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(71) Applicant: **Max Co., Ltd.**
Chuo-ku
Tokyo 103-8502 (JP)

(72) Inventors:
- **SHINMEI, Susumu**
  Tokyo 1038502 (JP)
- **ANDO, Masaru**
  Tokyo 1038502 (JP)

(74) Representative: **Ealey, Douglas Ralph**
D Young & Co
120 Holborn
London EC1N 2DY (GB)

(54) **BOX BODY**

(57) A container is provided with, as shown in FIG. 1, an opening 6, a lid-constituting part 11 that makes a mountain fold on a container-constituting part 1 and has a slit portion 11a, a lid-constituting part 12 that makes a valley fold on the lid-constituting part 11 and has the same size as that thereof, a lid-closing part 13 that makes a valley fold on the lid-constituting part 12 and has a predetermined shape and a size, an intermediate lid-pushing part 14 that makes a mountain fold on a container-constituting part 2 and has a length extending beyond the opening 6, and a lid-closing part 15 that makes a mountain fold on the intermediate lid-pushing part 14 and has a predetermined extended length. The lid-closing part 15 and the intermediate lid-pushing part 14 are successively inserted into the slit portion 11a, the intermediate lid-pushing part 14 covers the lid-constituting part 11 and the lid-constituting part 12 covers the intermediate lid-pushing part 14. By taking such a configuration, it is possible to close the opening doubly as well as it is possible to open the opening easily.

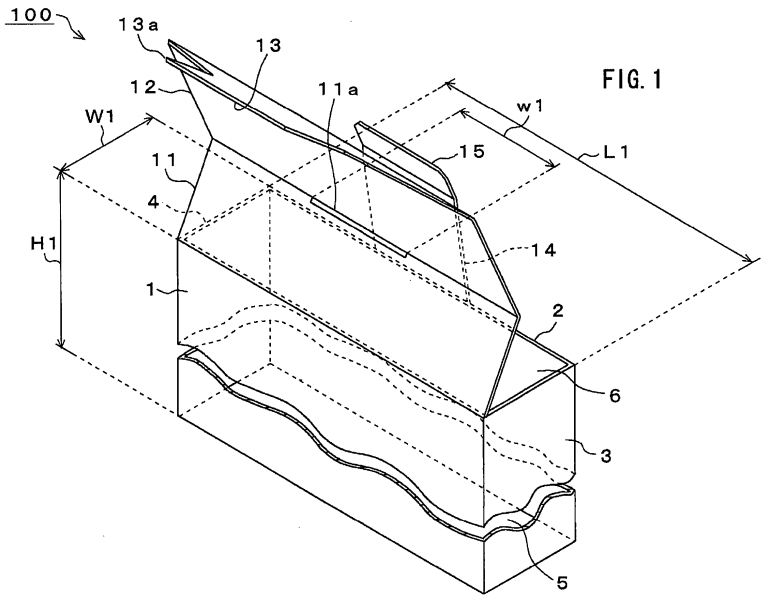

FIG. 1

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Description

TECHNICAL FIELD

[0001] The present invention relates to a container, which is preferably applied to a carton containing a plurality of small sized articles, to be handled, such as PET bottles, cans, cigarettes, pencils, and filled parts and a package box for various kinds of electric equipment or the like. More particularly, it relates to a container, one of container-constituting surfaces of which has an opening with a predetermined size, which is provided with five container-constituting portions that make mountain or valley fold, the container-constituting portions having predetermined shapes and sizes. The container is constituted so that a lid-closing part and an intermediate lid-pushing part are successively inserted into a slit of a first lid-constituting part, the intermediate lid-pushing part covers the first lid-constituting part and a second lid-constituting part covers the intermediate lid-pushing part so that the lid-closing part wraps a container-constituting part, and the other lid-closing part is engaged with the container-constituting portion with the other lid-closing part wrapping the lid-closing part. By configuring the container so as to be so, it is possible to close the opening doubly by the first and second lid-constituting parts and the intermediate lid-pushing part as well as it is possible to open the opening only by pulling the lid-constituting parts and the lid-closing parts from a side of the container-constituting portion to a side of the container-constituting surface.

BACKGROUND ART

[0002] Conventionally, a plurality of small sized articles, to be handled, such as PET bottles, cans, cigarettes, pencils, and filled parts has been often distributed with a desired carton containing them or various kinds of electric equipment or the like have been often distributed with a package box using corrugated cardboard containing them. Such a carton or a package box is made by performing the taking of measurements on carton material or box material with a predetermined size, creating a development of the container, cutting notches into predetermined portions of the developed container and erecting the container by making mountain or valley fold on the carton material or box material.

[0003] In accordance with such a container, a packing case for supplement of article and a method of supplementing the article for a vending machine using the same have been disclosed in Japanese Patent Application Publication No. Hei05-04640. According to this packing case, the articles are contained in the container so that they are aligned in a longitudinal direction thereof. In the container, the articles are bound by a band for fixing the articles. The band is fixed into the container at forward and rearward ends thereof. The container is set onto the vending machine with a forward end thereof being positioned at a downward direction. It is constituted that after setting, a perforated portion is separated so that the forward end is opened, and then, the band for fixing the articles is disengaged. By taking such a container configuration, it is capable of filling the article into a desired position in the vending machine the moment the band for fixing the articles is disengaged.

[0004] Further, a package box has been disclosed in Japanese Patent Application Publication No. 2001-02057. This package box has an outer container with a predetermined size and a triangular opening in an outer container configuration surface. On the other hand, an inner container is provided within the outer container. The inner container uses corrugated cardboard vertically. A lid-constituting portion is provided so as to extend from side surfaces of the outer container to an upper surface thereof continuously and is closed by a string on a predetermined position on the upper surface of the outer container. In this package box, it is configured that a stripe pattern of the corrugated cardboard of the inner container is exposed from the triangular opening. By configuring such a container, it is possible to present a package box that has strength vertically and is rich in a sense of high quality.

[0005] Further, a package with a dispenser has been disclosed in Japanese Patent Application Publication No. 2005-53555. In accordance with this package, a carton having the dispenser at its forward end portion is provided and in the dispenser, a separation part is defined by cutting carton-constituting portion that is constituted of side walls, an upper surface and a bottom surface of the forward end portion of the carton-constituting portion into one with a predetermined size and an opening is obtained by folding a part by which a side of this separation part is common in the carton-constituting portion and pulling out the separation part to a side of the carton-constituting portion. It is constituted that when such an opened package is held so that its posture is directed to a vertical direction, the opening is positioned at a low position. The opening has such a size that allows a predetermined article contained in the package to be removed therefrom. By taking such a container configuration, it is capable of easily removing the articles one by one from the package without any complicated works, thereby enabling workability to be improved.

[0006] An opening assist for a dispensing carton has been disclosed in Japanese Patent Application Publication No. 2005-53584. In accordance with this dispensing carton, a carton having the dispenser at its forward end portion is provided and in the dispenser, a displaceable portion is defined by cutting carton-constituting portion that is constituted of side walls, an upper surface and a bottom surface of the forward end portion of the carton-constituting portion into one with a predetermined size and an opening is obtained by folding a part by which a side of this displaceable portion is common in the carton-constituting portion and tearing up the displaceable portion near a user. It is constituted that when such an

opened package is held so that its posture is directed to a horizontal direction, the opening is positioned at an upper position. The opening has such a size that allows a predetermined article contained in the carton to be removed therefrom. By taking such a container configuration, it is capable of dispending the article from the carton without tearing up the carton itself.

[0007] According to the conventional containers each having the opening, however, as disclosed in Japanese Patent Application Publication No. Hei05-04640, Japanese Patent Application Publication No. 2001-02057, Japanese Patent Application Publication No. 2005-53555 and Japanese Patent Application Publication No. 2005-53584, the dispenser is formed by cutting carton-constituting portion that is constituted of side walls, an upper surface and a bottom surface of the forward end portion of the carton-constituting surfaces into one with a predetermined size. Accordingly, if the container is installed into a vending machine or an automatic machine such as a binding machine and various kinds of power tools and the articles to be contained therein is provided (supplied) but a filling space is blocked in three directions when it has a dispenser configuration like ones disclosed in Japanese Patent Application Publication No. Hei05-04640, Japanese Patent Application Publication No. 2001-02057, Japanese Patent Application Publication No. 2005-53555 and Japanese Patent Application Publication No. 2005-53584, there is such a problem that any workability is deteriorated because an operator's hand does not reach the right and left side surfaces and a rear surface of the filling space.

[0008] Particularly, if a plurality of small articles each having a complicated shape is installed into the automatic machine or the like when the container with the dispenser disclosed in any of Japanese Patent Application Publication No. Hei05-04640, Japanese Patent Application Publication No. 2001-02057, Japanese Patent Application Publication No. 2005-53555 and Japanese Patent Application Publication No. 2005-53584 is applied from point of view such that conveyance (delivery) of articles and installation operation are compatible, there is such any possibility that install operation thereof becomes difficult or complicated.

DISCLOSURE OF THE INVENTION

[0009] A container according to the present invention in which one of container-constituting surfaces forms an opening with a predetermined size, is **characterized in that** if two constituting surfaces standing facing each other across the opening are supposed as first and second constituting surfaces, it is provided with a first folding surface that makes a mountain fold on the first constituting surface, the first folding surface having a length extending beyond the opening, a second folding surface that makes a valley fold on the first folding surface, a third folding surface that makes a valley fold on the second folding surface, a fourth folding surface that makes a mountain fold on the second constituting surface, the fourth folding surface having a predetermined length, and at a predetermined position, a slit portion for allowing the fourth folding surface to be inserted, wherein when the opening is closed, the fourth folding surface is inserted into the slit portion for allowing the folding surface to be inserted, the fourth folding surface covers the first folding surface and the second folding surface covers the fourth folding surface so that the third folding surface is engaged with the first constituting surface.

[0010] In the container according to the present invention, when the opening formed by one of the container-constituting surfaces is closed, the first, second and third folding surfaces and the fourth folding surface are assembled so that the first and second folding surfaces can cover the opening and the first, second and fourth folding surfaces can close the opening doubly. Further, it is possible to open the opening easily and simply only by pulling the first folding surface and the second folding surface from a side of the first constituting surface toward a side of the first constituting surface. Accordingly, the articles contained in the container can be discharged downwardly with a good reproducibility in a state where its opening side stands facing downwards under pull-out operation to the side of the first constituting surface. This enables it to be amply applied to a charge and storage of the articles to the vending machine or various kinds of part cassettes.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011]

[FIG. 1] is a conceptual diagram showing a configuration example of a container 100 as an embodiment according to the present invention.

[FIG. 2] is a diagram showing an example of measurements in container material 101.

[FIG. 3] is an assembly process diagram showing a lid closure example (part one thereof) of the container 100 according to a first embodiment.

[FIG. 4] is the assembly process diagram showing the lid closure example (part two thereof) of the container 100.

[FIG. 5A] is the assembly process diagram showing the lid closure example (part three thereof) of the container 100.

[FIG. 5B] is an enlarged diagram showing the lid closure example in the container 100.

[FIG. 6A] is the assembly process diagram showing the lid closure example (part four thereof) of the container 100.

[FIG. 6B] is an enlarged diagram showing the lid closure example in the container 100.

[FIG. 7] is a perspective view showing another engaging example of a lid-closing part 13.

[FIG. 8A] is a cross sectional view showing a configuration example of the lid-closing part 13 on the oc-

casion of its engagement.

[FIG. 8B] is an enlarged view showing a configuration example of the lid-closing part 13 on the occasion of its engagement.

[FIG. 9] is a perspective view showing an aspect example of the container 100 on the occasion of a completion of the lid closure.

[FIG. 10] is a perspective view showing a configuration example when the container 100 is loaded to an automatic machine 400 or the like.

[FIG. 11] is a perspective view showing a loaded example of the container 100.

[FIG. 12A] is a cross sectional view showing a lid-opening example (part one thereof) of the container 100.

[FIG. 12B] is an enlarged view showing the lid-opening example of the container 100.

[FIG. 13A] is a cross sectional view showing the lid-opening example (part two thereof) of the container 100.

[FIG. 13B] is an enlarged view showing the lid-opening example of the container 100.

[FIG. 14] is a cross sectional view showing the lid-opening example (part three thereof) of the container 100.

[FIG. 15] is a perspective view showing a configuration example of a container 200 as a second embodiment.

[FIG. 16] is a perspective view showing an opening example of the opening 6 in the container 200.

[FIG. 17] is a diagram showing an example of measurements in container material 201.

[FIG. 18] is a perspective view showing an aspect example of a container 300 as a third embodiment.

BEST MODE FOR CARRYING OUT THE INVENTION

[0012] The present invention has an object to provide a container by which when one of container-constituting surfaces forms an opening with a predetermined size, the opening may be closed doubly by devising a closure mechanism and may be opened easily only by pulling a part of the closure mechanism.

[0013] The following will describe embodiments of a container according to the present invention with reference to drawings. The container 100 shown in FIG. 1 is applicable to a package box for a plurality of small sized articles, to be handled, such as PET bottles, cans, cigarettes, pencils, and filled parts and for various kinds of electric equipment or the like and one of container-constituting surfaces forms an opening 6 with a predetermined size. In other words, one of the six surfaces constituting the container 100 is opened. The following will describe the container-constituting surface as a container-constituting part.

[0014] A size of the entire container 100 is constituted of a height H1, a length L1 and a width W1 and a size of the opening 6 is obtained by multiplying L1 by W1. In the container 100, if two container-constituting parts standing facing each other across the opening 6 are supposed as first and second container-constituting parts 1, 2, a first lid-constituting part 11 constituting a first folding surface is unfolded onto the container-constituting part 1 as a side wall. In this embodiment, the lid-constituting part 11 extends continuously from a side prescribing the length L1 of the container-constituting part 1 up to a length similar to the width W1 of the opening 6. The lid-constituting part 11 has a length extending beyond the opening 6 of L1 multiplied by W1 and has at a predetermined position a slit portion 11a with a width w1 for allowing the folding surface to be inserted. The lid-constituting part 11 folds and makes a mountain fold on the container-constituting part 1 on the basis of outside of the container.

