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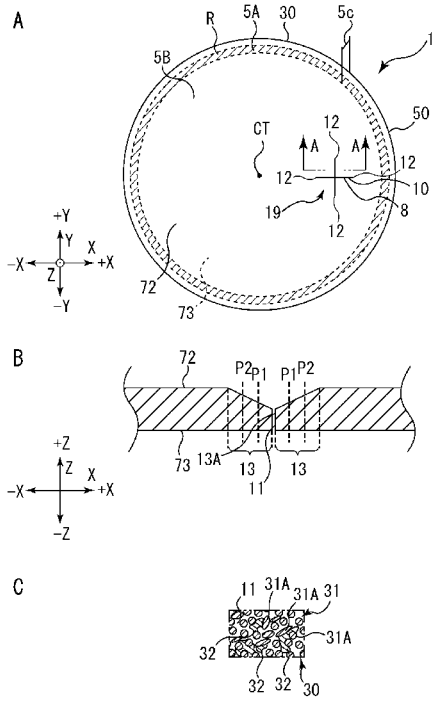
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(54) **Title:** COVER MEMBER, CONTAINER WITH COVER MEMBER, COMBINATION OF COVER MEMBER AND CONTAINER, AND METHOD FOR PRODUCING COVER MEMBER

(54) 発明の名称： 蓋体、蓋体付き容器、蓋体と容器の組み合わせ、及び蓋体の製造方法

[図1]



(57) **Abstract:** The present invention provides: a cover member which is capable of suppressing moisture penetration into fibers that constitute the cover member, while making it possible to bond a container and the cover member to each other by a sealing method even if the kind of a resin that constitutes a resin coat layer formed on the surface of the container is diversified; a container with a cover member; a combination of a cover member and a container; and a method for producing a cover member. A cover member according to the present invention is formed of a blank material so as to be contactable with a container that has an edge part; the blank material comprises a fiber sheet which contains fibers that are formed from a paper material; and a resin material adheres to at least some of the fibers that form the inner part of the fiber sheet.

(57) 要約：蓋体を構成する繊維内への水分浸透を抑制することができるとともに、容器の表面に形成された樹脂コート層を構成する樹脂の種類が多様化してもシール法で容器と蓋体とを接着することが可能な蓋体、蓋体付き容器、蓋体と容器の組み合わせ、及び蓋体の製造方法を提供する。 蓋体が、縁部を有する容器に接触可能に形成され、且つ、ブランク材から形成されており、前記ブランク材は、紙系素材から形成された繊維を含む繊維シートを有し、前記繊維シートの内部を形成する少なくとも一部の前記繊維に樹脂材料が付着している。

［続葉有］

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DESCRIPTION

COVER MEMBER, CONTAINER WITH COVER MEMBER, COMBINATION OF COVER MEMBER AND CONTAINER, AND METHOD FOR PRODUCING COVER MEMBER

Technical Field

[0001]

The present invention relates to a lid, a container with a lid, a combination of a lid and a container, and a method for manufacturing a lid.

Background Art

[0002]

It is widely practiced to provide food and drink or the like (hereinafter, also referred to as a "content") in a state where the food and drink are stored inside of a container having an opening at the upper end and attaching to a lid.

[0003]

As the lid attached to the container, it is required to use a lid using a paper-based material from consideration to environmental loading improvement. A means for joining the lid to an edge which is configured to form an outer periphery

of the opening at the upper end of the container by using a manner like hot pressing (sealing method) is known as a method for attaching the lid to the container. A means for removing the lid and a means for providing a tab on the lid as recited in Patent Literature 1 is known as a method for taking the contents stored in the lid. In the lid disclosed in Patent Literature 1, when a user pinches and pulls up the tab, a bell-shaped or guitar-shaped hole is configured to be opened to form a spout.

[0004]

Furthermore, regarding a method for attaching the lid to the container, there is known a method (fitting method) of forming a state in which the lid is in contact with an edge configured to form an outer periphery of an opening at an upper end of the container by fitting a structure portion such as a bent part or a combination of a top surface portion and a side wall part to the edge of the container in a case where the lid has the top surface portion, the bent portion, and the side wall portion. As a method for forming such a lid, a method for forming the lid by shaping a blank material for forming the lid is known.

Citation List

Patent Literature

[0005]

Patent Literature 1: WO 2016/069755 A

Summary of Invention

Technical Problem

[0006]

In the technique described in Patent Literature 1, in a case where the lid is formed of a paper-based material, there is a possibility that a moisture permeation into the fibers constituting the lid leads to a lid stiffness which is made to be greatly weakened, and strength of the lid is reduced. Thus, there is room for improvement in terms of suppressing moisture permeation into the fibers constituting the lid.

[0007]

Furthermore, in order to suppress the moisture permeation, it is also conceivable to form a resin layer on the surface of the lid (on the opposing surface to the container or the like). However, a resin coating layer is usually formed on the surface of the container for

waterproofing the container, and depending on the resin material constituting the resin layer, an adhesivity with the resin constituting the resin coating layer is weakened, and there is a possibility that it becomes difficult to bond the container and the lid to each other using by the sealing method. Therefore, there is room for improvement in that it is possible to bond the container and the lid by the sealing method even if the types of resin constituting the resin coating layer formed on the surface of the container are varied.

[0008]

Furthermore, in a case where the lid is formed of a paper-based material, and where it forms the top surface portion, the bent part, and the side wall part by shaping the blank material, due to the action of the restoring force of the paper-based material, the shape may be returned to the original state after once the side wall part, the bent part, etc. are formed. Even when the lid is fitted to the container in a case where the shape is restored at the bent part or the like, there is a possibility that the contact between the lid and the container is loosened, a gap between the lid and the

container is readily generated, and the contents of the container result in spilling out from the gap.

[0009]

The present invention has been made in view of such problems, and an object of the present invention is to provide a lid, a container with a lid, a combination of the lid and the container, and a method for manufacturing the lid, which are capable of suppressing moisture permeation into fibers comprising the lid and capable of bonding the container and the lid by a sealing method even when the types of resin forming a resin coating layer formed on the surface of the container are varied. Furthermore, another object of the present invention is to provide a lid, a container with a lid, a combination of a lid and a container, and a method for manufacturing a lid capable of suppressing returning of a shape of a blank material after shaping.

Solution to Problem

[0010]

The present invention is summarized in (1) to (21) hereunder.

[0011]

(1) A lid that is formed so as to be in contact with a container having an edge, and is formed of a blank material, in which the blank material includes a fiber sheet including fibers formed of a paper-based material, and a resin material is attached to at least some of the fibers forming an inside of the fiber sheet.

(2) The lid according to (1), including: a joining region corresponding part that corresponds to a region joined to the container along the edge of the container; and a lid region corresponding part that is configured by a portion inside the joining region corresponding part, in which the resin material is attached to at least some of the fibers forming an inside of the fiber sheet at least in a portion corresponding to the joining region corresponding part.

(3) The lid according to (2), including: a penetrating part that is cut from one surface to the other of the blank material, in which a cross section of the fiber sheet is exposed on a circumferential surface part of the penetrating part, and the resin material is exposed on at least a part of the cross section.

(4) The lid according to (3), including: an inclined part that has the circumferential surface part of the penetrating

part as an end part and inclined upward in a direction away from the end part.

(5) The lid according to (4), in which a density of the fibers constituting the fiber sheet in the inclined part is higher at a position closer to the end part of the inclined part.

(6) The lid according to (3), in which the lid region corresponding part is provided with a weakened part that guides a separated position in the lid region corresponding part, and the weakened part includes a plurality of the penetrating parts and at least one continuous part formed between at least two of the penetrating parts.

(7) The lid according to (6), in which the continuous part has a half-cut structure.

(8) The lid according to (6), in which the weakened part radially forms the plurality of penetrating parts around the continuous part.

(9) The lid according to (3), in which the lid region corresponding part includes a base part having a small opening part having an opening area smaller than an opening surrounded by the edge of the container, a small lid part that opens and

closes the small opening part, and a hinge part that connects the base part and the small lid part, the small lid part is configured to be rotatable with respect to the base part with the hinge part as an axis, and at least a part of the penetrating part is formed at a boundary position between an outer circumferential edge of the small lid part and an opening edge of the small opening part.

(10) The lid according to (9), in which a knob part is provided on an upper surface side of the small lid part.

(11) The lid according to (10), in which the knob part includes a tab member, and the tab member is joined to the upper surface side of the small lid part.

(12) The lid according to (9), including: a holding structure that holds the small lid part in a state where the small opening part is opened by rotating the small lid part with respect to the base part with the hinge part as an axis.

(13) The lid according to (9), in which an extension is formed on an outer circumferential edge of the base part, and the base part and the extension are integrally formed of the blank material.

(14) The lid according to (13), in which the hinge part is formed between the extension and a tip of the small lid part.

(15) The lid according to (9), including: a holding structure that holds the small lid part in a state where the small opening part is opened by rotating the small lid part with respect to the base part with the hinge part as an axis, in which a knob part is provided on an upper surface side of the small lid part, the knob part is provided with a claw part, an extension is formed on an outer circumferential edge of the base part, and the extension and the receiving part form the holding structure.

(16) The lid according to (1), in which a raised part is formed.

(17) The lid according to (1), in which at least a part of the resin material is impregnated between at least a part of the fibers.

(18) A container with a lid, including: the lid according to (1); and the container having the edge, in which the lid is joined to the container.

(19) A combination of a lid and a container, including: the lid according to (1); and the container having the edge.

(20) A method for manufacturing a lid, the method including: an immersion step of immersing a fiber sheet in an immersion liquid containing a resin material; and a drying step of drying the fiber sheet containing the immersion liquid.

(21) The method for manufacturing a lid according to (20), in which a shaping process of shaping the fiber sheet containing the immersion liquid is performed in a middle of the drying step or before the drying step.

Advantageous Effects of Invention

[0012]

According to the present invention, there are provided a lid, a container with a lid, a combination of the lid and the container, and a method for manufacturing the lid, which are capable of suppressing moisture permeation into fibers constituting the lid and capable of bonding the container and the lid by a sealing method even when the types of resin forming a resin coating layer formed on the surface of the container are varied. In a case where the lid is formed by

shaping the blank material, it is possible to provide the lid, the container with a lid, the combination of the lid and the container, and the method for manufacturing the lid capable of suppressing the shape return after the shaping of the blank material.

Brief Description of Drawings

[0013]

Fig. 1A is a plan view illustrating an example of a lid according to a first embodiment. Fig. 1B is a cross-sectional view schematically illustrating a state of a longitudinal cross section taken along line A-A in Fig. 1A. Fig. 1C is a cross-sectional view illustrating a part of a circumferential surface part of the penetrating part.

Figs. 2A and 2B are cross-sectional views illustrating an example of the inclined part of the lid according to the first embodiment.

Fig. 3A is a plan view illustrating an example of a lid according to a first modification of the first embodiment. Fig. 3B is a plan view illustrating an example of a lid according to a second modification of the first embodiment.

Figs. 4A and 4B are plan views illustrating another example of the lid according to the first embodiment.

Fig. 5A is a plan view illustrating an example of a lid according to a third embodiment. Fig. 5B is a cross-sectional view schematically illustrating a state of a longitudinal cross section taken along line B-B in Fig. 5A.

Fig. 6A is a plan view illustrating an example of a lid according to a fourth embodiment. Fig. 6B is a cross-sectional view schematically illustrating a state of a longitudinal cross section taken along line C-C in Fig. 6A.

Fig. 7A is a plan view illustrating an example of a lid according to a second embodiment. Fig. 7B is a cross-sectional view schematically illustrating a state of a longitudinal cross section taken along line D-D in Fig. 7A.

Fig. 8A is a plan view illustrating an example of a lid according to a first modification of the second embodiment. Fig. 8B is a cross-sectional view schematically illustrating a state of a longitudinal cross section taken along line E-E in Fig. 8A.

Fig. 9A is a plan view illustrating an example of a lid according to a third modification of the second embodiment.

Fig. 9B is a cross-sectional view schematically illustrating a state of a longitudinal cross section taken along line F-F in Fig. 9A. Fig. 9C is a cross-sectional view schematically illustrating an example of a holding structure.

Fig. 10 is a plan view illustrating another example of the lid according to the third modification of the second embodiment.

Figs. 11A and 11B are plan views illustrating another example of the lid according to the third embodiment. Fig. 11C is a cross-sectional view schematically illustrating a state of a longitudinal cross section taken along line G-G in Fig. 11B.

Fig. 12A is a plan view illustrating an example of a connecting formation of the lid according to the third embodiment. Fig. 12B is a cross-sectional view schematically illustrating a half-cut portion.

Fig. 13A is a plan view illustrating an example of a lid according to a second modification of the second embodiment. Fig. 13B is a cross-sectional view schematically illustrating a state of a longitudinal cross section taken along line H-H in Fig. 13A.

Fig. 14A is a plan view illustrating an example of a container with a lid. Fig. 14B is a cross-sectional view schematically illustrating a state of a longitudinal cross section taken along line I-I in Fig. 14A.

Fig. 15A is a perspective view illustrating an example of a lid according to a fifth embodiment. Fig. 15B is a cross-sectional view schematically illustrating a state of a longitudinal cross section taken along line N-N in Fig. 15A.

Fig. 16A is a perspective view illustrating an example of a lid according to a sixth embodiment. Fig. 16B is a cross-sectional view schematically illustrating a state of a longitudinal cross section taken along line J-J in Fig. 16A.

Fig. 17A is a perspective view illustrating an example of a lid according to a seventh embodiment. Fig. 17B is a cross-sectional view schematically illustrating a state of a longitudinal cross section taken along line K-K in Fig. 17A.

Fig. 18A is a plan view illustrating an example of a lid according to a first modification of the fifth embodiment. Fig. 18B is a cross-sectional view schematically illustrating a state of a longitudinal cross section taken along line L-L in Fig. 18A8.

Figs. 19A and 19B are plan views illustrating an example of a blank material for a lid according to the first modification of the fifth embodiment.

Fig. 20A is a plan view illustrating an example of a lid according to a fourth modification of the fifth embodiment. Fig. 20B is a cross-sectional view schematically illustrating a state of a longitudinal cross section taken along line M-M in Fig. 20A.

Fig. 21 is a cross-sectional view illustrating an example of a container with a lid.

Description of Embodiments

[0014]

Hereinafter, a lid according to the present invention will be described in detail with reference to the drawings. Note that the lid according to the present invention will be described by exemplifying a lid used for a container (cup) for containing various beverages such as a coffee cup, but is not limited to a lid of a container for containing beverages, and can also be applied as a lid of a container for containing food items other than beverages. Furthermore, the lid according to the present invention can also be applied to

various articles other than food and drink, for example, parts such as bolts and nuts, and containers capable of storing articles other than those described above. Moreover, although the lid according to the present invention will be described below using an example of a lid having a circular shape in plan view, the shape of the lid is not limited to a circular shape in plan view, and can be applied to various shapes other than a circular shape, such as an elliptical shape, a rectangular shape, a polygonal shape such as a triangular shape, a chamfered rectangular shape, and a chamfered polygonal shape.

[0015]

Hereinafter, a first embodiment, a second embodiment, a third embodiment, a fourth embodiment, a fifth embodiment, a sixth embodiment, a seventh embodiment, an eighth embodiment, and application examples relating to the present invention will be sequentially described with reference to the drawings. In the present specification and the drawings, components having substantially the same operational configuration are denoted by the same reference numerals, and redundant description may be omitted.

[0016]

The following description is a preferred specific example of the present invention, and the content of the present invention is not limited to these embodiments etc. Furthermore, in the following description, directions such as front and rear, left and right, up and down, and directions of a horizontal plane are indicated in consideration of convenience of description, but the content of the present invention is not limited to these directions. In the examples of Figs. 1 to 21, it is assumed that a Z-axis direction is a vertical direction (upper side is a +Z direction, lower side is a -Z direction), an X-axis direction is a front-rear direction (rear side is in a +X direction, and front side is in a -X direction), directions along an X-axis and a Y-axis orthogonal to each other defined on a plane having the Z-axis direction as a normal line are the X-axis direction and the Y-axis direction, and an XY plane that is a plane pasted on the X-axis and the Y-axis is a horizontal plane. The description will be given based on these. The relative magnitude ratios such as the sizes illustrated in Figs. 1 to 21 are described for convenience, and the actual magnitude ratios are not limited unless otherwise specified.

[0017]

[1 First Embodiment]

[1-1 Configuration]

As described later with reference to Figs. 14A and 14B etc., a lid 1 according to a first embodiment is formed so as to be in contact with a container 101 having an opening 102 formed at an upper end and an edge 103 serving as an upper end edge forming an outer periphery of the opening 102. With respect to a state in which the lid 1 and the container are in contact with each other, as illustrated in Figs. 14A and 14B, the lid 1 is formed to be able to be joined to the container 101 having the opening 102 (opening 102 formed by a portion surrounded by the edge 103) formed at an upper end and the edge 103 to be an upper end edge forming an outer periphery of the opening 102. Figs. 14A and 14B are a perspective view and a cross-sectional view illustrating an example of a container with a lid 150 in which the lid 1 illustrated in Figs. 1A, 1B, and 1C is joined to the container 101. The lid 1 can be used by being joined along the edge 103. In the lid 1, a region joined to the edge 103 in plan view of the lid 1 is referred to as a joining region R. Fig. 1A is a plan view illustrating an example of the lid 1. Fig. 1B is a cross-sectional view schematically illustrating a longitudinal cross section taken

along line A-A in Fig. 1A. Fig. 1C is an enlarged view of a part of a circumferential surface part 11 of a penetrating part 10 as described below. As the container 101, a container having flexibility at the edge 103 of the opening 102 is more preferably used. However, these do not prohibit the container 101 from being a container having less flexibility or hardly recognized, such as a metal container.

[0018]

In the example of Fig. 1A, the joining region R corresponds to a region formed in a substantially annular shape along the opening 102 in a shape corresponding to the opening 102 of the container 101.

[0019]

(Blank Material)

The lid 1 is formed of a blank material 30. The blank material 30 is obtained by processing a sheet material formed of a material corresponding to the material of the lid 1 into a shape corresponding to the shape of the lid 1. Note that the case where the lid 1 is formed of the blank material 30 is not limited to the case where the lid 1 is formed of only the blank material 30, and includes a case where the lid 1 has a

structure in which a member such as a tab member 22 is attached to the blank material 30, and also includes a case where the lid 1 is subjected to various processes such as a shaping process (emboss process or the like) on the blank material 30.

[0020]

(Blank Material)

The blank material 30 is formed of a sheet material including a fiber sheet 31 including fibers including a paper-based material and a resin material 32. In the example of the lid 1 according to the first embodiment illustrated in Fig. 1A, as illustrated in Fig. 1C, the sheet material forming the blank material 30 has a structure in which the resin material 32 is attached to at least some of the fibers 31A forming the inside of the fiber sheet 31. Similarly to the sheet material, the blank material 30 has a structure in which the resin material 32 is contained in at least some of the fibers 31A forming the inside of the fiber sheet 31.

[0021]

(Fiber Sheet containing Paper-Based Material)

Examples of the fiber sheet 31 containing a paper-based material include so-called paper obtained by filtering out a slurry of fibrous raw materials on a net and drying, pressing and drying, and papermaking to form a sheet, so-called air-laid sheets obtained by stacking open fibrous raw materials such as crushed pulp obtained by crushing raw material sheets made of pulp-based fibers etc. with a crushing machine by an air flow and fixing fibers of a fibrous body with a binder, and so-called papers produced by sticking vegetable fibers and other fibers. Furthermore, the fiber sheet containing the paper-based material includes a fiber sheet having a laminated structure in which a plurality of papers as described above are laminated. Furthermore, the fiber sheet 31 includes, in addition to the paper-based material, a sheet material having fibers other than pulp, such as chemical fibers, fibers imparted with functions such as water resistance, metal fibers, and glass fibers.

[0022]

The fiber sheet 31 may be composed of only the fibers 31A (only entangled structure of the fibers 31A), or may have a structure in which a plurality of the fibers 31A are crosslinked with a crosslinking agent or the like, or may

contain other additives except for the resin material as described below. In the fiber sheet 31, since the plurality of the fibers 31A are crosslinked with each other by the crosslinking agent, the shape of the fiber sheet 31 is stabilized, and the fibrillated state is hardly formed.

[0023]

(Fiber)

The fibers 31A constituting fiber sheet 31 may be composed of one unit fiber, or may have a structure in which a plurality of unit fibers are entangled, and fibers having any structure may be included in fiber sheet 31. The fiber sheet 31 is preferably formed in a state in which a plurality of fibers having such a structure are further entangled.

[0024]

(Paper-Based Material)

The paper-based material may contain fibers such as non-pulp-based natural fibers, synthetic fibers, and regenerated fibers in addition to those composed only of pulp, but the paper-based material preferably contains pulp in an amount of 50 mass% or more, more preferably 70 mass% or more, further preferably 80 mass% or more, and particularly preferably 100

mass% of pulp. As the paper-based material, a wood-based material such as a nonwoven fabric or a wood foil, or a composite material with a material such as an aluminum foil can also be used, but in the case of forming a composite material, it is preferable that the pulp be contained in an amount of 50 mass% or more as the whole composite material, and it is particularly preferable that the pulp be contained in an amount of 80 mass% or more. The higher the content of pulp is, the more easily the paper-based material is biodegraded, which is preferable.

[0025]

(Resin Material)

The resin material 32 attached to the fibers 31A is not particularly limited, and examples thereof include synthetic resins, natural resins, etc. Examples of the synthetic resin include olefin-based resins such as polyethylene (PE) and polypropylene (PP), styrene-based resins such as polystyrene (PS), acryl-based resins such as polyacrylate and polymethacrylate, vinyl-based resins such as polyvinyl chloride (PVC) and polyvinyl acetate, polyamide-based resins, polyimide-based resins, polyester-based resins such as polyethylene terephthalate (PET), fluorine-based resins,

polycarbonate-based resins (PC), polyether-based resins such as polyether ether ketone (PEEK) and polyether sulfone (PES), thermosetting resins such as phenol-based resins, urea-based resins, melamine-based resins, epoxy-based resins, urethane-based resins, silicon-based resins, polyacetal-based resins, polysulfone-based resins, polyetherimide-based resins and polybutylene terephthalate (PBT), polyvinyl alcohol (PVA), ethylene-vinyl acetate copolymer resins (EVA), polyvinyl alcohol derivatives, and synthetic polymers such as polymers or copolymers of unsaturated carboxylic acids and salts thereof.

[0026]

Among various resins, the resin material 32 is preferably a biodegradable resin having less problem of environmental pollution. Examples of the biodegradable resin include microorganism product-based biodegradable resins such as polyhydroxyalkanoate (PHA) and PHA-based copolymers; natural product-based biodegradable resin such as starch-based resin mainly composed of cellulose derivatives such as cellulose acetate or starch such as corn starch; lactic acid-based resins such as polylactic acid (PLA), a polylactic acid/polycaprolactone copolymer, and a polylactic

acid/polyether copolymer, succinate-based resins such as polybutylene succinate (PBS), polybutylene succinate adipate (PBSA), and polyethylene terephthalate succinate (PETS), chemically synthesized biodegradable resins such as polycaprolactone and polyvinyl alcohol (PVA), polysaccharide derivatives such as cellulose-based resins such as carboxymethyl cellulose (CMC), carboxyethyl cellulose, carboxymethylated starch or a salt thereof, starch, methyl cellulose, ethyl cellulose, nitrocellulose, and cellulose acetate, natural polysaccharides such as guar gum, trans gum, xanthan gum, sodium alginate, carrageenan, gum arabic, gelatin, and casein, and, in addition, polyglycolic acid (PGA), polybutylene adipate/terephthalate, and biodegradable polyolefin (product name: Biorecover, product name; Cra Drop etc).

[0027]

(Adhesive Structure of Resin Material)

At least a part of the resin material 32 is attached to at least some of the fibers 31A forming the inside of the fiber sheet 31. The case where the resin material 32 is attached to the fiber 31A includes a case where the resin material 32 is attached to the surface of the fiber 31A and a

case where the resin material 32 is impregnated inside the fiber 31A. Furthermore, in a case where the fibers 31A constituting the fiber sheet 31 include fibers such as non-pulp-based natural fibers, synthetic fibers, and regenerated fibers in addition to pulp, at least a part of the resin material 32 adheres to fibers formed of pulp in the fibers 31A. That is, in the lid 1, it is preferable that at least a part of the resin material 32 be attached to fibers formed of pulp among the fibers 31A. However, this does not prohibit at least a part of the resin material 32 from adhering to fibers such as non-pulp natural fibers, synthetic fibers, and regenerated fibers among the fibers 31A.

[0028]

Furthermore, the resin material 32 may be filled in at least a part of a space (gap space) formed between the fibers 31A constituting fiber sheet 31 (that is, a state in which the resin material 32 is impregnated between at least some of the fibers 31A may be formed), and the gap space may be substantially occupied by the resin material 32.

