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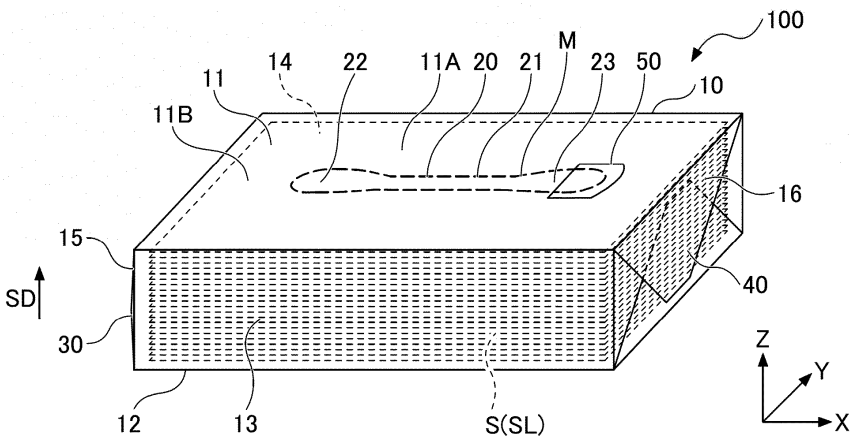
(54) **SHEET PACKAGE**

(57) A sheet package includes a packaging bag that accommodates a plurality of sheets that are stacked, and a retrieval opening that opens in a top surface of the packaging bag. Perforations are provided in the top surface. The perforations surround a region of a portion of the top surface, and form the retrieval opening upon the perforations being torn. A tab is provided in the region.

FIG.1



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Description

Technical Field

[0001] The present invention relates to a sheet package.

Background Art

[0002] For hygienic thin paper such as tissue paper, a carton-type sheet package, in which the hygienic thin paper is accommodated by a cardboard box, is common, but in recent years, the demand for a soft pack-type sheet package, in which the hygienic thin paper is accommodated by a film packaging bag, has increased from the viewpoint of transportation, storage, disposal, environmental load, cost, and the like. In the soft pack-type sheet package, a retrieval opening (an opening formed upon perforations or the like being torn) for retrieving a sheet is provided on a top surface of a packaging bag (see, for example, Patent Documents 1 and 2).

[Related Art Documents]

[Patent Document]

[0003]

[Patent Document 1] Japanese Laid-Open Patent Publication No. 2008-183034
[Patent Document 2] Japanese Laid-Open Patent Publication No. 2018-177364

Summary of the Invention

[Problem to be Solved by the Invention]

[0004] It is an object of the present invention to provide a sheet package that facilitates the formation of a retrieval opening.

Means for Solving Problem

[0005] A first embodiment of the present invention is a sheet package including a packaging bag accommodating a plurality of sheets that are stacked and a retrieval opening to open in a top surface of the packaging bag. Perforations are provided in the top surface. The perforations surround a region of a portion of the top surface and form the retrieval opening upon the perforations being torn. A tab is provided in the region.

Effects of the Invention

[0006] According to an aspect of the present invention, a sheet package that facilitates the formation of a retrieval opening can be provided.

Brief Description of the Drawings

[0007]

FIG. 1 illustrates a sheet package according to an embodiment;
FIG. 2 is a drawing of the sheet package of FIG. 1, viewed from above;
FIG. 3 is a drawing illustrating a retrieval opening and a tab in the sheet package of FIG. 1;
FIG. 4 is an enlarged view of the tab of FIG. 3;
FIG. 5 is a drawing of the tab of FIG. 4 viewed in the Z direction;
FIG. 6 is a drawing of the tab of FIG. 4 viewed in the Y direction;
FIG. 7 is a drawing in which the retrieval opening opens in the sheet package of FIG. 1;
FIG. 8 is a drawing illustrating a broken fragment produced after the retrieval opening opens in the sheet package of FIG. 1;
FIG. 9 is a drawing illustrating a conventional sheet package (a retrieval opening formed of a linear slit); and
FIG. 10 is a drawing illustrating a conventional sheet package (a retrieval opening formed of an elliptical slit).

Detailed Description of the Invention

[0008] Embodiments of the present invention will be described in detail with reference to the drawings. Here, portions common to respective drawings may be denoted by the same reference numerals and description thereof may be omitted. Additionally, in each drawing, the scale of each member may differ from the actual scale.

[0009] In the present specification, a three-dimensional orthogonal coordinate system in three axis directions (the X direction, the Y direction, and the Z direction) is used to set the longitudinal direction or the left and right direction (hereinafter referred to as a first direction) of the sheet package as the X direction, the transverse direction or the depth direction (hereinafter referred to as a second direction) as the Y direction, and the height direction or the up and down direction as the Z direction. Additionally, "above" indicates the upper side of the top surface of the packaging bag in the height direction (the Z direction) of the sheet package.

[0010] FIG. 1 is a drawing illustrating a sheet package according to an embodiment. FIG. 2 is a drawing of the sheet package of FIG. 1, viewed from above, and FIG. 3 is a drawing illustrating a retrieval opening and a tab in the sheet package of FIG. 1. FIG. 4 is an enlarged drawing of the tab of FIG. 3, FIG. 5 is a drawing of the tab of FIG. 4, viewed in the Z direction, and FIG. 6 is a drawing of the tab of FIG. 4, viewed in the Y direction. FIG. 7 is a drawing in which the retrieval opening opens in the sheet package of FIG. 1. FIG. 8 is a drawing illustrating a broken fragment produced after the retrieval opening opens in the sheet package of FIG. 1.

[0011] A sheet package 100 according to the present embodiment includes a packaging bag 10 and a retrieval opening 20, as illustrated in FIG. 1. The sheet package 100 is an example of a sheet package according to the present invention. Additionally, the packaging bag 10 is an example of a packaging bag forming the sheet package according to the present invention, and the retrieval opening 20 is an example of a retrieval opening formed in the packaging bag.

[0012] The packaging bag 10 accommodates multiple (or multiple sets of) sheets S that are stacked (hereinafter referred to as a sheet stack SL) as illustrated in FIG. 1. The sheet stack SL is accommodated in the packaging bag 10 such that a stacking direction (the SD direction) of the sheet S is in the height direction (the Z direction). The sheet stack SL is configured such that one sheet S (or a set of sheets S) can be pulled out at one time through retrieval opening 20 (an opening OP) formed in the packaging bag 10 (see FIG. 7).

[0013] The form of the sheet stack SL is not particularly limited and includes, for example, a stack in which respective sheets S are folded and are alternately stacked (what is called a pop-up sheet stack SL), a stack in which multiple (or multiple sets of) sheets S are simply stacked, and a stack in which respective sheets S are folded and stacked. Here, from the viewpoint of pulling out one sheet S or one set thereof, it is preferable that the form of the sheet stack SL is a pop-up sheet stack SL.

[0014] Additionally, the dimensions of the sheet stack SL may be as follows: the length of the sheet package 100 in the first direction (the X direction) is 80 mm or greater and 250 mm or less, the length of the sheet package 100 in the depth direction (the Y direction) orthogonal to the first direction (the X direction) is 50 mm or greater and 130 mm or less, and the height in the height direction (the Z direction) is 10 mm or greater and 90 mm or less. Such a sheet stack may be fabricated, for example, by rotary or multi-stand inter folder.

[0015] The use of the sheet S is not particularly limited and is applicable to hygienic thin paper, such as tissue paper, toilet paper, kitchen paper, a paper towel, and the like. These hygienic thin paper may also include hygienic thin paper containing a moisturizing component (e.g., a lotion tissue). Additionally, the use of hygienic thin paper forming the sheet S is not particularly limited, and is applicable to any of industrial, household, and portable use. Here, the sheet package 100 according to the present embodiment is preferably used for household tissue among these.

[0016] The ply number of the sheet S may be one ply or greater, preferably one ply, and more preferably two-ply (two-sheet stack). Additionally, the shape of the sheet S is not particularly limited. For example, it is preferable that a shape in which two-ply sheets are folded is rectangular in plan view.

[0017] A material of the sheet S is not particularly limited. For example, a sheet, such as paper, non-woven fabric, or cloth can be used. Preferably a sheet of paper (hereinafter referred to as a paper sheet) is used. Here, when the sheet S is a paper sheet, a raw paper made mainly from pulp is used. For the pulp composition, any known composition in the paper sheet can be used. For example, the composition ratio of pulp may be 50% by mass or greater, preferably 90% by mass or greater, and more preferably 100% by mass.

[0018] Additionally, the pulp composition of the sheet S (the paper sheet) is not particularly limited. For example, a softwood pulp such as needle bleached kraft pulp (NBKP) or needle unbleached kraft pulp (NUKP) and a hardwood pulp such as leaf bleached kraft pulp (LBKP) or leaf unbleached kraft pulp (LUKP) can be used in any ratio. Here, the ratio of softwood pulp to hardwood pulp is not limited, but is preferably 10:90 to 80:20, more preferably, a pulp composition in which a ratio of softwood pulp to hardwood pulp is higher. Additionally, for the pulp contained in the sheet S (the paper sheet), used paper pulp may be used.

[0019] The basis weight of the sheet S is not particularly limited, but, depending on the ply number, the basis weight of the sheet S is preferably 5 g/m^2 or greater and 80 g/m^2 or less for paper, and 20 g/m^2 or greater and 100 g/m^2 or less for non-woven fabric. Here, the basis weight can be measured in accordance with JIS P 8124.

[0020] Additionally, the thickness of the sheet S (the paper sheet) is not particularly limited, and the paper thickness measured in the environment of JIS P 8111 (1998) can be used. For example, the paper thickness of the paper sheet forming the sheet S may be 50 μm or greater and 500 μm or less per 2-ply, and preferably 60 μm or greater and 330 μm or less per 2-ply.

[0021] Additionally, the sheet S (the paper sheet) may be embossed. Such embossing can be performed by using a publicly known embossing method.

[0022] The packaging form of the packaging bag 10 is not particularly limited. In the present embodiment, for example, packaging in which both ends of a cylindrical flexible film are folded and sealed (caramel packaging), packaging in which both ends or either end of a cylindrical flexible film is folded in a gusset and sealed (pillow packaging), packaging in which heat-shrinkable resin film is heated to adhere to an object to be packaged (shrink packaging), or any combination thereof can be used.

