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(54) POUCH, LIDDED CONTAINER, AND TUBE

(57) Provided is a pouch that can be easily inserted onto a hanging implement, and is resistant to falling when hung on the hanging implement. A first packaging material includes at least one layer located in both a first region and a second region. A second packaging material includes at least one layer located in both the first region and the second region. An outline of a communication part that extends from the hole to the outer edge of the pouch includes a first line and a second line. The communication part includes a first portion and a second portion. The first position includes a portion where the first line and the second line have a spacing from each other that decreases with increasing distance from the outer edge of the pouch toward the hole. The second portion is located between the first portion and the hole, and includes a portion where the first line and the second line have a spacing from each other of less than or equal to 2.0 mm.

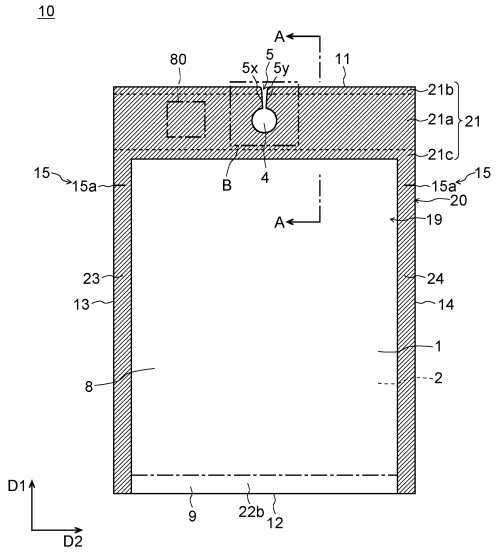

FIG.1A

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Description

BACKGROUND

Technical Field

[0001] The present invention relates to a pouch, a lidded container, and a tube that each include a containment part for containing contents.

Background Art

[0002] As disclosed in, for example, PTL 1, it is common to provide an upper portion of a pouch with a preformed through-hole, and pass a hanging implement such as a hook through the through-hole to hang the pouch on the hanging implement for display.

Citation List

Patent Literature

[0003] PTL 1: Japanese Unexamined Patent Application Publication No. 2003-11990

SUMMARY

[0004] Hanging a plurality of pouches described in PTL 1 on the hanging implement requires an operation that involves first passing the through-hole of each pouch through the distal end portion of the hanging implement, and then moving the pouch along a support of the hanging implement.

[0005] It is an object of the present invention to provide a pouch, a lidded container, a tube, and other packages that allow the above-mentioned issue to be effectively addressed.

[0006] According to the present invention, there is provided a pouch, the pouch having a containment part formed by joining a first packaging material and a second packaging material together, the first packaging material being located at a first face of the pouch, the second packaging material being located at a second face of the pouch, the pouch including:

a first region overlapping the containment part in plan view;
a second region located between the containment part and an outer edge of the pouch in plan view, the second region including a seal that joins the first packaging material and the second packaging material together;
a hole located in the second region and penetrating the first packaging material and the second packaging material; and
a communication part extending from the hole to the outer edge of the pouch and penetrating the first packaging material and the second packaging material,
wherein the first packaging material includes at least one layer located in both the first region and the second region,
wherein the second packaging material includes at least one layer located in both the first region and the second region,
wherein an outline of the communication part that extends from the hole to the outer edge of the pouch includes a first line and a second line, and
wherein the communication part includes

a first portion including a portion where the first line and the second line have a spacing from each other that decreases with increasing distance from the outer edge of the pouch toward the hole, and
a second portion located between the first portion and the hole and including a portion where the first line and the second line have a spacing from each other of less than or equal to 2.0 mm.

[0007] In one exemplary embodiment of the pouch according to the present invention, in the second portion of the communication part, the first line and the second line are not in contact with each other.

[0008] In one exemplary embodiment of the pouch according to the present invention, in the second portion of the communication part, the first line and the second line are at least partially in contact with each other.

[0009] In one exemplary embodiment of the pouch according to the present invention, a portion of the communication part where the first line and the second line are not in contact with each other is longer than a portion of the communication part where the first line and the second line are in contact with each other.

[0010] In one exemplary embodiment of the pouch according to the present invention, a specimen cut out from a portion of the second region where the hole is located has a mean flexural rigidity of greater than or equal to 15 [g·cm^2/cm] in a machine direction, the specimen including at least the first packaging material and the second packaging material.

[0011] In one exemplary embodiment of the pouch according to the present invention, the second region includes:

an outer-edge-side seal extending along the outer edge of the pouch;
a containment-part-side seal in contact with the containment part in plan view; and
a reinforcing part located between the outer-edge-side seal and the containment-part-side seal and surrounding the hole, the reinforcing part being thicker than the outer-edge-side seal and the containment-part-side seal.

[0012] In one exemplary embodiment of the pouch ac-

cording to the present invention, the reinforcing part includes a reinforcement located between the first packaging material and the second packaging material.

[0013] According to the present invention, there is provided a lidded container, the lidded container having a containment part sealed by joining a first packaging material and a second packaging material together, the first packaging material constituting a lid, the second packaging material constituting a container, the lidded container including:

a first region overlapping the containment part in plan view;
a second region located between the containment part and an outer edge of each of the lid and the container in plan view, the second region including a seal that joins the first packaging material and the second packaging material together;
a hole located in the second region and penetrating the first packaging material and the second packaging material; and
a communication part extending from the hole to the outer edge of each of the lid and the container and penetrating the first packaging material and the second packaging material,
wherein the first packaging material includes at least one layer located in both the first region and the second region,
wherein the second packaging material includes at least one layer located in both the first region and the second region,
wherein an outline of the communication part that extends from the hole to the outer edge of each of the lid and the container includes a first line and a second line, and
wherein the communication part includes

a first portion including a portion where the first line and the second line have a spacing from each other that decreases with increasing distance from the outer edge of each of the lid and the container toward the hole, and
a second portion located between the first portion and the hole and including a portion where the first line and the second line have a spacing from each other of less than or equal to 2.0 mm.

[0014] In one exemplary embodiment of the lidded container according to the present invention, a specimen cut out from a portion of the second region where the hole is located has a mean flexural rigidity of greater than or equal to 15 [$g \cdot cm^2/cm$] in a machine direction, the specimen including at least the first packaging material and the second packaging material.

[0015] According to the present invention, there is provided a tube, the tube having a containment part formed by joining a first packaging material and a second packaging material together, the first packaging material being located at a first face of the tube, the second packaging material being located at a second face of the tube, the tube including:

a first region overlapping the containment part in plan view;
a second region located between the containment part and an outer edge of the tube in plan view, the second region including a seal that joins the first packaging material and the second packaging material together;
a hole located in the second region and penetrating the first packaging material and the second packaging material; and
a communication part extending from the hole to an outer edge of each of the tube and penetrating the first packaging material and the second packaging material,
wherein the first packaging material includes at least one layer located in both the first region and the second region,
wherein the second packaging material includes at least one layer located in both the first region and the second region the second packaging material,
wherein an outline of the communication part that extends from the hole to the outer edge of the tube includes a first line and a second line, and
wherein the communication part includes

a first portion including a portion where the first line and the second line have a spacing from each other that decreases with increasing distance from the outer edge of the tube toward the hole, and
a second portion located between the first portion and the hole and including a portion where the first line and the second line have a spacing from each other of less than or equal to 2.0 mm.

[0016] In one exemplary embodiment of the tube according to the present invention, a specimen cut out from a portion of the second region where the hole is located has a mean flexural rigidity of greater than or equal to 15 [$g \cdot cm^2/cm$] in a machine direction, the specimen including at least the first packaging material and the second packaging material.

[0017] The present invention makes it possible to provide a pouch, a lidded container, a tube, and other packages that can be easily inserted onto a hanging implement, and are resistant to falling when hung on the hanging implement.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018]

[Fig. 1A] Fig. 1A is a front view of a pouch according to a first embodiment as seen from a first face of the

pouch.

[Fig. 1B] Fig. 1B is a back view of the pouch according to the first embodiment as seen from a second face of the pouch.

[Fig. 2] Fig. 2 is an enlarged front view of the region indicated by reference sign B and enclosed by an alternate long and two short dashes line in Fig. 1A.

[Fig. 3] Fig. 3 is a cross-sectional view of the pouch taken along a line A-A in Fig. 1A.

[Fig. 4] Fig. 4 illustrates a method for measuring the flexural rigidity of a specimen cut out from the pouch.

[Fig. 5] Fig. 5 illustrates the method for measuring the flexural rigidity of the specimen cut out from the pouch.

[Fig. 6] Fig. 6 is a cross-sectional view of an exemplary packaging material constituting the pouch.

[Fig. 7] Fig. 7 is a cross-sectional view of an exemplary packaging material constituting the pouch.

[Fig. 8] Fig. 8 illustrates an exemplary method for manufacturing the pouch.

[Fig. 9A] Fig. 9A is a front view of the pouch illustrated in Fig. 1A with a containment part sealed.

[Fig. 9B] Fig. 9B is a back view of the pouch illustrated in Fig. 1B with the containment part sealed.

[Fig. 10] Fig. 10 illustrates a plurality of pouches hung on a hanging implement.

[Fig. 11A] Fig. 11A illustrates an exemplary operation of hanging the pouch on the hanging implement.

[Fig. 11B] Fig. 11B illustrates an exemplary operation of hanging the pouch on the hanging implement.

[Fig. 12] Fig. 12 is a front view of a modification of a communication part provided in a second region.

[Fig. 13] Fig. 13 is a front view of a modification of the communication part provided in the second region.

[Fig. 14] Fig. 14 is a front view of a modification of the communication part provided in the second region.

[Fig. 15] Fig. 15 is a front view of a modification of a hole provided in the second region.

[Fig. 16] Fig. 16 is a front view of a modification of the hole provided in the second region.

[Fig. 17] Fig. 17 is a front view of a modification of the hole provided in the second region.

[Fig. 18] Fig. 18 is a front view of a modification of the hole provided in the second region.

[Fig. 19] Fig. 19 is a front view of a modification of the hole provided in the second region.

[Fig. 20] Fig. 20 is a front view of a modification of the hole provided in the second region.

[Fig. 21] Fig. 21 is a front view of a modification of the hole provided in the second region.

[Fig. 22] Fig. 22 illustrates pouches hung on the hanging implement and each including the hole illustrated in Fig. 21.

[Fig. 23] Fig. 23 is a front view of a modification of each of the hole and the communication part that are provided in the second region.

[Fig. 24] Fig. 24 is a front view of a modification of each of the hole and the communication part that are provided in the second region.

[Fig. 25] Fig. 25 is a cross-sectional view of a modification of a reinforcement.

[Fig. 26] Fig. 26 illustrates an exemplary method for manufacturing a pouch including the reinforcement illustrated in Fig. 25.

[Fig. 27] Fig. 27 is a front view of a modification of a reinforcing part.

[Fig. 28] Fig. 28 is a front view of a modification of the pouch.

[Fig. 29] Fig. 29 is a front view of a modification of the pouch.

[Fig. 30] Fig. 30 is a front view of the pouch illustrated in Fig. 29 with the containment part sealed.

[Fig. 31] Fig. 31 is a front view of a modification of the pouch.

[Fig. 32] Fig. 32 is a front view of a modification of the pouch.

[Fig. 33] Fig. 33 is a cross-sectional view of the pouch taken along a line C-C in Fig. 32.

[Fig. 34] Fig. 34 is a front view of a modification of the pouch.

[Fig. 35] Fig. 35 is a cross-sectional view of the pouch taken along a line D-D in Fig. 34.

[Fig. 36] Fig. 36 is a front view of a modification of the pouch.

[Fig. 37] Fig. 37 is a front view of a modification of the pouch.

[Fig. 38] Fig. 38 is a perspective view of a modification of the hanging implement.

[Fig. 39] Fig. 39 is a cross-sectional view of a modification of a support of the hanging implement.

[Fig. 40] Fig. 40 is a cross-sectional view of the support of the hanging implement.

[Fig. 41] Fig. 41 is a perspective view of a modification of the hanging implement.

[Fig. 42] Fig. 42 is a plan view of an exemplary lidded container that includes the hole and the communication part.

[Fig. 43] Fig. 43 is a cross-sectional view of the lidded container taken along a line E-E in Fig. 42.

[Fig. 44] Fig. 44 is an enlarged cross-sectional view of a first-edge seal and the containment part of the lidded container illustrated in Fig. 43.

[Fig. 45] Fig. 45 is a cross-sectional view of a modification of a second packaging material of the lidded container.

[Fig. 46] Fig. 46 is a front view of an exemplary tube that includes the hole and the communication part.

[Fig. 47] Fig. 47 is a cross-sectional view of the tube taken along a line F-F in Fig. 46.

[Fig. 48] Fig. 48 illustrates a method for measuring the maximum value of load that a package is able to withstand.

[Fig. 49] Fig. 49 illustrates the measurements of the maximum value of load.

[Fig. 50] Fig. 50 illustrates the results of evaluation made by panelists.
[Fig. 51A] Fig. 51A is a front view of a pouch according to a second embodiment as seen from the first face of the pouch.
[Fig. 51B] Fig. 51B is a back view of the pouch according to the second embodiment as seen from the second face of the pouch.
[Fig. 52A] Fig. 52A is an enlarged front view of the region indicated by reference sign G and enclosed by an alternate long and two short dashes line in Fig. 51A.
[Fig. 52B] Fig. 52B is a front view of a modification of the communication part.
[Fig. 52C] Fig. 52C is a front view of a modification of the communication part.
[Fig. 52D] Fig. 52D is a front view of a modification of the communication part.
[Fig. 52E] Fig. 52E is a front view of a modification of the communication part.
[Fig. 53A] Fig. 53A is a front view of a modification of the communication part.
[Fig. 53B] Fig. 53B is a front view of a modification of the communication part.
[Fig. 53C] Fig. 53C is a front view of a modification of the communication part.
[Fig. 53D] Fig. 53D is a front view of a modification of the communication part.
[Fig. 54A] Fig. 54A is a front view of a pouch according to a third embodiment as seen from the first face of the pouch.
[Fig. 54B] Fig. 54B is a back view of the pouch according to the third embodiment as seen from the second face of the pouch.
[Fig. 55A] Fig. 55A is an enlarged front view of the region indicated by reference sign H and enclosed by an alternate long and two short dashes line in Fig. 54A.
[Fig. 55B] Fig. 55B is a front view of a modification of the communication part.
[Fig. 55C] Fig. 55C is a front view of a modification of the communication part.
[Fig. 55D] Fig. 55D is a front view of a modification of the communication part.
[Fig. 56A] Fig. 56A is a front view of a modification of the communication part.
[Fig. 56B] Fig. 56B is a front view of a modification of the communication part.
[Fig. 56C] Fig. 56C is a front view of a modification of the communication part.
[Fig. 56D] Fig. 56D is a front view of a modification of the communication part.
[Fig. 57A] Fig. 57A is a front view of a modification of the pouch according to the third embodiment.
[Fig. 57B] Fig. 57B is a back view of a modification of the pouch according to the third embodiment.
[Fig. 58A] Fig. 58A is a front view of a modification of the pouch according to the third embodiment.
[Fig. 58B] Fig. 58B is a back view of a modification of the pouch according to the third embodiment.

DETAILED DESCRIPTION

(First Embodiment)

[0019] A first embodiment of the present invention is described below with reference to Figs. 1 to 11B. In the accompanying drawings, for ease of illustration and understanding, the scales, the length-to-width dimensional ratios, and other dimensional features in the drawings are changed and exaggerated as appropriate from the actual values.

[0020] As for terms and values that are used herein to define shapes, geometric conditions, and their extents or degrees, for example, terms such as "parallel", "orthogonal", and "identical" and values such as lengths and angles, these terms and values are not limited to their strict meanings but are to be construed as including a range of variations that allow for similar expected functions.

[0021] Fig. 1 is a front view of a pouch 10 as seen from a first face 1 of the pouch 10. Fig. 1B is a back view of the pouch 10 as seen from a second face 2 of the pouch 10 located opposite to the first face 1. Figs. 1A and 1B each depict the pouch 10 prior to being filled with the contents, that is, with no contents contained therein. As used with reference to the first embodiment, the term pouch conceptually includes not only a pouch with no contents contained therein but also a pouch with contents contained therein.

[0022] The pouch 10 has a containment part 8 for containing contents. The containment part 8 is a space located between a first packaging material, which constitutes the first face 1, and a second packaging material, which constitutes the second face 2. The containment part 8 is defined by the first packaging material, the second packaging material, and a seal where the first packaging material and the second packaging material are joined together. In each of front views and back views of the pouch 10 such as Figs 1A and 1B, as well as plan views of a lidded container and front views of a tube that will be described later, the seal is shaded with diagonal lines. As illustrated in Fig. 1A, when viewed along the normal to the first packaging material constituting the first face 1, the containment part 8 is located inside the seal. In the following description, viewing a pouch, a lidded container, a tube, or other packages along the normal to the first packaging material is also referred to simply as plan view.

[0023] The terms "first packaging material" and "second packaging material" mentioned above are used to merely divide individual packaging materials from each other according to their positional relationship, and are not intended to limit the manner in which the packaging materials are provided in manufacturing the pouch 10. For example, the pouch 10 may be manufactured by us-

ing a single sheet of packaging material including the first packaging material and the second packaging material that are provided contiguously, or may be manufactured by using a total of two sheets of packaging material including a single sheet of first packaging material and a single sheet of second packaging material.

[0024] A region of a package that overlaps the containment part 8 in plan view is hereinafter referred to as first region 19. A region of the package located between the containment part 8 and the outer edge of the package and including the seal that joins the first packaging material and the second packaging material together is hereinafter referred to as second region 20.

[0025] The contents to be contained in the containment part 8 of a package such as a pouch, a lidded container, or a tube are not particularly limited. The containment part 8 of the package is capable of containing objects in various forms as its contents, such as liquids, powders, granulates, and solids. The contents may be food products, or may be non-food products.

<Shape of Pouch>

[0026] The shape of the pouch 10 is described below. In the example illustrated in Figs. 1A and 1B, the pouch 10 has an outer edge in the shape of a quadrangle. As used herein, the term quadrangle conceptually includes not only shapes with angular corners but also shapes whose corners are chamfered into an outwardly convex arcuate or curved shape.

[0027] The outer edge of the pouch includes a first edge 11, a second edge 12 opposing the first edge 11 in a first direction D1, and a third edge 13 and a fourth edge 14, which extend between the first edge 11 and the second edge 12. The third edge 13 and the fourth edge 14 may be opposed to each other in a second direction D2 orthogonal to the first direction D1. The first edge 11 may be located at the upper side of the pouch 10 when the pouch 10 is hung. In this case, the first direction D1 is the vertical direction, and the second direction D2 is the horizontal direction.

<Seal>

[0028] The seal is described below. The seal on the second region 20 of the pouch 10 illustrated in Figs. 1A and 1B includes a first-edge seal 21 extending along the first edge 11, a third-edge seal 23 extending along the third edge 13, and a fourth-edge seal 24 extending along the fourth edge 14. In plan view, the first-edge seal 21, the third-edge seal 23, and the fourth-edge seal 24 may or may not be in contact with the outer edge of the pouch 10. In Figs. 1A and 1B, a lower portion of the pouch 10 located below an alternate long and short dash line is a to-be-second-edge-seal part 22b, which is to become a second-edge seal 22 later.

<Easy-Opening Means>

[0029] The seal on the pouch 10 may be provided with easy-opening means 15 for tearing the packaging material constituting the pouch to allow opening of the pouch. For example, as illustrated in Figs. 1A and 1B, the easy-opening means 15 may include a notch 15a, which extends from the third edge 13 in the second direction D2 and penetrates the third-edge seal 23. The easy-opening means 15 may include a half-cut line formed in the third-edge seal 23 by use of laser machining, a cutter, or other means. The easy-opening means 15 may be formed at or near the fourth edge 14.

<Hole and Communication Part>

[0030] The pouch 10 includes a hole 4, which is located in the second region 20 and penetrates the first packaging material and the second packaging material. In the example illustrated in Figs. 1A and 1B, the hole 4 is located in the second region 20 between the first edge 11 of the pouch 10 and the containment part 8. The hole 4 is a hole into which the support of a hanging implement described later is to be inserted. In the example illustrated in Figs. 1A and 1B, the hole 4 has a circular outline.

[0031] The pouch 10 includes a communication part 5, which extends from the hole 4 to the outer edge of the pouch 10 and penetrates the first packaging material and the second packaging material. In the example illustrated in Figs. 1A and 1B, the communication part 5 extends to the first edge 11 from a portion of the hole 4 located closest to the first edge 11. The communication part 5 allows the support of the hanging implement described later to pass therethrough from the first edge 11 toward the hole 4. In other words, the communication part 5 is capable of connecting the first edge 11 and the hole 4.

[0032] As illustrated in Figs. 1A and 1B, an outline of the communication part 5 that extends from the hole 4 to the outer edge of the pouch 10 includes a first line 5x and a second line 5y. In the example illustrated in Figs. 1A and 1B, the first line 5x and the second line 5y are not in contact with each other. The communication part 5 described above is obtained by punching out a portion of the second region 20 located between the outer edge of the pouch 10 and the hole 4 by use of a punching die. In this case, the communication part 5 is also referred to as notch.

[0033] Fig. 2 is an enlarged front view of the region indicated by reference sign B and enclosed by an alternate long and two short dashes line in Fig. 1A. As illustrated in Fig. 2, the communication part 5 is divided into a first portion 5a located near the first edge 11, and a second portion 5b located between the first portion 5a and the hole 4. In Fig. 2, reference sign W denotes the spacing between the first line 5x and the second line 5y. The spacing W refers to the distance between the first line 5x and the second line 5y in a direction orthogonal to a middle line 5z running in the middle between the first

line 5x and the second line 5y.

[0034] The second portion 5b includes a portion where the spacing W is less than or equal to 2.0 mm. For example, the second portion 5b is defined as a portion of the communication part 5 extending to the hole 4 from a location where the spacing W is 2.0 mm. In this case, the first portion 5a is defined as a portion of the communication part 5 where the spacing W is greater than 2.0 mm.

[0035] As illustrated in Fig. 2, the first portion 5a may include a portion where the spacing W decreases with increasing distance from the first edge 11 toward the hole 4. For example, the first line 5x of the first portion 5a may include a straight line inclined relative to the middle line 5z such that its proximity to the middle line 5z increases with increasing distance from the first edge 11 toward the hole 4. The second line 5y of the first portion 5a may likewise include a straight line inclined relative to the middle line 5z such that its proximity to the middle line 5z increases with increasing distance from the first edge 11 toward the hole 4. Each straight line inclined relative to the middle line 5z may extend to the second portion 5b. In one example, each of the straight lines inclined relative to the middle line 5z may reach the hole 4. In this case, the second portion 5b likewise includes a portion where the spacing W decreases with increasing distance from the first edge 11 toward the hole 4.

[0036] In Fig. 2, reference sign W1 denotes the spacing between the first line 5x and the second line 5y at a location where the first portion 5a connects with the first edge 11. Reference sign W2 denotes the spacing between the first line 5x and the second line 5y at a location where the second portion 5b connects with the hole 4. The spacing W1 is greater than the spacing W2.

[0037] The spacing W1 is dimensioned such that the hanging implement on which to hang the pouch 10 can easily enter the communication part 5. The spacing W1 is, for example, greater than or equal to 2.0 mm. The spacing W1 may be greater than or equal to 3.0 mm, or may be greater than or equal to 4.0 mm. An excessively large spacing W1, however, reduces the area of the second region 20 located between the first edge 11 and the hole 4. This makes the second region 20 more prone to deformation. With this in mind, the spacing W1 may be less than or equal to 10.0 mm, may be less than or equal to 8.0 mm, or may be less than or equal to 6.0 mm.

[0038] The spacing W2 is dimensioned to prevent or inhibit the hanging implement inserted in the hole 4 from passing through the communication part 5 due to the self-weight of the pouch 10. The spacing W2 is, for example, less than or equal to 2.0 mm. The spacing W2 may be less than or equal to 1.5 mm, may be less than or equal to 1.0 mm, or may be less than or equal to 0.5 mm. Setting the spacing W2 to less than or equal to 2 mm makes it possible to prevent or inhibit the second region 20 facing the second portion 5b and in contact with the hanging implement from twisting and thus allowing the hanging implement to pass through the communication part 5.

[0039] As illustrated in Fig. 2, the first line 5x and the second line 5y may include a curved portion 5c. The curved portion 5c may define the first line 5x and the second line 5y at the location where the first portion 5a connects with the first edge 11. The curved portion 5c is curved to be convex toward the first edge 11. The presence of the curved portion 5c described above facilitates entry of the hanging implement into the communication part 5.

[0040] The curvature radius R of the curved portion 5c at the location where the first portion 5a connects with the first edge 11 is, for example, greater than or equal to 3.0 mm. The curvature radius R may be greater than or equal to 4.0 mm, or may be greater than or equal to 5.0 mm. Further, the curvature radius R of the curved portion 5c at the location where the first portion 5a connects with the first edge 11 may be less than or equal to 10.0 mm, may be less than or equal to 8.0 mm, or may be less than or equal to 6.0 mm.

[0041] In Fig. 2, reference signs L1 and L2 respectively denote the length of the first portion 5a and the length of the second portion 5b in a direction in which the middle line 5z extends. As illustrated in Fig. 2, the length L1 of the first portion 5a may be greater than the length L2 of the second portion 5b. For example, the length L1 of the first portion 5a may be greater than 1.0 times, may be greater than or equal to 1.1 times, may be greater than or equal to 1.2 times, or may be greater than or equal to 1.5 times the length L2 of the second portion 5b. Alternatively, although not illustrated, the length L1 of the first portion 5a may be less than the length L2 of the second portion 5b. For example, the length L1 of the first portion 5a may be less than 1.0 times, may be less than or equal to 0.9 times, may be less than or equal to 0.8 times, or may be less than or equal to 0.6 times the length L2 of the second portion 5b.

[0042] Upon hanging the pouch 10 on the hanging implement, a portion of the packaging material constituting the pouch 10 and located around the periphery of each of the hole 4 and the communication part 5 receives a reaction force from the hanging implement that is caused by the self-weight of the pouch 10. At this time, if the packaging material has a small strength relative to the force exerted from the hanging implement, this may result in the package material undergoing, for example, deformation or cracking. This may cause the pouch 10 to fall off the hanging implement. With this in mind, the second region 20 of the pouch 10 may include a reinforcing part 21a.

<Reinforcing Part>

[0043] In the example illustrated in Figs. 1A and 1B, two dashed lines extending in the second direction D2 in an upper portion of the pouch 10 represent the upper and lower ends of the reinforcing part 21a. The reinforcing part 21a is located in the first-edge seal 21 where the hole 4 is provided. The presence of the reinforcing part 21a makes it possible to increase the strength of the

pouch 10 around the periphery of each of the hole 4 and the communication part 5. This helps to prevent or inhibit the pouch 10 from undergoing, for example, deformation or cracking.

[0044] As illustrated in Figs. 1A and 1B, the reinforcing part 21a may be located between an outer-edge-side seal 21b and a containment-part-side seal 21c. The outer-edge-side seal 21b is a seal extending along the first edge 11 of the pouch 10. The outer-edge-side seal 21b may or may not in contact with the first edge 11 in plan view. The containment-part-side seal 21c is a seal that is in contact the containment part 8 in plan view. The reinforcing part 21a, the outer-edge-side seal 21b, and the containment-part-side seal 21c constitute the first-edge seal 21.

[0045] The reinforcing part 21a surrounds the hole 4 in plan view. As illustrated in Figs. 1A and 1B, the reinforcing part 21a may extend in the second direction D2 so as to reach the third edge 13 and the fourth edge 14.

[0046] Fig. 3 is a cross-sectional view of the second region 20 of the pouch taken along a line A-A in Fig. 1A. As illustrated in Fig. 3, the reinforcing part 21a is thicker than the outer-edge-side seal 21b and the containment-part-side seal 21c. The difference between the thickness T3 of the reinforcing part 21a and each of the thickness T4 of the outer-edge-side seal 21b and the thickness T5 of the containment-part-side seal 21c is, for example, greater than or equal to 50 μm. The above-mentioned difference may be greater than or equal to 70 μm, or may be greater than or equal to 100 μm.

[0047] As illustrated in Fig. 3, the reinforcing part 21a may include a reinforcement 55 located between the inner face of a first packaging material 30A constituting the first face 1, and the inner face of a second packaging material 30B constituting the second face 2. In the outer-edge-side seal 21b and the containment-part-side seal 21c, the inner face of the first packaging material 30A and the inner face of the second packaging material 30B may be joined together. This configuration allows the reinforcing part 21a to have a thickness that is greater than the thickness T4 of the outer-edge-side seal 21b and the thickness T5 of the containment-part-side seal 21c by an amount equal to the thickness of the reinforcement 55. The term "inner face" refers to a face of a packaging material such as the first packaging material 30A or the second packaging material 30B that is located adjacent to the containment part 8.

[0048] As illustrated in Fig. 3, the first packaging material 30A may include a first base layer 51, and a first sealant layer 61 located adjacent to the inner face of the first base layer 51. The second packaging material 30B may include a second base layer 52, and a second sealant layer 62 located adjacent to the inner face of the second base layer 52. In the outer-edge-side seal 21b and the containment-part-side seal 21c, the first sealant layer 61 of the first packaging material 30A, and the second sealant layer 62 of the second packaging material 30B may be joined together. For example, the first sealant layer 61 and the second sealant layer 62 may be integrated together through a heat seal process.

[0049] In the reinforcing part 21a, the first sealant layer 61 of the first packaging material 30A, and the second sealant layer 62 of the second packaging material 30B may be joined to the reinforcement 55. For example, the first sealant layer 61, the reinforcement 55, and the second sealant layer 62 may be integrated together through a heat seal process. Alternatively, the first sealant layer 61 and the reinforcement 55 may not be joined together. The second sealant layer 62 and the reinforcement 55 may not be joined together. Even in such cases, the reinforcing part 21a is sandwiched between the outer-edge-side seal 21b and the containment-part-side seal 21c in plan view, and thus in the reinforcing part 21a, the spacing between the inner face of the first packaging material 30A and the inner face of the second packaging material 30B can be limited to be within a predetermined range.

[0050] Suitable exemplary materials for a type of the reinforcement 55 that is joined to the first sealant layer 61 and the second sealant layer 62 include materials described later as exemplary materials for the first sealant layer 61. Suitable exemplary materials for a type of the reinforcement 55 that is not joined to the first sealant layer 61 and the second sealant layer 62 include: films or sheets made of, for example, polyethylene terephthalate, polybutylene terephthalate, or polypropylene; and paper. The thickness of the reinforcement 55 is, for example, greater than or equal to 50 μm. The thickness of the reinforcement 55 may be greater than or equal to 70 μm, or may be greater than or equal to 100 μm. The thickness of the reinforcement 55 may be less than or equal to 1000 μm, may be less than or equal to 500 μm, or may be less than or equal to 300 μm.

[0051] For a case where the reinforcement 55 is joined to the first sealant layer 61 and the second sealant layer 62, the reinforcement 55, and the first sealant layer 61 and the second sealant layer 62 may form an integral sealing layer in the reinforcing part 21a. The first sealant layer 61 and the second sealant layer 62 may form an integral sealing layer in the outer-edge-side seal 21b and the containment-part-side seal 21c. In Fig. 3, reference sign T1 denotes the thickness of the sealing layer located in the reinforcing part 21a. Reference sign T2 denotes the thickness of the sealing layer located in the outer-edge-side seal 21b and the containment-part-side seal 21c. The thickness T1 is greater than the thickness T2. To ensure that the reinforcing part 21a retains sufficient strength, the thickness T1 of the sealing layer in the reinforcing part 21a is preferably greater than or equal to 100 μm. The sealing layer in the outer-edge-side seal 21b, and the sealing layer in the containment-part-side seal 21c are substantially equal to each other in thickness. For example, the thickness T1 of the sealing layer in the reinforcing part 21a may be 136 μm, and the thickness T2 of the sealing layer in each of the outer-edge-side seal 21b and the containment-part-side seal 21c

may be 36 μm.

[0052] For a case where the reinforcement 55 is joined to the first sealant layer 61 and the second sealant layer 62, the reinforcing part 21a may have a layer structure represented below.

first base layer / sealing layer / second base layer

[0053] As described above, the sealing layer is formed by the first sealant layer 61, the reinforcing part 21a, and the second sealant layer 62.

[0054] For a case where the reinforcement 55 is not joined to the first sealant layer 61 and the second sealant layer 62, the reinforcing part 21a may have a layer structure represented below.

first base layer / sealing layer / reinforcement / sealing layer / second base layer

[0055] The sealing layer adjacent to the first base layer is formed by the first sealant layer 61. The sealing layer adjacent to the second base layer is formed by the second sealant layer 62.

<Strength of Second Region>

[0056] Reference is now made to preferred mechanical characteristics possessed by the second region 20 that is provided with the hole 4. Preferably, a portion of the second region 20 where the hole 4 is located has a predetermined flexural rigidity in at least one direction. For example, the above-mentioned portion preferably has a mean flexural rigidity of greater than or equal to 15 g·cm^2/cm. The above-mentioned portion preferably has an initial flexural rigidity of preferably greater than or equal to 22 g·cm^2/cm.

[0057] Flexural rigidity is a parameter representing a measure of the stiffness of a film. Reference is now made to Figs. 4 and 5 to describe a method for measuring flexural rigidity.

[0058] To measure flexural rigidity, first, a specimen 80 is cut out from a portion of the second region 20 that has the same layer structure as the portion of the second region 20 where the hole 4 is located. As illustrated in Fig. 4, the specimen 80 has the shape of a square with sides each having a length M1. The length M1 is 10 mm. The direction of each side of the specimen 80 is set in accordance with the direction in which to measure flexural rigidity. For example, for a case where flexural rigidity is to be measured in the second direction D2, which is the machine direction of the pouch 10 illustrated in Fig. 1A, the specimen 80 includes sides extending in parallel to the second direction D2.

[0059] Subsequently, as illustrated in Fig. 4, opposing sides of the specimen 80 are held by using a first clamp 86 and a second clamp 87 of a measuring instrument 85. To measure flexural rigidity in the second direction D2, the specimen 80 is held such that sides of the specimen 80 extending in the second direction D2 extend from the first clamp 86 to the second clamp 87. The spacing M3 between the first clamp 86 and the second clamp 87 is 10 mm.

[0060] Subsequently, the first clamp 86 is tilted relative to the second clamp 87 so as to bend the specimen 80 into a curved shape. The initial flexural rigidity and mean flexural rigidity of the specimen 80 can be calculated based on the bending moment exerted on the specimen 80 at this time. Initial flexural rigidity refers to the bending moment exerted on the specimen 80 when the specimen 80 is bent into a curved shape from a flat shape. Mean flexural rigidity refers to the mean value of bending moments exerted on the specimen 80 during a single execution of the process of bending the specimen 80 into a curved shape from a flat shape until the specimen 80 has a set curvature. The set curvature is 2.5/cm. The rate of change in curvature is 0.1/cm·s.

[0061] Initial flexural rigidity and mean flexural rigidity are measured for each of five specimens 80, and their respective mean values are used as initial flexural rigidity and mean flexural rigidity according to the first embodiment.

[0062] The mean flexural rigidity of the specimen 80 in the machine direction is preferably greater than or equal to 15 g·cm^2/cm. The mean flexural rigidity of the specimen 80 in the machine direction may be greater than or equal to 20 g·cm^2/cm, may be greater than or equal to 25 g·cm^2/cm, or may be greater than or equal to 30 g·cm^2/cm. An excessively high mean flexural rigidity, however, reduces the manufacturability or ease of handling of the pouch 10. With this in mind, the mean flexural rigidity of the specimen 80 in the machine direction may be less than or equal to 50 g·cm^2/cm, may be less than or equal to 45 g·cm^2/cm, may be less than or equal to 40 g·cm^2/cm, or may be less than or equal to 35 g·cm^2/cm.

[0063] The mean flexural rigidity of the specimen 80 in the transverse direction orthogonal to the machine direction is preferably greater than or equal to 16 g·cm^2/cm. The mean flexural rigidity of the specimen 80 in the transverse direction may be greater than or equal to 18 g·cm^2/cm, may be greater than or equal to 20 g·cm^2/cm, or may be greater than or equal to 22 g·cm^2/cm. The mean flexural rigidity of the specimen 80 in the transverse direction may be less than or equal to 40 g·cm^2/cm, may be less than or equal to 35 g·cm^2/cm, may be less than or equal to 30 g·cm^2/cm, or may be less than or equal to 25 g·cm^2/cm.

[0064] The initial flexural rigidity of the specimen 80 in the machine direction is preferably greater than or equal to 22 g·cm^2/cm. The initial flexural rigidity of the specimen 80 in the machine direction may be greater than or equal to 25 g·cm^2/cm, may be greater than or equal to 30 g·cm^2/cm, or may be greater than or equal to 40 g·cm^2/cm. The initial flexural rigidity of the specimen 80 in the machine direction may be less than or equal to 70 g·cm^2/cm, may be less than or equal to 60 g·cm^2/cm, may be less than or equal to 50 g·cm^2/cm, or may be less than or equal to 45 g·cm^2/cm.

[0065] The initial flexural rigidity of the specimen 80 in the transverse direction is preferably greater than or equal to 23 g·cm^2/cm. The initial flexural rigidity of the

specimen 80 in the transverse direction may be greater than or equal to 25 $g \cdot cm^2/cm$, may be greater than or equal to 28 $g \cdot cm^2/cm$, or may be greater than or equal to 30 $g \cdot cm^2/cm$. The initial flexural rigidity of the specimen 80 in the transverse direction may be less than or equal to 70 $g \cdot cm^2/cm$, may be less than or equal to 60 $g \cdot cm^2/cm$, may be less than or equal to 50 $g \cdot cm^2/cm$, or may be less than or equal to 40 $g \cdot cm^2/cm$.

[0066] As an instrument for measuring flexural rigidity, a pure-bending characteristic tester JTC-911BT manufactured by SMT Co., Ltd. can be used. The flexural rigidity is measured under the environment of a temperature of 25°C and a relative humidity of 50%.

