March 21, 1967 J. J. DLUGOPOLSKI 3,310,219

HEAVY DUTY CONTAINER WITH INTEGRAL HANDLE

Filed June 2, 1965

Fig. 1

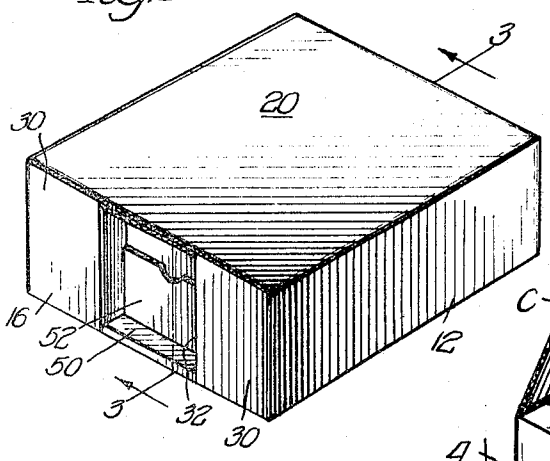


Fig. 2

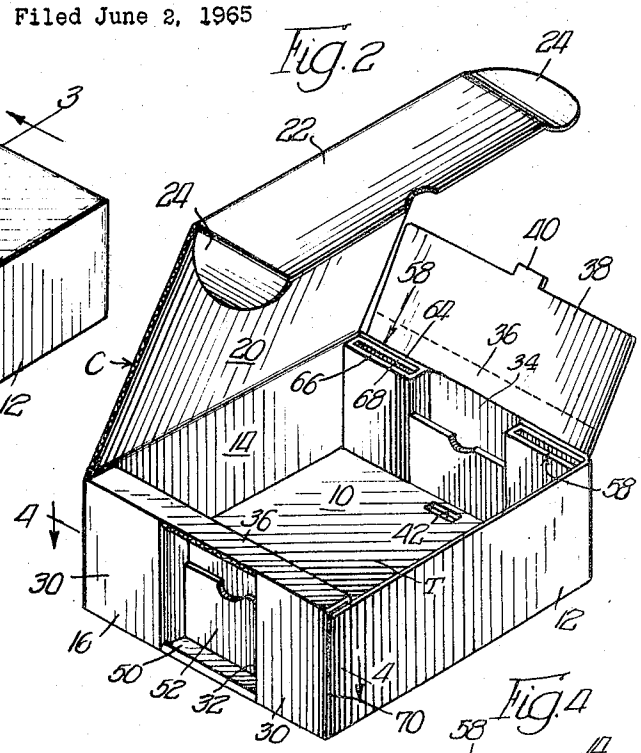


Fig. 3

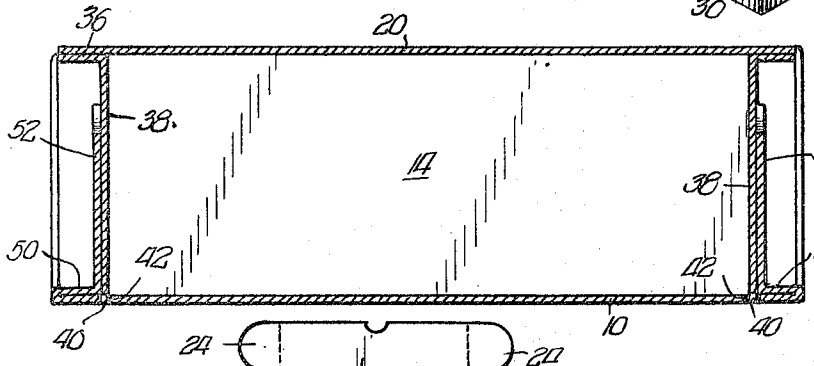


Fig. 4

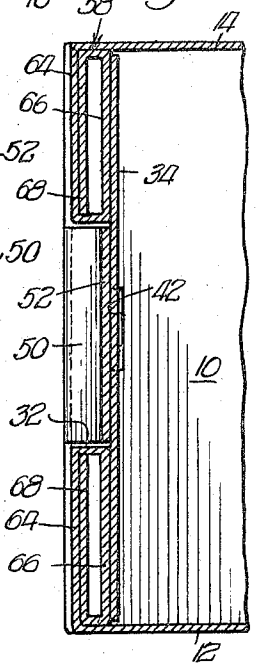
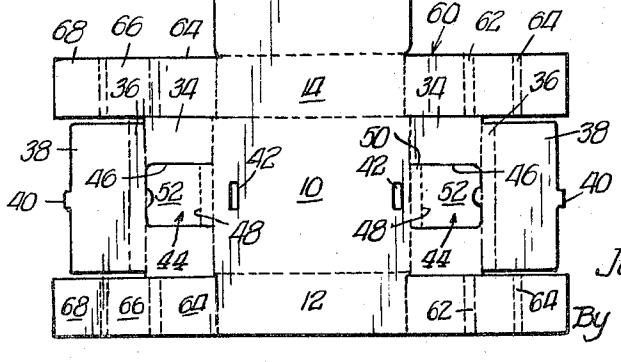


Fig. 5



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HEAVY DUTY CONTAINER WITH INTEGRAL HANDLE

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7 Claims. (Cl. 229—34)

This invention relates to paperboard shipping containers, and more particularly to heavy duty containers having reinformed walls to provide special rigidity for increased stacking strength.

