Oct. 18, 1949. R. H. VAN SAUN 2,484,975

SHIPPING CONTAINER

Filed Nov. 22, 1948

Fig. 1

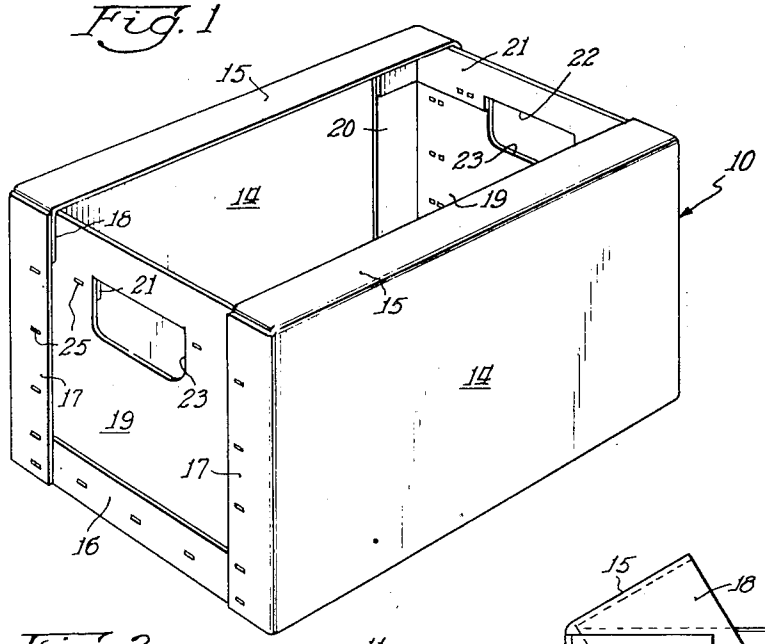


Fig. 2

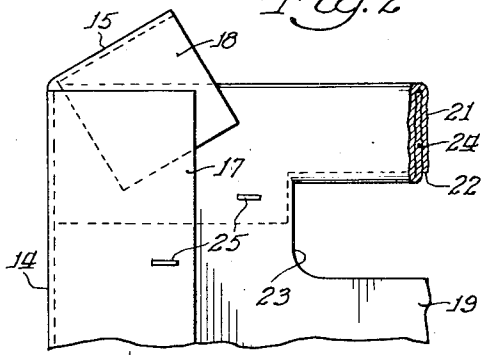


Fig. 3

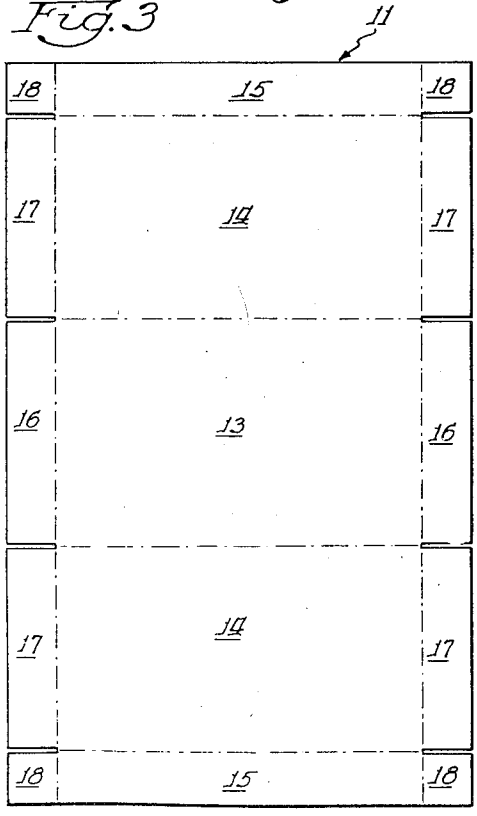
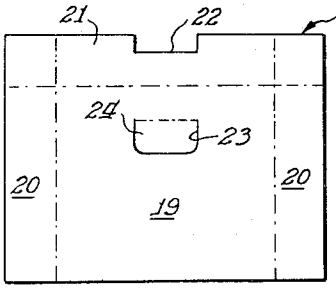


Fig. 4



Inventor:
Raymond H. Van Saun
By: E. A. Wagonseller
Atty.

