(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 4 019 423 A1**

(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
29.06.2022 Bulletin 2022/26

(21) Application number: **20871058.2**

(22) Date of filing: **23.09.2020**

(51) International Patent Classification (IPC):
B65D 75/60 *(2006.01)*

(52) Cooperative Patent Classification (CPC):
B65D 77/003; B65D 71/063; B65D 75/5833; B65D 83/0805

(86) International application number:
PCT/JP2020/035745

(87) International publication number:
WO 2021/065603 (08.04.2021 Gazette 2021/14)

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

(30) Priority: **01.10.2019 JP 2019181555**

(71) Applicant: **Daio Paper Corporation**
Ehime 799-0492 (JP)

(72) Inventor: **UNO, Ayako**
Fuji-shi, Shizuoka 419-0202 (JP)

(74) Representative: **Williams Powell**
5 Chancery Lane
London WC2A 1LG (GB)

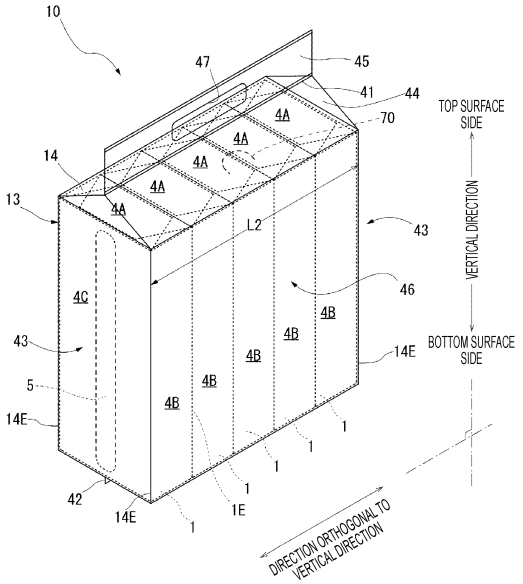
(54) FILM-PACKAGED TISSUE PACK PACKAGE

(57) Provided is a film-packaged tissue assembly package which does not have reduced fullness of tissue papers, and is excellent in shape retainability, resistant to breakage of a packaging bag and excellent in openability.

The film-packaged tissue assembly package includes a plurality of film-packaged tissues arranged and packaged in a gusset packaging bag having a grip portion on the top surface side. The film-packaged tissue is overwrap-packaged, and

a plurality of the film-packaged tissues of the film-packaged tissue assembly package are arranged in a substantially rectangular parallelepiped shape with each end surface facing the top surface side with a grip portion and the bottom surface side opposed to the top surface side to make the end surfaces substantially flush with each other and the long side surfaces substantially flush with each other and are packaged with the gusset packaging bag gusset portion facing the upper and lower surfaces of the film-packaged tissue. An openable portion formed by an easily tearable line is formed on a top surface portion located above a position corresponding to an uppermost portion of the film-packaged tissue stored in the gusset packaging bag and below the grip portion, and the width of the openable portion in a direction orthogonal to a vertical direction is 40 to 100% of a distance between the upper and lower surfaces of the film-packaged tissue.

FIG. 1



EP 4 019 423 A1

Description

Technical Field

[0001] The present invention relates to a film-packaged tissue assembly package in which a plurality of film-packaged tissues each obtained by packaging a tissue paper bundle having folded and stacked tissue paper with a flexible packaging film are collectively gusset-packaged.

Background Art

[0002] A tissue paper package also called a box tissue (hereinafter, also referred to as a box product) is well known in which a tissue paper bundle is included in a paper storage box called a carton box.

[0003] Since the box product 101B is excellent in shape stability of a paper storage box forming an outer envelope, five or three box products are generally arranged in such a manner as to be stacked in a vertical direction and turned into an assembly-packaged (or pack-packaged) product form 110B bundled by an outer packaging film 111 as shown in Fig. 15, and a large number of such box products are often stacked and sold at storefronts of stores, etc.

[0004] On the other hand, as the tissue paper package, a tissue paper package also referred to as a film-packaged tissue is known in which a tissue paper bundle is packaged with a flexible packaging film made of resin.

[0005] As the film-packaged tissue, one referred to as a pocket tissue and suitable for portable use is well known, and there is also a film-packaged tissue that is used in a stationary manner like a box product or used for refilling of a bundle of a box product.

[0006] Such a film-packaged tissue used mainly in a stationary manner is a so-called pop-up type in which when the uppermost sheet of the included bundle is drawn out from the included bundle, a part of the next sheet is drawn out. Such a film-packaged tissue is more advantageous than a box product in reduction of packaging materials, and transportation cost reduction and portability associated with compactness.

[0007] On the other hand, like a box product, such a film-packaged tissue used mainly in a stationary manner has been sold as an assembly-packaged product form in which a plurality of tissues, e.g. five or three tissues are stacked in a vertical direction in a vertically abutting manner and bundled by an outer packaging film.

[0008] In particular, an assembly package of a film-packaged tissue which is different from a tissue for portable use and is used mainly in a stationary manner, etc. has a certain level of volume, and thus is preferably a gusset packaging with a grip portion in which a grip portion is provided on the top surface side for easy carriage.

[0009] However, in gusset packaging, spaces are formed particularly on the top surface side and the bottom surface side because of the structure, and therefore when five or three film-packaged tissues are arranged in such a manner as to be stacked in a vertical direction in a vertically abutting manner as in the case of a box product, shape stability is lost, so that when a large number of tissues are stacked at a storefront to be sold at a store etc., the tissues may collapse.

[0010] In addition, such a conventional assembly package in which a plurality of tissues, e.g. five or three tissues are stacked in a vertical direction in a vertically abutting manner and bundled by an outer packaging film may have an openable portion formed by arranging a perforation or the like for enhancing openability.

[0011] However, in the conventional assembly package, for example, the longitudinal direction of the film-packaged tissue is a traverse direction orthogonal to the vertical direction, and therefore an opening forming portion in which merely a perforation or the like is arranged so as to form a slit in a linear manner in a vertical direction has a problem that it is difficult to take out an inside film-packaged tissue. When in contrast, the opening forming portion is formed in such a manner that a perforation or the like is arranged along a traverse direction orthogonal to the vertical direction, there is a problem that the possibility increases that opening occurs unintentionally because a force is applied in a direction of tearing the perforation when the grip portion is held.

[0012] On the other hand, it is known that as in the technique disclosed in Patent Literature 1 below, the film-packaged tissue can be compressed by forming suction and exhaust holes in the film-packaged tissue, and the tissue is assembly-packaged by gusset packaging in such a manner as to be restrained by an assembly packaging film in a compressed state, so that the tissue has high shape retainability as a whole like a box product, and is suitable for stacked display at a storefront.

Citation List

Patent Literature

[0013] Patent Literature 1: JP 2018-058654 A

Summary of Invention

Technical Problem

[0014] However, if such a compressed state continues for a long period of time, the fullness of the tissue paper may be deteriorated. In particular, in a tissue paper having a high moisture content such as a moisturizing tissue containing a chemical liquid or in a high-humidity environment, the risk further increases.

[0015] In addition, in gusset packaging, spaces are likely to be formed particularly on the top surface side and the bottom surface side because of the structure, and therefore if bindingness is excessively decreased by reducing the compressibility of the film-packaged tissue, the included film-packaged tissue easily moves. In the film-packaged tissue, the sealed portion formed by heat sealing or the like of the packaging film is hard, and therefore if the included film-packaged tissue easily moves, the hard portion and the outer packaging film forming the gusset packaging are rubbed against each other, so that the possibility of breakage increases.

[0016] The present invention has been made to solve the various problems described above, and a main object of the present invention is to provide a film-packaged tissue assembly package in which the fullness of included tissue paper is hardly reduced, the package is excellent in shape retainability so that the package is easily stacked and sold at a storefront, etc., an assembly packaging film is hardly damaged, and the package is also excellent in drawability in an included film-packaged tissue, and openability and portability of the assembly package.

Solution to Problem

[0017] The means for achieving the above-described object is as follows. The first means is:

a film-packaged tissue assembly package including a gusset packaging bag having a grip portion on the top surface side, and a plurality of film-packaged tissues arranged and packaged in the gusset packaging bag, wherein
the film-packaged tissue is a overwrap-packaged product of a tissue paper bundle having a substantially rectangular solid shape in which a plurality of tissue papers are folded and stacked, the film-packaged tissue has an end surface formed by a barrel opening sealing portion at each of both ends thereof in a longitudinal direction, the end surface is located so as to face the short side surfaces of the bundle, and the film-packaged tissue has an outlet forming portion for tissue paper on an upper surface thereof;
a plurality of the film-packaged tissues of the film-packaged tissue assembly package are arranged in a substantially rectangular parallelepiped shape with each end surface facing the top surface side with a grip portion and the bottom surface side opposed to the top surface side to make the end surfaces substantially flush with each other and the long side surfaces substantially flush with each other and are packaged with the gusset packaging bag gusset portion facing the upper and lower surfaces of the film-packaged tissue; and
an openable portion formed by an easily tearable line is formed on a top surface portion located above a position corresponding to an uppermost portion of the film-packaged tissue stored in the gusset packaging bag and below the grip portion, the width of the openable portion in a direction orthogonal to a vertical direction being 40 to 100% of a distance between the upper and lower surfaces of the film-packaged tissue.

[0018] The second means is:
the film-packaged tissue assembly package according to the first means, wherein the openable portion is formed by arranging the easily tearable line in a curved shape so as to protrude toward the top surface side.

[0019] The third means is:
the film-packaged tissue assembly package according to the first or second means, wherein in the gusset packaging bag, the film-packaged tissues are arranged in two or less stages in the vertical direction in such a manner that the end surfaces of the film-packaged tissues are abutted against each other.

[0020] The fourth means is:
the film-packaged tissue assembly package according to the first to third means, wherein a compression ratio in a direction orthogonal to the vertical direction of a film-packaged tissue assembly arranged in the gusset packaging bag is 80% or more.

[0021] The fifth means is:
the film-packaged tissue assembly package according to the first to fourth means, wherein a bundle filling ratio of the film-packaged tissues is 100% or more.

Advantageous Effects of Invention

[0022] According to the present invention, there is provided a film-packaged tissue assembly package in which the

fullness of included tissue paper is hardly reduced, the package is excellent in shape retainability so that the package is easily stacked and sold at a storefront, etc., an assembly packaging film is hardly damaged, and the package is also excellent in drawability in an included film-packaged tissue, and openability and portability of the assembly package.

Brief Description of Drawings

[0023]

Fig. 1 is a perspective view of a film-packaged tissue assembly package according to the present invention.
Fig. 2 is a perspective view of another film-packaged tissue assembly package according to the present invention.
Fig. 3 is a perspective view for illustrating a film-packaged tissue according to the present invention.
Fig. 4 is a top view for illustrating an outlet forming portion for a film-packaged tissue according to the present invention.
Fig. 5 is a top view for illustrating another outlet forming portion for a film-packaged tissue according to the present invention.
Fig. 6 is a top view for illustrating another outlet forming portion for a film-packaged tissue according to the present invention.
Fig. 7 is a top view for illustrating still another outlet forming portion for a film-packaged tissue according to the present invention.
Fig. 8 is a perspective view for illustrating a packaging structure of a film-packaged tissue according to the present invention.
Fig. 9 is a perspective view for illustrating a tissue paper bundle according to the present invention.
Fig. 10 is a perspective view showing an example of an opened state of a film-packaged tissue assembly package according to the present invention.
Fig. 11 is a perspective view for illustrating a gusset packaging bag according to the present invention.
Fig. 12 is a perspective view for illustrating a method for producing a gusset packaging related to a film-packaged tissue assembly package according to the present invention, and a structure thereof.
Fig. 13 is a view for illustrating a comparative configuration of film-packaged tissue assembly package according to the present invention.
Fig. 14 is a top front view of a film-packaged tissue assembly package for illustrating an openable portion according to the present invention.
Fig. 15 is a view for illustrating an example of assembly packaging of a tissue paper package as a conventional box product.

Description of Embodiments

[0024] Hereinafter, the present invention will be described with reference to Figs. 1 to 12 and Fig. 14 corresponding to the embodiment of the present invention, and Fig. 13 corresponding to a comparative configuration.

[0025] In a film-packaged tissue assembly package 10 (hereinafter, also referred to as an assembly package) according to the present invention, a plurality of film-packaged tissues 1 in which a bundle 3 obtained by folding and stacking a plurality of sets of tissue paper 2 is packaged with a flexible packaging film 4 are arranged and gusset-packaged so as to be included in a gusset packaging bag 13 having a grip portion 45 on the top surface side.

[0026] The film-packaged tissue 1 according to the present invention is obtained by overwrap-packaging the bundle 3. The overwrap packaging is a wrapping mode also referred to as caramel packaging or mating wrapping packaging. In particular, as shown in Figs. 3, 8 and 9, the bundle 3 as an article to be packaged is wrapped in a rolled manner in a barrel shape with the packaging film 4 so as to form an opening 4Z at each of both ends in a longitudinal direction, a portion 4X superposed in the rolling direction is bonded by welding treatment or with an adhesive, a portion 4Y extending beyond the bundle 3 is folded to the end surface side of the bundle 3 from the vicinity of two opposed edges of the bundle end surface, at least the tip edge portions of a substantially triangular or trapezoidal piece formed at this time are superposed and bonded to each other by welding treatment or with an adhesive to seal the barrel opening 4Z, thus forming a end surface 4A.

[0027] In the overwrap packaging, the end surface 4A has a substantially planar shape, so that the outer packaging of the packaging film 4 has a substantially rectangular parallelepiped shape close to a box. In addition, the end surface 4A has high stiffness, is hardly crushed, and easily maintains a substantially rectangular parallelepiped shape because the packaging film 4 is formed by staking and bonding a plurality of layers. Therefore, when the film-packaged tissue 1 is overwrap-packaged, the product shape is substantially rectangular parallelepiped, and therefore, as shown in Figs. 1 and 2, the tissues can generally have a rectangular parallelepiped shape even when arranged and assembly-packaged. Thus, the assembly packages are easily stacked in line in a plurality of stages, and easily stacked and sold at a storefront. In addition, the stiffness of the packaging from the packaging film 4 is high, so that even when the packages are stacked

in this manner, the a compressive force is hardly applied to the inside bundle 3, and thus the fullness of the tissue paper 2 is hardly deteriorated.

