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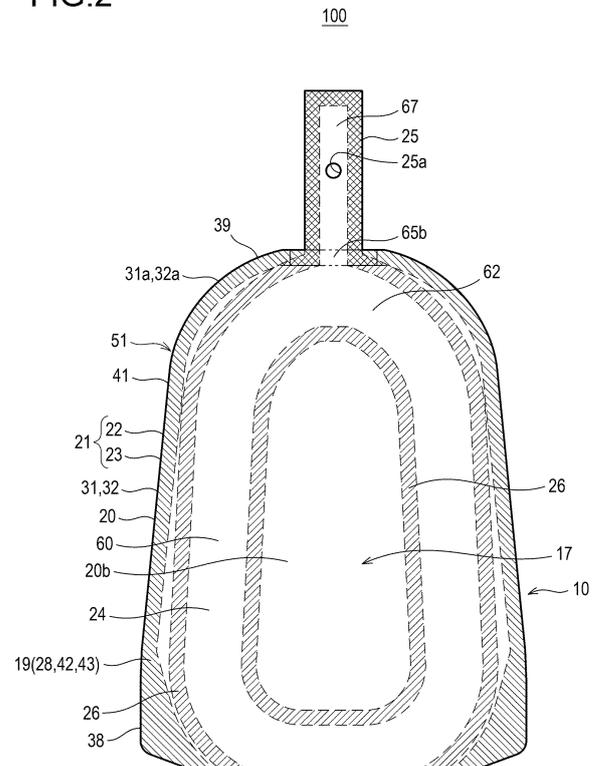
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(54) **SHEET MATERIAL CONTAINER**

(57) A sheet member container (100) includes a container main body (20), an extending piece (25), a containing portion (17), a filling port (15c), a bag-body forming sheet member (21), and also includes a bag body (40) surrounding the containing portion (17). The bag-body forming sheet member (21) includes a bag-body sealing portion (26) and a non-attached region (24), and also includes a filling portion (60) that can be filled with a filler. The extending piece (25) includes an inlet (25a) through which the filler is inputted into the filling portion (60). The sheet member container (100) includes a peripheral edge sealing portion (42) in which one or more sheet members are folded and in which peripheral edge portions of a sheet member of an innermost layer included in the one or more sheet members are attached to each other, the peripheral edge sealing portion (42) defines the containing portion (17), the peripheral edge sealing portion (42) has a portion disposed in a region outside the inlet (25a) in the extending piece (25), and the containing portion (17) is sealed from an external space except for the filling port (25a).

FIG.2



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Description

TECHNICAL FIELD

[0001] The present invention relates to a sheet member container and a manufacturing method of a contents-containing sheet member container.

BACKGROUND ART

[0002] For example, Patent Document 1 describes a sheet member container having a structure in which a plurality of films are stacked and a filler such as air is contained between layers of the films. The sheet member container of Patent Document 1 includes a container including a containing portion that accommodates contents, a bag body that covers the container (described as a cover body in the same document), a bag-body forming sheet member 21 that constitutes the bag body (described as a cover body forming sheet member in the same document), and an extending piece extending from the container.

[0003] The bag-body forming sheet member includes an attached portion in which the plurality of film layers are attached together (described as a film region in the same document) and a non-attached region in which a plurality of film layers are partially not attached (described as a filler containing portion in the same document). The filler is contained between layers of the plurality of film layers in the non-attached region to form a filling portion, and the extending piece includes an inlet through which the filler is inputted into the filling portion.

[0004] In the sheet member container of Patent Document 1, the containing portion and an external space of the sheet member container communicate to each other at a base end of the extending piece.

CITATION LIST

PATENT DOCUMENT

[0005] Patent Document 1: Japanese Patent No. 6193535

SUMMARY OF THE INVENTION

[0006] The present invention relates to a sheet member container configured to include one or more sheet members including a bag-body forming sheet member including an outer film layer and an inner film layer that are stacked on each other, the sheet member container including: a container main body, an extending piece extending from the container main body, a containing portion that is formed continuously over an interior of the container main body and an interior of the extending piece, the containing portion storing contents, a filling port that communicates between a portion of the interior of the container main body in the containing portion and

an external space of the sheet member container, and a bag body that is made out of the bag-body forming sheet member, the bag body surrounding the containing portion, in which the bag-body forming sheet member includes a bag-body sealing portion that is a portion in which the outer film layer and the inner film layer are attached together, and a non-attached region where the outer film layer and the inner film layer are partially not attached, the bag-body forming sheet member also including a filling portion that allows a filler to be contained between layers of the outer film layer and the inner film layer in the non-attached region, the extending piece includes an inlet through which the filler is inputted into the filling portion, the sheet member container includes a peripheral edge sealing portion in which the one or more sheet members are folded and in which peripheral edge portions of a sheet member of an innermost layer included in the one or more sheet members are attached to each other, the peripheral edge sealing portion defines the containing portion, the peripheral edge sealing portion has a portion disposed in a region outside the inlet in the extending piece, and the containing portion is sealed from the external space except for the filling port.

[0007] The present invention also relates to a method of manufacturing a contents-containing sheet member container, including a preparation step of preparing, as the sheet member container, the sheet member container of the present invention, a preliminary step of performing, for the containing portion, at least one of a degassing treatment, and a purging treatment using an inert gas, a contents filling step of filling the containing portion with the contents, and a filler filling step of putting the filler between layers of the outer film layer and the inner film layer in the non-attached region, the steps being performed in this order.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008]

Fig. 1 is an elevation view illustrating a sheet member container according to an exemplary embodiment.

Fig. 2 is a back elevation view of the sheet member container according to the exemplary embodiment.

Fig. 3 is an exploded perspective view illustrating an outer film layer and inner film layer of a bag-body forming sheet member.

Fig. 4 is an exploded perspective view illustrating an inner-bag forming sheet member and the bag-body forming sheet member.

Fig. 5 is a plane view illustrating a container forming sheet member including the inner-bag forming sheet member and the bag-body forming sheet member that are stacked on each other.

Fig. 6 is a back elevation view illustrating a state where the sheet member container according to the exemplary embodiment is filled with contents.

Figs. 7A and 7B are views for explaining a manufac-

turing method of the sheet member container according to the exemplary embodiment, in which Fig. 7A illustrates a state where a valve part is located at a top dead center, and Fig. 7B illustrates a state where the valve part is located at a bottom dead center.

Figs. 8A, 8B and 8C are views illustrating a series of steps in the manufacturing method of the sheet member container according to the exemplary embodiment, in which Figs. 8A and 8C illustrate a state where a containing portion is degassed, and Fig. 8B illustrates a state where the containing portion is filled with an inert gas.

Figs. 9A and 9B are views illustrating a series of steps in the manufacturing method of the sheet member container according to the exemplary embodiment, in which Fig. 9A illustrates a state where the containing portion is filled with the contents, and Fig. 9B illustrates a state where a filling portion is filled with filler.

Figs. 10A and 10B are views for explaining the manufacturing method of the sheet member container according to the exemplary embodiment, in which Fig. 10A illustrates a state immediately before the filling portion is filled with the filler, and Fig. 10B illustrates a state where the filling portion is filled with the filler.

Fig. 11A is a cross-sectional view taken along the line A-A illustrated in Fig. 10B, and Fig. 11B is a cross-sectional view taken along the line B-B illustrated in Fig. 10B.

Figs. 12A, 12B, 12C and 12D are plane views illustrating an extending piece and a peripheral structure of the piece, in which Fig. 12A illustrates Modification 1, Fig. 12B illustrates Modification 2, Fig. 12C illustrates Modification 3, and Fig. 12D illustrates Modification 4.

Fig. 13 is a view for explaining a manufacturing method of a sheet member container according to Modification 5 of the exemplary embodiment.

DESCRIPTION OF THE EMBODIMENTS

[0009] According to study by the present inventors, in a sheet member container described in Patent Document 1, there is room for improvement in terms of a structure that suppresses deterioration (degradation) of contents.

[0010] The present invention relates to a sheet member container that makes it possible to more reliably suppress the deterioration (degradation) of the contents, and a manufacturing method of a contents-containing sheet member container.

[0011] Below, preferred exemplary embodiments of the present invention will be described with reference to the drawings. Note that, in all the drawings, the same reference characters are attached to similar constituent components, and detailed explanation will not be repeated. Also, Figs. 8A to 9B illustrate a state of a sheet mem-

ber container 100 in each manufacturing step with a cross section at a position corresponding to the line A-A illustrated in Fig. 1. Also, Figs. 10A and 10B illustrate an extending piece 25 in a cross section along an extending direction of the extending piece 25.

[0012] The sheet member container 100 according to the present exemplary embodiment is a sheet member container configured to include one or more sheet members including a bag-body forming sheet member 21 including an outer film layer 22 and an inner film layer 23 that are stacked on each other. The sheet member container includes a container main body 20, the extending piece 25 extending from the container main body 20, a containing portion 17 that is formed continuously over an interior of the container main body 20 and an interior of the extending piece 25, the containing portion 17 storing contents, a filling port 15c that communicates between a portion of the interior of the container main body 20 in the containing portion 17 and an external space of the sheet member container 100, and a bag body 10 that is made out of the bag-body forming sheet member 21 and that surrounds the containing portion 17.

[0013] The bag-body forming sheet member 21 includes a bag-body sealing portion 26 that is a portion in which the outer film layer 22 and the inner film layer 23 are attached together, and a non-attached region 24 in which the outer film layer 22 and the inner film layer are partially not attached, and also includes a filling portion 60 that allows a filler to be contained between layers of the outer film layer 22 and the inner film layer 23 in the non-attached region 24.

[0014] The extending piece 25 includes an inlet 25a through which the filler is inputted into the filling portion 60.

[0015] The sheet member container 100 includes a peripheral edge sealing portion 42 in which the one or more sheet members are folded and in which peripheral edge portions of a sheet member of an innermost layer included in the one or more sheet members are attached to each other.

The peripheral edge sealing portion 42 defines the containing portion 17, the peripheral edge sealing portion 42 has a portion disposed in a region outside the inlet 25a in the extending piece 25, and the containing portion 17 is sealed from the external space except for the filling port 15c.

[0016] When filling the containing portion 17 with contents 18, oxygen is suctioned from the containing portion 17 before the containing portion 17 is filled with the contents 18. This can suppress deterioration (degradation) of the contents 18 contained in the containing portion 17 due to contact with oxygen.

[0017] Here, according to the present exemplary embodiment, since the containing portion 17 is sealed from the external space except for the filling port 15c, the containing portion 17 can be sufficiently degassed by suctioning through the filling port 15c before the filler is contained in the filling portion 60. This can more reliably sup-

press the deterioration (degradation) of the contents 18 contained in the containing portion 17 due to contact with oxygen retained in the containing portion 17.

[0018] Furthermore, according to the present exemplary embodiment, the peripheral edge sealing portion 42 has a portion disposed in the region outside the inlet 25a in the extending piece 25, and the containing portion 17 is sealed from the external space except for the filling port 15c. Therefore, the containing portion 17 of the sheet member container 100 before the filler is contained in the filling portion 60 can be suitably filled with the contents 18 through the filling port 15c. Consequently, the contents 18 can be contained in the containing portion 17 while sufficiently expanding the containing portion. Therefore, the containing portion 17 can be smoothly filled with the contents 18.

[0019] In the present invention, types of contents 18 are not specifically limited. The contents 18 include, for example, shampoo, conditioner, body soap, detergent, bleach, softener, beverage, and food, and also include engine oil, chemical agent, and the like.

[0020] In addition, the contents 18 may be a liquid (including a form of paste or a form of foam), or may be a solid (for example, in a form of particles (including a form of grains) or in a form of powder).

[0021] In the case of this exemplary embodiment, the contents 18 are, for example, liquid.

[0022] In a case where the contents 18 are liquid, the viscosity of the contents 18 at, for example, 30°C preferably falls in a range of equal to or more than 1 mPa.s and equal to or less than 120000 mPa.s (measured by a B-type viscometer (for example, viscometer TV-10 or viscometer TVB-10 made by Toki Sangyo Co., LTD. or the like)), and more preferably falls in a range of equal to or more than 1 mPa.s and equal to or less than 60000 mPa.s.

[0023] The filler contained in the filling portion 60 includes a fluid (gas or liquid), a solid (for example, a powder-granular material, resin pellets, or the like), or a semi-solid (for example, blowing agent or the like), and is preferably a compressible fluid such as air.

[0024] In this exemplary embodiment, the positional relationship (up-down relationship or the like) of each constituent component of the sheet member container 100 is described in terms of a positional relationship in a state where the sheet member container 100 is caused to stand independently as illustrated in Fig. 6, unless otherwise specified. However, the positional relationship in this description does not necessarily match the positional relationship at the time of using or manufacturing the sheet member container 100.

[0025] Additionally, in connection with the positional relationship of respective constituent components of the sheet member container 100, the positional relationship illustrated in each of the drawings may be described.

[0026] The front side (side toward a viewer of a paper surface in Fig. 1) of the sheet member container 100 is referred to as a forward direction; the back side (side

away from the viewer of the paper surface in Fig. 1) of the sheet member container 100 is referred to as a rearward direction; the left side (left side in Fig. 1) as viewed from the front surface of the sheet member container 100 is referred to as a leftward direction; and the right side (right side in Fig. 1) as viewed from the front surface of the sheet member container 100 is referred to as a rightward direction. Furthermore, the left-right direction of the sheet member container 100 may be referred to as a widthwise direction (width direction).

[0027] In the case of this exemplary embodiment, the container main body 20 is formed into a bag shape and includes a body portion 11, a top portion 14 disposed on an upper side of the body portion 11, and a bottom portion 13 disposed on a lower side of the body portion 11. However, the present invention is not limited to this example, and the container main body 20 does not have to include the top portion 14 or does not have to include the bottom portion 13. As illustrated in Fig. 6, in a state where the filling portion 60 is filled with the filler, the sheet member container 100 can stand independently with the bottom portion 13 being disposed on a horizontal mounting surface.

[0028] The container main body 20 surrounds the containing portion 17 (surrounds an after-mentioned inner bag 40 in the case of this exemplary embodiment). The container main body 20 constitutes a shell of the sheet member container 100. Below, the body portion 11, top portion 14 and bottom portion 13 of the container main body 20 may be referred to as the body portion 11, top portion 14 and bottom portion 13 of the sheet member container 100.

[0029] As illustrated in Figs. 1 and 2, the body portion 11 includes a first main surface portion 20a (front panel) and a second main surface portion 20b (rear panel), which are opposed to each other with the containing portion 17 being disposed therebetween. The first main surface portion 20a is located on a front side, and the second main surface portion 20b is located on a back side.

[0030] The first main surface portion 20a is formed, for example, in left-right symmetry, and the second main surface portion 20b is also formed, for example, in left-right symmetry.

[0031] The container main body 20 is formed by folding a container forming sheet member 51 (see Fig. 5) and attaching peripheral edge portions of this container forming sheet member 51 to each other (attaching the portions to each other through an inner-bag forming sheet member 41 that constitutes the inner bag 40 in the case of this exemplary embodiment).

