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(54) PAPER CONTAINER WITH STOPPER

PAPIERBEHÄLTER MIT STOPFEN

RÉCIPIENT EN PAPIER DOTÉ D'UN BOUCHON

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Description

Technical Field

[0001] The present invention relates to a paper container with a stopper having a flat top-type top. The paper container is configured to contain a liquid matter such as a liquid detergent or a liquid beverage, for example, milk or juice, contain a viscous matter such as jelly or cream, or to contain a liquid matter such as a liquid beverage in which solid food, for example, pieces of a fruit are mixed.

Background Art

[0002] Hitherto, as a container configured to contain a liquid matter such as a liquid detergent or a liquid beverage, for example, milk or juice, contain a viscous matter such as jelly or cream, or to contain a liquid matter such as a liquid beverage in which solid food, for example, pieces of a fruit are mixed, a paper container with a stopper has been widely used. The paper container with a stopper includes: a container main body including a tubular body having a square tubular shape and upper and lower openings, a flat top configured to seal the upper opening of the tubular body, and a bottom configured to seal the lower opening of the tubular body; and a stopper provided on top thereof.

[0003] In recent years, various improvements have been made to the above-mentioned container with a stopper having a so-called flat top-type top having a flat upper surface. For example, there has been known a paper container for liquid in which a screw-type discharge stopper including a stopper main body and a cap is mounted in a vicinity of a position at which an elevation angle, which is formed by a flat upper surface of a top and an imaginary straight line connecting a distal end of the stopper main body and a nearest short side of the flat upper surface to each other, is larger than a discharge angle of the stopper main body through which the liquid matter is discharged while the paper container for liquid is tilted. With this configuration, at the time of discharge of the liquid matter, the liquid matter is prevented from coming into contact with a front end portion of the upper surface and causing, for example, dripping (see, for example, Patent Literature 1).

[0004] Further, as a container allowing the liquid matter to be easily discharged through the stopper, as illustrated in FIG. 20, there has been known a paper container 70 with a stopper. The paper container 70 with a stopper includes a body 71 including four side panels, a bottom 72, and an inclined flat top 73. The top 73 includes a square inclined surface having a pair of parallel sides 74 and 75, which extend horizontally and are different from each other in level, and a pair of parallel sides 76 and 77, which extend obliquely. A stopper 78 is provided on the top 73 (see, for example,

[0005] Patent Literature 2).

Citation List

Patent Literature

[0006] [PTL 1] JP 2007-076674 A; [PTL 2] JP 2005-35580 A; JP 2002-154534; DE102016003826.

Summary of Invention

Technical Problem

[0007] According to the paper container with a stopper in which the flat top-type top is provided on an upper portion of the tubular body having a square tubular shape, which is exemplified by the paper container for liquid described in Patent Literature 1, when the liquid matter contained in the paper container is discharged, in general, the liquid matter is discharged through the stopper while the container main body is tilted.

[0008] At this time, regarding flow velocity of the liquid matter flowing in the container main body toward the stopper, the body of the container main body has a square tubular shape, and hence large resistance is given to the flow of the liquid matter adjacent to a body corner portion that is arranged on a lower side of the tilted container main body and has a substantially right angle. Accordingly, flow velocity of an upper part of the liquid matter is high, and flow velocity of a lower part thereof is low.

[0009] Thus, smoothness of discharge of the liquid matter is insufficient. When the liquid matter contains a solid matter having a large specific gravity, for example, when the liquid matter is corn soup with kernels or orange juice with pulp, the solid matter sinks down and accumulates in the body corner portion. This causes a problem in that it is difficult to discharge the solid matter, with the result that the solid matter is left in the container main body.

[0010] Further, when the liquid matter is the viscous matter such as jelly or cream, the viscous matter sticks to an inner surface of the body. This causes a problem in that it is difficult to discharge the viscous matter, with the result that

the viscous matter is left in the container main body.

[0011] Further, according to the paper container 70 with a stopper illustrated in FIG. 20 and described in Patent Literature 2, the stopper 78 is mounted to the top 73 including the square inclined surface having the pair of parallel sides 74 and 75, which extend horizontally and are different from each other in level, and the pair of parallel sides 76 and 77, which extend obliquely. With this configuration, under a state in which the paper container 70 with a stopper is arranged upright, an air pocket 79 formed of an inclined space is defined in the inclined top 73 (see FIG. 21). From this state, when the liquid matter is discharged under a state in which the paper container 70 with a stopper is tilted so that the lower side 74 of the inclined top 73 is directed downward (see FIG. 22), the air pocket 79 overlaps an upper portion of the opening of the stopper 78 in an inner surface of the container main body 80, and hence the opening of the stopper 78 is not blocked by the liquid matter. Thus, along with discharge of the liquid matter, the air flows into the container main body 80 through the upper portion of the opening of the stopper 78 without stagnating, thereby directly flowing into the air pocket 79. Therefore, pulsation of the liquid matter flowing through the stopper 78 is reduced, and the liquid matter is discharged easily.

[0012] Such effects are obtained with a configuration in which there is an opposing distance between a liquid surface F of the liquid matter and an inner surface of the top 73 in the air pocket 79. When a length of the opposing distance is small, there is reduced a tilting angle of the paper container 70 with a stopper enabling drawing of the liquid matter under a state in which the air pocket 79 overlaps the opening of the stopper 78. Therefore, the liquid matter can be discharged only gradually, and the liquid matter cannot be discharged quickly. Further, there is reduced a range of the tilting angle of the paper container 70 with a stopper enabling discharge of the liquid matter under a state in which the air pocket 79 overlaps the opening of the stopper 78, and hence it is difficult to adjust the tilting angle of the paper container 70 with a stopper. Further, when the paper container 70 with a stopper is tilted by a large angle mistakenly, the opening of the stopper 78 is blocked by the liquid matter, thereby causing pulsation of the liquid matter. Thus, it is difficult to discharge the liquid matter easily and smoothly. Therefore, it is desired that an inclination angle of the top 73 be an angle enabling defining the air pocket 79 in which there is a satisfactory opposing distance between the liquid surface F of the liquid matter and the inner surface of the top 73 in order to enable the air pocket 79 to overlap the opening of the stopper 78 and enable the liquid matter to be drawn easy and quickly even when the paper container 70 with a stopper is tilted by a large angle.

[0013] However, conversely, when the top 73 has a large inclination, a height of the paper container 70 with a stopper is increased in accordance with the inclination. Consequently, there arise problems in that a redundant space is required for, for example, storage and transportation of the paper container 70 with a stopper, and that a redundant amount of a material is required.

[0014] As a result of tests and studies conducted repeatedly in order to solve the problems described above, the inventors of the present invention have conceived the present invention.

[0015] The present invention has an object to provide a paper container with a stopper, which is capable of smoothly discharging a liquid matter from a container main body, and reducing a residue of the liquid matter in the container main body.

Solution to Problem

[0016] In order to achieve the above-mentioned object, there is provided a paper container according to claim 1.

[0017] According to the invention described in claim 1, the stopper is provided at the position adjacent to the first top corner portion among the four top corner portions of the top, and the first top corner portion is formed by the top side of the front panel and the top side of any one of the left side panel and the right side panel. Therefore, when the liquid matter contained inside the container is discharged, the container main body is tilted so that the first top corner portion adjacent to the stopper is directed downward. Thus, the first body corner portion, which is formed between the front panel and any one of the left side panel and the right side panel forming the first top corner portion, is arranged in a trough-like manner, thereby being capable of guiding the liquid matter in the container main body toward the stopper direction. Further, when contents are the viscous matter, the viscous matter sticking to an inner surface of the body separates from the inner surface of the body, and can be collected in the first body corner portion arranged in a trough-like manner. Thus, the liquid matter can be smoothly discharged, and a residue of the liquid matter can be reduced.

[0018] Further, in the first body corner portion between the front panel and any one of the left side panel and the right side panel forming the first top corner portion, the first recessed portion is formed. The first recessed portion is surrounded by the two recessed-portion forming folding line portions extending from the starting point, which is located at the first top corner portion or at the position slightly away from the first top corner portion, branching from the starting point to the front panel and any one of the left side panel and the right side panel so as to extend toward the bottom direction, and joining together at the end point, which is located at the position within which the two recessed-portion forming folding line portions extend until after reaching the first bottom corner portion formed by the bottom side of the front panel and the bottom side of any one of the left side panel and the right side panel. Accordingly, when the first body corner

portion is seen from an inner surface side of the container, owing to the first recessed portion, a gentle swelling is formed in the first body corner portion.

[0019] Owing to the swelling, an edge portion of the first recessed portion on the first top corner portion side forms an inclined surface inclined toward the stopper direction. Owing to the inclined surface, flow velocity of the liquid matter at the time of discharge of the liquid matter is increased. As a result, the liquid matter can be smoothly discharged, and a residue of the liquid matter can be reduced. Especially when the liquid matter contains a solid matter or the liquid matter is a viscous matter, the liquid matter can be smoothly discharged, and a residue of the liquid matter can be reduced.

[0020] Further, owing to the swelling formed in the first body corner portion by the first recessed portion, a smooth surface is formed in the first body corner portion, and angles formed between the smooth surface and the front panel and between the smooth surface and the side panel at the two recessed-portion forming folding line portions are increased. Accordingly, resistance against the flow of the liquid matter in contact with the first body corner portion is reduced as compared to that at a body corner portion of the related-art paper container for liquid, which has a substantially right angle, and the flow velocity of the liquid matter is increased. Even when the liquid matter contains the solid matter, the solid matter can be effectively prevented from being jammed in the first body corner portion. Further, even when the liquid matter is the viscous matter, the viscous matter can be effectively prevented from sticking to the inner surface of the body. Even when the liquid matter contains the solid matter or the liquid matter is the viscous matter, the liquid matter can be smoothly discharged, and a residue of the liquid matter can be reduced.

[0021] According to the invention described in claim 2, in the invention described in claim 1, the top includes an inclined surface so that a front panel side of the top is low and a back panel side of the top is high.

[0022] According to the invention described in claim 2, the top includes the inclined surface so that the front panel side of the top is low and the back panel side of the top is high. Accordingly, at the time of discharge of the liquid matter, when the container main body is tilted under a state in which the first top corner portion is directed downward, a corner portion (hereinafter, referred to as a second top corner portion), which is diagonally opposite to the first top corner portion and formed by a top side of the back panel and a top side of the side panel, is directed upward. An apex of an air pocket formed in the top of the tilted container main body matches the second top corner portion.

[0023] Thus, when the container main body is tilted under a state in which the first top corner portion is directed downward, an opposing distance between a liquid surface and an inner surface of the top is increased as compared to that in the related-art paper container with a stopper, which is illustrated in FIG. 21 and includes the top formed so as to have the same inclination angle as that of the top of the present invention. As a result, at the time of discharge of the liquid matter, even when the paper container with a stopper is tilted by a larger angle than the related-art paper container with a stopper, a communication state between an upper portion of the opening of the stopper and the air pocket can be maintained, and the liquid matter can be discharged while suppressing pulsation of the liquid matter. Accordingly, the liquid matter can be discharged easily, quickly, and smoothly.

[0024] According to the invention described in claim 3, in the invention described in claim 1 or 2, a length of the first recessed portion from the starting point to the end point is equal to or larger than 50% of a height of the front panel of the body.

[0025] According to the invention described in claim 3, the length of the first recessed portion from the starting point to the end point is set to be equal to or larger than 50% of the height of the front panel. Thus, separation of the solid matter or the viscous matter from a wall surface can be more effectively accelerated, and hence the solid matter or the viscous matter can be smoothly discharged. Further, when the length from the starting point to the end point is set to be equal to or larger than 50% of the height, eye-catchability of the container can be enhanced, and a container excellent in design property can be provided.

[0026] According to the invention described in claim 4, in the invention described in any one of claims 1 to 3, a width of a widest portion of the first recessed portion in a horizontal direction is equal to or larger than 10% of a width of the front panel of the body and smaller than 30% of the width of the front panel of the body.

[0027] According to the invention described in claim 4, the width of the widest portion of the first recessed portion in the horizontal direction is set to be equal to or larger than 10% of the width of the front panel of the body. Thus, contents such as the solid matter can be prevented from accumulating in or sticking to the corner portion, and hence the contents can be smoothly discharged while preventing a residue of the contents. Further, the width of the widest portion of the first recessed portion in the horizontal direction is set to be smaller than 30% of the width of the front panel of the body, and hence the container can be reliably grasped in a filling machine configured to mold the container, thereby being capable of stably molding the container.

[0028] According to the invention described in claim 5, in the paper container with a stopper described in the invention described in any one of claims 1 to 4, the container main body is formed of a single blank sheet, the blank sheet being made of a paper container material obtained by laminating a sealant on at least a back surface side of a paperboard base material, the blank sheet including: a front panel, a right side panel, a back panel, and a left side panel, which are configured to form the body, and contiguous through body vertical folding lines; a pair of top surface panels, which is configured to form the top, and contiguous with an upper end of the front panel and an upper end of the back panel

through top horizontal folding lines so as to be opposed to each other; a pair of folding surface panels, which is configured to form the top, and contiguous with an upper end of the left side panel and an upper end of the right side panel through top horizontal folding lines so as to be opposed to each other; sealing panels, which are contiguous with upper ends of the top surface panels and upper ends of the side panels through sealing-portion horizontal folding lines; a pair of bottom surface panels, which is contiguous with a lower end of the front panel and a lower end of the back panel through bottom horizontal folding lines so as to be opposed to each other; and a pair of inner surface panels, which is contiguous with a lower end of the left side panel and a lower end of the right side panel through bottom horizontal folding lines so as to be opposed to each other, wherein, in the top surface panel contiguous with the upper end of the front panel, a stopper mounting opening portion is formed at a position adjacent to an intersection point of the top horizontal folding line at the upper end of the front panel and a top vertical folding line between the top surface panel and any one of the pair of folding surface panels, the top horizontal folding line and the top vertical folding line forming the first top corner portion, and wherein the body vertical folding line between the front panel and any one of the left side panel and the right side panel forms the first body corner portion, is continuous with the intersection point, and includes two recessed-portion forming folding line portions configured to form the first recessed portion, the two recessed-portion forming folding line portions extending from a starting point, which is located at the intersection point or at a position slightly away from the intersection point, branching from the starting point to the front panel and any one of the left side panel and the right side panel so as to extend toward the bottom horizontal folding line of the front panel and the bottom horizontal folding line of any one of the left side panel and the right side panel, and joining together at an end point, which is located at a position within which the two recessed-portion forming folding line portions extend until after reaching an intersection point of the bottom horizontal folding line of the front panel and the bottom horizontal folding line of any one of the left side panel and the right side panel.

[0029] According to the invention described in claim 5, the container main body is formed of the single blank sheet, and hence can be easily manufactured.

[0030] According to the invention described in claim 6, there is provided a paper container with a stopper includes: a container main body including: a body having a square tubular shape and including a front panel, a right side panel, a back panel, and a left side panel; a bottom configured to seal a lower opening of the body; and a flat square top configured to seal an upper opening of the body; and a stopper provided on the top, wherein the top includes an inclined surface so that a front panel side of the top is low and a back panel side of the top is high, and wherein the stopper is provided at a position adjacent to a first top corner portion among four top corner portions of the top, the first top corner portion being formed by a top side of the front panel and a top side of any one of the left side panel and the right side panel.

[0031] According to the invention described in claim 6, the top includes the inclined surface so that the front panel side of the top is low and the back panel side of the top is high, and the stopper is provided at the position adjacent to the first top corner portion among the four top corner portions of the top. The first top corner portion is formed by the top side of the front panel and the top side of any one of the left side panel and the right side panel. Accordingly, at the time of discharge of the liquid matter, when the container main body is tilted under a state in which the first top corner portion is directed downward, a corner portion (hereinafter, referred to as a second top corner portion), which is diagonally opposite to the first top corner portion and formed by a top side of the back panel and a top side of the side panel, is directed upward. An apex of an air pocket formed in the top of the tilted container main body matches the second top corner portion.

[0032] Thus, when the container main body is tilted under a state in which the first top corner portion is directed downward, an opposing distance between a liquid surface and an inner surface of the top is increased as compared to that in the related-art paper container with a stopper, which is illustrated in FIG. 7 and includes the top formed so as to have the same inclination angle as that of the top of the present invention. As a result, at the time of discharge of the liquid matter, even when the paper container with a stopper is tilted by a larger angle than the related-art paper container with a stopper, a communication state between an upper portion of the opening of the stopper and the air pocket can be maintained, and the liquid matter can be discharged while suppressing pulsation of the liquid matter. Accordingly, the liquid matter can be discharged easily, quickly, and smoothly.

Advantageous Effects of Invention

[0033] As described above, according to the paper container with a stopper of the present invention, as compared to a container that does not employ the technology of the present invention, the liquid matter can be discharged from the container main body more smoothly, and a residue of the liquid matter in the container main body can be reduced.

Brief Description of Drawings

[0034]

FIG. 1 is a right-hand side view for illustrating a first example of a paper container with a stopper according to an embodiment of the present invention.
FIG. 2 is a perspective view for illustrating the paper container with a stopper of FIG. 1 when seen from an upper side of the paper container with a stopper.
FIG. 3 is a perspective view for illustrating the paper container with a stopper of FIG. 2 when seen from a side diagonally opposite to the viewpoint of FIG. 2.
FIG. 4 is an explanatory view for illustrating a first recessed portion.
FIG. 5 is an explanatory view for illustrating another example of the first recessed portion.
FIG. 6 is an explanatory view for illustrating another example of the first recessed portion.
FIG. 7 is an explanatory view for illustrating another example of the first recessed portion.
FIG. 8 is an explanatory view for illustrating another example of the first recessed portion.
FIG. 9 is an explanatory view for illustrating another example of the first recessed portion.
FIG. 10 is an explanatory view for illustrating another example of the first recessed portion.
FIG. 11 is an explanatory view for illustrating a position of a stopper when a liquid matter is discharged.
FIG. 12 is a sectional explanatory view for illustrating a state in which the liquid matter is discharged.
FIG. 13 is a plan view for illustrating a blank sheet configured to form a container main body of the container with a stopper of FIG. 1.
FIG. 14 is a right-hand side view for illustrating a second example of the paper container with a stopper according to the embodiment of the present invention.
FIG. 15 is a perspective view for illustrating the paper container with a stopper of FIG. 14 when seen from the upper side of the paper container with a stopper.
FIG. 16 is a perspective view for illustrating the paper container with a stopper of FIG. 14 when seen from a diagonal direction of a body.
FIG. 17 is a schematic vertical sectional explanatory view of FIG. 16.
FIG. 18 is an explanatory view for illustrating a state in which the container main body is tilted at the time of discharge of the liquid matter.
FIG. 19 is a plan view for illustrating a blank sheet configured to form the container main body of the container with a stopper of FIG. 14.
FIG. 20 is a perspective view for illustrating a related-art paper container with a stopper when seen from an upper side of the related-art paper container with a stopper.
FIG. 21 is a schematic vertical sectional explanatory view of FIG. 20.
FIG. 22 is an explanatory view for illustrating a state in which a container main body is tilted at the time of discharge of the liquid matter.

