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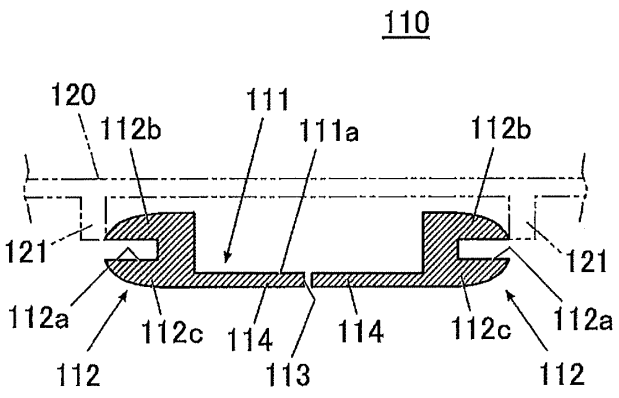
(54) **CONTAINER FOR ACCOMMODATING HYGIENIC THIN PAPER**

(57) A tissue wipe container includes a case which stores therein a roll of tissue wipes with perforations and which is provided with a dispensing unit having an opening through which the tissue wipes pass in a vertical direction to be pulled out to an outside upon being separated along the perforations, and a lid attached to the case in such a manner as to open and close the opening of the dispensing unit, wherein the dispensing unit is provided with an engaging part for causing the dispensing unit to be engaged with the case, the engaging part has a constricted portion formed in a side surface of the dispensing unit at a center in the vertical direction along a circumferential direction, an edge of a mount opening of the case being inserted into the constricted portion to cause the engaging part to be engaged with the mount opening, and the lid is in contact with the dispensing unit to provide airtight closure when the lid closes the opening of the dispensing unit.

FIG.4



EP 3 438 018 A1

Description

[Technical Field]

[0001] The disclosures herein relate to a tissue wipe container for storing tissue wipes.

[Background Art]

[0002] Conventionally, tissue wipe containers for storing tissue wipes for wiping house floors, toilets, human bodies, etc. are known in the art.

[0003] One type of a tissue wipe container known in the art has a configuration in which a dispensing hole shaping member is detachably attached to the dispensing opening of the container to provide resistance to tissue wipes, thereby causing a tissue wipe to be cut along a perforation formed in the tissue wipes (see Patent Document 1, for example).

[Related-Art Documents]

[Patent Document]

[0004] [Patent Document 1] Japanese Patent Application Publication No. 2012-192962

[Summary of the Invention]

[Problem to be Solved by the Invention]

[0005] The configuration disclosed in Patent Document 1 noted above is such that the dispensing hole shaping member is attached to the dispensing opening from below, so that the dispensing hole shaping member readily falls if pressed from above. When the next tissue wipe is difficult to pull out through the dispensing opening, for example, fumbling for removal of the tissue wipe causes the dispensing hole shaping member to fall into the container, which prevents effortless removal of the tissue wipe.

[0006] With the configuration disclosed in Patent Document 1, further, there is a space between the dispensing hole shaping member and a lid even when the lid is closed for the unused period, so that the tissue wipes may end up drying.

[0007] In consideration of the above, it may be preferable to provide a tissue wipe container that allows easy removal of a tissue wipe while providing satisfactory airtightness.

[Means to Solve the Problem]

[0008] According to an embodiment, a tissue wipe container includes a case which stores therein a roll of tissue wipes with perforations and which is provided with a dispensing unit having an opening through which the tissue wipes pass in a vertical direction to be pulled out to an outside upon being separated along the perforations, and a lid attached to the case in such a manner as to open and close the opening of the dispensing unit, wherein the dispensing unit is provided with an engaging part for causing the dispensing unit to be engaged with the case, the engaging part has a constricted portion formed in a side surface of the dispensing unit at a center in the vertical direction along a circumferential direction, an edge of a mount opening of the case being inserted into the constricted portion to cause the engaging part to be engaged with the mount opening, and the lid is in contact with the dispensing unit to provide airtight closure when the lid closes the opening of the dispensing unit.

[Advantage of the Invention]

[0009] According to at least one embodiment, a tissue wipe is easily pulled out, and airtightness is satisfactorily maintained.

[Brief Description of Drawings]

[0010]

Fig. 1 is an axonometric view of a tissue wipe container according to a present embodiment as viewed from the front and above.
Fig. 2 is a cross-sectional view illustrating a cap that is an upper part of a case of the tissue wipe container.
Fig. 3 is an axonometric view illustrating a dispensing unit of the tissue wipe container.
Fig. 4 is a cross-sectional view taken along the line IV-IV in Fig. 3.
Fig. 5 is a drawing illustrating preferred embodiments of the dispensing unit.
Fig. 6 is a drawing illustrating preferred embodiments of the dispensing unit.
Fig. 7 is a drawing illustrating preferred embodiments of the dispensing unit.

[Mode for Carrying Out the Invention]

[0011] In the following, specific embodiments of a tissue wipe container will be described in detail with reference to accompanying drawings. It should be noted that the scope of the invention is not limited to the illustrated examples.

[0012] Fig. 1 is an axonometric view of a tissue wipe container 100 illustrated as an example of an embodiment as viewed from the front and above. Fig. 2 is a cross-sectional view of a cap 103 that is an upper part of a case 101 of the tissue wipe container 100. Fig. 3 is an axonometric view illustrating a dispensing unit 110 of the tissue wipe container 100. Fig. 4 is a schematic cross-sectional view taken along the line IV-IV illustrated in Fig. 3. Fig. 5 through Fig. 7 are drawings illustrating the preferred embodiments of the dispensing unit 110.

[0013] In Fig. 1, the illustration of a lower part (i.e., bot-

tom part) of a bottle 102 is omitted. Fig. 3 also illustrates a flange 121 of a lid 120.

