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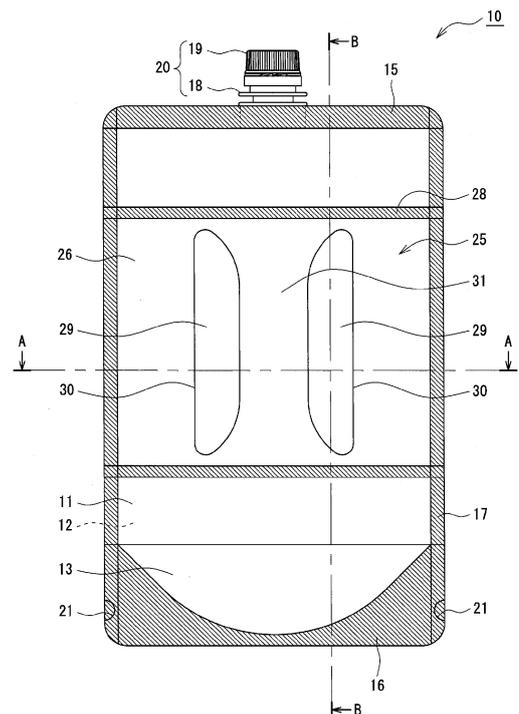
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(54) **POUCH CONTAINER AND METHOD FOR MANUFACTURING POUCH CONTAINER**

(57) A pouch container (10) as one example of an embodiment is equipped with wall-surface sheets (11, 12) and a grip part (25), said wall-surface sheets constituting at least a first surface and a second surface that face each other. The grip part comprises an interior sheet (26) that is joined to the inner surface of the first surface and/or the second surface and openings (29) that are formed on the wall-surface sheet to which the interior sheet is joined at positions where the wall-surface sheet overlaps with the interior sheet.

[Fig.1]



EP 3 081 509 A1

Description

TECHNICAL FIELD

[0001] The present invention relates to a pouch container and a manufacturing method of a pouch container.

BACKGROUND

[0002] Pouch containers have superior characteristics such as light weight and ease of discard, and thus are used widely particularly for refilling containers for various toiletry products or the like. For example, in the use of pouch containers for refilling containers, it is desired that the container can be easily held when the contents are refilled. In particular, this need become higher as the capacity of the container is increased.

[0003] In consideration of such circumstances, pouch containers in which the ease of holding of the container is improved have been proposed (for example, refer to Patent Documents 1 and 2). The pouch containers disclosed in Patent Documents 1 and 2 have hand-grabbing holes into which a hand can be inserted, in a heat seal portion of the container formed by pasting films.

CITATION LIST

PATENT LITERATURE

[0004]

Patent Document 1: JP 2004-359258 A
Patent Document 2: JP 2004-359259 A

SUMMARY

TECHNICAL PROBLEM

[0005] In the pouch containers of Patent Documents 1 and 2, however, it is necessary to form the sealing portion in a large area in order to provide the hand-grabbing hole, resulting in a reduced capacity of the container. Alternatively, the outer shape of the container must be made large in order to secure the container capacity. In addition, for the pouch containers of the related art including the pouch containers of Patent Documents 1 and 2, there still remains room for improvement for the ease of holding.

SOLUTION TO PROBLEM

[0006] According to one aspect of the present invention, there is provided a pouch container comprising: at least one of wall-surface sheets that form at least a first surface and a second surface which oppose each other; and a holding portion, wherein the holding portion comprises: at least one of an interior sheet that is bonded to an inner surface of at least one of the first surface and

the second surface; and an opening formed on the wall-surface sheet to which the interior sheet is bonded, at a position overlapping the interior sheet.

[0007] According to another aspect of the present invention, there is provided a method of manufacturing a pouch container comprising a first surface sheet, a second surface sheet that opposes the first surface sheet, a top gusset sheet that connects an upper end of the first surface sheet and an upper end of the second surface sheet, a bottom gusset sheet that connects a lower end of the first surface sheet and a lower end of the second surface sheet, and a pouring outlet that establishes communication between an inside and an outside of the pouch container, the method comprising: an opening forming step in which an opening is formed on the second surface sheet; a first bonding step in which an interior sheet is bonded on an inner surface of the second surface sheet, at a position overlapping the opening; and a second bonding step in which the sheets forming the pouch container are bonded together after the first bonding step.

ADVANTAGEOUS EFFECTS OF INVENTION

[0008] According to an aspect of the present invention, there can be provided a pouch container having a holding portion with a structure which does not affect the container capacity. In addition, the pouch container according to the present invention can be stably held using the holding portion, and, for example, a superior refilling operation can be enabled even when the pouch container is applied for a refilling container having a large container capacity. Moreover, the pouch container according to the present invention can be easily manufactured by an existing bag production process.

BRIEF DESCRIPTION OF DRAWINGS

[0009]

FIG. 1 is a front view of a pouch container according to a first preferred embodiment of the present invention.

FIG. 2 is a cross-sectional diagram along a line AA in FIG. 1.

FIG. 3 is a cross-sectional diagram along a line BB in FIG. 1.

FIG. 4 is a vertical cross-sectional diagram of a pouch container according to the first preferred embodiment of the present invention, in a state where the container is filled with contents.

FIG. 5 is a diagram for explaining a manufacturing method of a pouch container according to the first preferred embodiment of the present invention.

FIG. 6 is a diagram showing a holding form of a pouch container according to the first preferred embodiment of the present invention.

FIG. 7 is a front view of a pouch container according to an alternative configuration of the first preferred

embodiment of the present invention, showing a state where a tongue piece is folded inside.

FIG. 8 is a diagram showing a part of a cross section along a line CC of FIG. 7.

FIG. 9 is an enlarged view of an upper end of an interior sheet.

FIG. 10 is a diagram showing an example process of an end of an interior sheet.

FIG. 11 is a diagram showing another example process of an end of an interior sheet.

FIG. 12 is a diagram showing another example process of an end of an interior sheet.

FIG. 13 is a front view of a pouch container according to another alternative configuration of the first preferred embodiment of the present invention.

FIG. 14 is a front view of a pouch container according to another alternative configuration of the first preferred embodiment of the present invention.

FIG. 15 is a cross-sectional diagram along a line DD of FIG. 14.

FIG. 16 is a cross-sectional diagram along a line EE of FIG. 14.

FIG. 17 is a vertical cross-sectional diagram of the pouch container of FIG. 14, showing a state where the container is filled with contents.

FIG. 18 is a front view of the pouch container of FIG. 14, showing a state where a tongue piece is folded inside.

FIG. 19 is a cross-sectional diagram along a line FF of FIG. 18.

FIG. 20 is a diagram for explaining a manufacturing method of the pouch container of FIG. 14.

FIG. 21 is a diagram showing a holding form of the pouch container of FIG. 14.

FIG. 22 is a diagram showing the holding form of FIG. 21, viewed from a side of a back surface sheet.

FIG. 23 is a diagram showing another holding form of the pouch container of FIG. 14.

FIG. 24 is a front view of a pouch container according to an alternative configuration of the first preferred embodiment of the present invention.

FIG. 25 is a front view of a pouch container according to an alternative configuration of the first preferred embodiment of the present invention.

FIG. 26 is a front view of a pouch container according to an alternative configuration of the first preferred embodiment of the present invention.

FIG. 27 is a perspective view of a pouch container according to a second preferred embodiment of the present invention, showing a state where the container is filled with contents.

FIG. 28 is an exploded perspective view of a pouch container according to the second preferred embodiment of the present invention.

FIG. 29 is a vertical cross-sectional diagram of a pouch container according to the second preferred embodiment of the present invention.

FIG. 30 is a diagram showing a state where a pouch

container according to the second preferred embodiment of the present invention is tilted.

FIG. 31 is a diagram showing a flow of manufacture of a pouch container according to the second preferred embodiment of the present invention.

FIG. 32 is a diagram showing a flow of manufacture of a pouch container according to the second preferred embodiment of the present invention.

FIG. 33 is a perspective view of a pouch container according to an alternative configuration of the second preferred embodiment of the present invention, showing a state where the container is filled with contents.

FIG. 34 is a cross-sectional diagram along a line GG of FIG. 33.

FIG. 35 is a diagram showing an example pouch container of the related art.

FIG. 36 is a diagram showing another example pouch container of the related art.

DESCRIPTION OF EMBODIMENTS

[0010] Preferred embodiments of the present invention will now be described in detail with reference to the drawings. The drawings referred to in the description of the preferred embodiments are schematically shown, and a size, a ratio, or the like of the constituting elements drawn therein may differ from the actual size, ratio, or the like. The specific size, ratio, or the like should be determined in consideration of the following description.

[0011] In the description of the preferred embodiments, a part of the container where a pouring outlet is formed is described as an "upper part" of the container. A direction of lamination of the sheets is described as a "front-and-back direction" of the container, and a direction orthogonal to an up-and-down direction (or vertical direction) and the front-and-back direction is called a "lateral direction" of the container. In the following, the directions may be simply referred to as the up-and-down direction, the front-and-back direction, and the lateral direction.

[0012] The preferred embodiments are described with the contents filled into the pouch container being liquid-form substances such as shampoo, liquid detergent, etc. However, the contents are not limited to the liquid-form substances, and may alternatively be, for example, solid-form substances such as powders and particulates, or a semi-solid form substance such as jelly-form and gel-form substances. In addition, in the description of the preferred embodiments, outlet plugs 20 and 54 are exemplified as examples of the pouring outlet for the contents, but the pouring outlet is not limited to the outlet plug. For example, the pouring outlet may be formed using members other than the outlet plugs 20 and 54, or may be a flow path formed by a heat seal portion.

[0013] In the description of the preferred embodiments, a standing pouch is described having at least a pair of wall-surface sheets forming a first surface and a

second surface which oppose each other, and a bottom gusset is exemplified. Alternatively, the present invention may be applied to other pouch forms such as a flat pouch having no bottom gusset sheet, a side gusset pouch having a side gusset sheet, a one-seam pouch in which the first surface and the second surface are formed using one wall surface sheet, and a pouch having both the bottom gusset sheet and the side gusset sheet.

[0014] FIGs. 1 - 26 are diagrams for explaining a first preferred embodiment of the present invention. FIGs. 27 - 34 are diagrams for explaining a second preferred embodiment of the present invention.

<First Preferred Embodiment>

[0015] A pouch container 10 according to the first preferred embodiment of the present invention will now be described in detail with reference to FIGs. 1 - 12. FIG. 1 is a front view showing the pouch container 10. FIG. 2 is a cross-sectional diagram along a line AA in FIG. 1, and FIG. 3 is a cross-sectional diagram along a line BB in FIG. 1. FIG. 4 is a vertical cross-sectional diagram of the pouch container 10 in a state where the container is filled with contents. In the first preferred embodiment, for the purpose of convenience, a front surface of the pouch container 10 is described as a first surface and a back surface is described as a second surface. The pouch container 10 includes, as wall-surface sheets forming the first surface (front surface) and the second surface (back surface) which oppose each other, a front surface sheet 11 serving as a first surface sheet and a back surface sheet 12 serving as a second surface sheet.

[0016] As shown in FIGs. 1 - 4, the pouch container 10 is a standing pouch having the front surface sheet 11, the back surface sheet 12 which forms a tubular structure along with the front surface sheet 11, and a bottom gusset sheet 13 which connects a lower end of the front surface sheet 11 and a lower end of the back surface sheet 12. The front surface sheet 11 and the back surface sheet 12 (hereinafter, these sheets may be collectively referred to as "front and back surface sheets") are wall-surface sheets which form a front surface portion and a back surface portion, respectively, of wall-surface portions of the container. The bottom gusset sheet 13 is a wall-surface sheet which is folded and inserted between the front surface portion and the back surface portion and which forms a bottom gusset (godet). The bottom gusset sheet 13 is mountain-folded (folded with the crease at the top) in the upward direction, and is expanded by filling of the contents. An internal space of the container surrounded by the wall-surface sheets forms a filling portion 14 into which the contents are filled.

[0017] In the pouch container 10, the bottom gusset sheet 13 is inserted between the front and back surface sheets, and a seal portion which bonds the ends of the sheets is formed in this state. In the present embodiment, as the seal portion, an upper end seal portion 15, a bottom seal portion 16, and a side seal portion 17 are formed.

The front and back surface sheets have an approximate quadrangular shape viewed from the front, with the up-and-down direction extending longer than the lateral direction (hereinafter the lateral direction may also be referred to as a width direction and a length in the width direction may be referred to as a width). The bottom gusset sheet 13 is provided, for example, at a position 1/6 - 1/4 of the length in the up-and-down direction of the sheet from the lower end of the front and back surface sheets.

[0018] The pouch container 10 includes, as a pouring outlet which establishes communication between the inside and the outside of the container, an outlet plug 20 having a spout 18 having an approximate tubular shape formed from a hard resin and a cap 19 screwed to the spout 18. The spout 18 is inserted between the front and back surface sheets, and bonded to the front and back surface sheets by the upper end seal portion 15. The spout 18 is attached to an upper end of a container body (portion other than the outlet plug 20) in a state where an axial direction of the spout 18 is along the up-and-down direction.

[0019] The upper end seal portion 15 is formed by bonding the upper ends of the front and back surface sheets. In the present embodiment, as described above, the upper end seal portion 15 is formed in a state sandwiching an attachment portion of the spout 18 formed in an approximate ship shape between the front and back surface sheets. In other words, the spout 18 is provided on the upper end seal portion 15 which is a bonding section between the upper end of the front surface sheet 11 and the upper end of the back surface sheet 12.

[0020] The bottom seal portion 16 is a seal portion formed at an end of the bottom gusset sheet 13, and bonds the bottom gusset sheet 13 and the front and back surface sheets. The bottom seal portion 16 is formed in a manner such that, when the container is filled with the contents, the front and back surface sheets are separated from each other and the bottom gusset sheet 13 is expanded. In addition, preferably, a cut-out 21 is formed on ends in the lateral direction on the bottom gusset sheet 13. With this configuration, the front surface sheet 11 and the back surface sheet 12 are directly bonded, and a stabilized self-standing characteristic can be obtained. The side seal portion 17 is formed by bonding the front surface sheet 11 and the back surface sheet 12 at ends in the width direction of the container. A part of the side seal portion 17 is formed in a state where ends in a width direction of an interior sheet 26 to be described later are sandwiched between the front and back surface sheets.

[0021] The pouch container 10 has a holding portion 25. The holding portion 25 includes the interior sheet 26 bonded to an inner surface of at least one of a front surface portion and a back surface portion of the container body, and an opening 29 formed on the wall-surface sheet to which the interior sheet 26 is bonded, at a position overlapping the interior sheet 26. The opening 29 functions as an insertion hole for fingers. The opening 29 may alternatively be used when the container is

hooked on a hook or the like. In the pouch container 10, the interior sheet 26 is bonded only to the inner surface of the front surface sheet 11 forming the front surface of the container, and the opening 29 is formed on the front surface sheet 11, at a position overlapping the interior sheet 26.

[0022] The holding portion 25 is preferably provided at a lower side of the container in relation to the outlet plug 20 even in the case where the outlet plug 20 is attached to a location other than the upper end of the container body. The holding portion 25 has, for example, an approximate quadrangular shape viewed from the front, with the width direction extending longer than the up-and-down direction. Alternatively, two holding portions 25 may be formed, but in the present embodiment, one holding portion 25 is provided on the front surface portion side, and the interior sheet 26 is bonded only to the inner surface of the front surface sheet 11. In other words, the opening 29 which is an opening into which the finger can be inserted is formed on the front surface sheet 11. Alternatively, two interior sheets may be bonded respectively to the inner surfaces of the front and back surface sheets, an opening may be formed on one of the front and back surface sheets, and the holding portion may be formed on one side.

[0023] The sheets forming the pouch container 10 are normally formed from resin films. The resin films forming the sheets are required to exhibit basic capabilities as a wrapping structure, such as impact endurance, wear endurance, and heat endurance. In addition, as the seal portions are normally formed by heat sealing, heat seal characteristic is also required for the sheet. As the sheet, a multiple-layer sheet having a base film layer and a sealant layer that gives the heat seal characteristic is preferable, and, when a high gas barrier characteristic is required, a gas barrier layer is preferably formed between the base film layer and the sealant layer.

[0024] Alternatively, the barrier characteristic may be given to the base film layer itself. In this case, the barrier layer is used as the base film layer, resulting in a multiple-layer sheet having the barrier layer and the sealant layer. When the heat seal characteristic is to be given to both surfaces of the sheet, a single-layer film forming the sealant layer to be described later may be employed, or, in the case of the multi-layer sheet, two sealant layers of the same type or different types may be included (in this case, structurally, one of the sealant layers is used as the base film layer), or a sheet having sealant layers on both surfaces of the base film layer may be employed.

[0025] Example constituting materials of the base film layer, the sealant layer, and the gas barrier layer will now be described. The lamination of these layers may be realized by well-practiced laminating methods such as, for example, dry lamination by an adhesive, thermal lamination to adhere the layers by heat with a thermal adhesion layer therebetween, or the like.

[0026] As films forming the base film layer, there may be exemplified drawn or undrawn films of one or two or

more layers formed from polyesters (such as polyethylene terephthalate (PET), polyethylene naphthalate (PEN), polybutylene terephthalate (PBT), polycarbonate (PC), or the like), polyolefins (such as polyethylene (PE), polypropylene (PP), or the like), polyamides (such as Nylon-6, Nylon-66, or the like), polyacrylonitrile (PAN), polyimide (PI), polyvinyl chloride (PVC), polyvinylidene chloride (PVDC), polymethyl methacrylate (PMMA), polyether sulfone (PES), or the like.

[0027] As films forming the sealant layer, there may be exemplified drawn or undrawn films of one or two or more layers formed from low density polyethylene (LDPE), linear low density polyethylene (LLDPE), a copolymer of ethylene-propylene (EP), cast polypropylene (CPP), oriented nylon (ON), a copolymer of ethylene-olefin, a copolymer of ethylene-acrylic acid (EAA), a copolymer of ethylene-methacrylic acid (EMAA), a copolymer of ethylene-vinyl acetate (EVA), or the like.

[0028] As the gas barrier layer, there may be exemplified metal thin films such as aluminum, resin films such as polyvinylidene chloride (PVDC), a copolymer of ethylene-vinyl alcohol (EVOH), or the like, and films in which aluminum, inorganic oxides such as aluminum oxide and silica, or the like is vapor-deposited (or sputtered) on an arbitrary synthetic resin film (for example, the film may be the base film layer).

[0029] On the sheet, a printing layer (not shown) may be provided for displaying a product name of the contents, product explanation such as materials and cautions on use, and various other designs. For example, the printing layer can be formed on a surface on an inner side of the base film layer by known methods such as gravure printing.

[0030] The structure of the holding portion 25 will now be described in further detail.

[0031] The holding portion 25 is formed from the interior sheet 25 bonded to, for example, the inner surface of the front surface sheet 11, and the opening 29 formed on the front surface sheet 11. The holding portion 25 has an internal space 27 which is not in communication with the filling portion 14 and which is a space independent from the filling portion 14. The interior sheet 26 is preferably bonded to the front surface sheet 11 only at a peripheral edge thereof by an end edge seal portion 28, and a center portion thereof is preferably not bonded to the front surface sheet 11. With such a configuration, there is formed a bag-shaped holding portion 25 is provided in which the internal space 27 independent from the filling portion 14 and into which the finger can be inserted, and the portions other than the opening 29 are closed. A user can insert the finger in the space (internal space 27) between the front surface sheet 11 and the interior sheet 26, for example, from the opening 29, and grip a part of the front surface sheet 11 (for example, a band portion 31 to be described later), so that the user can hold the pouch container 10. The holding portion 25 is provided at a lower side of the container in relation to the outlet plug 20, and is provided, for example, at ap-

proximately the same height as the center of gravity of the pouch container 10.

[0032] The interior sheet 26 is preferably provided over the entire length in the lateral direction of the pouch container 10; that is, the entire width of the front surface sheet 11. A size of the interior sheet 26 is not particularly limited so long as the internal space 27 into which the finger is inserted can be formed between the front surface sheet 11 and the interior sheet 26, but in consideration of the productivity, the interior sheet 26 is preferably provided over the entire width of the front surface sheet 11. In other words, the widths of the front and back surface sheets and the width of the interior sheet 26 are equal to each other. By setting the widths of the sheets to be the same value, the pouch container 10 can be manufactured easily and inexpensively by an existing bag production process using a long-length sheet. In addition, by providing the holding portion 25 by inserting the interior sheet 26 between the front and back surface sheets, the pouch container 10 can be manufactured using typical front and back surface sheets having a sealant layer on one surface.

