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Description

Technical Field

[0001] The present invention relates to an end portion structure of a paper product, and a package made of paper.

Background Art

[0002] Conventionally, as a package (a pack) that houses a housed object such as tobacco products, a soft pack type package, a hard type package and the like have been known to the public. As one form of a hard type package, a hinge lid package (also referred to as a hinge lid box) including a lid is known. A hinge lid package of this kind usually has a box-shaped external shape, and a housing portion that houses a cigarette bundle, and a lid for opening and closing an opening end that is formed at an upper portion of the housing portion are turnably connected via a hinge that is provided along an edge portion of the opening end.

[Patent document 1] National Publication of International Patent Application No. 2005-512909

[Patent document 2] Japanese Patent Laid-Open No. 2009-292516

[Patent document 3] National Publication of International Patent Application No. 2006-521245

[Patent document 4] Japanese Patent Laid-Open No. 2011-68411

[Patent document 5] DE 199 38 167 A1

[Patent document 6] WO 2013/075989 A1

[Patent document 7] US 2011/062037 A1

Patent Document 5 describes a hinge-lid box for cigarettes with a lid comprising a bend portion being bent and bonded to a lid front end portion along a rectilinear bend line; in vicinity of the said bend line several further substantially U-shaped lines are provided for fastening the lid in a closed position.

Patent document 6 describes a container for consumer goods having a pivotable lid.

Patent document 7 describes a slide-open package of tobacco articles having a parallelepiped-shaped inner container.

Summary of Invention

Technical Problem

[0003] Hinge lid packages are generally made of paper, and in the hinge lid package made of paper, there has been the problem that a gap occurs between a lid and a main body due to deflection of paper. In order to solve the problem like this, there is proposed an art of preventing occurrence of a gap by fitting a lid and a part of a main body. However, in the conventional art like this, complication of the structure of the package is feared.

Further, deterioration of paper at the fitted spot by being repeatedly fitted is also feared. Note that these problems are not limited to hinge lid packages, but can be said of all paper products including slide type packages having inner boxes and outer boxes. In particular, at the end portions of paper products, deflection and deterioration are feared.

[0004] In the light of the above described problems, the present invention has an object to provide an art of restraining deflection and deterioration of an end portion of a paper product.

Solution to Problem

[0005] In the present invention, in order to solve the aforementioned problems, an end portion of a paper product is bent, and a way of bending is devised, so that a tensile force can be given to a bend portion in advance.

[0006] In more detail, the present invention is an end portion structure of a paper product, including an end portion of the paper product, a bend portion that connects to the end portion, is bent to a side of the end portion, and is bonded to the end portion, a rectilinear bend line which is provided in a border between the end portion and the bend portion, and in (along) which the bend portion is bent, and a ruled line that is provided in a vicinity of the bend line, and in the end portion or the bend portion, with a distance from the bend line changing, and is the ruled line in which the end portion or the bend portion bends when the bend portion is bent.

[0007] One of features of the end portion structure of a paper product according to the present invention is including the ruled line in addition to the bend line. The ruled line is for facilitating bending a paper product similarly to an ordinary ruled line, and can be formed by a fold, perforations, and a thin-walled portion. A paper product is originally bent in a ruled line position, but in the end portion structure of a paper product according to the present invention, the paper product is bent in the bend line which is different from the ruled line, contrary to the ruled line, although the end portion structure of a paper product according to the present invention has the ruled line for bending. Here, when the paper product is bent, a restoration force to return to an original position acts in the bent position. In the end portion structure of a paper product according to the present invention, the bend portion is also bent in the ruled line, in addition to being bent in the bend line, and a restoration force also acts in the ruled line. Further, the ruled line is formed so that the distance from the bend line changes. Consequently, when compared with a case where the ruled line is formed into a shape of a straight line parallel with the bend line, bending is difficult in the ruled line. Accordingly, when the paper product is bent in the rectilinear bend line, the paper product bends while resisting in the ruled line, and therefore a stronger restoration force acts. Further, the bend portion is bonded to the end portion. As a result, the bend portion cannot return to the original po-

sition, although the restoration force which is stronger than the conventional restoration force acts on the end portion of the paper product. Consequently, in the end portion structure of a paper product according to the present invention, a tensile force acts on an inside of the end portion of a paper product, and the end portion of a paper product is restrained from deflecting. That is, in the end portion structure of a paper product according to the present invention, deflection of paper due to deterioration over time is restrained by controlling the tensile force, in other words, controlling deflection. Further, since in the end portion structure of a paper product according to the present invention, the bend portion is bent to make a double structure, and further the structure is very simple, so that deterioration hardly occurs.

[0008] The ruled line is formed into a V shape in which the distance from the bend line gradually becomes longer, and becomes shorter again. By forming the ruled line into the V- shape, work of the ruled line is facilitated, and adjustment of the tensile force is easily performed. The number of V-shapes may be one, or may be more than one. In other words, the ruled line may be of a structure having a plurality of the V-shapes. By providing the plurality of V-shapes, a stronger tensile force can be caused to act. In the ruled line, a vertex of the V-shape may be provided at either the end portion side or the bend portion side of the paper product, but is more preferably provided at the bend portion side. By providing the ruled line at the bend portion side, directions of restoration forces of the bend line and the ruled line correspond to each other, and a stronger tensile force can be caused to act.

[0009] Here, the ruled line may extend from both end portions of the rectilinear bend line, and may form a predetermined angle with the bend line. The present invention is an example in which base ends of two lines forming the V-shape are provided at both the end portions of the bend line. By extending the V-shaped ruled line from both the end portions of the bend line, the ruled line is close to the bend line in vicinities of both the end portions of the bend line, and the distance from the bend line gradually becomes longer toward the center. Consequently, when the paper product bends in the ruled line, it is hardly noticeable, and a change of the shape of the paper product by providing the ruled line can be decreased. When the predetermined angle is made large, bending becomes difficult in the ruled line, and therefore the tensile force increases. When the predetermined angle is made small, bending becomes easy in the ruled line, and the tensile force decreases. Further, when the predetermined angle is made large, the thickness of the end portion increases, the shape of the paper product changes, and the influence on the paper product is feared. By making the predetermined angle small, the change of the shape of the paper product can be decreased. Accordingly, the predetermined angle can be designed with the tensile force, and the change of the shape of the paper product taken into consideration. The ruled line may be in a rectilinear shape or may be in a curved shape. When

the ruled line is in a curved shape, the angle formed by the ruled line and the bend line can be made an angle formed by a tangential line of the ruled line in a curved shape and the bend line in a rectilinear shape.

[0010] Further, the predetermined angle can be made 0.1 degrees to 5.0 degrees. The predetermined angle can be preferably made 0.2 degrees to 2.0 degrees. The predetermined angle can be more preferably made 0.5 degrees to 1.0 degree. Thereby, a sufficient tensile force can be caused to act, and the change of the shape of the paper product can be restrained.

[0011] Further, in the bend portion, a distal end portion may be bonded to the end portion. By bonding the distal end portion on which the restoration force acts most significantly, the tensile force can be effectively caused to act. The bend portion may be entirely bonded to the end portion.

[0012] Further, tensile forces that act on an inside of the end portion of the paper product can be caused to differ between a case where the ruled line is provided in the end portion, and a case where the ruled line is provided in the bend portion. When the ruled line is provided in the end portion, the end portion side can be expanded in the end portion structure of a paper product. When the ruled line is provided in the bend portion, the bend portion side can be expanded (the end portion side is recessed) in the end portion structure of a paper product. That is, a direction to expand (a direction to recess) the end portion structure can be determined depending on a position where the ruled line is provided. Accordingly, the position where the ruled line is provided can be properly changed in accordance with a use purpose of the paper product.

[0013] Here, the present invention can be defined as the package having the end portion structure of a paper product described above. For example, the present invention is a package made of paper, including an end portion that forms at least a part of an opening edge of the package of paper, a bend portion that connects to the end portion, is bent to a side of the end portion, and is bonded to the end portion, a rectilinear bend line that is provided in a border between the end portion and the bend portion, and in (along) which the bend portion is bent, and a ruled line that is provided in a vicinity of the bend line, and in the end portion or the bend portion, with a distance from the bend line changing, and is the ruled line in which the end portion or the bend portion bends when the bend portion is bent.

[0014] In the package made of paper according to the present invention, a tensile force acts on an inside of the end portion that forms at least a part of the opening edge of the package made of paper. Consequently, deflection due to deterioration over time in the opening of the package can be restrained. Accordingly, when the package is formed by the lid unit and the housing unit, a gap hardly occurs between the lid unit and the housing unit. Further, in the package made of paper according to the present invention, the bend portion is bent to make a double structure, and further, the structure is very simple, so that the

opening of the package is hardly deteriorated.

[0015] The package made of paper can be made a package including a housing portion in a substantially rectangular parallelepiped shape that houses a housed object and has an opening from which the housed object is taken out, and a lid unit that covers at least the opening. In the package like this, the end portion structure according to the present invention described above can be used in an end portion of the lid unit, for example, an end portion of the top wall of the lid unit or the front wall of the lid unit. Further, the end portion structure according to the aforementioned present invention may be used in the end portion of the opening of the housing unit. More specifically, the present invention is a package made of paper including a housing portion in a substantially rectangular parallelepiped shape that houses a housed object, and has an opening from which the housed object is taken out, and a lid unit that covers at least the opening, and is a package made of paper including a bend portion that connects to at least either one of an end portion of the lid unit and an end portion of the opening of the housing unit, is bent to an inside of the package, and is bonded to the end portion, a rectilinear bend line that is provided in a border between the end portion and the bend portion, and in (along) which the bend portion is bent, and a ruled line that is provided in a vicinity of the bend line, and in the end portion or the bend portion, with a distance from the bend line changing, and is the ruled line in which the end portion or the bend portion bends when the bend portion is bent. By bending the bend portion to the inside of the package, a tensile force toward the inside acts on the end portion of the lid unit and the end portion of the opening of the housing portion. As a result, a gap hardly occurs between the lid unit and the housing unit.

[0016] Further, the package made of paper can be made, for example, a package including an inner box that houses a housed object and has an opening from which the housed object is taken out, and an outer box that houses the inner box, and has a putting-in-and-taking-out port through which the inner box is put in and taken out. In the package like this, the end portion structure according to the present invention described above may be used in the end portion of the opening of the inner box. Further, the end portion structure according to the present invention described above may be used in the end portion of the putting-in-and-taking-out port of the outer box. More specifically, the present invention is a package made of paper including an inner box that houses a housed object, and has an opening from which the housed object is taken out, and an outer box that houses the inner box, and has a putting-in-and-taking-out port through which the inner box is put in and taken out, and is a package made of paper including a bend portion that connects to at least either one of an end portion of the opening of the inner box and an end portion of the putting-in-and-taking-out port of the outer box, is bent to an inside of the package, and is bonded to the end portion, a rectilinear bend line that is provided in a border between the

end portion and the bend portion, and in (along) which the bend portion is bent, and a ruled line that is provided in a vicinity of the bend line, and in the end portion or the bend portion, with a distance from the bend line changing, and is the ruled line in which the end portion or the bend portion bends when the bend portion is bent. By bending the bend portion to the inside of the package, a tensile force toward the inside acts on the end portion of the opening of the inner box and the end portion of the putting-in-and-taking-out port of the outer box. As a result, a gap hardly occurs between the inner box and the outer box.

[0017] Note that the package made of paper to which the end portion structure of a paper product of the present invention is applied is not limited to what is described above. The end portion structure of a paper product of the present invention can be widely used in the end portion of a package made of paper that is an end portion of a package made of paper that can be bent. In the aforementioned package, a tensile force is caused to act on the inside of the package, but a tensile force can be also caused to act on an outside of the package in accordance with a use purpose. For example, in a package including a lid unit having a front wall, and a housing unit having a front wall that partially overlaps the front wall of the lid unit, an end portion structure that causes a tensile force to act on the outside of the package can be used in an end portion of the front wall of the housing unit. Thereby, the resistance between the front wall of the housing object and the front wall of the lid unit increases, and lid closure is enhanced.

