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Description

BACKGROUND OF THE INVENTION

1. Field of the Invention:

The present invention relates to a folding airtight container according to the preamble of claim 1 and a method for manufacturing the same.

2. Prior Art:

Such a container is known from DE-A-2 412 447 in which a container is disclosed, which is currently known as a milk container. Such container comprises one flat sheet which is laminated to sealing materials before forming the box. Since a liquid will be filled in after the box is formed, ordinary corrugated paper material can not be used as a single material. Further no vertical rules are provided in the central portions of the left and right side walls and flaps are continuous with the side walls.

It has been difficult to enhance airtightness of a conventional folding airtight container of this type since materials per se of the airtight container are not heat-fusible and have a large thickness and are hardly fused by heat and pressed. Therefore, the inventor of the present application proposed an airtight container comprising a board and heat-fusible plastic films stuck to the board wherein inner and outer liners of the board are fused for serving as joining margins while the cores, being the thick paper part provided at the peripheral side ends of the board (hereinafter referred to as cores) are eliminated.

However, the conventional folding airtight container has a problem that it takes much time and labour to eliminate the cores.

In view of the problem set forth above, the present invention has been made to solve the problem and to provide a folding airtight container and a method for manufacturing the same without eliminating the cores.

To achieve the above object, the folding airtight container according to the present invention is characterized by the features of the present independent claims.

With the arrangement of the folding airtight container, it is possible to form thin sealing pieces without eliminating the cores of the board and possible to seal each of the sealing pieces by heat-fusing or adhesive agent with assurance and without possible leakage of the contents of the container.

According to the method for manufacturing the folding airtight container, it is possible to manufacture the folding airtight container set forth above with simplicity.

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The above and other objects, features and advantages of the present invention will become more apparent from embodiment four of the following description taken in conjunction with figures 10 to 12 of the accompanying drawings. Other embodiments without the bag-shaped flat sheet (3) are not claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view showing a folded airtight container according to the first embodiment of the present invention;

Fig. 2 is a view showing the unfolded state of the folding airtight container of Fig. 1;

Fig. 3 is an enlarged cross sectional view taken along arrows A-A of Fig. 1;

Fig. 4 is a perspective view of a folding airtight container according to a second embodiment of the present invention wherein a cover thereof is opened;

Fig. 5 is an unfolded view of the folding airtight container according to the second embodiment of the present invention;

Fig. 6 is a perspective view showing an upper portion of the folding airtight container of Fig. 4 wherein the cover thereof is closed;

Fig. 7 is a perspective view of a folding airtight container according to a third embodiment of the present invention wherein a cover thereof is opened;

Fig. 8 is an unfolded view of the folding airtight container according to the third embodiment of the present invention;

Fig. 9 is a perspective view showing an upper portion of the folding airtight container of Fig. 7 wherein the cover thereof is closed;

Fig. 10 is a perspective view of a folding airtight container according to a fourth embodiment of the present invention wherein a cover thereof is opened;

Fig. 11 is an unfolded view of the folding airtight container according to the fourth embodiment of the present invention; and

Fig. 12 is a perspective view showing an upper portion of the folding airtight container of Fig. 10 wherein the cover thereof is closed.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

First Embodiment (Figs. 1 to 3):

A folding airtight container according to a first embodiment of the present invention will be described with reference to Figs. 1 to 3.

A folding airtight container V comprises a board 1 having substantially rectangular shape and

formed in a box-shape, a rectangular flat sheet 3 stuck to the inside surface of the box-shaped board 1 (the sticking portion are denoted at one dotted line in Fig. 1), wherein the flat sheet 3 is protruded from the board 1 at the top and bottom ends and one side end thereof and the protruded portions forming sealing pieces 5, 7 and 7. There is protruded a joining margin 8 forming a sealing piece 5a at another side end of the board 1 to which the flat sheet 3 is not stuck. The sealing piece 5a can be peeled off. The board 1 has scoring lines to be folded, described later, but has no cutting lines or perforations. The board 1 has wide front and rear surface walls 13 and 13 at the middle portion thereof and narrow left and right side walls 15 and 15 respectively defined by upper and lower scoring lines 9 and 9 and four vertical scoring lines 11 wherein flaps 17 and 19 are provided at upper and lower portions of the walls 13 and 15 and continued laterally to each other.

Inasmuch as it is impossible to fold the flaps 17 and 19 when they are continued laterally and integrated with each other, there are formed isosceles triangles having both sides 21 and bases 9a for demarcating the side walls 15. A kraft paper is used as the flat sheet 3 to which a heat-fusible polyethylene film is laminated.