The invention comprehends an improved end wall construction which provides an integral handle arrangement for grasping and carrying the container.

It is an object of the invention to provide a one-piece construction for a shipping container having reinforced end walls and integral handle means formed therein.

A more specific object of the invention is to provide an end wall construction wherein each of the container end walls has hollow end sections containing internal corner posts and a recessed center portion providing a handle.

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

FIGURE 1 is a perspective view of a container embodying features of the invention, with its cover shown in the closed position;

FIGURE 2 is a view similar to FIGURE 1, but with the cover shown in an open position and with a portion of one of the end walls shown in a partially assembled condition;

FIGURE 3 is a longitudinal, vertical section taken on line 3—3 of FIGURE 1;

FIGURE 4 is a fragmentary, horizontal section taken on line 4—4 of FIGURE 2; and

FIGURE 5 is top plan view of the blank from which the container illustrated in the 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.

Referring now to the drawing for a better understanding of the invention, and particularly to FIGURE 2, it will be seen that the container includes a tray indicated generally at T, having formed integrally therewith a cover, indicated generally at C.

The tray, as best seen in FIGURE 2, includes a generally rectangular flat bottom wall **10** having opposed front and rear side walls **12** and **14** and opposed end walls **16** hinged thereto and upstanding therefrom to form a box-like structure open at the top.

The cover of the container includes a generally rectangular flat top wall **20**, having the same dimensions as the bottom wall **10**, which is hinged at its rear edge to the upper edge of the tray rear side wall **14**. Hinged at its upper edge to the forward edge of cover top wall **20** is a cover front panel **22** which is of substantially the same dimensions as the tray front side wall **12** and which is adapted to overlie the tray front side wall when the cover is in closed condition. Hingedly attached to the opposite end edges of the cover front panel **22** are a pair of closure flaps **24** which are preferably formed with rounded outer edges to facilitate closure of the cover in a manner hereinafter described.

Still referring to FIGURE 2, it will be seen that the front and rear side walls **12** and **14** of the tray are single-ply, rectangular flat walls; whereas, end walls **16** of the tray are multi-ply, reinforced walls which have the dual

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function of providing addition stacking strength and at the same time providing handle means for grasping and lifting the container.

Each of the end walls **16** is divided into a pair of end sections **30** located on opposite side of a recessed center section **32**. The end walls of the tray each include an outer shell having outer, top, and inner panels formed from an extension of the bottom wall of the tray, with the end wall outer panel **34** being hinged to the outer or end edge of the tray bottom wall and having hinged to its upper edge a relatively narrow elongated top panel **36**, which in turn has hinged to its opposite or inner edge the upper edge of end wall inner panel **38**. The end wall inner panel **38** may be formed at its free edge with a downwardly extending projection or locking tab **40** adapted to be received within a complimentary slot **42** formed in the bottom wall of the tray to secure the end wall in position. It will be understood that the outer and inner panels of the end wall are spaced from each other a distance equal to the width of the end wall top panel **36**.

The end wall outer panel has a central portion **44** cut therefrom along a generally U-shaped cut line **46** and divided, by a transverse horizontal score line **48**, into a relatively narrow horizontal lower section **50** and a vertical upper section **52**. As best seen in FIGURE 3 the end wall portion **44** is displaced inwardly when the carton is erected so that horizontal section **50** lies against that portion of the tray bottom wall which lies outwardly of the end wall inner panel and so that vertical section **52** lies against the outer face of the end wall inner panel **38**. Section **52** may be secured to the outer face of the end wall inner panel in any manner, such as by gluing or stapling (not shown), and also horizontal section **50** may be secured to the tray bottom wall **10** by gluing or stapling, if desired (not shown). This construction affords a great deal of additional rigidity for the end wall of the container and, when the cover is closed, the portions of the cover and the end wall top panel which overlie the recessed center section **32** of the end wall form a handle for grasping and lifting the carton.