[0018] Further, the present invention can be also defined as a blank of the package made of paper described above. For example, the present invention is a blank of a package made of paper including a housing unit in a substantially rectangular parallelepiped shape that houses a housed object, and has an opening from which the housed object is taken out, and a lid unit that covers at least the opening, and is a blank of a package made of paper including a lid panel forming the lid unit, a housing panel that connects to the lid panel, or formed of a separate member from the lid panel, and forms the housing unit, a reinforcement panel that connects to at least either one end portion of an end portion of the lid panel and an end portion of the housing panel, is bent to an inside of the package, and is bonded to at least either one panel of the lid panel and the housing panel, a rectilinear bend line that is provided in a border of the end portion of the lid panel or the end portion of the housing panel, and the reinforcement panel, and in which the reinforcement panel is bent, and a ruled line that is provided in a vicinity of the bend line, and in at least one of the lid panel or the housing panel, and the reinforcement panel, with a distance from the bend line changing, and is the ruled line in which one of the lid panel or the housing panel and the reinforcement panel bends when the reinforcement panel is bent.

[0019] Further, for example, the present invention is a

blank of a package made of paper including an inner box that houses a housed object, and has an opening from which the housed object is taken out, and an outer box that houses the inner box and has a putting-in-and-taking-out port through which the inner box is put in and taken out, and is the blank of the package made of paper including an inner box panel forming the inner box, an outer box panel that is formed of a separate member from the inner box panel, and forms the outer box unit, a reinforcement panel that connects to at least either one end portion of an end portion of the inner box panel and an end portion of the outer box panel, is bent to an inside of the package, and is bonded to at least either one panel of the inner box panel and the outer box panel, a rectangular bend line that is provided in a border between the end portion of the inner box panel or the end portion of the outer box panel, and the reinforcement panel, and in which the reinforcement panel is bent, and a ruled line that is provided in a vicinity of the bend line, and in one of the inner box panel or the outer box panel, and the reinforcement panel, with a distance from the bend line changing, and is the ruled line in which one of the inner box panel or the outer box panel, and the reinforcement panel bends when the reinforcement panel is bent.

[0020] Although the housed object that is housed in the housing unit of the package made of paper is not specially limited, an aggregate of bar-shaped articles, for example, a tobacco product can be preferably illustrated as the housed object. That is, the housed object according to the present invention may be a tobacco product. Note that the tobacco products may include, for example, cigarettes (filter cigarettes, plain cigarettes (no filter)), cigars (rolled in dried tobacco leaf), cigarillos, snus, snuff, chewing tobacco, electronic cigarettes and others.

[0021] Note that means for solving the problems in the present invention can be adopted by being combined as much as possible.

Advantageous Effects of Invention

[0022] According to the present invention, an art of restraining deflection and deterioration of the end portion of a paper product can be provided.

Brief Description of Drawings

[0023]

Fig. 1 illustrates a production process of an end portion structure of a paper product according to a first embodiment.

Fig. 2 illustrates an enlarged plan view before bending of the end portion structure of a paper product according to the first embodiment.

Fig. 3A illustrates a plan view of the end portion structure of a paper product according to the first embodiment.

Fig. 3B illustrates a sectional view along line A-A in

Fig. 3A.

Fig. 3C illustrates a sectional view along line B-B in Fig. 3A.

Fig. 4 illustrates an enlarged plan view before bending of an end portion structure of a paper product according to modification 1 of the first embodiment. Fig. 5 illustrates an enlarged plan view before bending of an end portion structure of a paper product according to modification 2 of the first embodiment. Fig. 6 illustrates a perspective view of a state where a lid of a package according to a second embodiment is closed, seen from an upper front side.

Fig. 7 illustrates a perspective view of a state where the lid of the package according to the second embodiment is opened, seen from an upper front side. Fig. 8 illustrates a plan view of the state where the lid of the package according to the second embodiment is closed, seen from above.

Fig. 9 illustrates a blank in a vicinity of a top wall of the lid, in a blank of the package according to the second embodiment.

Fig. 10 illustrates a perspective view of a state where a lid of a package according to a third embodiment is closed, seen from an upper front side.

Fig. 11 illustrates a perspective view of a state where the lid of the package according to the third embodiment is opened, seen from the upper front side.

Fig. 12 illustrates a front view of the state where the lid of the package according to the third embodiment is closed, seen from a front.

Fig. 13 illustrates a plan view of the state where the lid of the package according to the third embodiment is closed, seen from above.

Fig. 14 illustrates a blank of the package according to the third embodiment

Fig. 15 illustrates a perspective view of a state where an inner box of a package according to a fourth embodiment is housed in an outer box, seen from an upper front side.

Fig. 16 illustrates a perspective view of a state where the inner box of the package according to the fourth embodiment is slid from the outer box, seen from the upper front side.

Fig. 17 illustrates a perspective view of a state where the inner box of the package according to the fourth embodiment is taken out from the outer box, seen from the upper front side.

Description of Embodiments

[0024] Next, embodiments of an end portion (part) structure of a paper product according to the present invention will be described based on the drawings.

<Production process>

[0025] Fig. 1 illustrates a production process of an end portion structure of a paper product according to a first

embodiment. Reference signs (a-1) to (a-4) at a left side of Fig. 1 illustrate plan views of the end portion of a paper product. Reference signs (b-1) to (b-4) at a right side of Fig. 1 denote plane sectional views of the end portion of a paper product.

[0026] In production of the end portion structure of a paper product according to the first embodiment, a ruled line RL is worked for the paper product first. As illustrated in Fig. 1 (a-1) and Fig. 1 (b-1), an end portion structure 1 of a paper product according to the first embodiment includes an end portion 2 of a paper product, a bend portion (a folding portion) 4 that connects to the end portion 2, is bent to a side of the end portion 2, and is bonded to a margin 3 for bonding in the end portion 2, a rectilinear bend line BL which is provided on a border between the end portion 2 and the bend portion 4, and in which the bend portion 4 is bent, and a V-shaped ruled line RL that is provided in a vicinity of the bend line BL, and in the bend portion 4, with a distance from the bend line BL changing, and is the ruled line RL that bends when the bend portion 4 is bent.

[0027] Fig. 2 illustrates an enlarged plan view before bending of the end portion structure of a paper product according to the first embodiment. One of features of the end portion structure 1 of a paper product according to the first embodiment is including the V-shaped ruled line RL in the vicinity of the rectilinear bend line BL. The ruled line RL is for facilitating bending a paper product similarly to an ordinary ruled line. The ruled line RL can be formed by a fold, perforations, and a thin-walled portion. As work of the ruled line RL, an existing working technique, work by a plotter, and work by embossing are illustrated.

[0028] In the ruled line RL of the first embodiment, two straight lines forming a V-shape extend from both end portions of the rectilinear bend line BL, and form predetermined angles α with the bend line BL. In the first embodiment, the predetermined angle α is one degree. The predetermined angle α is not limited to this angle. The predetermined angle α can be made 0.1 degrees to 5.0 degrees.

The predetermined angle α can be preferably made 0.2 degrees to 2.0 degrees. The predetermined angle α can be more preferably made 0.5 degrees to 1.0 degree. When the predetermined angle α is made large, bending becomes difficult in the ruled line RL, and therefore, a tensile force increases. When the predetermined angle α is made small, bending becomes easy in the ruled line RL, and the tensile force decreases. Further, when the predetermined angle α is made large, a thickness of the end portion increases, and the shape of the paper product changes, whereby an influence on the paper product is feared. By making the predetermined angle α small, change of the shape of the paper product can be decreased. Accordingly, the predetermined angle α can be designed with consideration given to the tensile force and the change of the shape of the paper product. The ruled line RL may be in a curved shape.

[0029] Explanation will return to Fig. 1. As illustrated

in Fig. 1 (a-2) and (a-3) and Fig. 1 (b-2) and (b-3), in production of the end portion structure 1 of the paper product according to the first embodiment, the bend portion 4 is bent in the bend line BL next. In the end portion structure 1 of the paper product according to the first embodiment, the bend portion 4 is also bent in the V-shaped ruled line RL in addition to the bend portion 4 being bent in the bend line BL. Consequently, as illustrated in Fig. 1 (a-3), a vicinity of the bend line BL and the ruled line RL slightly becomes V-shaped. The drawing illustrates by emphasizing, and when the predetermined angle α is one degree, the vicinity of the bend line BL and the ruled line RL is substantially rectilinear. The same also applies to the other drawings.

[0030] As illustrated in Fig. 1 (a-4) and Fig. 1 (b-4), in production of the end portion structure 1 of a paper product according to the first embodiment, the bend portion 4 is bonded to the margin 3 for bonding in the end portion 2 next. In the first embodiment, a distal end portion of the bend portion 4 is bonded. By bonding the distal end portion on which a restoration force acts most significantly, the tensile force can be caused to act effectively. Note that the bend portion 4 may be entirely bonded to the end portion 2. By the above, the end portion structure 1 of a paper product according to the first embodiment is completed.

<Structure>

[0031] Fig. 3A illustrates a plan view of the end portion structure of a paper product according to the first embodiment. Fig. 3B illustrates a sectional view along line A-A in Fig. 3A. Fig. 3C illustrates a sectional view along line B-B in Fig. 3A. The end portion structure 1 of the paper product according to the first embodiment is bent in the rectilinear bend line BL, and the ruled line RL, the end portion 2 and the bend portion 4 overlap each other to be in a double structure. Further, the end portion 2 and the bend portion 4 curve in such a manner that the bend portion 4 side expands.

<Operational effect>

[0032] Although a paper product is originally bent in a ruled line position, the paper product is bent in the bend line BL which is different from the ruled line RL, in the end portion structure 1 of a paper product according to the first embodiment. Here, when the paper product is bent, a restoration force to return to the original position acts in the bent position. In the end portion structure 1 of a paper product according to the first embodiment, the bend portion 4 is also bent in the ruled line RL, in addition to being bent in the bend line BL, and a restoration force also acts in the ruled line RL. Further, the ruled line RL is formed into the V-shape so that the distance from the bend line BL changes. Consequently, as compared with a case where the ruled line RL is formed into a rectilinear shape parallel with the bend line, the V-shaped ruled line

RL is difficult to bend. Accordingly, when the paper product is bent in the rectilinear bend line BL, the paper product is bent while resisting in the ruled line RL, and therefore a stronger restoration force acts. Further, the bend portion 4 is bonded to the end portion 2. As a result, the bend portion cannot return to the original position, although the restoration force which is stronger than the conventional restoration force acts on the end portion 2 of the paper product. Consequently, in the end portion structure 1 of the paper product according to the first embodiment, a tensile force acts on an inside of the end portion 2 and the bend portion 4 so that the bend portion 4 side expands. As a result, the end portion 2 and the bend portion 4 curve so that the bend portion 4 side expands. Since in the end portion structure 1 of a paper product according to the first embodiment, the tensile force acts on the inside of the end portion 2 and the bend portion 4 in advance, deflection of paper due to deterioration over time can be restrained. Further, since the end portion structure 1 of a paper product according to the first embodiment is a double structure with the end portion 2 and the bend portion 4 overlapping each other, and further is a very simple structure, and therefore, is difficult to deteriorate.

[0033] Further, by extending the V-shaped ruled line RL from both end portions of the bend line BL, the ruled line RL is close to the bend line BL in vicinities of both end portions of the bend line BL, and the distance from the bend line BL becomes gradually longer toward a center. Consequently, when the paper product is bent in the ruled line RL, it is not inconspicuous, and a change in the shape of the paper product by providing the ruled line RL can be decreased.

<Modification 1>

[0034] The end portion structure 1 of a paper product according to the first embodiment is only an example. For example, as for the ruled line RL, the V-shaped ruled line RL may be provided in a central portion of the bend line BL, as illustrated in Fig. 4. As being compared with the first embodiment on the assumption that a distance to a vertex of the ruled line RL from the bend line BL is the same, in an example (modification 1) illustrated in Fig. 4, the predetermined angle α is larger than in the first embodiment. As a result, a larger tensile force can be caused to act on an inside of the end portion 2 and the bend portion 4.

<Modification 2>

[0035] Further, for example, as for the ruled line RL, a plurality of V-shaped ruled lines RL may be provided as illustrated in Fig. 5. As being compared with the first embodiment on the assumption that distances to vertexes of the ruled lines RL from the bend line BL are the same as in the first embodiment, in an example illustrated in Fig. 5, the predetermined angle α is larger than in the

first embodiment. Further, as being compared with modification 1 of the first embodiment on the assumption that the distances to the vertexes of the ruled lines RL from the bend line BL are the same, in the example (modification 2) illustrated in Fig. 5, the two V-shaped ruled lines RL similar to modification 1 are present. As a result, a larger tensile force can be caused to act on an inside of the end portion 2 and the bend portion 4.

