United States Patent [19]

Pilz, III

[11] **3,730,416**

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[54] **SELF-LOCKING, DOUBLE WALL CONTAINER**

[75] Inventor: **William M. Pilz, III,** West Chicago, Ill.

[73] Assignee: **Container Corporation of America,** Chicago, Ill.

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[52] **U.S. Cl.** .....**229/16 A**

[51] **Int. Cl.** **B65d 5/02**

[58] **Field of Search** .....229/16 R, 16 A

[56] **References Cited**

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Primary Examiner—Davis T. Moorhead
Attorney—Carpenter, Ostis & Lindberg

[57] **ABSTRACT**

A container formed from a unitary blank of foldable paperboard having six sides each of which is double-ply in thickness, and which is completely self-locking so as to be free from a manufacturer's joint.

3 Claims, 6 Drawing Figures

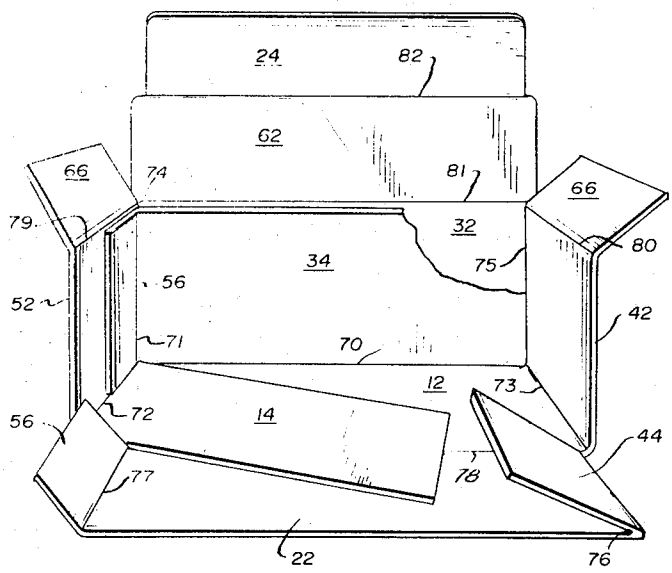


FIG.6

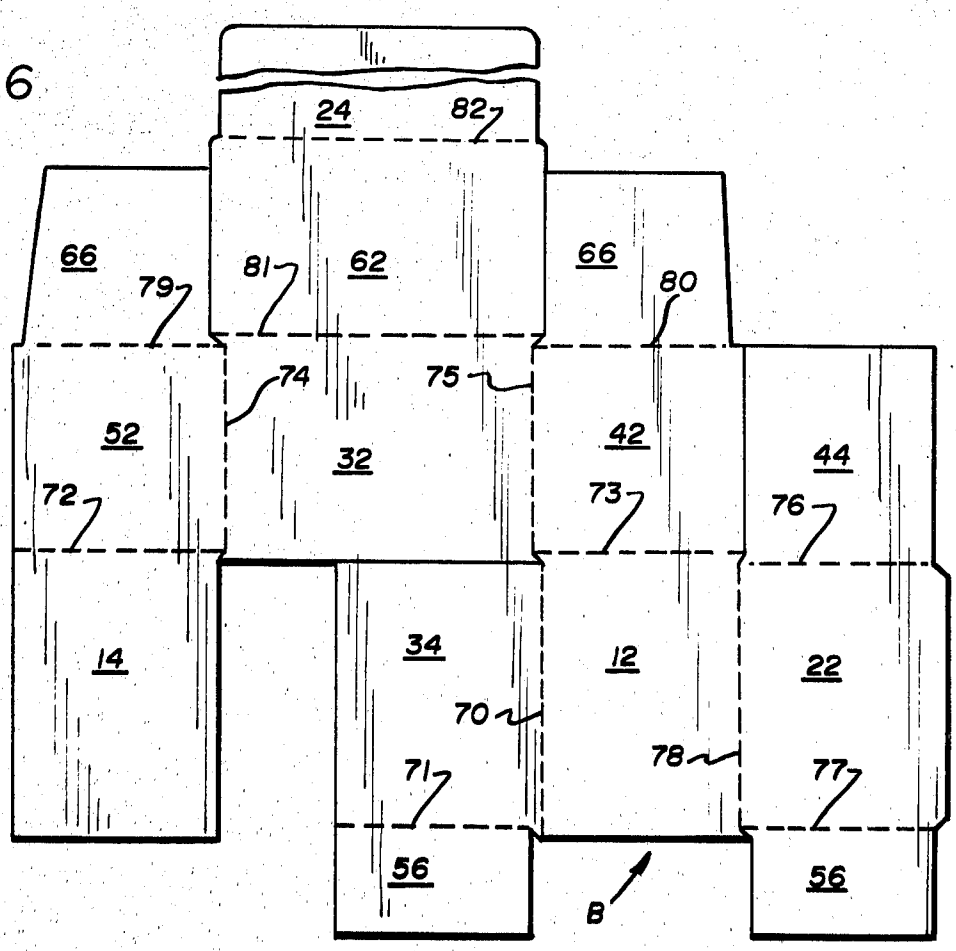


FIG.1

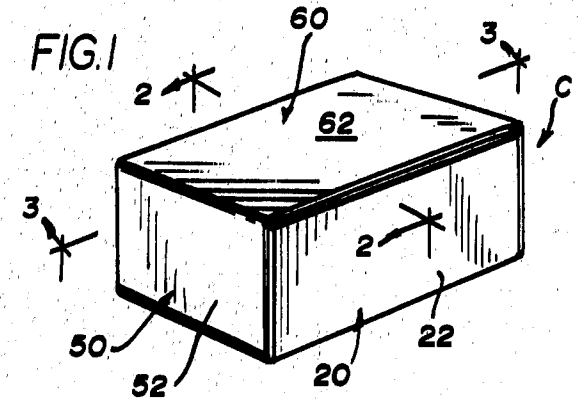


FIG.2

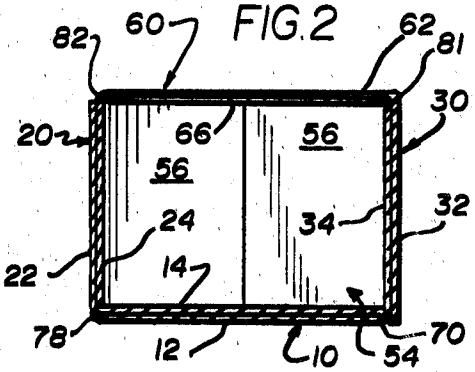


FIG.3

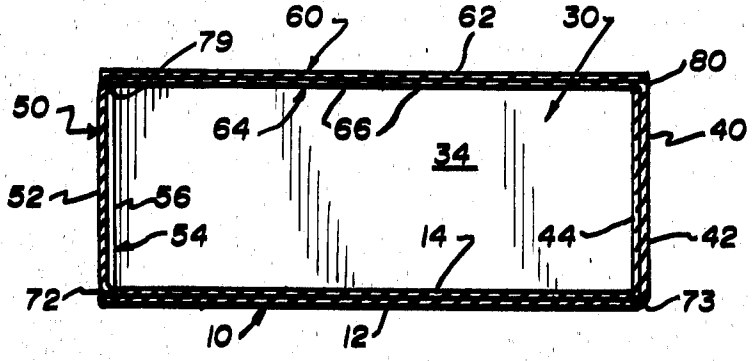