[0015] A second lid-constituting part 12 constituting a second folding surface is unfolded onto the lid-constituting part 11. In this embodiment, the lid-constituting part 12 extends continuously from a side prescribing the length L1 of the lid-constituting part 11 up to a length similar to the width W1 of the opening 6. The lid-constituting part 12 has a size similar to that of the lid-constituting part 11 and folds and makes a valley fold on the lid-constituting part 11. A first lid-closing part 13 constituting a third folding surface is unfolded onto the lid-constituting part 12. In this embodiment, the lid-closing part 13 extends continuously tapered from a side prescribing the length L1 of the container-constituting part 12 up to a predetermined length. The lid-closing part 13 has a predetermined shape and a size and folds and makes a valley fold on the lid-constituting part 12. In this embodiment, the lid-closing part 13 is shaped so as to become a trapezoid with a protrusion 13a. The protrusion 13a constitutes a tag.

[0016] The intermediate lid-pushing part 14 constituting a fourth folding surface is unfolded onto a container-constituting part 2 as the other side wall. In this embodiment, the intermediate lid-pushing part 14 has a length across the opening 6, for example, a length similar to a width W1 of the opening 6 and folds and makes a mountain fold on the container-constituting part 2. The intermediate lid-pushing part 14 is positioned at a position facing at the slit portion 11a and is set to have a width meeting the width w1 of the slit portion 11a. A second lid-closing part 15 constituting a fifth folding surface is unfolded onto the intermediate lid-pushing part 14. The lid-closing part 15 has a predetermined protruded length and folds and makes a mountain fold on the intermediate lid-pushing part 14.

[0017] The intermediate lid-pushing part 14 and the lid-closing part 15 are inserted into the above-mentioned slit portion 11a. The slit portion 11a is set at a position that is deviated slightly from a folded line between the lid-constituting part 11 and the lid-constituting part 12 near a side of the container-constituting part 1 and is an almost middle thereof (L1/2) and its width w1 is almost L1/3. Of course, it is not limited thereto but it may be

almost L1/4. The width w1 may be set based on the length L1. This is because the strength of the lid-constituting part 11, the lid-constituting part 12 and the like is kept by balancing the strength of the opening 6 and any portion other than the opening 6 when the intermediate lid-pushing part 14 and the lid-closing part 15 are inserted into the slit portion 11a. Regarding other container-constituting parts, container-constituting parts 3, 4 are disposed between the container-constituting parts 1, 2 and the container-constituting part 3 fills so as to constitute a side wall. The container-constituting part 4 fills so as to constitute the other side wall. A container-constituting part 5 fills at a side of bottom shown in FIG. 1. Thus, the container 100 with a double lid structure is configured.

[0018] The following will describe a method of manufacturing the container 100 with reference to FIG. 2. According to a measurement example of a container material 101 (exploded example of the container 100) shown in FIG 2, the container material 101 of a size, for example, one shown in FIG. 2 is prepared if manufacturing the container 100 as shown in FIG. 1. As the container material 101, for example, coated cardboard with paper quality of 350 g/m^2 is used. A development may be drawn so that a coated surface thereof forms an inside of the container 100. This is because the articles contained in the container 100 are easy to slide inside the container and are easy to be loaded into an automatic machine or the like when setting parts.

[0019] The coated cardboard has a size constituted of a vertical length W0 and a horizontal length L0. Though depending on a finished measurement of the container 100, the vertical one W0 may be almost 4W1+ H1 or more and the horizontal one L0 may be almost 2L1+2W1+a margin for connection or more. The container material 101 is not limited to the coated cardboard but corrugated cardboard, plastic panel with a predetermined thickness may be used therefor according to containing uses. If a container which can be used repeatedly again and again is formed, the container using the plastic panel can be increased in its used times more than that of a paper container.

[0020] According to the expanded example of the container 101 shown in FIG. 2, the container-constituting part 1 or 2 of length L1 and height H1, the container-constituting part 3 or 4 of width W1 and height H1, and the margin 7 for connection of height H1 are drawn below almost a half of the container material 101 and the container-constituting parts 1 and 2, the container-constituting parts 3 and 4 and the margin 7 for connection are continuously arranged so that they are aligned horizontally. Further, the lid-constituting part 11 or 12 of length L1 and width W1, the trapezoidal lid-closing part 13, and the protrusion 13a having a predetermined shape are drawn on an upper part of the container-constituting part 1 so that the lid-constituting parts 11 and 12, the lid-closing part 13 and the protrusion 13a are arranged at positions that are continuous with the container-constituting part 1. The slit portion 11a is drawn in the lid-constituting part 11 and then is opened.

[0021] Further, the intermediate lid-pushing part 14 of length W1 and width w1 and the lid-closing part 15 with the predetermined length are drawn on an upper part of the container-constituting part 2 and the intermediate lid-pushing part 14 and the lid-closing part 15 are arranged at positions that are continuous with the container-constituting part 2. Further, regarding a shape of a bottom of the container 100, for example, if folding double door type, a container-constituting part 5 of length L next to the container-constituting part 2, a container-constituting piece 5a of length W1 next to the container-constituting part 3, a container-constituting part 5 of length L next to the container-constituting part 1, and a container-constituting piece 5b of length W1 next to the container-constituting part 4 are drawn.

[0022] It is to be noted that, in the figure, a container-constituting piece 8a may be disposed on a position over the container-constituting part 3 shown by alternate long and two short dashes line and a container-constituting piece 8b may be disposed on a position over the container-constituting part 4 shown thereby. The container-constituting piece 8a constitutes a sixth folding surface and folds and makes a mountain fold on the container-constituting part 3 next to the container-constituting part 1. The container-constituting piece 8b constitutes a seventh folding surface and folds and makes a mountain fold on the container-constituting part 4 next to the container-constituting part 2. Disposition of the container-constituting pieces 8a, 8b enables the strength of the entire container 100 to be increased. Of course, the disposition of the container-constituting pieces 8a, 8b may be omitted.

[0023] In the figure, broken lines show positions for mountain or valley folding. In this example, when cutting the container material 100 along a solid line by using a cutter, scissors or the like, an exploded shape of the container 100 is completed as shown in FIG. 1. Further, when assembling it by folding and making mountain or valley folds along the broken lines, the container 100 as shown in FIG. 9 can be completed.

EMBODIMENT 1

[0024] The following will describe a lid closure example (part one through three thereof) of the container 100 according to a first embodiment with reference to FIGS. 3 through 6A and 6B. Triangle marks (i) through (v) in white shown in FIGS. 3 through 5A and 5B are all folding positions.

[0025] First, the container 100 shown in FIG. 3 is prepared. The container 100 is formed so that each of the container-constituting parts 1 through 4 and the margin 7 for connection in the exploded form shown in FIG. 2 folds and makes a mountain fold to form the container-constituting parts 1 through 4 as a box and the container-constituting part 4 is connected with the margin 7 for connection by an adhesive, a staple or the like. The container-constituting pieces 5a, 5b are then folded inwardly in

advance to build up a bottom surface and the container-constituting parts 5 fold and make mountain folds onto the container-constituting pieces 5a, 5b. It is constituted that butt portions of the container-constituting parts 5 are stuck onto each other by a tape or the like. Thus, as shown in FIG. 3, the container 100 is obtained such that the lid-constituting parts 11, 12, the lid-closing part 13 and the protrusion 13a extend upwards in succession from the container-constituting part 1; the intermediate lid-pushing part 14 and the lid-closing part 15 extend upwards in succession from the container-constituting part 2; and the opening 6 is defined.

[0026] In this embodiment, articles 30 are loaded into the container 100 through the opening 6 shown in FIG. 3. the articles 30 are , for example, a plurality of small sized ones, to be handled, such as PET bottles, cans, cigarettes, pencils, and filled parts, various kinds of electric equipment or the like. Next, as shown in FIG. 4, the opening 6 is closed. In this moment, the lid-constituting part 11 and the intermediate lid-pushing part 14 fold and make mountain folds on the folding positions (i), (iv) and the lid-closing part 15 and the intermediate lid-pushing part 14 are successively inserted into the slit portion 11a for allowing the folding surface to be inserted.

[0027] Further, as shown in FIGS. 5A and 5B, the intermediate lid-pushing part 14 pushes an upper portion of the lid-constituting part 11 down and the lid-constituting part 12 folds and makes a valley fold on the folding position (ii) so that the lid-constituting part 12 covers the upper portion of the intermediate lid-pushing part 14. The lid-closing part 15 then folds and makes a mountain fold on the folding position (v) so that the lid-closing part 15 wraps the container-constituting part 1. At the same time, as shown in FIGS. 6A and 6B, the lid-closing part 13 folds and makes a mountain fold on the folding position (iii) and the lid-closing part 13 is engaged with the container-constituting part 1 with the lid-closing part 13 wrapping the lid-closing part 15. In this embodiment, a double-sided tape sticks the protrusion 13a and the container-constituting part 1. Of course, a sticking method is not limited thereto. Thus, the opening 6 in the container 100 can be firmly closed (see FIG. 9).

[0028] The following will describe another engaging method of the lid-closing part 13 in the container 100 with reference to FIG. 7. The container-constituting part 1 shown in FIG. 7 has a pair of slit portions 1a, 1b for allowing folding parts to be engaged at predetermined positions. A length of each of the slits 1a, 1b is 12. The slits 1a, 1b are provided at positions of the container-constituting part 1 which lid-closing pieces 13b, 13c face when the lid-closing part 13 closes over the container-constituting part 1. The lid-closing pieces 13b, 13c constituting first and second folding pieces with a predetermined width w2 are provided at both sides of the protrusion 13a extending from the lid-closing part 13. The width w2 of each of the lid-closing pieces 13b, 13c is set so as to be almost 12 (w2=12). Both of the lid-closing pieces 13b, 13c fold and make mountain folds on the protrusion 13a. Forward end of each of the lid-closing pieces 13b, 13c has a shape of circular arc. This is because they cause the articles loaded in the container 100 to be protected.

[0029] Here, the following will describe a configuration example of the lid-closing part 13 on the occasion of its engagement with reference to FIGS. 8A and 8B. In this embodiment, it is configured that when the lid-closing part 13 is engaged with the container-constituting part 1, the lid-closing piece 13b is inserted into the slit portion 1a shown in FIG. 7 and the lid-closing piece 13c is inserted into the slit portion 1b, respectively. In other words, the lid-closing piece 13b shown in FIG. 8A is inserted into the slit 1a and it is configured that by catching the lid-closing piece 13b in the slit 1a, the lid-closing part 13 shown in FIG. 8B is engaged with the container-constituting part 1. The lid-closing piece 13c also acts similarly.

[0030] Then, the following will describe an aspect example of the container 100 on the occasion of a completion of the lid closure with reference to FIG. 9. According to the container 100 shown in FIG. 9, the lid-closing part 13 can be firmly fixed onto the container-constituting part 1. Even if the container-constituting parts 5 direct upward and a double-lid-structure part directs downward, it is capable to keep the opening shown in FIG. 7 firmly closed. Such a configuration of the container 100 enables the articles that are subject to scattering to be easily handled by the container-constituting parts 1 through 5 and the lid-constituting parts 11, 12. That enables the contents therein to be protected when carrying them or transporting them. When loading the articles, it can be avoided to touch the contents directly by his hand so that the articles can be prevented from changing their shape. When loading the container 100 into any automatic machine, a power tool or the like, it is possible to open the lid-constituting parts 11, 12 easily by pulling the protrusion (tag) 13a projected toward this side under a situation where the container 100 is set on the machine, tool or the like.

[0031] The following will describe a loaded example of the container 100 with reference to FIGS. 10 and 11. In this embodiment, the container 100 is set to the automatic machine 400 or the like with a side of its lid-closing part directing downward. The automatic machine 400 shown in FIG. 10 is a vending machine, a binding machine, various kinds of power tools or the like and has a loading space 401 for loading the container 100 as shown in FIG. 7. The loading space 401 is blocked in its three directions. Namely, there is a situation such that an operator's hand cannot enter into right and left side surfaces and a back surface of the loading space 401. A side of a bottom surface of the loading space 401 becomes parts-loading space 402, which has often such a structure that an operator's hand cannot enter into it depending on a type of automatic machine 400. When the container 100 with double-lid structure according to the present invention is loaded into the automatic machine 400 having such a loading space 401, the container 100 is laded (set) so that it directs from an upper part of the loading space 401 to a lower part thereof or from a front surface thereof to

a back surface thereof.

[0032] According to the loaded example of the container 100 shown in FIG. 11, a mechanism of stopping the container 100 at a middle of the loading space 401 is provided. For example, a stopper mechanism, not shown, is provided at the right or left side surface or a back surface of the loading space 401 and it is configured that when dropping the container 100 from the upper part of the loading space 401 to a lower part thereof along the space, the stopper mechanism stops movement of the container 100. Such a mechanism enables to be realized a structure in which the operator's hand can enter into a lower part of the loading space 401 under the container 100 stopping at a middle thereof, thereby keeping any working space. In this embodiment, it is configured that the lid-constituting parts 11 and 12 are opened by pulling the lid-closing part 13 positioned at this side under a situation where the container 100 is set into the above-mentioned loading space 401.

[0033] The following will describe a lid-opening example of the container 100 with reference to FIGS. 12A and 12B through 14. In this embodiment, a case is illustrated where the container 100 in which the lid-closing pieces 13b, 13c shown in FIG. 7 have been engaged with the slits 1a, 1b is opened. First, when the opening 6, not shown, is opened by pulling the lid-closing part 13 out of the container-constituting part 1 as shown in FIG. 12A, the lid-closing pieces 13b, 13c are disengaged with the slits 1a, 1b and the protrusion 13a is also disengaged with the container-constituting part 1. In this moment, it is configured that the lid-closing part 13 is pulled toward this side. According to FIG. 12B where this portion is enlarged, the lid-closing piece 13b is pulled out of the slit portion 1a and the lid-closing piece 13c is pulled out of the slit portion 1b as well as the lid-closing piece 13b is separated from the slit portion 1a and the lid-closing piece 13c is separated from the slit portion 1b. By such a separation operation, the intermediate lid-pushing part 14 under the lid-constituting part 11 becomes a state just before it becomes free.