[0029]

The lid 1 includes the joining region corresponding part 5A and the lid region corresponding part 5B.

[0030]

(Joining region corresponding part)

The joining region corresponding part 5A is a portion corresponding to a region of the lid 1 joined to the container 101 along the edge 103 of the container 101. That is, the joining region corresponding part 5A is a portion of the lid 1 corresponding to the joining region R (a region facing the edge 103 of the container 101 as well as a region joined to the container 101). In the container with a lid 150, the joining region corresponding part 5A is a portion of the lid 1 that forms a joint part 151 to join between the lid 1 and the container 101. Specifically, a portion forming the joining region R is defined as the joining region corresponding part 5A in plan view of the lid 1 (in the example of Fig. 1A, the Z-axis direction (vertical direction) is defined as a line-of-sight direction). The joining region corresponding part 5A is usually formed in an annular shape as illustrated in Fig. 1A. In particular, as illustrated in Fig. 1A, in a case where the edge 103 of the container 101 is formed in a substantially annular shape, the joining region R becomes an annular shape, and the joining region corresponding part 5A also becomes a substantially annular shape in plan view of the lid 1. The

outer edge of the joining region corresponding part 5A is determined according to the position of the outer edge of the joining region R. The outer edge of the joining region corresponding part 5A may be positioned at the outer circumferential edge of the lid 1, or may be positioned inside the outer circumferential edge of the lid 1 as indicated in the example of Fig. 1A. Where the joining region R between the lid 1 and the container 101 is not continuously formed, portions interposed between the adjacent joining regions R and portions facing the edge 103 are also included in the joining region corresponding part 5A as described later.

[0031]

In the lid 1 indicated in the example of Fig. 1A, in a portion corresponding to the joining region corresponding part 5A, the resin material 32 adheres to at least some of the fibers 31A forming the inside of the fiber sheet 31.

[0032]

(Lid region corresponding part)

The lid region corresponding part 5B is an inner portion than the joining region corresponding part 5A within the lid 1. That is, the lid region corresponding part 5B is a portion

positioned inside from the inner fringe end of the joining region corresponding part 5A, and the outer circumferential end of the lid region corresponding part 5B is identical to the inner fringe end of the joining region corresponding part 5A. The lid region corresponding part 5B covers the opening 102 in the container with a lid 150. This portion covering the opening 102 is that covering at least a part of the opening 102, and includes a case where a window part is partially formed as described in the third embodiment, and a case where a small opening part is provided as described in the second embodiment etc. As indicated in the example of Fig. 1, a portion outside the outer circumferential end of the lid region corresponding part 5B within the lid 1 is called a lid region non-forming part 5C (in the second embodiment as described later, the lid region non-forming part 5C corresponds to a portion of the base part 2 outside the inner fringe end of the joining region corresponding part 5A).

[0033]

(Penetrating part)

In the lid 1, the penetrating part 10 is preferably formed at least in the lid region corresponding part 5B. The penetrating part 10 has a structure (penetrating structure)

cut in the vertical direction (thickness direction, Z-axis direction) from one surface to the other of the blank material 30, and is a so-called cut 8. The penetrating part 10 has a circumferential surface part 11 and an end part 12. The circumferential surface part 11 extends in the longitudinal direction of the penetrating part 10, and the end part 12 is formed at a cut end.

[0034]

Where the penetrating part 10 is formed in the lid 1, the penetrating part 10 can perform as a vent part. The vent part now indicates a portion through which gas can pass from one side surface of the lid 1 to the other side surface (the direction from an opposing surface 73 to an exposed surface 72). Furthermore, the penetrating part 10 may perform any other part in addition as to the vent part. For example, in a case where the lid 1 is used for the container with a lid 150, the penetrating part 10 may perform as an insertion port 19 or a portion constituting the insertion port 19 into which a member is inserted from the outside of the container with a lid 150 toward the inside (space 105) of the container 101. In Fig. 1A, an example is indicated in which the lid 1 has the penetrating part 10, and the penetrating part 10 is formed so

as to be able to perform as the insertion port 19. For example, as a member that can be inserted from the insertion port 19, a straw or its similarities is exemplified. The penetrating part 10 illustrated in the example of Fig. 1A can also perform as a vent part as described above.

[0035]

(Shape of Penetrating part)

The shape of the penetrating part 10 is not particularly limited as long as it can be formed by cutting. For example, in the example of Fig. 1A, a cut 8 having a cross shape into which the blank material 30 is made to cut in the vertical direction is formed in the lid 1, and the cut 8 forms the penetrating part 10. The penetrating part 10 also serves as the insertion port 19 as described above. Meanwhile this is an example, and the shape of the cut 8 to form the penetrating part 10 is not limited to the cross shape as long as usable for the insertion port 19, and may be a C shape as exemplified in Figs. 4A and 4B, or may be fine with other various shapes such as a tongue piece shape. Figs. 4A and 4B are plan views schematically illustrating another example that the lid 1 has the insertion port 19 as the penetrating part 10.

[0036]

(Circumferential surface part of Penetrating part)

In the lid 1, as illustrated in Fig. 1C, a cross section of the fiber sheet 31 is exposed on a region where the circumferential surface part 11 of the penetrating part 10 is formed (a region of the circumferential surface part 11). Furthermore, what is exposed on the circumferential surface part 11, i.e., at least a part of the cross section of the fiber sheet 31 is at least a part of the resin material 32. Examples that at least a part of the resin material 32 is exposed on the circumferential surface part 11 is include the cases where a part of the resin material 32 faces a partial region of the circumferential surface part 11 (a region of the cross section of the fiber sheet 31) as illustrated in Fig. 1C, and where a part of the resin material 32 faces the overall region of the circumferential surface part 11 (the overall region of the cross section of the fiber sheet 31). Fig. 1C indicates the example that a cross section of at least some of the fibers 31A are exposed on the circumferential surface part 11. However, this does not prohibit the case where the cross section of at least some of the fibers 31A are not exposed on the circumferential surface part 11, and does

not prohibit the case where the side surface of the fiber 31A is exposed.

[0037]

(Inclined part)

Where the penetrating part 10 is formed in the lid 1, an inclined part 13 is preferably formed in a portion from the periphery of the penetrating part 10 to the penetrating part 10. The inclined part 13 has the circumferential surface part 11 of the penetrating part 10 as an end part 13A, and indicates a portion inclined upward in a direction away from the end part 13A. The inclined part 13 may be formed only on one side surface of the lid 1 as illustrated in Figs. 1B and 2A, or may be formed on both surfaces (the exposed surface 72 (non-opposing surface) and a surface (the opposing surface 73) facing the space 105 of the container 101) of the lid 1 as illustrated in Fig. 2B. As shown in Fig. 1B, the inclined part 13 forms an inclined surface on the exposed surface 72 of the lid 1, and in Fig. 2A, the inclined part 13 forms an inclined surface on the opposing surface 73 side of the lid 1.

[0038]

(Density of Fiber in Inclined part)

In the lid 1, it is preferable that the density of the fibers 31A constituting the fiber sheet 31 in the inclined part 13 is higher at a position closer to an end part of the inclined part. For example, as illustrated in Figs. 1B, 2A, and 2B, when comparing between a position P1 closer to the end part 13A of the inclined part 13 and a position P2 farther from the end part 13A than the position P1 in the fiber sheet 31, the density of the fibers 31A at the position P1 is preferably higher than the density of the fibers 31A at the position P2. By applying a stronger pressure to a position closer to the circumferential surface part 11 of the penetrating part 10 during forming the penetrating part 10, a structure as above can be realized. As illustrated in Figs. 1B, 2A, and 2B, the inclined part 13 is formed in a shape inclined downward toward the penetrating part 10. Such configuration of the inclined part and the fiber density in the inclined part is the same in the penetrating parts formed in the second to fourth embodiments to be described later.

[0039]

[1-2 Manufacturing Method]

The lid 1 according to the first embodiment can be manufactured, for example, as hereunder. The fiber sheet 31

as a raw fabric sheet formed of a material corresponding to the material of the lid 1 is immersed in an immersion liquid (immersion step). The immersion liquid is a liquid (resin-containing liquid) containing the resin material 32. In the example described here, for example, the resin-containing liquid is a mixed liquid of the resin material 32, water, and a non-aqueous solvent. In a case where the resin material 32 is contained in the lid 1, the possibility of improving the waterproof property of the lid 1 can be increased. After the immersion step, a step (drying step) of drying the fiber sheet 31 (fiber sheet 31 containing the immersion liquid) subjected to the immersion step is performed. The fiber sheet 31 subjected to the drying step (fiber sheet 31 to which the resin material 32 is attached) is processed into a shape corresponding to the shape of the lid 1 to form the blank material 30. The blank material 30 may be used as it is for the lid 1. As in the example of Fig. 1A, the penetrating part 10 is formed by forming the cut 8 in the blank material 30, whereby the lid 1 is formed.

[0040]

In the manufacturing method described above, examples of the resin material 32 contained in the immersion liquid

include an acrylic resin, a polyolefin resin, etc., and a resin having biodegradability is preferable. The non-aqueous solvent is not particularly limited as long as it can mix the resin material, and examples thereof include an alcohol-based solvent such as ethanol.

[0041]

In the drying step, the water and the non-aqueous solvent contained in the fiber sheet 31 containing the immersion liquid may be substantially completely evaporated, or some moisture and non-aqueous solvent may remain in the fiber sheet 31.

[0042]

[1-3 Operation and Effect]

For forming lid by using a paper-based material, there has been a possibility that moisture permeates into fibers constituting the paper-based material to form the lid, so that stiffness of the lid is greatly impaired, and strength of the lid is reduced. In this regard, there is a consideration to have a resin layer formed on both surfaces (both sides on exposed surface and opposing surface) of the lid in order to suppress permeation of moisture. However, a possibility to

greatly reduce adhesiveness is still remained when the container and the lid are bonded to each other by a sealing means. In short, a resin coating layer for waterproofing a container is often formed as usual on a surface of the container for accommodating a moisture-containing material such as a beverage or a side dish. Since an appropriate material for the resin material to form the resin coating layer depends on the contents stored in the container, a variety of materials for the resin material to form the resin coating layer is needed. With this reason, when the resin layer is formed on the surface of the lid, the adhesiveness with the resin constituting the resin coating layer may get to be so impaired depending on the nature of the resin material constituting the resin layer that the container and the lid may be hard to be bonded to each other by the sealing means. Thus, there is room for improvement to bond the container and the lid by a sealing means even though the types of resin constituting the resin coating layer formed on the surface of the container are fully varied.

[0043]

Meanwhile, in the lid 1 according to the first embodiment, since at least a part of the resin material 32 is

attached to at least some of the fibers 31A forming the inside of the fiber sheet 31 constituting the lid 1, moisture permeation into the fibers 31A can be suppressed by the resin material 32. Furthermore, in where the sealing method is applied when the lid 1 is attached to the container 101, a space may be positioned in at least a part between the fibers 31A constituting the fiber sheet 31, so that the resin constituting the resin coating layer formed on the surface of the edge 103 of the container 101 can enter the space, and the bonded state between the resin coating layer and the lid 1 can be readily formed. In short, even though the nature of the resin forming the resin coating layer is insufficient in adhesiveness to the resin material 32, the container 101 and the lid 1 can be readily bonded by the sealing means.

Next, a modification of the first embodiment will be described hereunder.

[0044]

[1-4 Modification]

(First Modification)

In the lid 1 according to the first embodiment, where the penetrating part 10 is formed in the lid 1, as illustrated in

Fig. 3A, the penetrating part 10 may form a part of a weakened part 14. This embodiment is referred to as a first modification of the first embodiment. Fig. 3A is a plan view schematically illustrating an example of a lid 1 according to the first modification of the first embodiment.

[0045]

(Weakened part)

As illustrated in the example of Fig. 3A, the weakened part 14 includes a plurality of penetrating parts 10 and at least one continuous part 15 formed between the end parts 12 of the at least two penetrating parts 10. The weakened part 14 guides a position (separated position) where separation occurs when a force for lifting up or pushing down the weakened part 14 is applied to form the separated portion in the lid. That is, the position where separation occurs is formed substantially along the weakened part. For example, in the example of Fig. 3A, when a force from the exposed surface 72 to the opposing surface 73 is applied to push down the portion corresponding to the insertion port 19, the continuous part 15 is broken, and separation occurs along the penetrating part 10 having the continuous part 15 as the end part 12 to

form the insertion port 19 (the insertion port 19 comes into open).

[0046]

(Layout of Weakened part)

The layout of the weakened part 14 is not particularly limited, and may be determined according to conditions such as the function of the weakened part 14. In the example of the weakened part 14 illustrated in the example of Fig. 3A, the continuous part 15 is formed at one place, and a total of four penetrating parts 10 are formed. In this example, the penetrating part 10 is formed so as to radially extend in four different directions from the continuous part 15. Meanwhile this is an example of the weakened part 14, and in a case where the weakened part 14 has a plurality of penetrating parts 10 radially formed around the continuous part 15, the penetrating parts 10 may extend in three directions in a direction away from the continuous part 15, or may extend in five or more directions. Furthermore, the penetrating part 10 may extend in two directions in a direction away from the continuous part 15.

[0047]

Furthermore, in the example of Fig. 3A, the weakened part 14 is formed in a cross shape, but may be formed in a C shape as illustrated in Fig. 4B. Furthermore, as indicated in this example, the continuous part 15 may be formed at a plurality of places without being limited to one place. In the example of Fig. 4B, the continuous part 15 is formed at three locations, and the penetrating parts 10 (a total of four penetrating parts 10) are formed in two directions from each of the continuous parts 15. The plurality of penetrating parts 10 are formed of curved cuts 8 so as to have a shape that simulates substantially the letter C as a whole of the weakened part 14.

[0048]

The position of the weakened part 14 is not particularly limited, but is preferably provided in the lid region corresponding part 5B. In this case, the separated position is formed in the lid region corresponding part 5B.

[0049]

(Continuous part)

The continuous part 15 is not always have to be formed penetrative over the blank material 30 which forms the lid 1,

and may be a non-cut, or may be a half-cut 16 obtained by cutting the blank material 30 in the thickness direction within a degree preventing a full penetrating the blank material 30 as illustrated in Fig. 12B. Fig. 12B is a view for explaining an example of the half-cut 16. The half-cut 16 is specified as a portion forming a half-cut structure in which the lid 1 is cut halfway in the thickness direction of the lid 1. In this regard, the half-cut 16 is not limited to a half of the thickness of the lid 1 in the thickness direction of the lid 1. The half-cut 16 includes a structure in which a half or more of the thickness of the lid 1 is cut but preventing the full penetration of the lid 1, and a structure in which the lid 1 is cut in the thickness direction of the lid 1 to an extent less than a half of the thickness of the lid 1.

[0050]

(Second Modification)

In the lid 1 according to the first embodiment, as illustrated in Fig. 3B, an extension may be formed. This embodiment is referred to as a second modification of the first embodiment. Fig. 3B is a plan view schematically

illustrating an example of a lid 1 according to the second modification of the first embodiment.

[0051]

(Extension)

In the lid 1 according to the second modification of the first embodiment, the position and the shape of an extension 7 are not particularly limited, but in the example of Fig. 1A, the extension 7 is formed on an outer circumferential edge 50 of the lid region non-forming part 5C of the lid 1 (corresponding to an outer circumferential edge 2A of the base part 2 in the second embodiment to be described later), and the shape of the extension 7 is determined such that an outer circumferential edge 7A of the extension 7 has a mountain shape gently curved in a convex shape.

[0052]

Once the extension 7 is formed, a mark, a character, etc. for indicating the container 101 corresponding to the lid 1 can be arranged on the extension 7. For example, characters such as S, M, and L are arranged on the extension 7 by printing or the like. Where the size of the container 101 is a small, the lid 1 printed with the letter S is used. Where

the size of the container 101 with a medium, the lid 1 printed with the letter M is used. Where the size of the container 101 is a large, the lid 1 printed with the letter L is used. Thus, the types of the container 101 and the lid 1 are respectively associated per type. Thereby, in a case where the lid 1 is joined to the container 101, it is possible to prevent a possibility from jointing by a wrong combination of size between the container 101 and the lid 1.

[0053]

Furthermore, when the extension 7 is formed in the lid 1, the extension 7 can be used as a knob.

[0054]

[2 Second Embodiment]

In the first embodiment, the example that the penetrating part 10 forms the insertion port 19 has been described. The lid 1 is not limited thereto, and the penetrating part 10 may form at least a part of the boundary between the opening edge of the small opening part and the outer circumferential edge of the small lid part as illustrated in Figs. 7A and 7B. That is, as illustrated in Figs. 7A and 7B, the lid 1 may include a base part having a small opening part having an opening area

smaller than the opening 102 of the container 101, a small lid part that opens and closes the small opening part, and a hinge part that connects the base part and the small lid part. An embodiment recited as above is referred to as a second embodiment. Fig. 7A is a plan view illustrating an example of the lid 1 according to the second embodiment. Fig. 7B is a cross-sectional view schematically illustrating a longitudinal cross section taken along the line D-D in Fig. 7A. The second embodiment may be similar to the first embodiment in other points that the penetrating part 10 forms at least a part of the boundary between the opening edge of the small opening part and the outer circumferential edge of the small lid part. Furthermore, in the second embodiment, the insertion port 19 already indicated in the first embodiment may be further formed.

[0055]

[2-1 Configuration]

As illustrated in Figs. 7A, 7B, etc., the lid 1 according to the second embodiment includes a base part 2, a small lid part 3, and a hinge part 4. In the examples of Figs. 7A and 7B, the lid region corresponding part 5B of the lid 1 includes the base part 2, the small lid part 3, and the hinge part 4,

and the lid region non-forming part 5C includes the base part 2.

[0056]

(Base part)

The base part 2 is defined as a part having the joining region corresponding part 5A and forming a small opening part 6. The base part 2 can be a portion that defines a basis of the variation on how high place the small lid part 3 is located as to be described later. Meanwhile, in the example of Fig. 7A, the base part 2 and the small lid part 3 form the exposed surface 72 of the lid 1 as shown in plan view of the lid 1. In the second embodiment, in the plan view of the lid 1 (in the example of Fig. 7A, shown from the Z-axis direction (vertical direction) as the visual line direction), the joining region corresponding part 5A corresponds to a portion forming the joining region R, and is formed in the base part 2.

[0057]

(Small opening part)

The small opening part 6 is formed so as to penetrate the opposing surface 73 of the lid 1 with respect to the container

101 and the non-opposing surface (the exposed surface 72 of the lid 1) of the lid 1 with respect to the container 101. The small opening part 6 is formed inside a portion corresponding to the joining region corresponding part 5A in plan view of the lid 1 so as to have an opening area smaller than that of the opening 102 of the container 101. The small opening part 6 is provided to form an inlet/outlet of contents (for example, beverages, food and drink, etc.) in the space 105 of the container 101 while joining the lid 1 to the container 101. The small opening part 6 forms an opening forming part 20 in combination with the small lid part 3 as describe later.

[0058]

(Opening forming part)

As illustrated in Fig. 7A and others, the opening forming part 20 is defined as a portion having the small opening part 6 and the small lid part 3. In the opening forming part 20, the small opening part 6 is opened and closed as the small lid part 3 is displaced. As illustrated in Fig. 7A, the opening forming part 20 is formed such that the small lid part 3 closes the small opening part 6 and the small lid part 3 is displaced to open the small opening part 6. Where the small

lid part 3 is rotated so as to pull up the small lid part 3 with reference to the base part 2, the small opening part 6 is exposed and serves as an exposure port. That is, the opening forming part 20 combines the small opening part 6 and the small lid part 3 so that the space 105 of the container 101 can be visually recognized from the small opening part 6 when the small lid part 3 is pulled up in a state on the condition that the lid 1 is attached to the container 101.

[0059]

Meanwhile, where the small opening part 6 serves as the exposure port, as describe later, the small opening part 6 can serve as a supply port for a liquid such as an additional beverage or a solid such as ice. Furthermore, in a case where a liquid such as a beverage is present in the container 101 (space 105), the small opening part 6 may be used as a straw or a spout for a beverage and so on.

[0060]

(Small lid part)

The lid 1 is provided with a small lid part 3. The small lid part 3 is formed so as to cover the small opening part 6 in an openable and closable manner. In the example of Fig.

7A, the small lid part 3 is formed so as to be displaceable along with a pulled-up movement with respect to the base part 2 as describe later with reference to Fig. 9C, and the small opening part 6 is formed (opened) when the small lid part 3 is pulled up. In the example illustrated in Fig. 7A, where the small opening part 6 is closed by the small lid part 3, the shape of the small lid part 3 can be determined such that the outer circumferential contour shape of the small lid part 3 follows the shape of an opening edge 6A of the small opening part 6. In this case, where the small opening part 6 is closed by the small lid part 3, it readily brings the end surface of an outer circumferential edge 3A of the small lid part 3 into contact with the end surface of the opening edge 6A of the small opening part 6.

[0061]

In the lid 1 indicated in the example of Fig. 7A, the small lid part 3 is provided inside (lid region corresponding part 5B) (center CT side) the joining region corresponding part 5A in plan view of the lid 1. The small lid part 3 is displaced (rotated) so that the small lid part 3 is in a lifted-up movement. The small lid part 3 is connected to the base part 2 by the hinge part 4. The small opening part 6 is

exposed as the small lid part 3 is lifted up with the hinge part 4 as a support shaft.

[0062]

In the lid 1, where the small lid part 3 is raised, the small opening part 6 is exposed as described above. This is referred to as a status of the lid being opened. A status in which the small opening part 6 is covered with the small lid part 3 is referred to as a status of the lid closed.

[0063]

In the lid 1, even after the lid 1 enters the status of the lid being opened (after the small opening part 6 is exposed by raising the small lid part 3), the lid 1 can be even in the status of the lid closed again, and in a case where the lid 1 is in the status of the lid closed, the end surface of the opening edge 6A of the small opening part 6 of the base part 2 can face the end surface (outer circumferential end surface) of the outer circumferential edge 3A of the small lid part 3.

[0064]

(Hinge part)

As described above, the lid 1 has the hinge part 4. The hinge part 4 is substantially configured by a portion corresponding to a line segment connecting two base end parts 74 along the outer circumferential edge 3A of the small lid part 3, and corresponds to a boundary portion between the base part 2 and the small lid part 3. The hinge part 4 is a portion that serves as a rotation shaft when the small lid part 3 rotates. However, where the small lid part 3 rotates, not only a case where the small lid part 3 rises from the base part 2 at a constant angle at a position of the hinge part 4, but also a case where the small lid part 3 rises from the hinge part 4 toward a front end edge 75 of the small lid part 3 while gradually curving is included.

[0065]

The base part 2 is connected to the small lid part 3 at least at the hinge part 4. The hinge part 4 does not have any particular structural limitation as long as it is a portion defined as a boundary between the base part 2 and the small lid part 3. The hinge part 4 may have a perforated pattern or a half-cut, similar to a connecting formation 17 as describe later.

[0066]

(Boundary between Outer Circumferential Edge of Small lid part and Opening Edge of Small opening part)

At the boundary position between the outer circumferential edge 3A of the small lid part 3 and the opening edge 6A of the small opening part 6, the small lid part 3 and the small opening part 6 may be separated (may come into a non-connected status), or the connecting formation 17 may be formed as describe later. In a case where the small lid part 3 and the small opening part 6 come into the non-connected status at the boundary position between the outer circumferential edge 3A of the small lid part 3 and the opening edge 6A of the small opening part 6, as illustrated in Fig. 7B, the penetrating part 10 is formed so as to separate the outer circumferential edge 3A of the small lid part 3 and the opening edge 6A of the small opening part 6. The circumferential surface part 11 of the penetrating part 10 forms an end surface of the outer circumferential edge 3A of the small lid part 3 and an end surface of the opening edge 6A of the small opening part 6. Furthermore, the end part 12 of the penetrating part 10 is located at the base end part 74 of the hinge part 4. Since the structure of the penetrating part

10 is similar to that as described in the first embodiment, the details may be omitted here.

[0067]

(Connecting formation between Base part and Small lid part)

In the lid 1, a formation (connecting formation 17) in which the opening edge 6A of the small opening part 6 of the base part 2 and the outer circumferential edge 3A of the small lid part 3 are connected as described above may be formed at the boundary position between the outer circumferential edge 3A of the small lid part 3 and the opening edge 6A of the small opening part 6. As illustrated in Fig. 12A, the connecting formation 17 is preferably configured as a weakened part 14 which is a portion more fragile than the small lid part 3. Fig. 12A is a view illustrating an example in a case where the connecting formation 17 is the weakened part 14. Since the connecting formation 17 is the weakened part 14, the weakened part 14 can be broken (the continuous part 15 can be broken) in a case where the small lid part 3 rotates with respect to the base part 2 about the hinge part 4 as an axis. Furthermore, the small lid part 3 is raised with reference to

the base part 2 while being separated from the base part 2 substantially along the connecting formation 17.