[0023] In the present embodiment, the sheet stack SL is packaged by caramel packaging. Specifically, side surfaces 15 and 16 of the packaging bag 10 are folded and sealed. Thus, a sealed portion 30 is formed on the side surface 15 of the packaging bag 10, and a sealed portion 40 is formed on the side surface 16 (see FIG. 1).

[0024] In such caramel packaging, the sheet stack SL is wrapped by a flexible film to be rolled in a cylindrical shape such that both ends of the sheet stack SL in the longitudinal direction (in the X direction) are open, and overlapped portions of the flexible film in the rolling direction are bonded together by a fusion process or an adhesive. Both ends of the cylindrical flexible film in the longitudinal direction (the X direction) are folded toward both side surfaces of the sheet stack SL, and at least leading edges of a substantially triangular or trapezoidal portion formed by the folding are overlapped and bonded together by a fusion process or an adhesive to seal respective openings of the cylindrical flexible film (see FIG. 1).

[0025] Additionally, the material of the flexible film forming the packaging bag 10 is not particularly limited. For example, a resin, such as polyethylene (PE), polypropylene (PP), polyethylene terephthalate (PET), polystyrene (PS), polyvinyl chloride (PVC), ethylenevinyl acetate copolymer (EVA), and polyamide (PA) can be used.

[0026] Here, among these flexible films, polyethylene, polypropylene, polyethylene terephthalate, and the like are preferable from the viewpoint of flexibility and excellent handling, high sealing property when heat-sealed, low cost, and the like. Additionally, polyethylene is preferable from the viewpoint that polyethylene is odorless, has excellent water resistance and chemical resistance, can be mass-produced at a low cost, and the like. As polyethylene, high-density polyethylene, low-density polyethylene, or the like can be used. Additionally, polypropylene is preferable from the viewpoint that polypropylene is robust, easy to mold, achieves good color development at the time of printing, can impart gloss, and the like.

[0027] The form of the flexible film forming the packaging bag 10 is not particularly limited and may be a single layer film in which the above-described resin is formed as a single layer, a laminated film in which the above-described resin is laminated, or a mixed film in which a mixture of two or more of the above-described resins is formed.

[0028] The thickness of the flexible film forming the packaging bag 10 is not particularly limited, and is preferably 20 μm or greater and 100 μm or less, more preferably 25 μm or greater and 70 μm or less. When the thickness of the flexible film is 20 μm or greater, sufficient strength as the packaging bag 10 accommodating the sheet S can be obtained. Additionally, when the thickness of the flexible film is 100 μm or less in thickness, flexibility and lightness of the packaging bag 10 can be obtained, and cost can be reduced.

[0029] Here, the material forming the packaging bag 10 is not limited to a resin material such as the flexible film described above, and a paper material may be used. Additionally, as the material forming the packaging bag 10, a biodegradable material (biodegradable plastic, biodegradable paper, and the like) or a biomass material (an organic resource derived from a renewable organism such as a biomass film, excluding a fossil resource) can be used.

[0030] The packaging bag 10 has a top surface 11, a bottom surface 12, a front surface 13, a back surface 14, the side surface 15, and the side surface 16. In the sheet package 100, the top surface 11 and the bottom surface 12 are opposed in the up and down direction (in the Z direction), the front surface 13 and the back surface 14 are opposed in the front and back direction (in the Y direction), and the side surface 15 and the side surface 16 are opposed in the left and right direction (in the X direction). The side surface 15 and the side surface 16 are continuous to the top surface 11, the bottom surface 12, the front surface 13, and the back surface 14 (see FIG. 1).

[0031] The retrieval opening 20 is formed to be open in the top surface 11 of the packaging bag 10. Specifically, the retrieval opening 20 corresponds to a region R of a portion of the top surface 11 and is disposed at a center 11A of the top surface 11 of the packaging bag 10 in the first direction (the X direction) of the sheet package 100 and at a center 11B of the top surface 11 of the packaging bag 10 in the second direction (the Y direction) (see FIG. 1 and FIG. 2). Here, the portion of the top surface 11 indicates a portion (a portion corresponding to the region R) less than half of the top surface 11.

[0032] In the present embodiment, on the top surface 11, perforations M surrounding the region R of the portion of the top surface 11 are provided, so that when the perforations M are torn, the retrieval opening 20 opens (see FIGS. 1 to 3 and 7). Here, the perforations M indicate a cutting line to be torn in which a cut C and a tie T (an uncut portion

between two cuts C) are alternately arranged, and when the tie T is torn, the cuts C on both sides become a continuous cut (see FIGS. 1 to 3).

[0033] The region R surrounded by the perforations M (hereinafter referred to as a perforation region R) has a given length L2 extending in the first direction (in the X direction) and a given width W2 expanding in the second direction (in the Y direction) intersecting the first direction (the X direction).

[0034] Here, the first direction (the X direction) indicates a direction along a predetermined one direction on the top surface 11 of the packaging bag 10 (the longitudinal direction or the left and right direction of the sheet package 100). Additionally, the second direction (the Y direction) intersecting the first direction (the X direction) indicates a direction orthogonal to or diagonally intersecting the direction along the predetermined one direction on the top surface 11 of the packaging bag 10 (the transverse direction or the depth direction of the sheet package 100).

[0035] Here, in the first direction (the X direction), the dimension of the retrieval opening 20 (the length L2 of the perforation region R) can be suitably determined in accordance with the capacity of the packaging bag 10 and the dimensions of the sheet S. For example, with respect to the width (the length L1) of the top surface 11 of the packaging bag 10 accommodating the sheet S, the length L2 of the perforation region R may be 100% or less, preferably 5% or greater and 80% or less, and more preferably 10% or greater and 75% or less (see FIG. 2).

[0036] Additionally, in the second direction (the Y direction), the dimension of the retrieval opening 20 (the width W2 of the perforation region R) can be suitably determined in accordance with the capacity of the packaging bag 10 and the dimensions of the sheet S. For example, with respect to the length (the width W1) of the top surface 11 of the packaging bag 10, the width W2 of the perforation region R may be 1% or greater and 25% or less, preferably 3% or greater and 20% or less, more preferably 5% or greater and 15% or less (see FIG. 2).

[0037] The perforation region R includes a base 21 and ends 22 and 23 (see FIG. 2 and FIG. 3). The base 21 is a substantially rectangular region or range that is present between two linear perforations M1 opposing each other in the transverse direction (the Y direction) of the sheet package 100 and that extends substantially parallel to the longitudinal direction (the X direction) of the sheet package 100. Here, the perforations M1 forming the base 21 of the perforation region R are perforations in which the cut C1 and the tie T1 are alternately arranged (see FIG. 3).

[0038] The ends 22 and 23 are continuous to ends 21A and 21B of the base 21 and are dumbbell-shaped regions or ranges that are surrounded by eggplant-shaped perforations M2 and M3 and the ends 21A and 21B of the base 21, respectively. Here, the perforations M2 forming the ends 22 and 23 of the perforation region R are perforations in which a cut C2 and a tie T2 are alternately arranged (see FIG. 3).

[0039] Here, in the second direction (the Y direction), the dimension of the retrieval opening 20 (the width W3 of the perforation region R) can be suitably determined in accordance with the capacity of the packaging bag 10 and the dimensions of the sheet S. For example, relative to the length (the width W1) of the top surface 11 of the packaging bag 10, the width W3 of the perforation region R may be 5% or greater and 35% or less, preferably 10% or greater and 30% or less, and more preferably 15% or greater and 25% or less (see FIG. 2).

[0040] Here, the width of the base 21 in the second direction (the Y direction) corresponds to the width W2 of the above-described perforation region R (see FIG. 2). Additionally, the maximum width of the ends 22 and 23 in the second direction (the Y direction) corresponds to the width W3 of the perforation region R (see FIG. 2).

[0041] The length of the cut C1 and the length of the tie T1 in the perforations M1 forming the base 21 of the perforation region R are suitably determined. The length of each cut C1 may be 0.8 mm or greater and 5 mm or less, preferably 1.5 mm or greater and 4.5 mm or less, and more preferably 2.5 mm or greater and 4 mm or less. The length of each tie T1 may be 0.3 mm or greater and 5 mm or less, preferably 0.4 mm or greater and 2 mm or less, and more preferably 0.5 mm or greater and 1.5 mm or less.

[0042] The length of the cut C2 and the length of the tie T2 in the perforations M2 and M3 forming the ends 22 and 23 of the perforation region R are suitably determined. The length of each cut C2 may be 0.8 mm or greater and 5 mm or less, preferably 1.5 mm or greater and 4.5 mm or less, and more preferably 2.5 mm or greater and 4 mm or less. The length of each tie T2 may be 0.3 mm or greater and 5 mm or less, preferably 0.4 mm or greater and 2 mm or less, and more preferably 0.5 mm or greater and 1.5 mm or less.

[0043] The perforation region R has such a shape, so that the width W2 is narrowed from both ends 22 and 23 of the region R in the first direction (the X direction) toward the center 24 of the region R. Specifically, the perforation region R has the width W2 of the region R in the second direction (the Y direction) widened from the center 24 in the first direction (the X direction) toward both ends 22 and 23. That is, at both ends 22 and 23 of the perforation region R, the width W2 is expanded to the width W3 (see FIGS. 1 to 3).

[0044] Additionally, in the present embodiment, the linear perforations M1 forming the base 21 of the perforation region R are edges E1 and E2 of the perforation region R opposing each other in the second direction (the Y direction). Additionally, portions of the eggplant-shaped perforations M2 and M3 respectively forming the ends 22 and 23 of the perforation region R correspond to the edges E3 and E4 of the perforation region R opposing each other in the first direction (the X direction) (see FIG. 3).

[0045] In the present embodiment, both edges E3 and E4 of the perforation region R in the first direction (the X

direction) have an arc shape that is convex to the outer region OR of the region R. Here, the term "have an arc shape that is convex" indicates that each of the edges E3 and E4 is convexly curved. In the present embodiment, portions of the perforations M2 forming both edges E3 and E4 of the perforation region R are formed of two cuts C2 having an arc shape, and two cuts C2 are connected through one tie T2 (see FIG. 3).