In assembling the folding airtight container, the sealing pieces 5 and 5a provided at both the left and right ends thereof are joined and subjected to heat-fusing, thereafter the resultant heat-fused sealing pieces 5 and 5a are stuck to the front surface wall 13 and the joining margin 8 is stuck thereto (Fig. 3). The folding airtight container assembled in such a square tubular shape is folded flatly and supplied to users. The users fuse the sealing pieces 7 and 7 confronted at the lower portion of the board 1 by heat and fold the flaps 19 for forming triangular welts 19a while the flaps 17 are closed and the triangular welts 19a are stuck to the side walls 15. The folding airtight container forms a cover at the upper portion thereof after filling the material therein in the same manner as forming the triangular welts 19a. The triangular welts 19a can, as shown in two-dotted lines, be stuck to the flaps 17. In any case, a sticking piece 7a provided at one of the sealing pieces 7 and 7 is folded down.

In manufacturing the folding airtight container, the board 1 is manufactured by a corrugating machine which board 1 is formed in a box-shape and the flat sheet 3 having an inner surface made of paper and an outer surface made of heat-fusible plastic film is stuck to the board 1 at the inner side surface thereof. The flat sheet 3 may be made of heat-fusible plastic films at both surfaces thereof.

Second Embodiment (Figs. 4 to 6):

A folding airtight container according to a second embodiment will be described with reference to Figs. 4 to 6. Elements same as those in the first embodiment have same numerals and explanation thereof is omitted.

In forming a cover of the airtight container, the flaps 19 of the left and right side walls 15 are positioned under the flaps 17 of the front and rear walls 13 so that the flaps 19 can form the isosceles triangles and connection pieces 23 and 23 for connecting the flaps 19 with the flaps 17 are formed at the lower ends of the flaps 19 and the flaps 17 so that the flaps 19 and 17 are interlocked with each other when they are folded. One of the flaps 17 has a non-sticking portion 22 at the tip end thereof to which the flat sheet 3 is not stuck. There is defined a sticking piece 7a in one of the sealing pieces 7 and 7 which piece 7a can be inserted into the gap between the non-sticking portion 22 and the flat sheet 3 so that a tape 24 is liable to stick to the upper portion of the non-sticking portion 22 different from the case where the sticking piece 7a is exposed.

Cutting slits 26 are formed between the flaps 17 and 18 same as type A of the manufacturing method of the corrugated cardboards according to Japanese Industrial Standards. The flaps 17 and 19 can be peeled off from the flat sheet 3 without impeding the formation of the lower cover by the flat sheet 3 while only the flaps 19 can stick to the flat sheet 3 at the isosceles triangular bandage 19a formed by the flaps 19 which isosceles triangular welt 19a having the bases thereof by demarcating line 9a demarcating the side walls 15.

There are provided vertical scoring lines 25 and 25 in both the central portions of the side walls 14 and the flaps 19 so that they can be folded flat from the tubular shapes. When the folding airtight container is supplied to the users, since the folding airtight container is folded while the both ends sealing pieces 5 and 5 and the lower end sealing pieces 7 and 7 are stuck to each other (in this case, the lower end sealing pieces 7 can be previously stuck to each other and are foldable inside and outside thereof).

Third Embodiment (Figs. 7 to 9):

A folding airtight container according to a third embodiment will be described with reference to Figs. 7 to 9. Elements similar to those in the first and second embodiments have same numerals and explanation thereof is omitted.

The arrangements of the board 1 and the flat sheet 3 are substantially the same as those of the first embodiment excepting that there are provided

vertical scoring lines 25 for folding purpose. The relation between the flat sheet 3 and the flaps 19 of the left and right side walls 15 and the flaps 17 of the front and rear walls 13 are as follows. The flaps 17 can be peeled off from the flat sheet 3 so that the flaps 19 are folded under the flaps 17 and the flaps 19 are stuck to the flat sheet 3 at the isosceles triangular welt 19a formed by the flaps 19 which isosceles triangular welt 19a having the bases thereof by demarcating line 9a demarcating the side walls 15.

Fourth Embodiment (Figs. 10 to 12):

A folding airtight container according to the fourth embodiment which defines the invention will be described with reference to Figs. 10 to 12. Elements same as those in the first to third embodiments have same numerals and explanation thereof is omitted.

An arrangement of the folding airtight container of the claimed fourth embodiment is substantially the same as that of the folding airtight container of the second embodiment excepting that the flat sheet 3 is formed in a bag shape and stuck partially to the board 1. With such an arrangement, the board 1 can be reused by peeling off the used flat sheet 3 and substituted by new flat sheet 3.

The board set forth in the first to fourth embodiments of the present invention is typically represented by a corrugated cardboard including a plastic Corrugated board but it may include a thick paper, a cardboard, a resin sheet, a resin plate, a resin board, a plywood and a fiber board and the like.