[0067] According to the first embodiment, the second region 20 is provided with the reinforcing part 21a including the reinforcement 55. This makes it possible to increase the flexural rigidity of a portion of the second region 20 where the hole 4 is located. This helps to prevent or inhibit a region around the periphery of each of the hole 4 and the communication part 5 from deforming to cause the pouch 10 to fall off the hanging implement.

(Packaging Material)

[0068] Reference is now made in detail to the first packaging material 30A and the second packaging material 30B.

[0069] The first packaging material 30A includes at least one layer located in both the first region 19 and the second region 20. For example, as illustrated in Fig. 3, the first base layer 51 and the first sealant layer 61 of the first packaging material 30A are located in both the first region 19 and the second region 20.

[0070] As with the first packaging material 30A, the second packaging material 30B also includes at least one layer located in both the first region 19 and the second region 20. For example, as illustrated in Fig. 3, the second base layer 52 and the second sealant layer 62 of the second packaging material 30B are located in both the first region 19 and the second region 20.

[0071] The layer structure of each of the first packaging material 30A and the second packaging material 30B is described below in detail. Fig. 6 is a cross-sectional view of the layer structure of the first packaging material 30A.

[0072] As illustrated in Fig. 6, the first packaging material 30A includes at least the first base layer 51, and the first sealant layer 61 located adjacent to the inner face of the first base layer 51. The first packaging material 30A may include a first bonding layer 65 for bonding the first base layer 51 to another layer such as the first sealant layer 61.

[0073] Suitable materials for the first base layer 51 may include: a polyester film such as a polyethylene terephthalate film or a polybutylene terephthalate film; a polyamide film such as a nylon film; a plastic film such as a polypropylene film; and paper. A plastic film that constitutes the first base layer 51 is preferably oriented biaxially.

[0074] If the first base layer 51 includes a plastic film, the first base layer 51 has a thickness of, for example, greater than or equal to 10 μm and less than or equal to 50 μm. Paper that constitutes the first base layer 51 has a basis weight of, for example, greater than or equal to 20 g/m^2 and less than or equal to 100 g/m^2.

[0075] Suitable materials for the first sealant layer 61 may include polyolefin resins such as polyethylene, polypropylene, ethylene-vinyl acetate copolymers, ethylene-propylene block copolymers, and propylene-ethylene block copolymers. The first sealant layer 61 may include an unoriented sealant film.

[0076] The thickness of the first sealant layer 61 may be greater than or equal to 15 μm, or may be greater than or equal to 18 μm. The thickness of the first sealant layer 61 may be less than or equal to 80 μm, may be less than or equal to 60 μm, may be less than or equal to 40 μm, or may be less than or equal to 30 μm.

[0077] The first bonding layer 65 may be an adhesive layer, or may be a bonding resin layer. The adhesive layer can be formed by a known method, for example, dry lamination. The bonding resin layer includes thermoplastic resin. The bonding resin layer can be formed by a known method, for example, melt extrusion lamination or sandwich lamination.

[0078] Fig. 7 is a cross-sectional view of another exemplary layer structure of the first packaging material 30A. As illustrated in Fig. 7, the first packaging material 30A may further include a first additional layer 53. The first packaging material 30A may include a third bonding layer 67 for bonding the first additional layer 53 to another layer.

[0079] The first additional layer 53 is provided to impart some characteristics to the first packaging material 30A. For example, the first additional layer 53 may include the film described above as an example of the first base layer 51. In this case, the presence of the first additional layer 53 helps to increase the strength of the first packaging material 30A. The material of a plastic film that constitutes the first additional layer 53 may be identical to or different from the material of a plastic film that constitutes the first base layer 51.

[0080] The first additional layer 53 may include a metallic foil of aluminum or other metals. This allows for enhanced gas barrier property or light-blocking property of the first packaging material 30A. The first additional layer 53 may include a resin layer with gas barrier property, examples of which include ethylene-vinyl alcohol copolymers (EVOH), polyvinylidene chloride resins (PVDC), or aromatic polyamides such as nylon MXD6.

[0081] As illustrated in Fig. 7, the first additional layer 53 may be located between the first base layer 51 and the first sealant layer 61. Alternatively, although not illustrated, the first additional layer 53 may be located adjacent to the outer face of the first base layer 51.

[0082] As with the first bonding layer 65, the third bonding layer 67 may be an adhesive layer, or may be a bonding resin layer.

[0083] The first packaging material 30A may include a print layer. The print layer is a layer on which to form any desired prints such as letters, numerals, designs, geometric figures, symbols, or patterns for purposes including decoration, indication of the contents, indication of best-before date, manufacturer or producer, seller or distributor, or other such information, and providing other indications or a sense of beauty. The print layer is formed by printing ink including a binder and a pigment.

[0084] A plastic film included in the first packaging material 30A may be provided with a vapor-deposited layer of a metal such as aluminum, a vapor-deposited layer of a metal oxide such as an aluminum oxide, or a vapor-deposited layer of an inorganic oxide such as a silicon oxide. Such a vapor-deposited layer may be stacked over the first base layer 51, may be stacked over the first sealant layer 61, or may be stacked over the first additional layer 53.

[0085] The layers constituting the first packaging material 30A are stacked by use of a method such as dry lamination or melt extrusion. The first packaging material 30A may further include other layers not illustrated in the drawings.

[0086] The second packaging material 30B includes at least the second base layer 52, and the second sealant layer 62 located adjacent to the inner face of the second base layer 52. As with the first packaging material 30A illustrated in Fig. 6, the second packaging material 30B may include the following layers arranged in the order stated below from the outer side toward the inner side of the second packaging material 30B: the second base layer 52, a second bonding layer 66, and the second sealant layer 62. The second base layer 52, the second bonding layer 66, and the second sealant layer 62 of the second packaging material 30B may be similar in their material, thickness, or other configuration to the first base layer 51, the first bonding layer 65, and the first sealant layer 61 of the first packaging material 30A.

[0087] As with the first packaging material 30A illustrated in Fig. 7, the second packaging material 30B may include the following layers arranged in the order stated below from the outer side toward the inner side of the second packaging material 30B: the second base layer 52, the second bonding layer 66, a second additional layer 54, a fourth bonding layer 68, and the second sealant layer 62. The second base layer 52, the second bonding layer 66, the second additional layer 54, the fourth bonding layer 68, and the second sealant layer 62 of the second packaging material 30B may be similar in their material, thickness, or configuration to the first base layer 51, the first bonding layer 65, the first additional layer 53, the third bonding layer 67, and the first sealant layer 61 of the first packaging material 30A.

[0088] The layer structure of the first packaging material 30A may be identical to or different from the layer structure of the second packaging material 30B. The first packaging material 30A and the second packaging material 30B are also collectively referred to as packaging material 30.

[0089] The thickness of each of the first packaging material 30A and the second packaging material 30B is, for example, greater than or equal to 30 μm. The thickness of each of the first packaging material 30A and the second packaging material 30B may be greater than or equal to 40 μm, or may be greater than or equal to 45 μm. The thickness of each of the first packaging material 30A and the second packaging material 30B may be less than or equal to 100 μm, may be less than or equal to 80 μm, or may be less than or equal to 60 μm.

[0090] Reference is now made to several preferred specific examples of the packaging material 30. The packaging material 30 is not limited to the specific examples described below but may have other configurations.

- OPP (oriented polypropylene film) 20 μm / print layer / AC / PE 10 μm / VMPET 12 μm / AC / PE 10 μm / CPP (cast polypropylene film) 18 μm
- OPP 20 μm / adhesive layer / VMCPP 30 μm
- PET (polyethylene terephthalate) 12 μm / adhesive layer / VMCPP 30 μm
- OPP 20 μm / adhesive layer / CPP 18 μm
- ONY (oriented nylon film) 15 μm / PE (polyethylene film) 30 μm
- print layer / paper 50 μm / PE 10 μm / VMPET 12 μm / AC / PE 10 μm / CPP 18 μm
- print layer / paper 50 μm / PE 10 μm / aluminum foil 7 μm / PE 30 μm
- PET 12 μm / PE 15 μm / aluminum foil 7 μm / PE 30 μm

[0091] "AC" means anchor coating layer. The anchor coating layer is a layer formed by applying an anchor coating agent onto a predetermined layer or film and then drying the resulting layer or film.

[0092] "VMPET" means a PET film with a vapor-deposited layer of a metal such as aluminum stacked thereon.

<Manufacturing Method>

[0093] Reference is now made to a method for manufacturing the pouch 10. First, as illustrated in Fig. 6, the first packaging material 30A and the second packaging material 30B are placed to face each other. The reinforcement 55 is inserted in between the first packaging material 30A and the second packaging material 30B to form a multilayer body. In this state, the multilayer body is heat sealed at a predetermined sealing temperature in regions corresponding to the first edge 11, the third edge 13, and the fourth edge 14 to thereby form the first-edge seal 21, the third-edge seal 23, and the fourth-edge seal 24. A region of the multilayer body overlapping the reinforcement 55 becomes the reinforcing part 21a mentioned above. Each of the first packaging material 30A, the second packaging material 30B, and the reinforcement 55 may be in the form of a long roll stock extending

in the second direction D2 in Fig. 6.

[0094] Subsequently, the multilayer body is punched with a punching die to form the hole 4 and the communication part 5. Further, the multilayer body is cut at locations in the first direction D1 that are to become the third edge 13 and the fourth edge 14. In this way, the pouch 10 including the reinforcing part 21a, the hole 4, and the communication part 5 illustrated in Figs. 1A and 1B can be obtained.

[0095] Subsequently, the containment part 8 of the pouch 10 is filled with the contents through an opening 9 located near the second edge 12. Then, at a location near the second edge 12, the inner face of the first packaging material 30A, and the inner face of the second packaging material 30B are heat sealed at a predetermined sealing temperature to form the second-edge seal 22. In this way, as illustrated in Figs. 9A and 9B, the pouch 10 with its contents contained and sealed therein can be obtained.

<Usage Method>

[0096] Reference is now made to an example of how to use the pouch 10. The figure illustrates a plurality of pouches 10 hung on a hanging implement 70. The hanging implement 70 includes at least a support 71 on which to hang each pouch 10. The support 71 is, for example, a rod, which is inserted into the hole 4 of the pouch 10.

[0097] The hanging implement 70 may include a restraint part 72 connected to one end of the support 71. The restraint part 72 is inclined relative to the support 71 such that the restraint part 72 is displaced upward relative to the support 71 with increasing distance from the one end of the support 71. In other words, the restraint part 72 is inclined so as to extend downward in the longitudinal direction toward the support 71. The presence of the restraint part 72 helps to prevent or inhibit the pouch 10 from falling off the one end of the support 71. Reference sign 74 denotes the boundary part between the support 71 and the restraint part 72. The support 71 and the restraint part 72 may be formed by a single component that is bent in the boundary part 74 such that the orientation of its longitudinal direction changes in the boundary part 74.

[0098] The hanging implement 70 may include a fixed part 73 connected to the other end of the support 71. The fixed part 73 is a component in the form of a flat plate with a predetermined thickness. The fixed part 73 may be formed such that when the fixed part 73 is placed with its surface oriented in parallel to the vertical direction, the support 71 and the restraint part 72 are both directed vertically downward toward the boundary part 74. As with conventional hanging implements, the fixed part 73 has predetermined mounting means provided on its back. The mounting means allows the fixed part 73 to be mounted to a fixture or to a display rack or shelf with the surface of the fixed part 73 oriented in parallel to the vertical direction.

[0099] Figs. 11A and 11B each illustrate an exemplary operation of hanging the pouch 10 on the hanging implement 70. This operation is performed by, for example, an employee of a store that sells the pouch 10.

[0100] The employee first brings the communication part 5 of the pouch 10 into contact with the support 71 of the hanging implement 70. According to the first embodiment, the first line 5x and the second line 5y have a large spacing from each other at the location where the first portion 5a connects with the first edge 11. This facilitates positioning of the communication part 5 of the pouch 10 with respect to the support 71. As illustrated in Fig. 11A, the presence of the curved portion 5c at the location where the first portion 5a connects with the first edge 11 facilitates entry of the support 71 into the first portion 5a of the communication part 5 along the curved portion 5c.

[0101] Subsequently, the employee moves the pouch 10 upward toward the support 71 as indicated by an arrow U in Fig. 11B. This allows the support 71 to pass through the communication part 5 and reach the hole 4. The employee then releases his or her hand from the pouch 10. According to the first embodiment, the spacing between the first line 5x and the second line 5y is narrow at the location where the second portion 5b of the communication part 5 connects with the hole 4. This helps to prevent or inhibit a region of the pouch 10 around the periphery of each of the hole 4 and the communication part 5 from deforming to cause the pouch 10 to fall off the support 71.

[0102] According to the first embodiment, the support 71 can be inserted into the hole 4 via the communication part 5. Consequently, as indicated by an arrow in Fig. 10, with a plurality of pouches 10 hung on the support 71, a new pouch 10 can be attached to the support 71 at any given location. This facilitates adjustment of the order of the pouches 10 hung on the support 71, in comparison to conventional pouches 10 of a type that are attached to the support 71 from the restraint part 72. For example, a new pouch 10 can be placed near the fixed part 73 relative to the pouches 10 already hung on the support 71. This allows, for example, the pouches 10 to be easily rearranged such that the pouches 10 with shorter use-by dates are placed nearer the restraint part 72.

[0103] Reference is now made to how a consumer removes the pouch 10 from the support 71. The consumer first grasps the pouch 10 hung on the support 71, and moves the pouch 10 downward. This causes the support 71 to pass through the communication part 5 of the pouch 10 to allow removal of the pouch 10 from the support 71.

[0104] According to the first embodiment, a consumer is able to easily remove a single desired pouch 10 from the support 71, in comparison to conventional pouches 10 that are removed from the support 71 from the restraint part 72. This proves particularly advantageous for the consumer if there are individual differences among the pouches 10. For instance, a case is now considered where the packaging material 30 of each pouch 10 is transparent to allow a consumer to see the contents of the pouch 10. In this case, the consumer first checks the

condition of the contents of a plurality of pouches 10 hung on the support 71. The consumer then removes a pouch 10 with desired contents from the support 71. In this way, the consumer is able to choose a desired pouch 10 and remove the pouch 10 from the support 71.

[0105] Various changes can be made to the first embodiment described above. Modifications of the first embodiment are described below with reference to the drawings as required. In the following description and the drawings used in the following description, features that may be similar in configuration to those of the embodiment described above are designated by the same reference signs as those used for the corresponding features in the embodiment described above, and overlapping descriptions are omitted. In the following description, when it is obvious that modifications provide the same operational effects as those provided by the embodiment described above, descriptions of such operational effects are omitted in some cases.

(Modification of Communication Part)

[0106] The embodiment described above is directed to an example in which the first line 5x and the second line 5y of the communication part 5 include a straight portion extending from the first portion 5a to the second portion 5b. However, this is not intended to be limiting. Alternatively, for example, as illustrated in Fig. 12, the first line 5x and the second line 5y may include the curved portion 5c extending from the first portion 5a to the second portion 5b. In this case, the first line 5x and the second line 5y may not include a straight portion.

(Modification of Communication Part)

[0107] The embodiment described above is directed to an example in which the first line 5x and the second line 5y of the communication part 5 include the curved portion 5c provided at the location where the first portion 5a connects with the first edge 11. However, this is not intended to be limiting. Alternatively, the first line 5x and the second line 5y may not include the curved portion 5c. For example, as illustrated in Fig. 13, the first line 5x and the second line 5y may be defined by a straight portion that extends from the hole 4 to the first edge 11.

(Modification of Communication Part)

[0108] The embodiment described above is directed to an example in which the first line 5x and the second line 5y of the communication part 5 are not in contact with each other. That is, the embodiment described above is directed to an example in which the communication part 5 is a notch. However, this is not intended to be limiting. Alternatively, as illustrated in Fig. 14, the first line 5x and the second line 5y may be at least partially in contact with each other in the second portion 5b of the communication part 5. The portion where the first line 5x and the second line 5y are in contact with each other is obtained by, for example, inserting a blade into a portion of the second region 20. Such a portion is also referred to as slit. In Fig. 14, the slit is denoted by reference sign 5d. The slit 5d is included in the second portion 5b.

[0109] A notch 5e where the first line 5x and the second line 5y are not in contact with each other exists at a location near the first edge 11 relative to the slit 5d. A portion of the notch 5e where the spacing W between the first line 5x and the second line 5y is less than or equal to 2.0 mm is classified to be the second portion 5b. A portion of the notch 5e where the spacing W between the first line 5x and the second line 5y is greater than 2.0 mm is classified to be the first portion 5a.

[0110] Reference signs L3 and L4 respectively denote the length of the notch 5e and the length of the slit 5d in a direction in which the middle line 5z extends. As illustrated in Fig. 14, the length L3 of the notch 5e may be greater than the length L4 of the slit 5d. For example, the length L3 of the notch 5e may be greater than or equal to 1.2 times, may be greater than or equal to 1.5 times, or may be greater than or equal to 2.0 times the length L4 of the slit 5d. Alternatively, although not illustrated, the length L3 of the notch 5e may be less than the length L4 of the slit 5d.

(Modification of Hole)

[0111] The embodiment described above is directed to an example in which the outline of the hole 4 has the shape of a circle, more specifically, the shape of a perfect circle. However, the outline of the hole 4 may not necessarily have the shape of a perfect circle. For example, as illustrated in Figs. 15 and 16, the outline of the hole 4 may have the shape of an ellipse. In this case, as illustrated in Fig. 15, a first dimension S1 of the hole 4 may be smaller than a second dimension S2 of the hole 4. Alternatively, as illustrated in Fig. 16, the first dimension S1 of the hole 4 may be larger than the second dimension S2 of the hole 4. The first dimension S1 refers to a dimension of the hole 4 in a direction in which the middle line 5z extends at the location where the communication part 5 connects with the hole 4. The second dimension S2 refers to a dimension of the hole 4 in a direction orthogonal to the direction of measurement of the first dimension S1.

(Modifications of Hole)

[0112] The foregoing description of the embodiment or its modifications is directed to an example in which the outline of the hole 4 has the shape of a circle such as a perfect circle or an ellipse. However, this is not intended to be limiting. Alternatively, the outline of the hole 4 may have the shape of a polygon. For example, as illustrated in Figs. 17 and 18, the outline of the hole 4 may have the shape of a quadrangle. In this case, as illustrated in Fig. 17, the communication part 5 may be connected to the

middle portion of a side of the quadrangle that constitutes the outline of the hole 4. Alternatively, as illustrated in Fig. 18, the communication part 5 may be connected to a corner of the quadrangle that constitutes the outline of the hole 4. A corner is where two sides constituting a polygon such as a quadrangle meet. The outline of the hole 4 may have the shape of a triangle as illustrated in Fig. 19. In this case, as illustrated in Fig. 19, the communication part 5 may be connected to a corner of the triangle that constitutes the outline of the hole 4. Alternatively, although not illustrated, the communication part 5 may be connected to the middle portion of a side of the triangle that constitutes the outline of the hole 4. If the outline of the hole 4 has the shape of a polygon, the corners of the polygon may include a curved portion as illustrated in Fig. 20.

[0113] For a case where the outline of the hole 4 has the shape of a polygon as well, as in the case of Figs. 15 and 16 described above, the first dimension of the hole 4 may be smaller than the second dimension of the hole 4, or the first dimension of the hole 4 may be larger than the second dimension of the hole 4. Alternatively, the first dimension of the hole 4 may be equal to the second dimension of the hole 4.

(Modification of Hole)

[0114] The foregoing description of the embodiment is directed to an example in which at the location of the hole 4, the first packaging material 30A and the second packaging material 30B are punched out and removed. However, this is not intended to be limiting. Alternatively, as illustrated in Fig. 21, the first packaging material 30A and the second packaging material 30B that are located in the area overlapping the hole 4 may be left to remain while being coupled to the second region 20 around the periphery of the hole 4. For example, the outline of the hole 4 may include a first outline 4x having one end connected to the first line 5x, and a second outline 4y having one end connected to the second line 5y, and the other end of the first outline 4x and the other end of the second outline 4y may not be connected to each other. In this case, as illustrated in Fig. 21, a portion 4a of the packaging material overlapping the hole 4 is coupled to the second region 20 around the periphery of the hole 4 via a coupling part 4z, which is located between the other end of the first outline 4x and the other end of the second outline 4y.

[0115] Fig. 22 illustrates the pouches 10 hung on the hanging implement 70, the pouches 10 each including the hole 4 illustrated in Fig. 21. In hanging the pouch 10 onto the hanging implement 70, the portion 4a of the packaging material that overlaps the hole 4 is pushed by the support 71 that has reached the hole 4 after passing through the communication part 5. The support 71 can be thus inserted into the hole 4 as illustrated in Fig. 22.

(Modification of Positioning of Hole and Communication Part)

[0116] The foregoing description of the embodiment is directed to an example in which the hole 4 is located in the middle portion of the first-edge seal 21 in the second direction D2, and the communication part 5 extends from the hole 4 to the first edge 11. However, there are no particular limitations on the positioning of the hole 4 and the communication part 5, as long as such positioning allows the pouch 10 to be hung on the hanging implement 70. For example, as illustrated in Fig. 23, the hole 4 may be located near the third edge 13 relative to the middle portion of the first-edge seal 21 in the second direction D2. Further, the communication part 5 may extend from the hole 4 to the third edge 13. In this case, the location where the communication part 5 connects with the hole 4 can be easily offset from the uppermost portion of the hole 4.

[0117] If the communication part 5 connects with the hole 4 at a location that is offset from the uppermost portion of the hole 4, this helps to avoid contact of the support 71 with the communication part 5 while the pouch 10 is hung on the hanging implement 70. This makes it possible to prevent or inhibit the support 71 from passing through the communication part 5 due to the self-weight of the pouch 10.

(Modification of Positioning of Hole and Communication Part)

[0118] As illustrated in Fig. 24, the first edge 11 of the pouch 10 may include a first side 11a, and a second side 11b located near the containment part 8 relative to the first side 11a. In the example illustrated in Fig. 24, the first side 11a and the second side 11b both extend in the second direction D2.

[0119] The first side 11a may be located in the middle portion of the first edge 11 in the second direction D2. In this case, one second side 11b may be located near the third edge 13 relative to the first side 11a, and another second side 11b may be located near the fourth edge 14 relative to the first side 11a. The hole 4 and the communication part 5 may be provided in the first-edge seal 21 located between the first side 11a of the first edge 11 and the containment part 8.

[0120] In the example illustrated in Fig. 24, the outer edge of a portion of the pouch 10 located between the first side 11a of the first edge 11 and the containment part 8 includes a third side 11c, which extends from the first side 11a toward the containment part 8. In this case, as illustrated in Fig. 24, the communication part 5 may extend from the hole 4 to the third side 11c. For the example illustrated in Fig. 24 as well, the location where the communication part 5 connects with the hole 4 can be easily offset from the uppermost portion of the hole 4. This makes it possible to prevent or inhibit the support 71 from passing through the communication part 5 due

to the self-weight of the pouch 10.

(Modification of Reinforcement)

[0121] Fig. 25 is a cross-sectional view of a modification of the reinforcement 55. The reinforcement 55 may include a packaging material that includes at least a base layer 56 and a sealant layer 57. For example, as illustrated in Fig. 25, the reinforcement 55 may include a packaging material folded in such a way that the sealant layer 57 faces outward. The sealant layer 57 of the reinforcement 55 that is located near the first packaging material 30A, and the first sealant layer 61 of the first packaging material 30A may be integrated together through a heat seal process. Likewise, the sealant layer 57 of the reinforcement 55 that is located near the second packaging material 30B, and the second sealant layer 62 of the second packaging material 30B may be integrated together through a heat seal process.

[0122] In the example illustrated in Fig. 25, the reinforcing part 21a includes four sheets of packaging material each including a base layer and a sealant layer. Specifically, the reinforcing part 21a includes the following sheets of packaging material arranged in the order stated below from the first face 1 toward the second face 2: the first packaging material 30A; a packaging material constituting the reinforcement 55: a packaging material constituting the reinforcement 55; and the second packaging material 30B. The presence of the four sheets of packaging material in the reinforcing part 21a helps to increase the strength of the pouch 10 around the periphery of each of the hole 4 and the communication part 5.

[0123] The packaging material constituting the reinforcement 55 may be identical to the first packaging material 30A or the second packaging material 30B. That is, the reinforcement 55 may be formed by using the first packaging material 30A or the second packaging material 30B. This enables efficient manufacture of the pouch 10 including the reinforcing part 21a.

[0124] The reinforcing part 21a illustrated in Fig. 25 may have a layer structure represented below.
first base layer / sealing layer / base layer / base layer / sealing layer / second base layer

[0125] The sealing layer adjacent to the first base layer is formed by the first sealant layer 61 and the sealant layer 57. The sealing layer adjacent to the second base layer is formed by the second sealant layer 62 and the sealant layer 57.

[0126] Although not illustrated, the sealant layer 57 joined to the first sealant layer 61, and the sealant layer 57 joined to the second sealant layer 62 may be separate layers. In this case, the base layer 56 stacked on the sealant layer 57 joined to the first sealant layer 61, and the base layer 56 stacked on the sealant layer 57 joined to the second sealant layer 62 may be separate layers.

[0127] Fig. 26 illustrates an exemplary method for manufacturing a pouch including the reinforcement illustrated in Fig. 25. First, as illustrated in Fig. 26, the first packaging material 30A and the second packaging material 30B are placed to face each other. The reinforcement 55 made of a packaging material folded with the sealant layer facing outward as described above is inserted in between the first packaging material 30A and the second packaging material 30B to thereby form a multilayer body. In this state, the multilayer body is heat sealed at a predetermined sealing temperature to form the first-edge seal 21, the third-edge seal 23, and the fourth-edge seal 24. Subsequently, the multilayer body is punched with a punching die to form the hole 4 and the communication part 5. Further, the multilayer body is cut at locations in the first direction D1 that are to become the third edge 13 and the fourth edge 14. In this way, the pouch 10 including the reinforcing part 21a, the hole 4, and the communication part 5 can be obtained.

[0128] Although the reinforcement 55 is depicted as being made of a folded packaging material in the example illustrated in Figs. 25 and 26, this is not intended to be limiting. For example, although not illustrated, two sheets of packaging material each including a base layer and a sealant layer may be stacked with their sealant layers facing outward to thereby form the reinforcement 55. Such two sheets of packaging material may be obtained by folding up a single sheet of packing material and then cutting the sheet in the vicinity of the fold.

[0129] As with the first packaging material 30A and the second packaging material 30B illustrated in Figs. 6 and 7, the packaging material constituting the reinforcement 55 illustrated in Fig. 25 may include layers other than the base layer 56 and the sealant layer 57.

(Modification of Reinforcing Part)

[0130] The foregoing description of the embodiment is directed to an example in which the reinforcing part 21a extends in the second direction D2 so as to reach the third edge 13 and the fourth edge 14. However, the area over which the reinforcing part 21a extends is not particularly limited as long as the reinforcing part 21a surrounds the hole 4. For example, as illustrated in Fig. 27, the reinforcing part 21a may not reach the third edge 13 or the fourth edge 14. In this case, in plan view, a seal where the first packaging material 30A and the second packaging material 30B are joined together may be located between the reinforcing part 21a, and the third edge 13 or the fourth edge 14.

(Modification of Pouch)

[0131] The foregoing description of the embodiment is directed to an example in which the pouch 10 includes the reinforcing part 21a surrounding the hole 4 in plan view. However, this is not intended to be limiting. Alternatively, as illustrated in Fig. 28, the pouch 10 may not include the reinforcing part 21a surrounding the hole 4. Even in such a case, by forming the first packaging material 30A and the second packaging material 30B such

that the second region 20 has sufficient strength, it is possible to prevent or inhibit a region around the periphery of each of the hole 4 and the communication part 5 from deforming to cause the pouch 10 to fall off the hanging implement.

(Modification of Pouch)

[0132] The foregoing description of the embodiment is directed to an example in which the pouch 10 is a so-called four-side seal pouch with a seal provided along each of the first edge 11, the second edge 12, the third edge 13, and the fourth edge 14. However, the pouch 10 may not necessarily be a four-side seal pouch. For example, the pouch 10 may be a so-called three-side seal pouch with a seal provided along three of the four edges including the first edge 11, the second edge 12, the third edge 13, and the fourth edge 14. Fig. 29 is a front view of a three-side seal pouch with no contents contained therein. Fig. 30 is a front view of the three-side seal pouch with its contents contained therein.

[0133] The pouch 10 illustrated in each of Figs. 29 and 30 is formed by folding over a packaging material along the fourth edge 14. In this case, the pouch 10 includes the following seals: the first-edge seal 21 extending along the first edge 11; and the third-edge seal 23 extending along the third edge 13. After the containment part 8 of the pouch 10 is filled with the contents inserted through the opening 9 located near the second edge 12, the second-edge seal 22 is formed along the second edge 12 as illustrated in Fig. 30.

[0134] In the example illustrated in each of Figs. 29 and 30, the first packaging material 30A constituting the first face 1, and the second packaging material 30B constituting the second face 2 are each formed by a single sheet of packaging material folded over along the fourth edge 14. Accordingly, the layer structure of the first packaging material 30A is identical to the layer structure of the second packaging material 30B. In the example illustrated in each of Figs. 29 and 30, the first direction D1 may be the machine direction of the first packaging material 30A and the second packaging material 30B, and the second direction D2 may be the transverse direction.

(Modification of Pouch)

[0135] Fig. 31 is a front view of a modification of the pouch 10. As illustrated in Fig. 31, the pouch 10 may be a gusseted pouch configured to be capable of standing by itself with the second edge 12 facing down. The pouch 10 includes, in addition to the first packaging material 30A constituting the first face 1 and the second packaging material 30B constituting the second face 2, a third packaging material located at or near the second edge 12 and constituting a third face 3. The third packaging material is folded over along a folding part 3f, and disposed between the first packaging material 30A and the second packaging material 30B in the folded state. In the example illustrated in Fig. 31, the second direction D2 may be the machine direction of each of the first packaging material 30A, the second packaging material 30B, and the third packaging material, and the first direction D1 may be the transverse direction.

[0136] As with the first packaging material 30A and the second packaging material 30B, the third packaging material constituting the third face 3 includes a base layer, and a sealant layer located adjacent to the inner face of the base layer. The second-edge seal 22 extending along the second edge 12 is formed by joining together the first sealant layer 61 of the first packaging material 30A and the sealant layer of the third packaging material, and by joining together the second sealant layer 62 of the second packaging material 30B and the sealant layer of the third packaging material.

(Modification of Pouch)

[0137] Fig. 32 is a front view of a modification of the pouch 10. As illustrated in Fig. 32, the pouch 10 may be a pillow pouch including a fin seal part 7 extending in the first direction D1 from the first edge 11 to the second edge 12. In the example illustrated in Fig. 32, the fin seal part 7 is located on the first face 1. Although not illustrated, the fin seal part 7 may be located on the second face 2. In the example illustrated in Fig. 32, the first direction D1 may be the machine direction of the first packaging material 30A and the second packaging material 30B, and the second direction D2 may be the transverse direction.

[0138] Fig. 33 is a cross-sectional view of the pouch 10 taken along a line C-C in Fig. 32. The fin seal part 7 includes a base portion 7a located near the containment part 8, and a distal end portion 7b located opposite to the base portion 7a. The fin seal part 7 includes a seal located between the base portion 7a and the distal end portion 7b and where the respective first sealant layers 61 of two sheets of first packaging material 30A located at the first face 1 are joined together. Although not illustrated, if the fin seal part 7 is located on the second face 2, the fin seal part 7 includes a seal located between the base portion 7a and the distal end portion 7b and where the respective second sealant layers 62 of two sheets of second packaging material 30B located at the second face are joined together.

[0139] The base portion 7a of the fin seal part 7 may be located near the third edge 13 or the fourth edge 14 relative to the middle portion of the pouch 10 in the second direction D2. In the example illustrated in Fig. 32, the base portion 7a of the fin seal part 7 is located near the third edge 13 relative to the middle portion of the pouch 10 in the second direction D2. This helps to ensure that the fin seal part 7 does not overlap the hole 4 and the communication part 5. Although not illustrated, the base portion 7a of the fin seal part 7 may be disposed in the middle portion of the pouch 10 in the second direction D2, and the hole 4 and the communication part 5 may

be disposed near the third edge 13 or the fourth edge 14 relative to the middle portion of the pouch 10 in the second direction D2.

(Modification of Pouch)

[0140] Figs. 32 and 33 described above illustrate an example in which the fin seal part 7 does not overlap the hole 4 and the communication part 5. However, this is not intended to be limiting. Alternatively, as illustrated in Fig. 34, the fin seal part 7 may overlap the hole 4 and the communication part 5. In this case, the fin seal part 7 preferably has a larger dimension than the hole 4 in the second direction D2. In the example illustrated in Fig. 34, the first direction D1 may be the machine direction of the first packaging material 30A and the second packaging material 30B, and the second direction D2 may be the transverse direction.

[0141] As illustrated in Fig. 34, the base portion 7a of the fin seal part 7 may be slightly offset toward the third edge 13 or the fourth edge 14 from the middle portion of the pouch 10 in the second direction D2. This configuration allows the fin seal part 7 to overlap the hole 4 and the communication part 5 while allowing the hole 4 and the communication part 5 to be positioned in the middle portion of the first-edge seal 21 in the second direction D2.

[0142] In Fig. 34, reference sign K1 denotes the distance in the second direction D2 from the third edge 13 to the base portion 7a. Reference sign K2 denotes the distance in the second direction D2 from the fourth edge 14 to the base portion 7a. The distance K1 is greater than the distance K2. In other words, the base portion 7a is located near the fourth edge 14 relative to the middle portion of the pouch 10 in the second direction D2. The difference between the distance K1 and the distance K2 corresponds to the dimension of the hole 4. The difference between the distance K1 and the distance K2 is, for example, greater than or equal to 5 mm and less than or equal to 50 mm.

[0143] As illustrated in Fig. 34, the first-edge seal 21 may not include the reinforcing part 21a. Even in such a case, this modification, the pouch 10 can be provided with sufficient strength in a portion around the periphery of each of the hole 4 and the communication part 5. The reason for this is described below with reference to Fig. 35. Fig. 35 is a cross-sectional view of the pouch 10 taken along a line D-D in Fig. 34.

[0144] As illustrated in Fig. 35, the fin seal part 7 includes two sheets of first packaging material 30A stacked on each other. Consequently, a portion of the pouch 10 around the periphery of the hole 4 includes the following sheets of packaging material arranged in the order stated below from the fin seal part 7 toward the second face 2: two sheets of first packaging material 30A constituting the fin seal part 7; the first packaging material 30A constituting the first face 1; and the second packaging material 30B constituting the second face 2. That is, a portion of the pouch 10 around the periphery of the hole 4 includes four sheets of packaging material each including a base layer and a sealant layer. This makes it possible to increase the strength of the pouch 10 around the periphery of each of the hole 4 and the communication part 5.

(Modification of Pouch)

[0145] Fig. 36 is a front view of a modification of the pouch 10. As illustrated in Fig. 36, the pouch 10 may be a side gusset pouch having the fin seal part 7 and provided with a folding part 13f and a folding part 14f, the folding part 13f extending along the third edge 13, the folding part 14f extending along the fourth edge 14. At the locations of the folding part 13f and the folding part 14f, a packaging material identical to the first packaging material 30A and the second packaging material 30B is folded over. In the example illustrated in Fig. 36, the first direction D1 may be the machine direction of the first packaging material 30A and the second packaging material 30B, and the second direction D2 may be the transverse direction.

(Modification of Pouch)

[0146] Fig. 37 is a front view of a modification of the pouch 10. The pouch 10 may include a zipper tape 16 attached to the inner face of the first packaging material 30A and the inner face of the second packaging material 30B. The zipper tape 16 is located near the second edge 12 relative to the easy-opening means 15, and extends in the second direction D2. The zipper tape 16 includes, for example, a projecting tape attached to the inner face of the first packaging material 30A, and a recessed tape attached to the inner face of the second packaging material 30B and capable of mating engagement with the protruding tape. The zipper tape 16 provided to the pouch 10 allows for easy resealing of the pouch 10 after the pouch 10 is opened.

(Modification of Hanging Implement)

[0147] The foregoing description of the embodiment is directed to an example in which the support 71 of the hanging implement 70 has the shape of a circle in cross-section. However, this is not intended to be limiting. Alternatively, the support 71 may have other shapes in cross-section.

[0148] Fig. 38 is a perspective view of a modification of the hanging implement 70. As illustrated in Fig. 38, the support 71 of the hanging implement 70 may include a flat face 71f located at the top.

[0149] Fig. 39 is a cross-sectional view of the support 71 when inserted in the hole 4 of the pouch 10. The flat face 71f of the support 71 is configured to overlap the second portion 5b of the communication part 5 in the vertical direction when the support 71 is inserted in the

hole 4 of the pouch 10. The flat face 71f has a dimension in the second direction D2 that is larger than the spacing between the first line 5x and the second line 5y at the location where the second portion 5b connects with the hole 4. The above-mentioned configuration of the support 71 makes it possible to prevent or inhibit the support 71 from passing through the communication part 5 due to the self-weight of the pouch 10.

[0150] As illustrated in Fig. 39, the support 71 may have the shape of a triangle in cross-section. In this case, by forming the support 71 such that one side of the triangle is located at an upper position, the flat face 71f of the support 71 and the second portion 5b of the communication part 5 can be made to overlap each other in the vertical direction. In the example illustrated in Fig. 39, the support 71 is placed such that one side of its triangular cross-section is positioned uppermost in a horizontal manner, and one vertex opposite to the one side of the triangular cross-section is positioned lowermost. As for the term "horizontal", it suffices that the above-mentioned one side be positioned substantially horizontally, and the term conceptually includes technical errors at the time of manufacture or installation.