[0046] Here, the shape of the perforations M2 forming both edges E3 and E4 of the perforation region R is not limited to the present embodiment. For example, a portion of the perforations M2 forming both edges E3 and E4 may be formed of three cuts C2 having an arc shape and two ties T2 connecting two adjacent cuts C2. Additionally, a portion of the perforations M2 forming both edges E3 and E4 may be formed of one cut C2 and no tie T2.

[0047] In the sheet package 100 of the present embodiment, a tab 50 is provided in the perforation region R (see FIGS. 1 to 6). Here, the tab 50 indicates a portion or member that is pinched by tips of fingers or the like. In the present embodiment, the tab 50 is formed as a member separate from the packaging bag 10 (see FIGS. 1 to 6).

[0048] The material of the tab 50 is not limited. A resin material, a paper material, a biodegradable material, a biomass material, or the like, which are materials of the flexible film (the film F illustrated in FIGS. 4 to 6) or the like used in the above-described packaging bag 10, can be used. Additionally, the form of the tab 50 is not limited, and a single layer film, a laminated film, or a mixed film used for the above-described packaging bag 10 can be used. Further, the thickness of tab 50 may employ the thickness of the flexible film used in the above-described packaging bag 10.

[0049] In the present embodiment, the tab 50 is provided on at least one end of the perforation region R in the first direction (the X direction). Here, one end of the region R in the first direction (the X direction) indicates one of the ends (the end 22 or the end 23) of the perforation region R in the first direction (the X direction). In the present embodiment, the tab 50 is provided on the end 23 of the perforation region R.

[0050] The tab 50 includes a bonded portion 51 and a non-bonded portion 52. The bonded portion 51 is a portion that is bonded to the perforation region R. The non-bonded portion 52 is a portion that is not bonded to the region R.

[0051] In the present embodiment, the tab 50 includes the bonded portion 51 that has a substantially rectangular shape and the non-bonded portion 52 that has a bow shape. Specifically, the non-bonded portion 52 is adjacent to the bonded portion 51 such that one side of the rectangular shape that forms the bonded portion 51 overlaps a chord of the bow shape (a line joining the ends of the arc) that forms the non-bonded portion 52 (see FIG. 4 and FIG. 5). Here, in the present embodiment, a portion of the perforations M3 forming the edge E4 of the perforation region R is entirely covered by the bonded portion 51 of the tab 50 (FIG. 2 and FIG. 3) .

[0052] In the tab 50, the area ratio of the bonded portion 51 to the non-bonded portion 52 is not limited, but preferably the area ratio of the bonded portion 51 to the non-bonded portion 52 is 4:1 to 8:1, and more preferably 5:1 to 7:1 (see FIG. 5). Here, the area ratio represents the ratio of the area of the bonded portion 51 to the area of the non-bonded portion 52.

[0053] In the present embodiment, an adhesive layer 51A is provided on a side, of the bonded portion 51, facing the perforation region R (a surface of the bonded portion 51 viewed in the Z direction) (see FIG. 5 and FIG. 6). A material of the adhesive layer 51A is not particularly limited, but a material that causes the adhesive force of the bonded portion 51 to be greater than or equal to 2 N/25 mm and less than or equal to 6 N/25 mm is preferable. Here, the "adhesive force" indicates the peel resistance measured by the adhesive force test method referring to JIS Z0237.

[0054] An adhesive may be used as a material having such an adhesive force. Examples of such an adhesive include an adhesive such as rubber-based adhesives, acrylic-based adhesives, silicone-based adhesives, and urethane-based adhesives. Among these, the acrylic adhesive is preferable from the viewpoint of reduced deterioration and reduced discoloration over time and the like.

[0055] Here, preferably, these adhesives contain a curing agent. Examples of the curing agent include isocyanate-based curing agents, epoxy-based curing agents, aziridine-based curing agents, metal chelate-based curing agents, and carbodiimide-based curing agents. Among these, the isocyanate-based curing agent used as a curing agent for an acrylic pressure sensitive adhesive is preferable.

[0056] Additionally, these adhesives preferably include a crosslinking agent. Examples of the crosslinking agent include epoxy-based crosslinking agents, isocyanate-based crosslinking agents, amine-based crosslinking agents, melamine-based crosslinking agents, aziridine-based crosslinking agents, aldehyde-based crosslinking agents, metal chelate-based crosslinking agents, acid anhydride-based crosslinking agents, and the like. Among these, the epoxy-based crosslinking agent used as a crosslinking agent for the acrylic pressure sensitive adhesive is preferable.

[0057] In the present embodiment, the adhesive layer 51A is formed in the bonded portion 51 by applying such an adhesive to the entirety of the tab 50 including the non-bonded portion 52 and then covering a portion corresponding to the non-bonded portion 52 with a film, by performing printing, or the like. Here, a method of forming the adhesive layer 51A in the bonded portion 51 is not limited thereto. For example, such an adhesive may be applied to the bonded portion 51 of the tab 50 to form the adhesive layer 51A.

[0058] The shape of the non-bonded portion 52 of the tab 50 is not limited, but a free end 52A having an arc shape is preferably included (see FIGS. 1 to 6). Here, the free end 52A indicates that the edge 52A of the non-bonded portion 52 is not fixed.

[0059] The tab 50 is not limited to a form in which the entirety of the bonded portion 51 is bonded to the inner region IR of the region R. That is, a portion 51B of the bonded portion 51 may be bonded to an outer region OR of the region R (see FIGS. 1 to 3). Here, the portion 51B of the bonded portion 51 indicates a portion in a range less than half of the bonded portion 51.

[0060] In the present embodiment, as described above, the tab 50 is provided on a portion of the top surface 11 surrounded by the perforations M (the perforation region) R, so that when the tab 50 is pinched and pulled up, the perforations M tear thereby generating a fragment B to which the tab 50 is attached (see FIG. 7 and FIG. 8).

[0061] As illustrated in FIG. 7, this allows the retrieval opening 20 to open at a portion of the top surface 11 that corresponds to the perforation region R (the opening OP can be formed in the top surface 11 of the packaging bag 10). As described, according to the present embodiment, the sheet package 100 that facilitates the formation of the retrieval opening 20 (the opening OP) can be obtained.

[0062] In the present embodiment, as described above, the tab 50 includes the bonded portion 51 that is bonded to the perforation region R and the non-bonded portion 52 that is not bonded to the perforation region R, so that the non-bonded portion 52 of the tab 50 can be pinched with tips of fingers while the bonded portion 51 of the tab 50 is fixed to the perforation region R (the inner region IR). Therefore, according to the present embodiment, the tab 50 is easily pinched and pulled.

[0063] In the present embodiment, as described above, by using the tab 50 in which the ratio of the area of the bonded portion 51 to the area of the non-bonded portion 52 is within the above-described range, the tab 50 is more easily pinched and pulled up while a state in which the tab 50 fixed to the perforation region R (the inner region IR) is maintained.

[0064] In the present embodiment, as described above, the configuration in which the portion 51B of the bonded portion 51 of the tab 50 is bonded to the outer region OR of the perforation region R is allowed, so that the operation of attaching the tab 50 is facilitated when the tab 50 is attached to the packaging bag 10 as a separate member during manufacturing of the sheet package 100.

[0065] Additionally, in the present embodiment, a portion in the range greater than half of the bonded portion 51 is fixed to the perforation region R (the inner region IR), so that when the tab 50 is pinched and pulled up, the perforations M are torn while the tab 50 is fixed to the perforation region R (the inner region IR), and then the portion 51B of the bonded portion 51 that is bonded to the outer region OR of the perforation region R is peeled. Therefore, in the present embodiment, the retrieval opening 20 can open in the top surface 11 even though the portion 51B of the bonded portion 51 is bonded to the outer region OR of the perforation region R.

[0066] In the present embodiment, as described above, the tab 50 having the bonded portion 51 having an adhesive force of 2 N/25 mm or greater and 6 N/25 mm or less is provided in the perforation region R, so that the perforations M can be torn when the tab 50 is pinched and pulled up while the tab 50 is fixed to the perforation region R (the inner region IR). This allows the retrieval opening 20 to be easily opened in the present embodiment.

[0067] Additionally, in the present embodiment, even when the portion 51B of the bonded portion 51 is bonded to the outer region OR of the perforation region R, the perforations M are torn while the tab 50 is bonded to the inner region IR of the perforation region R, and then the portion 51B of the bonded portion 51 bonded to the outer region OR of the perforation region R can be peeled. In the present embodiment, this allows the retrieval opening 20 to be easily opened even when the portion 51B of the bonded portion 51 is bonded to the outer region OR of the perforation region R (see FIGS. 1 to 3).

[0068] In the present embodiment, as described above, the non-bonded portion 52 of the tab 50 has the free end 52A having an arc shape, so that the tab 50 is even more easily pinched and pulled up.

[0069] In the present embodiment, as described above, by having the given length L2 extending in the first direction (the X direction) and the given width W2 expanding in the second direction (the Y direction) intersecting the first direction (the X direction), the contour shape of the perforation region R becomes a long and thin shape with the first direction (the X direction) being the longitudinal direction and the second direction (the Y direction) being the transverse direction. Additionally, the tab 50 is provided on at least one end (the end 23) of the perforation region R in the first direction (the X direction), so that the tab 50 is easily pulled along the first direction (the X direction) toward the other end (the end 22).

[0070] Additionally, in the present embodiment, when the tab 50 is pulled along the first direction (the X direction) toward the other end (the end 22), the retrieval opening 20 having a thin and long shape corresponding to the perforation region R can open upon the perforation M being torn. This can form the retrieval opening 20 in which the sheet S is not easily stuck and the surrounding area of which is not easily broken, on the top surface 11. Therefore, according to the present embodiment, the sheet package 100 having an excellent retrieval property of the sheet is obtained.

[0071] Additionally, according to the present embodiment, the tab 50 is provided on the end 23 of the perforation region R so as to cover a portion of the perforations M2 forming the edge E4 of the perforation region R with the bonded portion 51, so that the end 23 of the perforation region R is unlikely to fold back from the cut C2 of the perforations M2. This prevents the perforations M from being torn during manufacturing or sale of the sheet package.