Although the invention has been described in its preferred form with a certain degree of particularity, it is to be understood that many variations and changes are possible in the invention without departing from the scope of the claims.

Claims

1. A folding airtight container comprising a board (1) having front and rear walls (13, 13), left and right side walls (15, 15) continued from the front and rear walls (13, 13) first flaps (17, 17) provided at the upper and lower ends of the front and rear walls (13, 13) and second flaps (19, 19) provided at the upper and lower ends of the left and right side walls (15, 15), on which a heat-fusible and airtight flat sheet (3) is stuck, said board having sealing pieces (5, 7, 7) provided by the flat sheet (3) at at least the portion protruded from the board (1) when the flat sheet (3) is stuck to the board (1), characterized in that the flat sheet (3) is formed in a bag shape and

detachably stuck to the board (1).

2. A folding airtight container according to claim 1, characterized in that the flat sheet (3) has an inner surface made of paper and an outer surface made of heat-fusible and airtight plastic film.
3. A folding airtight container according to one of the preceding claims, characterized in that the board (1) has an adjoining piece (8) for forming a sealing piece to which the flat sheet (3) is not stuck.
4. A folding airtight container according to one of the preceding claims, characterized in that the first and second flaps (17, 19) are continued laterally and the second flaps (19, 19) form isosceles triangular welts (19a) having bases (9a) demarcating side walls (15, 15) which welts (19a) can be stuck to the side walls (15, 15).
5. A folding airtight container according to one of the preceding claims, characterized in that the isosceles triangular welts (19a) can be stuck to the first flaps (17, 17).
6. A folding airtight container according to one of the preceding claims, characterized in that
 - the second flaps (19, 19) form isosceles triangular welts (19a) having bases (9a) demarcating side walls (15, 15), which welts (19a) can be stuck to side walls (15, 15), and
 - connection pieces (23, 23) for connecting the first flaps (17, 17) to the second flaps (19, 19) are formed at the lower ends of the bases (9a) of the isosceles triangular welts (19a).
7. A folding airtight container according to one of the preceding claims, characterized in that
 - the first flaps (17, 17) are not stuck to the flat sheet (3) and
 - the flaps (19, 19) are stuck to the flat sheet (3) at the isosceles triangular portions (19a) formed by the flaps (19) which isosceles triangular welts (19a) having the bases (9a) thereof by demarcating lines (9a) demarcating the side walls (15, 15).
8. A folding airtight container according to one of the preceding claims, characterized in that the flat sheet (3) bag is detachably stuck to the board (1).

9. A folding airtight container according to one of the preceding claims, characterized in that the side walls (15, 15) and the second flaps (19, 19) continued from the side walls (15, 15) have respectively at the central portions thereof vertical scoring lines (25, 25), which can be folded inside or outside the board (1) when the board is assembled.

10. A method for manufacturing a folding airtight container comprising the steps of:

- preparing a board (1) to become a box-shape,
- preparing a flat sheet (3) having an inner surface made of paper and an outer surface made of heat-fusible and airtight plastic;
- detachably sticking the surface of the flat sheet (3), which has been formed into a bag, to the inner surface of the board (1) so that the flat sheet (3) protrudes from the board (1),
- joining protruding sealing pieces (5, 5a),
- forming the box, and
- sticking the resultant fused sealing pieces (5, 5a) and a joining margin (8) being part of the board (1) to a wall (13; 15) of the box.

Patentansprüche

1. Luftdichter Faltbehälter, mit einer Platte (1), die vordere und rückwärtige Wände (13, 13), linke und rechte Seitenwände (15, 15), fortgesetzt von den vorderen und hinteren Wänden (13, 13), erste Klappen 17, 17), die an den oberen und unteren Enden der vorder- und rückseitigen Wände (13, 13) vorgesehen sind, und zweite Klappen (19, 19) besitzt, die an den oberen und unteren Enden der linken und rechten Seitenwände (15, 15) vorgesehen sind, auf der ein hitzeverschweißbarer und luftdichter flacher Verkleidungsbogen (3) festgeklebt ist, wobei die Platte abdichtende Stücke (5, 7, 7,) besitzt, die durch den flachen Verkleidungsbogen (3) an wenigstens dem Abschnitt, der aus der Platte (1) hervorsteht, vorgesehen sind, wenn der flache Verkleidungsbogen (3) auf die Platte (1) aufgeklebt ist, dadurch gekennzeichnet, daß der flache Verkleidungsbogen (3) in Tütenform gebildet ist und abnehmbar auf die Platte (1) befestigt ist.