[0028] The tissue paper bundle 3 included in the film-packaged tissue 1 is a pop-up type. In the pop-up type bundle 3, for example, substantially rectangular tissue paper 2 of about 197 ± 10 mm in length × 217 ± 10 mm in width is folded in two, and a plurality of tissue papers 2 are folded and stacked such that folded pieces 2B of other tissue papers 2 located on the upper side and the lower side are located on the folded inner side 2A particularly as shown in Fig. 9. When one folded piece located at the top is drawn upward, the other folded piece 2B adjacent immediately below the foregoing folded piece is drawn upward and lifted. Such a bundle 3 can be produced by a known interfolder of a multi-stand type or a rotary type.

[0029] The above-described pop-up type bundle 3 has a substantially rectangular solid shape having a pair of long side surfaces 3B on which the folded edges 2C of the respective tissue papers 2 are arranged, a pair of short side surfaces 3A on which the folded edges 2C are not arranged, and further a pair of planar surfaces (upper and lower surfaces) 3C connected to the short side surfaces 3A and the long side surfaces 3B. In addition, the bundle has flexibility and is easily compressed and deformed because it is composed of soft tissue paper 2.

[0030] The number of sets of tissue paper 2 forming the bundle 3 is not limited, and is generally 100 to 240 with 2 plies (two sheets stacked) or 3 plies (three sheets stacked) set to one set. The size of the bundle 3 is not necessarily limited, and a bundle of 150 sets of 2-ply tissue paper is approximately 40 to 50 mm in height, 160 to 200 mm in longitudinal direction (width) and 90 to 110 mm in lateral direction (depth). As is apparent from this shape, the film-packaged tissue 1 according to the present invention is not a portable tissue so called a pocket tissue etc. in which the number of sets of included tissue paper is about 10 to 12 and the height is about 10 mm.

[0031] In the film-packaged tissue 1 according to the present invention, the end surface 4A formed by sealing the barrel opening 4Z is present at a position facing the short side surface 3A of the bundle 3, and the outlet forming portion 5 is formed at a position facing the uppermost tissue paper 2 of the bundle 3 of the packaging film 4. In particular, the film-packaged tissue paper 1 is obtained by overwrap-packaging the pop-up type bundle 3 of substantially rectangular solid-shaped tissue paper 2 in which the tissue paper 2 is folded in two and a plurality of tissue papers 2 are folded and stacked such that folded pieces 2B of other tissue papers 2 located on the upper side and the lower side are located on the folded inner side 2A, the outlet forming portion 5 for tissue paper is present on the upper surface, and the end surface 4A as a sealing portion of the barrel opening 4X is located so as to face the short side surface 3A on which the folded edges 2C of the bundle 3 are not arranged.

[0032] In the bundle 3 of a pop-up type as described above, when the uppermost tissue paper 2 of the bundle 3 is drawn out from the outlet, a part of the next tissue paper located immediately below the uppermost tissue paper 2 is exposed to the outside through the opening. In addition, the film-packaged tissue 1 configured as described above has a structure in which tissue paper is stacked in a direction along which the end surface 4A having high stiffness rises, so that even if a compressive force from the bundle stacking direction (up-down direction) is applied, and the bundle 3 is hardly compressed, and thus fullness is hardly deteriorated.

[0033] In the film-packaged tissue 1, a suction and exhaust hole communicating with the inside and the outside may be formed for preventing rupture or the like in case of application of an external force. The end surface 4A facing the short side surface 3A on which the folded edges 2C of the bundle 3 of the packaging film 4 are not arranged may be provided with a suction and exhaust hole, but it is desirable that there be no suction and exhaust hole at this position. When the end surface 4A is provided with a suction and exhaust hole, the end surface 4A becomes more fragile, so that the advantage of overwrap packaging that the end surface 4A has high stiffness is compromised.

[0034] Here, the outlet forming portion 5 according to the present invention is formed along a longitudinal direction at the middle portion of the upper surface 4C in the lateral direction. The outlet forming portion 5 can be formed by a perforation in which cut portions 50C and non-cut portions 50U also referred to as tie portions are alternately arranged, or a slit cut provided with non-cut portions 50C.

[0035] An outlet for drawing out tissue paper 2 is formed on the upper surface 4C of the film-packaged tissue 1 by separating and removing an inner portion of the outlet forming portion 5, which is an area surrounded by the perforation or the like, or by tearing the perforation or the like. The perforation and the slit cut may be partially separately arranged. They can be formed by, for example, die cutting.

[0036] It is desirable that the outlet forming portion 5 according to the present invention have a shape in which longitudinal-direction end portions 5A and 5B protrudes toward the outside in the longitudinal direction. Examples thereof include shapes in which perforations etc. located at longitudinal-direction end portions 5A and 5B are arranged in such a manner that they are curved so as to protrude toward the outside in the longitudinal direction as shown in Figs. 4 to 6. In addition, examples thereof include shapes in which easily tearable lines located at longitudinal-direction end portions 5A and 5B are arranged in a V shape, a wedge shape or a W shape protruding toward the outside in the longitudinal direction as shown in Fig. 7.

[0037] When the longitudinal-direction end portions 5A and 5B are shaped to protrude toward the outside in the longitudinal direction as described above, the protruding portion of one end portion is easily grasped, and easily peeled

off continuously while being grasped and moved toward the other end portion, so that excellent openability is attained. In addition, since the root portion of tissue paper partially exposed from the outlet is deformed along the convex portion, the tissue paper easily rises and is less likely to fall into the inside.

[0038] In particular, as a suitable shape of the outlet forming portion 5, a shape is desirable in which a slit portion 51 extending in the longitudinal direction, a wide portion 52 communicating with an end portion of the slit portion 51 and gradually increasing in width with distance from the slit portion 51 in the longitudinal direction and an end portion 53 continuously protruding toward the outside in the longitudinal direction are present at the central portion of the upper surface 4C in the lateral direction, as shown in Figs. 5 and 6. In this case, the length L3 of the portion having the outlet forming portion 5 is shorter than the longitudinal-direction length L4 of the bundle 3, preferably approximately 60 to 80% of the longitudinal-direction length L4 of the bundle 3.

[0039] The width (lateral-direction length) of the slit portion 51 is 10 mm or less, preferably 7 mm or less in the lateral direction. As shown in Fig. 6, the slit portion may be one having substantially no width, which is formed by opening linear perforations. However, when the perforation or the like is formed in a substantially annular shape in the outlet forming portion 5 as shown in Figs. 4 to 5 and 7, there is an advantage that the inner portion of the outlet forming portion 5 can be continuously peeled off from one longitudinal-direction end portion 5A to the other longitudinal-direction end portion 5B, so that the outlet can be easily formed.

[0040] In the outlet formed as a shape of the outlet forming portion 5 shown in Figs. 5 and 6, a near-edge area 51A of the slit portion 51 is a free edge segment that easily moves in the up-down direction, and therefore when a set of tissue paper 2 is drawn out from the bundle 3, the edge segment of the outlet is deformed in a draw-out direction, and leaned to support a next exposed set of tissue paper. In addition, the next tissue paper partially exposed from the outlet following the tissue paper drawn out from the bundle 3 is easily deformed into a shape having high uprightness because the longitudinal-direction edge portion thereof is wound along the edge of the curved portion 53. In particular, the outlet forming portion 5 shown in Figs. 5 and 6 hardly causes falling of the tissue paper into a space inside the overwrap packaging, which is likely to occur in the overwrap packaging in which the outer packaging has a rectangular parallelepiped shape.

[0041] The cut tie ratio in the perforation and the cut slit with a non-cut portion, which form the outlet forming portion 5, can be appropriately determined depending on the ease of breakage of a film used, and as a preferred example, the cut portion has a length of 0.8 mm or more and 5.0 mm or less, and the non-cut portion (tie portion) has a length of 0.3 mm or more and 5.0 mm or less. In addition, it is desirable that in the outlet forming portion 5 according to the present invention, a slit cut provided with an uncut portion form the longitudinal-direction end portions 5A and 5B and a perforation form the area between the end portions 5A and 5B rather than forming the entire portion by a perforation. As shown in Figs. 5 and 6, it is preferable that the slit portion 51 and the wide portion 52 are formed by perforations, and the curved portion 53 is formed by a slit cut, or slit cut partially provided with an uncut portion. The outlet can be easily opened from the curved portion 53 side.

[0042] Here, it is desirable that the outlet forming portion 5 according to the present invention have a shape in which the longitudinal-direction end portions 5A and 5C protrude toward the outside as described above, and the longitudinal-direction end of at least one longitudinal-direction end portion 5A be the non-cut portion 50U. This is because when the longitudinal-direction end is the non-cut portion 50U, the longitudinal-direction end portion 5A of the outlet forming portion 5 is hardly turned up and the risk of being unintentionally opened is considerably reduced even if the upper surface of the film-packaged tissue is rubbed from the longitudinal-direction end portion 5A side, on which the non-cut portion 50U is provided, toward the opposite longitudinal-direction end portion 5B side. On the other hand, it is more preferable that in the outlet forming portion 5, one end portion 5B has the cut portion 50C as a longitudinal-direction end and the other end portion 5A has the non-cut portion 50U as a longitudinal-direction end. In the outlet forming portion 5 having this configuration, the longitudinal-direction end portion 5A of the outlet forming portion 5 is hardly turned up and the risk of being unintentionally opened is considerably reduced even if the upper surface of the film-packaged tissue is rubbed from the longitudinal-direction end portion 5A side, on which the non-cut portion 50U is provided, toward the opposite longitudinal-direction end portion 5B side, and at the end portion 5B where the longitudinal-direction end is the cut portion 50C, the end edge thereof is easily grasped, resulting in excellent opening operability. The configuration of the outlet forming portion 5 of the film-packaged tissue 1 according to the present invention has an excellent advantage that the end portion 5A is hardly turned up during and after inclusion of the film-packaged tissue in a gusset packaging bag in the arrangement configuration of the film-packaged tissue 1 according to the present invention.

[0043] Specific examples of the flexible packaging film 4 made of resin, which forms the outer packaging of the film-packaged tissue 1 include a monolayer film of polyethylene, polypropylene, polyester, polyethylene terephthalate, nylon, vinylidene chloride, and ethylene vinyl alcohol copolymer, and a laminate film including these films which are appropriately stacked, and a gas barrier film obtained by subjecting these films to surface treatment such as aluminum vapor deposition. In addition, a biomass film derived from plant raw materials such as sugar cane, potato (starch) and corn can be used. The use of such a biomass film is desirable from the viewpoint of environmental protection.

[0044] Polypropylene films and polyethylene films are suitable from the viewpoint of cost. The packaging film 4 may

be a matte film excellent in design property and hand feel property. Further, when odorous materials such as scented tissue paper are packaged, ethylene vinyl alcohol copolymer resin films and polyethylene terephthalate resin films having an excellent aroma retaining property are desirable. The film may be a multilayer resin film in which a polyethylene resin film or a polypropylene resin film is stacked on one surface or both surfaces of an ethylene vinyl alcohol copolymer resin film or a polyethylene terephthalate resin film to improve heat weldability.

[0045] The thickness of the packaging film 4 may be appropriately selected with consideration given to flexibility, cost, gas permeability, and heat weldability, and it is desirable that the packaging film 4 have a thickness of 25 to 75 μm as measured in accordance with JIS P 8118 (1998) and a softness of 5.0 to 50.0 cN as measured by a handle-o-meter method conforming to JIS L 1096 (2010) E method. When the thickness is 25 to 75 μm, the stiffness of the end surface 4A is sufficiently enhanced. In addition, when having such a thickness and softness, the packaging film 4 is hardly broken, and is likely to be excellent in drawability, particularly pop-up property, of tissue paper. The thickness is measured using a dial thickness gauge (thickness measuring instrument) "PEACOCK G-1A Type" (manufactured by OZAKI MFG. CO., LTD.) or an equivalent machine after the measurement sample is sufficiently humidity-conditioned under the conditions of JIS P 8111 (1998).

[0046] On the other hand, in the film-packaged tissue assembly package 10 according to the present invention, a plurality of overwrap-packaged film-packaged tissues 1 are gusset packaged in the gusset packaging bag 13 in such a manner that the end surface 4A faces the top surface side on which a grip portion is present and the bottom surface side opposed to the top surface side, and the longitudinal direction is along the vertical direction.

[0047] The gusset packaging is a wrapping mode in which the film-packaged article to be gusset-packaged is included in a bag-shaped space present between bonded portions 41 and 42 formed by heat welding or the like on the top and bottom sides, and in particular, gusset portions 43 and 43 are present between the front surface and the back surface. For example, as shown in Figs. 11 and 12, side portions 40E and 40E of the barrel-shaped gusset packaging film 14 also called a gusset tube 40 are folded to the inside of a bag to flatten the gusset tube, a portion on the top surface side of the gusset tube is heat-welded to seal an opening on the top surface side as a top surface side sealing portion 41 and form a grip portion 45, a bottom surface side opening 40X of a gusset packaging bag precursor sealed only on the top surface side is then expanded, the film-packaged tissues 1, 1... as the article to be packaged are inserted through the bottom surface side opening, and the bottom surface side opening is then sealed by appropriate sealing means such as heat sealing to form the lower sealing portion 42. In the gusset packaging, the gusset packaging bag 13 serving as an outer packaging includes gusset portions 43 and 43 formed by opening side portions 40E and 40E folded in a flat state, and surfaces connected to the gusset portions 43. The second surfaces connected to the gusset portions 43 and 43 are a front surface 46 and a back surface 46, the front surface 46 and the back surface 46 are relative to each other, and which surface is the front surface is not limited.

