

May 25, 1965

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3,185,382

EASY OPENING CONTAINER

Filed Aug. 29, 1963

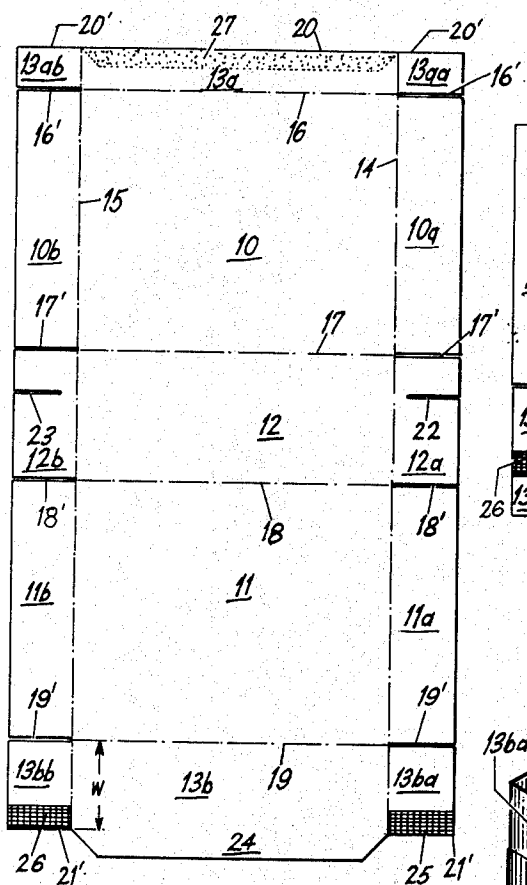


Fig. 1

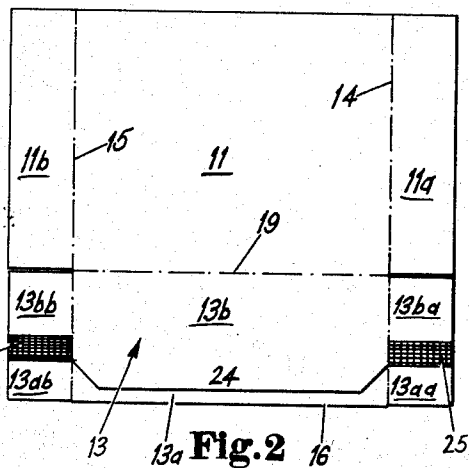


Fig. 2

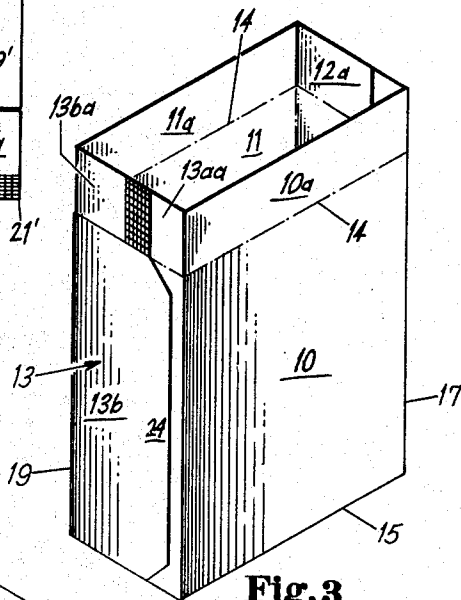


Fig. 3

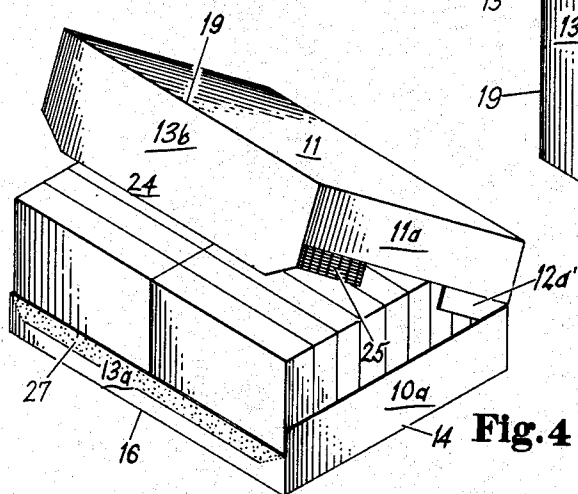


Fig. 4

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3,185,382

EASY OPENING CONTAINER

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Filed Aug. 29, 1963, Ser. No. 305,332

7 Claims. (Cl. 229—51)

This invention relates to an easy opening container and more particularly to an easy opening container adapted to facilitate price marking of the packages contained therein and to permit the formation of a tray structure from the container without danger of package damage. As used herein, the word "container" denotes the receptacle within which a multiplicity of individually packaged units of product may be contained. The individual packages will be referred to as "carton," "package" or the like.

