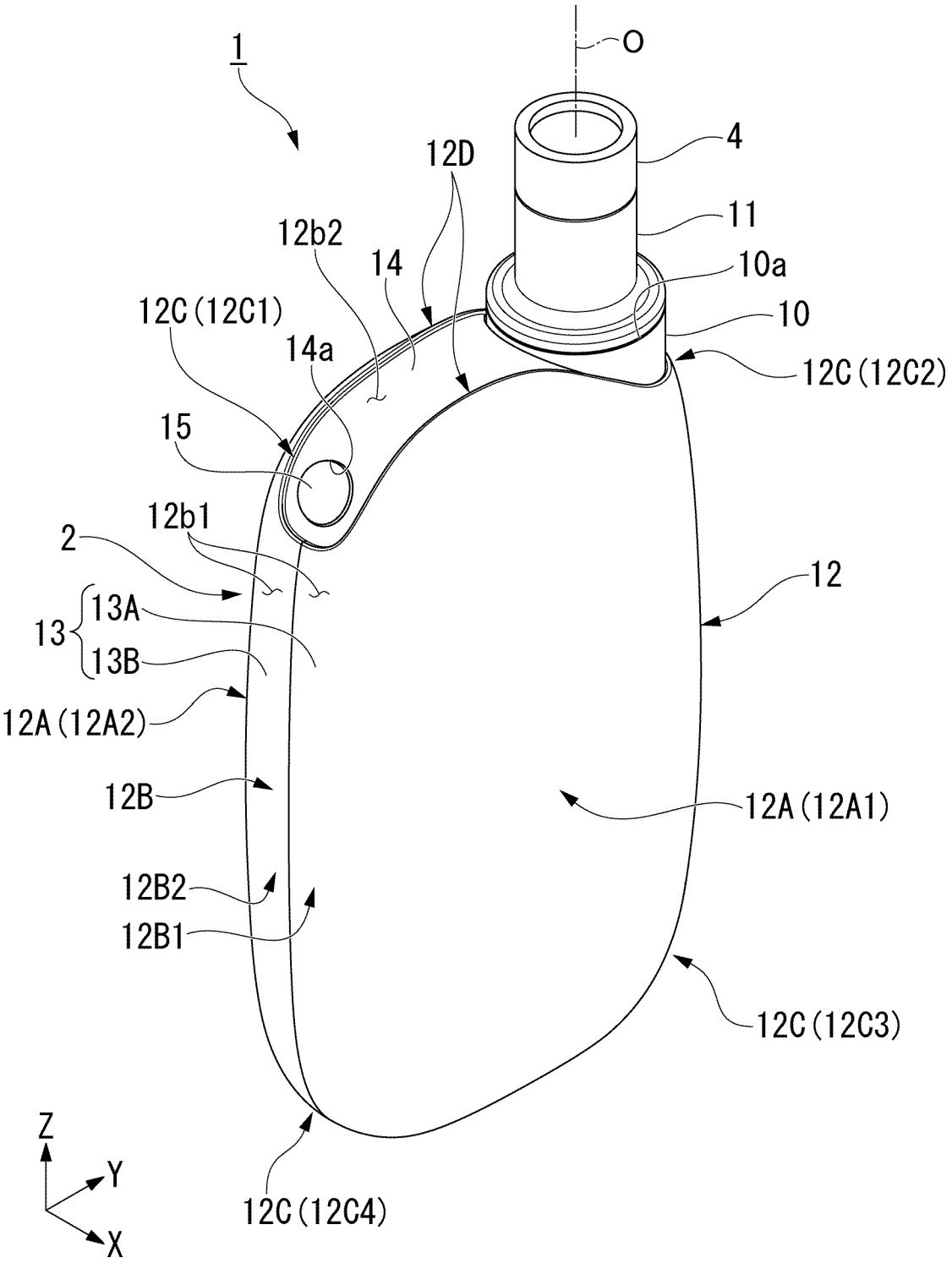

1
O
4
12D
11
12b2
14
10a
12C (12C1)
10
14a
12C (12C2)
15
12b1
2
12
13
13A
13B
12A (12A2)
12B
12A (12A1)
12B2
12B1
12C (12C3)
Z
Y
X
12C (12C4)

FIG. 2

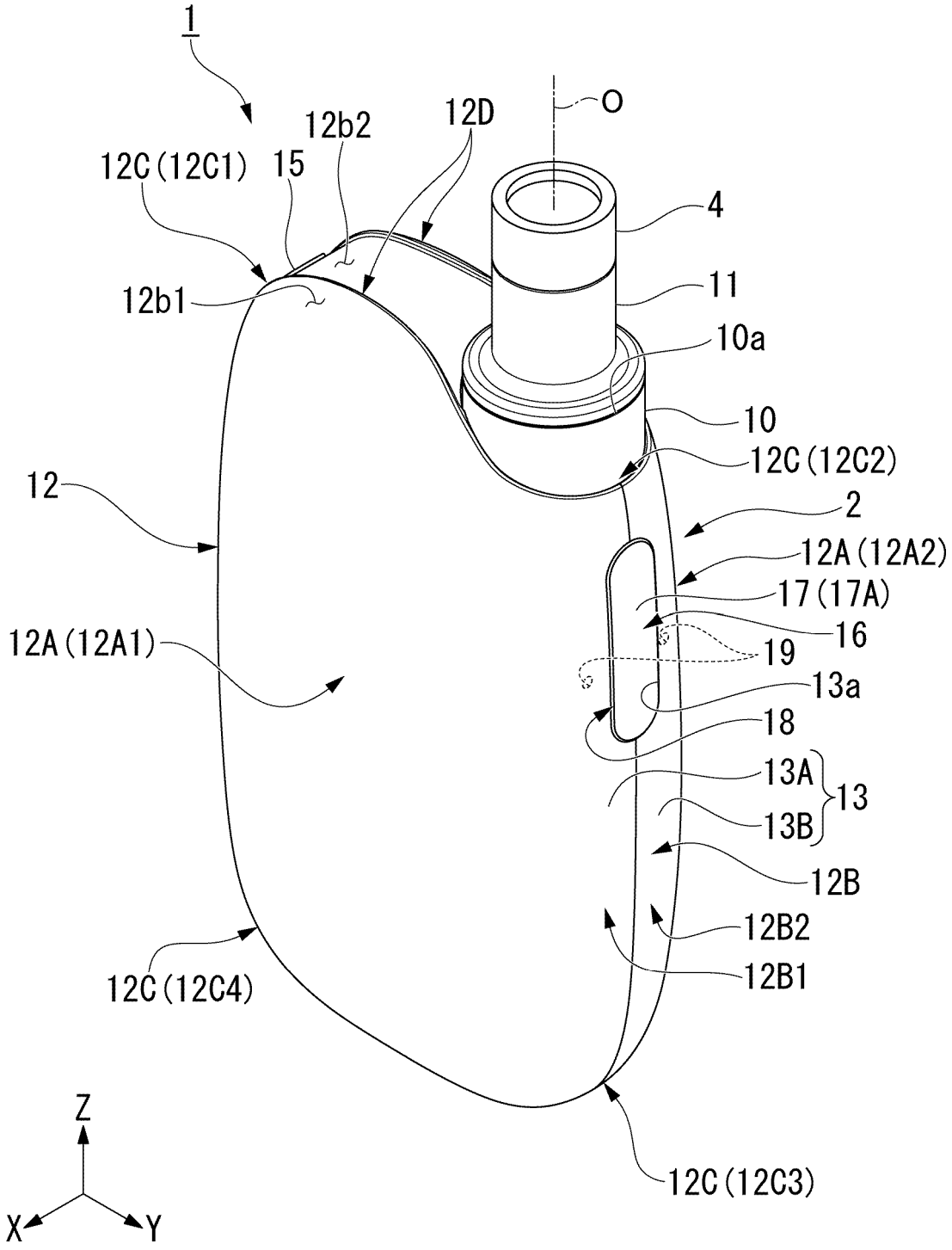

1
12b2
12D
O
12C (12C1)
15
4
12b1
11
10a
10
12C (12C2)
12
2
12A (12A2)
17 (17A)
16
12A (12A1)
19
13a
18
13A
13
13B
12B
12B2
12B1
12C (12C4)
12C (12C3)
Z
X
Y

FIG. 3

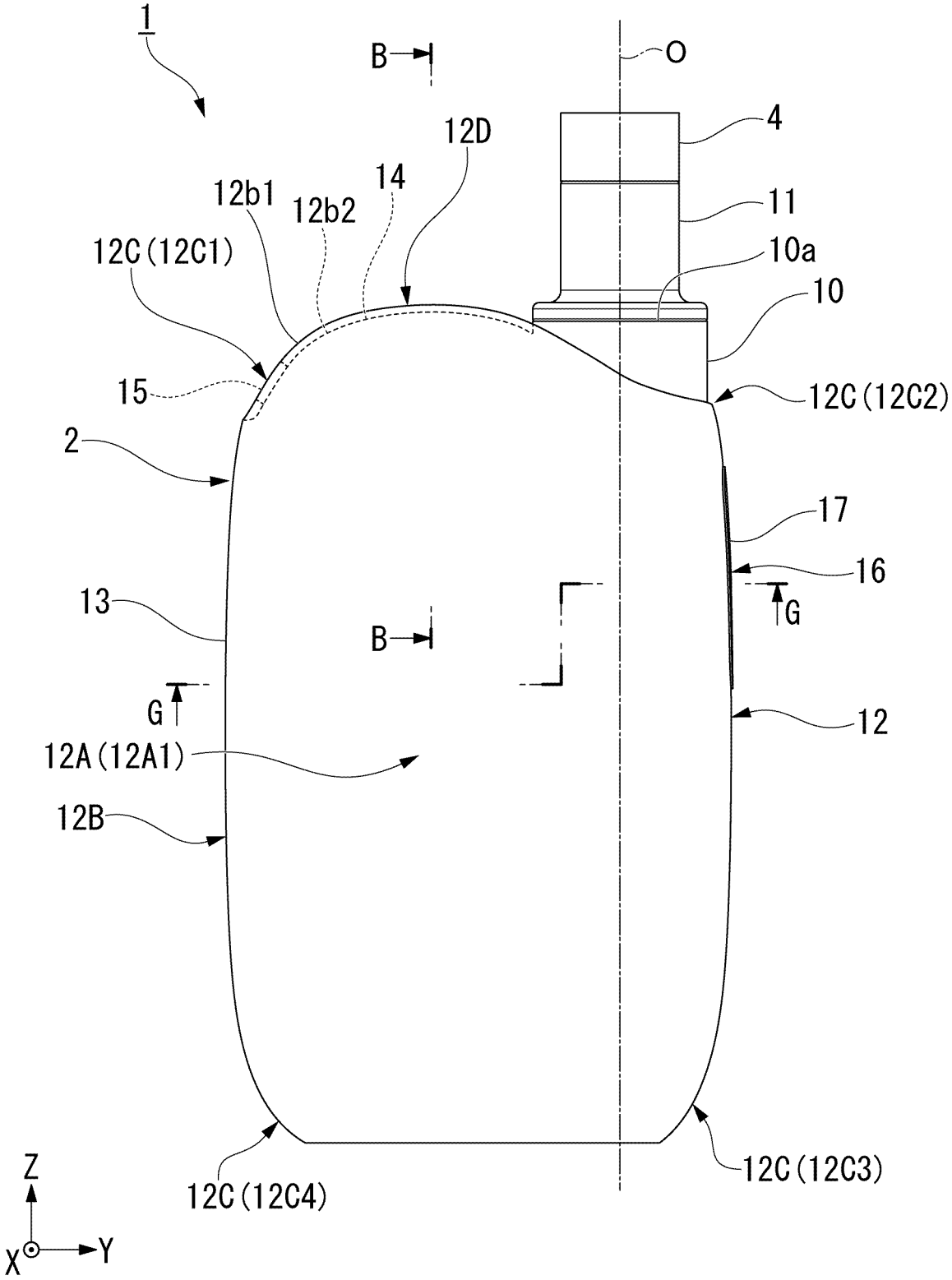

1
B
O
12D
4
14
12b1
12b2
11
12C (12C1)
10a
10
15
12C (12C2)
2
17
16
13
G
B
G
12
12A (12A1)
12B
12C (12C4)
12C (12C3)
Z
X
Y

FIG. 4

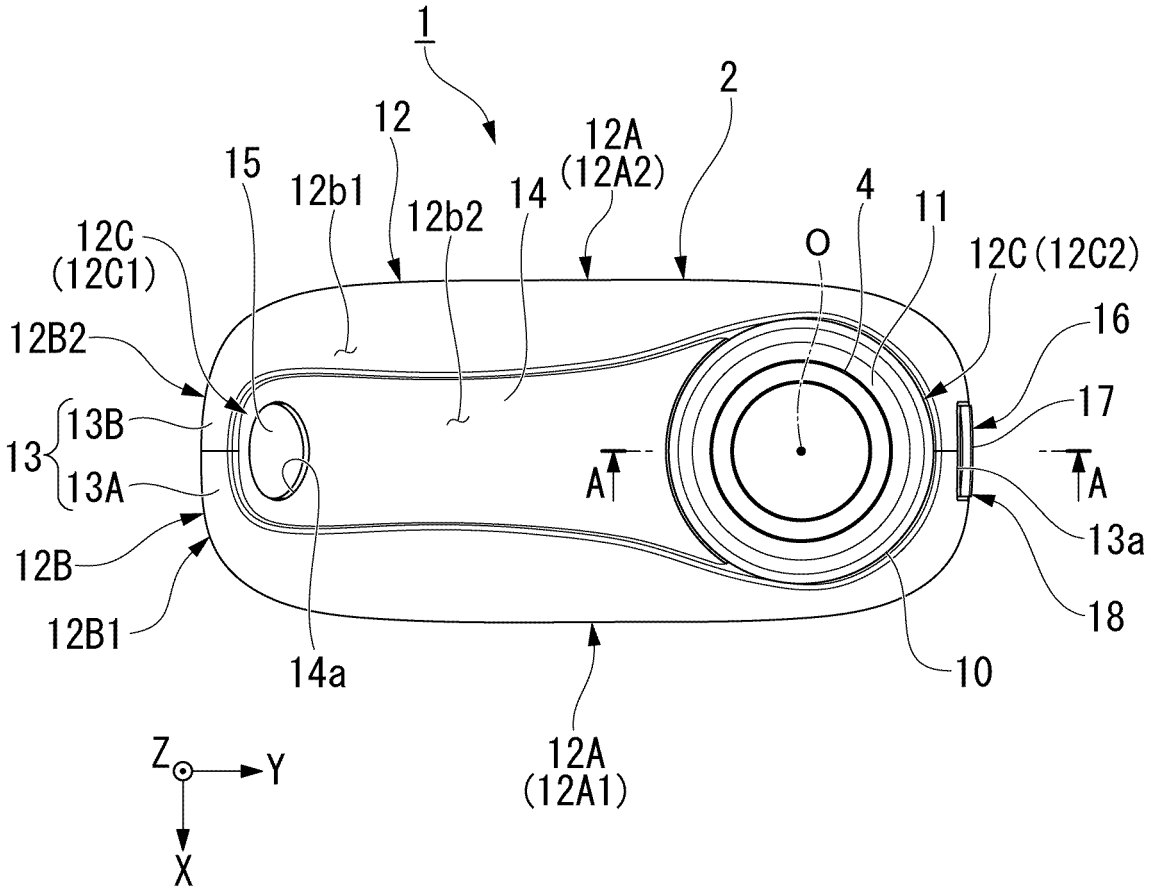

1
2
12
12A
(12A2)
15
12b1
12b2
14
4
11
O
12C (12C2)
12C
(12C1)
16
12B2
17
13
13B
13A
A
A
13a
12B
18
12B1
14a
10
12A
(12A1)
Z
Y
X