2. Luftdichter Faltbehälter nach Anspruch 1, dadurch gekennzeichnet, daß der flache Verkleidungsbogen (3) eine Innenoberfläche besitzt, die aus Papier gefertigt ist und einer Außen-

oberfläche, die aus hitzeverschweißbaren und luftdichtem Plastikfilm gefertigt ist.

3. Luftdichter Faltbehälter nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß die Platte (1) ein nachhängendes Stück (8) zum Bilden eines Abdichtstückes besitzt, an das das flache Blatt (3) nicht geklebt ist.

4. Luftdichter Faltbehälter nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß die ersten und zweiten Klappen (17, 19) seitlich fortgesetzt sind und zweite Klappen (19, 19) gleichschenklige dreieckige Laschen (19a) bilden, die Basiskanten (9a) besitzen, die die Seitenwände (15, 15) markieren, wobei die Laschen (19a) an die Seitenwände (15, 15) geklebt werden können.

5. Luftdichter Faltbehälter nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß die gleichschenkligen dreieckigen Laschen (19a) an die ersten Klappen (17, 17) klebbar sind.

6. Luftdichter Faltbehälter nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß

- die zweiten Klappen (19, 19) gleichschenklige dreieckige Laschen (19a) bilden, die Basiskanten (9a) besitzen, die die Seitenwände (15, 15) begrenzen, wobei die Laschen (19a) an die Seitenwände (15, 15) klebbar sind, und
- Verbindungsstücke (23, 23) zum Verbinden der ersten Klappen (17, 17) mit den zweiten Klappen (19, 19) an den unteren Enden der Basiskanten (9a) der gleichschenkligen dreieckigen Laschen (19a) gebildet sind.

7. Luftdichter Faltbehälter nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß

- die ersten Klappen (17, 17) nicht an den flachen Verkleidungsbogen (3) geklebt sind, und
- die Klappen (19, 19) an den flachen Verkleidungsbogen (3) an den gleichschenkligen dreieckigen Abschnitten (19a), die durch die Klappen (19) gebildet werden, geklebt sind, wobei die gleichschenkligen dreieckigen Laschen (19a), die deren Basiskanten (9a) aufweisen durch Begrenzungslinien (9a), die die Seitenwände (15, 15) begrenzen.

8. Luftdichter Faltbehälter nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß die Tüte aus dem flachen Verkleidungsbogen (3) abnehmbar an die Platte geklebt ist.

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9. Luftdichter Falt-Container nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß die Seitenwände (15, 15) und die zweiten Klappen (19, 19), die von den Seitenwänden (15, 15) her verlängert sind, jeweils an ihren zentralen Abschnitten vertikale Falt-Linien (25, 25) besitzen, die innerhalb oder außerhalb der Platte (1) gefaltet werden können, wenn die Platte aufgebaut wird.

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10. Verfahren zum Herstellen eines luftdichten Faltbehälters mit den Schritten:

- Vorbereiten einer Platte (1) um eine Schachtel-Form anzunehmen,
- Vorbereiten eines flachen Verkleidungsbogens (3), der eine Innenfläche besitzt, die aus Papier gefertigt ist und eine Außenoberfläche, die aus einem hitzeverschweißbaren und luftdichten Plastikmaterial besteht,
- abnehmbares Ankleben der Oberfläche des flachen Blattes (3), das zu eine Tüte geformt ist, an die Innenfläche der Platte (1), so daß das flache Blatt (3) von der Platte (1) hervorsteht,
- Verbinden der vorstehen Abdichtstücke (5, 5a),
- Bilden der Schachtel, und
- Ankleben der sich ergebenden zusammengesgeschweißten Abdichtstücke (5, 5a) und einer Verbindungskante (8), die Teil der Platte (1) ist, an eine Wand (13; 15) der Schachtel.

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Revendications

1. Récipient pliant étanche à l'air comprenant une plaque (1) ayant des parois avant et arrière (13, 13), des parois latérales gauche et droite (15, 15) jointes à ces parois avant et arrière (13, 13), des premiers rabats (17, 17) prévus aux extrémités supérieure et inférieure des parois avant et arrière (13, 13) et des deuxièmes rabats (19, 19) prévus aux extrémités supérieure et inférieure des parois latérales gauche et droite (15, 15), sur laquelle est collée une feuille à plat thermofusible et imperméable à l'air (3) qui a des pièces de scellement (5, 7, 7) au moins dans sa partie qui dépasse de la plaque (1) lorsqu'elle est collée à celle-ci, caractérisé par le fait que la feuille à plat (3) est mise en forme de sac et collée de manière

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détachable à la plaque (1).

2. Récipient pliant étanche à l'air selon la revendication 1, caractérisé par le fait que la feuille à plat (3) a une face intérieure faite de papier et une face extérieure faite de film plastique thermofusible et imperméable à l'air.