[0014] The tissue wipe container 100 contains a roll of tissue wipes P (e.g., a roll of wet sheets, or a roll of paper such as wet tissues) therein, for example. As illustrated in Fig. 1 and Fig. 2, the tissue wipe container 100 includes the case 101 provided with the dispensing unit 110 having an opening through which the tissue wipes P pass in a vertical direction for removal of the tissue wipes P to the outside. The tissue wipe container 100 includes the lid 120 serving as a lid member attached to the case 101 to open and close the opening of the dispensing unit 110.

[0015] A roll of the tissue wipes P contained in the tissue wipe container 100 has perforations formed at constant intervals in the lengthwise direction, thereby allowing a user to use a tissue wipe P having a size made by cutting along a perforation.

[0016] In the following description, the front-and-rear direction of the tissue wipe container 100 is referred to as the X-axis direction. The side at which the lid 120 is supported by the case 101 (or the cap 103) is referred to as the rear side, and the opposite side is referred to as the front side. The right-and-left direction (i.e., widthwise direction) in a front view is referred to as the Y-axis direction. The vertical direction is referred to as the Z-axis direction.

[0017] The case 101 includes the bottle 102 serving as a lower part of the case 101 and having a cylindrical shape with a solid base. The case 101 includes the cap 103 serving as an upper part of the case 101.

[0018] The upper end of the bottle 102 has an opening. The outer peripheral surface of the upper end of the bottle 102 has a male thread (not shown) formed along the circumferential direction.

[0019] The bottle 102 is made of PE (polyethylene), PP (polypropylene), PET (polyethylene terephthalate), or an ABS resin, for example.

[0020] The cap 103 is a cylindrical shape having an upper face 103a and an open bottom. The inner peripheral surface of the open lower end has a female thread formed thereon for threadable engagement with the male thread of the bottle 102.

[0021] The cap 103 is made of PE (polyethylene), PP (polypropylene), PET (polyethylene terephthalate), or an ABS resin, for example.

[0022] The case 101 has a linked structure such that the bottle 102 and the cap 103 are detachably linked through the mail thread and the female thread. The cap 103 is detachable from the bottle 102. While the cap 103 is removed from the bottle 102, the tissue wipes P may be placed inside the bottle 102, or the tissue wipes P may be removed from the inside.

[0023] In the present embodiment, the tissue wipes P, which are rolled around an axis extending in the vertical direction (i.e., Z-axis direction), are placed in the case 101.

[0024] The upper face 103a of the cap 103 serving as a part of the case 101 is provided with the dispensing unit 110 for pulling out the tissue wipes P placed inside the case 101 to the outside of the case 101, and provided with the lid 120 pivotally mounted on the cap 103 to open and close the opening of the dispensing unit 110.

[0025] The dispensing unit 110 is situated further toward the front side in the front-and-rear direction (i.e., X-axis direction) than the proximal end of the lid 120. Namely, the lid 120 is pivotally mounted to the upper face 103a of the cap 103 at the rear side of the dispensing unit 110. The lid 120 covers the dispensing unit 110 from the rear side.

[0026] The dispensing unit 110 is disposed in a mount opening 106 that is formed substantially at the center of a recess 104 made in the upper face 103a of the cap 103.

[0027] The dispensing unit 110 is an elastically deformable member made of silicon rubber, for example. Silicon rubber is superior in durability. Even in the case in which the tissue wipes P are replenished to repeatedly use the tissue wipe container 100, the elastic deformability of the dispensing unit 110 is maintained so as to allow the tissue wipes P to be comfortably pulled out over a long period of time. Further, due to its superior chemical resistance, silicon rubber is not altered by alcohol or the like contained in the chemical solution present in the wet-type tissue wipes P.

[0028] The material used for the dispensing unit 110 is not limited to a silicon rubber, and may be a soft resin material such as a styrene-butadiene-based, polyester-based, polyethylene-based, or urethane-based thermoplastic elastomer. Any other resin material may alternatively be used to form the dispensing unit 110.

[0029] As illustrated in Fig. 3 and Fig. 4, the dispensing unit 110 is a circular shape in a top plan view, and the shape in a side elevation view has a cut made into the side surface at the center in the vertical direction.

[0030] The dispensing unit 110 has a recess 111 formed at the center of the upper face of the dispensing unit 110, an engaging part 112 formed around the outer perimeter of the dispensing unit 110, a dispensing opening 113 formed through a base 111a of the recess 111, and a plurality of flexible parts 114 that are elastically deformable.

[0031] The recess 111 is formed such that a center area is recessed in the vertical direction from the circumferential edge of the upper face of the dispensing unit 110, thereby having a circular shape in a top plan view. The base 111a of the recess 111 is a planar shape. The dispensing opening 113 is formed through the base 111a.

[0032] The engaging part 112 has a constricted portion 112a constricted in the radial direction and formed in the side surface of the dispensing unit 110 at the center in the Z-axis direction along the circumferential direction, an upper annular portion 112b situated at the upper side of the constricted portion 112a, and a lower annular portion 112c situated at the lower side of the constricted portion 112a. The engaging part 112 is engaged with the mount opening 106 by inserting the edge of the mount opening 106 into the constricted portion 112a such that

the edge of the mount opening 106 is sandwiched between the upper annular portion 112b and the lower annular portion 112c, thereby fixedly mounting the dispensing unit 110 to the cap 103.

[0033] The lengths of the upper annular portion 112b and the lower annular portion 112c in the Y direction may be the same, or one of these may be longer than the other.

[0034] Making the diameter of the lower annular portion 112c greater than that of the upper annular portion 112b (i.e., making the lower annular portion 112c longer than the upper annular portion 112b in a side elevation view) makes it unlikely for the dispensing unit 110 to disengage from the mount opening 106 even when a force is applied to the dispensing unit 110 from below during the removal of the tissue wipes P. In contrast, making the upper annular portion 112b longer than the lower annular portion 112c makes it unlikely for the dispensing unit 110 to fall when a force is applied to the dispensing unit 110 from above.