(Modification of Hanging Implement)

[0151] Fig. 40 is a cross-sectional view of a modification of the support 71 of the hanging implement 70. As illustrated in Fig. 40, the support 71 may have the shape of a hexagon in cross-section. In this case, by forming the support 71 such that one side of the hexagon is located at an upper position, the flat face 71f of the support 71 and the second portion 5b of the communication part 5 can be made to overlap each other in the vertical direction.

(Modification of Hanging Implement)

[0152] Fig. 41 is a perspective view of a modification of the hanging implement 70. As illustrated in Fig. 41, the support 71 may include the flat face 71f located at the top, and the restraint part 72 may have a circular cross-section. As described above, the cross-section of the restraint part 72 may differ in shape from the cross-section of the support 71. The circular cross-section of the restraint part 72 allows the support 71 to be easily passed through the hole 4 of the pouch 10 via the restraint part 72. As described above, it is also possible to directly pass the support 71 through the hole 4 via the communication part 5.

(Modification of Package)

[0153] The foregoing description of the embodiment and its modifications is directed to an example in which the hole 4 and the communication part 5 are provided in the second region 20 of the pouch 10. However, the package including the hole 4 and the communication part 5 is not limited to the pouch 10.

[0154] This modification is directed to an example in which the package is a lidded container 17. Fig. 42 is a plan view of the lidded container 17 as seen from a lid 17a. The lidded container 17 includes a container 17b, which includes the containment part 8 and a flange 17c, and the lid 17a, which is joined to the flange 17c of the container 17b.

[0155] In the example illustrated in Fig. 42, as with the pouch 10, the lidded container 17 has an outer edge that includes the first edge 11, the second edge 12 opposing the first edge 11 in the first direction D1, and the third edge 13 and the fourth edge 14, which extend between the first edge 11 and the second edge 12. That is, the outer edge of the lidded container 17 has the shape of a quadrangle.

[0156] The shape of the outer edge of the lidded container 17 in plan view is not particularly limited. For example, although not illustrated, the outer edge of the lidded container 17 may have a circular shape in plan view.

[0157] As with the pouch 10, the lidded container 17 includes a seal where the inner face of a first packaging material constituting the lid 17a, and the inner face of a second packaging material constituting the container 17b are joined together. In the example illustrated in Fig. 42, the seal on the lidded container 17 includes the first-edge seal 21 extending along the first edge 11, the second-edge seal 22 extending along the second edge 12, the third-edge seal 23 extending along the third edge 13, and the fourth-edge seal 24 extending along the fourth edge 14.

[0158] For this modification as well, as in the case of the pouch 10, a region of the lidded container 17 that overlaps the containment part 8 in plan view is referred to as first region 19. Further, a region of the lidded container 17 located between the containment part 8 and the outer edge of the lidded container 17 and including a seal that joins the first packaging material and the second packaging material together is referred to as second region 20.

[0159] As with the pouch 10, the lidded container 17 includes the hole 4, which is located in the second region 20 and penetrates the first packaging material and the second packaging material. In the example illustrated in Fig. 42, the hole 4 is located in the first-edge seal 21 of the second region 20 between the first edge 11 of the lidded container 17 and the containment part 8. The lidded container 17 includes the communication part 5, which extends from the hole 4 to the outer edge of the lidded container 17 and penetrates the first packaging material and the second packaging material. In the example illustrated in Fig. 42, the communication part 5 extends to the first edge 11 from a portion of the hole 4 closest to the first edge 11. The hole 4 and the communication part 5 are identical in configuration to the hole 4 and the communication part 5 of the pouch 10, and thus not described in further detail below.

[0160] Fig. 43 is a cross-sectional view of the lidded

container 17 taken along a line E-E in Fig. 42. Fig. 44 is an enlarged cross-sectional view of the first-edge seal 21 and the containment part 8 of the lidded container 17 illustrated in Fig. 43.

[0161] In the example illustrated in Fig. 44, the first packaging material 30A constituting the lid 17a includes at least the first base layer 51, and the first sealant layer 61 located adjacent to the inner face of the first base layer 51. The first packaging material 30A constituting the lid 17a may be similar in configuration to the first packaging material 30A constituting the pouch 10.

[0162] In the example illustrated in Fig. 44, the second packaging material 30B constituting the container 17b includes at least the second base layer 52. A suitable exemplary material for the second base layer 52 is an unoriented plastic film such as a cast polypropylene film or an unoriented nylon film. The second base layer 52 may be made of a single layer, or may include a plurality of layers. For example, the second base layer 52 may be a co-extrusion sheet including a first layer made of polypropylene, a second layer made of EVOH or nylon, and a third layer made of polypropylene. EVOH refers to an ethylene-vinyl alcohol copolymer. Although not illustrated, the second packaging material 30B may include layers other than the second base layer 52. The second packaging material 30B has a thickness of, for example, greater than or equal to 150 μm and less than or equal to 800 μm.

[0163] The container 17b can be fabricated by processing the second packaging material 30B by sheet forming. Sheet forming is a method involving heating and softening a packaging material such as a sheet material, and pressing a die against the resulting material to form a desired shape in the sheet. For example, vacuum forming, air-pressure forming, vacuum/air-pressure forming, or press forming may be employed. The container 17b may be formed by other methods such as injection molding.

[0164] As with the first packaging material 30A of the pouch 10, the first packaging material 30A constituting the lid 17a includes at least one layer located in both the first region 19 and the second region 20. For example, as illustrated in Fig. 44, the first base layer 51 and the first sealant layer 61 of the first packaging material 30A are located in both the first region 19 and the second region 20.

[0165] The second packaging material 30B constituting the container 17b likewise includes at least one layer located in both the first region 19 and the second region 20. For example, as illustrated in Fig. 44, the second base layer 52 of the second packaging material 30B is located in both the first region 19 and the second region 20.

[0166] For this modification as well, due to the presence of the hole 4 and the communication part 5 in the second region 20 of the lidded container 17, the support 71 can be inserted into the hole 4 via the communication part 5. This allows the lidded container 17 to be attached to or removed from the support 71 at a desired location on the support 71.

(Modification of Second Packaging Material of Lidded Container)

[0167] Fig. 45 is a cross-sectional view of a modification of the second packaging material 30B of the lidded container 17. As with Fig. 44, Fig. 45 is an enlarged view of the first-edge seal and the containment part of the lidded container illustrated in Fig. 43.

[0168] As illustrated in Fig. 45, the second packaging material 30B constituting the container 17b may include the second base layer 52, and the second sealant layer 62 located adjacent to the inner face of the second base layer 52. The second base layer 52 may include an oriented plastic film oriented along at least one axis, preferably along two axes. The second sealant layer 62 to be used may be the same as the second sealant layer 62 of the second packaging material 30B of the pouch 10. The second packaging material 30B has a thickness of, for example, greater than or equal to 60 μm and less than or equal to 200 μm.

(Mechanical Characteristics of Second Region of Lidded Container)

[0169] For a case where the package is a lidded container as well, as in the case of the pouch 10, a portion of the second region 20 where the hole 4 is located preferably has a predetermined flexural rigidity in at least one direction. For example, the above-mentioned portion preferably has a mean flexural rigidity of greater than or equal to 15 $g \cdot cm^2/cm$. The above-mentioned portion preferably has an initial flexural rigidity of greater than or equal to 22 $g \cdot cm^2/cm$.

[0170] For a case where the package is a lidded container as well, as in the case of the pouch 10, first, the specimen 80 is cut out from a portion of the second region 20 that has the same layer structure as the portion of the second region 20 where the hole 4 is located. This allows initial flexural rigidity and mean flexural rigidity to be measured in the machine direction and the transverse direction. The preferred ranges of values for the initial flexural rigidity and the mean flexural rigidity in the machine direction and the transverse direction are identical to those in the case of the pouch 10, and thus not described in further detail below.

(Modification of Package)

[0171] Reference is now made to an example in which the package is a tube 18. Fig. 46 is a plan view of the tube 18 as seen from the first face 1. The tube 18 includes a tubular body part 18a, and a mouth part 18b. A cap 18c may be attached to the mouth part 18b.

[0172] As with the pouch 10, the body part 18a is made of a packaging material. The body part 18a includes a

first packaging material constituting the first face 1, and a second packaging material constituting the second face 2. The containment part 8 for containing contents is provided between the first face 1 and the second face 2. In the example illustrated in Fig. 46, the first packaging material and the second packaging material are obtained by forming a single sheet of packaging material into a tubular form.

[0173] In the example illustrated in Fig. 46, the body part 18a of the tube 18 has an outer edge that includes the first edge 11, the second edge 12 opposing the first edge 11 in the first direction D1, and the third edge 13 and the fourth edge 14, which extend between the first edge 11 and the second edge 12.

[0174] As with the pouch 10, the body part 18a of the tube 18 includes a seal where the inner face of the first packaging material constituting the first face 1, and the inner face of the second packaging material constituting the second face 2 are joined together. In the example illustrated in Fig. 46, the seal on the body part 18a includes the first-edge seal 21 extending along the first edge 11.

[0175] The body part 18a of the tube 18 includes a joint 6, which extends on the first face 1 from the first edge 11 to the second edge 12 in the first direction D1. The joint 6 includes a seal where the inner face at one end of a single sheet of packaging material constituting each of the first packaging material and the second packaging material, and the outer face at the other end of the single sheet of packaging material are joined together. Although not illustrated, the joint 6 may be located on the second face 2.

[0176] For this modification as well, as in the case of the pouch 10, a region of the body part 18a of the tube 18 that overlaps the containment part 8 in plan view is referred to as first region 19. A region located between the containment part 8 and the outer edge of the body part 18a and including a seal that joins the first packaging material and the second packaging material together is referred to as second region 20.

[0177] As with the pouch 10, the body part 18a of the tube 18 includes the hole 4, which is located in the second region 20 and penetrates the first packaging material and the second packaging material. In the example illustrated in Fig. 46, the hole 4 is located in the first-edge seal 21 of the second region 20 between the first edge 11 of the body part 18a and the containment part 8. The body part 18a includes the communication part 5, which extends from the hole 4 to the outer edge of the body part 18a and penetrates the first packaging material and the second packaging material. In the example illustrated in Fig. 46, the communication part 5 extends to the first edge 11 from a portion of the hole 4 closest to the first edge 11. The hole 4 and the communication part 5 are identical in configuration to the hole 4 and the communication part 5 of the pouch 10, and thus not described in further detail below.

[0178] Fig. 47 is a cross-sectional view of the body part 18a of the tube 18 taken along a line F-F in Fig. 46. As illustrated in Fig. 47, the first packaging material 30A constituting the first face 1 includes at least the first base layer 51, and the first sealant layer 61 located adjacent to the inner face of the first base layer 51. The first packaging material 30A may include a third sealant layer 63 located adjacent to the outer face of the first base layer 51. By providing the third sealant layer 63, as with the joint 6 described above, the inner face at one end of the packaging material and the outer face at the other end of the packaging material can be joined together.

[0179] The first base layer 51 of the first packaging material 30A may be similar in configuration to the first base layer 51 of the first packaging material 30A that constitutes the pouch 10 or the lid 17a mentioned above. The first sealant layer 61 and the third sealant layer 63 may be similar in configuration to the first sealant layer 61 of the first packaging material 30A that constitutes the pouch 10 or the lid 17a mentioned above.

[0180] The second packaging material 30B constituting the second face 2 includes at least the second base layer 52, and the second sealant layer 62 located adjacent to the inner face of the second base layer 52. The second packaging material 30B may include a fourth sealant layer 64 located adjacent to the outer face of the second base layer 52. The second base layer 52, the second sealant layer 62, and the fourth sealant layer 64 of the second packaging material 30B may be similar in their material, thickness, or other configuration to the first base layer 51, the first sealant layer 61, and the third sealant layer 63 of the first packaging material 30A.

[0181] The thickness of each of the first packaging material 30A and the second packaging material 30B is, for example, greater than or equal to 150 μm. The thickness of each of the first packaging material 30A and the second packaging material 30B may be greater than or equal to 200 μm, or may be greater than or equal to 250 μm. The thickness of each of the first packaging material 30A and the second packaging material 30B may be less than or equal to 500 μm, may be less than or equal to 400 μm, or may be less than or equal to 300 μm.

[0182] As with the first packaging material 30A of the pouch 10, the first packaging material 30A constituting the first face 1 of the body part 18a includes at least one layer located in both the first region 19 and the second region 20. For example, as illustrated in Fig. 47, the first base layer 51, the first sealant layer 61, and the third sealant layer 63 of the first packaging material 30A are located in both the first region 19 and the second region 20.

[0183] The second packaging material 30B constituting the second face 2 of the body part 18a likewise includes at least one layer located in both the first region 19 and the second region 20. For example, as illustrated in Fig. 47, the second base layer 52, the second sealant layer 62, and the fourth sealant layer 64 of the second packaging material 30B are located in both the first region 19 and the second region 20.

[0184] For this modification as well, due to the presence of the hole 4 and the communication part 5 in the second region 20 of the body part 18a of the tube 18, the support 71 can be inserted into the hole 4 via the communication part 5. This allows the tube 18 to be attached to or removed from the support 71 at a desired location on the support 71.

(Mechanical Characteristics of Second Region of Tube)

[0185] For a case where the package is a tube as well, as in the case of the pouch 10, a portion of the second region 20 where the hole 4 is located preferably has a predetermined flexural rigidity in at least one direction. For example, the above-mentioned portion preferably has a mean flexural rigidity of greater than or equal to 15 $g \cdot cm^2/cm$. The above-mentioned portion preferably has an initial flexural rigidity of greater than or equal to 22 $g \cdot cm^2/cm$.

[0186] For a case where the package is a tube as well, as in the case of the pouch 10, first, the specimen 80 is cut out from a portion of the second region 20 that has the same layer structure as the portion of the second region 20 where the hole 4 is located. This allows initial flexural rigidity and mean flexural rigidity to be measured in the machine direction and the transverse direction. The preferred ranges of values for the initial flexural rigidity and the mean flexural rigidity in the machine direction and the transverse direction are identical to those in the case of the pouch 10, and thus not described in further detail below.

(Exemplary Combinations of Embodiment and Modifications)

[0187] The characteristic features of the embodiment and its modifications described above can be combined with each other as appropriate.

[0188] For example, the modifications of the communication part 5 illustrated in Figs. 12 to 14 may be combined with the modifications of the pouch illustrated in Figs. 29 to 37, may be combined with the lidded container 17 illustrated in each of Figs. 42 to 45, or may be combined with the tube 18 illustrated in each of Figs. 46 and 47. Further, the modifications of the hole 4 illustrated in Figs. 15 to 21 may be combined with the modifications of the pouch illustrated in Figs. 29 to 37, may be combined with the lidded container 17 illustrated in each of Figs. 42 to 45, or may be combined with the tube 18 illustrated in each of Figs. 46 and 47.

Examples

[0189] Examples of the present invention are described below in more specific detail. It is to be noted, however, that the present invention is not limited to the examples described below unless such examples depart from the scope of the invention.

[Example A1]

[0190] The specimen 80 including four stacked sheets of packaging material was created. Each single sheet of packaging material has a thickness of 82 μm. The overall thickness of the specimen 80 was thus 328 μm. The specimen 80 described above has a layer structure that corresponds to the layer structure illustrated in Fig. 34, that is, the layer structure of a region around the periphery of the hole 4 formed in the fin seal part 7, or to the layer structure illustrated in Fig. 30, that is, the layer structure of a region around the periphery of the hole 4 formed in a region overlapping the reinforcement 55 made of a folded packing material. Each single sheet of packaging material has a layer structure represented below.

OPP 20 / PE 10 / ALPET 12 / PE 10 / CPP 30

[0191] The symbol "/" represents the boundary between adjacent layers. The layer at the left end represents a layer defining the outer face of the packaging material, and the layer at the right end represents a layer defining the inner face of the packaging material.

[0192] "OPP" means a biaxially-oriented polypropylene film. "PE" means a poly-olefin resin layer using polyethylene. "ALPET" means a biaxially-oriented PET film with a vapor-deposited aluminum layer. "CPP" means a cast polypropylene film. The numerals denote the thicknesses of the corresponding layers (unit: μm).

[0193] The flexural rigidity of the specimen 80 in each of the machine direction and the transverse direction was measured. As the measuring instrument, a pure-bending characteristic tester JTC-911BT manufactured by SMT Co., Ltd. was used. The measurement is performed under the environment of a temperature of 25°C and a relative humidity of 50%. The mean flexural rigidity in the machine direction was 28.1 $g \cdot cm^2/cm$, and the mean flexural rigidity in the transverse direction was 19.8 $g \cdot cm^2/cm$. The initial flexural rigidity in the machine direction was 55.0 $g \cdot cm^2/cm$, and the initial flexural rigidity in the transverse direction was 24.7 $g \cdot cm^2/cm$.

[Comparative Example A1]

[0194] The specimen 80 was created in the same manner as in Example A1, except that the specimen 80 is made up of two sheets of packaging material. The specimen 80 had a thickness of 164 μm.

[0195] In the same manner as in Example A1, the flexural rigidity of the specimen 80 in each of the machine direction and the transverse direction was measured. The mean flexural rigidity in the machine direction was 7.8 $g \cdot cm^2/cm$, and the mean flexural rigidity in the transverse direction was 9.5 $g \cdot cm^2/cm$. The initial flexural rigidity in the machine direction was 11.4 $g \cdot cm^2/cm$, and the initial flexural rigidity in the transverse direction was 14.2 $g \cdot cm^2/cm$.

[Comparative Example A2]

[0196] The specimen 80 made of a biaxially-oriented PET film was prepared. The specimen 80 had a thickness of 150 μm.

[0197] In the same manner as in Example A1, the flexural rigidity of the specimen 80 in each of the machine direction and the transverse direction was measured. The mean flexural rigidity in the machine direction was 14.7 g·cm^2/cm, and the mean flexural rigidity in the transverse direction was 15.9 g·cm^2/cm. The initial flexural rigidity in the machine direction was 21.2 g·cm^2/cm, and the initial flexural rigidity in the transverse direction was 22.3 g·cm^2/cm.

[Example B1]

[0198] The pouch 10 illustrated in Fig. 1A was fabricated by using the same packaging material as that used in Example A1. Specifically, the same packaging material as that used in Example A1 was used as each of the first packaging material 30A constituting the first face 1 and the second packaging material 30B constituting the second face 2. Further, the packaging material according to Example A1 folded in two as illustrated in Fig. 25 was used as the reinforcement 55 of the reinforcing part 21a. The pouch 10 had a thickness of 328 μm around the hole 4. At the location where the second portion 5b connects with the hole 4, the first line 5x and the second line 5y had a spacing W2 of 2 mm from each other. The hole 4 had a diameter of 8 mm.

[0199] Subsequently, a load was applied to the pouch 10 with the hanging implement 70 inserted in the hole 4 of the pouch 10 to thereby measure the maximum value of load that the pouch 10 is able to withstand. Specifically, first, as illustrated in Fig. 48, the support 71 of the hanging implement, which has a circular cross-section with a diameter of 6 mm, was inserted into the hole 4 located near the first edge 11 of the pouch 10. Subsequently, the second edge 12 located opposite to the first edge 11 was pulled upward by using a scale 90. Specifically, as illustrated in Fig. 48, with a hook 91 of the scale 90 hooked on a hole 92 provided at a location in the pouch 10 near the second edge 12, the scale 90 was pulled upward. The scale used was PORTABLE ELECTRONIC SCALE WH-A04 manufactured by WeiHeng.

[0200] The measurement was taken five times, and for each measurement, the maximum value of load applied to the scale was recorded. The results are illustrated in Fig. 49. The mean of the measured maximum values of load was 143.2 g.

[0201] With the pouch 10 hung from the support 71 of the hanging implement via the hole 4 of the pouch 10, five panelists evaluated the stability of the pouch 10 by touching the pouch 10, pulling the pouch 10, or other methods. The results are illustrated in Fig. 50. Panelists 1 to 5 all evaluated the pouch 10 as "good". The evaluation "good" means that the pouch 10 did not fall when a panelist touched the pouch 10 but fell when the panelist twisted the pouch 10.

[Comparative Example B1]

[0202] The pouch 10 was fabricated in the same manner as in Example B1, except that the pouch 10 does not include the reinforcing part 21a. The pouch 10 had a thickness of 164 μm around the hole 4.

[0203] Subsequently, in the same manner as in Example B1, the maximum value of load that the pouch 10 is able to withstand was measured. The results are illustrated in Fig. 49. The mean of the measured maximum values of load was 47.8 g.

[0204] In same manner as in Example B1, five panelists evaluated the stability of the pouch 10 hung on the support 71 of the hanging implement. The results are illustrated in Fig. 50. Panelists 1 to 5 all evaluated the pouch 10 as "bad". The evaluation "bad" means that the pouch 10 fell when a panelist simply touched the pouch 10.

[Example B2]

[0205] The tube 18 illustrated in Fig. 46 was fabricated by using a packaging material with a thickness of 334 μm. The tube 18 had a thickness of 668 μm around the hole 4. At the location where the second portion 5b connects with the hole 4, the first line 5x and the second line 5y had a spacing W2 of 2 mm from each other. The packaging material has a layer represented below.

PEF 130 / PET 12 / ALPET 12 / PEF 180

[0206] "PEF" means a polyethylene film.

[0207] Subsequently, in the same manner as in Example B1, the maximum value of load that the tube 18 is able to withstand was measured. The results are illustrated in Fig. 49. The mean of the measured maximum values of load was 754.2 g.

[0208] In same manner as in Example B1, five panelists evaluated the stability of the tube 18 hung on the support 71 of the hanging implement. The results are illustrated in Fig. 50. Panelists 1 to 5 all evaluated the tube 18 as "great". The evaluation "great" means that the tube 18 did not fall when a panelist touched the tube 18, and that the pouch 10 hardly fell when the panelist twisted the pouch 10.

(Second Embodiment)

[0209] A second embodiment is directed to providing a pouch that makes it possible to save labor associated with putting the pouch on display.

[0210] To this end, the second embodiment provides a pouch having a containment part formed by joining a first packaging material and a second packaging material together, the first packaging material being located at a first face of the pouch, the second packaging material being located at a second face of the pouch, the pouch

including:

a reinforcing part located between a first edge of an outer edge of the pouch and the containment part;
a hole penetrating the first packaging material and the second packaging material in the reinforcing part; and
a communication part extending from the hole to the outer edge of the pouch and penetrating the first packaging material and the second packaging material,
wherein the first packaging material includes a first base layer, and a first sealant layer,
wherein the second packaging material includes a second base layer, and a second sealant layer, and
wherein the reinforcing part has any one of configurations a) to c) below.

a) A sealing layer with a thickness of greater than or equal to 100 μm is provided between the first base layer and the second base layer.
b) A sealing layer, a base layer, a base layer, a sealing layer, and a sealing layer are provided in the stated order between the first base layer and the second base layer.
c) A sealing layer, a reinforcement, and a sealing layer are provided in the stated order between the first base layer and the second base layer.

[0211] In the pouch according to the second embodiment, the communication part may include a slit.

[0212] In the pouch according to the second embodiment, the communication part may include the slit connected to the hole, and a notch connecting the slit and the outer edge of the pouch.

[0213] In the pouch according to the second embodiment, the communication part may be contiguous with a top end of the hole.

[0214] In the pouch according to the second embodiment, the communication part may be located in the middle portion of the outer edge of the pouch in a direction in which the first edge extends.

[0215] The second embodiment makes it possible to provide a pouch that makes it possible to save labor associated with putting the pouch on display.

[0216] The second embodiment is described below in specific detail. In the following description and figures to which reference is made in the following description, features that can be configured in a manner similar to the first embodiment described above are designated by the same reference signs as those used for the corresponding features in the embodiment described above, and overlapping descriptions are omitted. If it is obvious that modifications provide the same operational effects as those provided by the embodiment described above, descriptions of such operational effects are omitted in some cases.

[0217] Fig. 51A is a front view of the pouch 10 as seen from the first face 1. Fig. 51B is a back view of the pouch 10 as seen from the second face 2. For the pouch illustrated in Figs. 51A and 51B, components other than the communication part 5 are identical to those of the pouch illustrated in Figs. 1A and 1B.

[0218] The communication part 5 connects the hole 4 and the outer edge of the pouch 10 located opposite to the containment part 8, and penetrates the pouch 10. In the example illustrated in Figs. 51A and 51B, the communication part 5 penetrates the pouch 10 from the first face 1 to the second face 2, and is provided so as to connect the first edge 11 and the hole 4. More specifically, the communication part 5 is a slit extending from the first edge 11 to the hole 4.

[0219] As with the first embodiment, the hole 4 is positioned such that its entire periphery is surrounded by the reinforcing part 21a. As a result of the entire periphery of the hole 4 being surrounded by the reinforcing part 21a, the thickness of the reinforcing part 21a around the periphery of the hole 4 is greater than the thicknesses of other portions of the second region 20. This leads to increased strength around the periphery of the hole 4. This helps to prevent or inhibit tearing of the periphery of the hole 4 caused by the weight of the pouch 10 exerted on the support 71 of the hanging implement 70.

[0220] As described above, the communication part 5 is provided so as to connect the first edge 11 and the hole 4. Consequently, by passing the support 71 through the communication part 5, the support 71 can be placed within the hole 4. This eliminates the need to pass the distal end of the support 71 through the hole 4, which significantly saves labor associated with putting the pouch 10 on display.

[0221] The reinforcing part 21a has a layer structure identical to the layer structure of the reinforcing part 21a according to the first embodiment or its modifications described above. That is, the reinforcing part 21a may have any one of the layer structures a) to c) below.

a) first base layer / sealing layer / second base layer
b) first base layer / sealing layer / base layer / base layer / sealing layer / second base layer
c) first base layer / sealing layer / reinforcement / sealing layer / second base layer

(Modifications of Hole and Communication Part)

[0222] Reference is now made to modifications of the hole 4 and the communication part 5. Figs. 52A to 52E are each a partial enlarged view of the region indicated by reference sign G and enclosed by an alternate long and two short dashes line in Fig. 51A. In each of Figs. 52A to 52E, the illustration on the left depicts the above-mentioned region with the support 71 not inserted, and the illustration on the right depicts the above-mentioned region with the support 71 inserted. Fig. 52A depicts the configuration illustrated in Fig. 51A in which the communication part 5 is a slit. In this case, the spacing between

the first line 5x and the second line 5y of the communication part 5 is substantially zero.

[0223] Figs. 52B to 52E depict modifications of the hole 4 and the communication part 5. In the example illustrated in Fig. 52B, unlike in the case of Fig. 52A, the communication part 5 is the notch 5e. Specifically, in the communication part 5 illustrated in Fig. 52B, the spacing between the first line 5x and the second line 5y is greater than zero. The spacing between the first line 5x and the second line 5y may be constant. The spacing between the first line 5x and the second line 5y may be set to any suitable value not exceeding the maximum width of the corresponding support 71. If the communication part 5 illustrated in Fig. 52A and the communication part 5 illustrated in Fig. 52B are compared, the communication part 5 in the form of the slit illustrated in Fig. 52A is able to withstand a longer duration of hanging than is the communication part 5 in the form of the notch illustrated in Fig. 52B.

[0224] In the example illustrated in Fig. 52C, the hole 4 and the communication part 5 are disposed adjacent to each other in a direction parallel to the first edge 11. In Fig. 52C, the location (boundary) where the hole 4 and the communication part 5 connect with each other is indicated by a dashed line that extends vertically. Accordingly, in Fig. 52C, the hole 4 is located on the left-hand side of the dashed line, and the communication part 5 is located on the righthand side of the dashed line. In the example in Fig. 52C, the hole 4 has a shape bounded by the dashed boundary, a circular arc in a lower portion of the hole 4, and two straight sides extending diagonally upward from left and right portions of the hole 4. The point of intersection of the two straight sides extending diagonally upward from left and right portions of the hole 4 is the top end of the hole 4. The communication part 5 has a shape bounded by the dashed boundary, a circular arc in a lower portion of the communication part 5, and two straight sides having constant spacing therebetween and extending to the first edge 11. In the example illustrated in Fig. 52C, the top end of the hole 4 is located above the top end of the location where the hole 4 and the communication part 5 connect with each other (indicated by the vertically extending dashed line in Fig. 52C).

[0225] In the example illustrated in Fig. 52D, the communication part 5 includes the notch 5e including a portion where the spacing between the first line 5x and the second line 5y decreases with increasing distance from the first edge 11 toward the hole 4. Specifically, in the communication part 5 illustrated in Fig. 52D, the spacing between the first line 5x and the second line 5y decreases with increasing proximity to the hole 4, and becomes zero at the point of connection with the hole 4. That is, the communication part 5 is a notch in the shape of a triangle with a base parallel to the first edge 11 and an apex located at the point of connection with the hole 4.

[0226] In the example illustrated in Fig. 52E, the communication part 5 includes a vertically extending slit that connects the triangular notch illustrated in the example in Fig. 52D and the hole 4. That is, in the example illustrated in Fig. 52E, the communication part 5 includes the notch 5e where the spacing between the first line 5x and the second line 5y decreases with increasing distance from the first edge 11 toward the hole 4, and the slit 5d connecting the notch 5e and the hole 4. Although the length of the slit 5d in this case is not particularly limited, from the viewpoint of ease of manufacture and strength of the location where the slit is provided, the length of the slit 5d is preferably about 1 to 5 mm, optimally about 3 mm. In the example illustrated in Fig. 52E, the communication part 5 includes the triangular notch 5e and the vertically extending slit 5d as described above. In this regard, two sides of the triangular notch that connect to the first edge 11 can be also regarded as an outer edge of the pouch 10 that extends contiguously from the first edge 11. In this case, the communication part 5 includes only the slit 5d that connects the outer edge of the pouch and the hole 4.

(Modification of Hole)

[0227] Reference is now made to a modification of the hole 4. Figs. 53A to 53D are each a partial enlarged view of the region indicated by reference sign G and enclosed by an alternate long and two short dashes line in Fig. 51A. As in the case of the example illustrated in Fig. 21 mentioned above, the first packaging material 30A and the second packaging material 30B that are located in the area overlapping the hole 4 may be left to remain while being coupled to the second region 20 located around the periphery of the hole 4. That is, the portion 4a of each packaging material that overlaps the hole 4 may be coupled via the coupling part 4z to the second region 20 located around the periphery of the hole 4.

[0228] The shapes of the communication part 5 in Figs. 53A, 53B, 53C, and 53D are respectively identical to the shapes of the communication part 5 in Figs. 52A, 52B, 52D, and 52E. According to modifications illustrated in Figs. 53A to 53D, hanging of the pouch 10 involves passing the support 71 through the communication part 5, and pushing, at the top end of the hole 4, a portion including a base layer and a sealing layer from above with the support 71 to thereby insert the support 71 into the hole 4.

(Other modifications)

[0229] The characteristic features of the first embodiment and its modifications described above, and the characteristic features of the second embodiment and its modifications described above may be combined as appropriate.

[0230] For example, the hole 4 and the communication part 5 according to the second embodiment and each of its modifications may be combined with the modifications of the pouch illustrated in Figs. 29 to 37, may be combined with the lidded container 17 illustrated in each of Figs. 42 to 45, or may be combined with the tube 18 illustrated

in each of Figs. 46 and 47.

(Third Embodiment)

[0231] A third embodiment is directed to providing a pouch that makes it possible to save labor associated with putting the pouch on display.

[0232] To this end, the third embodiment provides a pouch having a containment part formed by joining a first packaging material and a second packaging material together, the first packaging material being located at a first face of the pouch, the second packaging material being located at a second face of the pouch, the pouch including:

a hole located in a corner portion of the pouch and penetrating the pouch;
a reinforcing part provided to include the hole; and
a communication part extending from the hole to an outer edge of the pouch and penetrating the pouch,
wherein the first packaging material includes a first base layer, and a first sealant layer,
wherein the second packaging material includes a second base layer, and a second sealant layer, and
wherein the reinforcing part has any one of configurations a) to c) below.

a) A sealing layer with a thickness of greater than or equal to 100 μm is provided between the first base layer and the second base layer.
b) A sealing layer, a base layer, a base layer, a sealing layer, and a sealing layer are provided in the stated order between the first base layer and the second base layer.
c) A sealing layer, a reinforcement, and a sealing layer are provided in the stated order between the first base layer and the second base layer.

[0233] In the pouch according to the third embodiment, the communication part may include a slit.

[0234] In the pouch according to the third embodiment, the communication part may include the slit connected to the hole, and a notch connecting the slit and the outer edge of the pouch.

[0235] In the pouch according to the third embodiment, the communication part may be contiguous with a top end of the hole.

[0236] In the pouch according to the third embodiment, the communication part may connect a portion of the outer edge of the pouch other than the corner portion, and the hole.

[0237] The third embodiment makes it possible to provide a pouch that makes it possible to save labor associated with putting the pouch on display.

[0238] The third embodiment is described below in specific detail. In the following description and figures to which reference is made in the following description, features that can be configured in a manner similar to the first embodiment described above are designated by the same reference signs as those used for the corresponding features in the embodiment described above, and overlapping descriptions are omitted. In the following description, when it is obvious that modifications provide the same operational effects as those provided by the embodiment described above, descriptions of such operational effects are omitted in some cases.

[0239] Fig. 54A is a front view of the pouch 10 as seen from the first face 1. Fig. 54B is a back view of the pouch 10 as seen from the second face 2. For the pouch illustrated in Figs. 54A and 54B, components other than the hole 4 and the communication part 5 are identical to those of the pouch illustrated in Figs. 1A and 1B.

[0240] The hole 4 is provided in a corner portion of the pouch 10. A corner portion of the pouch 10 refers to the region indicated by reference sign H and enclosed by an alternate long and two short dashes line in Fig. 54A. The corner portion includes the corner where the first edge 11 and the fourth edge 14 meet, and an area in the vicinity of the corner.

[0241] The communication part 5 connects a top end 10U of the pouch 10 and the hole 4, and penetrates the pouch 10. The top end 10U is the point of intersection of the first edge 11 and the fourth edge 14, and is a corner of the pouch 10. In the example in Figs. 54A and 54B, the communication part 5 is a slit extending from the top end 10U to the hole 4.

[0242] As with the first embodiment, the hole 4 is positioned such that its entire periphery is surrounded by the reinforcing part 21a. As a result of the entire periphery of the hole 4 being surrounded by the reinforcing part 21a, the thickness of the reinforcing part 21a around the periphery of the hole 4 is greater than the thicknesses of other portions of the second region 20. This leads to increased strength around the periphery of the hole 4. This helps to prevent or inhibit tearing of the periphery of the hole 4 caused by the weight of the pouch 10 exerted on the support 71 of the hanging implement 70.

[0243] As described above, the communication part 5 is provided so as to connect the top end 10U and the hole 4. Consequently, by passing the support 71 through the communication part 5, the support 71 can be placed within the hole 4. This eliminates the need to pass the distal end of the support 71 through the hole 4, which significantly saves labor associated with putting the pouch 10 on display.

[0244] The reinforcing part 21a has a layer structure identical to the layer structure of the reinforcing part 21a according to the first embodiment or its modifications described above. That is, the reinforcing part 21a may have any one of the layer structures a) to c) below.

a) first base layer / sealing layer / second base layer
b) first base layer / sealing layer / base layer / base layer / sealing layer / second base layer
c) first base layer / sealing layer / reinforcement / sealing layer / second base layer

(Modifications of Hole and Communication Part)

[0245] Reference is now made to modifications of the hole 4 and the communication part 5. Figs. 55A to 55D are each a partial enlarged view of the region indicated by reference sign H and enclosed by an alternate long and two short dashes line in Fig. 54A. In each of Figs. 55A to 55D, the illustration on the left depicts the above-mentioned region with the support 71 not inserted, and the illustration on the right depicts the above-mentioned region with the support 71 inserted. Fig. 55A depicts the configuration illustrated in Fig. 54A in which the communication part 5 is a slit. In this case, the spacing between the first line 5x and the second line 5y of the communication part 5 is substantially zero.

[0246] Figs. 55B to 55D depict modifications of the hole 4 and the communication part 5. In the example illustrated in Fig. 55B, unlike in the case of Fig. 55A, the communication part 5 is the notch 5e. Specifically, in the communication part 5 illustrated in Fig. 55B, the spacing between the first line 5x and the second line 5y is greater than zero. The spacing between the first line 5x and the second line 5y may be constant. The spacing between the first line 5x and the second line 5y may be set to any suitable value not exceeding the maximum width of the corresponding support 71. If the communication part 5 illustrated in Fig. 55A and the communication part 5 illustrated in Fig. 55B are compared, the communication part 5 in the form of the slit illustrated in Fig. 55A is able to withstand a longer duration of hanging than is the communication part 5 in the form of the notch illustrated in Fig. 55B.

[0247] In the example illustrated in Fig. 55C, the communication part 5 includes the notch 5e including a portion where the spacing between the first line 5x and the second line 5y decreases with increasing distance from the first edge 11 toward the hole 4. Specifically, in the communication part 5 illustrated in Fig. 55C, the spacing between the first line 5x and the second line 5y decreases with increasing proximity to the hole 4, and becomes zero at the point of connection with the hole 4. That is, the communication part 5 is a notch in the shape of a triangle with a base and an apex, the base being a side extending in a direction (left-right direction in Fig. 54A) transverse to a direction in which the containment part 8 and the hole 4 are connected, the apex being located at the point of connection with the hole 4.

[0248] In the example illustrated in Fig. 55D, the communication part 5 includes a slit that connects the triangular notch illustrated in the example in Fig. 55C and the hole 4. That is, in the example illustrated in Fig. 55D, the communication part 5 includes the notch 5e where the spacing between the first line 5x and the second line 5y decreases with increasing distance from the outer edge of the pouch 10 toward the hole 4, and the slit 5d connecting the notch 5e and the hole 4. Although the length of the slit 5d in this case is not particularly limited, from the viewpoint of ease of manufacture and strength of the location where the slit is provided, the length of the slit 5d is preferably about 1 to 5 mm, optimally about 3 mm.