[0068]

(Weakened part)

The weakened part 14 is formed by a combination of the penetrating part 10 and the continuous part 15 as described in the first modification of the first embodiment. Therefore, where the connecting formation 17 is the weakened part 14, the boundary position between the outer circumferential edge 3A of the small lid part 3 and the opening edge 6A of the small opening part 6 is formed by a combination of the penetrating part 10 and the continuous part 15. In the example of Fig. 12A, the combination is a pattern (so-called perforated pattern) such that the continuous part 15 and the penetrating part 10 are alternately arranged along the longitudinal direction of the portion where the end surface of the opening edge 6A of the small opening part 6 and the end surface of the outer circumferential edge 3A of the small lid part 3 face each other.

[0069]

The connecting formation 17 may be formed of the half-cut 16 only, for example, as illustrated in Fig. 12B without limiting in the perforated pattern. Since the half-cut 16 is the same as the half-cut 16 described in the first embodiment with Fig. 12B, the details may be omitted here.

[0070]

Where the connecting formation 17 includes the continuous part 15 and the penetrating part 10, the continuous part 15 may be the half-cut 16 as illustrated in Fig. 12B.

[0071]

Where the penetrating part 10 is formed in the lid 1 according to the second embodiment, the penetrating part 10 may be formed as a vent part at a position different from the boundary position between the outer circumferential edge of the small lid part and the opening edge of the small opening part. For example, where the connecting formation 17 is formed at the boundary position between the outer circumferential edge of the small lid part and the opening edge of the small opening part, and the connecting formation 17 is formed of the half-cut 16 only, the penetrating part 10 may be formed different in configuration from the connecting formation 17.

[0072]

The penetrating part 10 may be formed at a boundary position between the outer circumferential edge of the small lid part and the opening edge of the small opening part, and at a position different from the boundary position. Thus, in the lid 1 according to the second embodiment, at least the penetrating part may be partially formed at a boundary position between the outer circumferential edge of the small lid part and the opening edge of the small opening part.

[0073]

[2-2 Operation and Effect]

The lid 1 according to the second embodiment can obtain the same effects as those of the first embodiment.

[0074]

The modification of the second embodiment will be further described.

[0075]

[2-3 Modification]

(First Modification)

In the lid 1 according to the second embodiment, as illustrated in Figs. 8A, 8B, etc., a knob part 21 may be provided in the small lid part 3. The lid 1 as recited above is referred to as the first modification of the second embodiment. Fig. 8A is a plan view schematically illustrating an example of a lid 1 according to the first modification of the second embodiment. Fig. 8B is a cross-sectional view schematically illustrating a status of a longitudinal cross section taken along the line E-E in Fig. 8A.

[0076]

Since the lid 1 according to the first modification of the second embodiment may be similar to the above-described second embodiment except for the configuration in which the knob part 21 is provided in the small lid part 3, description of other configurations (base part 2, hinge part 4, etc.) except for the configuration in which the knob part 21 is provided in the small lid part 3 may be omitted.

[0077]

(Knob part)

In the example of the second embodiment illustrated in Figs. 8A and 8B, in which the small opening part 6 is closed

by the small lid part 3, the knob part 21 is provided on an upper surface side which is an exposed surface (the exposed surface 72 of the lid 1) side of the small lid part 3. The knob part 21 is not particularly limited in configuration as long as the small lid part 3 can be rotated about the hinge part 4, but in the examples of Figs. 8A and 8B, a tab member 22 is provided as the knob part 21.

[0078]

(Tab Member)

In the examples of Figs. 8A and 8B, where the small opening part 6 is closed by the small lid part 3, the tab member 22 has one end part 22A of the tab member 22 joined to the small lid part 3, and has other end part 22B of the tab member 22 as a free end. A portion of the tab member 22 joined to the small lid part 3 is referred to as a tab joining part 23. Except for the tab joining part 23 of the tab member 22, the shape and structure of the portion of the tab member 22 on the free end side (the portion on the other end part 22B side) are not particularly limited as long as the portion is formed in such a size and shape that the tab member 22 can be gripped by a human hand. The material of the tab member 22 may be the same as the material of the blank material 30

described in the first embodiment, and may be the paper-based material.

[0079]

In the lid 1, a mounting position and a mounting direction of the tab member 22 in the small lid part 3 are not particularly limited, but in the examples of Figs. 8A and 8B, the tab member 22 is joined to the small lid part 3 at a position close to the tip of the small lid part 3 (that is, near the front end edge 75).

[0080]

As a method for joining the tab member 22 to the small lid part 3 (that is, a method for forming the tab joining part 23), various methods such as ultrasonic joining, heat sealing, and joining with an adhesive can be exemplified. As the method for forming the tab joining part 23, ultrasonic joining is preferable from the viewpoint of ease of joining, strength of joining, etc. among the methods described above. The formation position of the tab joining part 23 in the small lid part 3 is preferably a position shifted from the central portion of the small lid part 3 from the viewpoint of readily raising the small lid part 3 (rotating the small lid part 3) by lifting up the tab member 22.

[0081]

(Orientation of Tab Member (Mounting Direction))

In the lid 1, in the example of Fig. 8A, the other end part 22B side (free end side) of the tab member 22 is disposed closer to the hinge part 4 side than the one end part 22A of the tab member 22. However, this is an example, and the orientation of the tab member 22 may be an orientation other than the direction indicated in the example of Fig. 8A. For example, the tab member 22 may be disposed such that the other end part 22B side of the tab member 22 is located farther away from the hinge part 4 than the one end part 22A of the tab member 22.

[0082]

In the lid 1 according to the first modification of the second embodiment, since the knob part 21 is provided, the small lid part 3 can be easily pulled up.

[0083]

(Second Modification)

In the lid 1 according to a second modification of the second embodiment, as indicated in the examples of Figs. 13A, 13B, etc., a holding structure forming portion which is a

portion forming a holding structure for holding the small lid part 3 in a state where the small lid part 3 is rotated with respect to the base part 2 with the hinge part 4 as an axis to open the small opening part 6 may be included. The lid 1 having such a configuration is referred to as a second modification of the second embodiment. Fig. 13A is a plan view schematically illustrating an example of a lid 1 according to the second modification of the second embodiment. Fig. 13B is a cross-sectional view schematically illustrating a status of a longitudinal cross section taken along the line H-H in Fig. 13A.

[0084]

(Holding Structure Forming Portion)

The holding structure forming portion is not particularly limited in the configuration. For example, in the example of the lid 1 illustrated in Figs. 13A and 13B, a claw part 24 and a receiving part 25 form the holding structure forming portion.

[0085]

(Claw part)

As illustrated in the example of Fig. 13A, the claw part 24 may be a portion capable of being locked to the receiving part 25 as describe later by hooking, insertion, and so on. In the example of Fig. 13A, the claw part 24 is provided on the tab member 22 as an example of the knob part 21. Furthermore, in this example, the claw part 24 is formed by a cut formed in a contour shape such as a generally mountain shape at a predetermined position of the tab member 22.

[0086]

(Receiving part)

The receiving part 25 is formed into which the claw part 24 can be engaged or inserted. In the example of Fig. 13A, the receiving part 25 is also a slit formed by cutting at a predetermined position of the base part 2. In this case, the receiving part 25 corresponds to the penetrating part 10. The receiving part 25 is formed at a position capable of facing the claw part 24 when the tab member 22 is displaced so as to rotate the small lid part 3.

[0087]

(Formation of Holding Structure)

In a case where the small lid part 3 is lifted up in the lid 1, the knob part 21 is pulled up. At this time, by pulling up the tab member 22 and bending a predetermined portion on the free end side (the other end part 22B side) of the tab member 22, the claw part 24 gets into a shape protruding downward or upward. Then, the tab member 22 is displaced so as to rotate the small lid part 3 until the claw part 24 of the small lid part 3 reaches a position facing the receiving part 25 or a position in the vicinity of the position. Then, the claw part 24 of the tab member 22 is hooked or inserted into the receiving part 25. Thus, a holding structure for holding small lid part 3 with the small opening part 6 being exposed is formed.

[0088]

In the case where the holding structure forming portion includes the slit (penetrating part 10) as the receiving part 25 described above, but in a third modification of the second embodiment hereunder, the structure corresponding to the receiving part 25 is not limited to the slit.

[0089]

(Third Modification)

In the lid 1 according to the second embodiment, as in the second modification of the first embodiment, as illustrated in Figs. 9A, 9B, etc., the extension 7 may be formed on the lid 1, which is referred to as a third modification of the second embodiment. Fig. 9A is a plan view schematically illustrating an example of a lid according to the first modification of the second embodiment. Fig. 9B is a cross-sectional view schematically illustrating a longitudinal cross section taken along the line F-F in Fig. 9A. In the lid 1 of the second embodiment, since the configuration of the extension 7 is the same as that of the second modification of the first embodiment, the description thereof may be omitted. Meanwhile Fig. 9A illustrates a case where the extension 7 is formed in the lid 1 according to the second modification of the second embodiment.

[0090]

In the example of Fig. 9A, with respect to the formation position of the extension 7, the extension 7 is defined on the outer circumferential edge 2A of the base part 2 such that the hinge part 4 is positioned between the front end edge 75 forming the tip of the small lid part 3 and the extension 7. In this case, the position of the front end edge 75 of the

small lid part 3 and the position of the extension 7 can be separated as much as possible. Since the position of the front end edge 75 of the small lid part 3 and the position of the extension 7 are separated as much as possible in this manner, even if a person picks the extension 7 by hand and carries the lid 1, it is possible to suppress a possibility such that a person who picks the lid 1 touches the small lid part 3 of the lid 1, and it is possible to suppress contamination of the small lid part 3 due to contact of the hand of the person.

[0091]

In the lid 1 according to the third modification of the second embodiment, the extension may also serve as the receiving part described in the second modification of the second embodiment.

[0092]

(Holding Structure Forming Portion)

In the lid 1 illustrated in Fig. 9A, similarly to the example of Fig. 13A, the claw part 24 is formed on the knob part 21 (tab member 22 in Figs. 13A and 9A), and the claw part 24 and the extension 7 form the holding structure forming

portion. In the example of Fig. 9A, the extension 7 is formed such that the outer circumferential edge 7A of the extension 7 can face the claw part 24 when the tab member 22 is displaced so as to rotate the small lid part 3.

[0093]

(Formation of Holding Structure)

In the lid 1 indicated in the example of Fig. 9A, similarly to the example of Fig. 13A, the tab member 22 is pulled up in the direction of the arrow F1 in Fig. 9B in a case where the small lid part 3 is raised. In the example of Fig. 9A, similarly to the example of Fig. 13A, by pulling up the tab member 22 and bending a predetermined portion on the free end side (the other end part 22B side) of the tab member 22, the claw part 24 gets into a shape protruding downward or upward. Then, the tab member 22 is displaced so as to rotate the small lid part 3 until the claw part 24 reaches a position facing the outer circumferential edge 7A of the extension 7 or a position in the vicinity of the position. Then, as illustrated in Fig. 9C, the claw part 24 is hooked or inserted into the extension 7. The holding structure for holding the small lid part 3 is thereby formed such that the small opening part 6 serves as the exposure port of the space 105. Fig. 9C

is a cross-sectional view for explaining an example of the holding structure.

[0094]

(Size of Extension)

Where the extension 7 serves as the receiving part 25, as illustrated in Fig. 10, an extension length D1 of the extension 7 may be smaller than an interval length D2 between the tip of the small opening part 6 and the outer circumferential edge 2A of the base part 2. Fig. 10 is a plan view for explaining an example of the extension 7. The extension length D1 of the extension 7 indicates a longest remoted distance from the outer circumferential edge 2A of the lid 1 to the outer circumferential edge 7A of the extension 7 along a direction away from the position of the center CT of the lid 1 in the radial direction. Where the small opening part 6 is expected to use as a straw by forming the tip of the small opening part 6 (the front end edge 75 of the small lid part 3) close to the outer circumferential edge 2A of the lid 1, the size of the extension 7 can be reduced, and thereby it prevents the user's recognition from regarding the extension 7 as a knob for forming an outlet port. That is, it prevents the user action from lifting up the extension 7, tearing the

lid 1 and using a toned-up hole formed thereby for a content outlet.

[0095]

If the blank material 30 is made of the resin material attached to the fiber, which forms the inside of the fiber sheet, the stiffness of the blank material 30 is not too strong to bent the extension 7 slightly during the claw part 24 being hooked to the extension 7, and even where the tip of the claw part 24 enters the edge 103 of the container 101, the tip of the claw part 24 can be slid to the extension 7 in a direction of releasing the locking between the extension 7 and the claw part 24. Then, it is readily to form the holding structure with the tip of the claw part 24 being positioned outside the edge 103 of the container 101. By such a holding structure, even if a stain or dirty is created at the edge 103 of the container 101, such damage does not spread to the claw part 24 of the lid 1, and it makes it possible to keep good sanitary level.

[0096]

The configuration of reducing the size of the extension 7 indicated in the third modification of the second embodiment as illustrated in Fig. 10 can also be applied to a lid using a

sheet material in which a resin layer is formed on the surface of the fiber sheet 31 of at least one of the exposed surface 72 and the opposing surface 73, instead of the lid 1 having the blank material 30. However, when the lid 1 is the blank material 30 and the extension 7 is also formed of the blank material 30, it is more preferable in that the surface of the extension 7 can be easily roughened and slight bending is easily generated in the extension 7 as compared with the case of using the sheet material in which the resin layer is formed.

[0097]

[3 Third Embodiment]

In the lid 1 according to the first embodiment and the second embodiment, as illustrated in Figs. 5A and 5B, a window portion may be formed. This embodiment is referred to as a third embodiment. Fig. 5A is a plan view illustrating an example of the lid 1 according to the third embodiment. Fig. 5B is a cross-sectional view schematically illustrating a longitudinal cross section taken along the line B-B of the lid 1 illustrated in Fig. 5A.

[0098]

(Window part)

A window part 40 is a light transmitting portion that improves the visibility in the space 105 from the outside in the container with a lid 150. The window part 40 is configured such that an opening (lid inner opening 41) formed in the lid region corresponding part 5B is covered with a window sheet 42 including a light transmissive film. The window sheet 42 is not particularly limited as long as it has light transmissivity like a light transmissive film, and such examples include films made of the following materials. Examples of the material of the film forming the window sheet 42 include synthetic resins, natural resins, etc. Examples of the synthetic resin and the natural resin include olefin-based resins such as polyethylene (PE) and polypropylene (PP), styrene-based resins such as polystyrene (PS), acryl-based resins such as polyacrylate and polymethacrylate, vinyl-based resins such as polyvinyl chloride (PVC) and polyvinyl acetate, polyamide-based resins, polyimide-based resins, polyester-based resins such as polyethylene terephthalate (PET), fluorine-based resins, polyether-based resins such as polycarbonate-based resins (PC), polyether ether ketone (PEEK) and polyether sulfone (PES), etc. As a material of the film

for forming the window sheet 42, a biodegradable resin or the like is preferable from the viewpoint of reducing the environmental load. Examples of the biodegradable resin include microorganism product-based biodegradable resins such as polyhydroxyalkanoate (PHA) and PHA-based copolymers; natural product-based biodegradable resin such as starch-based resin mainly composed of cellulose derivatives such as cellulose acetate or starch such as corn starch; lactic acid-based resins such as polylactic acid (PLA), a polylactic acid/polycaprolactone copolymer, and a polylactic acid/polyether copolymer, succinate-based resins such as polybutylene succinate (PBS), polybutylene succinate adipate (PBSA), and polyethylene terephthalate succinate (PETS), chemically synthesized biodegradable resins such as polycaprolactone and polyvinyl alcohol (PVA), and, in addition, polyglycolic acid (PGA), polybutylene adipate/terephthalate, and biodegradable polyolefin (product name: Biorecover, product name; Cra Drop etc).

[0099]

Furthermore, in a case where the content of the container is liquid or it's similarities, the window sheet 42 is preferably excellent in water resistance, oil resistance, etc.

[0100]

The window sheet 42 provided in the window part 40 forms a portion (bonded part 46) bonded along a portion of the blank material 30 corresponding to the periphery of the lid inner opening 41. A method for bonding the window sheet 42 to a portion corresponding to the periphery of the lid inner opening 41 is not particularly limited. For example, an application portion may be formed by applying a hot melt adhesive between the periphery of the lid inner opening 41 and the window sheet 42, and the window sheet 42 may be bonded to a portion corresponding to the periphery of the lid inner opening 41 by heat sealing at the application portion to form the bonded part 46. In the example of Fig. 5A, the window part 40 is provided with respect to the lid 1 according to the first embodiment. However, as illustrated in Fig. 11A, the window part may be provided with respect to the lid 1 according to the second embodiment, or as illustrated in Figs. 11B and 11C, the window part may be provided with respect to the lid 1 according to a fourth embodiment as describe later. Figs. 11A and 11B are plan views showing another example of the lid 1 according to the third embodiment, and Fig. 11C is a

cross-sectional view schematically illustrating a longitudinal cross section taken along the line G-G in Fig. 11B.

[0101]

The configuration of the window part 40 indicated in the third embodiment can also be applied to a lid using a sheet material in which a resin layer is formed on the surface of the fiber sheet 31 of at least one of the exposed surface 72 and the opposing surface 73 instead of the lid 1 having the blank material 30. However, if the lid 1 is the blank material 30 when the bonded part 46 be formed between the window sheet 42 and the blank material 30, it is more preferable if the lid 1 is comprised of the blank material 30 in that a good bonding is expectable between the window sheet 42 and the blank material 30 even if various resin materials such as the hot melt adhesive or it's similarities for forming the bonded part 46.

[0102]

[4 Fourth Embodiment]

In the lid 1 according to the first to third embodiments, as illustrated in Figs. 6A, 6B, etc., a raised part (bulging

portion) may be formed. This embodiment is referred to as a fourth embodiment.

[0103]

(Raised Part)

A raised part 43 is formed on the exposed surface 72 side of the lid 1, and is a portion (in the examples of Figs. 6A and 6B, a portion protruding to the +Z direction side with respect to the position of the joining region corresponding part 5A) protruding upward (+Z direction side) with respect to the outside of the raised part 43 (outside the base end of the raised part 43). The raised part 43 is preferably provided inside from the inner fringe end of the joining region corresponding part 5A. That is, the raised part 43 may be formed on the overall region corresponding part 5B or may be provided on a part of the inside of the lid region corresponding part 5B.

[0104]

(Depressed part)

A depressed part 44 is formed in a portion corresponding to the raised part 43 (a portion opposite) on a surface side (opposing surface 73 side) opposite to the exposed surface 72

of the lid 1. In this case, a portion forming the raised part 43 is a convex structure portion in the emboss structure. Therefore, this makes it readily to maintain the lid 1 being attached with no coming into contact between the content and the lid 1 even though the content is stored upper than the opening 102 of the container 101, which is used as the container with a lid 150. For example, in a case where a liquid such as coffee is stored in the container 101 and a certain quantity of whipped cream is floated on a surface of the liquid, even if the upper end of the whipped cream is positioned upper than the opening 102 of the container 101, the upper end of the whipped cream can be housed within the space in the depressed part 44, and it prevents the upper end of the whipped cream from adhering to the opposing surface 73 of the lid 1.

[0105]

In a case where the raised part 43 is formed on the lid 1, as illustrated in Figs. 11B and 11C, it is preferable that the window part 40 is formed in a region including a tip end part 43A of the raised part 43 in terms of enabling an easy visual recognition for the overall space (depressed part 44) including the space 105 in the container 101.

[0106]

Furthermore, in a case where the raised part 43 is formed in the lid 1, as illustrated in Figs. 6A and 6B, it is preferable that the outer circumferential edge 3A of the small lid part 3 and the hinge part 4 are formed along the base end part of the raised part 43. In this case, where the small lid part 3 is pulled up around the hinge part 4, the raised part 43 can be pulled up in its entire part.

[0107]

(Manufacturing Method)

The lid 1 according to the fourth embodiment can be manufactured, for example, as follows. As described in [1-2 Manufacturing Method] in the first embodiment, the immersion step and the drying step are performed. However, in the middle of the drying step or before the drying step (after the immersion step (that is, between the immersion step and the drying step)), a shaping process for shaping the fiber sheet 31 containing the immersion liquid is performed. The shaping process can be exemplified by an embossing process. In the shaping process, a structure corresponding to the raised part 43 is formed (a structure corresponding to the depressed part 44 is also formed). After the shaping process and the drying

step are performed, processing corresponding to the shape of the lid 1 is performed to form the blank material 30.

[0108]

In the drying step, the water and the non-aqueous solvent contained in the fiber sheet 31 containing the immersion liquid may be substantially completely evaporated, or some moisture and non-aqueous solvent may remain in the fiber sheet. If some moisture or non-aqueous solvent remains in the fiber sheet, the shaping process may be applied after the drying step. However, in terms of good appearance of the raised part formed by the shaping step, the shaping process is preferably applied in the middle of the drying step or before the drying step.

[0109]

The configuration of the raised part 43 (and the depressed part 44) described in the fourth embodiment can also be applied to a lid using a sheet material in which a resin layer is formed on the surface of the fiber sheet 31 of at least one of the exposed surface 72 and the opposing surface 73, instead of the lid 1 including the blank material 30. However, if the lid 1 is the blank material 30, it is more preferable in that the method for manufacturing the lid 1

according to the fourth embodiment can be readily applied, and the raised part 43 in the good appearance can be readily obtained.

[0110]

In the lid 1 according to the first to fourth embodiments described above, the lid 1 is joined to the container 101, which is used as the container with a lid 150 as describe later to form a joining part 151. The joining part 151 is a portion where the container 101 and the lid 1 are bonded (including adhesion) to each other, and the lid 1 and the container 101 are peeled off at the joining part 151 in order to separate the lid 1 and the container 101. The lid 1 is not limited thereto, and the lid 1 may be fitted to the container 101 as described below.

[0111]

[5 Fifth Embodiment]

[5-1 Configuration]

As illustrated in Figs. 15A and 15B, a lid 201 according to a fifth embodiment includes a cover wall part 202 and a side wall part 203. As described later with reference to Fig. 21 etc., a lid 201 according to the fifth embodiment is formed

so as to be in contact with a container 101 having an opening 102 formed at an upper end and an edge 103 serving as an upper end edge forming an outer periphery of the opening 102. With respect to the lid 201 and the container, which are in contact with each other, the lid 201 is formed so as to be fitted to a container having an opening 102 formed at an upper end and an edge 103 serving as an upper end edge forming an outer periphery of the opening 102. Fig. 15A is a perspective view schematically illustrating an example of the lid according to the fifth embodiment. Fig. 15B is a cross-sectional view schematically illustrating an example of the lid according to the fifth embodiment. Fig. 15B illustrates a longitudinal cross section taken along the line N-N in Fig. 15A. Fig. 21 is a cross-sectional view illustrating an example of the container with a lid 150 in which the lid 1 illustrated in Figs. 15A and 15B is joined to the container 101. Furthermore, in Fig. 15A, the line N-N is substantially passing immediately above an insertion port 219. The same applies to the line J-J in Fig. 16A, the line K-K in Fig. 17A, and the line L-L in Fig. 18A.

[0112]

As indicated in the examples of Figs. 15A and 15B, the lid 201 has preferably a bent part 204. The bent part 204 is a portion connecting the cover wall part 202 and the side wall part 203, and in the example of Figs. 15A and 15B, the bent part 204 and the side wall part 203 are continuously (integrally) formed.

[0113]

(Cover wall part)

As illustrated in Fig. 21, the cover wall part 202 is a portion that covers the opening 102 of the container 101 in a case where the lid 201 is attached (mount) to the container 101. The shape of the cover wall part 202 may be determined according to the shape of the container 101, and examples thereof include a circular shape, an elliptical shape, a triangular shape, a rectangular shape, a polygonal shape, a chamfered shape, etc.

[0114]

(Bent Part)

The bent part 204 is formed so as to surround the outer circumferential edge of the cover wall part 202, and is a portion forming a boundary between the cover wall part 202 and

the side wall part 203. The bent part 204 is formed such that the side wall part 203 faces a side wall 104 and the edge 103 of the container 101 in a case where the lid 201 is attached to the container 101. In the examples of Figs. 15A to 15B, the bent part 204 has a bent structure, but as described below, the bent part 204 is not limited to this. Furthermore, the "portion forming the boundary between the cover wall part 202 and the side wall part 203" includes such conditions that the portion performs a boundary and that a boundary is defined in some area within the portion or an end part of the portion (if a part of the cover wall part 202 and/or the side wall part 203 also serves as the bent part 204). The boundary between the cover wall part 202 and the side wall part 203 is defined at the center of the bent part 204. Where the bent part 204 has a curved structure (for example, Figs. 20A to 20B illustrate an example of a fourth modification of the fourth embodiment as described later), the bent part 204 is configured by a portion specified in a curved range, and a boundary between the cover wall part 202 and the side wall part 203 is defined at substantially the center of the bent part 204.

