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(54) **A CONTAINER MADE OF CORRUGATED CARDBOARD, A BLANK AND A USE OF THE CONTAINER**

AUS WELLPAPPE HERGESTELLTER BEHÄLTER, ZUSCHNITT UND VERWENDUNG DES BEHÄLTERS

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Description

TECHNICAL FIELD

[0001] The present invention relates to a container made of corrugated cardboard comprising a bottom and long sides and short sides projecting upwards from the bottom, in conjunction with which the short sides include two parts, an inner part and an outer part, folded towards one another, and a blank for manufacturing such a container.

BACKGROUND TO THE INVENTION

[0002] Bread rolls for hot dog sausages are baked centrally in large quantities and are packed in plastic bags, which are then laid in stackable containers or trays that are then distributed to storage facilities or individual shops. These bread trays are typically manufactured from plastic and can be transported in stacks of more than twenty filled trays stacked one on top of the other. One disadvantage associated with the use of plastic trays is that empty trays occupy a large space at the hot dog bread roll bakery and in the shops, and that empty trays from the shops must be transported back to the hot dog bread roll bakery to be refilled with packs of hot dog bread rolls. Another problem associated with such plastic trays is that they have a tendency to disappear from the distribution chain, with the result that not all empty trays find their way back to the hot dog bread roll bakery after having been delivered to the shops. This means that the stock of bread trays needs to be replenished from time to time.

[0003] SE-C2-508006 discloses a container according to the preamble of Claim 1. GB-A-2160507 discloses a container blank in which different creasing lines have been stamped from opposite sides of the blank and FR 2263940 discloses a stackable container in which the bottoms of stacked containers rest on the edges of the long sides of underlying containers.

[0004] The object of the present invention is to reduce these inconveniences by making available a container made of corrugated board, which is constructed in such a way that it can absorb the loads arising in stacks of filled containers and which is capable of being substituted fully or partially for such plastic trays.

SUMMARY OF THE INVENTION

[0005] This object is achieved in accordance, with the invention through a container according to claim 1. Such a container has an underpart situated beneath the bottom edge of the outer part of the short side, which can be introduced into a similar container or into a container made of plastic having the same dimensions. The container in accordance with the invention is thus able to replace plastic containers having the same dimensions in stacks of containers. The corrugated board container

is stored before use in the form of a flat container blank, which takes up very little space. The container is also intended for disposable use, which means that an empty container does not need to be stored in the shop, but can be taken away as waste paper. A further advantage of the corrugated board container is that it is significantly lighter than a corresponding plastic container.

[0006] In a preferred embodiment, the outer part is demarcated from the inner part by means of an interjacent part defined by two parallel creasing lines, which are situated at a distance from one another that exceeds the combined thickness of the inner and outer short side parts. Flaps also extend executed in a single piece with the long sides between the inner and outer parts of the short sides over at least one part of the width of the short sides, and flaps executed in a single piece with the outer parts of the shorter sides extend over a part of the long sides on the outside of these. The inner and outer parts of the short sides are glued to the interjacent pieces of material executed in a single piece with the long sides, and the long sides are glued to the pieces of material executed in a single piece with the outer parts of the short sides.

[0007] The invention also relates to a blank for manufacturing a container in accordance with claim 6.

[0008] The invention also relates to the use of one or more corrugated board containers according to claim 7.

[0009] The lowest container in such a stack of containers preferably consists of a plastic container.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] The invention is now described with reference to the accompanying figures, in which:

Fig. 1 shows a plan view of a blank for manufacturing a container in accordance with a first preferred embodiment of the invention;

Figs 2-6 show different stages in the manufacture of a container based on the blank in Fig. 1;

Figs 7 and 8 show a perspective view of a finished container viewed respectively from above and at an angle from below;

Fig. 9 shows a perspective view of eight containers in accordance with the invention stacked in one another.

DESCRIPTION OF THE EMBODIMENTS

[0011] Shown in Figure 1 is a plan view of a blank 1 made of corrugated cardboard to make available a container in accordance with a preferred embodiment of the invention. The blank 1 is stamped from a sheet of corrugated cardboard with the undulating lines in the undulating layer parallel to the longitudinal direction of the blank.

Longitudinal creasing lines 2 and transverse creasing lines 3 are also stamped in the corrugated cardboard blank in order to demarcate the bottom parts 4 of the blank, which constitute long sides of the finished container, and the parts 5 of the blank, which constitute short sides of the finished container, from the bottom part 6. Each short side part 5 comprises an inner part 7 adjacent to the bottom part 6 and an outer part 8, which are demarcated from one another via two parallel creasing lines 9,10. The outer short side parts 8 are also extended in the transverse direction by means of two flaps 11 that are demarcated from the short side parts 8 via creasing lines 12, and the long side parts 4 are extended in the longitudinal direction by means of two flaps 13 demarcated from the long sides via creasing lines 14. The creasing lines 2,3 and 14 are stamped into the corrugated cardboard material on its upper side, that is to say the side that faces towards the observer of Figure 1, while the creasing lines 9,10 and 12 are stamped into the opposite side of the corrugated cardboard material. The distance between the creasing lines 9 and 10 must exceed double the thickness of the corrugated cardboard in the blank 1. This distance is preferably 10 mm.