[0048] The outlet forming portion 5 has a shape in which a perforation having cut portions 50C and non-cut portions 50U arranged alternately protrudes toward the outside, and a longitudinal-direction end of at least one longitudinal-direction end portion 5A of the outlet forming portion is the non-cut portion 50U. In such a case, when a film-packaged tissue assembly is inserted from a side where the non-cut portion 50U is present at the time when the film-packaged tissue assembly is inserted into a barrel-shaped film closed on one side or opened at both ends, which is a precursor of a gusset packaging bag, the outlet forming portion 5 is not turned up from the longitudinal-direction end portion 5A side thereof and thus the outlet forming portion 5 is prevented from being torn and opened unintentionally during production even if the gusset packaging film 14 forming the gusset packaging bag and the outlet forming portion 5 formed on the upper surface 4C of the film-packaged tissue 1 are rubbed against each other at the time of the insertion. In addition, formation of an assembly package having a poor appearance in which one longitudinal-direction end portion 5A of the outlet forming portion 5 is turned up is prevented.

[0049] The grip portion 45 is an extra portion provided on the top surface side of the top surface side sealing portion 41, which is a boundary on the top surface side with the bag portion including the film-packaged tissue 1, for enhancing the portability of the assembly package. In the illustrated form, a finger hook hole 47 is formed. When the finger hook hole 47 is formed in the grip portion 45 as described above, the portability of the assembly package is further enhanced. The same applies to a slit provided with an opening allowing a finger to be hooked, instead of the finger hook hole 47, and a finger hook slit may also be applied to the present invention.

[0050] It is desirable that the gusset packaging film 14 be a polypropylene film or a polyethylene film from the viewpoint of cost and an openability. The melting point of the film is preferably 150°C or lower. A lower melting point of the packaging film is more preferable in sealing and formation of a grip portion because heat welding treatment can be performed at a lower temperature. If the melting point is excessively low, there is an increased possibility that the packaging film is scratched or a hole is formed by, for example, friction particularly with a square portion 4t of the end surface 4A of the film-packaged tissue 1. Therefore, the substantial lower limit is 80°C. Examples of the polyethylene film include linear low-density polyethylene films (LLDPE), low-density polyethylene films (LDPE) and medium-density polyethylene films (MDPE). Among them, in the present invention, linear low-density polyethylene film layers (LLDPE) having a density of 0.910 to 0.940 g/cm^3 and a melting point of 110 to 120 °C are particularly suitable from the viewpoint of heat weldability

and cost. A monolayer film of polyethylene terephthalate film, a nylon film, a vinylidene chloride film, and ethylene vinyl alcohol copolymer, a laminate film including any of these films which are appropriately stacked, or a gas barrier film obtained by subjecting any of these films to surface treatment such as aluminum vapor deposition. As in the case of the packaging film 4, biomass films derived from plant raw materials such as sugar cane, potato (starch) and corn can be used. The use of such a biomass film for the gusset packaging film is also desirable from the viewpoint of environmental protection.

[0051] The thickness of the gusset packaging film 14 forming the gusset packaging bag 13 is appropriately selected with consideration given to a relationship with the included film-packaged tissue 1 in addition to the flexibility, cost, and heat weldability during packaging, the circumstances peculiar to gusset packaging, such as tearability that enables easy opening during opening, abrasion resistance particularly against the end surface square portion 4t of the included film-packaged tissue 1, and flexibility which ensures that an excessive load is not applied to a finger when the packaging bag is carried with the finger put in a finger hook hole provided on the grip portion.

[0052] For the preferred thickness and softness of the gusset packaging film 14 from the above-mentioned viewpoint, the thickness measured in accordance with JIS P 8118 (1998) is 10 to 65 μm, and softness measured by a handle-o-meter method conforming to JIS L 1096 (2010) E method is 5.0 to 50.0 cN.

[0053] In particular, it is desirable that the softness of the gusset packaging film 14 forming the gusset packaging bag 13 be lower than the softness of the packaging film 4 forming the film-packaged tissue 1. In the gusset packaging bag 13 having a grip portion on the top surface side, the gusset packaging bag 13 is pulled in a vertical direction when the grip portion 45 is held, and therefore at this time, pressure may be applied to the film-packaged tissues 1, 1..., which are packaged articles included, but when the softness of the gusset packaging film 14 is low, the rectangular parallelepiped shape of the included film-packaged tissue 1 is hardly deformed, the inside bundle 3 is not pressurized, fullness is hardly deteriorated, and drawability such as a pop-up property is hardly deteriorated.

[0054] In the film-packaged tissue assembly according to the present invention, the arrangement configuration of film-packaged tissues 1 in the gusset packaging bag 14 is such that a plurality of film-packaged tissues 1,1... are arranged in a substantially rectangular parallelepiped shape as a whole with the end surfaces 4A being substantially flush with each other and the long side surfaces 4B being substantially flush with each other as shown in the figures. When the film-packaged tissues are arranged in a substantially rectangular parallelepiped shape as described above, stability and shape retainability as a whole of the assembly are enhanced, and the assembly is hardly collapsed or ruptured by an external force. In addition, when the film-packaged tissues are arranged in this manner, an assembly of the film-packaged tissues 1 has a rectangular parallelepiped shape in which a end surface assembly surface having high stiffness is formed on the top and bottom surfaces, resulting in reduction of the possibility that the film-packaged tissue 1 is ruptured or the film-packaged tissue 1 is damaged by an external force particularly in the vertical direction.

[0055] Here, as described above, for the gusset packaging bag 13 having the grip portion 45 on the top surface side, the gusset packaging bag 13 is pulled in the vertical direction when the grip portion 45 is held, and therefore at this time, the film-packaged article included and the gusset packaging film 14 may be rubbed with each other. In the gusset packaging bag 13, the ridge line 14E between the gusset portion 43 and the front surface 46 and the ridge line 14E between the gusset portion 43 and the back surface 46, which are the fold lines 14E of the gusset tube as a precursor of the packaging bag, may be fragile. As shown in Fig. 11, particularly in some gusset tubes 40, one sheet is turned into a barrel shape, the end edges are bonded to form a tubular shape, and one of fold lines 14E forms a bonding edge portion 49. In the gusset packaging bag 13 derived from the gusset tube configured as described above, the fold line 14E related to the bonding edge portion 49 is particularly easily torn. Further, particularly in the gusset packaging having the grip portion 45 on the top surface side, a slight gap is formed on the top surface side, and therefore the bindingness of the film-packaged article to be gusset-packaged tends to be lower in the vertical direction than in a direction orthogonal to the vertical direction. On the other hand, in the overwrap packaging, particularly the square portion 4t of the end surface 4A formed by the barrel opening sealing portion has high stiffness and is likely to be sharp.

[0056] There will be described the case where a film-packaged tissue that is larger in mass as compared to a portable film-packaged tissue and is used as a stationary type is brought into, for example, a configuration 110A in which film-packaged tissues 101A each having a end surface 104A obtained by sealing a barrel opening of an overwrap packaging are stacked and arranged in such a manner that the end surface 104 faces in a direction orthogonal to the vertical direction as in a conventional box product as shown in Fig. 13 as a comparative configuration. In this configuration, square portions 104t of a large number of end surfaces 104A are positioned to be rubbed with the gusset packaging bag, so that at the time of carrying the tissue by holding a grip portion 145, the film-packaged tissue 101A in a space 110Z present on the top surface side is not sufficiently bound and moves within a gusset packaging bag 113, and the square portions 104t of a large number of end surfaces 104A of the film-packaged tissue 101A are rubbed with the gusset packaging bag 113. Thus, in particular, fragile portions in the vicinity 114Z of a ridge line 114E between the gusset portion 43 and the front surface and in the vicinity 114Z of a ridge line 114E between the gusset portion and the back surface may be torn (in Fig.9, reference character 200 denotes a torn portion). In particular, when the article to be gusset-packaged has a rectangular parallelepiped shape as in a comparative configuration, and the four-side edges

along the vertical direction of the gusset packaging bag 113, i.e. the ridge line 114E between the gusset portion and the front surface and the ridge line 114E between the gusset portion and the back surface are likely to coincide with the square portions 104t of the end surfaces 104A, the risk of damage becomes marked. Such damage does not occur in a lightweight portable film-packaged tissue, but markedly easily occurs in a film-packaged tissue that is large in mass and is used as a stationary type.

[0057] In the assembly package according to the present invention, film-packaged tissues 1, 1... are packaged in such a manner that the end surfaces 4A face the top surface side on which the grip portion 45 portion is present and the bottom surface side opposed to the top surface side, and the longitudinal direction is along the vertical direction, so that such a risk is markedly small. For reducing such a risk, two or less stages in the vertical direction are desirable as the number and the assembly configuration of the film-packaged tissues 1 in the gusset packaging bag 13. If the number of stages in the vertical direction is more than two, the shape retainability of the assembly package is deteriorated. Specifically, in the assembly package 10 according to the present invention, the longitudinal direction of the film-packaged tissue 1 is a direction along the vertical direction, and therefore if the number of stages is more than two and three or more, uprightness in the vertical direction is deteriorated, and slippage is easily generated between the stages, so that the gusset packaging film 14 and the film-packaged tissue 1 are easily rubbed with each other. In addition, the number of portions where the square portion 4t of the end surface 4A of the film-packaged tissue 1 and the gusset packaging film 14 contact each other increases, so that the risk of damage to the gusset packaging film 14 becomes high. However, when at least the same number of tissues is packaged, the arrangement configuration according to the present invention is superior to the reference configuration in which the tissues are stacked in such a manner that the end surfaces 4A face in a direction orthogonal to the vertical direction.

[0058] Further, as described above, for the gusset packaging bag 13 having the grip portion 45 on the top surface side, the gusset packaging bag 13 is pulled in the vertical direction when the grip portion 45 is held and subsequently, the gusset packaging bag is placed with the bottom on the lower side. At this time, the film-packaged tissue included may be rubbed with the packaged article and the gusset packaging film 14. At this time, the rubbing easily occurs particularly on the top surface side where there is an abundance of internal space. Therefore, as described above, in the film-packaged tissue including the preferred outlet forming portion 5, where outlet forming portion is formed by a perforation or the like having cut portions 50C and non-cut portions 50U arranged alternately, the outlet forming portion has a shape in which the longitudinal-direction end portions 5A and 5B protrudes toward the outside, and the longitudinal-direction end of at least one longitudinal-direction end portions 5A is the non-cut portion 50U, when gusset packaging is performed in such a manner that a side where the non-cut portion 50U is present is located on the top surface side, the possibility decreases that the end portion 5A of the outlet forming portion 5 is turned up or the outlet forming portion is unintentionally opened if such rubbing occurs.

[0059] The number of film-packaged tissues 1 arranged in a direction orthogonal to the vertical direction is not particularly limited, and six or less rows are desirable. Examples of the preferred configuration include an arrangement configuration of a total of five or six tissues with one stage in the vertical direction and five rows or six rows (not shown) in a direction orthogonal to the vertical direction as shown in Fig. 1; an arrangement configuration of a total of ten or twelve tissues with two stages in the vertical direction and five rows or six rows (not shown) in a direction orthogonal to the vertical direction as shown in Fig. 2; and an arrangement configuration of a total of ten or twelve tissues with one stage in the vertical direction, five rows or six rows in a direction orthogonal to the vertical direction and two rows in a horizontal direction (not shown). These arrangement configurations are excellent in rectangular parallelepiped shape retainability and upright stability, in addition to portability and stacking capacity at the storefront, and can ensure a sufficient number of products with respect to a general purchase frequency.

[0060] Here, in the assembly package 10 according to the present invention, an openable portion 70 for opening which is formed by an easily tearable line for facilitating opening is formed characteristically. Examples of the easily tearable line include perforations or cut slits having non-cut portions. The cut tie ratio in the easily tearable line can be appropriately determined depending on the ease of breakage of a film used, and as a preferred example, the cut portion has a length of 0.8 mm or more and 5.0 mm or less, and the non-cut portion (tie portion) has a length of 0.3 mm or more and 5.0 mm or less. In addition, a part of the easily tearable line related to the openable portion 70 according to the present invention may be formed by a perforation and the other part may be formed by a slit cut or a slit cut provided with an uncut portion rather than forming the entire portion by a perforation.

[0061] As shown particularly in Fig. 14, the position at which the openable portion 70 is arranged is a top surface portion 44 which is on the top surface side with respect to a position X1 corresponding to the uppermost portion of the film-packaged tissue 1 stored in the gusset packaging bag and which is located below the grip portion 45. Since the film-packaged tissue 1 is not present at this position, the easily tearable line can be easily torn by pushing the openable portion 70 with a finger or the like. In the illustrated example which is a preferred embodiment, the above-mentioned position is the top surface portion 44 extending from the front surface 46 or the back surface 46 to the grip portion 45, which corresponds to an area Z1 extending to the front surface 46 and the back surface 46 from the lower end of a portion provided with the finger hook hole 47. The same applies to an area extending to the front surface and the back

surface from the lower end of a portion provided with a finger hook slit (not shown), instead of the finger hook hole 47.

[0062] In the top surface portion 44, a force applied to the top surface portion 44 varies depending on a position of the finger hook hole 47 when the tissue is lifted with the finger placed in the finger hook hole 47. Specifically, the tensile forces on the region Z1 extending to the front surface 46 and the back surface 46 from the lower end of the portion of the grip portion 45 which is provided with the finger hook hole 47 is smaller than that on the region extending to the front surface 26 and the back surface 26 from the lower end of the portion which is not provided with the finger hook hole 47. In addition, the top surface portion 44 is a portion that is easily visible to the user. Therefore, when the openable portion 70 is provided at such a position, unintentional opening does not occur during carriage, and it is easy to visually recognize the openable portion 70.

[0063] The openable portion has a shape having a width L5 at least in a traverse direction orthogonal to the vertical direction. The width L5 is 40 to 100% of the distance between the upper and lower surfaces of the film-packaged tissue. If the ratio is less than 40%, it is difficult to take out the film-packaged tissue, and if the ratio is more than 100%, there is a high possibility that after a film-packaged tissue is drawn out, the remaining film-packaged tissue is unintentionally dropped from an opening formed by the openable portion. Examples of the specific configuration of the openable portion 70 include one in which the easily tearable line is arranged in a curved shape so as to protrude toward the top surface side where the grip portion 45 is present as in the configuration shown in Figs. 1, 2 and 14. For example, a substantially arc shape is desirable. In this shape, a knob piece 70A is easily formed by pushing the openable portion 70 together with the position of arrangement on the top surface portion 44 to tear the perforation or the like, and when this is drawn toward the bottom surface, an opening port with a width L5 which allows the film-packaged tissue 1 to be easily drawn out is easily formed over at least one of the front surface and the back surface of the gusset packaging bag as shown in Fig. 10. It is desirable that the vertical-direction length range L6 of the openable portion along the film be 5 to 15 mm.

