United States Patent [19]

Clark

[11] **3,734,392**

[45] **May 22, 1973**

[54] **MULTI-WALL CONTAINER**

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[22] Filed: **June 3, 1971**

[21] Appl. No.: **149,605**

[52] **U.S. Cl.** **229/34**

[51] **Int. Cl.** **B65d 5/22**

[58] **Field of Search** 229/34, 35

[56] **References Cited**

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[57] **ABSTRACT**

A container formed of paperboard and having a single-ply bottom wall, double-ply side walls, and triple-ply end walls with hand holes which may also serve to provide interlocking engagement with a container cover.

1 Claim, 4 Drawing Figures

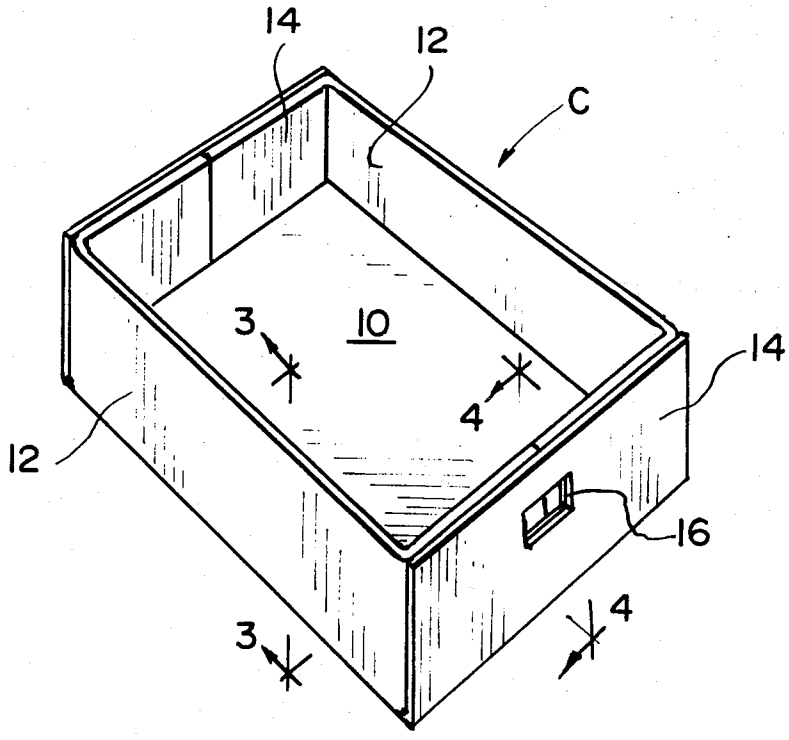


FIG. 2

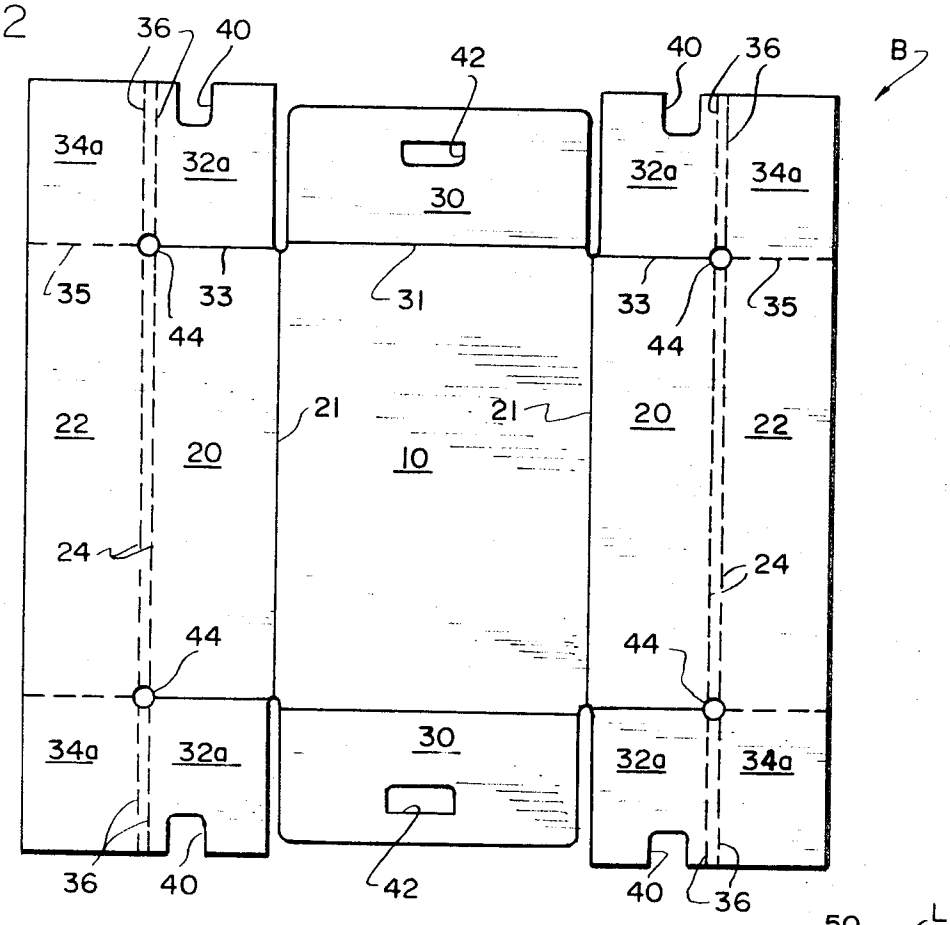


FIG. 1

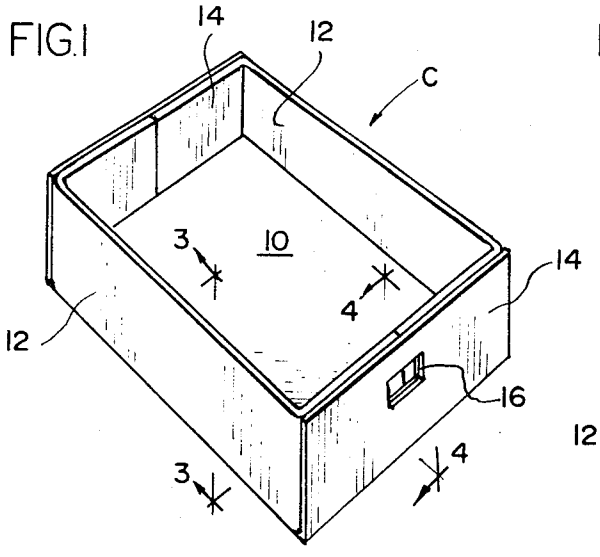
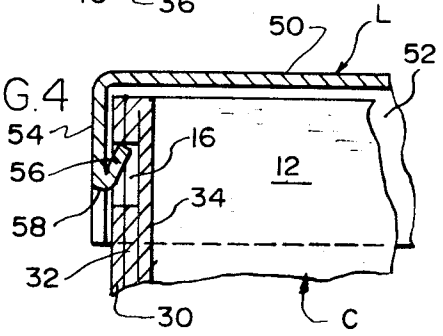


FIG. 4



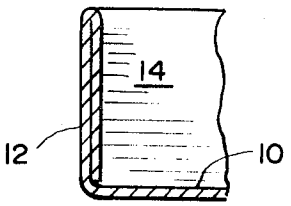


FIG. 3

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MULTI-WALL CONTAINER

This invention relates to an improved multi-thickness container of the type disclosed in United States Letters Patent Nos. 2,797,854 and 2,843,305, but which has a considerably more rigid corner construction, which does not require taping or stitching at the corners, to provide additional stacking strength.

Containers of this type are especially suitable for the packaging of produce such as grapes, tomatoes and other fragile products which require a great deal of protection. By the novel construction of this invention, the overall strength of the container is so greatly improved that a paperboard container may be used in place of a more costly box formed all or partly of wood.

It is a particular object of the invention to provide a multi-thickness paperboard container with a corner construction which is reinforced by flaps or panels which fold around the corner from a side wall to an end wall.

Another object of the invention is the provision of a multi-thickness container body with end wall openings that serve as hand holes for lifting and which may also cooperate with locking flaps of a container cover to provide an interlocking connection therebetween.