[0012] Illustrated in Figs 2-6 are different stages in the forming of a container starting with the blank shown in Figure 1. Strings of adhesive G are first applied to the flaps 13, which strings of adhesive are indicated in the Figures with heavy lines and are three in number in the example shown in Figure 2. More or fewer strings of adhesive can naturally be applied. The short side parts 5 are then folded upwards about the creasing lines 3, after which the long side parts 4 are folded upwards about the creasing lines 2, and the adhesive-bearing flaps 13 are then folded inwards along the creasing lines 14 towards the underparts 7 of the upward-folded short side parts 5, as illustrated in Figure 3, and are attached to these.

[0013] As can be appreciated from Figure 1, the creasing lines 14 which demarcate the edges of the longitudinal sides are not parallel to the creasing lines 3, but are inclined at an angle α to a line parallel to the creasing line 3. In this way, the short side parts 5 will be inclined at an angle of 90° plus α to the bottom part 6 when the underparts 7 are attached to the inward-folded flaps 13, as illustrated in Figure 4. In the illustrated example, the angle α is equivalent to three degrees.

[0014] Strings of adhesive G are then applied to the outside of the flaps 13 and to the flaps 11 on the outer short side parts 8. Instead of applying adhesive to the outside of the flaps 13, as shown in Figure 5, adhesive can be applied to the outer short side parts 8 in those parts thereof which, after folding, come into contact with the flaps 13. The short side parts 5 are then folded about the creasing lines 9,10, so that the outer short side parts 8 come into contact with the flaps 13 that are attached to the inner short side parts 7, as illustrated in Figure 6. Finally, the flaps 11 that are attached to the outer short side parts 8 are folded in towards the outside of the long side parts 4 and are attached to these.

[0015] The finished container is shown in Figures 7 and 8 in perspective views respectively from above and from below. As can be appreciated from these figures, the outer short side parts 8 exhibit a smaller height than the inner short side parts 7, which means that the resulting container has an underpart that is situated vertically below the lower edges of the short side parts 7 and also below the lower edges of the flaps 11, which underpart has smaller external dimensions than the rest of the container. The outward inclination of the short side parts due to the angle α also contributes to the fact that the underpart has smaller dimensions than the upper part of the container. The long side parts 4 also exhibit a smaller height than the short side parts 7. The angle α and the difference in height between the outer and inner short side parts and between the long side parts and the inner short side parts are selected in such a way that the aforementioned underpart of the container fits into the uppermost part of a similar container, so that the containers can be stacked one on top of the other, as illustrated in Figure 9. In this case, the difference in height between the outer and inner short side parts must be the same as or smaller than the difference in height between the long side parts and the inner short side parts in order for the load imposed by other containers stacked on top of a container to act essentially against the upper edge on the short sides of the container.

[0016] As can be appreciated from the figures, the upper edges of the flaps 11 will also extend above the upper edges of the long side parts, which ensures the stability in the transverse direction of containers that are stacked on top of one another.

[0017] The strength of a container in accordance with the invention has been tested by placing it in a plastic tray of similar dimensions, in conjunction with which filled trays were stacked on top of the container in accordance with the invention. In order to be able to replace existing plastic trays, it is necessary for the container to be capable of withstanding a load of 140 kg in such a test. A container in accordance with the invention with external dimensions of 600x395x110 mm manufactured from corrugated cardboard with the designation SCA 170 C sourced from SCA, Sweden, and with the use of an Instant-Pak 2300 hotmelt adhesive, was found to be capable of supporting more than 160 kg- SCA 170 C is constructed from outer liners with a weight per unit area of 186 g/cm² and an interjacent semi chemical corrugated layer with a weight per unit area of 140 g/cm². The wall thickness is 3.75 ± 0.5 mm. The total weight of the container was 350 g, whereas a plastic container with the same dimensions weighs 2 kg. In addition to improving the logistics by replacing plastic trays with containers in accordance with the invention, the transport weight is also reduced, which naturally brings significant cost savings with it.

[0018] When the containers are stacked in one another in the manner illustrated in Figure 9, the load is absorbed essentially by the outer short side parts 8 and the flaps

13, which are in contact with the upper edge of the short sides of the container consisting of the material between the creasing lines 9,10.

[0019] As can be appreciated from the figures, the blank 1 also includes recesses which form openings for a user's hands in the finished container.

