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(54) **FILM-PACKAGED TISSUE ASSEMBLY PACKAGE**

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(57) **ABSTRACT**

To provide a film-packaged tissue assembly package that does not reduce fullness of tissue paper contained, has excellent shape retention, and includes a packaging bag that is not easily broken.

The problem is solved by a film-packaged tissue assembly package in which a plurality of film-packaged tissues is arranged and packaged in a gusset packaging bag having a grip portion on a top surface side, in which each of the film-packaged tissues is overlap-packaged and has end surfaces formed of sealed portions of tube openings at both ends in a longitudinal direction, and the overlap-packaged film-packaged tissues are packaged such that each end surface faces the top surface side having the grip portion and a bottom surface side facing the top surface side, and the longitudinal direction is along a top-bottom direction.

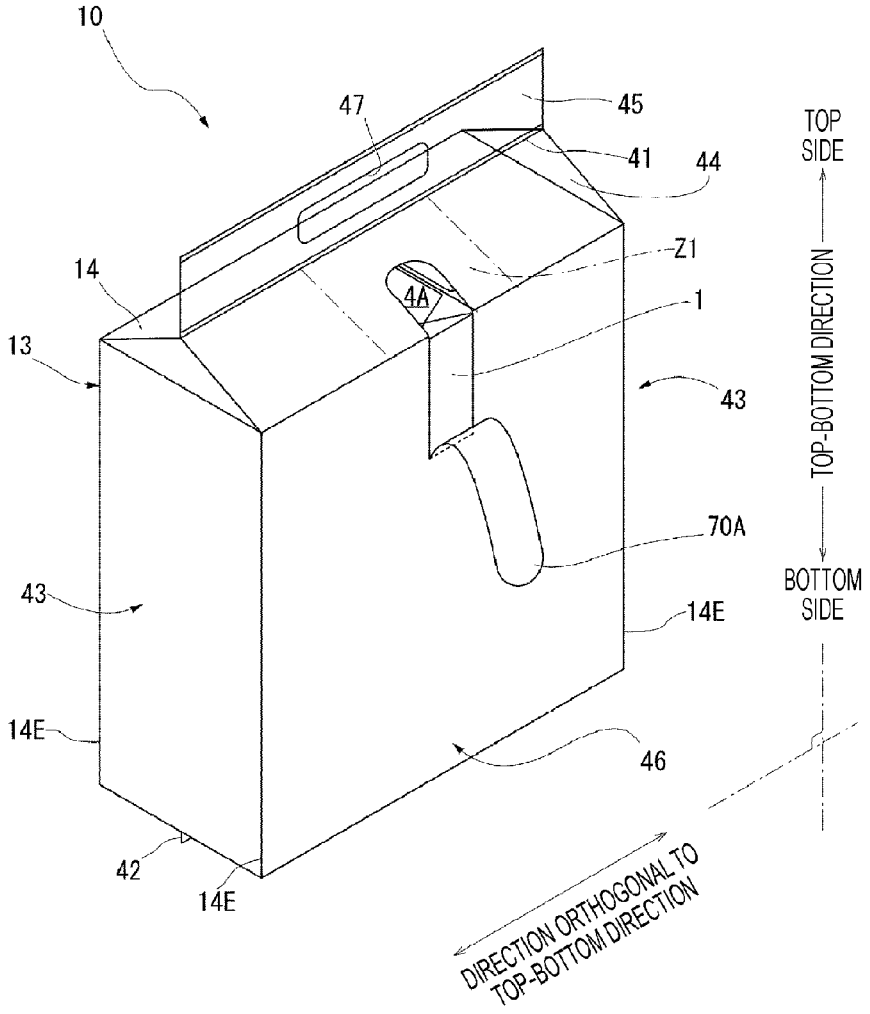
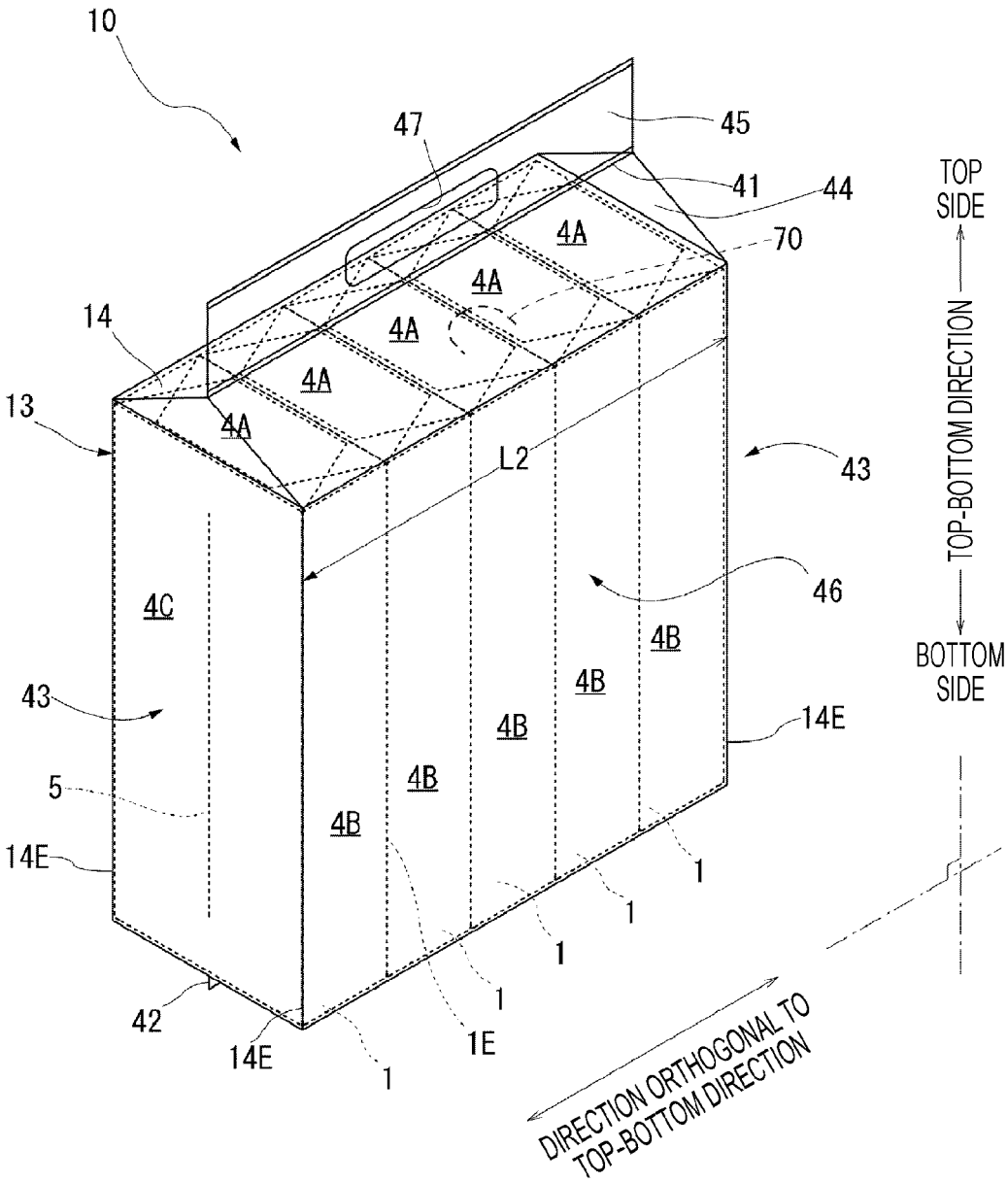


FIG. 1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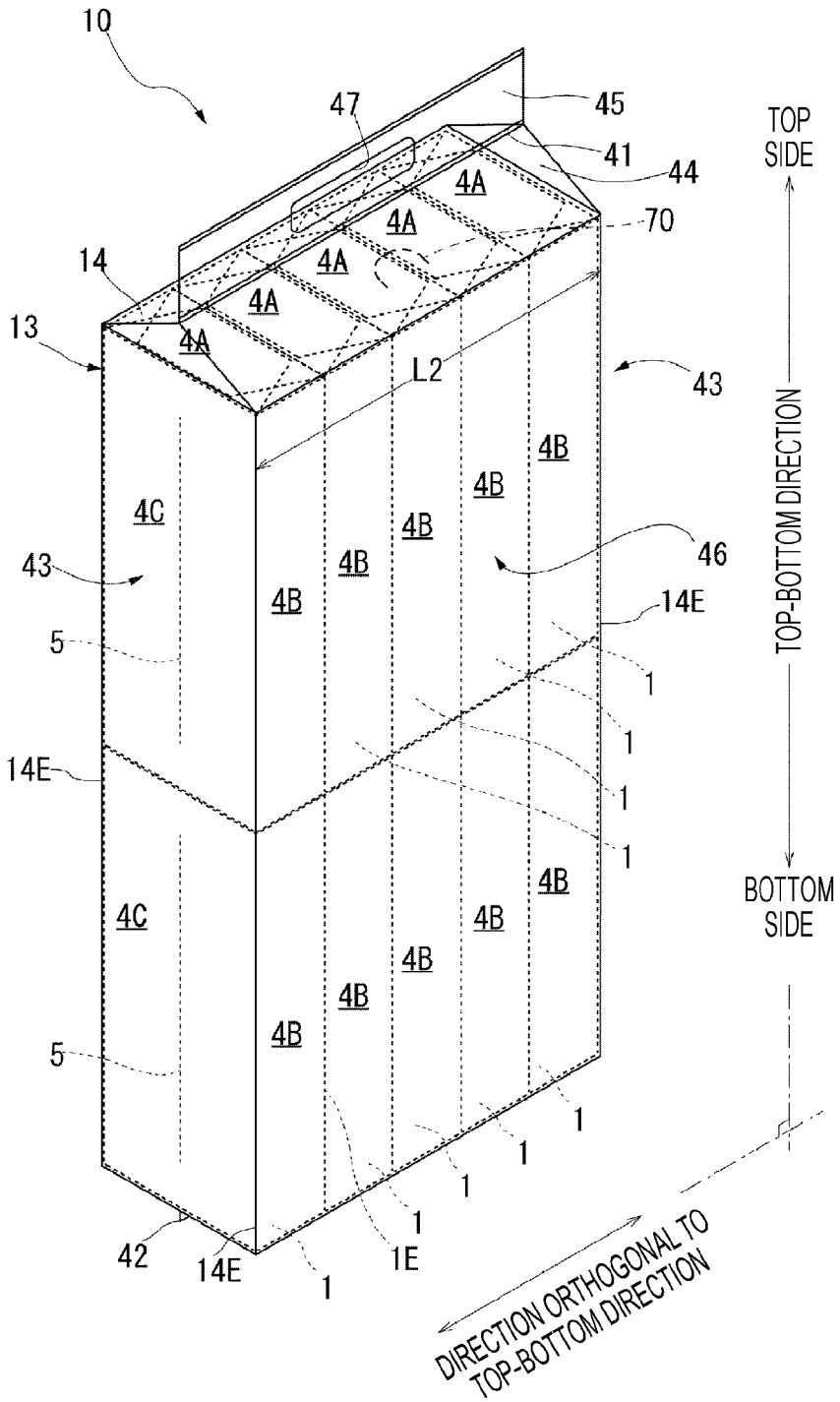
47
45
41
44
70
14
13
4A
L2
43
46
4C
4B
43
14E
5
14E
42
1E
1
TOP SIDE
TOP-BOTTOM DIRECTION
BOTTOM SIDE
DIRECTION ORTHOGONAL TO TOP-BOTTOM DIRECTION