[0034] Next, it is configured that the intermediate lid-pushing part 14 and the lid-closing part 15 are successively pulled out of the slit portion 11a for allowing the folding surface to be inserted, as shown in FIG. 13A. In this moment, it is configured that a user is pulling the lid-closing part 13 toward this side. According to FIG. 13B where this portion is enlarged, the lid-closing part 15 and the intermediate lid-pushing part 14 are pulled out of the slit portion 11a in this order. By such a pulling operation, the articles 30 loaded in the container 100 are barely held by sections of the lid-constituting part 11 and the intermediate lid-pushing part 14 so as to become a situation just before the articles 30 drop.

[0035] According to the container 100 shown in FIG. 14, by keeping further pulling the lid-closing part 13 toward this side, the lid-constituting parts 11, 12 and the lid-closing part 13 are disengaged from the intermediate lid-pushing part 14 and the lid-closing part 15 so that the lid-constituting parts 11, 12 covering the opening 6 can be opened. In this moment, by keeping further pulling the lid-closing part 13 toward this side, the intermediate lid-pushing part 14 and the lid-closing part 15 go back by being pushed by the articles 30. This enables the opening 6 to be formed, thereby allowing the articles 30 loaded in the container 100 to be fallen freely and allowing the articles 30 to be loaded into the automatic machine 400 shown in FIG. 10.

[0036] Thus, according to the container 100 as the first embodiment, when closing the opening 6 constituting one of the six container-constituting parts, the lid-constituting parts 11, 12 and the lid-closing part 13 are combined with the intermediate lid-pushing part 14 and the lid-closing part 15 so that the lid-constituting parts 11, 12 can cover the opening 6 and the opening 6 can be closed doubly by the lid-constituting parts 11, 12 and the intermediate lid-pushing part 14. Further, it is possible to open the opening 6 only by pulling the lid-constituting parts 11, 12 at a side of the container-constituting part 1. Accordingly, it is possible to take the articles 30 contained in the container 100 out thereof downwardly with a good reproducibility under the situation where the side of the opening 6 directs downward by pulling operation at a side of the container-constituting part 1. Thus, it is capable of being sufficiently applied to a loading and containing system of the articles 30 to various kinds of parts cassettes of a vending machine, binder device, a power tool or the like. It is also not necessary to enter the hand into a machine, a tool or the like so that safety is given and by allowing the lower-surface-double-lid-body to be opened by only one operation, it is possible to load parts or the like onto the loading space 401 under one-touch control.

EMBODIMENT 2

[0037] The following will describe a configuration example of a container 200 as a second embodiment with reference to FIG. 15. According to the container 200 shown in FIG. 15, slits 1d, 1e for assisting opening and closure are provided in a container-constituting part 1 on a vertical direction thereof. The slits 1d, 1e are provided in the container 200 at a side of disposition of double-lid structure and are provided at right and left two positions on a surface lying on the same plane of the container-constituting part 1. Length of each of the slits 1d, 1e is 13. The length 13 is almost a half of a height H1 of the container 200. This is figured out to enable the lid-constituting part 11 to be further pulled toward this side. It is possible to open the opening 6 wider than that of the first embodiment, which is easy to set the articles 30 in the container to the automatic machine 400 or the like.

[0038] In this embodiment, it is designed that a handle 5e and an opening 5f for the handle are provided on an upper part of the container 200 so that the container 200 is easy to be carried. The handle 5e and the opening 5f are disposed on the container-constituting part 2 at an opposite position to the disposed position of the interme-

diate lid-pushing part 14. A container-constituting part 5c is provided on the container 200 at an opposite position to the disposed position of the double-lid structure thereof. In the container-constituting part 5c, a circular window portion 5d is provided so that the articles 30, not shown, in the container can be checked through visual inspection. This is because an occasion in which the articles 30 in the container are checked from outside by their color or the like may arise. It is to be noted that the slits 1d, 1e may be provided at a side of the container-constituting part 2. For example, the slits 1d, 1e are provided at positions of the container-constituting part 2, which are identical to those of the container-constituting part 1. Thus, it is possible to open the opening 6 much wider than that of the first embodiment, which is easier to set the articles 30 in the container.

[0039] Here, the following will describe an opening example of the opening 6 in the container 200 with reference to FIG. 16. In this embodiment, it is also configured that the disposition of the double-lid structure directs downwards and the lid-closing part 13 is removed to open the opening 6. In this embodiment, it is configured that the lid-closing part 13 is removed from the container-constituting part 1 as shown in FIG. 16 and the lid-closing part 13 is pulled toward this side. In this moment, the container-constituting part 1 is curved due to the slits 1d, 1e provided on a vertical direction by a larger amount than that of the first embodiment so that it is possible to open the opening 6 much wider.

[0040] The following will describe a method of manufacturing the container 200 with reference to FIG. 17. According to an example of measurements in container material 201 (an exploded example of the container 200) shown in FIG. 17, if the container 200 as shown in FIG. 15 is manufactured, the container material 201 having, for example, a size shown in FIG. 17 is prepared. As the container material 201, coated cardboard with paper quality of 350 g/m^2 is used, similar to the first embodiment. In this embodiment, a development may be also drawn so that a coated surface thereof forms an inside of the container 200. The reason therefor has been described in the first embodiment, the description of which will be omitted.

[0041] The coated cardboard has a size constituted of a vertical length W0' and a horizontal length L0. The container material 201 that is larger than that of the first embodiment is prepared to form the handle 5e and the container-constituting part 5c. Though depending on a finished measurement of the container 200, the vertical length W0' may be almost 5W1+ H1 or more and the horizontal one L0 may be almost 2L1+2W1+a margin for connection or more. The container material 201 is not limited to the coated cardboard but the ones described in the first embodiment may be used therefor.

[0042] According to the container material 201 shown in FIG. 17, the slits 1d, 1e are drawn so that they are provided in the container-constituting part 1 and slits 1f, 1g are drawn so that they are provided in the container-constituting part 2. In this embodiment, the handle 5e and the opening 5f are drawn so that they extend continuously from the container-constituting part 2 at an opposite side of the disposed position of the double-lid structure. The handle 5e and the opening 5f are reinforced through the double structure to obtain any strength. In the figure, the handle 5e' and the opening 5f' are reversed patterns of the handle 5e and the opening 5f. The handle 5e' is set so that its projection length is larger than that of the handle 5e. This is because the projection portion thereof is inserted into the container. Further, it has such a structure that both sides of each of the handles 5e, 5e' make mountain folds and bends inwardly to each other to maintain the strength thereof and both of the triangular mountain-folded portions are folded inwardly. This enables both sides of each of the handles 5e, 5e' to be formed slantwise as shown in FIG. 15.

[0043] Further, the container-constituting part 5c is drawn at a position of the container 200 so that it extends continuously from the container-constituting part 1 at an opposite side of the disposed position of the double-lid structure. In the container-constituting part 5c, a circular window portion 5d is disposed. Other parts thereof are similar to those of FIG. 2, the description of which will be omitted. Thus, a development of the container 200 is constituted and folding it allows the container 200 shown in FIG. 15 to be obtained.

[0044] Thus, according to the container 200 as the second embodiment, the slits 1d, 1e or the like are provided at both of the right and left sides of the container-constituting part 1 on a vertical direction so that it is possible to curve the container-constituting part 1 by a large amount when opening the lid. Accordingly, the opening 6 can be opened by larger amount, thereby enabling operability at a front surface to be improved as compared by that of the first embodiment.

EMBODIMENT 3

[0045] The following will describe an aspect example of a container 300 as a third embodiment with reference to FIG. 18. According to the container 300 shown in FIG. 18, a case is illustrated where the opening 6' is broader than that of the first embodiment. A height of the container is H3, a length thereof is L3 and a width thereof is W3. A size of the opening 6' is obtained by multiplying L3 by W3. The embodiment is a case where, of the container, the height is less than that of the first embodiment, H3<H1 and the size of the opening 6' is broader, L3 by W3>L1 by W1. Although a case where it is used with the double-lid structure directing downwards has been described in the first embodiment, it may be used with the double-lid structure directing upwards as shown in the third embodiment. This enables the double-lid structure at upper surface thereof to be opened by one operation. It is possible to expose the opening 6' with a single touch.

[0046] In the container 300, the lid-constituting part 31

extends continuously from a side prescribing the length L3 of a container-constituting part 1' up to a length that is almost identical to the width W3 of he opening 6'. The lid-constituting part 31 has a length across the opening 6' of L3 by W3, and has at a predetermined position a slit portion 31a for allowing the folding surface to be inserted with a width w3. The lid-constituting part 31 folds and makes a mountain fold on the container-constituting part 1' on the basis of outside of the container.

[0047] A lid-constituting part 32 is unfolded onto the lid-constituting part 31. In this embodiment, the lid-constituting part 32 extends continuously from a side prescribing the length L3 of the lid-constituting part 31 up to a length that is almost identical to the width W3 of he opening 6'. The lid-constituting part 32 has a size similar to that of the lid-constituting part 31 and folds and makes a valley fold on the lid-constituting part 31. A lid-closing part 33 is unfolded onto the lid-constituting part 32. In this embodiment, the lid-closing part 33 extends continuously from a side prescribing the length L3 of the container-constituting part 32 up to a predetermined length. The lid-closing part 33 has predetermined shape and size and folds and makes a valley fold on the lid-constituting part 32. In this embodiment, the lid-closing part 33 is shaped so as to become a trapezoid with a protrusion 33a. The protrusion 33a constitutes a tag.

[0048] The intermediate lid-pushing part 34 is unfolded onto a container-constituting part 2', not shown, as the other side wall. In this embodiment, the intermediate lid-pushing part 34 has a length across the opening 6', for example, a length that is almost identical to a width W3 of the opening 6' and folds and makes a mountain fold on the container-constituting part 2'. The intermediate lid-pushing part 34 is positioned at a position facing at the slit portion 31a and is set to have a width meeting the width w3 of the slit portion 31a. A lid-closing part 35 is unfolded onto the intermediate lid-pushing part 34. The lid-closing part 35 has a predetermined protruded length and folds and makes a mountain fold on the intermediate lid-pushing part 34.

[0049] The intermediate lid-pushing part 34 and the lid-closing part 35 are inserted into the above-mentioned slit portion 31a. The slit portion 31a is set at a position that is deviated slightly from a folded line between the lid-constituting part 31 and the lid-constituting part 32 near a side of the container-constituting part 1' and is a middle thereof (L3/2) and its width w3 is almost L3/3. Of course, it is not limited thereto but it may be almost L3/4. The width w3 may be set based on the length L3.

[0050] Thus, according to the container 300 as the third embodiment, when closing the opening 6', the lid-constituting parts 31, 32 and the lid-closing part 33 are combined with the intermediate lid-pushing part 34 and the lid-closing part 35 so that the lid-constituting parts 31, 32 can cover the opening 6' and the opening 6' can be closed doubly by the lid-constituting parts 31, 32 and the intermediate lid-pushing part 34. Further, it is possible to open the opening 6' only by pulling the lid-constituting parts 31, 32 at a side of the container-constituting part 1'. Accordingly, it is possible to take the articles contained in the container 300 out thereof upwardly with a good reproducibility under the situation where the side of the opening 6' directs upward by pulling operation at a side of the container-constituting part 1'. Thus, it is capable of being sufficiently applied to a package box for various kinds of electric equipment such as a hot plate and a fish oven, or for an appliance such as a decorated plate and a trey.

INDUSTRIAL APPLICABILITY

[0051] The present invention is very preferably applicable to a carton containing a plurality of small sized articles, to be handled, such as PET bottles, cans, cigarettes, pencils, and filled parts and a package box for various kinds of electric equipment, an appliance or the like.

Claims

1. A container in which one of container-constituting surfaces forms an opening with a predetermined size, **characterized in that** if two constituting surfaces standing facing each other across the opening are supposed as first and second constituting surfaces, it is provided with:

   a first folding surface that makes a mountain fold on the first constituting surface, the first folding surface having a length extending beyond the opening;
   a second folding surface that makes a valley fold on the first folding surface;
   a third folding surface that makes a valley fold on the second folding surface;
   a fourth folding surface that makes a mountain fold on the second constituting surface, the fourth folding surface having a predetermined length; and
   at a predetermined position, a slit portion for allowing the fourth folding surface to be inserted,
   wherein when the opening is closed,
   the fourth folding surface is inserted into the slit portion for allowing the folding surface to be inserted,
   the fourth folding surface covers the first folding surface and the second folding surface covers the fourth folding surface so that the third folding surface is engaged with the first constituting surface.

2. The container according to Claim 1 **characterized in that** the slit portion for allowing the fourth folding surface to be inserted is provided on a boundary line between the first folding surface and the second fold-

ing surface, on the first folding surface or on the second folding surface.

3. The container according to Claim 1 **characterized in that** if the slit portion for allowing the folding surface to be inserted is provided at a predetermined position on the first folding surface, it is provided with a fifth folding surface that makes a mountain fold on the fourth folding surface, the fifth folding surface having a predetermined extended length,
Wherein when the opening is closed,
the fifth folding surface and the fourth folding surface are inserted into the slit portion for allowing the folding surface to be inserted,
the fourth folding surface covers the first folding surface and the second folding surface covers the fourth folding surface so that the fifth folding surface wraps the first constituting surface, and the third folding surface is engaged with the first constituting surface with the third folding surface wrapping the fifth folding surface.

4. The container according to Claim 1 **characterized in that** the first constituting surface has a pair of slit portions for engaging folding pieces at predetermined positions;
the third folding surface has first and second folding pieces that make mountain folds; and
when the third folding surface is engaged with the first constituting surface, the first folding piece is engaged with one slit portion for engaging a folding piece in the first constituting surface and the second folding piece is engaged with the other slit portion for engaging the folding piece in the first constituting surface.

5. The container according to Claim 3 **characterized in that** when the opening is opened,
the third folding surface is disengaged with the first constituting surface and the third folding surface is pulled toward a side of the first constituting surface and the fourth folding surface and the fifth folding surface are pulled out of the slit portions of the first folding surface.

6. The container according to Claim 1 **characterized in that** it is provided with a sixth folding surface that makes a mountain fold on a third constituting surface that is adjacent to the first constituting surface and a seventh folding surface that makes a mountain fold on a fourth constituting surface that is adjacent to the second constituting surface.