[0033] The opening 29 is preferably provided by forming a cut-in line 30 on the front surface sheet 11. The cut-in line 30 is formed on the front surface sheet 11 at a position overlapping the interior sheet 26. Alternatively, in place of the cut-in line 30, a perforation line (line including a cut section and a non-cut section) or a half-cut line may be formed. In this case, the front and back surface sheets can be cut along the perforation line or the like during use, to form the opening.

[0034] In the example configuration shown in FIG. 1, two openings 29 are formed in the front surface sheet 11. The openings 29 are provided at one end side in the width direction and the other end side in the width direction with the center portion of the holding portion 25 in the width direction therebetween, by a ring-shaped cut-in line 30, for example, formed in an approximate quadrangular shape or an approximate elliptical shape as viewed from the front. The openings 29 are long holes extending in the up-and-down direction, and the length in the up-and-down direction is shortened as the position becomes closer to the center portion of the holding portion 25 in the width direction. Between the openings 29, the band portion 31 elongated in the up-and-down direction is formed. The band portion 31 which is the portion sandwiched between the openings 29 forms a portion held by the user when the pouch container 10 is held using the holding portion 25.

[0035] Next, an example manufacturing method of the pouch container 10 will be described with reference to FIG. 5.

[0036] FIG. 5 shows, of the manufacturing steps of the pouch container 10, a step of laminating long-length structures of the sheets to form the seal portions. In the present manufacturing step, long-length structures of the front surface sheet 11, the back surface sheet 12, the bottom gusset sheet 13, and the interior sheet 26 (here-

inafter referred to as "long-length structures 11z, 12z, 13z, and 26z") are prepared and laminated with each other. For the long-length structure 26z, a sheet having the heat seal characteristic on both surfaces is preferably used. In the laminating step of the long-length structures, the long-length structure 26z is inserted between the long-length structures 11z and 12z overlapped with each other. In addition, the long-length structure 26z is inserted at a position above the long-length structure 13z and below a portion where the outlet plug 20 is to be attached.

[0037] In the layering step of the long-length structures, the long-length structures 11z and 12z are laminated such that the sealant layers thereof oppose each other, and the long-length structure 13z is mountain-folded in the upward direction so that the sealant layer opposes the long-length structures 11z and 12z. Preferably, a hole that is to become the cut-out 21, and the cut-in line 30 for providing the opening 29 of the holding portion 25 are formed before the sheets are laminated. In addition, preferably, after the long-length structure 26z and the long-length structure 11z are heat-sealed and bonded, the other long-length structures are laminated.

[0038] In the long-length structures after the laminating step, the seal portions are formed in a heat seal step. In the heat seal step, the ends of the long-length structures are heat sealed, for example, except for the portion which is to become the upper end of the container body, to form the seal portions. Then, using a die-cut roll or the like, for example, the long-length structures are cut at a planned cut line 22, to be divided into individual container size. Finally, after the filling portion 14 is filled with the contents from the upper end of the container body, the upper end seal portion 15 is formed in a state where the attachment portion of the spout 18 of the outlet plug 20 is sandwiched between the upper ends of the front and back surface sheets, to obtain the pouch container 10.

[0039] FIG. 6 shows holding of the pouch container 10 using the holding portion 25. For example, when the contents are extracted from the pouch container 10, the cap 19 is detached from the spout 18, and the user holds the container with a single hand and tilts the spout 18 vertically downward. In this process, by inserting the fingers in the internal space 27 from the two openings 29 and gripping the band portion 31 which is a portion sandwiched between the openings 29, the user can firmly hold the pouch container 10. For example, four fingers; that is, an index finger, a middle finger, a ring finger, and a little finger, are inserted from one opening 29 and the thumb is inserted from the other opening 29, so that the band portion 31 can be held from both sides in the width direction.

[0040] As described above, the pouch container 10 is stably held by the holding portion 25. Because of this, even when the pouch container 10 is applied for a refilling container having a large container capacity, a superior refilling operation can be enabled. In addition, the holding portion 25 of the pouch container 10 has a structure which does not affect the container capacity. In other words,

the container capacity is not reduced with the provision of the holding portion 25, and it is not necessary to enlarge the outer shape of the container in order to secure the container capacity.

[0041] In a pouch container 10u exemplified in FIG. 7, an opening 29u formed by a cut-in line 30u with an end and a tongue piece 32 which is a remaining portion thereof are provided in a holding portion 25u. FIG. 7 is a front view of the pouch container 10u (showing a state where the tongue piece 32 is folded inside) and FIG. 8 is a diagram showing a part of a cross section along a line CC of FIG. 7. In the holding portion 25u, two openings 29u elongated in the up-and-down direction are provided, and a spacing between the openings 29u is slightly wider than that in the pouch container 10. Because of this, a band portion 31u which is the portion sandwiched between the openings 29u is also formed in a wider width than in the pouch container 10. The holding portion 25u has the tongue piece 32 having a part connected to a front surface sheet 11u at an edge of the opening 29u, and a remaining part separated from the front surface sheet 11u. The tongue piece 32 is folded, for example, into the internal space 27 when the holding portion 25u is used. When the tongue piece 32 is folded into the internal space 27A, the opening 29u having an approximate quadrangular shape elongated in the up-and-down direction is opened. In this case, at an edge of the opening 29u, a curved surface 32a is formed by the tongue piece 32. With the existence of the curved surface 32a, biting of the fingers by the edge of the opening 29u is reduced, and the holding characteristic can be improved.

[0042] FIG. 9 is an enlarged view of the upper end of the interior sheet 26. In the form shown in FIG. 9, the upper and lower end surfaces of the interior sheet 26 contact the contents (liquid) filled in the pouch container 10. A problem occurring in this case will now be described with reference to FIG. 9. The interior sheet 26 preferably has the heat seal characteristic on both surfaces for the purpose of manufacture. In addition, when high light-shielding characteristic and gas barrier characteristic or the like are required, the barrier layer is necessary. As a result, the interior sheet 26 has, for example, a three-layer structure in which sealant layers L2 and L3 are placed on both sides of a barrier layer L1.

[0043] When an end surface 26a of the interior sheet 26 of the three-layer structure contacts the contents (for example, liquid), the contents may intrude into the portion between the layers, and layer detachment (delamination) may occur. In addition, in many cases, the barrier layer includes aluminum or inorganic oxides such as aluminum oxide and silica. Depending on the type of the contents, the inorganic oxides may contact the contents and may be altered. In this case, there is a possibility of problems such as reduction in the light-shielding characteristic and gas barrier characteristic, or alteration of the contents itself.

[0044] Thus, when the interior sheet 26 is to have a smaller size than the front surface sheet 11; that is, when

there is a possibility that the upper and lower end surfaces of the interior sheet 26 contact the contents, it is preferable to isolate the end surface 26a of the interior sheet 26 from the internal space of the pouch container 10 (filling portion 14). As a method of isolating the end surface 26a of the interior sheet 26, various methods may be employed. For example, as shown in FIG. 10, a tape 33 which is allowed to contact the liquid (for example, a tape of a single layer having only the sealant layer) may be pasted over the inner surface of the front surface sheet 11 from the edge of the interior sheet 26. In this case, the end surface 26a of the interior sheet 26 is covered and hidden by the tape 33, and thus, the contact of the contents with the end surface 26a can be prevented.

[0045] Alternatively, as shown in FIG. 11, the pair of sealant layers L2 and L3 sandwiching the barrier layer L1 may be set to be slightly longer than the barrier layer L1 and extend beyond the end surface of the barrier layer L1. In this case, when the peripheral edge of the interior sheet 26 is heated and heat-sealed, the dissolved sealant layers L2 and L3 flow to the end surface of the barrier layer L1 and cover the end surface of the barrier layer L1. In addition, even in the configuration where the sealant layers L2 and L3 are not set to be longer, in the process of heat-sealing, by heating exactly the peripheral edge of the interior sheet 26, a part of the dissolved sealant layers L2 and L3 would flow to the end surface of the barrier layer L1 and cover the end surface of the barrier layer L1. Alternatively, as shown in FIG. 12, the peripheral edge of the interior sheet 26 may be folded toward the outside (side of the front surface sheet 11), and then the interior sheet 26 and the front surface sheet 11 may be bonded.

[0046] In a pouch container 10v exemplified in FIG. 13 (front view), a width of an interior sheet 26v is shorter than a width of the front surface sheet 11. The interior sheet 26v is provided in a limited portion in proximity to the portion of the front surface sheet 11 where the opening 29 and the band portion 31 are provided, and the internal space of a holding portion 25v is smaller compared to the pouch container 10. Alternatively, two interior sheets separated from each other may be bonded at the peripheral edge of the two openings 29.

[0047] A pouch container 10w exemplified in FIG. 14 (front view) differs from the pouch container 10 in that the pouch container 10w has a slanted side portion 23 in which corners positioned at an upper part of the front and back surface sheets are formed in a slanted manner with respect to the up-and-down direction and the width direction. In addition, the pouch container 10w differs from the pouch container 10 in that the pouch container 10w has two holding portions 25A and 25B. A structure of the pouch container 10w will now be described in detail with reference to FIGs. 14 - 19. FIG. 14 is a front view of the pouch container 10w. FIG. 15 is a cross-sectional diagram along a line DD of FIG. 14, and FIG. 16 is a cross-sectional diagram along a line EE of FIG. 1. FIG. 17 is a vertical cross-sectional diagram of the pouch con-

tainer 10w in a state where the contents are filled.

[0048] As shown in FIG. 14, the slanted side portion 23 is formed, for example, in a range of 1/3 -1/2 of the width of the sheet from one end in the width direction of the front and back surface sheets. The spout 18 of the outlet plug 20 is attached to the slanted side portion 23. The spout 18 is inserted between the front and back surface sheets, and is bonded to the front and back surface sheets by an upper end seal portion 15w. In other words, the upper end seal portion 15w formed on the slanted side portion 23 is formed in a state where the spout 18 is sandwiched between the front and back surface sheets. In the following description, the one end in the width direction of the container body closer to the outlet plug 20 is described as a "first end," and the other end in the width direction at an opposite side from the first end is described as a "second end."

[0049] As shown in FIGs. 14 - 17, the pouch container 10w has the two holding portions 25A and 25B. On inner surfaces of a front surface sheet 11w and a back surface sheet 12w, interior sheets 26A and 26B are bonded respectively. The holding portions 25A and 25B are formed on the front surface sheet 11w and the back surface sheet 12w by forming openings 29A and 29B, which are openings into which fingers can be inserted, at positions overlapping the interior sheets 26A and 26B, respectively.

[0050] The holding portions 25A and 25B are preferably provided at positions which oppose each other, and overlap in the front-and-back direction. In other words, the interior sheets 26A and 26B are bonded to positions on the inner surfaces of the front and back surface sheets at positions opposing each other. With such a configuration, a superior holding characteristic can be realized, and the productivity can be improved. The holding portions 25A and 25B have an approximate quadrangular shape as viewed from the front, elongated longer in the width direction than the up-and-down direction, and have the same shape and same size as each other. Structures common in the holding portions 25A and 25B will be described by exemplifying the holding portion 25A.

[0051] Similar to the case of the pouch container 10, the holding portion 25A is formed in a bag form having an internal space 27A which is independent from the filling portion 14, and in which portions other than the opening 29A are closed. With such a configuration, it becomes difficult for the finger to slip out from the holding portion 25A, and a superior holding characteristic can be obtained. The internal space 27A preferably has a size which can house a plurality of fingers, for example, the index finger, the middle finger, the ring finger, and the little finger of the right hand. In order to enable stable holding of the pouch container 10w, the size of the internal space 27A is preferably set to a degree to entirely house the finger from the root to the tip. The interior sheet 26A forming the holding portion 25A is preferably provided over the entire widths of the front and back surface sheets, from the viewpoint of the productivity or the like.

[0052] The opening 29A is an opening that enables

insertion of the finger into the internal space 27A from the width direction, and is preferably provided at a second end side in relation to the center in the width direction of the holding portion 25A. The opening 29B is preferably provided at an exact back side of the opening 29A. The opening 29A is designed such that the finger is inserted from the second end side, and the finger inserted from the opening 29A is housed in the internal space 27A with the fingertip directed toward the first end side. The internal space 27A is a space extending longer in the width direction, in order to facilitate housing of the finger. The opening 29A is preferably provided by forming a cut-in line 30A on the front surface sheet 11w. The cut-in line 30A is formed on the front surface sheet 11w at a position overlapping the interior sheet 26A. A cut-in line 30B is formed on the back surface sheet 12w at a position overlapping the interior sheet 26B, and preferably overlaps the cut-in line 30A in the front-and-back direction.

[0053] The holding portion 25A preferably has tongue pieces 34A and 35A formed at an edge of the opening 29A. The cut-in line 30A exemplified in FIG. 14 has a linear portion L formed in a straight line form along the up-and-down direction, and a curved surface portion R formed in an approximate elliptical shape connected to an upper end and a lower end of the linear portion L. In the opening 29A provided by the cut-in line 30A, the upper end and the lower end are opened in an approximate elliptical shape to expose the interior sheet 26A, and an intermediate portion is closed by the tongue pieces 34A and 35A. In other words, because a large part of the openings 29A and 29B is closed by the tongue piece, when a light-shielding sheet is used for the front and back surface sheets, even when the interior sheets 26A and 26B are transparent, it becomes difficult to see the contents, and, for example, a superior appearance of the container can be realized. When it is desired to block light for the contents, because it becomes more difficult for the light to reach the filling portion 14, such a configuration is preferable.

[0054] When it is desired to further block the light for the contents, a light-shielding sheet may be used for the interior sheets 26A and 26B, or the opening may be formed by only the linear portion L. However, in order to facilitate checking of the opening 29A and to facilitate insertion of the finger, the opening 29A is preferably partially opened. Alternatively, in place of the cut-in line 30A, a perforation line or a half-cut line may be formed. In this case, the front and back surface sheets may be cut along the perforation line or the like during the use, to form the opening.

[0055] As shown in FIGs. 18 and 19, the tongue pieces 34A and 35A are folded, for example, into the internal space 27A when the holding portion 25A is used. When the tongue pieces 34A and 35A are folded into the internal space 27A, the opening 29A having an approximate quadrangular shape elongated in the up-and-down direction is opened. In particular, in the holding form exemplified in FIG. 23 to be described later, because the

finger does not contact the end of the front surface sheet 11w when the tongue piece 35A is folded inside, the finger is not hurt even when a large load is applied to the finger, and the holding characteristic is improved.

[0056] Next, with reference to FIG. 20, an example manufacturing method of the pouch container 10w will be described. Similar to FIG. 5, FIG. 20 shows a step, of the manufacturing steps, of laminating long-length structures of the sheets to form the seal portions. In the present manufacturing process, long-lengths structures of the front surface sheet 11w, the back surface sheet 12w, the bottom gusset sheet 13, and the interior sheets 26A and 26B (hereinafter referred to as "long-length structures 11wz, 12wz, 13z, 26Az, and 26Bz", respectively) are prepared and laminated with each other. For the long-length structures 26Az and 26Bz, sheets having the heat seal characteristic on both surfaces are preferably used.

[0057] In the laminating step of the long-length structures, the long-length structures 13z, 26Az, and 26Bz are inserted between the long-length structures 11wz and 12wz which are overlapped with each other. In addition, the long-length structures 26Az and 26Bz are inserted in a state of being overlapped with each other and at a position above the long-length structure 13z and below a portion in which the outlet plug 20 is attached. With such a configuration, the holding portions 25A and 25B are provided at positions opposing each other; that is, positions overlapping in the front-and-back direction.

[0058] In the laminating step of the long-length structures, the long-length structures 11wz and 12wz are laminated in a manner such that the sealant layers thereof oppose each other, and the long-length structure 13z is mountain-folded in the upward direction so that the sealant layer thereof opposes the long-lengths structures 11wz and 12wz. Preferably, a hole that forms the cut-out 21 and the cut-in lines 30A and 30B for providing the openings 29A and 29B are formed before the sheets are laminated. In addition, preferably, after the long-length structure 26Az and the long-length structure 11wz are heat-sealed and bonded, and the long-length structure 26Bz and the long-length structure 12wz are heat-sealed and bonded, there long-length structures are laminated with the long-length structure 13z.

[0059] In the long-length structures after the laminating step, the seal portions are formed in the heat seal step. In the heat seal step, for example, the seal portions are formed by heat sealing an end edge of each long-length structure except for the upper end. Then, using a die-cut roll or the like, for example, the long-length structure is cut at a planned cut line 22w, to divide into individual container size and to form the slanted side portion 23. Finally, the outlet plug 20 is attached to the slanted side portion 23, to obtain the pouch container 10w. Preferably, a part of the upper end seal portion 15w is formed after the container is filled with the contents.

[0060] In the above-described example manufacturing process, there is described an example method which uses the long-length structures 26Az and 26Bz, but al-

ternatively, in place of the long-length structures 26Az and 26Bz, long-length gusset sheets may be used. In this case, the long-length gusset sheet is supplied to a bag-producing device, and the gusset sheet is cut along a fold line before or after the sheet is heat-sealed to the wall-surface sheet, to separate the holding portions 25A and 25B.

[0061] Next, with reference to FIGs. 21 - 23, an operation and an effect of the pouch container 10w will be described in detail. FIGs. 21 and 22 show holding of the pouch container 10w using the holding portions 25A and 25B. For example, when the contents are taken out from the pouch container 10w, the cap 19 is detached from the spout 18, and the container is held with a single hand (hereinafter, this hand is assumed to be the right hand), and the spout 18 is tilted vertically downward. In this process, for example, four fingers; that is, the index finger, the middle finger, the ring finger, and the little finger, are inserted from the second end side into the internal space of the holding portion 25A, and the thumb is inserted into the internal space 27B of the holding portion 25B. In particular, the index finger, the middle finger, the ring finger, and the little finger can be inserted deeply into the internal space 27A. For example, the fingertip can be bent so that the finger is hooked on the interior sheet 26A which is flexible, to enable firm holding of the pouch container 10w. In this process, the tongue pieces 34A and 35A are folded, for example, into the inside of the internal spaces 27A and 27B.

[0062] Because the fingers inserted into the internal spaces 27A and 27B are covered by the front and back surface sheets down to the root, even if the contents are spilled by an unintentional movement, contact of the contents with the fingers can be prevented. For example, even when direct contact of the contents on the skin is not preferable, such as in the case where the contents are poisonous substances such as chemicals, it is possible to execute the extraction operation safely.

[0063] FIG. 23 shows holding of the pouch container 10w by hooking the fingers (the index finger, the middle finger, the ring finger, and the little finger) on the edge of the second end side of the opening 29A of the holding portion 25A. In the holding form shown in FIG. 23, only the holding portion 25A is used. In this process, the tongue piece 34A is folded into the internal space 27A. By leaving the tongue piece 34A, the contact of the finger on the end of the front surface sheet 11w is prevented, the finger is not hurt even when a large load is applied to the finger, and the holding characteristic can be improved.

[0064] The pouch container 10w is stably held with the holding portions 25A and 25B. Because of this, even when the pouch container 10w is applied for a refilling container having a large container capacity, a superior refilling operation is possible. In addition, the holding portions 25A and 25B of the pouch container 10w have a structure which does not affect the container capacity. In other words, the container capacity is not reduced by the

provision of the holding portions 25A and 25B, and the outer shape of the container does not need to be enlarged in order to secure the container capacity.

[0065] FIGs. 24 - 26 show an alternative configuration of the pouch container 10. Here, only a structure on the front surface side is shown, but preferably, the back surface side has a same structure as the front surface side.

[0066] In the pouch container 10x exemplified in FIG. 24, a plurality of openings 29Ax are formed at portions overlapping the interior sheet 26A of a front surface sheet 11x. The openings 29Ax are provided aligned in the up-and-down direction with a spacing therebetween. In the example configuration shown in FIG. 24, four openings 29A opened in a circular shape viewed from the front and having no tongue piece are formed by cut-in lines 30Ax having a circular shape. Alternatively, the shape and number of openings can be suitably changed. Into the four openings 29Ax, for example, the index finger, the middle finger, the ring finger, and the little finger are inserted, respectively.

[0067] In a pouch container 10y exemplified in FIG. 25, an opening 29Ay having an approximate quadrangular shape elongated along the up-and-down direction is formed in the front surface sheet 11y at a portion overlapping an interior sheet 26Ay. The opening 29Ay has a shape similar to the opening 29A when the opening 29A is opened with the tongue pieces 34A and 35A folded into the internal space 27A. The opening 29Ay is formed by a cut-in line 30Ay having an approximate quadrangular shape. In the example configuration shown in FIG. 25, a transparent sheet is used for the interior sheet 26Ay, and the amount of contents can be checked through the interior sheet 26Ay exposed by the opening 29Ay. On the portion of the interior sheet 26Ay which is exposed, for example, a tick mark 36 may be formed. With such a configuration, the amount of the contents can be measured accurately.