[0115]

(Side Wall Part)

The side wall part 203 is formed in an annular shape along the outer circumferential end of the cover wall part 202.

[0116]

The lid 201 according to the fifth embodiment can be obtained by integrally forming the cover wall part 202, the bent part 204, the side wall part 203, and the cover wall part 202 by integrally molding a blank material 250 for forming the lid 201.

[0117]

(Blank Material)

In the lid 201 according to the fifth embodiment, the blank material 250 may be formed in the same manner as the blank material 30 in the description of the first to fourth embodiments. That is, the blank material 250 is formed of a sheet material including a fiber sheet 260 containing fibers formed of a paper-based material and a resin material. The sheet material has a structure in which a resin material is attached to at least some of the fibers forming the inside of the fiber sheet 260. The resin material may be similar to the

resin materials described in the first to fourth embodiments. The fiber sheet 260 may be similar to the fiber sheet 31 described in the first to fourth embodiments.

[0118]

(Contact part)

The lid 201 has a contact part 274 that comes into contact with the container 101 while the lid 201 is fitted to the container 101. The contact part 274 is formed in a predetermined portion (first contact part 274A) of the side wall part 203. Moreover, as illustrated in Fig. 15B, the contact part 274 is preferably formed in a portion (second contact part 274B) of the cover wall part 202 corresponding to a predetermined region on an opposing surface 273. Since the contact part 274 is formed when the lid 201 is fitted to the container 101, it is possible to suppress the possibility that the contents of the container 101 leak to the outside. The first contact portion 274A is preferably formed along almost the entire circumference of the outer surface end of the edge 103 of the container, and is preferably formed in an annular shape. The second contact part 274B is preferably formed along almost the entire circumference of the upper end of the edge 103 of the container, and is preferably formed in an

annular shape. The first contact part 274A and the second contact part 274B may be separated from each other or connected to each other. The same as the contact part 274 (including the first contact part 274A and the second contact part 274B) described in the fifth embodiment applies to the sixth embodiment, the seventh embodiment, and the eighth embodiment (sixth to eighth embodiments) as described below.

[0119]

Furthermore, in the examples of Figs. 15A and 15B, a penetrating part 210 is formed at a predetermined position of the cover wall part 202. An insertion port 219 is formed as the penetrating part 210. The penetrating part 210 is formed of a cut 208. In the example of Fig. 15, the cut 208 is a cross cut. The insertion port 219 and the penetrating part 210 may be formed in the same manner as the insertion port 19 and the penetrating part 10 described in the first embodiment. The penetrating part 210 is a portion that penetrates the cover wall part 202 from an exposed surface 272 to the opposing surface 273. As described in the first embodiment, the cross section of the fiber sheet 260 is exposed on a region forming the circumferential surface part of the penetrating part 210 (a region similar to the region of the

circumferential surface part 11 described in the first embodiment). Furthermore, at least a part of the resin material is exposed on at least a part of the cross section of the fiber sheet 260 exposed on the circumferential surface part of the penetrating part 210. The exposure of the cross section of the fiber sheet 260 and the exposure of the resin material indicated in the fifth embodiment are similar in the sixth to eighth embodiments as described below.

[0120]

[5-2 Operation and Effect]

In a case where the blank material for forming the lid having the bent part (the lid having the side wall part, the bent part, and the cover wall part) is made of a paper-based material, and in a case where the blank material is shaped into a lid-shape (three-dimensional shape), many fine wrinkles, shirring, etc. are generated in the vicinity of the bent part and the side wall part. When the blank material is made of only the paper-based material, a restoring force acts on the fibers constituting the lid after the shaping, and such fine wrinkles and shirring may return to the original shape due to the influence of a force applied to the lid where the lid is dealt with, and attached to a container, and so on. In

this respect, in the lid 201 according to the fifth embodiment, it is possible to suppress the possibility of returning to the original shape after the shape deformation (shaping) when the blank material 250 is integrally molded.

[0121]

[5-3 Modification]

(First Modification of Fifth Embodiment)

In the lid 201 according to the fifth embodiment, as illustrated in Figs. 18A, 18B, etc., the cover wall part 202 and the side wall part 203 may be formed of separate members (a first modification of the fifth embodiment). The first modification of the fifth embodiment includes a case where a part of a member forming the cover wall part 202 forms a part of the side wall part 203, and where a part of a member forming the side wall part 203 forms a part of the cover wall part 202. Figs. 18A and 18B illustrate an example of a case where a part of a member forming the cover wall part 202 forms a part of the side wall part 203.

[0122]

As for the lid 201 according to the first modification of the fifth embodiment illustrated in Figs. 18A, 18B, etc., for

example, a cover wall part forming member 222 having a first portion 231 for forming the cover wall part 202 and a side wall part forming member 223 for forming the side wall part 203 are prepared. A joining margin 230 configured to be joined to the side wall part forming member 223 as a second portion 232 is extended to the outer end part (outer edge part) of the first portion 231 of the cover wall part forming member 222. The bent part 204 is formed by joining the cover wall part forming member 222 and the side wall part forming member 223 by bonding the joining margin 230 of the cover wall part forming member 222 to the upper end part of the side wall part forming member 223. At this time, the lid 201 is formed. In this case, as the blank material, blank materials (referred to as a first blank material 251 and a second blank material 252, respectively) for forming the cover wall part forming member 222 and the side wall part forming member 223 can be used as illustrated in Figs. 19A, 19B, etc. As the first blank material 251 for forming the cover wall part forming member 222, a sheet material formed in a shape in which the joining margin 230 is matched with the shape of the cover wall part 202 may be used. The second blank material 252 has a shape corresponding to the shape of the side wall part 203, and for example, in a case where the side wall part 203 has a

shape reduced or increased in diameter toward the tip, a sheet material formed in a fan shape (formed in a partially fan shape) may be used. The end edges 253 and 253 at both ends of the second blank material 252 can be joined to obtain the side wall part forming member 223 forming the side wall part 203.

[0123]

In the first modification of the fifth embodiment, at least one blank material selected from the group consisting of the first blank material 251 and the second blank material 252 may be formed in the same manner as the blank material 30 described above. In short, at least one blank material selected from the group consisting of the first blank material 251 and the second blank material 252 has the fiber sheet 260 containing fibers formed of a paper-based material. The resin material is attached to at least some of the fibers forming the inside of the fiber sheet. In the examples of Figs. 18A, 18B, 19A, and 19B, the first blank material and the second blank material have the fiber sheet 260 containing fibers formed of the paper-based material.

[0124]

(Second Modification of Fifth Embodiment)

In the examples of Figs. 15A and 15B, the side wall part 203 is formed to be downwardly tapered (toward the -Z direction) (the cross-sectional inner diameter is decreased (diameter reduction)), which is a preferable example, and the side wall part 203 may be formed to be downwardly increased (the cross-sectional inner diameter is increased (diameter expansion)). The side wall part 203 may be formed so as not to be downwardly increased nor tapered (the cross-sectional inner diameter becomes constant), and the side wall part 203 may be formed so as to have a portion that is downwardly increased or tapered (a portion where the cross-sectional inner diameter varies) (the second modification of the fifth embodiment). The second modification of the fifth embodiment is similar to the sixth to eighth embodiments as described below. The cross section indicates a cut surface of the side wall part if the side wall part is supposed to cut along a plane with the vertical direction as a normal line. The cross-sectional inner diameter indicates a diameter on the inner circumferential surface side if the cut surface (cross section) is substantially annular.

[0125]

(Third Modification of Fifth Embodiment)

The cover wall part 202 of the lid 201 according to the fifth embodiment may be configured as described in the second to fourth embodiments (a third modification of the fifth embodiment). Thus, in the third modification of the fifth embodiment, the cover wall part 202 may have a configuration corresponding to the opening forming part 20 (corresponding to the second embodiment), may have a configuration corresponding to the window part 40 (corresponding to the third embodiment), may have a configuration corresponding to the raised part 43 (corresponding to the fourth embodiment), or may have these configurations concurrently by combination. Furthermore, it is not prohibited to provide the lid 201 according to the fifth embodiment with the configurations corresponding to the modifications indicated in the first and the second embodiments. The third modification of the fifth embodiment is similar to the sixth to eighth embodiments as described below. In the lid 201 according to the third modification of the fifth embodiment, the configuration of the insertion port 219 may be omitted.

[0126]

(Fourth Modification of Fifth Embodiment)

In the lid 201 according to the eighth embodiment, as illustrated in Figs. 20A to 20B, the bent part 204 may be comprised of a projecting part 226. A protrusion part 225 may be formed at or near an end part (outer end part 228B) which is closer to the side wall part 203 in the two end parts of the projecting part 226 (inner end part 228A and outer end part 228B).

[0127]

(Projecting part)

In an example of the lid 201 according to the modification of the eighth embodiment illustrated in Figs. 20A and 20B, the projecting part 226 is structurally formed such that a predetermined region on the outer circumferential end side of the cover wall part 202 protrudes upward obliquely (projecting structure), but the projecting part 226 may project either upwardly or laterally (planar direction of the cover wall part 202). An inner surface 226A on the side of the projecting part 226 is an immersed portion (immersion part 227). The immersion part 227 has a shape corresponding to the shape of the projecting part 26. It is attainable depending on the shape of the mold when forming the lid 201 from the blank material 250. Preferably, the immersion part 227 is of

a size which fits to the edge 103 of the container 101. By means of the immersion part 227 dimensioned in size as recited above when the lid 201 is used as the container with a lid 150, the edge 103 is substantially put into the immersion part 227 and an outer end part of the edge 103 (an outer circumferential surface part 111 of the edge 103 in the example of Fig. 20) can be brought into surface contact with the immersion part 227, and thus a firm attachment of the lid 201 at the edge 103 of the container 101 can be readily made.

[0128]

(Protrusion part)

As illustrated in the examples of Figs. 20A to 20B, a protrusion part 225 may be formed on the side wall part 203. For example, the protrusion part 225 is defined as a portion protruding inwardly (a direction toward centered CT, a direction from the outer circumferential surface 203B of the side wall part 203 toward the inner circumferential surface 203A) at a predetermined position of the side wall part 203. The protrusion part 225 is preferably a protrusion line part formed linearly so as to surround the side wall part 203 on the inner circumferential surface thereof. Where the protruding structure of the protrusion part 225 is as such formed on the

inner circumferential surface side of the side wall part 203, a recess part 224 may be formed so as to be positioned in alignment with the protruding structure formed on the outer circumferential surface 203B side of the side wall part 203. By such a structural formation, the side wall part 203 can be further stable in shape.

[0129]

[6 Sixth Embodiment]

[6-1 Configuration]

As illustrated in Figs. 16A and 16B, a lid 201 according to the sixth embodiment is similar to that of the fifth embodiment in that the lid has the cover wall part 202 and the side wall part 203 and can be fitted to a container. A lid 201A according to the sixth embodiment has a configuration in which a part of the side wall part 203 extends to the upper side and the lower side of the cover wall part 202. The side wall part 203 has an annular (including tubular) shape and includes an upper wall 205 and a lower wall 206. The lower wall 206 is a portion extending downward of the cover wall part 202, and the upper wall 205 is configured by a portion of the side wall part 203 excluding the lower wall 206. In the example of Figs. 16A and 16B, the side wall part 203 is formed

to be downwardly tapered. Furthermore, in the example of Figs. 16A and 16B, the penetrating part 210 is formed at a predetermined position of the cover wall part 202, but this is an example.

[0130]

(Members forming Cover wall part and Side Wall Part)

In the sixth embodiment, as indicated in the first modification of the fifth embodiment, the cover wall part 202 and the side wall part 203 are formed of separate members. In the example of Figs. 16A and 16B, the lid 201 includes the cover wall part forming member 222 and the side wall part forming member 223, which are separate members as recited above, and includes a joining part that joins the cover wall part forming member 222 and the side wall part forming member 223.

[0131]

(Cover wall part Forming Member)

The cover wall part forming member 222 has a first portion (the first portion 231 of the cover wall part forming member 222) corresponding to the cover wall part 202 and a second portion (the second portion 232 of the cover wall part

forming member 222) extending from an outer circumferential end of the first portion 231, and the second portion 232 is the joining margin 230 indicated in the first modification of the fifth embodiment. In the example of Fig. 16A, the second portion 232 of the cover wall part forming member 222 is a portion (rising portion) rising diagonally upward or immediately upward from the outer circumferential end of the first portion 231 in the lid 201, and the second portion 232 is a part of the side wall part 203 where the second portion 232 is joined to the side wall part forming member 223.

[0132]

(Side Wall Part Forming Member)

The side wall part forming member 223 is formed in an annular (including tubular) shape, and has a portion (upper forming portion) forming the upper wall 205 and a portion (lower forming portion) forming the lower wall 206. The upper forming portion has a portion (first contact wall portion 233) that is in contact with the joining margin 230 to be the second portion 232 of the cover wall part forming member 222 at least on the outer surface side.

[0133]

In the example of Figs. 16A and 16B, the upper wall 205 (upper forming portion) includes the first contact wall portion 233, a portion (second contact wall portion 234) that is in contact with the joining margin 230 to be the second portion 232 of the cover wall part forming member 222 on the inner surface side, and a continuous part 235 that further connects the first contact wall portion 233 and the second contact wall portion 234, and the continuous part 235 covers the upper end surface of the joining margin 230 to be the second portion of the cover wall part forming member 222. The lower end of the second contact wall portion 234 is located on the upper surface side of the first portion 231 of the cover wall part forming member 222, and is slightly separated from the first portion 231 in the example of Figs. 16A and 16B. However, this is merely an example, and the lower end of the second contact wall portion 234 may be in contact with the upper surface side of the first portion 231 of the cover wall part forming member 222.

[0134]

In the example of Figs. 16A and 16B, the lower wall 206 (lower forming portion) is a portion extending downward (obliquely downward direction in Figs. 16A and 16B) with the

lower end of the first contact wall portion 233 as a base end. For example, the lower wall 206 (lower forming portion) is preferably positioned below the lower surface of the first portion 231 of the cover wall part forming member 222 in the vertical direction.

[0135]

(Blank Material)

The lid 201 according to the sixth embodiment can be formed by processing a blank material. As the blank material, a blank material (as described above in the first modification of the fifth embodiment, the first blank material and the second blank material are referred to as a first blank material and a second blank material, respectively) for forming the cover wall part forming member 222 and the side wall part forming member 223 can be used. At least one blank material selected from the group consisting of the first blank material and the second blank material may be formed in the same manner as the above-described blank material 30 in the first modification of the fifth embodiment.

[0136]

As the first blank material for forming the cover wall part forming member 222, the same one as the first blank material 251 described above in the first modification of the fifth embodiment may be used, and a sheet material formed in a shape in which the joining margin 230 is further combined with the shape of the cover wall part 202 may be used. The cover wall part forming member 222 preferably forms the first portion 231 corresponding to the cover wall part 202 and the rising portion (the second portion 232 serving as a joining margin) by bending and molding the first blank material. That is, the second portion 232 is preferably formed by bending the first blank material upward at the position of the circumferential edge of the first portion 231 (the base end of the joining margin 230).

[0137]

As the second blank material, the same one as the second blank material 252 described above in the first modification of the fifth embodiment may be used, and a sheet material formed in a fan shape may be used. A portion on the upper end side of the annular body, which forms the annular body by joining the end edges of the second blank material, is folded inward at a position corresponding to the continuous part 235,

so that the first contact wall portion 233, the second contact wall portion 234, and the continuous part 235 can be formed, an upper forming portion (structural portion corresponding to the upper wall 205) can be formed, and a lower forming portion (structural portion corresponding to the lower wall 206) can be formed. The side wall part forming member 223 is formed by forming the upper forming portion and the lower forming portion. Note that at least the first contact wall portion 233 and the second contact wall portion 234 are bonded to the joining margin 230. In the example of Fig. 16B, the first contact wall portion 233, the second contact wall portion 234, and the continuous part 235 are bonded to the joining margin 230 to form a bonded part.

[0138]

Note that, in the production of the lid 201, it is preferable to use the above-described annular body formed of the second blank material. The lower end of the joining margin 230 (second portion 232) of the cover wall part forming member 222 is aligned with a boundary position between the lower forming portion and the upper forming portion (a boundary position between an upper wall 2505 and the lower wall 206) on the inner circumferential surface of the annular

body, and the joining margin 230 faces the inner circumferential surface of the annular body. Moreover, as described above, the joining margin 230 is covered from the upper end side by folding back the portion on the upper end side of the annular body inward at the position corresponding to the continuous part 235 in the annular body. Then, the joining margin 230 is joined to the annular body to be the side wall part forming member 223 so as to be sandwiched between the first contact wall portion 233 and the second contact wall portion 234. Therefore, the side wall part forming member 223 is formed, and the lid 201 is obtained.

[0139]

[6-2 Operation and Effect]

In the lid 201 according to the sixth embodiment, as in the fifth embodiment, it is possible to suppress the possibility of returning to the shape after the shape deformation (shaping) when the lid 201 is obtained by manufacturing the cover wall part forming member 222 and the side wall part forming member 223 from the blank material (first blank material, second blank material).

[0140]

[7 Seventh Embodiment]

[7-1 Configuration]

As illustrated in Figs. 17A and 17B, a lid 201 according to the seventh embodiment is similar to that of the fifth embodiment in that the lid has the cover wall part 202 and the side wall part 203 and can be fitted to a container. The lid 201 according to the seventh embodiment has a configuration in which a part of the side wall part 203 extends to the upper side and the lower side of the cover wall part 202. The side wall part 203 has an annular (including tubular) shape and includes an upper wall 205 and a lower wall 206. The lower wall 206 is a portion extending downward of the cover wall part 202, and the upper wall 205 is configured by a portion of the side wall part 203 excluding the lower wall 206. In the example of Figs. 17A and 17B, the side wall part 203 is formed to be downwardly tapered. Furthermore, in the example of Figs. 17A and 17B, the penetrating part 210 is formed at a predetermined position of the cover wall part 202, but this is an example.

[0141]

(Members forming Cover wall part and Side Wall Part)

In the seventh embodiment, as indicated in the first modification of the fifth embodiment and the sixth embodiment, the cover wall part 202 and the side wall part 203 are formed as separate members. In the example of Figs. 17A and 17B, the lid 201 includes the cover wall part forming member 222 and the side wall part forming member 223 as the above-described separate members, and includes a joining part that joins the cover wall part forming member 222 and the side wall part forming member 223.

[0142]

(Cover wall part Forming Member)

The cover wall part forming member 222 has a first portion (the first portion 231 of the cover wall part forming member 222) corresponding to the cover wall part 202 and a second portion (the second portion 232 of the cover wall part forming member 222) extending from an outer circumferential end of the first portion 231, and the second portion 232 is the joining margin 230 indicated in the first modification of the fifth embodiment. In the example of Fig. 16A, the second portion of the cover wall part forming member 222 is a portion (hanging portion) extending obliquely downward or downward from the outer circumferential end of the first portion 231,

and in a state where the second portion 232 is joined to the side wall part forming member 223, the second portion 232 is a part of the side wall part 203.

[0143]

(Side Wall Part Forming Member)

The side wall part forming member 223 is formed in an annular (including tubular) shape, and has a portion (upper forming portion) forming the upper wall 205 and a portion (lower forming portion) forming the lower wall 206. The lower forming portion has a portion (lower first contact wall portion 237) that is in contact with the joining margin 230 to be the second portion 232 of the cover wall part forming member 222 at least on the outer surface side.

[0144]

In the example of Figs. 17A and 17B, the lower forming portion includes the lower first contact wall portion 237, a portion (lower second contact wall portion 238) that is in contact on the inner surface side with the joining margin 230 to be the second portion 232 of the cover wall part forming member 222, and a lower end side continuous part 239 that further connects the lower first contact wall portion 237 and

the lower second contact wall portion 238, and the lower end side continuous portion 239 covers the lower end surface of the joining margin 230 to be the second portion 232 of the cover wall part forming member 222. The upper end of the lower second contact wall portion 238 is positioned on the lower surface (opposing surface 273) side of the first portion 231 of the cover wall part forming member 222, and is preferably separated from the first portion 231 in the example of Figs. 17A and 17B. Preferably, it is possible for the edge 103 of the container 101 (for example, a part of the outer circumferential surface of the curled part) to enter between the first portion and the upper end of the lower second contact wall portion 238.

[0145]

In the example of Figs. 17A and 17B, the upper wall 205 (upper forming portion) is a portion extending upward (in Fig. 17B, the obliquely upward direction) with the upper end of the lower first contact wall portion 237 as a base end. For example, the upper wall 205 (upper forming portion) is preferably positioned above the upper surface of the first portion 231 of the cover wall part forming member 222 with respect to the position in the vertical direction. As

indicated in the example of Figs. 17A and 17B, it is preferable that a curled part (side wall upper end curled part 236) be formed on the upper end side of the upper forming portion. In this case, it is possible to suppress a state in which the end surface of the blank material (the second blank material for forming the side wall part forming member 223) is exposed from being formed at the upper end of the upper forming portion, and even in a case where the user puts the mouth on the end surface of the blank material and takes in the content in the container 101, it is possible to suppress the discomfort caused by the user bringing the mouth into contact with the end surface of the blank. Furthermore, since the side wall upper end curled part 236 is formed, the liquid is less likely to come into contact with the portion of the side wall part 203 corresponding to the end surface of the blank material.

[0146]

(Blank Material)

The lid 201 according to the seventh embodiment can be formed by processing a blank material. As the blank material, a blank material (as described above in the first modification of the fifth embodiment, the first blank material and the

second blank material are referred to as a first blank material and a second blank material, respectively) for forming the cover wall part forming member 222 and the side wall part forming member 223 can be used. At least one blank material selected from the group consisting of the first blank material and the second blank material may be formed in the same manner as the above-described blank material 30 as described above in the first modification of the fifth embodiment.

[0147]

As the first blank material for forming the cover wall part forming member 222, the same one as the first blank material 251 described above in the first modification of the fifth embodiment may be used, and a sheet material formed in a shape in which the joining margin 230 is further combined with the shape of the cover wall part 202 may be used. The cover wall part forming member 222 preferably forms the first portion 231 corresponding to the cover wall part 202 and the second portion 232 serving as the joining margin 230 by bending and molding the first blank material. That is, the second portion 232 is preferably formed by bending the first

blank material downward at the position of the circumferential edge of the first portion 231.

[0148]

As the second blank material, the same one as the second blank material 252 described above in the first modification of the fifth embodiment may be used, and a sheet material formed in a fan shape may be used. The lower end side portion of the annular body, which forms the annular body by joining the end edges of the second blank material, is folded inward at a position corresponding to the lower end side continuous part 239, so that the lower first contact wall portion 237, the lower second contact wall portion 238, and the lower end side continuous part 239 can be formed, the lower forming portion (lower wall 206) can be formed, and the upper forming portion (upper wall 205) can be further formed. The side wall part forming member 223 is formed by forming the lower forming portion and the upper forming portion.

[0149]

Note that, in the production of the lid 201, it is preferable to use the above-described annular body formed of the second blank material. The upper end of the joining margin 230 (second portion 232) of the cover wall part forming

member 222 is aligned with a boundary position between the lower forming portion and the upper forming portion (a boundary position between an upper wall 205 and the lower wall 206) on the inner circumferential surface of the annular body, and the joining margin 230 faces the inner circumferential surface of the annular body. Moreover, as described above, the joining margin 230 is covered from the lower end side by folding back the portion on the lower end side of the annular body inward at the position corresponding to the lower end side continuous part 239 in the annular body. Then, the joining margin 230 is joined (bonded) to the lower forming portion (annular body forming the side wall part forming member 223) so as to be sandwiched between the lower first contact wall portion 237 and the lower second contact wall portion 238. Therefore, the side wall part forming member 223 is formed, and the lid 201 is obtained.

[0150]

[7-2 Operation and Effect]

In the lid 201 according to the seventh embodiment, as in the fifth embodiment, it is possible to suppress the possibility of returning to the shape after the shape deformation (shaping) when the lid 201 is obtained by

manufacturing the cover wall part forming member 222 and the side wall part forming member 223 from the blank material (first blank material, second blank material).

[0151]

[5 Application Example]

(First Example)

The lid 1 according to the first embodiment can be used for the container with a lid 150, for example, as illustrated in Figs. 14A and 14B. Fig. 14A is a perspective view illustrating an example in which the lid 1 according to the first embodiment is joined to the edge 103 forming the outer periphery of the opening 102 of the container 101 having the opening 102 formed at the upper end so as to bring the lid 1 into contact with the container 101 (the edge 103 and the opposing surface portion are brought into contact). Fig. 14B is a cross-sectional view schematically illustrating a state of a longitudinal cross section taken along the line I-I in Fig. 14A. The container with a lid 150 will be continuously described with reference to Figs. 14A and 14B.