Description of Embodiments

[0035] Now, an example of a paper container with a stopper according to an embodiment of the present invention is described in detail with reference to the drawings.

[0036] FIG. 1 to FIG. 13 are illustrations of a first example of the paper container with a stopper according to the embodiment of the present invention. FIG. 1 is a right-hand side view for illustrating the first example of the paper container with a stopper. FIG. 2 is a perspective view for illustrating the paper container with a stopper of FIG. 1 when seen from an upper side of the paper container with a stopper. FIG. 3 is a perspective view for illustrating the paper container with a stopper of FIG. 2 when seen from a side diagonally opposite to the viewpoint of FIG. 2. FIG. 4 is an explanatory view for illustrating a first recessed portion. FIG. 5 to FIG. 10 are explanatory views each for illustrating another example of the first recessed portion. FIG. 11 is an explanatory view for illustrating a position of a stopper when a liquid matter is discharged. FIG. 12 is a sectional explanatory view for illustrating a state in which the liquid matter is discharged. FIG. 13 is a plan view for illustrating a blank sheet configured to form a container main body of the container with a stopper of FIG. 1.

[0037] A paper container 1 with a stopper in the first example includes a container main body 9 and a stopper 10. The container main body 9 includes a body 6 having a square tubular shape and including a front panel 2, a right side panel 3, a back panel 4, and a left side panel 5, a bottom 7 configured to seal a lower opening portion of the body 6, and a flat top 8 configured to seal an upper opening portion of the body 6. The stopper 10 is provided on the top 8. In the first example, the container main body 9 is formed of a single blank sheet described later.

[0038] The flat top 8 described herein means that the top 8 does not have a projecting shape unlike, for example, a gable top type. The flat top 8 encompasses a top having a configuration in which a front side and a back side of the top 8 are different in level and the top 8 includes an inclined surface.

[0039] The stopper 10 provided on the top 8 is provided at a position adjacent to a first top corner portion 11(A) among four top corner portions 11 of the top 8. The first top corner portion 11(A) is formed by a top side 2a of the front panel 2

and any one of a top side 3a of the right side panel 3 and a top side 5a of the left side panel 5. In the first example, the first top corner portion 11(A) is formed by the top side 2a of the front panel 2 and the top side 3a of the right side panel 3.

[0040] The adjacent position described herein means a position shifted closer to the first top corner portion 11(A) side from a center position of the top 8. The adjacent position closer to the first top corner portion 11(A) is more preferred.

[0041] The body 6 includes a first recessed portion 16 in a first body corner portion 12(A) among four body corner portions 12 formed by the front panel 2, the right side panel 3, the back panel 4, and the left side panel 5. The first body corner portion 12(A) is formed between the front panel 2 and the right side panel 3 forming the first top corner portion 11(A) at which the stopper 10 is provided. The first recessed portion 16 is surrounded by two recessed-portion forming folding line portions 14 and 15 extending from a starting point S, which is located at the first top corner portion 11(A) or at a position slightly away from the first top corner portion 11(A), branching from the starting point S to the front panel 2 and the right side panel 3 so as to extend toward the bottom 7, and joining together at an end point E, which is located at a position within which the two recessed-portion forming folding line portions 14 and 15 extend until after reaching a first bottom corner portion 13(A) among four bottom corner portions 13 of the bottom 7. The first bottom corner portion 13(A) is formed by a bottom side 2b of the front panel 2 and a bottom side 3b of the right side panel 3.

[0042] In the first example, the starting point S of the two recessed-portion forming folding line portions 14 and 15 forming the first recessed portion 16 is set to the first top corner portion 11(A), but the starting point S may be set to a position slightly away from the first top corner portion 11(A). When the starting point S is set to the position slightly away from the first top corner portion 11(A), it is preferred that the starting point S be set to a position within a range of 35 mm or less from the first top corner portion 11(A). When the starting point S is set in this range, a solid matter and a viscous matter can be smoothly discharged.

[0043] Further, the end point E of the two recessed-portion forming folding line portions 14 and 15 is set to the first bottom corner portion 13(A), but the end point E may be set to the position within which the two recessed-portion forming folding line portions 14 and 15 extend until after reaching the first bottom corner portion 13(A). In this case, when a length L from the starting point S to the end point E is equal to or larger than 10% of a height H of the front panel 2 of the body 6, separation of the solid matter or the viscous matter from a wall surface can be accelerated, which is preferred. Further, as illustrated in FIG. 4, when the length L from the starting point S to the end point E is equal to or larger than 50% of the height H, separation of the solid matter or the viscous matter from the wall surface can be more effectively accelerated, and the solid matter or the viscous matter can be smoothly discharged, which is more preferred. Further, when the length L from the starting point S to the end point E is set to be equal to or larger than 50% of the height H, eye-catchability of the container can be enhanced, and a container excellent in design property can be provided.

[0044] Further, it is preferred that a width W1 of a widest portion of the first recessed portion 16 in a horizontal direction be equal to or larger than 10% of a width W2 of the front panel 2 of the body 6 and smaller than 30% of the width W2 (see FIG. 4). When the width W1 is set to be equal to or larger than 10% of the width W2, contents such as the solid matter are prevented from accumulating in or sticking to the corner portion to thereby remain in the corner portion. Accordingly, the contents can be smoothly discharged. Further, when the width W1 is set to be smaller than 30% of the width W2, the container can be reliably grasped in a filling machine configured to mold the container, thereby being capable of stably molding the container.

[0045] Further, in the first example, the two recessed-portion forming folding line portions 14 and 15 forming the first recessed portion 16 are symmetric with respect to an imaginary line connecting the first top corner portion 11(A) and the first bottom corner portion 13(A) to each other. However, it is not always required that the two recessed-portion forming folding line portions 14 and 15 be horizontally symmetric to each other.

[0046] FIG. 5 to FIG. 10 are illustrations of other examples of the first recessed portion 16 formed by the two recessed-portion forming folding line portions 14 and 15.

[0047] Further, in the first example, a second recessed portion 19 is formed at a second body corner portion 12(B) diagonally opposite to the first body corner portion 12(A). The second recessed portion 19 is surrounded by two recessed-portion forming folding line portions 17 and 18 extending from a starting point S, which is located at a second top corner portion 11(B) diagonally opposite to the first top corner portion 11(A) or at a position away from the second top corner portion 11(B), branching from the starting point S to the back panel 4 and the left side panel 5 so as to extend toward the bottom 7, and joining together at an end point E, which is located at a position within which the two recessed-portion forming folding line portions 17 and 18 extend until after reaching a second bottom corner portion 13(B). The second bottom corner portion 13(B) is formed by a bottom side 4b of the back panel 4 and a bottom side 5b of the left side panel 5.

[0048] The paper container 1 with a stopper configured as described above includes, in the first body corner portion 12(A) of the body 6 of the container main body 9, the first recessed portion 16 surrounded by the two recessed-portion forming folding line portions 14 and 15 extending from the starting point S, which is located at the first top corner portion 11(A) or at the position slightly away from the first top corner portion 11(A), branching from the starting point S to the front panel 2 and the right side panel 3 so as to extend toward the bottom 7 direction, and joining together at the end point E, which is located at the position within which the two recessed-portion forming folding line portions 14 and 15 extend until after reaching the first bottom corner portion 13(A). Accordingly, when the first body corner portion 12(A) is

seen from an inner surface side of the container, owing to the first recessed portion 16, a gentle swelling 20 is formed in the first body corner portion 12(A), and an edge portion of the first recessed portion 16 on the first top corner portion 11(A) side forms an inclined surface 21 inclined toward the stopper 10 direction (see FIG. 12).

[0049] When the liquid matter contained inside the container is discharged, the container main body 9 is tilted so that the first top corner portion 11(A) and the first body corner portion 12(A) are directed downward (see FIG. 11 and FIG. 12). Thus, the first body corner portion 12(A) is arranged in a trough-like manner so as to guide the liquid matter in the container main body 9 toward the stopper 10 direction, thereby smoothly discharging the liquid matter.

[0050] Further, in the first body corner portion 12(A) arranged in a trough-like manner, the edge portion on the first top corner portion 12(A) side, on which the swelling 20 is formed owing to the first recessed portion 16, forms the inclined surface 21 inclined toward the stopper 10 direction. Accordingly, the liquid matter flowing in the container main body 9 toward the stopper 10 direction is increased in flow velocity by the inclined surface 21, and thus the liquid matter is smoothly discharged.

[0051] Further, owing to the swelling 20 formed in the first body corner portion 12(A) by the first recessed portion 16, a smooth surface 22 is formed in the first body corner portion 12(A), and angles formed between the smooth surface 22 and the front panel 2 and between the smooth surface 22 and the right side panel 5 at the two recessed-portion forming folding line portions 14 and 15 are increased. Accordingly, resistance against the flow of the liquid matter in contact with the first body corner portion 12(A) is reduced as compared to that at a body corner portion of the related-art paper container for liquid, which has a substantially right angle, and the flow velocity of the liquid matter is increased. Even when the liquid matter contains the solid matter, the solid matter can be effectively prevented from being jammed in the first body corner portion 12(A). Further, even when the liquid matter is the viscous matter, the viscous matter can be effectively prevented from sticking to an inner surface of the body 6.

[0052] Further, in the first example, the second recessed portion 19 is formed at the second body corner portion 12(B) diagonally opposite to the first body corner portion 12(A). The second recessed portion 19 is surrounded by the two recessed-portion forming folding line portions 17 and 18 extending from the starting point S, which is located at the second top corner portion 11(B) diagonally opposite to the first top corner portion 11(A) or at the position away from the second top corner portion 11(B), branching from the starting point S to the back panel 4 and the left side panel 5 so as to extend toward the bottom 7, and joining together at the end point E, which is located at the position within which the two recessed-portion forming folding line portions 17 and 18 extend until after reaching the second bottom corner portion 13(B). The second bottom corner portion 13(B) is formed by the bottom side 4b of the back panel 4 and the bottom side 5b of the left side panel 5. Accordingly, when the container main body 9 is held by hand at the time of discharge, the second body corner portion 12(B) is directed to a palm side, and the second recessed portion 19 of the second body corner portion 12(B) is held in contact with the palm. Thus, the container main body 9 can be easily held without causing a pain by the corner portion, and can be grasped tightly.

[0053] FIG. 13 is an illustration of an example of a blank sheet 30A configured to form the paper container 1 with a stopper in the first example.

[0054] The blank sheet 30A is made of a paper container material obtained by laminating a sealant on at least a back surface side of a paperboard base material. The blank sheet 30A includes the front panel 2, the right side panel 3, the back panel 4, and the left side panel 5, which are configured to form the body 6, and contiguous through body vertical folding lines 31, 32, and 33.

[0055] A pair of top surface panels 36 and 37 is configured to form the top 8, and contiguous with an upper end of the front panel 2 and an upper end of the back panel 4 through top horizontal folding lines 34 and 35 so as to be opposed to each other. A pair of folding surface panels 40 and 41 is configured to form the top 8, and contiguous with an upper end of the right side panel 3 and an upper end of the left side panel 5 through top horizontal folding lines 38 and 39 so as to be opposed to each other. Top oblique folding lines 42 and top oblique folding lines 43 are formed on the folding surface panels 40 and 41, respectively. Further, sealing panels 48, 49, 50, and 51 are contiguous with the upper ends of the top surface panels 36 and 37 and the upper ends of the folding surface panels 40 and 41 through sealing-portion horizontal folding lines 44, 45, 46, and 47, respectively.

[0056] A pair of bottom surface panels 54 and 55 is configured to form the bottom 7, and contiguous with a lower end of the front panel 2 and a lower end of the back panel 4 through bottom horizontal folding lines 52 and 53 so as to be opposed to each other. A pair of inner surface panels 58 and 59 is configured to form the bottom 7, and contiguous with a lower end of the right side panel 3 and a lower end of the left side panel 5 through bottom horizontal folding lines 56 and 57 so as to be opposed to each other.

[0057] Moreover, a side sealing panel 61 is contiguous with one-side opening edge of the blank sheet 30A through a side sealing vertical folding line 60, and is sealed on another-side opening edge of the blank sheet 30A.

[0058] In the top surface panel 36 contiguous with the upper end of the front panel 2 of the blank sheet 30A configured as described above, a stopper mounting opening portion 64 is formed at a position adjacent to an intersection point 63 of the top horizontal folding line 34 of the front panel 2 and a top vertical folding line 62 between the top surface panel 36 and the folding surface panel 40. The top horizontal folding line 34 and the top vertical folding line 62 form the first

top corner portion 11(A).

[0059] When the blank sheet 30A is formed by laminating an aluminum sheet between a paperboard material and a sealant, a part of the paperboard material of the blank sheet 30A may be cut out so that a part of the aluminum sheet is left.

[0060] Further, the body vertical folding line 31 between the front panel 2 and the right side panel 3 forms the first body corner portion 12(A), and is continuous with the intersection point 63. The body vertical folding line 31 includes the two recessed-portion forming folding line portions 14 and 15 extending from the starting point S, which is located at the intersection point 63 or at a position slightly away from the intersection point 63, branching from the starting point S to the front panel 2 and the right side panel 3 so as to extend toward the bottom horizontal folding line 52 of the front panel 2 and the bottom horizontal folding line 56 of the right side panel 3, and joining together at the end point E, which is located at a position within which the two recessed-portion forming folding line portions 14 and 15 extend until after reaching an intersection point 65 of the bottom horizontal folding line 52 of the front panel 2 and the bottom horizontal folding line 56 of the right side panel 3, thereby forming the first recessed portion 16.

[0061] Further, in this example, the body vertical folding line 33 between the back panel 4 and the left side panel 5 forms the second body corner portion 12(B) diagonally opposite to the first body corner portion 12(A). The body vertical folding line 33 includes the two recessed-portion forming folding line portions 17 and 18 extending from the starting point S, which is located at an intersection point 67 of the top horizontal folding line 35 of the back panel 4 and a top vertical folding line 66 between the top surface panel 37 and the folding surface panel 41, branching from the starting point S to the back panel 4 and the left side panel 5 so as to extend toward the bottom horizontal folding line 53 of the back panel 4 and the bottom horizontal folding line 57 of the left side panel 5, and joining together at the end point E, which is located at a position within which the two recessed-portion forming folding line portions 17 and 18 extend until after reaching an intersection point 68 of the bottom horizontal folding line 53 of the back panel 4 and the bottom horizontal folding line 57 of the left side panel 5, thereby forming the second recessed portion 19.

[0062] In this example, the starting point S of the two recessed-portion forming folding line portions 14 and 15 forming the first recessed portion 16 is set to the intersection point 63 of the top horizontal folding line 34 of the front panel 2 and the top vertical folding line 62 between the top surface panel 36 and the folding surface panel 40, but the starting point S may be set to a position slightly away from the intersection point 63.

[0063] Further, the end point E of the two recessed-portion forming folding line portions 14 and 15 is set to the intersection point 65 of the bottom horizontal folding line 52 of the front panel 2 and the bottom horizontal folding line 56 of the right side panel 3. However, it is only required that the end point E be set to the position within which the two recessed-portion forming folding line portions 14 and 15 extend until after reaching the intersection point 65 of the bottom horizontal folding line 52 of the front panel 2 and the bottom horizontal folding line 56 of the right side panel 3.

[0064] Further, the starting point S of the two recessed-portion forming folding line portions 17 and 18 forming the second recessed portion 19 is set to the intersection point 67 of the top horizontal folding line 35 of the back panel 4 and the top vertical folding line 66 between the top surface panel 37 and the folding surface panel 41, but the starting point S may be set to a position slightly away from the intersection point 67.

[0065] Further, the end point E of the two recessed-portion forming folding line portions 17 and 18 is set to the intersection point 68 of the bottom horizontal folding line 53 of the back panel 4 and the bottom horizontal folding line 57 of the left side panel 5. However, it is only required that the end point E be set to the position within which the two recessed-portion forming folding line portions 17 and 18 extend until after reaching the intersection point 68 of the bottom horizontal folding line 53 of the back panel 4 and the bottom horizontal folding line 57 of the left side panel 5.

[0066] FIG. 1 to FIG. 12 are illustrations of a second example of the paper container with a stopper according to the embodiment of the present invention. FIG. 14 is a right-hand side view for illustrating the second example of the paper container with a stopper. FIG. 15 is a perspective view for illustrating the paper container with a stopper of FIG. 14 when seen from an upper side of the paper container with a stopper. FIG. 16 is a perspective view for illustrating the paper container with a stopper of FIG. 14 when seen from a diagonal direction of a body. FIG. 17 is a schematic vertical sectional explanatory view of FIG. 16. FIG. 18 is an explanatory view for illustrating a state in which the container main body is tilted at the time of discharge of the liquid matter. FIG. 19 is a plan view for illustrating a blank sheet configured to form the container main body of the container with a stopper of FIG. 14.

[0067] In description of the second example, the same components as those in the first example are denoted by the same reference symbols.