[0068] In a pouch container 10z exemplified in FIG. 26, a width of an interior sheet 26Az is set shorter than a width of the front surface sheet 11. In other words, the interior sheet 26Az is provided at a region limited to a region near the opening 29A. In such a configuration, the internal space of a holding portion 25Az is smaller than that of the pouch container 10.

<Second Preferred Embodiment>

[0069] A pouch container 50 according to a second preferred embodiment of the present invention will now be described in detail with reference to FIGs. 27 - 32. FIG. 27 is a perspective view of the pouch container 50, and shows a state where the container is filled with the contents. FIG. 28 is an exploded perspective view of the pouch container 50, and FIG. 29 is a vertical cross-sectional diagram of the pouch container 50. In the second preferred embodiment, a back surface of the pouch container 50 is described as a first surface and a front surface is described as a second surface. The pouch container

50 includes, as wall-surface sheets forming the first surface (back surface) and the second surface (front surface) which oppose each other, a back surface sheet 58 (first surface sheet) and a front surface sheet 60 (second surface sheet).

[0070] As shown in FIGs. 27 - 29, the pouch container 50 is a standing pouch including, similar to the first preferred embodiment, the front surface sheet 60, the back surface sheet 58 which forms a tubular structure along with the front surface sheet 60, and a bottom gusset sheet 62 which connects lower ends of the front and back surface sheets. The pouch container 50 further includes a top gusset sheet 64. The pouch container 50 is largely separated into a container body 52 formed by pasting a plurality of sheets, and an outlet plug 54 attached to the container body 52. The pouch container 50 is formed by bonding together the front surface sheet 60 (second surface sheet) forming a front surface of the container body 52, the back surface sheet 58 (first surface sheet) forming a back surface, the bottom gusset sheet 62 forming a bottom gusset (godet), and the top gusset sheet 64 forming a top gusset (godet).

[0071] The container body 52 has an approximate cylindrical shape with a thickness corresponding to the sizes of the gusset sheets 62 and 64, and is a standing pouch which can self-stand. The container body 52 may be formed with the above-described sheets being different sheets, or alternatively may be formed by folding one sheet. In the following description, the container body is assumed to be formed from different sheets. The outlet plug 54 has a structure similar to the outlet plug 20 used in the first preferred embodiment, has an approximate tubular structure made of a hard resin, and is attached to the upper end of the container body 52. When the contents of the pouch container 50 are to be poured out, the pouch container 50 is held and tilted. In order to facilitate the pour-out process, in the present embodiment, a holding portion 68 held by the user is provided only on the side of the front surface sheet 60 of the pouch container 50. The holding portion 68 is provided at a lower side of the container in relation the outlet plug 54. Structures of the portions of the pouch container 50 will now be described in detail.

[0072] As described above, the container body 52 is made of a plurality of sheets. The front surface sheet 60 and the back surface sheet 58 are placed opposing each other, the sides are pasted, and an approximate tubular shape is formed. The locations of the front surface sheet 60 and the back surface sheet 58 where the sides are heat-sealed form a side seal portion 70s. The front surface sheet 60 and the back surface sheet 58 have approximately the same width. In addition, for the convenience of the manufacture, a length in the up-and-down direction of the front surface sheet 60; that is, the sheet on the surface on which the holding portion 68 is formed, is shorter than a length in the up-and-down direction of the back surface sheet 58; that is, the sheet on the surface on which the outlet plug 54 is attached, and the position

of the upper end of the front surface sheet 60 is lower than a position of the upper end of the back surface sheet 58.

[0073] On an inner surface of the front surface sheet 60, an interior sheet 66 is bonded. The interior sheet 66 has only its peripheral edge bonded to the front surface sheet 60, and the center portion thereof is not bonded to the front surface sheet 60. Because of this, a space independent from the internal space of the pouch container 50 is formed between the interior sheet 66 and the front surface sheet 60. Of the front surface sheet 60, at a location overlapping the interior sheet 66, an opening is formed. The opening becomes an opening 71 for the user to insert the fingers when the pouch container 50 is held. The user inserts the fingers from the opening 71 into the space between the front surface sheet 60 and the interior sheet 66, and grips a part of the front surface sheet 60 or hooks the fingers on the front surface sheet 60. In other words, the opening 71 formed in the interior sheet 66 and the front surface sheet 60 forms the holding portion 68 for holding the pouch container 50. No particular limitation is imposed on a formation position of the holding portion 68 so long as the holding portion 68 is on the side of the front surface sheet 60 and is at a lower side of the container than the top gusset sheet 64. However, in consideration of the stability when the pouch container 50 is held, the holding portion 68 is preferably provided at approximately the same height position as the height of the center of gravity of the pouch container 50.

[0074] No particular limitation is imposed on the size of the interior sheet 66 so long as a space into which the finger is inserted can be formed between the interior sheet 66 and the front surface sheet 60. However, in consideration of the productivity or the like, the interior sheet 66 is provided over the entire width of the front surface sheet 60. In other words, the width of the interior sheet 66 is preferably set at the same width as the front surface sheet 60. With such a configuration, the pouch container 50 can be easily and inexpensively manufactured by existing bag production processes using a long-length sheet. In addition, by providing the holding portion 68 by inserting the interior sheet 66 between the front and back surface sheets, it becomes possible to manufacture the pouch container 50 using typical front and back surface sheets having a sealant layer on one surface.

[0075] The bottom gusset sheet 62 is a sheet which connects the lower end of the front surface sheet 60 and the lower end of the back surface sheet 58. The bottom gusset sheet 62 is mountain-folded in the upward direction and sandwiched between the front and back surface sheets. In this state, the peripheral edge of the bottom gusset sheet 62 and the front and back surface sheets are bonded together. The locations where the peripheral edge of the bottom gusset sheet 62 and the lower ends of the front surface sheet 60 and the back surface sheet 58 are heat-sealed become a bottom seal portion 70b. When the pouch container 50 is filled with the contents,

the mountain-folded bottom gusset sheet 62 is expanded and widened, and gives a thickness to the pouch container 50.

[0076] The top gusset sheet 64 is a sheet which connects an upper end of the front surface sheet 60 and an upper end of the back surface sheet 58. The top gusset sheet 64 is mountain-folded in the downward direction, and sandwiched between the front and back surface sheets. In this state, the peripheral edge of the top gusset sheet 64 and the front and back surface sheets are bonded together. The locations where the peripheral edge of the top gusset sheet 64 and the upper ends of the front and back surface sheets are heat-sealed become a top seal portion 70t. In the present embodiment, the upper end position of the front surface sheet 60 is lower than the upper end position of the back surface sheet 58. Therefore, the top seal portion 70t on the side of the front surface sheet 60 is lower than the top seal portion 70t on the side of the back surface sheet 58.

[0077] At the top seal portion 70t which is the bonding location between the top gusset sheet 64 and the back surface sheet 58, the outlet plug 54 is attached. The outlet plug 54 is an approximate tubular structure made of a hard resin. The outlet plug 54 comprises a spout 74 bonded to the container body 52, and a cap 76 screwed to the spout 74. As shown in FIG. 28, on the spout 74, a flange 74a is formed at the center in the up-and-down direction, and an attachment portion 74b bonded to the container body 52 is formed at a position lower than the flange 74a. The attachment portion 74b has an approximate ship shape in which a lateral cross-section becomes thinner toward the outer side in a width direction of the pouch container 50. As will be described later in detail, in the state where the attachment portion 74b is sandwiched between the upper end of the back surface sheet 58 and the end of the top gusset sheet 64, the upper end of the back surface sheet 58 and the end of the top gusset sheet 64 are heat-sealed, so that the spout 74 is fixed on the container body 52.

[0078] The sheets forming the container body 52 are formed from, for example, resin films. For the materials forming the sheets, the lamination structure of the sheets, or the like, structures similar to the first preferred embodiment can be applied. On the sheet, a printing layer (not shown) may be provided for displaying the product name of the contents, product explanation such as materials and cautions on use, various other designs, or the like.

[0079] As described above, in the present embodiment, the container body 52 has a form having the bottom gusset and the top gusset, the outlet plug 54 is provided on the side of the back surface sheet 58, and the holding portion 68 for holding the pouch container 50 is provided on the side of the front surface sheet 60. Such a configuration is employed for the following reason.

[0080] When the contents of the pouch container 50 are to be poured out, the pouch container 50 obviously must be held and tilted. In this process, when there is no holding portion 68 on the pouch container 50, the user

must grip the body portion or the like of the pouch container 50 directly with the hand. However, if the force of gripping the body portion is strong, the pouch container 50 may be compressed, and the contents may burst out. On the other hand, if the force of gripping the body portion is weak, the pouch container 50 cannot be held and the pouch container 50 may fall down. Thus, the force application is very sensitive. Because of this, in the case of the pouch container 50 having no holding portion 68, when the contents are to be poured out, it is necessary to hold the body portion of the pouch container with one hand and place the other hand at the bottom of the pouch container 50. In other words, in the case of the pouch container 50 having no holding portion 68, the pour-out operation with a single hand is difficult.

[0081] In consideration of this, provision of the holding portion in the standing pouch has been proposed. For example, as shown in FIG. 35, there is proposed a configuration in which a hole 102 which becomes the holding portion is formed at a seal portion 101 of a pouch container 100. However, in this case, in order to form the holding portion, a dedicated seal portion 101 must be secured, and a capacity with respect to the size of the pouch container 100 would be reduced. In addition, as shown in FIG. 36, another configuration is proposed in which a handle 111 which becomes the holding portion is attached on the back surface of a pouch container 110 having a bottom gusset. According to such a configuration, even if the holding portion is provided, the capacity is not reduced.

[0082] In the case of the pouch container 110 which has only the bottom gusset and has no top gusset as shown in FIG. 36, the thickness of the pouch container 110 becomes thinner toward the top portion side. Because of this, the capacity is smaller compared to the pouch container 50 having the same width and the same length in the up-and-down direction. In addition, in a shop or the like, a plurality of pouch containers are laid out side by side. In this case, if the pouch container is the pouch container 110 having only the bottom gusset, even when the pouch containers are placed with the bottoms of the plurality of pouch containers 110 touching each other, spaces are inevitably formed between the top portions.

[0083] Further, in consideration of the circumstances of the pour-out operation, in the case of the pouch container 110, because the thickness is increased toward the bottom portion, the center of gravity of the container as a whole is at a relative low position. In order to grip only the handle 111 placed at the back surface and tilt the pouch container 110 having the center of gravity at a low position, a larger force would be required as compared to the case of the pouch container 50. Because of this, normally, the pouch container 110 is tilted while gripping the handle 111 and placing a hand on the bottom portion of the pouch container 110. Moreover, when the contents flow downward due to the force of gravity when the pouch container 110 is tilted, the relative positional

relationship of the center of gravity with respect to the handle 111 tends to drastically change. The user must adjust the angle of tilting the pouch container 110 or the like according to the drastic change of the position of the center of gravity. Furthermore, because the pouch container 110 has a thinner thickness on the top portion side as compared to the pouch container 50, the pouch container 110 is more easily deformed as the amount of the contents is reduced.

[0084] On the other hand, in the present embodiment, both the top gusset sheet 64 and the bottom gusset sheet 62 are provided. With such a configuration, the container as a whole has an approximately uniform thickness. As a result, the amount of contents can be increased in comparison to the width and the height. In addition, when a plurality of the containers are laid out side by side in the shop or the like, a dead space tends not to be created, and the exhibition space can be effectively utilized.

[0085] In addition, by setting the thickness to an approximately uniform thickness over the entirety of the pouch container 50, the position of the center of gravity can be set at a high position. Therefore, the container can be more easily tilted than the pouch container 110. In addition, because the thickness is approximately uniform over the entire container, even when the pouch container 50 is tilted and the contents flow to the side of the outlet plug 54, the change of the relative positional relationship of the center of gravity with respect to the holding portion 68 is small. As a result, the pouch container can be stably tilted without a sensitive force adjustment. In addition, because the pouch container 50 has a thickness over the whole structure, even when the mount of the contents is reduced, folding or narrowing tends not to occur, and the pouch container 50 is not easily deformed. As a result, a stable pour-out operation is enabled even with a single hand.

[0086] In the present embodiment, the outlet plug 54 is provided on a surface opposite the holding portion 68. Because of this, as shown in FIG. 30, when the pouch container 50 is held in a manner such that the holding portion 68 is positioned at an upper side in the force of gravity direction, the outlet plug 54 positioned at the opposite side of the holding portion 68 is always positioned at a lower side in the force of gravity direction. As a result, the contents of the pouch container 50 smoothly flow to the outlet plug 54 by the action of the force of gravity.

[0087] In the present embodiment, the holding portion 68 is formed from the opening 71 formed in the front surface sheet 60 and the interior sheet 66 heat-sealed on the front surface sheet 60. With such a configuration, the pouch container 50 having the holding portion 68 can be easily and inexpensively manufactured by the existing bag production process using a long-length sheet. In the related art, there is proposed a configuration in which a holding portion (handle) made of a material separate from the sheet forming the container body is attached on the pouch container, but in such a configuration, the holding portion cannot be formed in the existing bag production

process such as cutting, folding, and bonding of the sheet materials, and a dedicated process must be provided for forming the holding portion. As a result, the cost of the pouch container having the holding portion would be increased and the manufacturing process thereof would become complicated.

[0088] Next, manufacturing steps of the pouch container 50 will be described with reference to FIGs. 31 and 32. FIGs. 31 and 32 are diagrams showing manufacturing steps of the pouch container 50. In FIGs. 31(a) - 32(b), the sheet are shown as short-length sheet pieces, but in reality, the sheet are long-length sheets until the sheets are cut in FIG. 32(c).

[0089] When the pouch container 50 is manufactured, first, the top gusset sheet 64 which is mountain-folded, the bottom gusset sheet 62, and the interior sheet 66 are placed between the front and back surface sheets (FIG. 31(a)). In this process, the front and back surface sheets are placed such that the sealant layers thereof oppose each other. In addition, the top gusset sheet 64 and the bottom gusset sheet 62 are mountain-folded such that the sealant layers thereof are at the outer side. Further, for the interior sheet 66, a sheet having the heat seal characteristic on both surfaces is used.

[0090] After the sheet are placed, punch machining is executed using a punching machine 80 on the front surface sheet 60, to form the opening 71 in the front surface sheet 60 (FIG. 31(b)). Then, in a state where a heat insulation plate 82 is placed below the interior sheet 66, the upper and lower ends of the interior sheet 66 and the front surface sheet 60 are heat-sealed (FIG. 31(c)). The heat seal is executed by pressurizing and heating the outer surface of the front surface sheet 60 with a thermal seal bar 84 having a linear heating unit.

[0091] Then, a heat insulation plate 86 is placed between the portions of the mountain-folded top gusset sheet 64. In this state, the peripheral edge of the top gusset sheet 64 and the ends of the front and back surface sheets are heat-sealed, and the peripheral edge of the bottom gusset sheet 62 and the ends of the front and back surface sheets are heat-sealed (FIG. 31(d)). The heat seal is executed by pressurizing and heating the outer surfaces of the front and back surface sheets by a thermal seal plate 88 having a heating unit of a desired seal shape. In a subsequent process, the outlet plug 54 is inserted between the center of the upper end of the back surface sheet 58 and the center of the upper end of the top gusset sheet 64. In order to allow this insertion of the outlet plug 54, the back surface sheet 58 and the top gusset sheet 64 are heat-sealed only at the sides in the width direction of the upper end, and the center portion in the width direction of the upper end is maintained in an unsealed state.

[0092] FIG. 32(a) shows the pouch container 50 after the heat seal step. Next, the side of the front surface sheet 60 of the top gusset sheet 64 which is folded double is formed into a standing form (FIG. 32(b)). This is realized by, for example, inserting in advance a guiderail 90

which gradually deforms from a horizontal state into a vertical state between the portions of the top gusset sheet 64 which is folded double, and transporting the pouch container 50 along the guiderail 90. After the side of the front surface sheet 60 of the top gusset sheet 64 is formed in the standing form, the upper ends of the top gusset sheet 64 and the front surface sheet 60 which overlap each other are cut, to set the height of the upper end to be lower than that on the side of the back surface sheet 58.

[0093] After the top gusset sheet 64 and the front surface sheet 60 are cut, the top gusset sheet 64 is again tilted, and the pouch container 50 is returned to the flat state. The side portions of the pouch container 50 are heat-sealed. In this process, a point seal Ps is also applied for bonding the ends in the width direction of the bottom seal portion 70b formed by the front surface sheet 60 and the bottom gusset sheet 62 and the ends in the width direction of the bottom seal portion 70b formed by the back surface sheet 58 and the bottom gusset sheet 62. Similarly, a point seal Ps is also applied for bonding the ends in the width direction of the top seal portion 70t formed by the front surface sheet 60 and the top gusset sheet 64 and the ends in the width direction of the top seal portion 70t formed from the back surface sheet 58 and the top gusset sheet 64. After the side seal portion 70s and the point seal Ps are formed, the long-length sheet is cut in a width of each pouch container 50 (FIG. 32(c)). FIG. 32(d) shows the pouch container 50 after the cutting process.

[0094] Then, the outlet plug 54 is inserted between the top gusset sheet 64 and the back surface sheet 58. Specifically, first, in a state where the top gusset sheet 64 is suctioned and held by a first suctioning member (not shown) and the back surface sheet 58 is suctioned and held by a second suctioning member (not shown), the first and second suctioning members are moved in directions away from each other so that a gap is formed between the back surface sheet 58 and the top gusset sheet 64. Then, the attachment portion 74b of the outlet plug 54 is inserted into the gap. After the attachment portion 74b of the outlet plug 54 is inserted between the back surface sheet 58 and the top gusset sheet 64, while the state of sandwiching the attachment portion 74b is maintained, the upper end of the back surface sheet 58 and the upper end of the top gusset sheet 64 are heat-sealed. As is clear from FIG. 32(d), in the present embodiment, the front surface sheet 60 is cut during the manufacturing, and is set lower than the back surface sheet 58. Because of this, the upper end of the back surface sheet 58 is not hidden by the front surface sheet 60, and is exposed outside. This enables easy execution of the operation to separate the back surface sheet 58 and the top gusset sheet 64, the operation to insert the attachment portion 74b between the sheets, and the operation to heat seal the upper ends of the sheets, which are described above.

[0095] As is clear from the above description, in the present embodiment, the holding portion 68 is formed

from a sheet similar to the sheet forming the pouch container 50. As a result, the holding portion 68 can be easily formed by only adding, to the typical processes for the pouch container 50, a formation step of the opening 71 on the front surface sheet 60 (FIG. 31(b)) and a bonding step of the front surface sheet 60 and the interior sheet 66 (FIG. 31(c)). In other words, the pouch container 50 having the holding portion 68 can be manufactured without significantly changing the manufacturing process of the related art. In addition, by cutting the upper end of the front surface sheet 60 during the manufacturing process to set the upper end at a lower position than the back surface sheet 58, it becomes possible to execute the attachment step of the outlet plug 54 by similar procedures as that in the related art.

[0096] Alternatively, the above-described cutting step of the front surface sheet 60 (FIG. 32(b)) may be omitted. In this case, the formation of the point seal Ps may be executed after the attachment of the outlet plug 54, instead of before the attachment. Specifically, when the point seal Ps is not formed in the step of FIG. 32(c), one side of the top gusset sheet 64 which is folded may still be lifted as shown in FIG. 32(b). Therefore, after the side seal portion 70s is formed and the long-length sheet is cut into a predetermined width, the side of the front surface sheet 60 of the top gusset sheet 64 may be shaped in a standing manner using the guiderail 90, the side of the back surface sheet 58 may be exposed to the outside, and the outlet plug 54 may be attached in this state. After the outlet plug 54 is attached, the point seal Ps may be formed. With the use of such a manufacturing method, the length of the front surface sheet 60 in the up-and-down direction can be set at the same length as the length of the back surface sheet 58 in the up-and-down direction, and thus, the capacity of the overall pouch container 50 can be further increased.

[0097] In FIG. 27, as described above, two long holes elongated in the up-and-down direction and aligned along the width direction are exemplified as the opening 71. In this case, of the front surface sheet 60, a portion sandwiched between the two long holes (band portion) functions as a handle to be gripped by the user. However, the shape, number, and size of the opening 71 are not limited so long as the fingers can be inserted. Therefore, the opening 71 may be, for example, a cut-in in which the front surface sheet 60 is broken in a line in place of the long-hole opening. In addition, the number of the openings 71 may be plural or one. When a plurality of openings 71 are employed, as shown in FIG. 27, of the front surface sheet 60, a portion between the opening 71 and the opening 71 functions as the handle gripped by the user. In addition, in FIG. 27, the opening 71 is shown to have a longer length in the up-and-down direction, but the opening 71 may alternatively be elongated in the width direction, so long as the opening 71 has a length to allow insertion of the finger. Alternatively, four openings into each of which each finger can be inserted may be formed in an aligned manner (refer to FIG. 24 showing

the first preferred embodiment), and the fingers may be inserted into respective openings when the pouch container 50 is held.