FIG. 2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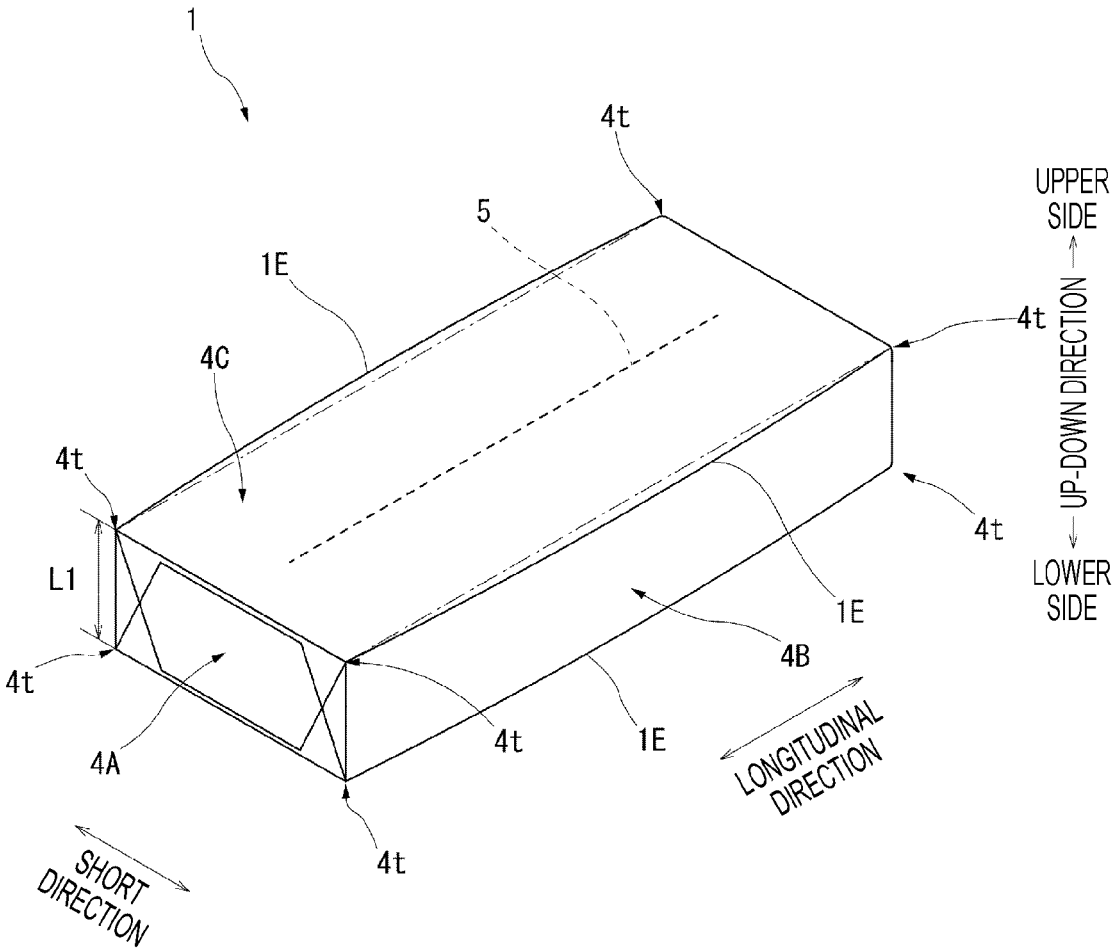
TOP-BOTTOM DIRECTION
BOTTOM SIDE
DIRECTION ORTHOGONAL TO TOP-BOTTOM DIRECTION

FIG. 3


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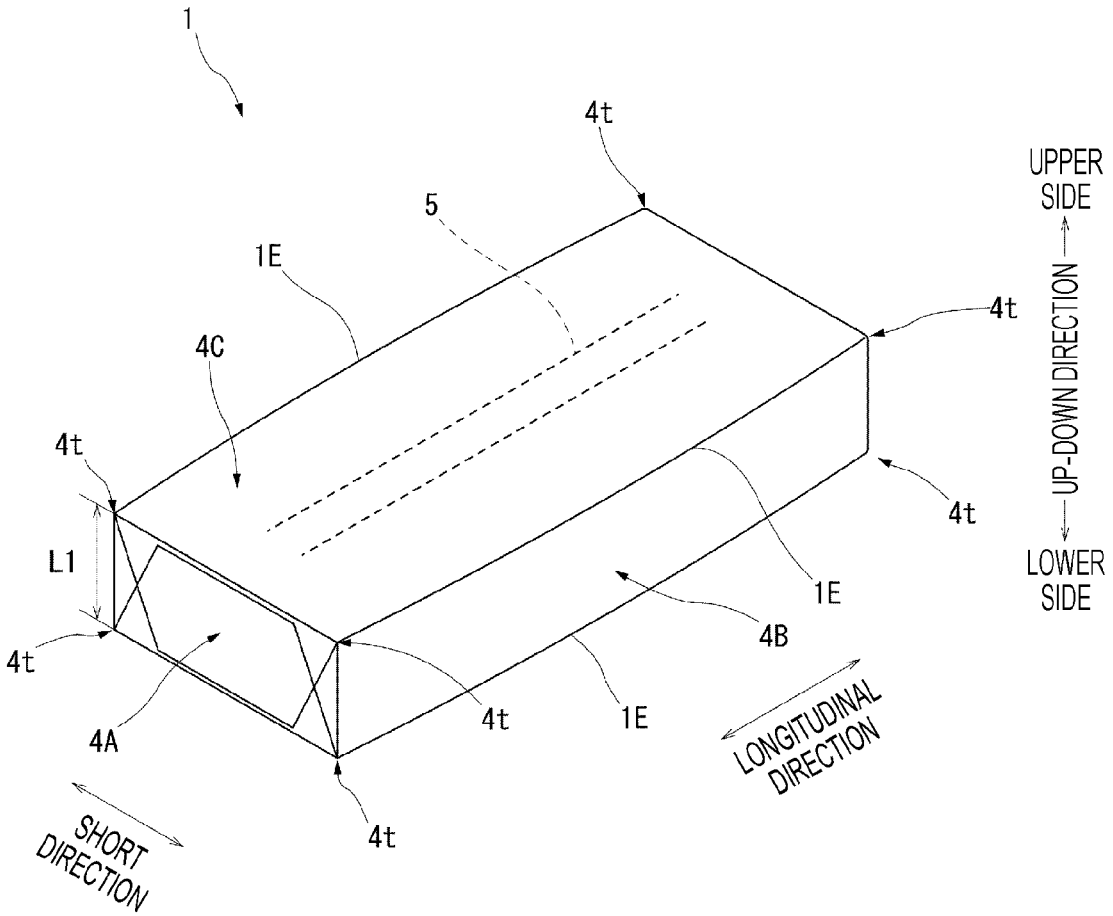
UP-DOWN DIRECTION
LOWER SIDE
LONGITUDINAL DIRECTION
SHORT DIRECTION

FIG. 4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1E
4B
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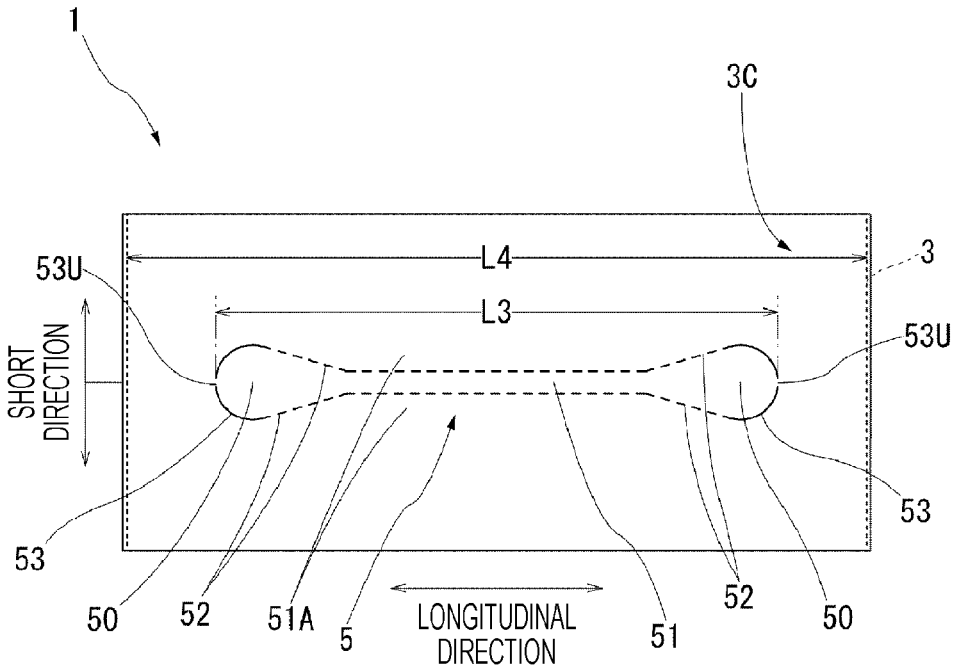
LONGITUDINAL DIRECTION
SHORT DIRECTION
UPPER SIDE
UP-DOWN DIRECTION
LOWER SIDE

FIG. 5

(A)


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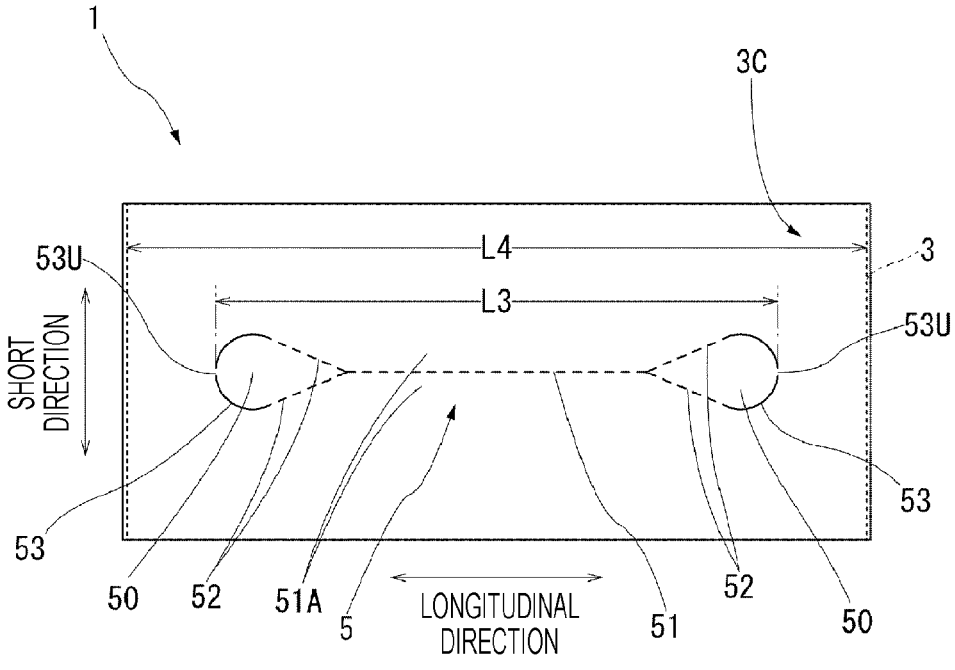
51A
5
LONGITUDINAL DIRECTION
51
52
50

(B)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L3
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LONGITUDINAL DIRECTION
51
52
50