FIG.4

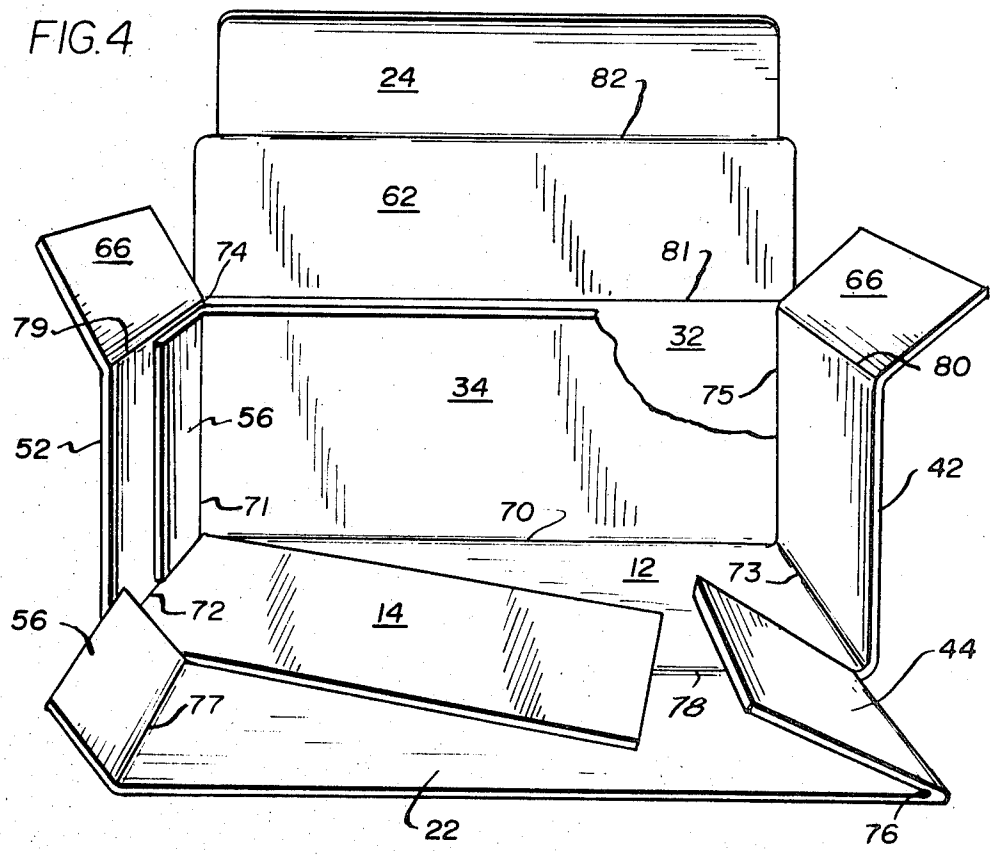
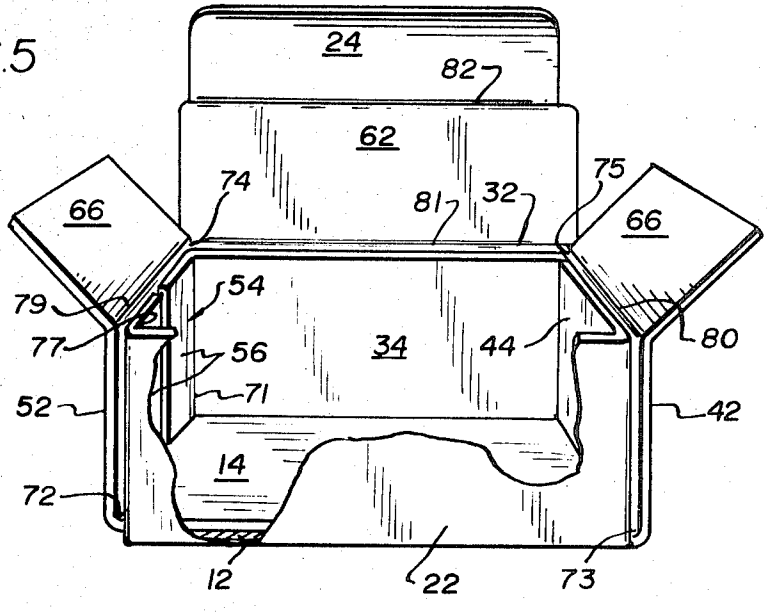

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FIG.5


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SELF-LOCKING, DOUBLE WALL CONTAINER

It is an object of the invention to provide a rigid, self-locking container which does not have any gluing or stitching as required by a conventional manufacturer's joint, and which at the same time has front, rear, top, bottom, and end walls which are all double-ply in thickness.