3. Récipient pliant étanche à l'air selon l'une des revendications précédentes, caractérisé par le fait que la plaque (1) a une pièce contigue (8) pour la formation d'une pièce de scellement à laquelle la feuille à plat (3) n'est pas collée.

4. Récipient pliant étanche à l'air selon l'une des revendications précédentes, caractérisé par le fait que les premiers et les deuxièmes rabats (17, 19) se joignent latéralement les uns aux autres et les deuxièmes rabats (19, 19) forment des couvre-joints triangulaires isocèles (19a) qui ont une base (9a) délimitant les parois latérales (15, 15) et peuvent être collés à celles-ci.

5. Récipient pliant étanche à l'air selon l'une des revendications précédentes, caractérisé par le fait que les couvre-joints triangulaires isocèles (19a) peuvent être collés aux premiers rabats (17, 17).

6. Récipient pliant étanche à l'air selon l'une des revendications précédentes, caractérisé par le fait que

- les deuxièmes rabats (19, 19) forment des couvre-joints triangulaires isocèles (19a) qui ont une base (9a) délimitant les parois latérales (15, 15) et peuvent être collés à celles-ci, et
- des pièces de liaison (23, 23) pour la liaison des premiers rabats (17, 17) aux deuxièmes rabats (19, 19) sont faites aux extrémités inférieures des bases (9a) des couvre-joints triangulaires isocèles (19a).

7. Récipient pliant étanche à l'air selon l'une des revendications précédentes, caractérisé par le fait que

- les premiers rabats (17, 17) ne sont pas collés à la feuille à plat (3) et
- les deuxièmes rabats (19, 19) sont collés à la feuille à plat (3) dans les parties triangulaires isocèles (19a) qu'ils forment, dont les bases (9a) sont des lignes de délimitation (9a) délimitant les parois latérales (15, 15).

8. Récipient pliant étanche à l'air selon l'une des revendications précédentes, caractérisé par le

fait que le sac en feuille à plat (3) est collé de manière détachable à la plaque (1).

9. Récipient pliant étanche à l'air selon l'une des revendications précédentes, caractérisé par le fait que les parois latérales (15, 15) et les deuxièmes rabats (19, 19) joints à celles-ci ont, dans leur partie centrale, une ligne verticale de traçage (25) qui peut être pliée à l'intérieur ou l'extérieur de la plaque (1) lorsque celle-ci est assemblée. 5 10
10. Procédé de fabrication d'un récipient pliant étanche à l'air comprenant les opérations suivantes : 15
- préparation d'une plaque (1) destinée à être mise en forme de boîte,
 - préparation d'une feuille à plat (3) ayant une face intérieure faite de papier et une face extérieure faite de plastique thermo-fusible et imperméable à l'air, 20
 - collage de manière détachable de la surface de la feuille à plat (3), qui a été mise en forme de sac, à la face intérieure de la plaque (1) de façon que la feuille à plat (3) dépasse de la plaque (1), 25
 - jonction de pièces de scellement dépassantes (5, 5a),
 - formation de la boîte et
 - collage des pièces de scellement fondues obtenues (5, 5a) et d'une marge de jonction (8) faisant partie de la plaque (1) à une paroi (13; 15) de la boîte. 30

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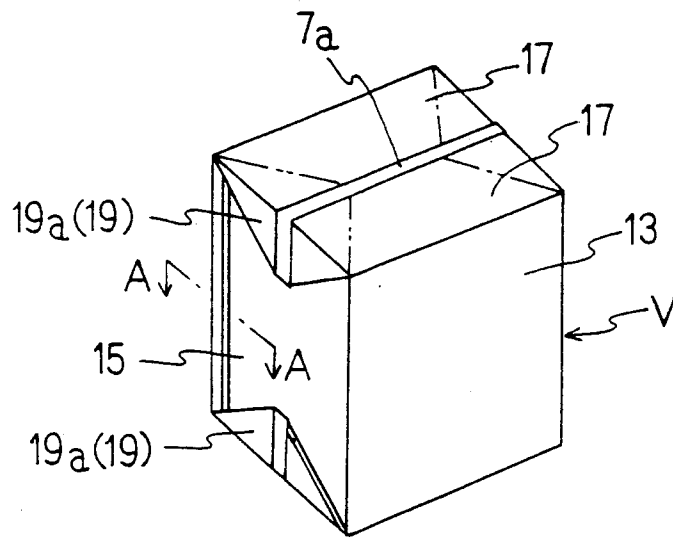