[0032] Also, in the case of this exemplary embodiment, the extending piece 25 extends from an upper end of the container main body 20. More specifically, a portion of the extending piece 25 on the front side extends, for example, upward from an upper end of the second main surface portion 20b of the body portion 11. A portion of the extending piece 25 on the back side extends, for example, upward from an upper end of the top portion 14.

In other words, the extending piece 25 extends from a boundary between the body portion 11 and the top portion 14.

[0033] A widthwise dimension of the extending piece 25 is, for example, substantially constant in an up-down direction. Alternatively, the widthwise dimension of the extending piece 25 may vary depending on a position in the up-down direction.

[0034] Further, in the case of this exemplary embodiment, the sheet member container 100 further includes the inner bag 40 disposed inside the bag body 10, and the inner bag 40 is made out of the inner-bag forming sheet member 41 that is a sheet member of the innermost layer included in the one or more sheet members that constitute the sheet member container 100. Therefore, in the case of this exemplary embodiment, the peripheral edge sealing portion 42 in which the peripheral edge portions of the sheet member of the innermost layer are attached to each other is a sealing portion in which the peripheral edge portions of the inner-bag forming sheet member 41 are attached to each other.

[0035] More specifically, the inner bag 40 is formed, for example, by attaching portions in the peripheral edge portions of the inner-bag forming sheet member 41 (see Fig. 4) to each other. That is, the bag-shaped inner bag 40 is formed by folding the inner-bag forming sheet member 41 and attaching the peripheral edge portions of the inner-bag forming sheet member 41 to each other. As described above, the inner bag 40 is covered with the container main body 20. The inner bag 40 includes the containing portion 17 in the interior of the inner bag 40.

[0036] The shape of the inner bag 40 is not specifically limited. However, in the case of this exemplary embodiment, the inner bag 40 is formed into a shape similar to that of the container main body 20. Alternatively, the shape of the inner bag 40 may be smaller than that of the container main body 20.

[0037] As illustrated in Fig. 8B, the inner bag 40 includes a first surface 40a located on the front side and a second surface 40b located on the back side with the containing portion 17 being disposed between the surfaces.

[0038] The sheet member container 100 includes a spout member 15 including a discharge port that allows the contents 18 to be discharged from the containing portion 17, and the discharge port also serves as the filling port 15c.

[0039] More specifically, the spout member 15 is provided, for example, so as to penetrate through the top portion 14.

[0040] For example, as illustrated in Figs. 7A and 7B, the spout member 15 includes a cylindrical outlet cylinder portion 15a through which the contents 18 are passed, and a plate-shaped plate portion 15b provided at one end (lower end) of the outlet cylinder portion 15a in an axial direction so as to be perpendicular to this axial direction, the portions being provided in an integral manner. Threads are formed on an outer peripheral surface of the

outlet cylinder portion 15a, and the outlet cylinder portion 15a has an external thread shape. The outlet cylinder portion 15a penetrates through the top portion 14 in the up-down direction and protrudes upward from the top portion 14.

[0041] The plate portion 15b overhangs like a flange from a lower end of the outlet cylinder portion 15a to the periphery. A planar shape of the plate portion 15b is not specifically limited, and an example of the shape is a substantially square shape.

[0042] For example, on the inner-bag forming sheet member 41, the plate portion 15b is provided on an inner surface or an outer surface and at a portion of the body portion 11 disposed along the top portion 14. For example, the plate portion 15b is attached to the inner surface (lower surface) of the inner-bag forming sheet member 41 in the top portion 14. Consequently, the plate portion 15b is attached to the bag-body forming sheet member 21 through the inner-bag forming sheet member 41. However, the present invention is not limited to this example, and the plate portion 15b may be attached directly to the inner film layer 23 of the bag-body forming sheet member 21. An attached portion between the plate portion 15b and the inner-bag forming sheet member 41 circularly surrounds the periphery of the outlet cylinder portion 15a in planar view. The attached portion between the plate portion 15b and the inner-bag forming sheet member 41 is formed, for example, in a region that overlaps with the bag-body sealing portion 26 (see Fig. 5) having a circular ring shape and located around an insert hole 21a.

[0043] An opening in the outlet cylinder portion 15a on an upper end side is a discharge port through which the contents 18 are discharged from the containing portion 17, the port also serving as the filling port 15c. Therefore, a portion of the interior of the container main body 20 in the containing portion 17 and the external space of the sheet member container 100 communicate to each other through the opening in the outlet cylinder portion 15a on the upper end side.

[0044] Also, in the plate portion 15b, an opening is formed coaxially with an inner space of the outlet cylinder portion 15a. The contents 18 in the containing portion 17 are discharged to outside through the opening in the plate portion 15b and the filling port 15c.

[0045] The shape of the filling portion 60 is not specifically limited. For example, as illustrated in Figs. 1, 2 and 5, the filling portion includes a first filling portion 61 that is formed circularly along a peripheral edge portion of the first main surface portion 20a, a second filling portion 62 that is formed circularly along a peripheral edge portion of the second main surface portion 20b, a third filling portion 63 that is formed circularly along a peripheral edge portion of the bottom portion 13, and a fourth filling portion 64 formed circularly around the outlet cylinder portion 15a in the top portion 14.

[0046] The first filling portion 61 is connected to the fourth filling portion 64, and also connected to the third filling portion 63. The second filling portion 62 is connect-

ed to the third filling portion 63.

[0047] The sheet member container 100 includes the filling portion 60 thus entirely formed in an integrated manner. In the state where the filling portion 60 is filled with the filler, structural strength is sufficiently obtained substantially over the whole container main body 20.

[0048] Alternatively, in the present invention, the sheet member container 100 may include a plurality of filling portions 60 that are independent of one another.

[0049] Further, in the case of this exemplary embodiment, the filling portion 60 includes a first extending filling portion 66 disposed on one side and a second extending filling portion 67 disposed on the other side with the containing portion 17 of the interior of the extending piece 25 being disposed between the extending filling portions in a thickness direction of the extending piece 25.

[0050] In the case of this exemplary embodiment, the first extending filling portion 66 and the fourth filling portion 64 are connected via an interfacial connecting portion 65a, and the second extending filling portion 67 and the second filling portion 62 are connected via an interfacial connecting portion 65b.

[0051] More specifically, a lower edge of the first extending filling portion 66 is connected to an upper edge of the fourth filling portion 64, and a lower edge of the second extending filling portion 67 is connected to an upper edge of the second filling portion 62.

[0052] Here, for example, the inlet 25a is formed in a portion of the outer film layer 22 that defines at least one of the first extending filling portion 66 and the second extending filling portion 67.

[0053] In the case of this exemplary embodiment, for example, as illustrated in Fig. 2, the inlet 25a is disposed in a central position of the outer film layer 22 in the widthwise direction of the second extending filling portion 67, the position corresponding to a central position in an extending direction of the second extending filling portion 67.

[0054] Alternatively, for example, in the outer film layer 22, the inlet 25a may be formed in the portion that defines the first extending filling portion 66, or may be formed in both of the portion that defines the first extending filling portion 66 and the portion that defines the second extending filling portion 67.

[0055] As illustrated in Fig. 3, the bag-body forming sheet member 21 is formed by stacking on each other and attaching to each other, the outer film layer 22 that constitutes an outer surface side of the container main body 20 and the inner film layer 23 that constitutes an inner surface side of the container main body 20. That is, as one example, in the case of this exemplary embodiment, the bag-body forming sheet member 21 includes two layers of film layers of the outer film layer 22 and the inner film layer 23. However, the present invention is not limited to this example, and the bag-body forming sheet member 21 may include a film layer, other than the outer film layer 22 and the inner film layer 23.

[0056] In the case of this exemplary embodiment, the

outer film layer 22 and the inner film layer 23 are formed into the same shape as each other. However, the present invention is not limited to this example, and the outer film layer 22 and the inner film layer 23 may have shapes different from each other. In the case of the different shapes, it is preferable that the outer film layer 22 has a shape larger than that of the inner film layer 23.

[0057] In the outer film layer 22 and the inner film layer 23, an insert hole is formed, into which the outlet cylinder portion 15a of the spout member 15 is inserted.

[0058] In the bag-body forming sheet member 21, the non-attached region 24 (see Fig. 5) is formed, in which the outer film layer 22 and the inner film layer 23 are partially not attached. For example, a non-attaching treatment is partially applied to a surface of either one of or both of the outer film layer 22 and the inner film layer 23, this surface facing a surface of the other one. The non-attaching treatment can be easily formed by applying a non-attaching agent (so-called adhesion inhibiting agent) to bring an adhesion inhibiting state. For the adhesion inhibiting agent, any agent may be used, provided that it can prevent the outer film layer 22 and the inner film layer 23 from being attached together. For the adhesion inhibiting agent, it is possible to preferably use, for example, printing ink, medium ink, ink dedicated to adhesion inhibition, or the like used in offset printing, flexography, and letterpress printing (relief printing). Alternatively, thermosetting ink or UV curable ink may be preferably used. A range in which the non-attaching treatment is applied is to be the non-attached region 24. The filler is contained in the non-attached region 24 to form the filling portion 60. However, the bag-body sealing portion 26 is not limited to be formed by the non-attaching treatment, and may be formed by heat sealing by use of a mold having a shape of the bag-body sealing portion 26.

[0059] The filling portion 60 is not necessarily formed in the whole non-attached region 24 and may be formed in some of a plurality of non-attached regions 24.

[0060] In Figs. 3 and 4, a region of the bag-body sealing portion 26 formed by attaching the outer film layer 22 and the inner film layer 23 to each other is provided with right-rising hatching for the sake of convenience.

[0061] In Fig. 5, in the container forming sheet member 51, a region where the outer film layer 22 and the inner film layer 23 are attached to each other to define the non-attached region 24, that is, a region where the bag-body sealing portion 26 is formed is provided with right-rising hatching for the sake of convenience.

[0062] Further, Fig. 4 illustrates, with a double-dashed chain line, a seal boundary line 21c that is a boundary line between a seal region of a peripheral edge portion of the bag-body forming sheet member 21 and a region other than the seal region. In the case of this exemplary embodiment, in a region outer than the seal boundary line 21c of the bag-body forming sheet member 21, the outer film layer 22 and the inner film layer 23 are attached to each other, and the inner film layer 23 and the inner-bag forming sheet member 41 are attached to each other

when formed into a bag.

[0063] As for a method of attaching the outer film layer 22 and the inner film layer 23 together, as one example, heat sealing, ultrasonic sealing, attaching with adhesive, or the like may be used.

[0064] In the case of this exemplary embodiment, each of the outer film layer 22 and the inner film layer 23 has a layer structure including a plurality of resin layers. Also, the inner-bag forming sheet member 41 also has a layer structure including a plurality of resin layers.

[0065] The bag-body forming sheet member 21 and the inner-bag forming sheet member 41 preferably include one type of resin layer based on polyethylene, polypropylene, polyester, or polyamide.

[0066] A material of the resin layer is not specifically limited. For example, it is preferable from the viewpoint of recyclability that the material is any one of a polyethylene material such as high-density polyethylene (HDPE), medium-density polyethylene (MDPE), low-density polyethylene (LDPE), linear low-density polyethylene (LLDPE), ultra-low density polyethylene (ULDPE), or ethylene-vinyl alcohol copolymer (EVOH); a polypropylene material such as stretched polypropylene (OPP), unstretched polypropylene (CPP), isotactic PP, syndiotactic PP, atactic PP, random PP, or block PP; a polyester material such as polyethylene terephthalate (PET), amorphous polyethylene terephthalate (amorphous PET), polybutylene terephthalate (PBT), polyethylene naphthalate (PEN), or polybutylene naphthalate (PBN); and a polyamide material such as stretched nylon (ONy), unstretched nylon (CNy), nylon 6, nylon 66, nylon 11, nylon 12, and MXD6. Among these materials, the above polyethylene material is particularly preferable.

[0067] As illustrated in Figs. 4 and 5, the inner-bag forming sheet member 41 is stacked on the bag-body forming sheet member 21, and as illustrated in Fig. 5, a peripheral edge portion of the inner film layer 23 and the peripheral edge portion of the inner-bag forming sheet member 41 are attached to each other, and a peripheral edge portion of the outer film layer 22 and the peripheral edge portion of the inner film layer 23 are attached to each other. Consequently, the bag-body forming sheet member 21 and the inner-bag forming sheet member 41 constitute the container forming sheet member 51.

[0068] Here, a sealing portion of the peripheral edge portion of the container forming sheet member 51 is referred to as a peripheral edge sealing portion 52. The peripheral edge sealing portion 52 includes a sealing portion (hereinafter, an inner-outer sealing portion 43) between the peripheral edge portion of the inner film layer 23 and the peripheral edge portion of the inner-bag forming sheet member 41, and a sealing portion (hereinafter, a main-body peripheral edge sealing portion 28) between the peripheral edge portion of the outer film layer 22 and the peripheral edge portion of the inner film layer 23.

[0069] In Fig. 5, a region where the peripheral edge sealing portion 52 is formed is provided with left-rising hatching. Also, in Fig. 5, left-rising hatching overlaps with

right-rising hatching in a region in which the region where the peripheral edge sealing portion 52 is formed overlaps with the region where the bag-body sealing portion 26 is formed.

5 **[0070]** As for a method of forming the peripheral edge sealing portion 52, as one example, heat sealing, ultrasonic sealing, attaching with adhesive, or the like may be used.

10 **[0071]** As illustrated in Fig. 5, the bag-body forming sheet member 21 includes, for example, a first sheet portion 31 that is a portion that constitutes the first main surface portion 20a, a second sheet portion 32 that is a portion that constitutes the second main surface portion 20b, a bottom forming sheet portion 38 that is a portion that constitutes the bottom portion 13, and a top forming sheet portion 39 that is a portion that constitutes the top portion 14.

15 **[0072]** The insert hole 21a into which the outlet cylinder portion 15a of the spout member 15 is inserted is formed in the top forming sheet portion 39.

20 **[0073]** In the case of this exemplary embodiment, the non-attached region 24 is formed into a shape that corresponds to the shape of the filling portion 60 of the sheet member container 100.

25 **[0074]** Here, in the case of this exemplary embodiment, as illustrated in Fig. 4, the bag-body forming sheet member 21 includes a first extending portion 22a disposed on one side and a second extending portion 22b disposed on the other side with the containing portion 17 of the interior of the extending piece 25 being disposed between the extending portions in the thickness direction of the extending piece 25.

30 **[0075]** The first extending portion 22a includes, for example, the outer film layer 22 and the inner film layer 23 and extends outward from the top forming sheet portion 39. The second extending portion 22b includes, for example, the outer film layer 22 and the inner film layer 23 and extends outward from the second sheet portion 32. The first extending portion 22a and the second extending portion 22b are formed, for example, into the same shape with the same dimension as each other. The planar shape of each of the first extending portion 22a and the second extending portion 22b is not specifically limited, and each extending portion is formed, for example, into a substantially rectangular shape that is long in one direction.

