May 7, 1968 E. J. DEWHURST 3,381,878

BOX CONSTRUCTION

Filed Oct. 22, 1965 2 Sheets-Sheet 1

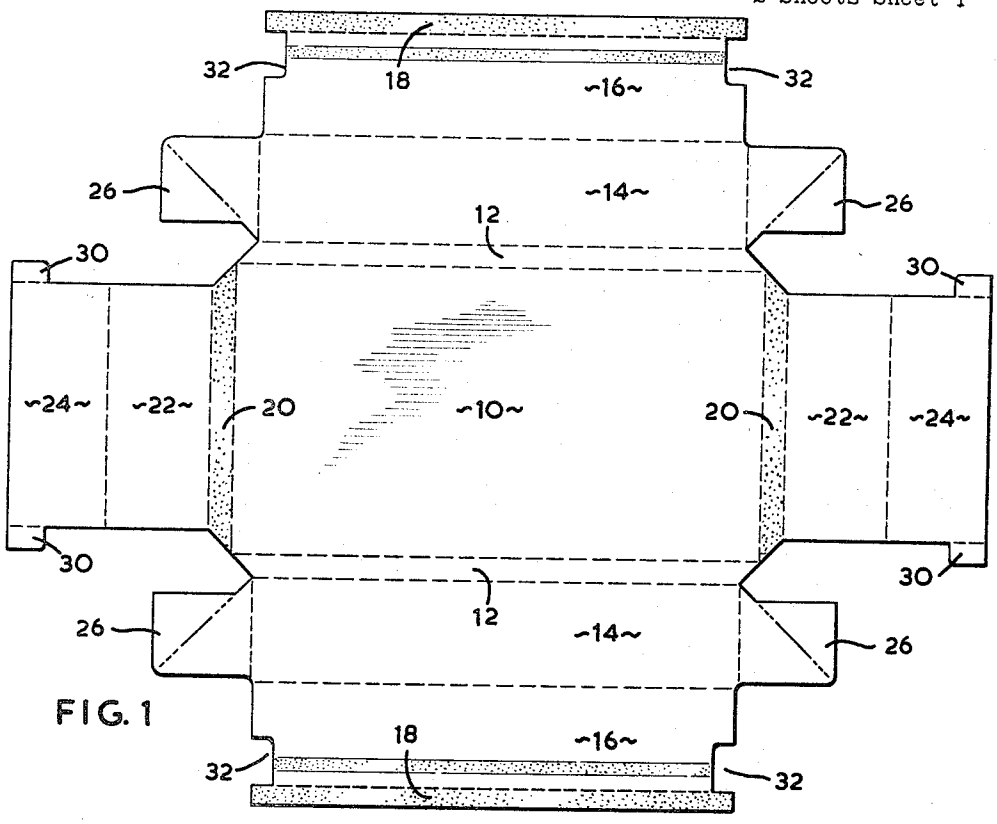


FIG. 1

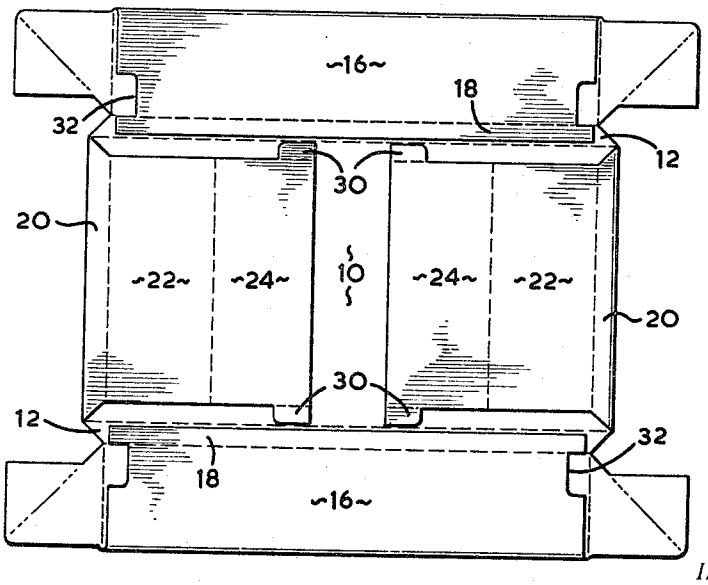


FIG. 2

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BOX CONSTRUCTION

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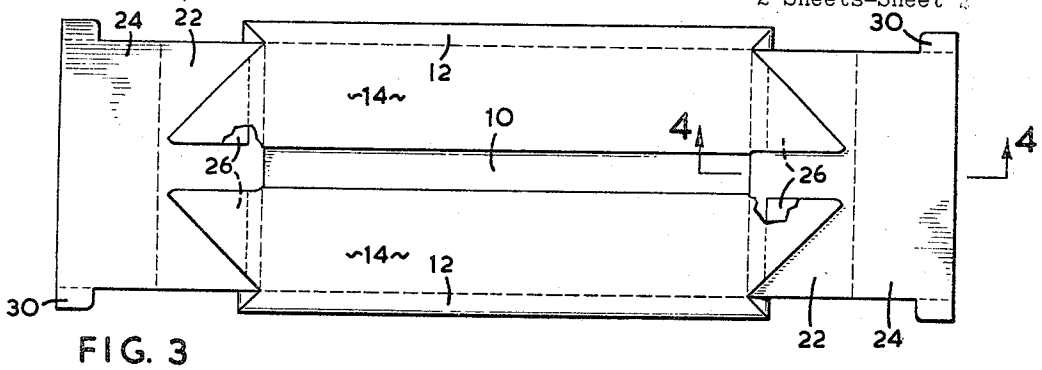