FIG 1

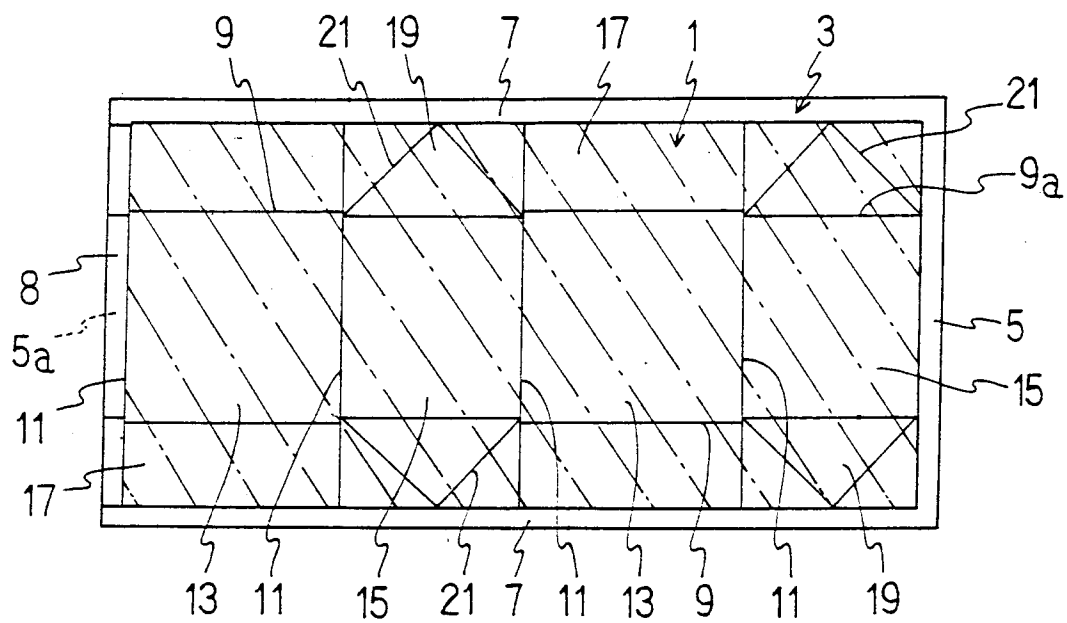


FIG 2

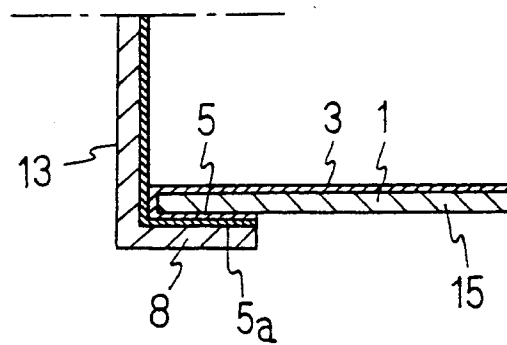


FIG 3

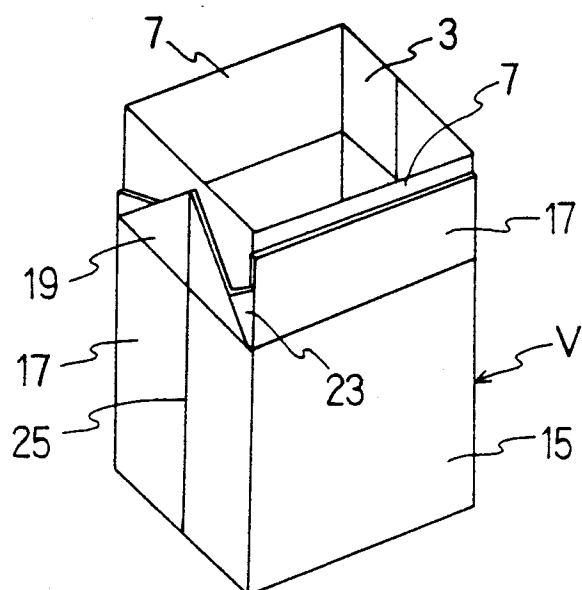


FIG 4

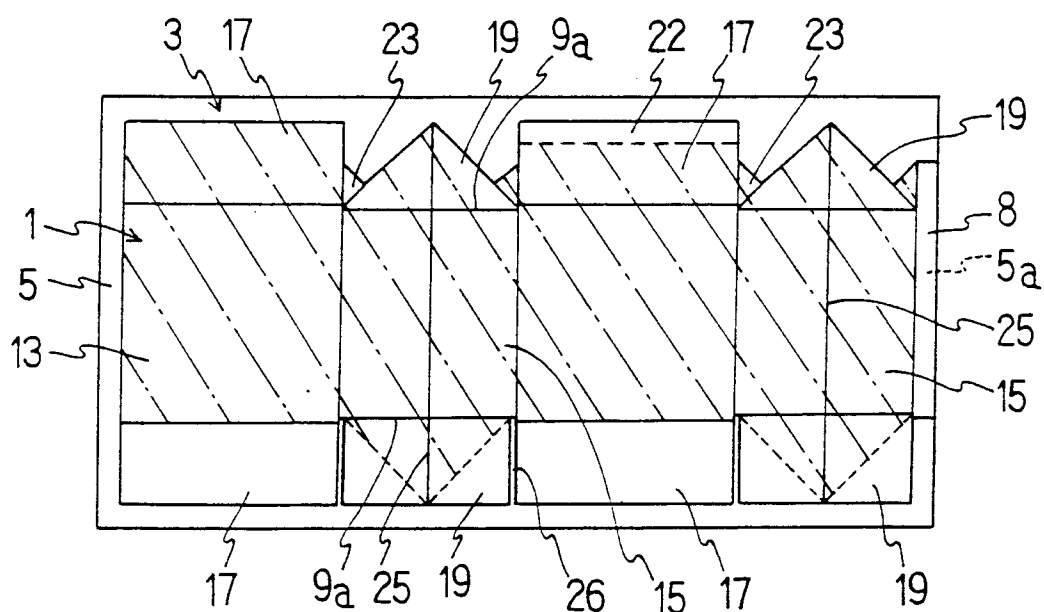