[0072] In the present embodiment, as described above, the width of the perforation region R narrows from both ends 22 and 23 in the first direction (the X direction) toward the center 24, so that when the tab 50 provided at the end 23 of

the perforation region R in the longitudinal direction is pinched and pulled toward the center 24, the perforations M are easily torn from the end 23 in the longitudinal direction toward the center 24. This facilitates the formation of the retrieval opening 20 in the present embodiment.

[0073] Additionally, in the present embodiment, the width of the retrieval opening 20 that opens in the top surface 11 is wider at both ends 22 and 23 than that at the center 24 of the retrieval opening 20. Therefore, at both ends 22 and 23 of the retrieval opening 20, in which the sheet S is easily stuck and easily broken when the sheet S is pulled out, the sheet S is not easily stuck, and thus breakage of the sheet S can be suppressed. With this configuration, the sheet package 100 having a more excellent retrieval property can be obtained in the present embodiment.

[0074] In the present embodiment, as described above, both edges E3 and E4 in the first direction (the X direction) have an arc shape that is convex to the outer region OR of the perforation region R, so that when the tab 50 is pinched and pulled up, the end edge E4 at the end 23 of the perforation region R in the longitudinal direction at which the tab 50 is provided is easily torn. Additionally, the edge E3 at the end 22 of the perforation region R in the longitudinal direction at which the tab 50 is not provided is also easily torn. This further facilitates the formation of the retrieval opening 20 in the present embodiment.

[0075] Additionally, in the present embodiment, both edges E3 and E4 of the retrieval opening 20 that opens in the top surface 11 in the longitudinal direction can be curved toward the outside of the retrieval opening 20. Therefore, at both ends 22 and 23 of the retrieval opening 20 in which the sheet S is easily stuck and easily broken when the sheet S is pulled out, the rubbing of the sheet S is reduced. This further causes the sheet S not to be easily stuck and suppresses breakage of the sheet S. As described, in the present embodiment, the sheet package 100 having a more excellent retrieval property can be obtained.

[Example]

[0076] In the following, the present invention will be described specifically with reference to examples. The following tests were used to evaluate the Examples, Comparative examples, and Experimental examples.

[Sheet package (test sample)]

[0077] As a test sample, the sheet package 100 (see FIG. 1), in which the sheet stack SL having multiple sheets S stacked therein was accommodated in the packaging bag 10, was prepared. In the sheet stack SL, tissue paper (the basis weight: 12 g/m^2; the paper thickness: 130 μm; the ply number: 2-ply; the number of sets: 120 sets (240 sheets); the dimensions: about 40 mm in height, about 178 mm in width, about 100 mm in length) stacked such that the sheets S are alternately folded to allow each of the sets can be pulled out in a pop-up manner (see FIG. 7). The sheet stack SL was accommodated in the packaging bag 10 such that the stack direction (the SD direction) was in the height direction (Z direction) of the sheet package 100 (see FIG. 1). As the material of the packaging bag 10, polyethylene (PE) having a 60 μm thick and the surface of which was mat-finished was used. As the packaging form of the packaging bag 10, caramel packaging was used to seal both side surfaces 15 and 16 of the sheet package 100 (the sealed portions 30 and 40 were formed). The dimensions of the packaging bag 10 were about 180 mm of the length L1 in the first direction (the X direction), about 100 mm of the width W1 in the depth direction (the Y direction), and about 40 mm in height in the height direction (the Z direction). In the top surface 11 of the packaging bag 10, the perforations M were formed such that the retrieval opening 20 opens upon the perforations M being torn.

[Openability]

[0078] As the openability of the sheet package (the test sample), the ease of opening the packaging bag 10 was evaluated when the perforations M formed in the top surface 11 of the packaging bag 10 were torn to form the retrieval opening 20 (the opening OP). The evaluation of the openability was performed according to the following criteria, O indicates good, and △ and X indicate poor.

O: The perforations were smoothly torn without placing a finger on the perforations.
△: A finger could be placed on the perforations, but the perforations were not easily torn.
X: A finger could not be easily placed on the perforations and the perforations were not easily torn.

[Retrieval property]

[0079] As the retrieval property of the sheet package (the test sample), the ease of retrieval was evaluated when a first set of the sheets S of the sheet stack SL is retrieved from the sheet stack SL accommodated in the packaging bag 10 of the sheet package 100 through the retrieval opening 20 (the opening OP) that opens in the packaging bag 10. The

evaluation of the retrieval property was performed according to the following criteria, O indicates good, and △ and X indicate poor.

O: The first set was easily pinched.
△: The first set could be pinched.
X: The first set could be pinched, but could not be easily pinched.

[Sheet breakage]

[0080] As the sheet breakage of the sheet stack SL, the sheet breakage was evaluated when the sheets S from the first set to the fifth set of the sheet stack SL are retrieved through the retrieval opening 20 (the opening OP) that opens in the packaging bag 10 from the sheet stack SL accommodated in the packaging bag 10 of the sheet package 100. The evaluation of the retrieval property was performed according to the following criteria, O indicates good, and △ and X indicate poor.

O: No sheets broke.
△: The first set of sheets broke.
X: Two or more sets of sheets broke.

[Label (test sample)]

[0081] As a test sample corresponding to the tab, a label (a 50 μm thick PET film), on which an adhesive was applied, was prepared.

[Adhesive force]

[0082] As the adhesive force of the tab (the test sample), by the adhesive force measurement method in accordance with JIS Z0237, after the test sample (adjusted to a width of 25 mm and a length of 300 mm) was applied to an object to be covered (a polyethylene film, a stainless steel plate (SUS), and a polyethylene film with a mat-finished surface), a reciprocating pressure bonding was performed with a 2 kg pressure roller, and then after the test sample was left for 20 minutes and for 24 hours, the resistance value was measured when the applied test sample was peeled from the object to be covered at a speed of 0.3 m/min in a direction of 180° by using a desktop precision universal testing machine (Autograph AGS-500NG, manufactured by SHIMADZU CORPORATION). The unit of the adhesive force is N/25 mm. As the evaluation of the adhesive force, the range of 2 to 6 N/25 mm is good, and anything outside of the range is poor.

[Peel force]

[0083] As the peel force of the tab (the test sample), with respect to the test sample (adjusted to a width of 50 mm and a length of 300 mm), the resistance value was measured in substantially the same way as the above-described measurement of the adhesive force (an object to be covered is only a polyethylene film and only after the object to be covered is left for 20 minutes) by the adhesive force measurement method in accordance with JIS Z0237 to obtain the peel force (low speed). As in the above-described measurement of the adhesive force, after the test sample was applied to the object to be covered (the polyethylene film), a high-speed peel tester (TE-701, manufactured by TESTER SANGYO, CO., Ltd.) was used to measure the resistance when the applied test sample was peeled from the object to be covered at a speed of 0.3 m/min in the direction of 180 degrees to obtain the peel force (low speed) and to measure the resistance when the applied test sample was peeled at a speed of 60 m/min to obtain the peel force (high speed). The unit of the peel force is mN/50mm. As the evaluation of the peel force (low speed), the range of 120 to 200 mN/50 mm is good, and anything outside of the range is poor. As the evaluation of the peel force (high speed), the range of 450 to 600 mN/50mm is good, and anything outside of the range is poor.

[Ball tack]

[0084] As a ball tack for the tab (test sample), the test sample (adjusted to a width of 100 mm and a length of 150 mm) was placed on a sloped surface with an angle of 30° such that the surface on which an adhesive is applied (the adhesive surface) faces up, steel balls having different diameters were caused to roll through a 100 mm runway, and the maximum diameter of the steel balls stopped on the adhesive surface was measured by the J. DOW method in accordance with JIS Z0237. A higher value represents a higher tack, and as a rough indication of the size, 1 inch steel ball is No. 32. For example, No. 4 indicates a steel ball of 4/32 inch in size. As the evaluation of the ball tack, the range

of No. 12 to 15 is good, and anything outside of the range is poor.

[Label peeling]

[0085] As label peeling, it was checked whether the label was peeled away after the label (the test sample) was attached to the object to be covered (glassine paper) and then the label was left for 20 minutes and for 24 hours. The evaluation of label peeling was performed according to the following criteria, O indicates good, and △ and X indicate poor.

O: The label did not peel away.
△: The label peeled away.
X: The label peeled before 20 minutes passed.

[Package film stretch and breakage]

[0086] As a breakage of the package film, it was checked whether the object to be covered (the package film) corresponding to the packaging bag is stretched and broken when the label was peeled from the object to be covered (the package film) after the label (the test sample) was applied to the object to be covered (polyethylene the surface of which was mat-finished) and then the object to be covered was left for 20 minutes and for 24 hours. The evaluation of the stretch and breakage of the package film was performed according to the following criteria, O indicates good, and △ and X indicate poor.

O: The object did not become stretched and did not break.
△: The object did not break, but became stretched.
X: The object broke.

[Breakage of perforations]

[0087] As a breakage of the perforations, breakage of the perforations M was evaluated when the label was peeled after the label was bonded to the end 23 of the perforation region R of the sheet package 100 and then the sheet package 100 was left for 24 hours. The evaluation of breakage of the perforations was performed according to the following criteria, O indicates good, and △ and X indicate poor.

O: The perforations broke.
△: The perforations broke, but the outside of the perforation region also broke.
X: The perforations did not break.

[Sensory property (ease of opening after 24 hours)]

[0088] As a sensory property, the ease of opening was evaluated after the label was bonded, as the tab, to the end 23 of the perforation region R of the sheet package 100 and then the sheet package 100 was left for 24 hours. The evaluation of the sensory property was performed according to the following criteria, 3 or greater indicates good, and 2 or less indicates poor.

5: Very easy to open
4: Easy to open
3: Can be opened
2: Slightly difficult to open
1: Difficult to open

[0089] In the following, Examples, Comparative examples, and Experimental examples will be described.

[Example 1]

[0090] With respect to the sheet package 100 (see FIGS. 1 to 6), in which the region R of the portion, of the top surface 11 of the packaging bag 10, corresponding to the retrieval opening 20 is surrounded by the perforations M (perforations M1, M2, and M3), both ends 22 and 23 of the perforation region R are widened from the center 24 in the first direction (in the X direction) toward both ends 22 and 23, the tab 50 is provided at the end 23 of the perforation region R having an arc shape (a dumbbell shape) in which both edges E3 and E4 of the perforation region R in the first direction (the X

direction) are convex to the outer region OR of the region R, and the portion 51B of the bonded portion 51 of the tab 50 is bonded to the outer region OR of the perforation region R, the openability, the retrieval property, and the sheet breakage were evaluated. The results are shown in Table 1.