[0064] The distance between the upper and lower surfaces of the film-packaged tissue in relation to the width L5 of the openable portion is measured as follows. First, the film-packaged tissue 1 is humidity-conditioned for 24 hours under an environment of a standard condition of 23°C ± 1°C and a humidity of 50 ± 2% r.h in accordance with JIS P 8111, and placed on a horizontal table with the upper surface facing upward, a distance L1 between vertexes of the square portions 4t of the end surfaces 4A is measured at four points, and an average value thereof is calculated. This value is calculated for each gusset-packaged film-packaged tissue, and an average value thereof is calculated and defined as a distance between the upper and lower surfaces of the film-packaged tissue.

[0065] Further, in the film-packaged tissue assembly package 10 according to the present invention, it is desirable that the bundle filling ratio of the film-packaged tissue 1 be 100% or more. Here, the bundle filling ratio is a ratio of the height of the bundle 3 drawn out from the packaging film 4 to the height of the film-packaged tissue 1. For the specific measurement method, first, the film-packaged tissue 1 is humidity-conditioned for 24 hours under an environment of a standard condition of 23°C ± 1°C and a humidity of 50 ± 2% r.h in accordance with JIS P 8111, and placed on a horizontal table with the upper surface facing upward, and the height of the film-packaged tissue 1 is measured. The measured value is an average of values obtained by measuring the distance L1 between the vertexes of the square portions 4t of the end surfaces 4A at four points. Next, the bundle 3 is drawn out from the film-packaged tissue 1, humidity-conditioned for 24 hours under an environment of a standard condition of 23°C ± 1°C and a humidity of 50 ± 2% r.h in accordance with JIS P 8111, and placed on a horizontal table with the upper surface facing upward, a hard polyacrylate plate sized to protrude from each edge (short side edge and long side edge) of the upper surface of the bundle 3 by 5 cm or less is placed on the upper surface of the bundle 3. The measured value is an average of values obtained by measuring the distance between the square portions of the short side surface 3A facing the end surfaces 4A. Next, a ratio of the height of the bundle 3 drawn out from the packaging film 4 to the height of the film-packaged tissue 1 is calculated from each measured value.

[0066] In such a film-packaged tissue 1 having a bundle filling ratio of more than 100%, the bundle 3 pushes the packaging film 4 from the inside. In the overwrap packaging, the end surface 4A has high stiffness and is difficult to stretch or deform. On the other hand, portions facing the upper and lower surfaces and the long side surfaces of the bundle 3 of the packaging films 4 have flexibility, and therefore the positions and the longitudinal edges 1E of these portions are deformed so as to slightly protrude. When the film-packaged tissue 1 in which the longitudinal edge 1E protrudes as described above is assembly-packaged in such a manner that the longitudinal direction is along the vertical direction with respect to the top surface side where the grip portion 45 is present and the bottom surface side facing the top surface side, the square portion 4t of the end surface 4A is hardly abut against the gusset packaging film 14 forming the gusset packaging bag 13 by protrusion of the longitudinal edge 1E when the gusset packaging bag is pulled in the vertical direction by holding the grip portion 45, so that the risk of breakage of the gusset packaging bag 13 decreases.

[0067] Further, in the film-packaged tissue assembly package 10 according to the present invention, it is desirable that the compression ratio in a direction orthogonal to the vertical direction of a film-packaged tissue assembly arranged in the gusset packaging bag be 80% or more. Here, the compression ratio in a direction orthogonal to the vertical direction is a ratio of (the distance between the gusset portions of the gusset packaging bag (the width of the front surface or the back surface)) L2 to (the length of the film-packaged tissue assembly in a non-packaged state in a direction orthogonal

to the vertical direction) where the film-packaged tissue 1 is packaged in such a manner that the gusset portion 43 of the gusset packaging bag 14 faces the upper and lower surfaces 3C of the film-packaged tissue 1. The length of the film-packaged tissue assembly in a non-packaged state in a direction orthogonal to the vertical direction is calculated by (height of one film-packaged tissue in vertical direction) × (number of tissues arranged in direction orthogonal to vertical direction). The height of one film-packaged tissue in the vertical direction is different from the height associated with the bundle filling ratio, and is measured as follows.

[0068] First, individual film-packaged tissues 1 are draw out from the film-packaged tissue assembly package 10, and humidity-conditioned for 24 hours under an environment of a standard condition of 23°C ± 1°C and a humidity of 50 ± 2% r.h in accordance with JIS P 8111. Next, the film-packaged tissue 1 is placed on a horizontal table, and a hard polyacrylate plate sized to protrude from each edge (short side edge and long side edge) of the upper surface by 5 cm or less is placed on the upper surface. When the size of the upper surface of the bundle is 160 to 200 mm in the longitudinal direction (width) × 90 to 110 mm in depth, the size of the polyacrylate plate may be 250 mm × 130 mm. The mass is 32 g or less. Next, the height of polyacrylate plate from the square horizontal table is measured, and an average value thereof is calculated. This measurement is performed for all film-packaged tissues drawn out. A further average value of the calculated average values is defined as a height of one film-packaged tissue 1 in the vertical direction. A value obtained by multiplying the calculated value by the number tissues arranged is defined as a "length of the film-packaged assembly in a non-packaged state in a direction orthogonal to the vertical direction". Subsequently, a distance between the gusset portions 43 of the gusset packaging bag 13 is measured. The measured value is an average of values obtained by measuring each of the width of the front surface 46 (distance between fold lines of the front surface) and the width of the back surface 46 (distance between fold lines of the back surface) at three points. Subsequently, a ratio of the distance between the gusset portions (the width of the front surface or the back surface) of the gusset packaging bag 13 to the length of the film-packaged assembly in a non-packaged state in a direction orthogonal to the vertical direction is calculated.

[0069] If the compression ratio in a direction orthogonal to the vertical direction of the film-packaged tissue assembly arranged in the gusset packaging bag 13 is more than 90%, the end surface 4A is distorted and the fullness of the tissue paper 2 is easily deteriorated because of the excessively high compression ratio. The upper limit of the compression ratio is not particularly limited in the wrapping mode according to the present invention. The compression ratio is not limited as long as the film-packaged tissue does not move excessively in the gusset packaging bag. The compression ratio is not necessarily required to be 100% or less. However, when the compression ratio is 100% or less, movement of the film-packaged tissue assembly is restricted by an outer packaging film forming the gusset packaging bag, the outer packaging film is less likely to be broken, the assembly package does not collapse, and the shape retainability of the rectangular parallelepiped is enhanced. It is more desirable that the compression ratio be 100% or less.

[0070] On the other hand, individual tissue paper 2 forming the bundle 3 packaged in the film-packaged tissue 1 has a ply structure in which two to three thin sheets having a crepe are laminated to form a set. The tissue paper 2 is a dry-type tissue paper, and is not a so-called wet-type tissue paper which is impregnated with a chemical liquid. Therefore, the bundle 3 formed by the tissue paper 2 contains a large amount of air. Some of dry-type tissue papers 2 are chemical liquid-addition-type tissue papers in which a chemical liquid such as a moisturizing component increasing moisture by moisture absorption, such as a polyol typified by glycerin, and such tissue papers are included. Rather, the chemical liquid-addition-type tissue paper has a high moisture content, and is therefore less restorable when compressed, the effect of little decrease in fullness according to the present invention is effectively exhibited. The moisture content of the chemical liquid-addition-type is about 10 to 14 mass%. The moisture content is a ratio of moisture contained in the tissue paper under a standard condition.

[0071] The raw material pulp of the thin sheet forming the tissue paper 2 is one obtained by blending NBKP and LBKP. Waste paper pulp may be blended, and the raw material pulp is preferably one composed only of NBKP and LBKP from the viewpoint of texture etc. The blending ratio is preferably NBKP : LBKP = 20 : 80 to 80 : 20, particularly preferably NBKP : LBKP = 30 : 70 to 60 : 40.

[0072] The basis weight per one thin sheet forming each ply of the tissue paper 2 is 10 to 25 g/m^2. The basis weight per ply is more preferably 12 to 18 g/m^2. The basis weight here is based on the measurement method of JIS P 8124

[0073] (1998). The sheet thickness of the tissue paper 2 in a state of 2 plies is 90 to 200 μm, more preferably 90 to 140 μm. The thickness is 120 to 300 μm in a state of 3 plies. The sheet thickness is a value obtained by sufficiently humidity-conditioning the test piece under the conditions of JIS P 8111 (1998) and then performing measurement in a state of multiple plies under the same conditions using a dial thickness gauge (thickness measuring instrument) "PEACOCK G Type" (manufactured by OZAKI MFG. CO., LTD.) or an equivalent machine.

[0074] When the tissue paper having the above-described basis weight and sheet thickness is formed into an assembly package having a low compression ratio according to the present invention, in particular, fullness is not reduced, and its effect is sufficiently exhibited. The vertical direction and the up-down direction in the present invention and the present description are appropriately changed depending on the orientation of the film-packaged tissue assembly package and the film-packaged tissue, and do not mean absolute directions.

[Examples]

(Test Example 1)

[0075] An openable portion according to the present invention and a comparative example thereof were tested for the drawability, openability and storability of a film-packaged tissue.

[0076] The results are as shown in Table 1 below. As shown in Fig. 1, the film-packaged tissue assembly package used in the test had a configuration in which film-packaged tissue papers were arranged in one stage and in five rows. The openable portion formation position was set to a position Z1 shown in Fig. 14. The size of the film-packaged tissue is based on an overwrap packaging of 181 mm in width × 43 mm in height × 103 mm in depth.

[0077] In the test for drawability, sensory evaluation was performed in which operability at the time of carrying out the operation of drawing out the film-packaged tissue from an outlet formed by breaking the openable portion was evaluated at 1 to 5 points. There are five subjects. The evaluation is as follows: 5 points... "easy to draw out ", 4 points... "slightly easy to draw out", 3 points... "gray", 2 points... "slightly difficult to draw out", 1 point... "difficult to draw out". In the table, ⊙ indicates the subject average score of 4.5 points or more, o indicates 4.0 to 4.4 points, △ indicates 3.5 to 3.9 points, and × indicates 3.4 points or less.

[0078] In the test for openability, sensory evaluation was performed in which operability at the time of carrying out the operation of forming an outlet by breaking the openable portion was evaluated at 1 to 5 points. There are five subjects. The evaluation is as follows: 5 points... "easy to open", 4 points... "slightly easy to open", 3 points... "gray", 2 points... "slightly difficult to open", 1 point... "difficult to open". In the table, ⊙ indicates the subject average score of 4.5 points or more, ◦ indicates 4.0 to 4.4 points, △ indicates 3.5 to 3.9 points, and × indicates 3.4 points or less.

[0079] For the storability, the area of the openable portion after the drawability test was measured. A sample having an area of 80 to 99 cm^2 was rated ⊙, a sample having a larger area of 100 to 119 cm^2 was rated o, a sample having an area of 120 to 139 cm^2 was rated △, and a sample having an area of 140 cm^2 or more was rated ×.

[Table 1]

		Comparative Example 1	Comparative Example 2	Example 1	Example 2	Example 3	Example 4	Comparative Example 3
Openable portion	mm (L5) % (ratio)	4 10	8 20	16 40	24 60	32 80	40 100	48 120
Drawability		○	⊙	⊙	⊙	⊙	⊙	⊙
Openability		×	×	○	○	⊙	⊙	○
Storability		⊙	⊙	⊙	⊙	○	○	△

[0080] As shown in Table 1, it has been found that the configuration of the openable portion according to the present invention is excellent in drawability, openability and storability.

(Test Example 2)

[0081] Subsequently, Comparative Example 4 was prepared in which an openable portion located and configured according to the present invention was provided in a conventional marketed product gusset-packaged such that five film-packaged tissues were vertically stacked and arranged as a configuration of a conventional film-packaged tissue assembly package. The drawability of the included film-packaged tissue was compared with that of the film-packaged tissue according to the present invention. As the film-packaged tissue according to the present invention, one having a configuration of Example 4 in Test Example 1 above.

[0082] In the drawability test here, sensory evaluation was performed in which operability at the time of carrying out the operation of drawing out the film-packaged tissue from an outlet formed by breaking the openable portion and then pulling the broken portion downward to tear the packaging film was evaluated at 1 to 5 points. There are five subjects. The evaluation is as follows: 5 points... "easy to draw out ", 4 points... "slightly easy to draw out", 3 points... "gray", 2 points... "slightly difficult to draw out", 1 point... "difficult to draw out". In the table, ⊙ indicates the subject average score of 4.5 points or more, o indicates 4.0 to 4.4 points, △ indicates 3.5 to 3.9 points, and × indicates 3.4 points or less.

[0083] The results are as shown in Table 2 below.

[Table 2]

Length of outlet in up-down direction		100 mm	150 mm	200 mm
Drawability	Example 4	○	⊙	⊙
	Comparative Example 4	×	×	×

[0084] As shown in Table 2, in the film-packaged tissue assembly package according to the present invention, the tissue paper can be adequately drawn out through an outlet having a length of 100 mm in the up-down direction. One having a conventional arrangement configuration is poor in drawability even when the outlet has a length of 200 mm in the up-down direction.

[0085] It has been found that the film-packaged tissue assembly package of the present invention allows the tissue paper to be sufficiently easily drawn out even if the length of the outlet in the up-down direction is shorter as compared to one having a conventional arrangement configuration.

[0086] As described above, the film-packaged tissue assembly package according to the present invention is excellent in drawability of the included film-packaged tissue and openability of the assembly package.