35 **[0076]** In a state where the bag-body forming sheet member 21 is developed (the state illustrated in Figs. 4 and 5), the first extending portion 22a extends upward from a central portion of the top forming sheet portion 39 in the width direction at an edge portion opposite to a side on which the top forming sheet portion 39 is connected to the first sheet portion 31, for example. Similarly, the second extending portion 22b extends downward from a central portion of the second sheet portion 32 in the width direction at an edge portion opposite to a side on which the second sheet portion 32 is connected to the bottom forming sheet portion 38, for example.

40 **[0077]** Further, in the case of this exemplary embodi-

ment, the inner-bag forming sheet member 41 includes a third extending portion 46a disposed on one side and a fourth extending portion 46b disposed on the other side with the containing portion 17 of the interior of the extending piece 25 being disposed between the extending portions in the thickness direction of the extending piece 25.

[0078] More specifically, the inner-bag forming sheet member 41 is formed into the same shape as that of the bag-body forming sheet member 21. The third extending portion 46a is a portion that corresponds to the first extending portion 22a (portion that overlaps with the first extending portion 22a). The fourth extending portion 46b is a portion that corresponds to the second extending portion 22b (portion that overlaps with the second extending portion 22b). Then, the extending piece 25 is formed by attaching respective peripheral edge portions of the first extending portion 22a to the fourth extending portion 46b to each other. Further specifically, the respective peripheral edge portions of the first extending portion 22a and the third extending portion 46a are attached to each other, the respective peripheral edge portions of the second extending portion 22b and the fourth extending portion 46b are attached to each other, and the respective peripheral edge portions of the third extending portion 46a and the fourth extending portion 46b are also attached to each other.

[0079] In addition, Fig. 4 illustrates a seal boundary line 41a of the inner-bag forming sheet member 41 with a double-dashed chain line for the sake of convenience. The seal boundary line 41a is a boundary line between a region where the inner-bag forming sheet member 41 is attached (sealed) to the bag-body forming sheet member 21 and another region in the inner-bag forming sheet member 41, and is also a boundary line between a region where the inner-bag forming sheet members 41 are attached to each other and another region in the inner-bag forming sheet member 41, when the sheet member container 100 is formed by using the container forming sheet member 51.

[0080] In the case of this exemplary embodiment, a position of the seal boundary line 41a and a position of the seal boundary line 21c correspond to each other (overlap with each other).

[0081] In a portion of the inner-bag forming sheet member 41 that overlaps with the top forming sheet portion 39, an insert hole 41b is formed, into which the outlet cylinder portion 15a of the spout member 15 is inserted.

[0082] The plate portion 15b of the spout member 15 is attached, for example, to an inner surface of the portion of the inner-bag forming sheet member 41 that overlaps with the top forming sheet portion 39. The outlet cylinder portion 15a protrudes to an outer surface side of a sheet through the insert hole 41b of the inner-bag forming sheet member 41 and the insert hole 21a of the top forming sheet portion 39.

[0083] Here, in the case of this exemplary embodiment, the sheet member container 100 includes a valve

part 90 mounted to the filling port 15c (see Figs. 7A and 7B). The valve part 90 is switchable to an opened state where the containing portion 17 communicates to the external space through the filling port 15c and a closed state where the containing portion 17 and the external space are isolated from each other.

[0084] More specifically, the valve part 90 includes an operating portion 92, a holding portion 93 that holds the operating portion 92 slidably in the up-down direction, and a spring member 97 that biases the operating portion 92 upward.

[0085] In the case of this exemplary embodiment, the holding portion 93 is, for example, detachably mounted to the outlet cylinder portion 15a of the spout member 15.

[0086] The holding portion 93 includes a first member 94 that is a cylindrical portion having an internal thread shape and detachably screwed into the outlet cylinder portion 15a of the spout member 15, and a second member 95 supporting the spring member 97.

[0087] The first member 94 is formed, for example, into a cylindrical shape in which the up-down direction is the axial direction. Each of an inner diameter and an outer diameter of the first member 94 reduces in three stages as being upward.

[0088] Furthermore, the first member 94 includes a protrusion 941 configured to close a second inflow portion 961b of an after-mentioned piston member 96b. The protrusion 941 closes the second inflow portion 961b in a state where the piston member 96b is pressed downward.

[0089] The second member 95 is formed, for example, into a substantially cylindrical shape in which the up-down direction is the axial direction.

[0090] The second member 95 fits, for example, into a lumen of the first member 94. Also, a lower end of the spring member 97 is inserted into a lumen in a lower end of the second member 95.

[0091] The second member 95 includes, for example, an inflow portion 95a that communicates between the containing portion 17 and an internal space of the second member 95.

[0092] The operating portion 92 includes the piston member 96b inserted into the lumen of the first member 94 and the lumen of the second member 95, and a lumen of the piston member 96b constitutes an internal flow path 961a.

[0093] Also, the second inflow portion 961b is formed in a lower end of the piston member 96b. In a state where the second inflow portion 961b and the protrusion 941 of the first member 94 are in contact with each other, the internal flow path 961a and the internal space of the second member 95 are isolated from each other, and in a state where the second inflow portion 961b and the protrusion 941 of the first member 94 are separated from each other, the internal flow path 961a and the internal space of the second member 95 communicate to each other.

[0094] The lower end of the piston member 96b is

mounted to an upper end of the spring member 97. More specifically, for example, the spring member 97 supports the piston member 96b and biases the piston member 96b upward. When the piston member 96b is pressed downward, the piston member 96b lowers against a biasing force of the spring member 97, and when the operation of pressing the piston member 96b is canceled, the piston member 96b rises according to the biasing force of the spring member 97.

[0095] In the case of this exemplary embodiment, an operation of pushing the piston member 96b toward a body portion 11 side can switch the valve part 90 to the opened state where the containing portion 17 communicates to the external space through the filling port 15c. More specifically, when the operation of pressing the piston member 96b is performed, the piston member 96b lowers toward a bottom dead center (position of the piston member 96b illustrated in Fig. 7B) against the biasing force of the spring member 97. Also, when the operation of pressing the piston member 96b is canceled, the piston member 96b rises to a top dead center (position of the piston member 96b illustrated in Fig. 7A) according to the biasing force of the spring member 97. In addition, the present invention is not limited to an example where a pressing direction in the pressing operation is downward (body portion 11 side), and a direction in which the piston member 96b is moved may be, for example, a horizontal direction or the like.

[0096] When the second inflow portion 961b of the piston member 96b is pressed to be lower than the protrusion 941 of the first member 94 by the operation of pressing the piston member 96b, the internal space of the second member 95 and the internal flow path 961a communicate to each other, and the containing portion 17 and the external space further communicate to each other. That is, in the case of this exemplary embodiment, an operation of opening the operating portion 92 is a pressing operation of lowering the second inflow portion 961b of the piston member 96b to a bottom dead center side below the protrusion 941 of the first member 94.

[0097] Further, canceling of the pressing operation of the piston member 96b can switch the valve part 90 to the closed state where the containing portion 17 and the external space are isolated from each other.

[0098] More specifically, the rising of the piston member 96b brings the state where the second inflow portion 961b of the piston member 96b and the protrusion 941 of the first member 94 are in contact with each other, the internal space of the second member 95 and the internal flow path 961a are isolated from each other, and the containing portion 17 and the external space are further isolated from each other. That is, in the case of this exemplary embodiment, an operation of closing the operating portion 92 is the canceling of the pressing operation. The closing operation raises the second inflow portion 961b of the piston member 96b to a top dead center side above the protrusion 941 of the first member 94.

[0099] Below, a method of manufacturing a contents-

containing sheet member container 300 according to the present exemplary embodiment (hereinafter referred to also as the present method) will be described with reference to Figs. 7A to 11B. Note that in Figs. 7A and 7B, a part other than an upper part in the sheet member container 100 is not shown.

[0100] First, the above described sheet member container 100 is prepared. More specifically, the peripheral edge portions of the container forming sheet member 51 (inner-bag forming sheet members 41) are attached to each other, in a state where a folding line 81, a folding line 82 and a folding line 84, illustrated in Fig. 5, of the container forming sheet member 51 are folded as valley fold, and a folding line 83 and a folding line 85 are folded as mountain fold. Thus, the container forming sheet member 51 is formed into a bag shape with a two-layer structure. Here, the valley fold means a way of folding in which it protrudes toward the side going away from the viewer of Fig. 5, and the mountain fold means a way of folding in which it protrudes toward the viewer of Fig. 5.

[0101] That is, the peripheral edge portions of the inner-bag forming sheet member 41 are attached to each other to form the peripheral edge sealing portion 42. Thus, using the inner-bag forming sheet member 41, the inner bag 40 is formed. This forms the container main body 20 having the bag shape that covers the inner bag 40.

[0102] In this way, as illustrated in Figs. 1 and 2, the container forming sheet member 51 is formed into a double bag shape to obtain the sheet member container 100. In the states illustrated in Figs. 1 and 2, since the containing portion 17 does not yet expand and the filling portion 60 is not filled with the filler, the sheet member container 100 has a flat shape (see Fig. 8A).

[0103] As for a method of attaching the inner-bag forming sheet members 41 to each other, as one example, heat sealing, ultrasonic sealing, attaching with adhesive, or the like may be used.

[0104] In the case of this exemplary embodiment, the main-body peripheral edge sealing portion 28, the peripheral edge sealing portion 42 and the inner-outer sealing portion 43 are arranged at positions that correspond to one another (positions that overlap with one another). The main-body peripheral edge sealing portion 28, the peripheral edge sealing portion 42 and the inner-outer sealing portion 43 are collectively referred to as a peripheral edge sealing portion 19 (the peripheral edge sealing portion 19 includes the main-body peripheral edge sealing portion 28, the peripheral edge sealing portion 42 and the inner-outer sealing portion 43).

[0105] In Figs. 1 and 2, a region where the peripheral edge sealing portion 19 (the main-body peripheral edge sealing portion 28, the peripheral edge sealing portion 42 and the inner-outer sealing portion 43) is formed is provided with a left-rising hatching. Also, in Figs. 1 and 2, a region in which the region where the peripheral edge sealing portion 19 is formed overlaps with the region where the bag-body sealing portion 26 is formed, left-

rising hatching overlaps with right-rising hatching.

[0106] In the first sheet portion 31, a portion closer to a side of the top forming sheet portion 39 than the folding line 85 is a first overlap portion 31a. The first overlap portion 31a is disposed to overlap with one half of the top forming sheet portion 39 in a state before the non-attached region 24 is filled with the filler.

[0107] In the second sheet portion 32, a portion located farther from a side of the bottom forming sheet portion 38 than a folding line 86 is a second overlap portion 32a. The second overlap portion 32a is disposed to overlap with the other half of the top forming sheet portion 39 in the state before the non-attached region 24 is filled with the filler.

[0108] Here, in the case of this exemplary embodiment, as illustrated in Figs. 1 and 2, an inner edge of the peripheral edge sealing portion 42 in the extending piece 25 is aligned with an inner edge of the bag-body sealing portion 26 in the extending piece 25. More specifically, when viewed in the thickness direction of the extending piece 25, a substantially entire region where the peripheral edge sealing portion 42 is formed in the extending piece 25 and a substantially entire region where the bag-body sealing portion 26 is formed in the extending piece 25 overlap with each other.

[0109] Thereby, a dimension of the extending piece 25 can be set smaller than that in a case where the peripheral edge sealing portion 42 and the bag-body sealing portion 26 are formed at different positions in the extending piece 25.

[0110] More specifically, in the extending piece 25, each of the peripheral edge sealing portion 42 and the bag-body sealing portion 26 is formed continuously along a peripheral edge portion of the extending piece 25.

[0111] A portion of the peripheral edge sealing portion 42 on a front side of the extending piece 25 is connected to a portion of the peripheral edge sealing portion 42 in the top forming sheet portion 39. The peripheral edge sealing portion 42 on the front side of the extending piece 25 is formed avoiding the interfacial connecting portion 65a. Similarly, a portion of the peripheral edge sealing portion 42 on a back side of the extending piece 25 is connected to a portion of the peripheral edge sealing portion 42 in the second sheet portion 32. The peripheral edge sealing portion 42 on the back side of the extending piece 25 is formed avoiding the interfacial connecting portion 65b.

[0112] A portion of the bag-body sealing portion 26 on the front side of the extending piece 25 is connected to a portion of the bag-body sealing portion 26 in the top forming sheet portion 39. The bag-body sealing portion 26 on the front side of the extending piece 25 is formed avoiding the interfacial connecting portion 65a. Similarly, a portion of the bag-body sealing portion 26 on the back side of the extending piece 25 is connected to a portion of the bag-body sealing portion 26 in the second sheet portion 32. The bag-body sealing portion 26 on the back side of the extending piece 25 is formed avoiding the

interfacial connecting portion 65b.

[0113] Subsequently, the above valve part 90 is mounted to the spout member 15 of the sheet member container 100 formed into the bag shape. Thereby, the sheet member container 100 including the valve part 90 mounted to the filling port 15c can be prepared, in which the valve part 90 can be switched to the opened state where the containing portion 17 communicates to the external space through the filling port 15c, and to the closed state where the containing portion 17 and the external space are isolated from each other.

[0114] Next, a preliminary step of performing, for the containing portion 17, at least one of a degassing treatment, and a purging treatment using an inert gas is performed.

[0115] In the case of this exemplary embodiment, in the preliminary step, for the containing portion 17, the purging treatment and the degassing treatment are performed at least once in this order. More specifically, in the preliminary step, for example, a degassing treatment, a purging treatment and another (second) degassing treatment are performed in this order.

[0116] As illustrated in Fig. 7A, when executing the degassing treatment, the valve part 90 is switched to the opened state by the operation of pressing the piston member 96b.

[0117] More specifically, a tube member 210 is inserted into the piston member 96b, and the tube member 210 is relatively lowered to the spout member 15 until the second inflow portion 961b and the protrusion 941 of the first member 94 are separated from each other. Thereby, a lumen of the tube member 210 and the containing portion 17 mutually conduct. In this state, oxygen retained in the containing portion 17 is suctioned (degassed) through the tube member 210. Thereby, as illustrated in Fig. 8A, the first surface 40a and the second surface 40b of the inner bag 40 are sufficiently in close contact with each other, and the containing portion 17 is collapsed (deflated).

[0118] Subsequently, the purging treatment is performed. First, the valve part 90 is switched to the opened state in the same manner as when executing the degassing treatment. In this state, the containing portion 17 is filled with an inert gas (for example, nitrogen) through the tube member 210. When the filling with the inert gas is started, the inert gas flows through the lumen of the tube member 210 and into the containing portion 17 through the filling port 15c. Thereby, as illustrated in Fig. 8B, the containing portion 17 is filled with the inert gas, and the inner bag 40 is sufficiently expanded.