(Modifications of Hole)

[0249] Reference is now made to modifications of the hole 4. Figs. 56A to 56D are each a partial enlarged view of the region indicated by reference sign H and enclosed by an alternate long and two short dashes line in Fig. 54A. As in the case of the example illustrated in Fig. 21 mentioned above, the first packaging material 30A and the second packaging material 30B that are located in the area overlapping the hole 4 may be left to remain while being coupled to the second region 20 located around the periphery of the hole 4. That is, the portion 4a of each packaging material that overlaps the hole 4 may be coupled via the coupling part 4z to the second region 20 located around the periphery of the hole 4.

[0250] The shapes of the communication part 5 in Figs. 56A, 56B, 56C, and 56D are respectively identical to the shapes of the communication part 5 in Figs. 55A, 55B, 55D, and 55E. According to modifications illustrated in Figs. 56A to 56D, hanging of the pouch 10 involves passing the support 71 through the communication part 5, and pushing, at the top end of the hole 4, a portion including a base layer and a sealing layer from above with the support 71 to thereby insert the support 71 into the hole 4.

(Modification of Communication Part)

[0251] The communication part 5 may be formed to extend contiguously to the hole 4 from a portion of the outer edge of the pouch 10 other than a corner portion. Figs. 57A and 57B are respectively a front view and a back view of the pouch 10 including the communication part 5 according to a modification. In the example illustrated in Figs. 57A and 57B, the hole 4 has a polygonal shape. The communication part 5 is a notch extending from the first edge 11 to the hole 4. In Figs. 57A and 57B, the boundary between the hole 4 and the communication part 5 is indicated by a dashed line. The spacing between the first line 5x and the second line 5y may be substantially constant from the first edge 11 to the hole 4. The spacing between the first line 5x and the second line 5y may be greater than or equal to the width of the hole 4. If the spacing between the first line 5x and the second line 5y is greater than or equal to the width of the hole 4, the support 71 can be easily inserted into the hole 4 from the first edge 11. In the example illustrated in Figs. 57A and 57B, in hanging the pouch 10, the support 71 is passed through the communication part 5 from the first edge 11 to thereby insert the support 71 into the hole 4 from the left side.

(Other Modifications)

[0252] The characteristic features of the first embodiment and its modifications described above, and the

characteristic features of the third embodiment and its modifications described above may be combined as appropriate.

[0253] For example, the hole 4 and the communication part 5 according to the third embodiment and its modifications may be combined with the modifications of the pouch illustrated in Figs. 29 to 37, may be combined with the lidded container 17 illustrated in each of Figs. 42 to 45, or may be combined with the tube 18 illustrated in each of Figs. 46 and 47. Fig. 58A and 58B are respectively a front view and a back view of a pillow pouch that employs the hole 4 and the communication part 5 according to the third embodiment and its modifications.

Reference Signs List

[0254]

1	first face
2	second face
4	hole
5	communication part
5a	first portion
5b	second portion
5c	curved portion
5x	first line
5y	second line
5z	middle line
6	joint
7	fin seal part
7a	base portion
7b	distal end portion
8	containment part
9	opening
10	pouch
10U	top end
11	first edge
12	second edge
13	third edge
14	fourth edge
15	easy-opening means
15a	slit
16	zipper tape
17	lidded container
17a	lid
17b	container
17c	flange
18	tube
18a	body part
18b	mouth part
18c	cap
19	first region
20	second region
21	first-edge seal
21a	reinforcing part
21b	outer-edge-side seal
21c	containment-part-side seal
22	second-edge seal
23	third-edge seal
24	fourth-edge seal
30	packaging material
30A	first packaging material
30B	second packaging material
51	first base layer
52	second base layer
53	first additional layer
54	second additional layer
55	reinforcement
56	base layer
57	sealant layer
61	first sealant layer
62	second sealant layer
65	first bonding layer
66	second bonding layer
67	third bonding layer
68	fourth bonding layer
70	hanging implement
71	support
72	restraint part
73	fixed part
80	specimen
85	measuring instrument
86	first clamp
87	second clamp
D1	first direction
D2	second direction

Claims

1. A pouch, the pouch having a containment part formed by joining a first packaging material and a second packaging material together, the first packaging material being located at a first face of the pouch, the second packaging material being located at a second face of the pouch, the pouch comprising:

a first region overlapping the containment part in plan view;

a second region located between the containment part and an outer edge of the pouch in plan view, the second region including a seal that joins the first packaging material and the second packaging material together;

a hole located in the second region and penetrating the first packaging material and the second packaging material; and

a communication part extending from the hole to the outer edge of the pouch and penetrating the first packaging material and the second packaging material,

wherein the first packaging material includes at least one layer located in both the first region and the second region,

wherein the second packaging material includes at least one layer located in both the first region and the second region,

wherein an outline of the communication part

that extends from the hole to the outer edge of the pouch includes a first line and a second line, and
wherein the communication part includes

a first portion including a portion where the first line and the second line have a spacing from each other that decreases with increasing distance from the outer edge of the pouch toward the hole, and
a second portion located between the first portion and the hole and including a portion where the first line and the second line have a spacing from each other of less than or equal to 2.0 mm.

2. The pouch according to Claim 1, wherein in the second portion of the communication part, the first line and the second line are not in contact with each other.

3. The pouch according to Claim 1, wherein in the second portion of the communication part, the first line and the second line are at least partially in contact with each other.

4. The pouch according to Claim 3, wherein a portion of the communication part where the first line and the second line are not in contact with each other is longer than a portion of the communication part where the first line and the second line are in contact with each other.

5. The pouch according to any one of Claims 1 to 4, wherein a specimen cut out from a portion of the second region where the hole is located has a mean flexural rigidity of greater than or equal to 15 [g·cm^2/cm] in a machine direction, the specimen including at least the first packaging material and the second packaging material.

6. The pouch according to any one of Claims 1 to 5, wherein the second region includes:

an outer-edge-side seal extending along the outer edge of the pouch;
a containment-part-side seal in contact with the containment part in plan view; and
a reinforcing part located between the outer-edge-side seal and the containment-part-side seal and surrounding the hole, the reinforcing part being thicker than the outer-edge-side seal and the containment-part-side seal.

7. The pouch according to Claim 6, wherein the reinforcing part includes a reinforcement located between the first packaging material and the second packaging material.

8. A lidded container, the lidded container having a containment part sealed by joining a first packaging material and a second packaging material together, the first packaging material constituting a lid, the second packaging material constituting a container, the lidded container comprising:

a first region overlapping the containment part in plan view;
a second region located between the containment part and an outer edge of each of the lid and the container in plan view, the second region including a seal that joins the first packaging material and the second packaging material together;
a hole located in the second region and penetrating the first packaging material and the second packaging material; and
a communication part extending from the hole to the outer edge of each of the lid and the container and penetrating the first packaging material and the second packaging material,
wherein the first packaging material includes at least one layer located in both the first region and the second region,
wherein the second packaging material includes at least one layer located in both the first region and the second region,
wherein an outline of the communication part that extends from the hole to the outer edge of each of the lid and the container includes a first line and a second line, and
wherein the communication part includes

a first portion including a portion where the first line and the second line have a spacing from each other that decreases with increasing distance from the outer edge of each of the lid and the container toward the hole, and
a second portion located between the first portion and the hole and including a portion where the first line and the second line have a spacing from each other of less than or equal to 2.0 mm.

9. The lidded container according to Claim 8, wherein a specimen cut out from a portion of the second region where the hole is located has a mean flexural rigidity of greater than or equal to 15 [g·cm^2/cm] in a machine direction, the specimen including at least the first packaging material and the second packaging material.

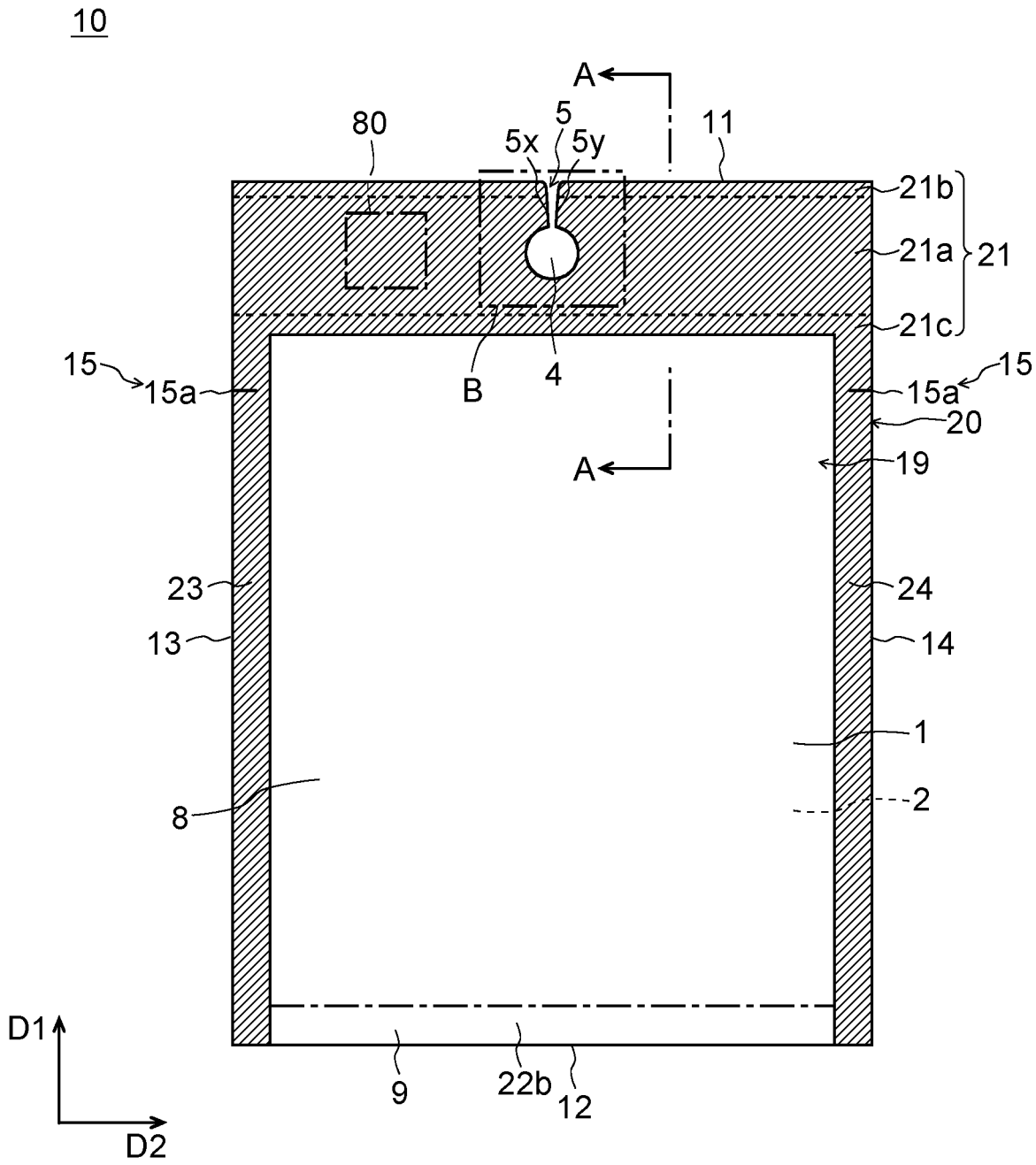
10. A tube, the tube having a containment part formed by joining a first packaging material and a second packaging material together, the first packaging material being located at a first face of the tube, the

second packaging material being located at a second face of the tube, the tube comprising:

a first region overlapping the containment part in plan view;
a second region located between the containment part and an outer edge of the tube in plan view, the second region including a seal that joins the first packaging material and the second packaging material together;
a hole located in the second region and penetrating the first packaging material and the second packaging material; and
a communication part extending from the hole to the outer edge of the tube and penetrating the first packaging material and the second packaging material,
wherein the first packaging material includes at least one layer located in both the first region and the second region,
wherein the second packaging material includes at least one layer located in both the first region and the second region the second packaging material,
wherein an outline of the communication part that extends from the hole to the outer edge of the tube includes a first line and a second line, and
wherein the communication part includes

a first portion including a portion where the first line and the second line have a spacing from each other that decreases with increasing distance from the outer edge of the tube toward the hole, and
a second portion located between the first portion and the hole and including a portion where the first line and the second line have a spacing from each other of less than or equal to 2.0 mm.

11. The tube according to Claim 10, wherein a specimen cut out from a portion of the second region where the hole is located has a mean flexural rigidity of greater than or equal to 15 [$g \cdot cm^2/cm$] in a machine direction, the specimen including at least the first packaging material and the second packaging material.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A
80
5
5x
5y
11
21b
21a
21
21c
15
15a
B
4
15
15a
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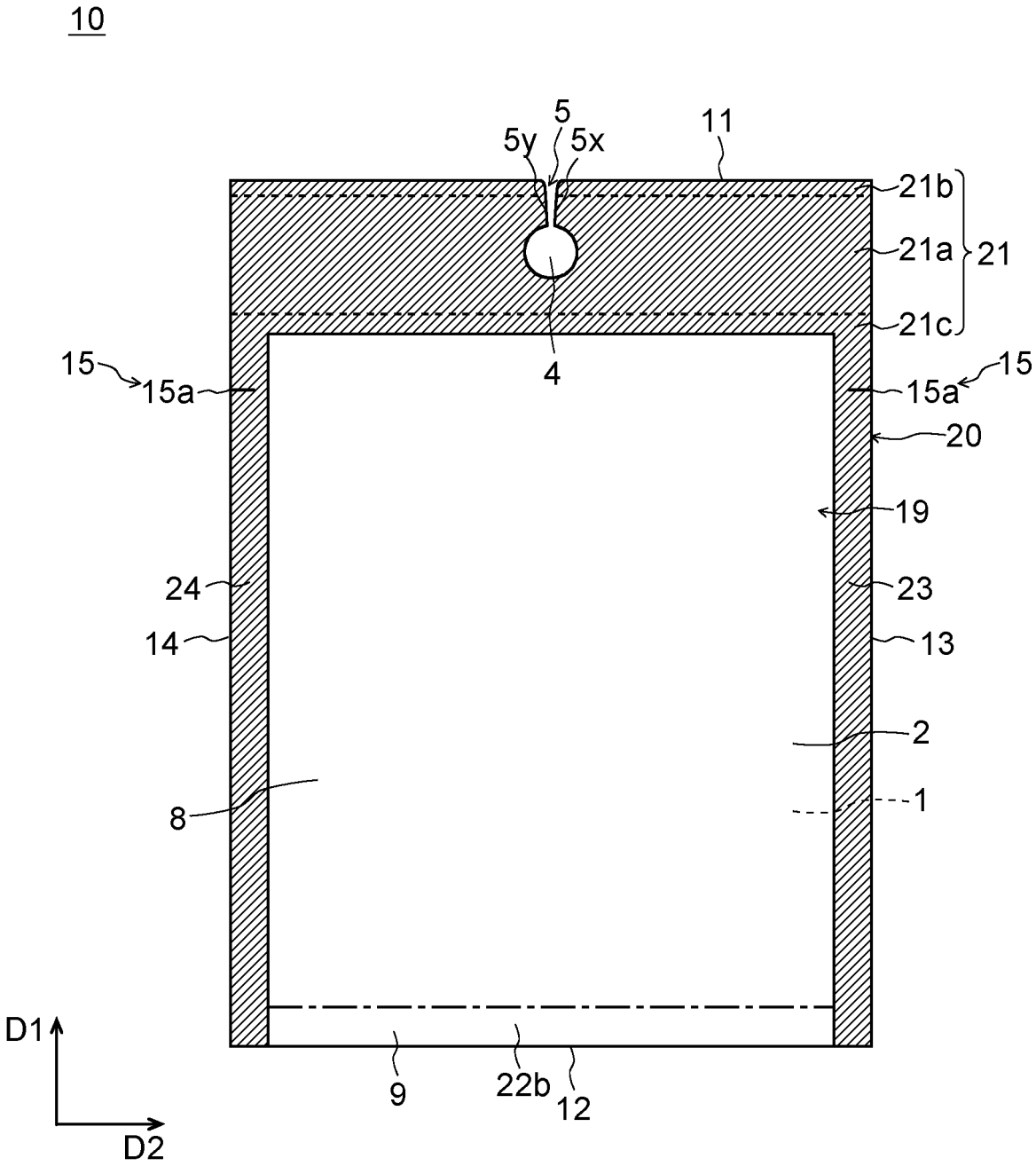
A
19
23
24
13
14
1
8
2
D1
D2
9
22b
12

FIG.1A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5
5y
5x
11
21b
21a
21
21c
15
15a
4
15a
15
20
19
24
23
14
13
2
8
1
D1
D2
9
22b
12

FIG.1B

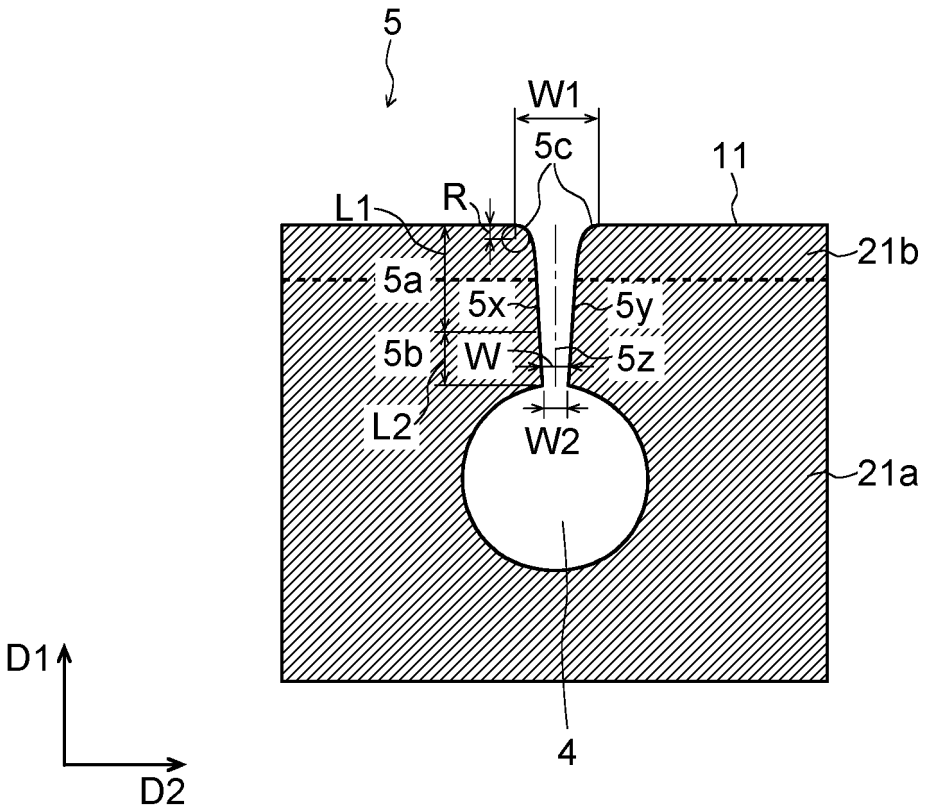


FIG.2

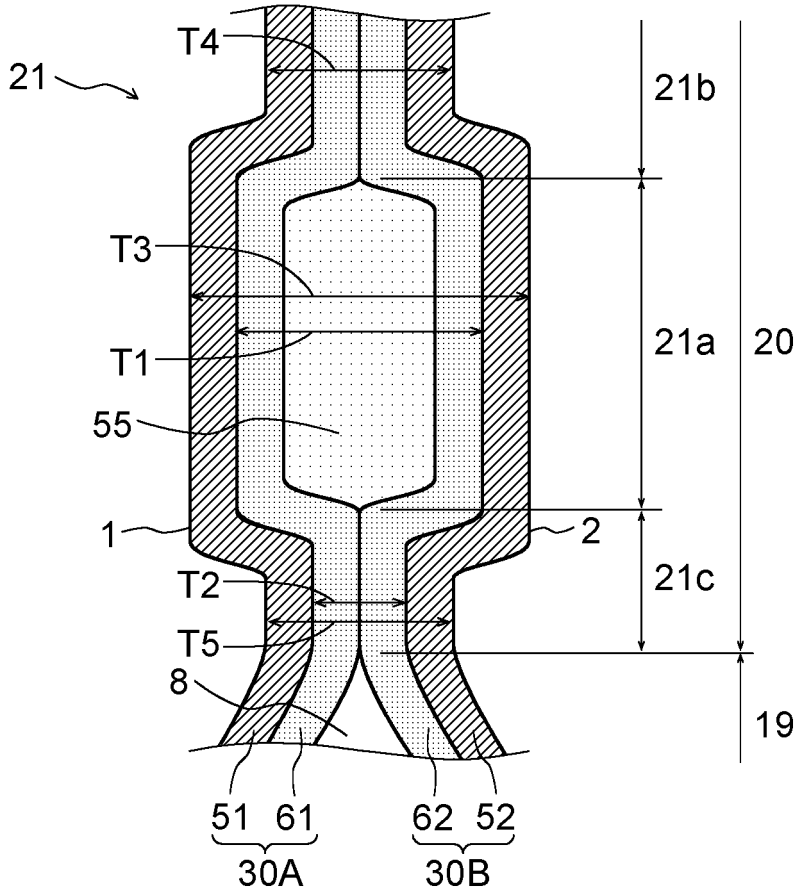


FIG.3

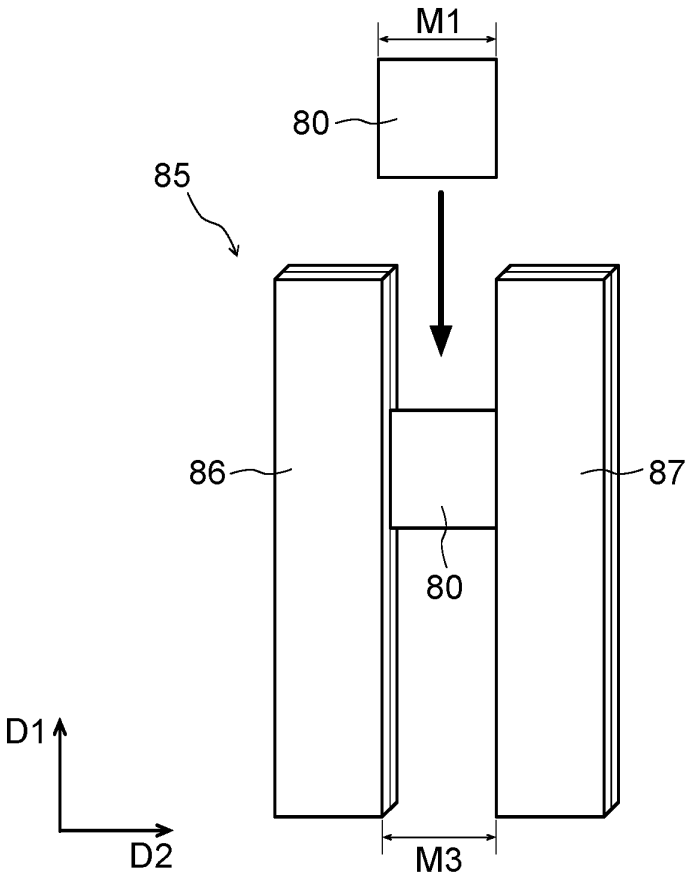


FIG.4

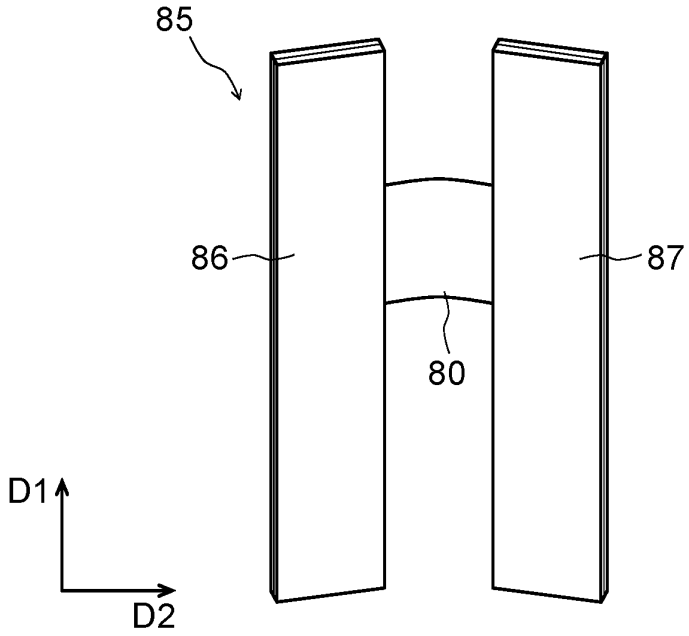


FIG.5

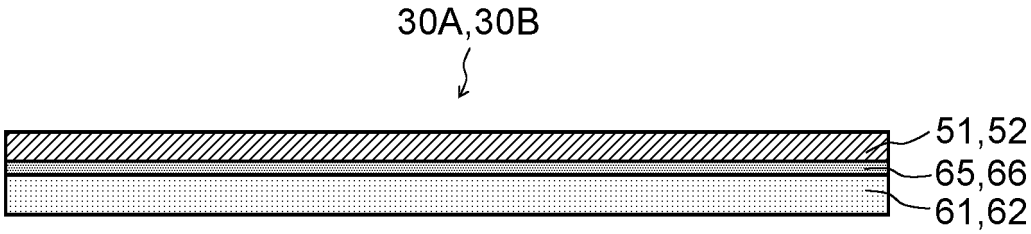


FIG.6

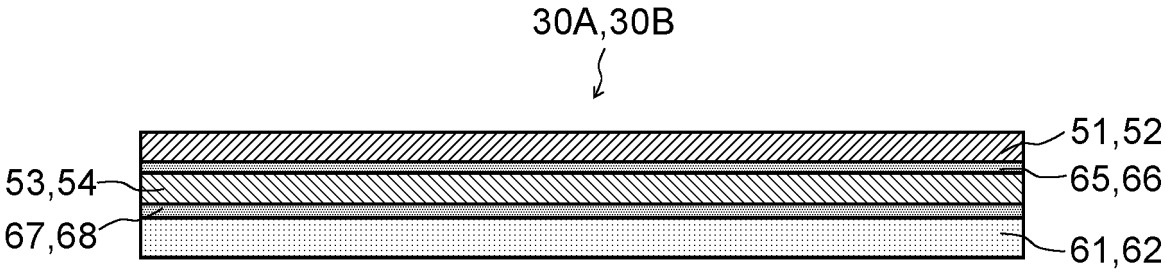


FIG.7

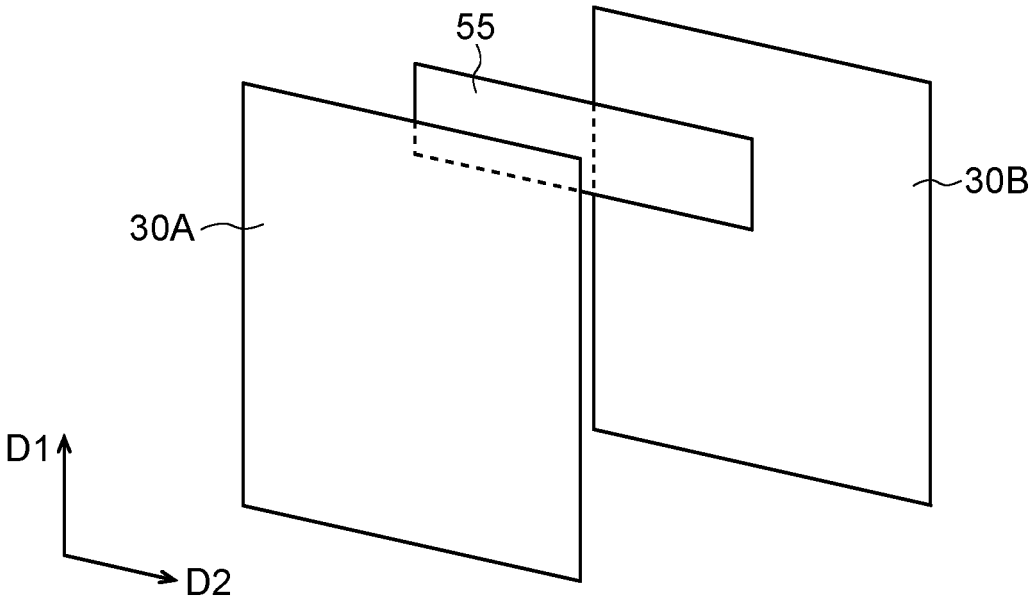
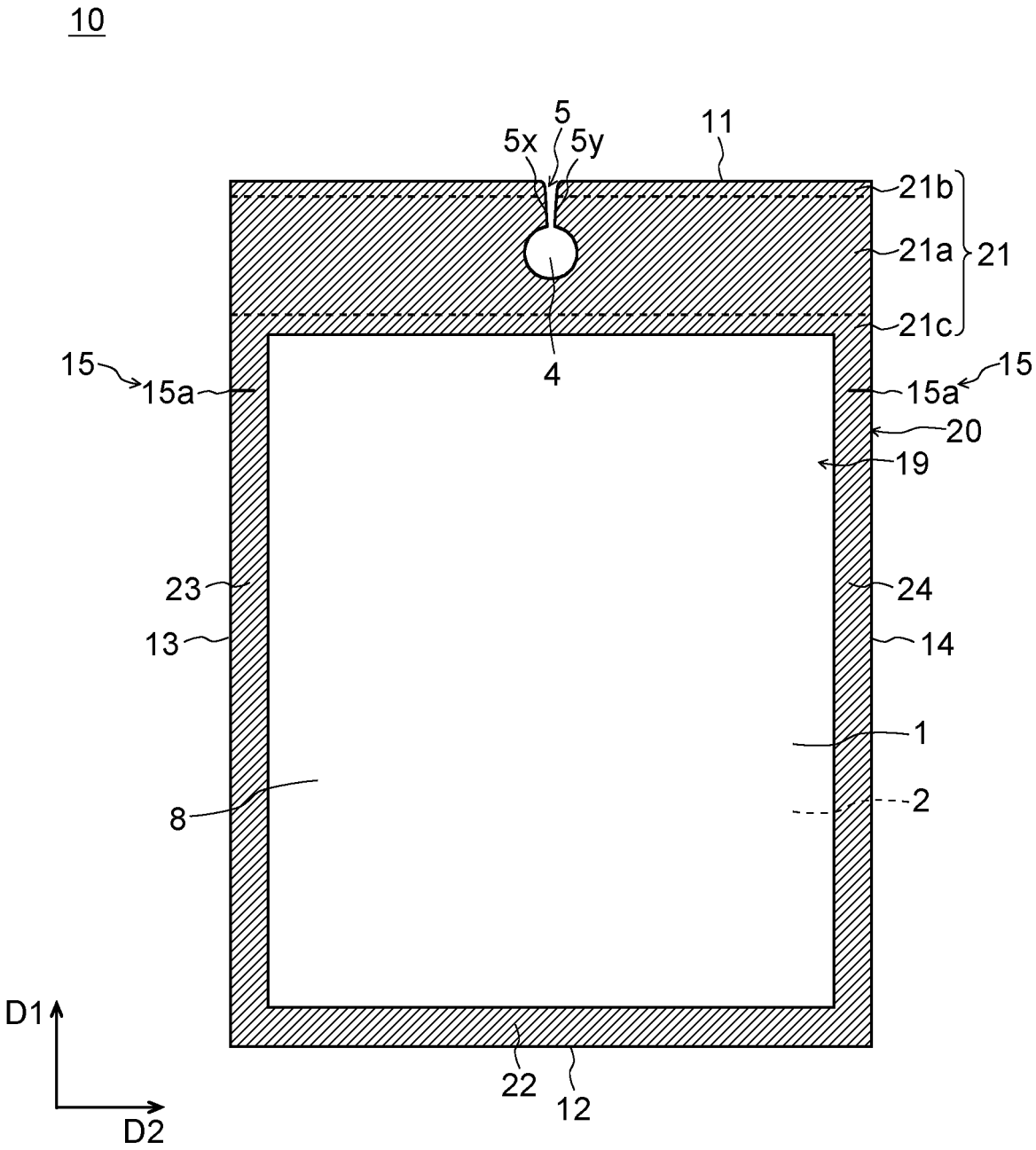


FIG.8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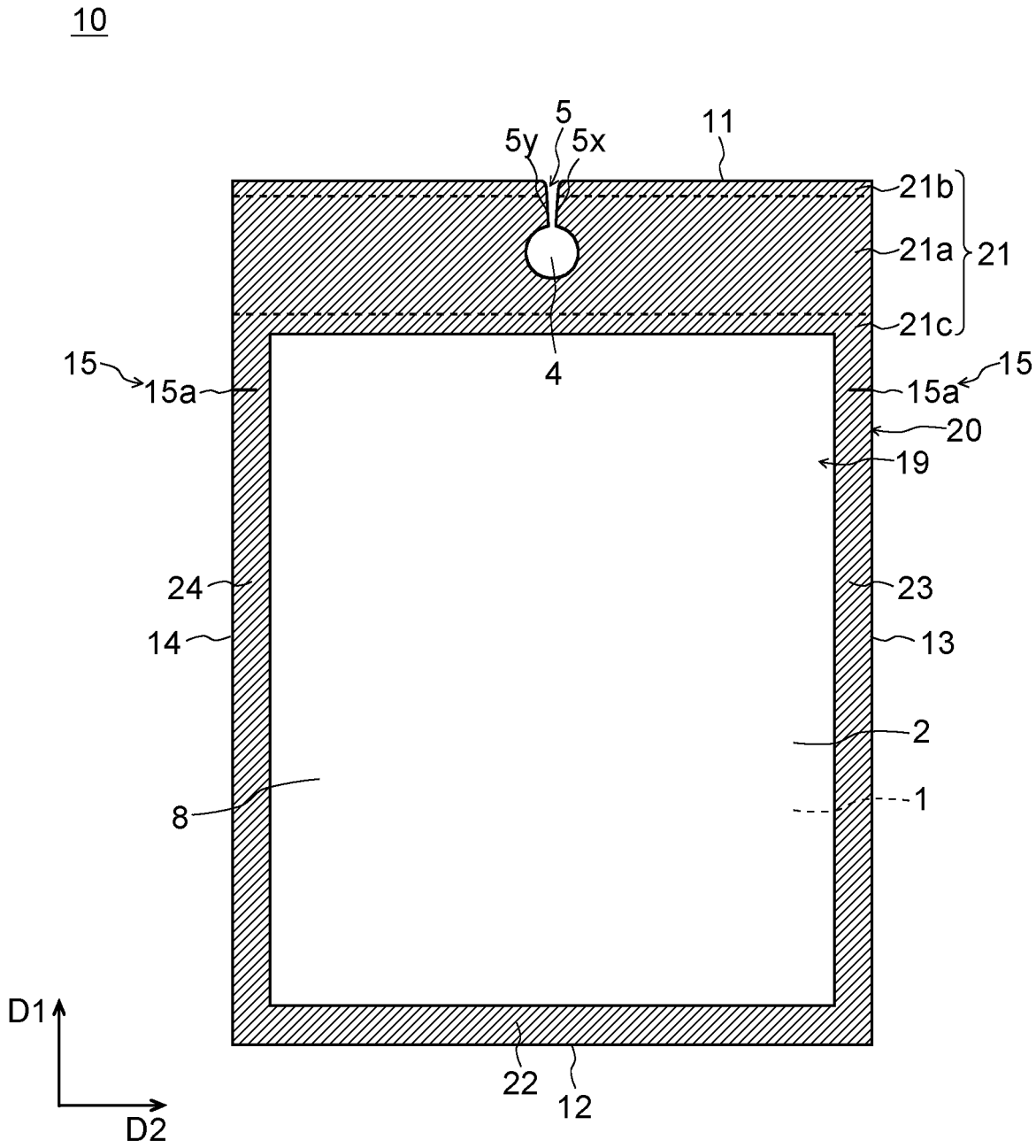
5
5x
5y
11
21b
21a
21
21c
15
15a
4
15
15a
20
19
23
24
13
14
1
8
2
D1
D2
22
12

FIG.9A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5
5y
5x
11
21b
21a
21
21c
15
15a
4
15
15a
20
19
24
23
14
13
2
1
8
D1
D2
22
12