10 <Other modifications>

[0036] Note that the ruled line RL may be provided at the end portion 2 side. When the ruled line RL is provided at the bend portion 4 side, the end portion 2 and the bend portion 4 curve so that the bend portion 4 side expands. When the ruled line RL is provided at the end portion 2 side, the end portion 2 and the bend portion 4 bend so that the end portion 2 side expands (the bend portion 4 side is recessed). That is, a direction to expand (a direction to recess) the end portion can be determined depending on a position where the ruled line RL is provided. Accordingly, the position where the ruled line RL is provided can be properly changed in accordance with a use purpose.

25 <Second embodiment>

[0037] Next, a case where the end portion structure 1 of a paper product according to the first embodiment is applied to the package made of paper will be described. A housed object that is housed in the package is not limited to a specific matter, however, a case where tobacco products such as filter cigarettes, and plain cigarettes are housed in the package will be described as an example, here. Further, a material, a shape and relative disposition and the like of the components described in the present embodiment are not intended to limit the technical range of the invention to only them unless specific explanation is specially made.

[0038] Fig. 6 illustrates a perspective view of a state where a lid 30a of a hinge lid package (hereinafter, simply referred to as "a package") according to the second embodiment is closed, seen from an upper front side. Fig. 7 illustrates a perspective view of a state where the lid of the package according to the second embodiment is opened, seen from the upper front side. Fig. 8 illustrates a plan view of the state in which the lid of the package according to the second embodiment is closed, seen from above.

[0039] A package 10a according to the second embodiment is a so-called box type package with a hinge lid having a substantially rectangular parallelepiped shape. The package 10a is formed by including a package main body 20a as a housing portion, and a lid 30a as a lid member that is rotatably connected to the package main body 20a via a hinge H. Hereinafter, in the present specification, a front surface side of the package 10a will be defined as "a front side", and a rear surface side will be

defined as "a rear side", except for a case of being specially mentioned. Further, a lid side of the package 10a will be defined as "an upper side", and an opposite side (a bottom side of the package will be defined as "a lower side".

[0040] The package main body 20a is a box body having a shape in which an upper end side of a rectangular parallelepiped shape is diagonally cut out. The package main body 20a has a front wall 21a and a rear wall of the package main body, which face each other, side walls 22a and 22a that face each other, and a bottom wall. The package main body 20a has an upper portion opened, and tobacco products are capable of being put in and taken out. The hinge H is formed at an upper end of the rear wall of the package main body 20a. The hinge H extends over between rear portions of upper end edges of the respective side walls 22a and 22a of the package main body, and connects the rear wall of the package main body and the lid 30a to be mutually rotatable.

[0041] An inner frame 40a has a substantially U-shaped front surface frame, and side surface frames that are connected to both side edges of the front surface frame. The inner frame 40a is bonded to an inner surface of the package main body 20a, more specifically, inner surfaces of the front wall 21a and the side walls 22a and 22a of the package main body in a state partially protruded upward from an opening end of an upper portion of the package main body 20a.

[0042] The lid 30a has an oblong rear wall of the lid, which is connected to the hinge H, an oblong top wall 34a of the lid, which is connected to the rear wall of the lid to be orthogonal to the rear wall, an oblong front wall 31a of the lid, which is connected to the top wall 34a of the lid to be orthogonal to the top wall 34a, and a pair of side walls 32a and 32a of the lid. The pair of side walls 32a and 32a of the lid 30a are respectively trapezoidal, and are connected to respective side edges of the rear wall, the top wall 34a and the front wall 31a of the lid.

[0043] In the package 10a according to the second embodiment, the end portion structure 1 of a paper product according to the first embodiment is used in the front wall 31a of the lid. The end portion 2 in the end portion structure 1 of a paper product corresponds to the front wall 31a of the lid, and the bend portion 4 corresponds to a front wall reinforcement frame 35a of the lid, which reinforces the front wall 31a of the lid. In a lower edge of the front wall 31a of the lid, that is, a bend portion of the front wall reinforcement frame 35a of the lid, the bend line BL and the ruled line RL are present, and the reinforcement frame is bent inward in the bend line BL and the ruled line RL. As a result, as illustrated in Fig. 6, Fig. 7 and Fig. 8, the front wall 31a of the lid slightly curves to expand to the rear side.

[0044] Fig. 9 illustrates a blank in a vicinity of the top wall of the lid, in a blank of the package according to the second embodiment. A front wall panel P1 that is located at an opposite side from a rear wall panel to be the front wall 31a of the lid is connected to an upper edge of a top

wall panel forming the top wall 34a of the lid. A front wall reinforcement panel P2 that forms the front wall reinforcement frame 35a of the lid is further connected to an upper edge of the front wall panel P1. The front wall reinforcement panel P2 is bent inward in the bend line BL and the ruled line RL, is laid on the front wall panel P1 and bonded, and thereby reinforces the front wall 31a of the lid. Side wall panels P3 to be the side walls 32a of the lid respectively connect to both side edges of the front wall panel P1. Panels that are located under the side wall panels P3 are inner top flaps P4 that are laid on the top wall panel and reinforce the top wall of the lid.

[0045] In the package 10a according to the second embodiment, the end portion structure 1 of a paper product according to the first embodiment is used in the front wall 31a of the lid, and the front wall 31a of the lid and the front wall reinforcement panel 35a of the lid slightly curve to expand to the rear side. That is, a tensile force acts on an inside of the front wall 31a of the lid and the front wall reinforcement panel 35a of the lid so that the front wall 31a of the lid expands to the rear side. As a result, deflection of paper due to deterioration over time can be restrained. The front wall 31a of the lid and the front wall reinforcement panel 35a of the lid overlap each other to make a double structure, and further the structure is very simple, so that deterioration hardly occurs. Further, the front wall 31a of the lid and the front wall reinforcement panel 35a of the lid slightly curve to expand to the rear side, and are in close contact with the inner frame 40a, and therefore lid closure is enhanced. Further, a gap hardly occurs between the lid 30a and the opening of the package main body 20a, and therefore, a tobacco product, for example, a shredded cigarette hardly falls to outside.

<Third embodiment>

[0046] Fig. 10 illustrates a perspective view of a state where a lid of a package according to a third embodiment is closed, seen from an upper front side. Fig. 11 illustrates a perspective view of a state where the lid of the package according to the third embodiment is opened, seen from the upper front side. Fig. 12 illustrates a front view of the state where the lid of the package according to the third embodiment is closed, seen from a front side. Fig. 13 illustrates a plan view of the state where the lid of the package according to the third embodiment is closed, seen from above.

[0047] A package 10b according to the third embodiment is a so-called box type package with a hinge lid having a substantially rectangular parallelepiped shape. The package 10b according to the third embodiment is formed by including a package main body 20b as a housing unit, and a lid 30b as a lid member that is rotatably connected to the package main body 20b via the hinge H, similarly to the package 10a according to the second embodiment. However, in the package 10b according to the third embodiment, a whole of a wall at a front side is

formed by a front wall 21b of the package main body. Consequently, the lid 30b is formed by a top wall 34b of the lid, side walls 32b and 32b of the lid, and a rear wall of the lid, and has a structure that does not include a front wall of the lid. Further, the package 10b according to the third embodiment has the structure that does not include an inner frame, either. Note that the alphabets continuing to the numerals of the reference signs are for distinguishing the embodiments, and in the case where numerals are the same, the same functions are assumed to be included, except for a case where a special statement is made. The same applies to the explanations of the other embodiments.

[0048] In the package 10b according to the third embodiment as described above, a gap easily occurs between the lid 30b and the package main body 20b, in more detail, between a front edge of the top wall 34b of the lid and an upper edge of the front wall 21b of the package main body. Thus, in the package 10b according to the third embodiment, the end portion structure 1 of a paper product according to the first embodiment is used in each of the top wall 34b of the lid and the front wall 21b of the package main body. As for the lid 30b, the end portion 2 of the end portion structure 1 of a paper product corresponds to the top wall 34b of the lid, and the bend portion 4 corresponds to a top wall reinforcement frame 36b of the lid, which reinforces the top wall 34b of the lid. The bend line BL and the ruled line RL are present in a front edge of the top wall 34b of the lid, that is, a bend portion of the top wall reinforcement frame 36b of the lid, and the top wall reinforcement frame 36b of the lid is bent inward in the bend line BL and the ruled line RL. Further, as for the package main body 20b, the end portion 2 of the end portion structure 1 of a paper product corresponds to the front wall 21b of the package main body, and the bend portion 4 corresponds to a front wall reinforcement frame 25b of the package main body, which reinforces the front wall 21b of the package main body. The bend line BL and the ruled line RL are present in an upper edge of the front wall 21b of the package main body, that is, a bend portion of the front wall reinforcement frame 25b of the package main body, and the front wall reinforcement frame 25b of the package main body is bent inward in the bend line BL and the ruled line RL. As a result, as illustrated in Fig. 10, Fig. 11, Fig. 12 and Fig. 13, the top wall 34b of the lid slightly curves to a bottom side. Further, the front wall 21b of the package main body slightly curves to expand to a rear side.

[0049] Fig. 14 illustrates a blank of the package according to the third embodiment. As illustrated in Fig. 14, the first blank B1 has a main body zone R1 to be the package main body 20b, and a lid zone R2 to be the lid 30b. The main body zone R1 has a front wall panel P5 of the main body, which is to be the front wall 21b of the package main body. A front wall reinforcement panel P6 of the main body, which is to be the front wall reinforcement frame 25b of the package main body connects to a lower edge of the front wall panel P5 of the main body.

The front wall reinforcement panel P6 of the main body is bent in the bend line BL and the ruled line RL, is laid on the front wall panel P5 of the main body and is bonded, and thereby reinforces the front wall of the package main body. Further, side wall panels P7 and P7 of the main body, which are to be the side walls 22b of the package main body connect to both side edges of the front wall panel P5 of the main body.

[0050] Further, a bottom wall (a bottom plate) panel P8 of the main body, which is to be the bottom wall of the package main body connects to an upper edge of the front wall panel P5 of the main body. A rear wall panel P9 of the main body, which is located at an opposite side from the front wall panel P5 of the main body and is to be the rear wall of the package main body connects to the bottom wall panel P8 of the main body. Inner side flaps P10 and P10 of the main body, which are to be the side walls 22b and 22b of the package main body, connect to both side edges of the rear wall panel P9 of the main body. Further, inner bottom flaps P11 of the main body connect to lower edges of the inner side flaps P10 and P10 of the main body, and these inner bottom flaps P11 of the main body are laid on the bottom wall panel P8 of the main body, and reinforce the bottom wall of the package main body.

[0051] The lid zone R2 has a rear wall panel P12 of the lid, which is to be the rear wall of the lid, and a lower edge of the rear wall panel P12 of the lid is connected to the rear wall panel P9 of the main body of the main body zone R1 via a hinge line L1 to be the hinge H. Further, a top wall panel P13 of the lid, which is to be the top wall 34b of the lid, connects to the upper edge of the rear wall panel P12 of the lid. Side wall panels P14 and P14 of the lid, which is to be the side walls 32b and 32b of the lid respectively connect to both edges of the top wall panel P13 of the lid. Further, inner side flaps P15 of the lid which are to be parts of the side walls 32b and 32b of the lid respectively connect to both side edges of the rear wall panel P12 of the lid. The inner side flaps P15 of the lid are laid on the side wall panels P14 of the lid, and reinforce the side walls 32b of the lid.

[0052] Further, an inner top flap P16 of the lid, which forms the top wall reinforcement frame 36 of the lid, connects to an upper edge of the top wall panel P13 of the lid. The inner top flap P16 of the lid is bent in the bend line BL and the ruled line RL, is laid on the top wall panel P13 of the lid and bonded, and thereby reinforces the top wall 34b of the lid.

[0053] In the package 10b according to the third embodiment, the end portion structure 1 of a paper product according to the first embodiment is used in the top wall 34b of the lid, and the top wall 34b of the lid and the top wall reinforcement frame 36b of the lid slightly curve to expand to a bottom side. That is, a tensile force acts on an inside of the top wall 34b of the lid and the top wall reinforcement frame 36b of the lid so that the top wall 34b of the lid and the top wall reinforcement frame 36b of the lid expand to the bottom side. As a result, deflection

of paper due to deterioration over time can be restrained. The top wall 34b of the lid and the top wall reinforcement frame 36b of the lid overlap each other to make a double structure, and further the structure is very simple, so that deterioration hardly occurs.