[0068] Similarly to the first example, the paper container 1 with a stopper in the second example includes the container main body 9 and the stopper 10. The container main body 9 includes the body 6 having a square tubular shape and including the front panel 2, the right side panel 3, the back panel 4, and the left side panel 5, the bottom 7 configured to seal the lower opening portion of the body 6, and the flat square top 8 configured to seal the upper opening portion of the body 6. The stopper 10 is provided on the top 8. In the this example, the container main body 9 is formed of a single blank sheet described later.

[0069] As illustrated in FIG. 14 and FIG. 15, the top 8 includes an inclined surface so that the front panel 2 side of the top 8 is low and the back panel 4 side of the top 8 is high. It is preferred that an inclination angle θ of the top 8 be equal

to or larger than 10° and equal to or smaller than 30°. In a case in which the inclination angle θ is equal to or larger than 10°, as described later, when the container main body 9 is tilted at the time of discharge of the liquid matter, an air pocket allowing the air to pass through the stopper satisfactorily can be defined. Thus, pulsation of the liquid matter flowing through the stopper 10 can be effectively suppressed. In a case in which the inclination angle θ is equal to or smaller than 30° and the liquid matter is a beverage, even when a person drinks the beverage while putting his/her mouth on the stopper directly, the person can easily drink the beverage without hitting his/her nose against the top surface.

[0070] Further, it is preferred that an upper limit value of the inclination angle θ of the top 8 be an angle at which an upper end of an upper surface of the stopper 10 inclined along inclination of the top 8, and an upper end of the top 8, namely, a top side 4a of the back panel 4 match each other in level. Even when the inclination angle θ of the top 8 is set to a large angle at which the upper end of the top 8, namely, the top side 4a of the back panel 4 is higher in level than the upper end of the upper surface of the stopper 10, no change is seen in the effect of suppressing pulsation of the liquid matter owing to the air pocket defined by the configuration with the large inclination angle. When the inclination angle θ is set to such a large angle, a height of the paper container 1 with a stopper is increased in accordance with the inclination angle θ, and a larger amount of the material is required.

[0071] Similarly to the first example, the stopper 10 provided on the top 8 is provided at a position adjacent to the first top corner portion 11(A) among the four top corner portions 11 of the top 8. The first top corner portion 11(A) is formed by the top side 2a of the front panel 2 and any one of the top side 3a of the right side panel 3 and the top side 5a of the left side panel 5. In this example, the first top corner portion 11(A) is formed by the top side 2a of the front panel 2 and the top side 3a of the right side panel 3.

[0072] The adjacent position described herein means a position shifted closer to the first top corner portion 11(A) side from a center position of the top 8. The adjacent position closer to the first top corner portion 11(A) is more preferred.

[0073] Further, in the second example, similarly to the first example, the body 6 includes the first recessed portion 16 in the first body corner portion 12(A) among the four body corner portions 12 formed by the front panel 2, the right side panel 3, the back panel 4, and the left side panel 5. The first body corner portion 12(A) is formed between the front panel 2 and the right side panel 3 forming the first top corner portion 11(A) at which the stopper 10 is provided. The first recessed portion 16 is surrounded by the two recessed-portion forming folding line portions 14 and 15 extending from the starting point S, which is the first top corner portion 11(A), branching from the starting point S to the front panel 2 and the right side panel 3 so as to extend toward the bottom 7, and joining together at the end point E, which is located at a position within which the two recessed-portion forming folding line portions 14 and 15 extend until after reaching the first bottom corner portion 13(A) among the four bottom corner portions 13 of the bottom 7. The first bottom corner portion 13(A) is formed by the bottom side 2b of the front panel 2 and the bottom side 3b of the right side panel 3.

[0074] In the second example, similarly to the first example, the starting point S of the two recessed-portion forming folding line portions 14 and 15 forming the first recessed portion 16 is set to the first top corner portion 11(A), but the starting point S may be set to a position slightly away from the first top corner portion 11(A). When the starting point S is set to the position slightly away from the first top corner portion 11(A), it is preferred that the starting point S be set to a position within a range of 35 mm or less from the first top corner portion 11(A).

[0075] In the paper container 1 with a stopper configured as described above, the top 8 includes the inclined surface so that the front panel 2 side of the top 8 is low and the back panel 4 side of the top 8 is high. Further, the stopper 10 is provided at a position adjacent to the first top corner portion 11(A) among the four top corner portions 11 of the top 8. The first top corner portion 11(A) is formed by the top side 2a of the front panel 2 and the top side 3a of the right side panel 3. Accordingly, at the time of discharge of the liquid matter, when the container main body 9 is tilted under a state in which the first top corner portion 11(A) is directed downward, the second top corner portion 11(B), which is diagonally opposite to the first top corner portion 11(A) and formed by the top side 4a of the back panel 4 and the top side 5a of the left side panel 5, is directed upward. An apex of an air pocket 23 formed in the top 8 of the tilted container main body 9 matches the second top corner portion 11(B) (see FIG. 18).

[0076] Thus, when the container main body 9 is tilted under a state in which the first top corner portion 11(A) is directed downward, an opposing distance between a liquid surface F of the liquid matter and the inner surface of the top 8 is increased as compared to that in the related-art paper container 70 with a stopper, which is illustrated in FIG. 20 and includes the top 73 formed so as to have the same inclination angle as that of the top 8. As a result, at the time of discharge of the liquid matter, even when the paper container 1 with a stopper is tilted by a larger angle than the related-art paper container 70 with a stopper, a communication state between the upper portion of the opening of the stopper 10 and the air pocket 23 can be maintained, and the liquid matter can be discharged while suppressing pulsation of the liquid matter. Accordingly, the liquid matter can be discharged easily, quickly, and smoothly.

[0077] Further, in the second example, similarly to the first example, in the first body corner portion 12(A) of the body 6 of the container main body 9, the first recessed portion 16 surrounded by the two recessed-portion forming folding line portions 14 and 15 extending from the starting point S, which is located at the first top corner portion 11(A) or at the position slightly away from the first top corner portion 11(A), branching from the starting point S to the front panel 2 and the right side panel 3 so as to extend toward the bottom 7 direction, and joining together at the end point E, which is

located at the position within which the two recessed-portion forming folding line portions 14 and 15 extend until after reaching the first bottom corner portion 13(A). Accordingly, when the first body corner portion 12(A) is seen from the inner surface side of the container, owing to the first recessed portion 16, the gentle swelling 20 is formed in the first body corner portion 12(A), and the edge portion of the first recessed portion 16 on the first top corner portion 11(A) side forms the inclined surface 21 inclined toward the stopper 10 direction (see FIG. 17).

[0078] With this configuration, when the liquid matter contained inside the container is discharged, the container main body 9 is tilted so that the first top corner portion 11(A) and the first body corner portion 12(A) are directed downward. Thus, the first body corner portion 12(A) is arranged in a trough-like manner so as to guide the liquid matter in the container main body 9 toward the stopper 10 direction, thereby smoothly discharging the liquid matter.

[0079] Further, in the first body corner portion 12(A) arranged in a trough-like manner, the edge portion on the first top corner portion 12(A) side, on which the swelling 18 is formed owing to the first recessed portion 16, forms the inclined surface 21 inclined toward the stopper 10 direction. Accordingly, the liquid matter flowing in the container main body 9 toward the stopper 10 direction is increased in flow velocity by the inclined surface 21, and pulsation of the liquid matter flowing through the stopper 10 is reduced at the time of discharge of the liquid matter, thereby being capable of smoothly discharging the liquid matter.

[0080] Further, owing to the swelling 20 formed in the first body corner portion 12(A) by the first recessed portion 16, the smooth surface 22 is formed in the first body corner portion 12(A), and the angles formed between the smooth surface 22 and the front panel 2 and the angle formed between the smooth surface 22 and the right side panel 5 at the two recessed-portion forming folding line portions 14 and 15 are increased. Accordingly, resistance against the flow of the liquid matter being in contact with the first body corner portion 12(A) is reduced as compared to that at the body corner portion of the related-art paper container with a stopper, which has a substantially right angle, and the flow velocity of the liquid matter is increased. Even when the liquid matter contains the solid matter, the solid matter can be effectively prevented from being jammed in the first body corner portion 12(A). Further, even when the liquid matter is the viscous matter, the viscous matter can be effectively prevented from sticking to the inner surface of the body 6.

[0081] FIG. 19 is an illustration of an example of a blank sheet 30B configured to form the paper container 1 with a stopper in the second example.

[0082] Similarly to the blank sheet 30A in the first example, the blank sheet 30B in the second example is made of a paper container material obtained by laminating a sealant on at least a back surface side of a paperboard base material. The blank sheet 30B includes the front panel 2, the right side panel 3, the back panel 4, and the left side panel 5, which are configured to form the body 6, and contiguous through the body vertical folding lines 31, 32, and 33.

[0083] The pair of top surface panels 36 and 37 is configured to form the top 8, and contiguous with the upper end of the front panel 2 and the upper end of the back panel 4 through the top horizontal folding lines 34 and 35 so as to be opposed to each other. The pair of folding surface panels 40 and 41 is configured to form the top 8, and contiguous with the upper end of the right side panel 3 and the upper end of the left side panel 5 through the top horizontal folding lines 38 and 39 so as to be opposed to each other. The top oblique folding lines 42 and the top oblique folding lines 43 are formed on the folding surface panels 40 and 41, respectively. Further, the sealing panels 48, 49, 50, and 51 are contiguous with the upper ends of the top surface panels 36 and 37 and the upper ends of the folding surface panels 40 and 41 through the sealing-portion horizontal folding lines 44, 45, 46, and 47, respectively.

[0084] The pair of bottom surface panels 54 and 55 is configured to form the bottom 7, and contiguous with the lower end of the front panel 2 and the lower end of the back panel 4 through the bottom horizontal folding lines 52 and 53 so as to be opposed to each other. The pair of inner surface panels 58 and 59 is configured to form the bottom 7, and contiguous with the lower end of the right side panel 3 and the lower end of the left side panel 5 through the bottom horizontal folding lines 56 and 57 so as to be opposed to each other.

[0085] Moreover, the side sealing panel 61 is contiguous with one-side opening edge of the blank sheet 30B through the side sealing vertical folding line 60, and is sealed on another-side opening edge of the blank sheet 30B.

[0086] In the top surface panel 36 contiguous with the upper end of the front panel 2 of the blank sheet 30B configured as described above, the stopper mounting opening portion 64 is formed at a position adjacent to the intersection point 63 of the top horizontal folding line 34 of the front panel 2 and the top vertical folding line 62 between the top surface panel 36 and the folding surface panel 40. The top horizontal folding line 34 and the top vertical folding line 62 form the first top corner portion 11(A). When the blank sheet 30B is formed by laminating an aluminum sheet between a paperboard material and a sealant, a part of the paperboard material of the blank sheet 30B may be cut out so that a part of the aluminum sheet is left.

[0087] Further, the body vertical folding line 31 between the front panel 2 and the right side panel 3 forms the first body corner portion 12(A), and is continuous with the intersection point 63. The body vertical folding line 31 includes the two recessed-portion forming folding line portions 14 and 15 extending from the starting point S, which is located at the intersection point 63 or at a position slightly away from the intersection point 63, branching from the starting point S to the front panel 2 and the right side panel 3 so as to extend toward the bottom horizontal folding line 52 of the front panel 2 and the bottom horizontal folding line 56 of the right side panel 3, and joining together at the end point E, which is

located at a position within which the two recessed-portion forming folding line portions 14 and 15 extend until after reaching the intersection point 65 of the bottom horizontal folding line 52 of the front panel 2 and the bottom horizontal folding line 56 of the right side panel 3, thereby forming the first recessed portion 16.

[0088] In this example, the starting point S of the two recessed-portion forming folding line portions 14 and 15 forming the first recessed portion 16 is set to the intersection point 63 of the top horizontal folding line 34 of the front panel 2 and the top vertical folding line 62 between the top surface panel 36 and the folding surface panel 40, but the starting point S may be set to a position slightly away from the intersection point 63.

[0089] Further, the end point E of the two recessed-portion forming folding line portions 14 and 15 is set to the intersection point 65 of the bottom horizontal folding line 52 of the front panel 2 and the bottom horizontal folding line 56 of the right side panel 3. However, it is only required that the end point E be set to the position within which the two recessed-portion forming folding line portions 14 and 15 extend until after reaching the intersection point 65 of the bottom horizontal folding line 52 of the front panel 2 and the bottom horizontal folding line 56 of the right side panel 3.

Reference Signs List

1	paper container with stopper	5	left side panel
2	front panel	5a	top side
2a	top side	5b	bottom side
2b	bottom side	6	body
3	right side panel	7	bottom
3a	top side	8	top
3b	bottom side	9	container main body
4	back panel	10	stopper
4a	top side	11	top corner portion
4b	bottom side	11(A)	first top corner portion
11(B)	second top corner portion	48, 49, 50,	51 sealing panel
12	body corner portion	52, 53	bottom horizontal folding line
12(A)	first body corner portion	54, 55	bottom surface panel
12(B)	second body corner portion	56, 57	bottom horizontal folding line
13(A)	first bottom corner portion	58, 59	inner surface panel
13(B)	second bottom corner portion	60	side sealing vertical folding line
14, 15	recessed-portion forming folding lineportion	61	side sealing panel
		62	top vertical folding line
16	first recessed portion	63	intersection point
17, 18	recessed-portion forming folding lineportion	64	stopper mounting opening portion
		65	intersection point
19	second recessed portion	66	top vertical folding line
20	swelling	67, 68	intersection point
21	inclined surface	S	starting point
22	smooth surface	E	end point
23	air pocket	F	liquid surface
30A, 30B	blank sheet		
31, 32, 33	body vertical folding line		
34, 35	top horizontal folding line		
36, 37	top surface panel		
38, 39	top horizontal folding line		
40, 41	folding surface panel		
42, 43	top oblique folding line		
44, 45, 46, 47	sealing-portion horizontalfolding line		

Claims

1. A paper container (1) with a stopper (10), comprising:

a container main body (9) including:

a body (6) having a square tubular shape and including a front panel (2), a right side panel (3), a back panel (4), and a left side panel (5);
a bottom (7) configured to seal a lower opening of the body (6); and
a flat top (8) configured to seal an upper opening of the body (6); and

the stopper (10) provided on the top (8),
wherein the stopper (10) is provided at a position adjacent to a first top corner portion (11A) among four top corner portions (11) of the top (8), the first top corner portion (11A) being formed by a top side (2a) of the front panel (2) and a top side (3a, 5a) of any one of the left side panel (5) and the right side panel (3), and
wherein the body (6) includes a first recessed portion (16) in a first body corner portion (12A) among four body corner portions (12) formed by the front panel (2), the right side panel (3), the back panel (4), and the left side panel (5), the first body corner portion (12A) being formed between the front panel (2) and any one of the left side panel and the right side panel forming the first top corner portion at which the stopper (10) is provided, the first recessed portion (16) being surrounded by two recessed-portion forming folding line portions (14, 15) extending from a starting point (S), which is located at the first top corner portion (11A) or at a position slightly away from the first top corner portion (11A), branching from the starting point (S) to the front panel (2) and any one of the left side panel (5) and the right side panel (3) so as to extend toward the bottom (7) direction, and joining together at an end point (E), which is located at a position within which the two recessed-portion forming folding line portions (14, 15) extend until after reaching a first bottom corner portion (13A) formed by a bottom side (2b) of the front panel (2) and a bottom side (3b) of any one of the left side panel (5) and the right side panel (3), such that when the first body corner portion (12A) is seen from an inner surface side of the container (1), the first recessed portion (16) causes a gentle swelling to form in the first body corner portion (12A), and an edge portion of the first recessed portion (12A) on the first top corner portion (11A) forms an inner inclined surface inclined toward the stopper (10), the first body corner portion (12A) being arranged in a trough-like manner so as to be capable to guide a matter in the container (1) main body toward the stopper (10), such that the matter may be smoothly discharged.

2. The paper container with a stopper according to claim 1, wherein the top (8) includes an inclined surface so that a front panel (2) side of the top (8) is low and a back panel (4) side of the top (8) is high.

3. The paper container with a stopper according to claim 1 or 2, wherein a length of the first recessed portion (16) from the starting point (S) to the end point (E) is equal to or larger than 50% of a height of the front panel (2) of the body (6).

4. The paper container with a stopper according to any one of claims 1 to 3, wherein a width of a widest portion of the first recessed portion (16) in a horizontal direction is equal to or larger than 10% of a width of the front panel (2) of the body and smaller than 30% of the width of the front panel (2) of the body.

5. The paper container with a stopper according to any one of claims 1 to 4,

wherein the container main body (6) is formed of a single blank sheet (30A), the blank sheet being made of a paper container material obtained by laminating a sealant on at least a back surface side of a paperboard base material, the blank sheet including:

the front panel (2), the right side panel (3), the back panel (4), and the left side panel (5), which are configured to form the body (6), and contiguous through body vertical folding lines;
a pair of top surface panels (36, 37), which are configured to form the top (8), and contiguous with an upper end of the front panel (2) and an upper end of the back panel (4) through top horizontal folding lines so as to be opposed to each other;
a pair of folding surface panels (40, 41), which are configured to form the top (8), and contiguous with an upper end of the left side panel (5) and an upper end of the right side panel (3) through top horizontal folding lines so as to be opposed to each other;
sealing panels (48, 49, 50, 51), which are contiguous with upper ends of the top surface panels and upper ends of the folding surface panels through sealing-portion horizontal folding lines (44, 45, 46, 47);
a pair of bottom surface panels (54, 55), which are contiguous with a lower end of the front panel (2) and a lower end of the back panel (4) through bottom horizontal folding lines (52, 53) so as to be opposed to each other; and

a pair of inner surface panels (58, 59), which are contiguous with a lower end of the left side panel (5) and a lower end of the right side panel (3) through bottom horizontal folding lines (56, 57) so as to be opposed to each other,

wherein, in the top surface panel (36) contiguous with the upper end of the front panel, a stopper mounting opening portion (64) is formed at a position adjacent to an intersection point (63) of the top horizontal folding line (34) at the upper end of the front panel and a top vertical folding line (62) between the top surface panel and any one of the pair of folding surface panels, the top horizontal folding line and the top vertical folding line forming the first top corner portion, and

wherein the body vertical folding line (31) between the front panel (2) and any one of the left side panel (5) and the right side panel (3) forms the first body corner portion (12A), is continuous with the intersection point (63), and includes the two recessed-portion forming folding line portions (14, 15) configured to form the first recessed portion (16), the two recessed-portion forming folding line portions extending from the starting point (S), which is located at the intersection point (63) or at a position slightly away from the intersection point, branching from the starting point (S) to the front panel and any one of the left side panel and the right side panel so as to extend toward the bottom horizontal folding line (52) of the front panel and the bottom horizontal folding line of any one of the left side panel and the right side panel, and joining together at the end point (E), which is located at a position within which the two recessed-portion forming folding line portions extend until after reaching an intersection point (65) of the bottom horizontal folding line (52) of the front panel and the bottom horizontal folding line of any one of the left side panel and the right side panel.