A more specific object of the invention is the provision of a container body formed of a unitary blank of foldable paperboard having a single-ply bottom wall, double-ply side walls, and triple-ply end walls which include portions folded around from the side walls.

These and other objects of the invention will be apparent from an examination of the following description and drawings, wherein:

FIG. **1** is a perspective view of a container body embodying features of the invention, as seen in the fully erected condition, but without the cover;

FIG. **2** is a plan view of the blank from which the structure illustrated in FIG. **1** may be formed;

FIG. **3** is a fragmentary vertical section taken on line **3—3** of FIG. **1**; and

FIG. **4** is a fragmentary vertical section taken on line **4—4** of FIG. **1**, but with a portion of the cover shown in position on the container body in locking relationship.

It will be understood that, for purposes of clarity, certain elements have been intentionally omitted from certain views where they are believed to be illustrated to better advantage in other views.

Referring now to the drawing for a better understanding of the invention, it will be seen that the container body, indicated generally at C, which is shown in FIG. **1** may be formed from a unitary blank of paperboard, indicated generally at B, which is illustrated in FIG. **2**.

The container body includes bottom wall **10** having hingedly attached to its side and end edges opposed pairs of side and end walls **12** and **14**, respectively, which are interconnected in a manner hereinafter described, to provide a box-like structure open at the top.

It will be noted that end walls **14** are provided with openings **16** which serve as hand holes for grasping and lifting the container and which may also cooperate with locking flanges on the cover to provide interlocking engagement between the container body and cover as will be described later in the specification.