[0152]

(Container with a Lid)

The container with a lid 150 has a joint part 151 where the container 101 and the lid 1 are joined, and a region of the lid 1 forming the joint part 151 is a joining region R. A method for joining the lid 1 and the container 101 is not particularly limited, and can be appropriately used with a joining method such as a pressure bonding method or a heat sealing method (heat sealing). Hereinafter, a case where the lid 1 according to the first embodiment is used for the container with a lid 150 will be described as an example.

[0153]

In the example illustrated in Figs. 14A and 14B, the container 101 includes: a container body 110 having a cylindrical side wall 104 and a bottom 107, the cylindrical side wall having a diameter increasing in the upward direction (decreasingly tapered in the downward direction), and forming a space 105 therein; and an opening 102 opened at an upper end of the container body 110 (an upper end of the side wall 104). Although not illustrated, the opening 102 of the container 101 is formed in a circular shape. However, the container 101 illustrated here is an example, and the configuration of the container 101 is not limited. For example, the container 101 may have the opening 102 formed in a rectangular shape. The

container 101 may be any container as long as the opening 102 can be covered with the lid 1. Furthermore, a material to be stored in the inside (space 105) of the container 101 is not particularly limited, and for example, a liquid material, a solid material, or a combination thereof can be exemplified.

[0154]

In the container illustrated in Figs. 14A and 14B, the edge 103 forming the opening 102 (surrounding the opening 102) has a flange portion. The flange portion formed on the edge 103 may be a curled part 108 in which a member forming the container body 110 is wound outward as illustrated in Figs. 14A, 14B, etc., or may be formed as a portion (flange portion) extending on a plane in the outer direction.

[0155]

Furthermore, the lid 1 according to the first embodiment may be combined with the container 101 having the opening 102.

[0156]

(Second Example)

The lid 1 according to the fifth embodiment can be used for a container 350 with a lid, for example, as illustrated in Fig. 21. Fig. 21 is a cross-sectional view illustrating an

example in which the lid 1 according to the fifth embodiment is fitted to the edge 103 forming the outer periphery of the opening 102 of the container 101 having the opening 102 formed on the upper end so as to bring the lid 1 into contact with the container 101 (the edge 103 and the portion of the cover wall part 202 are brought into contact).

[0157]

The container 350 with a lid can be obtained by fitting the lid 201 to the edge 103 so as to cover the opening 102 of the container 101.

[0158]

Furthermore, the lid 1 according to the fifth embodiment may be combined with the container 101 having the opening 102.

[0159]

What is indicated in (First Example) of [5 Application Example] described above is not limited to the case of using the lid 1 according to the first embodiment. Similarly to the lid 1 according to the first embodiment, the second embodiment to the fourth embodiment can also be used for the container with a lid 150 joined to the container 101 (not illustrated).

[0160]

What is indicated in (Second Example) of [5 Application Example] described above is not limited to the case of using the lid 1 according to the fifth embodiment. Similarly to the lid 201 according to the fifth embodiment, the sixth to eighth embodiments can also be used for the container 350 with a lid joined to the container 101 (not illustrated).

[0161]

As described above, the lid bodies 1, 201 etc. according to the present invention can be applied to the lid bodies 1, 201 etc. of such many aspects. Furthermore, the present invention can also be applied to the lid bodies 1, 201 etc. of aspects other than those described above. Although the lid according to the present invention has been described in detail above, the above description is merely an example of the lid according to the present invention, and the lid is not limited thereto. Therefore, the present invention may be appropriately modified without departing from the gist of the present invention. Furthermore, in the above-described configuration of the lid, the configurations of the lid bodies of the respective examples may be independently used, or the configurations of the lid bodies of the respective examples may be appropriately combined and applied.

[0162]

Based on the above description of the present specification, the present invention may adopt the following configurations [E1] to [E22].

[0163]

[E1] A lid that is formed so as to be in contact with a container having an edge, and is formed of a blank material, in which the blank material includes a fiber sheet including fibers formed of a paper-based material, and a resin material is attached to at least some of the fibers forming an inside of the fiber sheet.

[E2] The lid according to [E1], including: the joining region corresponding part that corresponds to a region joined to the container along the edge of the container; and a lid region corresponding part that is configured by a portion inside the joining region corresponding part, in which the resin material is attached to at least some of the fibers forming an inside of the fiber sheet at least in a portion corresponding to the joining region corresponding part.

[E3] The lid according to [E1] or [E2], including: a penetrating part that is cut from one surface to the other of

the blank material, in which a cross section of the fiber sheet is exposed on a circumferential surface part of the penetrating part, and the resin material is exposed on at least a part of the cross section.

[E4] The lid according to [E3], including: an inclined part that has the circumferential surface part of the penetrating part as an end part and inclined upward in a direction away from the end part.

[E5] The lid according to [E3] or [E4], in which a density of the fibers constituting the fiber sheet in the inclined part is higher at a position closer to the end part of the inclined part.

[E6] The lid according to any one of "[E3] to [E5]" dependent on [E2], in which the lid region corresponding part is provided with a weakened part that guides a separated position in the lid region corresponding part, and the weakened part includes a plurality of the penetrating parts and at least one continuous part formed between at least two of the penetrating parts.

[E7] The lid according to [E7], in which the continuous part has a half-cut structure.

[E8] The lid according to [E6] or [E7], in which the weakened part radially forms the plurality of penetrating parts around the continuous part.

[E9] The lid according to any one of "[E3] to [E8]" dependent on [E2], in which the lid region corresponding part includes a base part having a small opening part having an opening area smaller than an opening surrounded by the edge of the container, a small lid part that opens and closes the small opening part, and a hinge part that connects the base part and the small lid part, the small lid part is configured to be rotatable with respect to the base part with the hinge part as an axis, and at least a part of the penetrating part is formed at a boundary position between an outer circumferential edge of the small lid part and the opening edge of the small opening part.

[E10] The lid according to [E9], in which a knob part is provided on an upper surface side of the small lid part.

[E11] The lid according to [E10], in which the knob part includes a tab member, and the tab member is joined to the upper surface side of the small lid part.

[E12] The lid according to any one of [E9] to [E11], including: a holding structure that holds the small lid part

in a state where the small opening part is opened by rotating the small lid part with respect to the base part with the hinge part as an axis.

[E13] The lid according to any one of [E9] to [E12], in which an extension is formed on an outer circumferential edge of the base part, and the base part and the extension are integrally formed of the blank material.

[E14] The lid according to [E13], in which the hinge part is formed between the extension and a tip of the small lid part.

[E15] The lid according to [E9], including: a holding structure that holds the small lid part in a state where the small opening part is opened by rotating the small lid part with respect to the base part with the hinge part as an axis, in which a knob part is provided on an upper surface side of the small lid part, the knob part is provided with a claw part, an extension is formed on an outer circumferential edge of the base part, and the extension and the receiving part form the holding structure.

[E16] The lid according to any one of [E1] to [E15], in which a raised part is formed.

[E17] The lid according to any one of [E1] to [E16], in which a window part is formed.

[E18] The lid according to any one of [E1] to [E17], in which at least a part of the resin material is impregnated between at least a part of the fibers.

[E19] The lid according to any one of [E1] to [E18], in which the lid is able to be joined and/or fitted to the container having the edge.

[E20] A container with a lid, including: the lid according to any one of [E1] to [E19]; and the container having the edge, in which the lid is joined to the container.

[E21] A combination of a lid and a container, including: the lid according to any one of [E1] to [E19]; and the container having the edge.

[E22] A method for manufacturing a lid, the method including: an immersion step of immersing a fiber sheet in an immersion liquid containing a resin material; and a drying step of drying the fiber sheet containing the immersion liquid.

[E23] The method for manufacturing a lid according to [E22], in which a shaping process of shaping the fiber sheet

containing the immersion liquid is performed in a middle of the drying step or before the drying step.

Reference Signs List

[0164]

1 lid

2 base part

2A outer circumferential edge

3 small lid part

3A outer circumferential edge

4 hinge part

5A joining region corresponding part

5B lid region corresponding part

5C lid region non-forming part

6 small opening part

6A opening edge

7 extension

7A outer circumferential edge

8 cut

10 penetrating part

11 circumferential surface part

12 end part

13 inclined part

13A end part

14 weakened part

15 continuous part

16 half-cut

17 connecting formation

19 input port

20 opening forming part

21 knob part

22 tab member

22A one end part

22B other end part

23 tab joining part

24 claw part

25 receiving part

26 projecting part

30 blank material

31 fiber sheet

31A fiber

32 resin material

40 window part

41 lid inner opening

42 window sheet

43 raised part

43A tip end part

44 depressed part

46 bonded part

50 outer circumferential edge

72 exposed surface

73 opposing surface

74 base end part

75 front end edge

101 container

102 opening

103 edge

104 side wall

105 space

107 bottom

108 curled part

110 container body

111 outer circumferential surface part

150 container with a lid

151 joint part

201 lid

202 cover wall part

203 side wall part

203A inner circumferential surface

203B outer circumferential surface

204 bent part

205 upper wall

206 lower wall

208 cut

210 penetrating part

219 input port

222 cover wall part forming member

223 side wall part forming member

224 recess part

225 protrusion part

226 projecting part

226A inner surface

227 immersion part

228A inner end part

228B outer end part

230 joining margin

231 first portion

232 second portion

233 first contact wall portion

234 second contact wall portion

235 continuous part

236 side wall upper end curled part

237 lower first contact wall portion

238 lower second contact wall portion

239 lower end side continuous part

250 blank material

251 first blank material

252 second blank material

253 end edge

260 fiber sheet

272 exposed surface

273 opposing surface

274 contact part

274A first contact part

274B second contact part

350 container with a lid

2505 upper wall

CT center

D1 extension length

D2 interval length

F1 arrow

R joining region

CLAIMS

1. A lid formed so as to be in contact with a container having an edge, and is formed of a blank material, wherein

the blank material includes a fiber sheet including fibers formed of a paper-based material, and

a resin material is attached to at least some of the fibers forming an inside of the fiber sheet.

2. The lid according to claim 1, comprising:

a joining region corresponding part that corresponds to a region joined to the container along the edge of the container; and

a lid region corresponding part that is configured by a portion inside the joining region corresponding part, wherein

the resin material is attached to at least some of the fibers forming an inside of the fiber sheet at least in a portion corresponding to the joining region corresponding part.

3. The lid according to claim 2, comprising:

a penetrating part that is cut from one surface to the other of the blank material, wherein

a cross section of the fiber sheet is exposed on a circumferential surface part of the penetrating part, and the resin material is exposed on at least a part of the cross section.

4. The lid according to claim 3, comprising:

an inclined part that has the circumferential surface part of the penetrating part as an end part and inclined upward in a direction away from the end part.

5. The lid according to claim 4, wherein

a density of the fibers comprising the fiber sheet in the inclined part is higher at a position closer to the end part of the inclined part.

6. The lid according to claim 3, wherein

the lid region corresponding part is provided with a weakened part that guides a separation position in the lid region corresponding part, and

the weakened part includes a plurality of the penetrating parts and at least one continuous part formed between at least two of the penetrating portions.

7. The lid according to claim 6, wherein

the continuous part has a half-cut structure.

8. The lid according to claim 6, wherein

the weakened part radially forms the plurality of penetrating portions around the continuous part.

9. The lid according to claim 3, wherein

the lid region corresponding part includes a base part having a small opening part having an opening area smaller than an opening surrounded by the edge of the container, a small lid portion that opens and closes the small opening part, and a hinge part that connects the base part and the small lid part,

the small lid part is configured to be rotatable with respect to the base part with the hinge part as an axis, and

at least a part of the penetrating portion is formed at a boundary position between an outer circumferential edge of the small lid part and an opening edge of the small opening part.

10. The lid according to claim 9, wherein

a knob part is provided on an upper surface side of the small lid part.

11. The lid according to claim 10, wherein

the knob part includes a tab member, and

the tab member is joined to the upper surface side of the small lid part.

12. The lid according to claim 9, comprising:

a holding structure that holds the small lid part in a state where the small opening part is opened by rotating the small lid part with respect to the base part with the hinge part as an axis.

13. The lid according to claim 9, wherein

an extension is formed on an outer circumferential edge of the base part, and

the base part and the extension are integrally formed of the blank material.

14. The lid according to claim 13, wherein

the hinge part is formed between the extension and a tip of the small lid part.

15. The lid according to claim 9, comprising:

a holding structure that holds the small lid part in a state where the small opening part is opened by rotating the

small lid part with respect to the base part with the hinge part as an axis, wherein

a knob part is provided on an upper surface side of the small lid part,

the knob part is provided with a claw part,

an extension is formed on an outer circumferential edge of the base part, and

the extension and the claw part form the holding structure.

16. The lid according to claim 1, wherein

a raised part is formed.

17. The lid according to claim 1, wherein

at least a part of the resin material is impregnated between at least a part of the fibers.

18. A container with a lid, comprising:

the lid according to claim 1; and

the container having the portion, wherein

the lid is joined to the container.

19. A combination of a lid and a container, comprising:

the lid according to claim 1; and

the container having the edge.

20. A method for manufacturing a lid, the method comprising:

an immersion step of immersing a fiber sheet in an immersion liquid containing a resin material; and

a drying step of drying the fiber sheet containing the immersion liquid.

21. The method for manufacturing a lid according to claim 20, wherein

a shaping process of shaping the fiber sheet containing the immersion liquid is performed in a middle of the drying step or before the drying step.

Fig.1

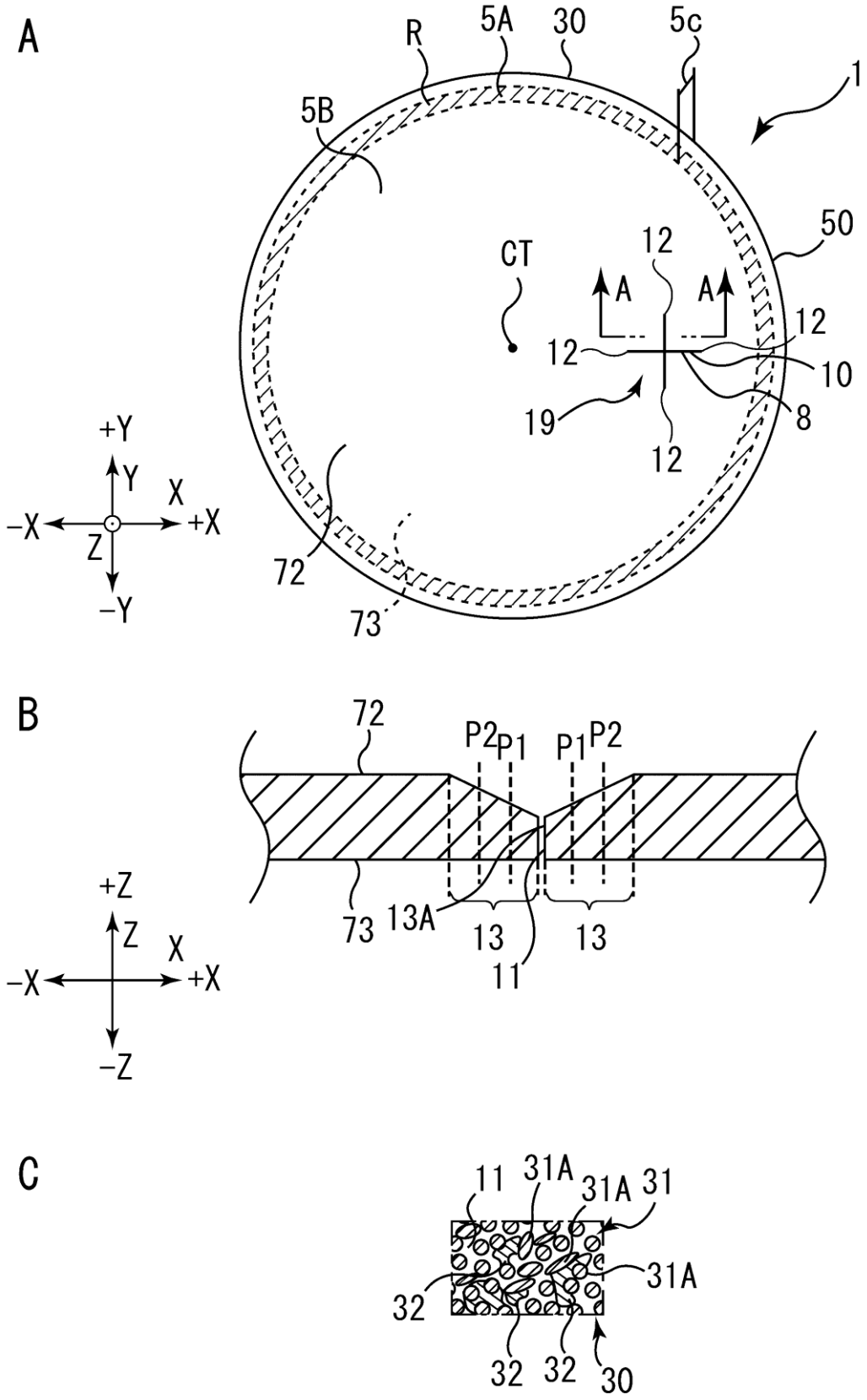
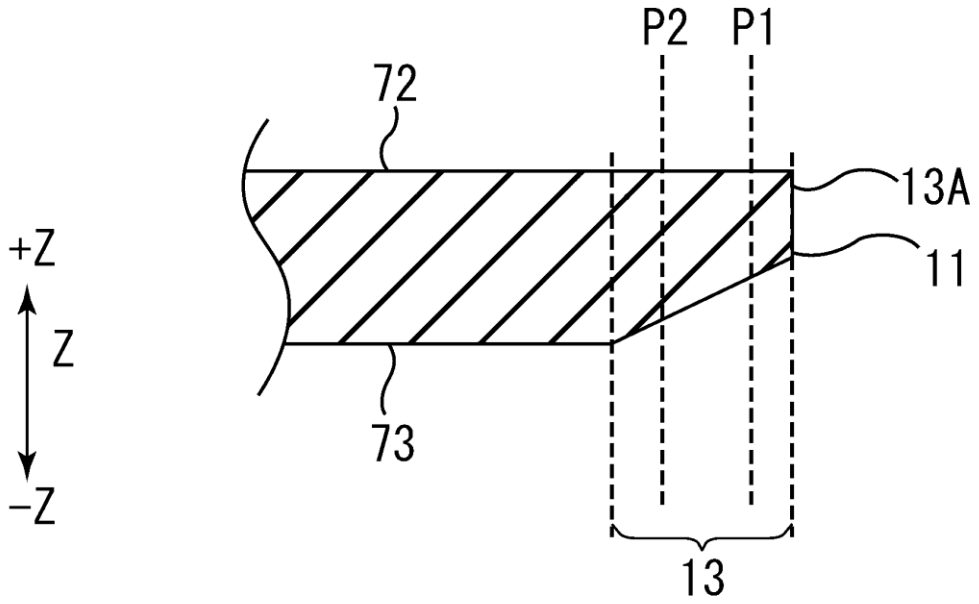

A
R
5A
30
5c
1
5B
50
CT
12
A
A
12
12
10
19
8
12
+Y
Y
X
−X
+X
Z
−Y
72
73
B
72
P2
P1
P1
P2
+Z
Z
X
−X
+X
−Z
73
13A
13
13
11
C
11
31A
31A
31
31A
32
32
32
30