Patentansprüche

1. Ein Behälter aus Papier (1) mit einem Verschluss (10), beinhaltend:

einen Behälterhauptkörper (9), der Folgendes umfasst:

einen Körper (6), der eine Quadratrohrform aufweist und ein vorderes Flachelement (2), eine rechtsseitiges Flachelement (3), ein hinteres Flachelement (4) und ein linksseitiges Flachelement (5) umfasst;
einen Boden (7), der dazu konfiguriert ist, eine untere Öffnung des Körpers (6) zu versiegeln; und
eine flache Oberseite (8), die dazu konfiguriert ist, eine obere Öffnung des Körpers (6) zu versiegeln; und

den auf der Oberseite (8) bereitgestellten Verschluss (10),
wobei der Verschluss (10) an einer einem ersten Oberseiteneckabschnitt (11A) unter vier Oberseiteneckabschnitten (11) der Oberseite (8) benachbarten Position bereitgestellt ist, wobei der erste Oberseiteneckabschnitt (11A) von einer Oberseitenseite (2a) des vorderen Flachelements (2) und einer Oberseitenseite (3a, 5a) eines von dem linksseitigen Flachelement (5) und dem rechtsseitigen Flachelement (3) gebildet ist, und
wobei der Körper (6) einen ersten zurückgesetzten Abschnitt (16) in einem ersten Körpereckabschnitt (12A) unter vier von dem vorderen Flachelement (2), dem rechtsseitigen Flachelement (3), dem hinteren Flachelement (4) und dem linksseitigen Flachelement (5) gebildeten Körpereckabschnitten (12) umfasst, wobei der erste Körpereckabschnitt (12A) zwischen dem vorderen Flachelement (2) und einem von dem linksseitigen Flachelement und dem rechtsseitige Flachelement gebildet ist, die den ersten Oberseiteneckabschnitt bilden, an dem der Verschluss (10) bereitgestellt ist, wobei der erste zurückgesetzte Abschnitt (16) von zwei den zurückgesetzten Abschnitt bildenden Falzlinienabschnitten (14, 15) umgeben ist, die sich von einem Ausgangspunkt (S) erstrecken, der sich an dem ersten Oberseiteneckabschnitt (11A) oder an einer etwas von dem ersten Oberseiteneckabschnitt (11A) entfernten Position befindet, sich von dem Ausgangspunkt (S) zu dem vorderen Flachelement (2) und einem von dem linksseitigen Flachelement (5) und dem rechtsseitigen Flachelement (3) verzweigen, sodass sie sich in der Richtung zu dem Boden (7) hin erstrecken, und sich an einem Endpunkt (E) treffen, der sich an einer Position befindet, innerhalb der sich die zwei den zurückgesetzten Abschnitt bildenden Falzlinienabschnitte (14, 15) bis nach dem Erreichen eines von einer Unterseitenseite (2b) des vorderen Flachelements (2) und einer Unterseitenseite (3b) eines von dem linksseitigen Flachelement (5) und dem rechtsseitigen Flachelement (3) gebildeten ersten Bodeneckabschnitts (13A) erstrecken, sodass, wenn der erste Körpereckabschnitt (12A) von einer Innenoberflächenseite des Behälters (1) aus betrachtet wird, der erste zurückgesetzte Abschnitt (16) bewirkt, dass eine sanfte Schwellung in dem ersten Körpereckabschnitt (12A) gebildet wird, und ein Kantenabschnitt des ersten zurückgesetzten Abschnitts (12A) an dem ersten Oberseiteneckabschnitt (11A) eine innere geneigte Oberfläche bildet, die zu dem Verschluss (10) hin geneigt ist, wobei der erste Körpereckabschnitt (12A) auf rinnenartige Weise angeordnet ist, um in der Lage zu sein, einen Stoff

in dem Hauptkörper des Behälters (1) zu dem Verschluss (10) hin zu führen, sodass der Stoff gleichmäßig abgeführt werden kann.

2. Papierbehälter mit einem Verschluss gemäß Anspruch 1, wobei die Oberseite (8) eine geneigte Oberfläche umfasst, sodass eine an dem vorderen Flachelement (2) befindliche Seite der Oberseite (8) niedrig ist und eine an dem hinteren Flachelement (4) befindliche Seite der Oberseite (8) hoch ist.

3. Papierbehälter mit einem Verschluss gemäß Anspruch 1 oder 2, wobei eine Länge des ersten zurückgesetzten Abschnitts (16) von dem Ausgangpunkt (S) zu dem Endpunkt (E) gleich oder größer als 50 % einer Höhe des vorderen Flachelements (2) des Körpers (6) ist.

4. Papierbehälter mit einem Verschluss gemäß einem der Ansprüche 1 bis 3, wobei eine Breite eines breitesten Abschnitts des ersten zurückgesetzten Abschnitts (16) in einer horizontalen Richtung gleich oder größer als 10 % einer Breite des vorderen Flachelements (2) des Körpers und kleiner als 30 % der Breite des vorderen Flachelements (2) des Körpers ist.

5. Papierbehälter mit einem Verschluss gemäß einem der Ansprüche 1 bis 4,

wobei der Behälterhauptkörper (6) aus einem einzigen Rohlingsbogen (30A) gebildet ist, wobei der Rohlingsbogen aus einem Papierbehältermaterial hergestellt ist, das durch Laminieren eines Siegelmaterials auf mindestens eine rückseitige Oberflächenseite eines Kartongrundmaterials erhalten wird, wobei der Rohlingsbogen Folgendes umfasst:

das vordere Flachelement (2), das rechtsseitige Flachelement (3), das hintere Flachelement (4) und das linksseitige Flachelement (5), die dazu konfiguriert sind, den Körper (6) zu bilden und über vertikale Körperfalzlinien zusammenhängen;
ein Paar Oberseitenoberflächenflachelemente (36, 37), die dazu konfiguriert sind, die Oberseite (8) zu bilden, und über obere horizontale Falzlinien mit einem oberen Ende des vorderen Flachelements (2) und einem oberen Ende des hinteren Flachelements (4) zusammenhängen, sodass sie einander gegenüberliegen;
ein Paar faltbare Oberflächenflachelemente (40, 41), die dazu konfiguriert sind, die Oberseite (8) zu bilden, und über horizontale Oberseitenfalzlinien mit einem oberen Ende des linksseitigen Flachelements (5) und einem oberen Ende des rechtsseitigen Flachelements (3) zusammenhängen, sodass sie einander gegenüberliegen;
Siegelflachelemente (48, 49, 50, 51), die über horizontale Siegelabschnittfalzlinien (44, 45, 46, 47) mit oberen Enden der Oberseitenoberflächenflachelemente und oberen Enden der faltbaren Oberflächenflachelemente zusammenhängen;
ein Paar Bodenoberflächenflachelemente (54, 55), die über horizontale Bodenfalzlinien (52, 53) mit einem unteren Ende des vorderen Flachelements (2) und einem unteren Ende des hinteren Flachelements (4) zusammenhängen, sodass sie einander gegenüberliegen; und
ein Paar Innenoberflächenflachelemente (58, 59), die über horizontale Bodenfalzlinien (56, 57) mit einem unteren Ende des linksseitigen Flachelements (5) und einem unteren Ende des rechtsseitigen Flachelements (3) zusammenhängen, sodass sie einander gegenüberliegen,

wobei in dem mit dem oberen Ende des vorderen Flachelements zusammenhängenden Oberseitenoberflächenflachelement (36) ein Verschlusseinbauöffnungsabschnitt (64) an einer Position gebildet ist, die einem Schnittpunkt (63) der horizontalen Oberseitenfalzlinie (34) an dem oberen Ende des vorderen Flachelements und einer vertikalen Oberseitenfalzlinie (62) zwischen dem Oberseitenoberflächenflachelement und einem des Paars faltbarer Oberflächenflachelemente benachbart ist, wobei die horizontale Oberseitenfalzlinie und die vertikale Oberseitenfalzlinie den ersten Oberseiteneckabschnitt bilden, und
wobei die vertikale Körperfalzlinie (31) zwischen dem vorderen Flachelement (2) und einem von dem linksseitigen Flachelement (5) und dem rechtsseitigen Flachelement (3) den ersten Körpereckabschnitt (12A) bildet, mit dem Schnittpunkt (63) durchgängig ist und die zwei den zurückgesetzten Abschnitt bildenden Falzlinienabschnitte (14, 15) umfasst, die dazu konfiguriert sind, den ersten zurückgesetzten Abschnitt (16) zu bilden, wobei sich die zwei den zurückgesetzten Abschnitt bildenden Falzlinienabschnitte von dem Ausgangspunkt (S) erstrecken, der sich an dem Schnittpunkt (63) oder an einer etwas von dem Schnittpunkt entfernten Position befindet, sich von dem Ausgangspunkt (S) zu dem vorderen Flachelement und einem von dem linksseitigen Flachelement und dem rechtsseitigen Flachelement verzweigen, sodass sie sich zu der horizontalen Boden-

falzlinie (52) des vorderen Flachelements und der horizontalen Bodenfalzlinie eines von dem linksseitigen Flachelement und dem rechtsseitigen Flachelement erstrecken, und sich an dem Endpunkt (E) treffen, der sich an einer Position befindet, innerhalb der sich die zwei den zurückgesetzten Abschnitt bildenden Falzlinienabschnitte bis nach dem Erreichen eines Schnittpunkts (65) der horizontalen Bodenfalzlinie (52) des vorderen Flachelements und der horizontalen Bodenfalzlinie eines von dem linksseitigen Flachelement und dem rechtsseitigen Flachelement erstrecken.

Revendications

1. Un récipient en papier (1) doté d'un bouchon (10), comprenant :

un corps principal de récipient (9) comportant :

un corps (6) ayant une forme tubulaire carrée et comportant un panneau avant (2), un panneau de côté droit (3), un panneau arrière (4), et un panneau de côté gauche (5) ;
un fond (7) configuré pour étancher une ouverture inférieure du corps (6) ; et
un dessus plat (8) configuré pour étancher une ouverture supérieure du corps (6) ; et

le bouchon (10) disposé sur le dessus (8),
où le bouchon (10) est disposé à une position adjacente à une première portion coin de dessus (11A) parmi quatre portions coins de dessus (11) du dessus (8), la première portion coin de dessus (11A) étant formée par un côté dessus (2a) du panneau avant (2) et un côté dessus (3a, 5a) de l'un quelconque du panneau de côté gauche (5) et du panneau de côté droit (3), et
où le corps (6) comporte une première portion en retrait (16) dans une première portion coin de corps (12A) parmi quatre portions coins de corps (12) formées par le panneau avant (2), le panneau de côté droit (3), le panneau arrière (4), et le panneau de côté gauche (5), la première portion coin de corps (12A) étant formée entre le panneau avant (2) et l'un quelconque du panneau de côté gauche et du panneau de côté droit formant la première portion coin de dessus au niveau de laquelle le bouchon (10) est disposé, la première portion en retrait (16) étant entourée par deux portions lignes de pliage formant portion en retrait (14, 15) s'étendant à partir d'un point de départ (S), qui est situé au niveau de la première portion coin de dessus (11A) ou à une position légèrement éloignée de la première portion coin de dessus (11A), bifurquant à partir du point de départ (S) vers le panneau avant (2) et l'un quelconque du panneau de côté gauche (5) et du panneau de côté droit (3) de manière à s'étendre dans la direction du fond (7), et se rejoignant en un point final (E), qui est situé à une position dans les limites de laquelle les deux portions lignes de pliage formant portion en retrait (14, 15) s'étendent jusqu'à ce qu'elles aient atteint une première portion coin de fond (13A) formée par un côté fond (2b) du panneau avant (2) et un côté fond (3b) de l'un quelconque du panneau de côté gauche (5) et du panneau de côté droit (3), de telle sorte que lorsque la première portion coin de corps (12A) est vue depuis un côté surface intérieure du récipient (1), la première portion en retrait (16) amène un léger gonflement à se former dans la première portion coin de corps (12A), et une portion bord de la première portion en retrait (12A) sur la première portion coin de dessus (11A) forme une surface inclinée intérieure inclinée vers le bouchon (10), la première portion coin de corps (12A) étant agencée à la manière d'une auge de manière à être apte à guider une matière dans le corps principal de récipient (1) vers le bouchon (10), de telle sorte que la matière puisse être évacuée en douceur.

2. Le récipient en papier doté d'un bouchon selon la revendication 1, où le dessus (8) comporte une surface inclinée de sorte qu'un côté panneau avant (2) du dessus (8) soit bas et qu'un côté panneau arrière (4) du dessus (8) soit haut.

3. Le récipient en papier doté d'un bouchon selon la revendication 1 ou 2, où une longueur de la première portion en retrait (16) depuis le point de départ (S) jusqu'au point final (E) est supérieure ou égale à 50 % d'une hauteur du panneau avant (2) du corps (6).

4. Le récipient en papier doté d'un bouchon selon l'une quelconque des revendications 1 à 3, où une largeur d'une portion la plus large de la première portion en retrait (16) dans une direction horizontale est supérieure ou égale à 10 % d'une largeur du panneau avant (2) du corps et inférieure à 30 % de la largeur du panneau avant (2) du corps.

5. Le récipient en papier doté d'un bouchon selon l'une quelconque des revendications 1 à 4,

où le corps principal de récipient (6) est formé à partir d'une seule feuille de découpe (30A), la feuille de découpe étant constituée d'un matériau de récipient en papier obtenu par stratification d'un produit d'étanchéité sur au moins un côté surface arrière d'un matériau de base carton, la feuille de découpe comportant :

le panneau avant (2), le panneau de côté droit (3), le panneau arrière (4), et le panneau de côté gauche (5), qui sont configurés pour former le corps (6), et contigus par l'intermédiaire de lignes de pliage verticales de corps ;
une paire de panneaux de surface de dessus (36, 37), qui sont configurés pour former le dessus (8), et contigus à une extrémité supérieure du panneau avant (2) et une extrémité supérieure du panneau arrière (4) par l'intermédiaire de lignes de pliage horizontales de dessus de manière à être opposés l'un à l'autre ;
une paire de panneaux de surface de pliage (40, 41), qui sont configurés pour former le dessus (8), et contigus à une extrémité supérieure du panneau de côté gauche (5) et une extrémité supérieure du panneau de côté droit (3) par l'intermédiaire de lignes de pliage horizontales de dessus de manière à être opposés l'un à l'autre ;
des panneaux d'étanchéité (48, 49, 50, 51), qui sont contigus à des extrémités supérieures des panneaux de surface de dessus et des extrémités supérieures des panneaux de surface de pliage par l'intermédiaire de lignes de pliage horizontales de portion d'étanchéité (44, 45, 46, 47) ;
une paire de panneaux de surface de fond (54, 55), qui sont contigus à une extrémité inférieure du panneau avant (2) et une extrémité inférieure du panneau arrière (4) par l'intermédiaire de lignes de pliage horizontales de fond (52, 53) de manière à être opposés l'un à l'autre ; et
une paire de panneaux de surface intérieure (58, 59), qui sont contigus à une extrémité inférieure du panneau de côté gauche (5) et une extrémité inférieure du panneau de côté droit (3) par l'intermédiaire de lignes de pliage horizontales de fond (56, 57) de manière à être opposés l'un à l'autre,

où, dans le panneau de surface de dessus (36) contigu à l'extrémité supérieure du panneau avant, une portion ouverture de montage de bouchon (64) est formée à une position adjacente à un point d'intersection (63) de la ligne de pliage horizontale de dessus (34) à l'extrémité supérieure du panneau avant et d'une ligne de pliage verticale de dessus (62) entre le panneau de surface de dessus et l'un quelconque de la paire de panneaux de surface de pliage, la ligne de pliage horizontale de dessus et la ligne de pliage verticale de dessus formant la première portion coin de dessus, et
où la ligne de pliage verticale de corps (31) entre le panneau avant (2) et l'un quelconque du panneau de côté gauche (5) et du panneau de côté droit (3) forme la première portion coin de corps (12A), est continue avec le point d'intersection (63), et comporte les deux portions lignes de pliage formant portion en retrait (14, 15) configurées pour former la première portion en retrait (16), les deux portions lignes de pliage formant portion en retrait s'étendant à partir du point de départ (S), qui est situé au point d'intersection (63) ou à une position légèrement éloignée du point d'intersection, bifurquant à partir du point de départ (S) vers le panneau avant et l'un quelconque du panneau de côté gauche et du panneau de côté droit de manière à s'étendre vers la ligne de pliage horizontale de fond (52) du panneau avant et la ligne de pliage horizontale de fond de l'un quelconque du panneau de côté gauche et du panneau de côté droit, et se rejoignant au point final (E), qui est situé à une position dans les limites de laquelle les deux portions lignes de pliage formant portion en retrait s'étendent jusqu'à ce qu'elles aient atteint un point d'intersection (65) de la ligne de pliage horizontale de fond (52) du panneau avant et la ligne de pliage horizontale de fond de l'un quelconque du panneau de côté gauche et du panneau de côté droit.