Patented Oct. 18, 1949

2,484,975

UNITED STATES PATENT OFFICE

2,484,975

SHIPPING CONTAINER

Raymond H. Van Saun, Richmond, Calif., assignor to California Container Corporation, Oakland, Calif., a corporation of Delaware

Application November 22, 1948, Serial No. 61,439

1 Claim. (Cl. 229—23)

1

The present invention relates to a paperboard container, and more particularly to a container of the type commonly used for the packing and shipment of various commodities and products, although the invention is not limited to shipping containers. Containers according to this invention are formed of three parts, provided with means for so strengthening the essential portions of the containers that relatively light material may be used throughout. The end and top edges particularly of the containers are reinforced. The common practice in the art is to employ material heavy enough to give the required strength with conventional construction, resulting in waste of material and increased expense because some portions of the container must then be heavier and stronger than necessary.

It is an object of the present invention to provide a paperboard container which is so reinforced at essential portions that it may be made of relatively light material without sacrifice of strength. Another object is the provision of a paperboard container so reinforced as to require use of less material than would otherwise be needed to give comparable strength. A further object of the invention is the provision of a paperboard container in which the principle of the angle member is utilized to increase strength while conserving material. Still another object is to provide a container with hand holes so reinforced as to substantially eliminate material failures at these troublesome weak points. A still further object is the provision of a container with top flaps, in which means are provided for frictionally retaining the flaps in closing position. It is also an object of the invention to provide a paperboard container made of a plurality of parts which may be readily assembled and in which the reinforcement of desired portions may be accomplished simultaneously with the assembling. An additional object is the provision of a group of blanks which may be readily set up and secured together to form a paperboard container realizing the objects stated above.

Other and further objects and advantages of the present invention will be apparent to those skilled in the art from the following description and the appended drawing, in which:

Fig. 1 is a perspective view of a container representing one embodiment of this invention;

Fig. 2 is an enlarged fragmentary view of a portion of Fig. 1, with parts broken away;

Fig. 3 is a plan of a blank for one part of the container of Fig. 1; and

Fig. 4 is a plan of a blank for another part of the container of Fig. 1.

2

The invention is illustrated and described as embodied in a container 10, Fig. 1, which is made of three parts—a main body part formed from the blank 11 of Fig. 3, and two end parts each formed from a blank 12, shown in Fig. 4. The body part comprises a bottom 13, a pair of side walls 14 extending from opposed edges of the bottom, and a pair of top flaps 15, one extending along the upper edge of each side wall 14, or in other words the edge opposite that connected to the bottom. Bottom end flaps 16 extend from the end edges of the bottom 13, and side end flaps 17 from the ends of the side walls 14, while end portions or flaps 18 are hinged on the ends of the top flaps 15. Each end part comprises an end wall 19 with side flaps 20 hinged on opposite side edges thereof. Along the top edge of the end wall, and preferably also along the top edges of the side flaps 20, there extends a reinforcing flap 21 which in the formation of the container is folded down to strengthen the upper portion of the end wall. The free edge of the flap 21 has a portion cut out to povide an indentation 22 therein so that the flap 21 may partially surround a hand hole 23 formed in the end wall 19. The hole is provided by partially cutting a hand hole flap 24 from the end wall. The flap 24 is left connected to the wall along the top edge of the hand hole 23, and is folded upwardly to extend between the end wall 19 and the reinforcing flap 21. As clearly evident from Fig. 2, a triple thickness of material is provided by this construction above the hand hole, where the greatest strains are imposed in lifting of the container. In addition, the flap 21 reinforces the end wall not only above the hand hole but below the top edge thereof adjacent the ends of the hole, by reason of the indentation 22, as clearly shown in Figs. 1 and 2. The end wall is most apt to tear at the upper corner portions of the hand hole, where the greatest strains occur in lifting the container. Because it extends below the top edge of the hole 23 and is there secured to the end wall 19, the reinforcing flap 21 relieves these stresses, distributing them over a relatively large zone about the hand hole. The risk of failure of the material adjacent the hole 23 is thus practically eliminated.