FIG. 5

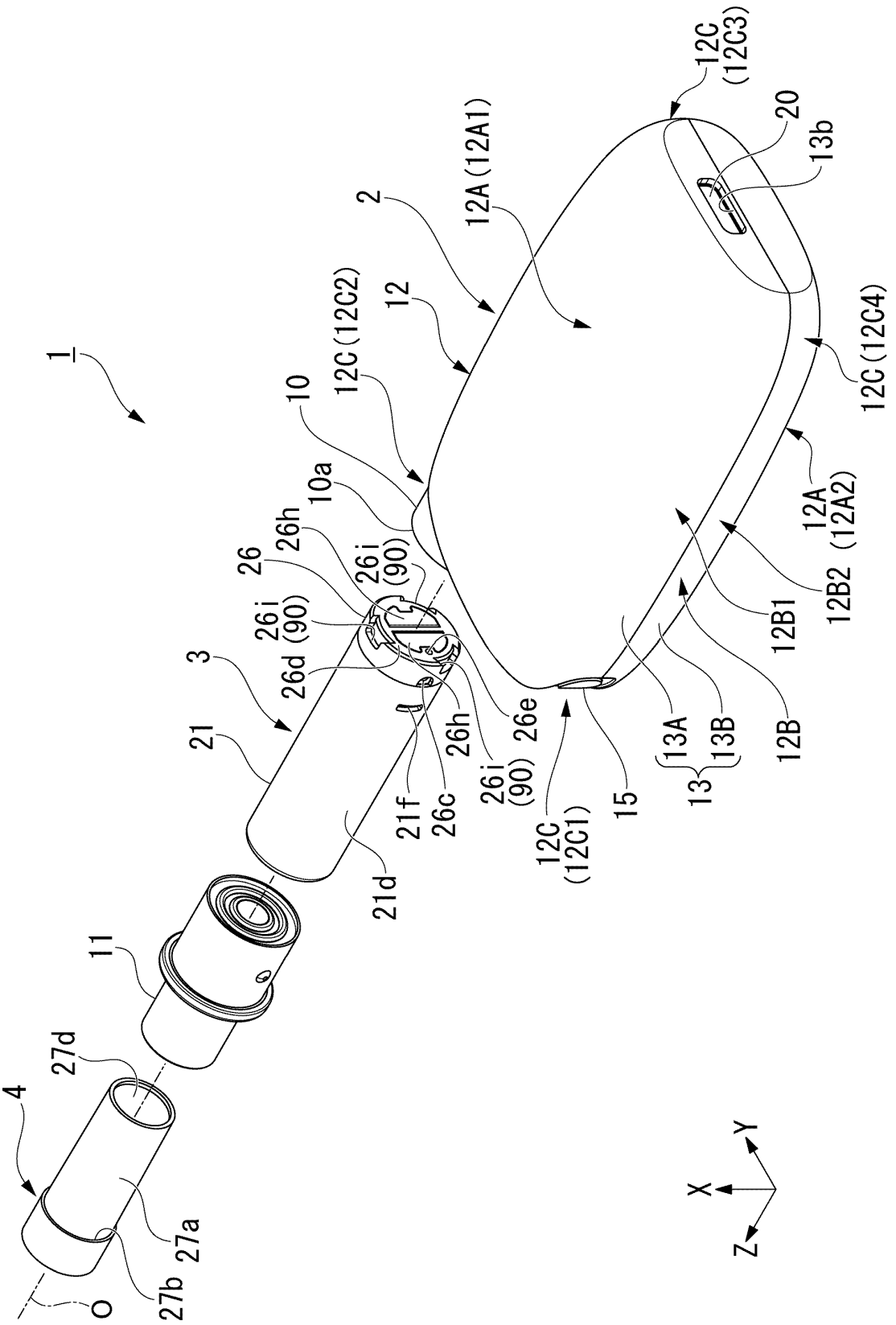

1
2
3
4
10
10a
11
12
12A (12A1)
12A (12A2)
12B1
12B2
12B
12C (12C1)
12C (12C2)
12C (12C3)
12C (12C4)
13
13A
13B
15
20
21
21d
21f
26
26c
26d
26e
26h
26i (90)
27a
27b
27d
O
X
Y
Z

FIG. 6

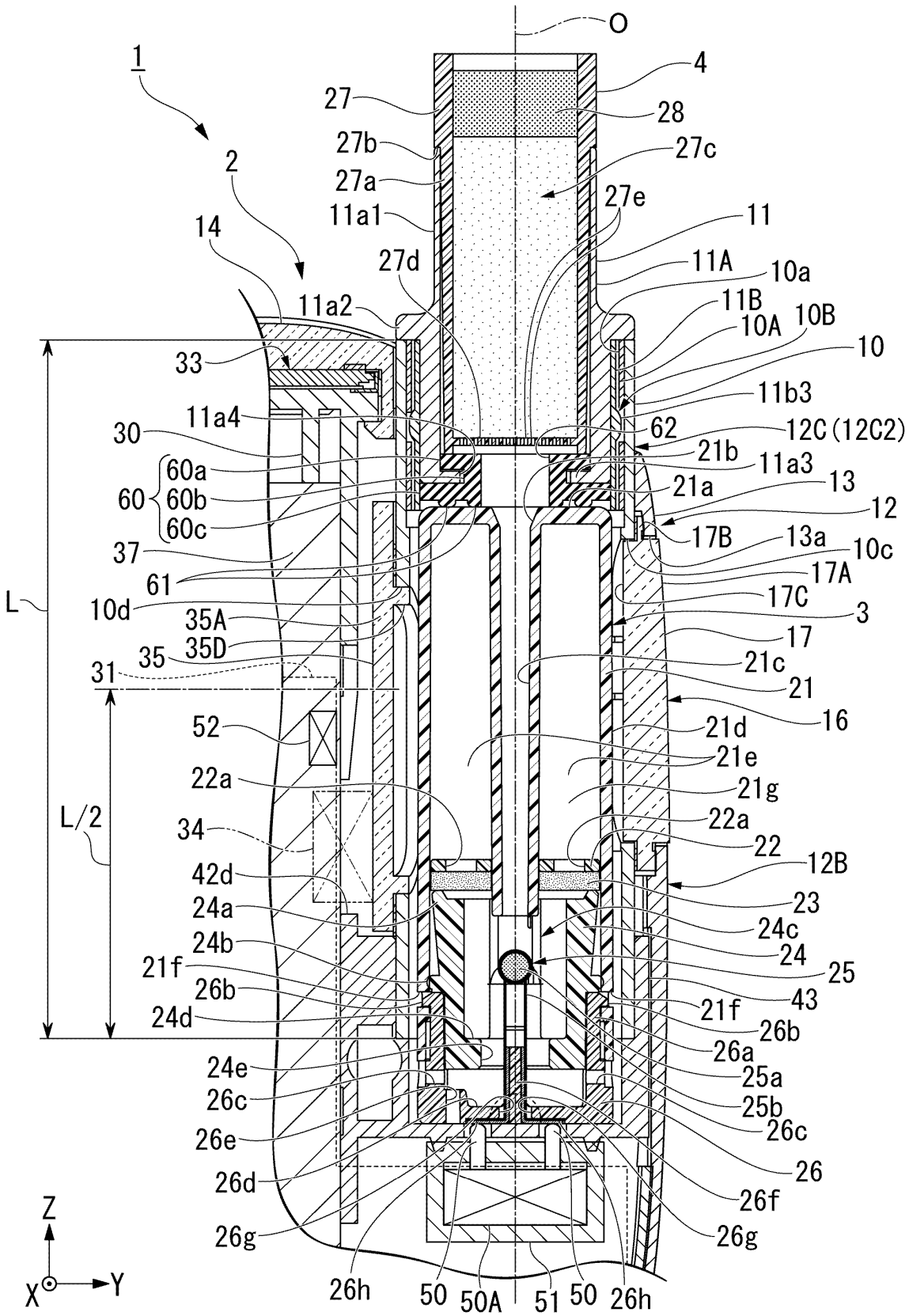

O
1
2
4
27
28
27b
27a
27c
11a1
27e
11
14
27d
11A
10a
11a2
11B
10A
10B
10
33
11b3
11a4
62
12C (12C2)
30
21b
11a3
60a
60
60b
60c
21a
13
12
37
17B
13a
10c
61
17A
L
10d
35A
17C
3
35D
17
35
21c
31
21
16
52
21d
21e
22a
21g
L/2
34
22a
22
12B
42d
23
24a
24c
24b
24
21f
25
26b
43
24d
21f
26b
26a
24e
25a
26c
25b
26c
26e
26
26d
26f
26g
26g
Z
X
Y
26h
50
50A
51
50
26h

FIG. 7

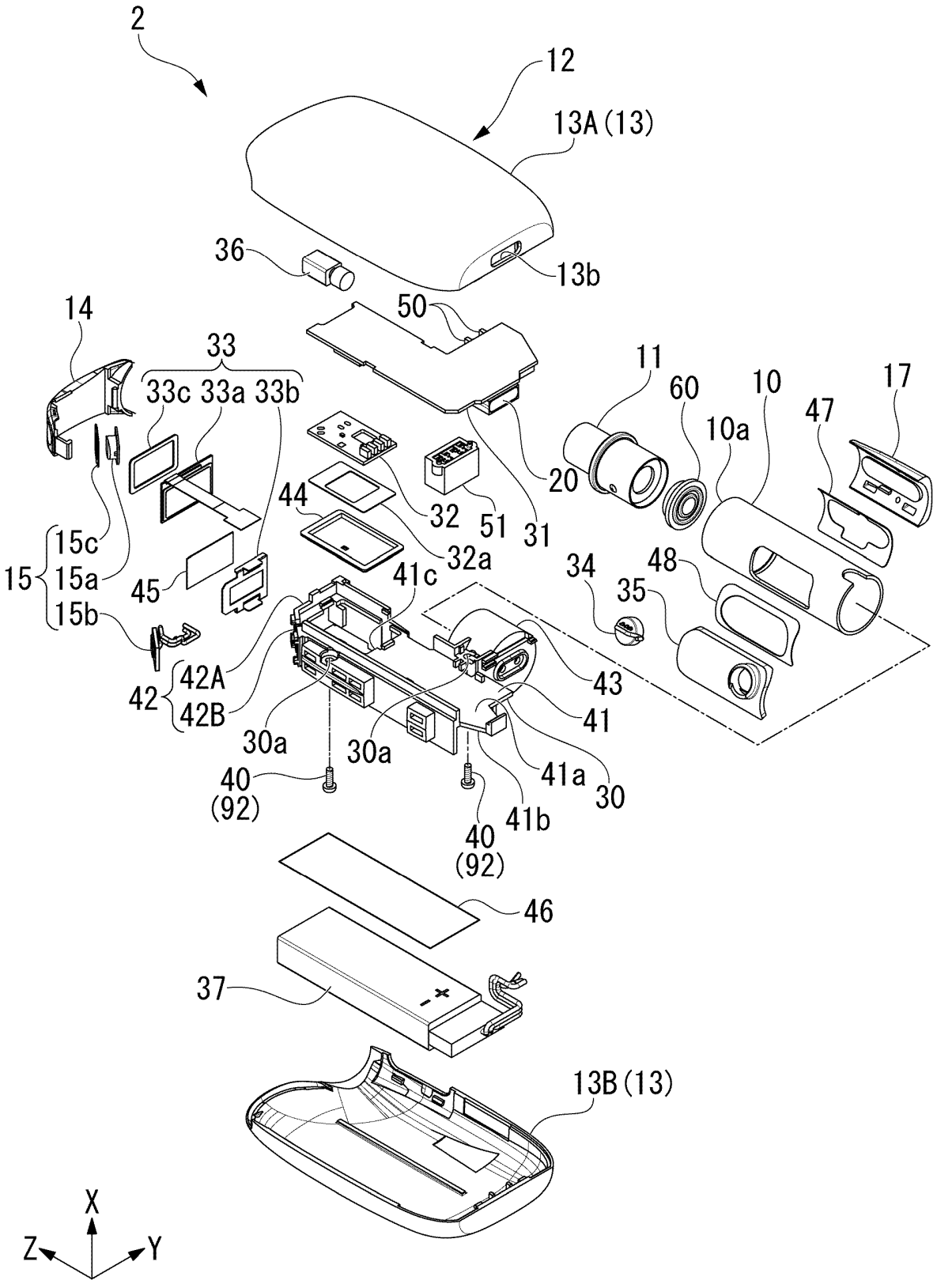

2
12
13A (13)
36
13b
14
50
33
33c 33a 33b
11
60
10
10a
47
17
20
44
32
51
31
32a
15
15c
15a
15b
45
41c
34
48
35
42
42A
42B
43
41
30a
30a
40
(92)
41a
30
41b
40
(92)
46
37
13B (13)
X
Z
Y

FIG. 8

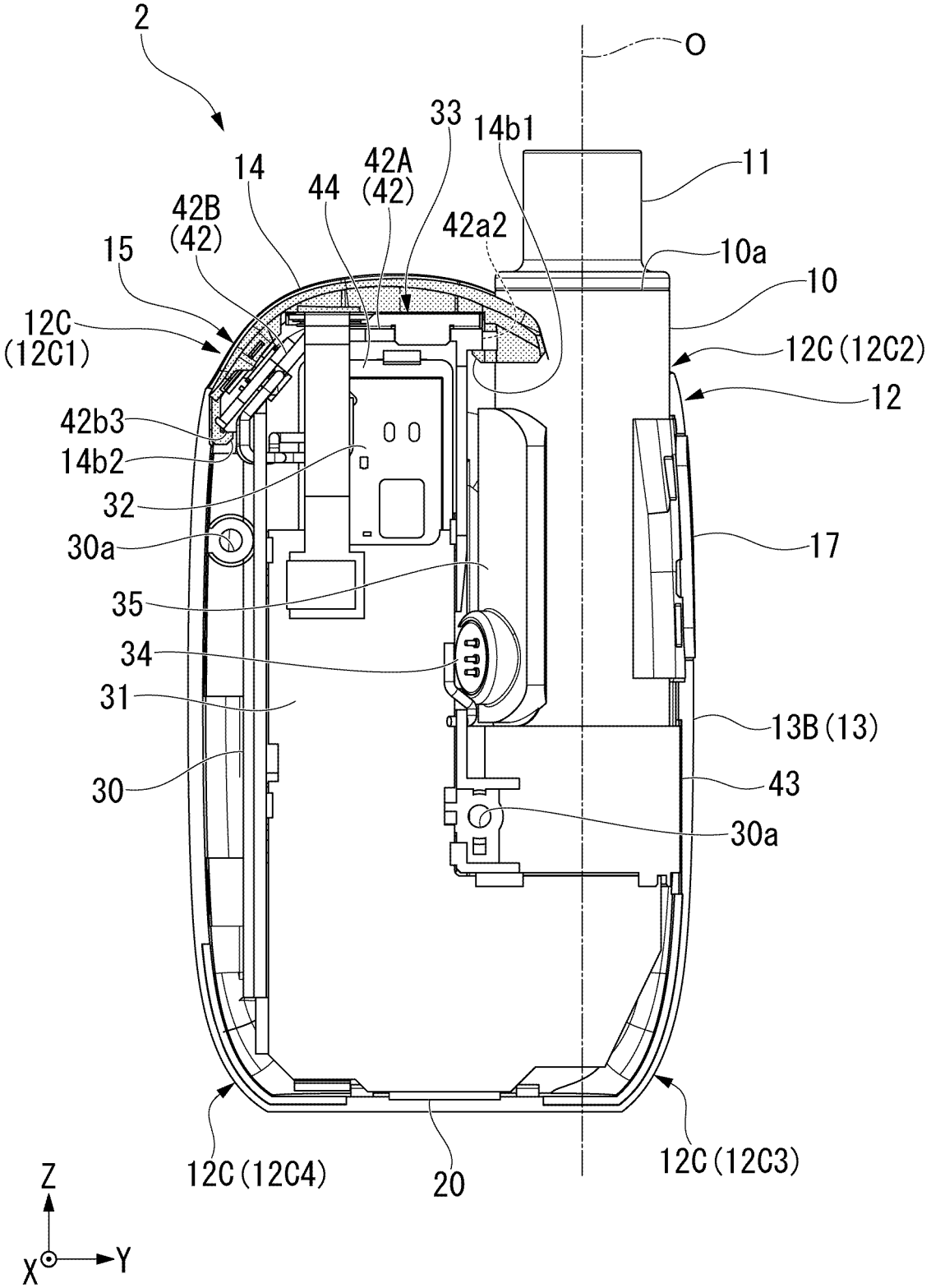

2
O
33
14b1
14
42A
(42)
44
11
42B
(42)
42a2
15
10a
10
12C
(12C1)
12C (12C2)
12
42b3
14b2
32
30a
17
35
34
31
13B (13)
30
43
30a
12C (12C4)
20
12C (12C3)
Z
X
Y