[0020] When using the containers in accordance with the invention, a plastic container is preferably arranged at the bottom of the stack in order to absorb the shock loadings that can arise in conjunction with the careless handling of stacks of the kind that is encountered when the stacks are placed or set down on manually operated transport trucks.

[0021] Containers in accordance with the invention can naturally be used for purposes other than the handling of packs of bread.

[0022] The described embodiment can naturally be modified in a plurality of ways within the scope of the invention. For example, other dimensions and other qualities of corrugated cardboard can be used. The invention must accordingly be restricted only by the content of the accompanying patent claims.

Claims

1. A container made of corrugated cardboard comprising a bottom (6) and long sides (4) and short sides (5) projecting upwards from the bottom, in conjunction with which the short sides include two parts, an inner part (7) and an outer part (8), folded towards one another, the outer part (8) having a smaller height than the inner part (7) and that the long sides (4) having a smaller height than the short sides (5), **characterized in that** the short sides (5) being inclined at an angle of 90° plus α ($\alpha > 0$) to the bottom (6), the difference in height between the outer and inner short side parts being the same or smaller than the difference in height between the short and long sides.
2. The container as claimed in claim 1, **characterized in that** the outer part (8) is demarcated from the inner part by means of an interjacent part defined by two parallel creasing lines (9,10), which are situated at a distance from one another which exceeds the combined thickness of the inner and outer short side parts (7,8).
3. The container as claimed in claim 2, **characterized in that** flaps (13), executed in a single piece with the long sides (4), extend between the inner (7) and outer (8) parts of the short sides over at least one part of the width of the short sides.
4. The container as claimed in claim 3, **characterized in that** flaps (11), executed in a single piece with the outer parts (8) of the short sides, extend over a part

of the long sides (4) on the outside of these.

5. The container as claimed in claim 4, **characterized in that** the inner (7) and outer (8) parts of the short sides are glued to the Flaps (13), executed in a single piece with the long sides (4), and the long sides are glued to the Flaps (11) executed in a single piece with the outer parts (8) of the short sides.
6. A blank (1) for manufacturing a container according to claim 1 comprising a bottom (6), two long sides (4), two short sides (5) and flaps (11,13) projecting from the long sides and the short sides, in conjunction with which the short sides comprise an inner part (7) nearest the bottom and an outer part (8) at a distance from the bottom, as well as creasing lines (2,3,9,10,12,14), which demarcate the aforementioned parts from one another, the creasing lines (9,10), which demarcate the inner (7) and outer (8) parts of the short sides, are stamped from the opposite side from the creasing lines (2,3), which demarcate the bottom (6) from the long sides (4) and the short sides (5), the edges of the long sides (4) forming an angle of 90° plus α ($\alpha > 0$) to the creasing lines (2) demarcating the long sides (4) from the bottom (6) and wherein the short and long sides (4,5) of the blank are so dimensioned that in erected state the long sides have a smaller height than the short sides, and the difference in height between the outer and inner short side parts being the same or smaller, than the difference in height between the short and long sides.
7. The use of one or more corrugated cardboard containers according to claim 1 in a stack of similar corrugated cardboard containers and plastic containers with a similar form to the corrugated cardboard container.

Patentansprüche

1. Behälter, der aus Wellpappe gemacht ist, umfassend einen Boden (6), lange Seiten (4) und kurze Seiten (5), die von dem Boden nach oben vorstehen, wobei in Verbindung damit die kurzen Seiten zwei Teile, einen inneren Teil (7) und einen äußeren Teil (8), enthalten, die zueinander gefaltet sind, wobei der äußere Teil (8) eine kleinere Höhe als der innere Teil (7) aufweist und die langen Seiten (4) eine kleinere Höhe als die kurzen Seiten (5) aufweisen, **dadurch gekennzeichnet, dass** die kurzen Seiten (5) in einem Winkel von 90° plus α ($\alpha > 0^\circ$) zum Boden (6) geneigt sind, wobei die Höhendifferenz zwischen den äußeren und inneren kurzen Seitenteilen gleich wie oder kleiner als die Höhendifferenz zwischen den kurzen und langen Seiten ist.