[0035] The dispensing opening 113, which is for pulling out the tissue wipes P placed inside the case 101, is formed by making one or more cuts S into the base 111a of the recess 111. Together with this, a plurality of flexible parts 114 are also formed.

[0036] The total length of the cuts S (i.e., the length in the Y direction) may be set to approximately 15 mm, which is greater than the width of an index finger of a typical user, for example.

[0037] The flexible parts 114 are formed when making one or more cuts S into the base 111a of the recess 111 at the time of forming the dispensing opening 113.

[0038] Namely, the gaps between the flexible parts 114 constitute the dispensing opening 113. The tissue wipes P are inserted through the gaps between the flexible parts 114 (i.e., through the dispensing opening 113) to be pulled and dispensed to the outside.

[0039] When this is done, the flexible parts 114 are deformed by a force applied in the vertical direction, so that the flexible parts 114 bent by a force applied from below provides a resistance to the tissue wipes P when the tissue wipes P are pulled out. This arrangement makes it easier for a tissue wipe P to be separated along a perforation, and, at the same time, causes a next tissue wipe P to remain at the dispensing opening 113 due to the restoration force.

[0040] The number of flexible parts 114 may be two to four, for example, as illustrated in Fig. 5-(a) through Fig. 5-(c), and may more preferably be five or more as illustrated in Fig. 5-(d) through Fig. 5-(e). Use of five or more flexible parts 114 provides an increased resistance to the tissue wipes P, thereby making it further easier for the tissue wipes P to be readily separated along a perforation.

[0041] As illustrated in Fig. 5-(f), the cuts S may be tilted relative to the radial direction of the circular-shaped base 111a, thereby increasing a resistance provided to the tissue wipes P. Further, the cuts S may be made along curves to increase a resistance provided to the tissue wipes P.

[0042] The flexible parts 114 preferably have distal ends whose thickness is thinner than the thickness of the proximal ends.

[0043] Specifically, as illustrated in Fig. 6-(a), for example, the lower face of the flexible parts 114 may be provided at an angle relative to the upper face, such that the thickness decreases toward the tip in a side elevation view. Alternatively, the upper face of the flexible parts 114 may be provided at an angle relative to the lower face in a side elevation view.

[0044] As illustrated in Fig. 6-(b), steps 114a may be provided between the distal ends and the proximal ends at the lower face of the flexible parts 114, respectively. Alternatively, the steps 114a may be provided between the distal ends and the proximal ends at the upper face of the flexible parts 114, respectively.

[0045] As illustrated in Fig. 6-(c), each of the flexible parts 114 may be configured such that a plurality (two in this example) of separate sheets 1141 and 1142 having different lengths are stacked one over another such as to provide a thicker proximal end. In this example, the shorter sheet 1142 is situated below the longer sheet 1141. Alternatively, the shorter sheet 1142 may be situated above the longer sheet 1141.

[0046] Configuring the thickness of the flexible parts 114 in the above-noted manners makes the flexible parts 114 easily bendable, thereby further increasing a resistance provided to the tissue wipes P being pulled out.

[0047] The lid 120, which is supported by a rotation axis (not shown) extending in the Y-axis direction on the upper face 103a of the cap 103, for example, is pivotally attached to the upper face 103a so as to be switched between the open state and the closed state.

[0048] The lid 120 is configured to be kept at a stable position in each of the open-state placement and the closed-state placement. Namely, the lid 120 is urged toward the closed position upon being brought closer to the dispensing unit 110 than a predetermined rotation angle (see Fig. 2, for example) within the movable range, for example. The lid 120 is also urged to the open position upon being moved further away from the dispensing unit 110 than the predetermined rotation angle.

[0049] The lid 120 is not limited to the configuration in which support is provided by the rotation axis on the upper face 103a, and may alternatively be formed together with the cap 103, for example. Specifically, the lid 120 may be made by making a cut into the upper face 103a of the cap 103. At the proximal end of the lid 120, a fold line may be made by thinning the thickness of the upper face 103a along the Y-axis direction. This arrangement may enable folding along the fold line extending in the Y-axis direction to allow the rotational movement of the lid 120 around an axis corresponding to the folding line, thereby either covering or exposing the opening of the dispensing unit 110.

[0050] The lower face of the lid 120 has the flange 121, which comes in contact with the upper annular portion

112b of the dispensing unit 110 when the opening of the dispensing unit 110 is closed.

[0051] The flange 121 projects in tubular form from the lower face of the lid 120. When the lid 120 covers the dispensing unit 110, the outer perimeter of the upper annular portion 112b is inserted into the flange 121 to come in contact with the inner perimeter of the flange 121.

[0052] Engagement of the upper annular portion 112b with the flange 121, when the lid 120 closes the dispensing unit 110, provides airtight closure, thereby preventing drying of the wet-type tissue wipes P inside the case 101.

[0053] Alternatively, the upper face of the upper annular portion 112b may come in contact with the lower face of the lid 120 inside the flange 121 to provide airtight closure.

[0054] The configuration that provides airtight closure between the dispensing unit 110 and the lid 120 is not limited to the above-noted examples.

[0055] For example, as illustrated in Fig. 7-(a), the upper face of the upper annular portion 112b may be such that the center of the annular band upwardly bulges to form a curved surface. Without having the flange 121, the lower face of the lid 120 may instead have a lid depression 122 that comes in contact with the curved surface of the upper face of the upper annular portion 112b.

[0056] Alternatively, as illustrated in Fig. 7-(b), the upper face of the upper annular portion 112b may have a groove 112b1 formed therein, into which the flange 121 is inserted to provide airtight closure.

[0057] In the following, the way in which the tissue wipes P are pulled out from the tissue wipe container 100 will be described.

[0058] In an unused state, i.e., when the lid 120 is in the closed position, airtight closure is maintained because the flange 121 of the lid 120 is in contact with the upper annular portion 112b.