FIG. 9

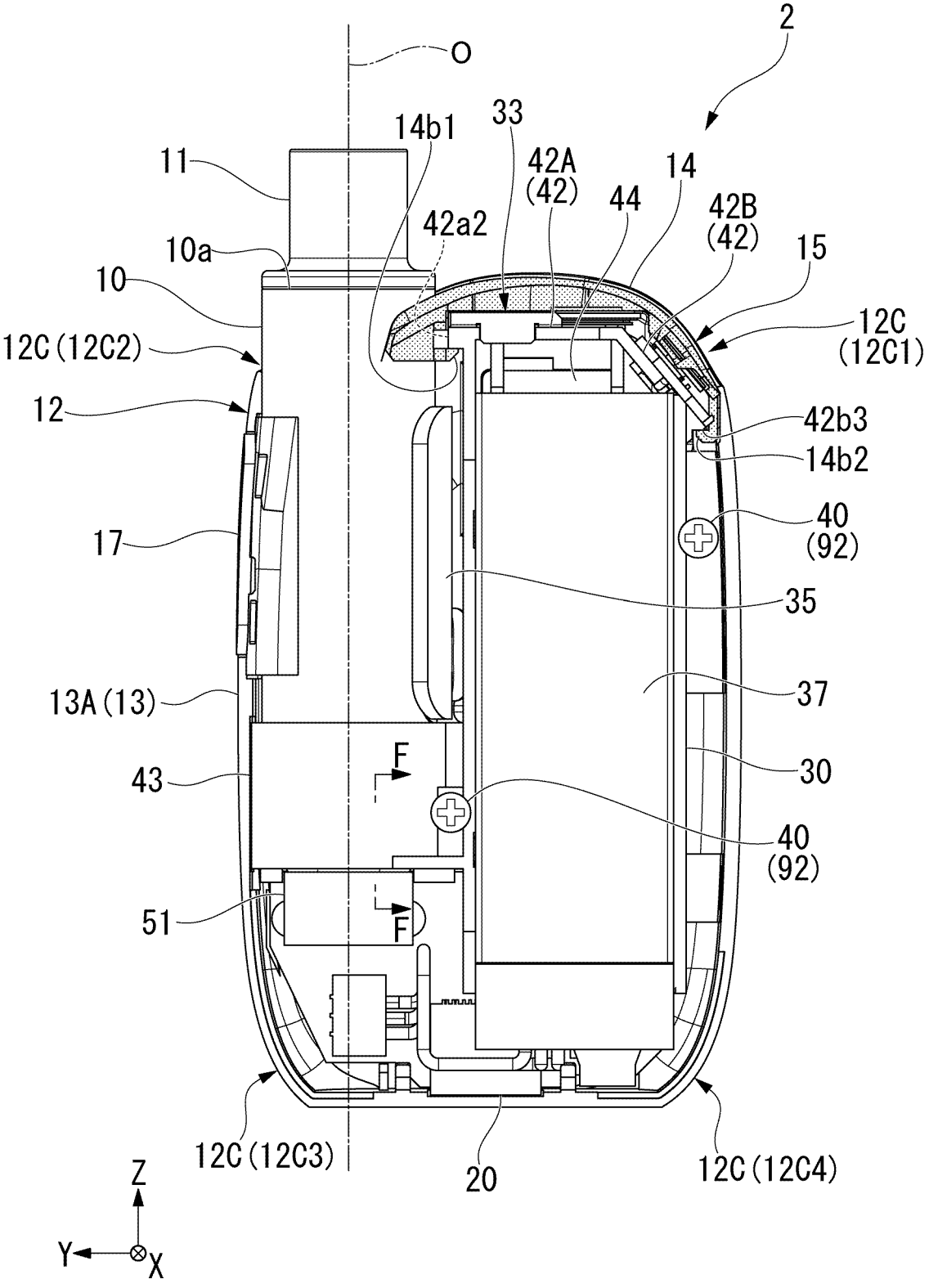

2
O
14b1
33
42A
(42)
14
44
42B
(42)
15
11
42a2
10a
10
12C (12C2)
12C
(12C1)
12
42b3
14b2
40
(92)
17
35
37
13A (13)
F
43
30
40
(92)
51
F
12C (12C3)
20
12C (12C4)
Z
Y
X

FIG. 10

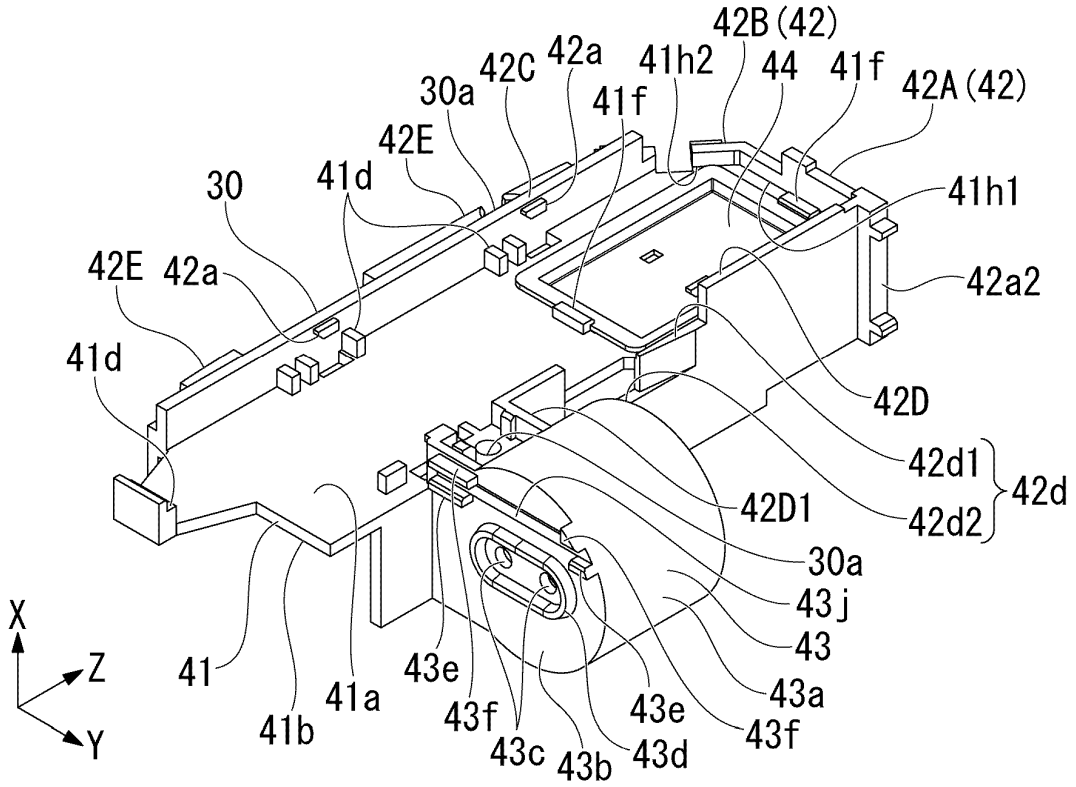

42B (42)
42C
42a
41h2
44
41f
42A (42)
30a
41f
42E
41d
30
41h1
42E
42a
42a2
41d
42D
42d1
42d
42D1
42d2
30a
43j
43
X
Z
41
43e
43a
41a
43f
43e
43f
41b
43c
43b
43d
Y

FIG. 11

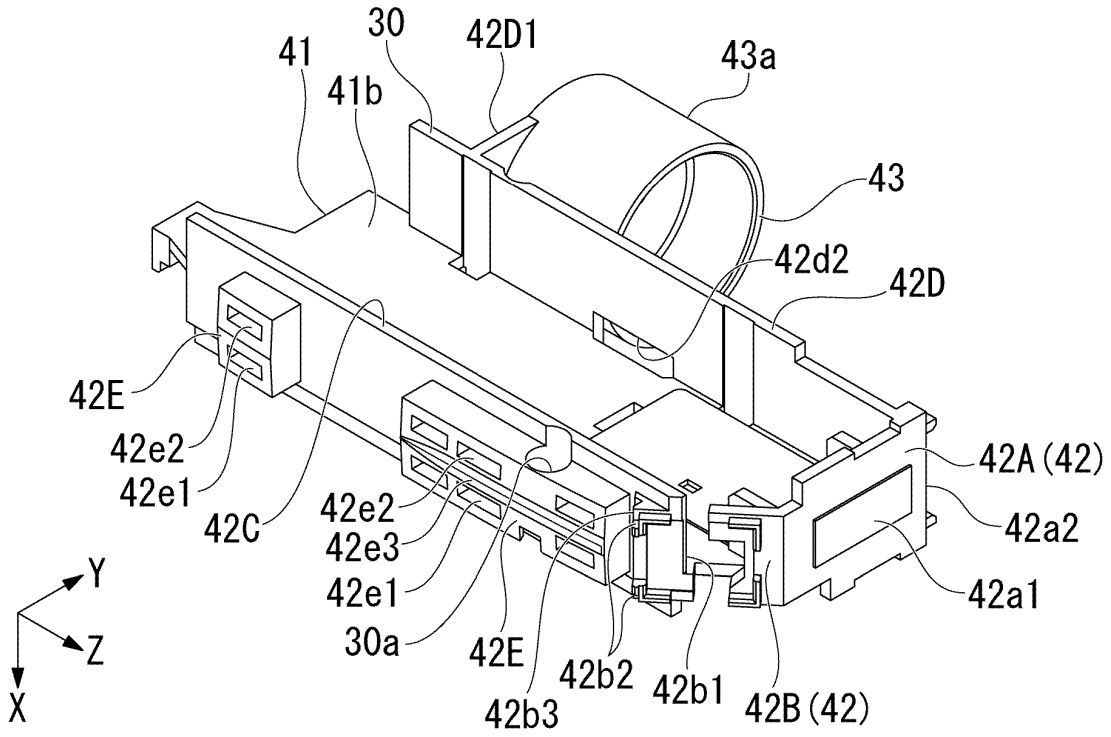

30
41
42D1
43a
41b
43
42d2
42D
42E
42e2
42A (42)
42e1
42C
42e2
42a2
42e3
Y
42e1
42a1
Z
30a
42E
42b2
42b1
X
42b3
42B (42)

FIG. 12

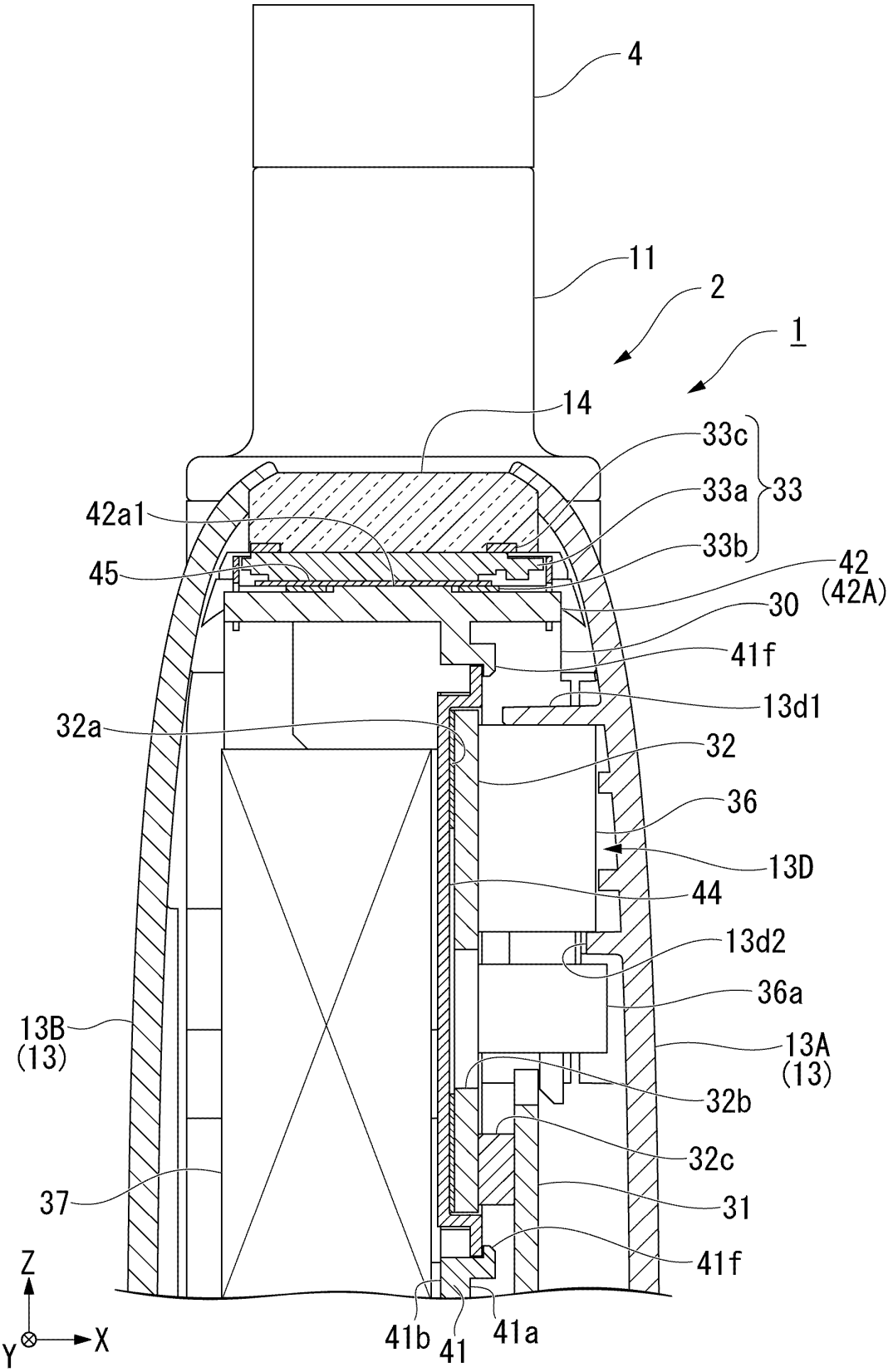

4
11
2
1
14
33c
33a
33
33b
42a1
45
42
(42A)
30
41f
13d1
32a
32
36
13D
44
13d2
36a
13B
(13)
13A
(13)
32b
32c
37
31
41f
Z
Y
X
41b
41
41a

FIG. 13

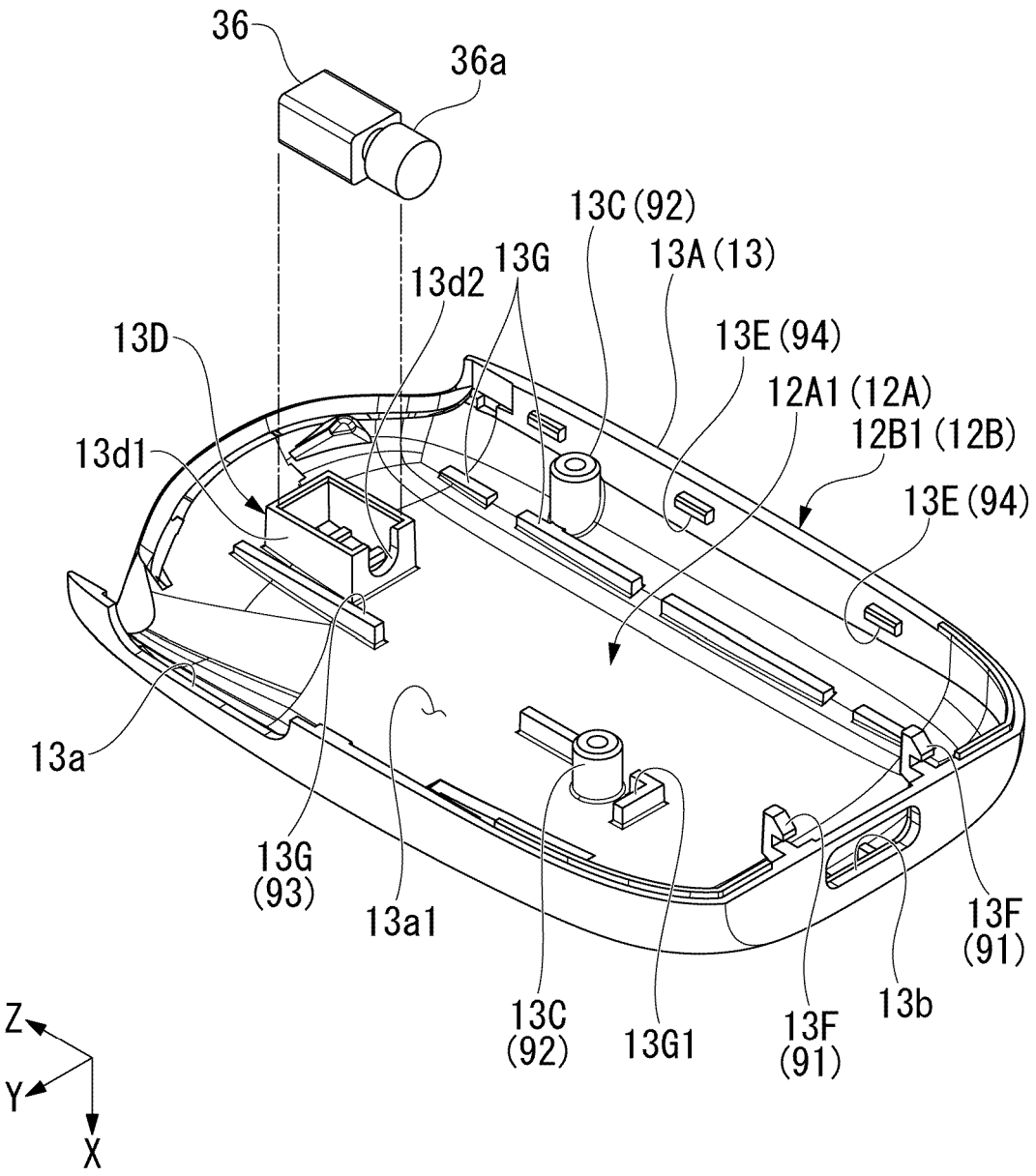

36
36a
13C (92)
13A (13)
13G
13d2
13D
13E (94)
12A1 (12A)
12B1 (12B)
13d1
13E (94)
13a
13G
(93)
13a1
13F
(91)
13C
(92)
13G1
13F
(91)
13b
Z
Y
X