[0054] Further, in the package 10b according to the third embodiment, the end portion structure 1 of a paper product according to the first embodiment is used in the front wall 21b of the package main body, and the front wall 21b of the package main body and the front wall reinforcement frame 25b of the package main body slightly curve to expand to the rear side. That is, a tensile force acts on an inside of the front wall 21b of the package main body and the front wall reinforcement frame 25b of the package main body so that the front wall 21b of the package main body and the front wall reinforcement frame 25b of the package main body expand to the rear side. As a result, deflection of paper due to deterioration over time can be restrained. The front wall 21b of the package main body and the front wall reinforcement frame 25b of the package main body overlap each other to make a double structure, and further, the structure is very simple, so that deterioration hardly occurs.

[0055] Further, the top wall 34b of the lid and the top wall reinforcement frame 36b of the lid curve so as to expand to the bottom side, and the front wall 21b of the package main body and the front wall reinforcement frame 25b of the package main body curve so as to expand to the rear side, whereby a gap hardly occurs between the lid 30b and the opening of the package main body 20b. As a result, a tobacco product, for example, a shredded cigarette can be restrained from dropping to outside.

<Fourth embodiment>

[0056] Fig. 15 illustrates a perspective view of a state where an inner box of a package according to a fourth embodiment is housed in an outer box, seen from an upper front side. Fig. 16 illustrates a perspective view of a state where the inner box of the package according to the fourth embodiment is slid from the outer box, seen from the upper front side. Fig. 17 illustrates a perspective view of a state where the inner box of the package according to the fourth embodiment is taken out of the outer box, seen from the upper front side.

[0057] A package 10c according to the fourth embodiment is formed by including an outer box 50 having a substantially rectangular parallelepiped shape having an opening at a right side part, and an inner box 60 that is housed in the outer box 50 and has a substantially rectangular parallelepiped shape in which cigarettes as tobacco products are housed and from which cigarettes are capable of being taken out through an opening at an upper portion.

[0058] In the package 10c according to the fourth embodiment, the end portion structure 1 of a paper product according to the first embodiment is used in a top wall

51 of the outer box. The end portion 2 of the end portion structure 1 of a paper product corresponds to a top wall 51 of the outer box, and the bend portion 4 corresponds to a top wall reinforcement frame 56 of the outer box that reinforces the top wall 51 of the outer box. In a right side edge of the top wall 51 of the outer box, that is, a bend portion of the top wall reinforcement frame 56 of the outer box, the bend line BL and the ruled line RL are present, and the top wall reinforcement frame 56 of the outer box is bent inward in the bend line BL and the ruled line RL. As a result, the top wall 51 of the outer box slightly curves to expand to a bottom side, as illustrated in Fig. 15 and Fig. 16.

[0059] As illustrated in Fig. 17, the package 10c according to the fourth embodiment includes a top wall 65 of the inner box, which connects to an upper edge of a side wall 62 (a left side) of the inner box, and is connected to a left side upper edge of a front wall 61 of the inner box, and a left side upper edge of a rear wall 63 of the inner box. Further, a top wall reinforcement frame 66 of the inner box, which is bent outward and reinforces the top wall 65 of the inner box, connects to the top wall 65 of the inner box. In the top wall 65 of the inner box, the end portion structure 1 of a paper product according to the first embodiment is used. However, in the top wall 65 of the inner box, the end portion structure 1 of a paper product according to the first embodiment is used in an inverted orientation, that is, in such a manner that the bend portion 4 is bent outward, unlike the embodiments described above. The end portion 2 of the end portion structure 1 of a paper product corresponds to the top wall 65 of the inner box, and the bend portion 4 corresponds to the top wall reinforcement frame 66 of the inner box, which is located on an outside of the top wall 65 of the inner box, and reinforces the top wall of the inner box. The bend line BL and the ruled line RL are present in a right side edge of the top wall 65 of the inner box, that is, a bend portion of the top wall reinforcement frame 66 of the inner box, and the top wall reinforcement frame 66 of the inner box is bent to outside in the bend line BL and the ruled line RL. As a result, the top wall 65 of the inner box slightly curves to expand upward, as illustrated in Fig. 17.

[0060] In the package 10c according to the fourth embodiment, the end portion structure 1 of a paper product according to the first embodiment is used in the top wall 51 of the outer box, and the top wall 51 of the outer box and the top wall reinforcement frame 56 of the outer box slightly curve to expand to the bottom side. That is, a tensile force acts on an inside of the top wall 51 of the outer box and the top wall reinforcement frame 56 of the outer box so that the top wall 51 of the outer box and the top wall reinforcement frame 66 of the outer box expand to the bottom side. As a result, deflection of paper due to deterioration over time can be restrained. The top wall 51 of the outer box and the top wall reinforcement frame 66 of the outer box overlap each other to make a double structure, and further the structure is very simple, so that

deterioration hardly occurs. Further, the top wall 51 of the outer box, and the top wall reinforcement frame 56 of the outer box curve to expand to the bottom side, and thereby, a gap hardly occurs between the opening of the outer box 50 and the inner box 60. As a result, a tobacco product, for example, a shredded cigarette can be restrained from dropping to outside. The end portion structure 1 of a paper product according to the first embodiment may be used in the side wall 62 (the right side) of the inner box. The side wall 62 (the right side) of the inner box is slightly curved so as to expand to a left side, whereby a gap more hardly occurs between the opening of the outer box 50 and the inner box 60.

[0061] Further, in the package 10c according to the fourth embodiment, the end portion structure 1 of a paper product according to the first embodiment is used in the top wall 65 of the inner box, and the top wall 65 of the inner box and the top wall reinforcement frame 66 of the inner box slightly curve to expand upward. That is, a tensile force acts on the inside of the top wall 65 of the inner box and the top wall reinforcement frame 66 of the inner box so that the top wall 65 of the inner box and the top wall reinforcement frame 66 of the inner box expand upward. As a result, deflection of paper due to deterioration over time can be restrained. Further, the top wall 65 of the inner box and the top wall reinforcement frame 66 of the inner box overlap each other to make the double structure, and further the structure is very simple, so that deterioration hardly occurs. Further, the top wall 65 of the inner box and the top wall reinforcement frame 66 of the inner box curve to expand upward, whereby resistance to the inner surface of the top wall 51 of the outer box becomes large. As a result, the inner box 60 can be prevented from falling off from the outer box 50.

[0062] Although preferable embodiments of the present invention are described thus far, the end portion structure of the paper product and the package made of paper according to the present invention can be carried out by combining the respective embodiments as much as possible, whereby the scope of the invention is defined by the claims. Although in the present embodiment, the packages that house tobacco products (for example, cigarettes) are cited as the application examples of the end portion structure of a paper product according to the present invention, the application examples are not limited to these examples. The end portion structure of a paper product according to the present invention can be widely applied to the packages that house articles other than tobacco products.

Reference Signs List

[0063]

- 1 ... End portion structure of paper product
- 2 ... End portion of paper product
- 3 ... Margin for bonding
- 4 ... Bend portion

- 10a, 10b ... Package
- 20a, 20b ... Package main body
- 30a, 30b ... Lid
- BL ... Bend line
- RL ... Ruled line

Claims

1. An end portion structure (1) of a paper product, comprising:
 - an end portion (2) of the paper product;
 - a bend portion (4) that connects to the end portion (2), is bent to a side of the end portion (2), and is bonded to the end portion (2);
 - a rectilinear bend line (BL) which is provided in a border between the end portion (2) and the bend portion (4), and in which the bend portion (4) is bent; and
 - a ruled line (RL) that is provided in a vicinity of the bend line (BL), and in the end portion (2) or the bend portion (4), with a distance from the bend line (BL) changing, and in which ruled line (RL) the end portion (2) or the bend portion (4) also bends when the bend portion (4) is bent; and
 - wherein the ruled line (RL) is V-shaped such that the distance from the rectilinear bend line (BL) to the ruled line (RL) gradually becomes longer, and becomes shorter again, each of two straight lines forming the V-shaped ruled line (RL) extending from a respective end portion of the rectilinear bend line (BL).
2. The end portion structure (1) of a paper product according to claim 1, wherein the ruled line (RL) forms a predetermined angle with the bend line (BL).
3. The end portion structure (1) of a paper product according to claim 2, wherein the predetermined angle is 0.1 degrees to 5.0 degrees.
4. The end portion structure (1) of a paper product according to claim 3, wherein the predetermined angle is 0.2 degrees to 2.0 degrees.
5. The end portion structure (1) of a paper product according to claim 4, wherein the predetermined angle is 0.5 degrees to 1.0 degree.
6. The end portion structure (1) of a paper product according to any one of claims 1 to 5, wherein tensile forces that act on an inside of the end portion (2) of the paper product differ between a case where the ruled line (RL) is provided in the end portion (2) and a case where the ruled (RL) line is provided in the bend portion (4).

7. A package made of paper including a housing unit in a substantially rectangular parallelepiped shape that houses a housed object, and has an opening from which the housed object is taken out, and a lid unit that covers at least the opening, comprising:

a bend portion (4) that connects to at least either one end portion of an end portion of the lid unit and an end portion of the opening of the housing unit, is bent to an inside of the package, and is bonded to the end portion (2);

a rectilinear bend line (BL) that is provided in a border between the end portion (2) and the bend portion (4), and in which the bend portion (4) is bent, and

a ruled line (RL) that is provided in a vicinity of the bend line (BL), and in the end portion (2) or the bend portion (4), with a distance from the bend line (BL) changing, in which ruled line (RL) the end portion (2) or the bend portion (4) bends when the bend portion (4) is bent; and

wherein the ruled line (RL) is V-shaped such that the distance from the bend line (BL) to the V-shaped ruled line (RL) gradually becomes longer, and becomes shorter again, each of two straight lines forming the V-shaped ruled line (RL) extending from each end of the rectilinear bend line (BL).

8. A package made of paper including an inner box that houses a housed object, and has an opening from which the housed object is taken out, and an outer box that houses the inner box and has a putting-in-and-taking-out port through which the inner box is put in and taken out, comprising:

a bend portion (4) that connects to at least either one end portion of an end portion of the opening of the inner box and an end portion of the putting-in-and-taking-out port of the outer box, is bent to an inside of the package, and is bonded to the end portion (2);

a rectilinear bend line (BL) that is provided in a border between the end portion and the bend portion (4), and in which the bend portion (4) is bent, and

a ruled line (RL) that is provided in a vicinity of the bend line (BL), and in the end portion or the bend portion (4), with a distance from the bend line (BL) changing, in which ruled line (RL) the end portion (2) or the bend portion (4) bends when the bend portion (4) is bent; and wherein the ruled line (RL) is V-shaped such that the distance from the bend line (BL) to the V-shaped ruled line (RL) gradually becomes longer, and becomes shorter again, each of two straight lines forming the V-shaped ruled line (RL) extending from each end of the rectilinear

bend line (BL).

Patentansprüche

1. Endabschnittstruktur (1) eines Papierprodukts, umfassend:

einen Endabschnitt (2) des Papierprodukts; einen Biegungsabschnitt (4), der mit dem Endabschnitt (2) verbunden wird, zu einer Seite des Endabschnitts (2) gebogen wird und an den Endabschnitt (2) gebunden wird, eine geradlinige Biegelinie (BL), die in einem Rand zwischen dem Endabschnitt (2) und dem Biegungsabschnitt (4) bereitgestellt ist und in welcher der Biegungsabschnitt (4) gebogen wird, und eine vorgezogene Linie (RL), die in einer Nähe der Biegelinie (BL) und in dem Endabschnitt (2) oder dem Biegungsabschnitt (4) in einem sich verändernden Abstand von der Biegelinie (BL) bereitgestellt ist und wobei sich in der vorgezogenen Linie (RL) der Endabschnitt (2) oder der Biegungsabschnitt (4) auch biegen, wenn der Biegungsabschnitt (4) gebogen wird, und wobei die vorgezogene Linie (RL) derart V-förmig ist, dass der Abstand von der geradlinigen Biegelinie (BL) zu der vorgezogenen Linie (RL) graduell länger wird und wieder kürzer wird, wobei jede von zwei geraden Linien die V-förmige vorgezogene Linie (RL) bildet, die sich von einem jeweiligen Endabschnitt der geradlinigen Biegelinie (BL) erstreckt.

2. Endabschnittstruktur (1) eines Papierprodukts nach Anspruch 1, wobei die vorgezogene Linie (RL) einen vorbestimmten Winkel mit der Biegelinie (BL) bildet.

3. Endabschnittstruktur (1) eines Papierprodukts nach Anspruch 2, wobei der vorbestimmte Winkel 0,1 Grad bis 5,0 Grad beträgt.