[0059] Further, the end of a first sheet of the tissue wipes P contained inside is passed through the dispensing opening 113 of the dispensing unit 110 and held by the dispensing opening 113.

[0060] In this state, the position of the dispensing opening 113 at the base 111a of the recess 111 allows the tissue wipe P held by the dispensing opening 113 to be accommodated inside the recess 111. Namely, the closed state of the lid 120 is not obstructed, and the tissue wipe P is prevented from sticking out from the lid 120.

[0061] In order to use the tissue wipe P, the lid 120 is flipped to the open position, and the user pulls up the tissue wipe P held by the dispensing opening 113 to remove the tissue wipe P.

[0062] Since the distal ends of the flexible parts 114 are thinner than the proximal ends, the flexible parts 114 are readily bent by the force applied from below, thereby providing resistance to the tissue wipes P. The tissue wipe P is thus separated along a perforation. The next tissue wipe P receives a restoration force from the flexible parts 114, so that the next tissue wipe P will consequently be held at the dispensing opening 113.

[0063] The user may press down the dispensing unit 110 when handling the tissue wipes P, or the dispensing unit 110 may is subjected to a force applied from below by the tissue wipes P at the time of pulling out the tissue wipes P. The dispensing unit 110 is engaged with the mount opening 106 such that the edge of the mount opening 106 of the case 101 is inserted into the constricted portion 112a of the engaging part 112, and the edge of the mount opening 106 is sandwiched between the upper annular portion 112b and the lower annular portion 112c. The dispensing unit 110 is thus unlikely to become disengaged from the mount opening 106.

[0064] According to the present embodiment as described above, the tissue wipe container 100 includes the case 101 storing therein a roll of tissue wipes P with perforations and having the dispensing unit 110 through which the stored tissue wipes P are pulled out to the outside upon being separated along the perforations, and further includes the lid 120 attached to the case 101 to cover and expose the dispensing unit 110. The dispensing unit 110 includes the engaging part 112 that allows the dispensing unit 110 to engage with the case 101. The engaging part 112 has the constricted portion 112a formed in the side surface of the dispensing unit 110 at the center in the vertical direction along the circumferential direction. The edge of the mount opening 106 of the case 101 is inserted into the constricted portion 112a to cause the dispensing unit 110 to be engaged with the mount opening 106. When the lid 120 covers the dispensing unit 110, the lid 120 comes in contact with the dispensing unit 110 to provide airtight closure.

[0065] With this arrangement, the dispensing unit 110 is unlikely to disengage regardless of from which direction a force is applied to the dispensing unit 110, which makes it easy to pull out the tissue wipes P.

[0066] Further, airtight closure is satisfactorily maintained.

[0067] According the present embodiment, further, the lid 120 has the flange 121 projecting in tubular form from the lower face thereof. With the opening of the dispensing unit 110 being closed by the lid 120, the outer perimeter of the upper part of the dispensing unit 110 is in contact with the inner perimeter of the flange 121, thereby causing the flange 121 to be engaged with the dispensing unit 110.

[0068] As a result, airtight closure is satisfactorily maintained.

[0069] According to the present embodiment, further, the upper face of the dispensing unit 110 is such that the center area (i.e., the center area of the annular band) bulges upwardly to form a curved surface. The lid 120 has the lid depression 122 in the lower face thereof. With the opening of the dispensing unit 110 being closed by the lid 120, the upper face of the dispensing unit 110 comes in contact with the lid depression 122.

[0070] As a result, airtight closure is satisfactorily maintained.

[0071] According to the present embodiment, moreo-

ver, the lid 120 has the flange 121 projecting in tubular form from the lower face thereof. The dispensing unit 110 has the groove 112b1 formed in the upper face. With the opening of the dispensing unit 110 being closed by the lid 120, the flange 121 is inserted into the groove 112b1 of the dispensing unit 110.

[0072] As a result, airtight closure is satisfactorily maintained.

[0073] According to the present embodiment, further, the center of the upper face of the dispensing unit 110 is vertically recessed to form the recess 111. At the base 111a of the recess 111, the opening (i.e., the dispensing opening 113) is formed for pulling out the tissue wipes P to the outside.

[0074] The tissue wipe P held by the dispensing opening 113 is thus accommodated inside the recess 111, which ensures that the closed state of the lid 120 is not obstructed and the tissue wipe P is prevented from sticking out from the lid 120.

[0075] The present embodiment has been described by using an example in which the constricted portion 112a is formed in the side surface of the dispensing unit 110 at the center in the vertical direction along the entire circumference (see Fig. 3). However, this is not a limiting example. For example, the lower annular portion 112c may have notches, so that the constricted portion 112a may be formed at intervals in the circumferential direction without covering the entire circumference. This arrangement improves the ease of attaching the dispensing unit 110 to the cap 103.

[0076] The present application is based on priority application No. 2016-067120 filed in Japan on March 30, 2016, the entire contents of which are hereby incorporated by reference.

[Description of Reference Symbols]

[0077]

100	tissue wipe container
101	case
102	bottle
103	cap
103a	upper face
104	recess
106	mount opening
110	dispensing unit
111	recess
111a	base
112	engaging part
112a	constricted portion
112b	upper annular portion
112b1	groove
112c	lower annular portion
113	dispensing opening
114	flexible part
114a	step
120	lid (lid member)
121	flange
122	lid depression
1141, 1142	sheet
P	tissue wipes

Claims

1. A tissue wipe container, comprising a case which stores therein a roll of tissue wipes with perforations and which is provided with a dispensing unit having an opening through which the tissue wipes pass in a vertical direction to be pulled out to an outside upon being separated along the perforations, and a lid attached to the case in such a manner as to open and close the opening of the dispensing unit, wherein

the dispensing unit is provided with an engaging part for causing the dispensing unit to be engaged with the case,
the engaging part has a constricted portion formed in a side surface of the dispensing unit at a center in the vertical direction along a circumferential direction, an edge of a mount opening of the case being inserted into the constricted portion to cause the engaging part to be engaged with the mount opening, and
the lid is in contact with the dispensing unit to provide airtight closure when the lid closes the opening of the dispensing unit.