[0119] After stopping the filling with the inert gas, the degassing treatment is performed again by suctioning a gas containing the inert gas contained in the interior of the containing portion 17 through the tube member 210. Thereby, as illustrated in Fig. 8C, the first surface 40a and the second surface 40b of the inner bag 40 are sufficiently in close contact with each other, and the containing portion 17 is collapsed.

[0120] Thus, in the case of this exemplary embodiment, the preliminary step is performed before performing a filler filling step of filling the filling portion 60 with the filler. That is, the preliminary step is performed before structural strength of the container main body 20 is obtained by the filling portion 60 filled with the filler.

[0121] Therefore, when performing the purging treatment, the inert gas can be distributed to a region adjacent to the filling portion 60 in the containing portion 17. Therefore, the oxygen retained in the containing portion 17 can be diluted by the inert gas, and hence deterioration (degradation) of the contents 18 can be suppressed.

[0122] Further, when performing the degassing treatment, the containing portion 17 can be sufficiently collapsed, and hence oxygen can be suctioned more reliably from the containing portion 17.

[0123] Additionally, in the preliminary step, for example, either one of the degassing treatment or the purging treatment does not have to be performed. However, when performing the purging treatment, it is preferable to perform the degassing treatment after the purging treatment.

[0124] Next, a contents filling step of filling the containing portion 17 with the contents 18 is performed. In the contents filling step, the filling with the contents 18 is started from a state where the containing portion 17 is collapsed by the degassing treatment. When filling with the contents 18, the contents filling step is performed in a state where the valve part 90 is opened in the same manner as in the purging treatment and the degassing treatment. At this time, a tube member inserted into the piston member 96b may be the same as the tube member 210 used in the degassing treatment and the purging treatment, or may be a separate member. In a state where the tube member is inserted into the piston member 96b and the second inflow portion 961b and the protrusion 941 of the first member 94 are separated from each other, the contents 18 are inputted into the containing portion 17 through the tube member. Thereby, as illustrated in Fig. 9A, the containing portion 17 is expanded by the contents 18.

[0125] After filling the containing portion 17 with a desired amount of contents 18, the tube member is raised relative to the spout member 15 and the tube member is removed from the valve part 90. Thereby, as illustrated in Fig. 7B, the piston member 96b rises, and the second inflow portion 961b of the piston member 96b and the protrusion 941 of the first member 94 are in contact with each other. The containing portion 17 and the external space are isolated from each other.

[0126] Next, the filler filling step of putting the filler between the layers of the outer film layer 22 and the inner film layer 23 in the non-attached region 24 is performed.

[0127] The filler is inputted into the non-attached region 24 through the inlet 25a formed in the extending piece 25.

[0128] As illustrated in Fig. 10A, the extending piece 25 is disposed between a jig member 251 and a filling nozzle 252 disposed below the jig member 251. In a state

before disposing the extending piece 25 between the jig member 251 and the filling nozzle 252, a space (opposed space) between the jig member 251 and the filling nozzle 252 is larger in the up-down direction than in the state illustrated in Fig. 10A. Thereby, when disposing the extending piece 25 between the jig member 251 and the filling nozzle 252, the extending piece 25 can be inhibited from interfering with the jig member 251 and the filling nozzle 252. Then, after disposing the extending piece 25 between the jig member 251 and the filling nozzle 252, the jig member 251 and the filling nozzle 252 are brought close to each other in the up-down direction to obtain the state illustrated in Fig. 10A.

[0129] A lower surface of the jig member 251 is, for example, in contact with the first extending filling portion 66, and an upper surface of the filling nozzle 252 is opposed to the second extending filling portion 67. A lumen of the filling nozzle 252 constitutes an internal flow path 253 through which the filler flows, and in the up-down direction, the inlet 25a and an opening in the filling nozzle 252 on a tip side are opposed to each other. Further, for example, an annular silicon ring (not shown in the drawings) is provided at a tip of the filling nozzle 252.

[0130] Here, in the case of this exemplary embodiment, the extending piece 25 includes portions of the inner-bag forming sheet member 41 (the third extending portion 46a and the fourth extending portion 46b). Thereby, rigidity of the extending piece 25 can be sufficiently obtained, which makes it easy to dispose the extending piece 25 so that the lower surface of the jig member 251 abuts on the first extending filling portion 66.

[0131] The filler is injected through an opening in the internal flow path 253 of the filling nozzle 252 on the tip side and further sprayed into the inlet 25a to fill the filling portion 60. More particularly, the filler sprayed into the inlet 25a flows through the second extending filling portion 67, the second filling portion 62, the third filling portion 63, the first filling portion 61, and the fourth filling portion 64 in this order, to flow into the first extending filling portion 66. At this time, the extending piece 25 is displaced upward by spraying the filler, which is regulated by the jig member 251.

[0132] As the filling portion 60 is filled with the filler, the first extending filling portion 66 and the second extending filling portion 67 expand, and as illustrated in Fig. 10B, while maintaining a contact state of a portion of the first extending filling portion 66 with the jig member 251, a peripheral edge portion of the inlet 25a in the second extending filling portion 67 is in close contact with a silicon ring in an airtight manner. Thereby, in a state where the inlet 25a is airtightly closed with the silicon ring, the internal flow path 253 and the containing portion 17 mutually conduct, so that the filling portion 60 can be suitably filled with the filler.

[0133] Here, during the filling of the filling portion 60 with the filler, in a tip 25b of the extending piece 25, each of the first extending filling portion 66 and the second extending filling portion 67 has a thickness dimension

gradually increasing toward a base end side of the extending piece 25, and in a base end 25c of the extending piece 25 that is located closer to the base end side than the tip, each of the first extending filling portion 66 and the second extending filling portion 67 has a thickness dimension substantially constant. Then, the inlet 25a is formed, for example, in the base end 25c.

[0134] In the case of this exemplary embodiment, the thickness dimension of each of the first extending filling portion 66 and the second extending filling portion 67 herein is a separation distance between the outer film layer 22 and the inner film layer 23 in the thickness direction of the extending piece 25.

[0135] Thereby, during the filling of the filling portion 60 with the filler, the inlet 25a is formed in a portion in which the outer film layer 22 and the inner film layer 23 are sufficiently separated from each other in the extending piece 25, and hence the filling portion 60 can be smoothly filled with the filler.

[0136] Furthermore, as described above, in the case of this exemplary embodiment, the inlet 25a is disposed at a central position of the outer film layer 22 in the width direction of the second extending filling portion 67.

[0137] Thereby, the inlet 25a is located in a central portion of expansion in the second extending filling portion 67 during the filling of the filling portion 60 with the filler. Therefore, the filling portion 60 can be more smoothly filled with the filler.

[0138] In addition, a pressure inside the filling portion 60 is not particularly limited, but is preferably higher than atmospheric pressure, and may be, for example, equal to or more than 10 kPa and equal to or less than 500 kPa (gauge pressure).

[0139] Also, in the filler filling step, after filling, with the filler, a space between the outer film layer 22 and the inner film layer 23 in the non-attached region 24, the outer film layer 22 and the inner film layer 23 are attached together to form a filling portion sealing seal 29a that seals the filling portion 60. At the same time and the same location as in the filling portion sealing seal 29a, sheet members of an innermost layer are attached to each other to form a containing portion sealing seal 29b. Additionally, Figs. 1 and 2 illustrate, with a double-dashed chain line, respective regions where the filling portion sealing seal 29a and the containing portion sealing seal 29b are formed.

[0140] Thereby, the filling portion 60 filled with the filler is sealed, and the containing portion 17 is sealed except for the filling port 15c.

[0141] More specifically, in the case of this exemplary embodiment, the filling portion sealing seal 29a is formed in the interfacial connecting portions 65a and 65b. Therefore, with the filling portion sealing seal 29a, the outer film layer 22 and the inner film layer 23 in the interfacial connecting portion 65a are attached to each other, and the outer film layer 22 and the inner film layer 23 in the interfacial connecting portion 65b are attached to each other. Therefore, with the filling portion sealing seal 29a,

a communicating portion (interfacial connecting portion 65a) between the first extending filling portion 66 and the fourth filling portion 64 is closed, and a communicating portion (interfacial connecting portion 65b) between the second extending filling portion 67 and the second filling portion 62 is closed.

[0142] Similarly, the containing portion sealing seal 29b is formed in the interfacial connecting portions 65a and 65b. Therefore, with the containing portion sealing seal 29b, the inner-bag forming sheet members 41 in the interfacial connecting portion 65a are attached to each other, and the inner-bag forming sheet members 41 in the interfacial connecting portion 65b are attached to each other.

[0143] Subsequently, in the case of this exemplary embodiment, after the filler filling step of filling with the filler, a step of cutting off the extending piece 25 is performed. More specifically, for example, at the base end of the extending piece 25, the extending piece 25 is cut off from the container main body 20, and most of the filling portion sealing seal 29a and the containing portion sealing seal 29b is retained in the container main body 20. Remaining portions in the filling portion sealing seal 29a and the containing portion sealing seal 29b are cut off together with the extending piece 25 from the container main body 20. Alternatively, for example, the extending piece 25 may be cut off in the vicinity of each of the filling portion sealing seal 29a and the containing portion sealing seal 29b, and each of the filling portion sealing seal 29a and the containing portion sealing seal 29b may be entirely retained in the container main body 20.

[0144] Thus, the contents-containing sheet member container 300 can be obtained in which the filling portion 60 is filled with the filler (see Fig. 6). Alternatively, even in the state of the contents-containing sheet member container 100 in which the filling portion 60 is filled with the filler, the extending piece 25 may be retained without being cut off.

[0145] Thus, the manufacturing method of the sheet member container 300 according to the present exemplary embodiment is a method of manufacturing the contents-containing sheet member container 300, and includes the preparation step of preparing the above sheet member container 100 as the sheet member container, the preliminary step of performing, for the containing portion 17, at least one of the degassing treatment, and the purging treatment using the inert gas, the contents filling step of filling the containing portion 17 with the contents 18, and the filler filling step of filling, with the filler, the space between the outer film layer 22 and the inner film layer 23 in the non-attached region 24, the steps being performed in this order.

[0146] Here, the contents-containing sheet member container 300 may further include, for example, a cap part 70 (see Fig. 6) that is mounted (for example, detachably mounted) to the spout member 15. In this case, for example, in and after the filler filling step, the valve part 90 is removed from the spout member 15, and the cap

part 70 is mounted to the spout member 15 instead. The cap part 70 includes, for example, a mounting portion 71 that is a cylindrical portion having an internal thread shape and detachably screwed into the outlet cylinder portion 15a, a pump portion 72 fixed to the mounting portion 71, a dip tube 77 extending downward from the pump portion 72, and a head portion 73 that is held in the pump portion 72 so that the portion can be raised and lowered with respect to the pump portion 72. When the head portion 73 is pushed (pressed down) toward the pump portion 72, the contents 18 are discharged through a discharge port 76 by action of the pump portion 72.

[0147] Alternatively, in and after the filler filling step, the valve part 90 may remain mounted to the spout member 15 and a pump portion (not shown in the drawings) may be attached to the valve part 90. In this case, when the piston member 96b is pushed (pressed downward) to the body portion 11 side, the contents 18 are discharged through the discharge port by action of the pump portion.

<Modifications 1 to 4>

[0148] Next, Modification 1, Modification 2, Modification 3 and Modification 4 of the exemplary embodiment will be described with reference to Figs. 12A to 12D. A sheet member container according to each modification differs from a sheet member container 100 according to the exemplary embodiment described above in terms of the point described below. In other points, the container is configured in a manner similar to the sheet member container 100 according to the exemplary embodiment described above.

[0149] In Modification 1, as illustrated in Fig. 12A, an inner edge of a peripheral edge sealing portion 42 in an extending piece 25 is disposed on an outer side than an inner edge of a bag-body sealing portion 26 in the extending piece 25. For example, the inner edge of the peripheral edge sealing portion 42 in the extending piece 25 is disposed on an inner side than an outer edge of the bag-body sealing portion 26 in the extending piece 25. That is, when viewed in a thickness direction of the extending piece 25, a portion of the extending piece 25 on an inner edge side of the peripheral edge sealing portion 42 and a portion of the extending piece 25 on an outer edge side of the bag-body sealing portion 26 overlap with each other. On the other hand, when viewed in the thickness direction of the extending piece 25, a portion of the extending piece 25 on an inner edge side of the bag-body sealing portion 26 and the peripheral edge sealing portion 42 in the extending piece 25 do not overlap with each other.

[0150] With this configuration, for example, when the bag-body sealing portion 26 and the peripheral edge sealing portion 42 are each formed by heat sealing, the forming of the peripheral edge sealing portion 42 can inhibit a portion of the extending piece 25 that does not overlap with a region where the bag-body sealing portion

26 is formed from being reheated. That is, heat history can be reduced, and hence strength of the bag-body sealing portion 26 in the extending piece 25 can be obtained.

[0151] Further, when viewed in the thickness direction of the extending piece 25, the portion of the extending piece 25 on the inner edge side of the peripheral edge sealing portion 42 and the portion of the extending piece 25 on the outer edge side of the bag-body sealing portion 26 overlap with each other, and hence a dimension of the extending piece 25 can be set smaller.

[0152] In Modification 2, as illustrated in Fig. 12B, an inner edge of a peripheral edge sealing portion 42 in an extending piece 25 is aligned with an outer edge of a bag-body sealing portion 26 in the extending piece 25. That is, when viewed in a thickness direction of the extending piece 25, the substantially whole bag-body sealing portion 26 in the extending piece 25 does not overlap with the substantially whole peripheral edge sealing portion 42 in the extending piece 25.

[0153] With this configuration, when the bag-body sealing portion 26 and the peripheral edge sealing portion 42 are each formed by heat sealing, the forming of the peripheral edge sealing portion 42 can inhibit a substantially entire region where the bag-body sealing portion 26 is formed in the extending piece 25 from being reheated. Therefore, heat history can be further reduced, and hence strength of the bag-body sealing portion 26 in the extending piece 25 can be sufficiently obtained.

[0154] In Modification 3, in an example illustrated in Fig. 12C, an inner edge of a peripheral edge sealing portion 42 in an extending piece 25 is separated from an outer edge of a bag-body sealing portion 26 in the extending piece 25. That is, a gap is formed between the inner edge of the peripheral edge sealing portion 42 in the extending piece 25 and the outer edge of the bag-body sealing portion 26 in the extending piece 25.

[0155] With this configuration, when the bag-body sealing portion 26 and the peripheral edge sealing portion 42 are each formed by heat sealing, the forming of the peripheral edge sealing portion 42 can more reliably inhibit an entire region where the bag-body sealing portion 26 is formed in the extending piece 25 from being reheated. Therefore, heat history can be further reduced, and hence strength of the bag-body sealing portion 26 in the extending piece 25 can be sufficiently obtained.

[0156] In Modification 4, as illustrated in Fig. 12D, a central portion of a tip of an extending piece 25 in a width direction (an end opposite to a side of a second sheet portion 32) is locally a region where a bag-body sealing portion 26 is not formed. That is, in the tip of the extending piece 25, an outer film layer 22 and an inner film layer 23 are not attached to each other, and a portion in which the layers are not attached together constitutes an inlet 25a through which a filler is inputted.