2. Behälter nach Anspruch 1, **dadurch gekennzeichnet, dass** der äußere Teil (8) von dem inneren Teil durch einen dazwischen liegenden Teil abgegrenzt ist, der durch zwei parallele Rillenlinien (9, 10) definiert ist, die in einem Abstand von einander angeordnet sind, welcher die kombinierte Stärke der inneren und äußeren kurzen Seitenteile (7, 8) übersteigt. 5
3. Behälter nach Anspruch 2, **dadurch gekennzeichnet, dass** sich Klappen (13), die in einem einzigen Stück mit den langen Seiten (4) ausgeführt sind, zwischen den inneren (7) und äußeren (8) Teilen der kurzen Seiten über zumindest einen Teil der Breite der kurzen Seiten erstrecken. 10
4. Behälter nach Anspruch 3, **dadurch gekennzeichnet, dass** sich Klappen (11), die in einem einzigen Stück mit den äußeren Teilen (8) der kurzen Seiten ausgeführt sind, über einen Teil der langen Seiten (4) an der Außenseite von diesen erstrecken. 15
5. Behälter nach Anspruch 4, **dadurch gekennzeichnet, dass** die inneren (7) und äußeren (8) Teile der kurzen Seiten an die Klappen (13) geklebt sind, die in einem einzigen Stück mit den langen Seiten (4) ausgeführt sind, und die langen Seiten an die Klappen (11) geklebt sind, die in einem einzigen Stück mit den äußeren Teilen (8) der kurzen Seiten ausgeführt sind. 20
6. Zuschnitt (1) zum Herstellen eines Behälters nach Anspruch 1, umfassend einen Boden (6), zwei lange Seiten (4), zwei kurze Seiten (5) und Klappen (11, 13), die von den langen Seiten und den kurzen Seiten vorstehen, wobei in Verbindung damit die kurzen Seiten einen inneren Teil (7) umfassen, der dem Boden am nächsten ist, und einen äußeren Teil (8) in einem Abstand von dem Boden sowie Rillenlinien (2, 3, 9, 10, 12, 14), welche die vorgenannten Teile voneinander abgrenzen, wobei die Rillenlinien (9, 10), welche die inneren (7) und äußeren (8) Teile der kurzen Seiten abgrenzen, von der gegenüberliegenden Seite der Rillenlinien (2, 3), die den Boden (6) von den langen Seiten (4) und den kurzen Seiten (5) abgrenzen, geprägt sind, wobei die Kanten der langen Seiten (4) einen Winkel von 90° plus α ($\alpha > 0^\circ$) zu den Rillenlinien (2), welche die langen Seiten (4) von dem Boden (6) abgrenzen, bilden, und wobei die kurzen und langen Seiten (4, 5) des Rohlings so bemessen sind, dass die langen Seiten im aufgerichteten Zustand eine kleinere Höhe als die kurzen Seiten aufweisen und die Höhendifferenz zwischen den äußeren und inneren kurzen Seitenteilen gleich wie oder kleiner als die Höhendifferenz zwischen den kurzen und langen Seiten ist. 25
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7. Verwendung eines oder mehrerer Wellpappbehälter

nach Anspruch 1 in einem Stapel ähnlicher Wellpappbehälter und Kunststoffbehälter mit einer dem Wellpappbehälter ähnlichen Form.

Revendications

1. Contenant en carton ondulé comprenant un fond (6) et des côtés longs (4) et des côtés courts (5) faisant saillie vers le haut à partir du fond, conjointement auxquels les côtés courts comprennent deux parties, une partie intérieure (7) et une partie extérieure (8), pliées l'une vers l'autre, la partie extérieure (8) ayant une hauteur inférieure à la partie intérieure (7) et les côtés longs (4) ayant une hauteur inférieure à celle des côtés courts (5), **caractérisé en ce que** les côtés courts (5) sont inclinés d'un angle de 90 degrés plus α ($\alpha > 0$) par rapport au fond (6), la différence de hauteur entre les parties des côtés courts extérieures et intérieures étant identique ou inférieure à la différence de hauteur entre les côtés courts et longs.
2. Contenant selon la revendication 1, **caractérisé en ce que** la partie extérieure (8) est séparée de la partie intérieure au moyen d'une partie intercalée définie par deux lignes de pliage parallèles (9, 10), qui sont situées à une distance l'une de l'autre qui est supérieure à l'épaisseur combinée des parties de côté court intérieures et extérieures (7, 8).
3. Contenant selon la revendication 2, **caractérisé en ce que** des rabats (13), faits d'un seul tenant avec les côtés longs (4), s'étendent entre les parties intérieures (7) et extérieures (8) des côtés courts sur au moins une partie de la largeur des côtés courts.
4. Contenant selon la revendication 3, **caractérisé en ce que** des rabats (11), faits d'un seul tenant avec les parties extérieures (8) des côtés courts, s'étendent sur une partie des côtés longs (4) sur l'extérieur de ceux-ci.
5. Contenant selon la revendication 4, **caractérisé en ce que** les parties intérieures (7) et extérieures (8) des côtés courts sont collées aux rabats (13), faits d'un seul tenant avec les côtés longs (4), et les côtés longs sont collés aux rabats (11) faits d'un seul tenant avec les parties extérieures (8) des côtés courts.
6. Découpe (1) pour la fabrication d'un contenant selon la revendication 1, comprenant un fond (6), deux côtés longs (4), deux côtés courts (5) et des rabats (11, 13) faisant saillie à partir des côtés longs et des côtés courts, conjointement auxquels les côtés courts comprennent une partie intérieure (7) au plus proche du fond et une partie extérieure (8) à une distance