4. Endabschnittstruktur (1) eines Papierprodukts nach Anspruch 3, wobei der vorbestimmte Winkel 0,2 Grad bis 2,0 Grad beträgt.

5. Endabschnittstruktur (1) eines Papierprodukts nach Anspruch 4, wobei der vorbestimmte Winkel 0,5 Grad bis 1,0 Grad beträgt.

6. Endabschnittstruktur (1) eines Papierprodukts nach einem der Ansprüche 1 bis 5, wobei Zugkräfte, die auf eine Innenseite des Endabschnitts (2) des Papierprodukts wirken, zwischen dem Fall, dass die vorgezogene Linie (RL) in dem Endabschnitt (2) be-

reitgestellt ist, und dem Fall, dass die vorgezogene (RL) Linie in dem Biegungsabschnitt (4) bereitgestellt ist, abweichen.

7. Verpackung, die aus Papier hergestellt ist, aufweisend eine Gehäuseeinheit in einer im Wesentlichen rechteckigen parallelepipedischen Form, die einen untergebrachten Gegenstand unterbringt und eine Öffnung aufweist, aus welcher der untergebrachte Gegenstand herausgenommen wird, und eine Deckeleinheit, die mindestens die Öffnung abdeckt, umfassend:

einen Biegungsabschnitt (4), der mit mindestens einem Endabschnitt von einem Endabschnitt der Deckeleinheit und einem Endabschnitt der Öffnung der Gehäuseeinheit verbunden wird, zu einer Innenseite der Verpackung gebogen wird und an den Endabschnitt (2) gebunden wird,

eine geradlinige Biegungslinie (BL), die in einem Rand zwischen dem Endabschnitt (2) und dem Biegungsabschnitt (4) bereitgestellt ist und in welcher der Biegungsabschnitt (4) gebogen wird, und

eine vorgezogene Linie (RL), die in einer Nähe der Biegungslinie (BL) und in dem Endabschnitt (2) oder dem Biegungsabschnitt (4) in einem sich verändernden Abstand von der Biegungslinie (BL) bereitgestellt ist, wobei sich in der vorgezogenen Linie (RL) der Endabschnitt (2) oder der Biegungsabschnitt (4) biegen, wenn der Biegungsabschnitt (4) gebogen wird, und wobei die vorgezogene Linie (RL) derart V-förmig ist, dass der Abstand von der Biegungslinie (BL) zu der V-förmigen vorgezogenen Linie (RL) graduell länger wird und wieder kürzer wird, wobei jede von zwei geraden Linien die V-förmige vorgezogene Linie (RL) bildet, die sich von jedem Ende der geradlinigen Biegungslinie (BL) erstreckt.

8. Verpackung, die aus Papier hergestellt ist, aufweisend eine innere Schachtel, die einen untergebrachten Gegenstand unterbringt und eine Öffnung aufweist, aus welcher der untergebrachte Gegenstand herausgenommen wird, und eine äußere Schachtel, welche die innere Schachtel unterbringt und eine Hineinsteck-und-Herausnehm-Öffnung hat, durch welche die innere Schachtel hineingesteckt und herausgenommen wird, umfassend:

einen Biegungsabschnitt (4), der mit mindestens einem Endabschnitt von einem Endabschnitt der Öffnung der inneren Schachtel und einem Endabschnitt der Hineinsteck-und-Herausnehm-Öffnung der äußeren Schachtel verbunden wird, zu einer Innenseite der Verpa-

ckung gebogen wird und an den Endabschnitt (2) gebunden wird,

eine geradlinige Biegungslinie (BL), die in einem Rand zwischen dem Endabschnitt und dem Biegungsabschnitt (4) bereitgestellt ist und in welcher der Biegungsabschnitt (4) gebogen wird, und

eine vorgezogene Linie (RL), die in einer Nähe der Biegungslinie (BL) und in dem Endabschnitt oder dem Biegungsabschnitt (4) in einem sich verändernden Abstand von der Biegungslinie (BL) bereitgestellt ist, wobei sich in der vorgezogenen Linie (RL) der Endabschnitt (2) oder der Biegungsabschnitt (4) biegen, wenn der Biegungsabschnitt (4) gebogen wird, und wobei die vorgezogene Linie (RL) derart V-förmig ist, dass der Abstand von der Biegungslinie (BL) zu der V-förmigen vorgezogenen Linie (RL) graduell länger wird und wieder kürzer wird, wobei jede von zwei geraden Linien die V-förmige vorgezogene Linie (RL) bildet, die sich von jedem Ende der geradlinigen Biegungslinie (BL) erstreckt.

Revendications

1. Structure de portion d'extrémité (1) d'un produit de papier, comprenant :

une portion d'extrémité (2) du produit de papier ;
une portion de courbure (4) qui se relie à la portion d'extrémité (2), est courbée vers un côté de la portion d'extrémité (2), et est liée à la portion d'extrémité (2) ;

une ligne de courbure rectiligne (BL) qui est ménagée dans une bordure entre la portion d'extrémité (2) et la portion de courbure (4), et dans laquelle la portion de courbure (4) est courbée ;
et

une ligne réglée (RL) qui est ménagée dans un voisinage de la ligne de courbure (BL), et dans la portion d'extrémité (2) ou la portion de courbure (4), avec une distance variant par rapport à la ligne de courbure (BL), et ligne réglée (RL) dans laquelle la portion d'extrémité (2) ou la portion de courbure (4) se courbe également lorsque la portion de courbure (4) est courbée ;
et dans laquelle la ligne réglée (RL) est en forme de V de sorte que la distance de la ligne de courbure rectiligne (BL) à la ligne réglée (RL) s'allonge progressivement, et se raccourcisse à nouveau, chacune de deux droites formant la ligne réglée en forme de V (RL) s'étendant depuis une portion d'extrémité respective de la ligne de courbure rectiligne (BL).

2. Structure de portion d'extrémité (1) d'un produit de

papier selon la revendication 1, dans laquelle la ligne réglée (RL) forme un angle prédéterminé avec la ligne de courbure (BL).

3. Structure de portion d'extrémité (1) d'un produit de papier selon la revendication 2, dans laquelle l'angle prédéterminé est de 0,1 degré à 5,0 degrés. 5
4. Structure de portion d'extrémité (1) d'un produit de papier selon la revendication 3, dans laquelle l'angle prédéterminé est de 0,2 degré à 2,0 degrés. 10
5. Structure de portion d'extrémité (1) d'un produit de papier selon la revendication 4, dans laquelle l'angle prédéterminé est de 0,5 degré à 1,0 degré. 15
6. Structure de portion d'extrémité (1) d'un produit de papier selon l'une quelconque des revendications 1 à 5, dans laquelle des forces de traction qui agissent sur un intérieur de la portion d'extrémité (2) du produit de papier diffèrent entre un cas où la ligne réglée (RL) est ménagée dans la portion d'extrémité (2) et un cas où la ligne réglée (RL) est ménagée dans la portion de courbure (4). 20
7. Emballage constitué de papier incluant une unité de logement sensiblement sous une forme de parallélépipède rectangle qui loge un objet logé, et comporte une ouverture depuis laquelle l'objet logé est retiré, et une unité de couvercle qui couvre au moins l'ouverture, comprenant : 25

une portion de courbure (4) qui se relie à au moins l'une ou l'autre d'une portion d'extrémité de l'unité de couvercle et d'une portion d'extrémité de l'ouverture de l'unité de logement, est courbée vers un intérieur de l'emballage, et est liée à la portion d'extrémité (2) ; 35

une ligne de courbure rectiligne (BL) qui est ménagée dans une bordure entre la portion d'extrémité (2) et la portion de courbure (4), et dans laquelle la portion de courbure (4) est courbée, et 40

et

une ligne réglée (RL) qui est ménagée dans un voisinage de la ligne de courbure (BL), et dans la portion d'extrémité (2) ou la portion de courbure (4), avec une distance variant par rapport à la ligne de courbure (BL), ligne réglée (RL) dans laquelle la portion d'extrémité (2) ou la portion de courbure (4) se courbe lorsque la portion de courbure (4) est courbée ; et 45

dans lequel la ligne réglée (RL) est en forme de V de sorte que la distance de la ligne de courbure (BL) à la ligne réglée en forme de V (RL) s'allonge progressivement, et se raccourcisse à nouveau, chacune de deux droites formant la ligne réglée en forme de V (RL) s'étendant depuis chaque extrémité de la ligne de courbure 50

rectiligne (BL).

8. Emballage constitué de papier incluant une boîte interne qui loge un objet logé, et comporte une ouverture à travers laquelle l'objet logé est retiré, et une boîte externe qui loge la boîte interne et comporte un orifice de placement et de retrait à travers lequel la boîte interne est placée et retirée, comprenant : 5

une portion de courbure (4) qui se relie à au moins l'une ou l'autre d'une portion d'extrémité de l'ouverture de la boîte interne et d'une portion d'extrémité de l'orifice de placement et de retrait de la boîte externe, est courbée vers un intérieur de l'emballage, et est liée à la portion d'extrémité (2) ;

une ligne de courbure rectiligne (BL) qui est ménagée dans une bordure entre la portion d'extrémité et la portion de courbure (4), et dans laquelle la portion de courbure (4) est courbée, et une ligne réglée (RL) qui est ménagée dans un voisinage de la ligne de courbure (BL), et dans la portion d'extrémité ou la portion de courbure (4), avec une distance variant par rapport à la ligne de courbure (BL), ligne réglée (RL) dans laquelle la portion d'extrémité (2) ou la portion de courbure (4) se courbe lorsque la portion de courbure (4) est courbée ; et

dans lequel la ligne réglée (RL) est en forme de V de sorte que la distance de la ligne de courbure (BL) à la ligne réglée en forme de V (RL) s'allonge progressivement, et se raccourcisse à nouveau, chacune de deux droites formant la ligne réglée en forme de V (RL) s'étendant depuis chaque extrémité de la ligne de courbure rectiligne (BL). 55