FIG. 1

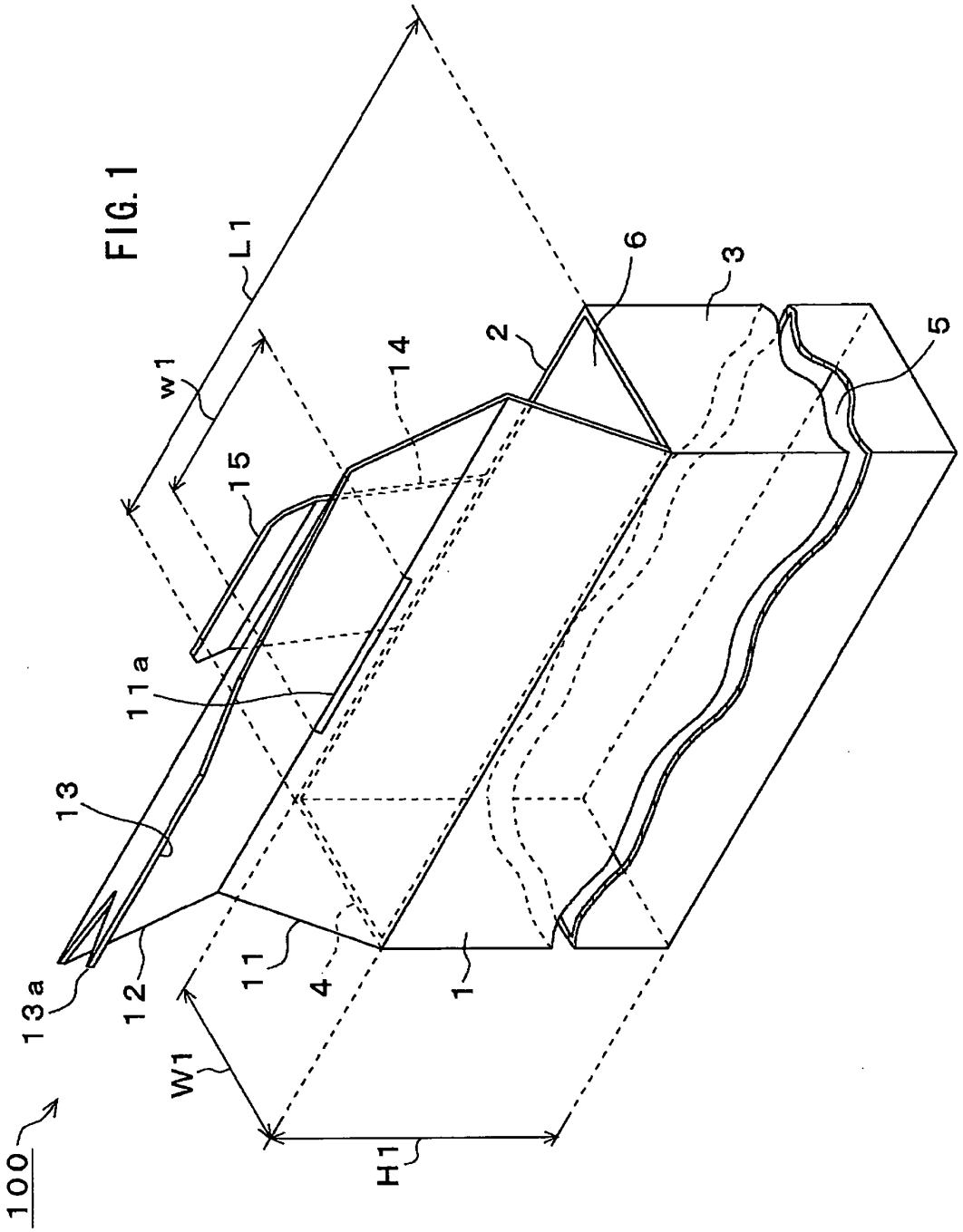


FIG. 2

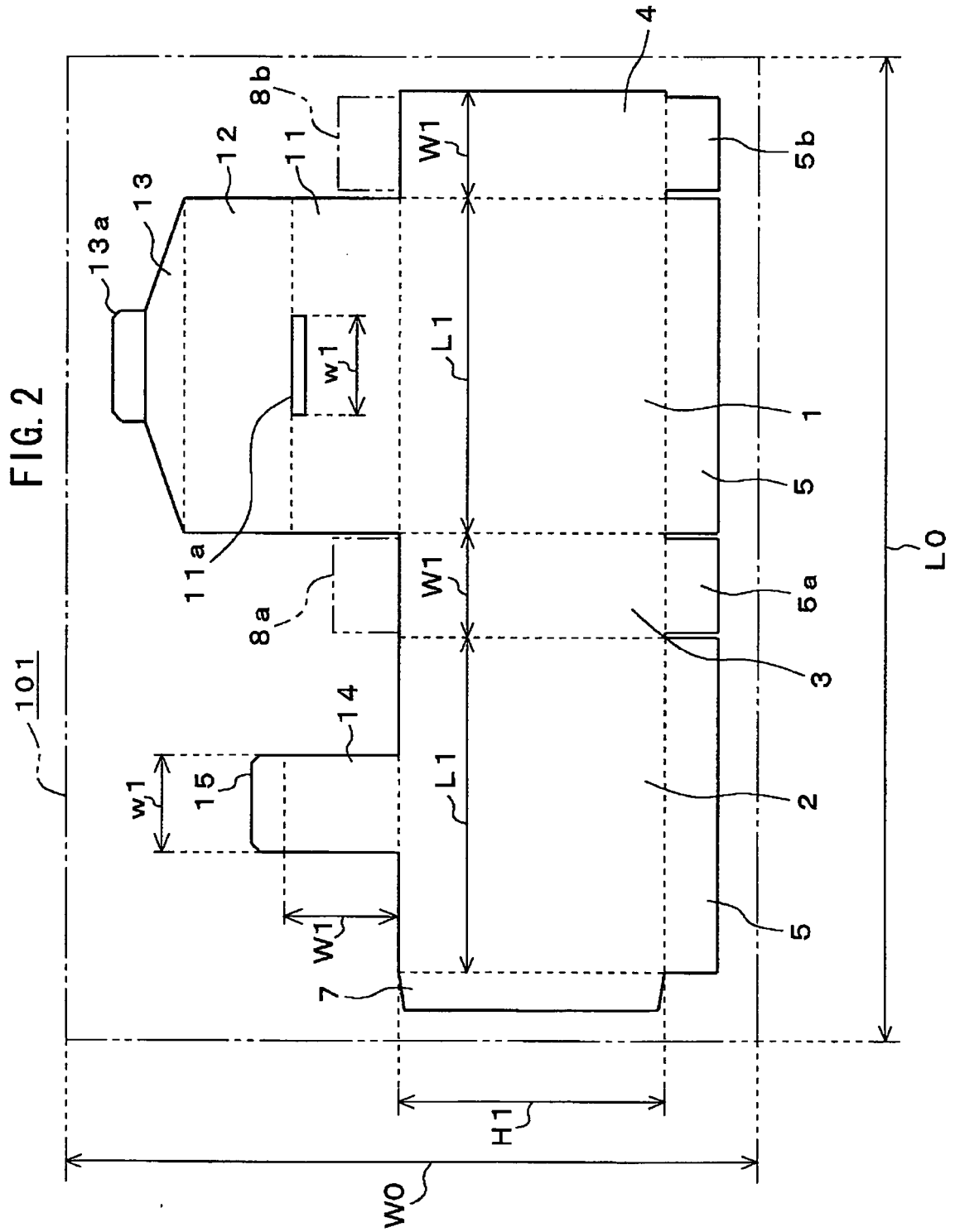

101
4
8b
11
12
13
13a
W1
5b
L1
w1
1
5
11a
8a
W1
5a
L0
3
14
w1
15
L1
2
5
W1
7
H1
W0