du fond, ainsi que des lignes de pliage (2, 3, 9, 10, 12, 14), qui séparent les parties mentionnées précédemment les unes des autres, les lignes de pliage (9, 10), qui séparent les parties intérieures (7) et extérieures (8) des côtés courts, sont marquées du côté opposé à partir des lignes de pliage (2, 3), qui séparent le fond (6) des côtés longs (4) et des côtés courts (5), les bords des côtés longs (4) formant un angle de 90 degrés plus α ($\alpha > 0$) par rapport aux lignes de pliage (2) séparant les côtés longs (4) du fond (6) et où les côtés courts et longs (4, 5) de la découpe sont dimensionnés de sorte que dans un état relevé les côtés longs ont une hauteur inférieure à celle des côtés courts, et la différence de hauteur entre les parties des côtés courts extérieures et intérieures est identique ou inférieure à la différence de hauteur entre les côtés courts et longs.

7. Utilisation d'un ou plusieurs contenants en carton ondulé selon la revendication 1, dans une pile de contenants en carton ondulé similaires et de contenants en plastique avec une forme similaire au contenant en carton ondulé.

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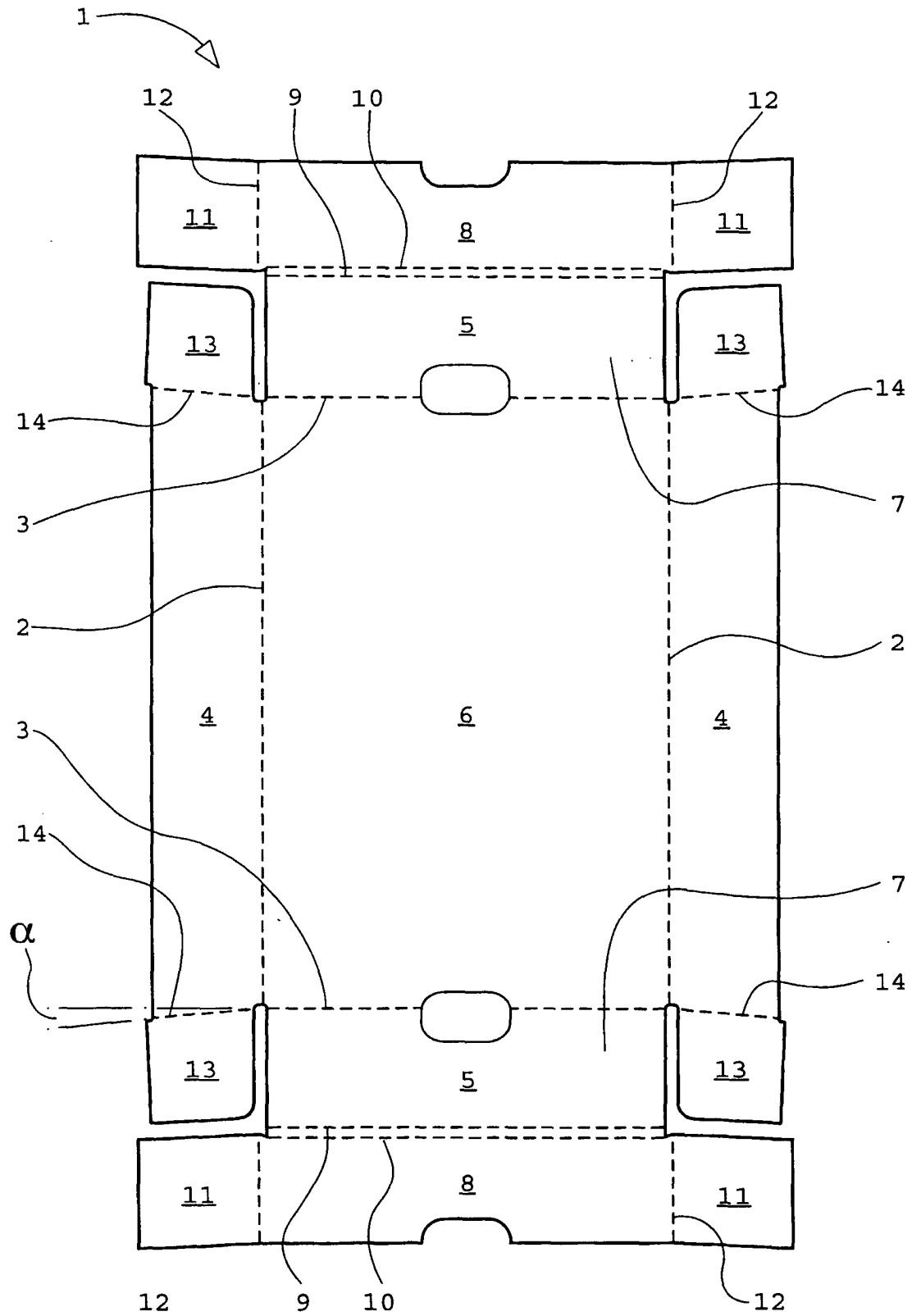