Reference Signs List

[0087]

1, 101, 101A	Film-packaged tissue
1E	Longitudinal edge of film-packaged tissue
2	Tissue paper
2A	Folded inner side
2B	Folded piece
2C	Folded edge
3	Tissue paper bundle
3A	Short side surface
3B	Long side surface
3C	Upper and lower surfaces of bundle
4	Packaging film
4t	Square portion of end surface
4X	Superposed portion of packaging film
4Y	Extending portion of packaging film
4Z	Barrel opening of packaging film
4A, 140A	Curved surface
4B	Long side surface
4C	Upper surface

5	Outlet forming portion
5A, 5B	Longitudinal-direction end portion
10, 110A	Film-packaged tissue assembly package
13, 113	Gusset packaging bag
14	Gusset packaging film
14E	Fold line
40	Gusset tube
40E	Side portion of gusset tube-shaped gusset packaging film
40X	Bottom surface-side opening of gusset packaging bag precursor
41	Top surface-side sealing portion
42	Bottom surface-side sealing portion
43	Gusset portion
44	Top surface portion
45, 145	Grip portion
46	Front surface and back surface
47	Finger hook hole
49	Bonding portion
50C	Cut portion
50U	Non-cut portion (tie portion)
51	Slit portion
52	Wide portion
53	Curved portion
70	Openable portion
70A	Knob piece
110Z	Space
110A, 110B	Tissue paper package assembly package
101	Tissue paper package (box product)
111	Outer packaging film
L1	Height-direction distance between square portions of end surfaces
L2	Width of front surface and back surface of gusset packaging bag
L3	Longitudinal-direction length of outlet forming portion 5
L4	Longitudinal-direction length of bundle
L5	Width of openable portion

Claims

1. A film-packaged tissue assembly package comprising:

a gusset packaging bag having a grip portion on the top surface side; and
a plurality of film-packaged tissues arranged and packaged in the gusset packaging bag,

wherein

the film-packaged tissue is a overwrap-packaged product of a tissue paper bundle having a substantially rectangular solid shape in which a plurality of tissue papers are folded and stacked, the film-packaged tissue having a end surface formed by a barrel opening sealing portion at each of both ends thereof in a longitudinal direction, the end surface being located so as to face the short side surfaces of the bundle, and the film-packaged tissue having an outlet forming portion for tissue paper on an upper surface thereof;
a plurality of the film-packaged tissues of the film-packaged tissue assembly package are arranged in a substantially rectangular parallelepiped shape with each end surface facing the top surface side with a grip portion and the bottom surface side opposed to the top surface side to make the end surfaces substantially flush with each other and the long side surfaces substantially flush with each other and are packaged with the gusset packaging bag gusset portion facing the upper and lower surfaces of the film-packaged tissue; and
an openable portion formed by an easily tearable line is formed on a top surface portion located above a position corresponding to an uppermost portion of the film-packaged tissue stored in the gusset packaging bag and below the grip portion, the width of the openable portion in a direction orthogonal to a vertical direction being 40 to 100% of a distance between the upper and lower surfaces of the film-packaged tissue.

2. The film-packaged tissue assembly package according to claim 1, wherein the openable portion is formed by arranging the easily tearable line in a curved shape so as to protrude toward the top surface side.

3. The film-packaged tissue assembly package according to claim 1 or 2, wherein in the gusset packaging bag, the film-packaged tissues are arranged in two or less stages in the vertical direction in such a manner that the end surfaces of the film-packaged tissues are abutted against each other.

4. The film-packaged tissue assembly package according to any one of claims 1 to 3, wherein a compression ratio in a direction orthogonal to the vertical direction of a film-packaged tissue assembly arranged in the gusset packaging bag is 80% to 100%.

5. The film-packaged tissue assembly package according to any one of claims 1 to 4, wherein a bundle filling ratio of the film-packaged tissues is 100% or more.

FIG. 1

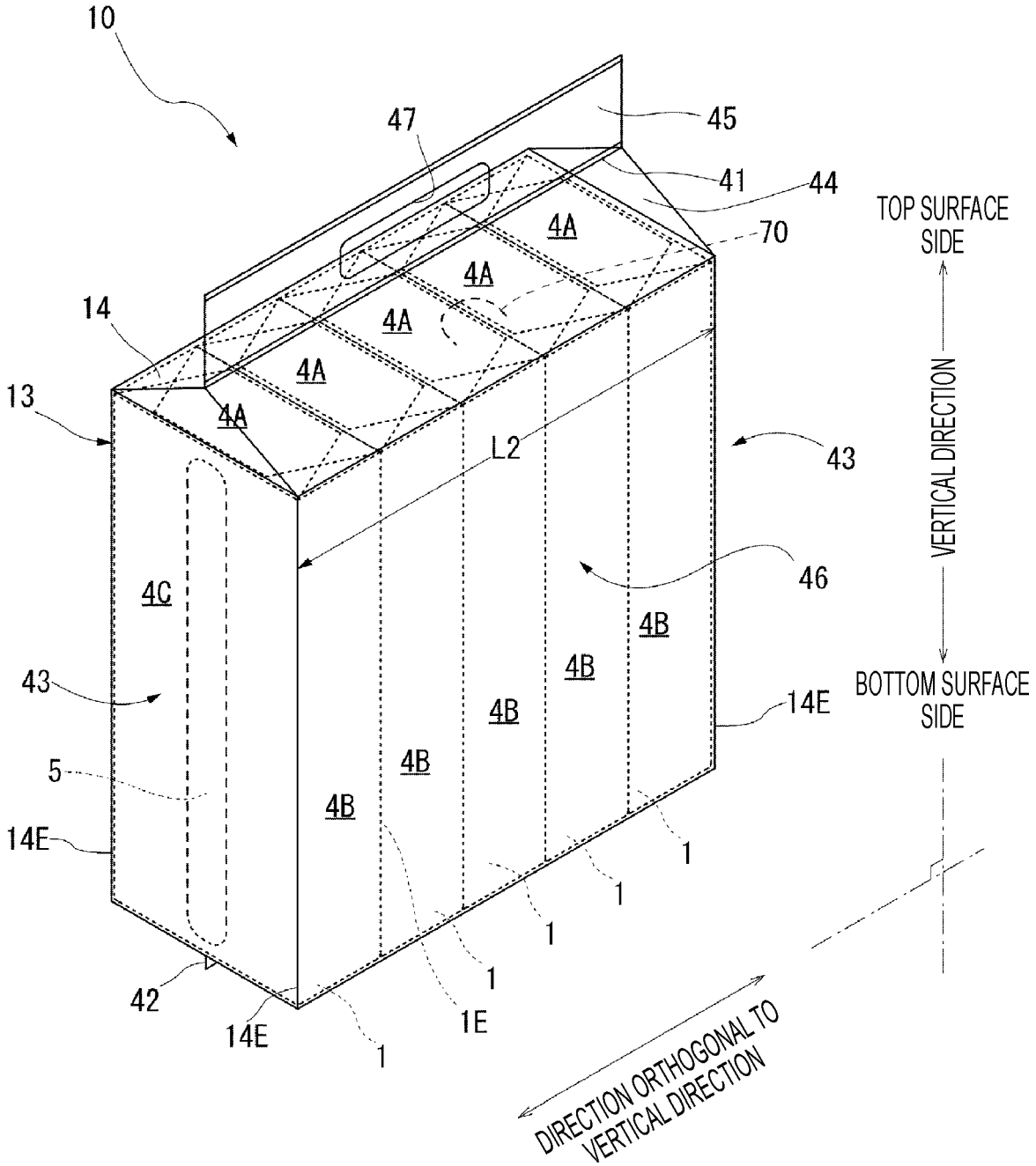

10
47
45
41
44
70
TOP SURFACE SIDE
4A
4A
4A
4A
4A
14
13
L2
43
46
VERTICAL DIRECTION
4C
4B
4B
4B
4B
43
14E
BOTTOM SURFACE SIDE
5
14E
1
1
1
1
1E
42
14E
1
DIRECTION ORTHOGONAL TO VERTICAL DIRECTION

FIG. 2

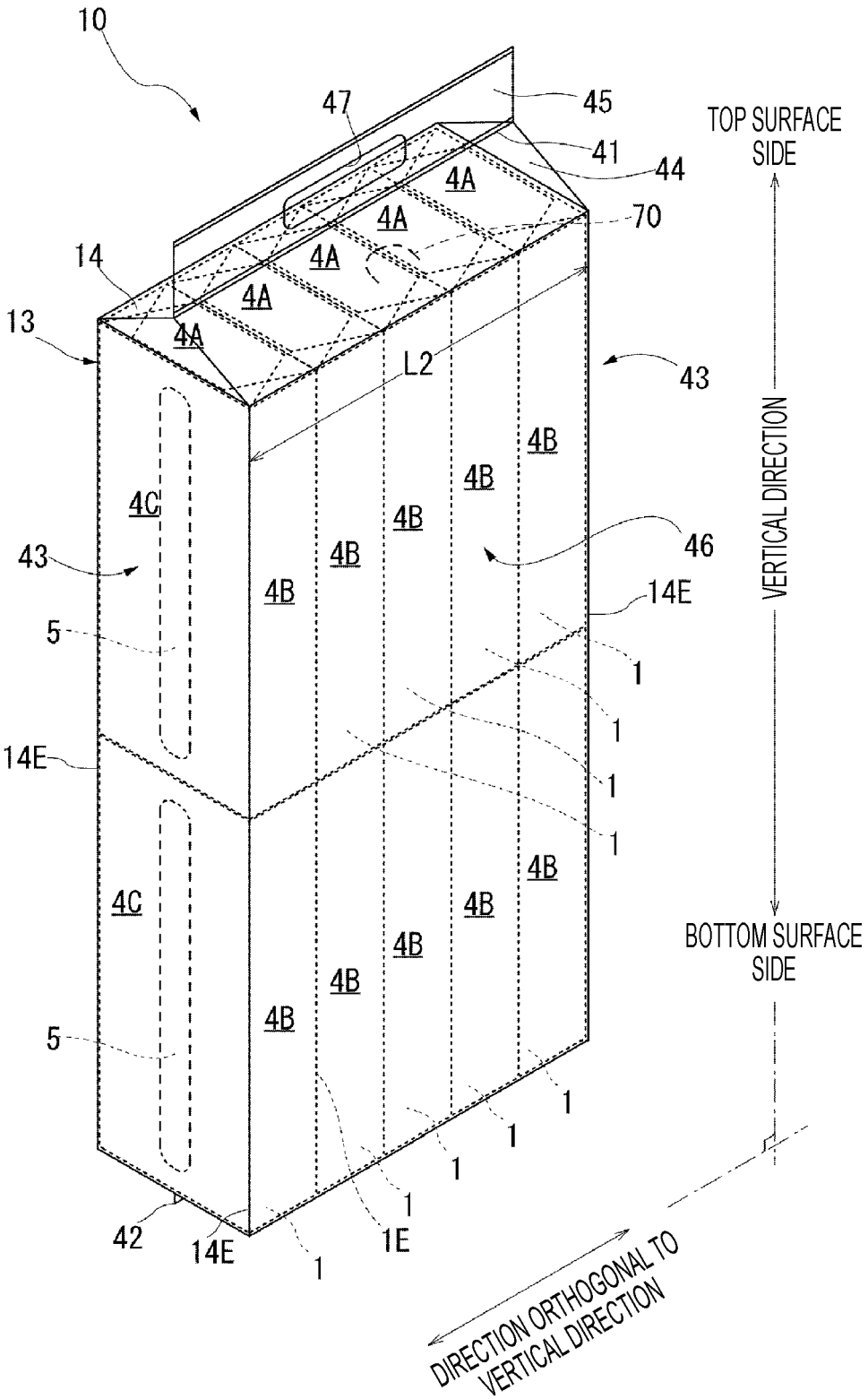

10
47
45
41
44
70
14
13
4A
L2
43
4B
4C
46
14E
5
1
TOP SURFACE SIDE
VERTICAL DIRECTION
BOTTOM SURFACE SIDE
42
1E
DIRECTION ORTHOGONAL TO VERTICAL DIRECTION

FIG. 3

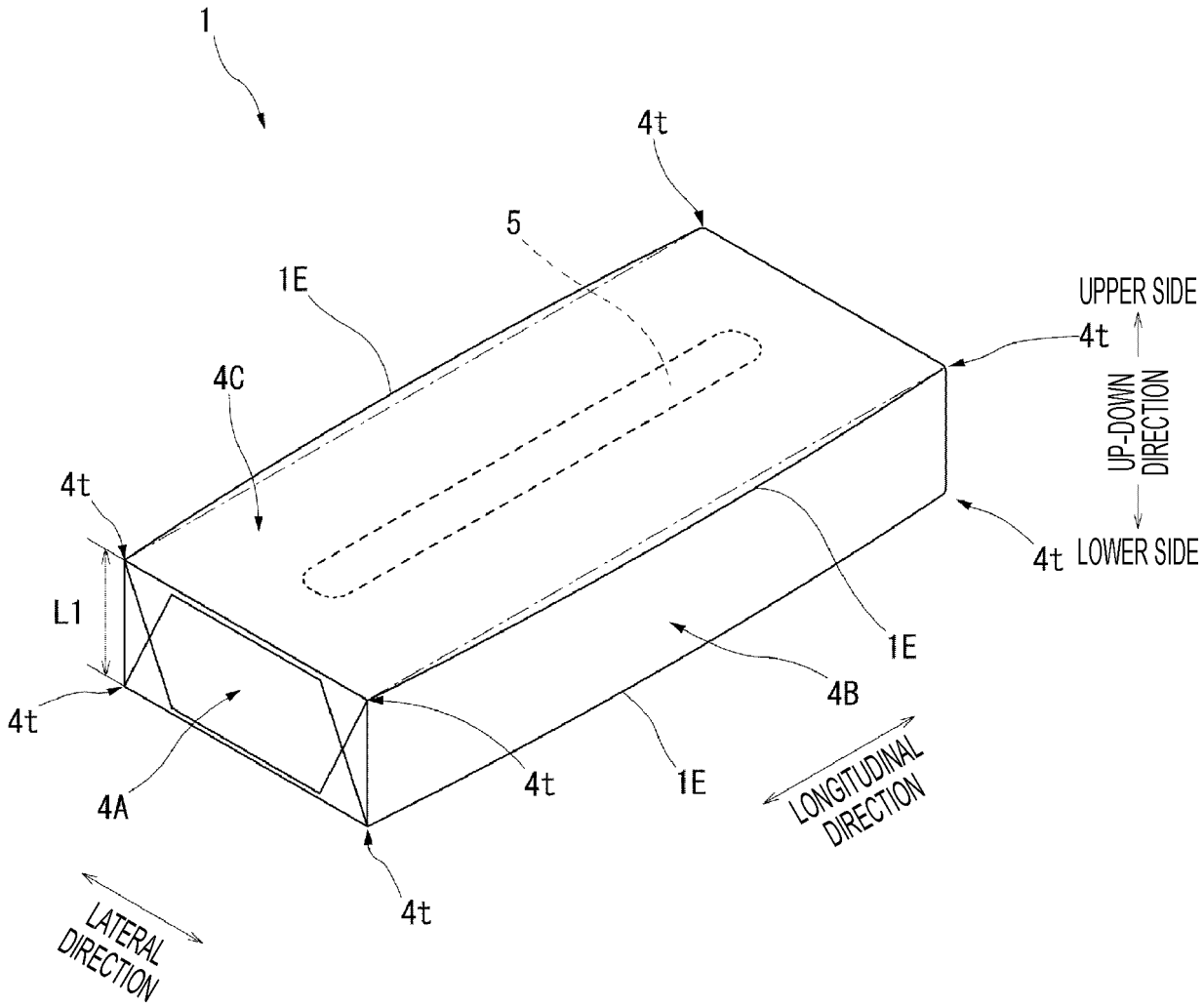

1
4t
5
1E
4C
4t
L1
4t
4A
4t
1E
4t
4B
1E
4t
UPPER SIDE
4t
UP-DOWN DIRECTION
4t
LOWER SIDE
LONGITUDINAL DIRECTION
LATERAL DIRECTION