[Comparative example 1]

[0091] Except that the retrieval opening 20 was formed by only a linear slit (the perforations M4) (see FIG. 9), the evaluation was performed as in Example 1. The results are shown in Table 1.

[Comparative example 2]

[0092] Except that the retrieval opening 20 was formed by only a substantially elliptical slit (the perforations M5) (see FIG. 10), the evaluation was performed as in Example 1. The results are shown in Table 1.

[Experimental example 1]

[0093] With respect to a test sample to which an acrylic-based adhesive (containing an isocyanate-based curing agent of 0.3% and an epoxy-based crosslinking agent) is applied as an adhesive, the adhesive force, the peel force, the ball tack, the label peeling, the stretch and breakage of the package film, breakage of the perforations, and the sensory property were evaluated. The results are shown in Table 2. Here, the condition of Experimental example 1 corresponds to the condition of the tab 50 of the sheet package 100 (the test sample) of Example 1.

[Experimental example 2]

[0094] Except that the contained amount of the isocyanate-based curing agent in the acrylic-based adhesive is 0.5%, as an adhesive, the evaluation was performed as in Experimental example 1. The results are shown in Table 1.

[Experimental example 3]

[0095] Except that the contained amount of the isocyanate-based curing agent in the acrylic-based adhesive is 2.4% and the isocyanate-based crosslinking agent is used instead of the epoxy-based crosslinking agent, as an adhesive, the evaluation was performed as in Experimental example 1. The results are shown in Table 1.

[Experimental example 4]

[0096] Except that the contained amount of the isocyanate-based curing agent in the acrylic-based adhesive is 3.5%, as an adhesive, the evaluation was performed as in Experimental example 3. The results are shown in Table 1.

[Experimental example 5]

[0097] Except that the contained amount of the isocyanate-based curing agent in the acrylic-based adhesive is 3.9%, as an adhesive, the evaluation was performed as in Experimental example 3. The results are shown in Table 1.

[0098]

[Table 1]

		EXAMPLE 1	COMPARATIVE EXAMPLE 1	COMPARATIVE EXAMPLE 2
RETRIEVAL OPENING	PERFORATIONS	DUMBBELL TYPE	LINEAR TYPE	ELLIPTICAL TYPE
	TAB	END	-	-
EVALUATION	OPENABILITY	○	△	×
	RETRIEVAL PROPERTY	○	×	○
	SHEET BREAKAGE	○	×	○

[0099]

[Table 2]

			EXPERIMENTAL EXAMPLE 1	EXPERIMENTAL EXAMPLE 2	EXPERIMENTAL EXAMPLE 3	EXPERIMENTAL EXAMPLE 4	EXPERIMENTAL EXAMPLE 5
ADHESIVEFORCE (N/25 mm)	PE	AFTER 20 MINUTES	2.8	0.9	8.1	6.9	6.5
		AFTER 24 HOURS	4	1.5	9	7.9	7.6
	SUS	AFTER 20 MINUTES	4.1	1.4	14.9	12.3	11.8
		AFTER 24 HOURS	4.7	1.9	16.8	14.5	13.8
	MAT FINISHED PE	AFTER 20 MINUTES	3.0	1.0	9.6	8.9	8.2
		AFTER 24 HOURS	4.1	1.8	12.4	10.9	10.3
PEEL FORCE (mN/ 50 mm)	LOW SPEED (0.3 m/min)		127	112	78	73	70
	HIGH SPEED (60 m/min)		499	374	412	411	397
BALL TACK (No.)			13	10	4	4	3
PERFORMANCE EVALUATION	AFTER 20 MINUTES	LABEL IS PEELED OR NOT	○	△	○	○	○
		PACKAGE FILM IS STRETCHED/ BROKEN OR NOT	○	○	○	○	○
	AFTER 24 HOURS	LABEL IS PEELED OR NOT	○	○	○	○	○
		PACKAGE FILM IS STRETCHED/ BROKEN OR NOT	○	○	△	△	△
BREAKAGE OF PERFORATIONS			○	×	○	○	○
SENSORY PROPERTY (EASE OF OPENING AFTER 24 HOURS)			5	4	1	2	2

[0100] Acording to Table 1, the sheet package 100, in which both ends 22 and 23 are widened from the center 24 in the first direction (the X direction) toward both ends 22 and 23, and the tab 50 is provided at the end 23 of the perforation region R having a circular arc shape in which both edges E3 and E4 in the first direction (the X direction) are convex to the outer region OR of the region R was excellent in each of the openability, the retrieval property, and the sheet breakage (Example 1).

[0101] With respect to the above, the retrieval opening 20 of the slit having the linear shape (the perforations M4) is poor in the openablity, the retrieval property, and breakage of the sheet (Comparative example 1). Additionally, the sheet package 100 formed with the substantially elliptical slit (the perforations M5) is poor in the openability (Comparative example 2).

[0102] According to Table 2, the label on which the acrylic-based adhesive (containing 0.3% of an isocyanate-based curing agent, and an epoxy-based crosslinking agent) was applied as an adhesive was good in the adhesive force, the peel force, the ball tack, the label peeling, the stretch and breakage of the package film, breakage of the perforations, and the sensory property (Experimental example 1).

[0103] With respect to the above, the label, on which the acrylic-based adhesive (containing an isocyanate-based curing agent of 0.5% and an epoxy-based crosslinking agent) was applied as an adhesive, was poor in "label is peeled or not after 20 minutes" and breakage of the perforations (Experimental example 2). Additionally, the label on which the acrylic-based adhesive (containing an isocyanate-based curing agent of 2.4% and an isocyanate-based crosslinking agent) was applied as an adhesive, the label on which the acrylic-based adhesive (containing an isocyanate-based curing agent of 3.5% and an isocyanate-based crosslinking agent) was applied as an adhesive, and the label on which the acrylic adhesive (containing an isocyanate-based curing agent of 3.9% and an isocyanate-based crosslinking agent) was applied as an adhesive, are poor in "package film is broken after 24 hours" and the sensory property (Experimental Examples 3 to 5).

[0104] From these results, it is found that, in the sheet package, in which the perforations that surround the region of the portion of the top surface and that form the retrieval opening upon being torn, are provided on the top surface of the packaging bag and the tag is provided on the region, the retrieval opening is easily formed. Additionally, it is also found that, in the sheet package with such a tab including the bonded portion that is bonded to the region and the non-bonded portion that is not bonded to the region, the tab is easily pinched and easily pulled up.

[0105] While the embodiments of the invention have been described, the invention is not limited to particular embodiments, and various modifications and variations can be made within the scope of the invention as claimed.

[0106] In the following, preferred embodiments of the present invention will be appended.

[0107] A first embodiment of the present invention is a sheet package including a packaging bag accommodating multiple sheets that are stacked and a retrieval opening to open in a top surface of the packaging bag. Perforations that surround a region of a portion of the top surface and that form the retrieval opening upon being torn is provided in the top surface. A tab is provided on the region.

[0108] In the present specification, the portion of the top surface indicates a portion in a range less than half of the top surface. The perforations indicate a cutting line to be torn in which a cut and a tie (an uncut part between the two cuts) are alternately arranged, and the two adjacent cuts become a continuous cut when the tie is broken. The tab indicates a portion or a member that is pinched by tips of fingers or the like.

[0109] In the first embodiment, the tab is provided in the region of the portion of the top surface that is surrounded by the perforations (hereinafter may be referred to as the perforation region), so that the perforations are torn by pinching and pulling up the tab to allow the retrieval opening to open at a portion of the top surface corresponding to the perforation region. Therefore, according to the first embodiment, a sheet package that facilitates the formation of the retrieval opening can be provided.

[0110] A second embodiment of the invention is a sheet package in which the tab includes the bonded portion that is bonded to the region and the non-bonded portion that is not bonded to the region. In the second embodiment, the tab includes the bonded portion that is bonded the perforation region and the non-bonded portion that is not bonded to the perforation region, so that the non-bonded portion of the tab can be pinched with tips of fingers while the bonded portion of the tab is fixed to the perforation region. Therefore, according to the second embodiment, the tab is easily pinched and easily pulled up.

[0111] A third embodiment of the invention is a sheet package in which an area ratio of the bonded portion of the tab to the non-bonded portion of the tab is 4:1 to 8:1. Here, the area ratio is a ratio of the area of the bonded portion to the area of the non-bonded portion. In the third embodiment, the area ratio of the bonded portion to the non-bonded portion is set to such a range of the area ratio, so that the tab is more easily pinched and more easily pulled up while a state, in which the tab is fixed to the perforation region, is maintained.

[0112] A fourth embodiment of the invention is a sheet package in which a portion of the bonded portion is bonded to the outside of the region. Here, the portion of the bonded portion indicates a portion in a range less than half of the bonded portion. In the fourth embodiment, allowing a configuration in which the portion of the bonded portion of the tab is bonded to the outside of the perforation region facilitates an attachment operation of the tab when the tab is attached

to the packaging bag as a separate member during manufacturing of the sheet package.

[0113] Additionally, in the fourth embodiment, a portion of the area that is greater than half of the bonded region is fixed to the perforation region, so that when the tab is pinched and pulled up, the perforations are torn with the tab being fixed to the perforation region, and the portion of the bonded portion that is bonded to the outside of the perforation region is peeled. Therefore, in the fourth embodiment, even though the portion of the bonded portion is bonded to the outside of the perforation region, the retrieval opening can be opened in the top surface.

[0114] A fifth embodiment of the present invention is a sheet package in which the adhesive force of the bonded portion is 2 N/25 mm or greater and 6 N/25 mm or less. Here, the adhesive force indicates a peel resistance value measured by the adhesive force test method in reference to JIS Z0237.

[0115] In the fifth embodiment, a tab having a bonded portion having an adhesive force of 2 N/25 mm or greater and 6 N/25 mm or less is provided in the perforation area, so that when the tab is pinched and pulled up, the perforations can be torn while the tab is fixed to the perforation region. This allows the retrieval opening to be easily opened in the fifth embodiment.