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 closed shipping container embodying features of the invention;

FIGS. 2 and 3 are vertical sections taken on lines 2—2 and 3—3, respectively, of FIG. 1;

FIGS. 4 and 5 are exploded perspective views of the container, as seen from the front, illustrating the manner in which the container is erected; and

FIG. 6 is a plan view of the blank from which the container illustrated in other views may be formed.

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.

Turning now to the drawings for a better understanding of the invention, it will be seen that a shipping container embodying features of the invention, and indicated generally at C in FIG. 1, may be formed from the unitary blank of foldable paperboard indicated generally at B in FIG. 6.

As best seen in FIGS. 2–5, container C comprises top and bottom walls 60 and 10, respectively, front and rear side walls 20 and 30, respectively, and first and second end walls 40 and 50, respectively, all of which are integrally connected to form a six-sided structure which is completely self-locking and therefore free of a conventional manufacturer's joint requiring stitching or gluing to secure the container in a completely erected or assembled condition.

The container is a heavy duty container wherein each of the walls is double-ply in thickness and include inner and outer panels disposed in facing relationship.

Bottom wall 10 includes outer and inner panels 12 and 14, respectively.

Front wall 20 includes outer and inner panels 22 and 24, respectively.

Rear wall 30 comprises outer and inner panels 32 and 34, respectively.

First end wall 40, as seen at the right of FIGS. 4 and 5, includes an outer panel 42 and an inner panel 44, respectively.

Second end wall 50, as seen at the left of FIGS. 4 and 5, includes an outer panel 52 and an inner panel 54, respectively, the latter comprising a pair of co-planar panels sections 56.

Top wall 60 includes an outer panel 62 and an inner panel 64, respectively, the latter comprising a pair of co-planar panel sections 66.

Turning again to FIG. 6 of the drawings wherein blank B from which the container is formed is illustrated, it will be seen that rear wall outer panel 32 has hingedly attached to its opposite end edges first end wall and second end wall outer panels 42 and 52, respectively; rear wall outer panel 32 has hingedly attached to its upper edge top wall outer panel 62.

Top wall outer panel 62 has hingedly attached to its upper edge front wall inner panel 24.

Second end wall outer panel 52 has hingedly attached to its upper and lower edges top wall inner panel section 66 and bottom wall inner panel 14, respectively.

First end wall outer panel 42 has hingedly attached to its upper and lower edges top wall inner panel section 66 and bottom wall outer panel 12, respectively.

Bottom wall outer panel 12 has hingedly attached to its rear and front edges rear wall inner panel 34 and front wall outer panel 22, respectively.

Rear wall inner panel 34 has hingedly attached to one end edge thereof second end wall inner panel section 56.

Front wall outer panel 22 has hingedly attached to its opposite end edges first end wall inner panel 44 and second end wall inner panel section 56, respectively.

Turning now to FIGS. 4 and 5, which illustrate the manner in which the container is assembled, it will be seen that rear wall inner panel 34 is folded on fold line 70 to a vertical position at a right angle to bottom wall panel 12. Second end wall inner panel section 56 is then folded inwardly on fold line 71 at a right angle to rear wall inner panel 34.

Rear wall outer panel 32 is then moved upwardly to a vertical position along with second wall outer panel 52 and first end wall outer panel 42 which are folded to a vertical position about fold lines 72 and 73, respectively. At this point second end wall outer panel 52 and first end wall outer panel 42 are folded inwardly at right angles to rear wall outer panel 32 about fold lines 74 and 75, respectively. At the same time bottom wall inner panel 14 is swung or rotated in a counterclockwise direction, as seen in FIG. 6, so as to lie on top of bottom wall inner panel 12 in full face engagement therewith.

At this time first end wall inner panel 44 and second end wall inner panel section 56 are folded upwardly or inwardly at right angles to front wall outer panel 22 about fold lines 76 and 77, respectively. Front wall outer panel 22 is then folded upwardly about fold line 78 into a vertical position. As this occurs first end wall inner panel 44 and second end wall inner panel section 56 are brought into position against the inner faces of first end wall outer panel 42 and second end wall outer panel 52, respectively.