FIG.9B

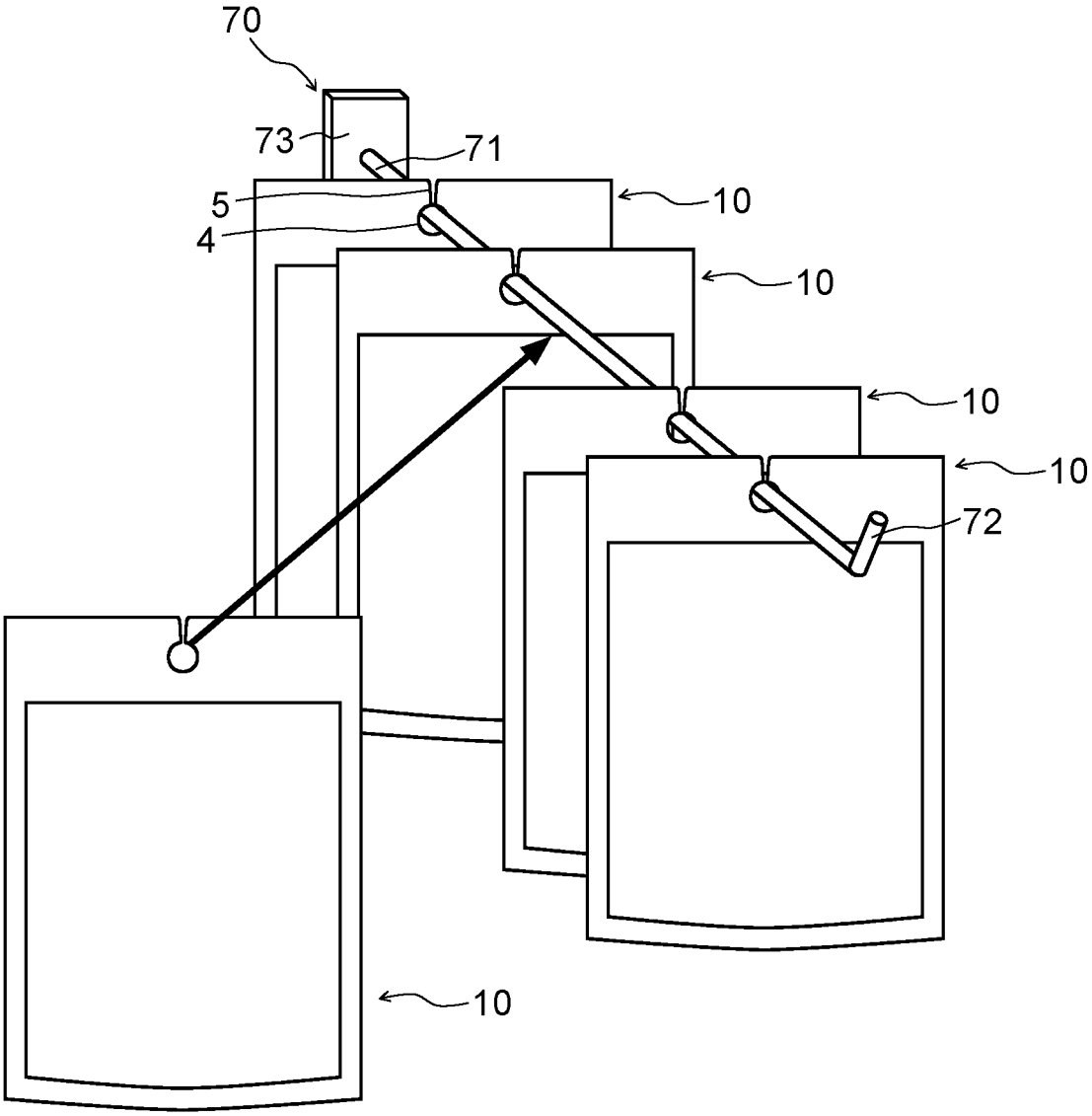


FIG.10

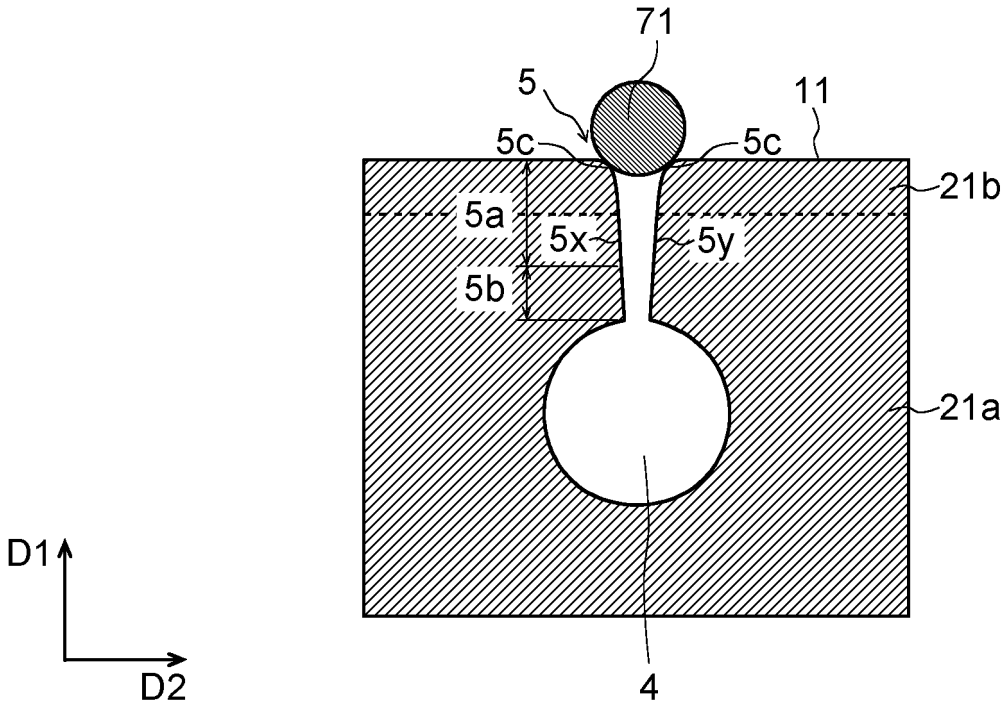


FIG.11A

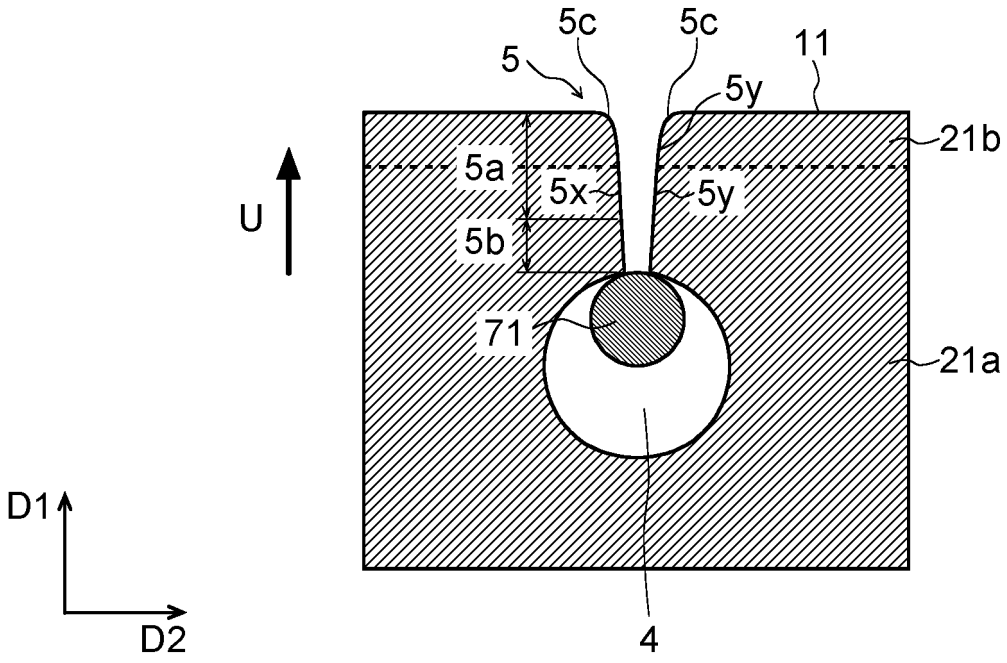


FIG.11B

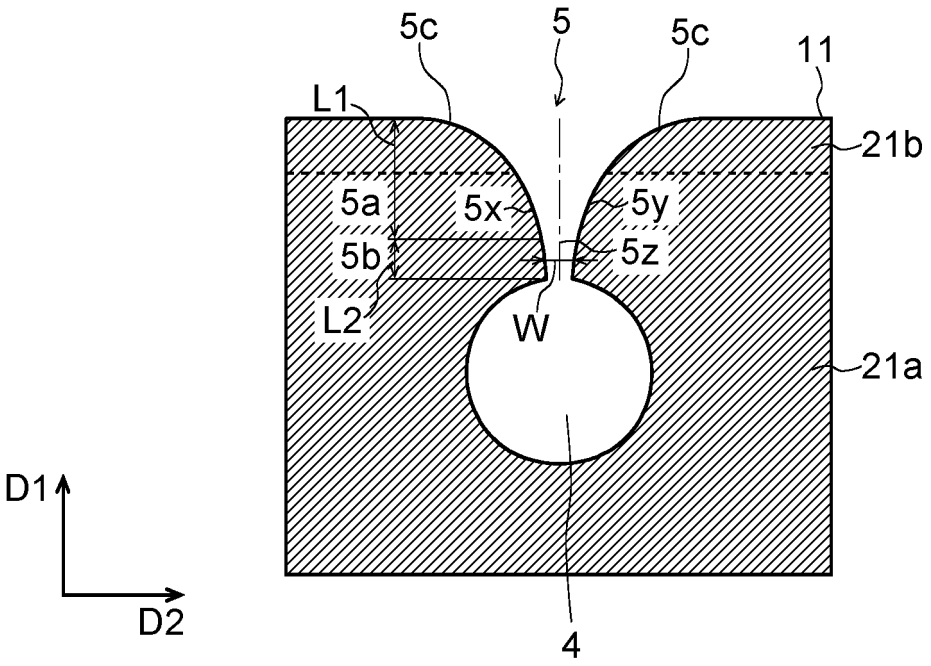
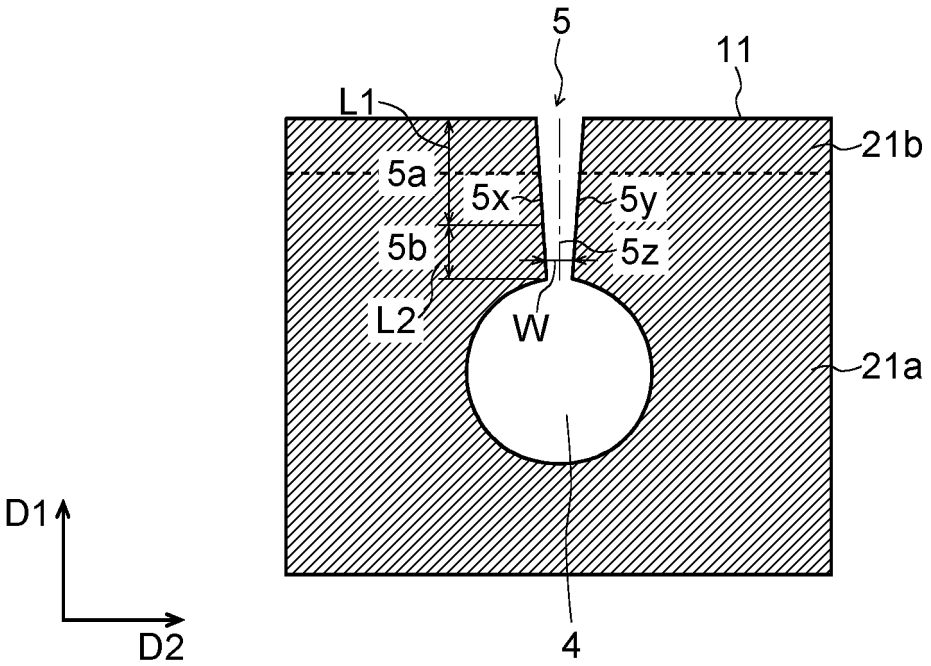

5c
5
5c
11
L1
21b
5a
5x
5y
5b
5z
L2
W
21a
D1
D2
4

FIG.12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11
L1
21b
5a
5x
5y
5b
5z
L2
W
21a
D1
D2
4

FIG.13

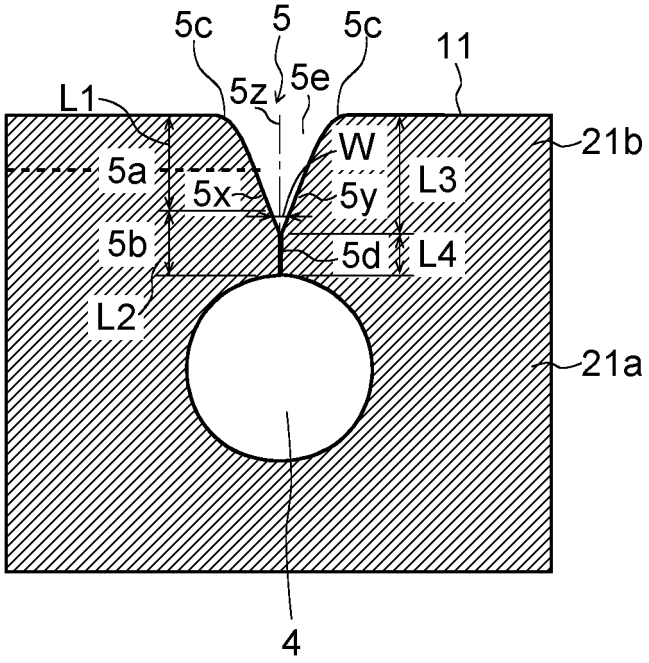
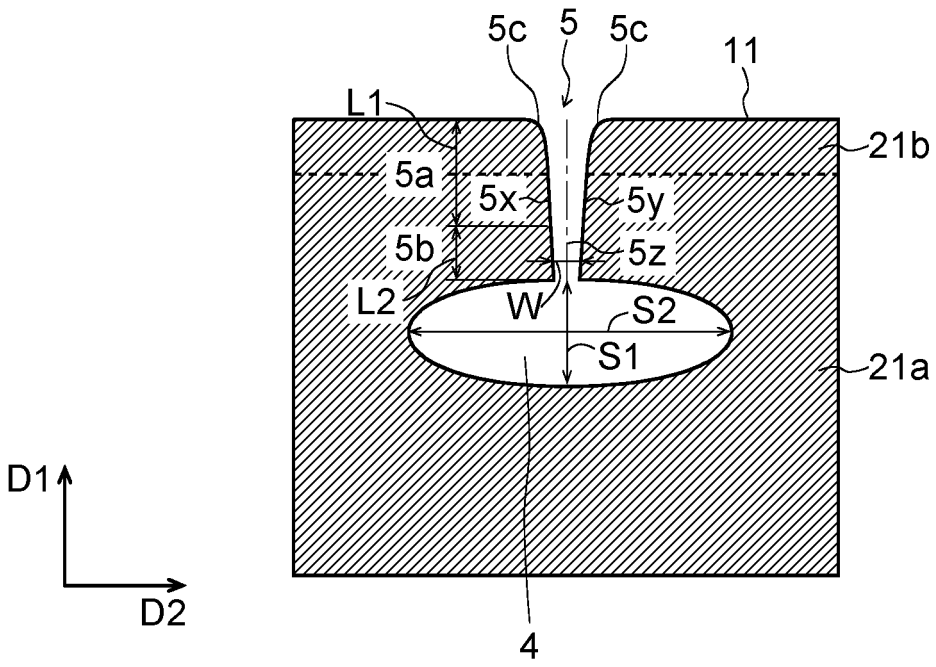


FIG.14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5
5c
11
L1
21b
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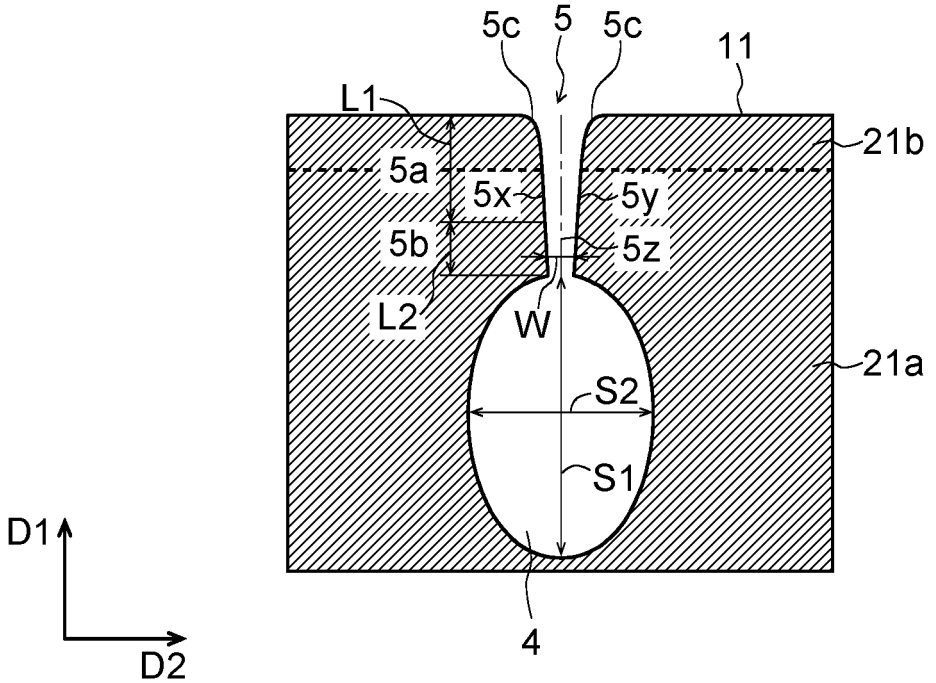
5z
L2
W
S2
S1
21a
D1
D2
4

FIG.15


5c
5
5c
11
L1
21b
5a
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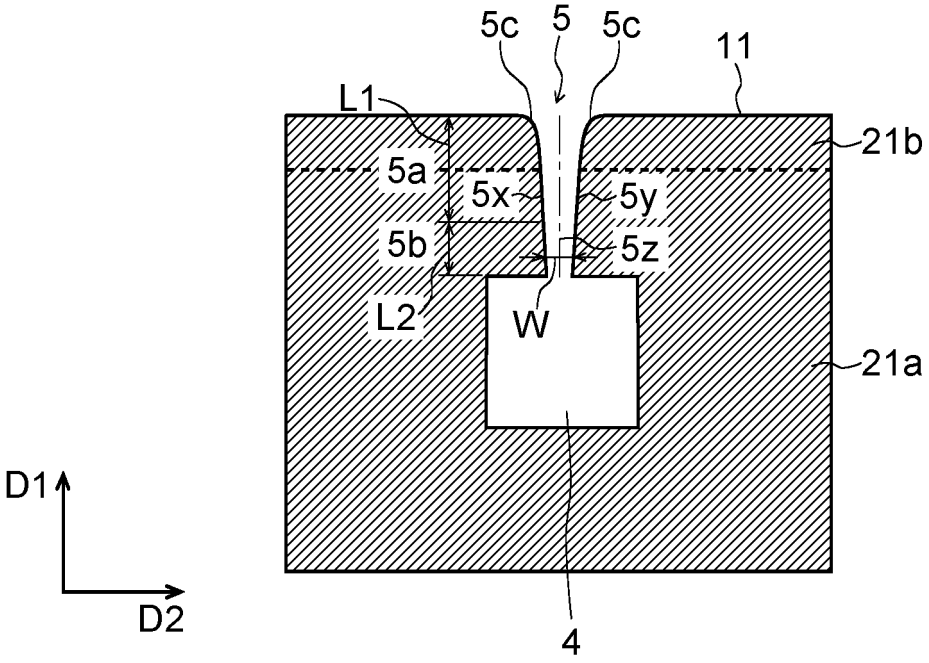
5y
5b
5z
L2
W
21a
S2
S1
D1
D2
4

FIG.16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5
5c
11
L1
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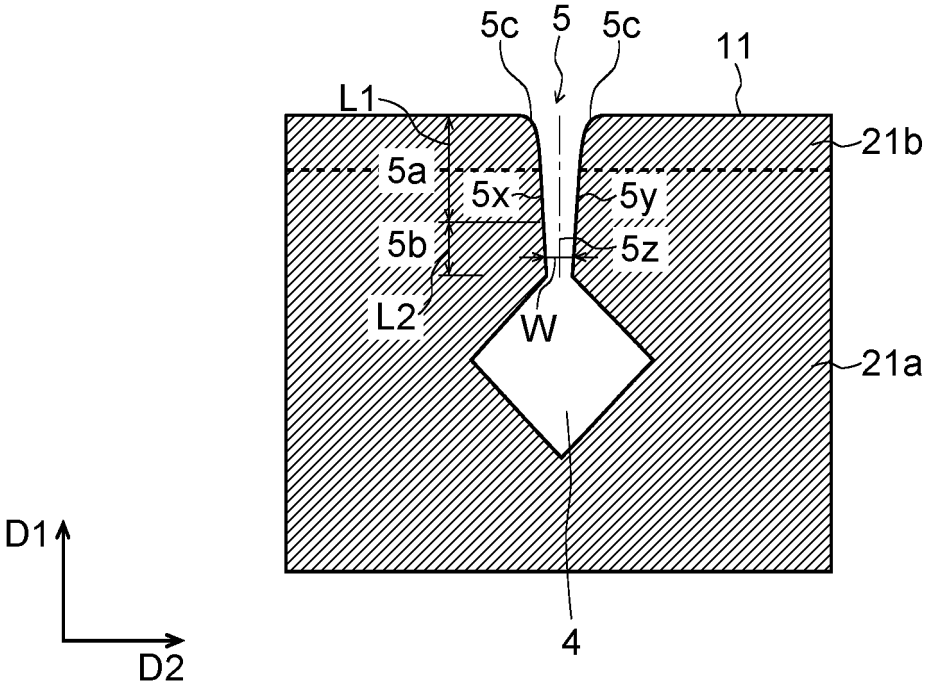
5x
5y
5b
5z
L2
W
21a
D1
D2
4

FIG.17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L1
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5x
5y
5b
5z
L2
W
21a
D1
D2
4

FIG.18

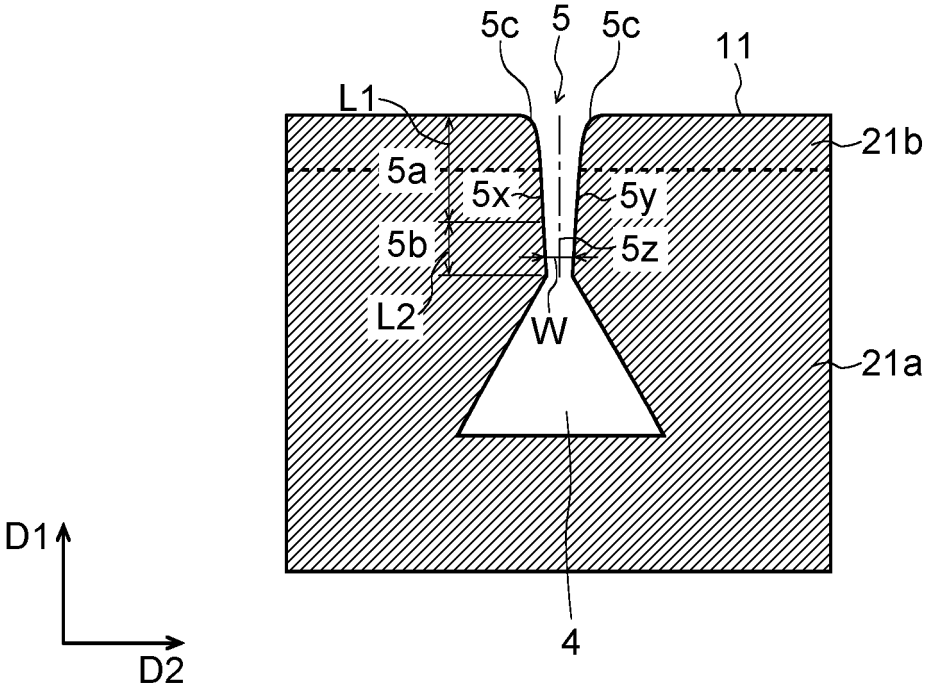

5c
5
5c
11
L1
21b
5a
5x
5y
5b
5z
L2
W
21a
4
D1
D2

FIG.19

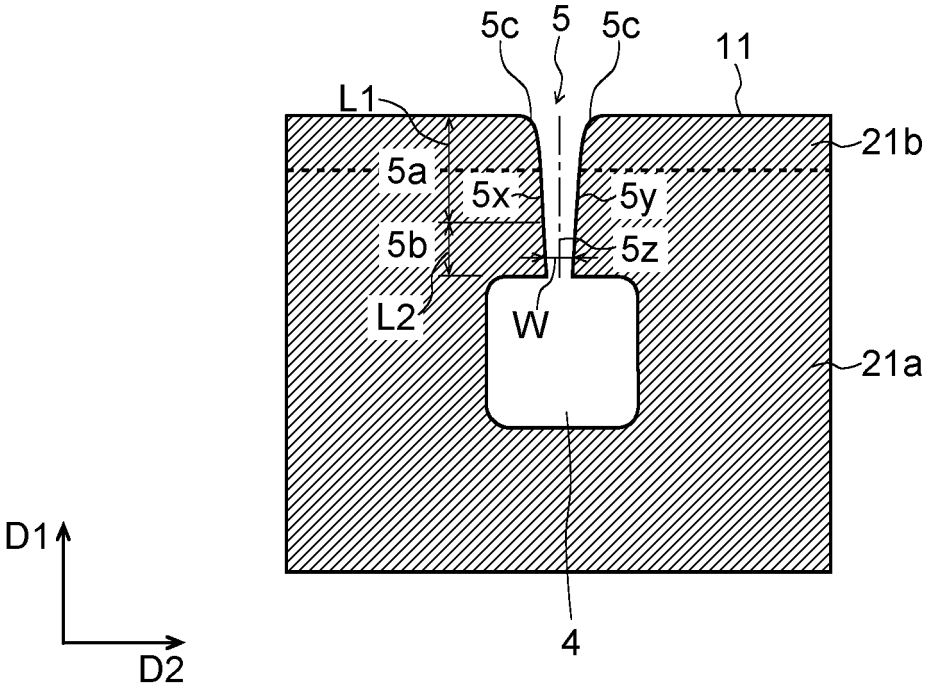

5c
5
5c
11
L1
21b
5a
5x
5y
5b
5z
L2
W
21a
4
D1
D2

FIG.20

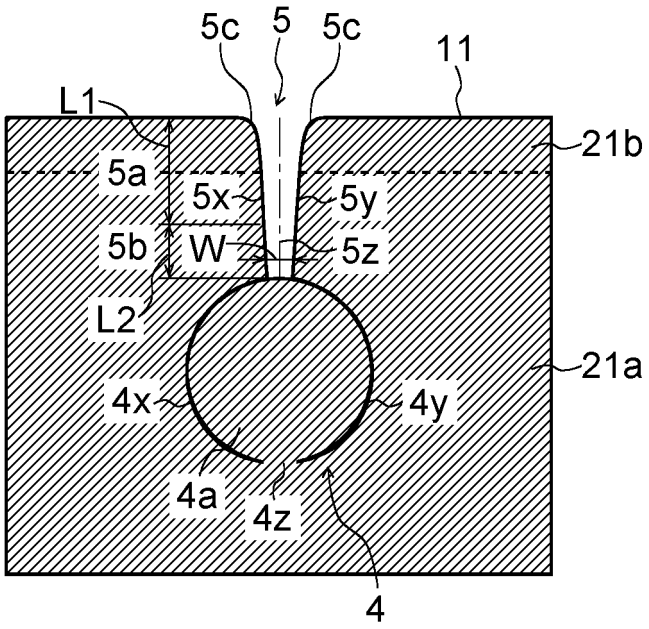


FIG.21

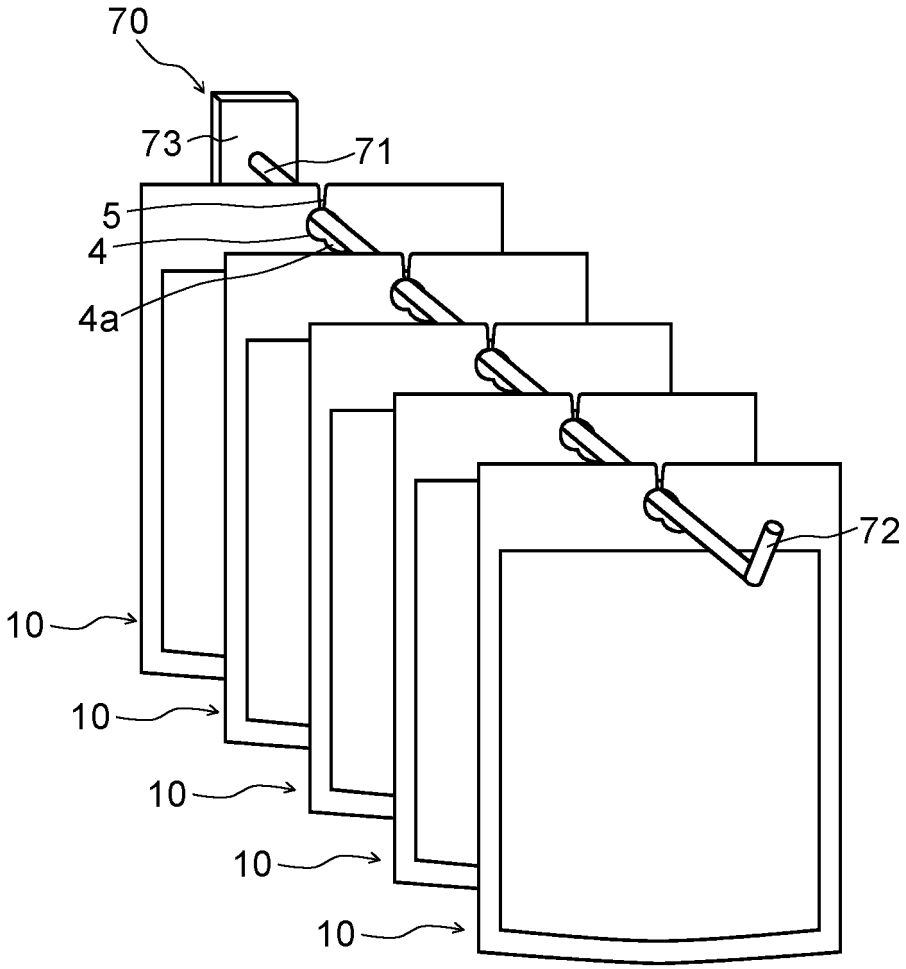
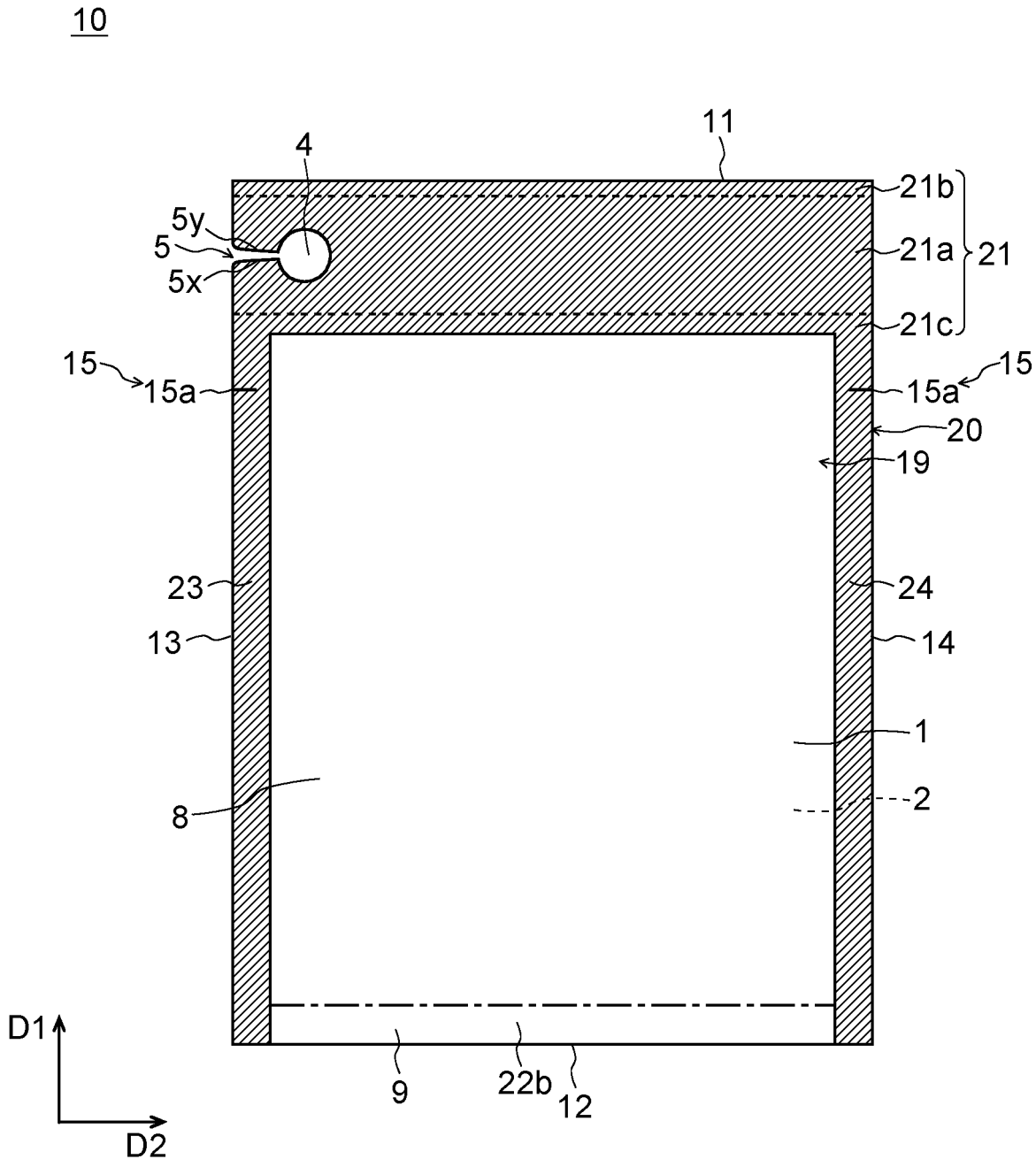


FIG.22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11
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21b
5y
5
21a
21
5x
21c
15
15a
15a
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19
23
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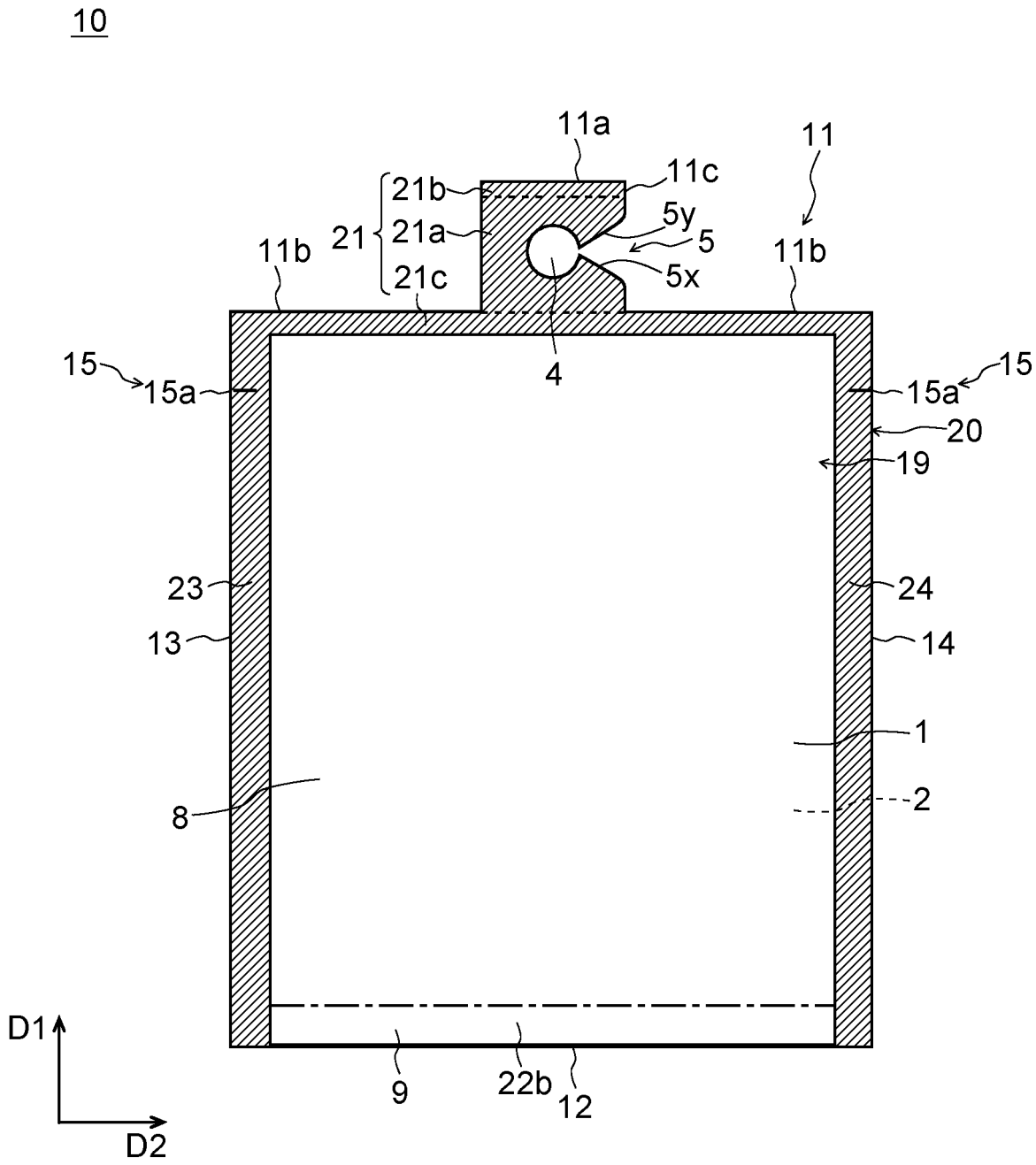
8
2
D1
D2
9
22b
12

FIG.23


10
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21b
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21a
21c
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5
5x
11b
11b
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15a
4
15a
15
20
19
23
24
13
14
1
8
2
D1
D2
9
22b
12