FIG. 6

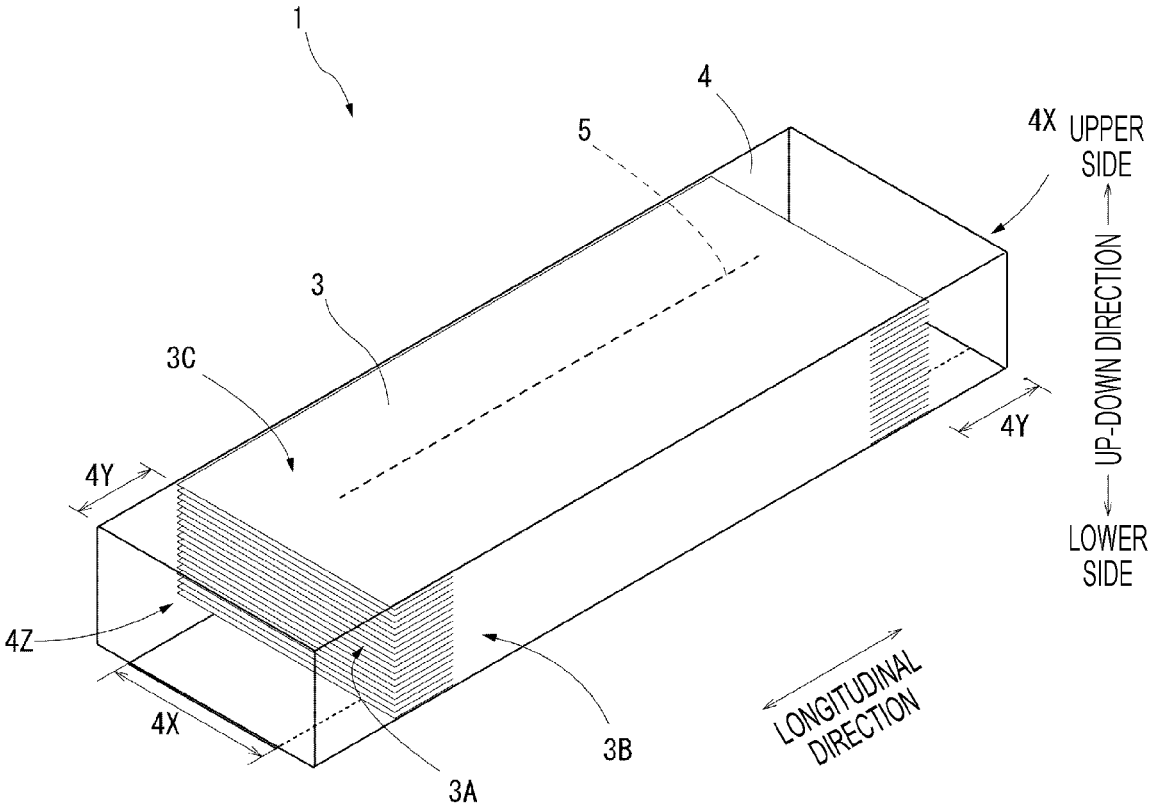
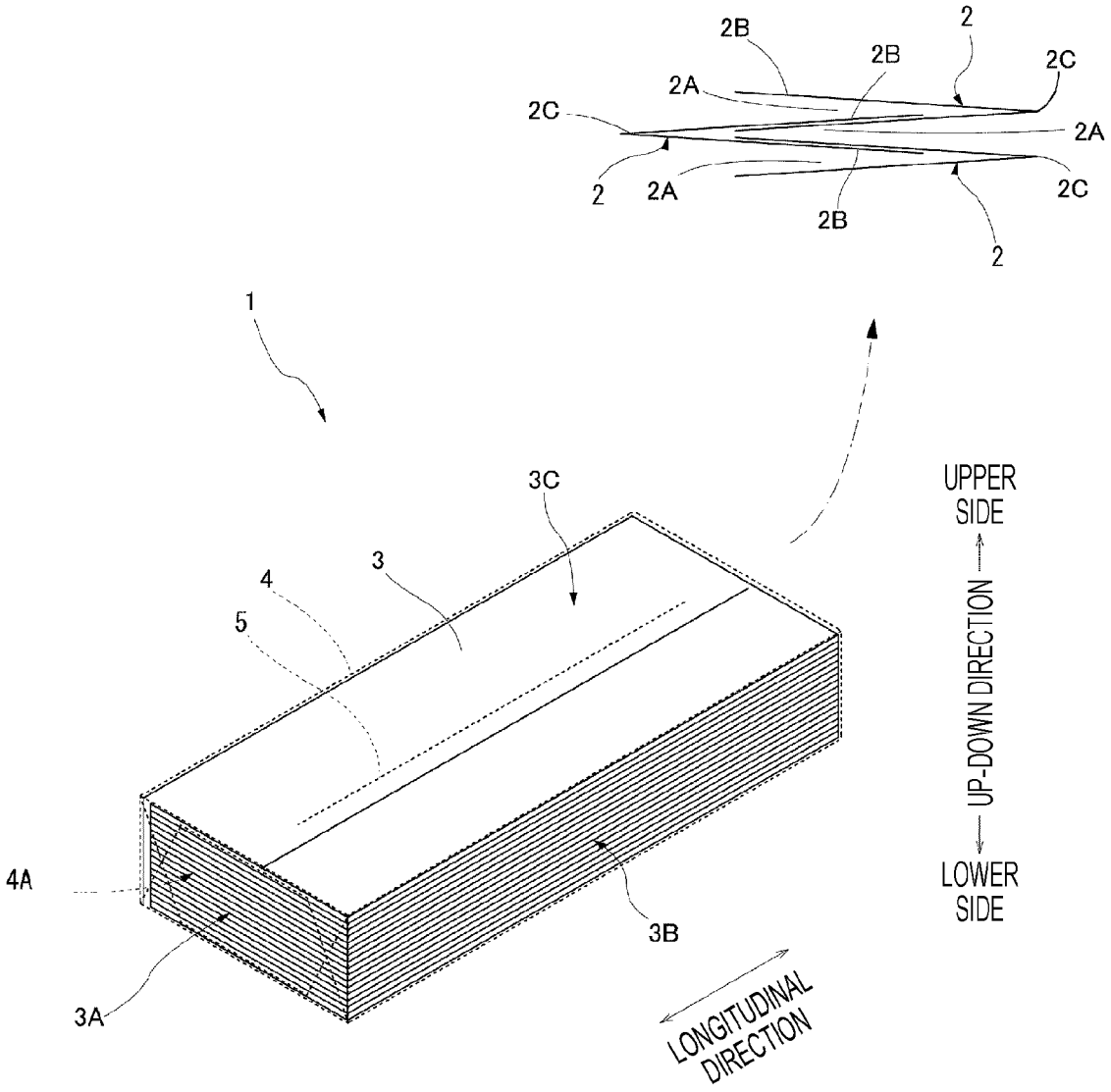

1
4
5
4X
UPPER SIDE
UP-DOWN DIRECTION
LOWER SIDE
3
3C
4Y
4Y
4Z
4X
3A
3B
LONGITUDINAL DIRECTION

FIG. 7


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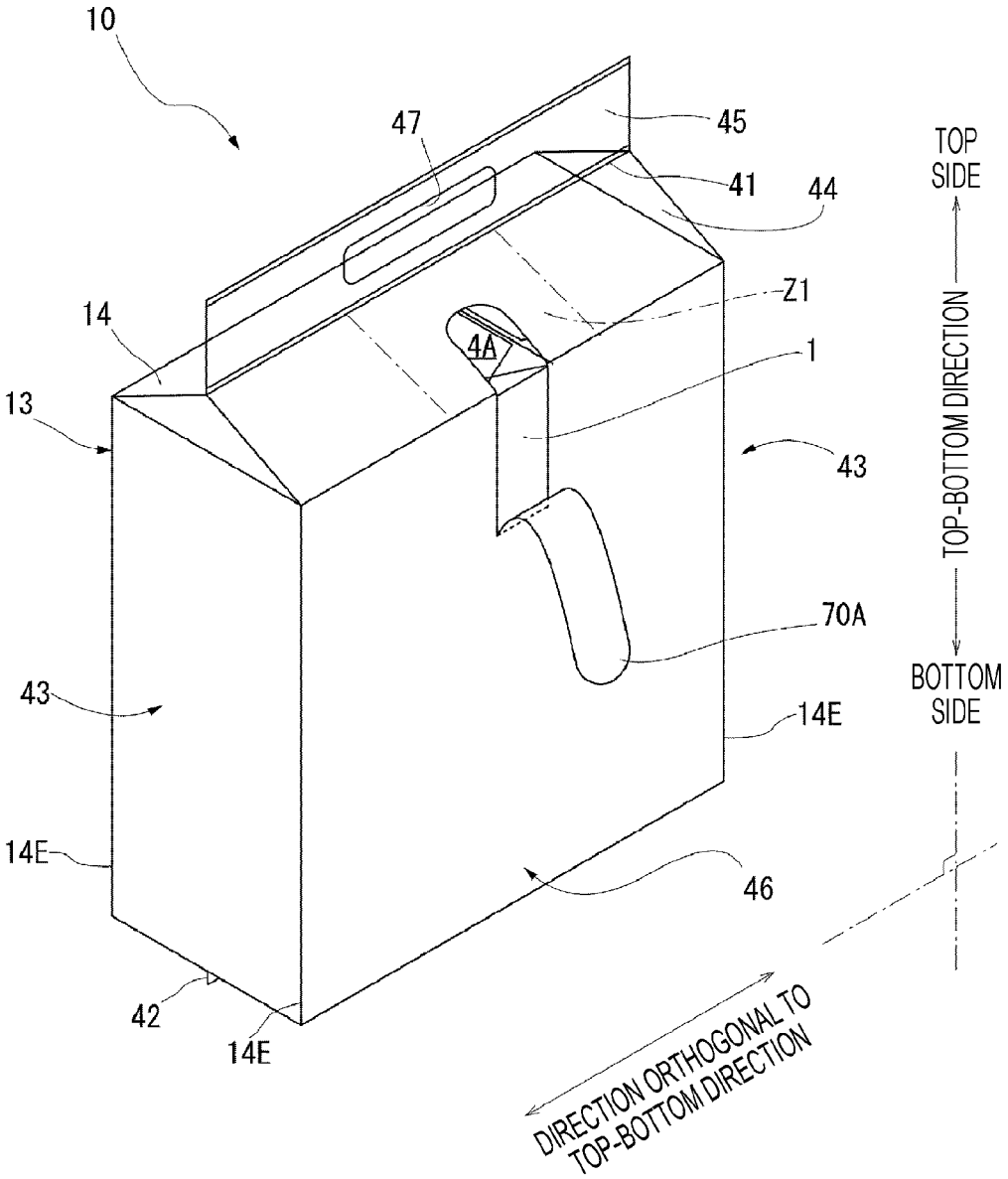
4A
3B
3A
UPPER SIDE
UP-DOWN DIRECTION
LOWER SIDE
LONGITUDINAL DIRECTION

FIG. 8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70A
43
14E
14E
46
42
14E
TOP SIDE
TOP-BOTTOM DIRECTION
BOTTOM SIDE
DIRECTION ORTHOGONAL TO TOP-BOTTOM DIRECTION