[0116] Additionally, in the fifth embodiment, even when the portion of the bonded portion is bonded to the outside of the perforation region, the perforations are torn while the tab is bonded to the inside of the perforation region, and the portion of the bonded portion that is bonded to the outside of the perforation region can be peeled. This allows the retrieval opening to be easily opened in the fifth embodiment, even when the portion of the bonded portion is bonded to the outside of the perforation region.

[0117] A sixth embodiment of the invention is a sheet package in which the non-bonded portion has a free end having an arc shape. Here, the free end indicates that an edge of the non-bonded portion is not fixed. In the sixth embodiment, the non-bonded portion of the tab has the free end having the arc shape, so that the tab is still more easily pinched and still more easily pulled up.

[0118] A seventh embodiment of the invention is a sheet package in which the region has a given length extending in the first direction and a given width expanding in the second direction intersecting the first direction, and the tab is provided at at least one end of the region in the first direction.

[0119] In the present specification, the first direction indicates a direction along a predetermined direction on the top surface of the packaging bag. The second direction intersecting the first direction indicates a direction orthogonal to or diagonally intersecting the predetermined direction on the top surface of the packaging bag. The end of the region in the first direction indicates either end of the perforation region in the first direction.

[0120] In a seventh embodiment, the contour shape of the perforation region has a given length extending in the first direction and a given width expanding in the second direction intersecting the first direction, so that the contour shape becomes a thin and long shape having the first direction as the longitudinal direction and the second direction as the transverse direction. Additionally, the tab is provided at least one end of the perforation region in the first direction, so that the tab is easily pulled along the first direction toward the other end.

[0121] Additionally, in the seventh embodiment, when the tab is pulled along the first direction toward the other end, the retrieval opening having a thin and long shape corresponding to the perforation region can open upon the perforations being torn. This can form, in the top surface, the retrieval opening in which the sheet is not easily stuck and the surrounding area of which is not easily broken. Therefore, according to the seventh embodiment, a sheet package having an excellent retrieval property can be obtained.

[0122] An eighth embodiment according to the present invention is a sheet package in which the width of the region narrows from both ends of the region in the first direction toward the center of the region. Here, "the width narrows from both ends of the region in the first direction toward the center of the region" indicates that the width of the perforation region in the second direction widens from the center in the first direction to both ends.

[0123] In the eighth embodiment, the width of the perforation region narrows from both ends to the center side in the first direction, so that when the tab provided at the end of the perforation region in the longitudinal direction is pinched and pulled toward the center in the first direction, the perforations are easily torn from the end to the center in the longitudinal direction. This facilitates the formation of the retrieval opening in the eighth embodiment.

[0124] Additionally, in the eighth embodiment, the width of the retrieval opening that opens in the top surface is wider at both ends of the retrieval opening than that at the center of the retrieval opening. Therefore, at both ends of the retrieval opening where the sheet is easily stuck and easily broken when pulling out the sheet, the sheet is not easily stuck, and thus breakage of the sheet can be suppressed. Therefore, in the eighth embodiment, a sheet package having better retrieval property can be obtained.

[0125] A ninth embodiment according to the present invention is a sheet package in which both edges of the region in the first direction have an arc shape that is convex to the outside of the region. Here, both edges of the region in the first direction indicate respective edges opposing each other in the first direction of the perforation region. "have an arc shape that is convex" indicates that each edge is convexly curved.

[0126] In the ninth embodiment, both edges in the first direction have an arc shape that is convex to the outside of the perforation region, so that when the tab is pulled up, the edge of the end, at which the tab is provided, of the perforation

region in the longitudinal direction is easily torn. Additionally, the edge of the end, at which the tab is not provided, of the perforation region in the longitudinal direction is easily torn. This further facilitates the formation of the retrieval opening in the ninth embodiment.

[0127] Additionally, in the ninth embodiment, both edges, in the longitudinal direction, of the retrieval opening that opens in the top surface can be curved toward the outside of the retrieval opening. Therefore, at both ends of the retrieval opening where the sheet is easily stuck and easily broken when the sheet is pulled out, the rubbing of the sheet is reduced. This can cause the sheet not to be easily stuck and can suppress breakage of the sheet. Therefore, in the ninth embodiment, a sheet package having much better retrieval property is obtained.

[0128] The present application is based on and claims priority to Japanese Patent Application No. 2020-015212, filed January 31, 2020, the entirety of which is incorporated herein by reference.

Description of the Reference Numerals

[0129]

100 sheet package
S sheet (hygienic thin paper)
SL sheet stack
10 packaging bag
11 top surface
11A center in the first direction
11B center in the second direction
12 bottom surface
13 front surface
14 back surface
15, 16 side surface
20 retrieval opening
R region
IR inner region
OR outer region
M, M1, M2, M3, M4, M5 perforations
C, C1, C2 cut
T, T1, T2 tie
21 base
22, 23 end
24 center
30 sealed portion
40 sealed portion
50 tab
51 bonded portion
51A adhesive layer
51B portion
52 non-bonded portion
52A free end
L1, L2 length
W1, W2, W3 width
OP opening
E1, E2, E3, E4 edge
B fragment

Claims

1. A sheet package comprising:

a packaging bag that accommodates a plurality of sheets, the plurality of sheets being stacked; and
a retrieval opening that opens in a top surface of the packaging bag;
wherein perforations are provided in the top surface, the perforations surrounding a region of a portion of the

top surface and forming the retrieval opening upon the perforations being torn, and
wherein a tab is provided in the region.

2. The sheet package as claimed in claim 1,
wherein the tab includes a bonded portion and a non-bonded portion, the bonded portion being bonded to the region, and the non-bonded portion being not bonded to the region.

3. The sheet package as claimed in claim 2,
wherein, in the tab, an area ratio of the bonded portion to the non-bonded portion is 4:1 to 8:1.

4. The sheet package as claimed in claim 2 or 3,
wherein a portion of the bonded portion is bonded to an outside of the region.

5. The sheet package as claimed in any one of claims 2 to 4, wherein an adhesive force of the bonded portion is 2 N/25 mm or greater and 6 N/25 mm or less.

6. The sheet package as claimed in any one of claims 2 to 5, wherein the non-bonded portion includes a free end having an arc shape.

7. The sheet package as claimed in any one of claims 1 to 6,

wherein the region has a given length extending in a first direction and a given width expanding in a second direction intersecting the first direction, and
wherein at least one end of the region in the first direction is provided with the tab.

8. The sheet package as claimed in claim 7,
wherein the width of the region narrows from both ends of the region in the first direction toward a center of the region in the first direction.

9. The sheet package as claimed in claim 7 or 8, wherein, in the region, both edges of the region in the first direction have an arc shape that is convex to an outside of the region.