FIG. 3

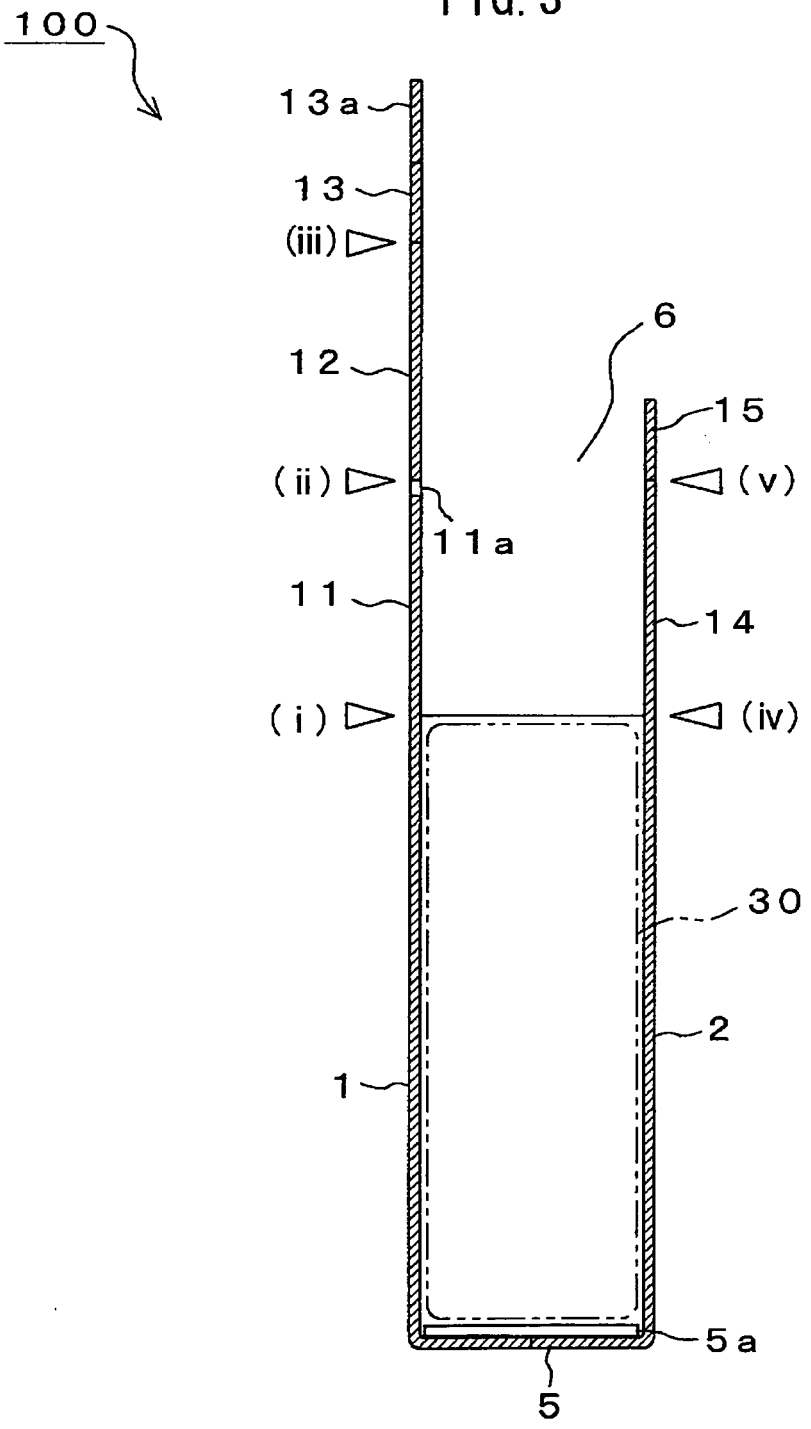


FIG. 4

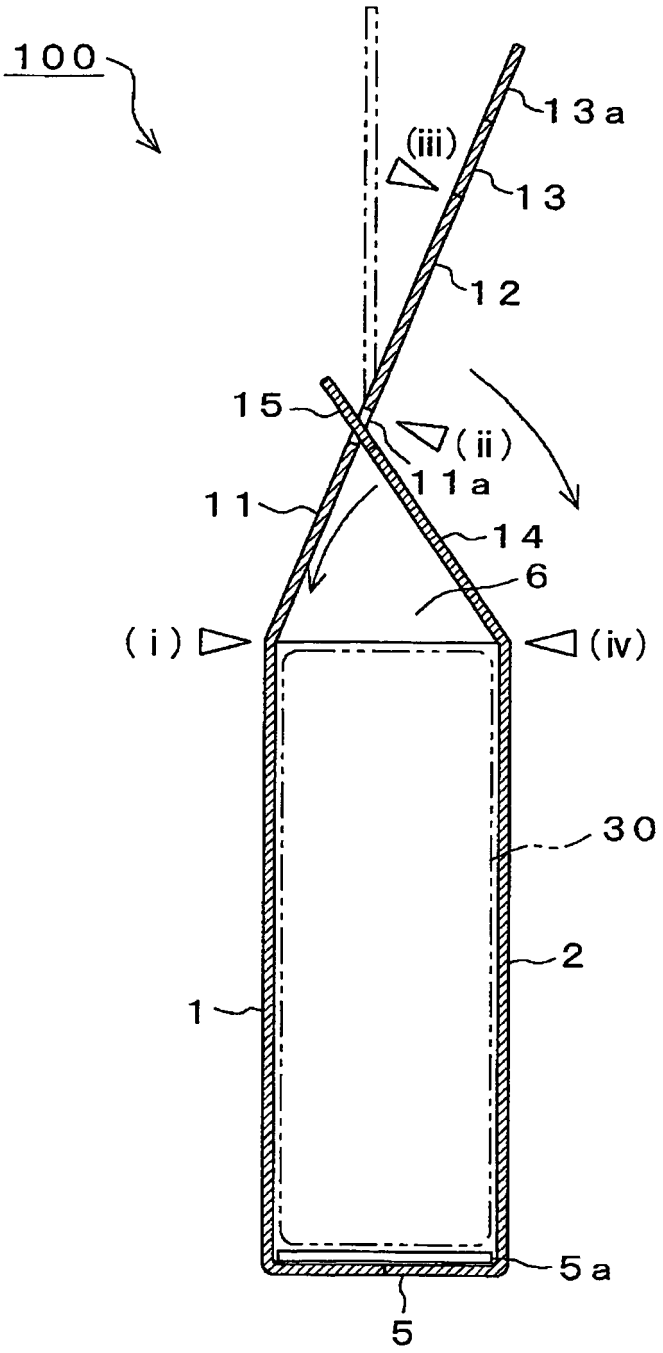


FIG. 5A

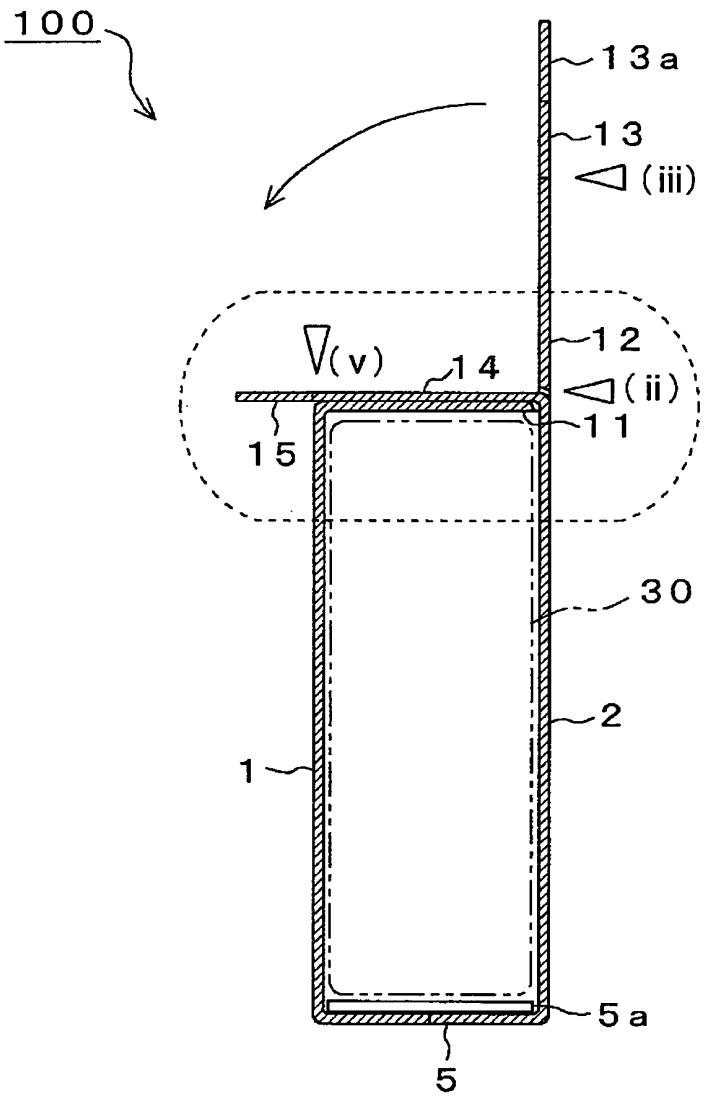

100
13a
13
(iii)
12
(v)
14
(ii)
11
15
30
2
1
5a
5

FIG. 5B

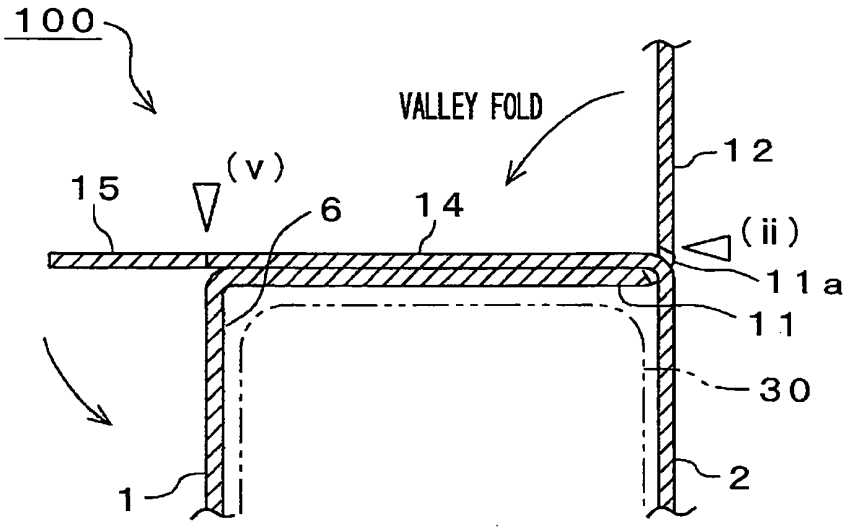

100
VALLEY FOLD
12
(v)
15
6
14
(ii)
11a
11
30
1
2

FIG. 6A

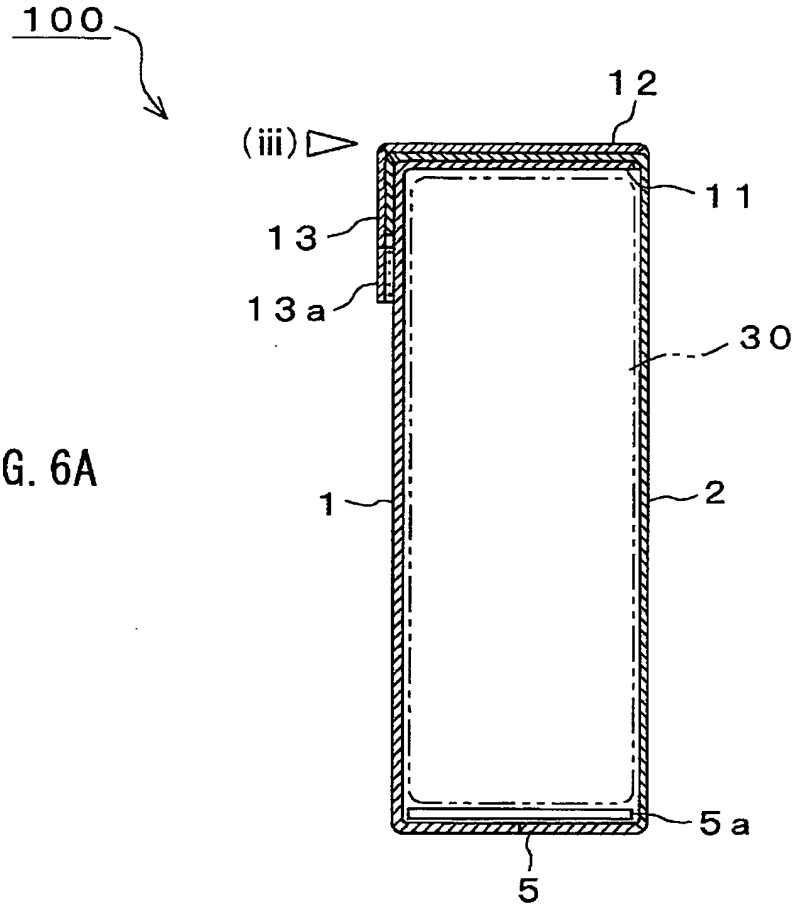

100
12
(iii)
11
13
13a
30
1
2
5a
5

FIG. 6B

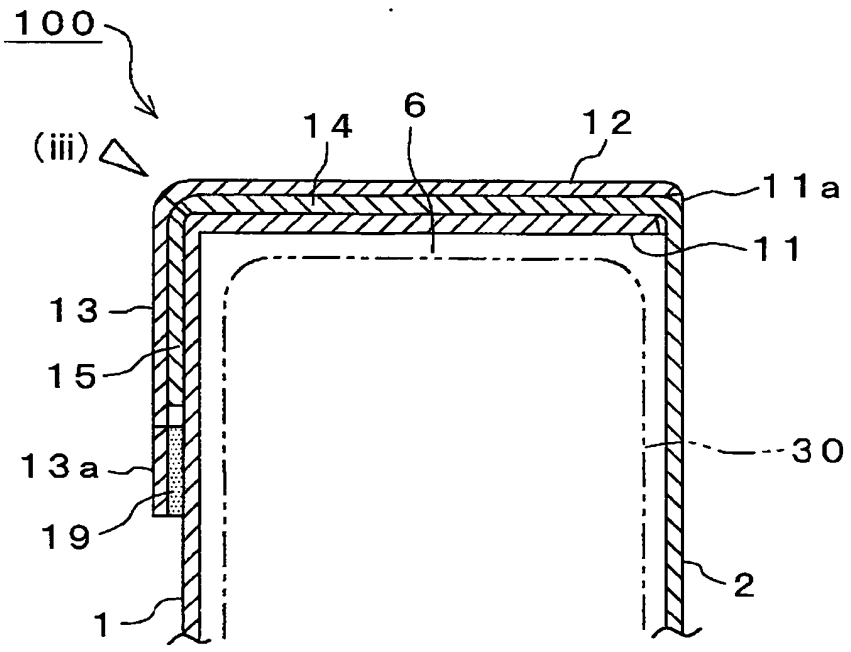
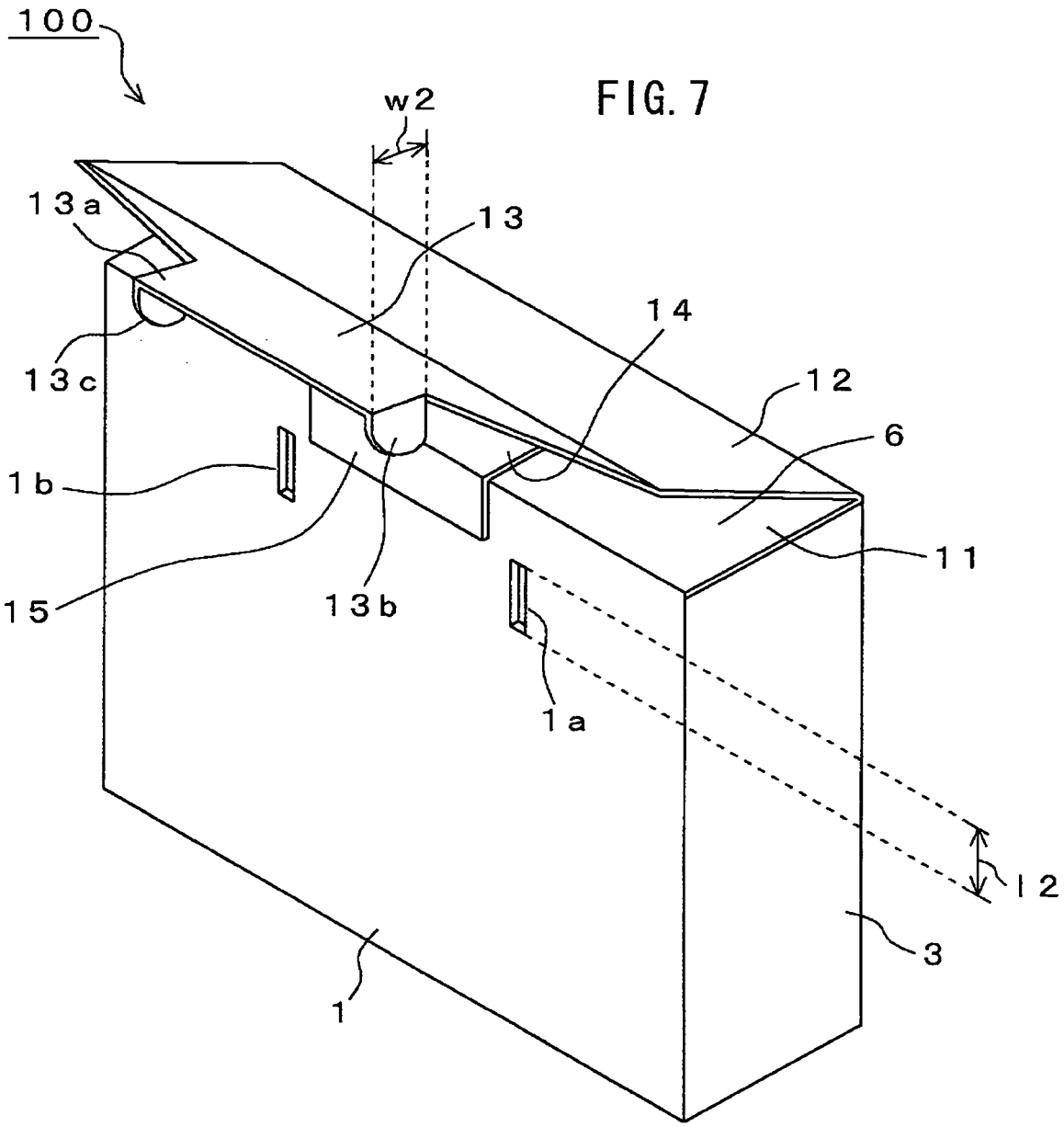