Fig. 1

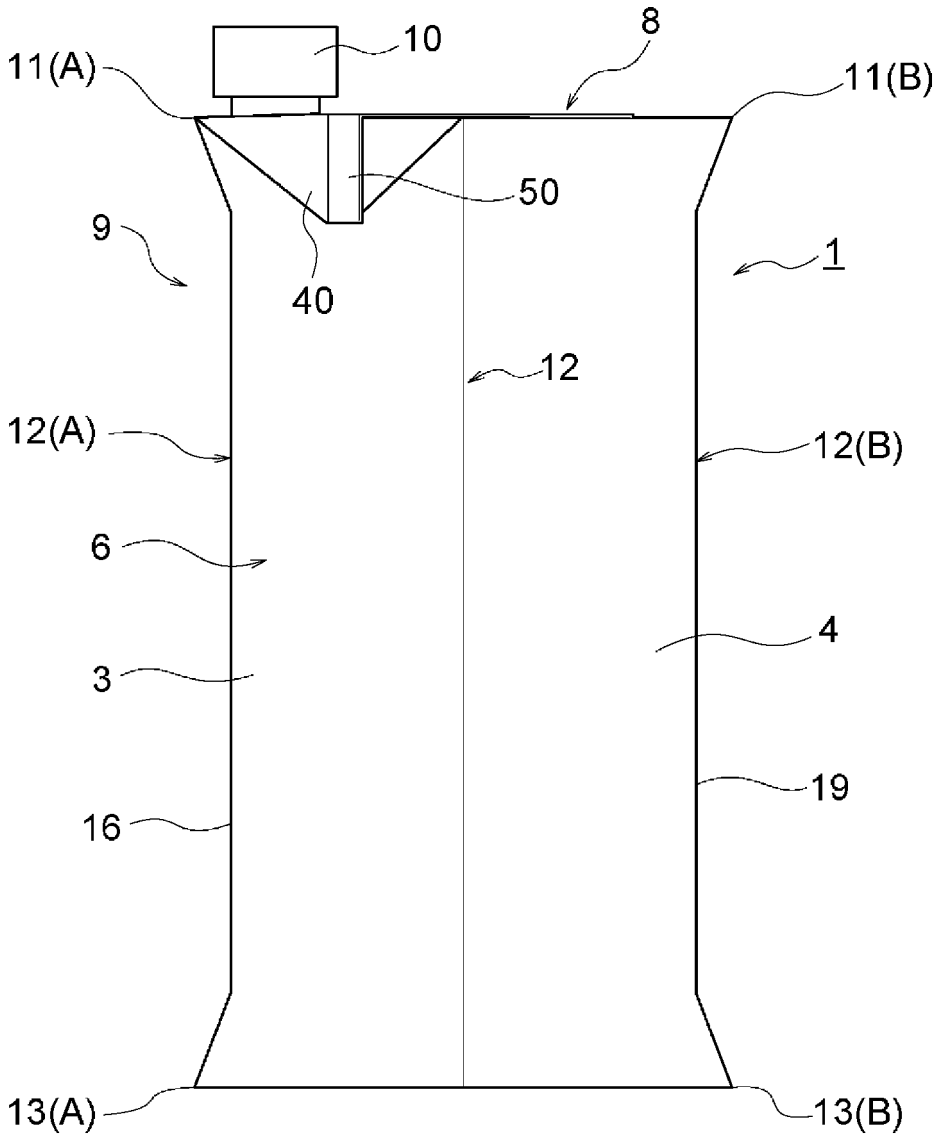


Fig. 2

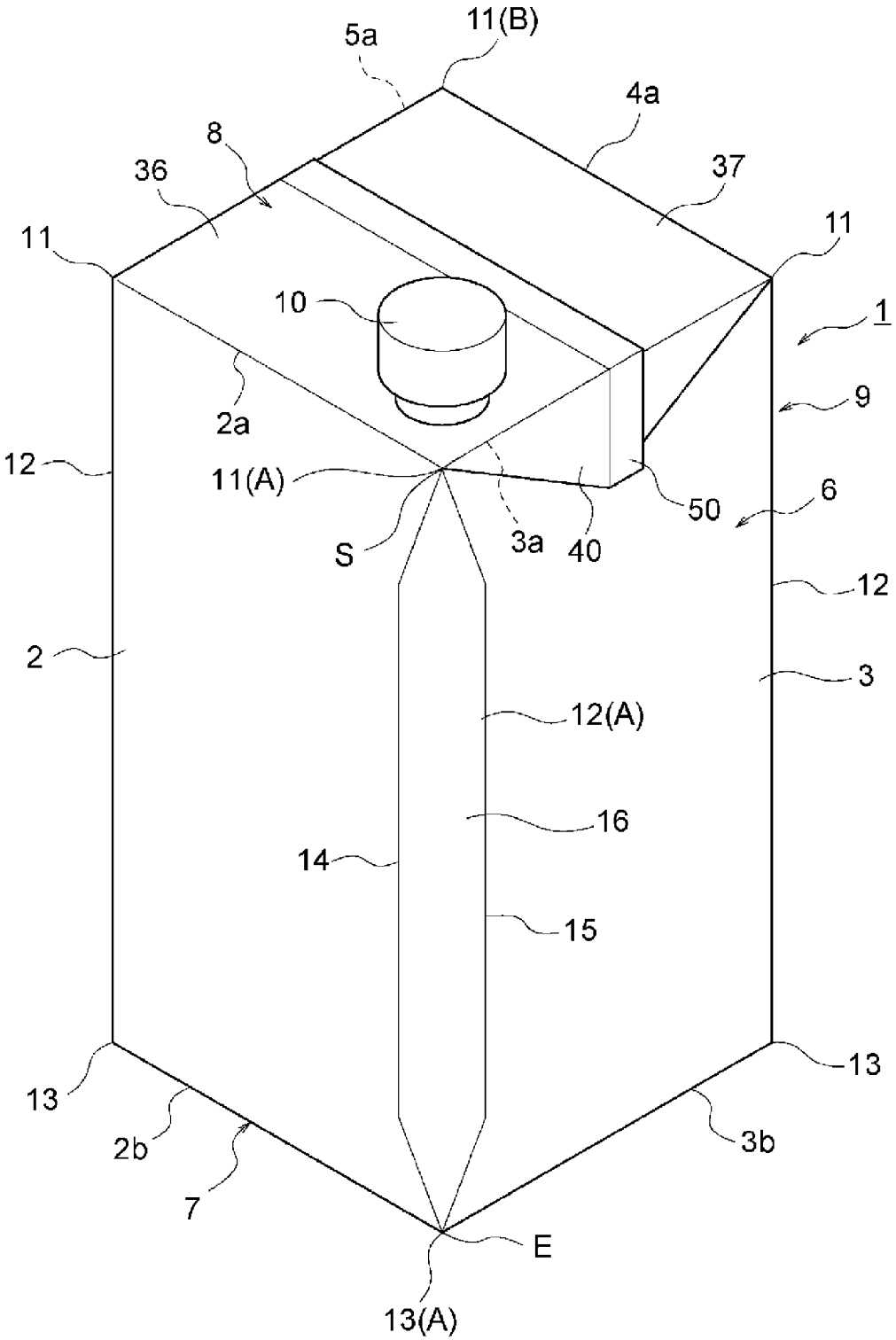

5a
11(B)
4a
8
36
37
11
11
10
1
2a
9
12
11(A)
50
6
S
3a
40
12
2
3
12(A)
16
14
15
13
13
2b
3b
7
E
13(A)

Fig. 3

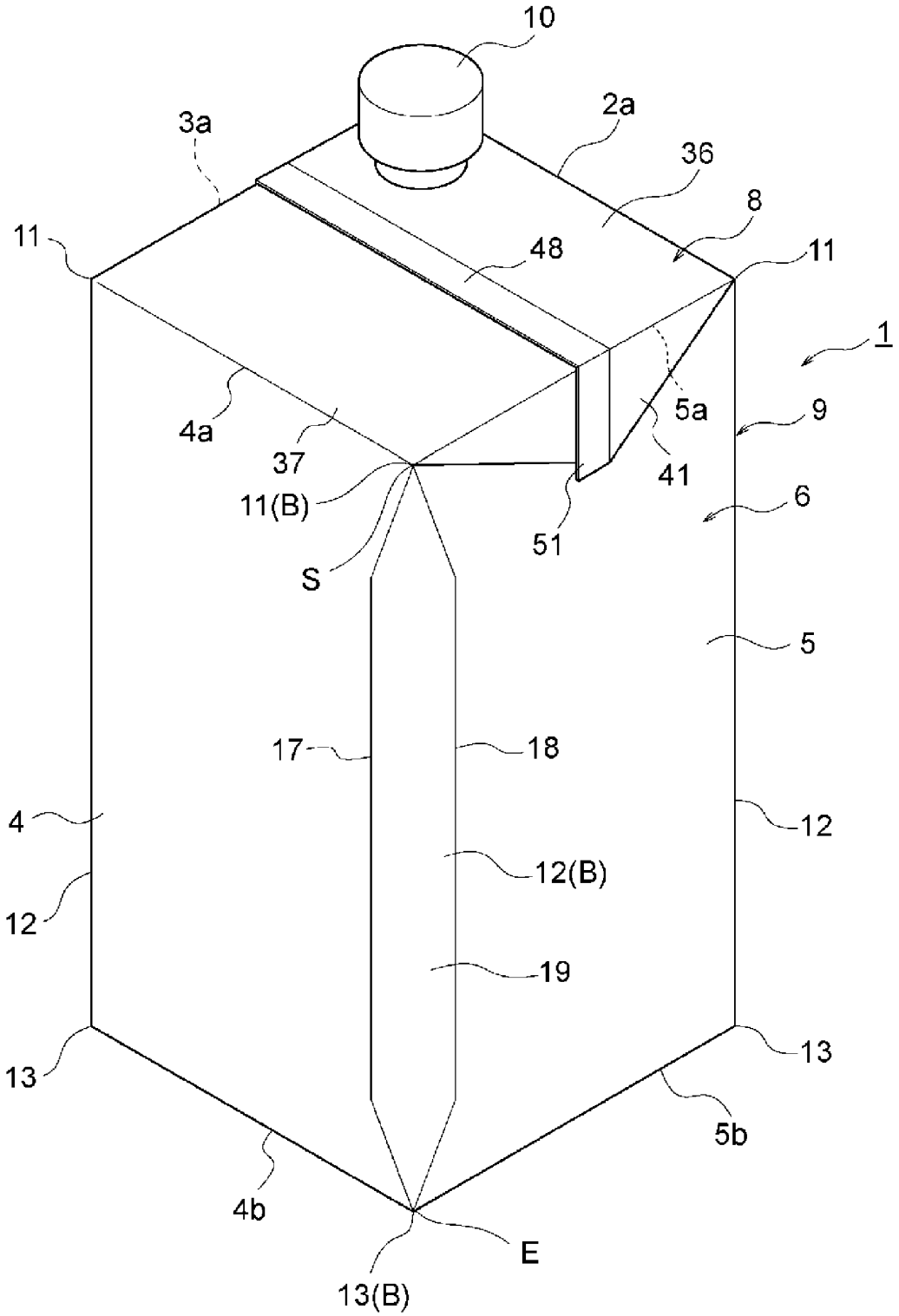

10
2a
3a
36
8
11
48
11
1
5a
9
4a
37
41
11(B)
6
51
S
5
17
18
4
12
12(B)
12
19
13
13
5b
4b
E
13(B)