[0098] In a pouch container 50x shown in FIG. 33, a tongue piece 78 is provided on a holding portion 68x. FIG. 33 is a perspective view of the pouch container 50x in which the tongue piece 78 is provided on the opening 71 (state where the tongue piece 78 is folded inside), and FIG. 34 is a cross-sectional diagram along a line GG of FIG. 33. In the tongue piece 78, a part thereof is connected to a front surface sheet 60x at an edge of the opening 71, and the remaining part is separated from the front surface sheet 60x. When the pouch container 50x is held, the tongue piece 78 is turned (folded) outside or inside as shown in FIG. 33. In this case, a curved surface 78a is formed by the tongue piece 78 at the edge of the opening 71. Because of the existence of the curved surface 78a, biting of the finger by the edge of the opening 71 is reduced and the holding characteristic is improved.

[0099] The opening and cut-in forming the opening 71 do not need to be formed in advance, and a perforation or a half-cut line for forming the opening or cut-in may be formed in the front surface sheet 60. In this case, the user may break the front surface sheet along the perforation and half-cut line to form the opening 71 when the holding portion 68 is required such as when the contents are to be poured.

[0100] The interior sheet 66 preferably has the same width as the front surface sheet 60 for the convenience of manufacture, but the width is not necessarily the same width, and the width of the interior sheet 66 may be set smaller than the width of the front surface sheet 60. In addition, an end surface of the interior sheet 66 can be isolated from the internal space of the pouch container 50 similar to the case of the first preferred embodiment (refer to FIGs. 10 - 12).

[0101] The structure described above is merely exemplary, and the structures may be suitably changed so long as the pouch container is a pouch container 50 having the bottom gusset sheet 62 and the top gusset sheet 64, and has the holding portion 68 on the side opposite from the attachment surface of the outlet plug 54. For example, the size (aspect ratio) or the like of the pouch container 50 may be suitably changed.

REFERENCE SIGNS LIST

<First Preferred Embodiment>

[0102]

- 10 POUCH CONTAINER; 11 FRONT SURFACE SHEET; 12 BACK SURFACE SHEET; 13 BOTTOM GUSSET SHEET; 14 FILLING PORTION; 15 UPPER END SEAL PORTION; 16 BOTTOM SEAL PORTION; 17 SIDE SEAL PORTION; 18 SPOUT; 19 CAP; 20 OUTLET PLUG; 21 CUT-OUT; 22 PLANNED CUT LINE; 23 SLANTED SIDE POR-

TION; 25 HOLDING PORTION; 26 INTERIOR SHEET; 27 INTERNAL SPACE; 28 END EDGE SEAL PORTION; 29 OPENING; 30 CUT-IN; 31 BAND PORTION; 32, 34A, 34B, 35A, 35B TONGUE PIECE; 33 TAPE; 35 TICK

<Second Preferred Embodiment>

[0103] 50 POUCH CONTAINER; 52 CONTAINER BODY; 54 OUTLET PLUG; 58 BACK SURFACE SHEET (FIRST SURFACE SHEET); 60 FRONT SURFACE SHEET (SECOND SURFACE SHEET); 62 BOTTOM GUSSET SHEET; 64 TOP GUSSET SHEET; 66 INTERIOR SHEET; 68 HOLDING PORTION; 70 SEAL PORTION; 71 OPENING; 74 SPOUT; 76 CAP; 78 TONGUE PIECE; 80 PUNCHING MACHINE; 82, 86 HEAT INSULATION PLATE; 84 THERMAL SEAL BAR; 88 THERMAL SEAL PLATE; 90 GUIDERAIL

Claims

- 1. A pouch container comprising:
 - at least one of wall-surface sheets that form at least a first surface and a second surface which oppose each other; and a holding portion, wherein
 - the holding portion comprises:
 - at least one of an interior sheets that is bonded to an inner surface of at least one of the first surface and the second surface; and an opening formed on the wall-surface sheet to which the interior sheet is bonded, at a position overlapping the interior sheet.
- 2. The pouch container according to Claim 1, wherein
 - the wall-surface sheets include:
 - a first surface sheet that forms the first surface;
 - a second surface sheet that forms the second surface and that forms a tubular structure along with the first surface sheet; and a bottom gusset sheet that connects a lower end of the first surface sheet and a lower end of the second surface sheet.
- 3. The pouch container according to Claim 1 or 2, wherein
 - the interior sheet is bonded to the inner surface of the first surface, and
 - the opening is formed on the first surface at a position overlapping the interior sheet.

- 4. The pouch container according to Claim 1 or 2, wherein
 - the interior sheets are bonded on respectively the inner surfaces of the first surface and the second surface at positions opposing each other, and
 - the opening is formed on each of the first surface and the second surface at a respective position overlapping the interior sheet.
- 5. The pouch container according to Claim 3 or 4, further comprising:
 - a pouring outlet that establishes communication between an inside and an outside of the pouch container, wherein
 - the pouring outlet is provided at a bonding portion between an upper end of the first surface sheet and an upper end of the second surface sheet.
- 6. The pouch container according to Claim 1, wherein
 - the wall-surface sheets include:
 - a first surface sheet that forms the first surface;
 - a second surface sheet that forms the second surface and that forms a tubular structure along with the first surface sheet;
 - a top gusset sheet that connects an upper end of the first surface sheet and an upper end of the second surface sheet; and
 - a bottom gusset sheet that connects a lower end of the first surface sheet and a lower end of the second surface sheet.
- 7. The pouch container according to Claim 6, wherein
 - a position of the upper end of the second surface sheet is lower than a position of the upper end of the first surface sheet.
- 8. The pouch container according to Claim 6 or 7, further comprising:
 - a pouring outlet that establishes communication between an inside and an outside of the pouch container, wherein
 - the pouring outlet is provided at a bonding portion between the top gusset sheet and the upper end of the first surface sheet, and
 - the holding portion has the interior sheet bonded to the inner surface of the second surface and the opening formed on the second surface sheet at a position overlapping the interior sheet.

- 9. The pouch container according to Claim 5 or 8 wherein the holding portion is provided at a lower side of the container than the pouring outlet.

- 10. The pouch container according to any one of Claims 1 - 9, wherein 5
 - the interior sheet is provided over an entire length in a lateral direction of the pouch container. 10

- 11. The pouch container according to any one of Claims 1 - 10, wherein 15
 - an end surface of the interior sheet is isolated from an internal space of the pouch container. 15

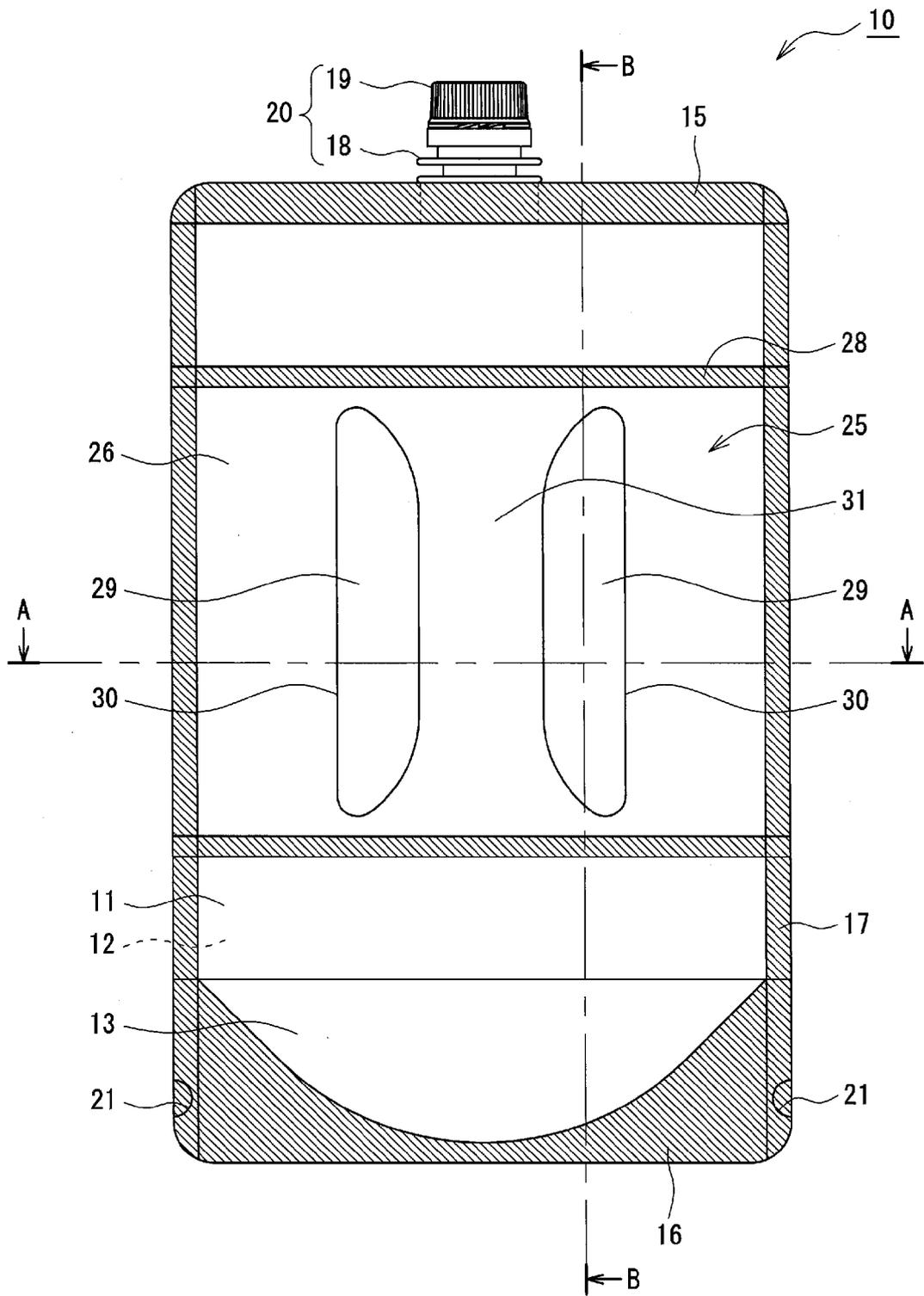
- 12. The pouch container according to any one of Claims 1 - 11, wherein 20
 - the holding portion has a tongue piece in which a part is connected to the wall-surface sheet and a remaining part is separated from the wall-surface sheet. 25

- 13. A method of manufacturing a pouch container comprising a first surface sheet, a second surface sheet that opposes the first surface sheet, a top gusset sheet that connects an upper end of the first surface sheet and an upper end of the second surface sheet, a bottom gusset sheet that connects a lower end of the first surface sheet and a lower end of the second surface sheet, and a pouring outlet that establishes communication between an inside and an outside of the pouch container, the method comprising: 35
 - an opening forming step in which an opening is formed on the second surface sheet;
 - a first bonding step in which an interior sheet is bonded on an inner surface of the second surface sheet, at a position overlapping the opening; and 40
 - a second bonding step in which the sheets forming the pouch container are bonded together after the first bonding step. 45

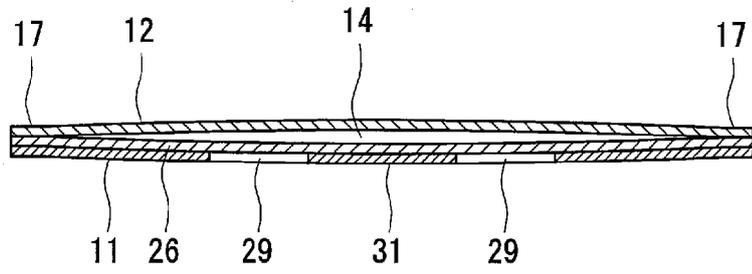
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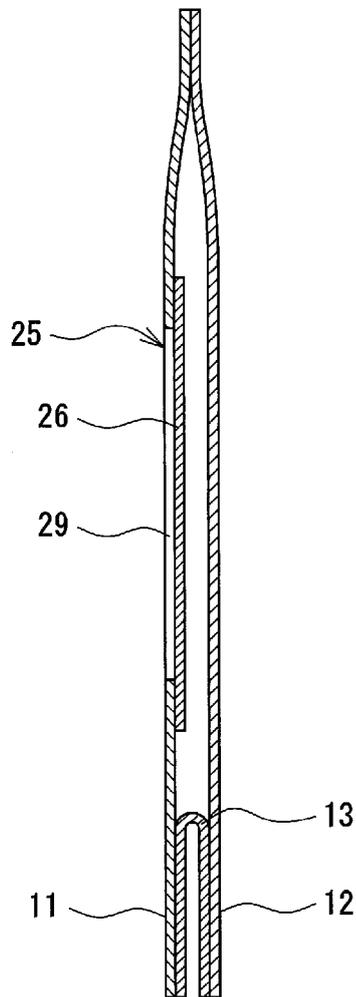
[Fig.1]



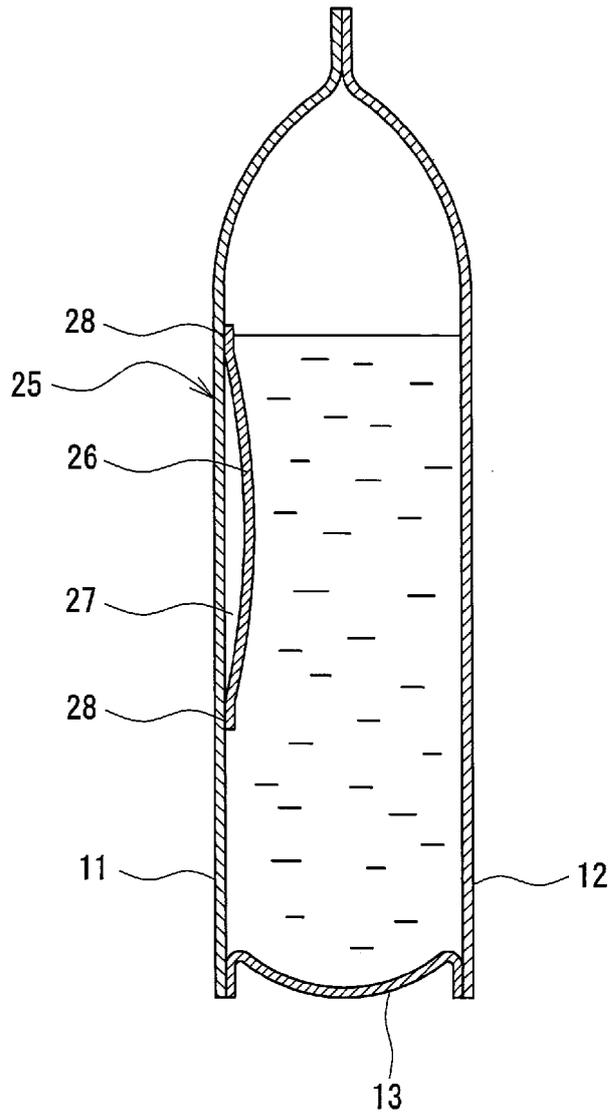
[Fig.2]



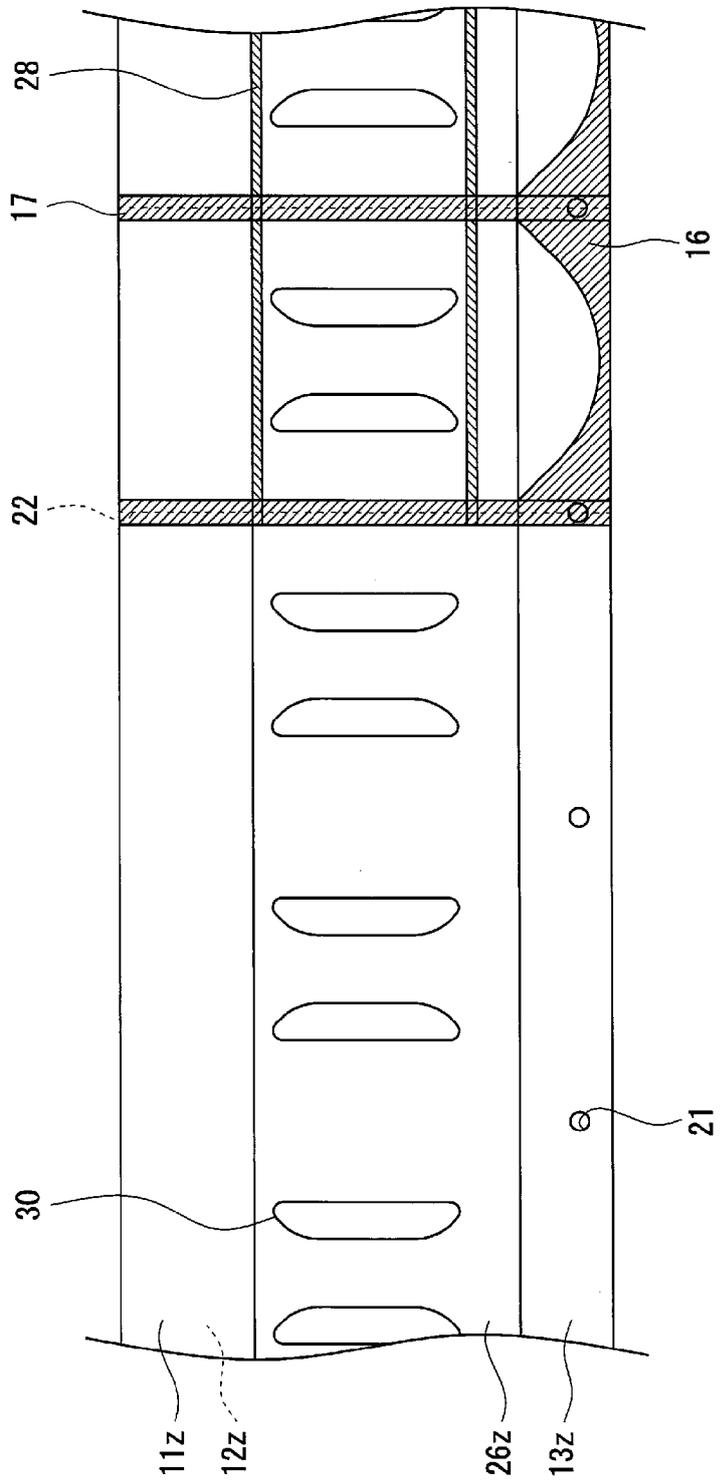
[Fig.3]



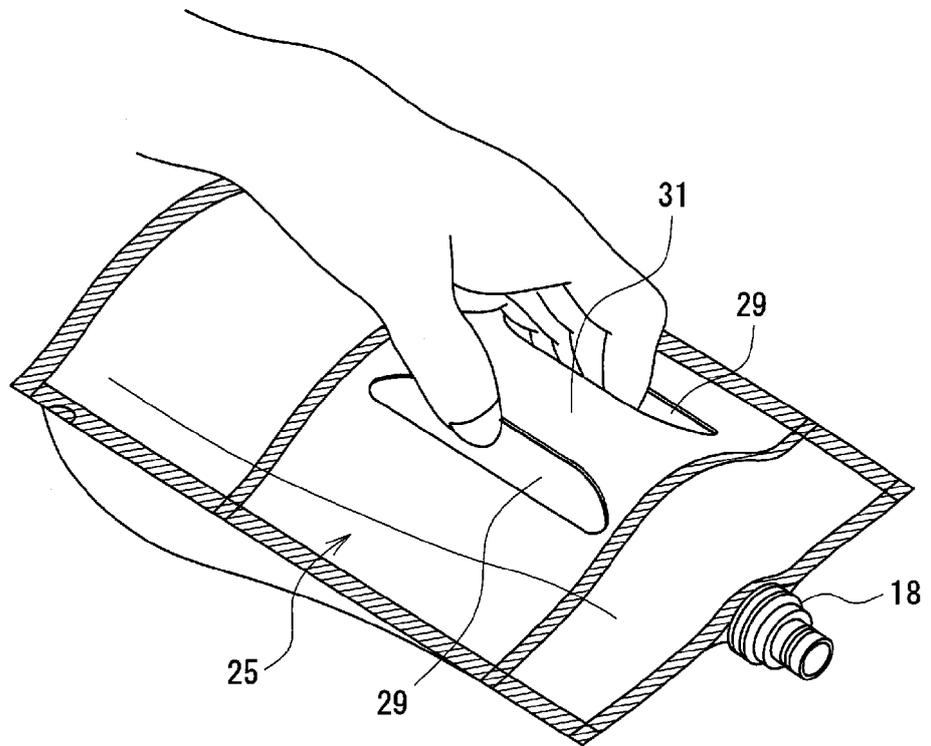
[Fig.4]