FIG. 14

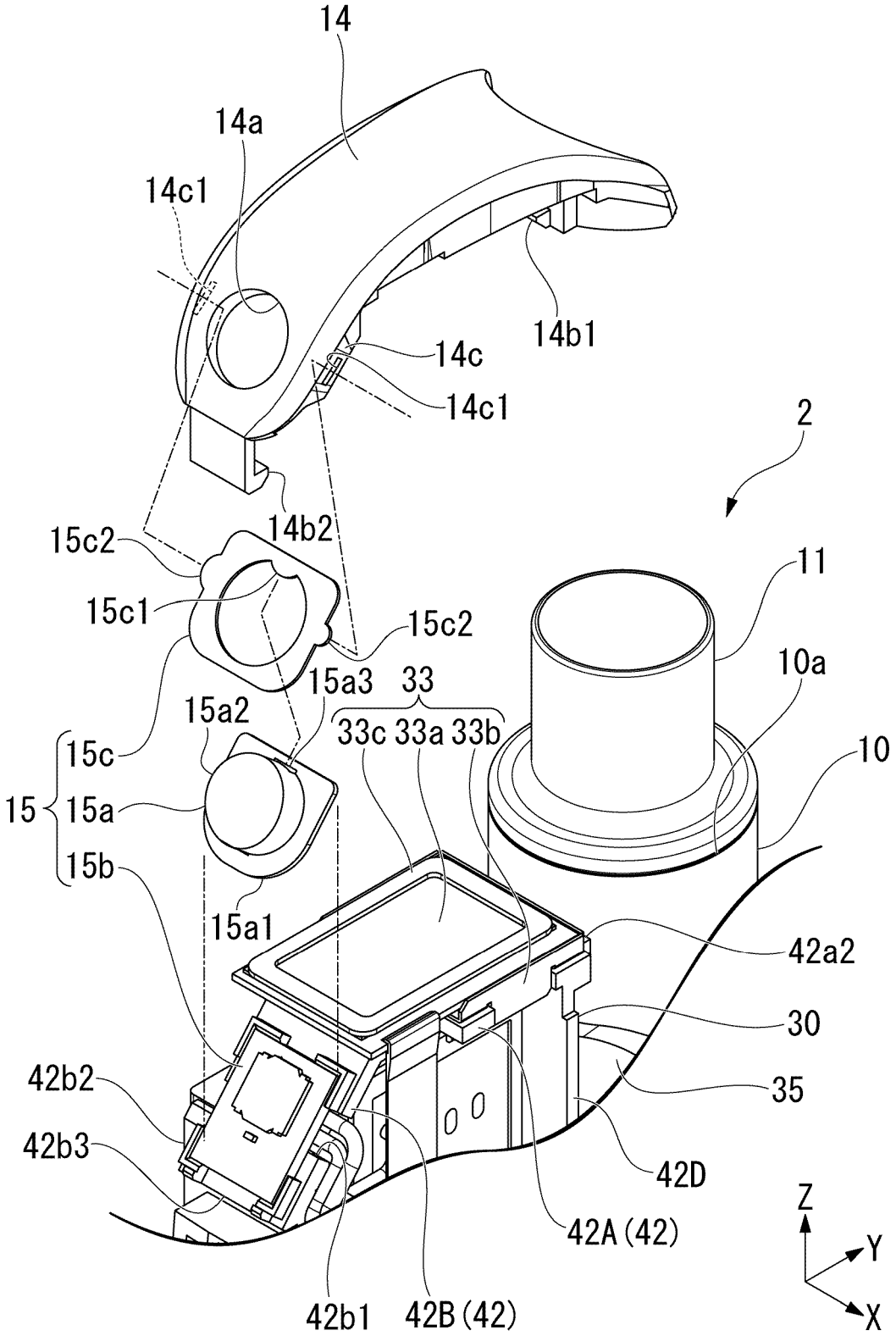

14
14a
14c1
14b1
14c
14c1
2
14b2
15c2
11
15c1
15c2
10a
15a3
33
15a2
33c 33a 33b
15c
10
15
15a
15b
15a1
42a2
30
42b2
35
42b3
42D
42A (42)
Z
Y
X
42b1
42B (42)

FIG. 15

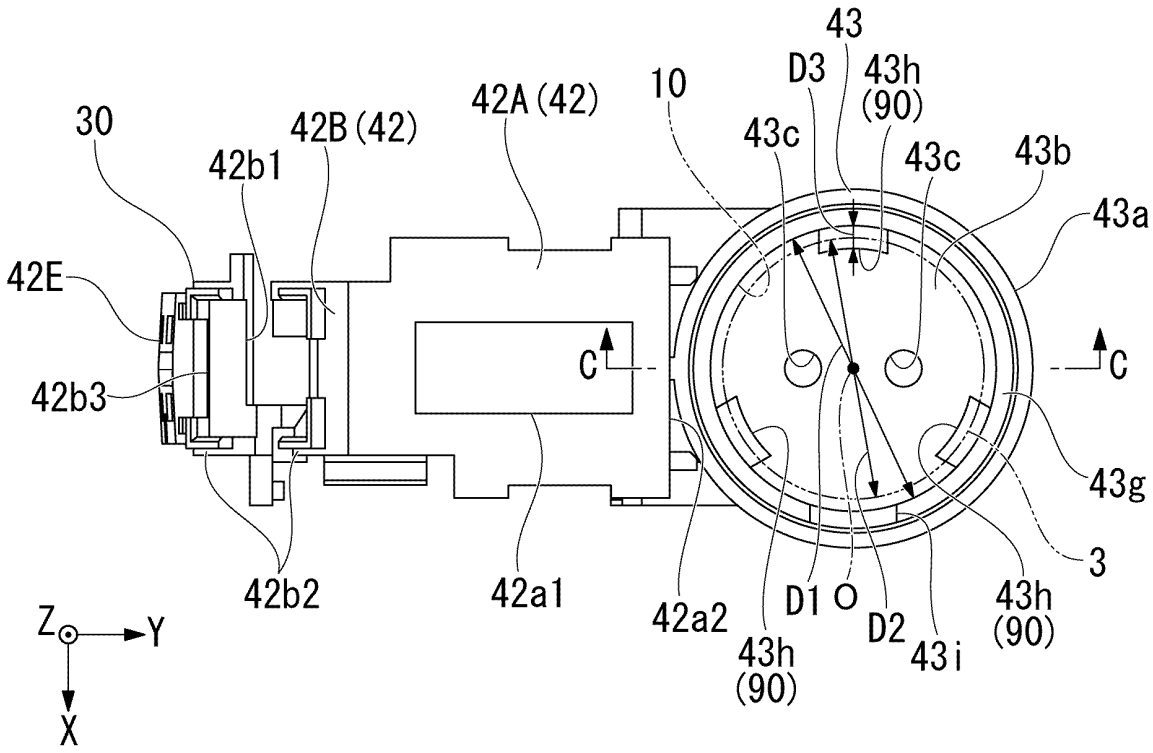

30
42b1
42B (42)
42A (42)
10
43
D3
43h
(90)
43c
43c
43b
43a
42E
42b3
C
C
43g
3
42b2
42a1
42a2
D1
O
D2
43i
43h
(90)
43h
(90)
Z
Y
X