Fig.2

A



B

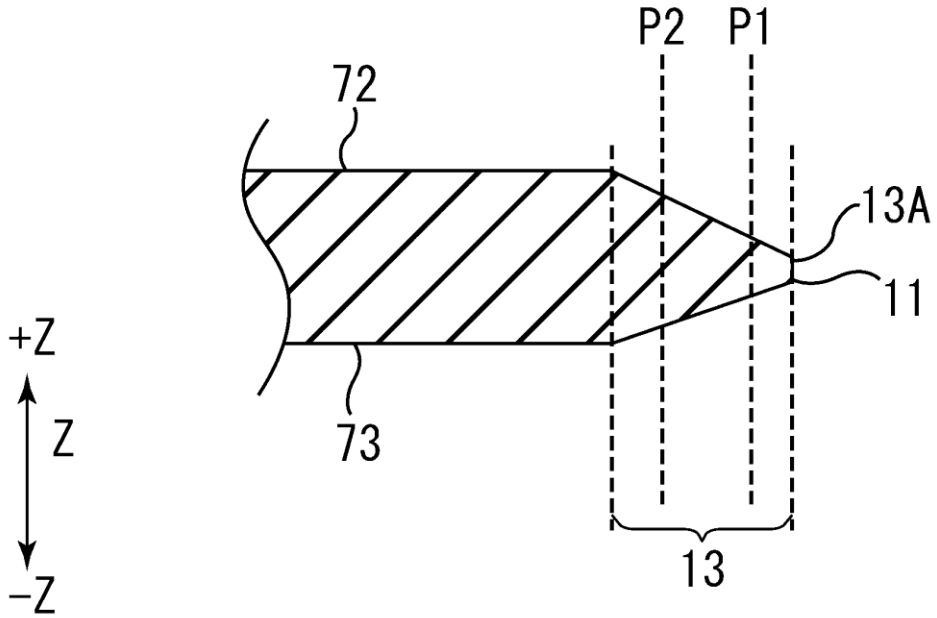


Fig.3

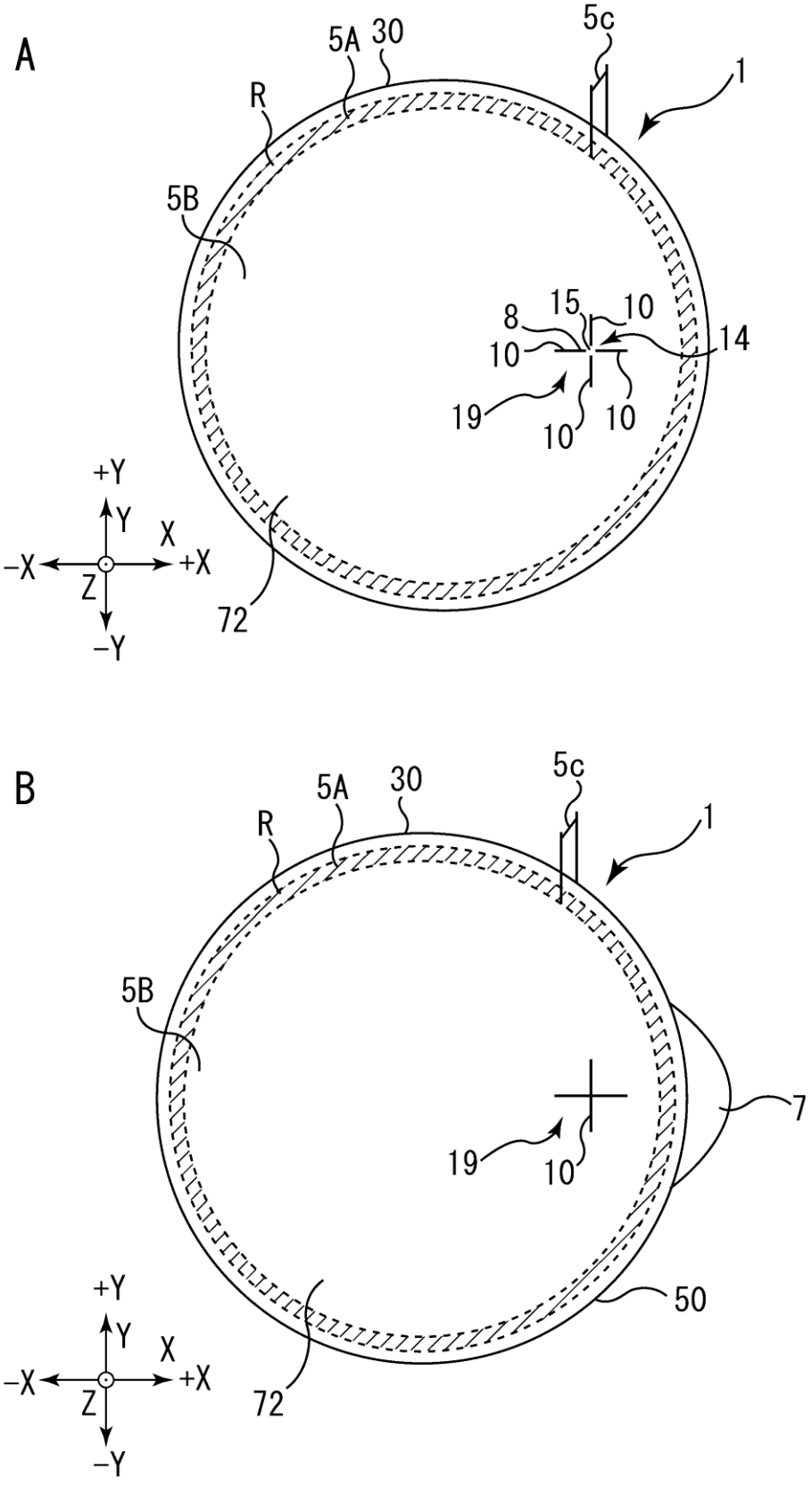

A
5A
30
5c
1
R
5B
8
15
10
14
10
19
10
10
72
+Y
Y
X
−X
+X
Z
−Y
B
5A
30
5c
1
R
5B
7
19
10
50
72
+Y
Y
X
−X
+X
Z
−Y

Fig.4

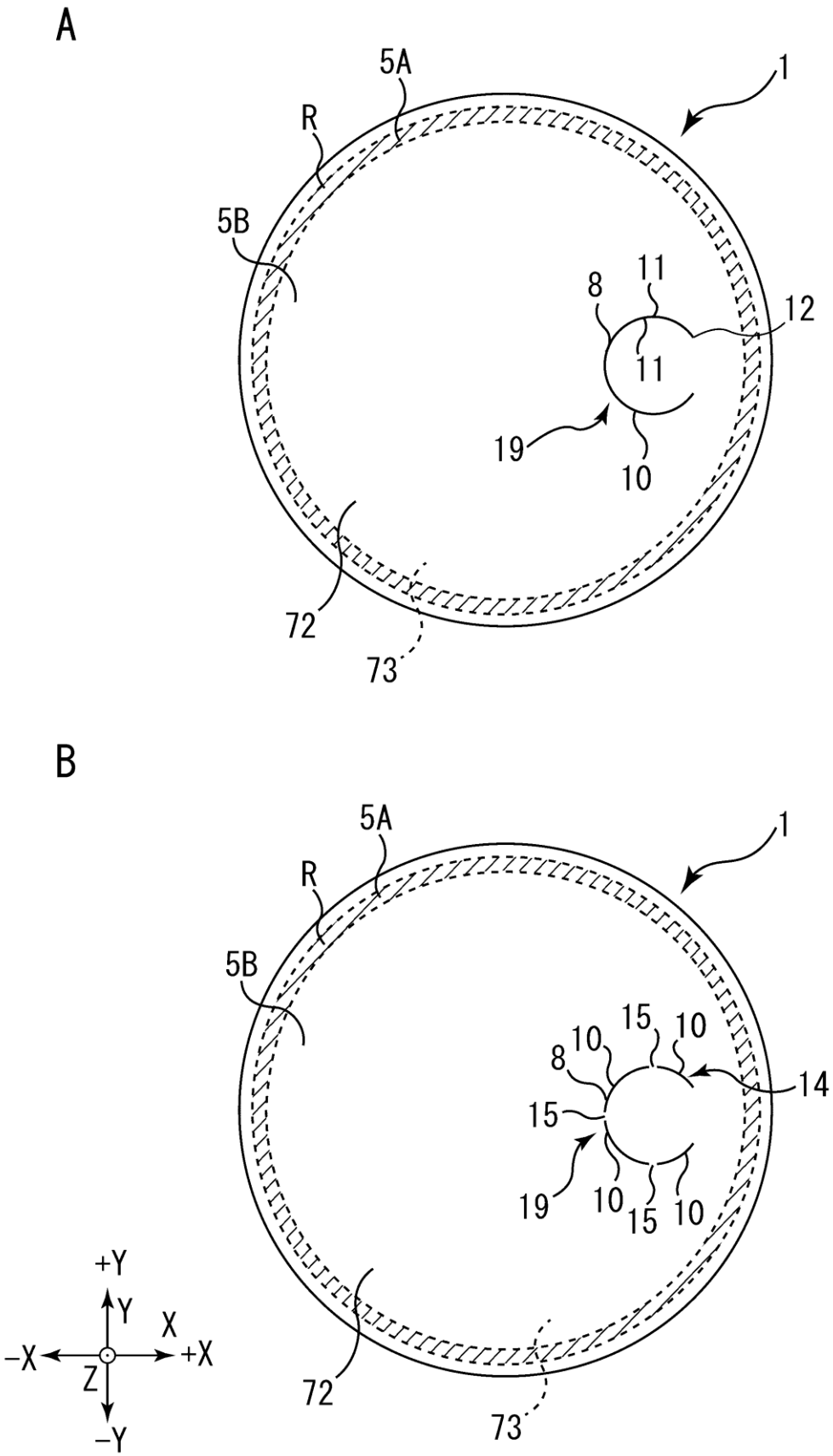

A
5A
1
R
5B
8
11
12
11
19
10
72
73
B
5A
1
R
5B
15
10
8
10
14
15
19
10
15
10
72
73
+Y
Y
X
−X
+X
Z
−Y

Fig.5

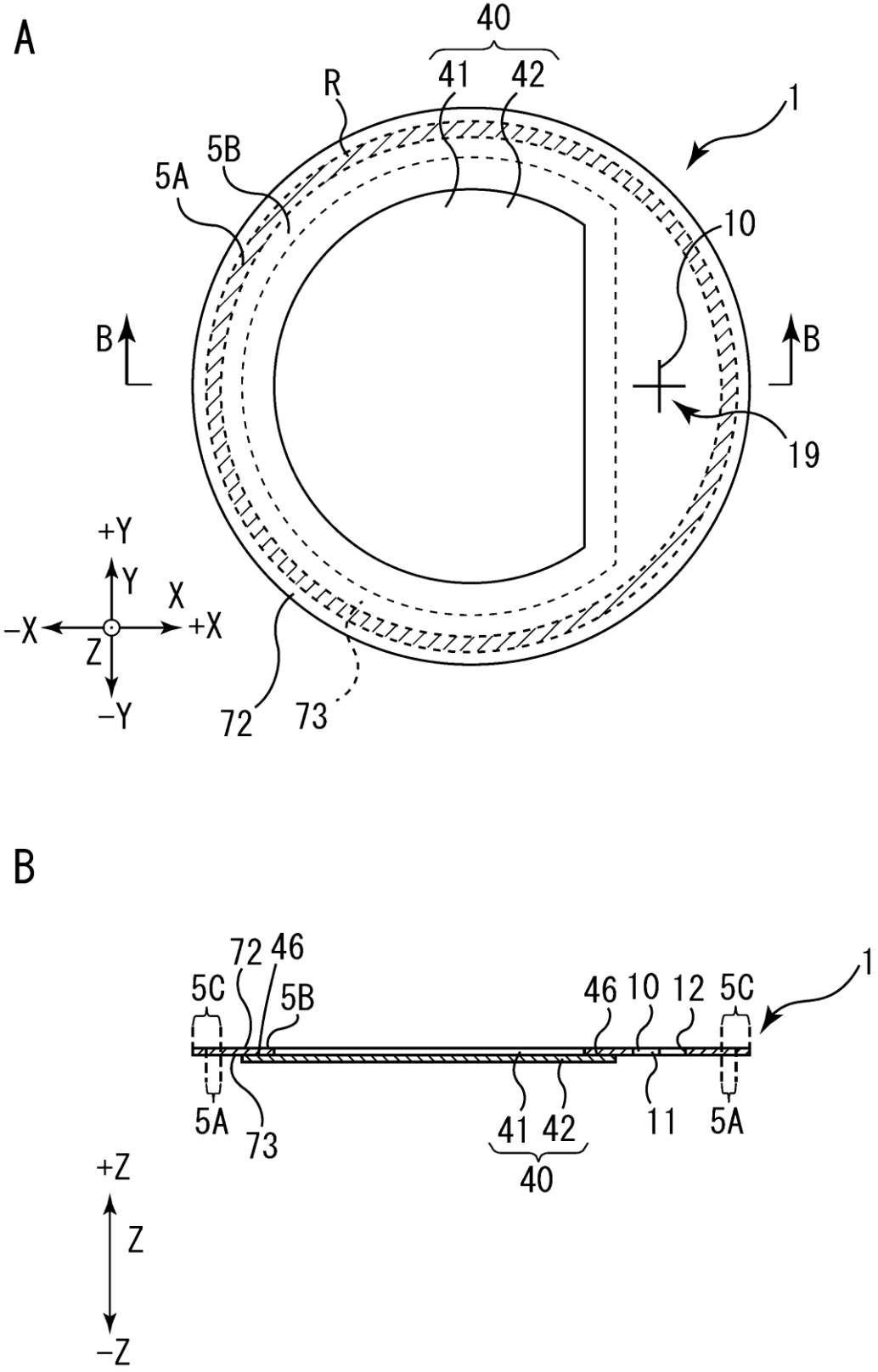

A
40
41
42
R
1
5B
5A
10
B
B
19
+Y
Y
X
−X
+X
Z
−Y
72
73
B
72
46
5C
5B
46
10
12
5C
1
5A
73
41
42
11
5A
40
+Z
Z
−Z

Fig.6

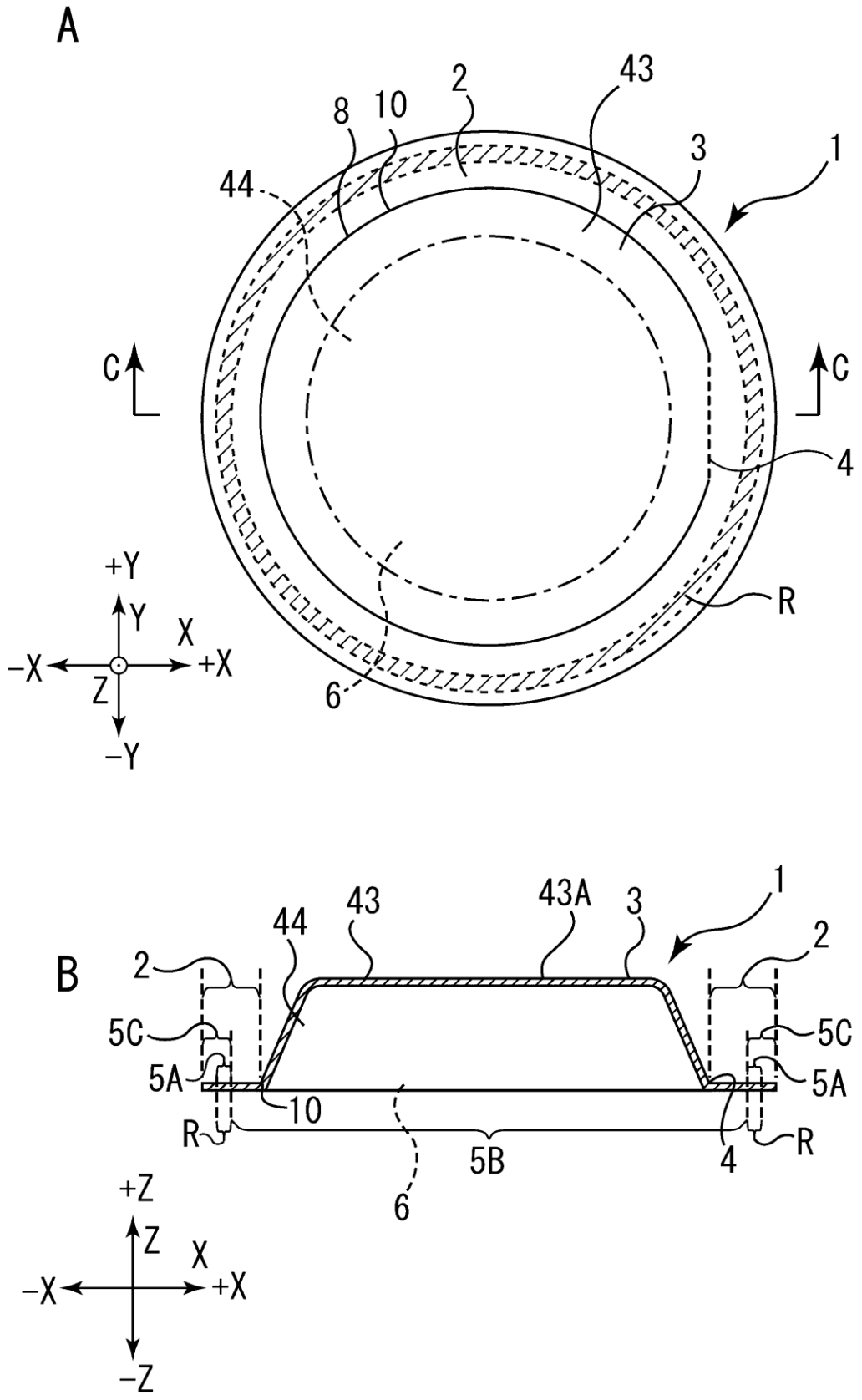

A
8
10
2
43
3
1
44
C
C
4
R
6
+Y
Y
X
−X
+X
Z
−Y
B
44
43
43A
3
1
2
2
5C
5C
5A
5A
10
R
R
5B
4
6
+Z
Z
X
−X
+X
−Z

Fig.7

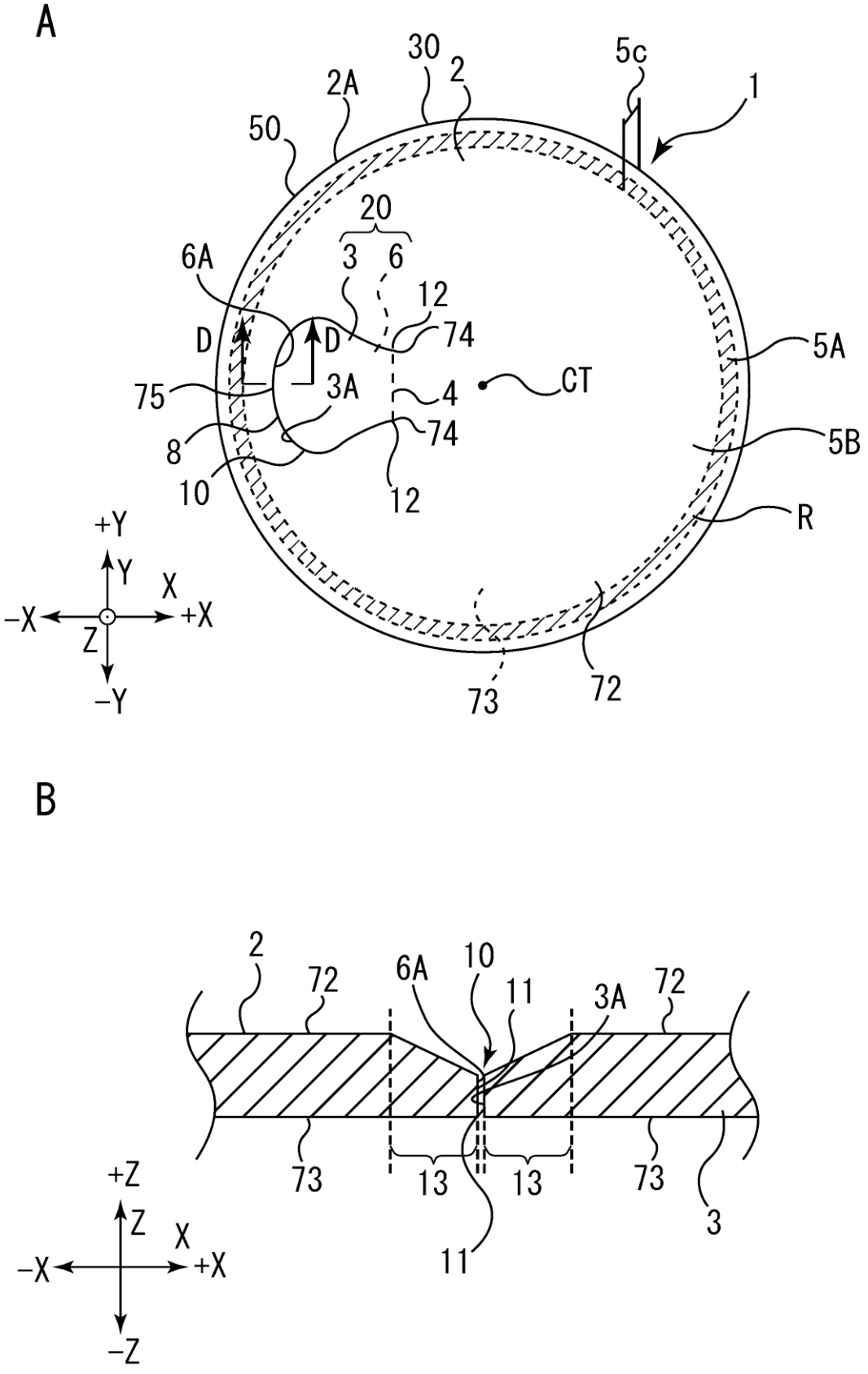

A
30
2
5c
1
2A
50
20
3
6
6A
12
74
D
D
5A
75
3A
4
CT
8
74
5B
10
12
R
+Y
Y
X
−X
+X
Z
−Y
73
72
B
2
72
6A
10
11
3A
72
73
13
13
73
3
+Z
Z
X
−X
+X
−Z
11

Fig.8

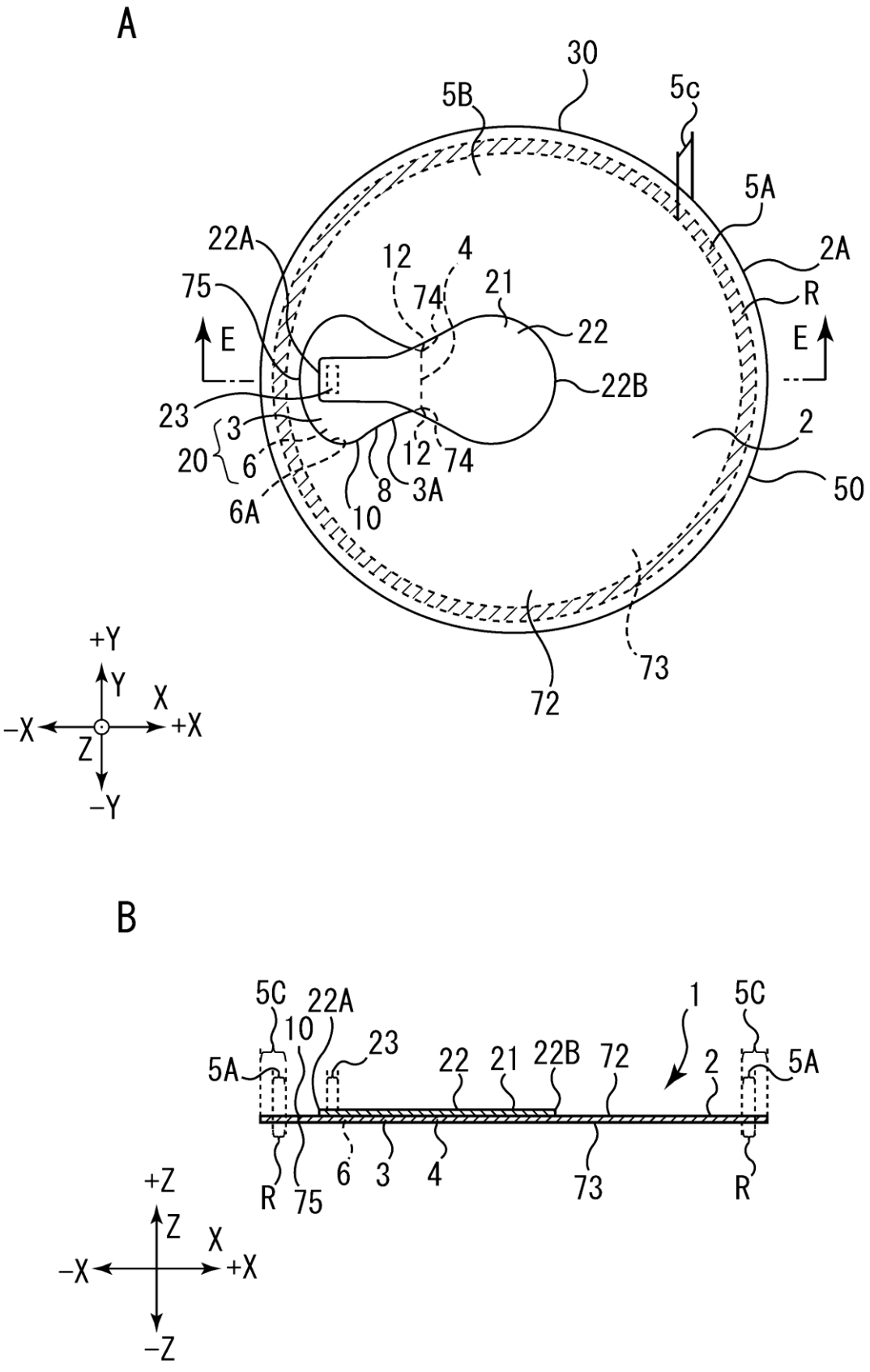

A
30
5B
5c
5A
2A
22A
12
4
75
74
21
R
22
E
E
22B
23
3
2
20
6
12
74
50
8
3A
6A
10
72
73
+Y
Y
X
-X
+X
Z
-Y
B
5C
22A
1
5C
10
23
5A
22
21
22B
72
2
5A
R
75
6
3
4
73
R
+Z
Z
X
-X
+X
-Z

Fig.9

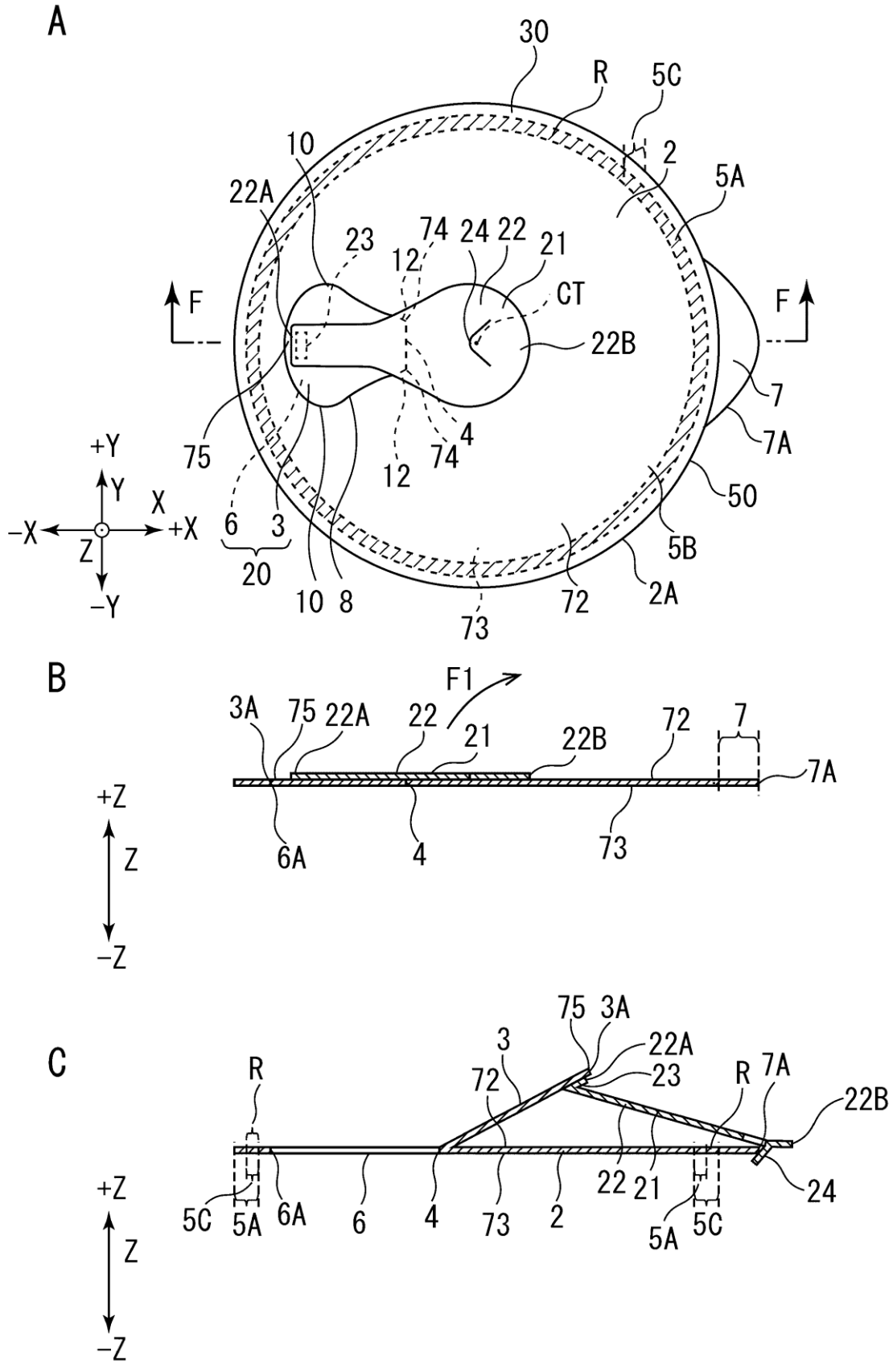

A
30
R
5C
10
2
5A
22A
74
24
22
21
23
12
CT
F
F
22B
7
7A
75
4
74
12
50
+Y
Y
X
-X
+X
Z
-Y
6
3
20
10
8
73
72
2A
5B
B
F1
3A
75
22A
22
21
22B
72
7
7A
+Z
Z
-Z
6A
4
73
C
75
3A
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22A
R
72
23
R
7A
22B
+Z
Z
-Z
5C
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6A
6
4
73
2
22
21
24
5A
5C