Fig. 4

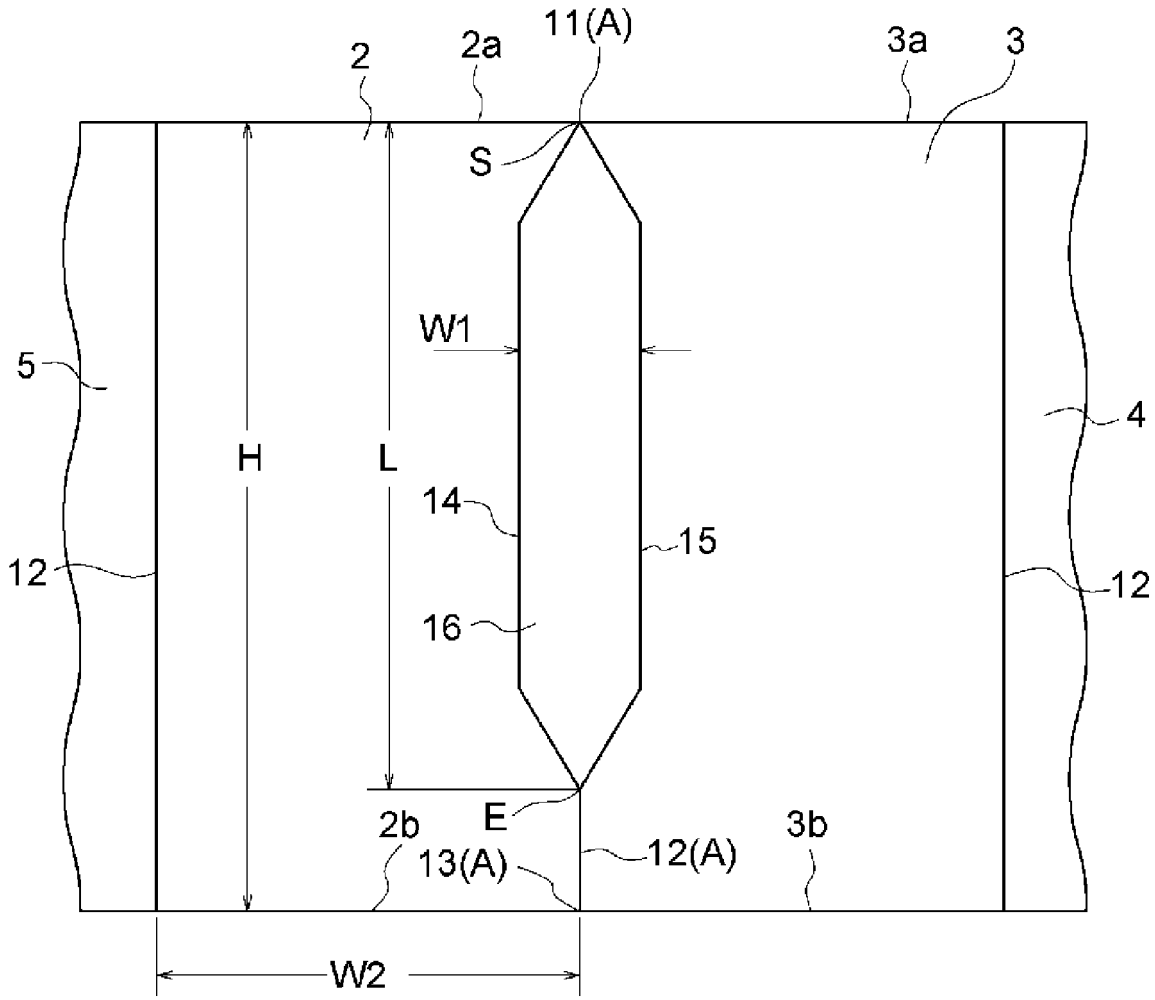


Fig. 5

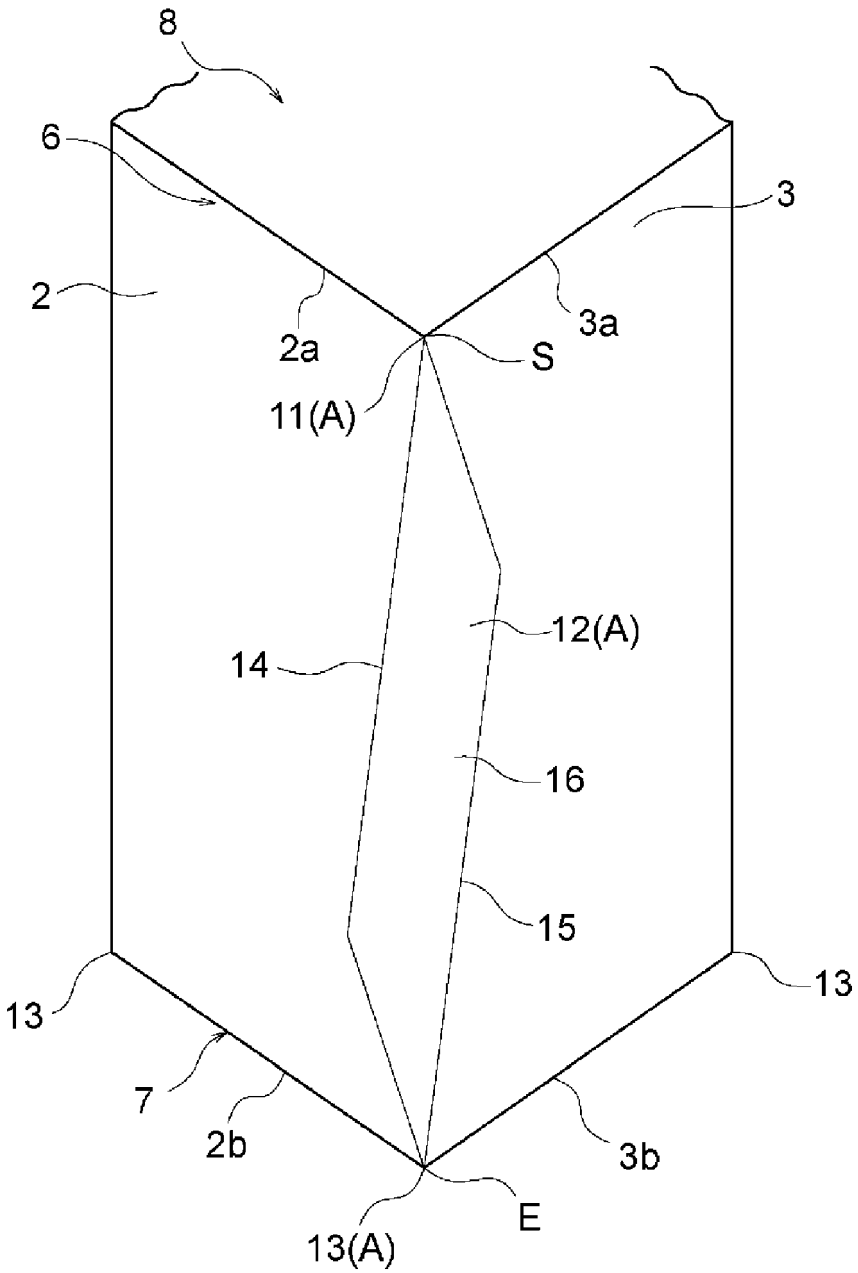


Fig. 6

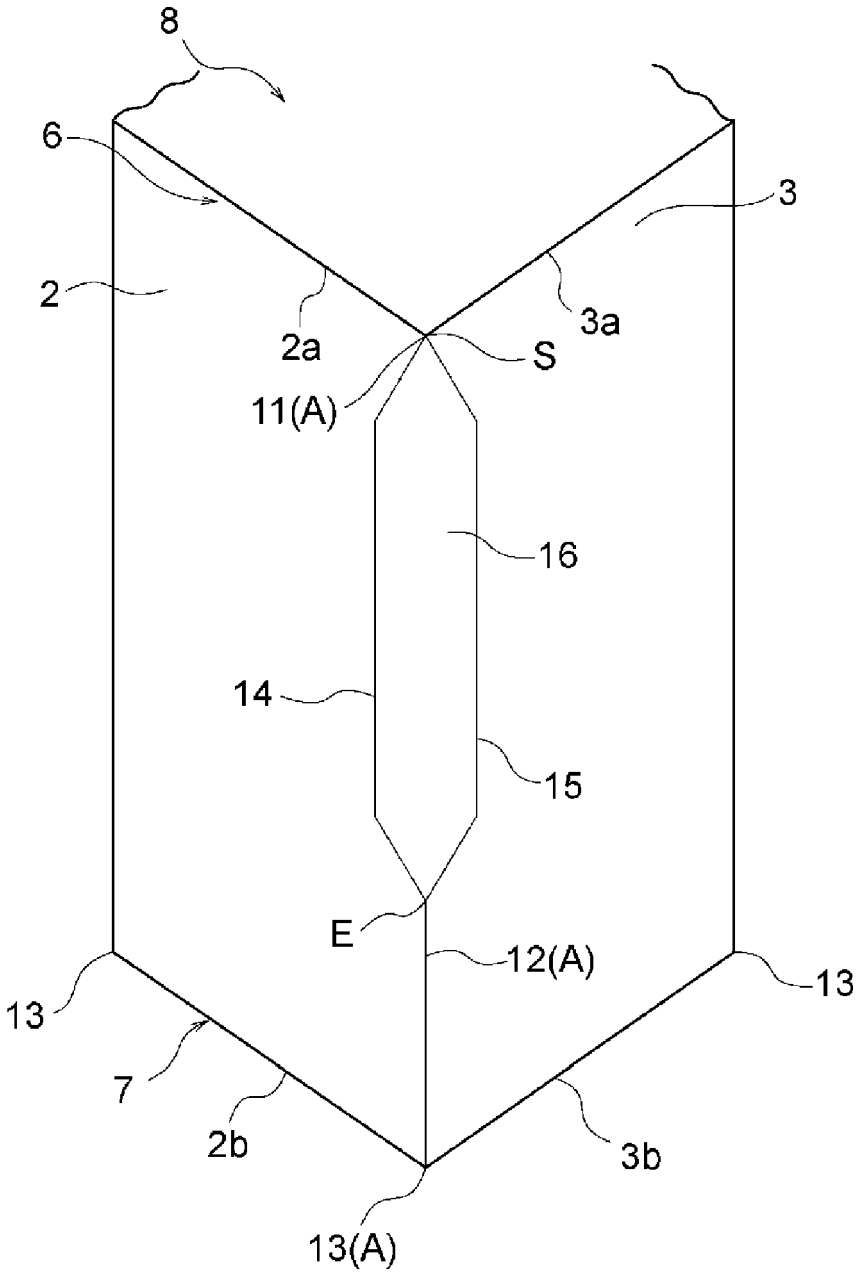


Fig. 7

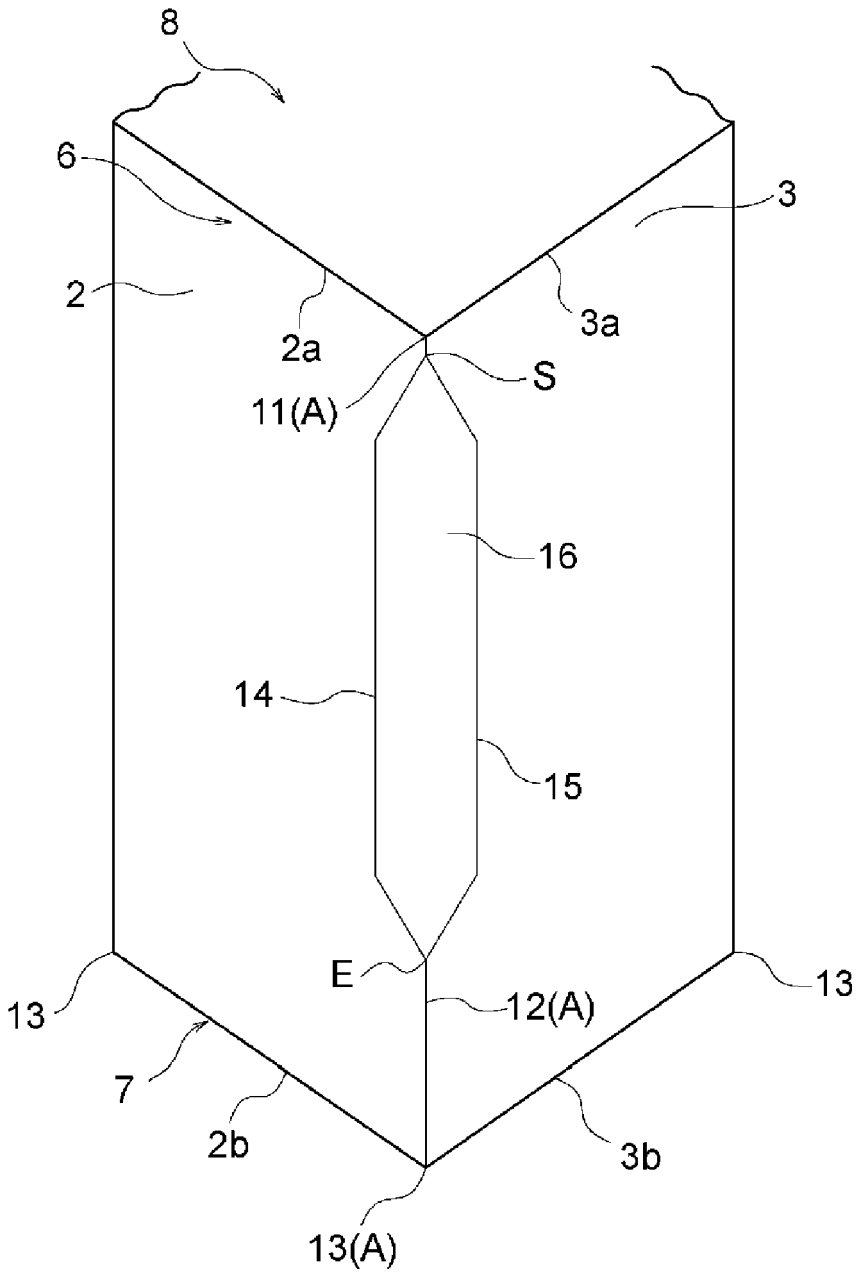


Fig. 8

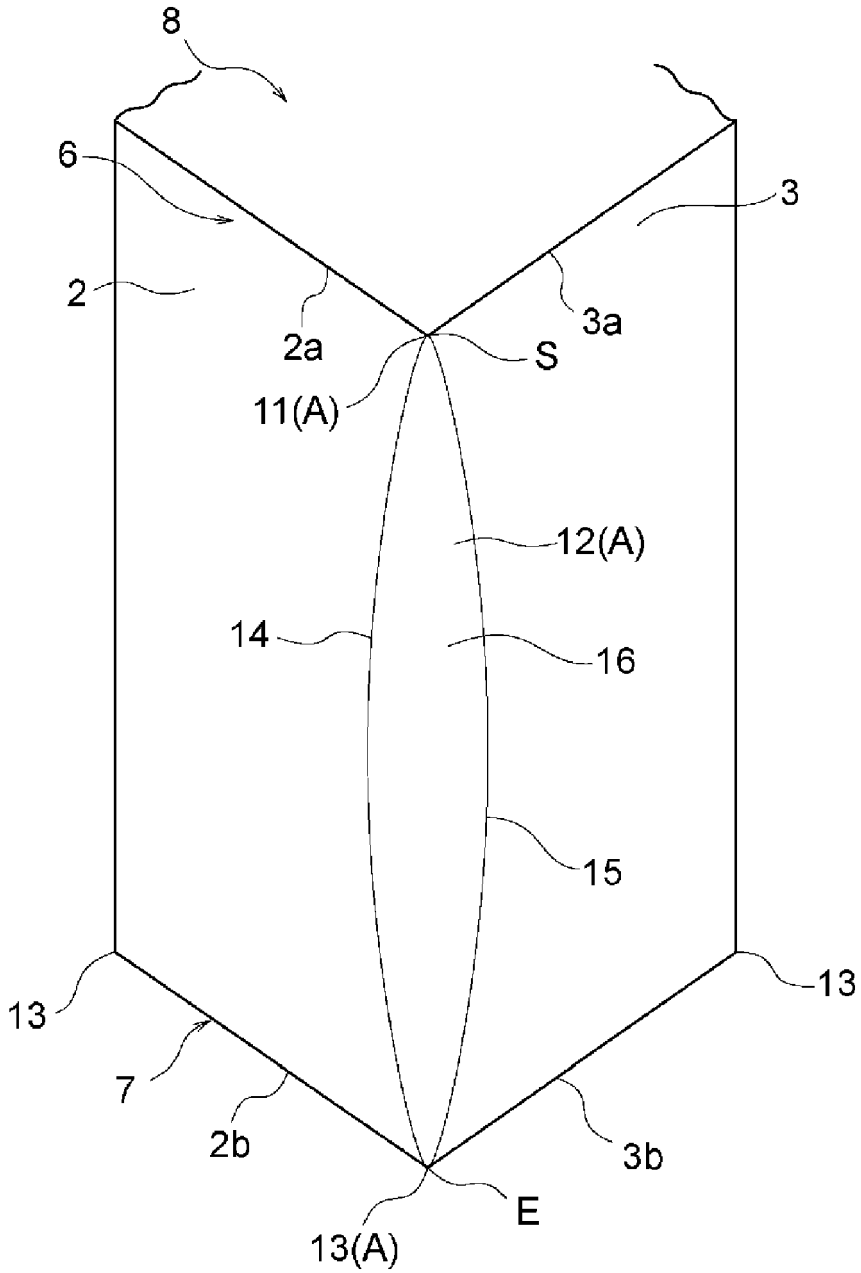


Fig. 9

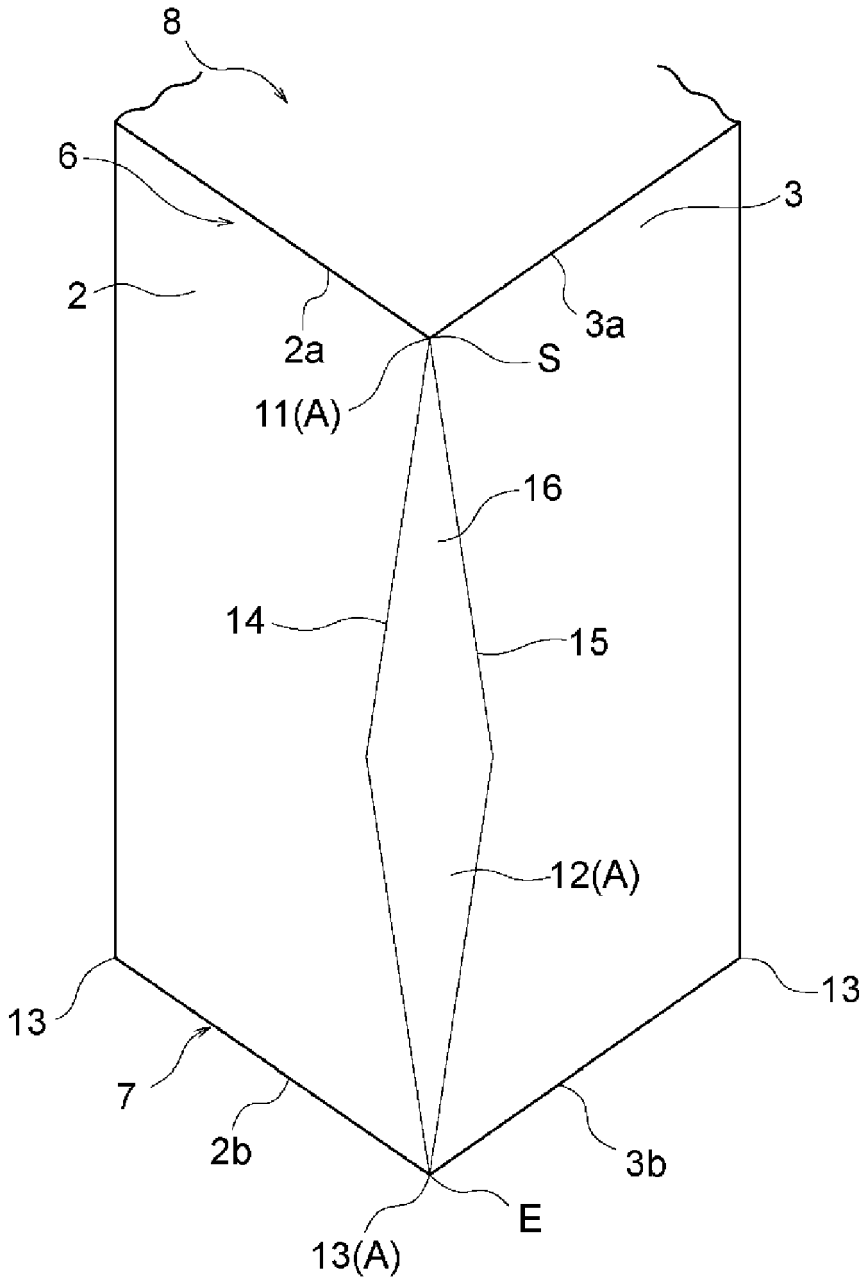


Fig. 10

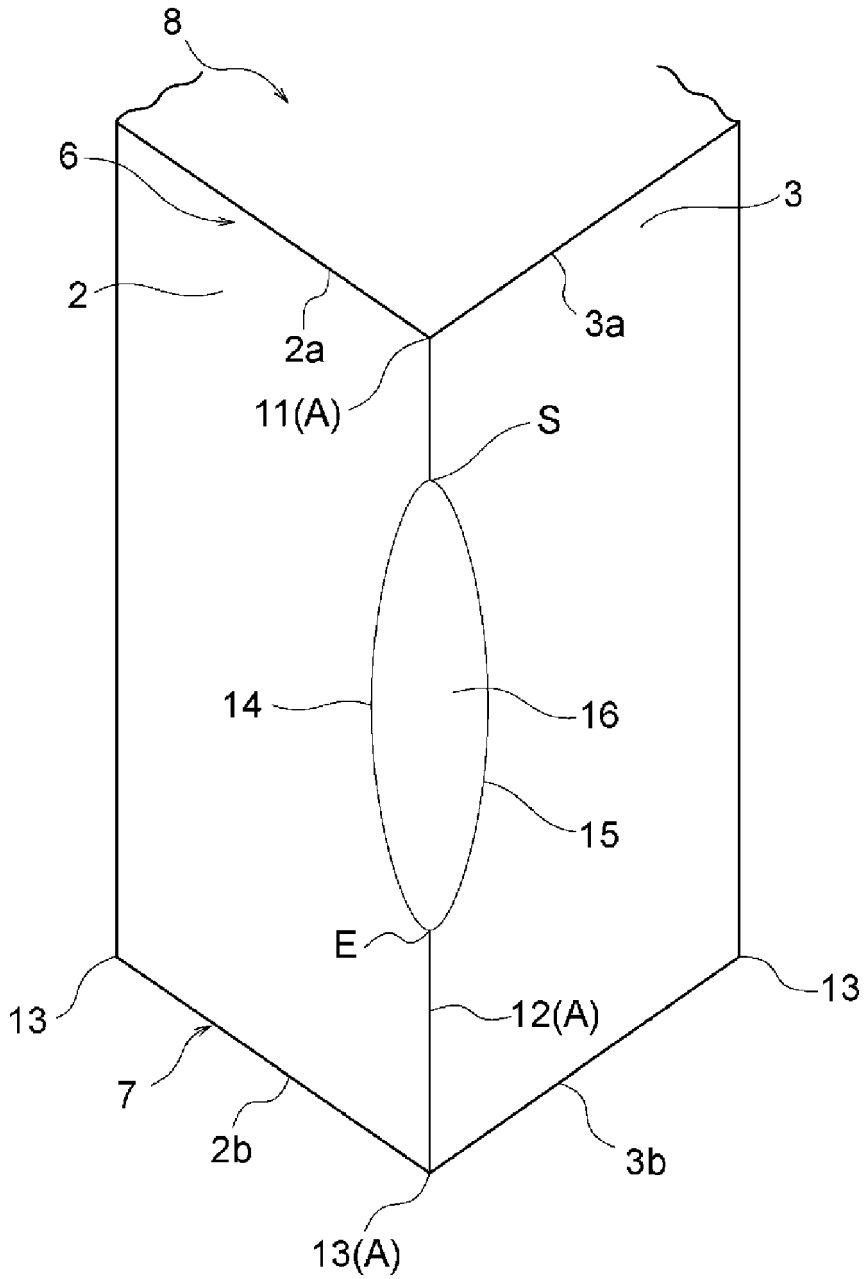


Fig. 11

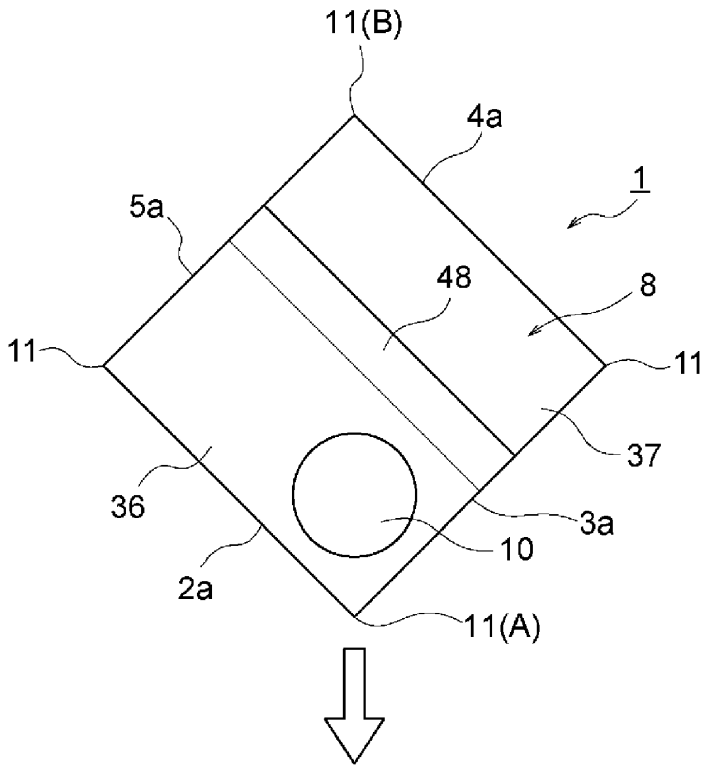

11(B)
4a
1
5a
48
8
11
11
37
36
3a
10
2a
11(A)