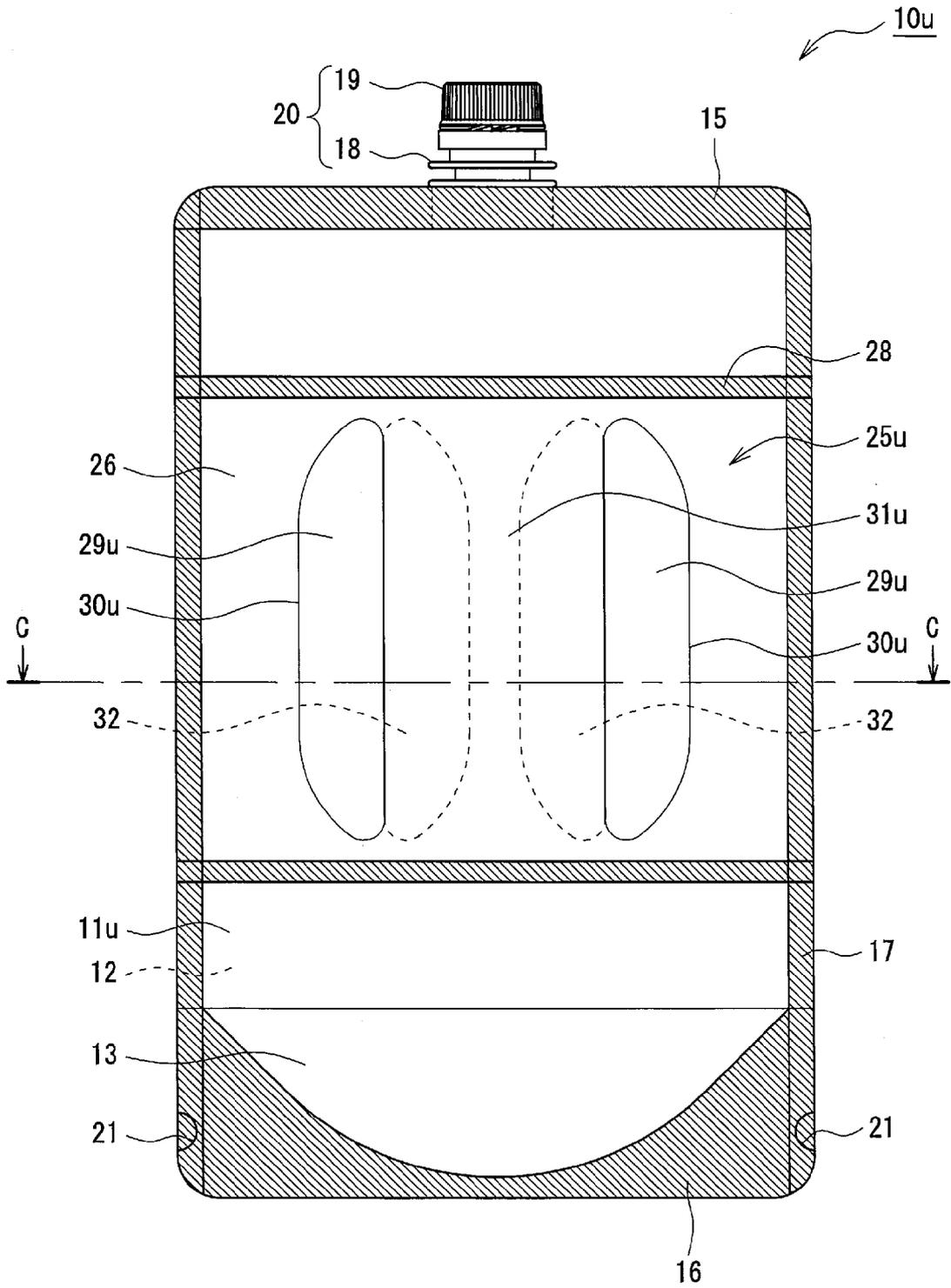
[Fig.5]



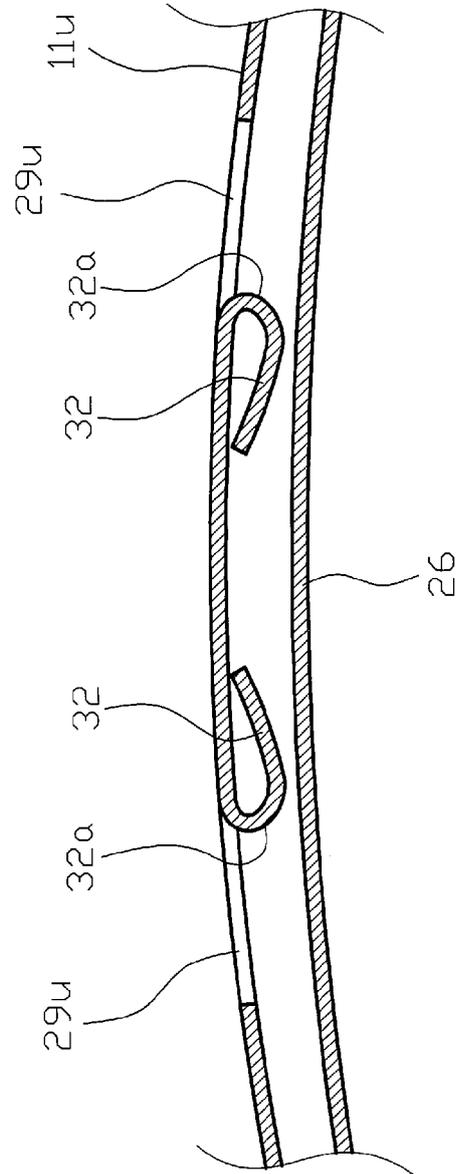
[Fig.6]



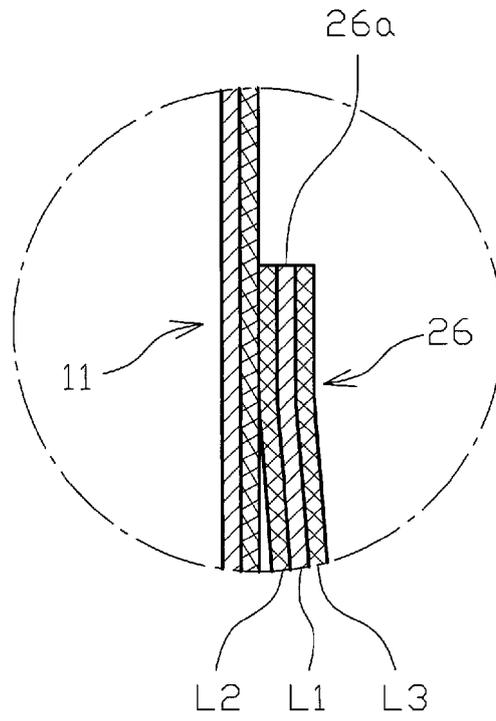
[Fig.7]



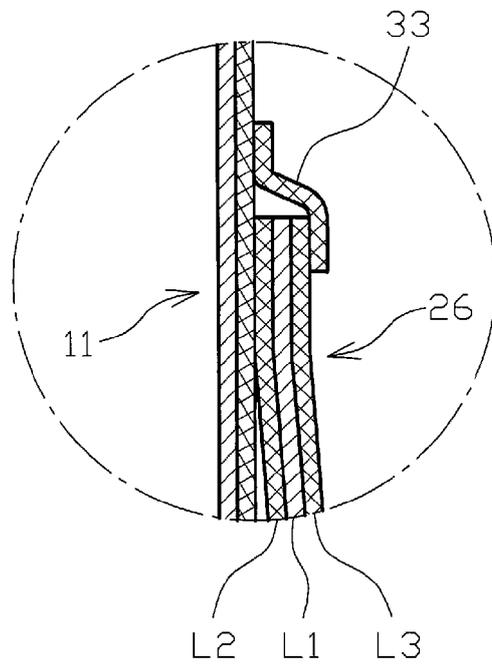
[Fig.8]



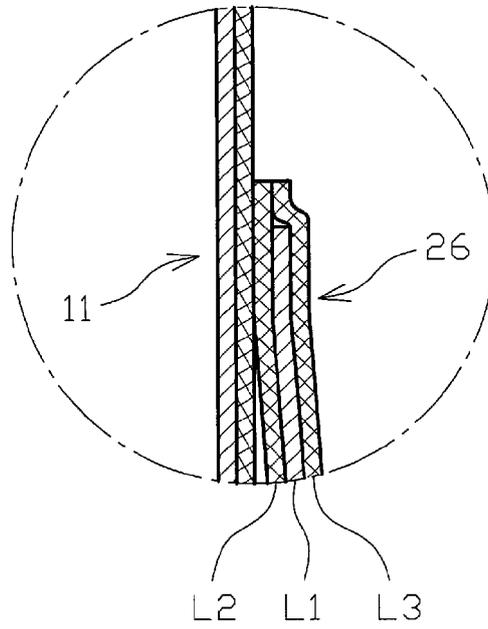
[Fig.9]



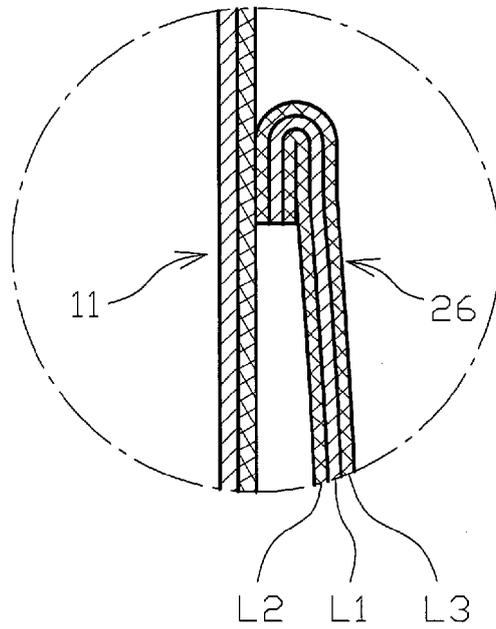
[Fig. 10]



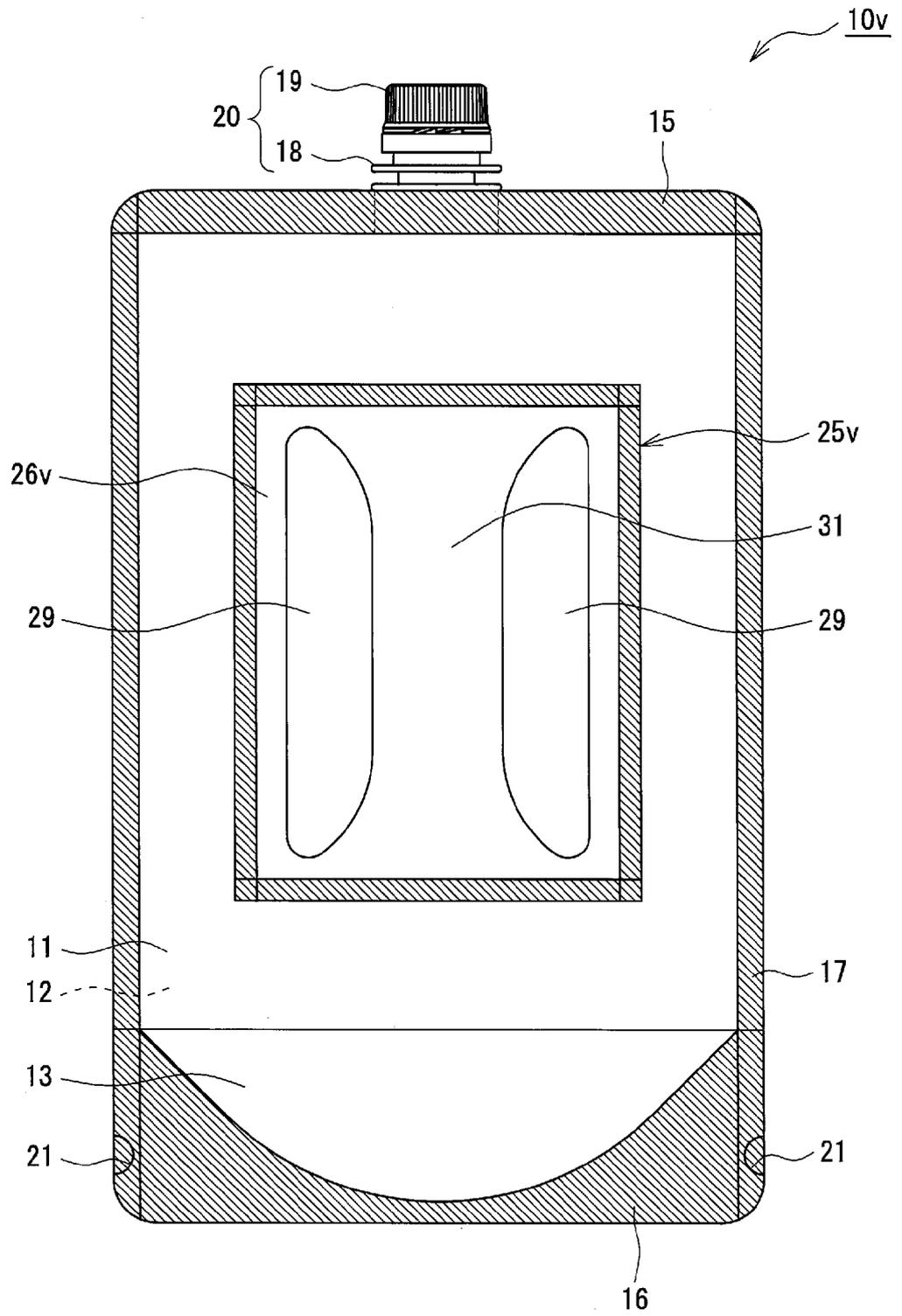
[Fig.11]



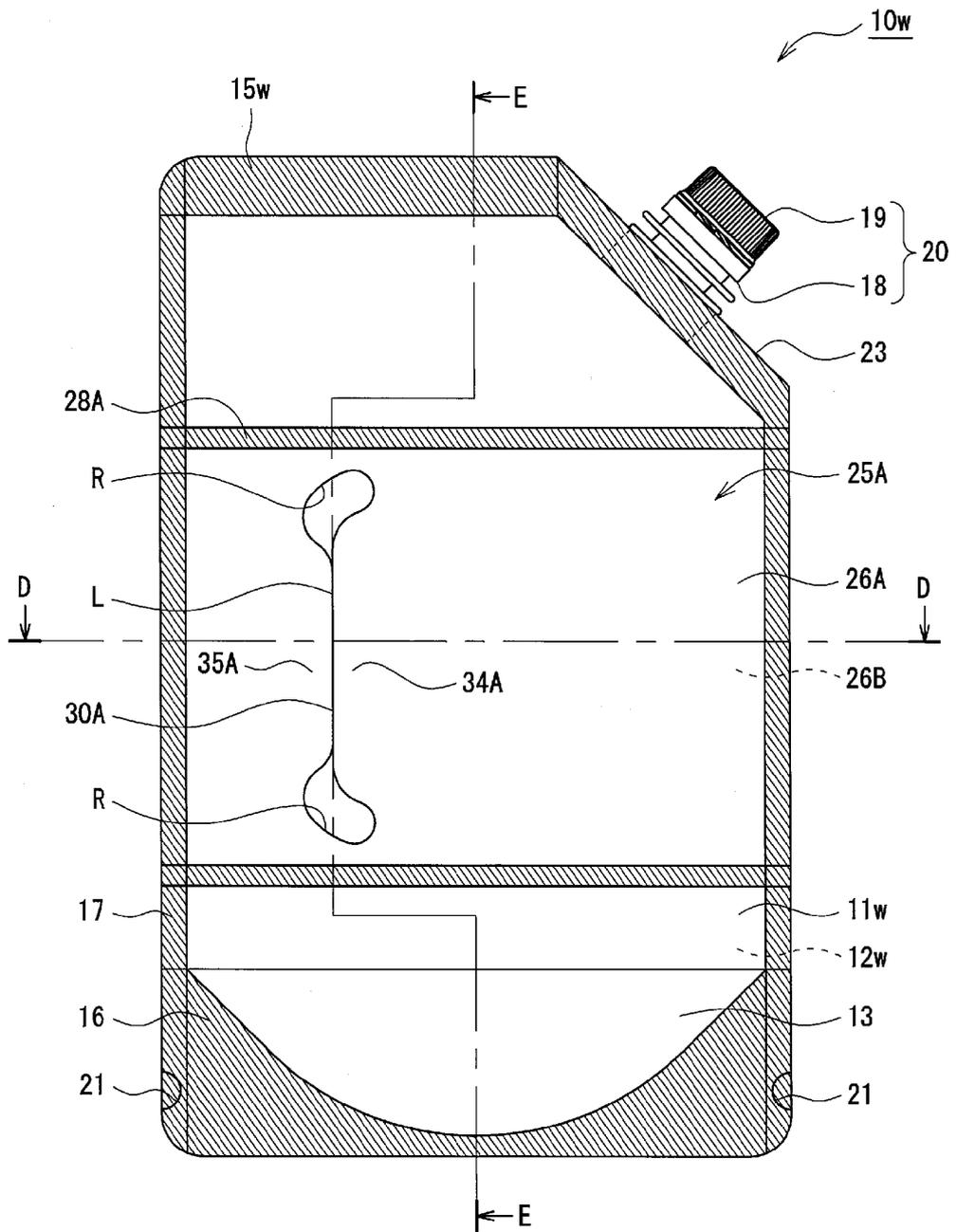
[Fig. 12]



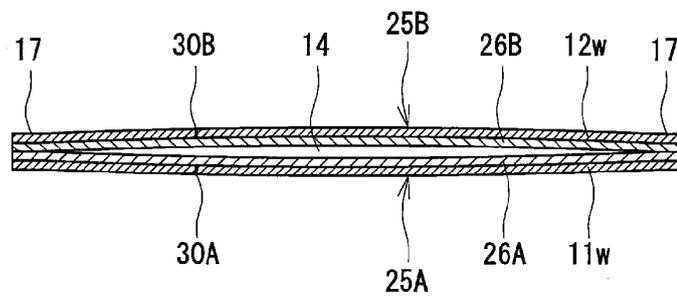
[Fig.13]



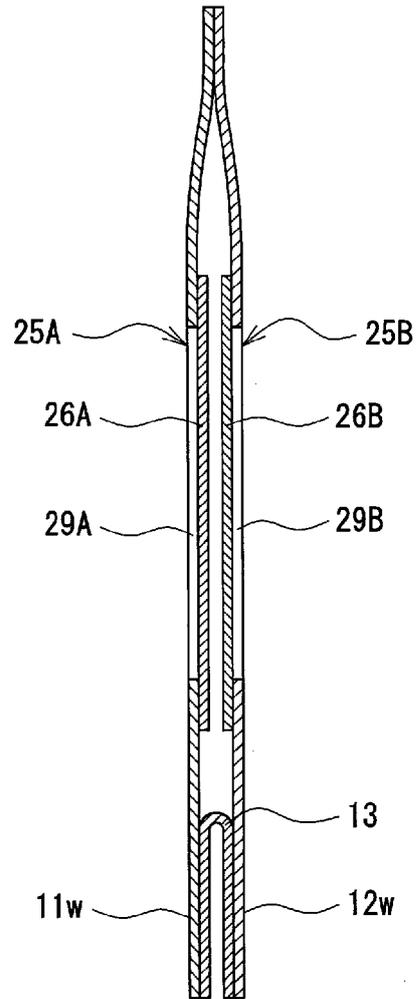
[Fig.14]