FIG. 1

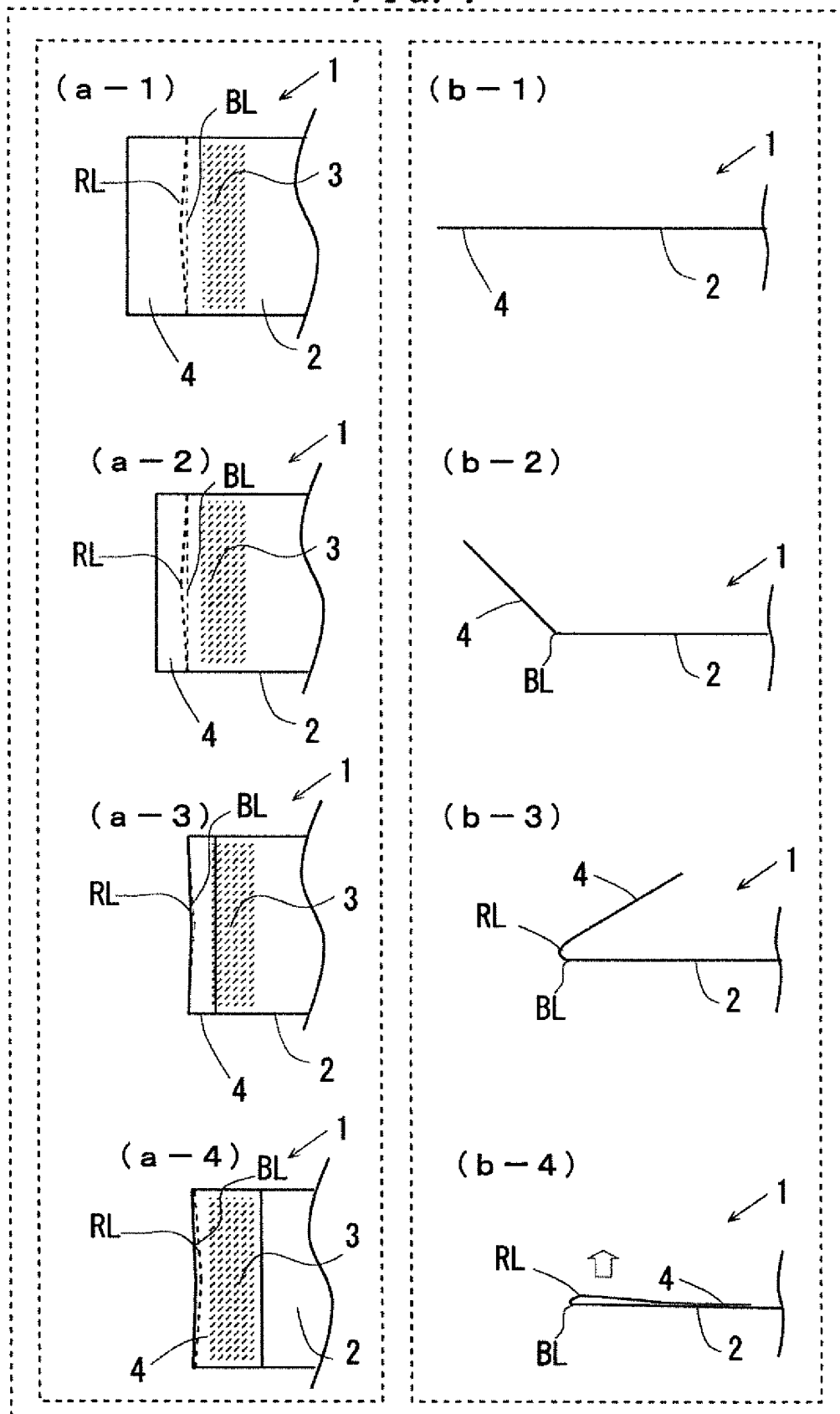


FIG. 2

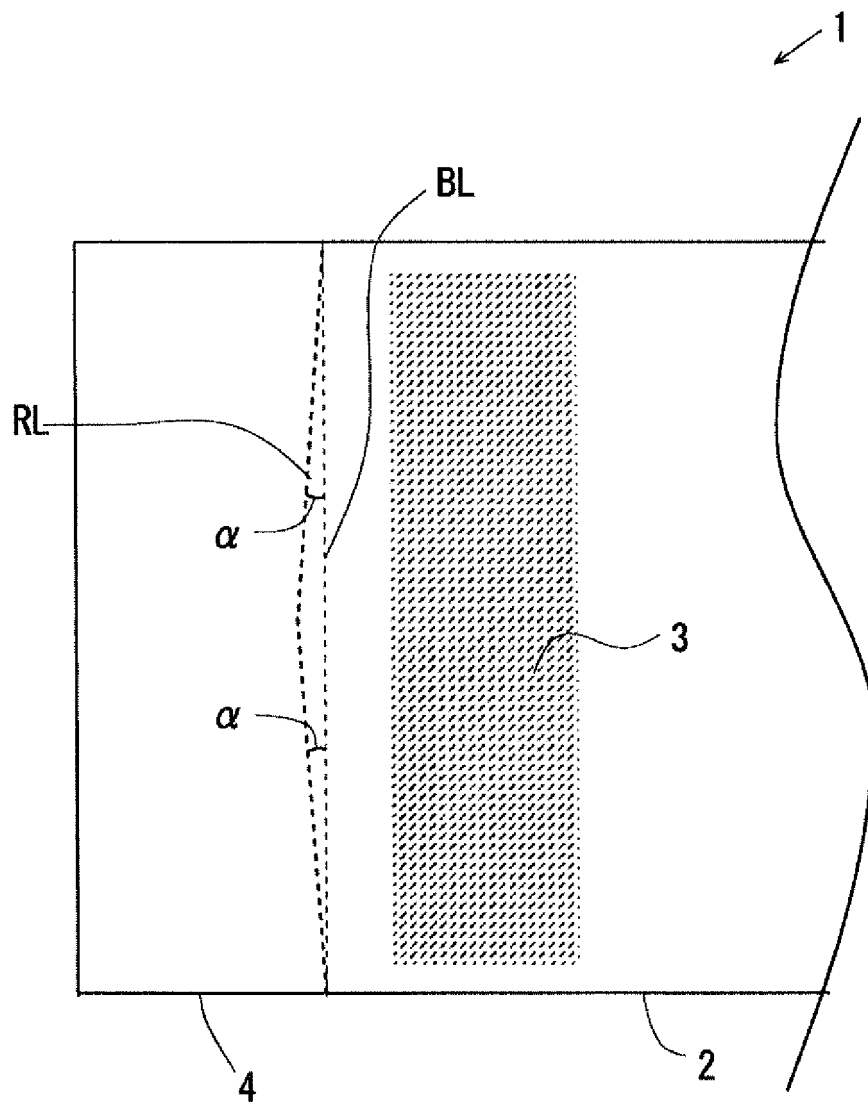


FIG. 3A

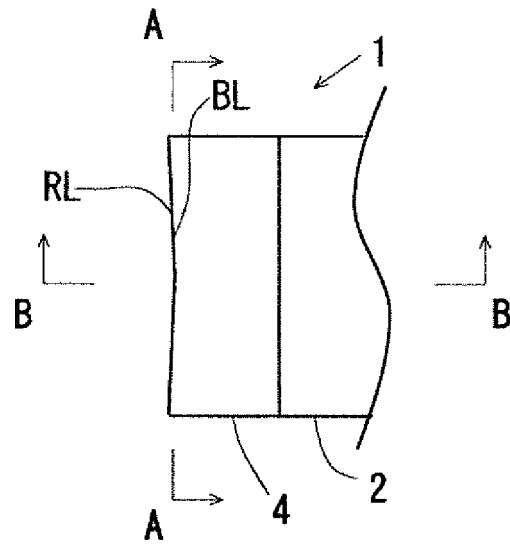


FIG. 3B

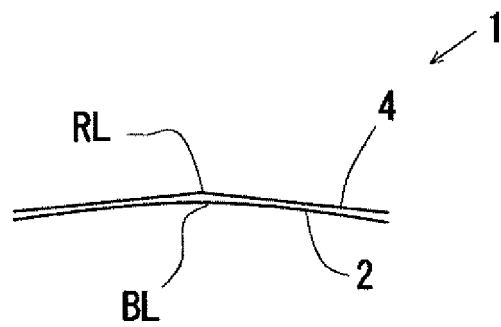


FIG. 3C

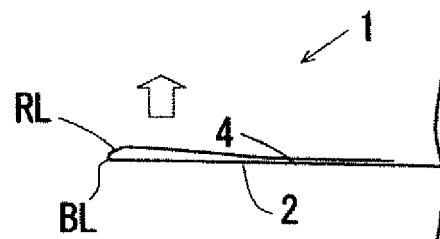


FIG. 4

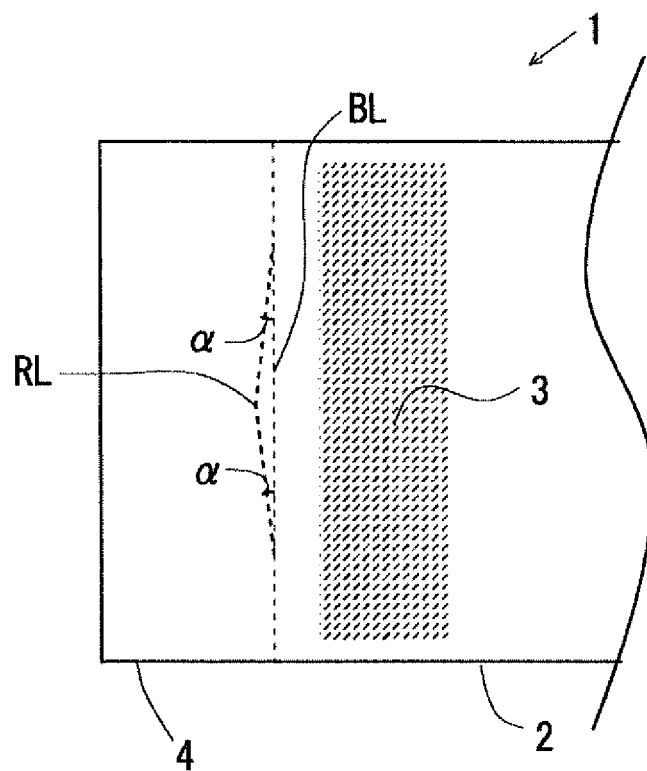


FIG. 5

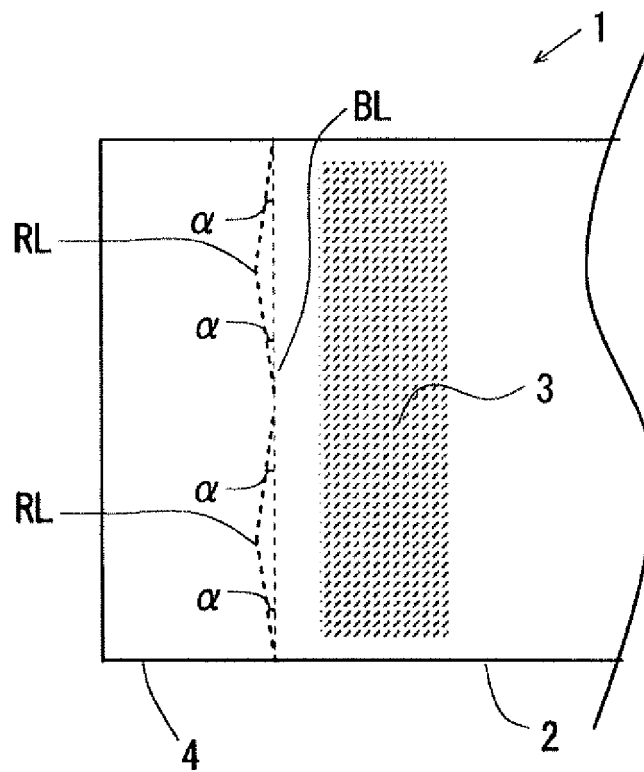