Fig.10

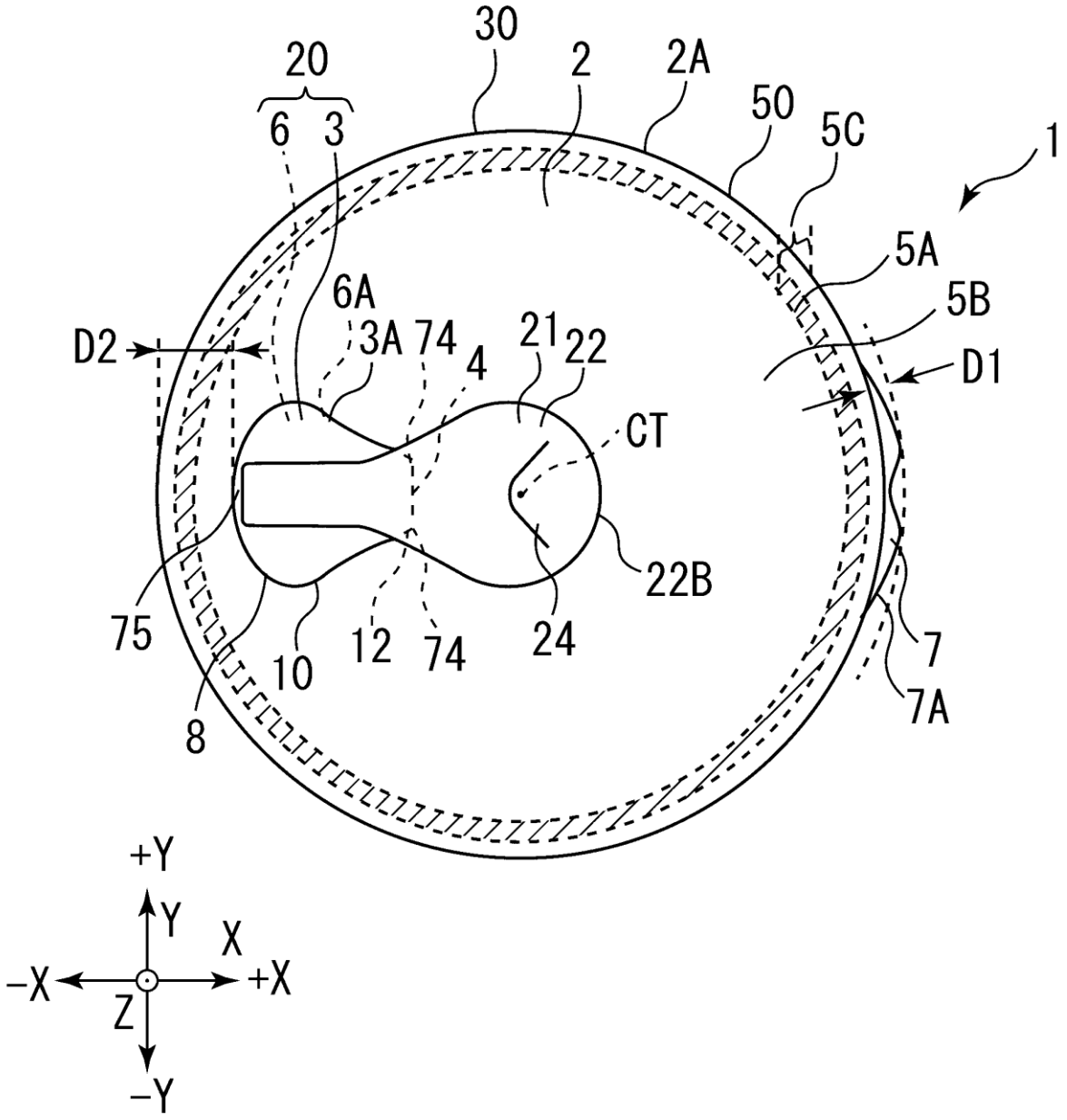

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6
3
2
2A
50
5C
1
5A
5B
D1
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3A
74
4
21
22
D2
CT
22B
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10
12
74
24
7
7A
8
+Y
Y
X
−X
+X
Z
−Y

Fig.11

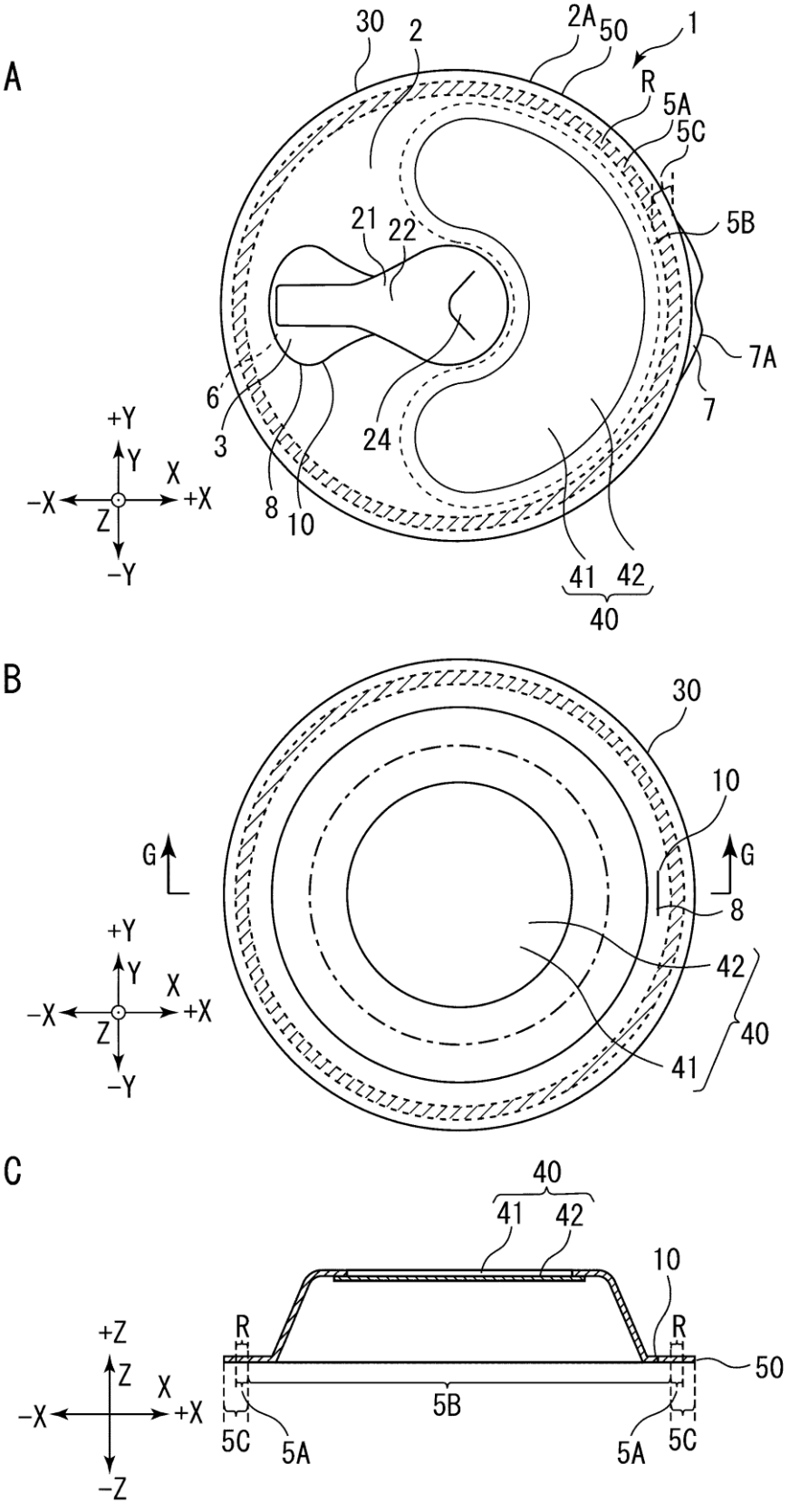
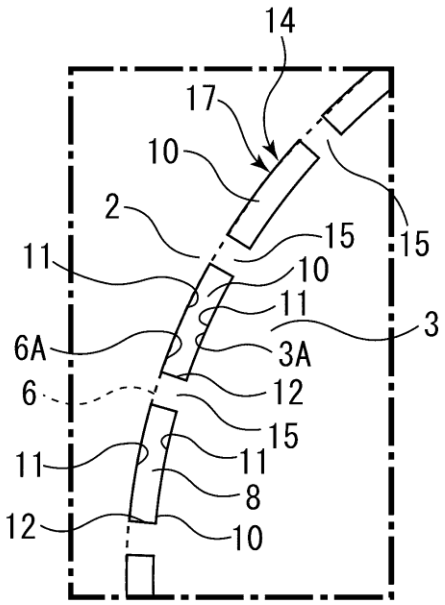

A
30
2
2A
50
1
R
5A
5C
5B
21
22
7A
7
6
3
24
8
10
41
42
40
+Y
Y
X
-X
+X
Z
-Y
B
30
10
G
G
8
42
40
41
C
40
41
42
10
R
R
50
5B
5C
5A
5A
5C
+Z
Z
X
-X
+X
-Z

Fig.12

A



B

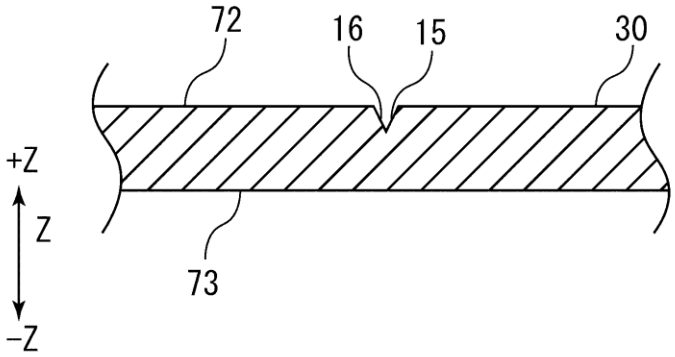


Fig.13

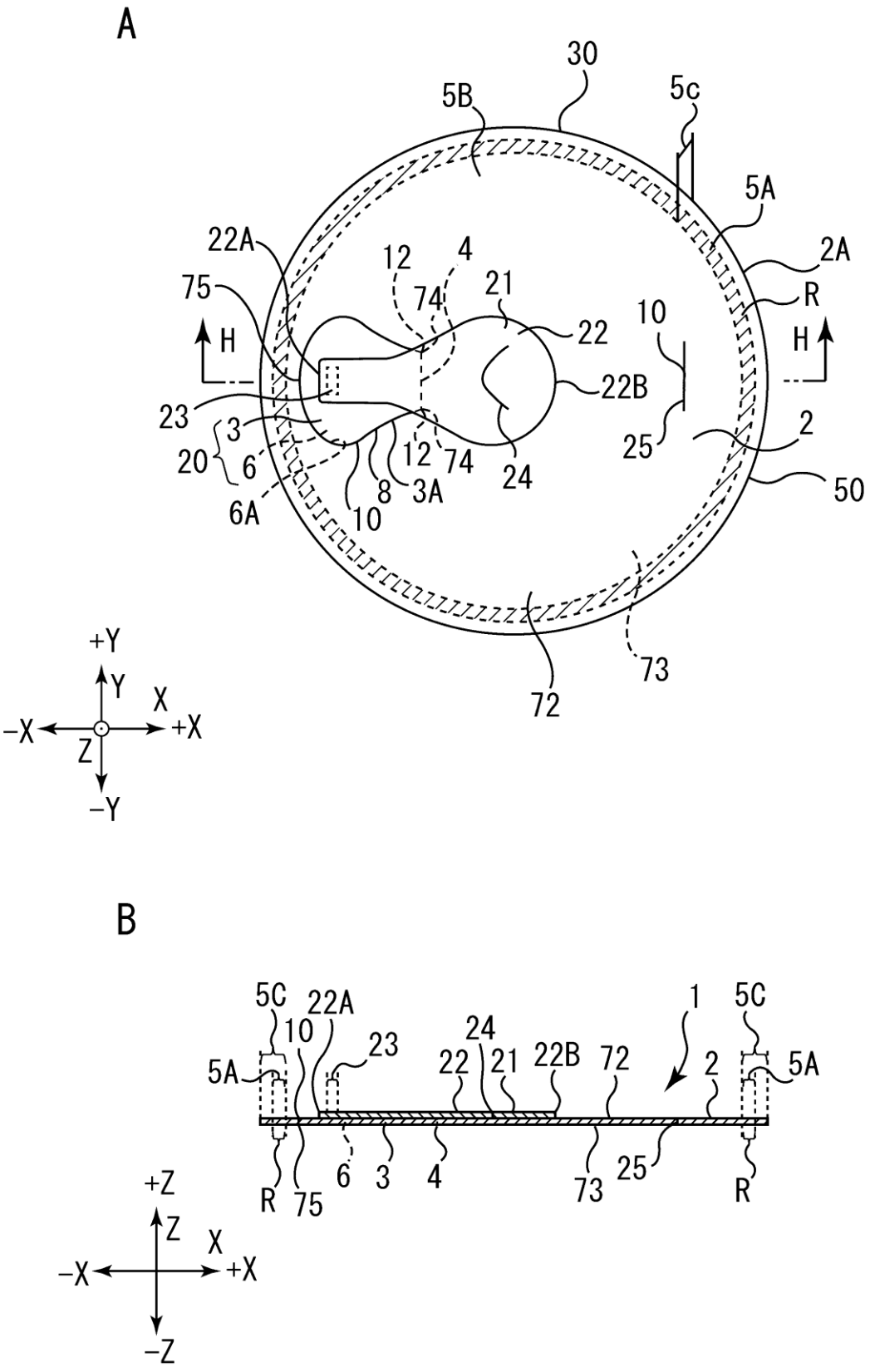

A
30
5B
5c
5A
2A
22A
12
4
75
74
21
R
H
22
10
H
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3
25
2
20
6
12
74
24
50
6A
10
8
3A
+Y
Y
X
−X
+X
Z
−Y
72
73
B
5C
22A
1
5C
10
24
23
5A
22
21
22B
72
2
5A
R
75
6
3
4
73
25
R
+Z
Z
X
−X
+X
−Z

Fig.14

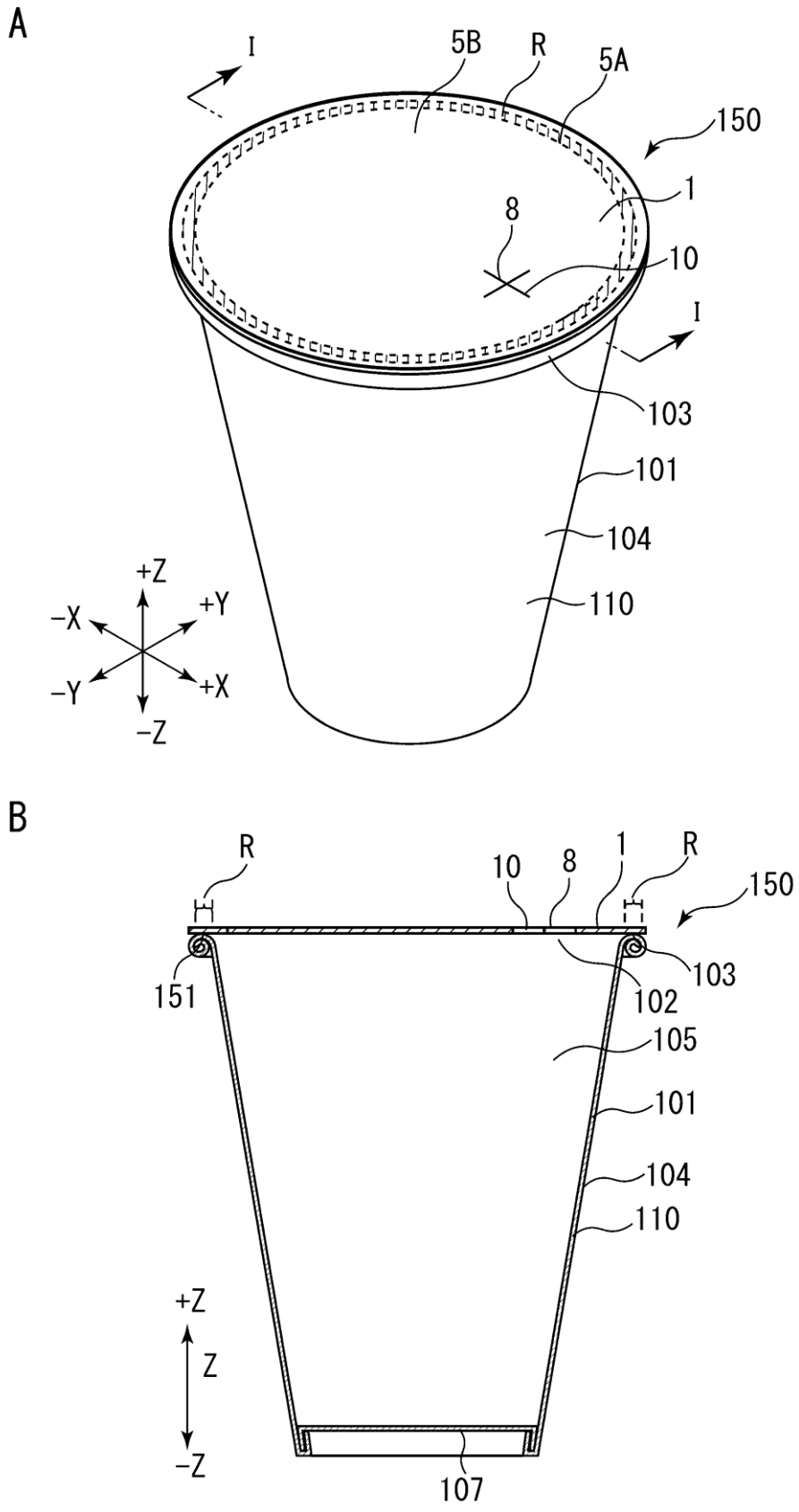

A
I
5B
R
5A
150
1
8
10
I
103
101
104
110
+Z
+Y
−X
−Y
+X
−Z
B
R
10
8
1
R
150
151
102
103
105
101
104
110
+Z
Z
−Z
107

Fig.15

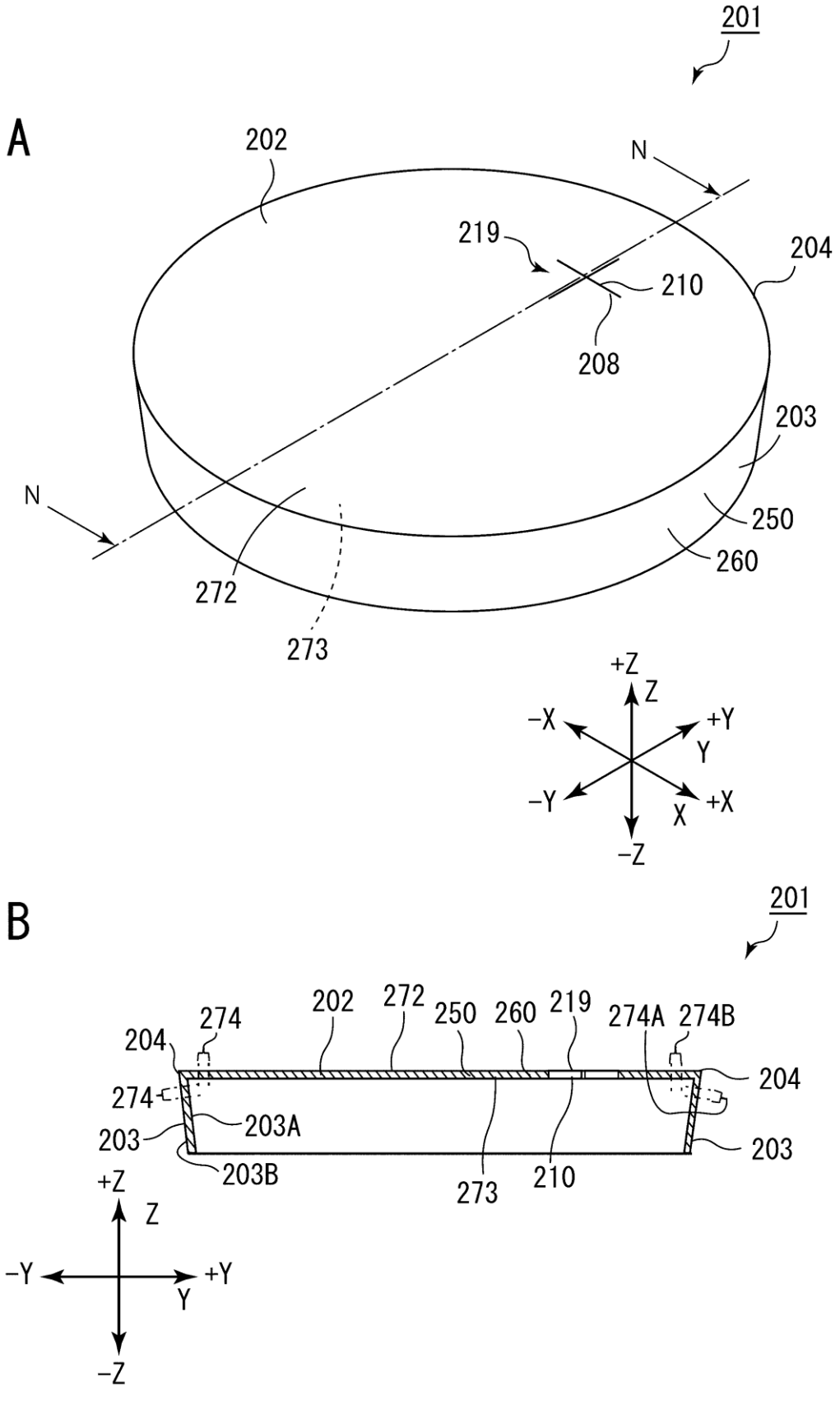
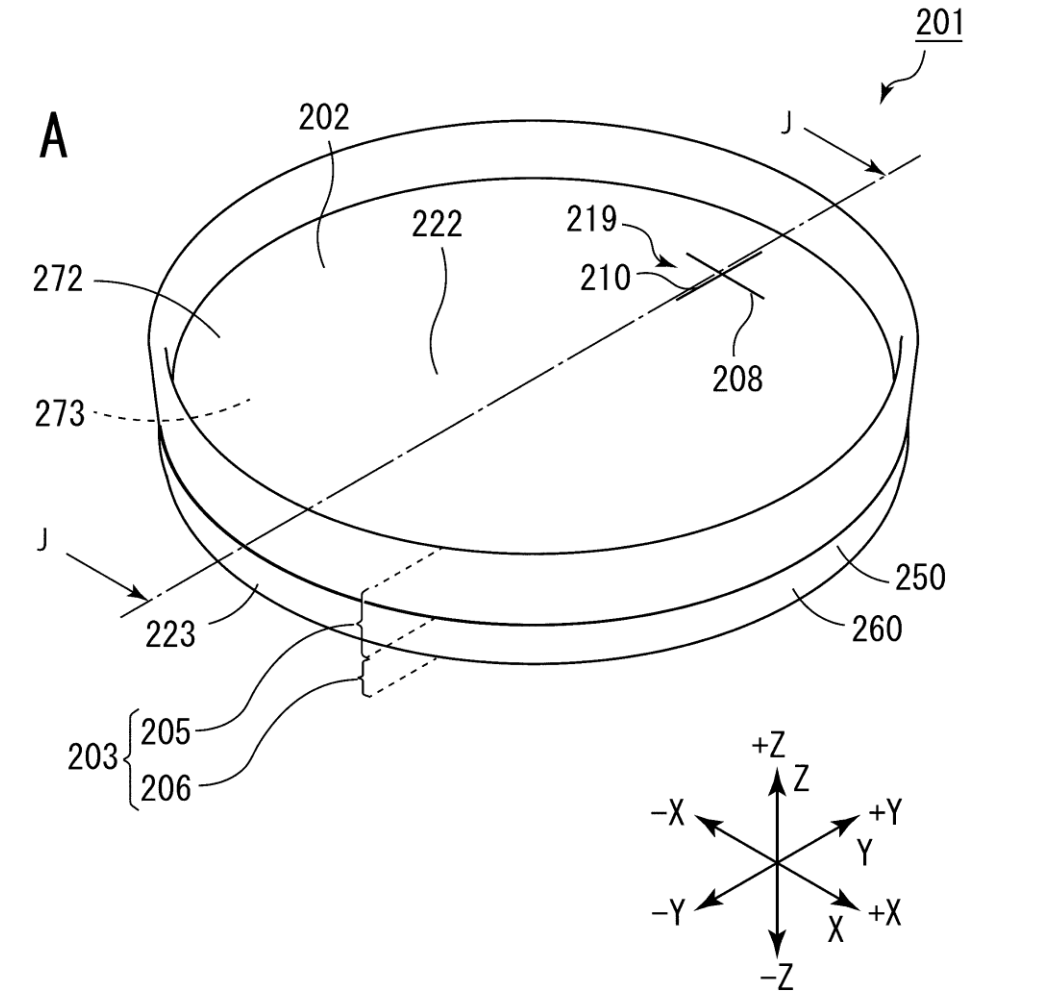