FIG.9

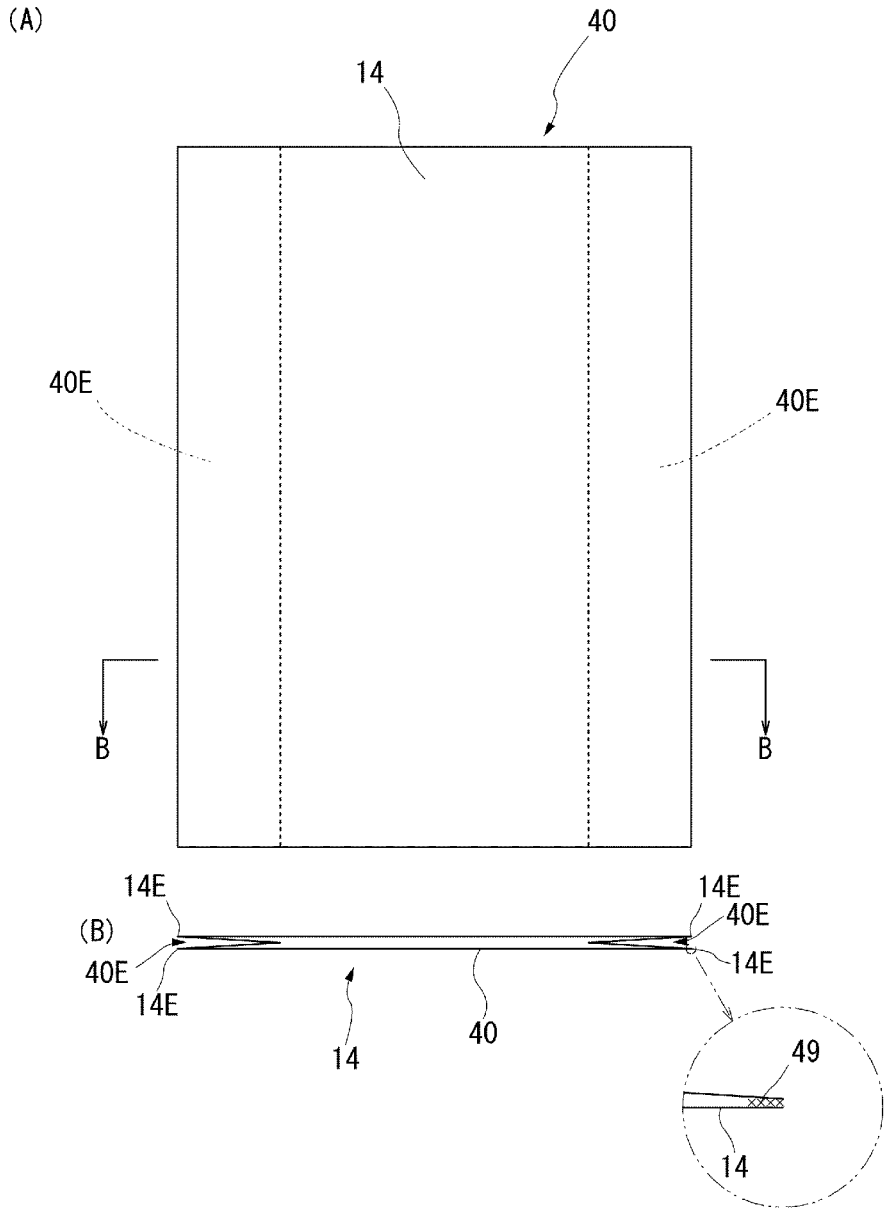


FIG.10

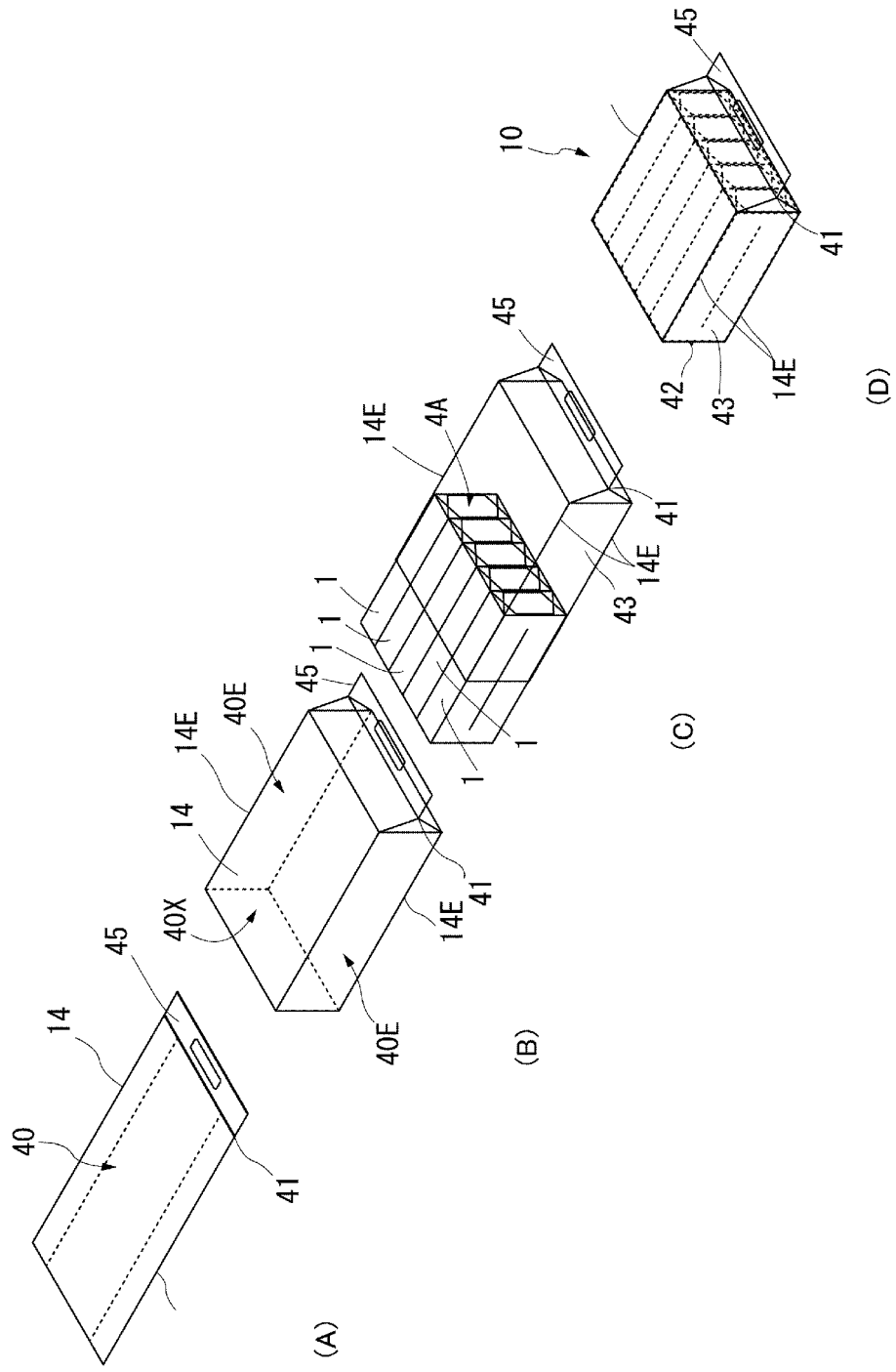
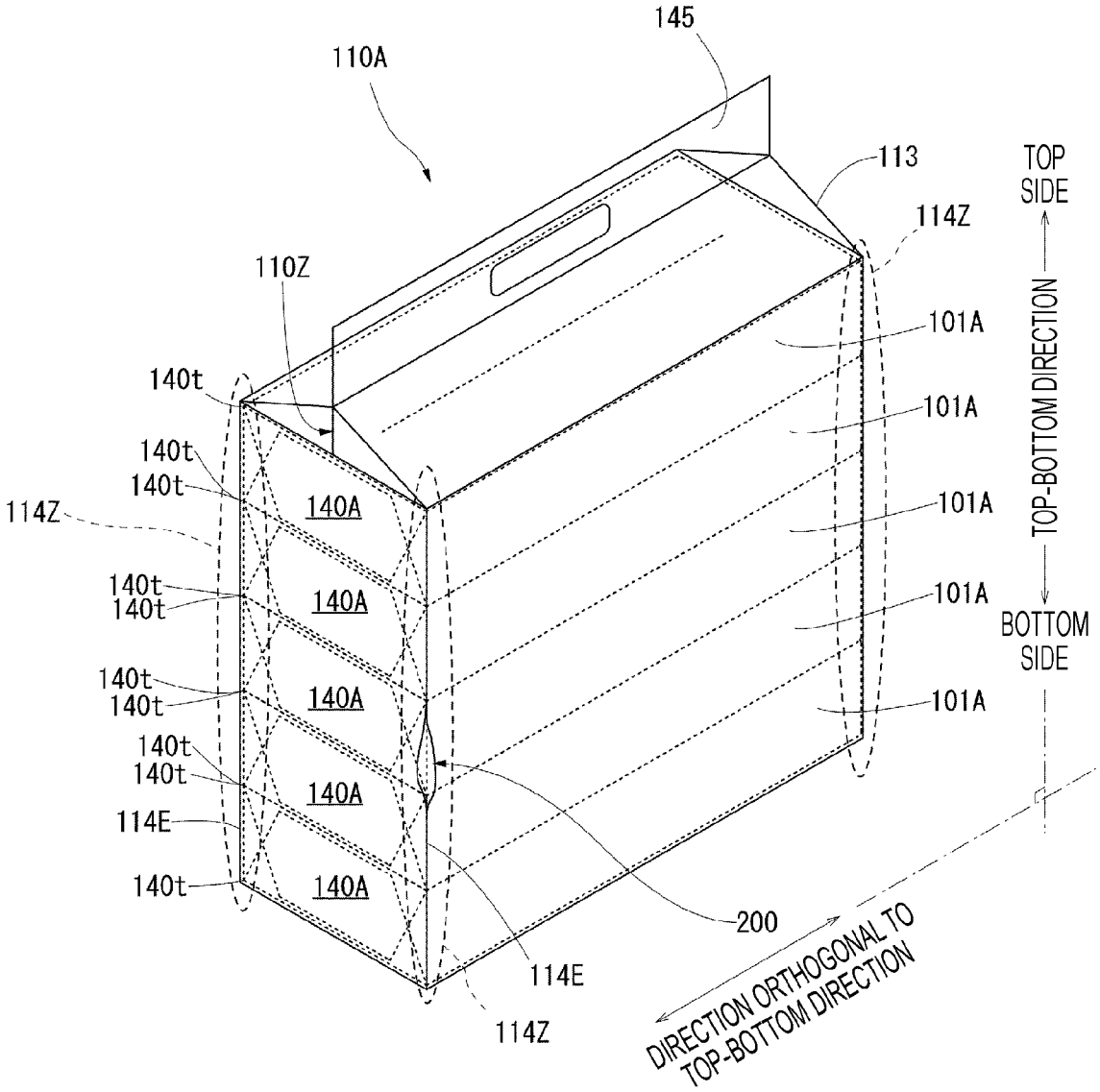