FIG. 6

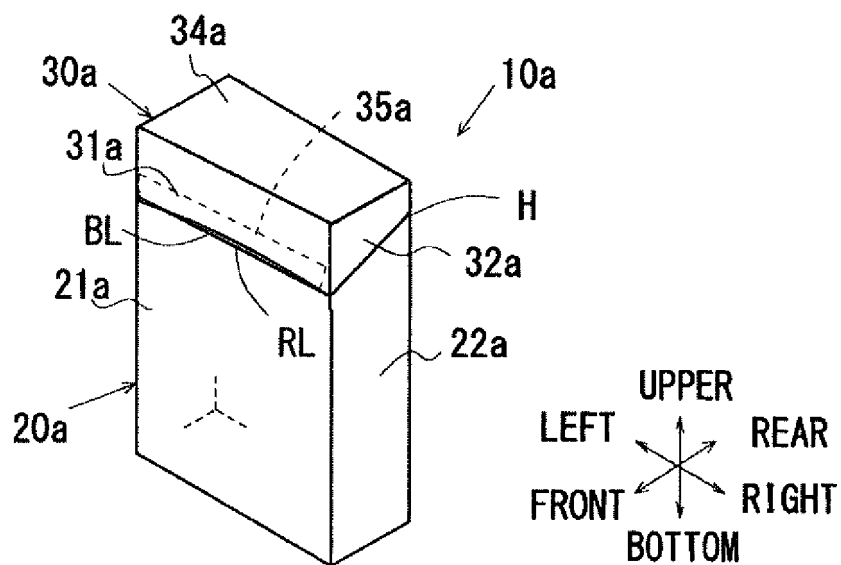


FIG. 7

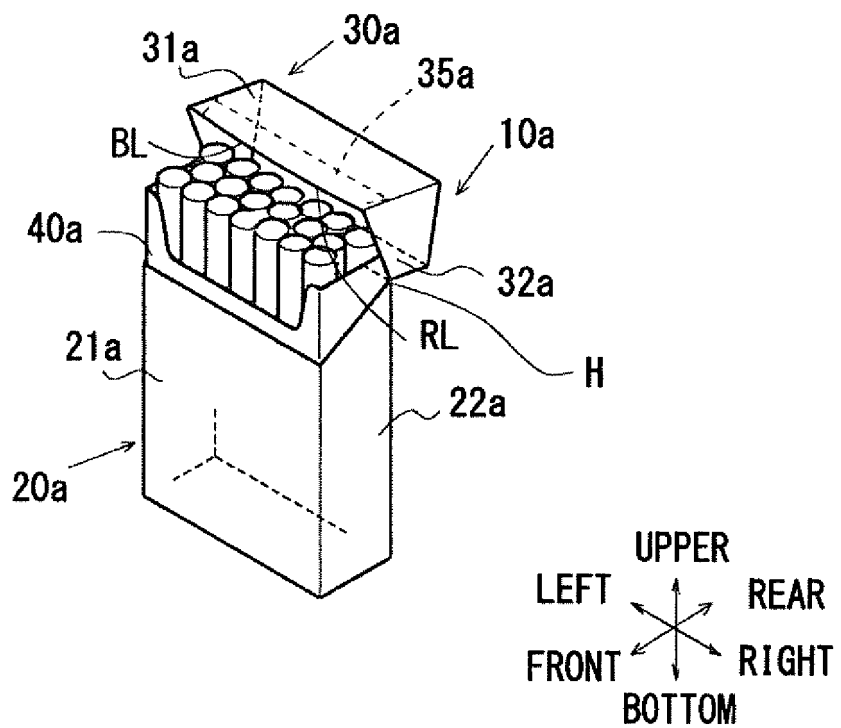


FIG. 8

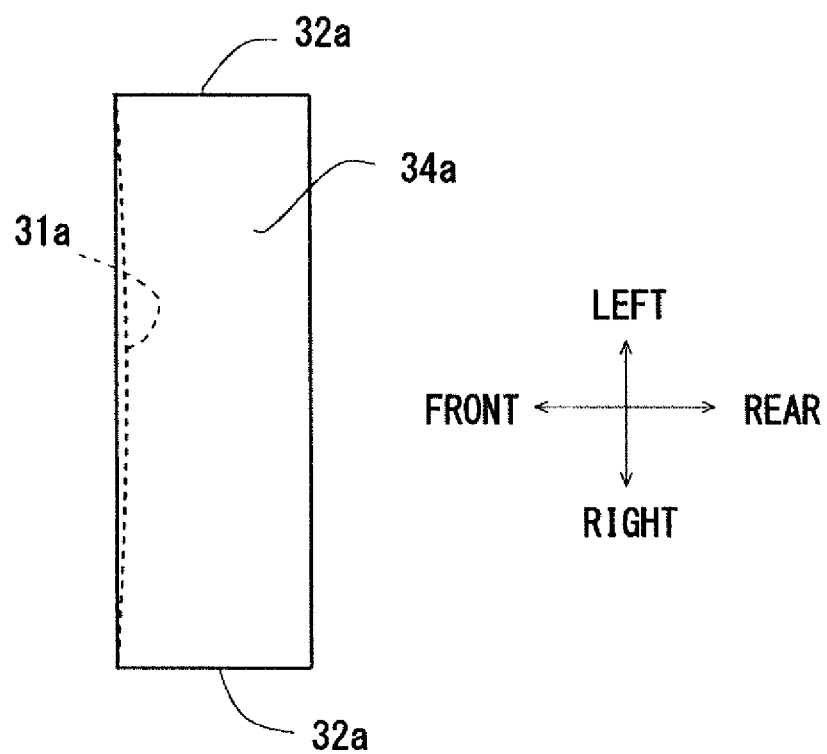


FIG. 9

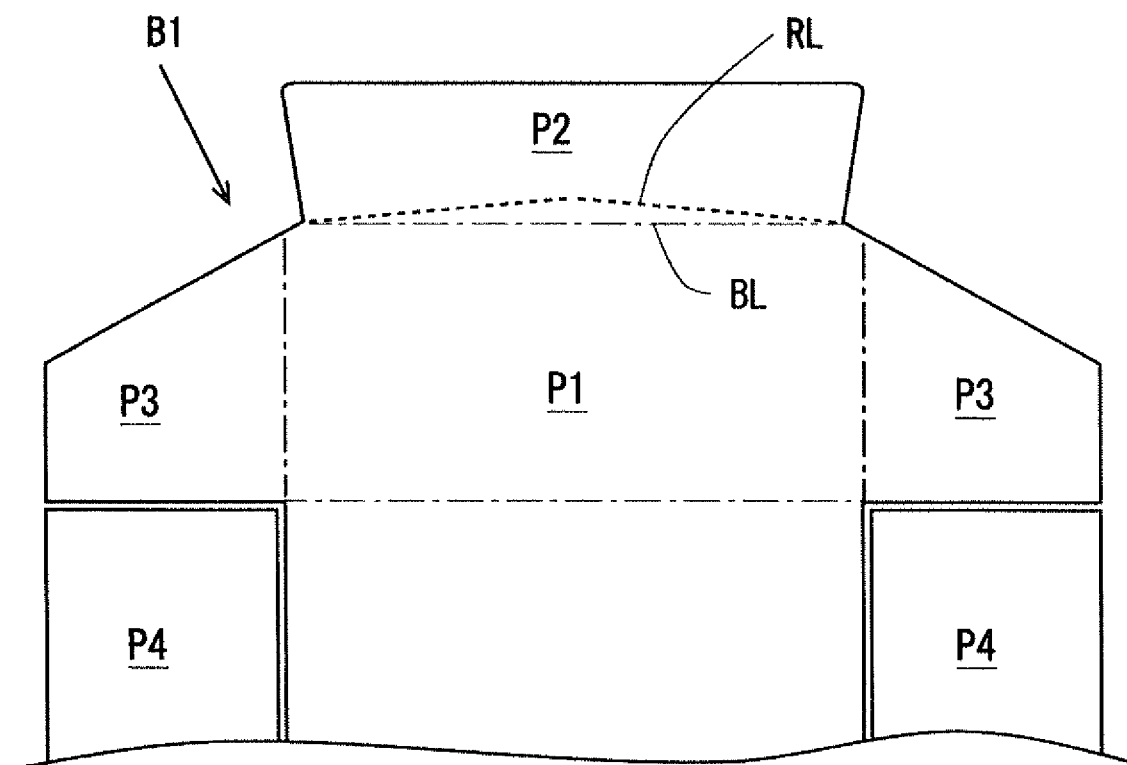


FIG. 10

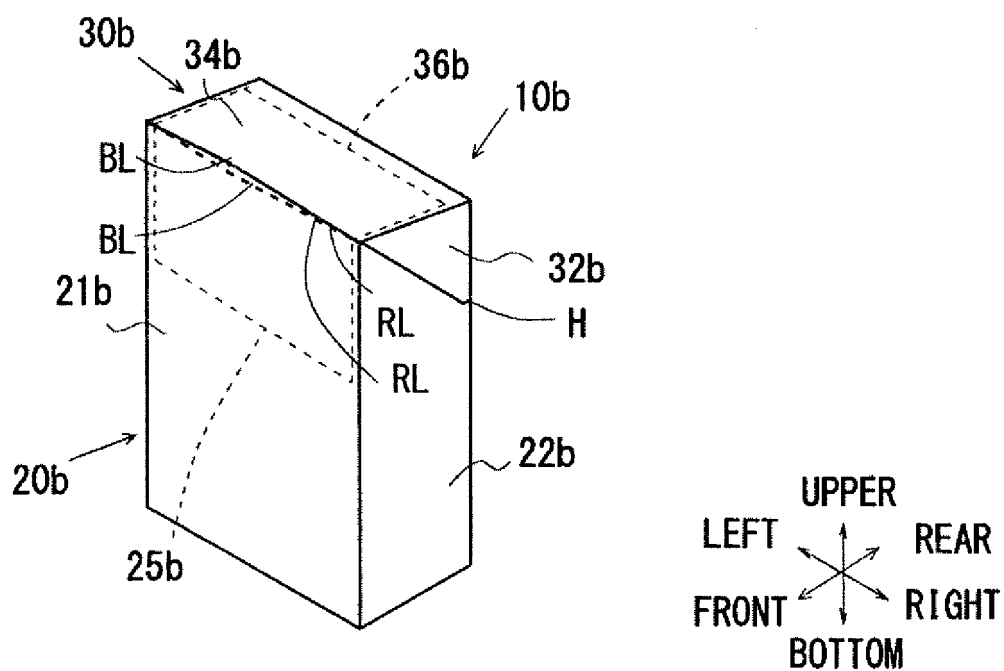


FIG. 11

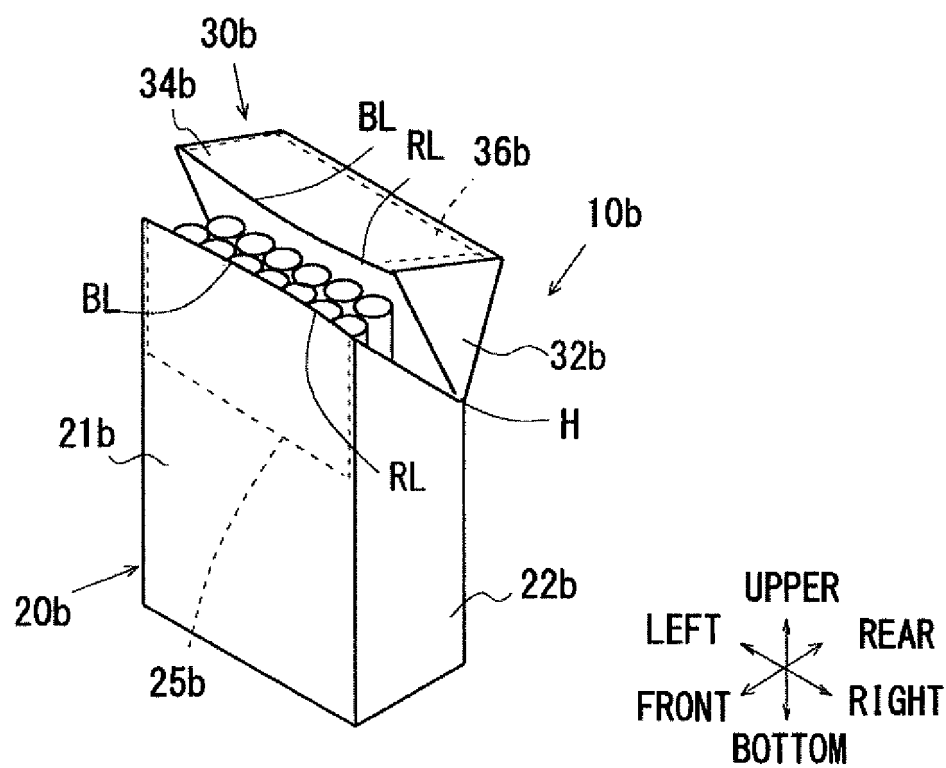


FIG. 12

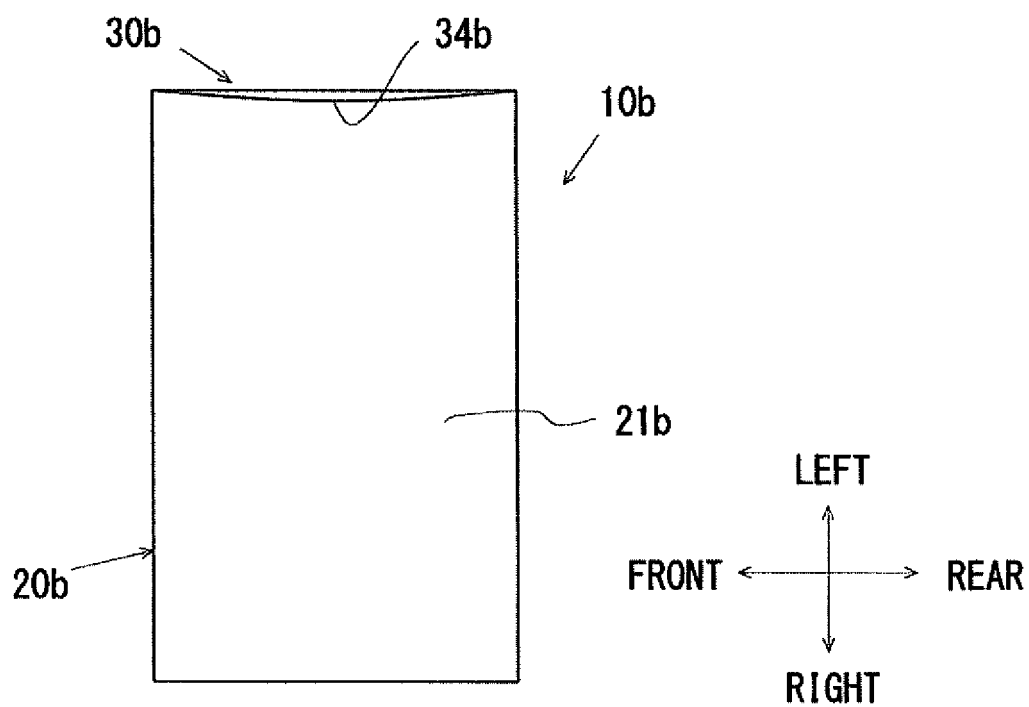