FIG. 16

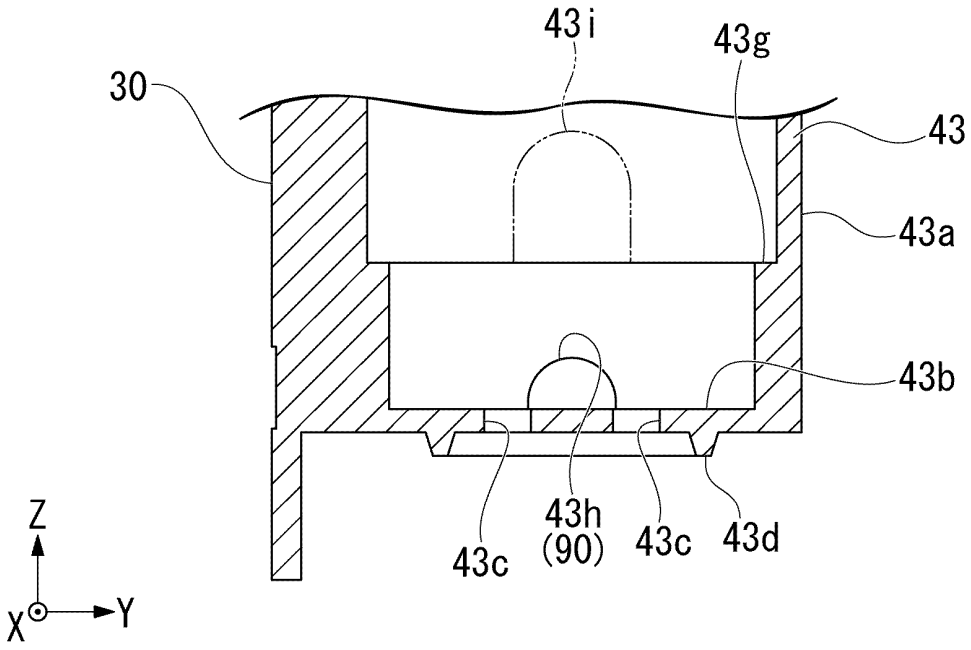

43i
43g
30
43
43a
43b
43c
43h
(90)
43c
43d
Z
X
Y

FIG. 17

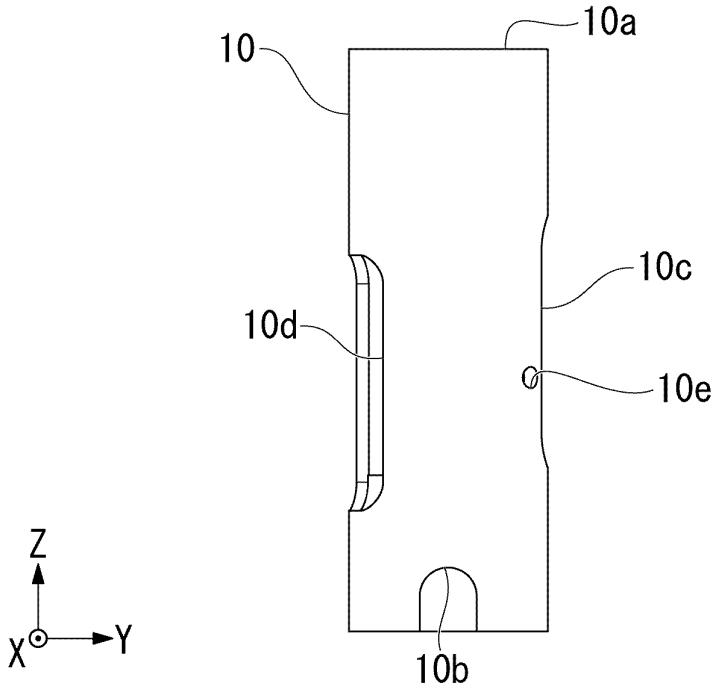


FIG. 18

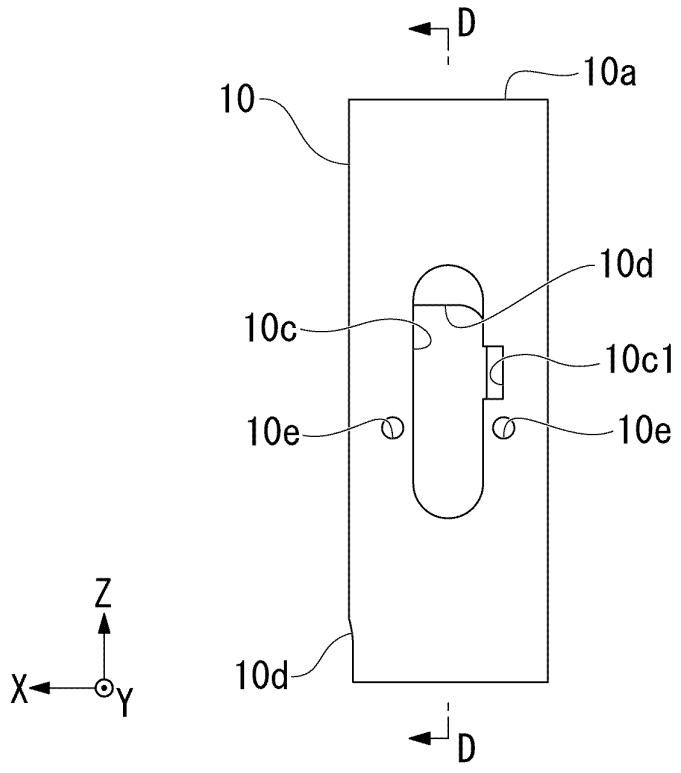


FIG. 19

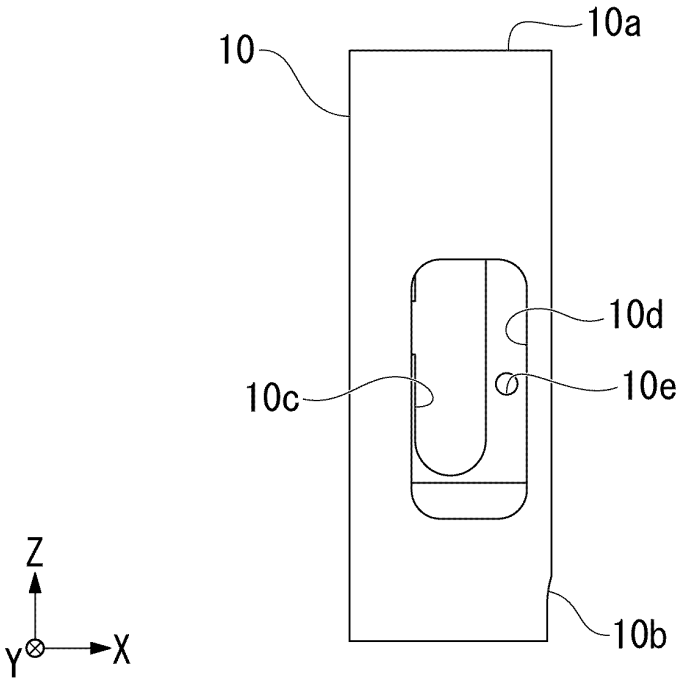

10a
10
10d
10c
10e
10b
Z
Y
X

FIG. 20

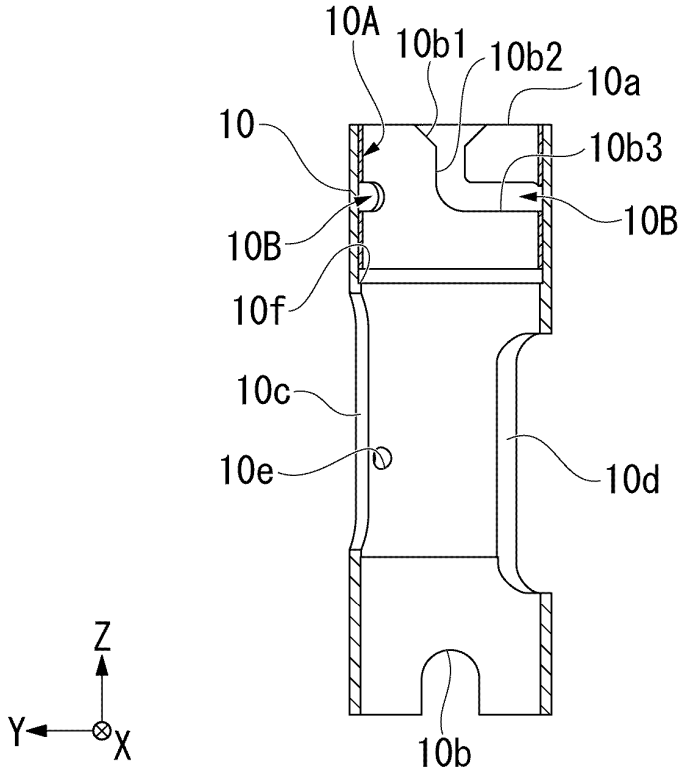

10A
10b1
10b2
10a
10
10b3
10B
10B
10f
10c
10e
10d
10b
Z
Y
X

FIG. 21

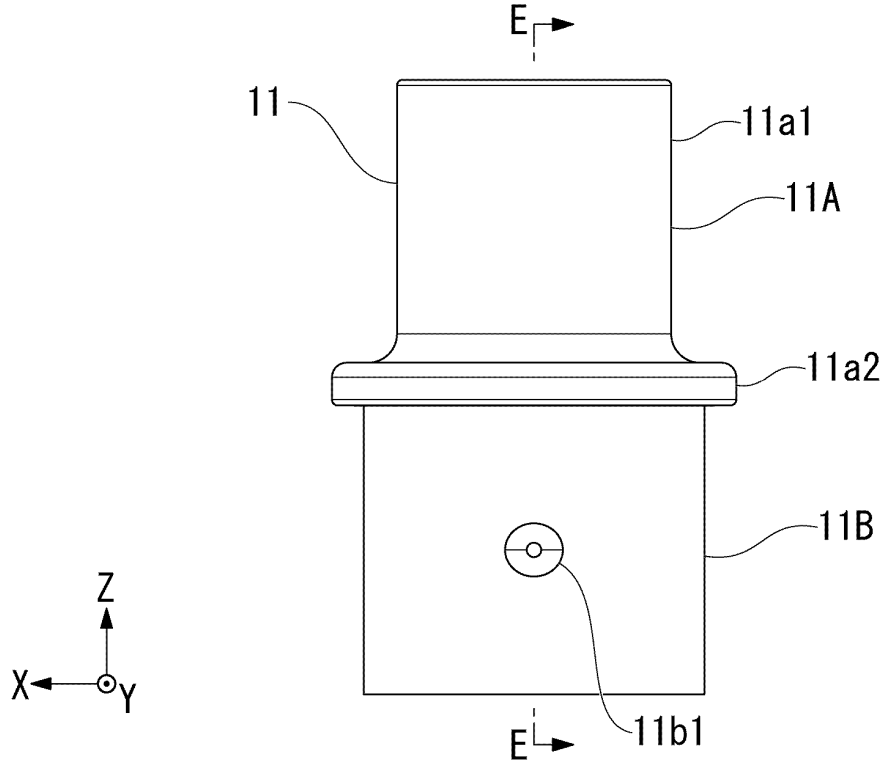

E
11
11a1
11A
11a2
11B
Z
X
Y
11b1
E

FIG. 22

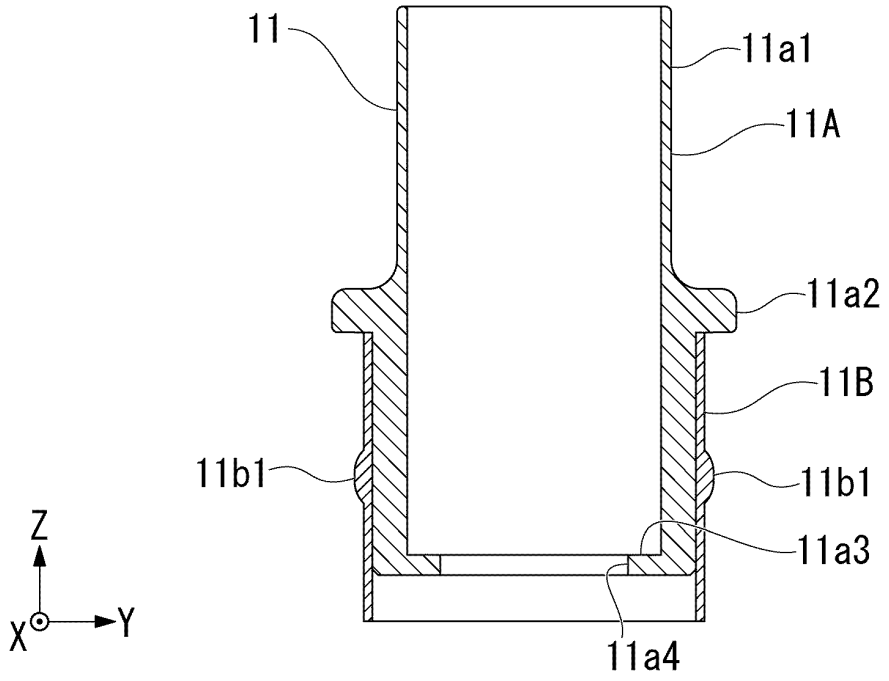

11
11a1
11A
11a2
11B
11b1
11b1
Z
11a3
X
Y
11a4

FIG. 23

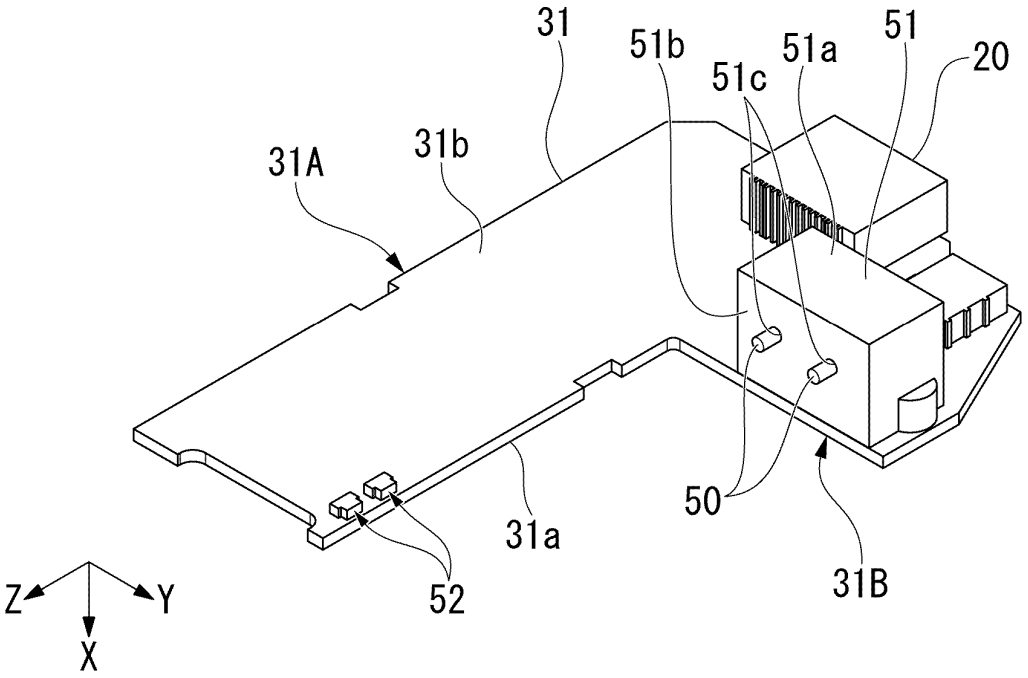

31
51b
51a
51
20
51c
31A
31b
50
31a
31B
52
Z
Y
X

FIG. 24

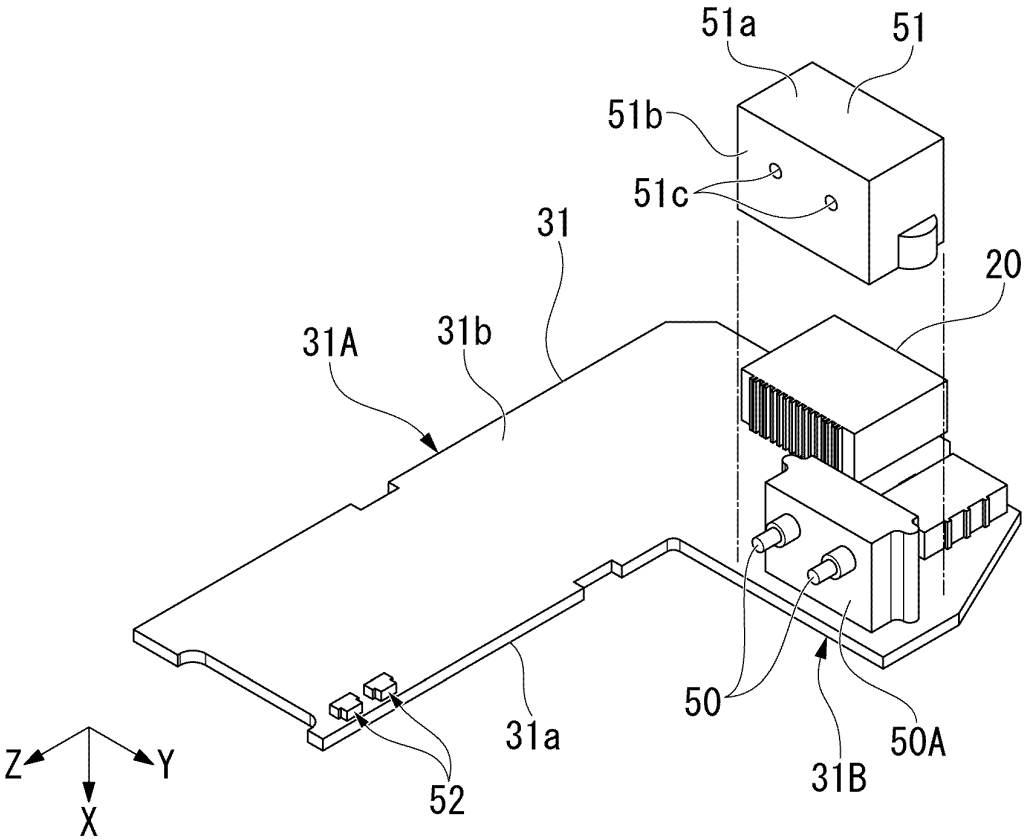

51a
51
51b
51c
31
20
31A
31b
50
50A
31a
31B
52
Z
Y
X

FIG. 25

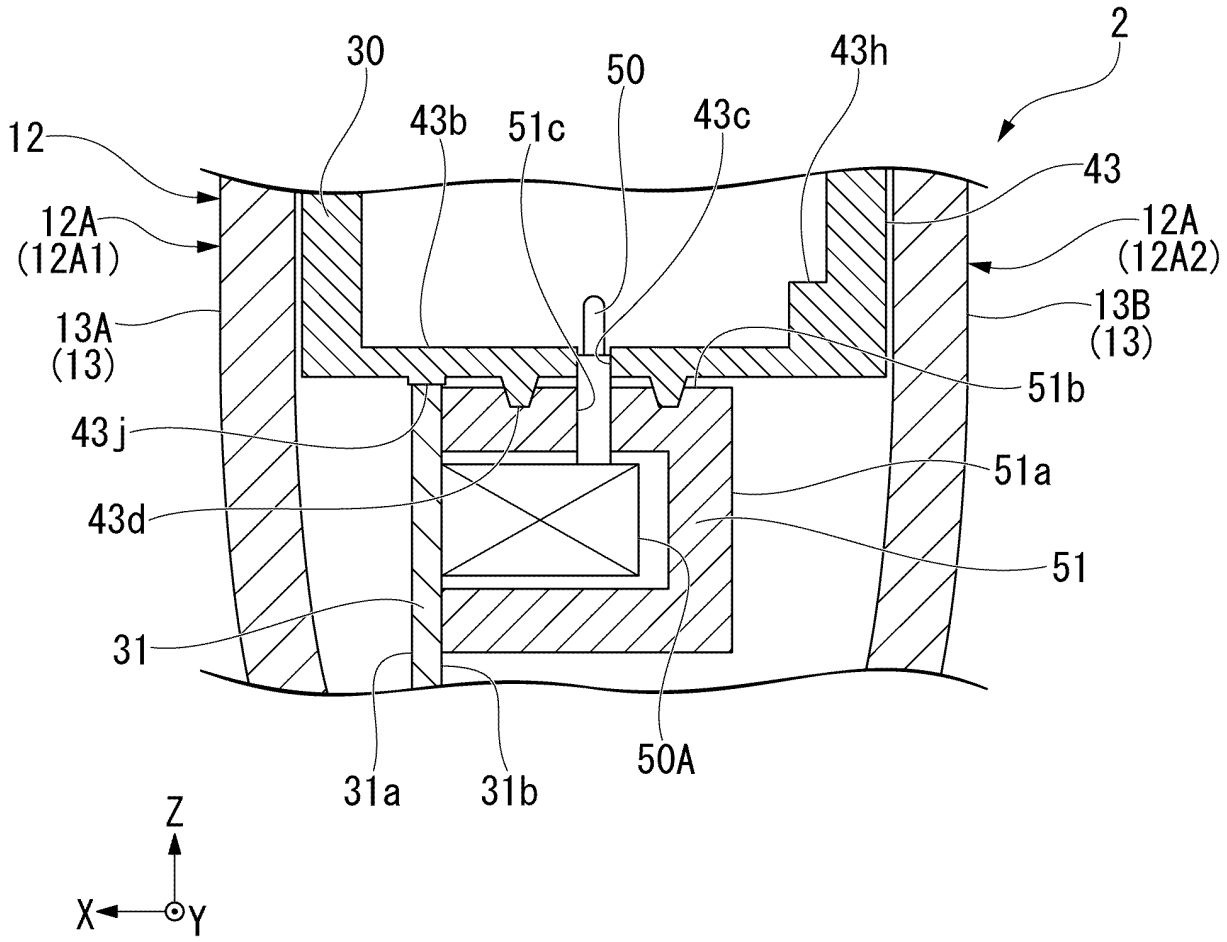

2
30
50
43h
43b
51c
43c
12
43
12A
(12A1)
12A
(12A2)
13A
(13)
13B
(13)
51b
43j
51a
43d
51
31
31a
31b
50A
Z
X
Y