(A)
40
14
45
41
(B)
40X
40E
14
14E
40E
45
41
(C)
1
1
1
1
1
45
14E
4A
41
43
14E
(D)
10
45
41
42
43
14E

FIG. 11


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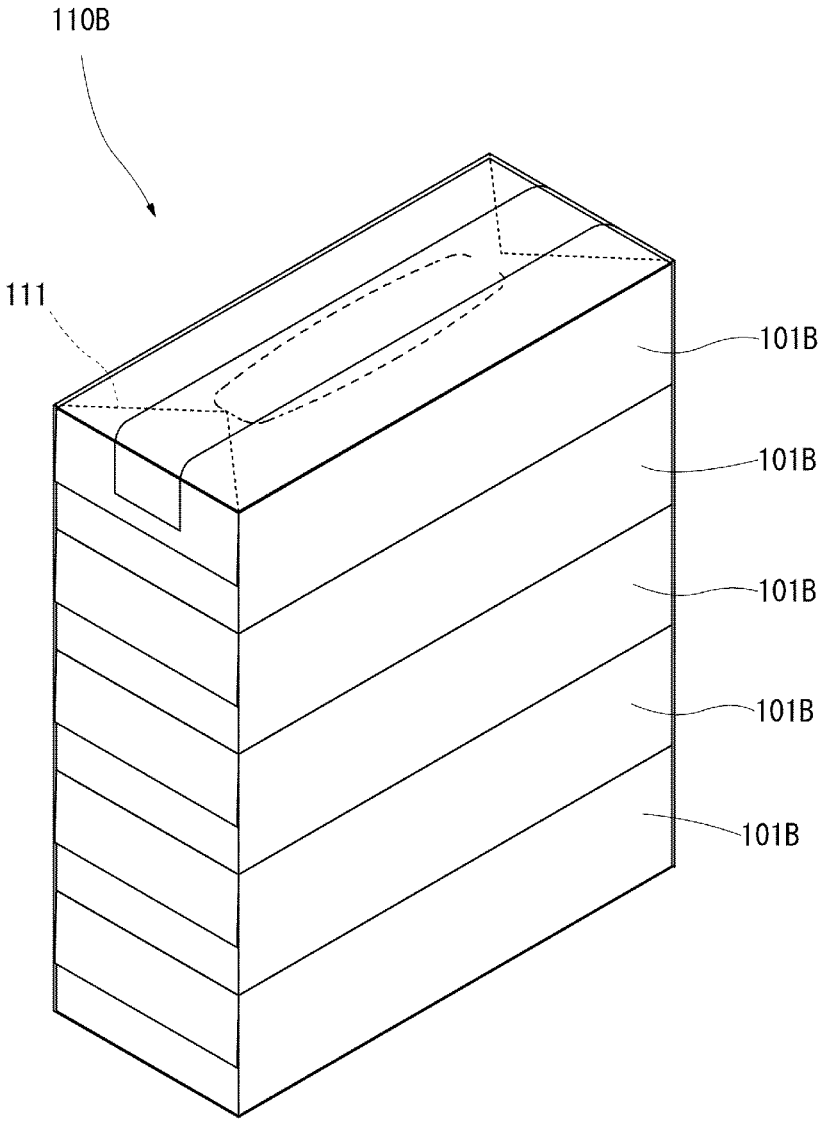
140A
101A
140t
140t
140A
101A
140t
140t
140A
114E
140t
140A
200
114E
114Z
DIRECTION ORTHOGONAL TO TOP-BOTTOM DIRECTION
TOP-BOTTOM DIRECTION
BOTTOM SIDE

FIG.12



FILM-PACKAGED TISSUE ASSEMBLY PACKAGE

TECHNICAL FIELD

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

BACKGROUND ART

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

[0003] A box product **101**B is excellent in shape stability of a paper storage box which is an outer shell. Therefore, as illustrated in FIG. **12**, in general, five or three box products **101**B are arranged so as to be stacked in a top-bottom direction, and formed into a product shaped body **110**B of assembly packaging (also referred to as pack packaging) collected by an exterior film **111**. A large number of product shaped bodies **110**B are often stacked and sold at a storefront of a distributor or the like.

[0004] Meanwhile, a tissue paper package also called a film-packaged tissue is known in which a bundle of tissue paper is package with a flexible resin packaging film. As the film-packaged tissue, a portable one called a pocket tissue is well known. However, there is also a non-portable film-packaged tissue used in a stationary manner like a box product or used for a refill of a bundle of the box product.

[0005] The film-packaged tissue used in a stationary manner or the like, like the box product, has advantages in terms of reduction of packaging materials, transportation cost due to compactness, and portability as compared with the box product. However, in this type of film-packaged tissue, a bundle of flexible tissue paper is packaged with a flexible packaging film. Therefore, the film-packaged tissue has a problem that shape retention is inferior to that of the box product, and shape retention suitable for storefront stacking cannot be obtained only by simply stacking a plurality of film-packaged tissues and forming the film-packaged tissues into assembly packaging with a film as in the case of the box product.

[0006] In view of such a problem, in a technique disclosed in the following Patent Literature 1, by forming a suction and exhaust hole in a film-packaged tissue to make the film-packaged tissue compressible, and forming the film-packaged tissue into assembly packaging in a gusset packaging manner such that the film-packaged tissue is restrained by an assembly packaging film in a compressed state, shape retention is enhanced like the box product as a whole, and the film-packaged tissue is suitable for storefront stacking.

CITATION LIST

Patent Literature

[0007] Patent Literature 1: JP 2018-058654 A

SUMMARY OF INVENTION

Technical Problem

[0008] However, when such a compressed state continues for a long period of time, fullness of tissue paper is likely to be reduced. In particular, in tissue paper having a high moisture content such as moisturizing tissue containing a liquid chemical or in a high humidity environment, fullness of the tissue paper is more likely to be reduced.

[0009] On the other hand, for assembly packaging of a film-packaged tissue, gusset packaging suitable for a flexible packaging object such as a toilet roll is preferable. In addition, a film-packaged tissue assembly package mainly used in a stationary manner, which is different from a portable one, usually has a size not to be contained in a bag, and has a certain degree of weight. Therefore, gusset packaging with a grip portion is preferable.

[0010] However, this gusset packaging easily forms spaces particularly on a top surface side and a bottom surface side due to a structure thereof. Therefore, when compressibility of the film-packaged tissue is lowered to simply lower restraint performance, the contained film-packaged tissue easily moves. In the film-packaged tissue, a sealed portion formed by thermal fusion or the like of a packaging film is hard. Therefore, when the contained film-packaged tissue easily moves, the hard portion and an exterior film constituting the gusset packaging are rubbed against each other, and a risk of breakage increases.

[0011] Therefore, a main object of the present invention is to provide a film-packaged tissue assembly package, for example, mainly used in a stationary manner like a box product, the film-packaged tissue assembly package being hardly reduced in fullness of contained tissue paper, being excellent in shape retention, for example, to be easily stacked and sold at a storefront, and being hardly damaged in an assembly packaging film. Furthermore, there is also provided a film-packaged tissue assembly package which is excellent in an opening property and portability of the assembly package while being excellent in a take-out property of a contained film-packaged tissue.

Solution to Problem

[0012] Means for solving the above problems are as follows. A first means is

[0013] a film-packaged tissue assembly package including a gusset packaging bag having a grip portion on a top surface side and a plurality of film-packaged tissues arranged and packaged in the gusset packaging bag, wherein

[0014] each of the film-packaged tissues is overlap-packaged and has end surfaces formed by of sealed portions of tube openings at both ends in a longitudinal direction, and

[0015] the overlap-packaged film-packaged tissues are gusset-packaged such that each end surface faces the top surface side having the grip portion and a bottom surface side facing the top surface side, and the longitudinal direction is along a top-bottom direction.

[0016] A second means is

[0017] the film-packaged tissue assembly package according to the first means, wherein

[0018] the film-packaged tissue paper is obtained by overlap-packaging a bundle of tissue paper having a substantially rectangular parallelepiped shape in which a plurality of sheets of tissue paper is folded and stacked, and has a

take-out port forming portion of the tissue paper on an upper surface, and the end surface formed of sealed portions of tube openings is located facing a short side surface of the bundle.

[0019] A third means is

[0020] the film-packaged tissue assembly package according to the first or second means, wherein

[0021] packaging is performed such that the plurality of film-packaged tissues is arranged in a substantially rectangular parallelepiped shape such that the end surfaces are substantially flush with each other and long side surfaces are substantially flush with each other, and gusset portions of the gusset packaging bag face upper or lower surface of the film-packaged tissues.

[0022] A fourth means is

[0023] the film-packaged tissue assembly package according to the third means, wherein

[0024] two or less stages of the film-packaged tissues are arranged in the gusset packaging bag in the top-bottom direction such that the end surfaces butt against each other.

[0025] A fifth means is

[0026] the film-packaged tissue assembly package according to the third or fourth means, wherein

[0027] the film-packaged tissue assembly arranged in the gusset packaging bag has a compression ratio of 80% or more in a direction orthogonal to the top-bottom direction.

[0028] A sixth means is

[0029] the film-packaged tissue assembly package according to any one of the first to fifth means, wherein

[0030] the film-packaged tissues each have a bundle filling ratio of 100% or more.

Advantageous Effects of Invention

[0031] The present invention described above provides a film-packaged tissue assembly package which is hardly reduced in fullness of contained tissue paper, is excellent in shape retention, for example, to be easily stacked and sold at a storefront, and is hardly damaged in an assembly packaging film. Furthermore, the present invention also provides a film-packaged tissue assembly package which is excellent in an opening property and portability of assembly packaging while being excellent in a pop-up property of a contained film-packaged tissue.

BRIEF DESCRIPTION OF DRAWINGS

[0032] FIG. **1** is a perspective view of a film-packaged tissue assembly package according to the present invention.

[0033] FIG. **2** is a perspective view of another film-packaged tissue assembly package according to the present invention.

[0034] FIG. **3** is a perspective view for explaining a film-packaged tissue according to the present invention.

[0035] FIG. **4** is a perspective view for explaining another film-packaged tissue according to the present invention.

[0036] FIG. **5** is a top view for explaining a take-out port of the film-packaged tissue according to the present invention.

[0037] FIG. **6** is a perspective view for explaining a packaging structure of the film-packaged tissue according to the present invention.

[0038] FIG. **7** is a perspective view for explaining a tissue paper bundle according to the present invention.

[0039] FIG. **8** is a perspective view illustrating a time when the film-packaged tissue assembly package according to the present invention is opened.

[0040] FIG. **9** is a diagram for explaining a gusset packaging bag according to the present invention.

[0041] FIG. **10** is a perspective view for explaining a structure of gusset packaging according to the film-packaged tissue assembly package according to the present invention.

[0042] FIG. **11** is a diagram for explaining a comparative embodiment of the film-packaged tissue assembly package.

[0043] FIG. **12** is a diagram for explaining an example of assembly packaging of a tissue paper package of a conventional box product.

DESCRIPTION OF EMBODIMENTS

[0044] Hereinafter, the present invention will be described with reference to FIGS. **1** to **10** illustrating an embodiment of the present invention and FIG. **11** illustrating a comparative embodiment.

[0045] 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** is arranged and gusset-packaged so as to be contained in a gusset packaging bag **13** having a grip portion **45** on a top surface side.

[0046] The film-packaged tissue **1** according to the present invention is obtained by overlap-packaging the bundle **3**. The overlap packaging is a packaging mode also referred to as caramel packaging or combined packaging, and as illustrated in FIGS. **3** to **5**, is a packaging mode in which the bundle **3**, which is a packaging object, is packaged with the packaging film **4** so as to be wrapped in a tubular shape such that openings **4**Z are formed at both ends in a longitudinal direction, portions **4**X overlapping in the wrapping direction are bonded by a fusion treatment or an adhesive, a portion **4**Y extending beyond the bundle **3** is folded toward an end surface side of the bundle **3** from the vicinity of two opposing edges of a bundle end surface, at least tip edges of substantially triangular or substantially trapezoidal pieces formed at this time are overlapped and bonded by a fusion treatment or an adhesive to seal a tube opening **4**Z, thus forming an end surface **4**A.

[0047] In this overlap packaging, since the end surface **4**A has a substantially planar shape, an exterior of the packaging film **4** has a substantially rectangular parallelepiped shape close to a box. In addition, the end surface **4**A is formed by stacking and bonding a plurality of layers of the packaging film **4**, and therefore has high rigidity, is hardly crushed, and easily maintains a substantially rectangular parallelepiped shape.