[0157] Also, according to Modifications 1 to 4 described above, a containing portion 17 is sealed from an external space except for a filling port 15c, and hence the containing portion 17 can be sufficiently degassed

by suctioning through the filling port 15c before putting the filler into a filling portion 60. This can more reliably inhibit the contents 18 contained in the containing portion 17 from being deteriorated (degraded) due to contact with oxygen retained in the containing portion 17.

<Modification 5>

[0158] Next, Modification 5 of the exemplary embodiment will be described with reference to Fig. 13. A manufacturing method of a contents-containing sheet member container according to the present modification differs from a manufacturing method of a contents-containing sheet member container 300 according to the above exemplary embodiment in terms of a point described below. In other points, the method is similar to the manufacturing method of the contents-containing sheet member container 300 according to the above exemplary embodiment. In addition, Fig. 13 schematically illustrates a shape of a sheet member container 100.

[0159] In the case of this modification, as illustrated in Fig. 13, a contents filling step is performed so that a liquid level of contents 18 after the filling in the contents filling step is a position lower than a containing portion sealing seal 29b (region where the containing portion sealing seal 29b is formed in an extending piece 25). More preferably, the contents filling step is performed in a state where the sheet member container 100 is tilted so that the liquid level of the contents 18 after the filling in the contents filling step is the position lower than the containing portion sealing seal 29b.

[0160] With this configuration, when forming the containing portion sealing seal 29b, the contents 18 can be inhibited from being interposed between layers of innermost layer sheet members (inner-bag forming sheet members 41) in the region where the containing portion sealing seal 29b is formed in the extending piece 25. Therefore, in the region where the containing portion sealing seal 29b is formed in the extending piece 25, the inner-bag forming sheet members 41 can be more reliably attached to each other, so that the containing portion 17 can be suitably sealed.

[0161] Further, in the case of this modification, the extending piece 25 extends from an upper end of a container main body 20 in the same manner as in the exemplary embodiment.

[0162] For this reason, it is easy to maintain a state where the sheet member container 100 is tilted so that the liquid level of the contents 18 is the position lower than the containing portion sealing seal 29b. Therefore, when forming the containing portion sealing seal 29b, the contents 18 can be more reliably inhibited from being interposed between the layers of the innermost layer sheet members (inner-bag forming sheet members 41) in the region where the containing portion sealing seal 29b is formed in the extending piece 25.

[0163] In addition, various constituent components of the sheet member container 100 and the contents-con-

taining sheet member container 300 do not have to exist independently of one another, and it is allowed that a plurality of constituent components are formed as one member, one constituent component is formed of a plurality of members, a constituent component is a part of another constituent component, a part of a constituent component overlaps with a part of another constituent component, or the like.

[0164] Further, for example, in each of the above exemplary embodiments, an example where the sheet member container 100 (or the contents-containing sheet member container 300) includes the inner bag 40 has been described, but the present invention is not limited to this example, and the sheet member container 100 (or the contents-containing sheet member container 300) does not have to include the inner bag 40. When the sheet member container 100 (or the contents-containing sheet member container 300) does not include the inner bag 40, the containing portion 17 is configured by the container main body 20. That is, in the peripheral edge sealing portion 42, portions of the inner film layer 23 of the bag-body forming sheet member 21 are attached to each other to form the container main body 20 and also constitute the containing portion 17.

[0165] Even when manufacturing the sheet member container 300 that does not include the inner bag 40, a manufacturing method is the same as in the above exemplary embodiment.

30 Explanation of Reference Characters

[0166]

10	bag body
35	11 body portion
	13 bottom portion
	14 top portion
	15 spout member
	15c filling port
40	17 containing portion
	18 contents
	20 container main body
	21 bag-body forming sheet member
	22 outer film layer
45	23 inner film layer
	24 non-attached region
	25 extending piece
	25a inlet
	26 bag-body sealing portion
50	40 inner bag
	41 inner-bag forming sheet member
	51 container forming sheet member
	60 filling portion
	100 sheet member container
55	210 tube member
	300 sheet member container (contents-containing sheet member container)

Claims

1. A sheet member container configured to include one or more sheet members including a bag-body forming sheet member including an outer film layer and an inner film layer that are stacked on each other, the sheet member container comprising:

a container main body,
 an extending piece extending from the container main body,
 a containing portion that is formed continuously over an interior of the container main body and an interior of the extending piece, the containing portion storing contents,
 a filling port that communicates between a portion of the interior of the container main body in the containing portion and an external space of the sheet member container, and
 a bag body that is made out of the bag-body forming sheet member, the bag body surrounding the containing portion,

wherein

the bag-body forming sheet member includes a bag-body sealing portion that is a portion in which the outer film layer and the inner film layer are attached together, and a non-attached region where the outer film layer and the inner film layer are partially not attached, the bag-body forming sheet member also including a filling portion that allows a filler to be contained between layers of the outer film layer and the inner film layer in the non-attached region,
 the extending piece includes an inlet through which the filler is inputted into the filling portion, the sheet member container comprises a peripheral edge sealing portion in which the one or more sheet members are folded and in which peripheral edge portions of a sheet member of an innermost layer included in the one or more sheet members are attached to each other, the peripheral edge sealing portion defines the containing portion,
 the peripheral edge sealing portion has a portion disposed in a region outside the inlet in the extending piece, and
 the containing portion is sealed from the external space except for the filling port.

2. The sheet member container according to claim 1, wherein the filling portion includes a first extending filling portion disposed on one side and a second extending filling portion disposed on the other side with the containing portion of the interior of the extending piece being disposed between the extending filling portions in a thickness direction of the extend-

ing piece, and

the inlet is formed in a portion of the outer film layer that defines at least one of the first extending filling portion and the second extending filling portion.

3. The sheet member container according to claim 1 or 2, wherein an inner edge of the peripheral edge sealing portion in the extending piece is aligned with an inner edge of the bag-body sealing portion in the extending piece, or disposed on an outer side than the inner edge of the bag-body sealing portion in the extending piece.
4. The sheet member container according to claim 1 or 2, wherein an inner edge of the peripheral edge sealing portion in the extending piece is aligned with an outer edge of the bag-body sealing portion in the extending piece.
5. The sheet member container according to claim 1 or 2, wherein an inner edge of the peripheral edge sealing portion in the extending piece is separated from an outer edge of the bag-body sealing portion in the extending piece.
6. The sheet member container according to claim 1, wherein in a tip of the extending piece, the outer film layer and the inner film layer are not attached to each other, and a portion in which the layers are not attached constitutes the inlet.
7. The sheet member container according to any one of claims 1 to 6, further comprising:
 an inner bag disposed inside the bag body, wherein the inner bag is made out of an inner-bag forming sheet member that is a sheet member of an innermost layer included in the one or more sheet members.
8. The sheet member container according to claim 7, wherein the inner-bag forming sheet member is formed into the same shape as a shape of the bag-body forming sheet member.
9. The sheet member container according to claim 1, further comprising:

an inner bag disposed inside the bag body, wherein the inner bag is made out of an inner-bag forming sheet member that is a sheet member of an innermost layer included in the one or more sheet members,
 the bag-body forming sheet member includes a first extending portion disposed on one side and a second extending portion disposed on the other side with the containing portion of the interior of the extending piece being disposed between the extending portions in a thickness direction

of the extending piece,
 the inner-bag forming sheet member includes a
 third extending portion disposed on one side and
 a fourth extending portion disposed on the other
 side with the containing portion of the interior of
 the extending piece being disposed between the
 extending portions in the thickness direction of
 the extending piece, and
 the extending piece is formed by attaching res-
 pective peripheral edge portions of the first ex-
 tending portion, the second extending portion,
 the third extending portion and the fourth extend-
 ing portion to each other.

10. The sheet member container according to claim 9,
 wherein the filling portion includes a first extending
 filling portion disposed on one side and a second
 extending filling portion disposed on the other side
 with the containing portion of the interior of the ex-
 tending piece being disposed between the extending
 filling portions in the thickness direction of the ex-
 tending piece, and
 the inlet is formed in a portion of the outer film layer
 that defines at least one of the first extending filling
 portion and the second extending filling portion.

11. The sheet member container according to any one
 of claims 1 to 10, wherein the container main body
 includes a body portion and a bottom portion, and
 the extending piece extends from an upper end of
 the container main body.

12. The sheet member container according to any one
 of claims 1 to 10, wherein the container main body
 includes a body portion, a top portion and a bottom
 portion, and
 the extending piece extends from a boundary be-
 tween the body portion and the top portion.

13. The sheet member container according to any one
 of claims 1 to 12, further comprising:
 a valve part mounted to the filling port, wherein the
 valve part is switchable to an opened state where
 the containing portion communicates to the external
 space through the filling port and a closed state
 where the containing portion and the external space
 are isolated from each other.

14. A method of manufacturing a contents-containing
 sheet member container, comprising:

a preparation step of preparing, as the sheet
 member container, the sheet member container
 according to any one of claims 1 to 12,
 a preliminary step of performing, for the contain-
 ing portion, at least one of a degassing treat-
 ment, and a purging treatment using an inert
 gas,

a contents filling step of filling the containing por-
 tion with the contents, and
 a filler filling step of putting the filler between
 layers of the outer film layer and the inner film
 layer in the non-attached region, the steps being
 performed in this order.

15. The manufacturing method of the contents-contain-
 ing sheet member container according to claim 14,
 wherein in the preliminary step, the purging treat-
 ment and the degassing treatment are performed at
 least once in this order, and
 in the contents filling step, the filling with the contents
 is started from a state where the containing portion
 is collapsed by the degassing treatment.

16. The manufacturing method of the contents-contain-
 ing sheet member container according to claim 14
 or 15, wherein in the preparation step, as the sheet
 member container, a sheet member container com-
 prising a valve part mounted to the filling port is pre-
 pared, the valve part being switchable to an opened
 state where the containing portion communicates to
 the external space through the filling port and a
 closed state where the containing portion and the
 external space are isolated from each other, and
 when executing the degassing treatment or the purg-
 ing treatment in the preliminary step, the valve part
 is switched to the opened state.

17. The manufacturing method of the contents-contain-
 ing sheet member container according to any one of
 claims 14 to 16, wherein in the filler filling step,

after filling, with the filler, a space between the
 outer film layer and the inner film layer in the
 non-attached region,
 the outer film layer and the inner film layer are
 attached together to form a filling portion sealing
 seal that seals the filling portion, and at the same
 time and the same location as in the filling portion
 sealing seal, sheet members of the innermost
 layer are attached to each other to form a con-
 taining portion sealing seal.

18. The manufacturing method of the contents-contain-
 ing sheet member container according to claim 17,
 wherein the contents are liquid, and
 the contents filling step is performed so that a liquid
 level of the contents after the filling in the contents
 filling step is a position lower than the containing por-
 tion sealing seal.

19. The manufacturing method of the contents-contain-
 ing sheet member container according to claim 18,
 wherein the contents filling step is performed in a
 state where the sheet member container is tilted.

20. The manufacturing method of the contents-containing sheet member container according to any one of claims 15 to 19, wherein after the filler filling step of putting the filler, a step of cutting off the extending piece is performed.