FIG.24

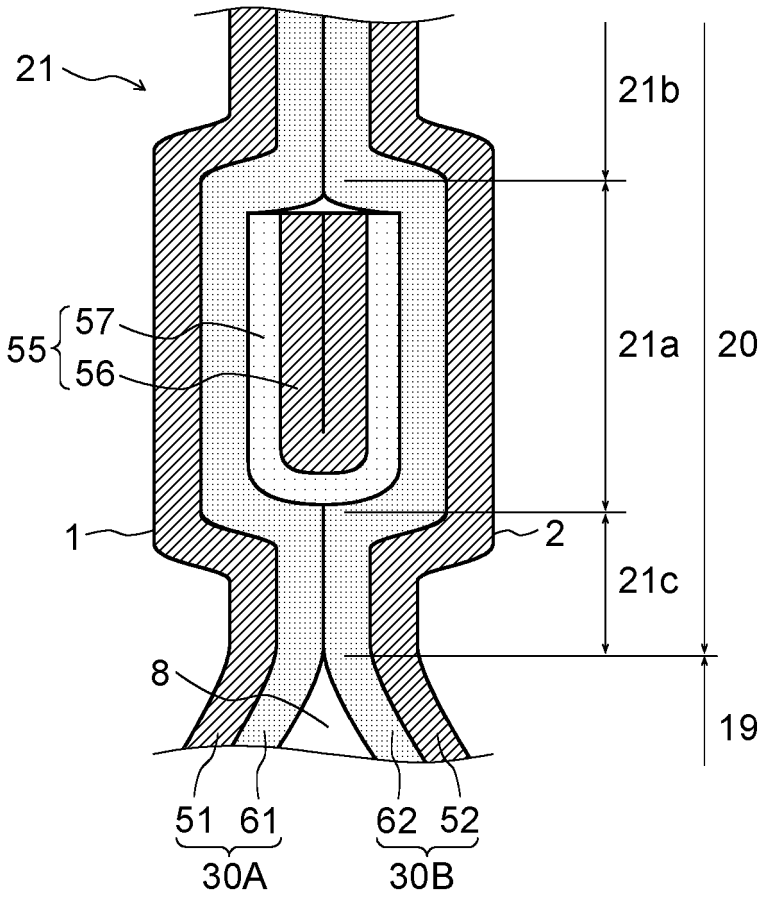


FIG.25

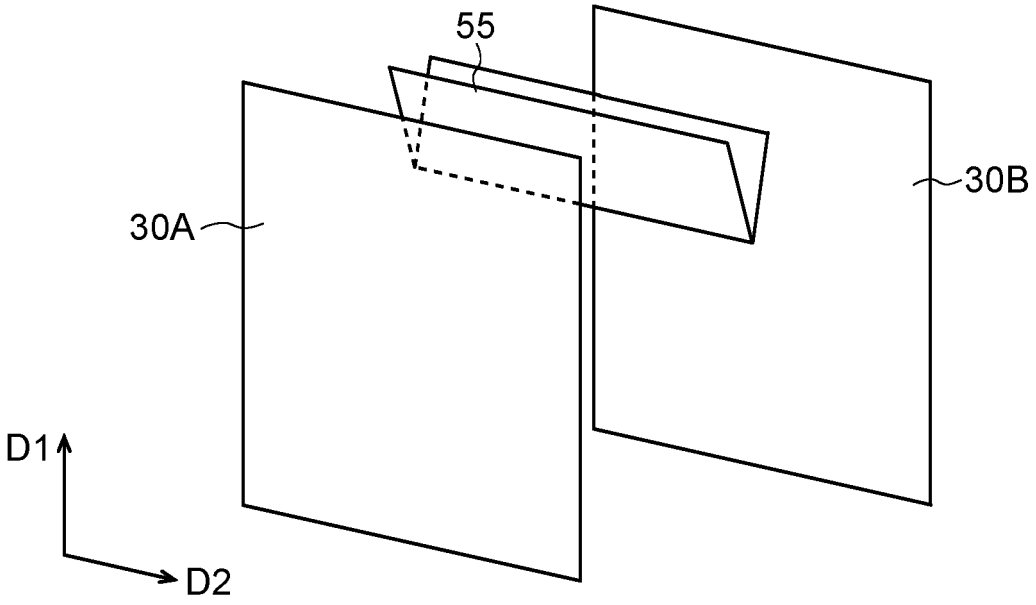


FIG.26

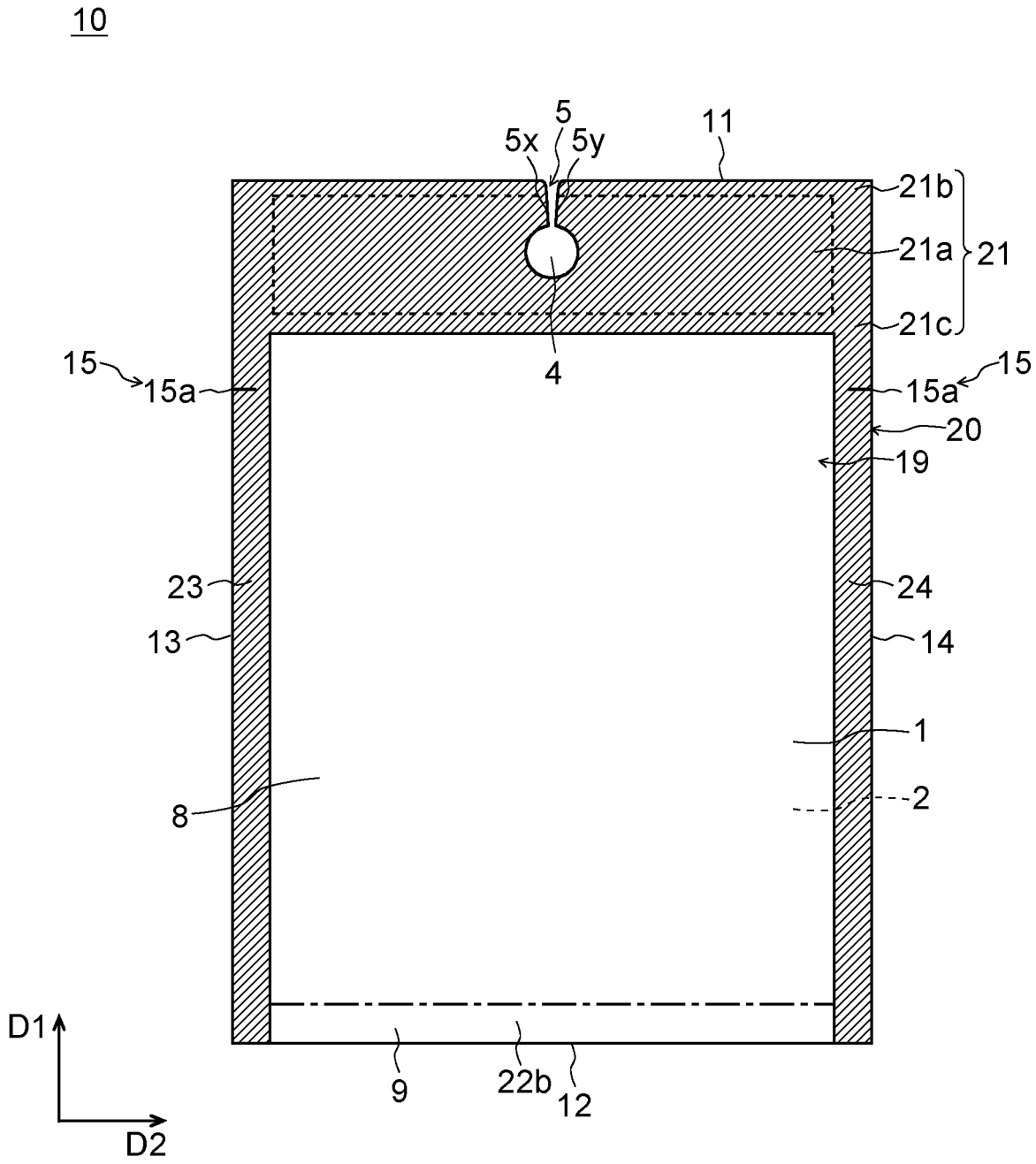

10
5
5x
5y
11
21b
21a
21
21c
15
15a
4
15a
15
20
19
23
24
13
14
1
8
2
D1
D2
9
22b
12

FIG.27

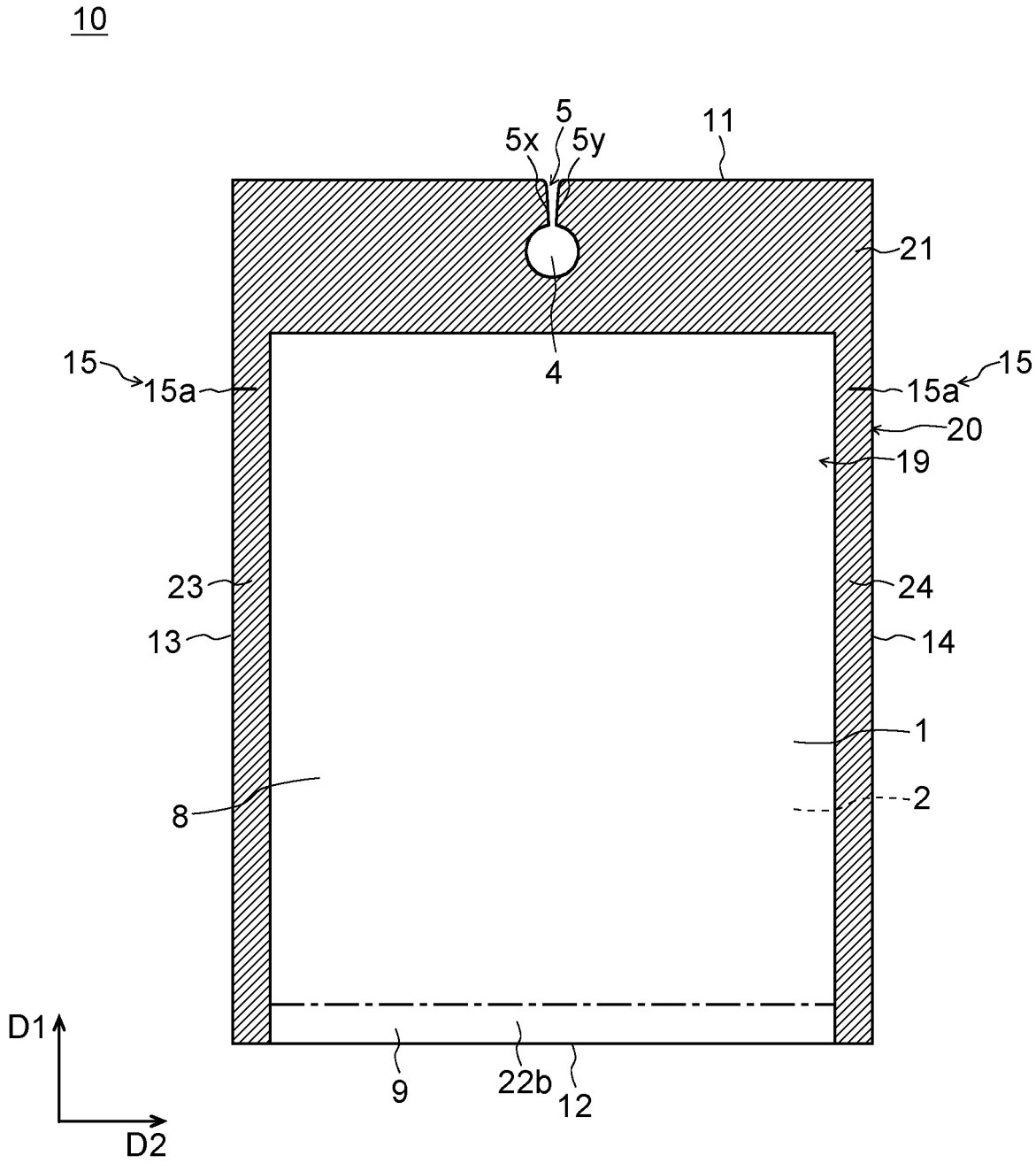


FIG.28

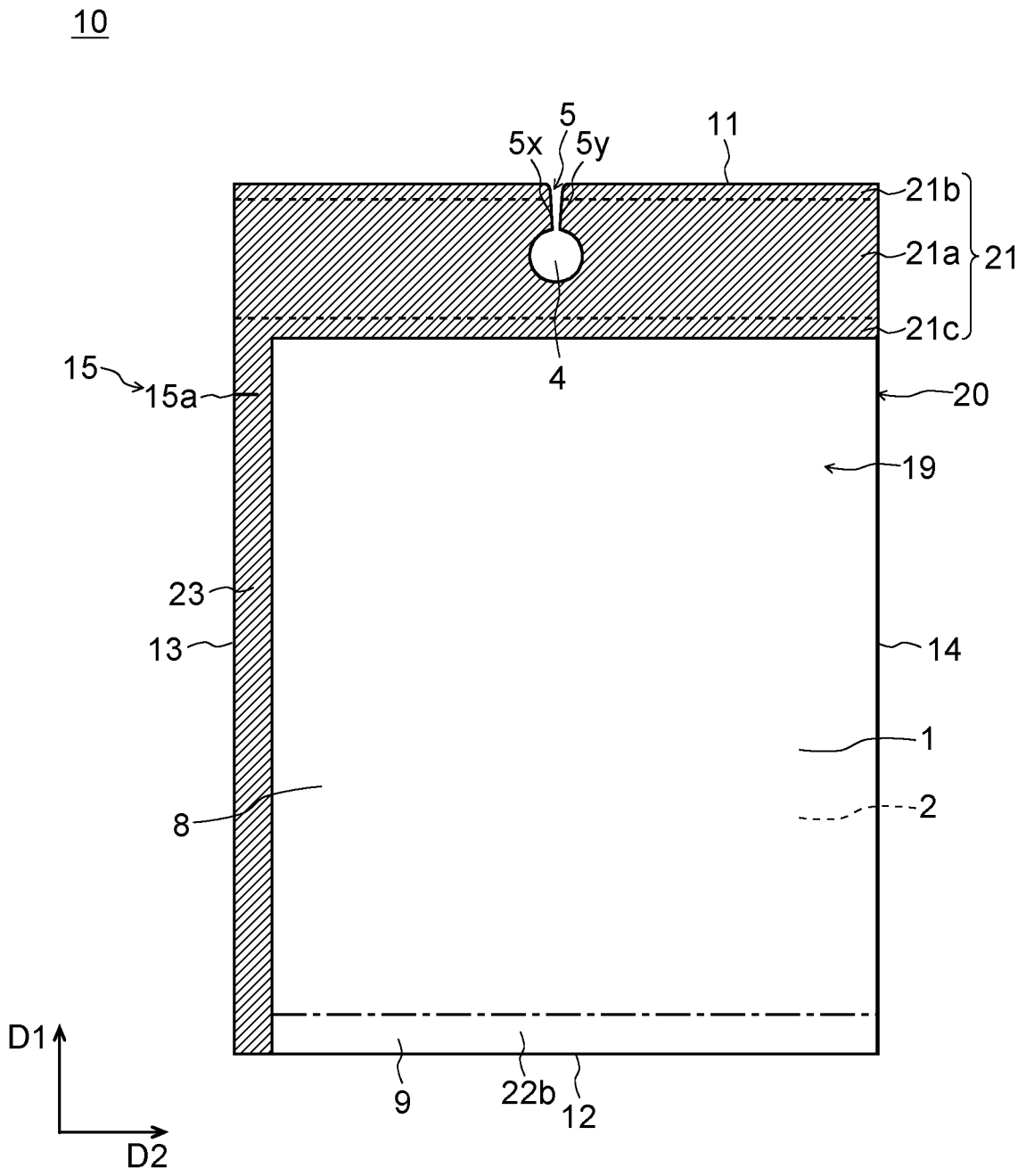


FIG.29

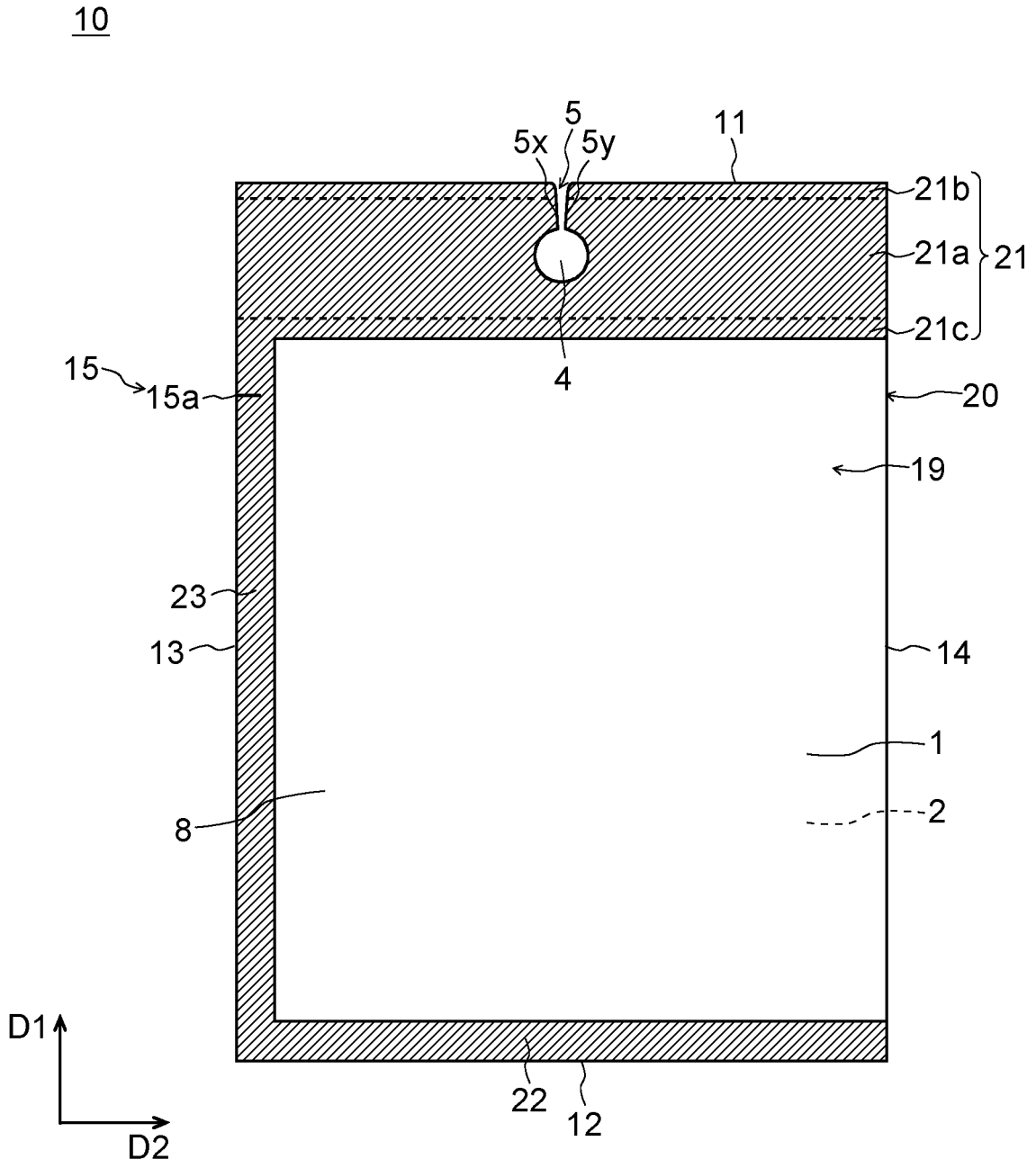


FIG.30

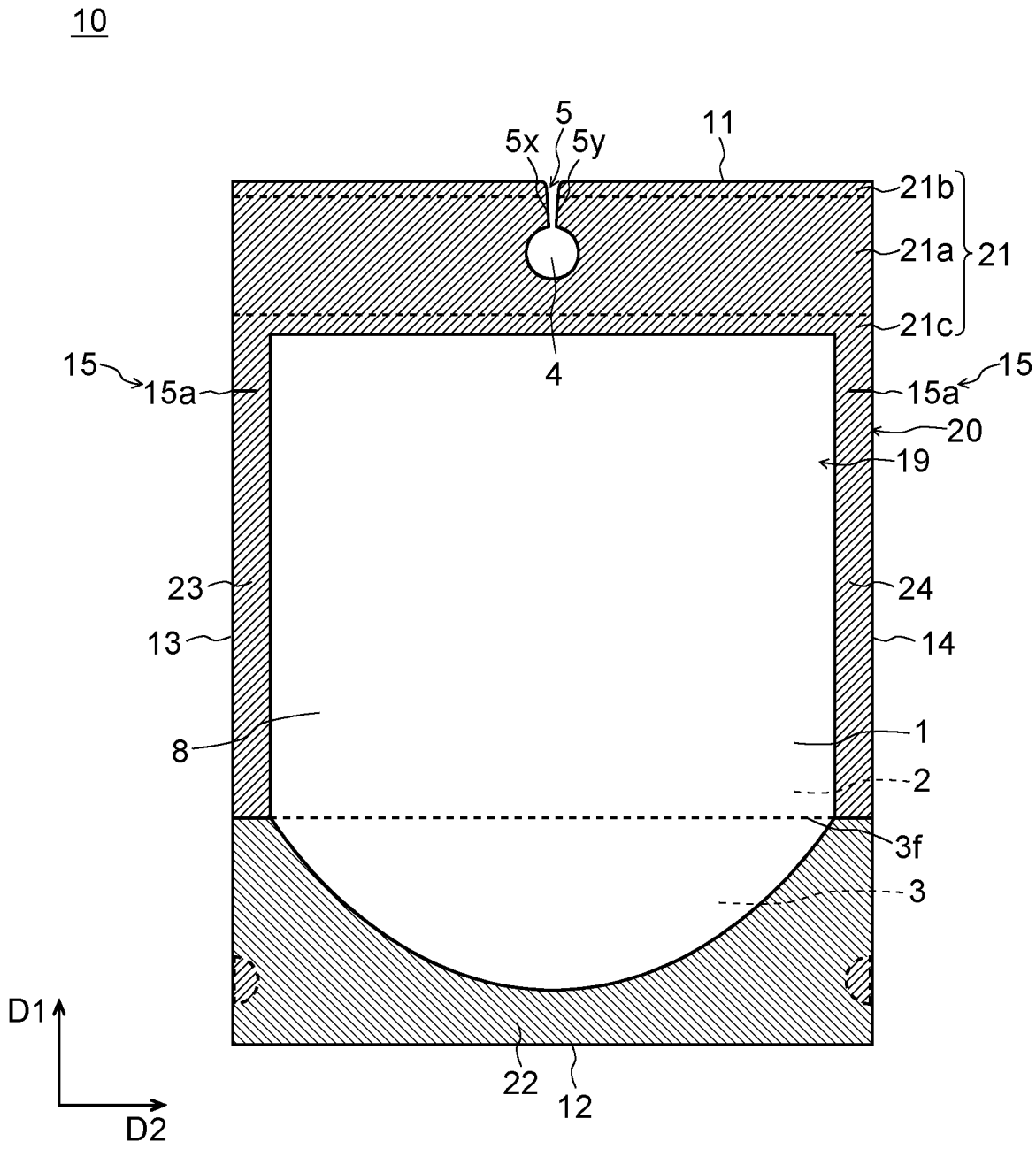

10
5
5x
5y
11
21b
21a
21
21c
15
15a
4
15a
15
20
19
23
24
13
14
8
1
2
3f
3
D1
D2
22
12

FIG.31

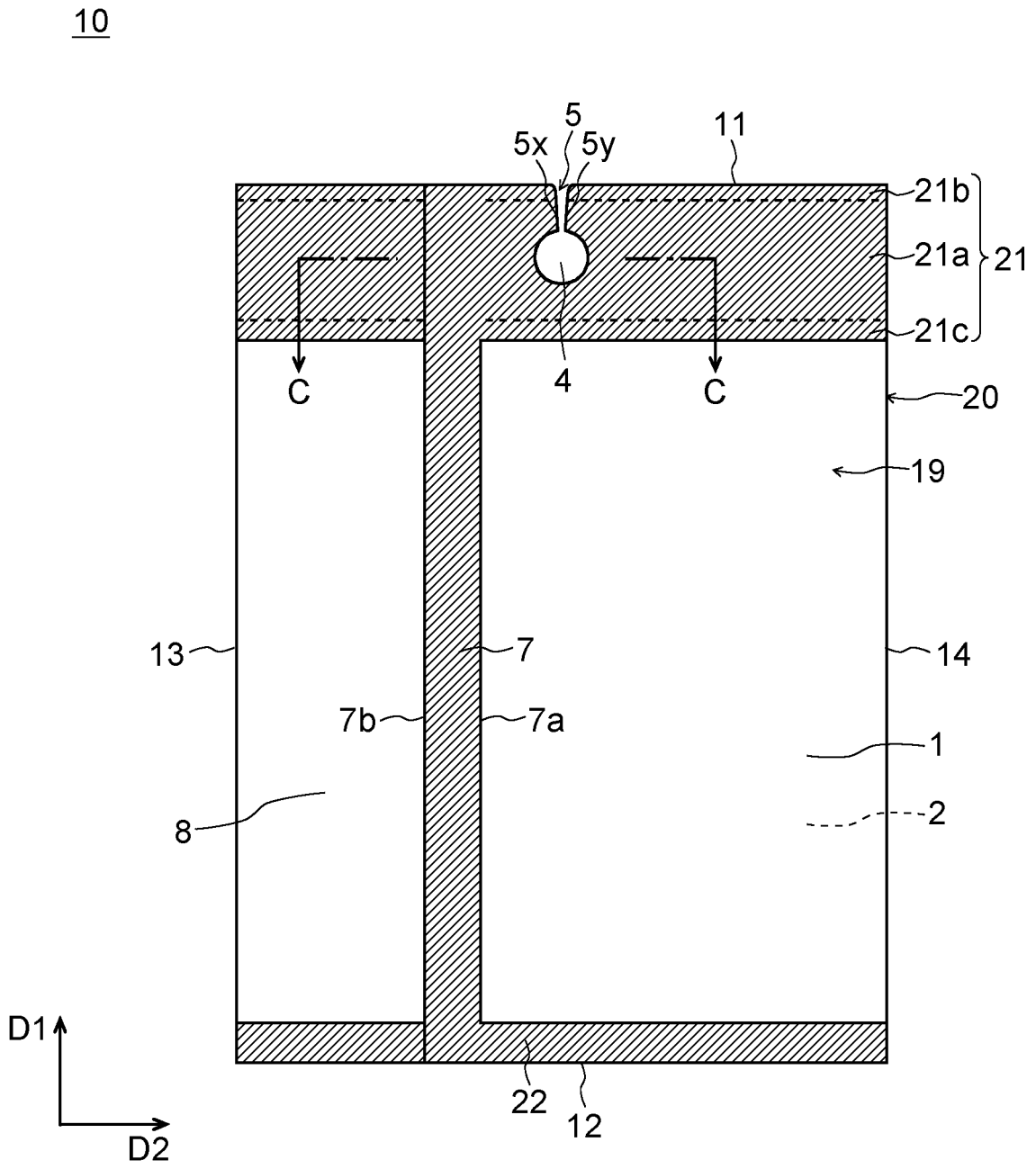


FIG.32

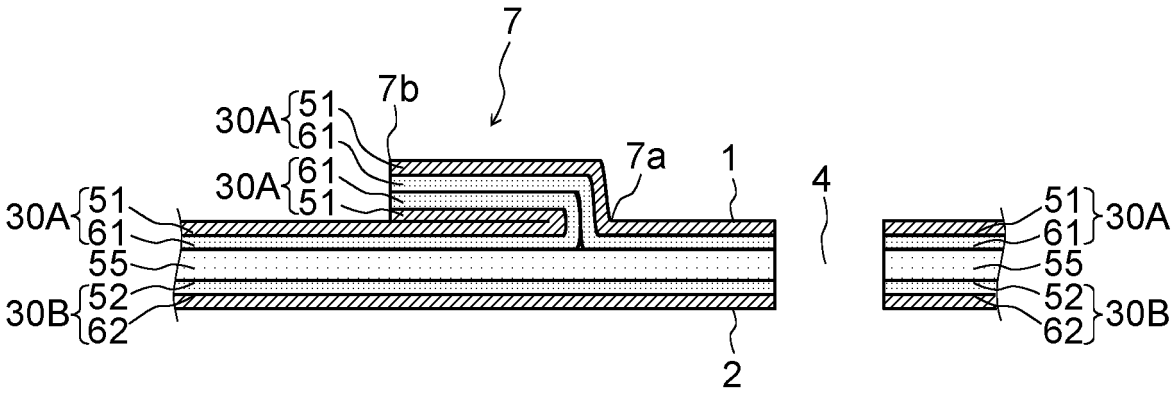

7
7b
30A
51
61
30A
61
51
7a
1
4
30A
51
61
55
30B
52
62
2
51
61
30A
55
52
62
30B

FIG.33

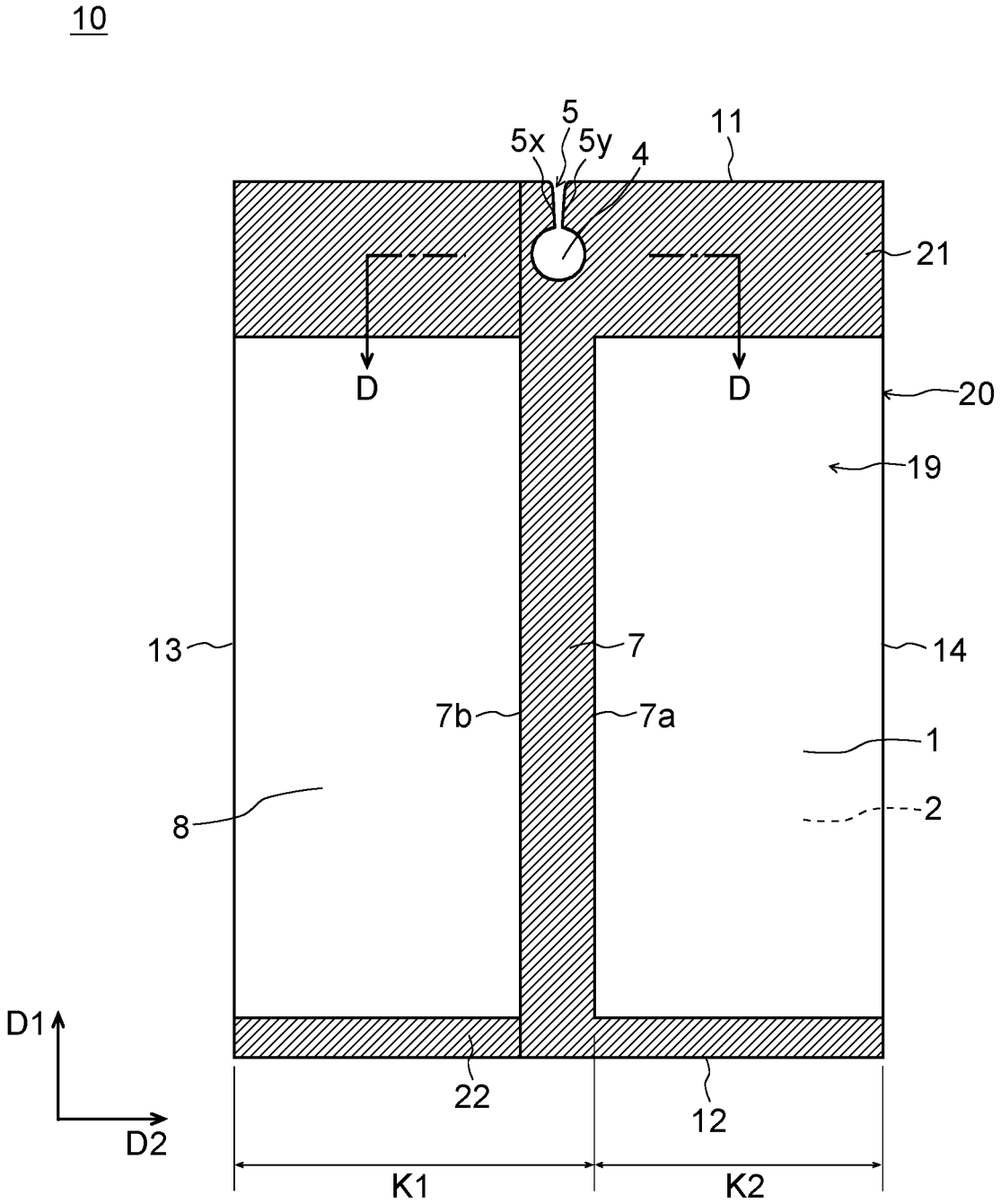
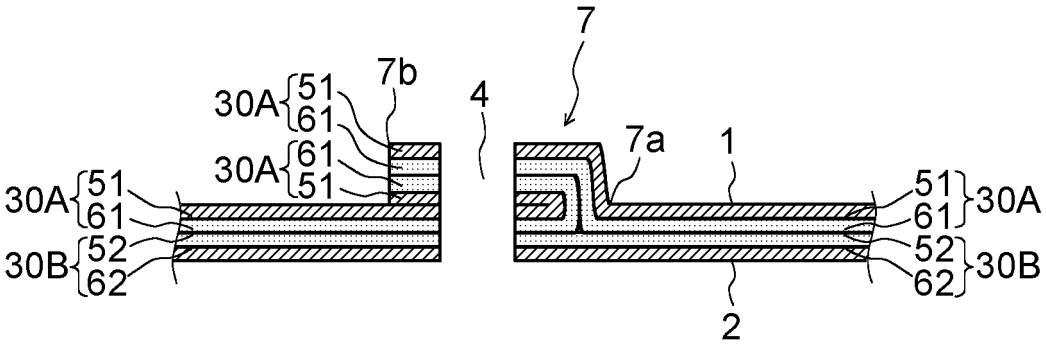


FIG.34


7
7b
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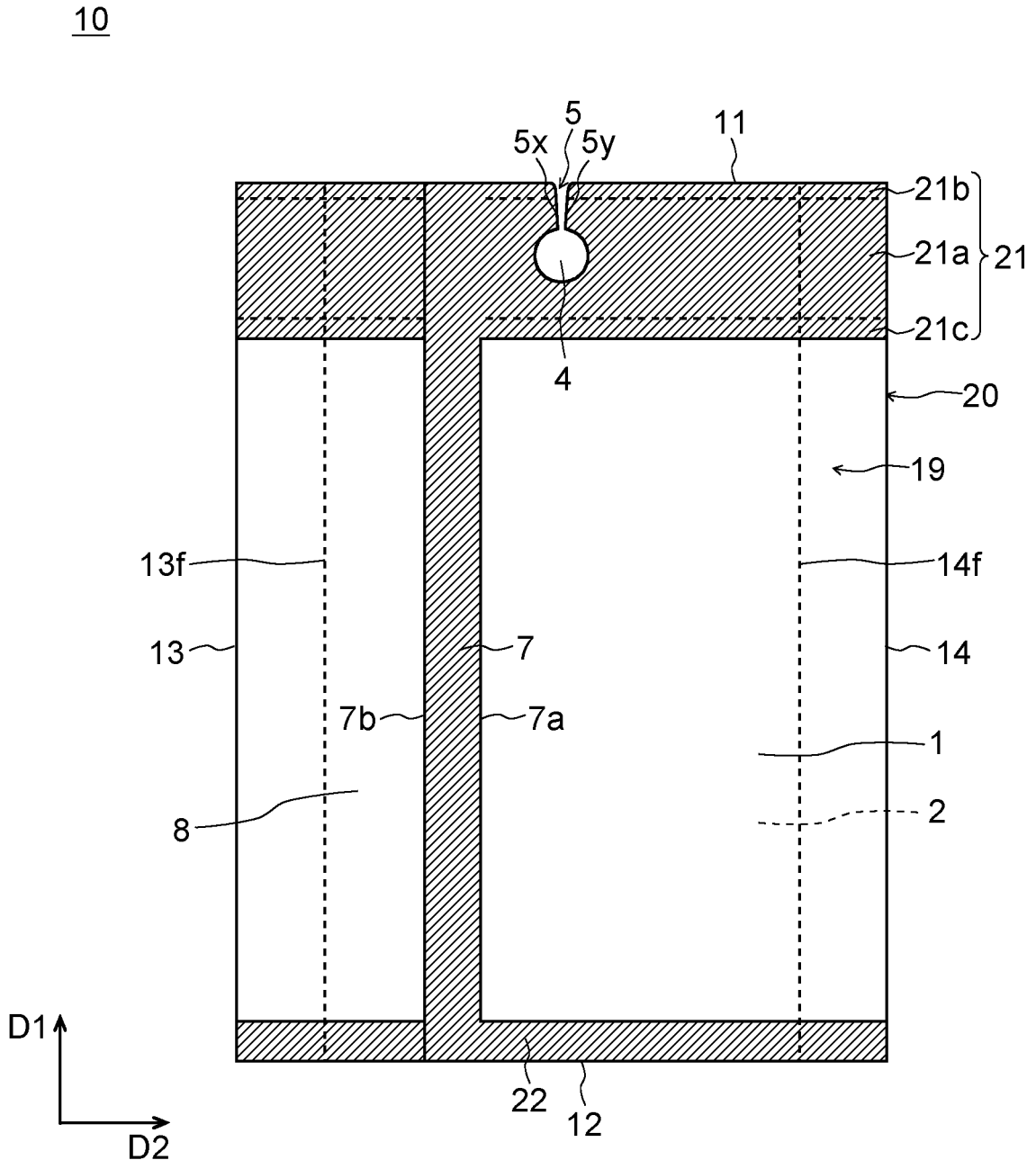
30A
51
61
30A
61
51
7a
1
30A
51
61
30B
52
62
51
61
30A
52
62
30B
2

FIG.35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5
5x
5y
11
21b
21a
21
21c
4
20
19
13f
14f
13
7
14
7b
7a
1
8
2
D1
D2
22
12