FIG.1

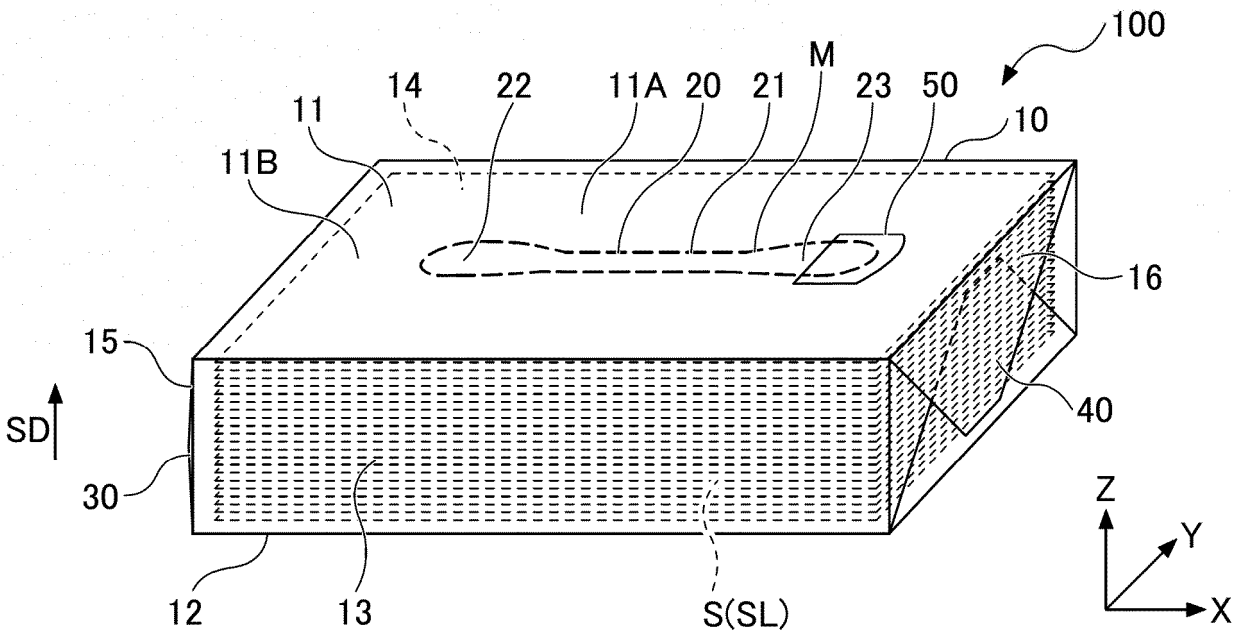


FIG.2

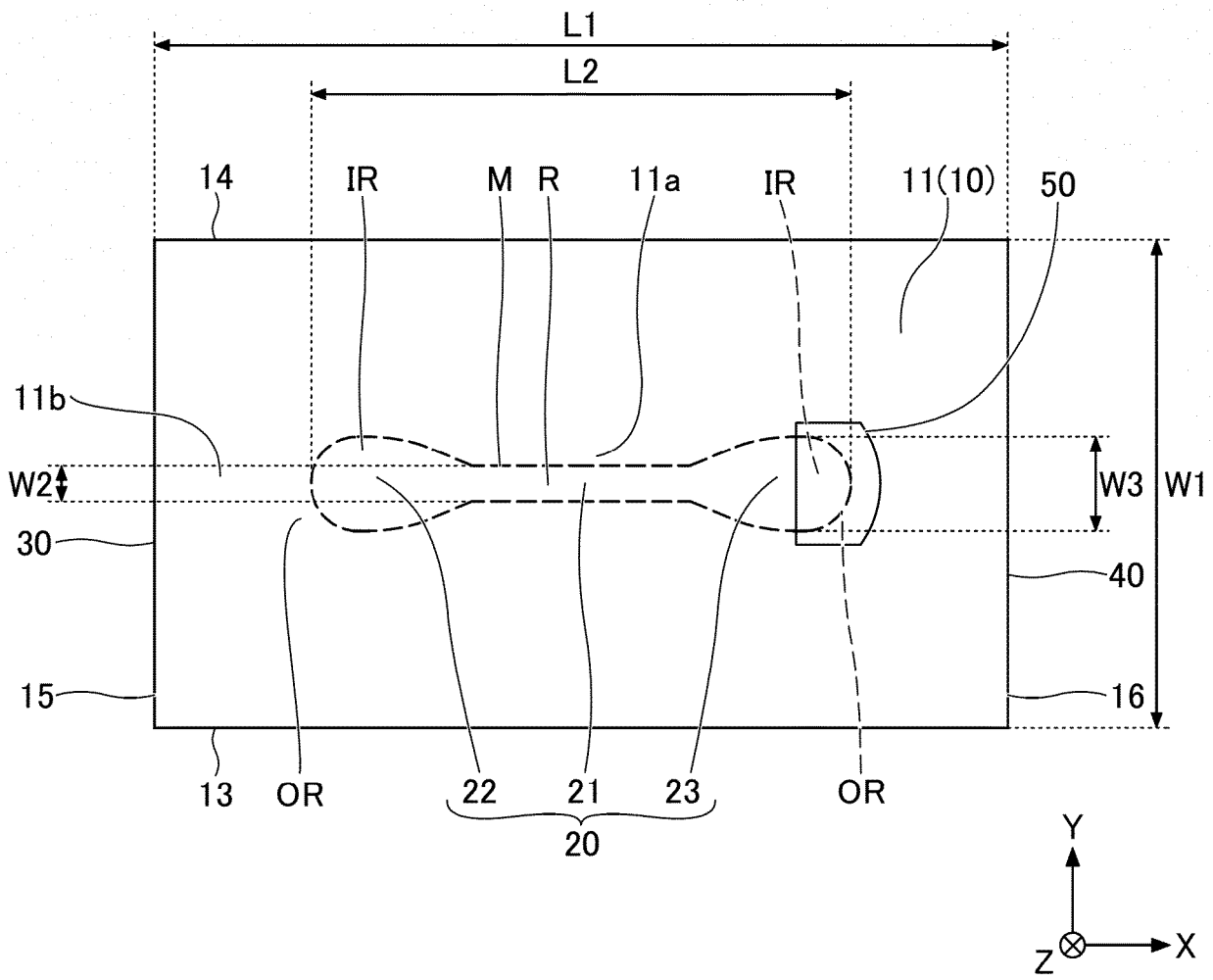

L1
L2
14
IR
M
R
11a
IR
11(10)
50
11b
W2
W3
W1
30
40
15
16
13
OR
22
21
23
OR
20
Y
Z
X

FIG.3

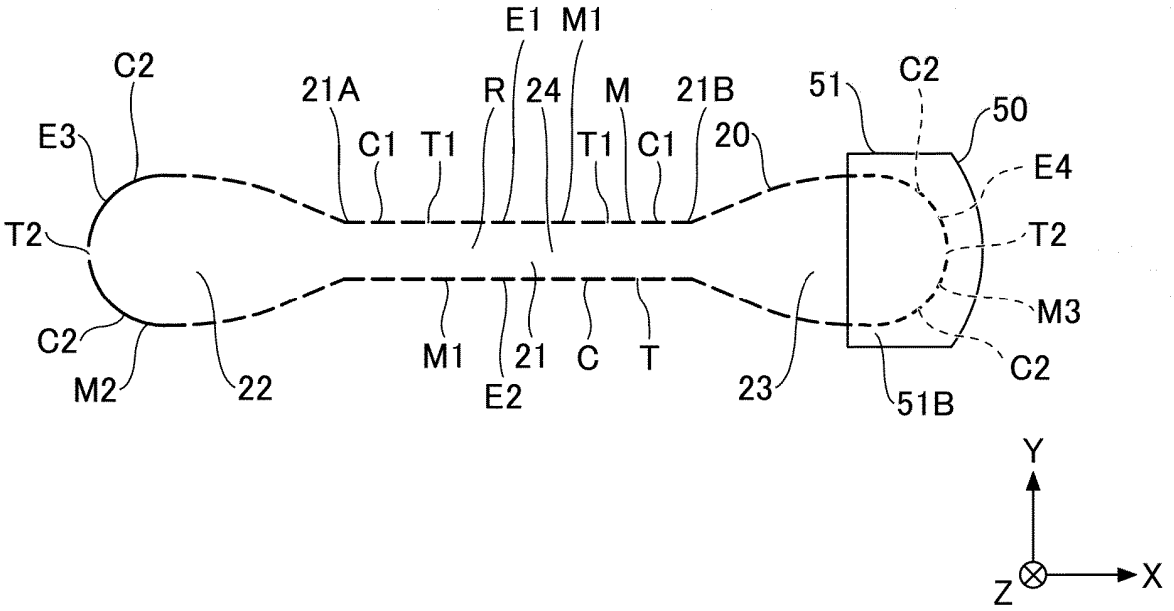

E1
M1
C2
21A
R
24
M
21B
51
C2
50
E3
C1
T1
T1
C1
20
E4
T2
T2
M3
C2
M1
21
C
T
C2
M2
22
E2
23
51B
Y
Z
X

FIG.4

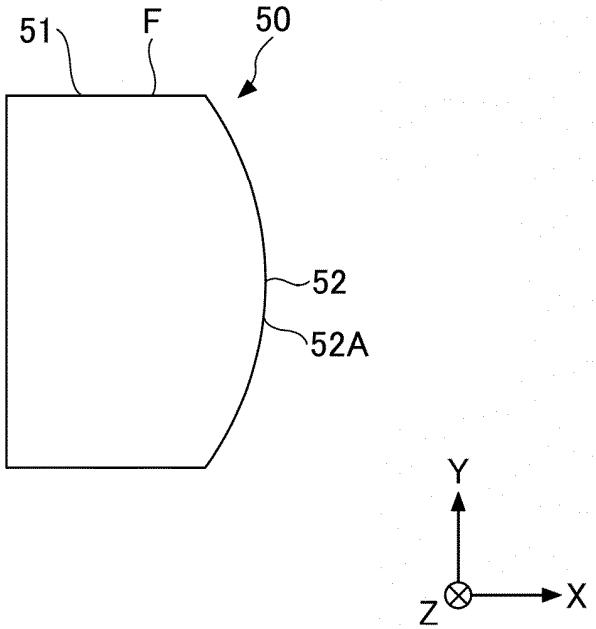

51
F
50
52
52A
Y
Z
X

FIG.5

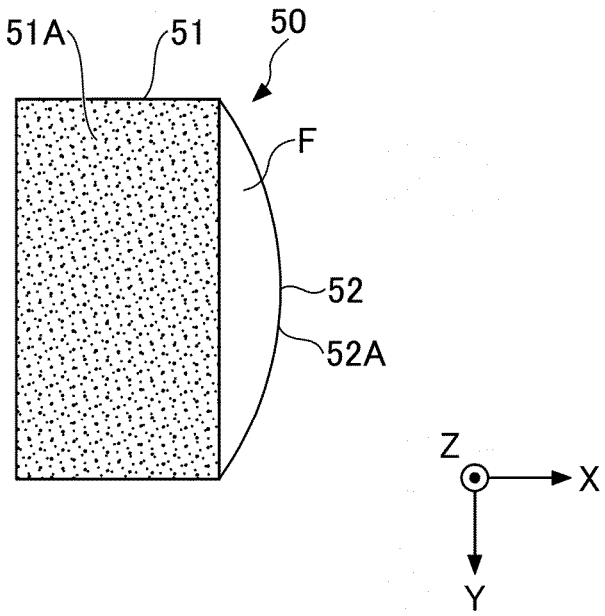


FIG.6

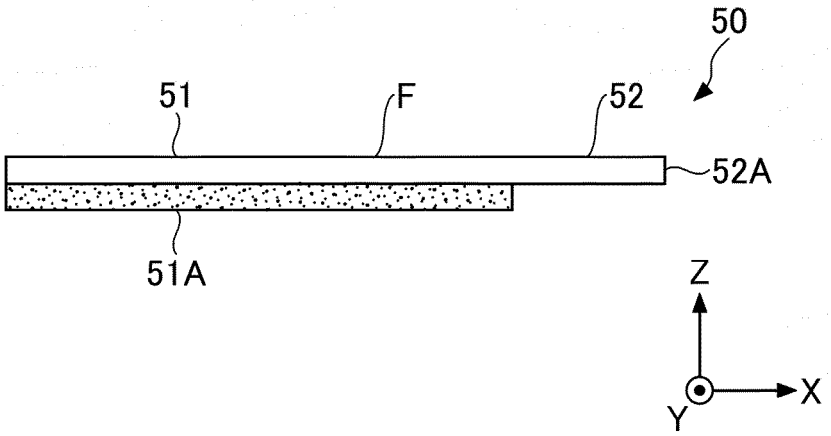


FIG.7

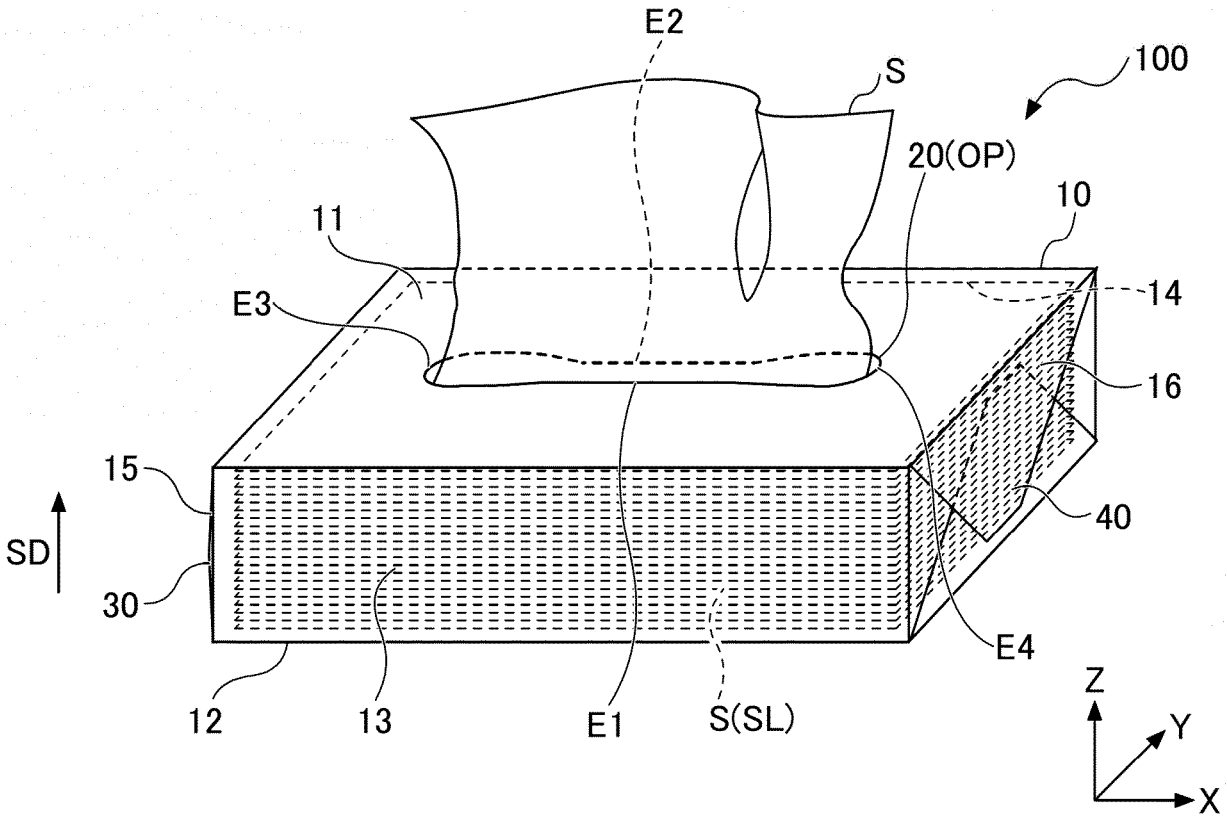


FIG.8

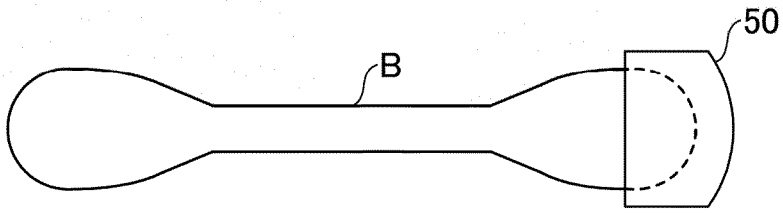
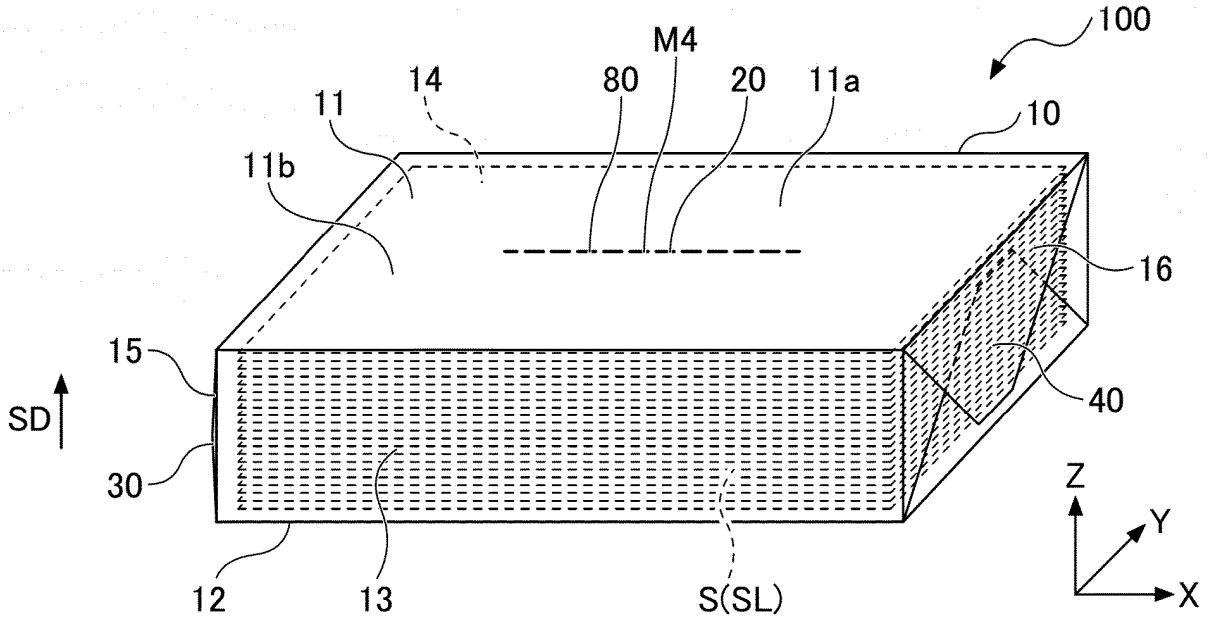


FIG.9


100
M4
14
80
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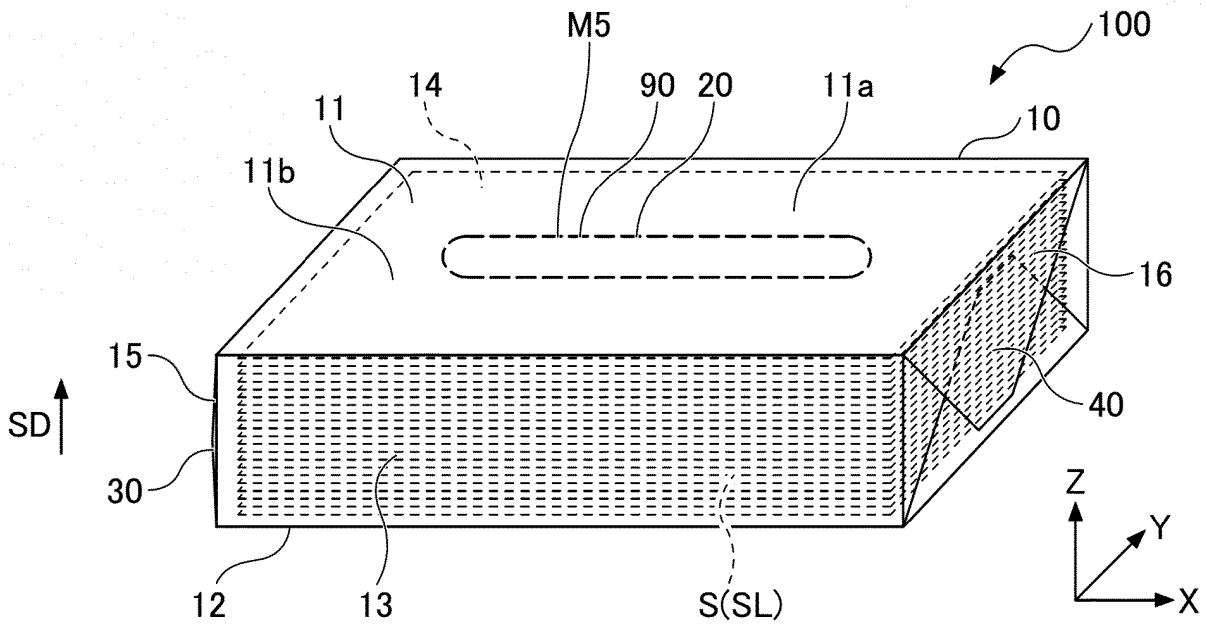
11a
11
10
11b
16
15
40
SD
30
Z
Y
12
13
S(SL)
X

FIG.10


M5
100
14
90
20
11a
11
10
11b
16
15
40
SD
30
Z
Y
12
13
S(SL)
X

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2021/001911

A. CLASSIFICATION OF SUBJECT MATTER
B65D 75/62(2006.01)i; B65D 83/08(2006.01)i; A47K 10/20(2006.01)i; A47K 10/42(2006.01)i
FI: B65D75/62 B; B65D83/08 G; B65D83/08 B; A47K10/20 A; A47K10/42 A
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
B65D75/62; B65D83/08; A47K10/20; A47K10/42

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	1971–2021
Registered utility model specifications of Japan	1996–2021