FIG. 4

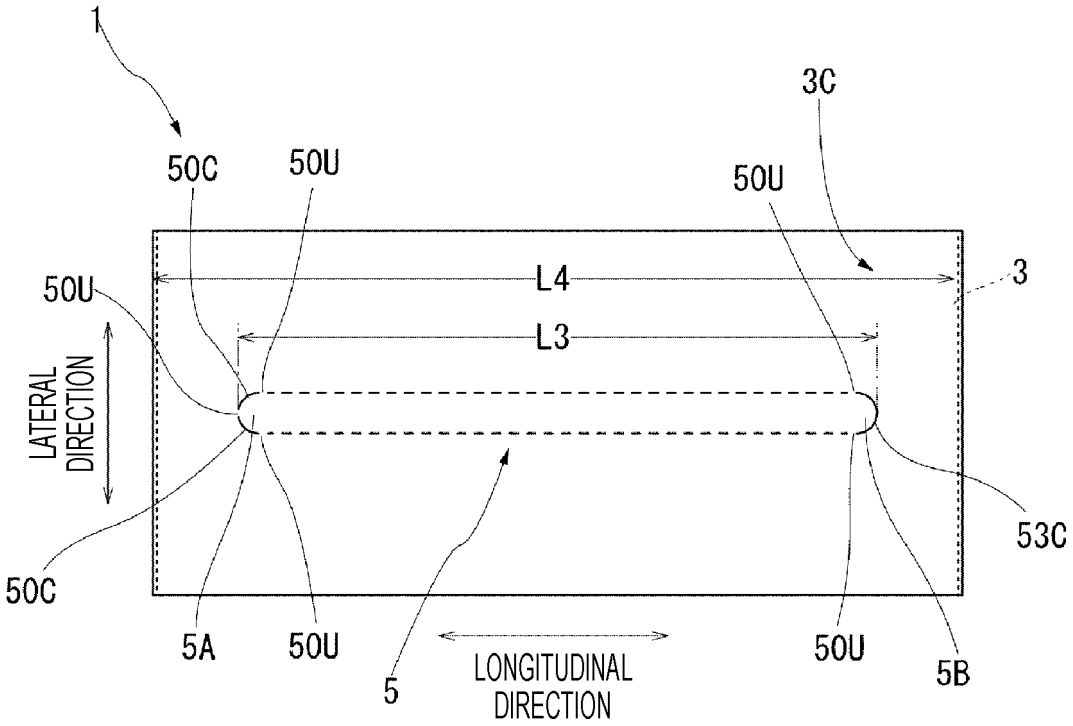

1
3C
50C
50U
50U
50U
L4
3
L3
LATERAL DIRECTION
53C
50C
5A
50U
5
LONGITUDINAL DIRECTION
50U
5B

FIG. 5

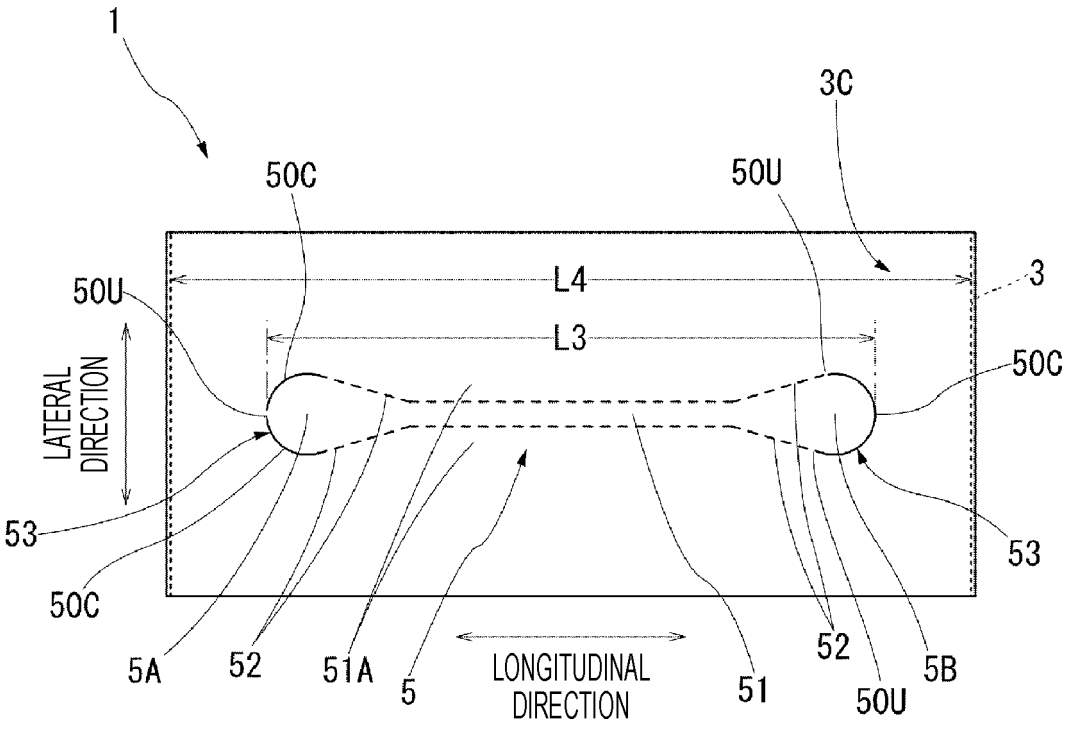

1
3C
50C
50U
L4
3
50U
L3
50C
LATERAL DIRECTION
53
53
50C
5A
52
51A
5
LONGITUDINAL DIRECTION
51
52
50U
5B

FIG. 6

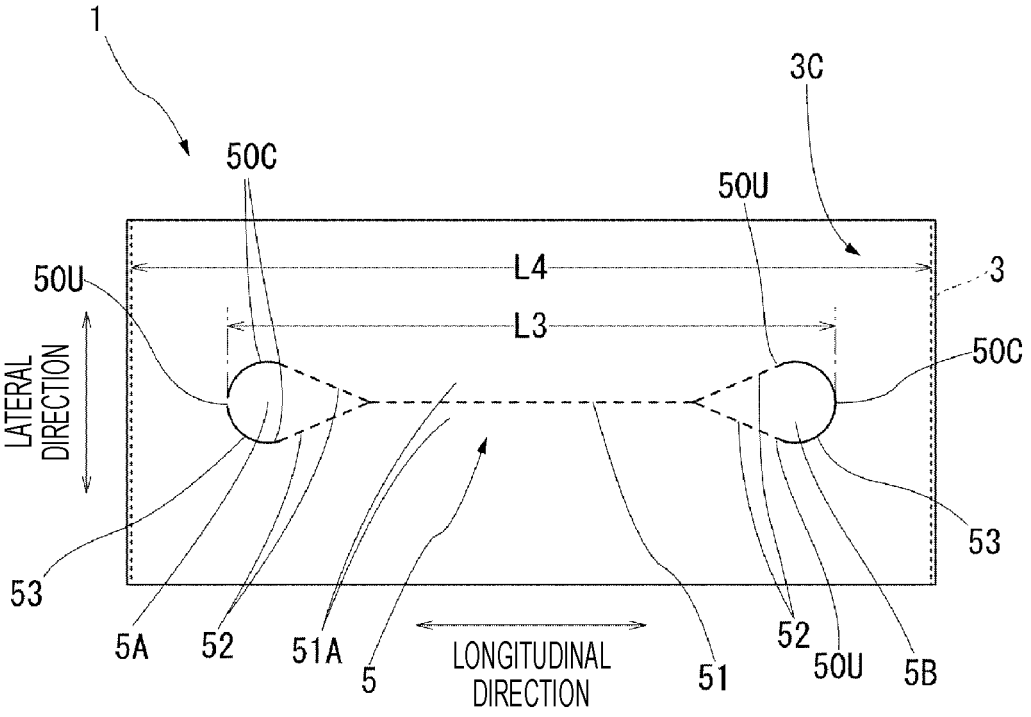
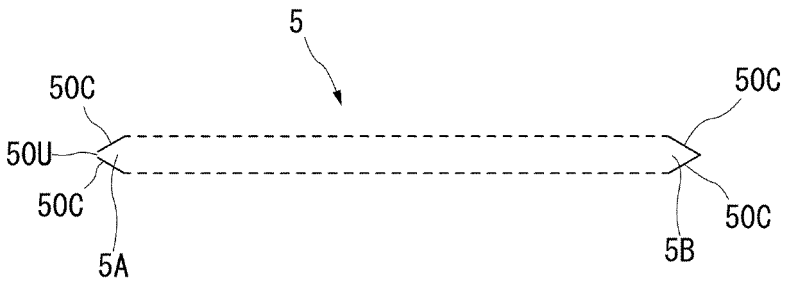

1
3C
50C
50U
L4
3
50U
L3
50C
LATERAL DIRECTION
53
53
5A
52
51A
5
LONGITUDINAL DIRECTION
51
52
50U
5B

FIG.7

(A)



(B)