FIG.36

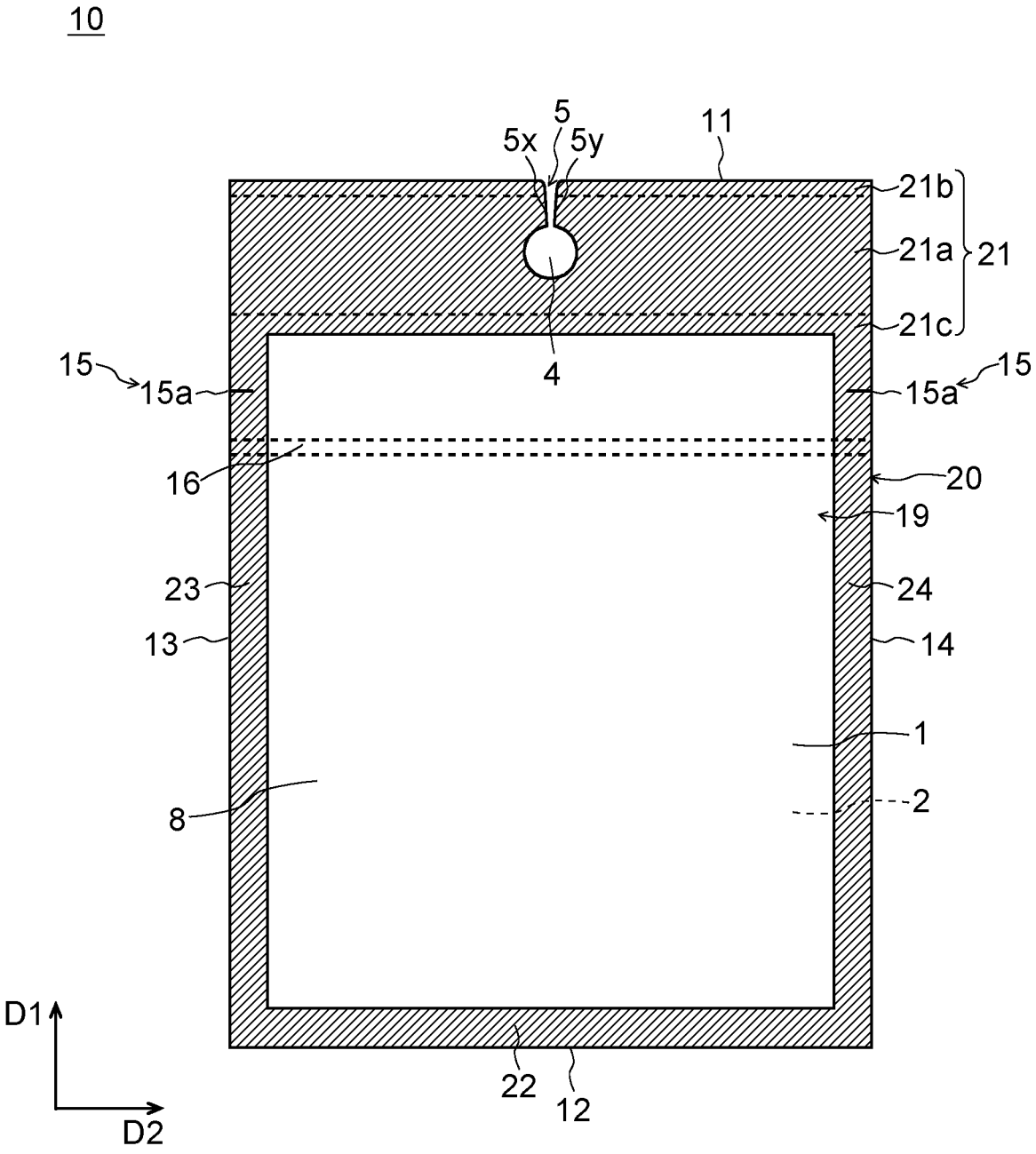
10
5
5x
5y
11
21b
21a
21
21c
4
15
15a
15a
15
16
20
19
23
24
13
14
1
8
2
D1
D2
22
12

FIG.37

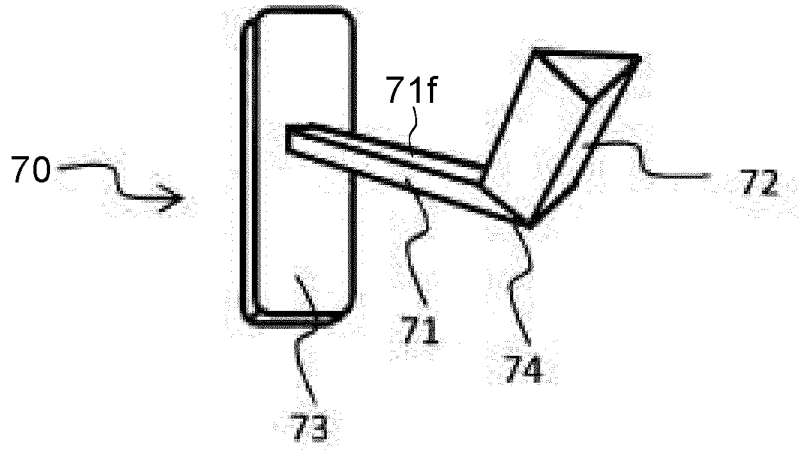

FIG.38

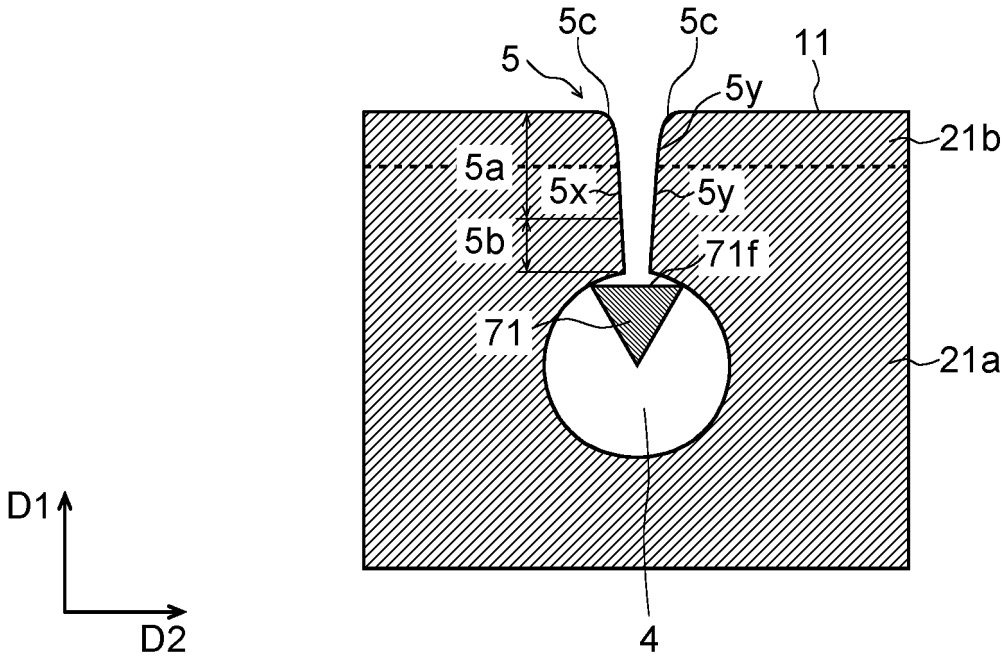
5c
5c
11
5
5y
21b
5a
5x
5y
5b
71f
71
21a
D1
D2
4

FIG.39

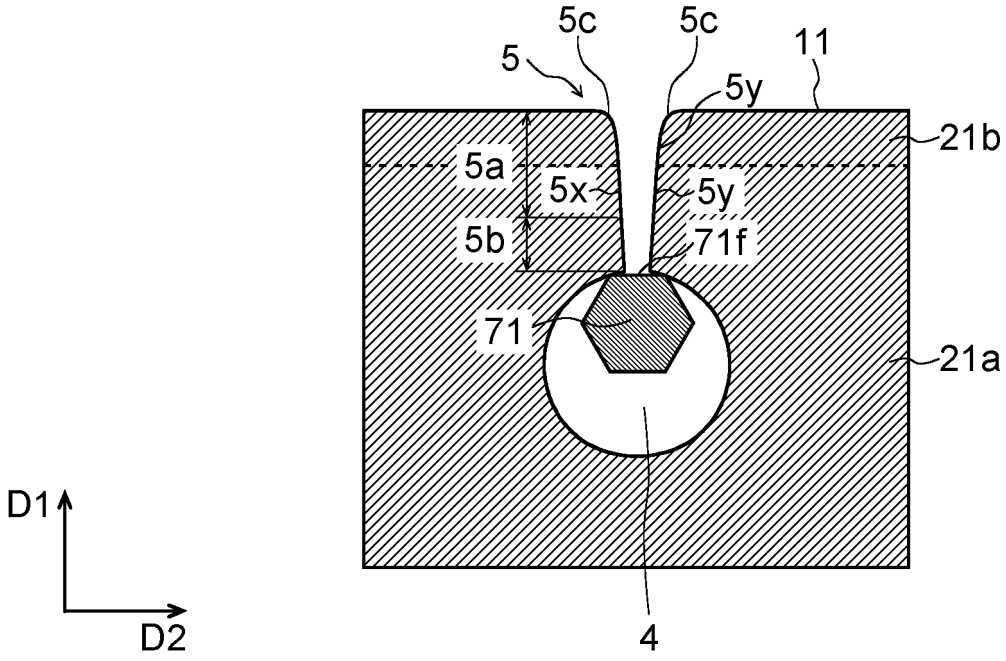
5c
5c
11
5
5y
21b
5a
5x
5y
5b
71f
71
21a
D1
D2
4

FIG.40

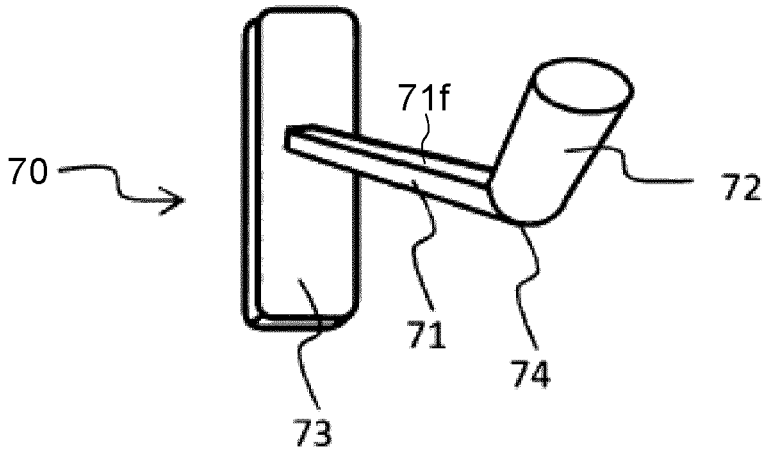

FIG.41

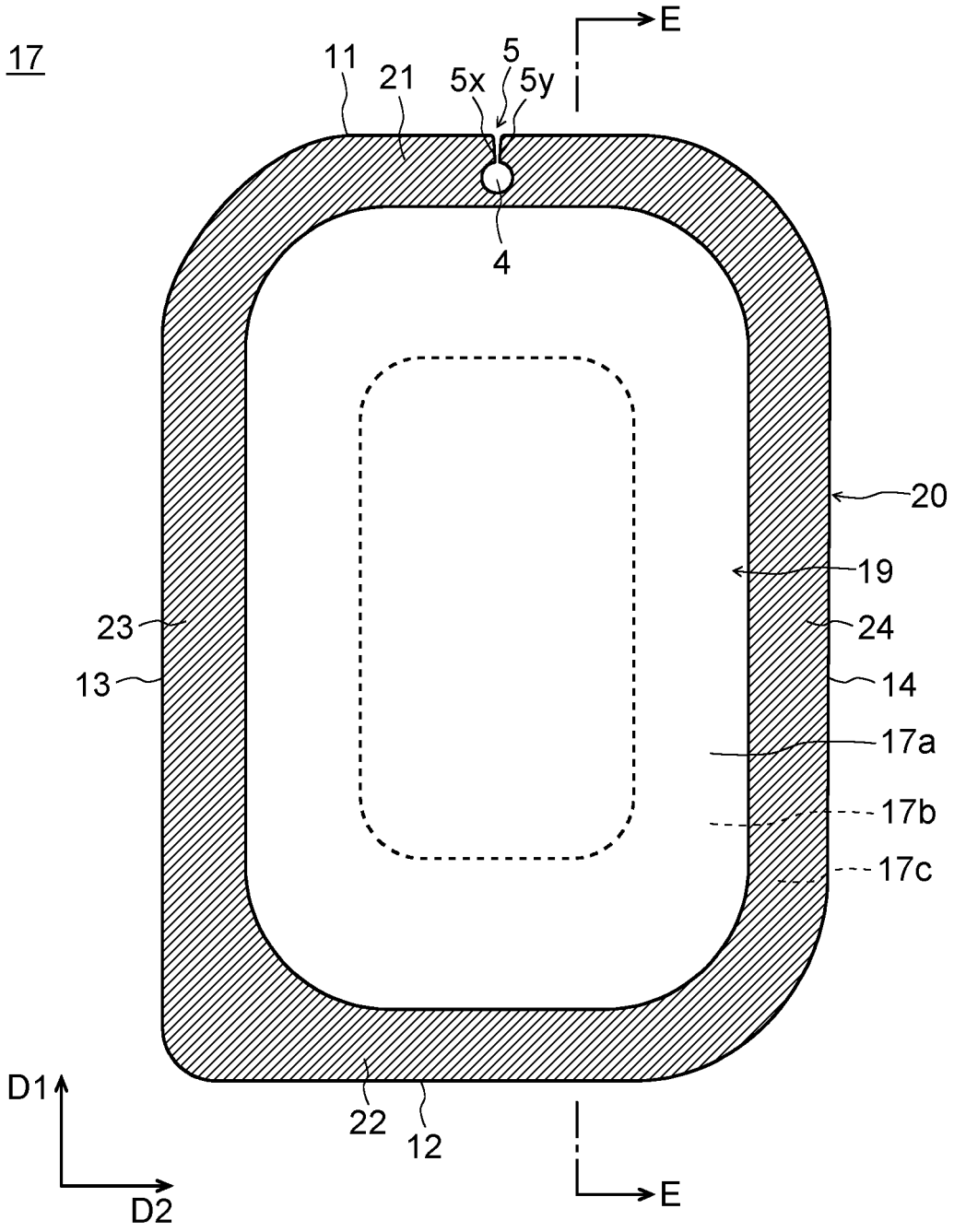

FIG.42

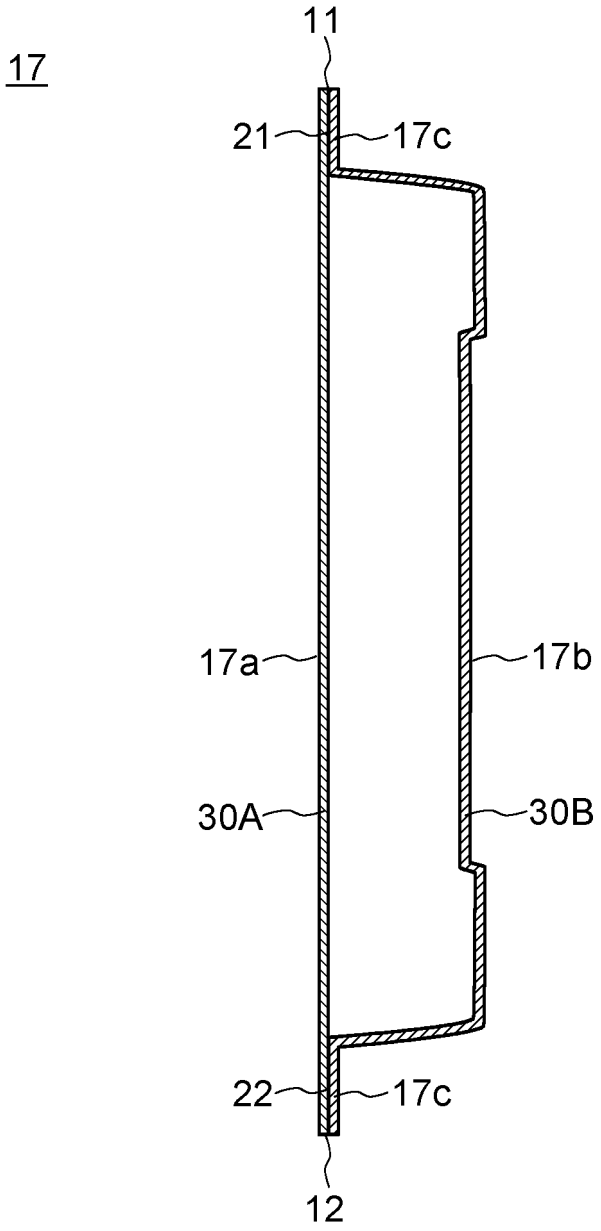

FIG.43

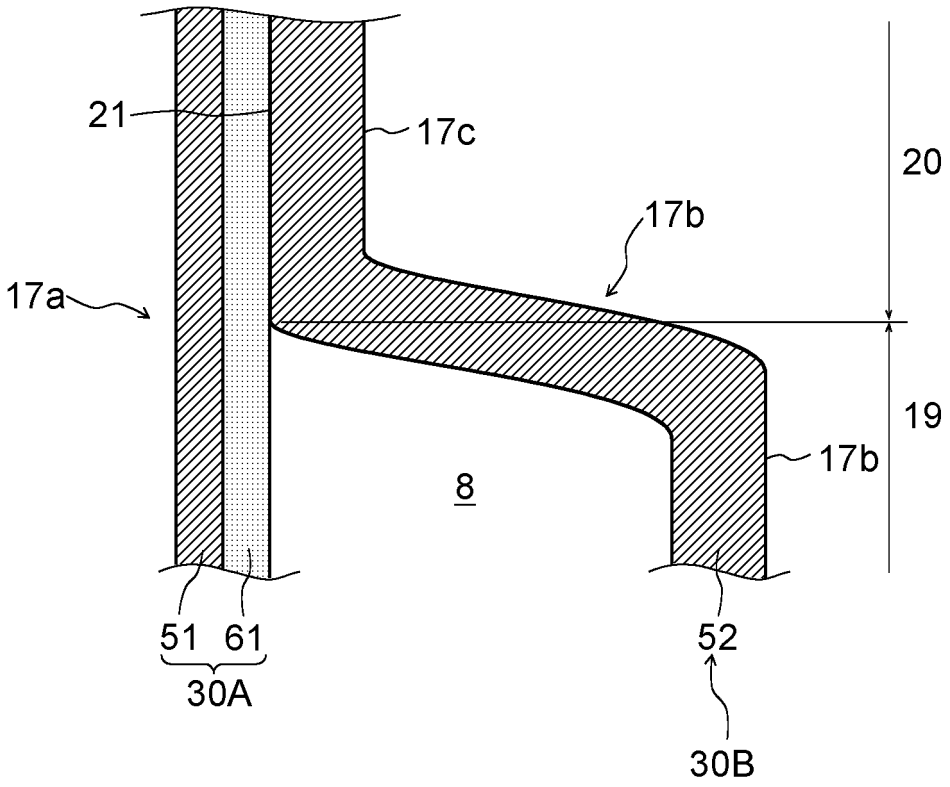

FIG.44

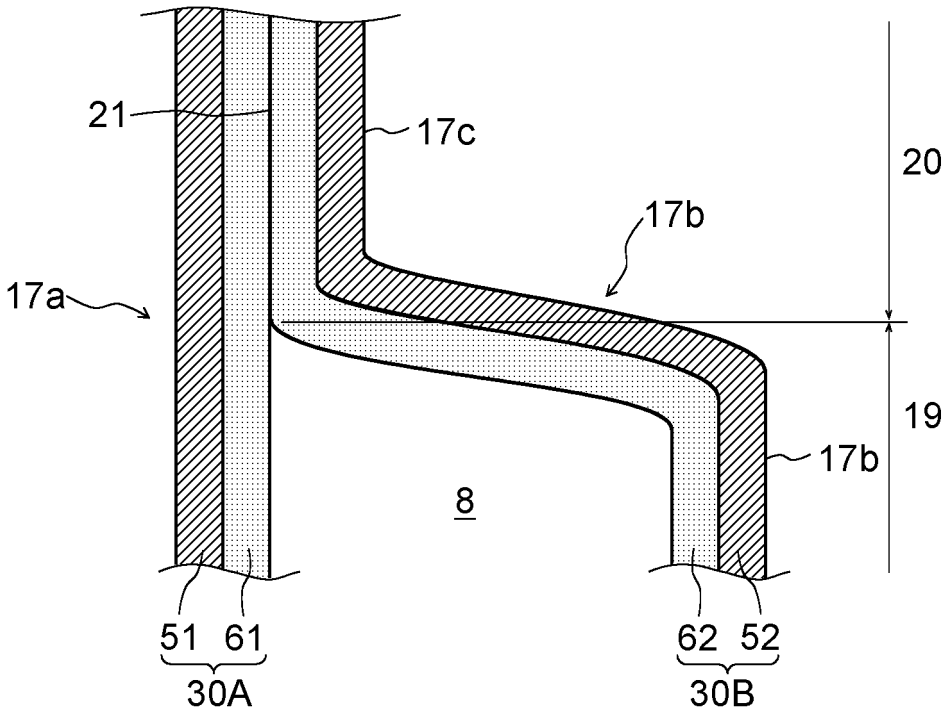

FIG.45

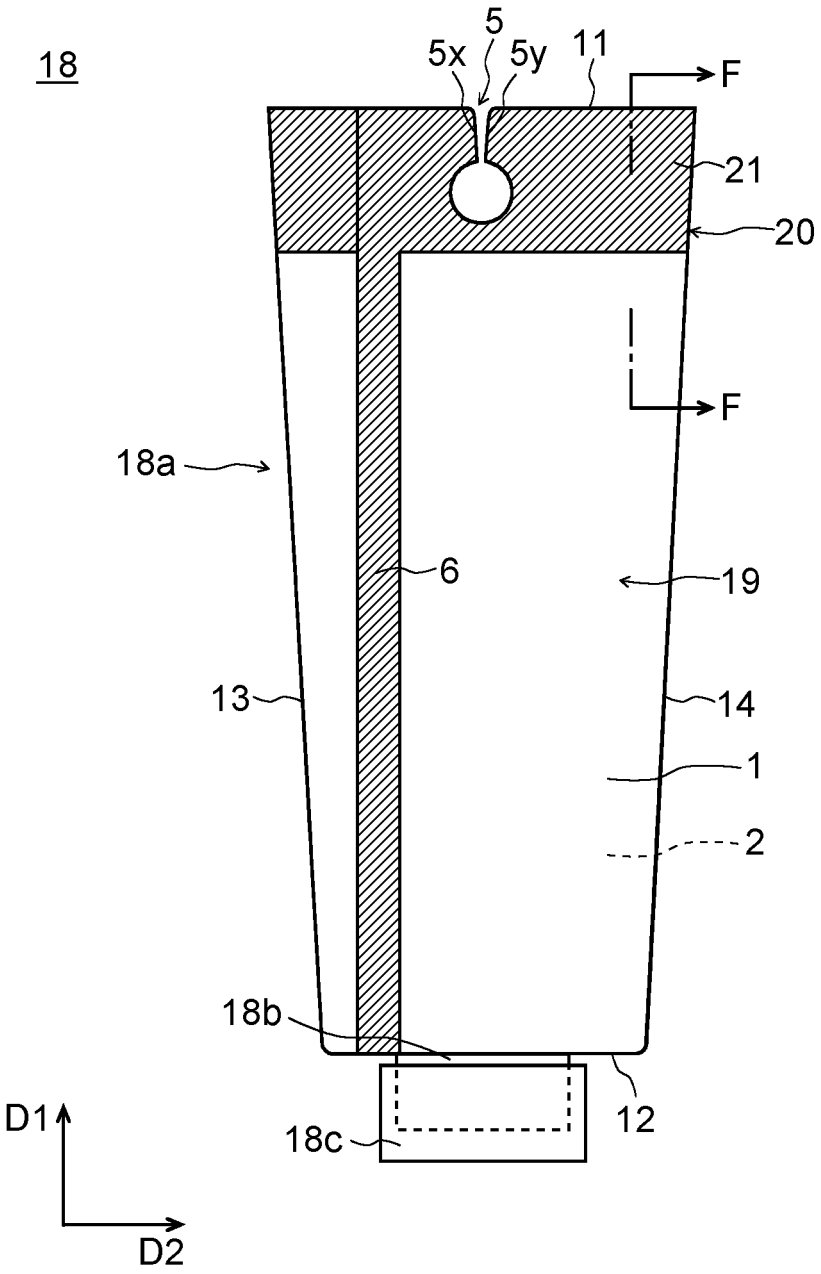

FIG.46

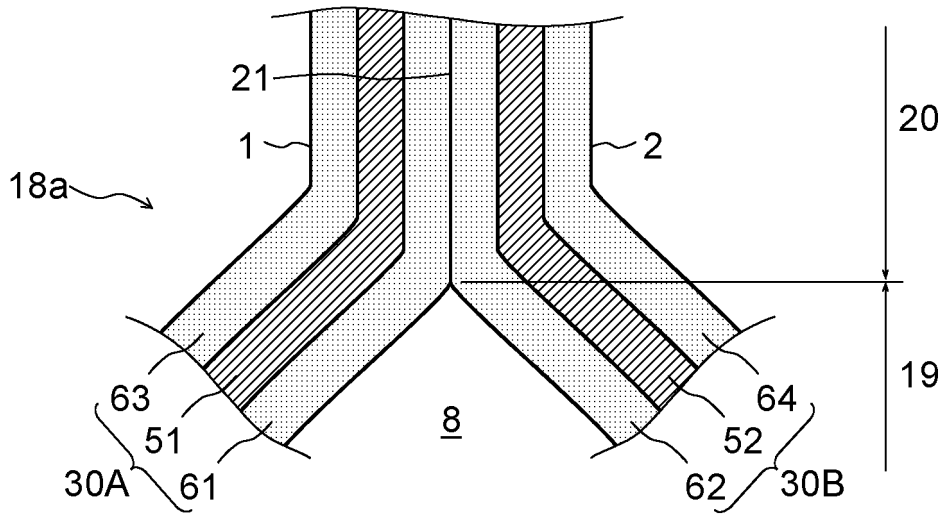

FIG.47

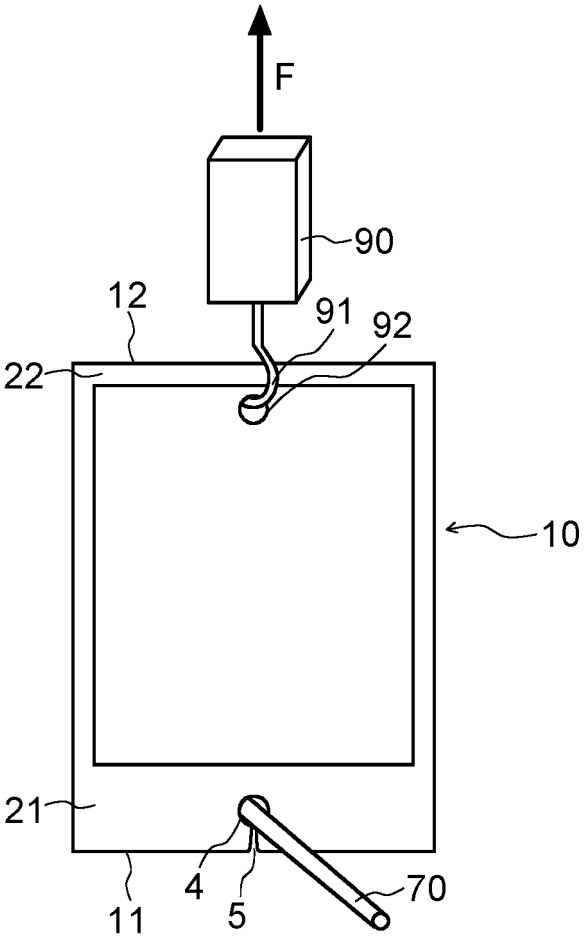

FIG.48

	PACKAGE TYPE	THICKNESS AROUND HOLE [μm]	MEASUREMENTS [g]					MEAN [g]
			FIRST TIME	SECOND TIME	THIRD TIME	FOURTH TIME	FIFTH TIME	
EXAMPLE B1	POUCH	328	159	125	169	135	128	143.2
EXAMPLE B2	TUBE	668	758	752	716	792	753	754.2
COMPARATIVE EXAMPLE B1	POUCH	164	30	47	56	62	44	47.8

FIG.49

	EXAMPLE B1	EXAMPLE B2	COMPARATIVE EXAMPLE B1
PANELIST 1	good	great	bad
PANELIST 2	good	great	bad
PANELIST 3	good	great	bad
PANELIST 4	good	great	bad
PANELIST 5	good	great	bad