Still referring to FIGS. **1** and **2**, it will be seen that the bottom wall **10** of the container consists of a generally

rectangular, single panel to which the other walls are attached.

Each of the container body side walls **12** includes an outer panel **20**, hingedly attached at its lower edge along fold line **21** to a related edge of bottom wall **10**, and an inner panel **22** hingedly attached at its upper edge along closely spaced fold lines **24** to the upper edge of outer panel **20**. Inner panel **22** is folded inwardly 180° into face-to-face engagement with the inner surface of outer panel **20**. Outer and inner panels **20** and **22** of each side wall are preferably adhesively secured to each other so as to form a substantially integral double-ply side wall construction.

Each of the container body end walls **14** includes an outer panel **30**, hingedly attached at its lower edge along fold line **31** to a related end edge of bottom wall **10**, and intermediate and inner panels **32** and **34** extending from side walls **12**.

Intermediate panels **32** are each formed from a pair of panels **32***a* which are hingedly attached along fold lines **33** to the adjacent end edges of related side wall outer panels **20**, and which are folded inwardly from side walls **12** at right angles thereto to lie against the inner surface of end wall outer panel **30**, in coplanar relationship with each other, and with their free end edges in substantially abutting relationship.

Likewise, end wall inner panels **34** are each formed from a pair of panel sections **34***a* which are hingedly attached along fold lines **35** to the adjacent end edges of related side wall inner panels **22** and which are also folded inwardly at right angles to the side walls so as to lie against the inner surfaces of intermediate panel sections **32***a* in coplanar relationship with each other, and with their free end edges disposed in substantially abutting relationship.

The outer, intermediate, and inner panels of each end wall are preferably adhesively secured to each other to provide a substantially integral, triply-ply end wall construction. Each intermediate panel section **32***a*is hingedly attached at its upper edge to the upper edge of inner panel section **34***a* along a fold line **36**.

It will be noted that at each side of blank B, fold line **24**, between outer side wall panel **20** and inner side wall panel **22**, and fold line **36**, between intermediate panel section **32***a* and inner **34***a*, are aligned with each other and are preferably formed as double fold lines to facilitate folding of the wall panel sections. Also to assist in the folding, the blank may be provided with apertures **44** located at the four upper corners of the box.

Still referring to FIG. **2**, it will be noted that each intermediate panel section **32***a* is provided at its free edge with a notch **40**. When the container is in the erected condition, the notches **40** are aligned with each other and with an opening **42** in end wall outer panel **30** to provide the common hand hole **16**. It will be noted that the hand hole preferably extends only through the outer and intermediate panels of the end wall and not through the inner panel.

Turning now to FIG. **4** of the drawing, it will be seen that the cover, indicated generally at L, includes a top wall **50**, a pair of side walls **52** (only one of which is shown), and a pair of end walls **54** (only one of which is shown) which are hingedly attached to each other and adapted to telescopically receive upper portions of related side and end walls of the container body C.

Still referring to FIG. **4**, it will be seen that a locking flap **56** is cut from each cover end wall **54** and is folded

inwardly along fold line **58** at an angle slightly less than 180°. This locking flap is so positioned as to be received within the related hand hole **16** of the container body end wall to provide a simple but effective interlocking connection between container body and cover.

I claim:

1. In a container formed from a unitary blank of foldable paperboard cut and scored to provide a box-like structure open at the top and having a separate cover, the combination of:

a. a generally rectangular, single-ply bottom wall;

b. a pair of opposed, double-ply side walls each including:

i. an outer panel hingedly attached to and upstanding from a side edge of said bottom wall;

ii. an inner panel hingedly attached at its upper edge to the upper edge of said outer panel and folded into face-to-face engagement with the inner surface of said outer panel;

c. a pair of opposed, triple-ply end walls, each including:

i. a one-piece outer panel hingedly attached to and upstanding from an end edge of said bottom wall;

ii. a two-piece intermediate panel including a pair of coplanar panel sections hingedly attached to adjacent end edges of respective side wall outer panels and folded inwardly into face-to-face engagement with the inner surface of said outer panel and having their free end edges disposed in substantially abutting relationship;

iii. a two-piece inner panel including a pair of coplanar panel sections hingedly attached to adjacent end edges of respective side wall inner panels and folded inwardly into face-to-face engagement with the inner surfaces of said intermediate panel sections and having their free end edges disposed in end to end relationship.

iv. said intermediate panel sections each being provided with notches in the abutting edges thereof which are aligned with each other and with an opening in the related end wall outer panel to provide a common hand hole;

d. a cover for said container having a top wall and opposed pairs of side and end walls hingedly attached thereto and depending therefrom for telescopic engagement with upper portions of the related side and end walls of said container;

e. each of the end walls of said cover having cut therefrom and hingedly attached thereto a locking flap foldable inwardly slightly less than 180° for locking engagement with the hand hole of the related end wall of said container.

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