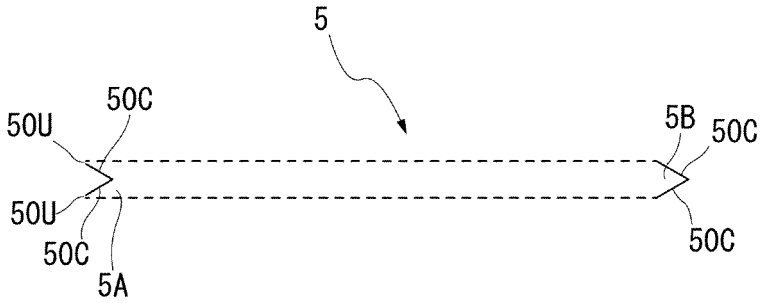


FIG. 8

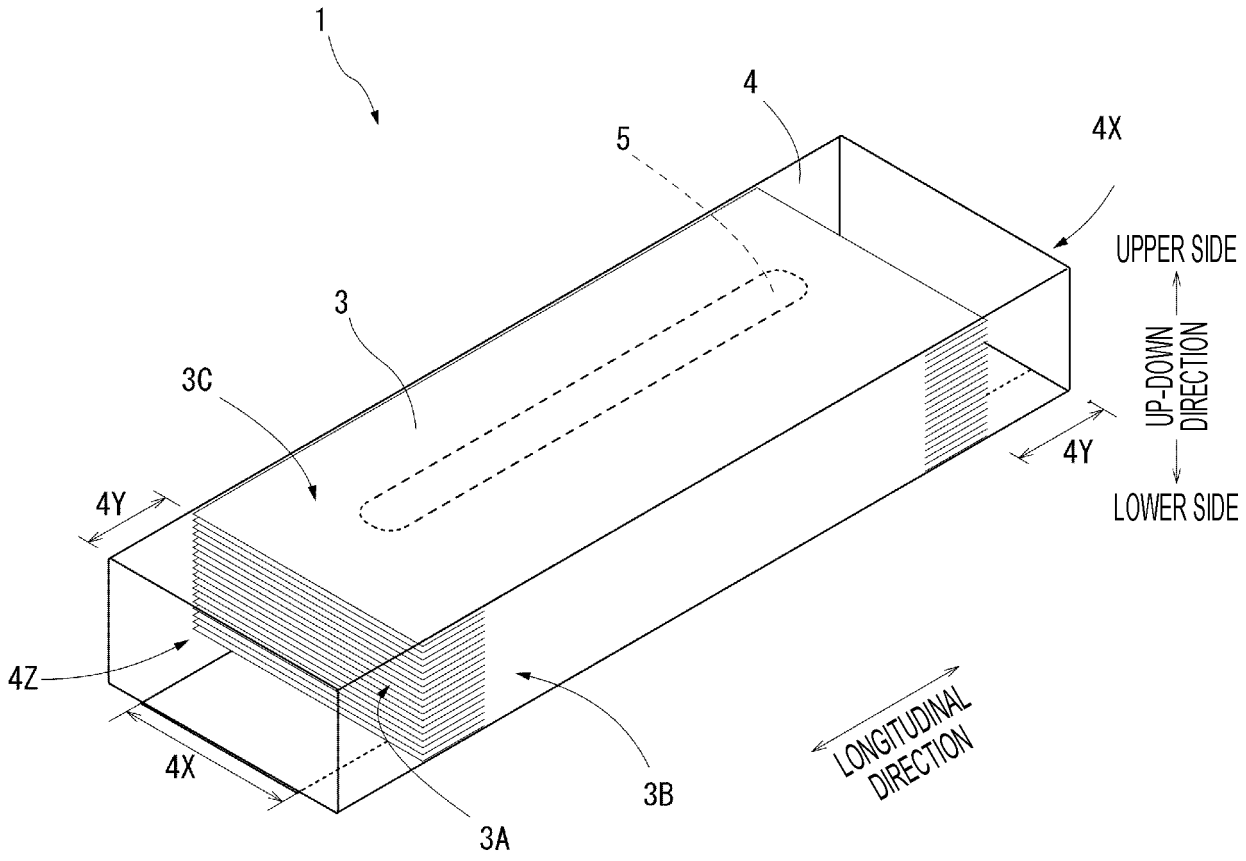

1
4
5
4X
UPPER SIDE
UP-DOWN DIRECTION
LOWER SIDE
3
3C
4Y
4Y
4Z
4X
3A
3B
LONGITUDINAL DIRECTION

FIG. 9

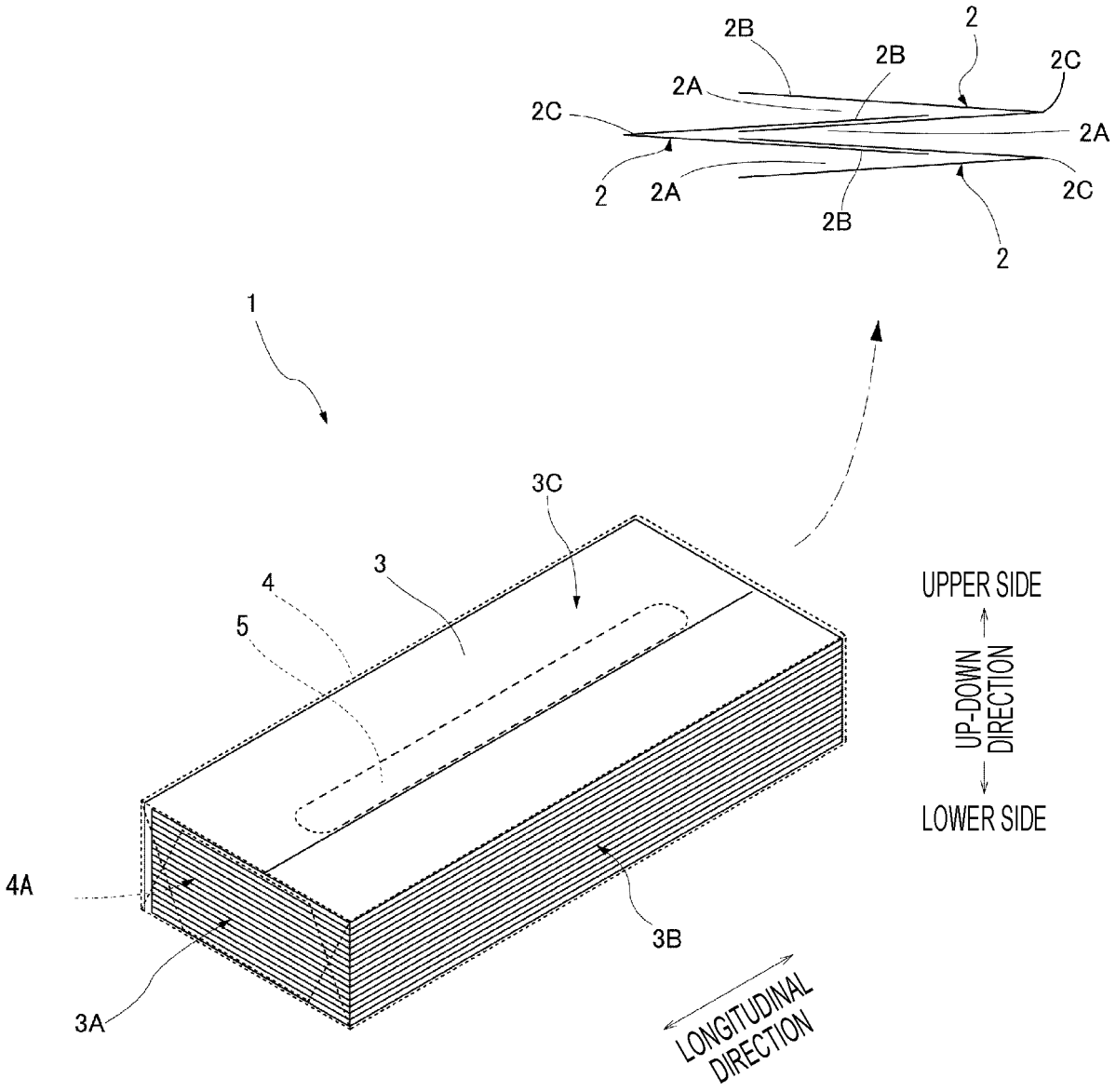

2B
2
2B
2C
2A
2C
2A
2
2A
2C
2B
2
1
3C
3
4
5
UPPER SIDE
UP-DOWN DIRECTION
LOWER SIDE
4A
3B
3A
LONGITUDINAL DIRECTION

FIG. 10

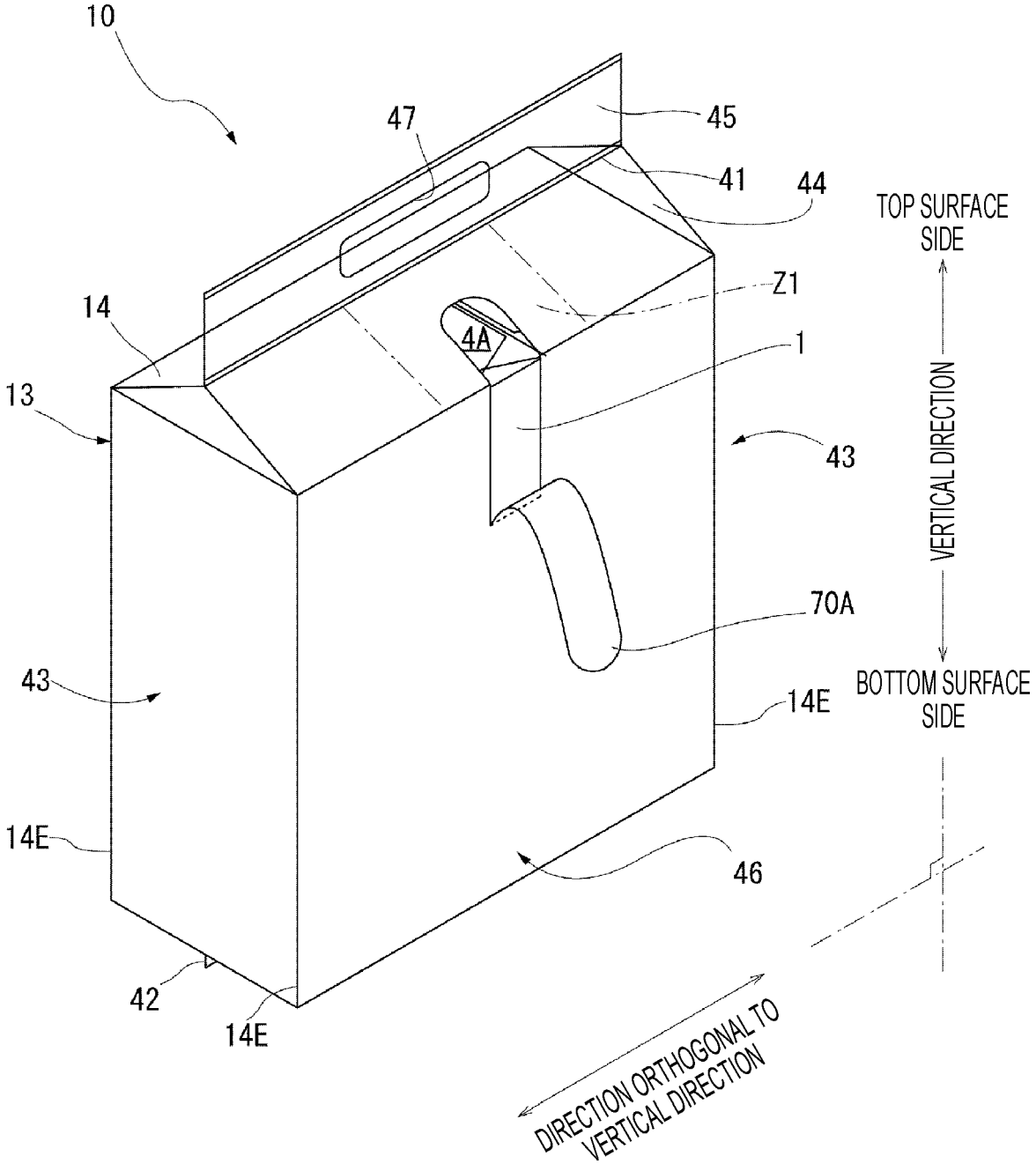

10
47
45
41
44
TOP SURFACE SIDE
Z1
14
4A
1
13
43
VERTICAL DIRECTION
70A
43
14E
BOTTOM SURFACE SIDE
14E
46
42
14E
DIRECTION ORTHOGONAL TO VERTICAL DIRECTION