[0048] Therefore, when the film-packaged tissue **1** is overlap-packaged, a product shape thereof is a substantially rectangular parallelepipedon. Therefore, even when the film-packaged tissues **1** are arranged and formed into assembly packaging as illustrated in FIGS. **1** and **2**, the film-packaged tissues **1** can have a rectangular parallelepiped shape as a whole. For this reason, the assembly packages are easily stacked in a plurality of stages in line, and easily stacked and sold at a storefront. In addition, even when the assembly packages are stacked in such a manner, the exterior of the packaging film **4** has high rigidity. Therefore, a

compressive force is hardly applied to the inner bundle **3**, and fullness of the tissue paper **2** is hardly reduced.

[0049] It is desirable that the bundle **3** of tissue paper contained in the film-packaged tissue **1** is a pop-up type. Particularly as illustrated in FIG. **7**, the pop-up type bundle **3** is obtained by folding a sheet of the tissue paper **2** having a substantially rectangular shape of about 197±10 mm in length×217±10 mm in width in half, and stacking a plurality of sheets of the tissue paper **2** such that folded pieces **2**B of other sheets of the tissue paper **2** located above and below the folded sheet are located in an inner side **2**A of the folded sheet. When one folded piece of an uppermost sheet is lifted upward, a folded piece **2**B of another sheet adjacent to the lifted sheet immediately below the lifted sheet is dragged upward and lifted. Such a bundle **3** can be manufactured by a known multi-stand type or rotary type interfolder. Note that the bundle **3** according to the present invention may be a non-pop-up type having a substantially rectangular parallelepiped shape in which a plurality of sets of the folded tissue paper **2** is stacked.

[0050] The pop-up type bundle **3** has a substantially rectangular parallelepiped shape having a pair of longitudinal side surfaces **3**B in which folded edges **2**C of sheets of the tissue paper **2** are lined up, a pair of short side surfaces **3**A in which the folded edges **2**C are not lined up, and a pair of flat surfaces (upper and lower surfaces) **3**C connected to the short side surfaces **3**A and the longitudinal side surfaces **3**B. In addition, the pop-up type bundle **3** is constituted by the soft tissue paper **2**, and therefore has flexibility and is easily compressed and deformed.

[0051] The number of sets of the tissue paper **2** constituting the bundle **3** is not limited, but is generally 120 to 240 as one set of 2 plies (two sheets stacked) or 3 plies (three sheets stacked). The size of the bundle **3** is not necessarily limited, but a bundle of 150 sets of 2-ply tissue paper has a height of about 40 to 50 mm×160 to 200 mm in a longitudinal direction (width)×90 to 110 mm in a short direction (depth). Note that as illustrated in this shape, the film-packaged tissue **1** according to the present invention is not a portable tissue called a pocket tissue or the like having about 10 to 12 sets of contained tissue paper and a height of about 10 mm.

[0052] In the film-packaged tissue **1** in the illustrated mode, the end surface **4**A sealing the barrel opening **4**Z is located at a position facing the short side surface **3**A of the bundle **3**, and an opening perforation **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** in the illustrated mode is obtained by overlap-packaging the pop-up type bundle **3** of tissue paper **2** having a substantially rectangular parallelepiped shape obtained by folding a sheet of the tissue paper **2** in half, and stacking a plurality of sheets of the tissue paper **2** such that the folded pieces **2**B of other sheets of the tissue paper **2** located above and below the folded sheet are located in the inner side **2**A of the folded sheet. The illustrated film-packaged tissue paper **1** has a take-out port forming portion **5** of tissue paper on an upper surface, and has the end surface **4**A which is a sealing portion of the barrel opening **4**X facing the short side surface **3**A where the folded edges **2**C of the bundle **3** are not lined up.

[0053] In the bundle **3** of a pop-up type as in the illustrated mode, when an uppermost sheet of the tissue paper **2** of the bundle **3** is pulled out from an opening port formed in the upper surface, a part of a next sheet of the tissue paper located immediately below the pulled-out sheet is exposed from the opening port. In addition, in the film-packaged tissue **1** configured in this manner, tissue paper is stacked in a direction in which the end surface **4**A having high rigidity stands, and therefore the bundle **3** is hardly compressed, and fullness is hardly reduced even if a compressive force from a bundle stacking direction (up-down direction) is applied.

[0054] Note that in the film-packaged tissue **1**, in order to prevent bursting or the like when an external pressure is applied, a suction and exhaust hole communicating with the inside and the outside may be formed. On the end surface **4**A facing the short side surface **3**A where the folded edges **2**C of the bundle **3** of the packaging film **4** are not lined up, the suction and exhaust hole may be formed, but it is desirable that there is no suction and exhaust hole at this position. When the suction and exhaust hole is formed on the end surface **4**A, fragility of the end surface **4**A increases. Therefore, the advantage of the overlap packaging having the end surface **4**A having high rigidity is deteriorated.

[0055] As illustrated in FIG. **3**, the take-out port forming portion **5** may be the linear opening perforation **5** extending in a longitudinal direction at the central portion in the short direction. However, as illustrated in FIG. **4**, an elongated annular perforation may be formed in the longitudinal direction to form an elongated opening. Although not illustrated, the opening perforation **5** may be covered with a peelable sealing material.

[0056] In particular, as a preferable shape of the take-out port forming portion **5**, as illustrated in FIG. **5**, it is desirable that a shape having a slit portion **51** extending in the longitudinal direction and an opening **50** communicating with an end of the slit portion **51** and having a widening portion **52** gradually widening as a distance from the slit portion **51** increases in the longitudinal direction is formed at the central portion in the short direction. Furthermore, it is desirable that the opening **50** has a shape having a curved portion **53** continuous with the widening portion **52** and protruding toward an end in the longitudinal direction. In this case, a length L**3** of a portion where the take-out port forming portion **5** is present is shorter than a longitudinal length L**4** of the bundle **3** and is preferably about 60 to 80% of the longitudinal length L**4** of the bundle **3**.

[0057] The width (length in the short direction) of the slit **51** is 10 mm or less, and preferably 7 mm or less in the short direction. As illustrated in FIG. **5**(B), there may be substantially no width formed by opening the linear perforation.

[0058] In a case of a take-out port formed in such a shape of the take-out port forming portion **5**, an edge vicinity **51**A of the slit portion **51** is a free edge piece that is easily moved in an up-down direction. Therefore, when a set of tissue paper is pulled out from a bundle, the edge piece is deformed in a direction in which the set of tissue paper is pulled out, and supports a next exposed set of tissue paper by leaning against the next exposed set of tissue paper. In addition, a next sheet of tissue paper partially exposed from the take-out port following the tissue paper pulled out from the bundle is easily deformed into a shape having a high standing property because an edge portion thereof in the longitudinal direction is wound along an edge of the curved portion. In the opening perforation illustrated in the figure, falling of tissue paper into an internal space, which easily occurs in overlap packaging in which an exterior has a rectangular parallelepiped shape, hardly occurs.

[0059] Note that a cut tie ratio of the perforation forming the take-out port forming portion **5** can be appropriately determined depending on ease of breakage of a film to be used, but as a preferred example, a cut portion has a length of 0.8 mm or more and 5.0 mm or less, and a tie portion has a length of 0.3 mm or more and 5.0 mm or less. In addition, the take-out port forming portion **5** illustrated in FIG. **5** is preferably formed by forming a slit portion and a widening portion by perforations, and forming a curved portion by slit cutting in which an uncut portion is provided in a part (in the example illustrated, an end in the longitudinal direction) without forming the entire take-out port forming portion **5** by perforations. The take-out port is easily opened from the curved portion.

[0060] Specific examples of the flexible resin packaging film **4** constituting an exterior of the film-packaged tissue **1** include: a single-layer film of a polyethylene film, a polypropylene film, a polyester film, a polyethylene terephthalate film, a nylon film, a polyvinylidene chloride film, or an ethylene vinyl alcohol copolymer; a laminate film obtained by appropriately stacking these films; and a gas barrier film obtained by subjecting any of these films to a surface treatment such as aluminum vapor deposition. In addition, a biomass film derived from a plant raw material such as sugar cane, potato (starch), or corn can also be used. Use of such a biomass film is desirable from a viewpoint of environmental protection.

[0061] A polypropylene film and a polyethylene film are preferable from a viewpoint of cost. In addition, the packaging film **4** may be a satin film excellent in a design property and a hand feel property. Furthermore, in a case of packaging an odorous material such as scented tissue paper, an ethylene vinyl alcohol copolymer resin film and a polyethylene terephthalate resin film having an excellent aroma retaining property are desirable. The packaging film **4** 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 thermal fusibility.

[0062] The thickness of the packaging film **4** only needs to be appropriately selected in consideration of flexibility, cost, gas permeability, and thermal fusibility at the time of packaging, but preferably, it is desirable that a thickness measured in conform with JIS P 8118 (1998) is 25 to 75 μm, and a softness measured based on a handle-o-meter method in conform with JIS L 1096 (2010) E method is 5.0 to 50.0 cN. With a thickness of 25 to 75 μm, the rigidity of the end surface **4**A is sufficiently enhanced. In addition, with such a thickness and softness, the packaging film **4** is hardly broken, and is easily formed into a packaging film having an excellent tissue paper take-out property, particularly an excellent pop-up property. Note that the thickness is measured using a dial thickness gauge (thickness measuring instrument) "PEACOCK G-1A type" (manufactured by Ozaki MFG. Co. Ltd.) and its equivalent machine after a test piece is sufficiently subjected to humidity control under conditions of JIS P 8111 (1998).

[0063] In the film-packaged tissue assembly package **10** according to the present invention, the plurality of overlap-packaged film-packaged tissues **1** is gusset-packaged in the gusset packaging bag **13** such that the end surface **4**A faces a top surface side having a grip portion and a bottom surface side facing the top surface side, and a longitudinal direction thereof is along a top-bottom direction.

[0064] The gusset packaging is a packaging mode containing a packaging object in a bag-shaped space between bonded portions **41** and **42** bonded by thermal fusion or the like on the top and bottom sides, and particularly having gusset portions **43** and **43** between the front surface and the back surface. For example, as illustrated in FIGS. **8** and **9**, the gusset packaging is performed by thermally fusing a portion on a top surface side of a gusset tube obtained by folding side portions **40**E and **40**E of a tubular shaped gusset packaging film **14**, which is also referred to as a gusset tube **40**, into the bag inner side and flattening the side portions **40**E and **40**E to seal an opening on the top surface side as a top surface side sealing portion **41**, forming the grip portion **45**, then expanding a bottom surface side opening **40**X of the gusset packaging bag precursor sealed only on the top surface side, inserting a packaging object (in the illustrated mode, film-packaged tissues **1**, **1**, . . .) from the bottom surface side opening **40**X, and then also sealing the bottom surface side by an appropriate sealing means such as thermal fusion to form a lower sealing portion **42**. In the gusset packaging, the gusset packaging bag **13** serving as an exterior has gusset portions **43** and **43** formed by opening the side portions **40**E and **40**E folded in a flat state, and surfaces connected to the gusset portions **43**. Note that two surfaces connected to the gusset portions **43** and **43** are a front surface **46** and a back surface **46**. However, the front surface **46** and the back surface **46** are relative to each other, and which surface is defined as the front surface is not limited.

[0065] The grip portion **45** is a surplus portion provided on the top surface side with respect to the top surface side sealing portion **41** serving as a top surface side boundary with a bag portion containing the film-packaged tissue **1** in order to enhance portability of the assembly package. In the illustrated mode, a finger hook hole **47** is formed. When the finger hook hole **47** is formed in the grip portion **45** in this manner, the portability of the assembly package is further enhanced.