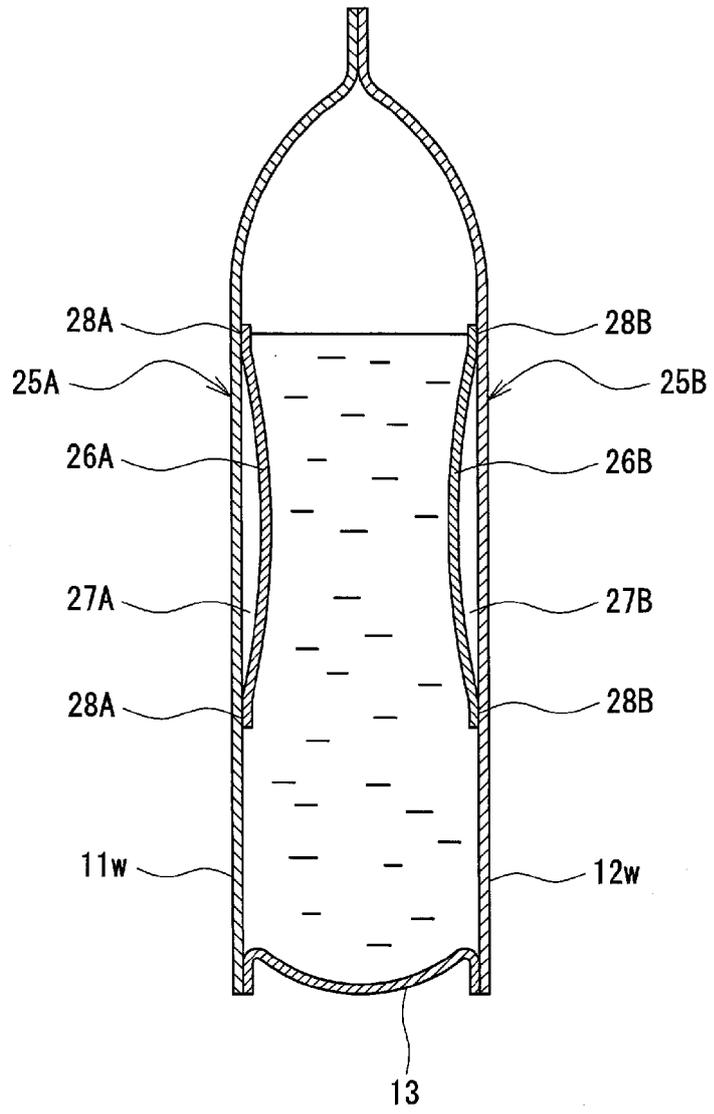
[Fig. 15]



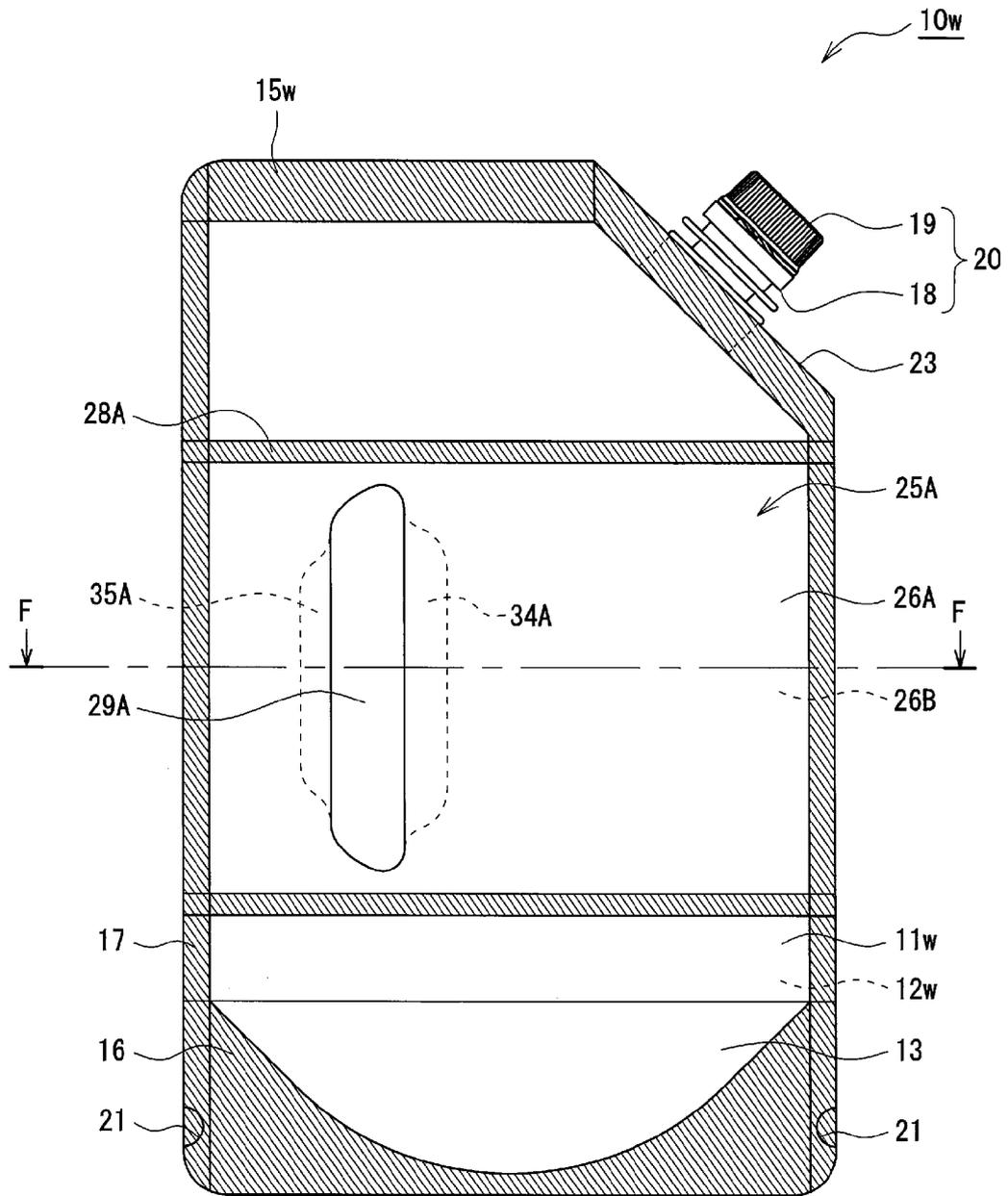
[Fig.16]



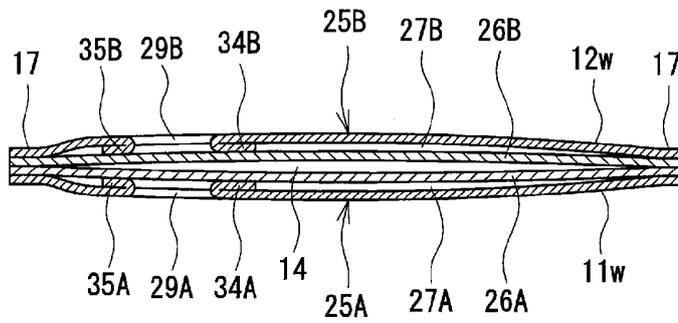
[Fig.17]



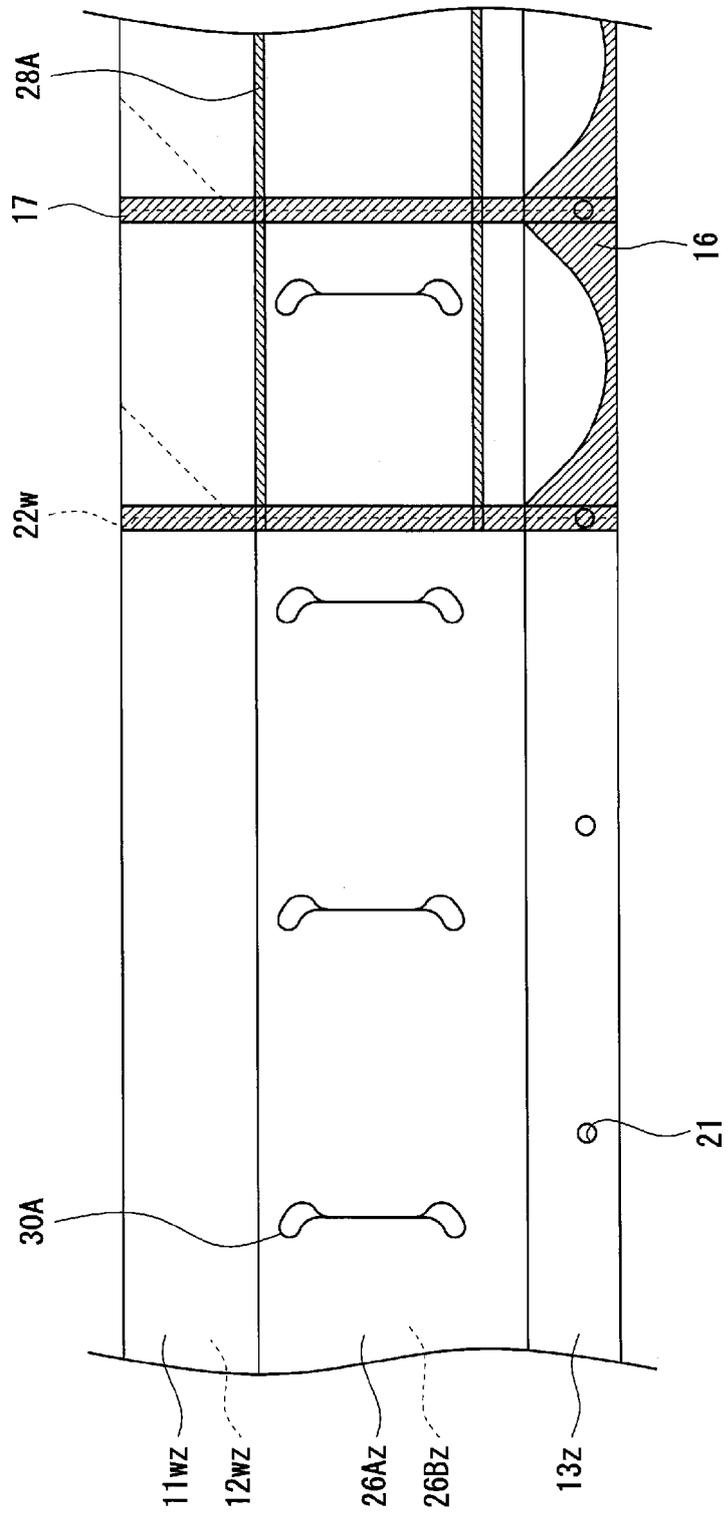
[Fig.18]



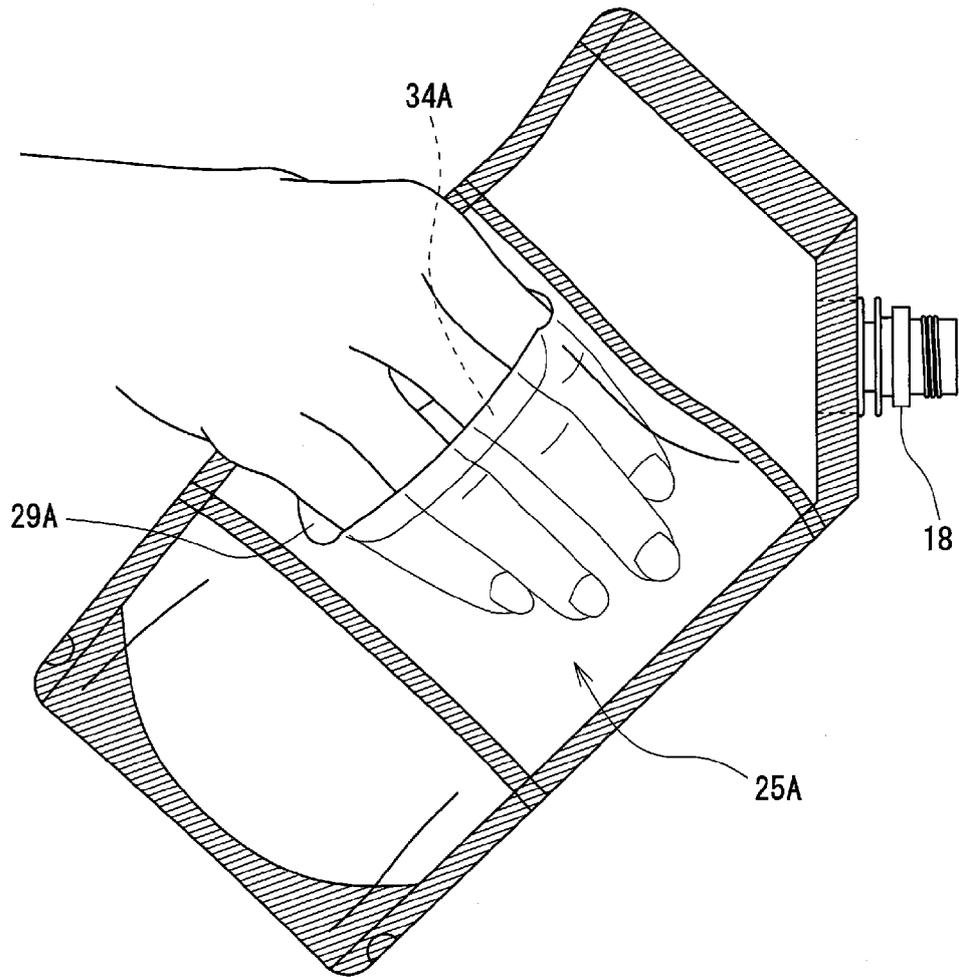
[Fig. 19]



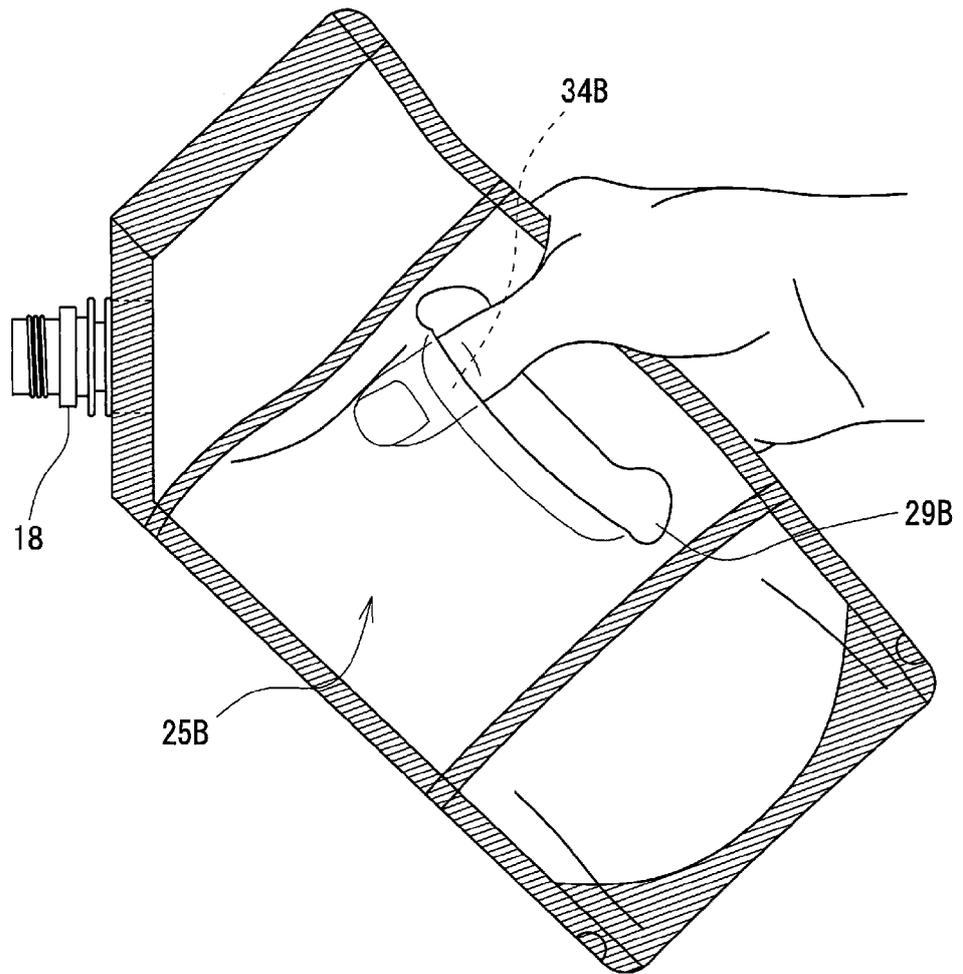
[Fig.20]



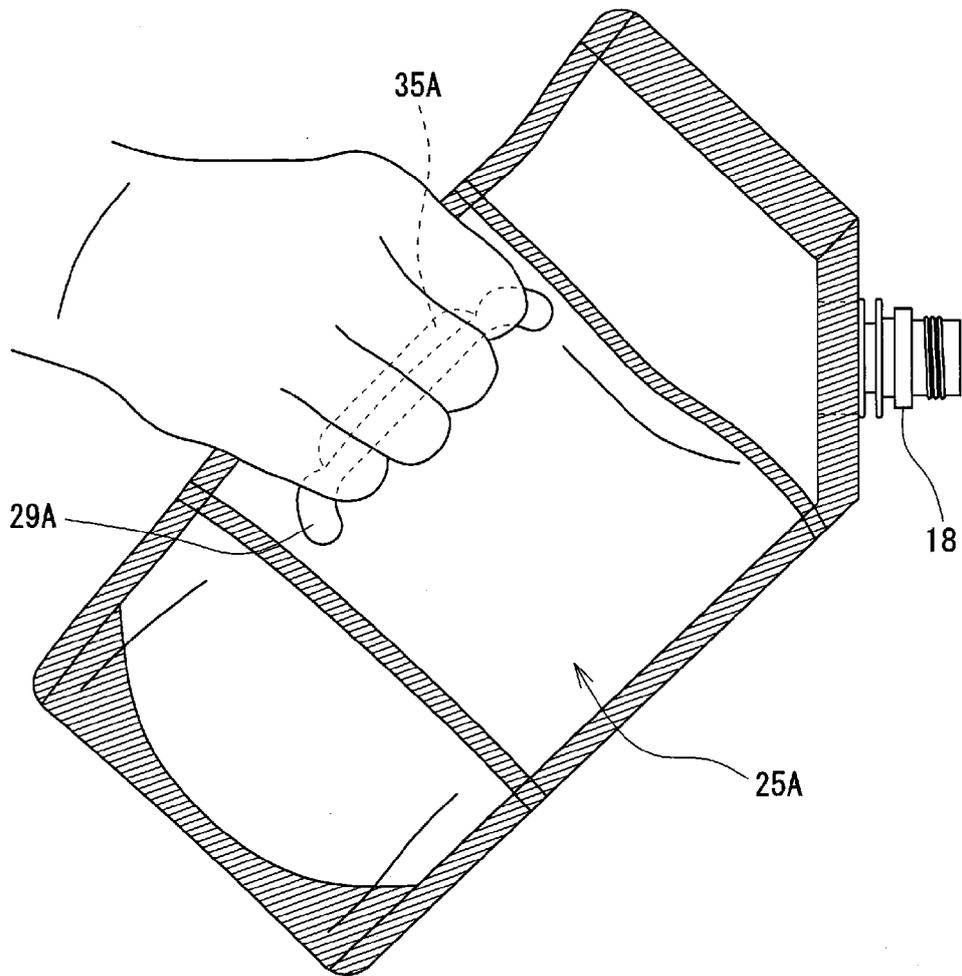
[Fig.21]



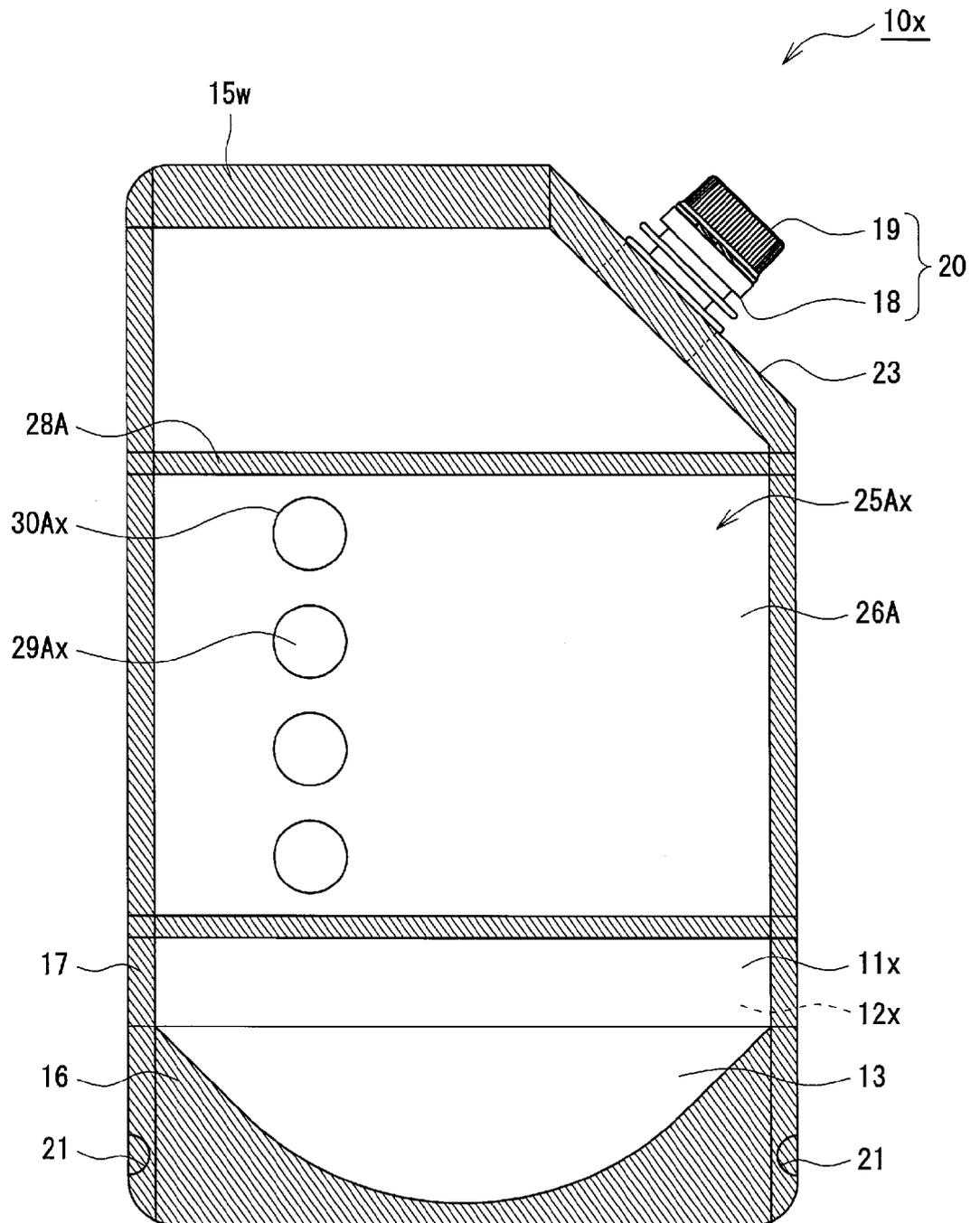
[Fig.22]