Fig.1

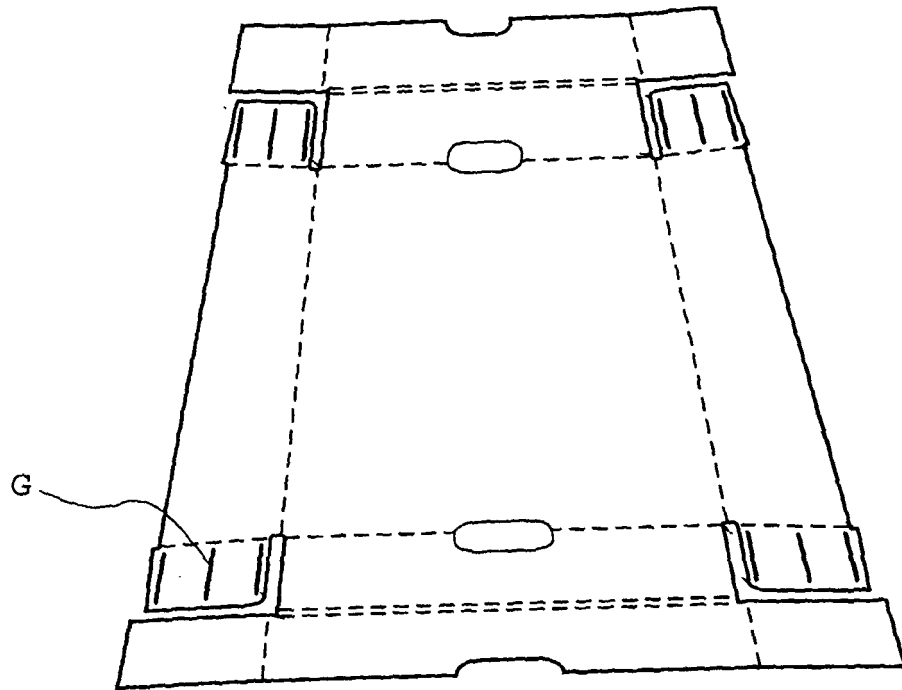


Fig. 2

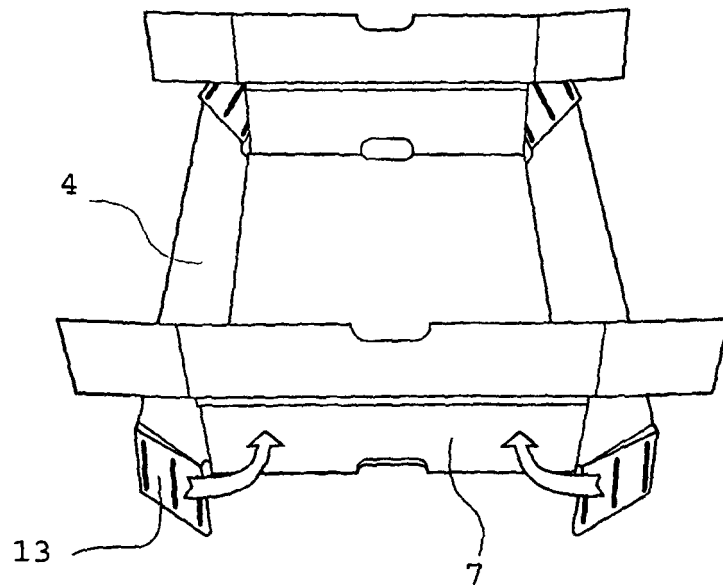


Fig. 3

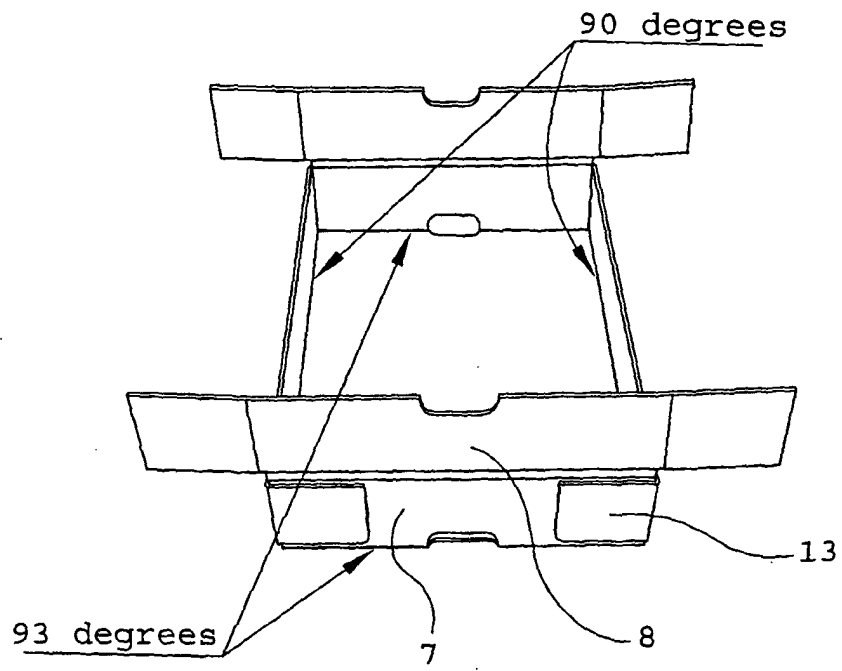


Fig. 4