FIG.11

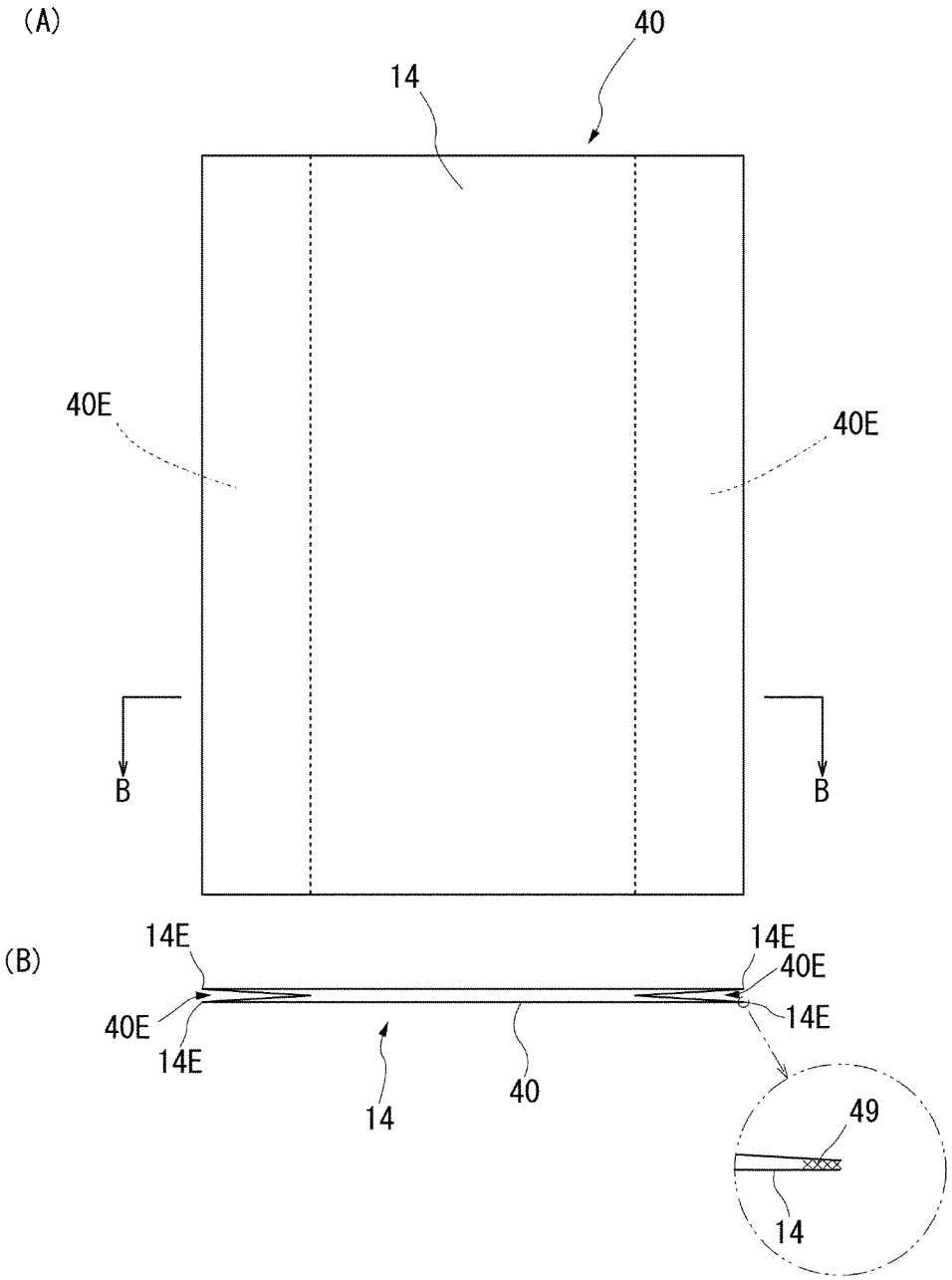


FIG.12

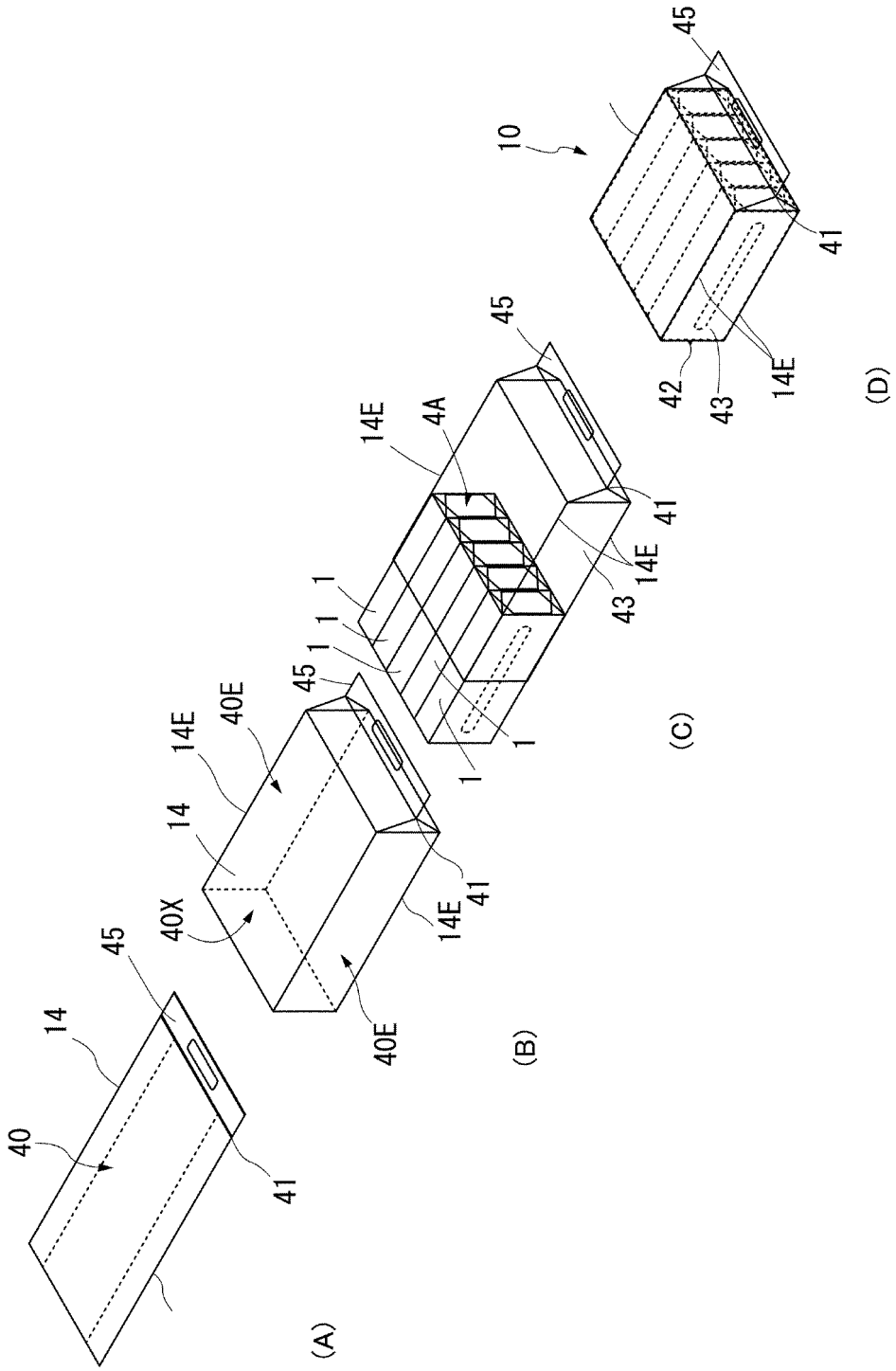

(A)
40
14
45
41
(B)
40X
40E
14
14E
40E
45
41
(C)
1
1
1
1
1
14E
4A
45
41
14E
43
(D)
10
45
41
42
43
14E

FIG. 13

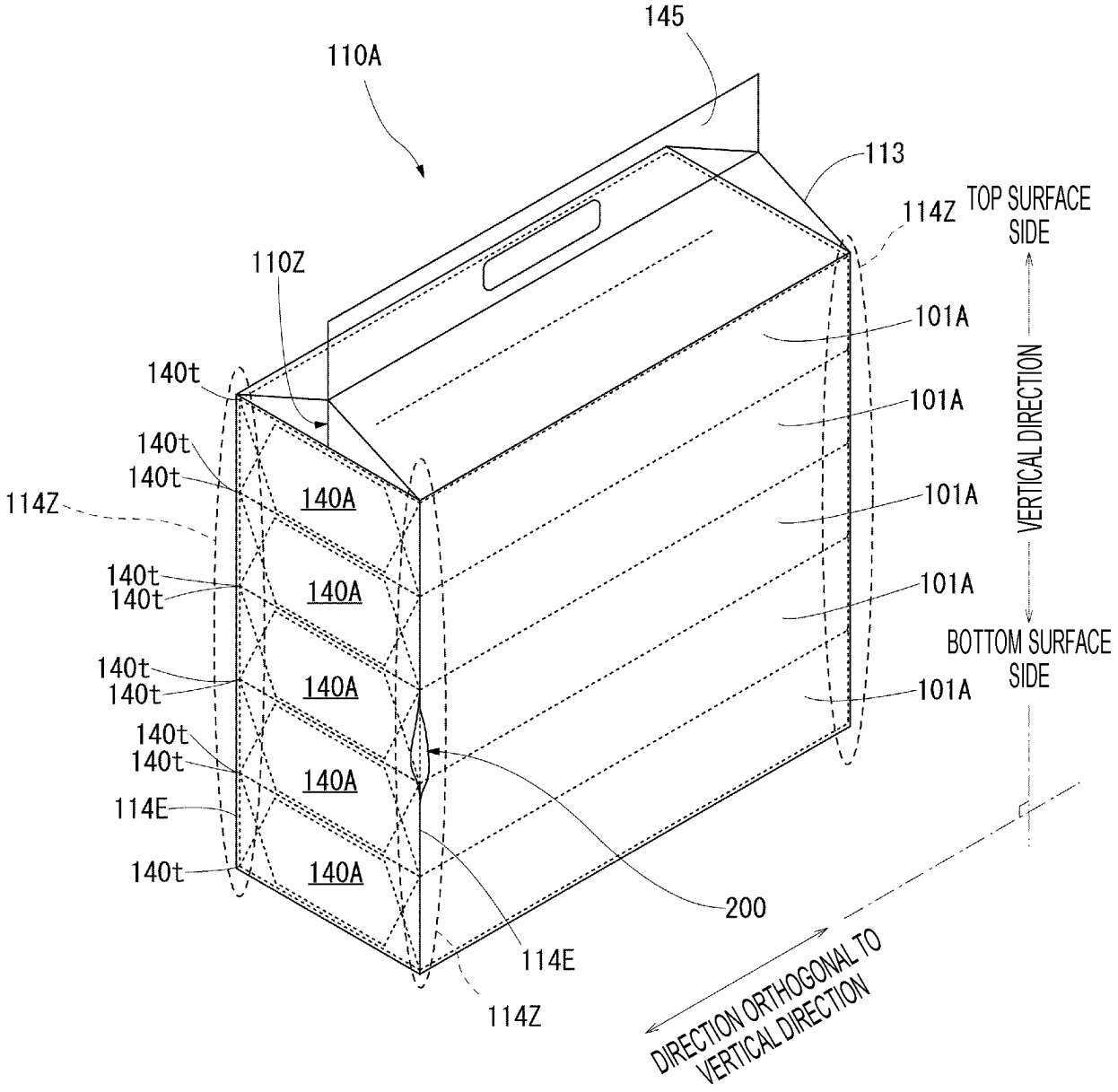

145
110A
113
114Z
TOP SURFACE SIDE
110Z
101A
140t
101A
140t
140t
VERTICAL DIRECTION
114Z
140A
101A
140t
140t
140A
101A
140t
140t
140A
BOTTOM SURFACE SIDE
101A
140t
140t
140A
114E
140t
140A
200
114E
114Z
DIRECTION ORTHOGONAL TO VERTICAL DIRECTION

FIG. 14

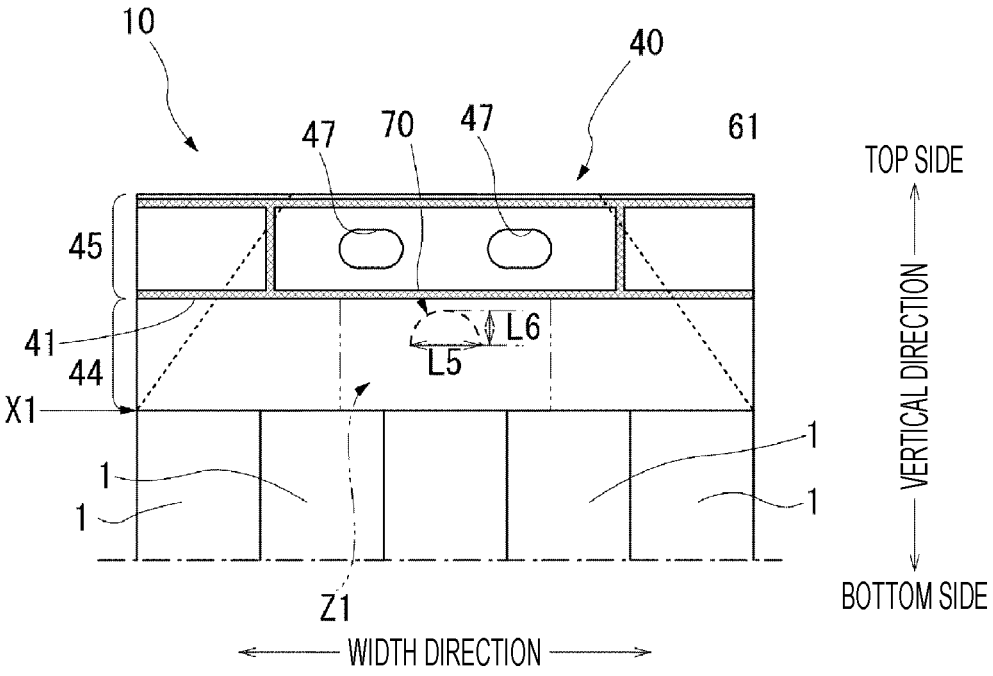
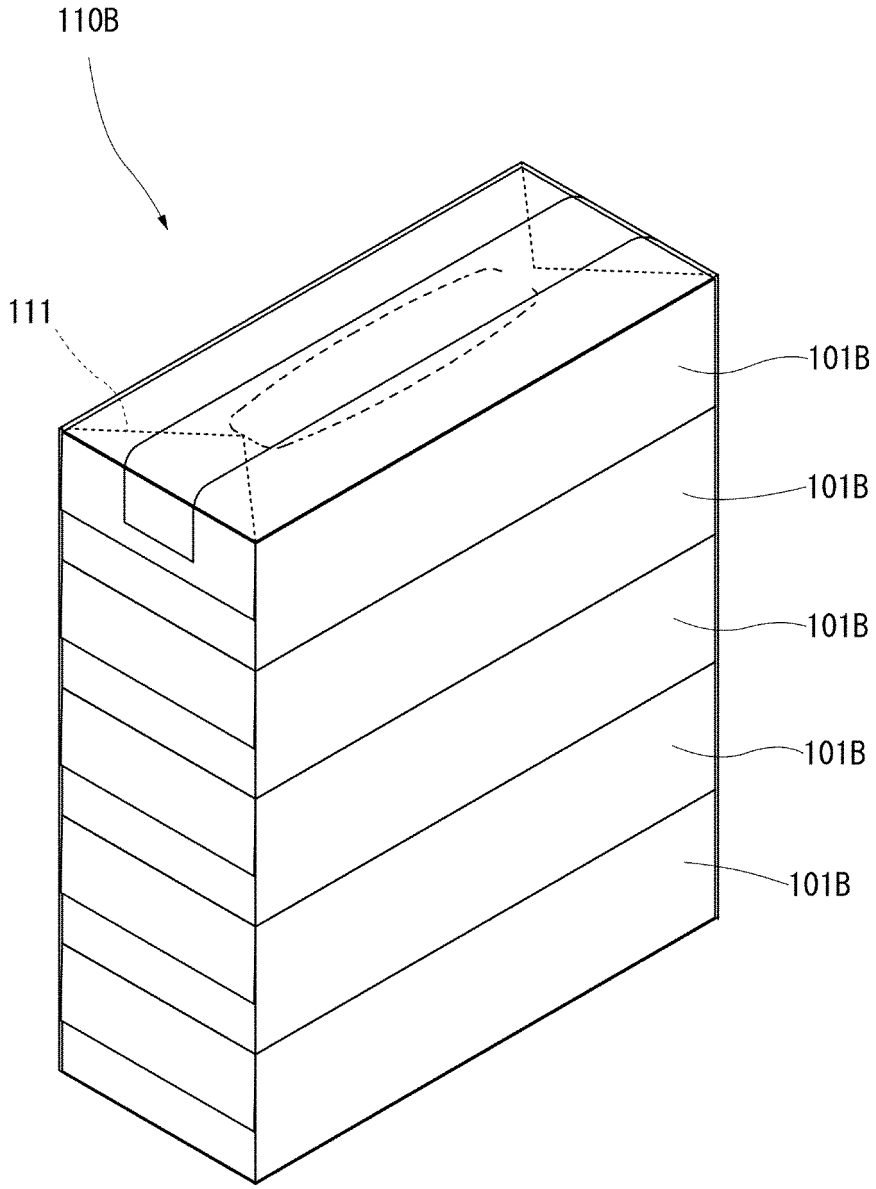

10
40
47
70
47
61
TOP SIDE
45
41
44
L6
L5
X1
1
1
1
1
VERTICAL DIRECTION
Z1
WIDTH DIRECTION
BOTTOM SIDE

FIG.15



INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2020/035745

A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl. B65D75/60(2006.01)i
FI: B65D75/60

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. B65D75/60

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 2018-058654 A (DAIO PAPER CORPORATION) 12 April 2018 (2018-04-12), paragraphs [0018]-[0040], fig. 1-5	1-5
Y	JP 3009515 U (YAMAZAKI, Tokushichi) 04 April 1995 (1995-04-04), paragraphs [0007]-[0010], fig. 1-3	1-5
Y	JP 2018-076105 A (KAMI SHOJI KK) 17 May 2018 (2018-05-17), paragraphs [0046]-[0065], fig. 1-5	1-5

☐ 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
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search 26 October 2020	Date of mailing of the international search report 01 December 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.

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

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/JP2020/035745

JP 2018-058654 A	12 April 2018	(Family: none)
JP 3009515 U	04 April 1995	(Family: none)
JP 2018-076105 A	17 May 2018	(Family: none)

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

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- JP 2018058654 A **[0013]**