The corners of the tray portion of the container are provided with internal corner posts **58** located within the end sections of each end wall to add rigidity to the container and provide additional stacking strength. These corner posts **58** are disposed in the space between the inner and outer panels of the end walls and each are formed by an extension **60** hinged to the end of a side wall panel and divided by a pair of double score lines **62** and **64** into first (outer), second (inner), and third (center) layers, **64**, **66**, and **68**, respectively, which are folded as best seen in FIGURE 4 to provide a multi-ply corner post construction.

When the carton is erected the extensions **60** are rolled or folded up in the manner shown, and, as the front and rear side walls are brought to the vertical position, the end walls are wrapped or folded over the corner posts with the locking tabs **40** inserted in the bottom wall slot **42** to form a rigid end wall construction.

As best seen in FIGURE 2 it will be noticed that there is a space between the end wall outer panels and the corner posts outer portions which is adapted to receive the cover front closure flaps **24** when the cover is moved to the closed position.

Thus it will be understood by this novel construction from a unitary blank of foldable paperboard there is formed a rigid box-like structure with integral cover which has additional strength in the end walls for stacking and which is provided with integral handle means by the novel end wall construction.

I claim:

1. A reinforced shipping container formed from a unitary blank of foldable paperboard, comprising:

(a) a tray having a bottom wall with opposed pairs of front and rear side walls and end walls upstanding therefrom to form a box-like structure open at the top;

(b) said tray end walls each including:

(i) a pair of parallel, inner and outer panels spaced from each other and interconnected at their upper edges by a relatively narrow, elonagted top panel hinged at its side edges to the upper edges of said inner and outer panels; said outer panel being hinged at its lower edge to an adjacent end edge of said bottom wall, and said inner panel having interlocking engagement with said bottom wall;

(ii) said outer panel having a medial portion cut therefrom to form a pair of strips which are folded and secured against the outer surface of the inner panel and the upper surface of the bottom wall to provide a central recess in the outside of the end wall affording handle means for grasping and lifting the container under a medial portion of said top panel;

(iii) a pair of corner posts positioned in the end wall on opposite sides of said central recess to provide additional rigidity and stacking strength for the container; said corner posts being integrally formed from extensions hinged to the end edges of the tray side walls which have been folded to present multi-sided columns;

(c) a cover formed integrally with the tray for closing said structure; including:

(i) a top wall hinged at its rear edge to the upper edge of the tray rear side wall;

(ii) a front panel hinged to and depending from the forward edge of the top wall and disposed to overlie the tray front side wall when the cover is in closed position;

(iii) a pair of locking flaps hinged to the end edges of the cover front panel and insertable into openings in the front of the end walls of the tray for locking the cover in closed position.

2. A reinforced shipping container formed from a unitary blank of foldable paperboard comprising:

(a) a tray having a bottom wall with opposed pairs of front and rear side walls and end walls upstanding therefrom to form a boxlike structure open at the top;

(b) said tray end walls each including:

(i) a pair of parallel, inner and outer panels spaced from each other and interconnected at their upper edges by a relatively narrow, elongated top panel hinged at its side edges to the upper edges of said inner and outer panels; said outer panel being hinged at its lower edge to an adjacent end edge of said bottom wall, and said inner panel having interlocking engagement with said bottom wall;

(ii) said outer panel having a medial portion cut therefrom to form a pair of strips which are folded and secured against the outer surface of the inner panel and the upper surface of the bottom wall to provide a central recess in the outside of the end wall affording handle means for grasping and lifting the container under a medial portion of said top panel;

(iii) a pair of corner posts positioned in the end wall on opposite sides of said central recess to provide additional rigidity and stacking strength for the container; said corner posts being integrally formed from extensions hinged to the end edges of the tray side walls which have been folded to present multi-sided columns;

(c) a cover formed integrally with the tray for closing said structure; including:

(i) a top wall hinged at its rear edge to the upper edge of the tray rear side wall;

(ii) a front panel hinged to and depending from the forward edge of the top wall and disposed to overlie the tray front side wall when the cover is in closed position.

3. A reinforced shipping container formed from a unitary blank of foldable paperboard, comprising:

(a) a tray having a bottom wall with opposed pairs of front and rear side walls and end walls upstanding therefrom to form a box-like structure open at the top;

(b) said tray end walls each including:

(i) a pair of parallel, inner and outer panels spaced from each other and interconnected at their upper edges by a relatively narrow, elongated top panel hinged at its side edges to the upper edges of said inner and outer panels; said outer panel being hinged at its lower edge to an adjacent end edge of said bottom wall, and said inner panel having interlocking engagement with said bottom wall;

(ii) said outer panel having a medial portion cut therefrom to form a pair of strips which are folded and secured against the outer surface of the inner panel and the upper surface of the bottom wall to provide a central recess in the outside of the end wall affording handle means for grasping and lifting the container under a medial portion of said top panel;

(iii) a pair of corner posts positioned in the end wall on opposite sides of said central recess to provide additional rigidity and stacking strength for the container; said corner posts being integrally formed from extensions hinged to the end edges of the tray side walls which have been folded to present multi-sided columns;

(c) a cover formed integrally with the tray for closing said structure.