In making the container, a pair of the blanks 12 is prepared by folding each so that the flap 24 lies between the end wall 19 and the flap 21, the parts being secured as by the staples 25, and the connections of the side flaps 20 with the end wall are "broken." The blank 11 is folded on the lines of connection between the several panels so that the side walls 14 and top flaps 15 are perpendicular

to the bottom 13 and the various end flaps 16, 17, and 18 are at right angles to the panels from which they extend. The flaps 16 and 17 at one end are then secured to an end wall 19 as by staples 25, the flaps 20 being inside the container 10 and lying closely against the walls 14 because of the inherent resilience of the paperboard. The other end of the container is similarly assembled and secured. It will of course be understood that the parts are properly dimensioned for a good snug fit. The securement of the end wall parts to each other may be made at the time the end walls and end flaps are secured together. If desired, of course, the construction may be reversed, with the flaps 20 on the outside of the container and the flaps 17 inside, with the flaps 16 either out or in. Securing means other than the staples 25 may be employed.

The container 10 may now be filled and the top flaps 15 swung down over the top. The flaps 15 are of substantially the same length as the side walls 14, and while shown as of less than half the width of the end walls, may be of such width as to meet or overlap, if desired. In the embodiment illustrated, the flaps are narrow to provide for desired ventilation of the intended contents. The flaps 15 when folded down over the top of the container serve of course as means to retain the contents therein, but they also provide ledges which facilitate stacking of the containers one upon another. In addition, the top flaps stiffen the top edges of the side walls and add strength to the container top on the principle of the angle member, and hold the container against spreading longitudinally, when their end portions 18 are disposed as explained hereinafter.

It will be noted from Figs. 1 and 2 that the uppermost staple 25 securing each side wall end flap 17 to the adjacent end wall 19 is spaced from the tops of the end flap and end wall to leave appreciable unsecured areas between these parts at the upper corners of the end wall. These unsecured areas serve as pockets for receiving in frictional engagement therein the end portions 18 of the top flaps 15 when the latter are swung down over the top of the container 10. Since the flaps 17 lie closely against the walls 19, the pockets must be somewhat greater in extent than the end portions 18 to facilitate insertion and accommodation thereof, as is obvious. Otherwise, however, whether staples or other securing means are employed, the zones of securement extend as closely as practicable towards the tops of the end walls and end flaps, so that the unsecured portions will be held against each other as tightly as possible. This provides for the most secure retention possible of the end portions 18 in the pockets, and consequently of the top flaps 15 in their positions bridging the top of the container and holding the end walls against movement away from each other.

The construction of the ends of the container provides, in effect, a strong frame around each end wall 19, the flaps 16, 17, and 21 providing a double thickness of material at the edges with a triple thickness at the corners. The side flaps 20 give a double thickness at the ends of the side walls 14 and abut the end wall reinforcements at right angles to buttress the container ends. Here again the angle member principle adds strength while saving material. Besides strengthening the end walls against shocks, the arrangement of the flaps 17 and 20 gives the container great stacking strength, and also resists "weaving." The strengthening effect of the top flaps has already been pointed out, as well as the advantage of the hand hole reinforcement. The increased container strength resulting from this invention permits use of lighter, cheaper material than otherwise necessary for containers of a given strength, or alternatively gives increased strength to containers of a given material.

Of course, the container of this invention is not suitable to all products, for example those whose packing would be interfered with by the flaps inside the container. It does have a very wide field of use, however, and in this field is highly advantageous, as explained above.

It will be clear that many changes and modifications may be made in the disclosed embodiment without departing from the principles of the invention, and it is, therefore, not intended that the invention be limited otherwise than required by the spirit and scope of the appended claim.

What is claimed is:

A substantially open topped paperboard container comprising a bottom, two pairs of opposed side walls, a pair of narrow top flaps each extending the length of and hinged on one side wall of a first pair of opposed side walls and being swingable to close the top of said container along two edges thereof only, leaving the major portion open, end flap portions on said top flaps of substantially the same width as said top flaps and extending from said top flaps, said end flap portions being foldable to extend substantially perpendicular thereto, a narrow reinforcing strip of material overlying and secured to each vertical marginal portion of the second pair of opposed side walls adjacent said first pair of side walls, each said reinforcing strip being unsecured adjacent the top of said second pair of side walls over an area only slightly greater than the top flap end portion adjacent thereto to provide a pocket for frictional reception of said end portion upon movement of the top flap to said partial closing position for holding said top flap in said position, the top flaps including the end flap portions being of approximately the same width as the marginal reinforcing strips whereby each end portion is adapted to be substantially housed within its respective pocket.

RAYMOND H. VAN SAUN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,375,127	Bliss	Apr. 19, 1921
2,179,731	Saylor	Nov. 14, 1939
2,324,905	Chambliss	July 20, 1943