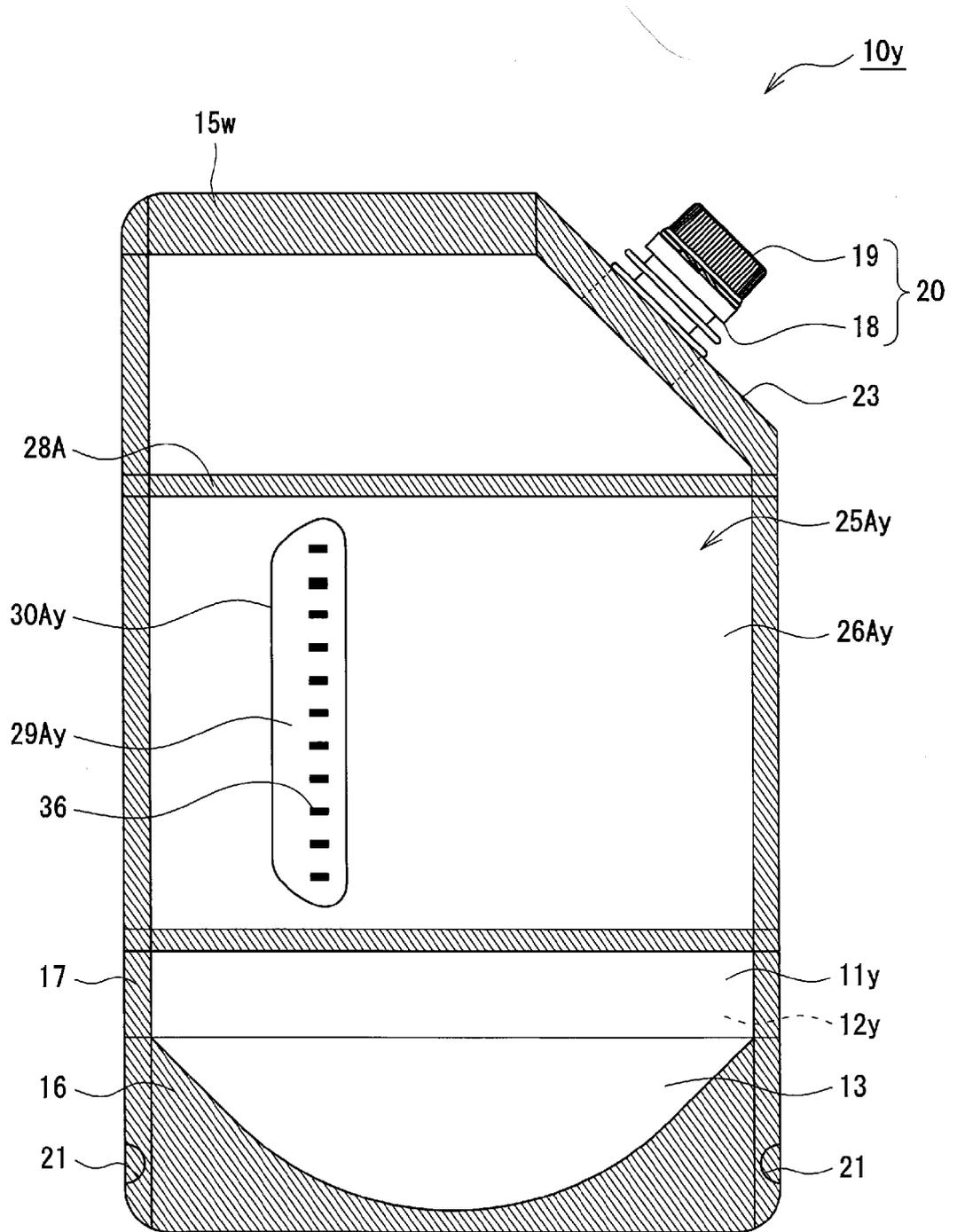
[Fig.23]



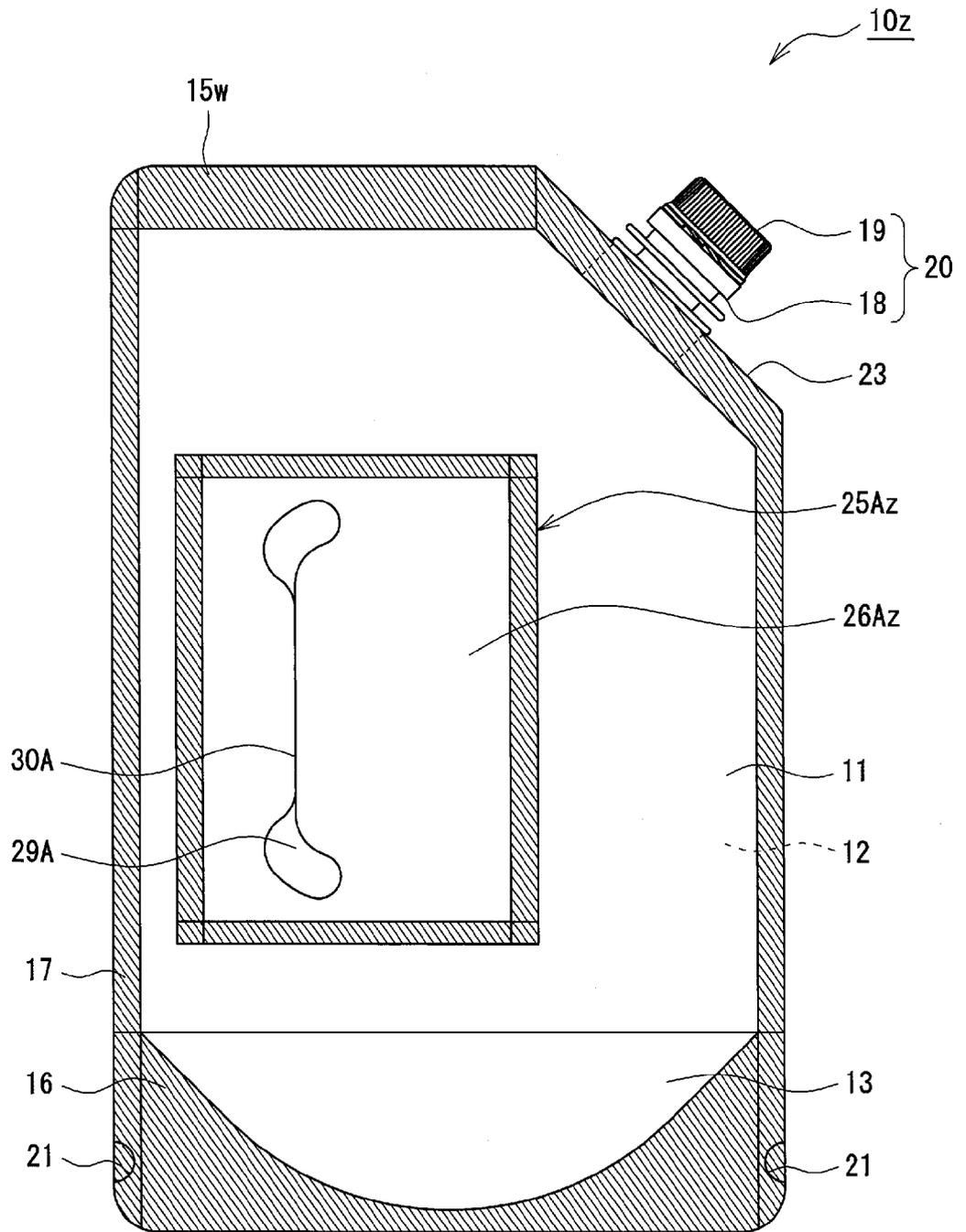
[Fig.24]



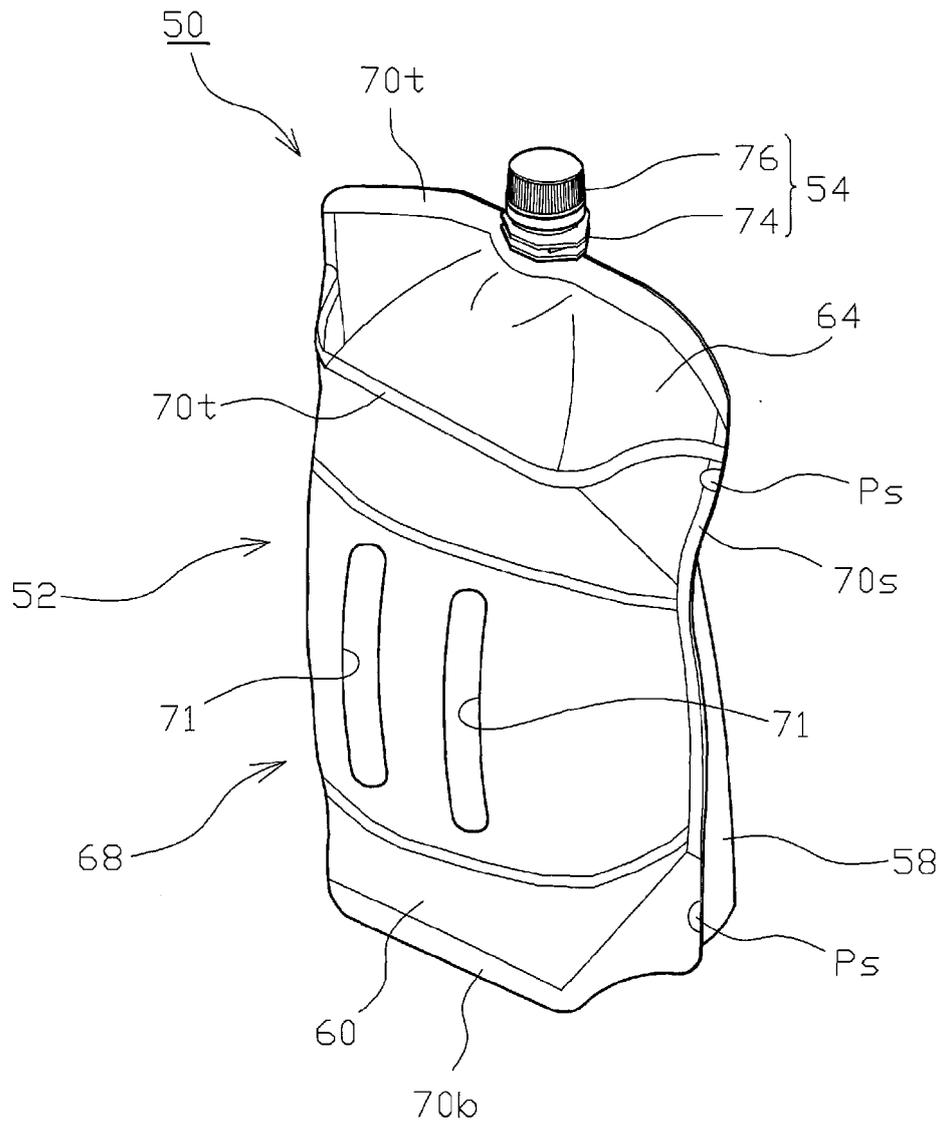
[Fig.25]



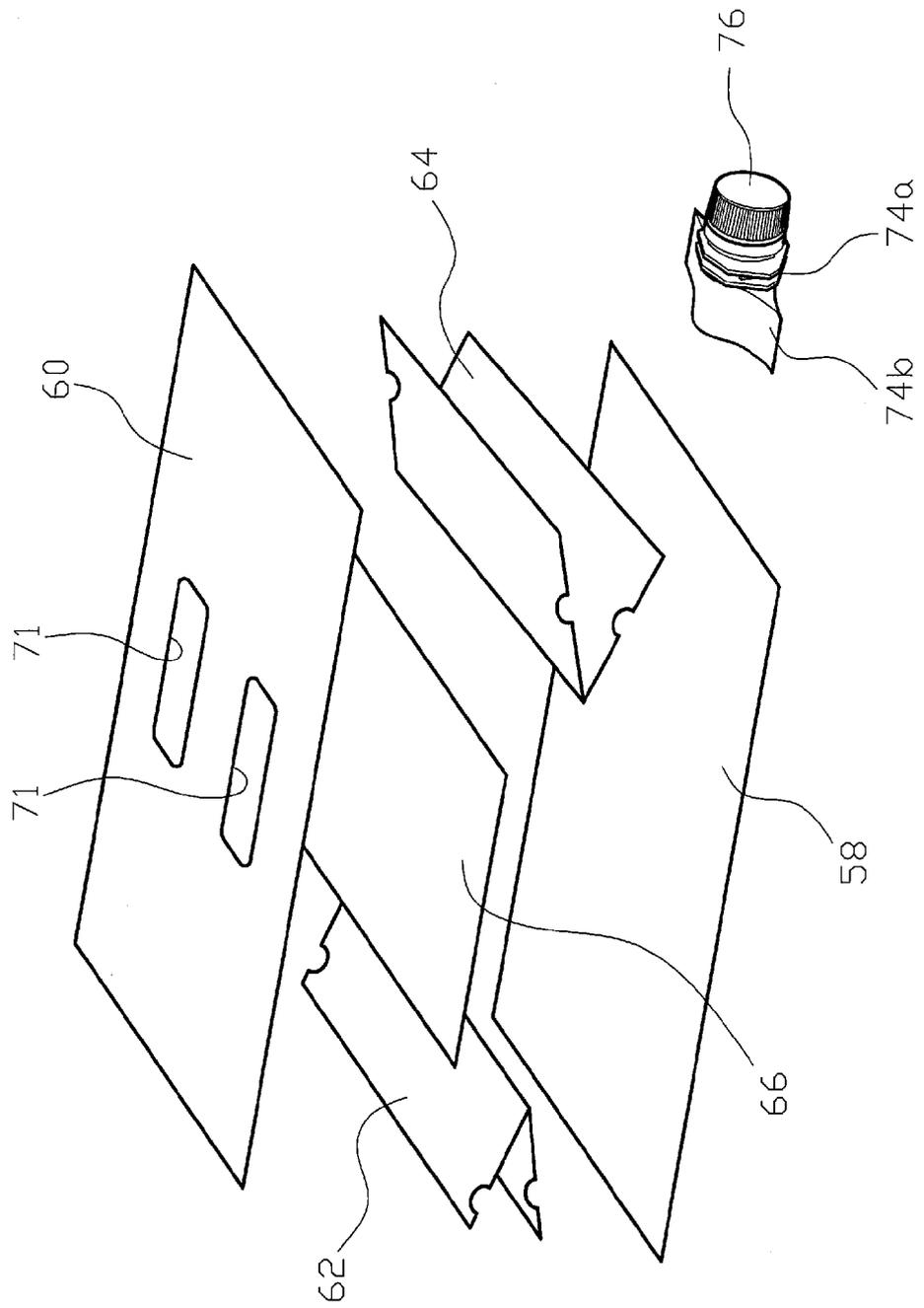
[Fig.26]



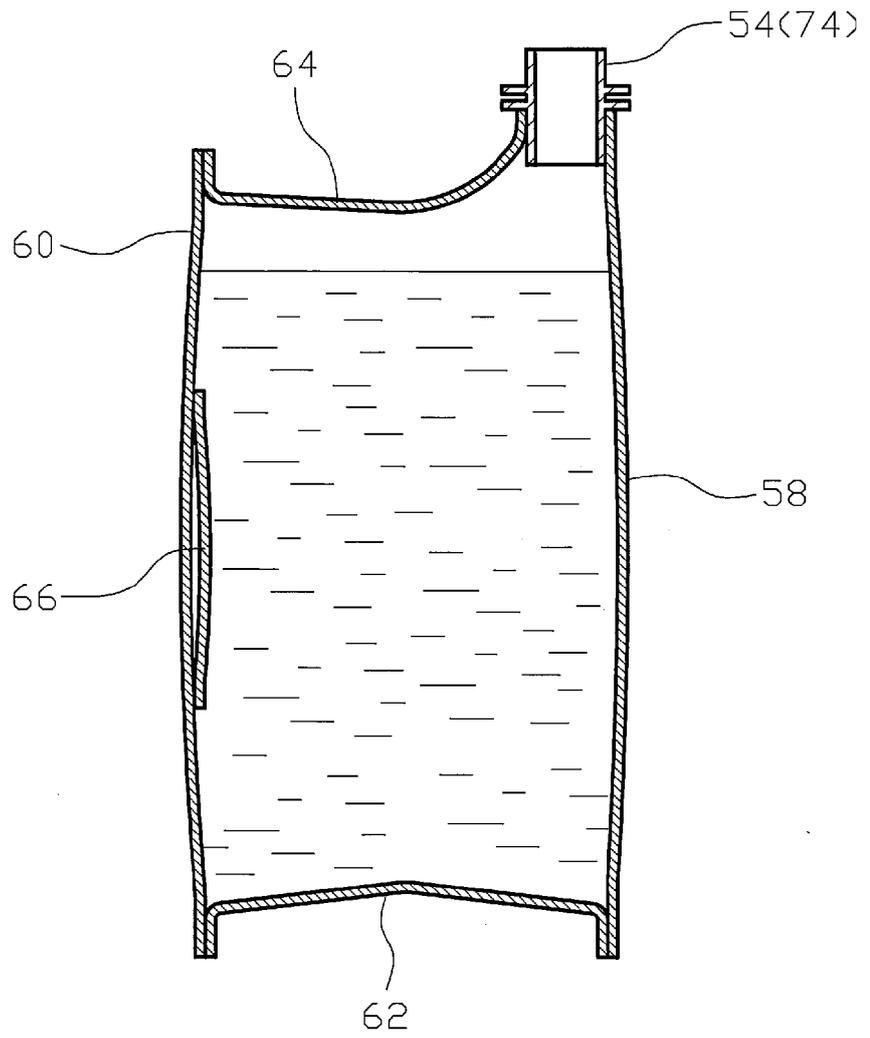
[Fig.27]