4. A reinforced shipping container formed from a unitary blank of foldable paperboard, comprising:

(a) a tray having a bottom wall with opposed pairs of front and rear side walls and end walls upstanding therefrom to form a box-like structure open at the top;

(b) said tray end walls each including:

(i) a pair of parallel, inner and outer panels spaced from each other and interconnected at their upper edges by a relatively narrow, elongated top panel hinged at its side edges to the upper edges of said inner and outer panels; said outer panel being hinged at its lower edge to an adjacent end edge of said bottom wall, and said inner panel having its lower end fixed relative to said bottom wall;

(ii) a pair of corner posts positioned in the end wall at opposite ends thereof to provide additional rigidity and stacking strength for the container; said corner posts being integrally formed from extensions hinged to the end edges of the tray front wall which have been folded to present multi-sided columns;

(iii) said outer panels having a central portion thereof cut therefrom to provide on the outside of said end wall an inwardly extending offset area between said corner posts affording handle means for grasping and lifting the container under a medial portion of said top panel;

(c) a cover formed integrally with the tray for closing said structure.

5. A reinforced shipping container formed from a unitary blank of foldable paperboard, comprising:

(a) a tray having a bottom wall with opposed pairs of

front and rear side walls and end walls upstanding therefrom to form a box-like structure open at the top;

(b) said tray end walls each including:

(i) a pair of parallel, inner and outer panels spaced from each other and interconnected at their upper edges by a relatively narrow, elongated top panel hinged at its side edges to the upper edges of said inner and outer panels; said outer panel being hinged at its lower edge to an adjacent end edge of said bottom wall, and said inner panel having its lower end fixed relative to said bottom wall;

(ii) a pair of corner posts positioned in the end wall at opposite ends thereof to provide additional rigidity and stacking strength for the container; said corner posts being integrally formed from extensions hinged to the end edges of the tray front wall which have been folded to present multi-sided columns;

(iii) said outer panel having a central portion thereof cut therefrom to provide on the outside of said end wall an inwardly extending offset area between said corner posts affording handle means for grasping and lifting the container under a medial portion of said top panel.

6. A reinforced shipping container formed from a unitary blank of foldable paperboard, comprising:

(a) a tray having a bottom wall with opposed pairs of front and rear side walls and end walls upstanding therefrom to form a box-like structure open at the top;

(b) said tray end walls each including:

(i) a pair of parallel, inner and outer panels spaced from each other and interconnected at their upper edges by a relatively narrow, elongated top panel hinged at its side edges to the upper edges of said inner and outer panels; said outer panel being hinged at its lower edge to an adjacent end edge of said bottom wall, said inner panel having its lower end fixed relative to said bottom wall;

(ii) said outer panel having a medial portion cut therefrom to form a pair of strips which are folded and secured against the outer surface of the inner panel and the upper surface of the bottom wall to provide a central recess in the outside of the end wall affording handle means for grasping and lifting the container under a medial portion of said top panel;

(iii) a pair of corner posts positioned in the end wall on opposite sides of said central recess to provide additional rigidity and stacking strength for the container; said corner posts being integrally formed from extensions hinged to the end edges of the tray side walls which have been folded to present multi-sided columns;

(c) a cover formed integrally with the tray for closing said structure.

7. A reinforced shipping container formed from a unitary blank of foldable paperboard, comprising:

(a) a tray having a bottom wall with opposed pairs of front and rear side walls and end walls upstanding therefrom to form a box-like structure open at the top;

(b) said tray end walls each including:

(i) a pair of parallel, inner and outer panels spaced from each other and interconnected at their upper edges by a relatively narrow, elongated top panel hinged at its side edges to the upper edges of said inner and outer panels; said outer panel being hinged at its lower edge to an adjacent end edge of said bottom wall, and said inner panel having its lower end fixed relative to said bottom wall;

(ii) said outer panel having a medial portion cut therefrom to form a pair of strips which are folded and secured against the outer surface of the inner panel and the upper surface of the bottom wall to provide a central recess in the outside of the end wall affording handle means for grasping and lifting the container under a medial portion of said top panel;

(iii) a pair of corner posts positioned in the end wall on opposite sides of said central recess to provide additional rigidity and stacking strength for the container; said corner posts being integrally formed from extensions hinged to the end edges of the tray side walls which have been folded to present multi-sided columns.

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