FIG 5

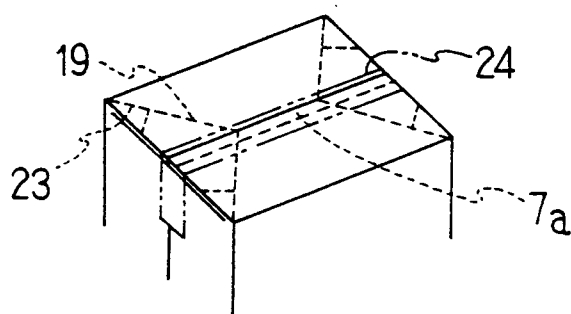


FIG 6

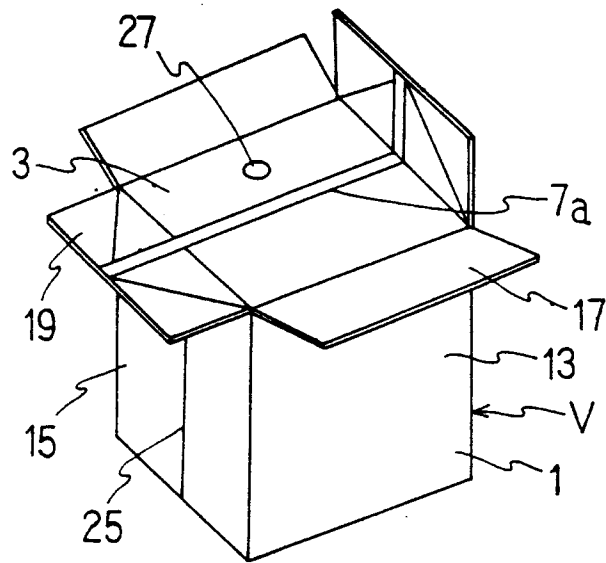


FIG 7

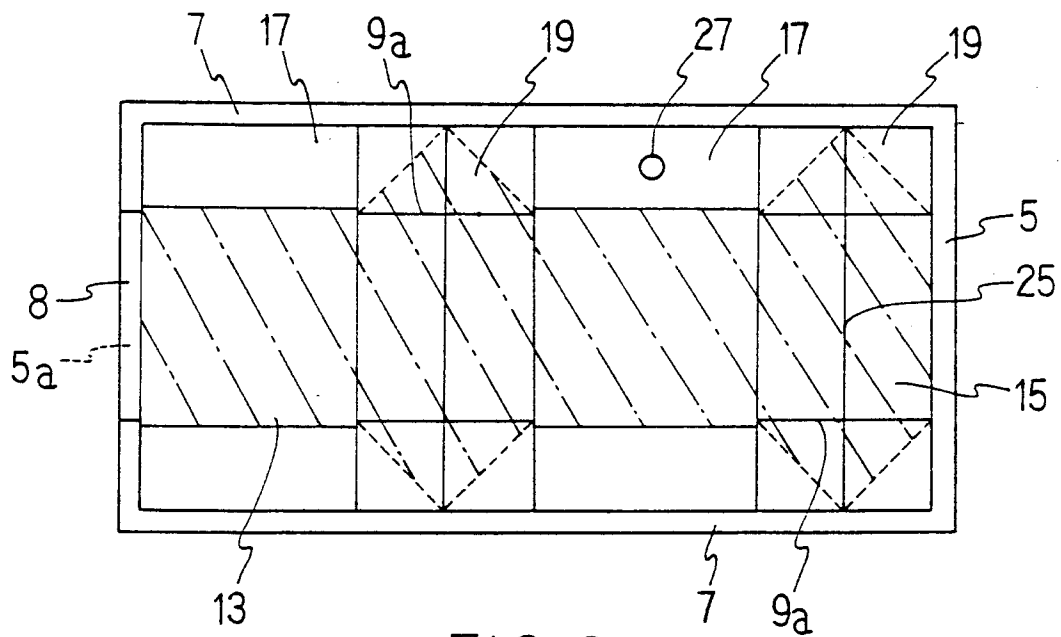


FIG 8