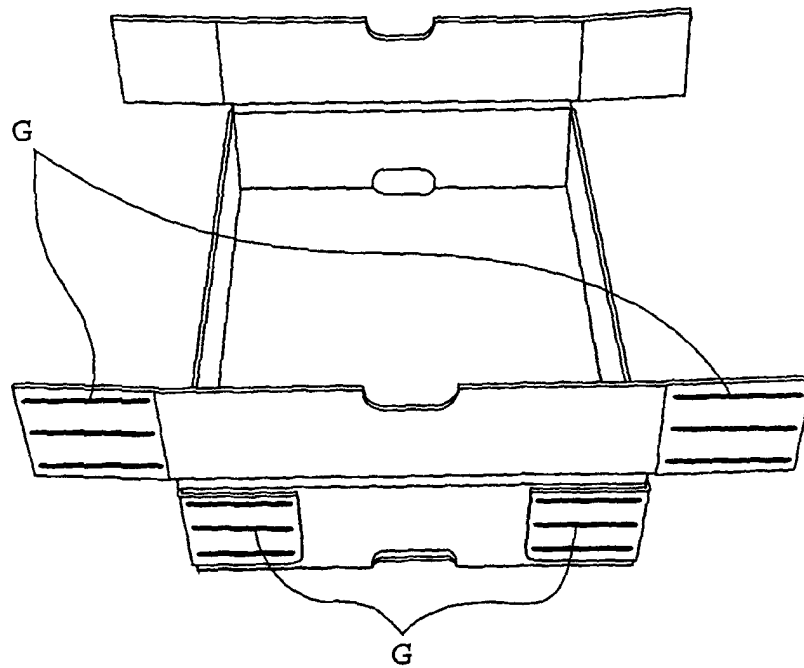
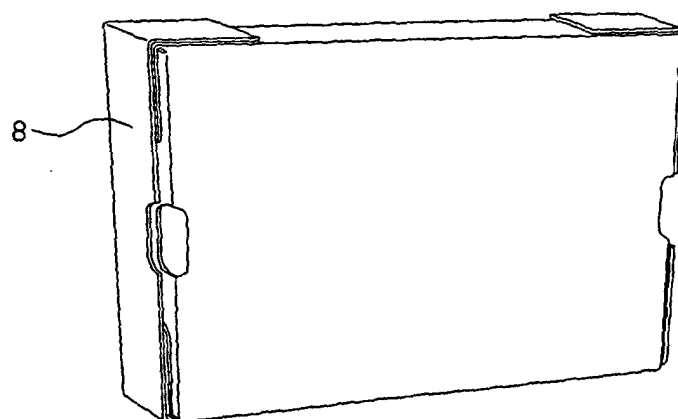
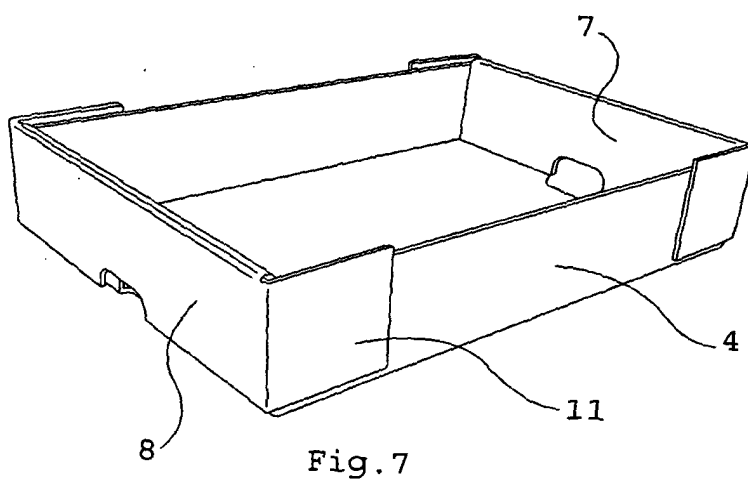
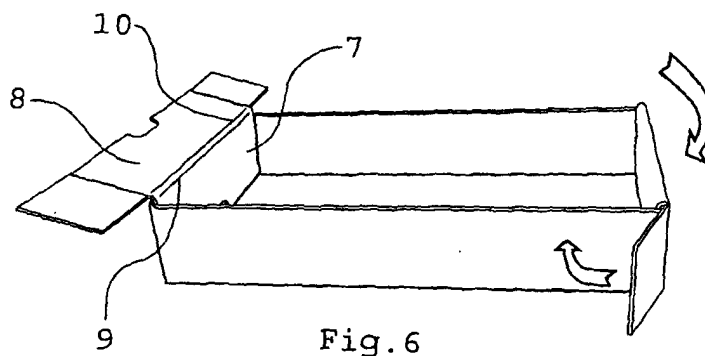