Fig. 12

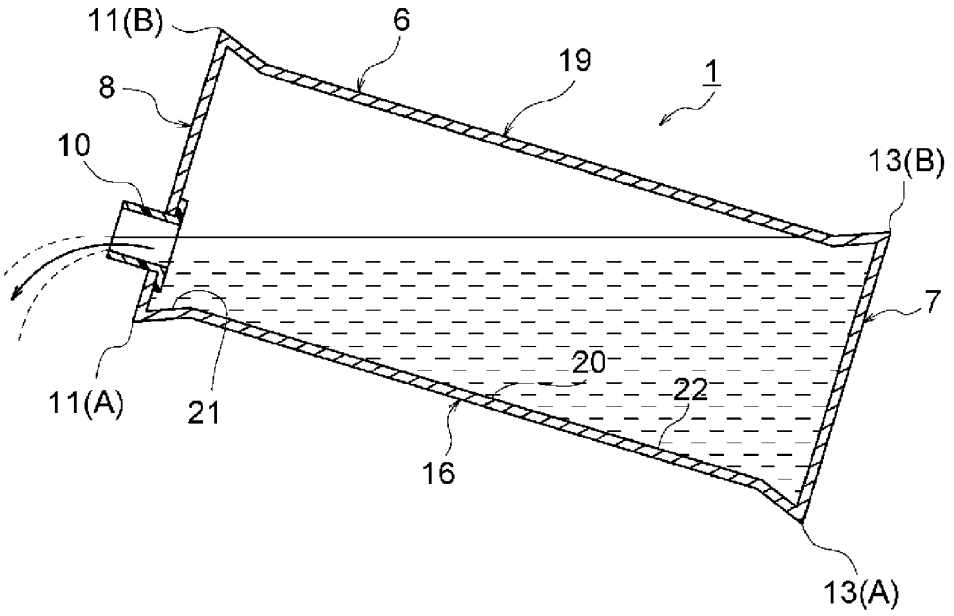

11(B)
6
19
1
8
10
13(B)
7
20
22
11(A)
21
16
13(A)

Fig. 13

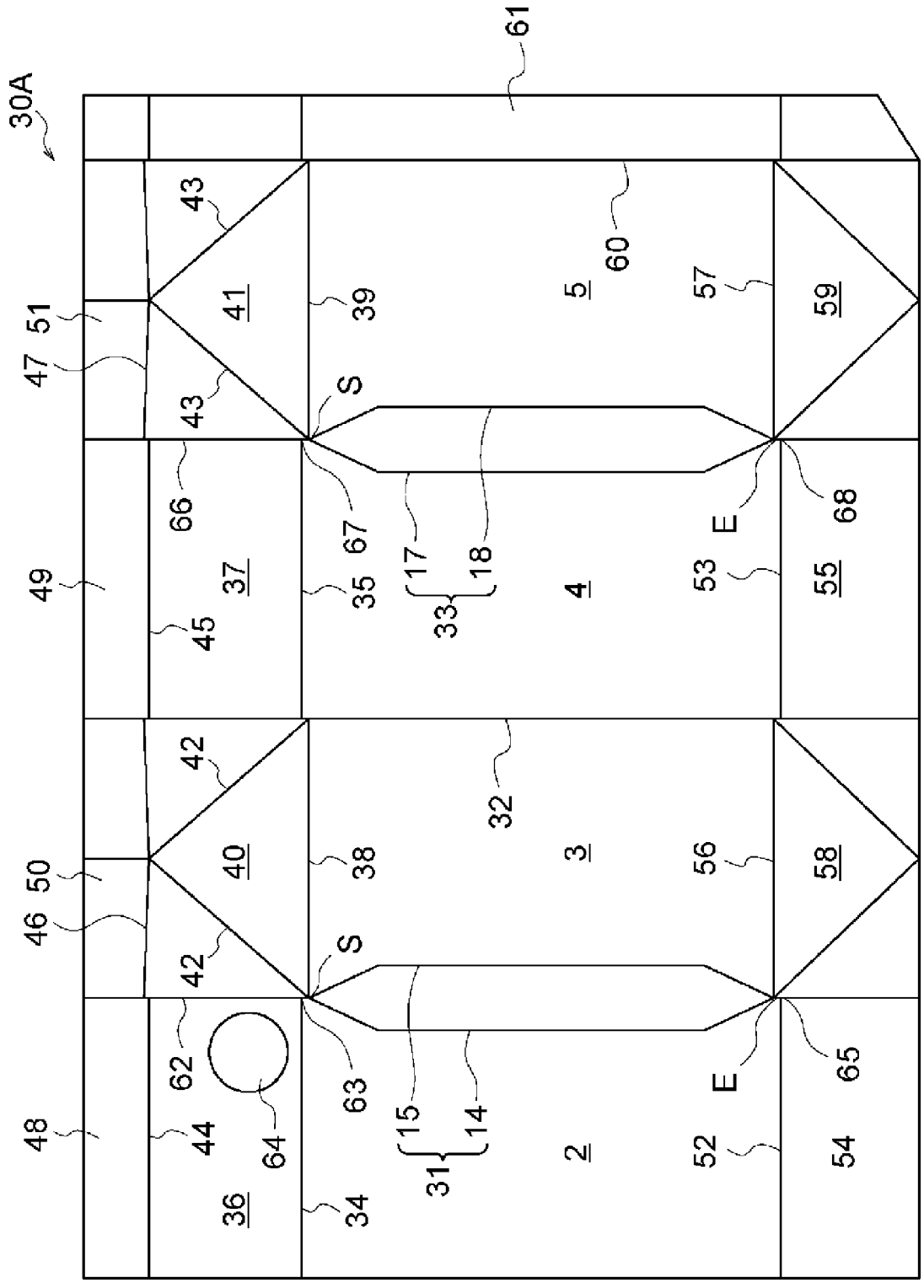

30A
61
43
41
39
5
60
57
59
51
47
43
S
66
67
17
18
E
68
49
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37
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3
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42
S
62
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E
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2
52
54

Fig. 14

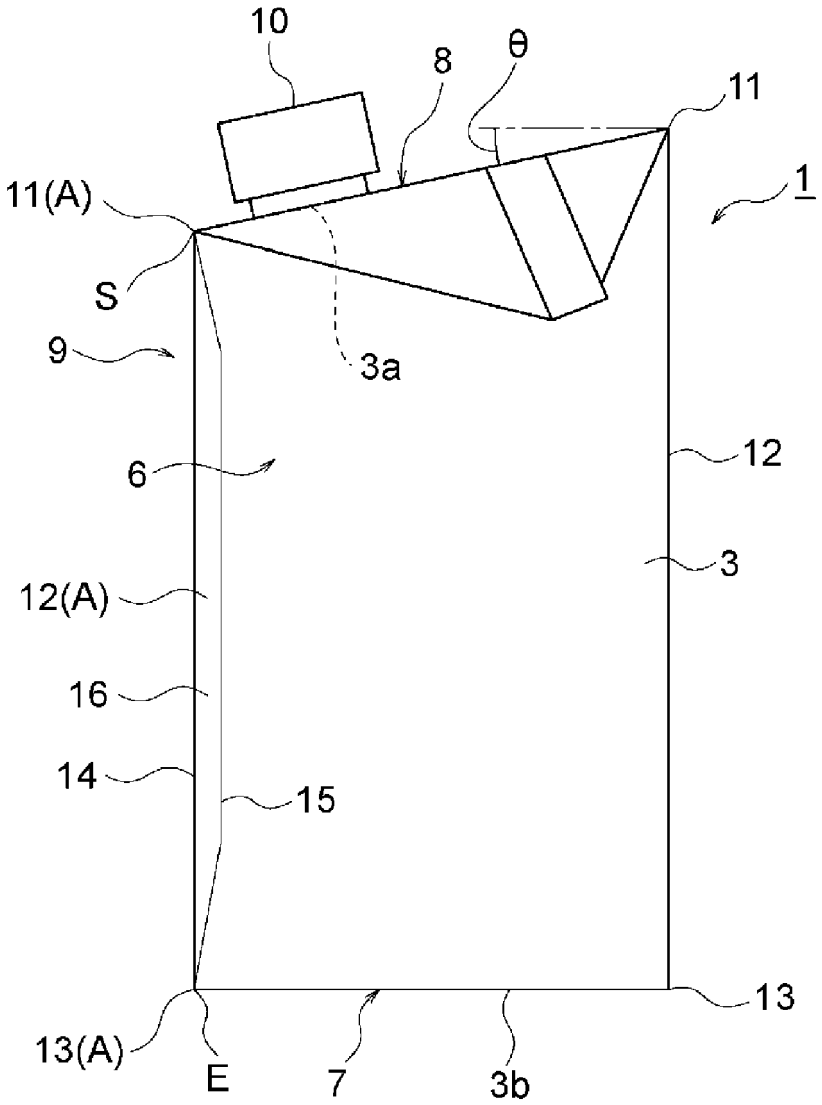


Fig. 15

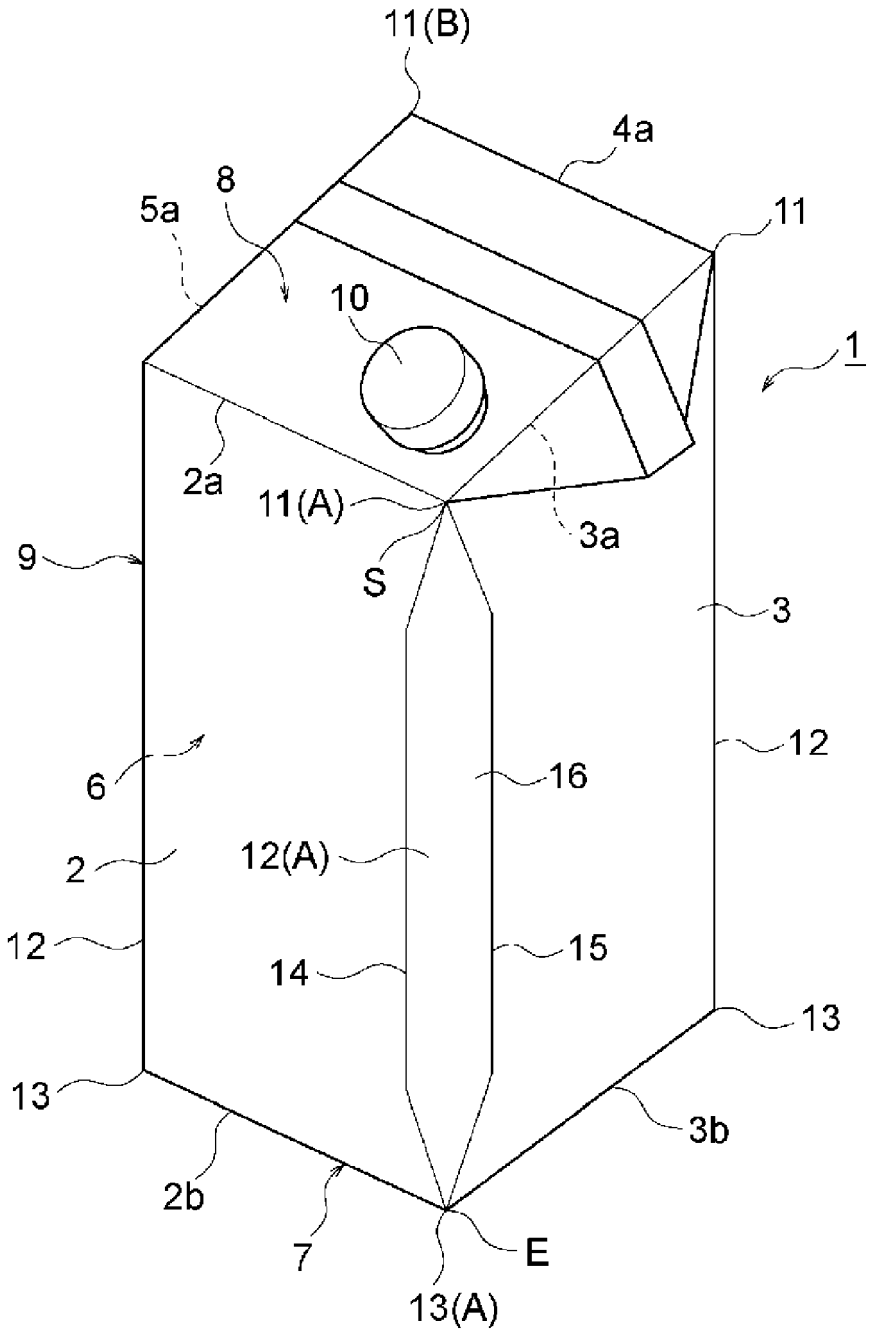

11(B)
4a
8
5a
11
10
1
2a
11(A)
3a
9
S
3
12
6
16
2
12(A)
12
14
15
13
13
3b
2b
7
E
13(A)