A
201
202
N
219
204
210
208
203
N
250
260
272
273
+Z
Z
−X
+Y
Y
−Y
X
+X
−Z
B
201
274
202
272
250
260
219
274A
274B
204
204
274
203A
203
203
203B
273
210
+Z
Z
−Y
+Y
Y
−Z

Fig.16


A
201
202
J
222
219
210
272
208
273
J
250
223
260
203
205
206
+Z
Z
−X
+Y
Y
−Y
+X
X
−Z

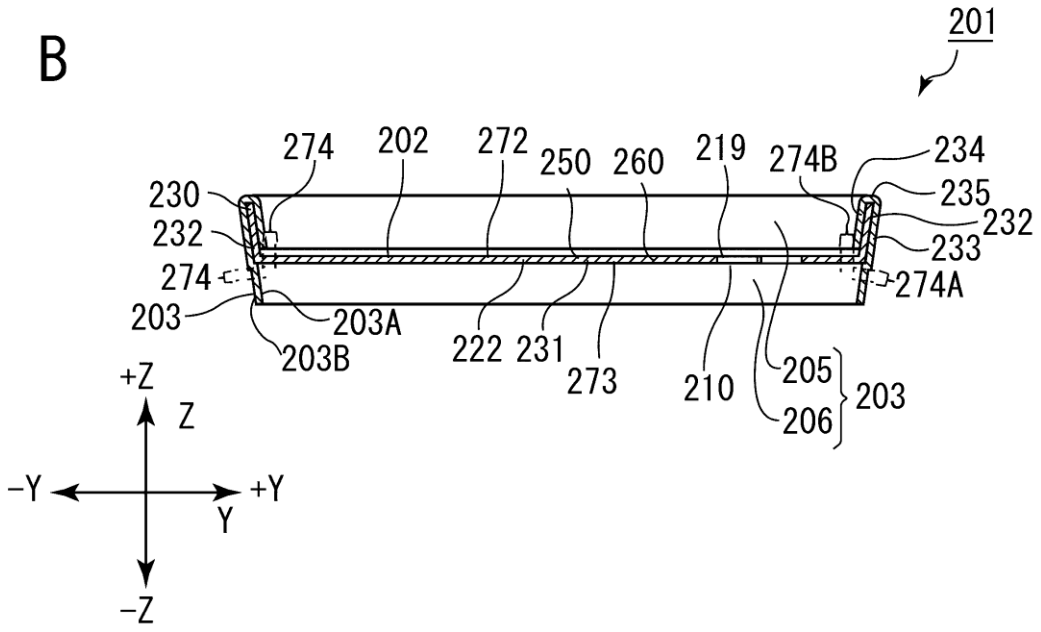

B
201
274
202
272
250
260
219
274B
234
230
235
232
232
233
274
274A
203
203A
203B
222
231
273
210
205
206
203
+Z
Z
−Y
+Y
Y
−Z

Fig.17

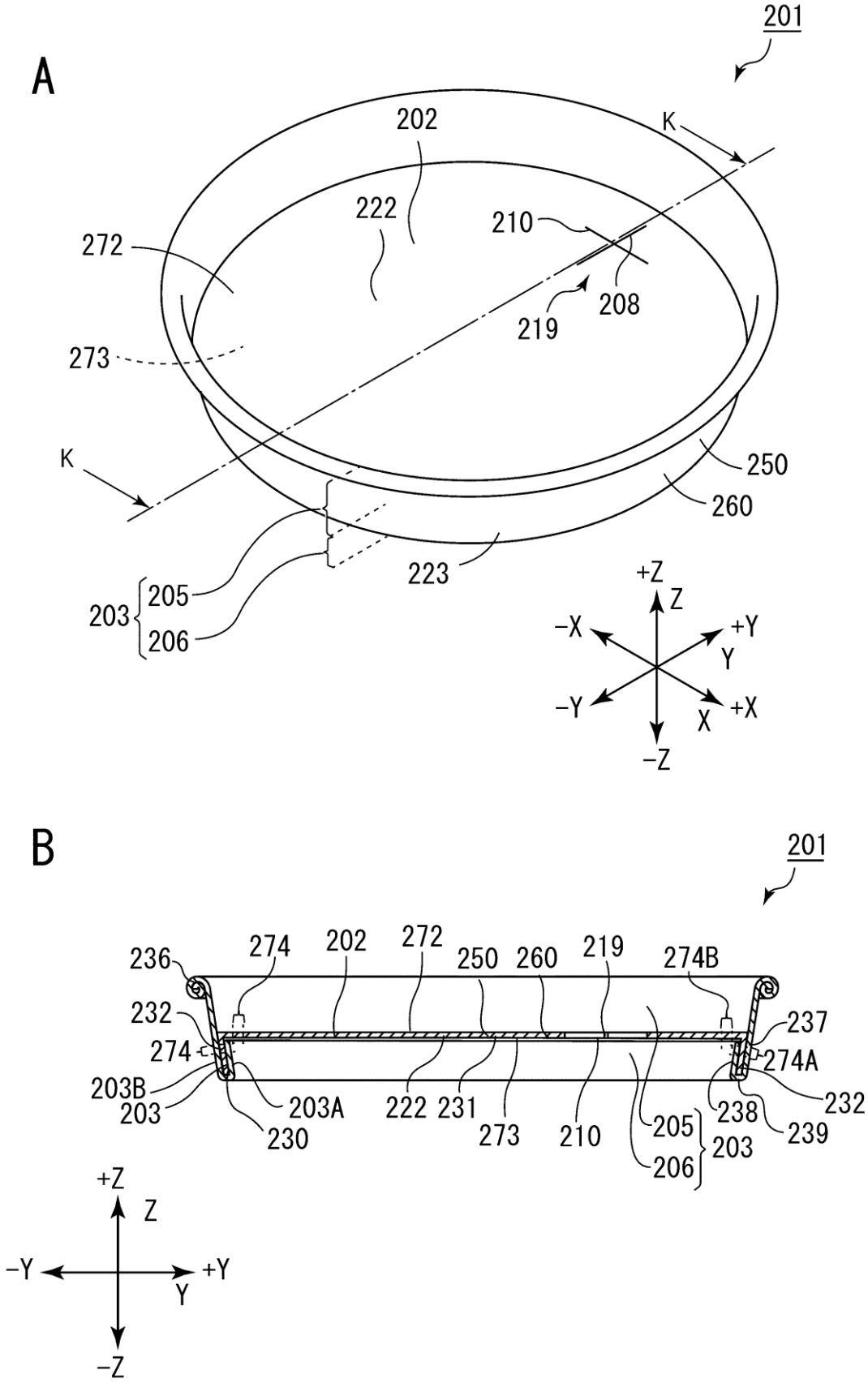
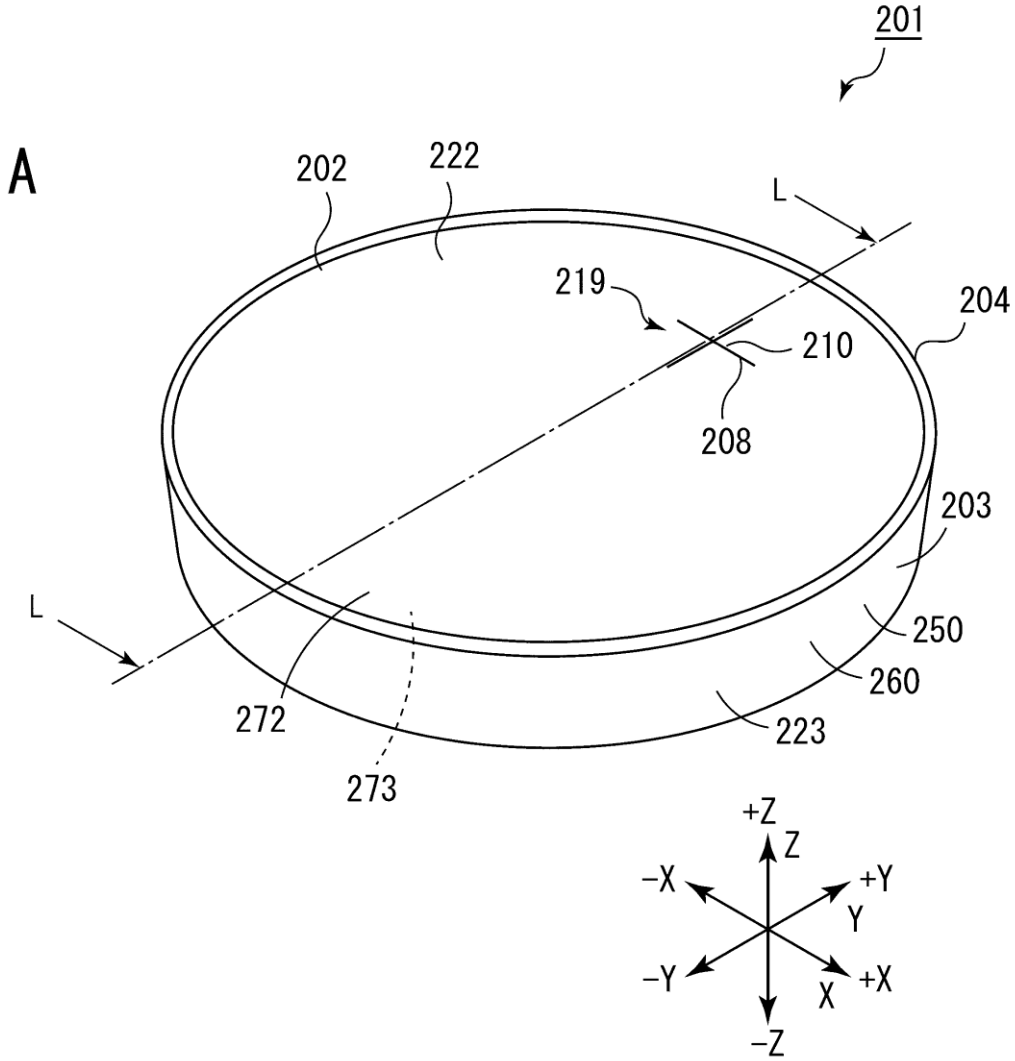

A
201
202
K
222
210
272
208
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273
K
250
260
223
203
205
206
+Z
Z
−X
+Y
Y
−Y
+X
X
−Z
B
201
236
274
202
272
250
260
219
274B
232
237
274
274A
203B
203
203A
222
231
273
210
205
206
203
238
239
232
230
+Z
Z
−Y
+Y
Y
−Z

Fig.18


A
201
202
222
L
219
204
210
208
203
L
250
260
272
223
273
+Z
Z
−X
+Y
Y
−Y
X
+X
−Z

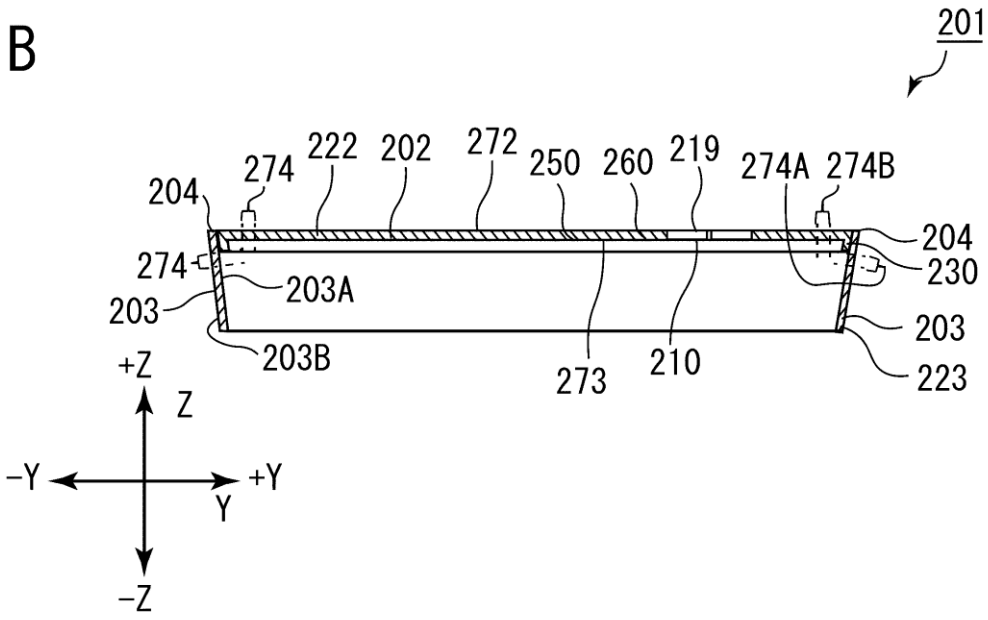

B
201
274
222
202
272
250
260
219
274A
274B
204
204
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230
203A
203
203
203B
273
210
223
+Z
Z
−Y
+Y
Y
−Z

Fig.19

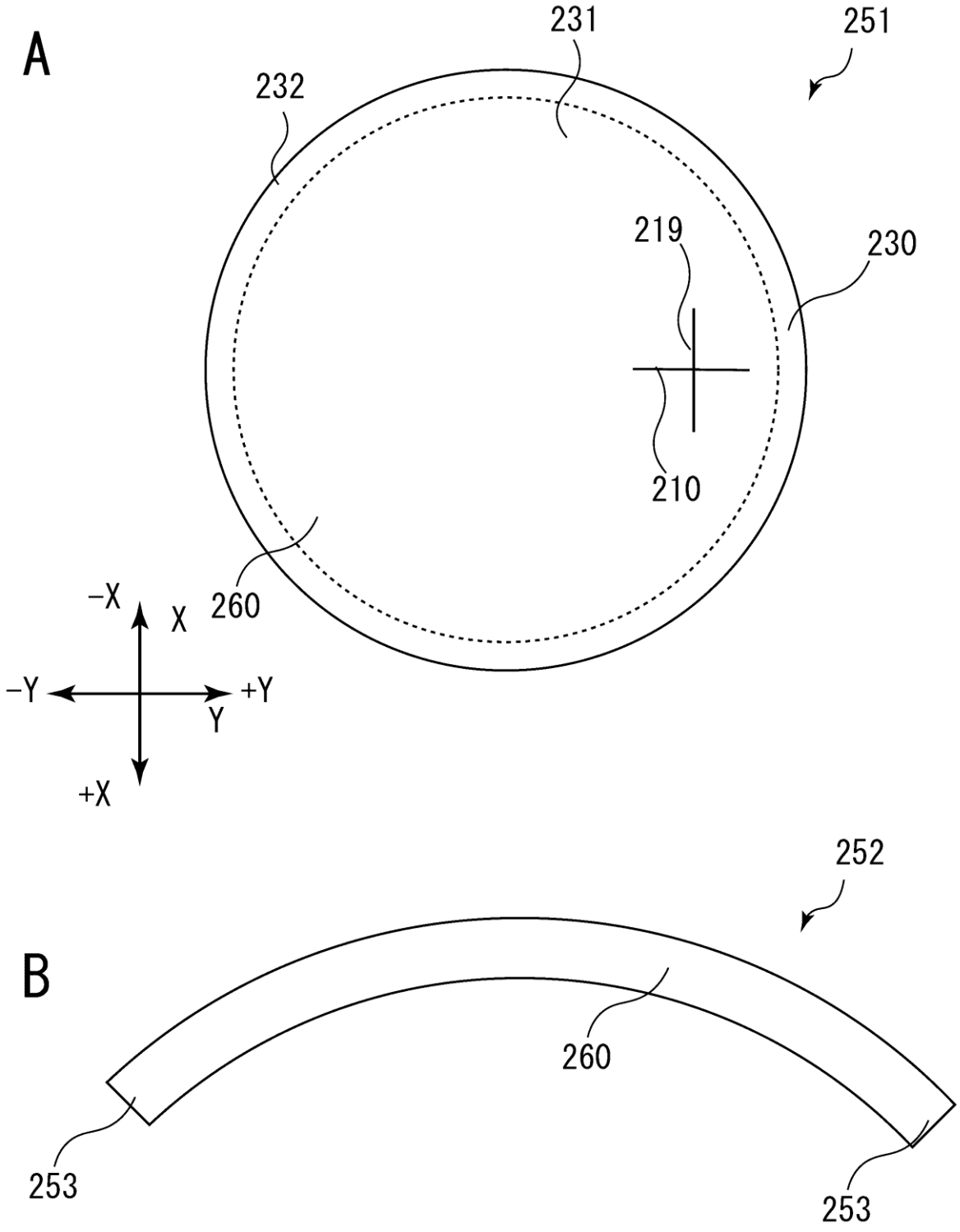


Fig.20

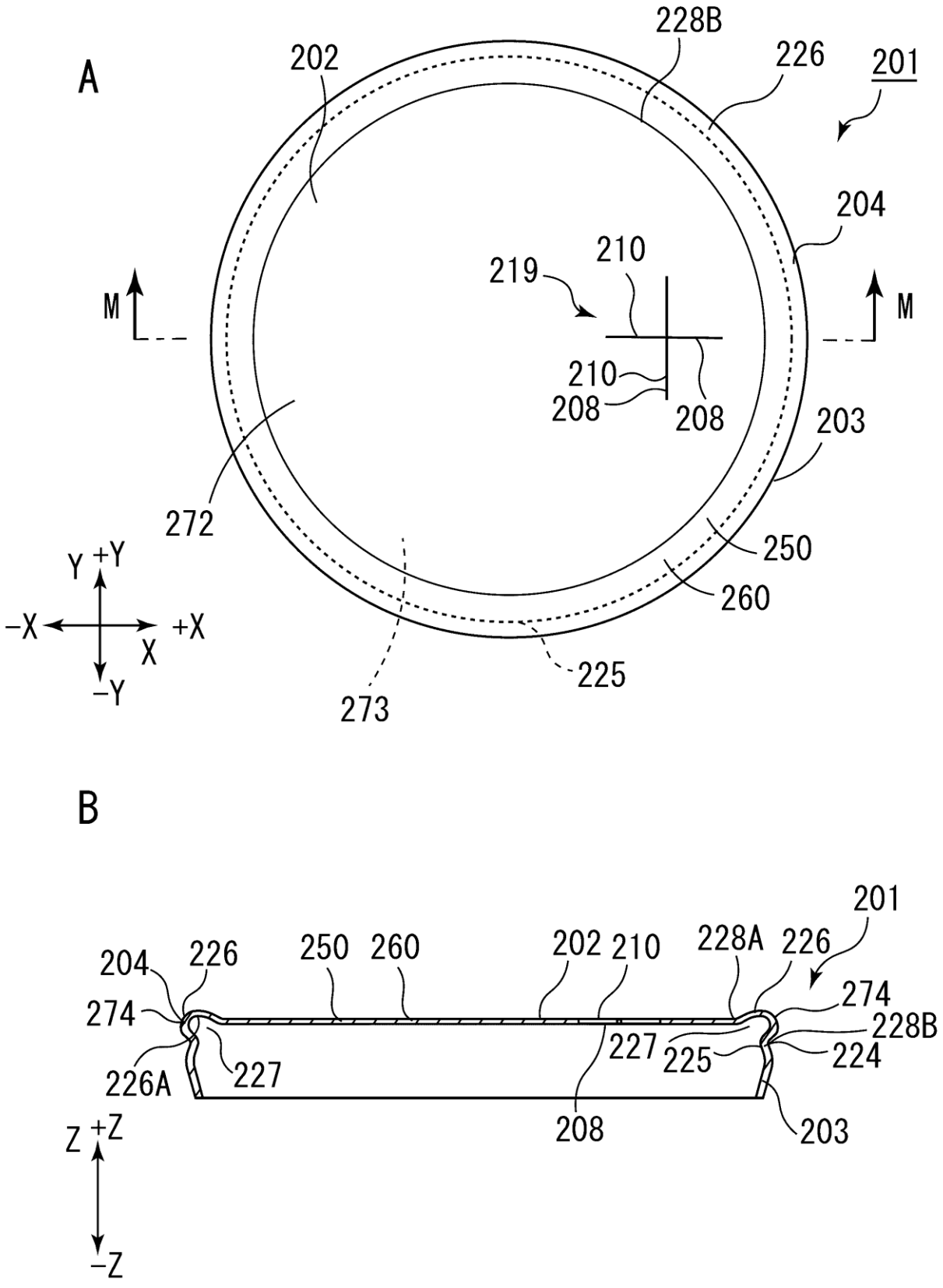
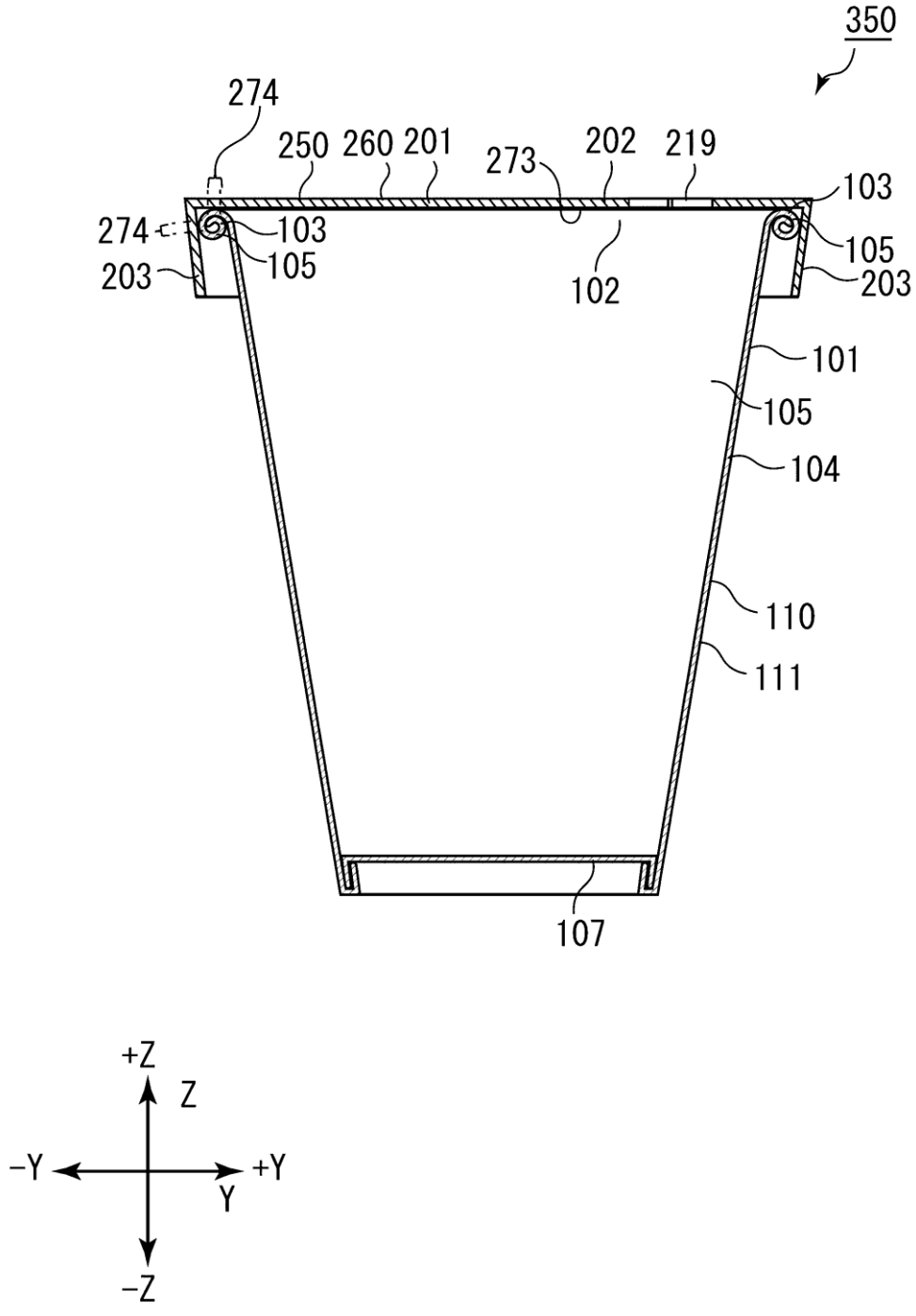

A
228B
202
226
201
204
210
219
M
M
210
208
208
203
272
250
260
225
273
Y
+Y
−X
+X
X
−Y
B
201
204
226
250
260
202
210
228A
226
274
274
228B
227
225
224
226A
227
208
203
Z
+Z
−Z

Fig.21


350
274
250
260
201
273
202
219
103
274
103
105
203
105
102
203
101
105
104
110
111
107
+Z
Z
−Y
+Y
Y
−Z