FIG. 26

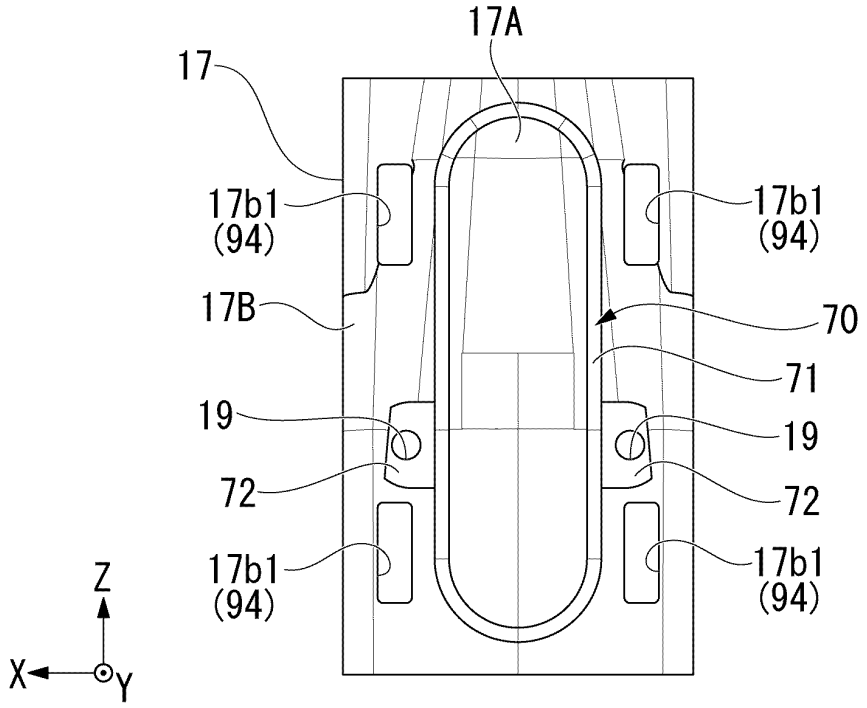

17A
17
17b1
(94)
17b1
(94)
17B
70
71
19
19
72
72
17b1
(94)
17b1
(94)
Z
X
Y

FIG. 27

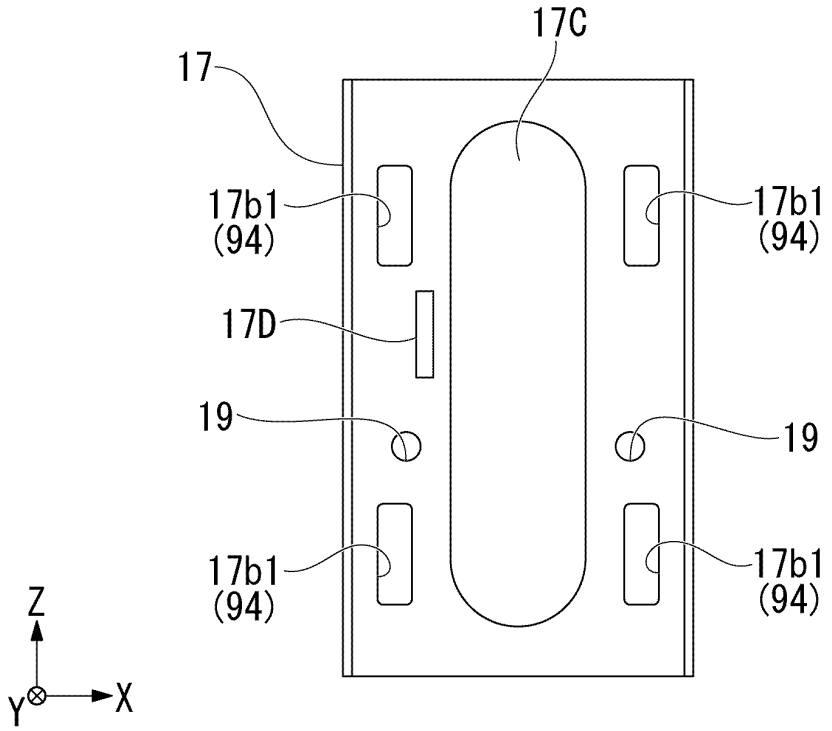

17C
17
17b1
(94)
17b1
(94)
17D
19
19
17b1
(94)
17b1
(94)
Z
Y
X

FIG. 28

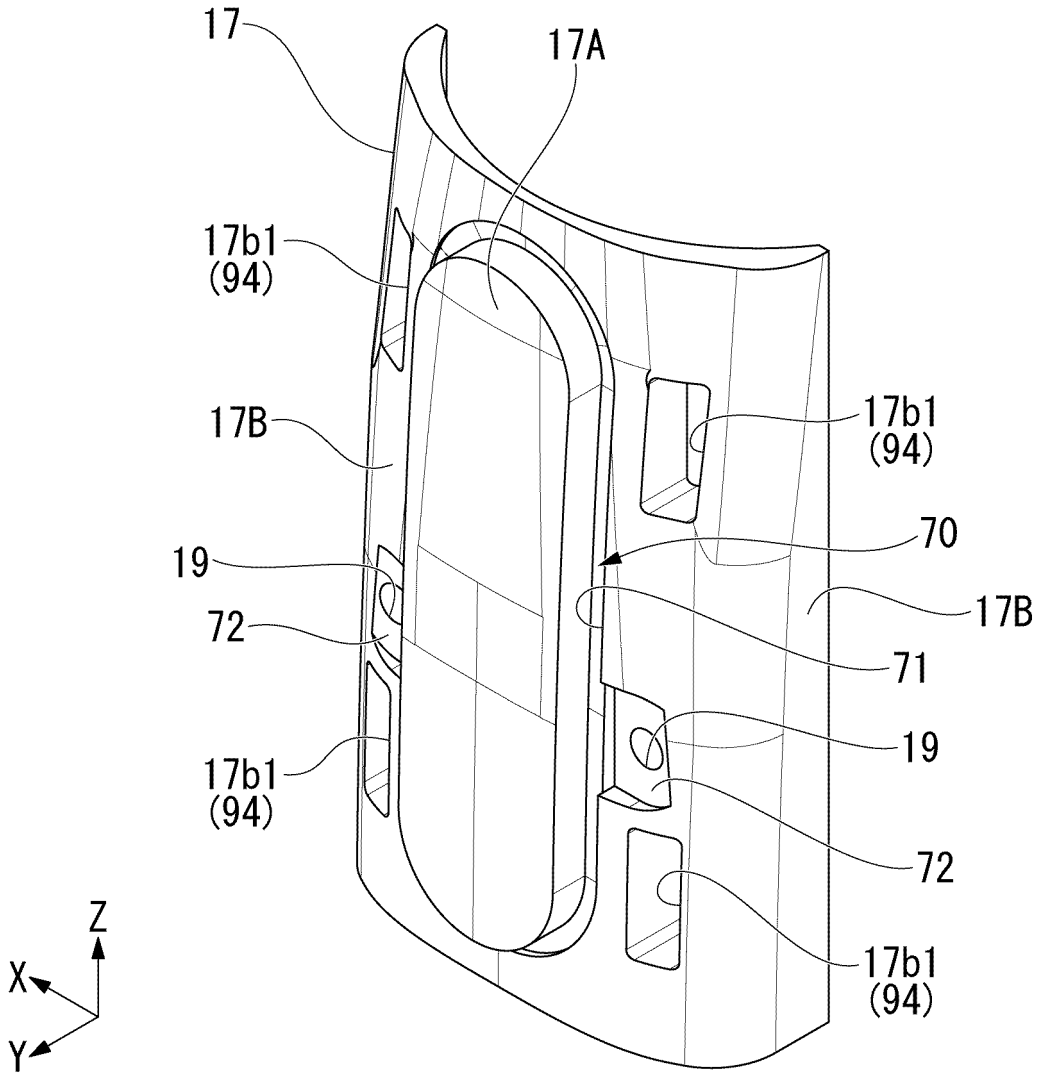

17
17A
17b1
(94)
17B
19
72
17b1
(94)
17b1
(94)
70
17B
71
19
72
17b1
(94)
Z
X
Y

FIG. 29

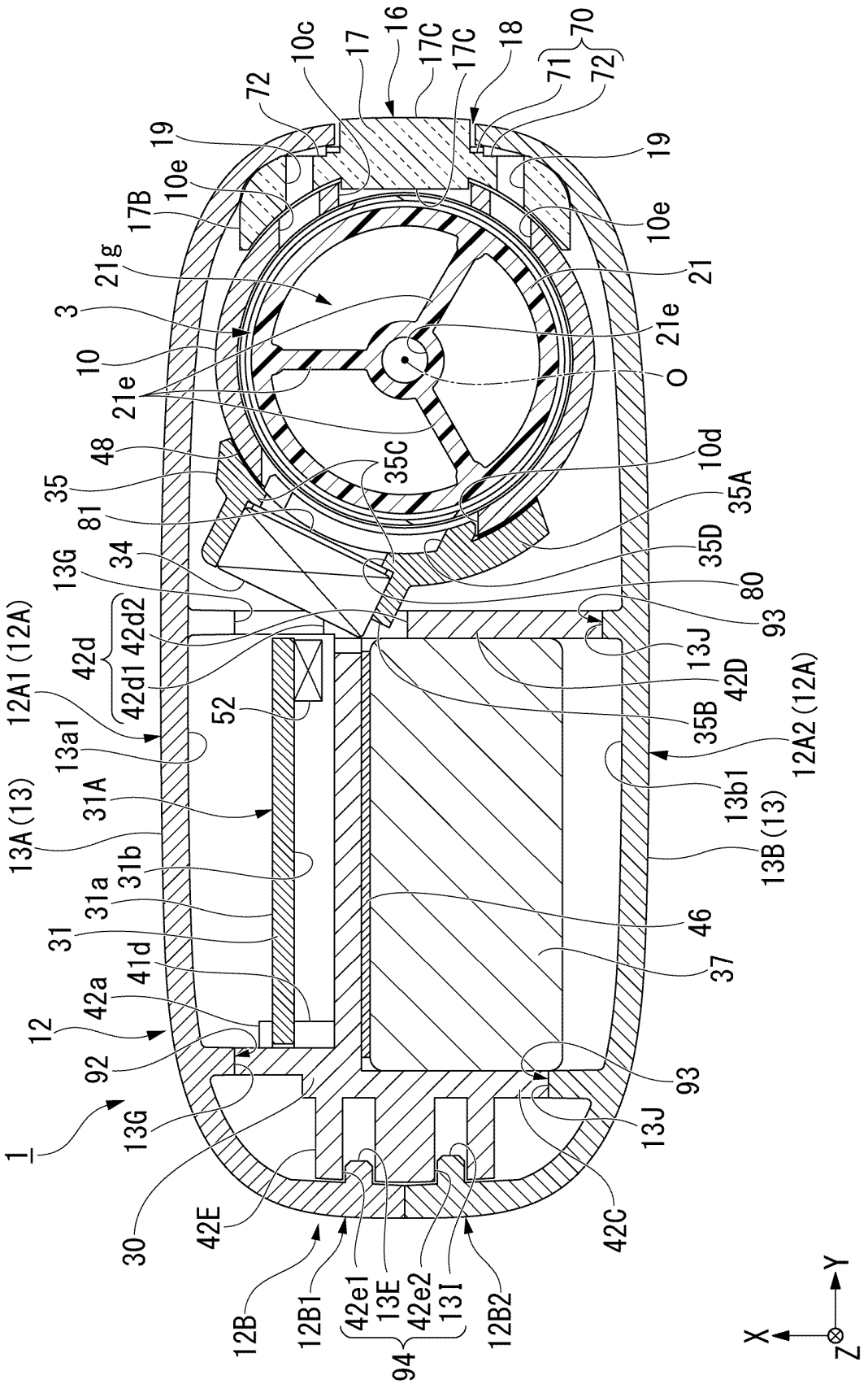

1
3
10
10c
10d
10e
12
12A1 (12A)
12A2 (12A)
12B
12B1
12B2
13A (13)
13B (13)
13E
13G
13I
13J
16
17
17B
17C
18
19
21
21e
21g
30
31
31A
31a
31b
34
35
35A
35B
35C
35D
37
41d
42a
42C
42D
42E
42d
42d1
42d2
42e1
42e2
46
48
52
70
71
72
80
81
92
93
94
O
X
Y
Z

FIG. 30

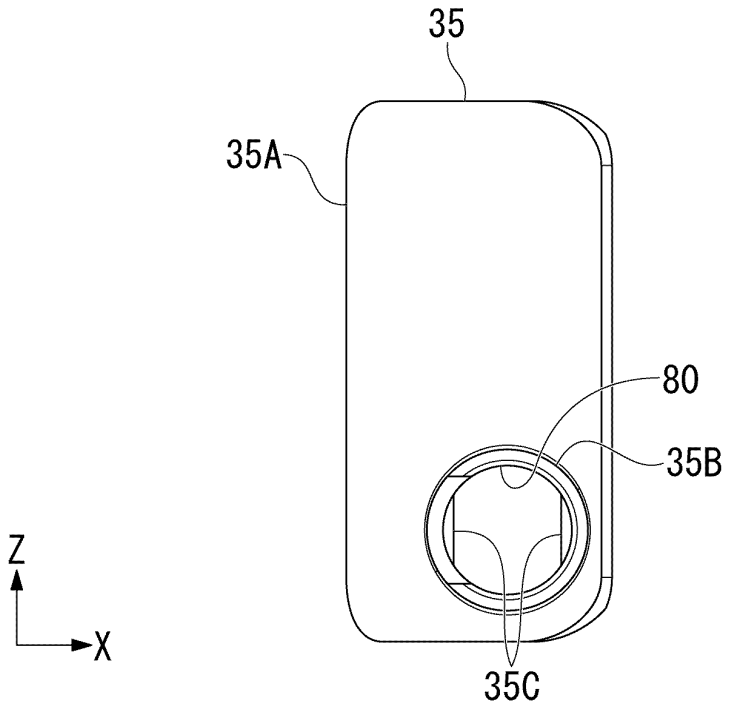


FIG. 31

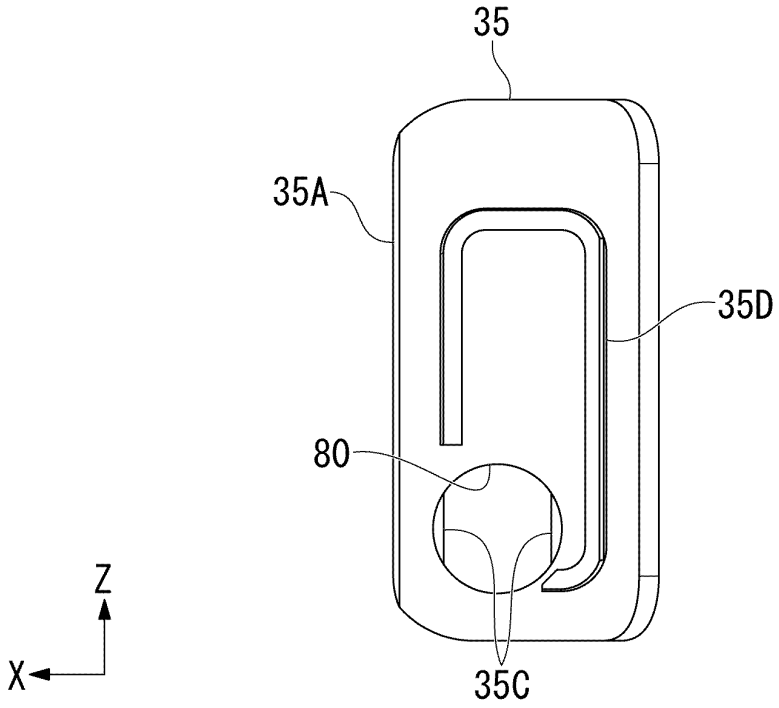


FIG. 32

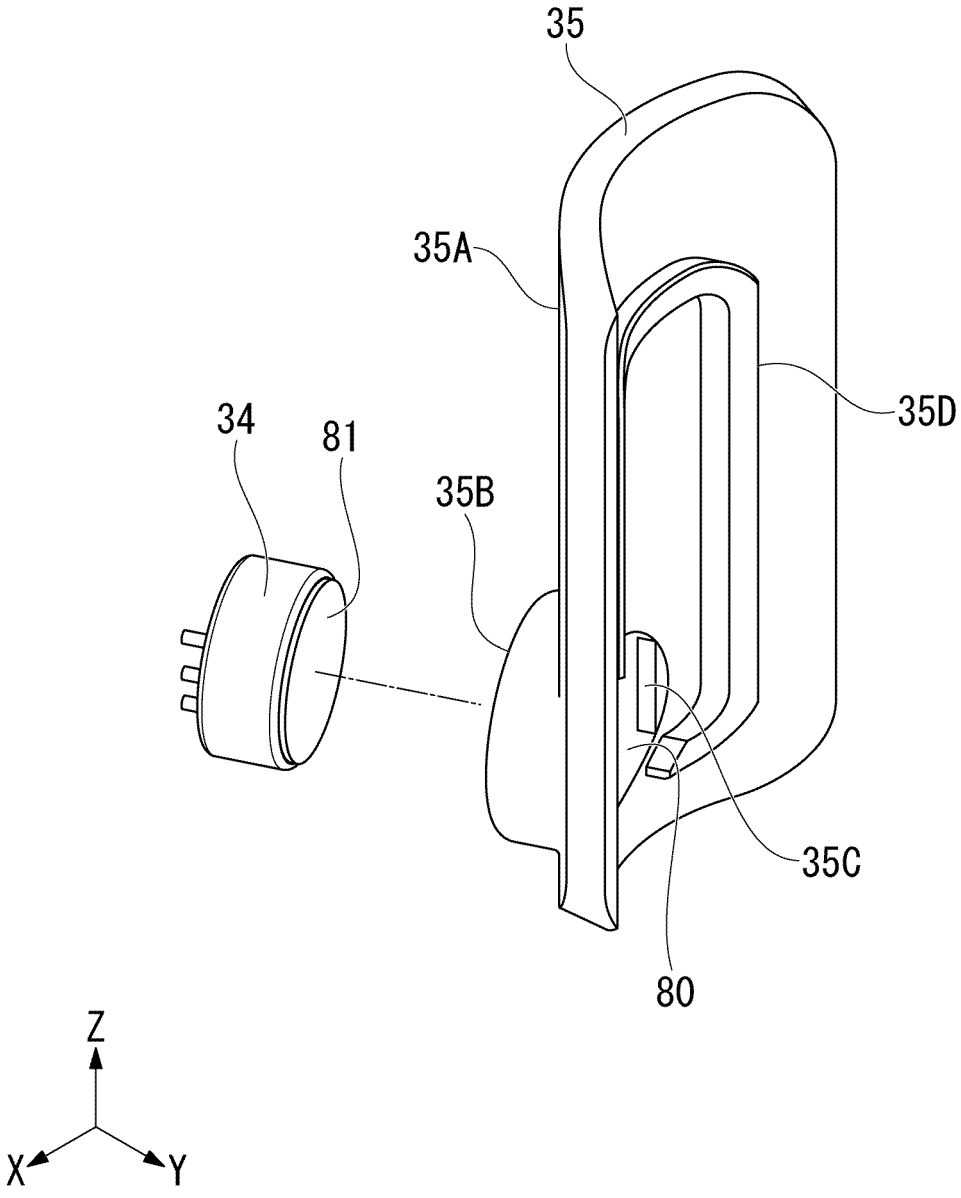


FIG. 33

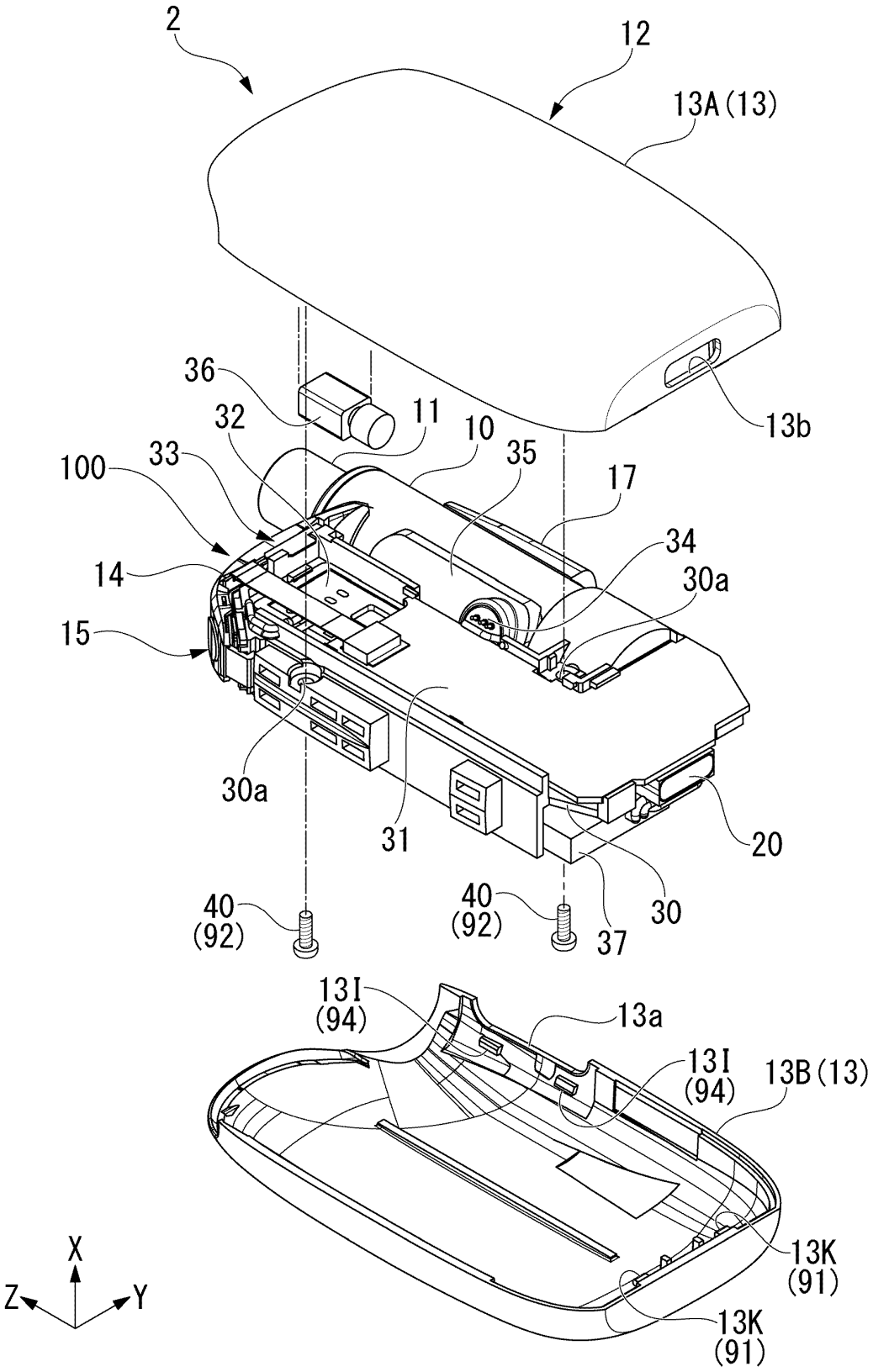

2
12
13A (13)
36
32
11
10
35
17
13b
100
33
34
14
30a
15
30a
31
20
40
(92)
40
(92)
37
30
13I
(94)
13a
13I
(94)
13B (13)
13K
(91)
13K
(91)
X
Z
Y