Fig. 16

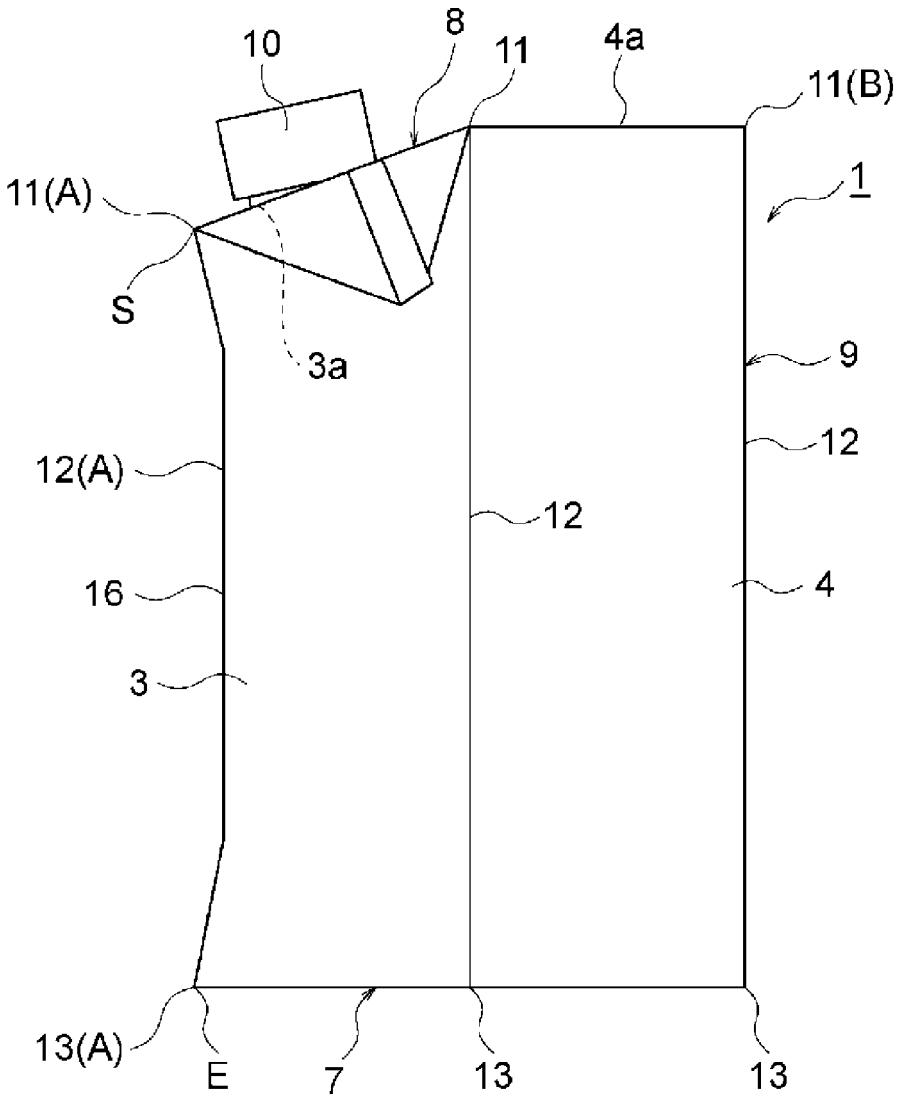


Fig. 17

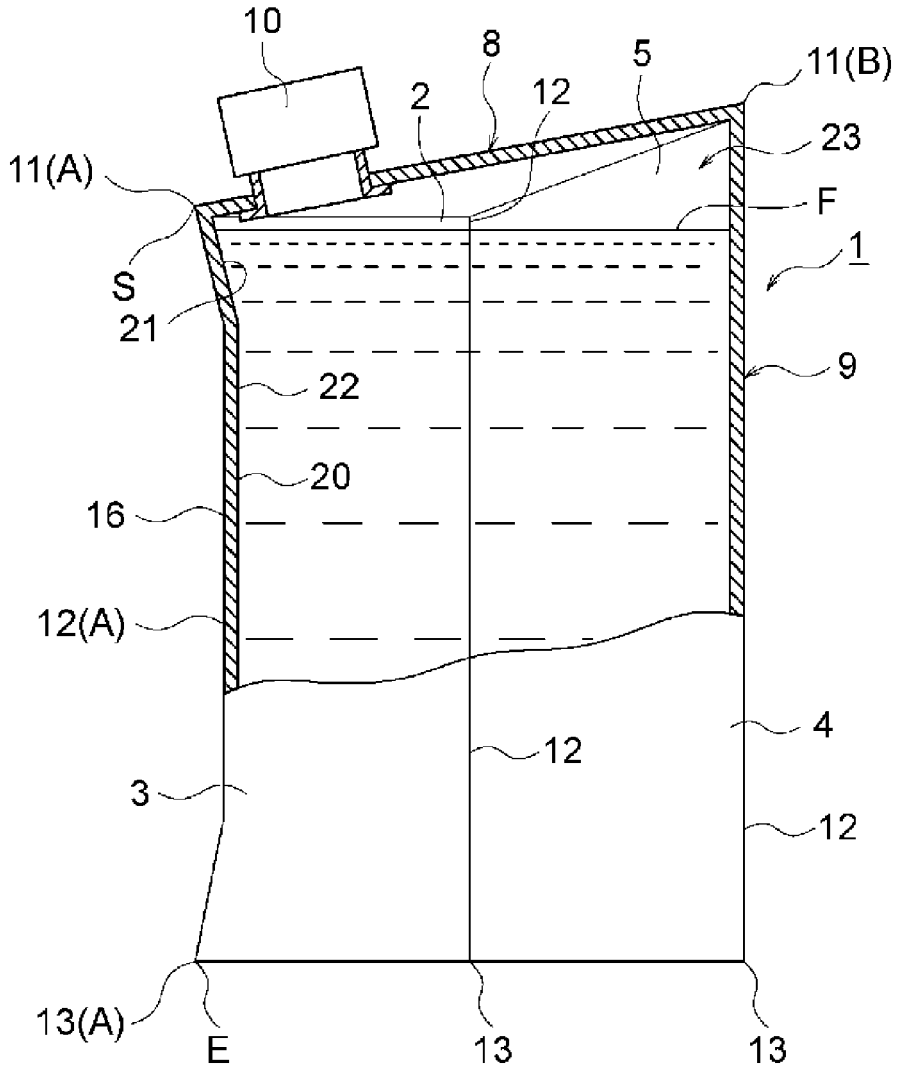


Fig. 18

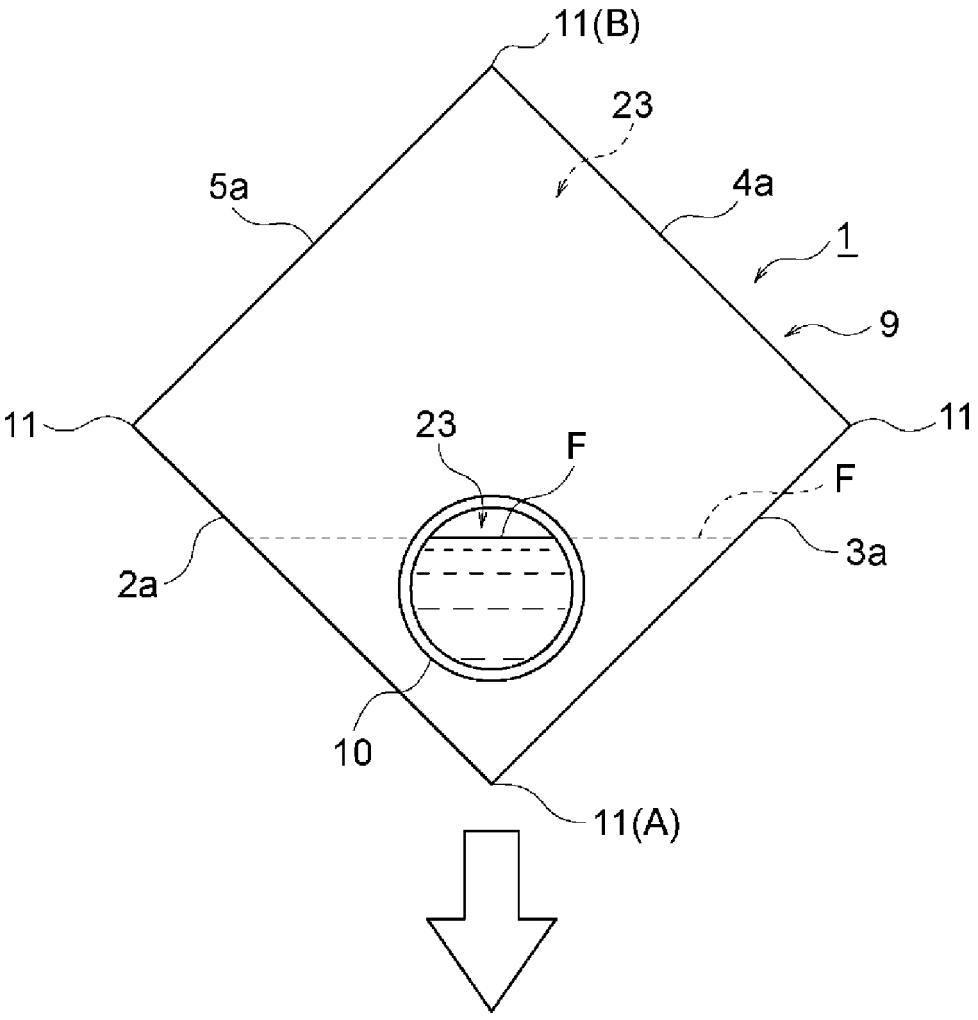


Fig. 19

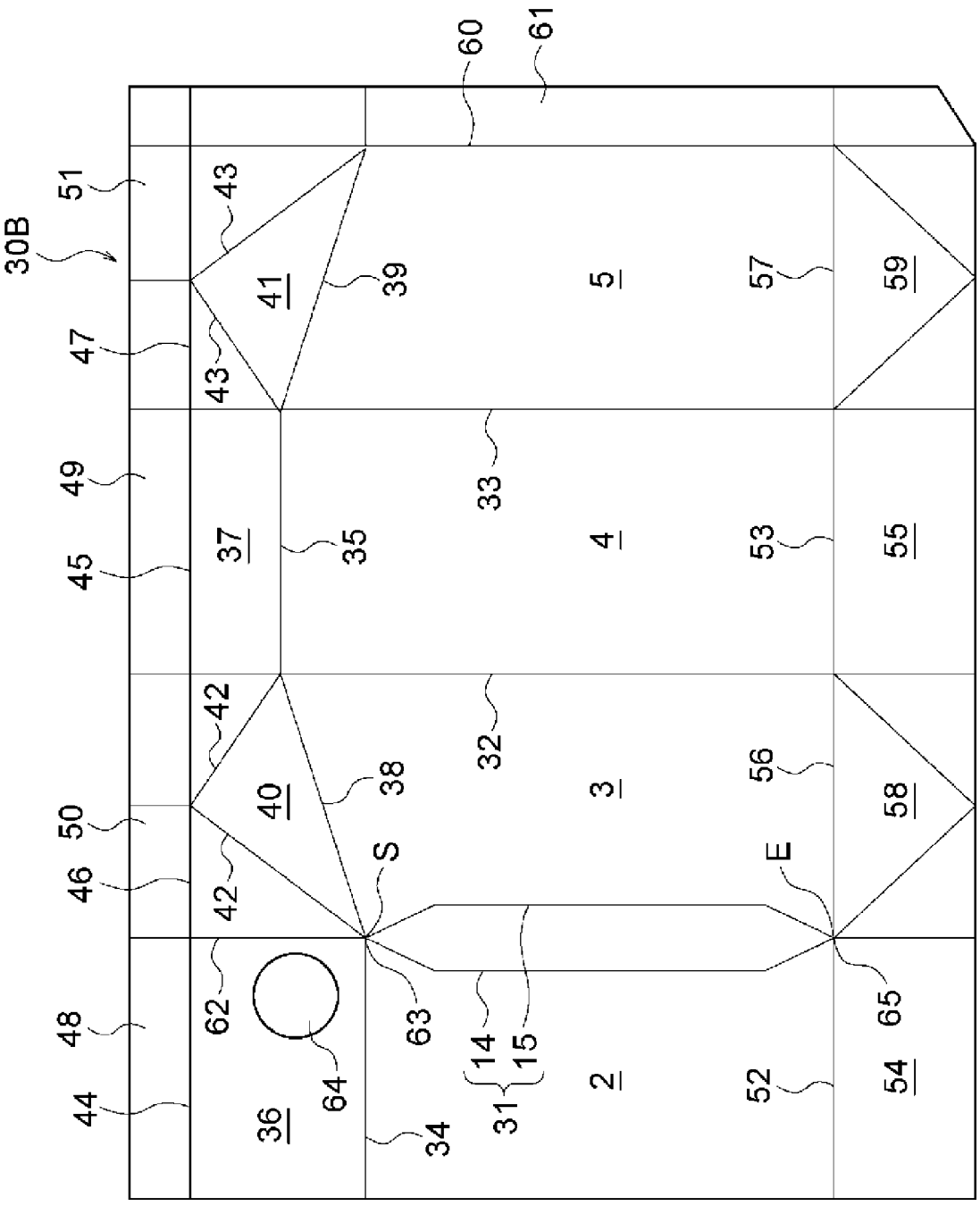

30B
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61
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Fig. 20

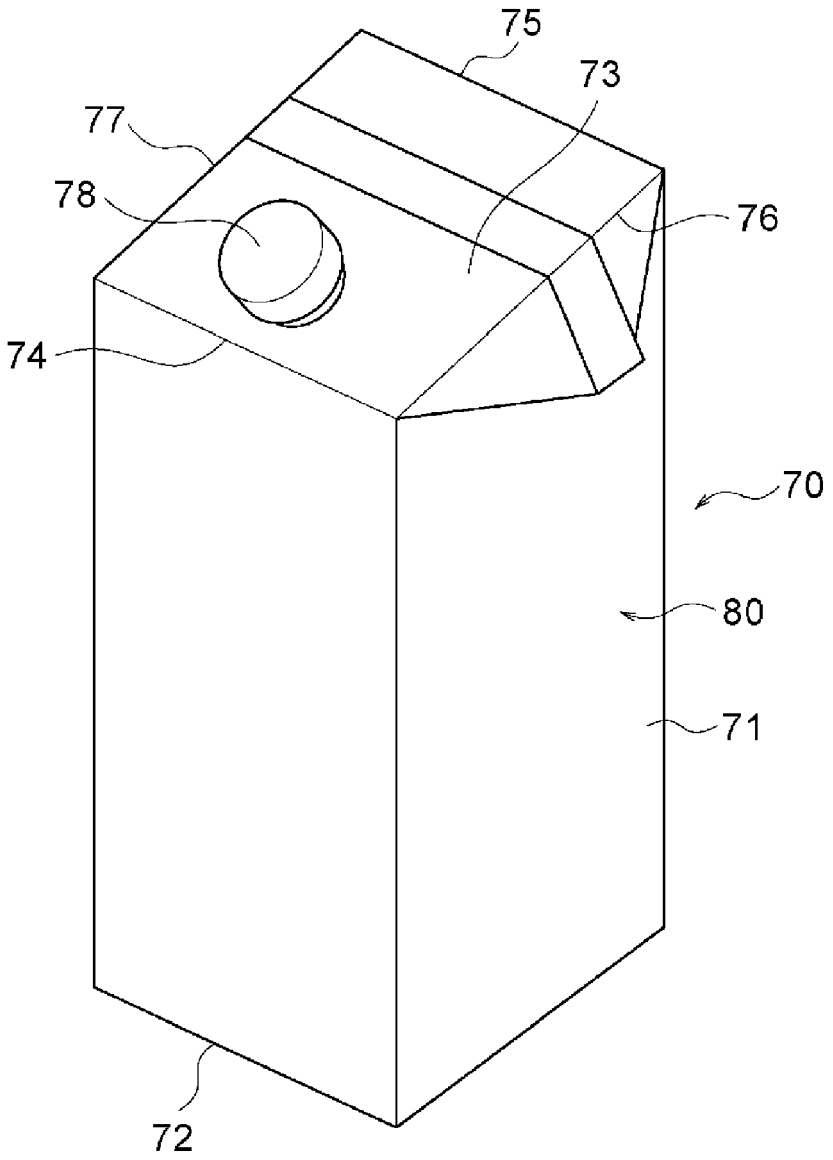


Fig. 21

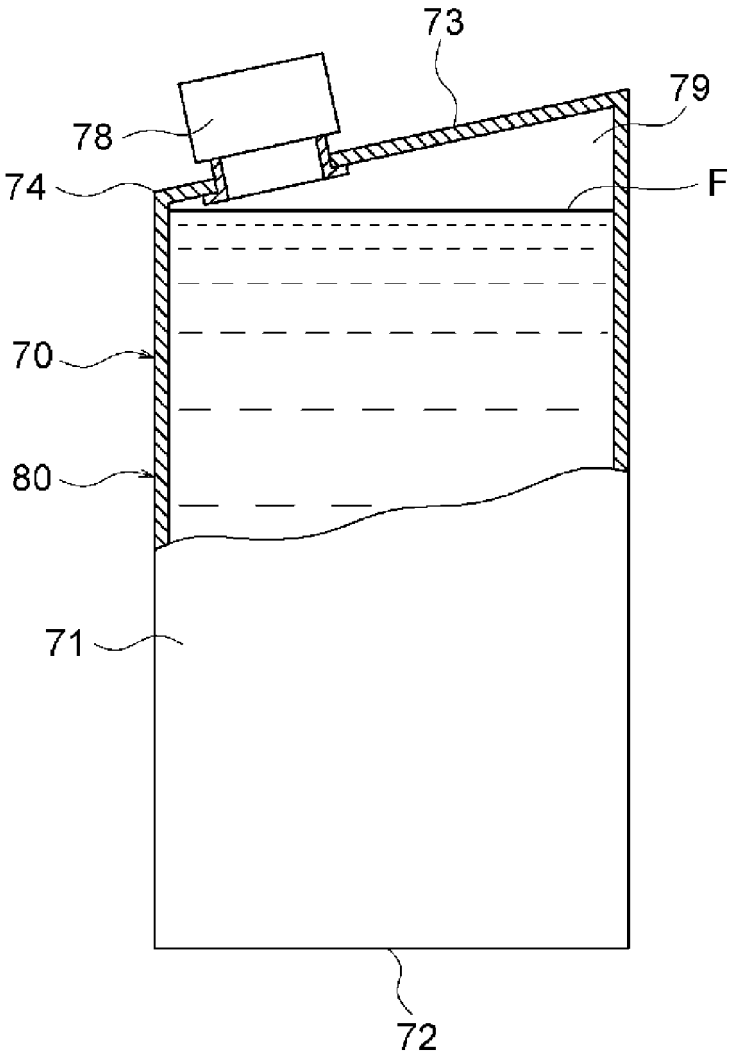
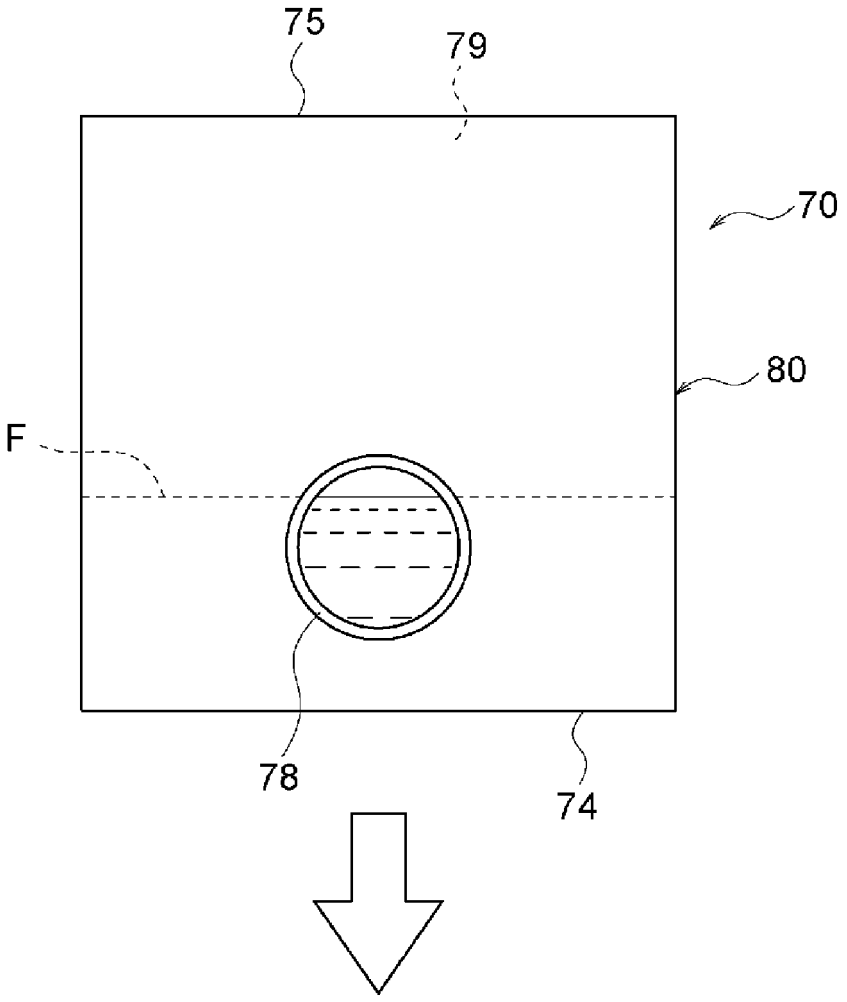


Fig. 22



REFERENCES CITED IN THE DESCRIPTION

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