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FIG. 1

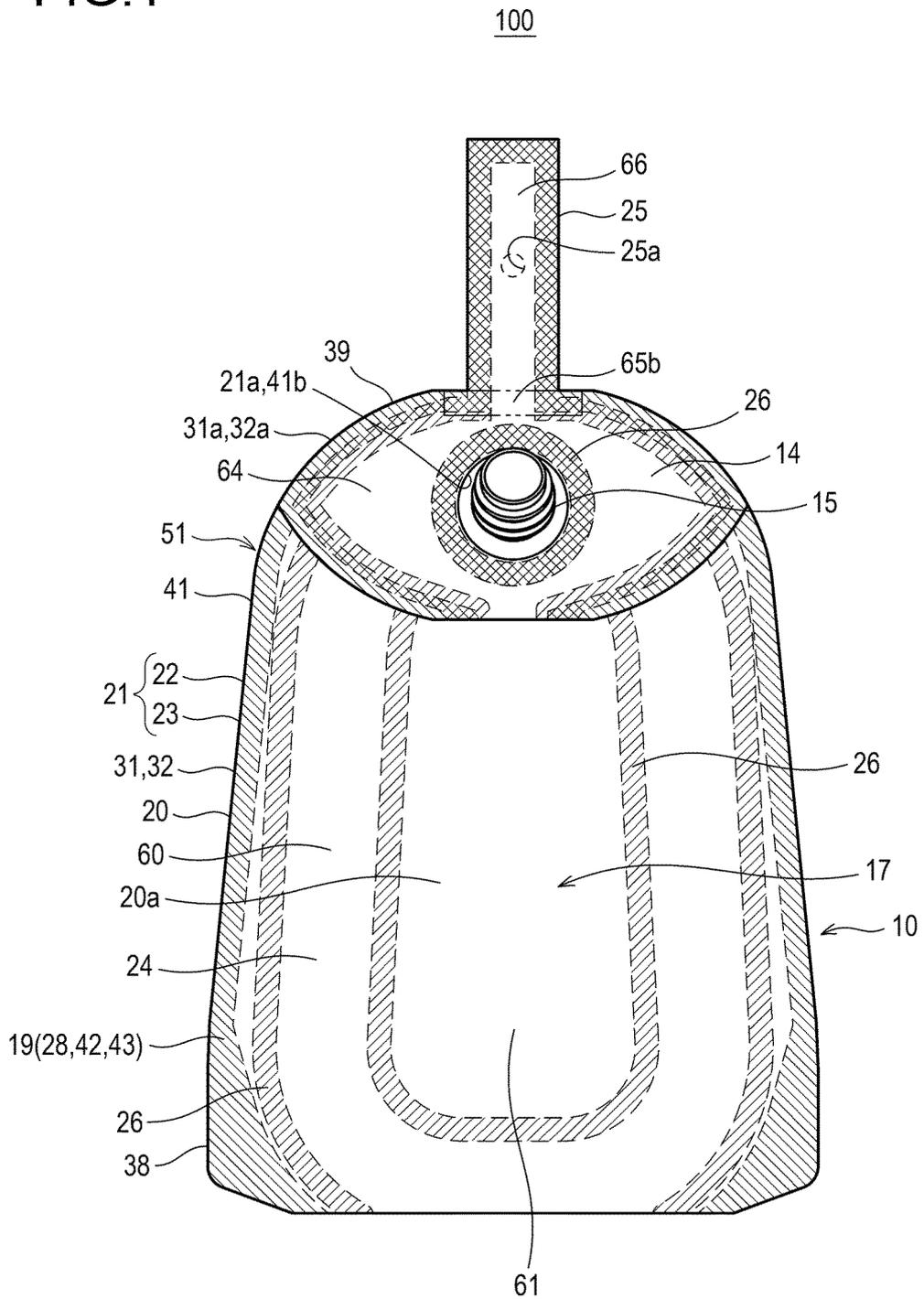


FIG.2

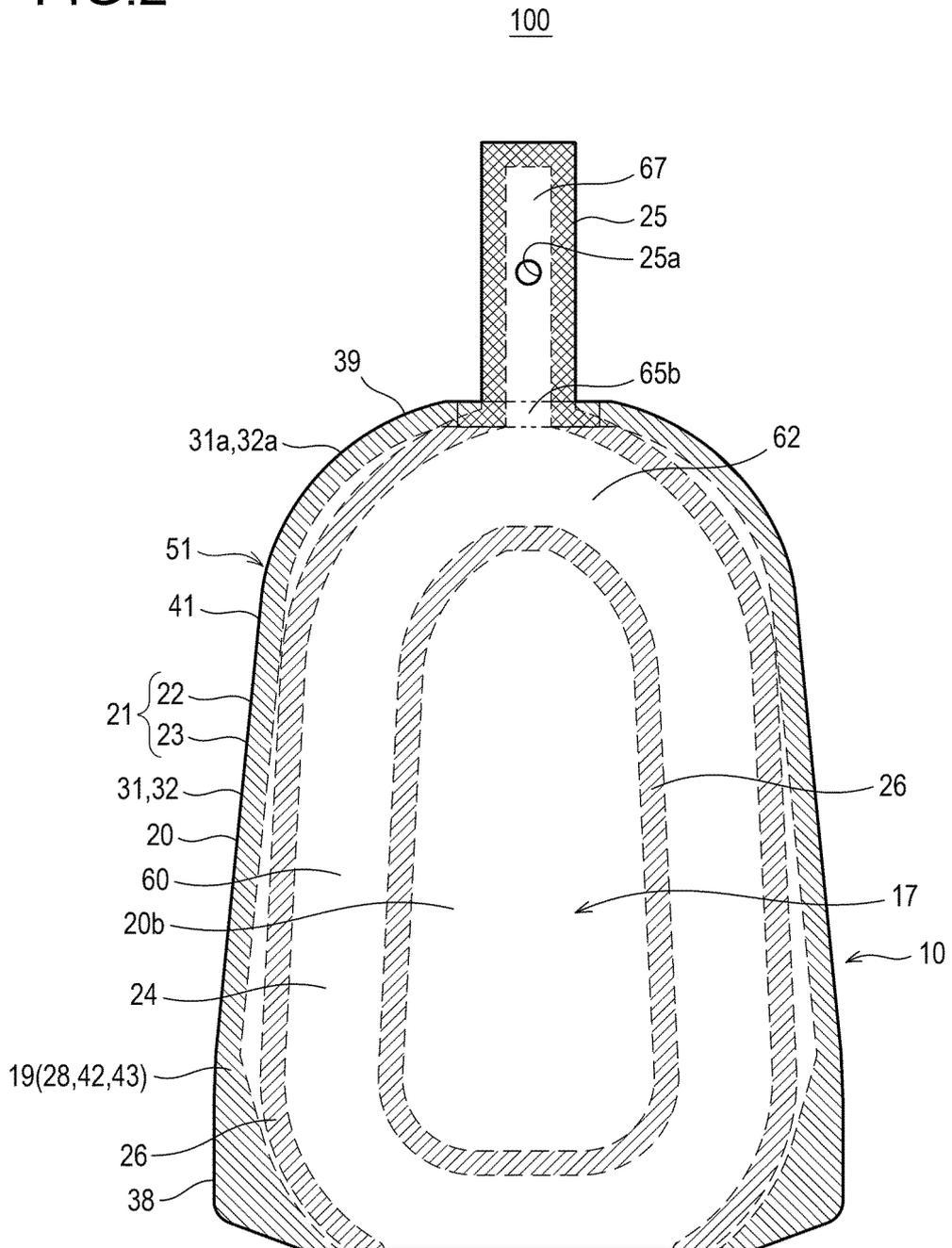


FIG.3

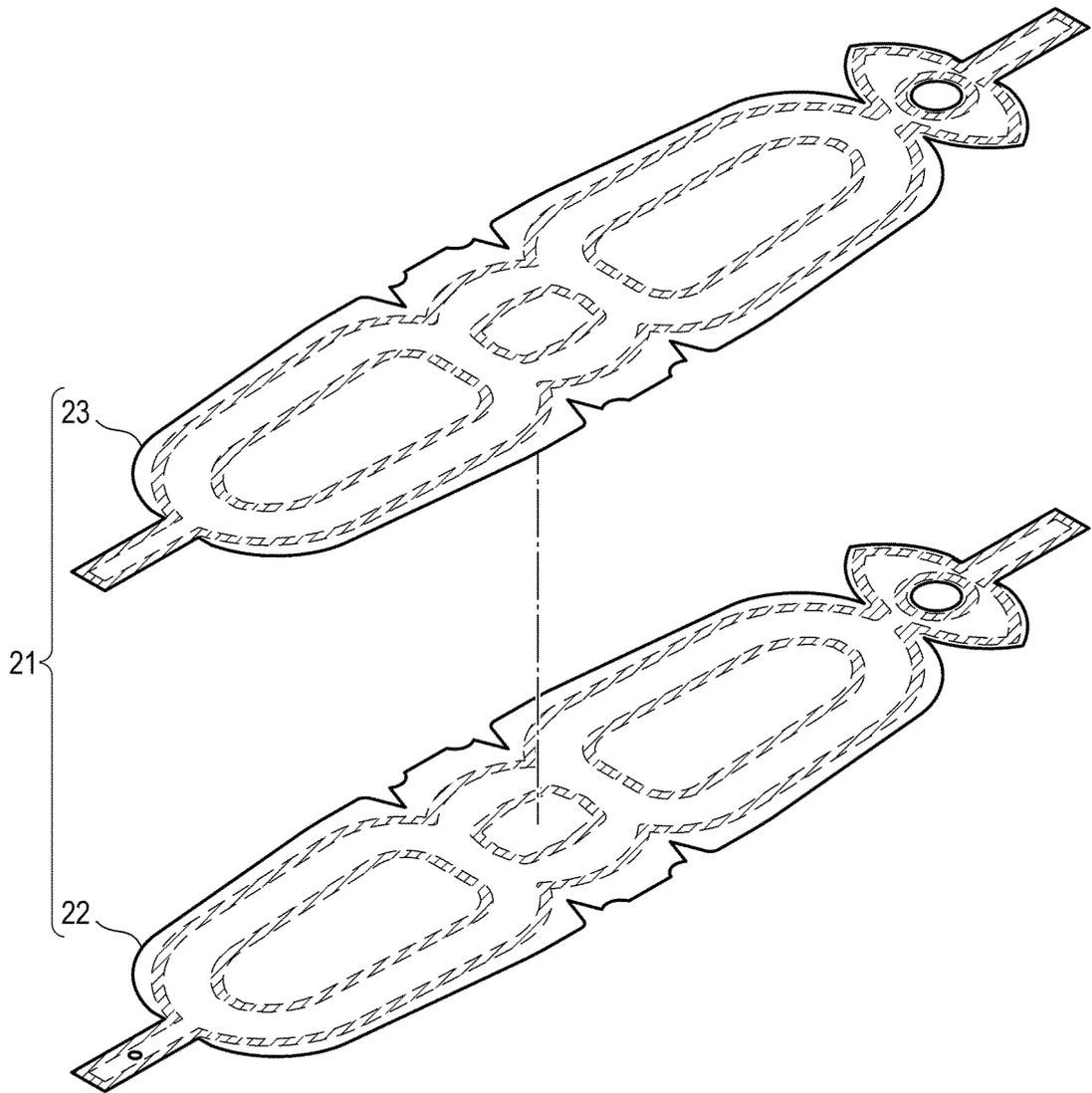


FIG. 4

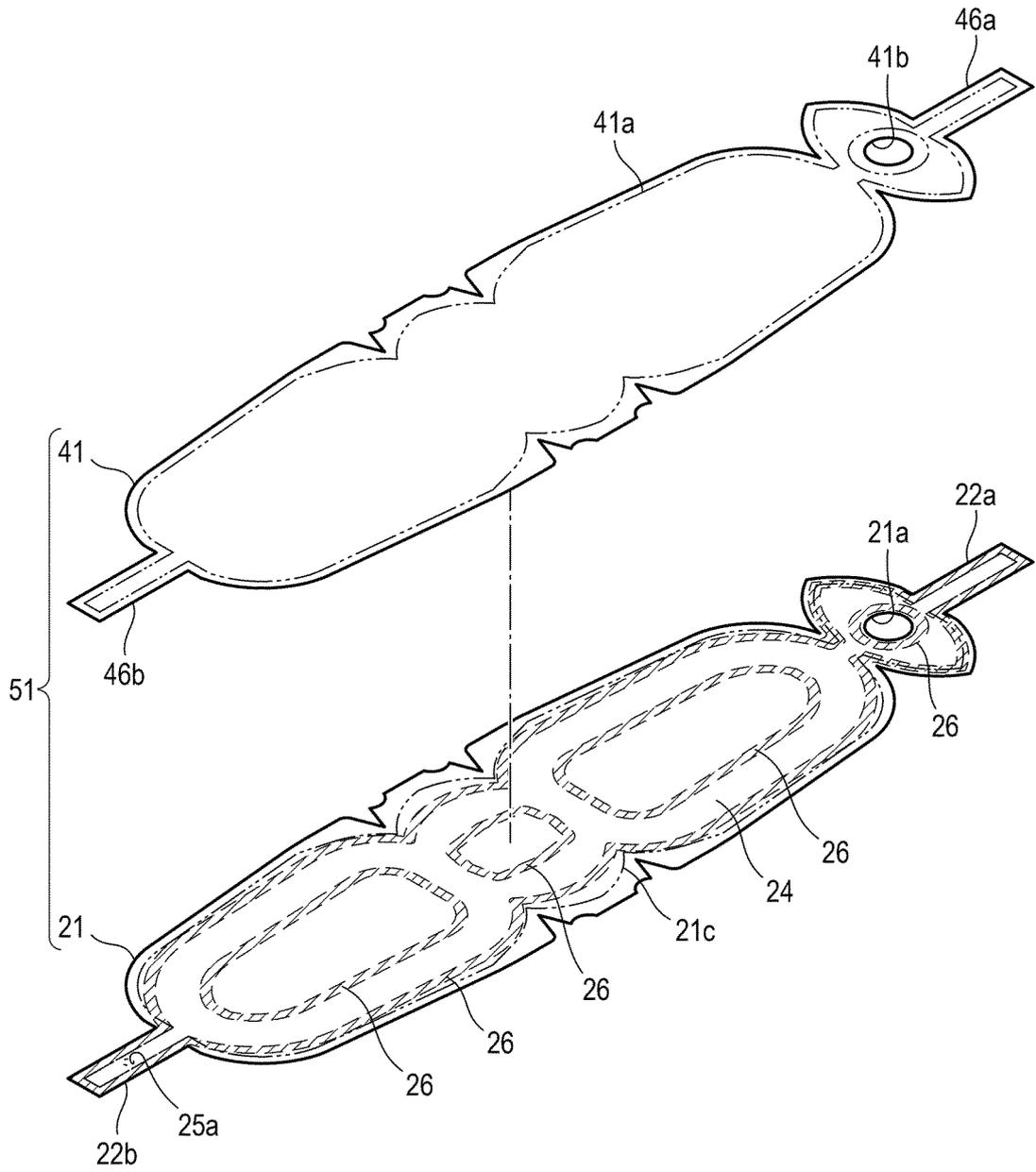


FIG.5

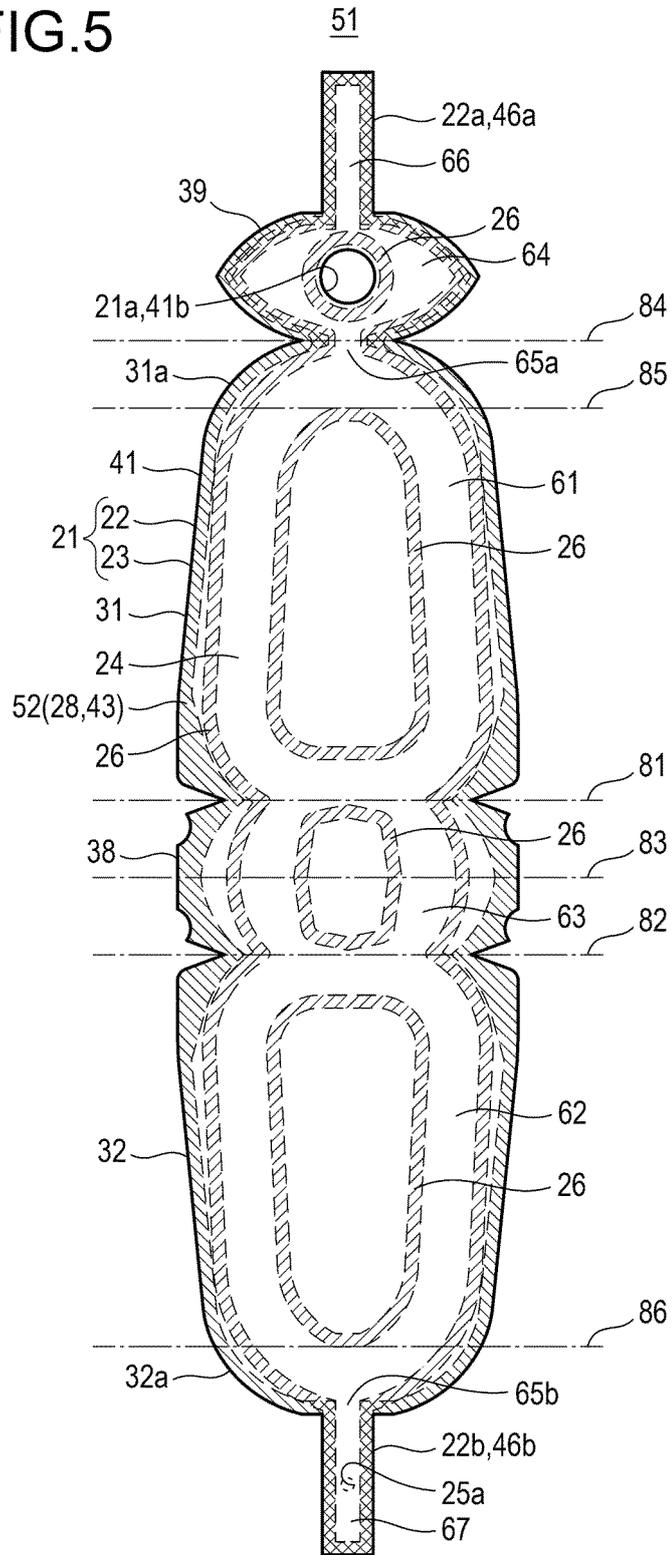


FIG.6

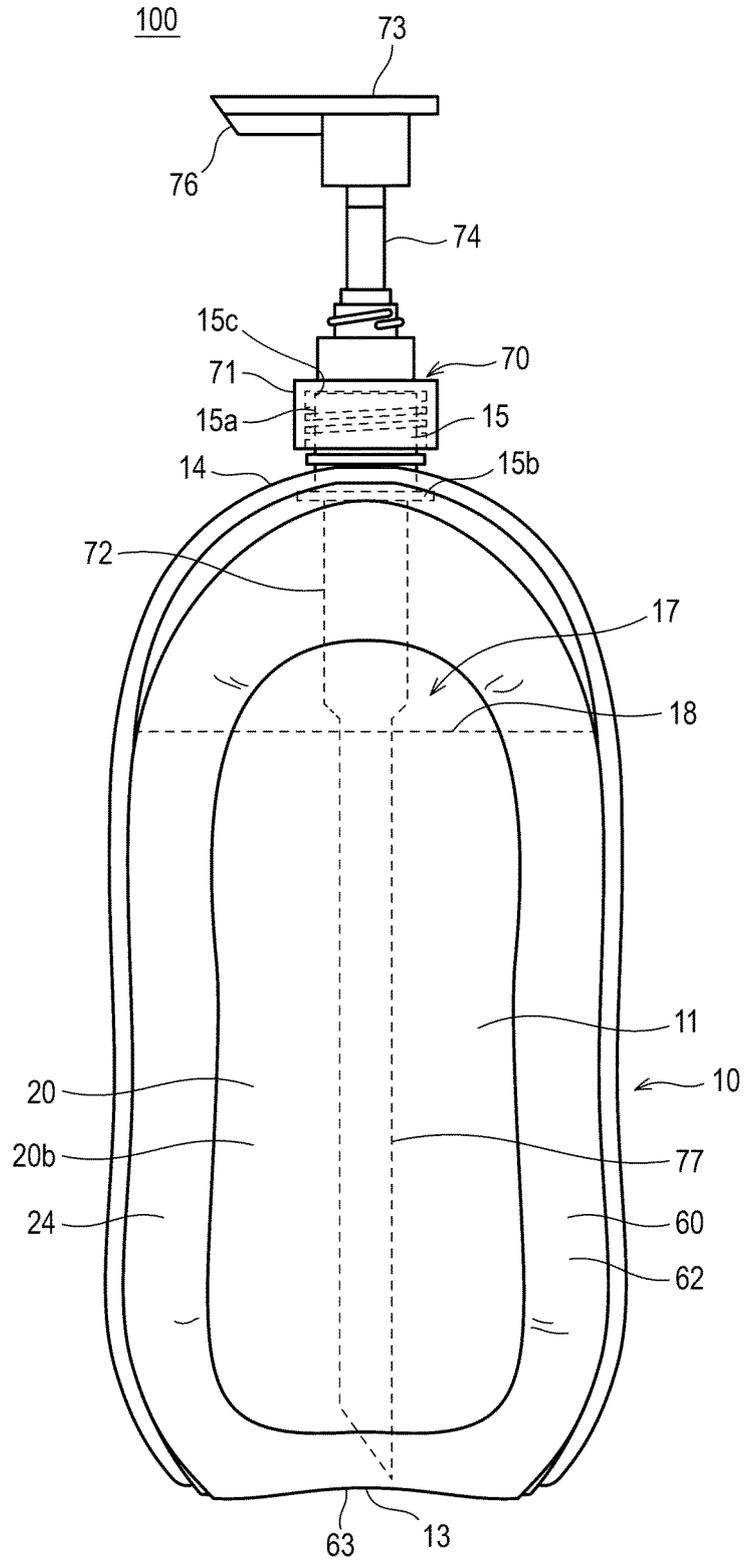


FIG.7B

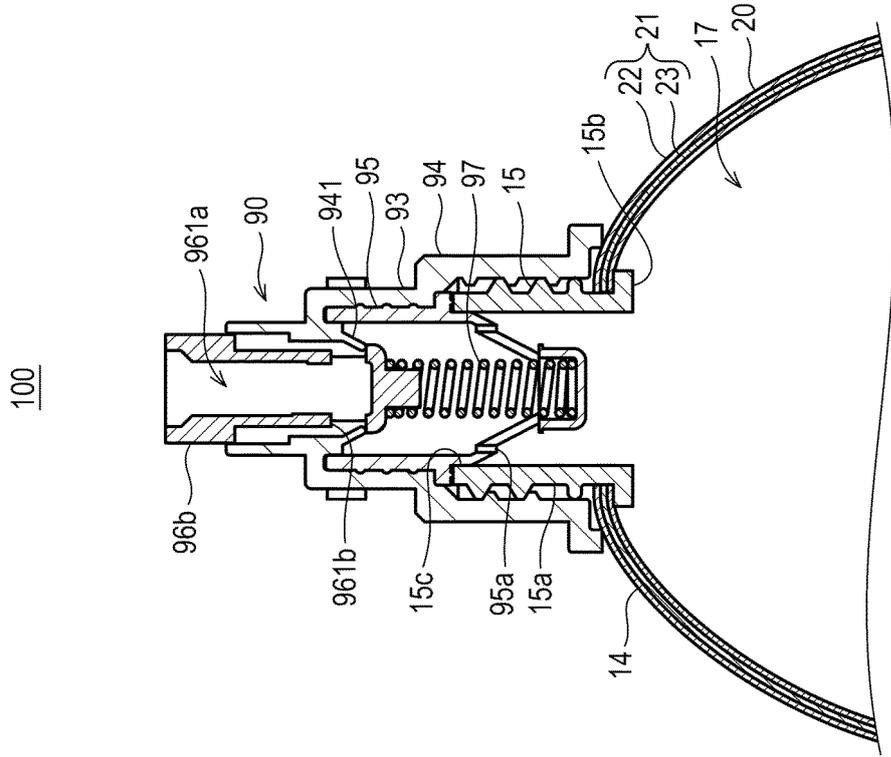


FIG.7A

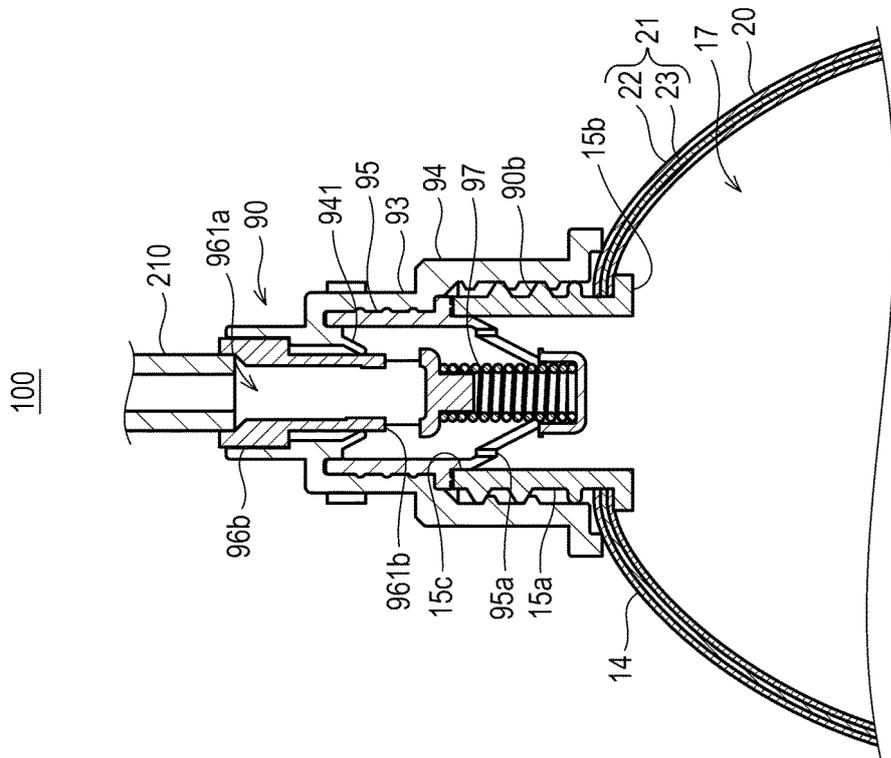


FIG.8A

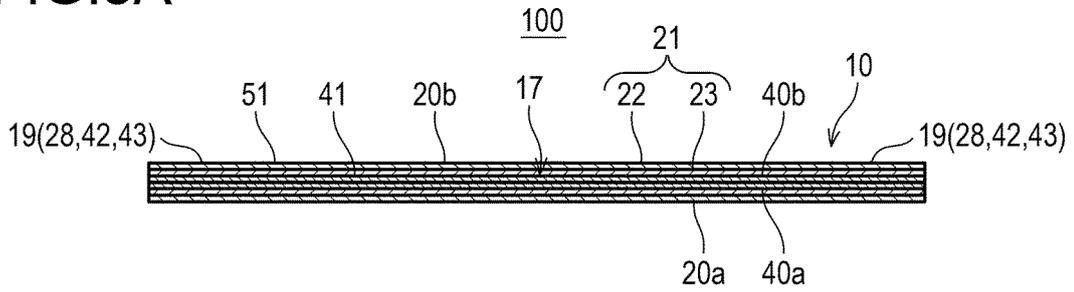


FIG.8B

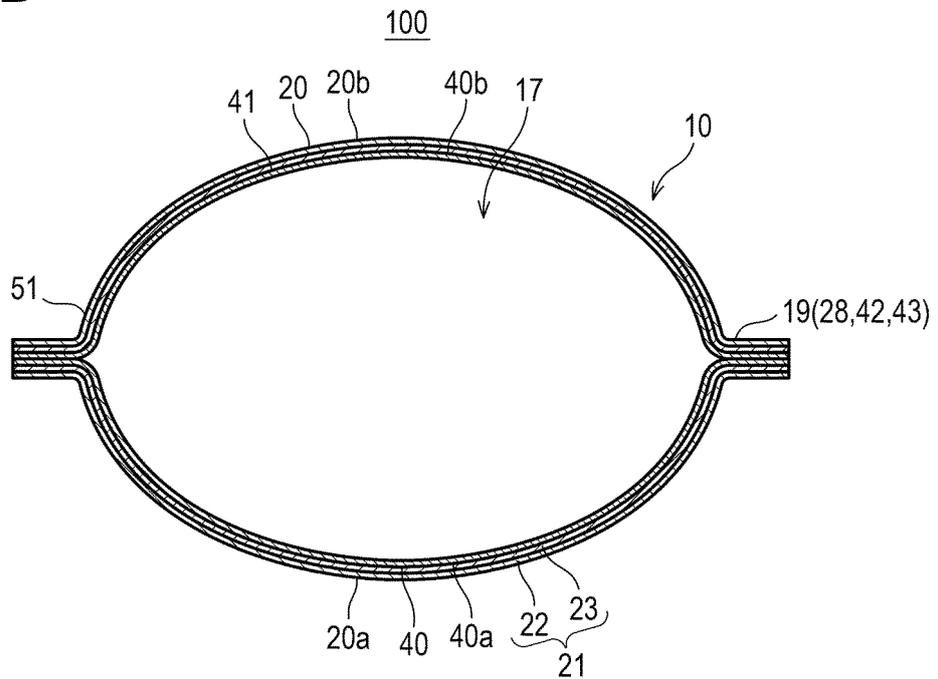


FIG.8C

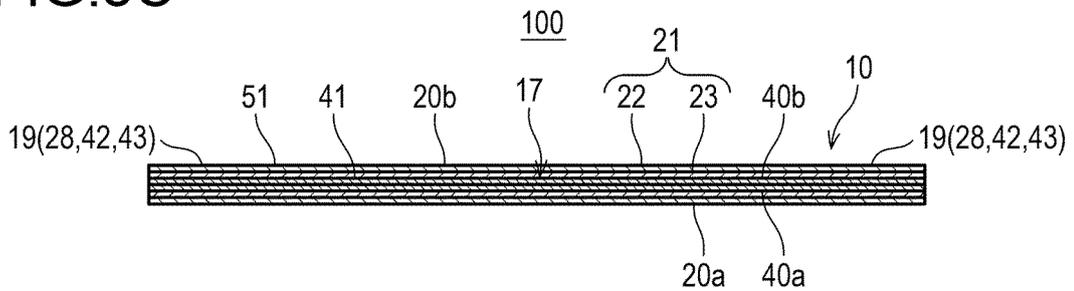


FIG.9A

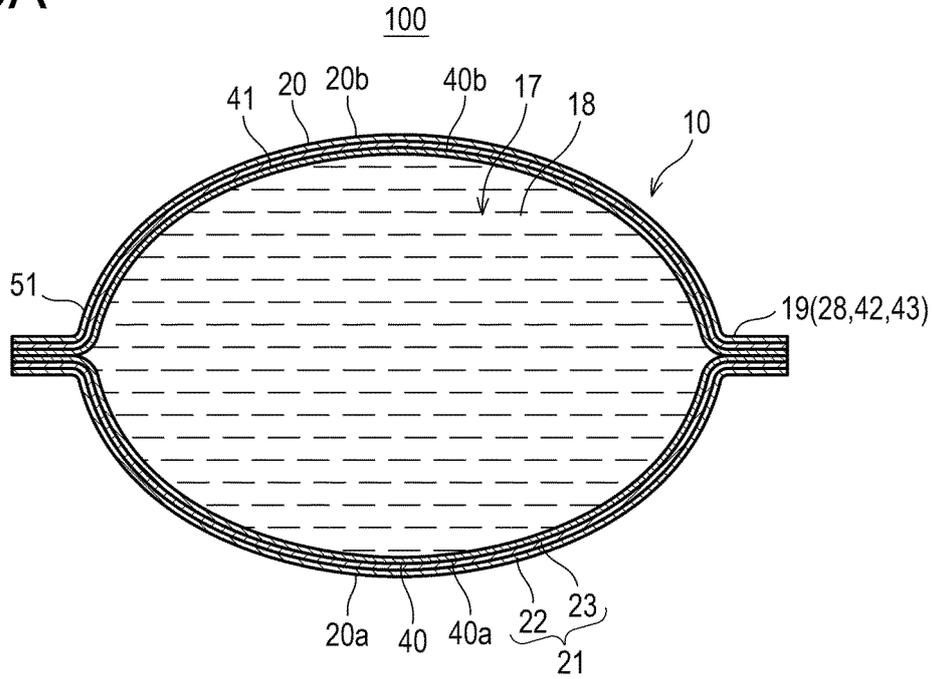


FIG.9B

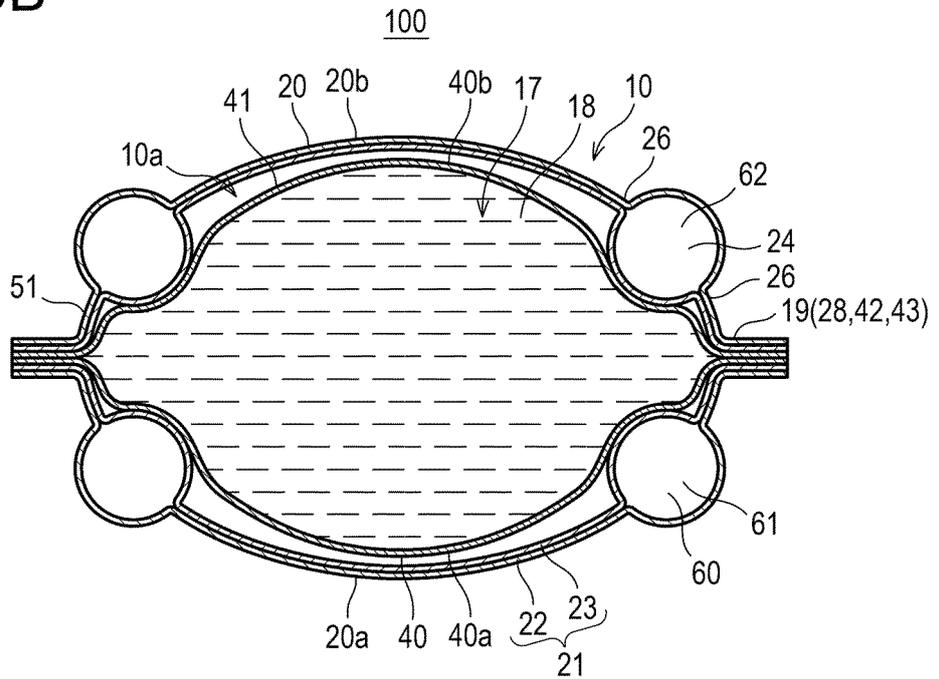


FIG.11A

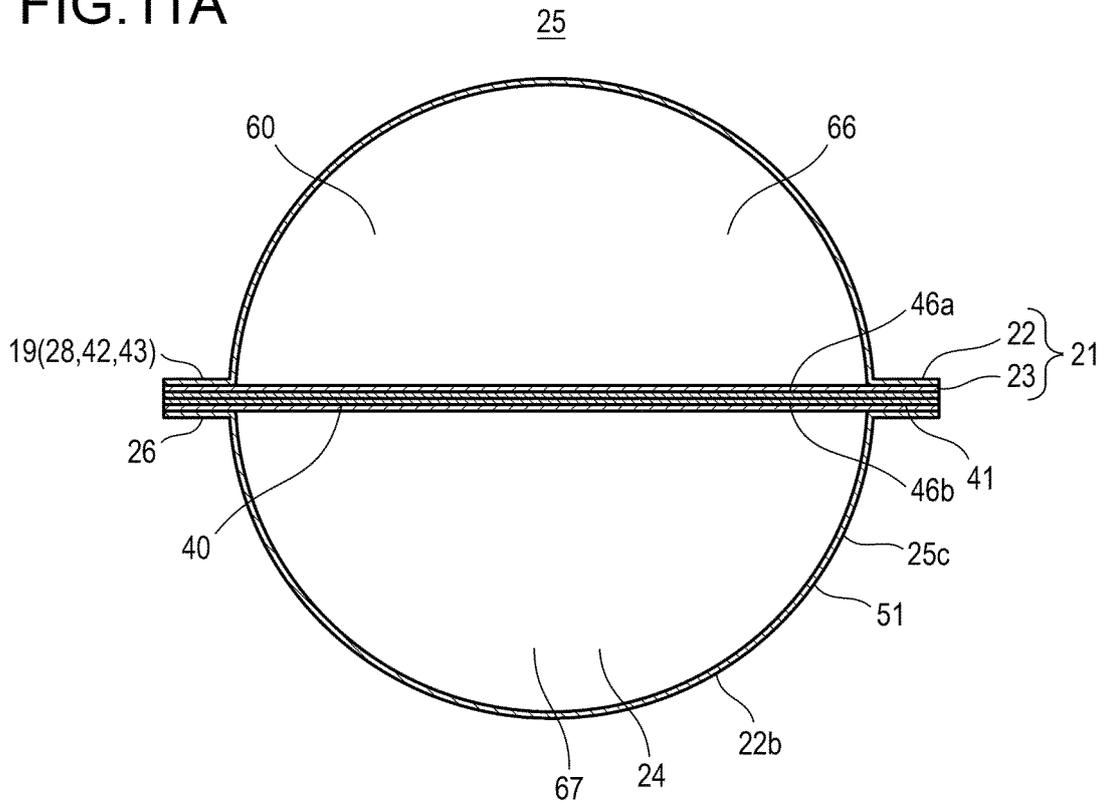


FIG.11B

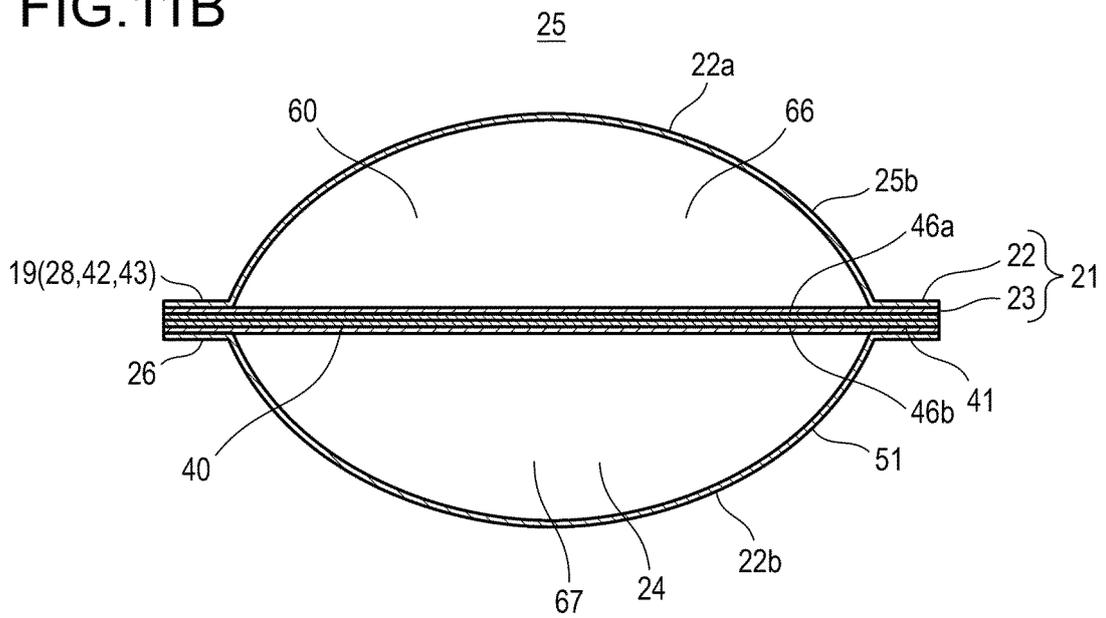


FIG.12A

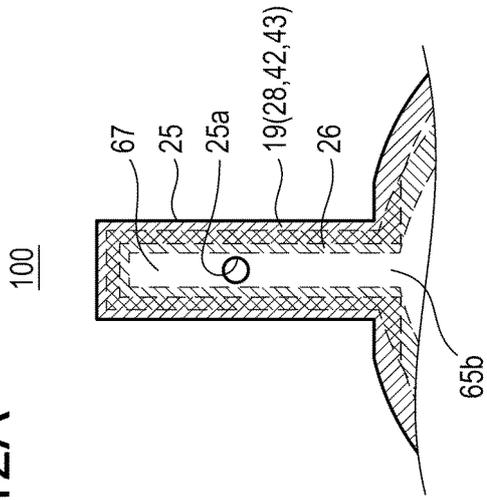


FIG.12C

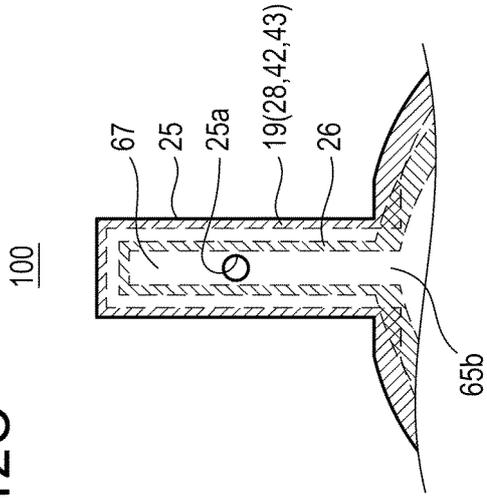


FIG.12B

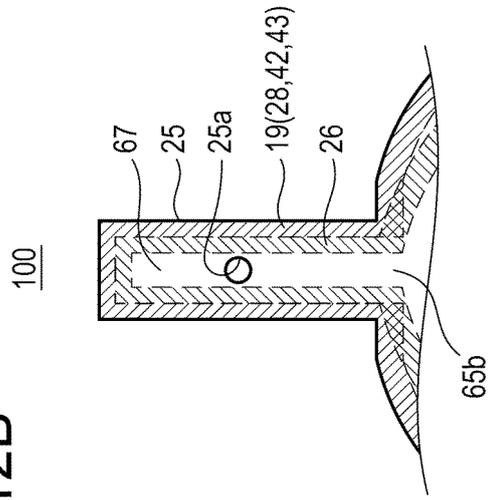


FIG.12D

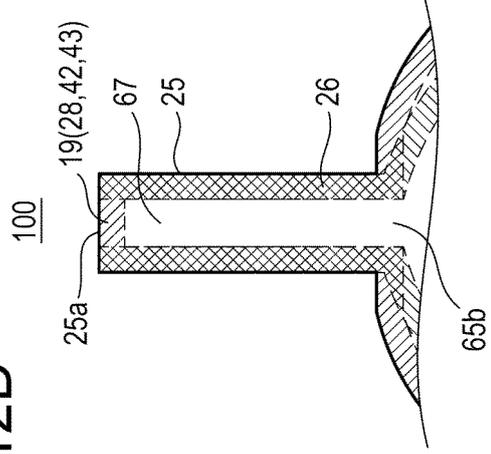
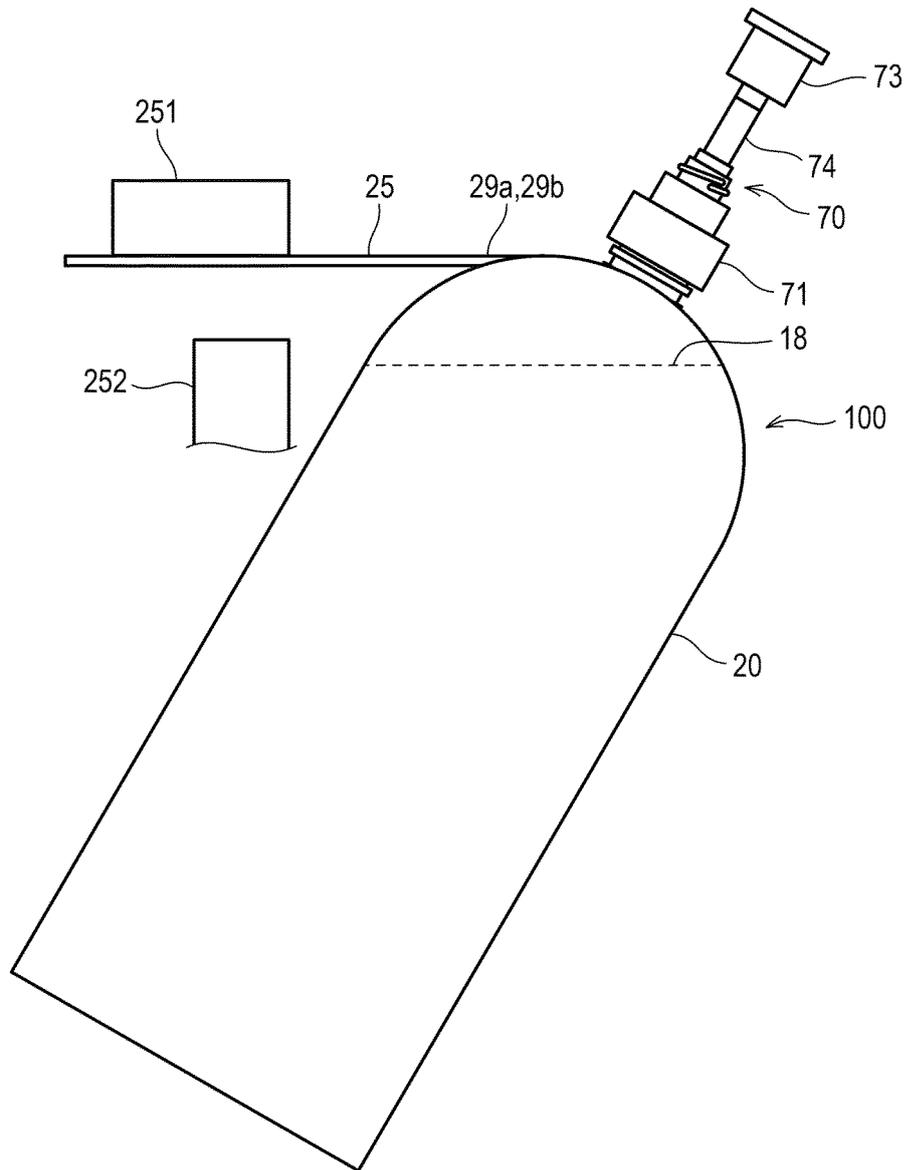