FIG.50

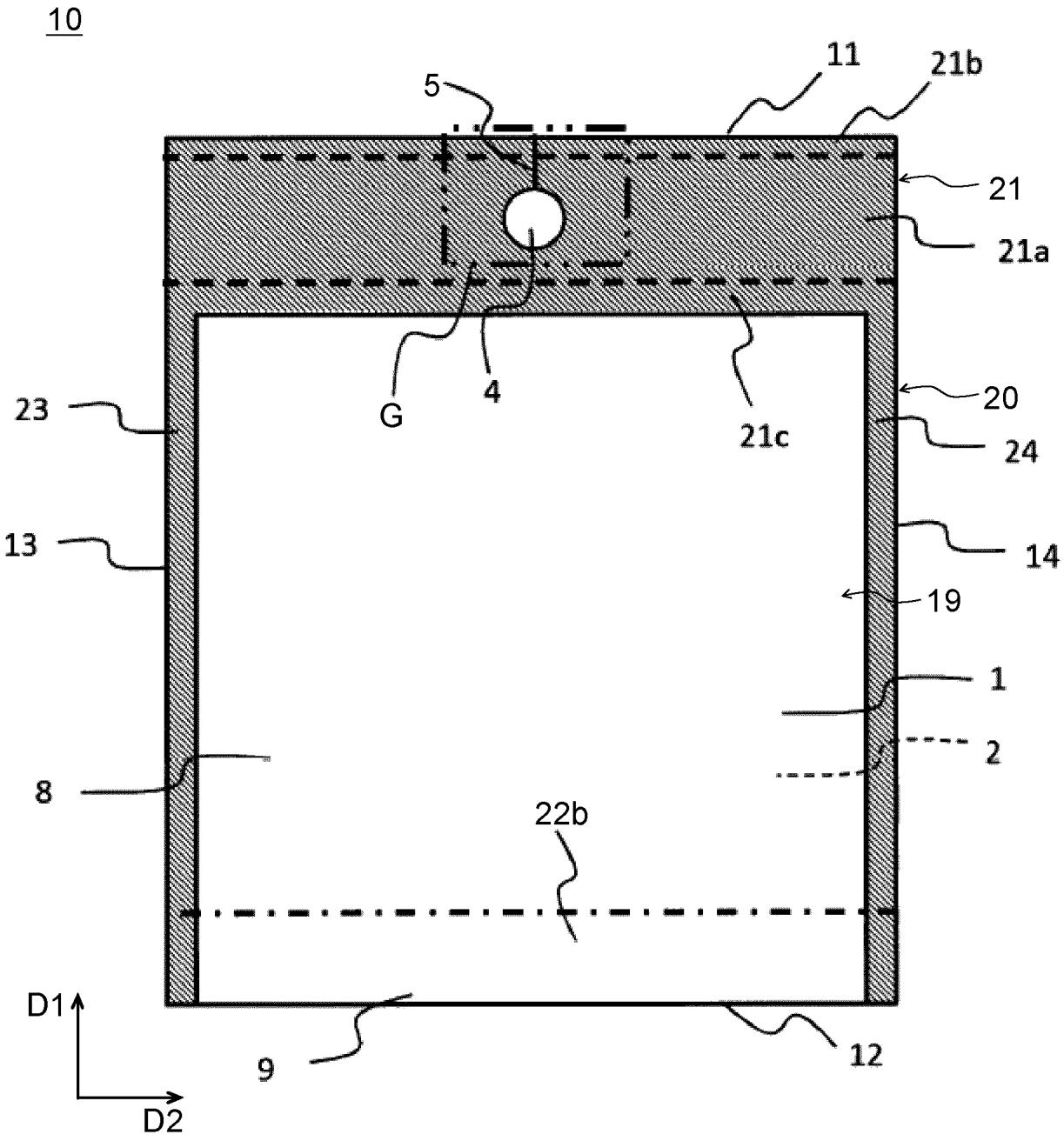

FIG.51A

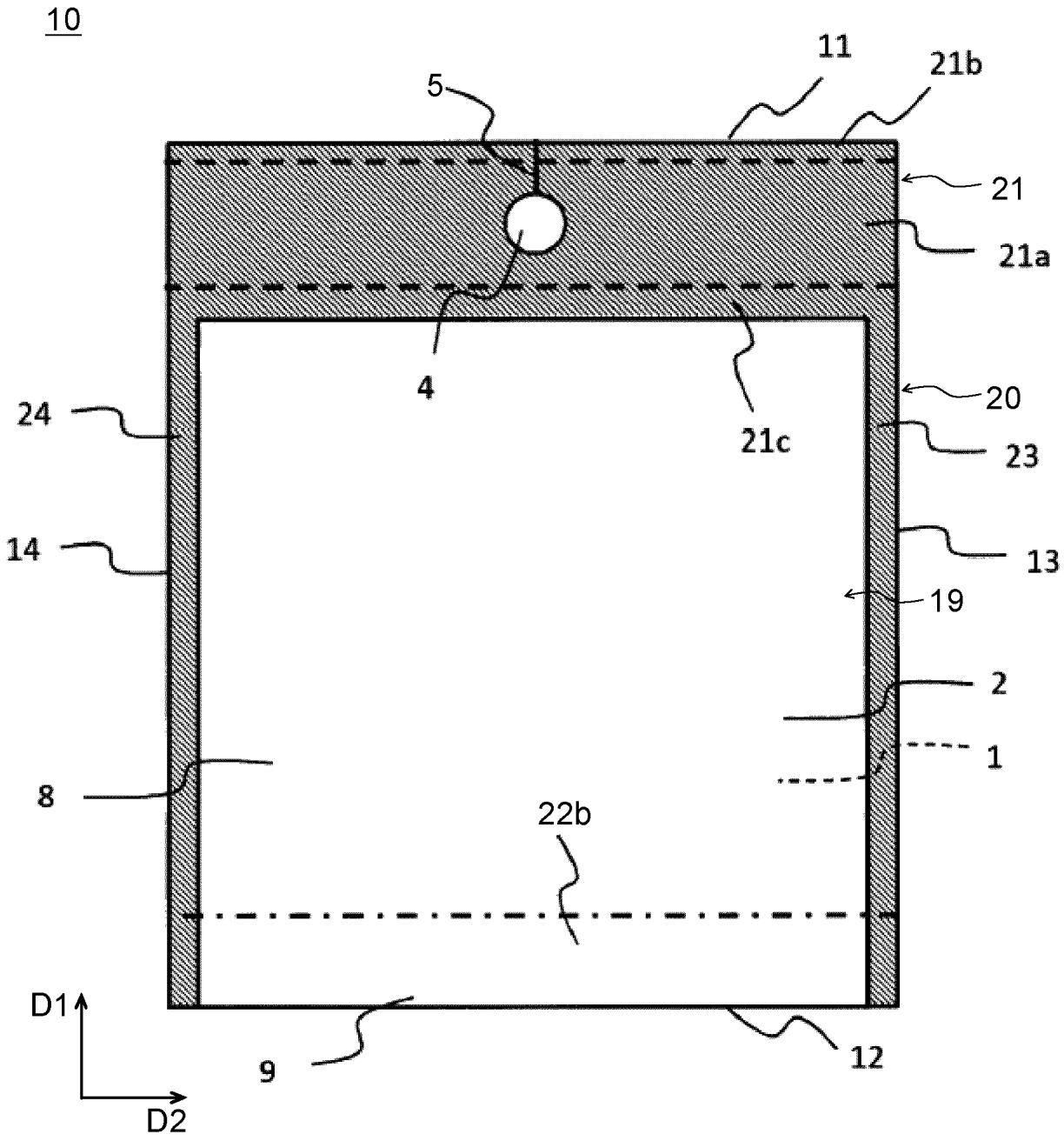

FIG.51B

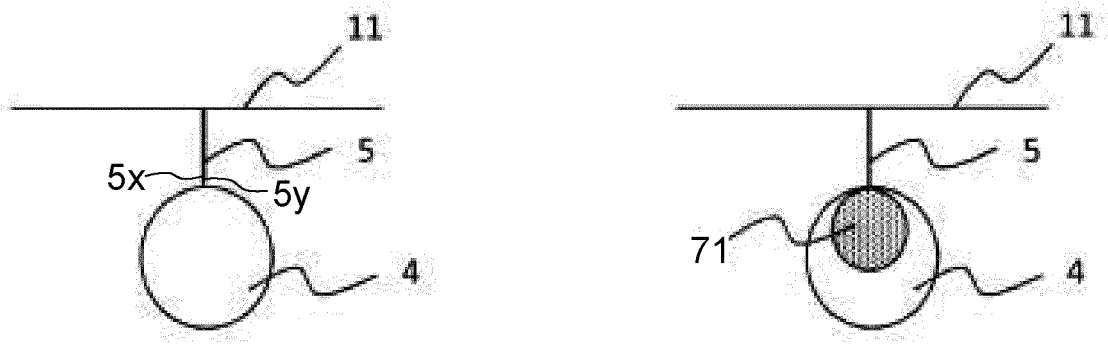

FIG.52A

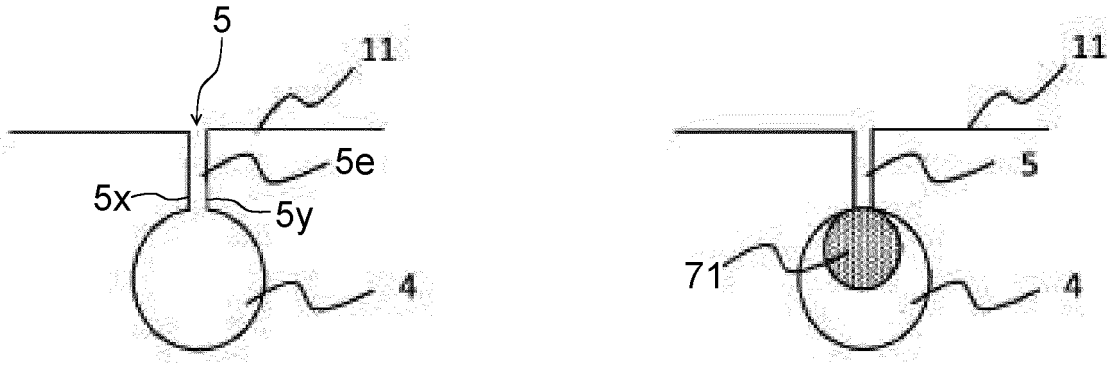

FIG.52B

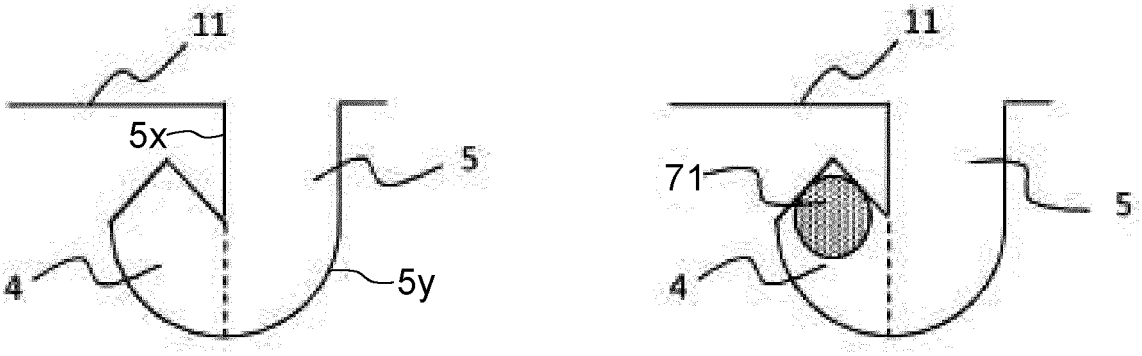

FIG.52C

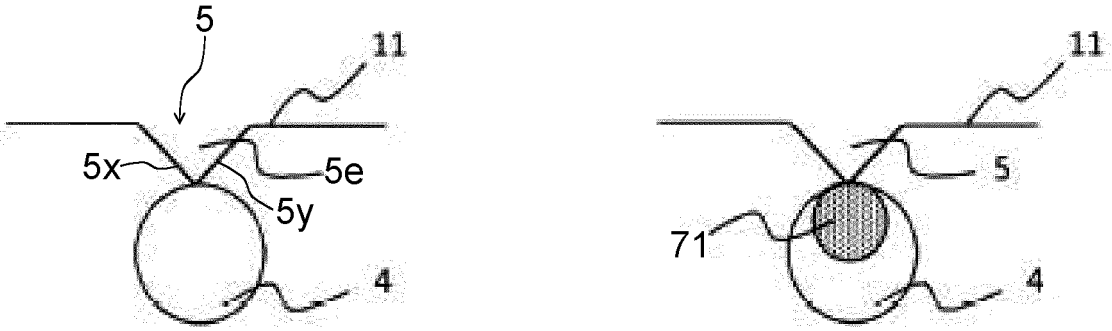

FIG.52D

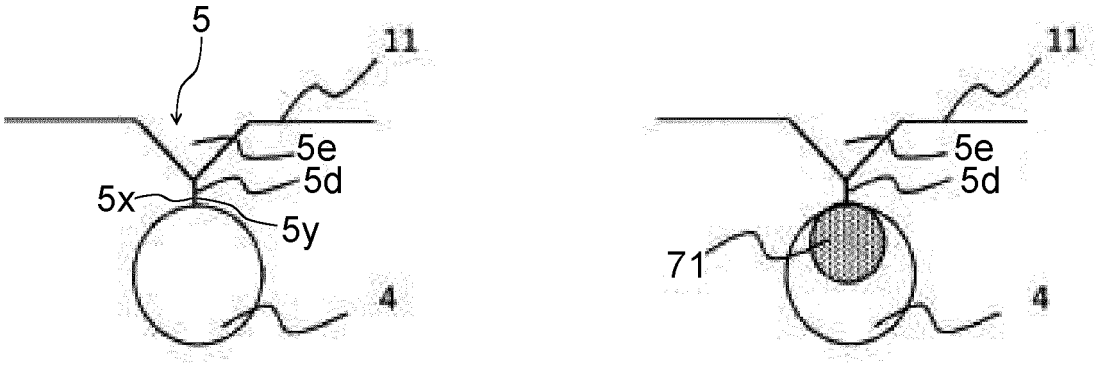

FIG.52E

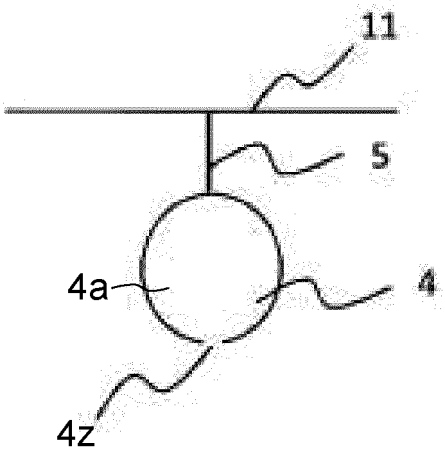

FIG.53A

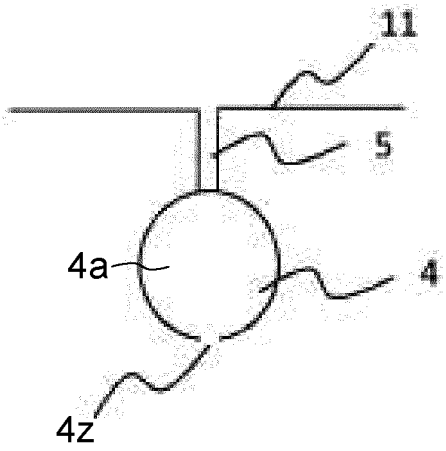

FIG.53B

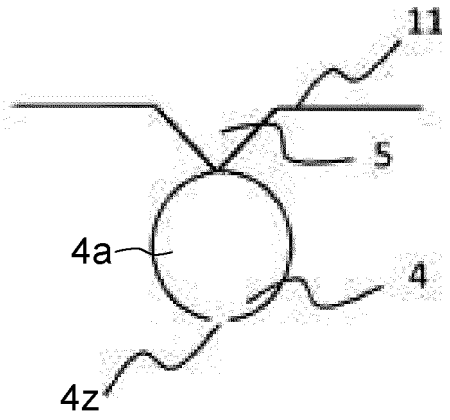

FIG.53C

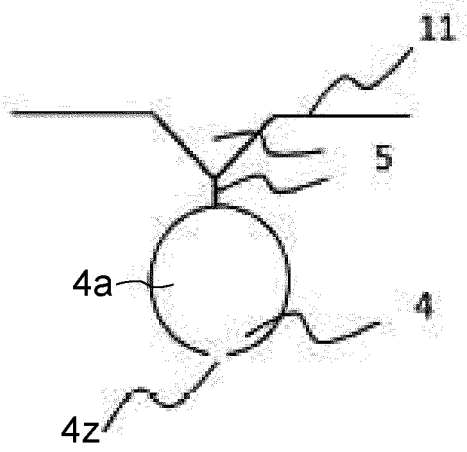

FIG.53D

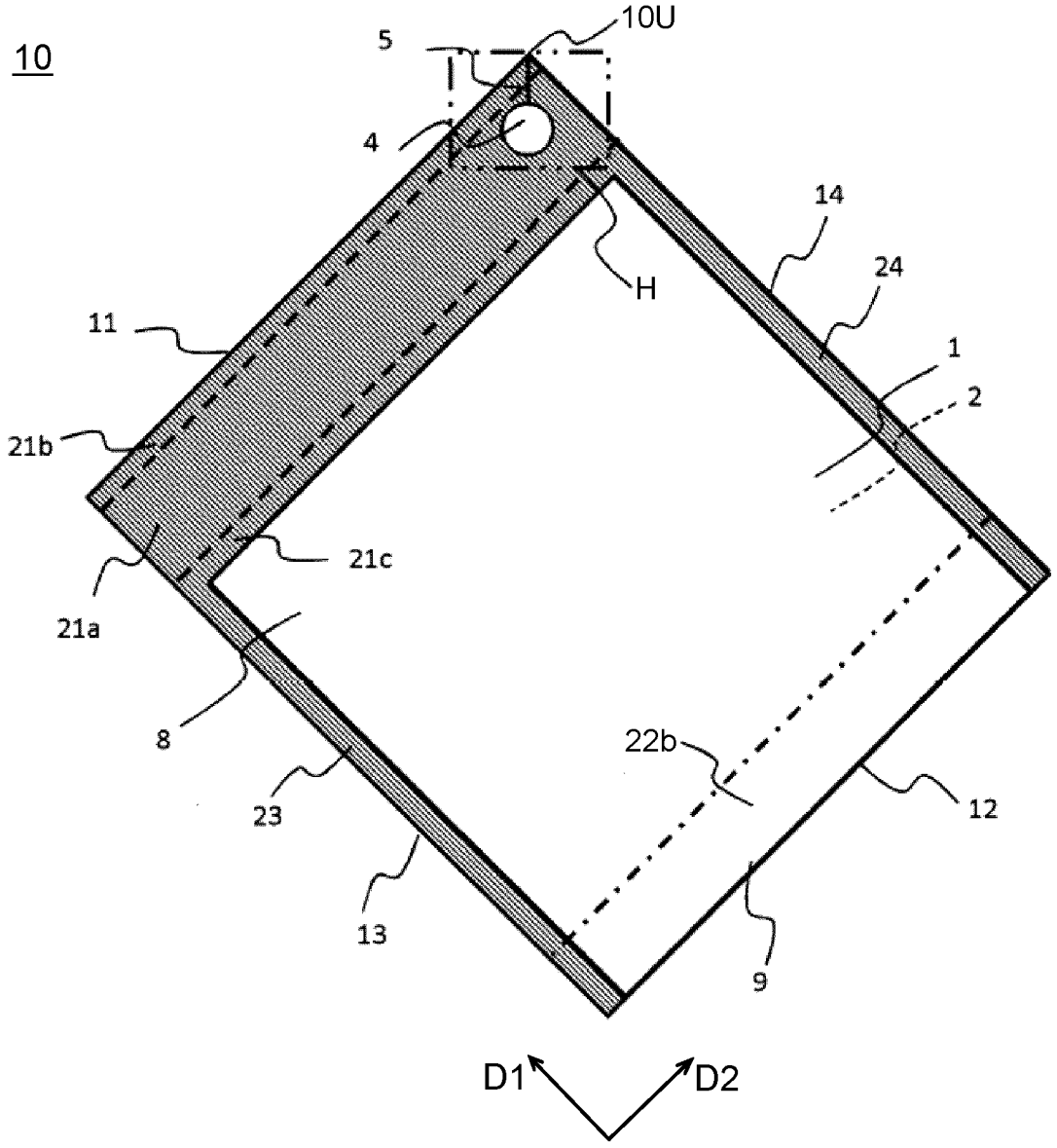

FIG.54A

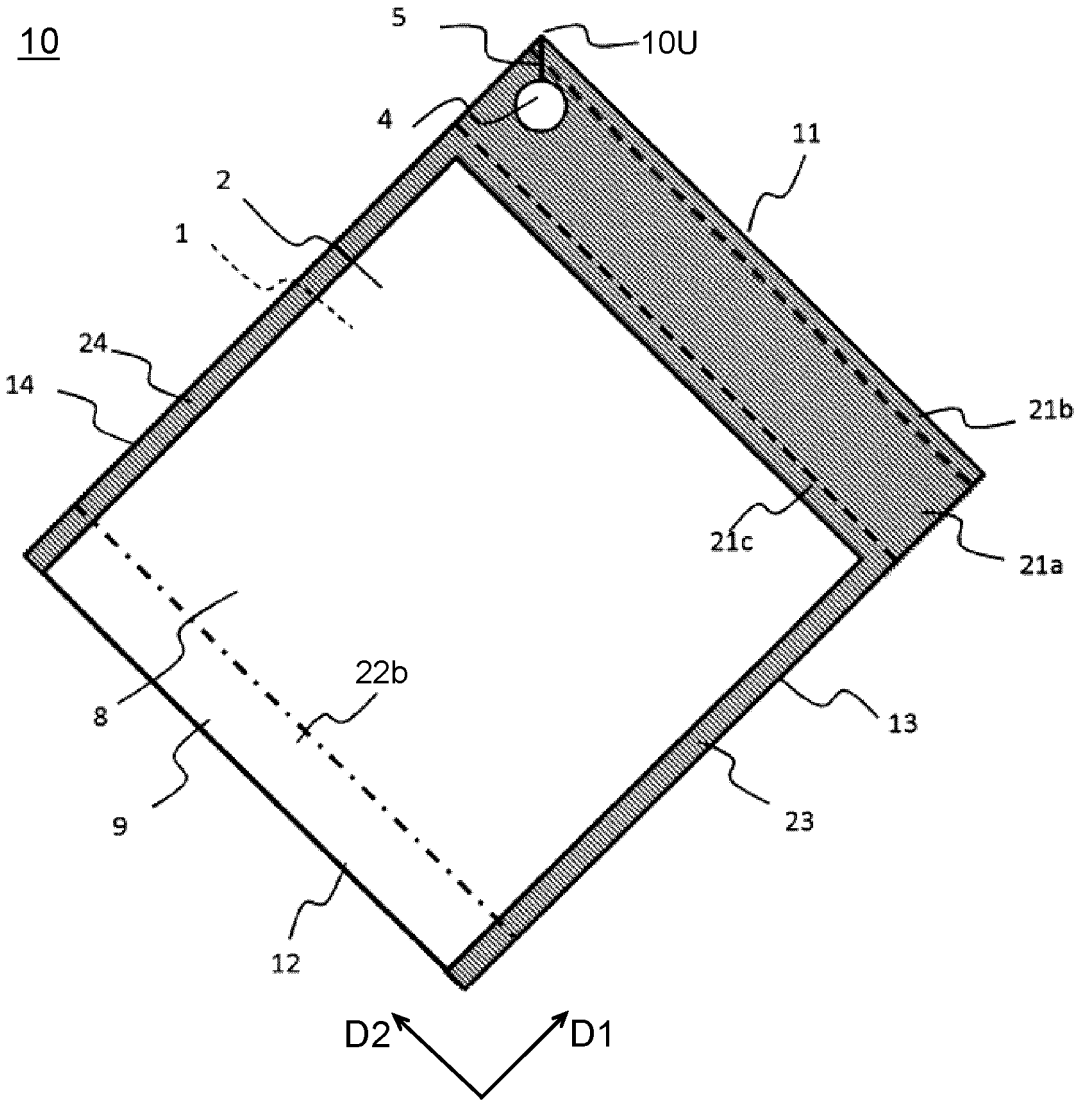

FIG.54B

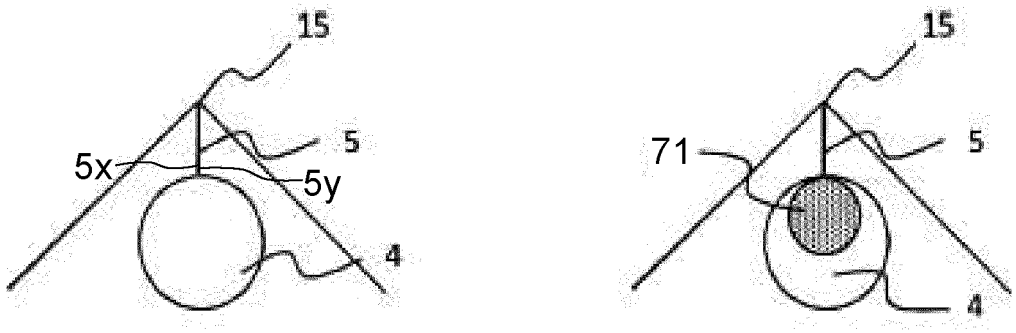

FIG.55A

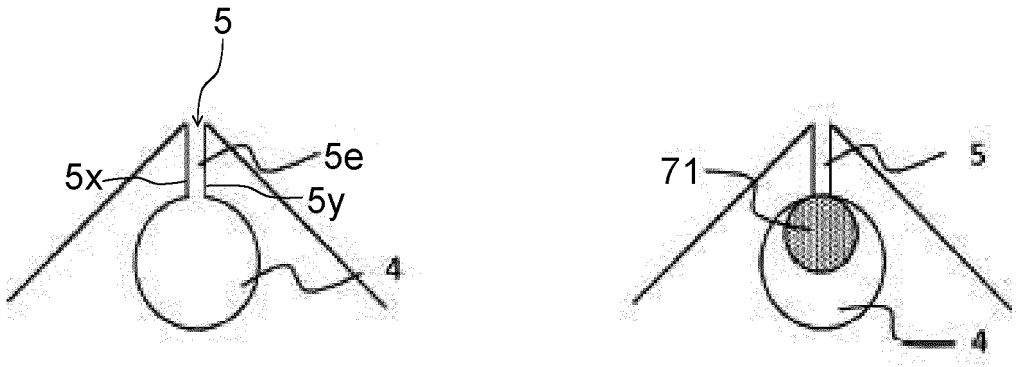

FIG.55B

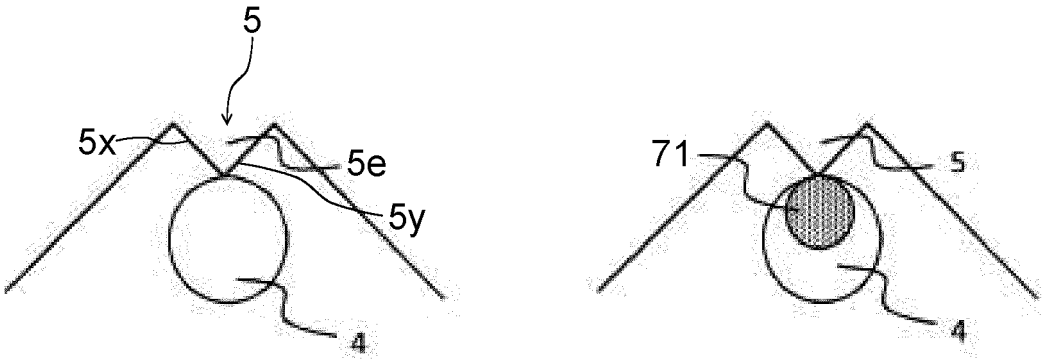

FIG.55C

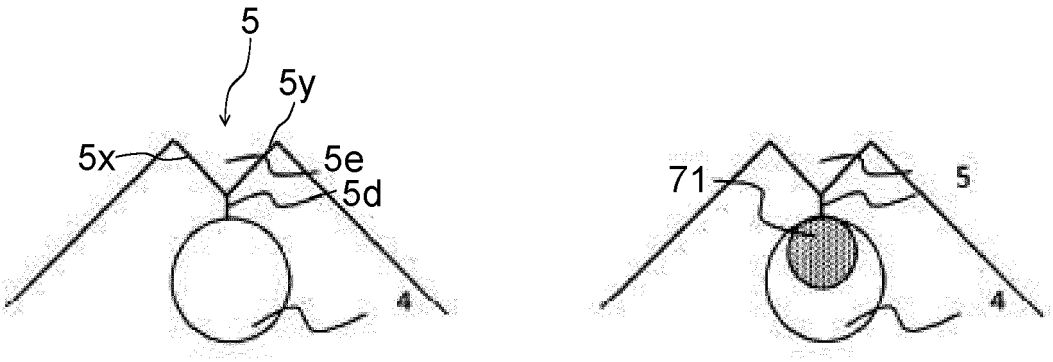

FIG.55D

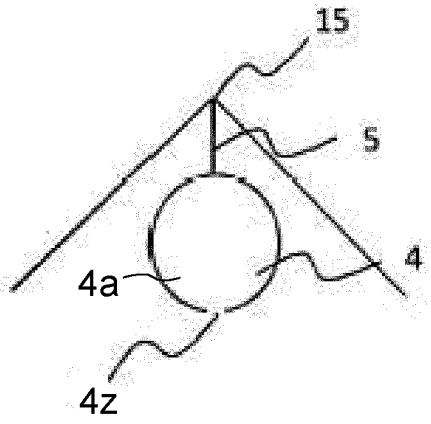

FIG.56A

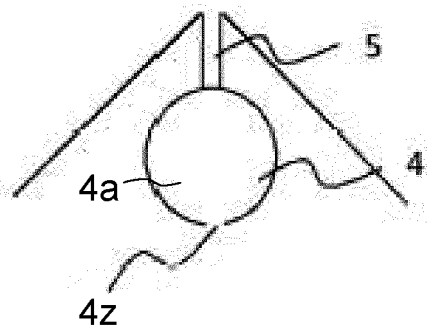

FIG.56B

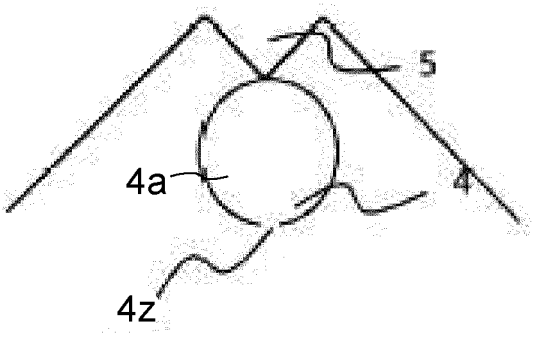

FIG.56C

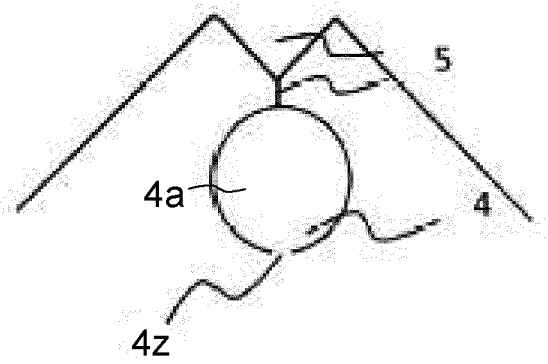

FIG.56D

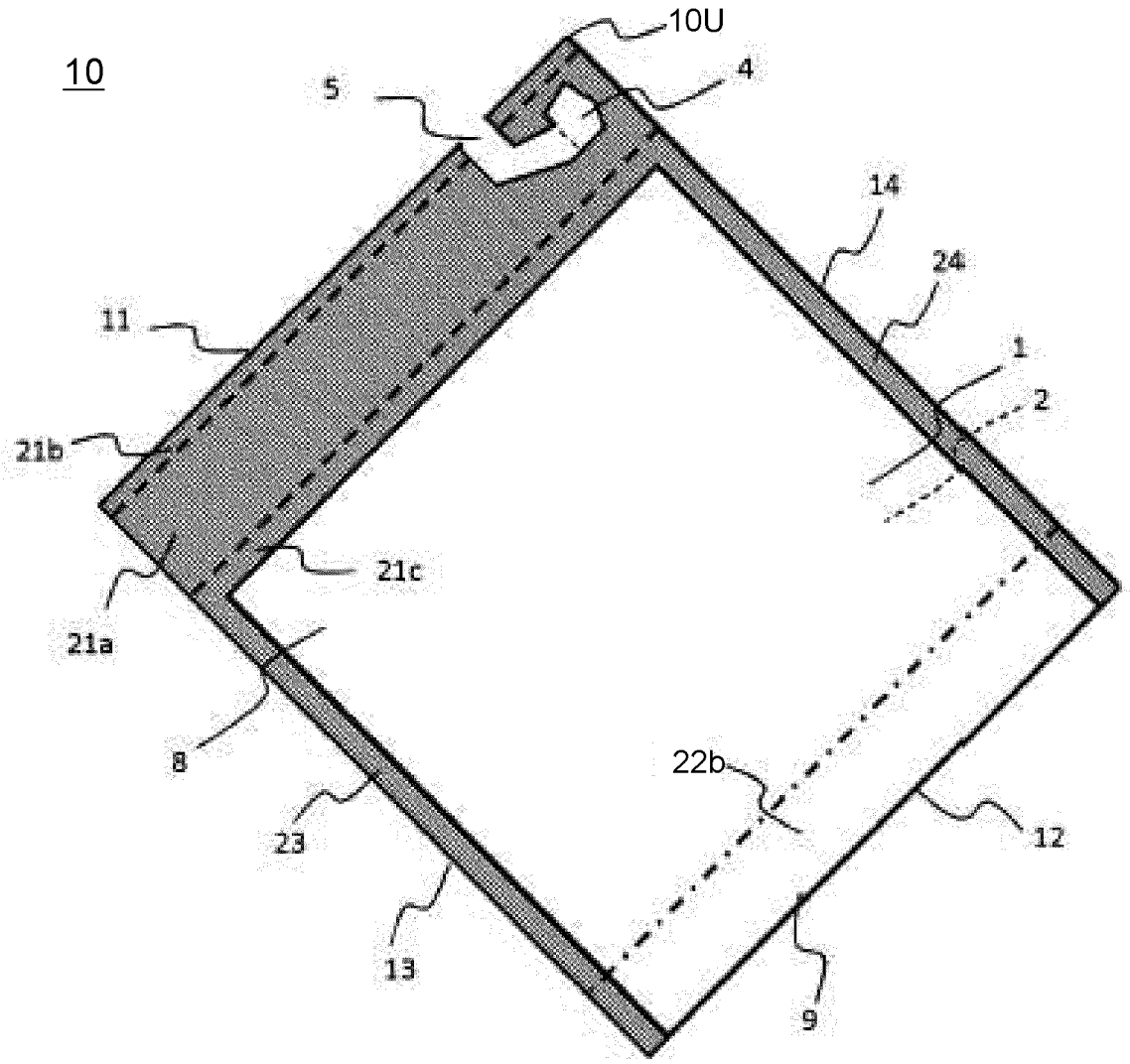

FIG.57A

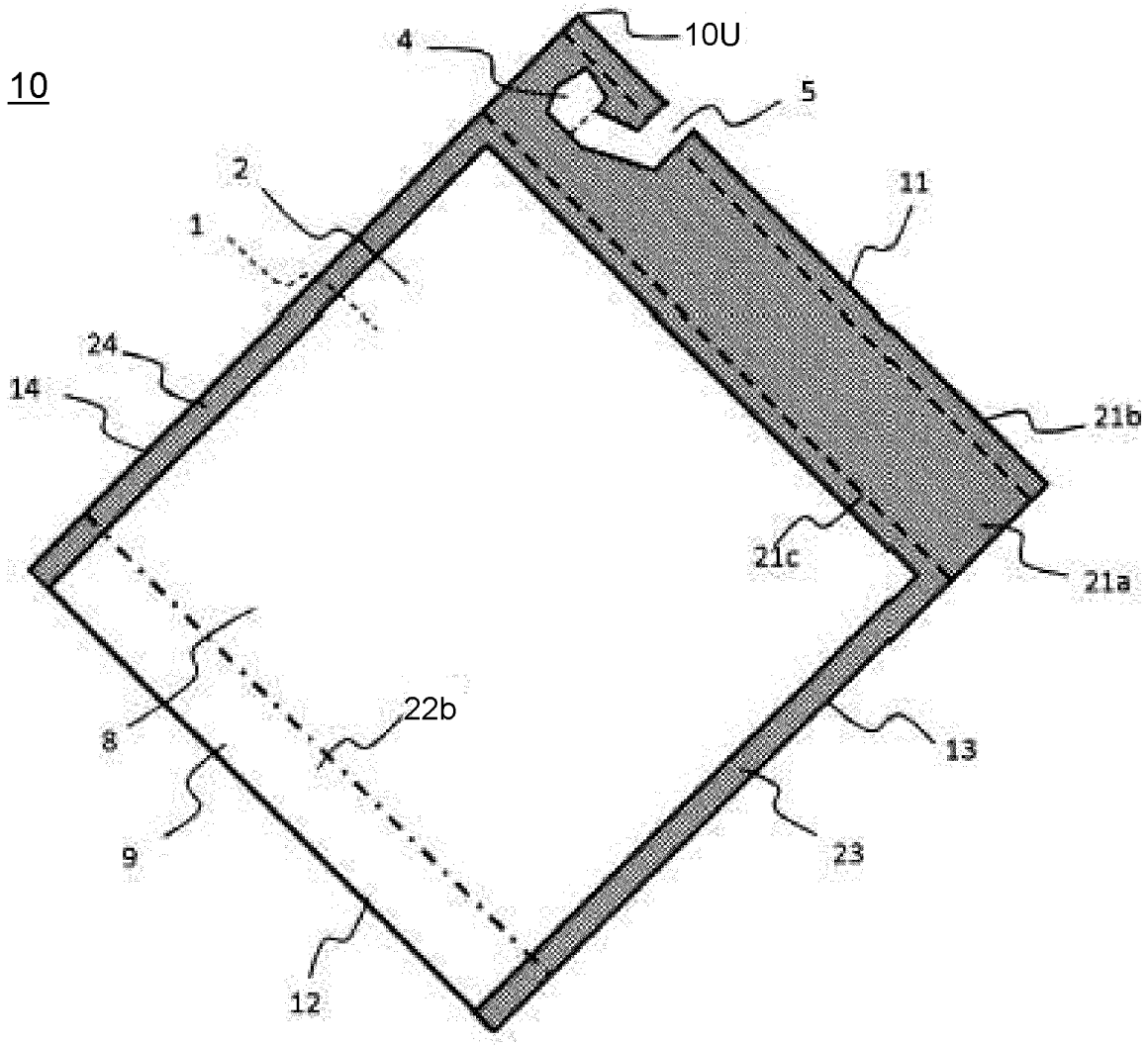

FIG.57B

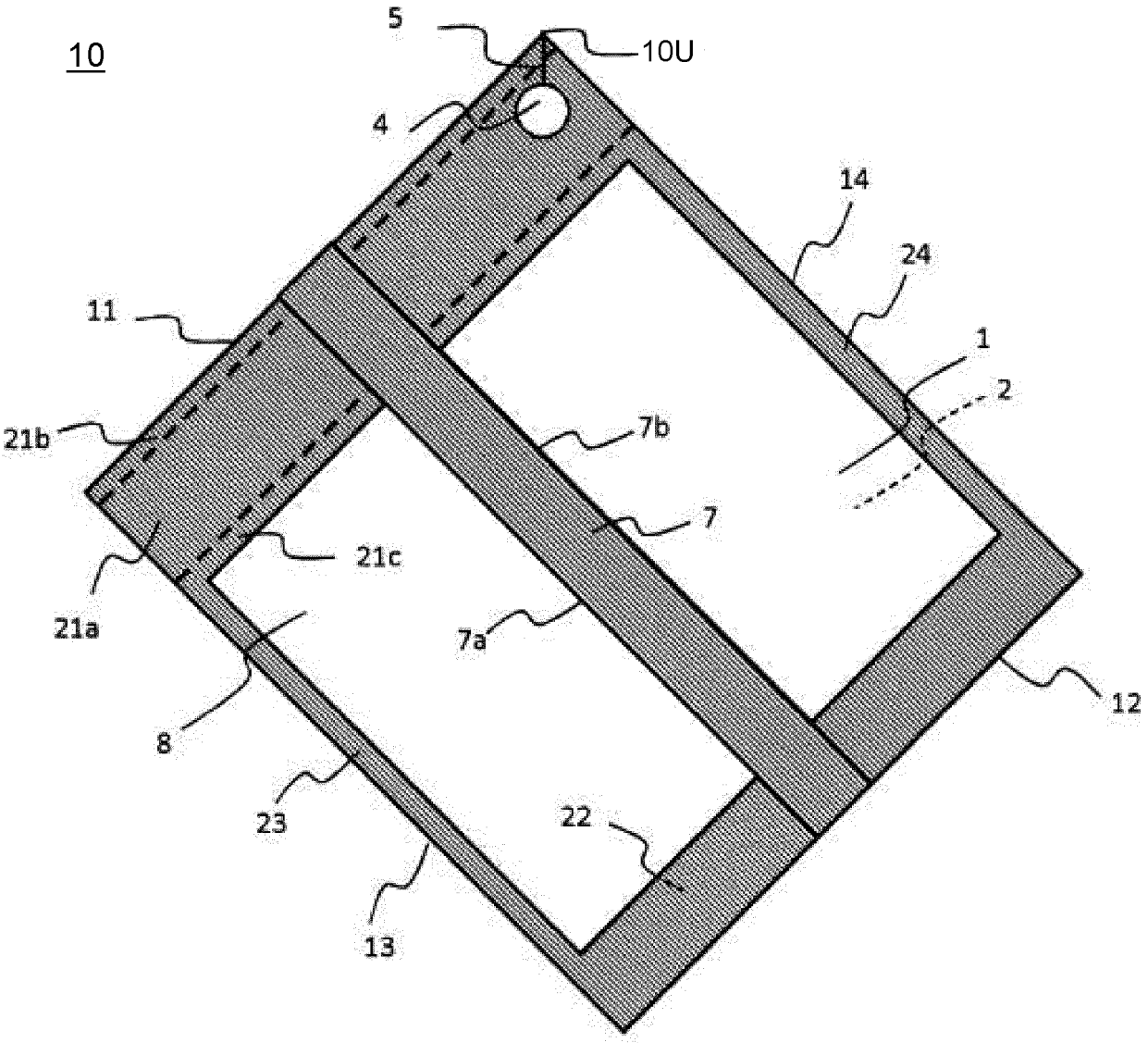

FIG.58A

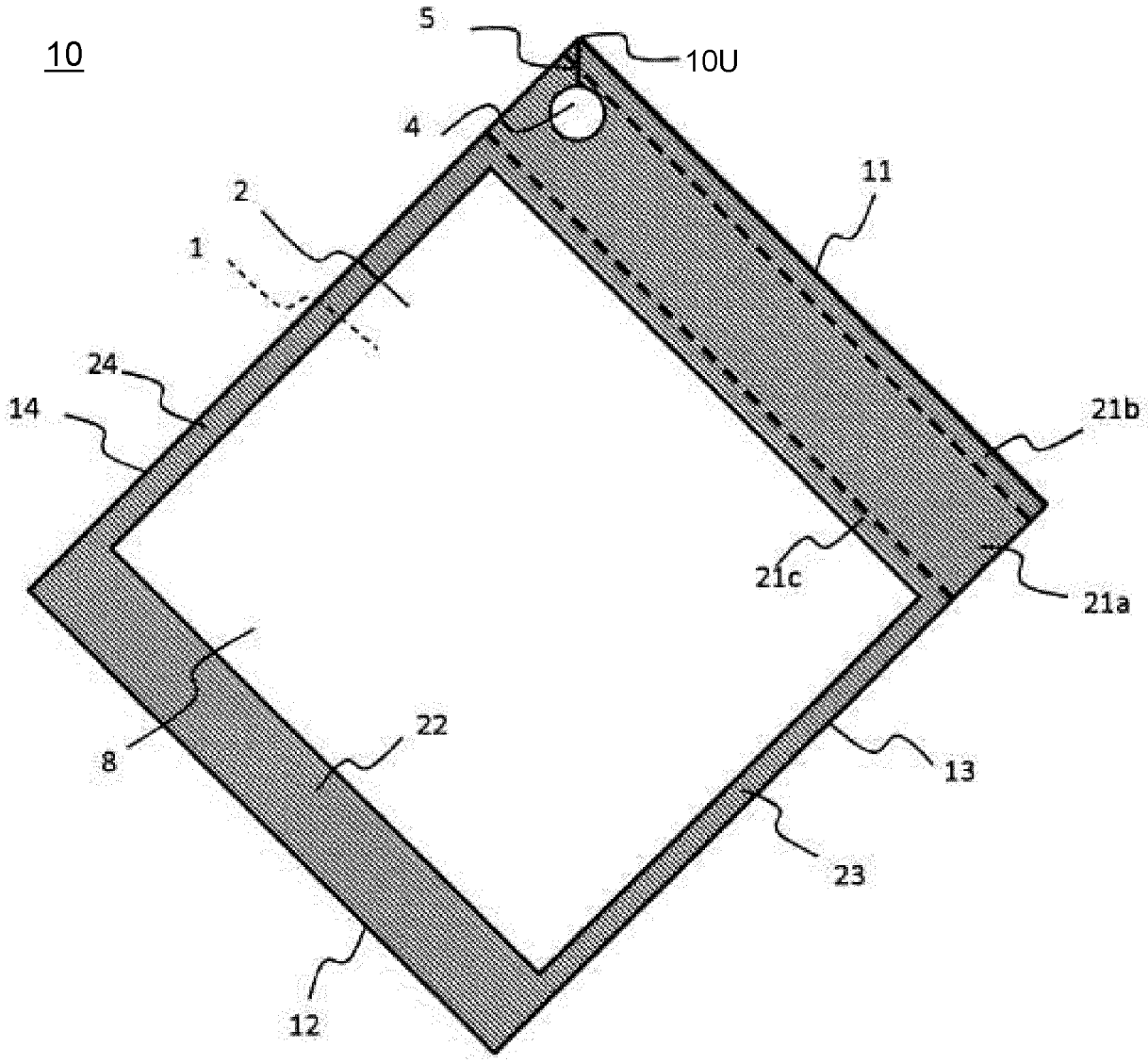

FIG.58B

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2020/012662

A. CLASSIFICATION OF SUBJECT MATTER
Int. Cl. B65D25/22(2006.01)i, B65D33/14(2006.01)i, B65D35/56(2006.01)i
FI: B65D33/14 A, B65D25/22 B, B65D35/56 B

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)
Int. Cl. B65D25/22, B65D33/14, B65D35/56

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Published examined utility model applications of Japan 1922-1996
Published unexamined utility model applications of Japan 1971-2020
Registered utility model specifications of Japan 1996-2020
Published registered utility model applications of Japan 1994-2020

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.
Y	JP 3030645 U (SHOEI CORPORATION) 01 November 1996, paragraphs [0013]-[0035], fig. 1-7	1-11
Y	JP 11-301705 A (YAMAGATA GRAVURE KK) 02 November 1999, paragraphs [0022]-[0028], fig. 1-5	1-11
Y	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 197066/1985 (Laid-open No. 105145/1987) (YOSHIMURA, Mitsuhiro) 04 July 1987, fig. 1	4-7
Y	JP 2014-114044 A (LION CORP.) 26 June 2014, paragraphs [0019]-[0024], fig. 1-4	8-9

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

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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Date of the actual completion of the international search	Date of mailing of the international search report
25.05.2020	09.06.2020
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/JP2020/012662

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 6-211255 A (DAINIPPON PRINTING CO., LTD.) 02 August 1994, paragraphs [0007]-[0014], fig. 1, 2	10-11

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Information on patent family members

International application No.
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REFERENCES CITED IN THE DESCRIPTION

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