FIG. 34

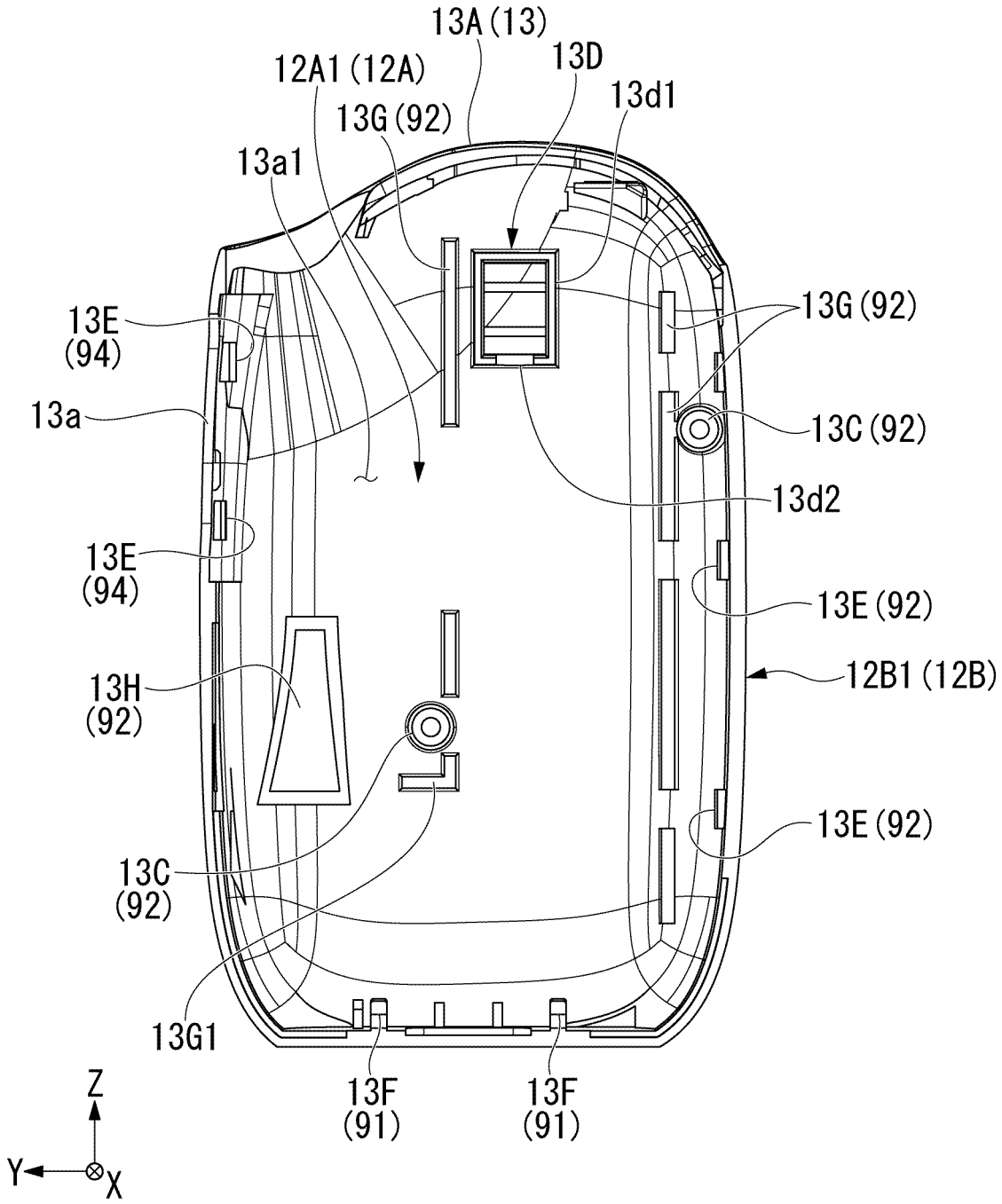

13A (13)
12A1 (12A)
13D
13d1
13G (92)
13a1
13E (94)
13G (92)
13a
13C (92)
13d2
13E (94)
13E (92)
13H (92)
12B1 (12B)
13E (92)
13C (92)
13G1
13F (91)
13F (91)
Z
Y
X

FIG. 35

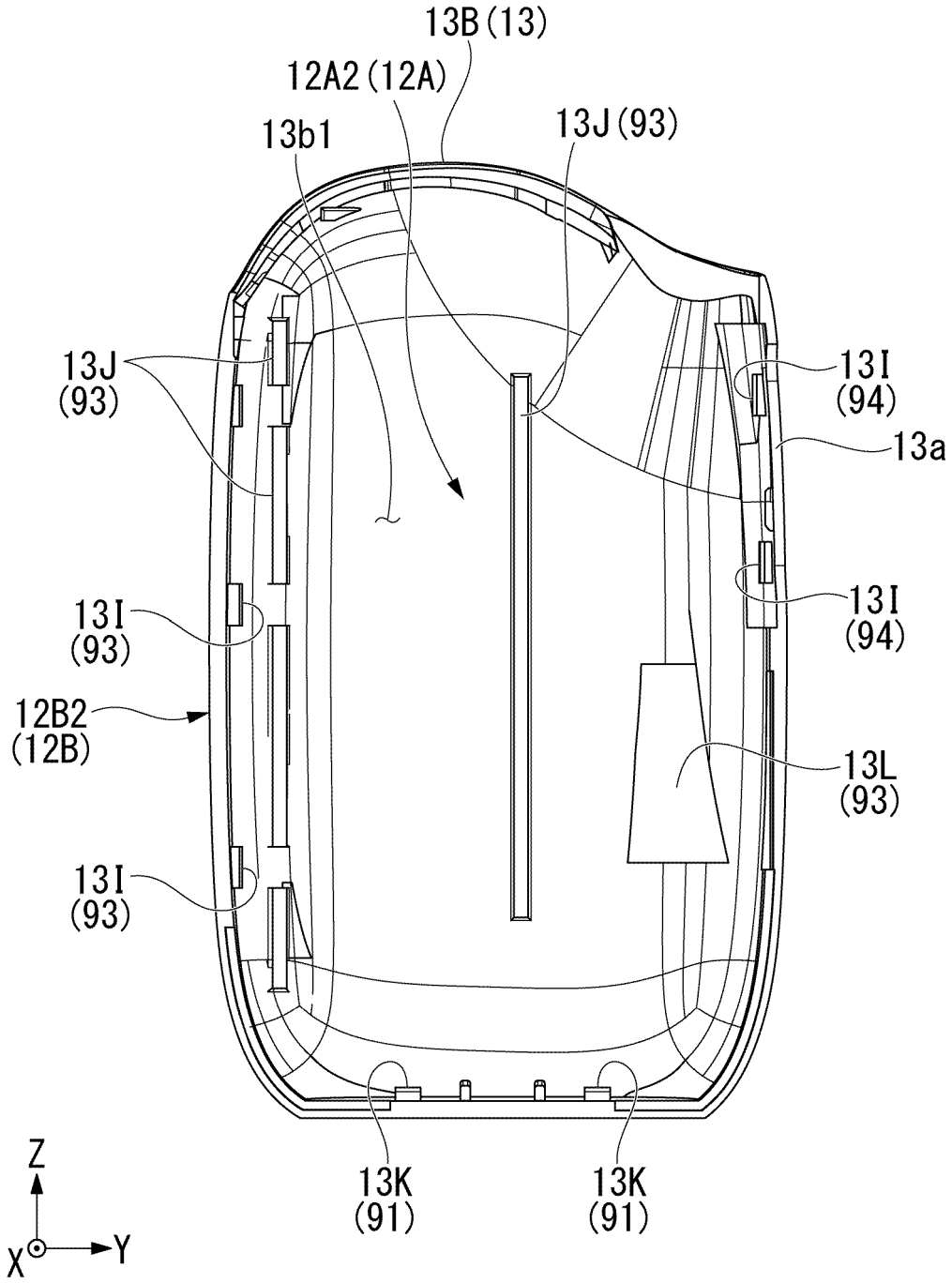

13B (13)
12A2 (12A)
13b1
13J (93)
13J
(93)
13I
(94)
13a
13I
(93)
13I
(94)
12B2
(12B)
13L
(93)
13I
(93)
13K
(91)
13K
(91)
Z
X
Y

FIG. 36

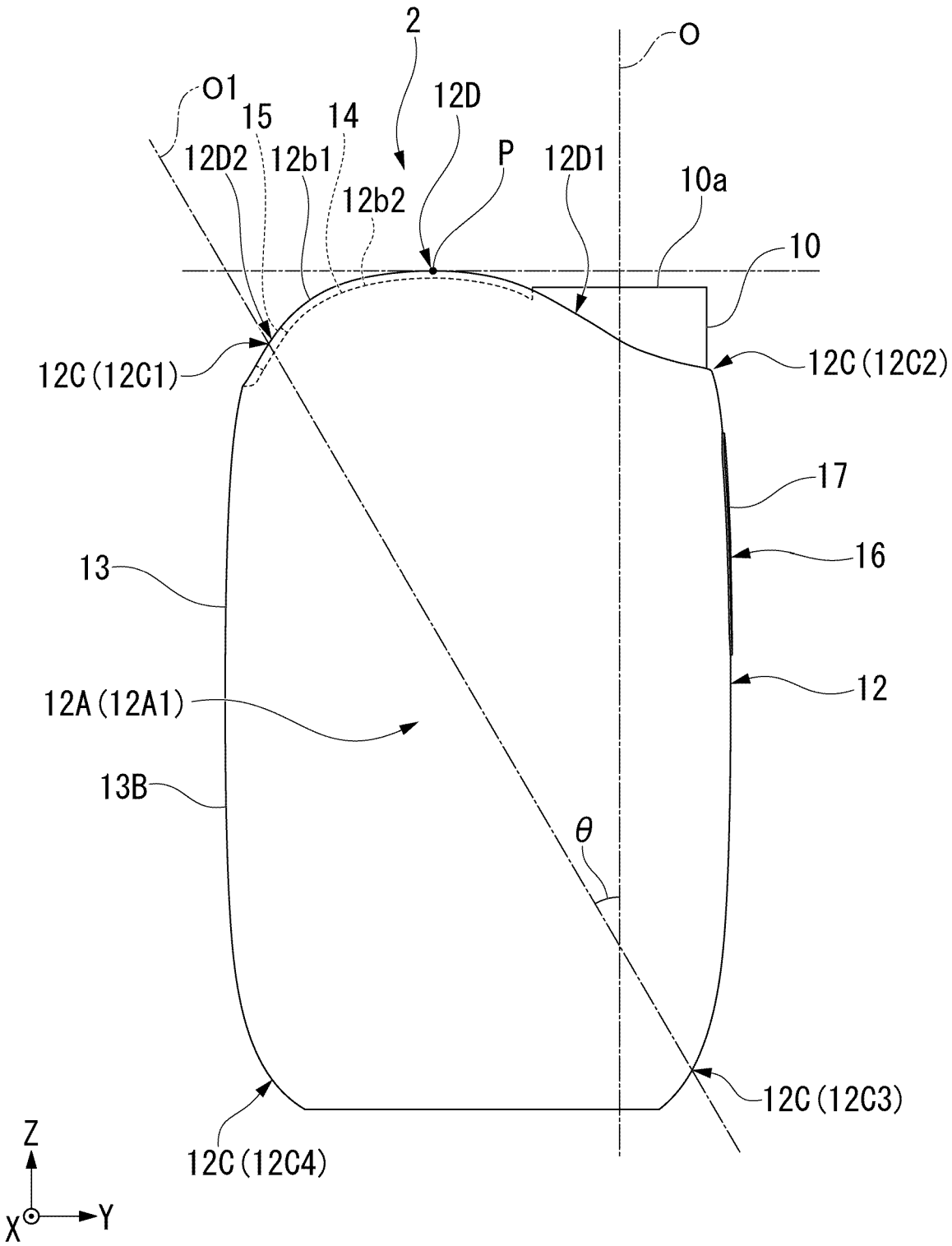

2
O
O1
15
14
12D
12D2
12b1
P
12D1
10a
12b2
10
12C (12C1)
12C (12C2)
17
16
13
12
12A (12A1)
13B
θ
12C (12C3)
12C (12C4)
Z
X
Y

FIG. 37

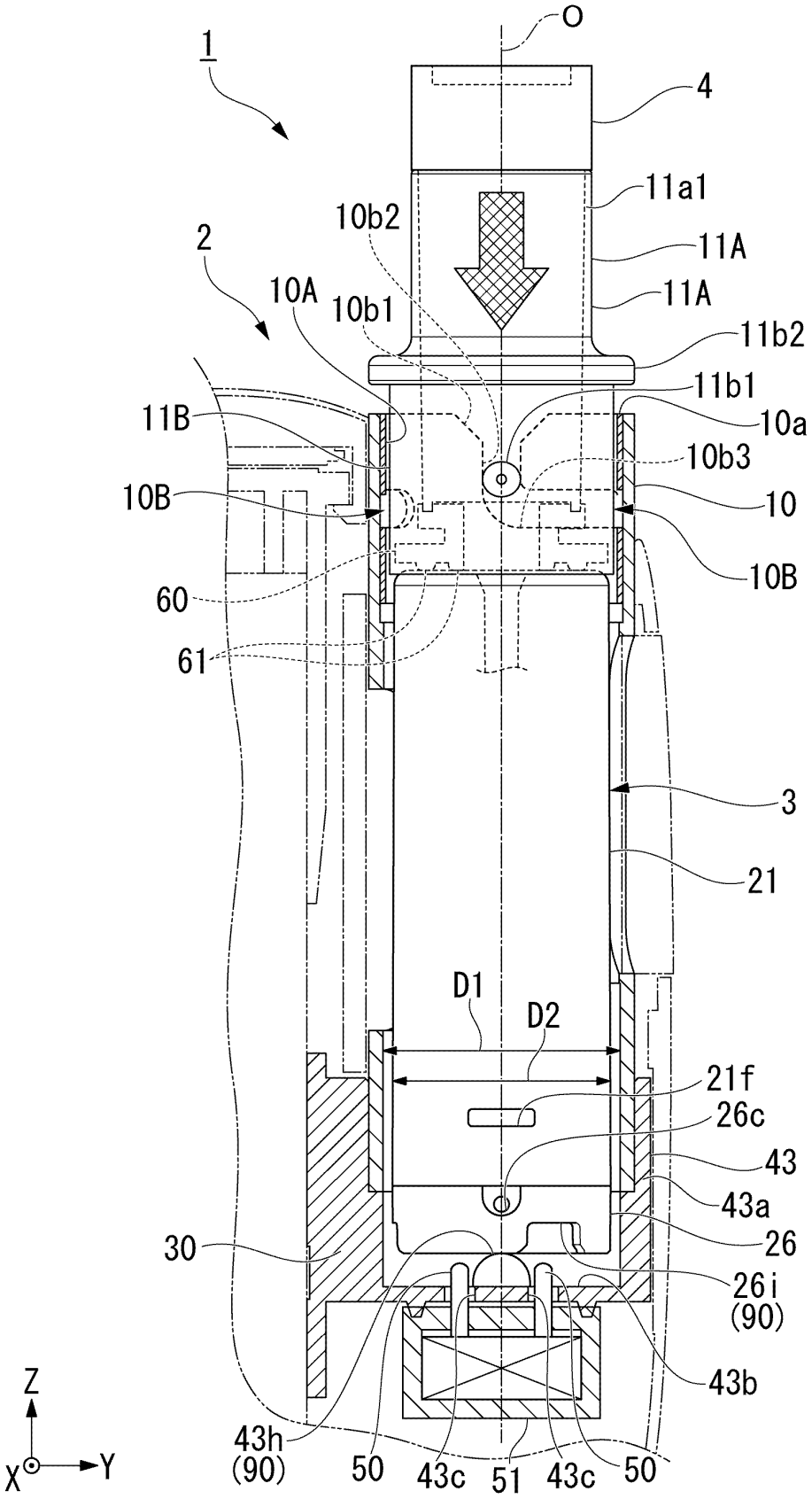

O
1
4
11a1
10b2
2
11A
10A
10b1
11A
11b2
11b1
11B
10a
10b3
10B
10
10B
60
61
3
21
D1
D2
21f
26c
43
43a
30
26
26i
(90)
43b
Z
X
Y
43h
(90)
50
43c
51
43c
50