FIG. 3

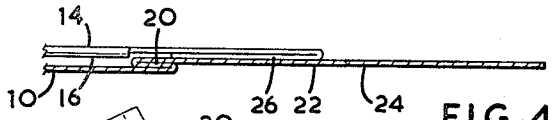


FIG. 4

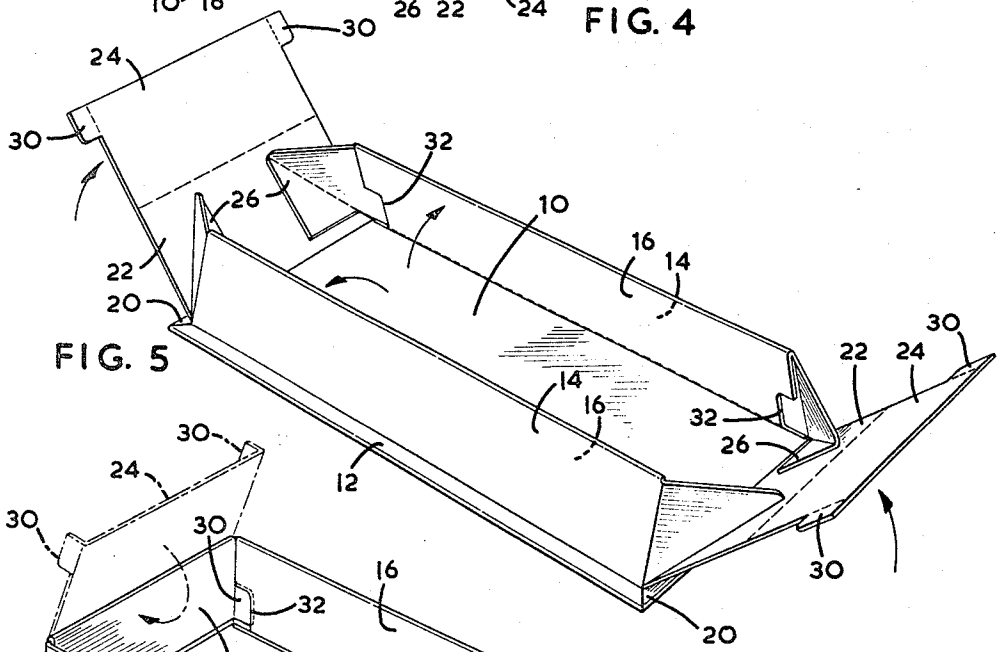


FIG. 5

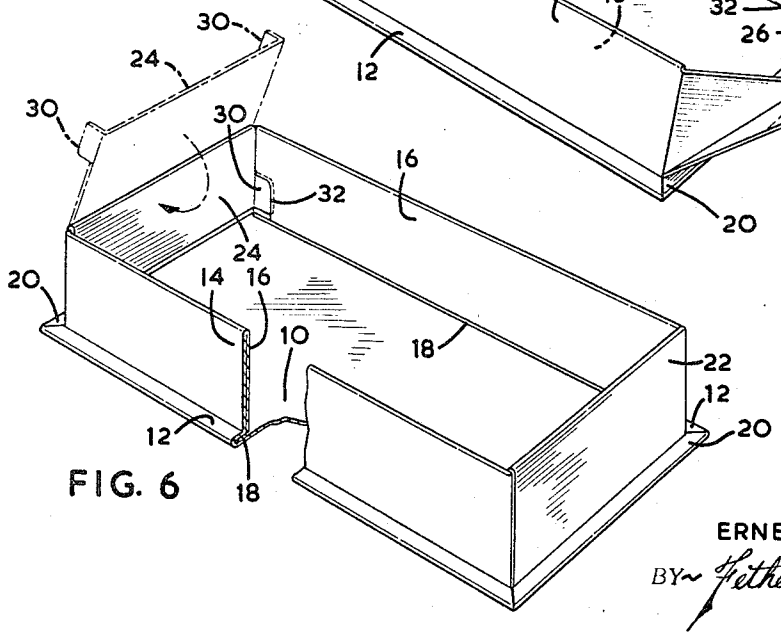


FIG. 6

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BOX CONSTRUCTION

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3 Claims. (Cl. 229—34)

ABSTRACT OF THE DISCLOSURE

The inventive feature of this invention is the provision of a third ply or middle band for the longitudinally extending side flange of a flanged box. This middle ply, according to the invention, is adhesively secured to the bottom and upper bands which also form part of the composite flange.

This invention relates to a knock-down type of container having a flanged bottom.

Flanged bottom containers, usually though not necessarily having a bottom section and a telescoping lid section, are very popular for packaging items such as candy, cosmetics, etc. This type of container is customarily manufactured and shipped empty to the user. This shipping practice is very costly because of the large bulk of the load in relation to its weight. Storage of these containers is also costly because of the large space requirement.

Prior attempts have been made to construct a flanged container of the knock-down type to reduce shipping, storage and even manufacturing costs. Experience with prior knock-down has not been good. The containers have lacked strength, especially in the long direction, and therefore defeated the purpose in adopting the flanged construction. This invention overcomes these disadvantages and provides a strong efficient knock-down flanged container with the long sought after economies to be derived from reduced shipping, storing and manufacturing costs.

It is therefore an object of the invention to provide a knock-down type of container that is strong and that is relatively inexpensive to ship, store and manufacture.

In the drawings:

FIGURE 1 illustrates a blank from which a knock-down container of this invention is made;

FIGURE 2 illustrates the first steps in folding the blank;

FIGURE 3 illustrates the final step in forming the knock-down carton section;

FIGURE 4 is a section taken on line 4—4 of FIGURE 3;

FIGURE 5 shows the knock-down container section partially set up, and

FIGURE 6 shows the container section in set-up position partly broken away.