Fig. 5



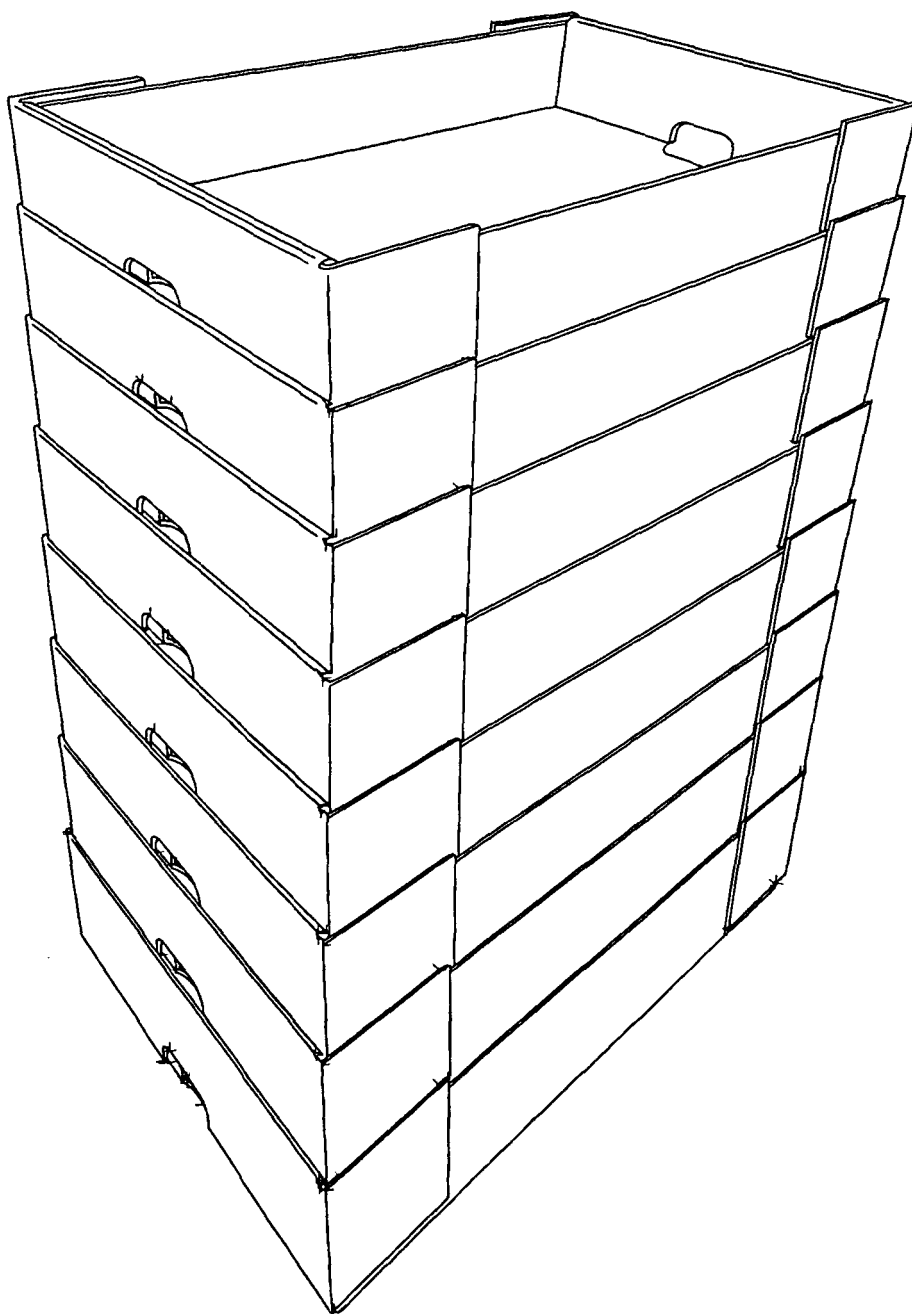


Fig.9

REFERENCES CITED IN THE DESCRIPTION

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