2. The tissue wipe container as claimed in claim 1, wherein

the lid is provided with a flange projecting in tubular form from a lower face thereof, and
an outer perimeter of an upper part of the dispensing unit is in contact with an inner perimeter of the flange to cause the dispensing unit to engage with the flange when the lid closes the opening of the dispensing unit.

3. The tissue wipe container as claimed in claim 1, wherein

an upper face of the dispensing unit is a curved surface with a center thereof upwardly bulging,
the lid is provided with a lid depression in a lower face thereof, and
the upper face of the dispensing unit is in contact with the lid depression when the lid closes the opening of the dispensing unit.

4. The tissue wipe container as claimed in claim 1, wherein

the lid is provided with a flange projecting in tubular form from a lower face thereof, and

the dispensing unit is provided with an annular groove in an upper face thereof, and
the flange is inserted into the groove of the dispensing unit when the lid closes the opening of the dispensing unit.

5. The tissue wipe container as claimed in any one of claims 1 to 4, wherein

a center of an upper face of the dispensing unit is recessed in the vertical direction to form a recess, and
the opening for pulling out the tissue wipes to the outside is formed through a base of the recess.

FIG.1

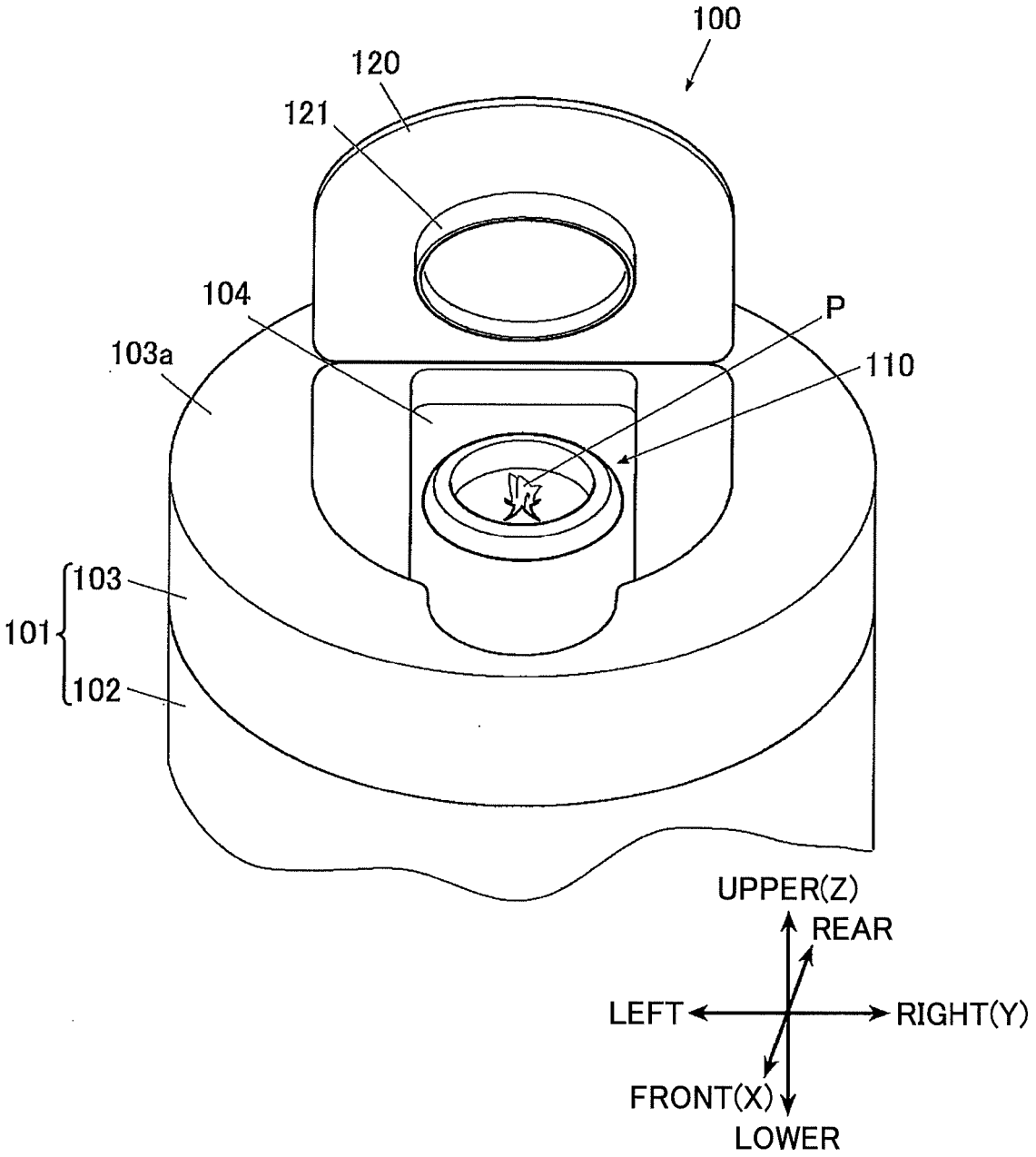

100
120
121
104
P
103a
110
103
101
102
UPPER(Z)
REAR
LEFT
RIGHT(Y)
FRONT(X)
LOWER

FIG.2

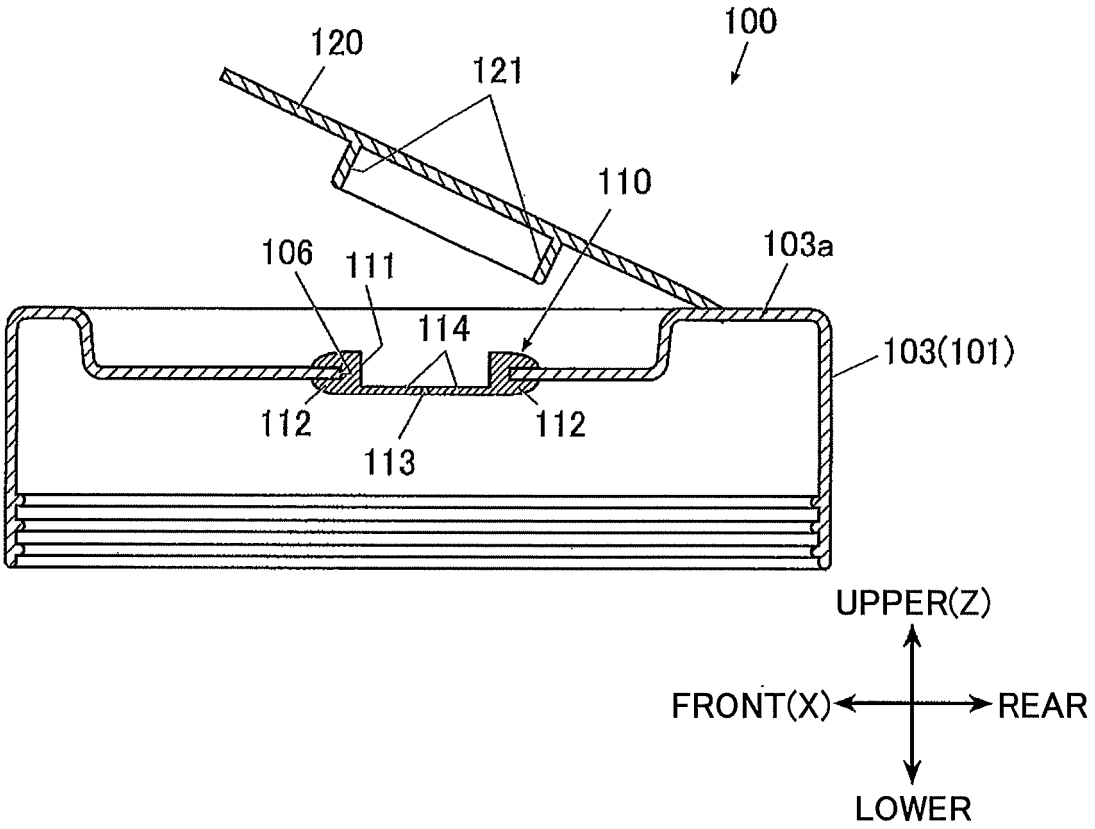

100
120
121
110
106
111
103a
114
103(101)
112
112
113
UPPER(Z)
FRONT(X)
REAR
LOWER

FIG.3

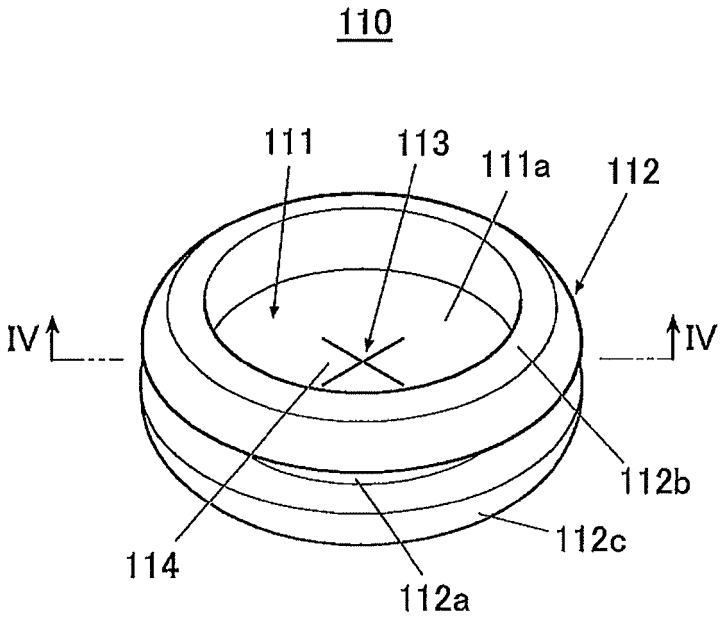

110
111
113
111a
112
IV
IV
112b
112c
114
112a

FIG.4

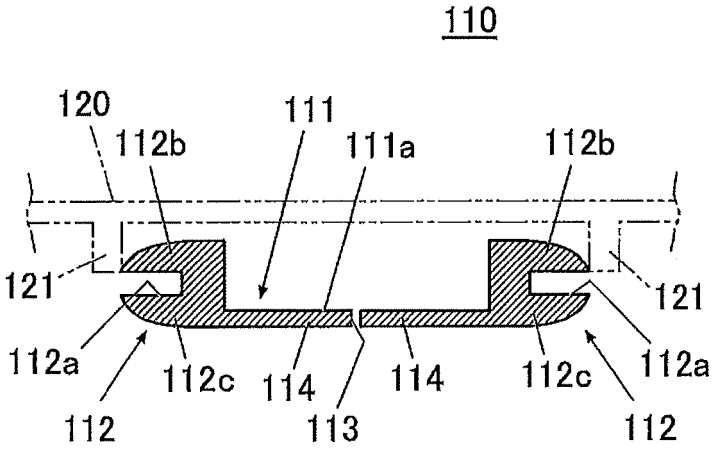

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FIG.5

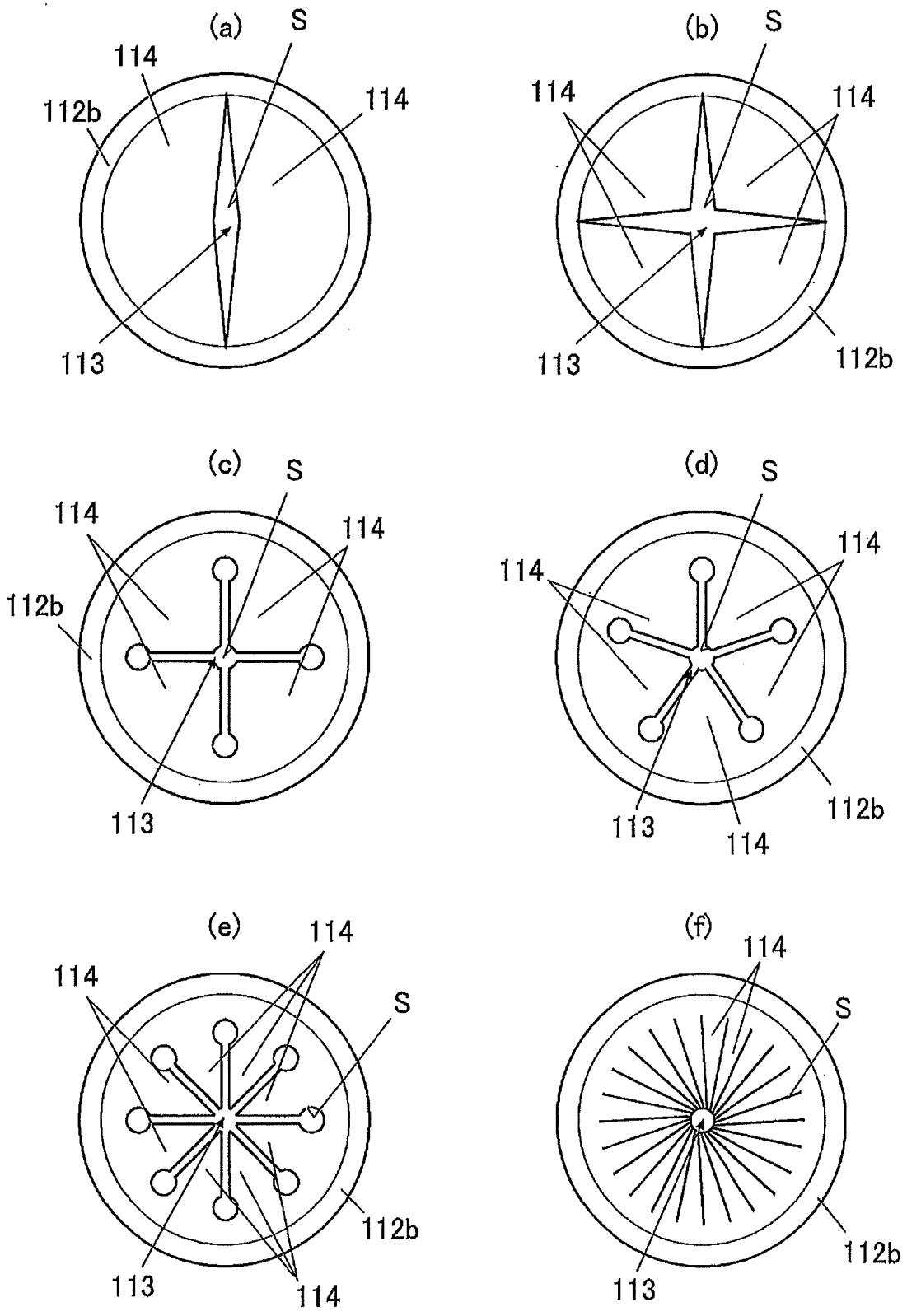
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FIG.6