[0066] In addition, in the assembly package **10** according to the present invention, it is desirable that a cut portion **70** for opening with a perforation or the like for facilitating opening is formed. Furthermore, it is desirable that the cut portion is provided in a range Z**1** extending from a lower end of a portion where the finger hook hole **47** is formed in the top surface portion **44** extending from the front surface **46** or the back surface **46** to the grip portion **45** to the front surface **46** or the back surface **46**. In the top surface portion **44**, a force applied to the top surface portion **44** when a finger is hooked into the finger hook hole **47** and lifted varies depending on a position of the finger hook hole **47**. Specifically, a pulling force in the region Z**1** extending from the lower end of the portion where the finger hook hole **47** of the grip portion **45** is formed to the front surface **46** and the back surface **46** is smaller than that in a region extending from a lower end of a portion where the finger hook hole **47** is not formed to the front surface **26** and the back surface **26**. In addition, the top surface portion **44** is a portion easily visible to a user.

[0067] Therefore, when the cut portion **70** is formed at such a position, the assembly package is not unintentionally opened at the time of carrying, and the cut portion **70** can be easily visually recognized. The shape of the cut portion is not particularly limited, but as in the illustrated example, it

is desirable that the cut portion has a shape protruding toward the grip portion side, for example, a substantially arc shape. With this shape, a picking piece **70**A is formed by pressing the cut portion **70** to tear a perforation or the like. When the picking piece **70**A is pulled in a bottom surface direction, an opening port is easily formed on a front surface or a back surface of the gusset packaging bag as illustrated in FIG. **8**. A cut tie ratio of the perforation only needs to be appropriately designed.

[0068] It is desirable that the gusset packaging film **14** is a polypropylene film or a polyethylene film from viewpoints of cost and an opening property. The film preferably has a melting point of 150° C. or lower. Note that a lower melting point of the packaging film makes a thermal fusion treatment possible at a lower temperature, and is more preferable in sealing and forming a grip portion. However, when the melting point is excessively low, the packaging film is more likely to be scratched or a hole is more likely to be formed in the packaging film particularly due to friction or the like with four corner portions **4***t* of the end surface **4**A of the film-packaged tissue **1**. Therefore, a substantial lower limit is 80° C. Examples of the polyethylene film include a linear low-density polyethylene film (LLDPE), a low-density polyethylene film (LDPE), and a medium-density polyethylene film (MDPE). Among these films, in the present invention, a linear low-density polyethylene film layer (LLDPE) having a density of 0.910 to 0.940 g/cm^3 and a melting point of 110 to 120° C. is particularly suitable from viewpoints of thermal fusibility and cost. In addition, a single-layer film of a polyethylene terephthalate film, a nylon film, a polyvinylidene chloride film, or an ethylene vinyl alcohol copolymer, a laminate film obtained by appropriately stacking these films, or a gas barrier film obtained by subjecting any of these films to a surface treatment such as aluminum vapor deposition may be used. Similarly to the packaging film **4**, a biomass film derived from a plant raw material such as sugar cane, potato (starch), or corn can also be used. It is also desirable to use a biomass film for the gusset packaging film from a viewpoint of environmental protection.

[0069] The thickness of the gusset packaging film **14** constituting the gusset packaging bag **13** is appropriately selected in consideration of a relationship with the contained film-packaged tissue **1** in addition to circumstances peculiar to gusset packaging, such as tearability that makes opening easy at the time of opening, abrasion resistance particularly to the four corner portions **4***t* of the end surface of the contained film-packaged tissue **1**, and flexibility that prevents application of an excessive load to a finger when the gusset packaging bag **13** is carried with a finger through the finger hook hole formed in the grip portion in addition to flexibility, cost, and thermal fusibility at the time of packaging.

[0070] From such a point, as for the preferable thickness and softness of the gusset packaging film **14**, a thickness measured in conform with JIS P 8118 (1998) is 10 to 65 μm, and a softness measured in conform with a handle-o-meter method in accordance with JIS L 1096 (2010) E method is 5.0 to 50.0 cN.

[0071] In particular, it is desirable that the softness of the gusset packaging film **14** constituting the gusset packaging bag **13** is lower than the softness of the packaging film **4** constituting the film-packaged tissue **1**. In the gusset packaging bag **13** having the grip portion on the top surface side, when the grip portion **45** is held, the gusset packaging bag **13** is pulled in the top-bottom direction. Therefore, pressure may be applied to the film-packaged tissues **1**, **1** . . . , which is a packaging object to be contained at this time. However, by lowering the softness of the gusset packaging film **14**, the rectangular parallelepiped shape of the film-packaged tissue **1** to be contained is hardly deformed, fullness is hardly reduced without pressing the bundle **3** inside, and a take-out property such as a pop-up property is hardly deteriorated.

[0072] As an arrangement mode of the film-packaged tissues **1** in the gusset packaging bag **14**, as in the illustrated mode, it is desirable that the plurality of film-packaged tissues **1**, **1** . . . is arranged so as to form a substantially rectangular parallelepipedon as a whole such that the end surfaces **4**A are substantially flush with each other and long side surfaces **4**B are substantially flush with each other. When the film-packaged tissues **1**, **1** . . . are arranged in a substantially rectangular parallelepipedon in this manner, stability and shape retention as a whole of the assembly are enhanced, and the assembly is hardly collapsed or crushed by an external force. In addition, when the film-packaged tissues **1** are arranged in this manner, the assembly of the film-packaged tissues **1** has a rectangular parallelepiped shape in which an end surface assembly surface having high rigidity is formed on each of a top surface and a bottom surface. Therefore, the film-packaged tissues **1** is less likely to be crushed or damaged by an external force particularly from the top-bottom direction is reduced. However, the arrangement of the film-packaged tissues **1** in the film-packaged tissue assembly package **10** according to the present invention is not limited to this mode.

[0073] Here, as described above, in the gusset packaging bag **13** having the grip portion **45** on a top surface side, when the grip portion **45** is held, the gusset packaging bag **13** is pulled in the top-bottom direction. Therefore, a contained packaging object and the gusset packaging film **14** may be rubbed against each other at this time. In the gusset packaging bag **13**, a ridge line **14**E between the gusset portion **43** and the front surface **46** and a ridge line **14**E between the gusset portion **43** and the back surface **46**, which are fold lines **14**E when the gusset packaging bag **13** is a gusset tube as a precursor of the packaging bag, may be fragile. As illustrated in FIG. **9**, in particular, there is a gusset tube **40** in which one sheet is formed into a tubular shape and end edges thereof are bonded to each other to form a tube, and one of the fold lines **14**E is an adhesive edge portion **49**. In the gusset packaging bag **13** derived from the gusset tube configured in this manner, particularly the fold line **14**E related to the adhesive edge portion **49** is easily torn. Furthermore, particularly in the gusset packaging having the grip portion **45** on a top surface side, a slight gap is formed on the top surface side. Therefore, restraint performance of a packaging object in the top-bottom direction tends to be weaker than that in a direction orthogonal to the top-bottom direction. On the other hand, in the overlap packaging, particularly the four corner portions **4***t* of the end surface **4**A formed by the tube opening sealing portion has high rigidity and tends to be sharp.

[0074] Therefore, in a film-packaged tissue used as a stationary type having a larger mass as compared with a portable film-packaged tissue, for example, as illustrated in FIG. **11** as a comparative embodiment, in a case of a mode **110**A in which film-packaged tissues **101**A each having an end surface **104**A sealing a tube opening of overlap packaging are stacked and arranged such that the end surface **104**

faces a direction orthogonal to a top-bottom direction similarly to a conventional box product, four corner portions **104***t* of a large number of the end surfaces **104**A are rubbed against a gusset packaging bag, the film-packaged tissue **101**A is not sufficiently restrained in a space on a top surface side and moves in a gusset packaging bag **113** when the gusset packaging bag **113** is carried with a grip portion **145**, the four corner portions **104***t* of the large number of end surfaces **104**A of the film-packaged tissues **101**A are rubbed against the gusset packaging bag **113**, and particularly a fragile portion in a vicinity **114**Z of a ridge line **114**E between a gusset portion **43** and a front surface and a fragile portion in a vicinity **114**Z of a ridge line **114**E between the gusset portion and a back surface may be torn (a torn portion in FIG. **9** is denoted by reference character **200**). In particular, when the packaging object has a rectangular parallelepiped shape as in the comparative embodiment, and four edges along the top-bottom direction of the gusset packaging bag **113**, that is, the ridge line **114**E between the gusset portion and the front surface and the ridge line **114**E between the gusset portion and the back surface easily coincide with the four corner portions **104***t* of the end surfaces **104**A, a risk of breakage is significantly large. Such breakage does not occur in a lightweight portable film-packaged tissue, but significantly easily occur in a film-packaged tissue used as a stationary type having a large mass.

[0075] In the assembly package according to the present invention, since the film-packaged tissues **1**, **1** . . . are packaged such that each end surface **4**A faces the top surface side where the grip portion **45** is formed and the bottom surface side facing the top surface side, and the longitudinal direction is along the top-bottom direction, such a risk is much smaller. In order to further reduce such a risk, it is desirable that as the number and the assembly mode of the film-packaged tissues **1** in the gusset packaging bag **13**, the film-packaged tissues are arranged in two or less stages in the top-bottom direction. When the number of stages of the film-packaged tissues **1** exceeds two in the top-bottom direction, shape maintainability of the assembly package is deteriorated. Specifically, in the assembly package **10** according to the present invention, since the longitudinal direction of the film-packaged tissue **1** is a direction along the top-bottom direction, when the number of stages exceeds two and is three or more, a standing property in the top-bottom direction is deteriorated, a gap is easily generated between the stages, and rubbing between the gusset packaging film **14** and the film-packaged tissues **1** easily occurs. In addition, since the number of easily contacting portions between the four corner portions **4***t* of the end surfaces **4**A of the film-packaged tissues **1** and the gusset packaging film **14** also increases, a risk of breakage of the gusset packaging film **14** increases. However, if at least the same number of film-packaged tissues **1** are packaged, the arrangement mode according to the present invention is superior to a mode in which film-packaged tissues **1** are stacked such that the end surfaces **4**A face a direction orthogonal to the top-bottom direction like a reference embodiment.

[0076] The number of arrangement rows of the film-packaged tissues **1** in the direction orthogonal to the top-bottom direction is not particularly limited, but it is desirable that the number is six or less. As an example of a preferred mode, as illustrated in FIG. **1**, a total of five or six arrangement mode in which film-packaged tissues are arranged in one stage in the top-bottom direction, and five rows of film-packaged tissues or six rows of film-packaged tissues (not illustrated) are arranged in the direction orthogonal to the top-bottom direction, or as illustrated in FIG. **2**, a total of ten or twelve arrangement mode in which film-packaged tissues are arranged in two stages in the top-bottom direction, and five rows of film-packaged tissues or six rows of film-packaged tissues (not illustrated) are arranged in the direction orthogonal to the top-bottom direction is preferable. Alternatively, although not illustrated, a total of ten or twelve arrangement mode in which film-packaged tissues are arranged in one stage in the top-bottom direction, five or six rows of film-packaged tissues are arranged in the direction orthogonal to the top-bottom direction, and two rows of film-packaged tissues are further arranged in a front surface-back surface direction is preferable. These arrangement modes are excellent in maintainability of a rectangular parallelepiped shape and standing stability, are excellent in portability and a stacking property at a storefront, and can further provide a sufficient number of products for a general purchase frequency.