Published registered utility model applications of Japan	1994–2021

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 2018-172145 A (DAIO PAPER CORP.) 08 November 2018 (2018-11-08) paragraphs [0015]-[0020], [0024], fig. 6	1-9
Y	JP 2014-213910 A (OJI HOLDINGS CORPORATION) 17 November 2014 (2014-11-17) paragraphs [0019]-[0033], fig. 1-4	1-9
A	US 2011/0052107 A1 (SCHLARP, Bernd) 03 March 2011 (2011-03-03)	1-9
A	JP 2005-178844 A (PIGEON CORPORATION) 07 July 2005 (2005-07-07)	1-9

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

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
26 March 2021 (26.03.2021)	06 April 2021 (06.04.2021)

Name and mailing address of the ISA/	Authorized officer
Japan Patent Office 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan	Telephone No.

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/JP2021/001911

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
JP 2018-172145 A	08 Nov. 2018	US 2020/0022539 A1 paragraphs [0031]-[0036], [0040], fig. 6 WO 2018/180622 A1 EP 3604173 A1 CN 110167850 A KR 10-2019-0135467 A	
JP 2014-213910 A	17 Nov. 2014	(Family: none)	
US 2011/0052107 A1	03 Mar. 2011	WO 2009/124616 A1 DE 102008018121 A1	
JP 2005-1 78844 A	07 Jul. 2005	(Family: none)	

Form PCT/ISA/210 (patent family annex) (January 2015)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 2008183034 A **[0003]**
- JP 2018177364 A **[0003]**
- JP 2020015212 A **[0128]**