Top wall inner panel sections 66 are then folded, along fold lines 79 and 80, inwardly at right angles to second end wall outer panel 52 and first end wall outer panel 42, respectively. Top wall outer panel 62 is then folded along fold line 81 inwardly at right angles to rear wall outer panel 32, and finally front wall inner panel 24 is folded along fold line 82 downwardly and tucked into the container behind the inner face of front wall outer panel 22.

Thus it will be seen that top wall outer panel 62 and front wall inner panel 24 also serve as a cover and a tuck flap, respectively, in addition to functioning as panels of the top and front walls of the container.

Thus it will be appreciated that the invention provides an extremely rugged heavy-duty shipping container, wherein each wall is double-ply in thickness, and which is relatively inexpensive to produce and assemble, as it is completely self-locking and requires no manufacturer's joint which necessitates stitching, gluing or other similar operations.

I claim:

1. A completely self-locking container, free from a manufacturer's joint, wherein all of the walls are of double-ply thickness, said container being formed from a unitary blank of foldable paperboard and comprising:

a. bottom and top walls, front and rear side walls, and first and second end walls, each including a pair of inner and outer panels;

b. said bottom wall including:

i. an outer panel attached at its front and rear edges to the lower edges of a front wall outer panel and a rear wall inner panel, respectively, and at one side edge to a first end wall outer panel;

ii. an inner panel attached at one side edge to a second side wall outer panel;

c. said rear wall including:

i. said rear wall inner panel;

ii. an outer panel attached at one side edge to said first end wall outer panel and at its opposite side edge to a second end wall outer panel and at its upper edge to a top wall outer panel;

d. said front wall including:

i. said front wall outer panel;

ii. an inner panel attached at its upper edge to a front edge of said top wall outer panel;

e. said first end wall including:

i. said first end wall outer panel;

ii. said first end wall inner panel;

f. said second end wall including;

i. said second end wall outer panel;

ii. an inner panel having a pair of co-planer first and second panel sections attached to corresponding end edges of said rear wall inner panel and said front wall outer panel, respectively;

g. said top wall including:

i. said top wall outer panel;

ii. an inner panel having a pair of co-planer first and second panel sections attached to upper edges of said first and second end wall outer panels, respectively;

h. said top wall outer panel serving as a cover, free from attachment to the end walls, and said front wall inner panel serving as a tuck flap, free from attachment to any panel except the top wall outer panel.

2. A completely self-locking container, free from a manufacturer's joint, formed from a unitary blank of foldable paperboard and having a top wall, a bottom wall, a pair of front and rear side walls, and a pair of opposed end walls, each of said walls being double-ply in thickness and including an outer panel and an inner panel, said top wall including:

a. a pair of inner panel sections hinged to upper edges of said end walls;

b. an outer panel hinged at its rear edge to an upper edge of said rear wall and being free from attachment to said end walls;

c. said front wall inner panel being hinged at its upper edge to a front edge of said top wall outer panel and forming therewith a reclosable cover and tuck flap.

3. A unitary blank of foldable paperboard for forming a completely self-locking container, free from a manufacturer's joint, wherein all of the walls are of double-ply thickness and include bottom and top walls, front and rear side walls, and first and second end walls, each including inner and outer panels, said blank comprising:

a. a rear wall outer panel having a first side wall outer panel and a second side wall outer panel attached to opposite end edges thereof, and a top wall outer panel attached to a side edge thereof;

b. said top wall outer panel having a front wall inner panel attached to a side edge thereof;

c. said second side wall outer panel having a top wall inner panel section and a bottom wall inner panel attached to opposite side edges thereof;

d. said first end wall outer panel having another top wall inner panel section and a bottom wall outer panel attached to opposite side edges thereof;

e. said bottom wall outer panel having a rear wall inner panel and a front wall outer panel attached to opposite side edges thereof;

f. said rear wall inner panel having a second end wall inner panel section attached to one end edge thereof;

g. said front wall outer panel having another second end wall inner panel section and a first end wall inner panel attached to opposite end edges thereof.

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