FIG. 38

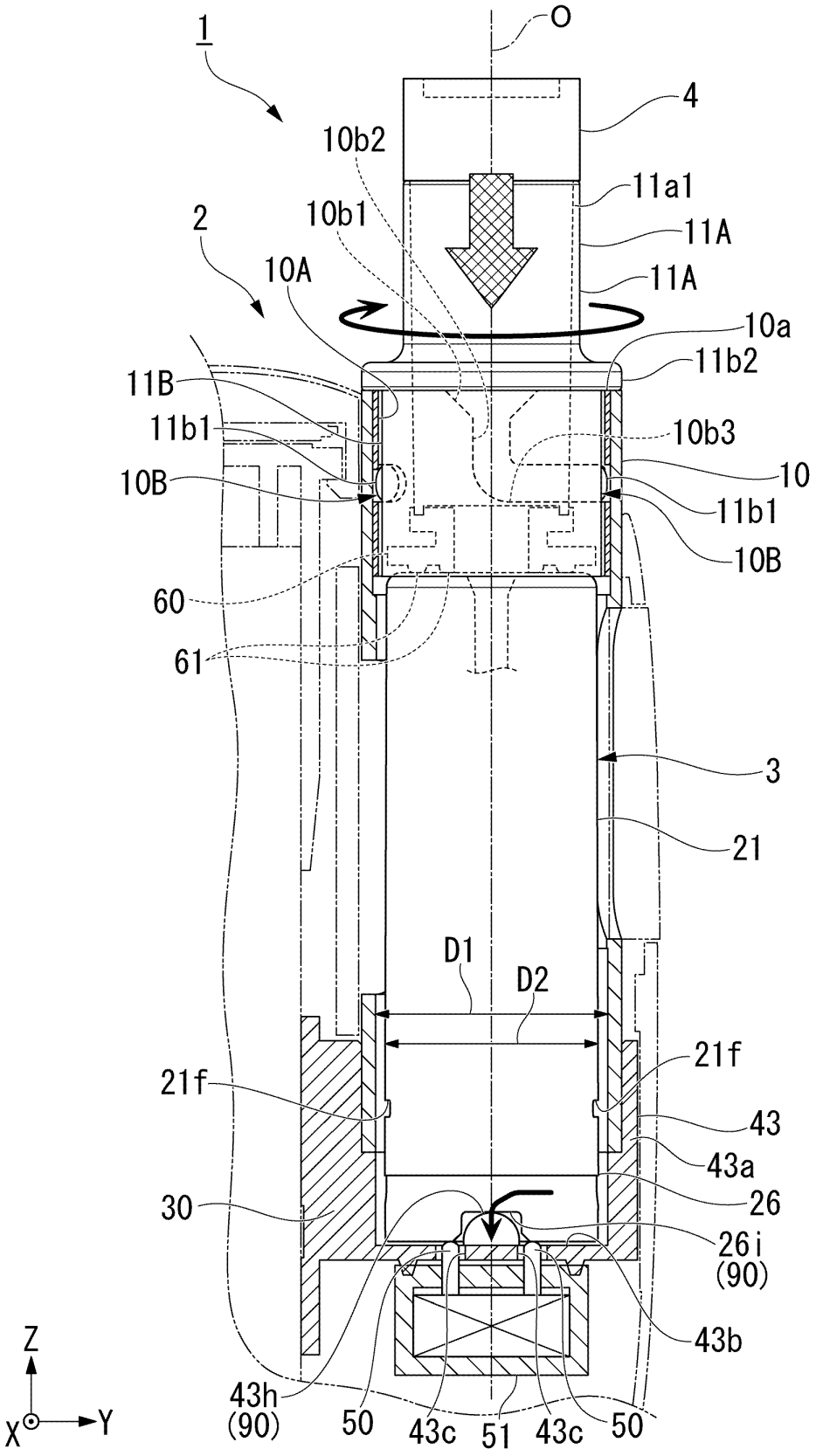

1
O
4
10b2
11a1
10b1
11A
2
10A
11A
10a
11b2
11B
11b1
10b3
10
10B
11b1
10B
60
61
3
21
D1
D2
21f
21f
43
43a
26
30
26i
(90)
43b
Z
X
Y
43h
(90)
50
43c
51
43c
50

FIG. 39

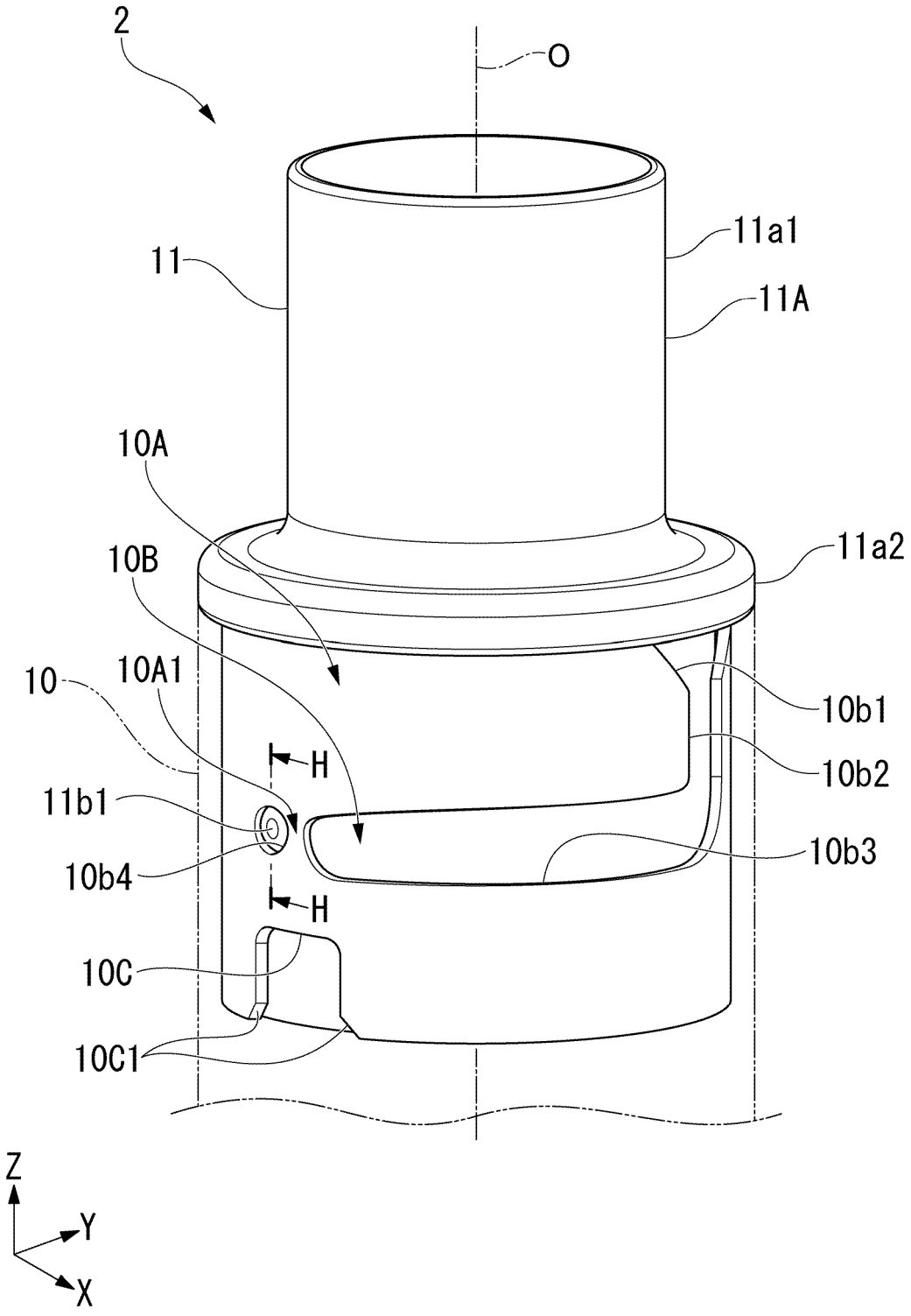

2
O
11
11a1
11A
10A
10B
11a2
10
10A1
10b1
H
10b2
11b1
10b3
10b4
H
10C
10C1
Z
Y
X

FIG. 40

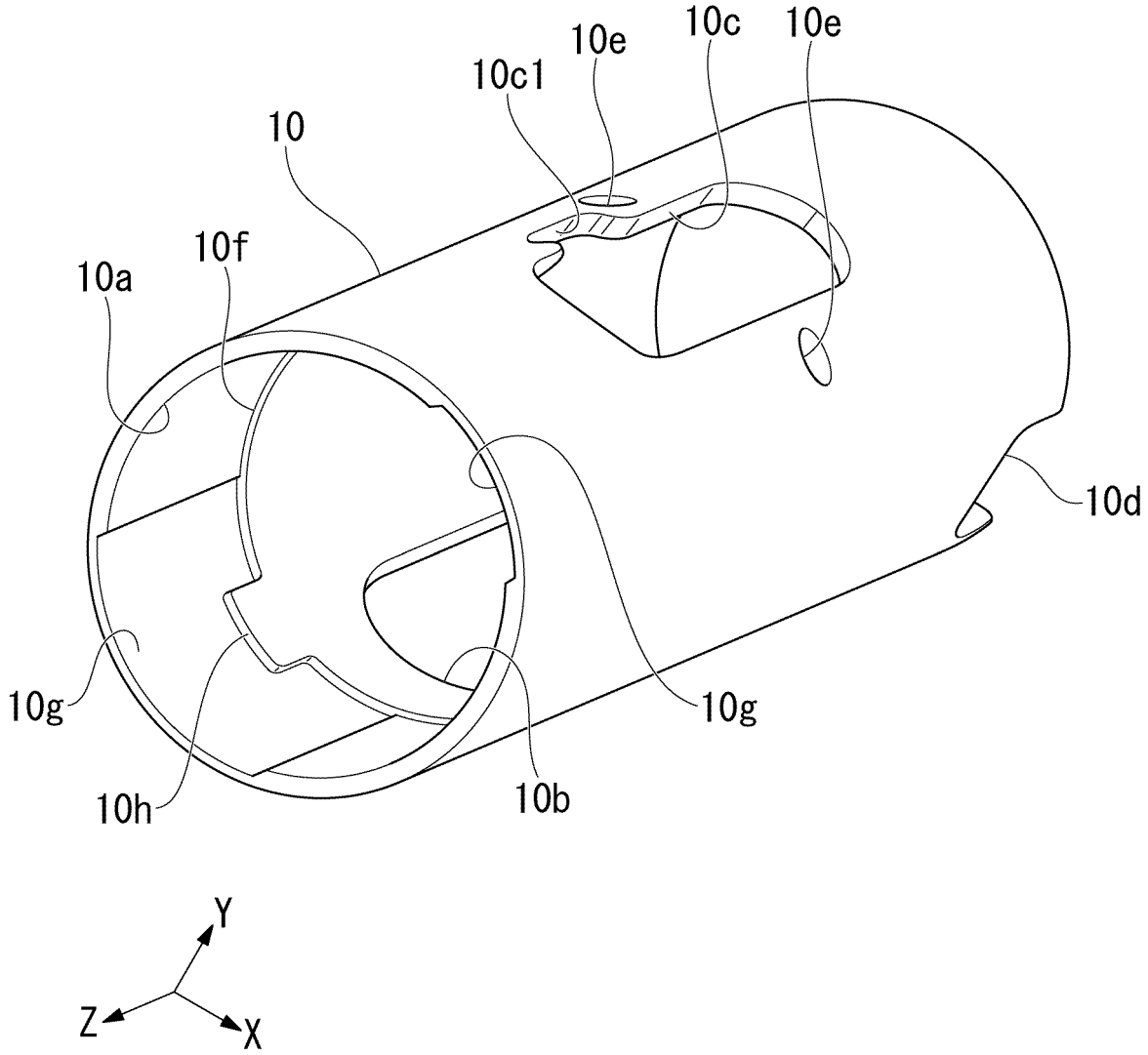
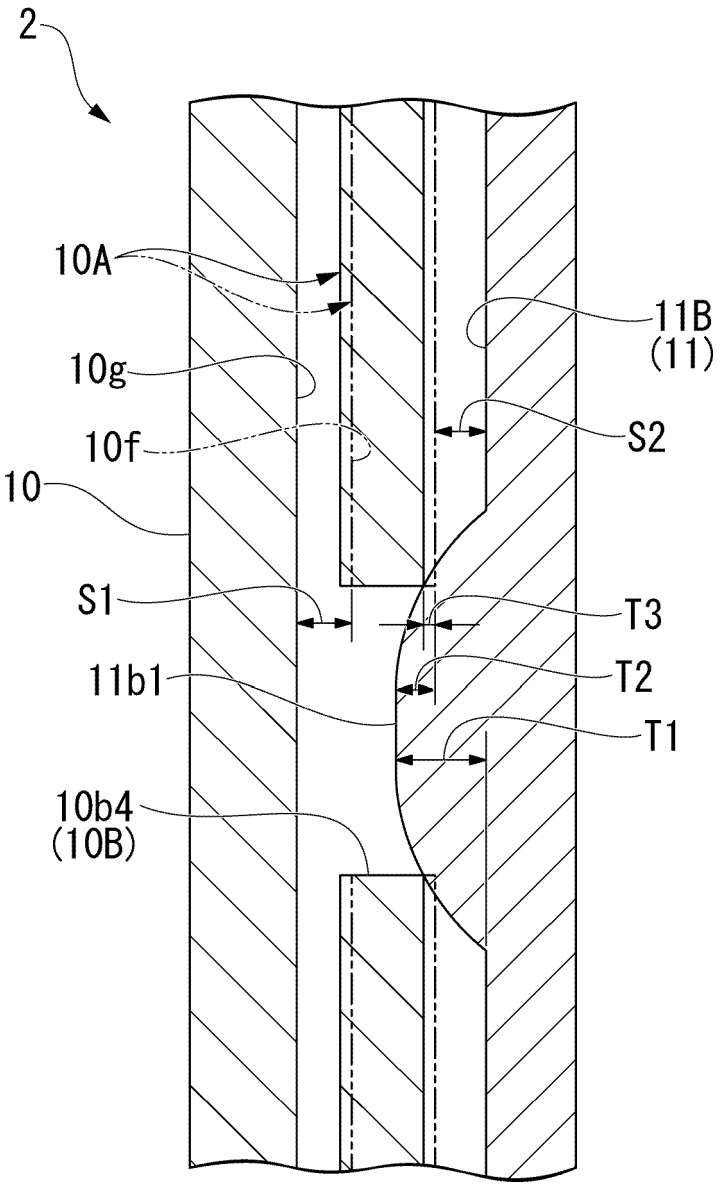


FIG. 41



INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2020/026787

A. CLASSIFICATION OF SUBJECT MATTER
Int. Cl. A24F40/42(2020.01)i
FI: A24F40/42

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
Int. Cl. A24F40/42

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	1971-2020
Registered utility model specifications of Japan	1996-2020
Published registered utility model applications of Japan	1994-2020

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2019-506894 A (RAI STRATEGIC HOLDINGS INC.) 14 March 2019, paragraphs [0065]-[0069], [0093]-[0095], fig. 1, 2	1-15
Y	US 2016/0233705 A1 (KIMREE HI-TECH INC.) 11 August 2016, paragraphs [0039]-[0055], fig. 1-4, 7-9	1-15
Y	JP 2019-526241 A (FONTEM HOLDINGS 1 B. V.) 19 September 2019, paragraphs [0042], [0043], fig. 2A-2B	4-14
Y	JP 6532076 B1 (JAPAN TOBACCO INC.) 19 June 2019, paragraphs [0089], [0193], fig. 2	13-14

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

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Date of the actual completion of the international search	Date of mailing of the international search report
15.09.2020	29.09.2020
Name and mailing address of the ISA/ Japan Patent Office 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan	Authorized officer Telephone No.

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/JP2020/026787

Patent Documents referred to in the Report	Publication Date	Patent Family	Publication Date
JP 2019-506894 A	14.03.2019	US 2017/0181471 A1 paragraphs [0064]-[0068], [0092]-[0094], fig. 1, 2 WO 2017/115277 A1 EP 3397097 A1 CN 108697165 A KR 10-2018-0108613 A	
US 2016/0233705 A1	11.08.2016	WO 2015/042812 A1 CN 105592729 A	
JP 2019-526241 A	19.09.2019	US 2018/0020728 A1 paragraphs [0042], [0043], fig. 2A-2B WO 2018/020401 A1 EP 3487565 A1 KR 10-2019-0033081 A CN 109789282 A	
JP 6532076 B1	19.06.2019	(Family: none)	

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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 10251425 B **[0004]**