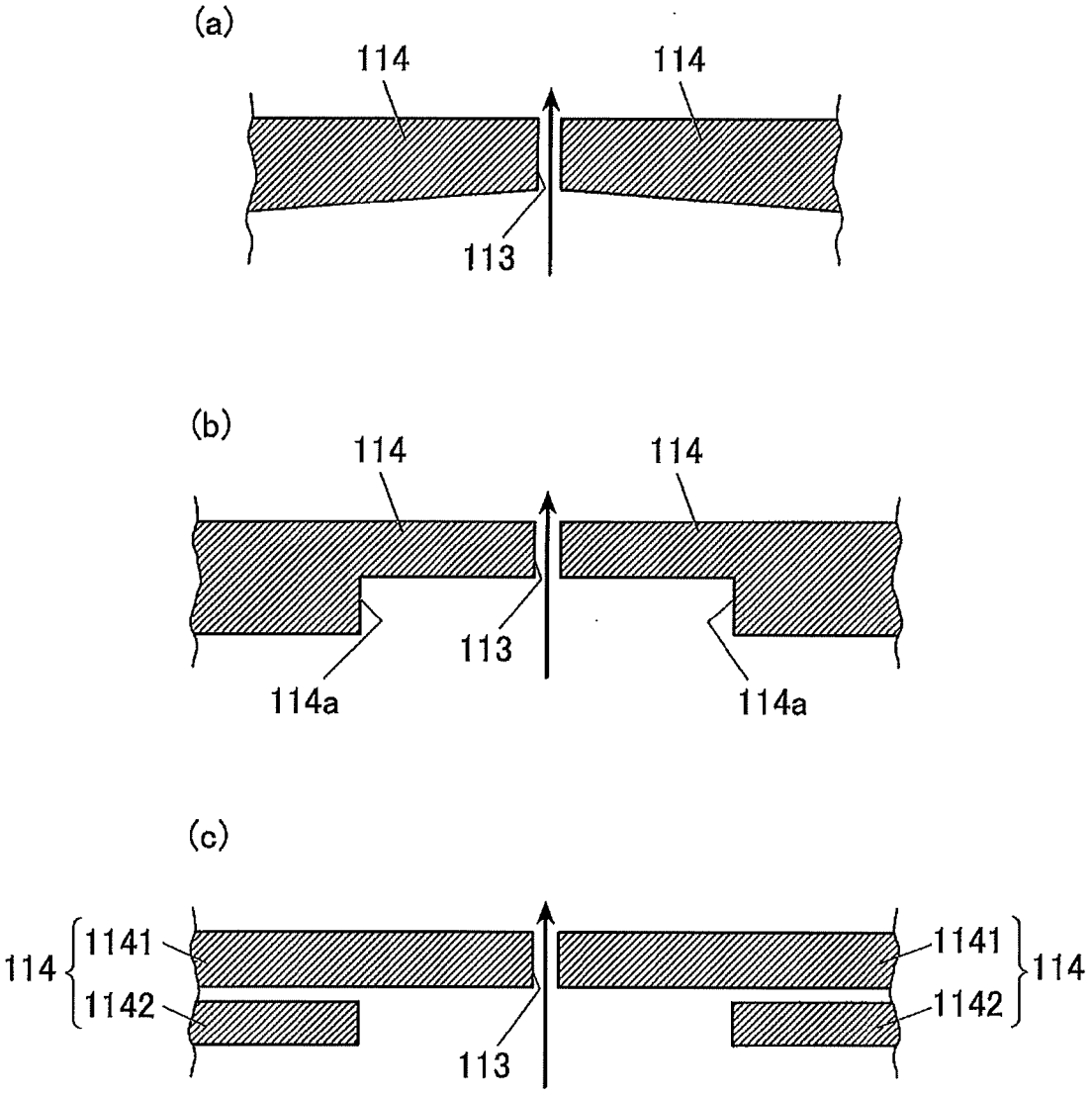
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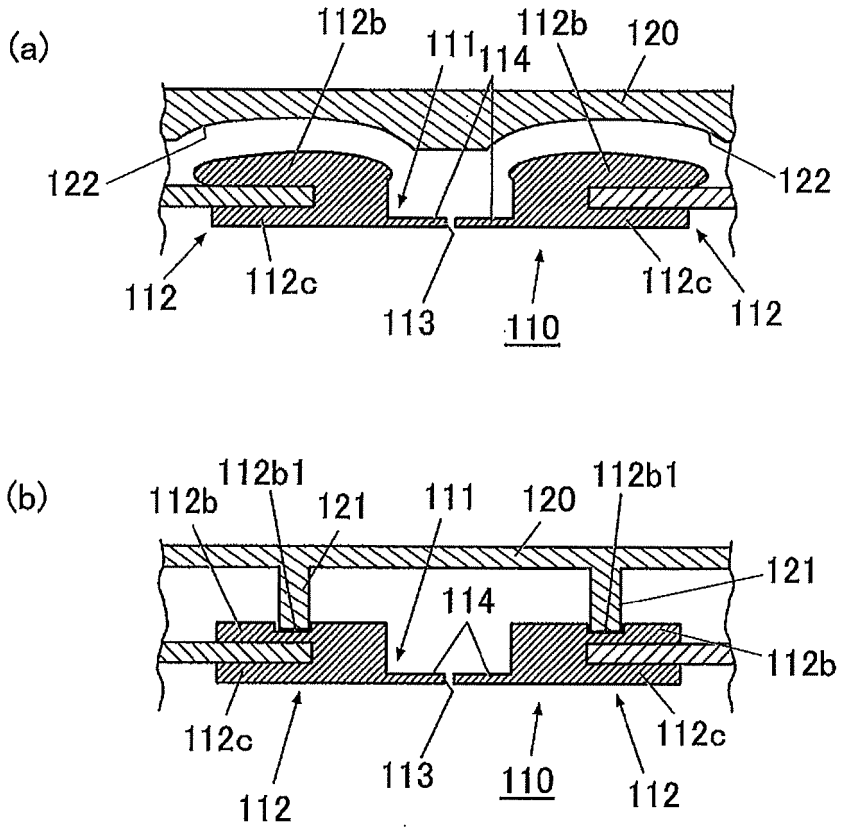
FIG.7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122
122
112
112c
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112c
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(b)
112b1
112b
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112b1
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112b
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2017/006582

A. CLASSIFICATION OF SUBJECT MATTER
B65D83/08(2006.01)i, *A47K10/20*(2006.01)i

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B65D83/08, A47K10/20

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Jitsuyo Shinan Koho 1922-1996 Jitsuyo Shinan Toroku Koho 1996-2017
Kokai Jitsuyo Shinan Koho 1971-2017 Toroku Jitsuyo Shinan Koho 1994-2017

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 141146/1978(Laid-open No. 57397/1980) (Kamaya Kagaku Kogyo Co., Ltd.), 18 April 1980 (18.04.1980), page 3, line 11 to page 11, line 3; fig. 1 to 4 (Family: none)	1,4 1-5
Y	JP 2013-249114 A (Iwatani Materials Corp.), 12 December 2013 (12.12.2013), paragraphs [0013] to [0017]; fig. 9 to 11 (Family: none)	1-5

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

* Special categories of cited documents:
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"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
22 March 2017 (22.03.17)	16 May 2017 (16.05.17)
Name and mailing address of the ISA/ Japan Patent Office 3-4-3,Kasumigaseki,Chiyoda-ku, Tokyo 100-8915,Japan	Authorized officer Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2017/006582

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2011-184106 A (Daio Paper Corp.), 22 September 2011 (22.09.2011), paragraphs [0034] to [0047]; fig. 6 to 9 (Family: none)	3
Y	JP 2005-53529 A (Meisei Sansho Co., Ltd.), 03 March 2005 (03.03.2005), paragraph [0011]; fig. 2 (Family: none)	5
A	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 107297/1977(Laid-open No. 34646/1979) (Wakodo Co., Ltd.), 07 March 1979 (07.03.1979), entire text; all drawings & US 4180160 A & GB 2002327 A & DE 2834423 A1 & FR 2399825 A1	1-5

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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 2012192962 A **[0004]**
- JP 2016067120 A **[0076]**