FIG. 13

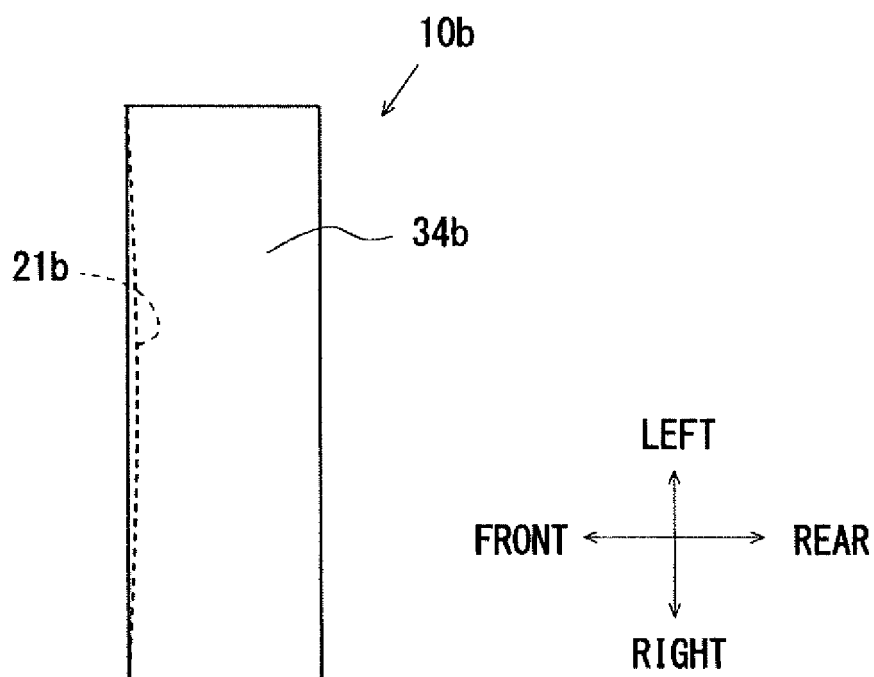


FIG. 14

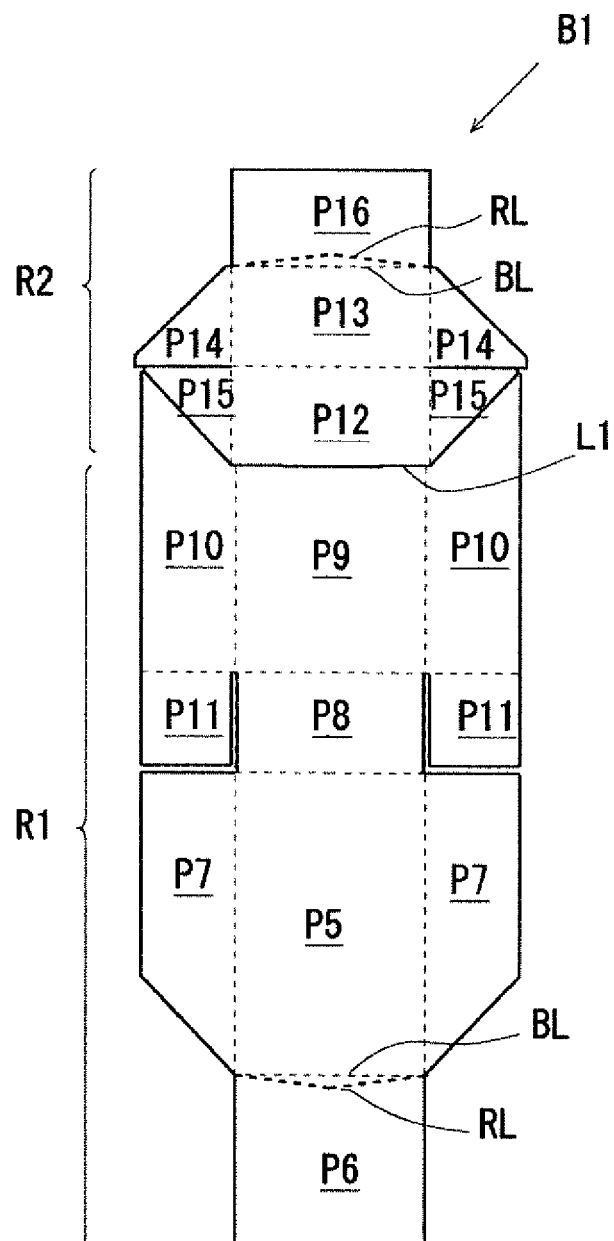


FIG. 15

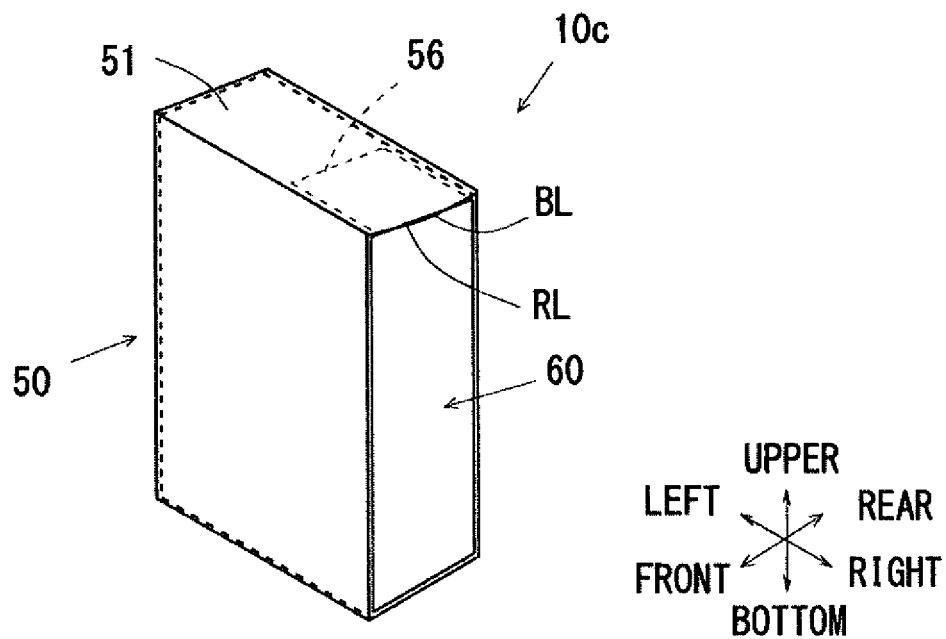


FIG. 16

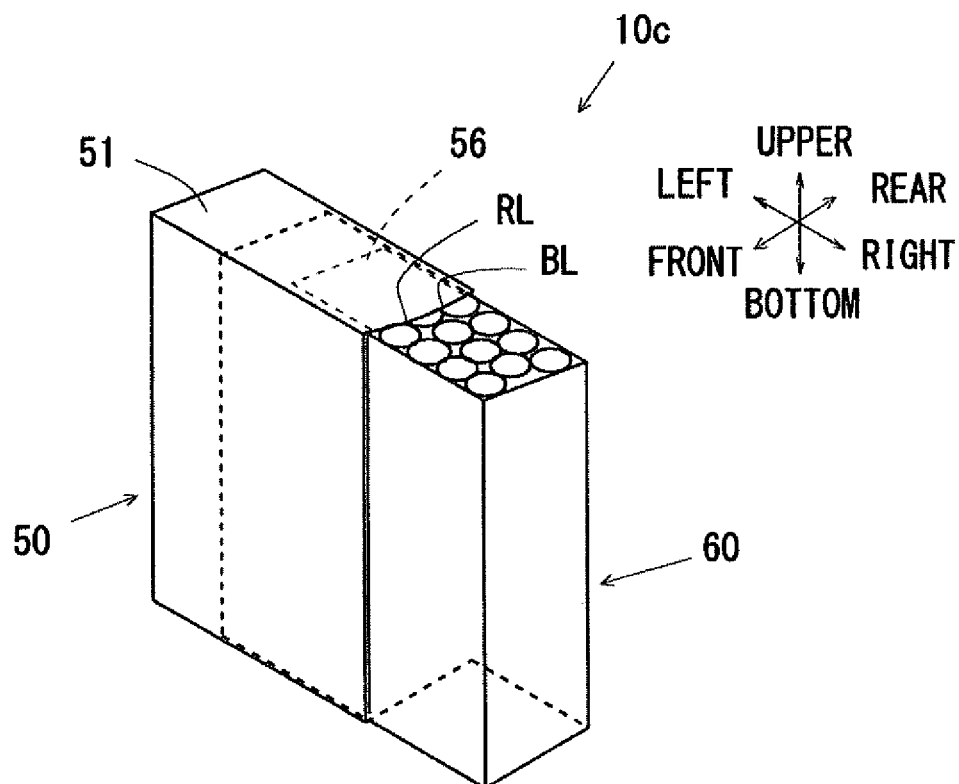
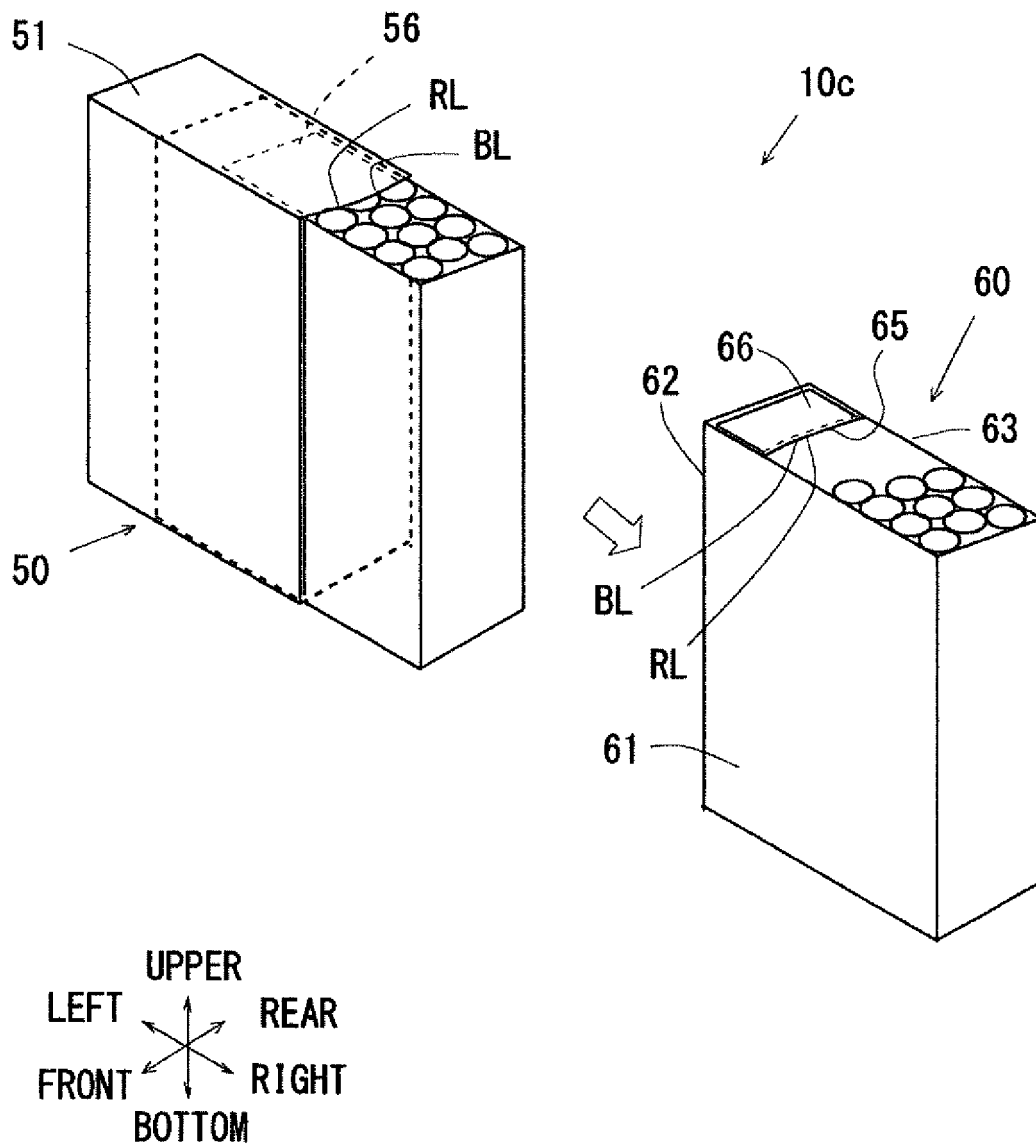


FIG. 17



REFERENCES CITED IN THE DESCRIPTION

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