100
(iii)
14
6
12
11a
11
13
15
13a
19
30
2
1

FIG. 7



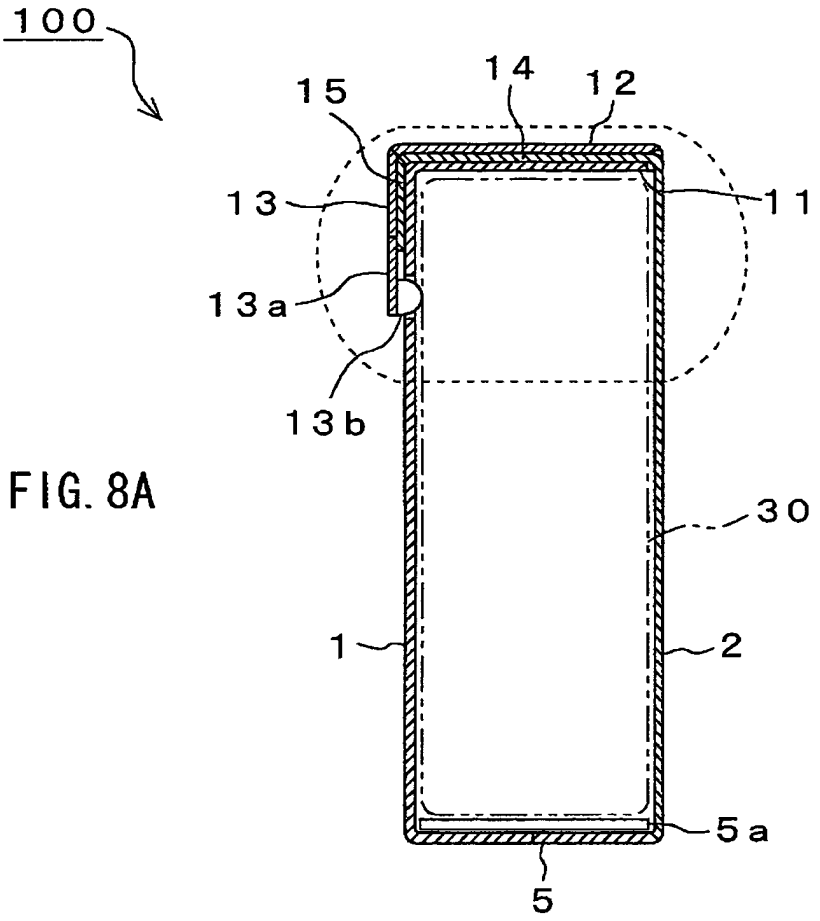

100
15
14
12
13
11
13a
13b
30
1
2
5a
5

FIG. 8A

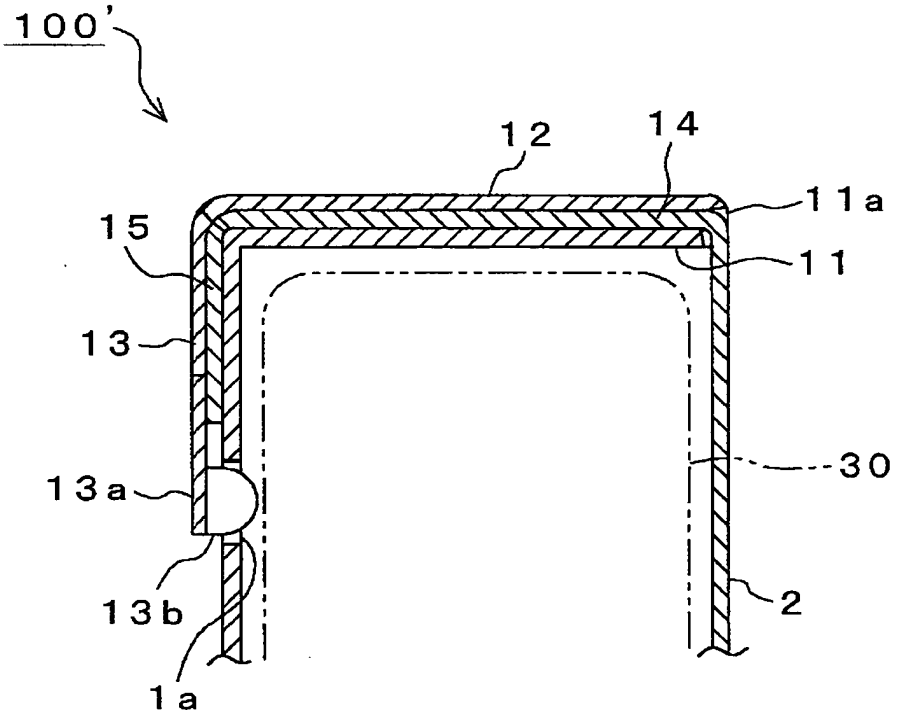

100'
12
14
11a
15
11
13
30
13a
13b
2
1a

FIG. 8B

FIG. 9

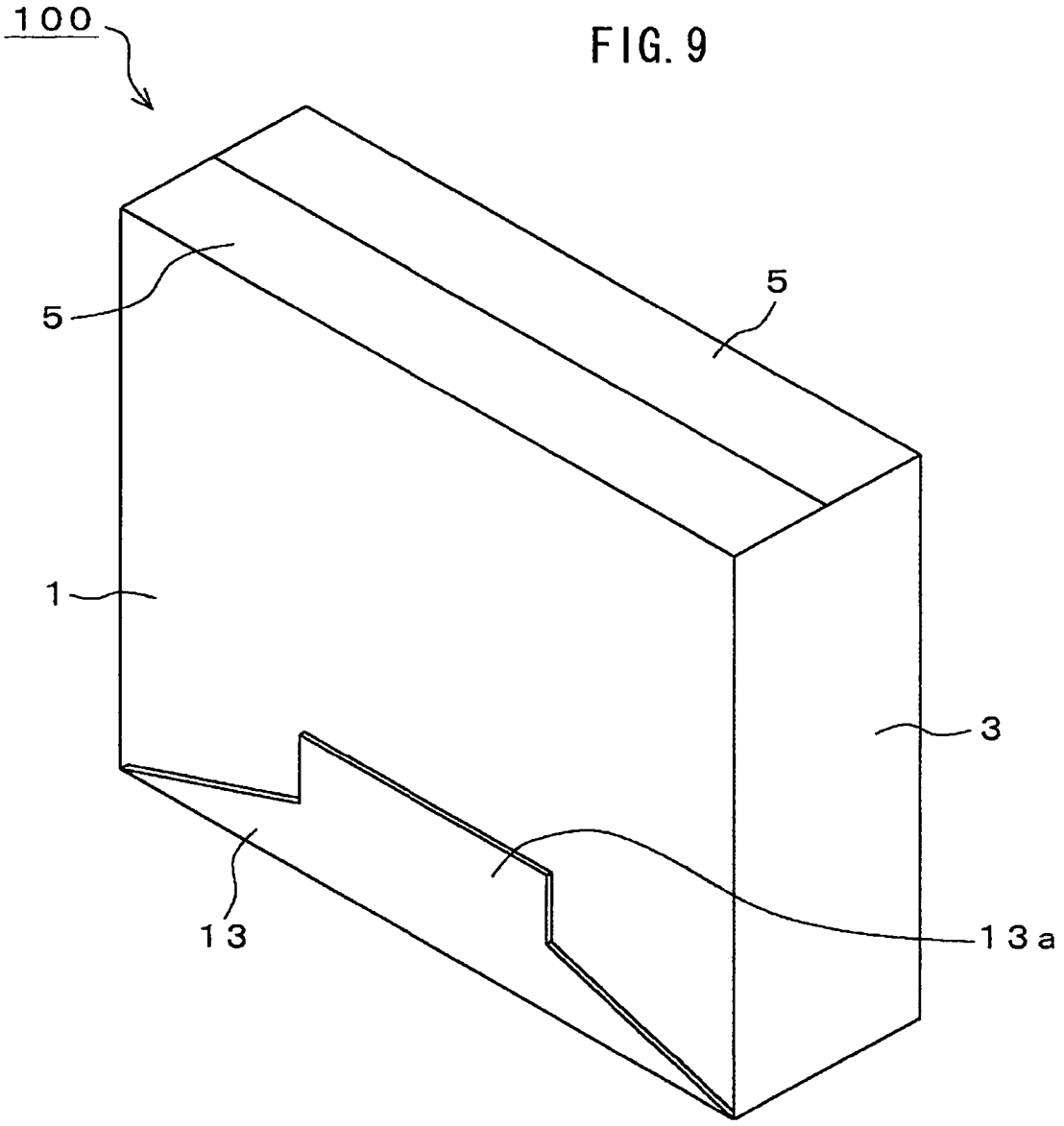


FIG. 10

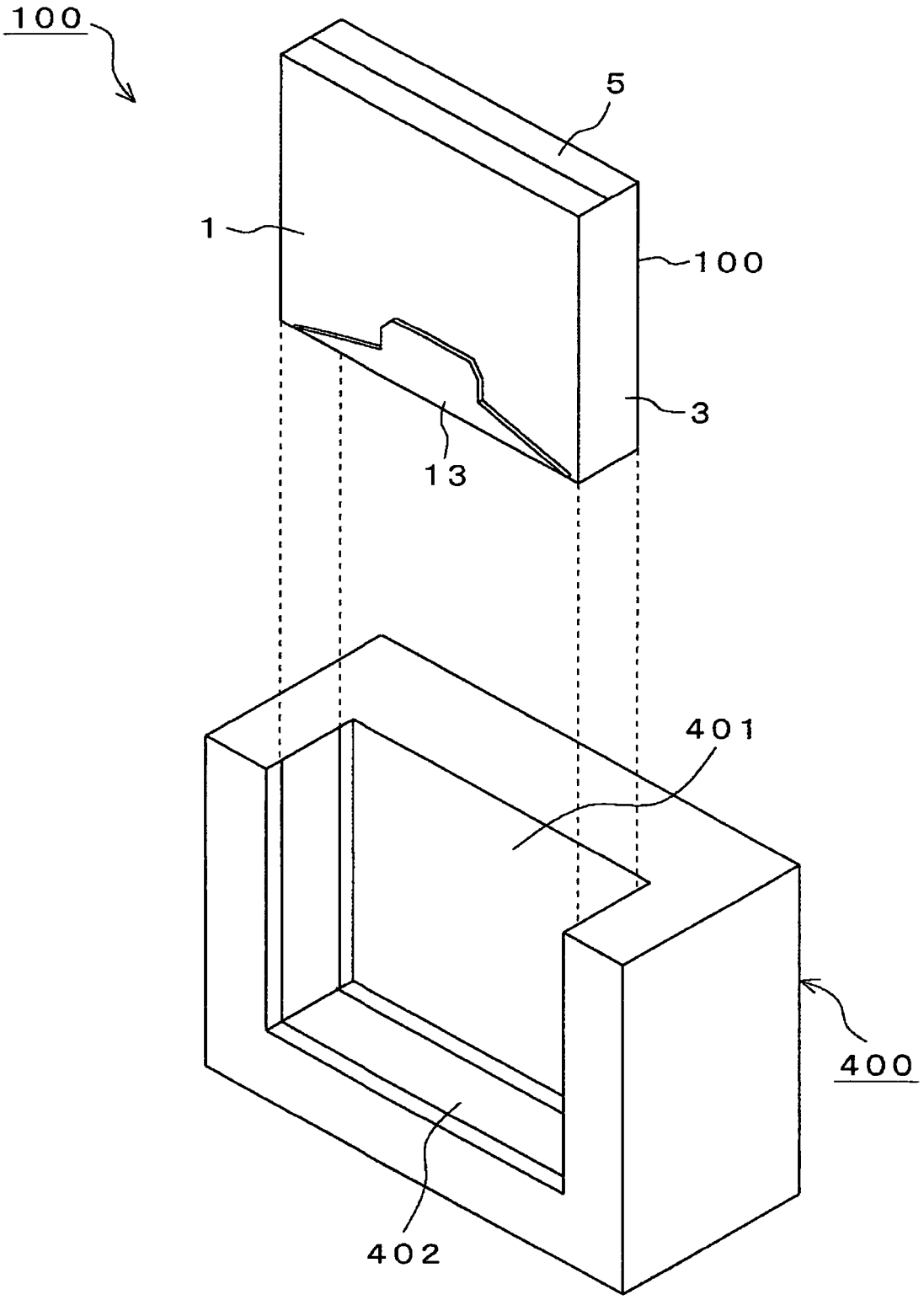


FIG. 11

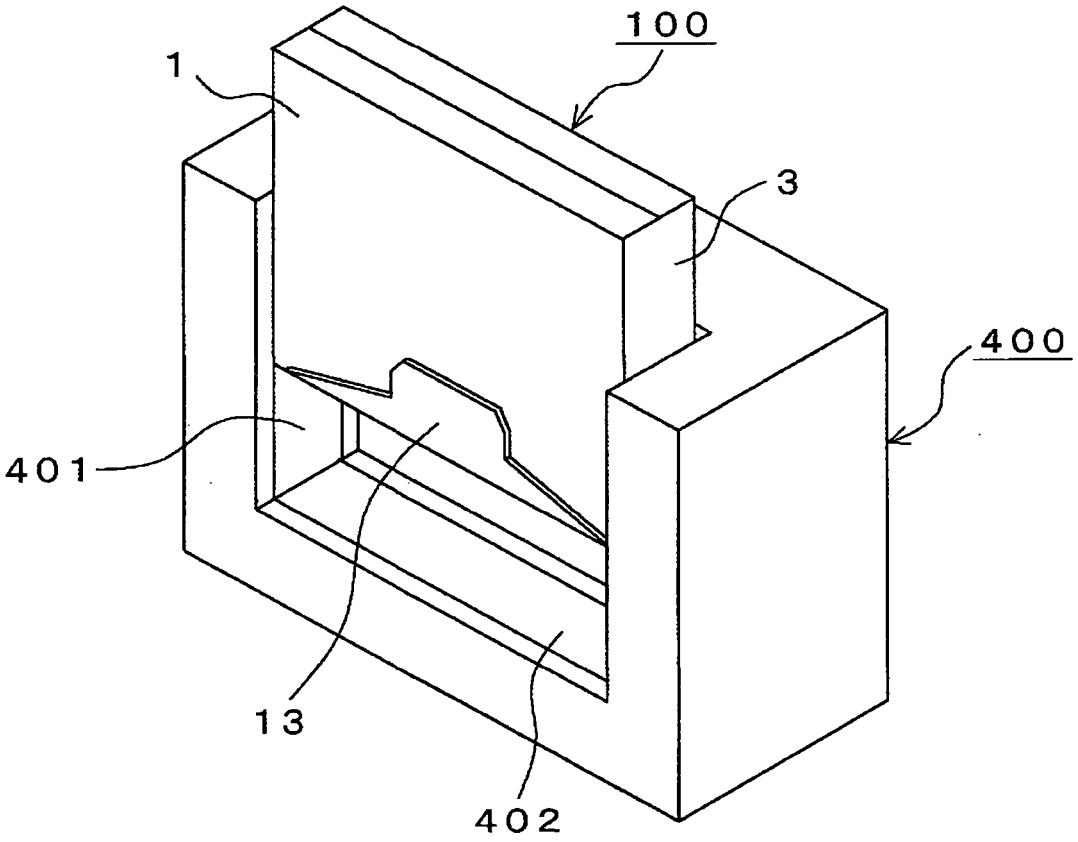


FIG. 12A

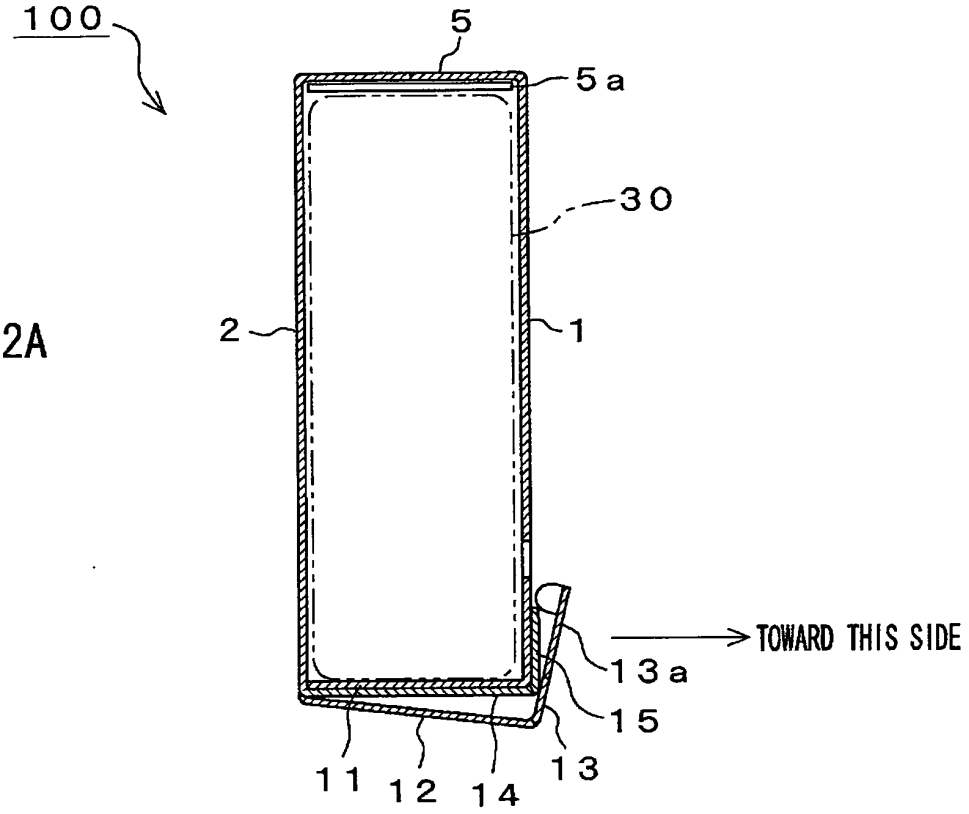


FIG. 12B

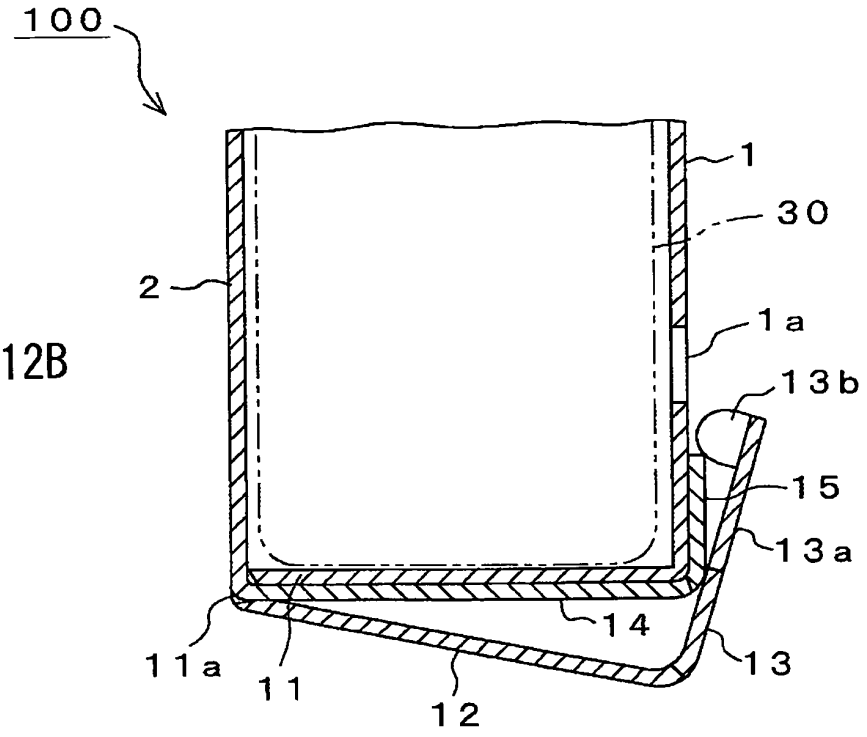


FIG. 13A

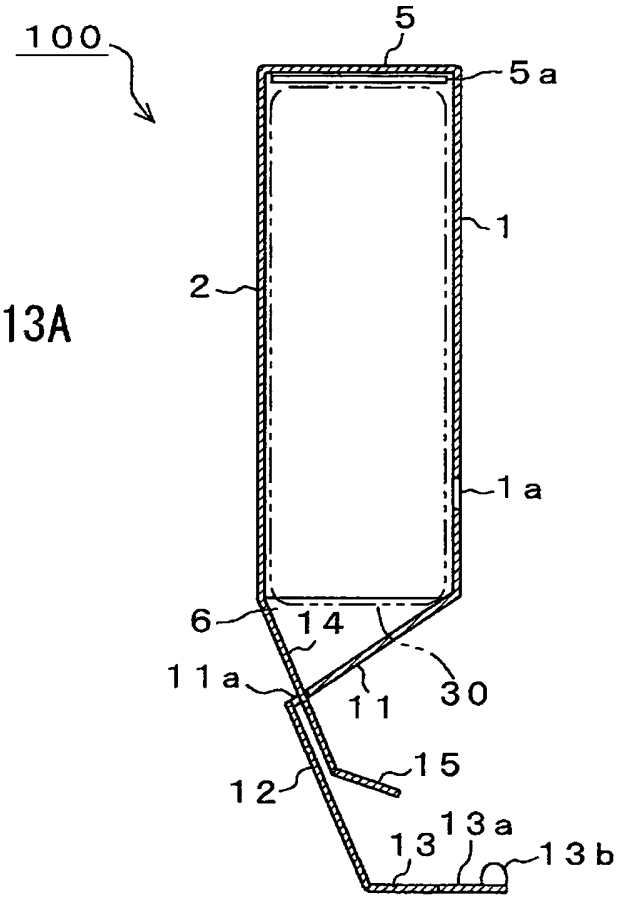


FIG. 13B

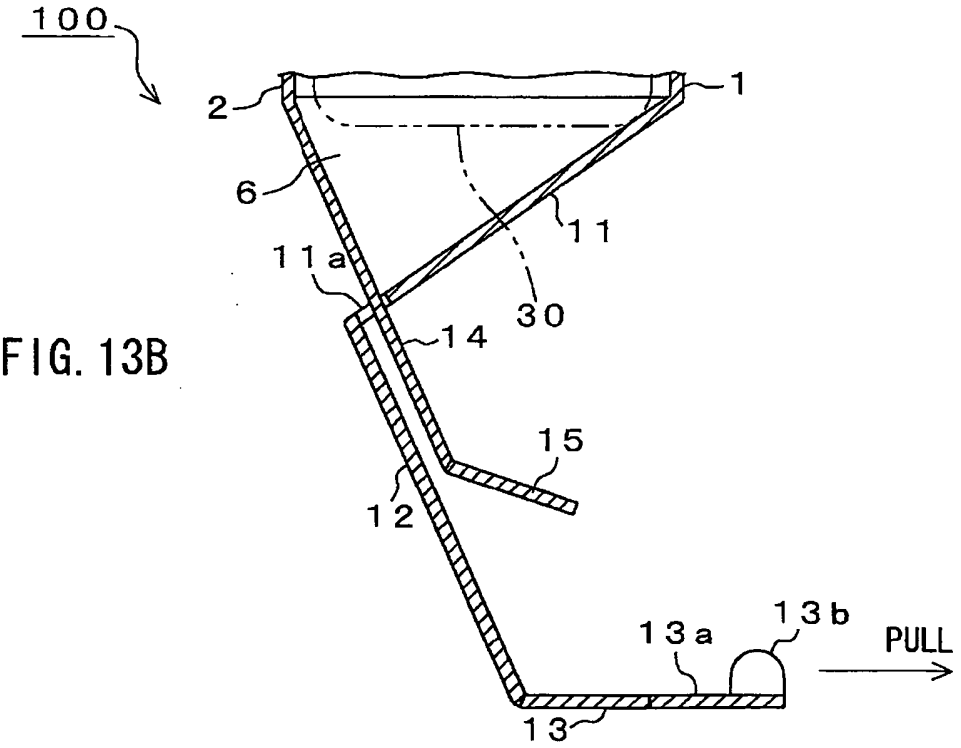


FIG. 14

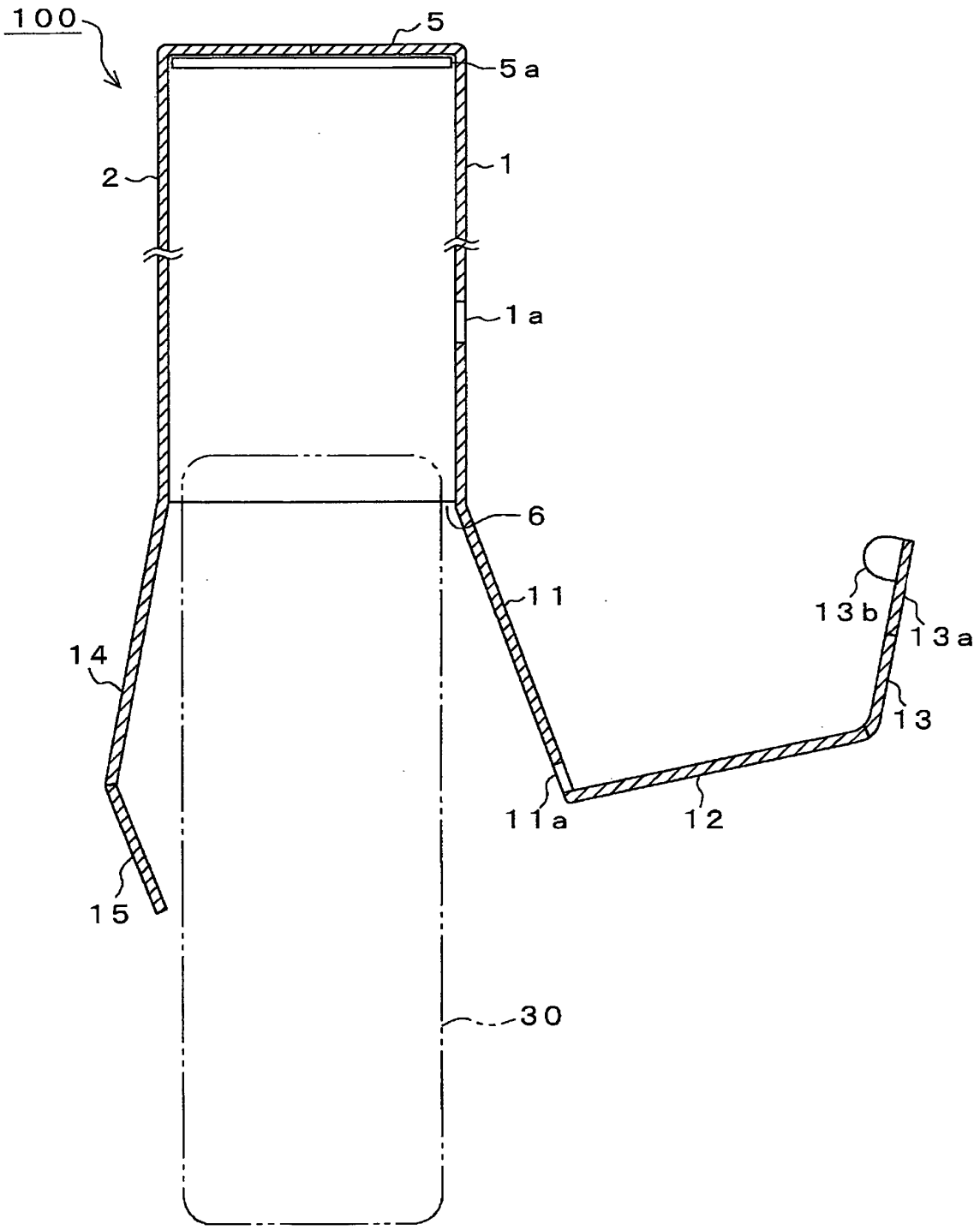


FIG. 15

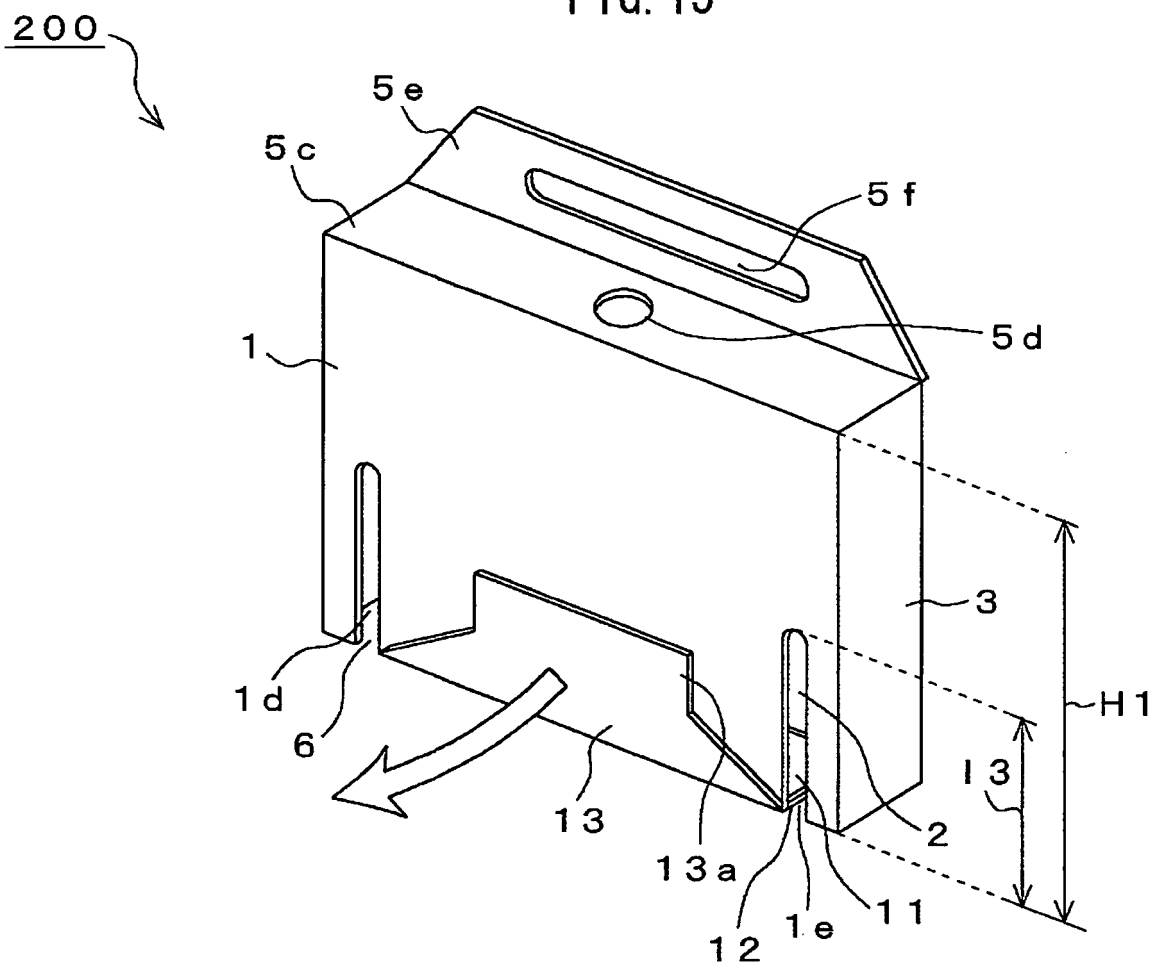


FIG. 16

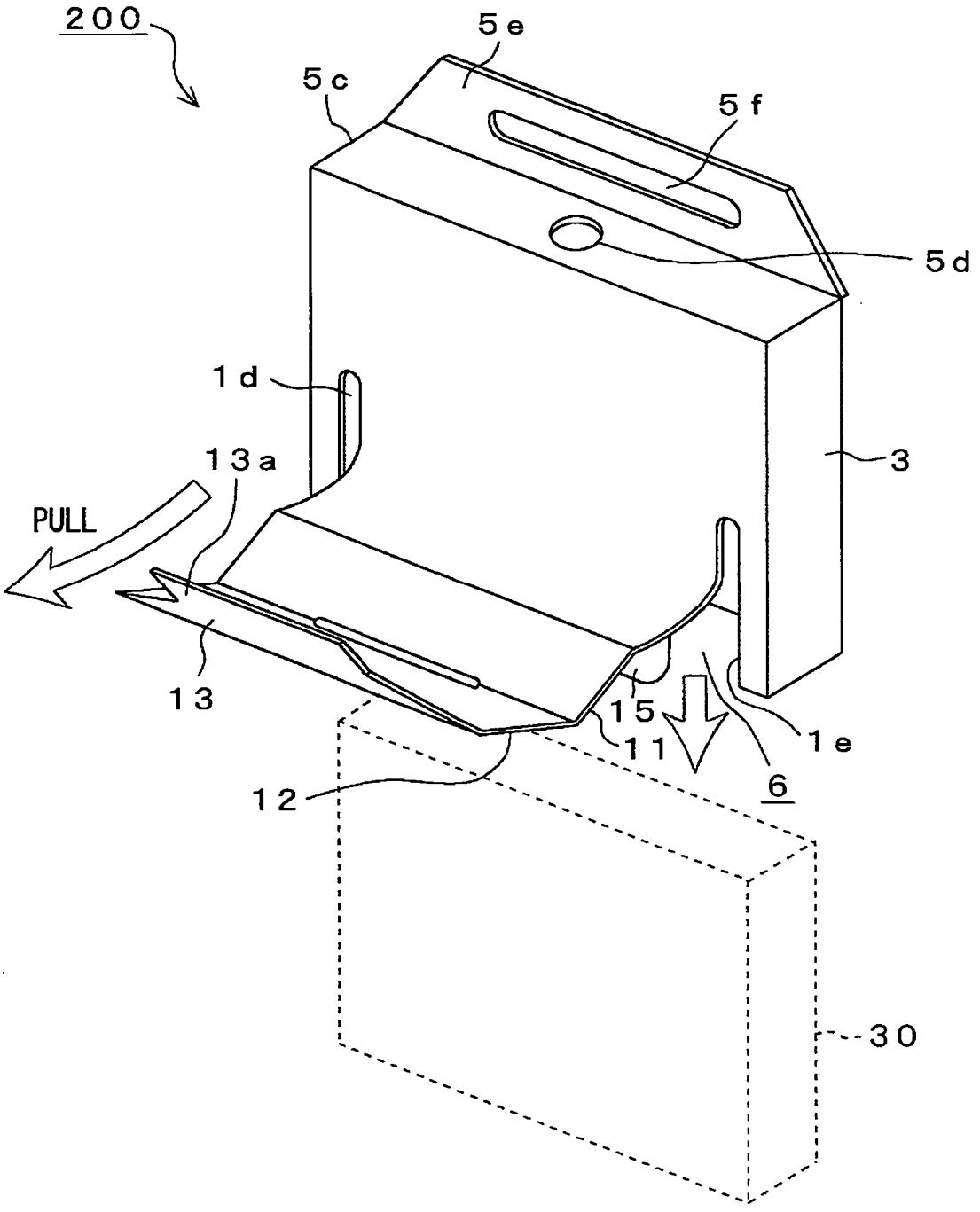


FIG. 17

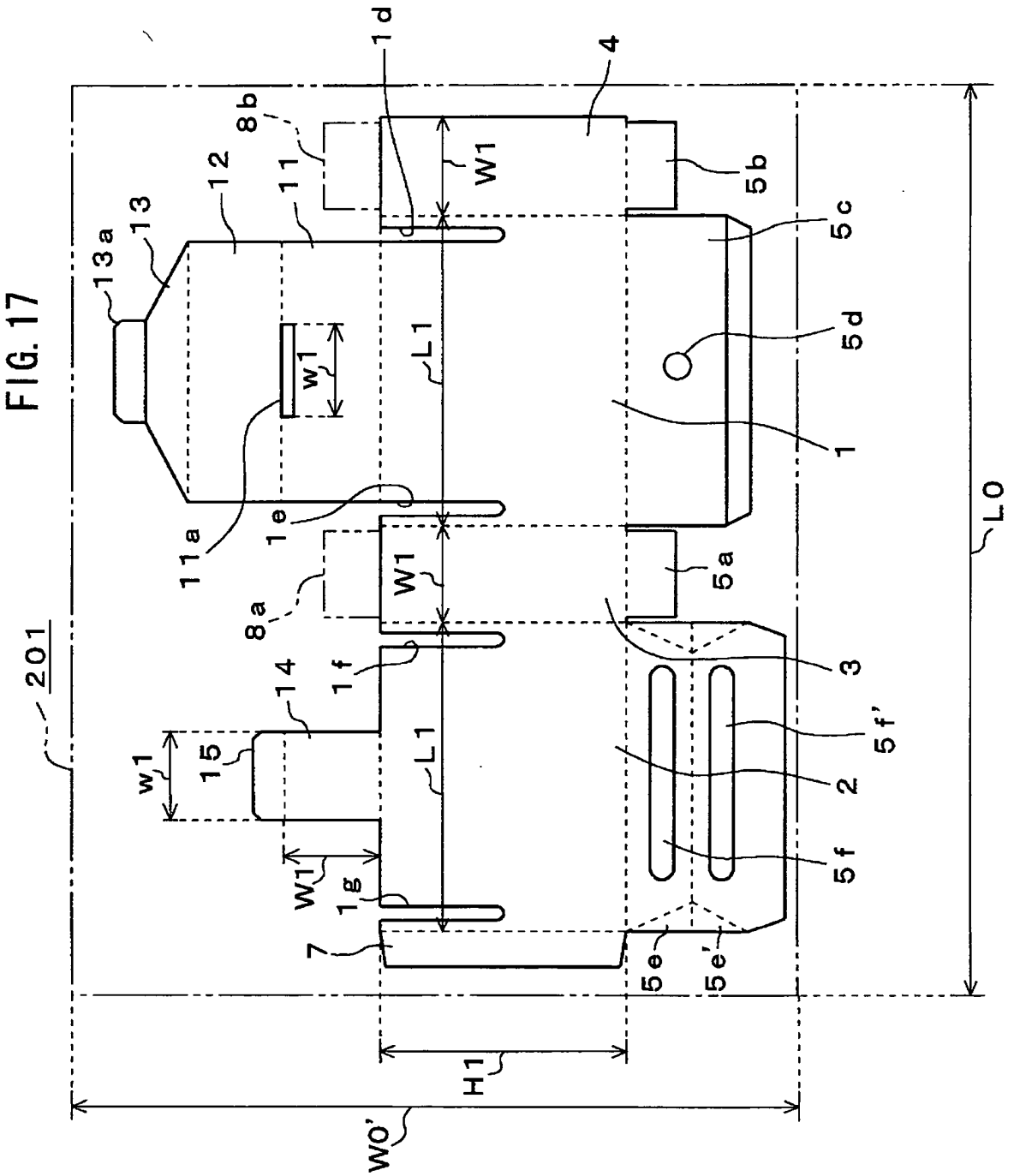