FIGURE 6 illustrates a bottom or a top section of a telescopic style container. A complete container usually comprises two such sections which telescope together in well known fashion. Both sections are made in the same fashion. The container illustrated in FIGURE 6 is made from the paperboard blank illustrated in FIGURE 1, as will be apparent from the description which follows.

The blank of FIGURE 1 has a bottom panel **10** to the opposing side edges and opposing end edges of which is connected a hinged series of panels that combine to form the flange and sides of the container.

Each side edge of bottom **10** has a series of panels that comprises an upper side flange band **12** hinged to the bottom **10** by a fold line, an outer side wall panel **14** hinged to upper side flange band **12** by a weakened fold line, an inner side wall panel **16** hinged to outer side wall panel **14** by a fold line, and a middle side flange band **18** hinged to inner side wall panel **16** by a frangible hinged connection, as will be referred to later.

Each of the end walls of bottom **10** has a hinged series of panels that comprises an upper end flange band **20** hinged to the bottom **10** by a fold line, an outer end wall **22** hinged to band **20** by a weakened fold line, and an inner end wall **24** hinged to end wall **20** by a fold line.

An important feature of this invention is the provision of the reinforcing middle side flange bands **18**. These bands in the set-up box give rigidity to the long side flange, and by reason of their frangible hinged connection to side wall panels **16**, they do not tend to distort or warp the side walls of the set-up box. The resultant container is strong and square and results in economies by reason of its knock-down form not previously attainable in the flanged container class without sacrificing quality.

The container is normally shipped from the box maker in the knock-down form illustrated in FIGURE 3. This form is achieved by first folding the outer side wall panels **14** and **16** about their common hinge line to cause panels **16** to overlie panels **14** and side flange bands **18** to overlie side flange bands **12** and at the same time activating the adhesive thereon to secure side flange bands **18** and side flange bands **12**. Side wall panels **14** and **16** are also adhesively secured together, as illustrated in FIGURE 2.