FIG.13



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2021/016664

A. CLASSIFICATION OF SUBJECT MATTER

B65D 75/52 (2006.01) i
FI: B65D75/52

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)
B65D75/52

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

Published examined utility model applications of Japan	1922-1996
Published unexamined utility model applications of Japan	1971-2021
Registered utility model specifications of Japan	1996-2021
Published registered utility model applications of Japan	1994-2021

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.
A	WO 2021/049385 A1 (FUJI SEAL INT INC) 18 March 2021 (2021-03-18) paragraphs [0064]-[0070], fig. 14-22	1-20
A	JP 2019-202789 A (KAO CORP) 28 November 2019 (2019-11-28) paragraphs [0011]-[0048], fig. 1-9	1-20
A	JP 6193535 B1 (KAO CORP) 06 September 2017 (2017-09-06) entire text, fig. 1-31	1-20
A	WO 2013/124201 A1 (CRYO-VAC, INC.) 29 August 2013 (2013-08-29) entire text, fig. 1-9	1-20

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

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

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

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

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

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
20 May 2021 (20.05.2021)Date of mailing of the international search report
08 June 2021 (08.06.2021)Name and mailing address of the ISA/
Japan Patent Office
3-4-3, Kasumigaseki, Chiyoda-ku,
Tokyo 100-8915, Japan

Authorized officer

Telephone No.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/JP2021/016664

	Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
5				
	WO 2021/049385 A1	18 Mar. 2021	(Family: none)	
	JP 2019-202789 A	28 Nov. 2019	(Family: none)	
10	JP 6193535 B1	06 Sep. 2017	US 2019/0168941 A1 entire text, fig. 1-31	
			WO 2018/163269 A1	
			EP 3492403 A1	
15			TW 201836946 A	
			CN 109641687 A	
	WO 2013/124201 A1	29 Aug. 2013	EP 2631195 A1	
			ES 2541752 T	
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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 6193535 B [0005]