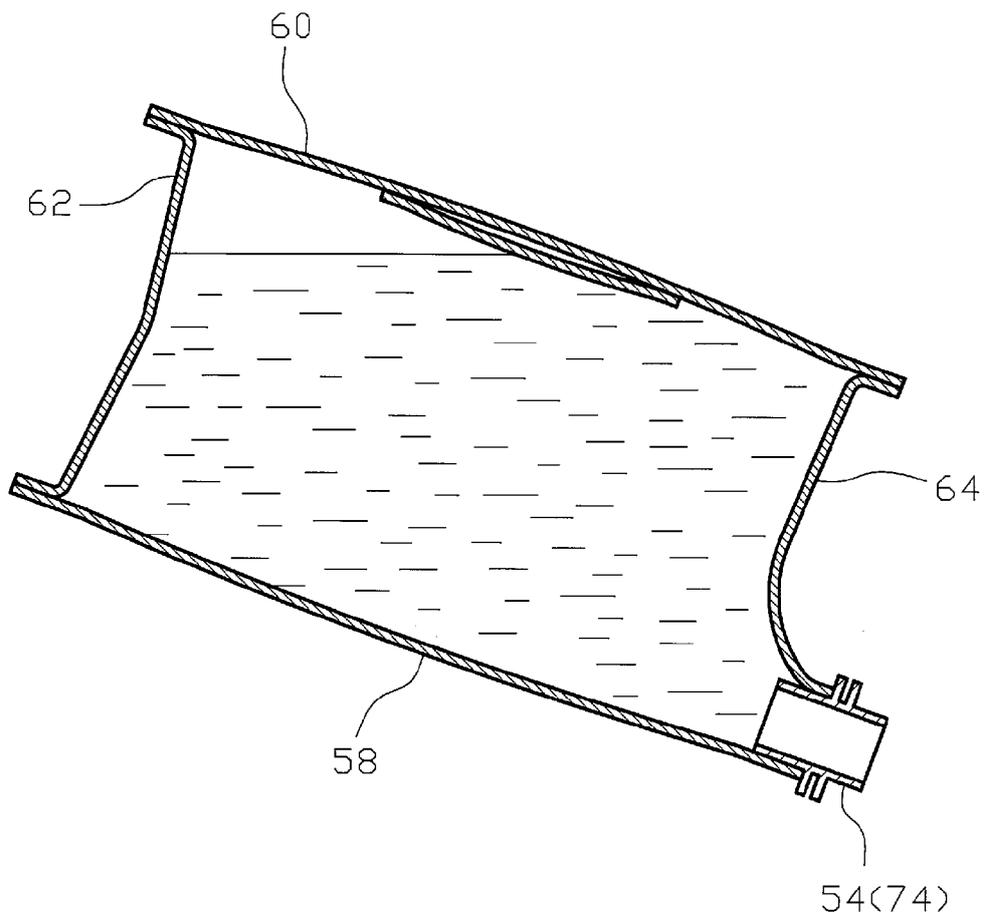
[Fig.28]



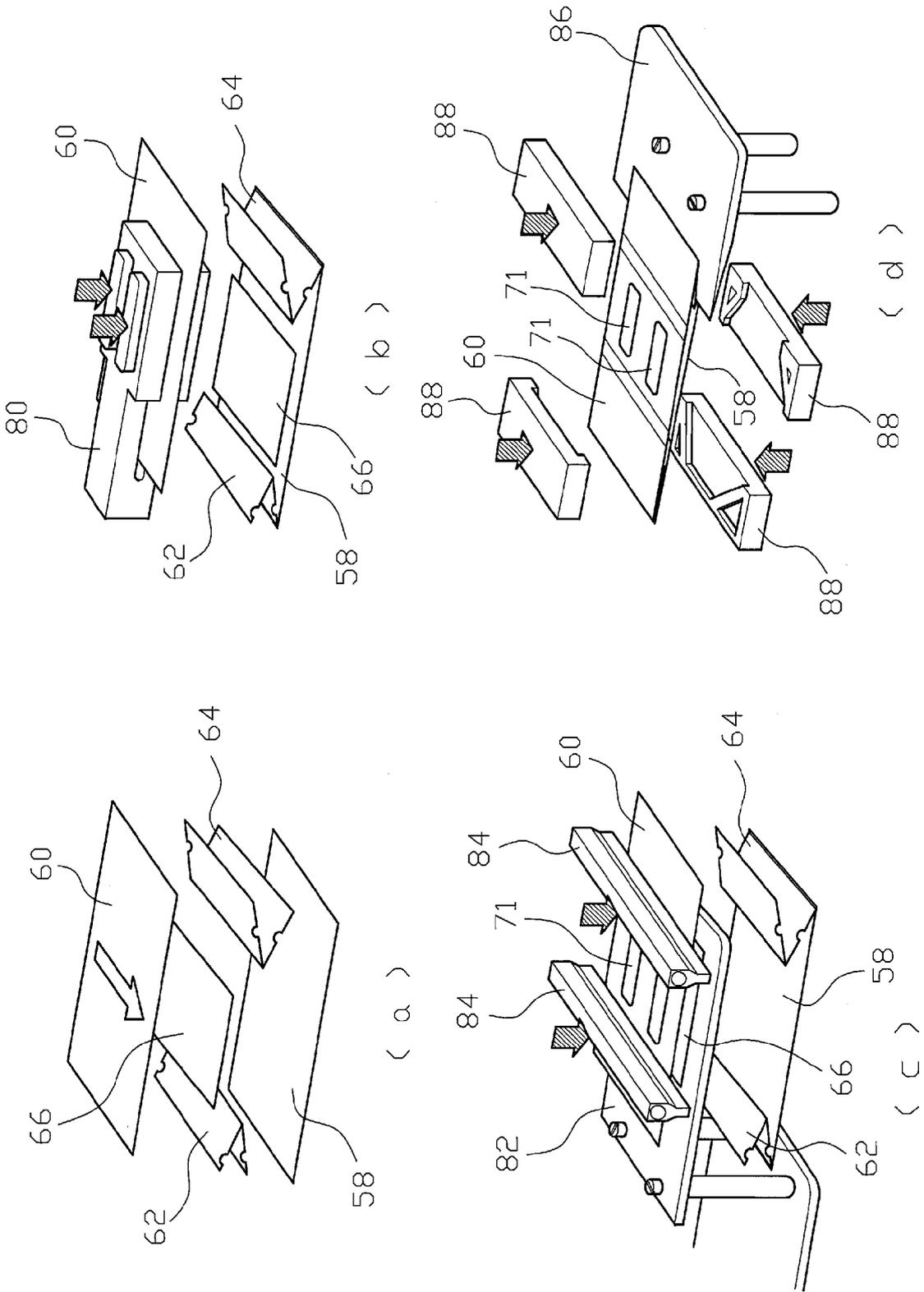
[Fig.29]



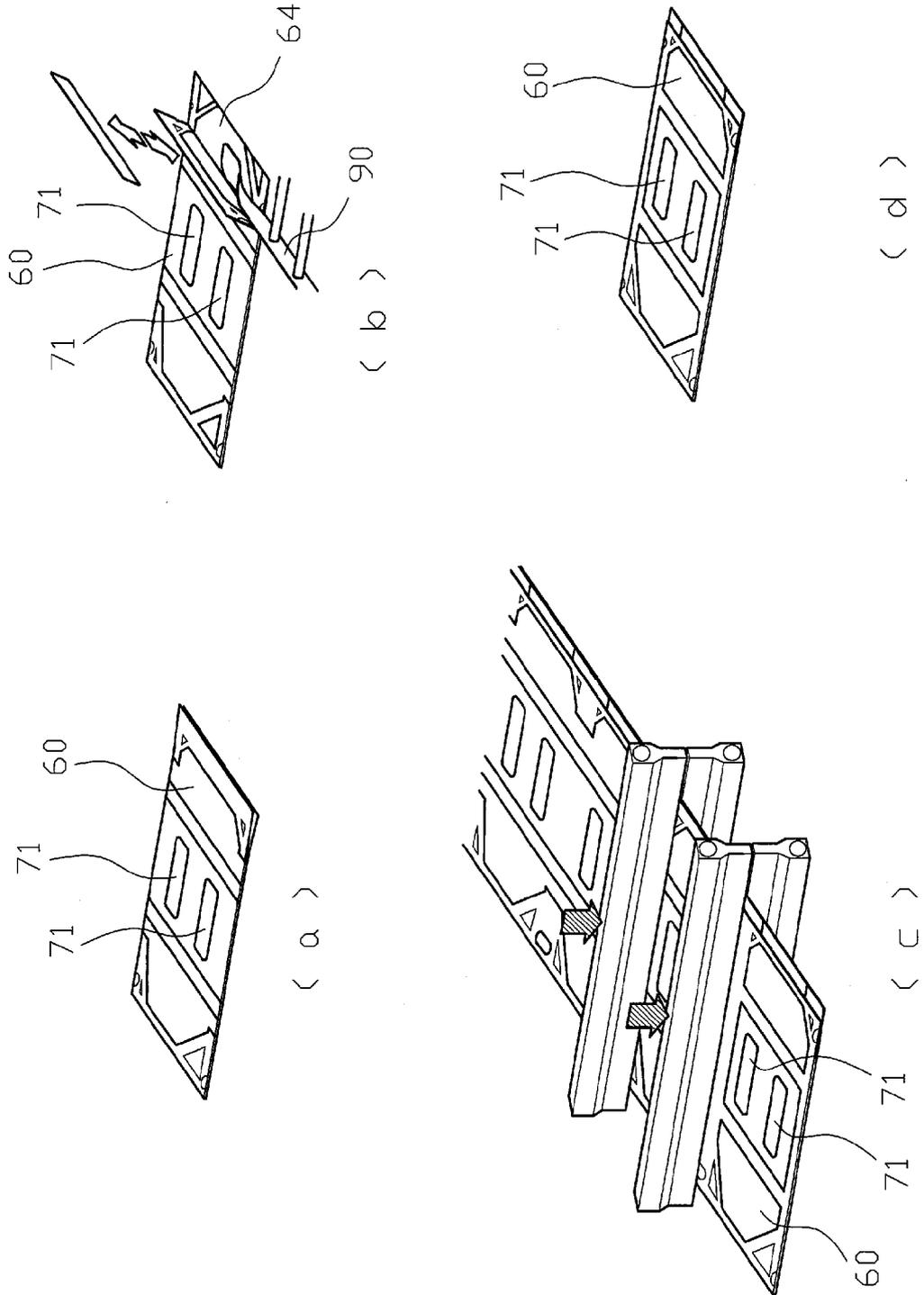
[Fig.30]



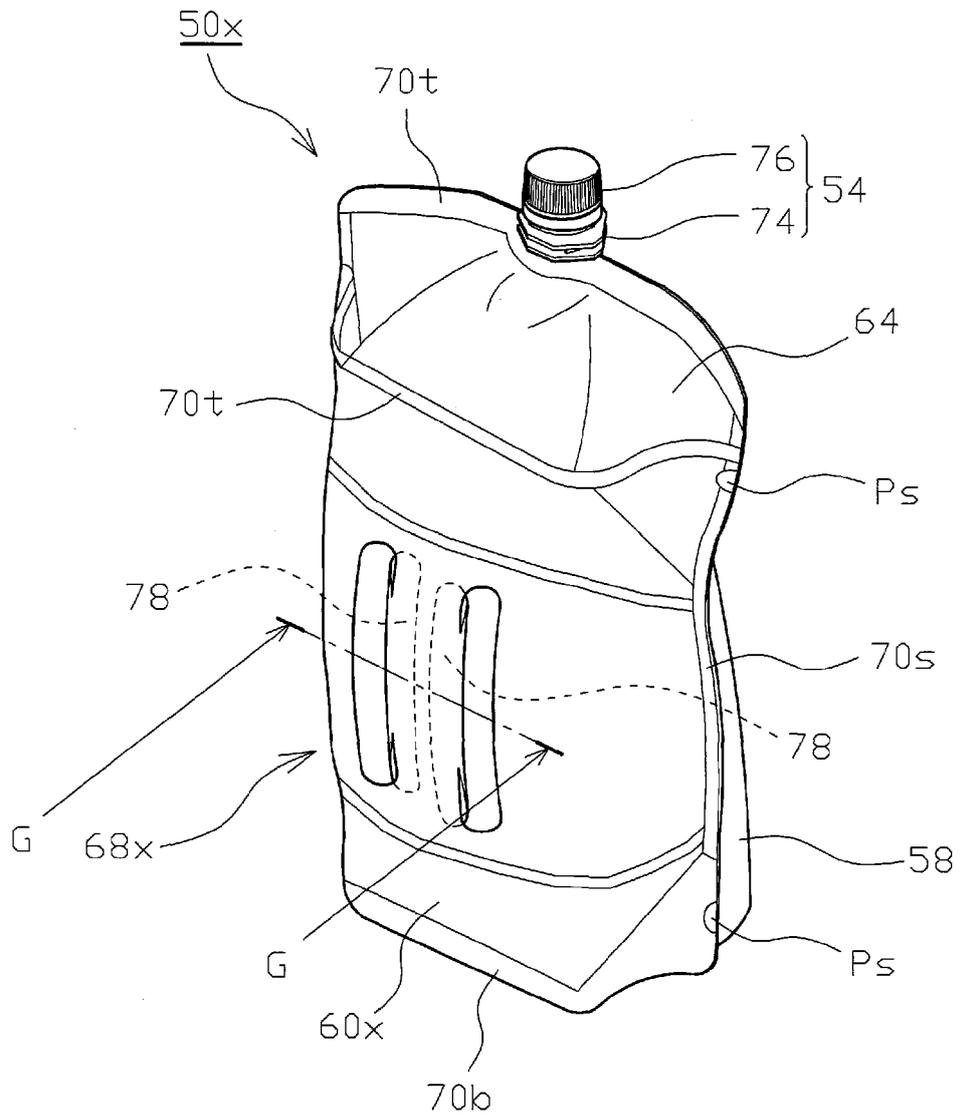
[Fig.31]



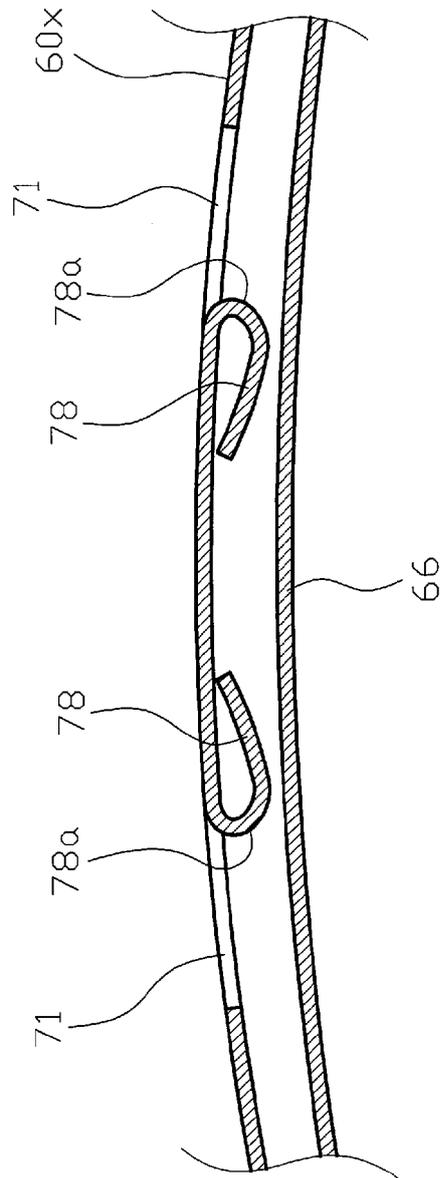
[Fig.32]



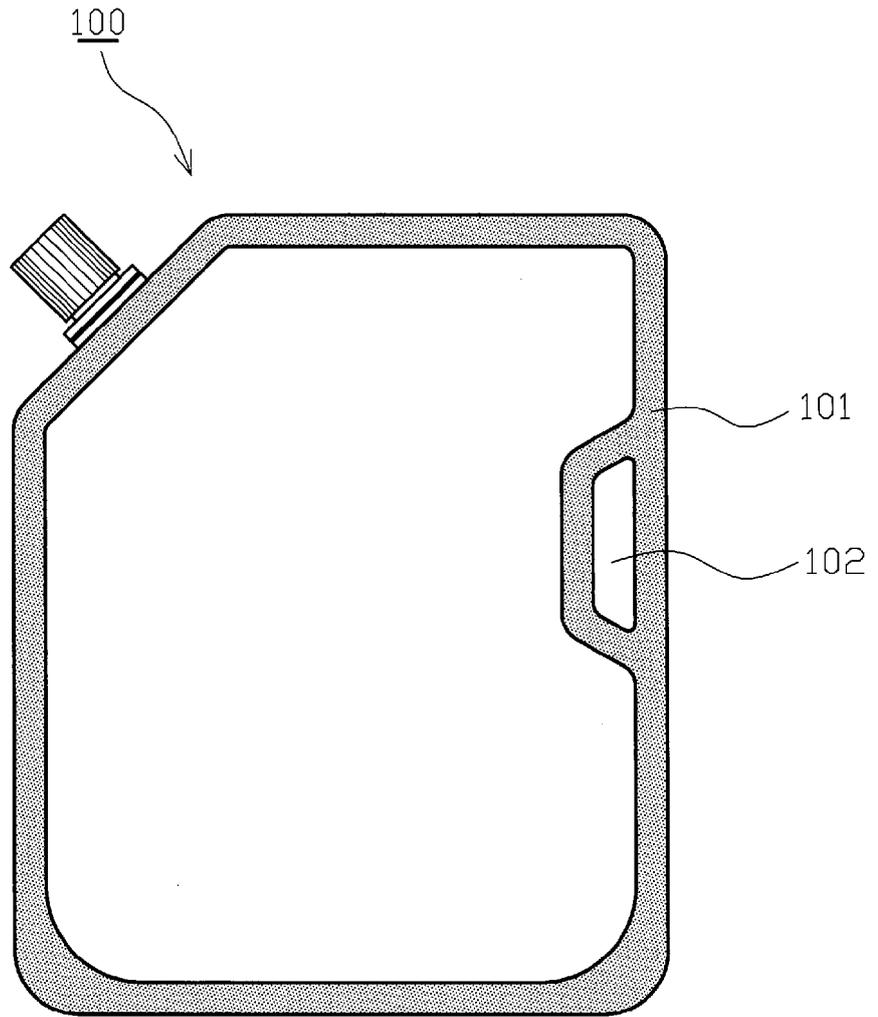
[Fig.33]



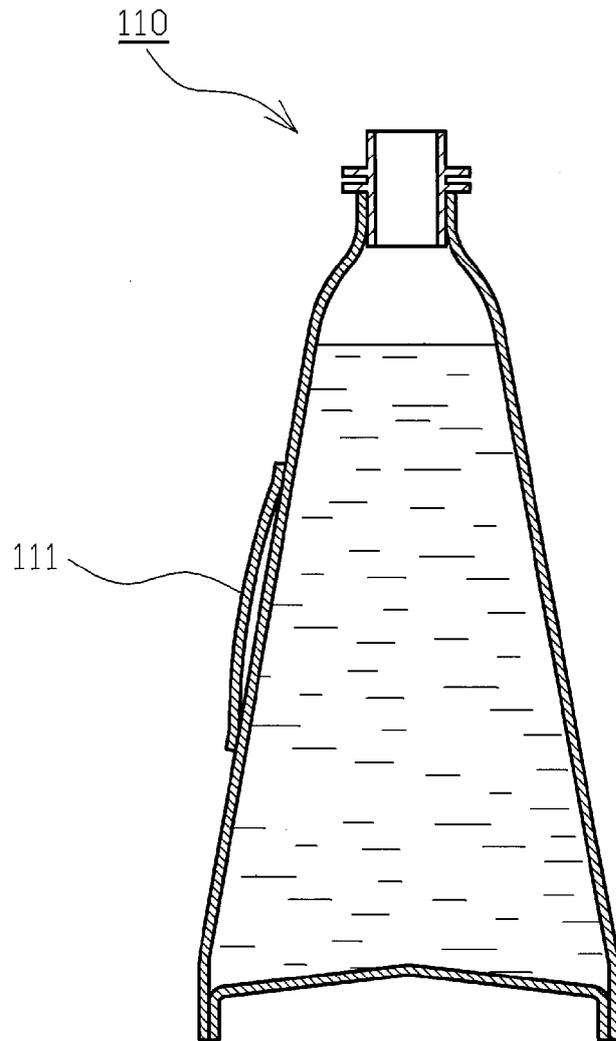
[Fig.34]



[Fig.35]



[Fig.36]



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2014/082390

A. CLASSIFICATION OF SUBJECT MATTER B65D75/56(2006.01) i, B31B37/14(2006.01) i		
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) B65D75/56, B31B37/14, B65D33/08, B65D33/10		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Jitsuyo Shinan Koho 1922-1996 Jitsuyo Shinan Toroku Koho 1996-2015 Kokai Jitsuyo Shinan Koho 1971-2015 Toroku Jitsuyo Shinan Koho 1994-2015		
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.
X Y	JP 2011-235965 A (Nordenia Deutschland Halle GmbH), 24 November 2011 (24.11.2011), paragraphs [0017], [0020] to [0022]; fig. 4 & US 2011/0280501 A1 & EP 2386493 A1 & CN 102275667 A & RU 2507136 C2	1-3, 5, 9, 13 4, 6-8, 10-12
Y	JP 4103331 B2 (Toyo Seikan Kaisha, Ltd.), 18 June 2008 (18.06.2008), entire text; all drawings (Family: none)	4
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "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 05 February 2015 (05.02.15)		Date of mailing of the international search report 03 March 2015 (03.03.15)
Name and mailing address of the ISA/ Japan Patent Office 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan		Authorized officer Telephone No.

Form PCT/ISA/210 (second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2014/082390

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Y	JP 61-028766 Y2 (Wada Kagaku Kogyo Kabushiki Kaisha), 26 August 1986 (26.08.1986), column 3, line 16 to column 6, line 2; fig. 4, 5 (Family: none)	7,8
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