The next step is to form the flanges on the ends of the bottom **10** by activating the adhesive on the flange bands **20** and folding them over the bottom **10** to secure them to the bottom and form a composite flange construction. An appropriate fold is illustrated in FIGURE 2. Following this, the end walls **22** and **24** are folded back about the hinge line between flange band **20** and panel **22** to the position of FIGURE 3.

The double thickness adhesively secured side panels **14** and **16** are folded inwardly as illustrated in FIGURE 3, and the middle side flange band **18** is adhesively secured to the bottom of the container to form a three-ply adhesively secured side flange.

The double thickness side walls are then articulated to the outer end wall panels **22** by glue flaps **26**, which are hinged about their weakened diagonally extending fold lines and glued to the end wall panels **22** in the position illustrated in FIGURES 3 and 4.

To set the container up, one swings the juxtaposed side wall panels outwardly to a vertical position with respect to the base, as illustrated in FIGURE 5. As this is done, the outer end wall panels are actuated to a vertical position by reason of the articulated connection between the two wall panels. The box is secured in a set-up position as the inner end walls **24** are folded over and the tabs **30** thereof lock in the notches **32**.

Special attention is directed to the middle side flange bands **18**. These bands are adhesively secured on one of their sides to the upper side flange bands **12** and on the other of their sides to the bottom panel **10** of the container (see FIGURE 6). The side flange, therefore, comprises a three-ply glued formation. It will also be recalled that the hinged connection between the middle side flange bands and the wall panels **16** is frangible. It is adapted to break as the side walls are actuated to a vertical position so that there is no stress applied to the side wall by reason of an interconnection with the flange band in the set-up carton. It is by reason of the firm gluing of the plies of the side flange and the severability of the middle ply that a good strong container of the flanged type is achieved.

Embodiments of the invention other than the one disclosed herein will be apparent to those skilled in the art, and it is not intended that the disclosure should be read in a limiting sense.

What I claim as my invention is:

1. A knock-down style container with a flanged bottom comprising a bottom having opposed side edges and opposed end edges, a flange on each of the side and end edges, said flange on said side edges having an upper and a middle band, said middle band being in juxtaposed relation and adhesively secured to said bottom and to said upper band, side walls and end walls overlying said bottom and articulated for simultaneous erection to a set-up position, said side walls comprising an inner and an outer juxtaposed panel, said middle bands being frangibly connected to said inner side wall panel and adapted to separate therefrom as said side and end walls are actuated from a knocked-down to a set-up position, and means for locking said walls in a set-up position.

2. A knock-down style container with a flanged bottom comprising a bottom panel with opposed side edges and opposed end edges, a hinged series of panels extending from each of said side edges comprising an upper side flange band, an outer side wall panel, an inner side wall panel and a middle side flange band, said middle side flange band for each of said side edges being juxtaposed and adhesively secured to said bottom panel and to its said respective upper side flange band, said inner side wall panel for each of said side edges being juxtaposed to its said respective outer side wall panel and to said bottom, a hinged series of panels extending from each of said end edges comprising an upper end flange band, an outer end wall panel and an inner end wall panel, said upper end flange band being juxtaposed and adhesively secured to said bottom, means at each end of the container articulating at least one of said side wall panels to at least one of said end wall panels adapted upon actuation to simultaneously erect said articulated side wall panels and end wall panels to a set-up position with respect to said bottom, and means for interlocking said side wall panels in a set-up position with said outer end wall panel in juxtaposition to said inner end wall panel, said middle side flange band at each side of said bottom being frangibly hinged to its respective inner side wall panel as aforesaid to separate therefrom as its respective side wall is erected to a set-up position.

3. A paperboard blank for forming a knock-down style container with a flanged bottom comprising a bottom panel having opposed side edges and opposed end edges; a hinged series of panels hinged to each of said side edges comprising an upper side flange band, an outer side wall panel, an inner side wall panel and a middle side flange band; said outer side wall panel and said inner side wall panel having a similar width and said upper side flange band and said middle side flange band having a similar width whereby when inner side wall panel is hinged with respect to said outer side wall panel, said inner side wall panel can be caused to overlay said outer side wall panel and said middle side flange band can be caused to overlay said upper side flange band; a hinged series of panels hinged to each of said end edges comprising an upper end flange band, an outer end wall panel and an inner end wall panel; means for articulating at least one of said side wall panels to at least one of said end wall panels at each end of said bottom when said flange bands are in flange-forming disposition to erect side wall and end wall panels to a set-up position, and means for retaining said walls in set-up position, said middle side flange bands being frangibly hinged to said inner side wall panels as aforesaid to separate therefrom as said walls are actuated to a set-up position.

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