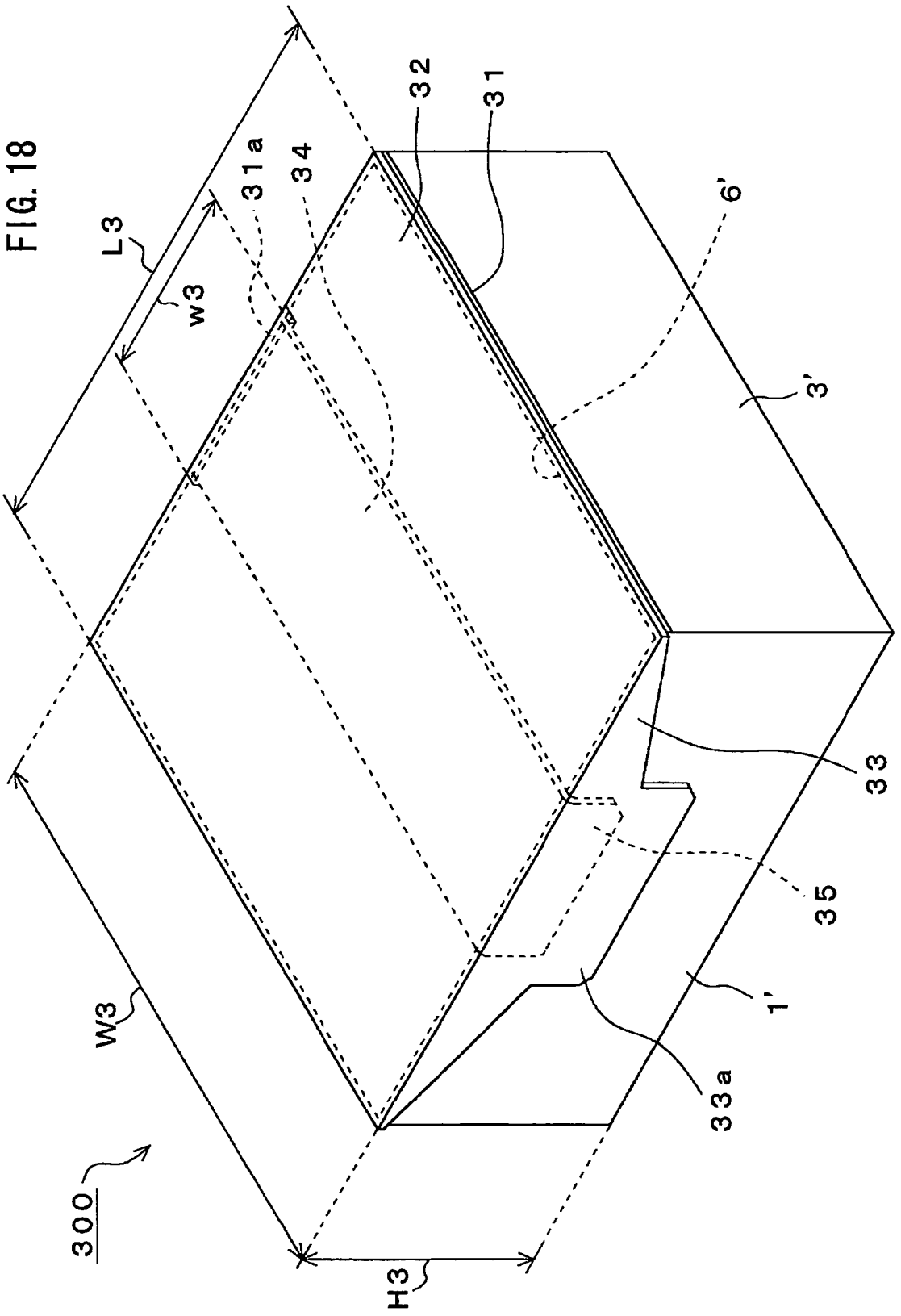

201
1d
4
8b
12
11
W1
5b
13
13a
5c
5d
w1
L1
1
1e
11a
L0
5a
8a
W1
3
1f
14
5f'
w1
15
L1
2
5f
W1
1g
7
5e
5e'
H1
W0'

FIG. 18



INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2007/070954

A. CLASSIFICATION OF SUBJECT MATTER
B65D5/66(2006.01)i, *B65D5/10*(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B65D5/66, B65D5/10

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Jitsuyo Shinan Koho 1922-1996 Jitsuyo Shinan Toroku Koho 1996-2008
Kokai Jitsuyo Shinan Koho 1971-2008 Toroku Jitsuyo Shinan Koho 1994-2008

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2003-205936 A (Toin Kabushiki Kaisha), 22 July, 2003 (22.07.03), Full text; Figs. 1 to 8 (Family: none)	1-6
A	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 013583/1979(Laid-open No. 115513/1980) (Hitachi Netsukigu Kabushiki Kaisha), 14 August, 1980 (14.08.80), Full text; Figs. 1 to 3 (Family: none)	1-6

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

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
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08 January, 2008 (08.01.08)	22 January, 2008 (22.01.08)
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2007/070954

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 124338/1989(Laid-open No. 064212/1991) (Tomoku Co., Ltd.), 24 June, 1991 (24.06.91), Description, page 9, line 12 to page 10, line 1; Figs. 1 to 5 (Family: none)	4

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REFERENCES CITED IN THE DESCRIPTION

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- JP HEI0504640 B **[0003] [0007] [0007] [0008]**
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