[0077] Furthermore, in the film-packaged tissue assembly package **10** according to the present invention, it is desirable that the film-packaged tissues **1** each have a bundle filling ratio of 100% or more. Here, the bundle filling ratio is a ratio of the height of the bundle **3** taken out from the packaging film **4** to the height of the film-packaged tissue **1**. In a specific measurement method, first, the film-packaged tissue **1** is subjected to humidity control for 24 hours under an environment of a standard state of 23° C.±1° C. and a humidity of 50±2% r.h according to JIS P 8111, and then placed on a horizontal table with an upper surface upward to measure the height of the film-packaged tissue **1**. An average value of measured values obtained by measuring a distance L**1** between sharp portions of the four corner portions **4***t* of the end surface **4**A at four places is used. Next, the bundle **3** is taken out from the film-packaged tissue **1**, subjected to humidity control for 24 hours under an environment of a standard state of 23° C.±1° C. and a humidity of 50±2% r.h according to JIS P 8111, and then placed on a horizontal table with an upper surface upward to measure the height of the bundle **3**. An average value of measured values obtained by measuring a distance between the four corner portions of the short side surface **3**A facing the end surface **4**A at four places is used. Next, a ratio of the height of the bundle **3** taken out from the packaging film **4** to the height of the film-packaged tissue **1** is calculated from the measured values.

[0078] 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 overlap packaging, the end surface **4**A has high rigidity and is hardly stretched or deformed. On the other hand, portions facing upper and lower surfaces and a longitudinal side surface of the bundle **3** of the packaging film **4** have flexibility, and therefore these positions and a longitudinal edge **1**E are deformed so as to slightly protrude. In a case where the film-packaged tissues **1** in which the longitudinal edge **1**E protrudes in this manner are formed into assembly packaging toward the top surface side where the grip portion **45** is formed and the bottom surface side facing the top surface side such that the longitudinal direction is along the top-bottom direction, when the gusset packaging bag is pulled in the top-bottom direction by holding the grip portion **45**, the four corner portions **4***t* of the end surface **4**A hardly comes into contact with the gusset

packaging film **14** constituting the gusset packaging bag **13** due to protrusion of the longitudinal edge **1**E, and the gusset packaging bag **13** is less likely to be broken.

[0079] Furthermore, in the film-packaged tissue assembly package **10** according to the present invention, it is desirable that the film-packaged tissue assembly arranged in the gusset packaging bag has a compression ratio of 80% or more in a direction orthogonal to the top-bottom direction. Here, the compression ratio in the direction orthogonal to the top-bottom direction is (a distance between the gusset portions of the gusset packaging bag (a width of the front surface or the back surface)) L**2** to (a length of the film-packaged tissue assembly in the direction orthogonal to the top-bottom direction when the film-packaged tissue assembly is not packaged) when packaging is performed such that the gusset portions **43** of the gusset packaging bag **14** face upper and lower surfaces **3**C of the film-packaged tissue **1**. The length of the film-packaged tissue assembly in the direction orthogonal to the top-bottom direction when the film-packaged tissue assembly is not packaged is calculated by (a height of one film-packaged tissue in an upper surface-lower surface direction)×(the number of rows in the direction orthogonal to the top-bottom direction). The height of one film-packaged tissue in the upper surface-lower surface direction is measured as follows unlike the height in the bundle filling ratio.

[0080] First, the individual film-packaged tissue **1** is taken out from the film-packaged tissue assembly package **10**, and is subjected to humidity control for 24 hours under an environment of a standard state of 23° C.±1° C. and a humidity of 50±2% r.h according to JIS P 8111. Next, the film-packaged tissue **1** is placed on a horizontal table, and a hard acrylic plate having a size protruding in a range of 5 cm or less from each edge (short side edge and long side edge) of an upper surface of the bundle is placed on an upper surface of the bundle **3**. 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 the depth, the size of the acrylic plate only needs to be 250 mm×130 mm. The mass is 32 g or less. Next, the heights of four corners of the acrylic plate from the horizontal table are measured, and an average value thereof is calculated. This measurement is performed on all the film-packaged tissues which have been taken out. A further average value of the calculated average values is defined as the height of one film-packaged tissue **1** in the upper surface-lower surface direction. A value obtained by multiplying the calculated value by the number of rows is defined as "the length of the film packaging assembly in the direction orthogonal to the top-bottom direction when the film packaging assembly is not packaged". Next, a distance between the gusset portions **43** of the gusset packaging bag **13** is measured. In the measurement, an average value of values obtained by measuring the width of the front surface **46** (between fold lines on the front surface) at three places and measuring the width of the back surface **46** (between fold lines on the back surface) at three places is used. Next, a ratio of a distance between the gusset portions (the width of the front surface or the back surface) of the gusset packaging bag **13** to the length in the direction orthogonal to the top-bottom direction when the film packaging assembly is not packaged is calculated.

[0081] When the compression ratio of the film-packaged tissue assembly arranged in the gusset packaging bag **13** in the direction orthogonal to the top-bottom direction exceeds 90%, the compression ratio is too high, and the end surface **4**A is easily distorted, and the fullness of the tissue paper **2** is easily reduced. An upper limit of the compression ratio is not particularly limited in the packaging mode of the present invention. The film-packaged tissue only needs not to be excessively move in the gusset packaging bag. The compression ratio is not necessarily 100% or less. However, when the compression ratio is 100% or less, movement of the film-packaged tissue assembly is restrained by an exterior film constituting the gusset packaging bag, the exterior film is hardly broken, and furthermore, the assembly package is hardly collapsed, and the shape retention of the rectangular parallelepipedon is enhanced. Therefore, it is more desirable that the compression ratio is 100% or less.

[0082] On the other hand, each of sheets of the tissue paper **2** constituting the bundle **3** packaged in the film-packaged tissue **1** has a ply structure in which two or three thin sheets each having a crepe are stacked and formed into a set. This tissue paper **2** is a dry type, and not a so-called wet type impregnated with a liquid chemical. Therefore, the bundle **3** formed by the tissue paper **2** contains a large amount of air. Note that as the dry type tissue paper **2**, there is also liquid chemical-imparting type tissue paper to which a liquid chemical such as a moisturizing component that increases moisture by moisture absorption, such as a polyol represented by glycerin, is applied, and such tissue paper is included in the dry type tissue paper **2**. Rather, since such liquid chemical-imparting type tissue paper has a low restoring property when being compressed due to a high moisture content, the action and effect of the present invention with less reduction in fullness are more effectively exhibited. Note that the moisture content of the liquid chemical-imparting type tissue paper is about 10 to 14% by mass. The moisture content is a ratio of moisture contained in tissue paper in a standard state.

[0083] As a raw material pulp of thin sheets constituting the tissue paper **2**, a pulp obtained by blending NBKP and LBKP is used. The raw material pulp may contain a used paper pulp, but preferably contains only NBKP and LBKP from a viewpoint of texture or the like. A blend ratio thereof is preferably NBKP:LBKP=20:80 to 80:20, and particularly preferably NBKP:LBKP=30:70 to 60:40.

[0084] A basis weight per thin sheet constituting each ply of the tissue paper **2** is 10 to 25 g/m^2. The basis weight is preferably 12 to 18 g/m^2. The basis weight here is measured by the measurement method of JIS P 8124 (1998). The paper thickness of the tissue paper **2** for two plies is 90 to 200 μm, and more preferably 90 to 140 μm. The paper thickness for three plies is 120 to 300 μm. The paper thickness here is a value obtained by sufficiently subjecting a test piece to humidity control under conditions of JIS P 8111 (1998), and then measuring the paper thickness in a state of a plurality of plies using a dial thickness gauge (thickness measuring instrument) "PEACOCK G type" (manufactured by Ozaki MFG. Co. Ltd.) and its equivalent machine under the same conditions.

[0085] Tissue paper having the above basis weight and paper thickness sufficiently exhibits an effect thereof particularly without reducing fullness when the tissue paper is formed into an assembly package having a low compression ratio according to the present invention. Note that the top-bottom direction and the up-down direction in the present invention and the present specification are appropriately changed depending on the directions of the film-packaged

tissue assembly package and the film-packaged tissue, and do not mean absolute directions.

REFERENCE SIGNS LIST

[0086] **1**, **101**, **101**A Film-packaged tissue
[0087] **1**E Longitudinal edge of film-packaged tissue
[0088] **2** Tissue paper
[0089] **2**A Inner side of folded sheet
[0090] **2**B Folded piece
[0091] **2**C Folded edge
[0092] **3** Bundle of tissue paper
[0093] **3**A short side surface
[0094] **3**B Longitudinal side surface
[0095] **3**C Upper and lower surfaces of bundle
[0096] **4** Packaging film
[0097] **4***t* Four corner portions of end surface
[0098] **4**X Overlapping portion of packaging film
[0099] **4**Y Extending portion of packaging film
[0100] **4**Z Tube opening of packaging film
[0101] **4**A, **140**A End surface
[0102] **4**B Long side surface
[0103] **4**C Upper surface
[0104] **5** Opening perforation
[0105] **10**, **110**A Film-packaged tissue assembly package
[0106] **13**, **113** Gusset packaging bag
[0107] **14** Gusset packaging film
[0108] **14**E Folding line
[0109] **40** Gusset tube
[0110] **40**E Side portion of gusset packaging film in gusset tube mode
[0111] **40**X Bottom surface side opening of gusset packaging bag precursor
[0112] **41** Top surface side sealing portion
[0113] **42** Bottom surface side sealing portion
[0114] **43** Gusset portion
[0115] **44** Top surface portion
[0116] **45**, **145** Grip portion
[0117] **46** Front surface, Back surface
[0118] **47** Finger hook hole
[0119] **49** Bonded portion
[0120] **50** Opening portion
[0121] **51** Slit portion
[0122] **52** Widening portion
[0123] **53** Curved portion
[0124] **110**Z Space
[0125] **110**A, **110**B Tissue paper package assembly package
[0126] **101** Tissue paper package (box product)
[0127] **111** Exterior film
[0128] **70** Cut portion
[0129] **70**A Picking piece
[0130] L**1** Distance between four corner portions of end surface in height direction
[0131] L**2** Width of front surface or back surface of gusset packaging bag
[0132] L**3** Length of take-out port forming portion **5** in longitudinal direction
[0133] L**4** Length of bundle in longitudinal direction

1. A film-packaged tissue assembly package comprising:
a gusset packaging bag having a grip portion on a top surface side; and
a plurality of film-packaged tissues arranged and packaged in the gusset packaging bag, wherein
each of the film-packaged tissues is overlap-packaged and has end surfaces formed of sealed portions of tube openings at both ends in a longitudinal direction, and
the overlap-packaged film-packaged tissues are gusset-packaged such that each end surface faces the top surface side having the grip portion and a bottom surface side facing the top surface side, and the longitudinal direction is along a top-bottom direction.

2. The film-packaged tissue assembly package according to claim **1**, wherein
the film-packaged tissue paper is obtained by overlap-packaging a bundle of tissue paper having a substantially rectangular parallelepiped shape in which a plurality of sheets of tissue paper is folded and stacked, and has a take-out port forming portion of the tissue paper on an upper surface, and the end surface formed by the barrel opening sealing portion is located facing a short side surface of the bundle.

3. The film-packaged tissue assembly package according to claim **1**, wherein
packaging is performed such that the plurality of film-packaged tissues is arranged in a substantially rectangular parallelepiped shape such that the end surfaces are substantially flush with each other and long side surfaces are substantially flush with each other, and gusset portions of the gusset packaging bag face upper or lower surface of the film-packaged tissues.

4. The film-packaged tissue assembly package according to claim **3**, wherein
two or less stages of the film-packaged tissues are arranged in the gusset packaging bag in the top-bottom direction such that the end surfaces butt against each other.

5. The film-packaged tissue assembly package according to claim **3**, wherein
the film-packaged tissue assembly arranged in the gusset packaging bag has a compression ratio of 80% or more in a direction orthogonal to the top-bottom direction.

6. The film-packaged tissue assembly package according to claim **1**, wherein
the film-packaged tissues each have a bundle filling ratio of 100% or more.

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