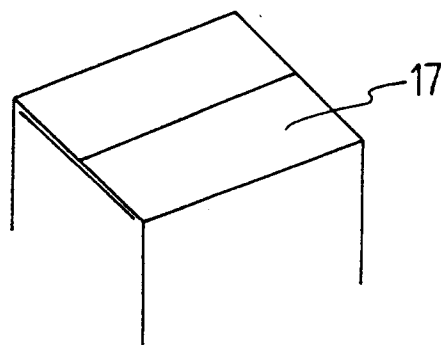


FIG 9

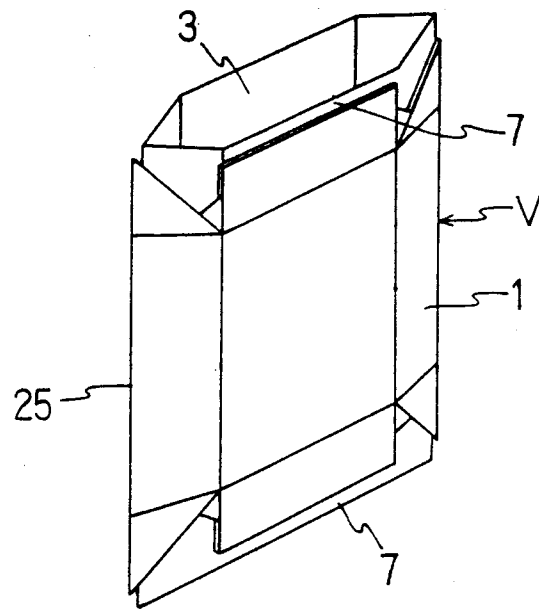


FIG 10

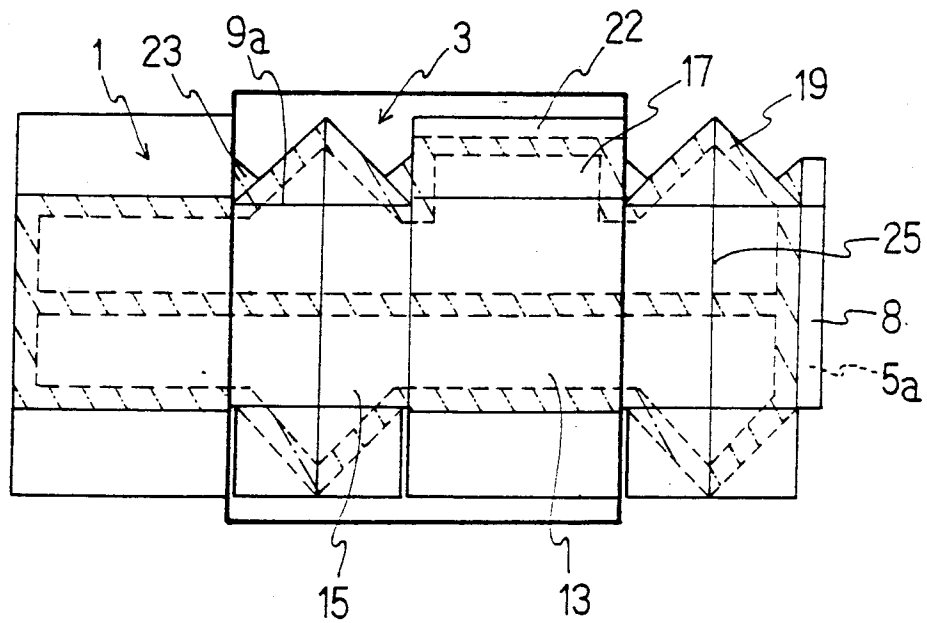


FIG 11

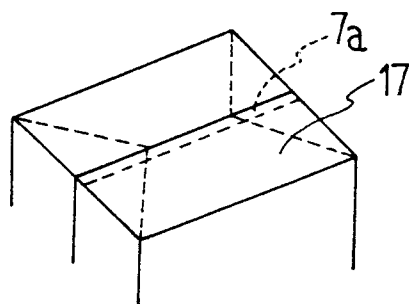


FIG 12