One of the current trends in modern retail outlets for consumer goods is the application of a price on each of the packages displayed for sale in the store. The reason for this trend is that the size of such outlets has increased substantially since the day of the corner grocer and the variety of products and number of brands handled have caused confusion in price determination by cashiers at "check-out" counters. The most usual method by which price marking is accomplished by a stock clerk is to rip open the top closure flaps of the container and apply the price marking to the top of each of the cartons of product contained therein while the cartons are in the closely spaced relationship caused by confinement in the container. Occasionally, it has been found necessary or more expedient to cut a portion of the container around its periphery so as to remove the closure intact, possibly along with a continuous attached strip of the side and end panels contiguous thereto. This is convenient and relatively safe when the contents of the container are packaged in metal cans, etc., but presents a serious problem of product damage when the packages are constructed of materials such as cardboard, etc.

Another of the modern trends of retail outlets for consumer goods has been to attempt to open the containers of the product which is intended to be placed on the store shelves in such a manner as to result in the formation of one or more display trays. In this way one or more layers of the packaged product may be handled as a unit, thereby reducing the time necessary for stocking the shelves and facilitating the taking of periodic inventories of the goods maintained on display in the outlet, as frequently required by accounting systems.

Many devices have been addressed to the satisfaction of either or both of the above trends, but to date none has been reasonably successful in solving the problems in an economical and facile manner. For example, the use of a tear string or tape provides a means by which an easily opened tray-forming container may be manufactured, but such involves additional material costs and requires manufacturing operations usually not associated with the production of containers from materials such as corrugated board. Moreover, many of such devices are designed in such a manner that a stock clerk is not able to readily understand the procedure to be followed in their utilization and sometimes is not even aware of their incorporation in the container.

It is an object of the present invention to obviate the above difficulties.

Another object of the present invention is to provide an economical, easily opened, tray-forming container constructed entirely from materials normally used in manufacturing containers, involving no new manufacturing operations and possessing a simplicity of design such

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that its function will be readily understood by persons in the retail consumer industry.

Briefly stated, in accordance with one aspect of this invention, a container is provided which has in combination two pairs of marginally connected and alternating end walls and side walls, and a bottom and top closure. Each of the closures comprises end flaps hinged to and extending from the end walls and inwardly folded toward each other along with equally sized side flaps extending from the side walls and inwardly folded toward one another in overlapping relationship with the end flaps and adhesively united thereto. The ends of the container blank lie within the confines of one of the end walls thereby dividing the end wall and each of the end flaps connected therewith into two parts. The end wall portion of one end of the blank has a full width tab extending therefrom adapted to be removably secured to the other end of the blank. In its erected condition the balance of the end edges of the blank are butted one against the other. The line of the abutting edges of the ends of the blank is off-center with respect to the center line of the end wall so that one end wall portion is wider than the other. The end flaps extending from the other of the end walls are slotted along lines perpendicular to the flap hinge lines, the slots extending from the outer flap edge to a point short of the respective flap hinge line and lying in substantially the same plane as the abutting edges of the blank located in the oppositely disposed end flaps.

Although the specification concludes with claims particularly pointing out and distinctly claiming the subject matter which is regarded as the present invention, it is believed the invention will be better understood from the following description taken in connection with the accompanying drawing which:

FIGURE 1 is a plan view of the outer surface of the container blank, as cut, scored, printed and provided with glue for the formation of the flat container tube;

FIGURE 2 is a plan view of the flat container tube prior to squaring-up of the container;

FIGURE 3 is a perspective view of the erected and squared container in condition to receive the product to be packaged therein; and

FIGURE 4 is a perspective view of the container in the process of being opened.

Referring to FIGURE 1 of the drawings there is shown a plan view of a container blank of one embodiment of the present invention. The blank consists of side walls 10 and 11, with an end wall 12 located therebetween. Another end wall 13 (see FIGURES 2 and 3) is constructed in two parts, one lying at each of the oppositely disposed ends of the container blank. The end wall portion 13a is marginally interconnected with the side wall 10 and end portion 13b extends outwardly from side wall 11.

The side walls and end walls are defined by the pattern of scoring shown. Score lines 14 and 15 define, respectively, the top and bottom limits of each of the panels or walls comprising the container, providing the fold line intermediate the above-mentioned side and end walls and the outwardly extending side flaps and end flaps described hereinafter. Score lines 16, 17, 18 and 19 intervene the respective side and end walls and constitute the vertical corners of the container when it is erected for packing.

A glue flap or tab 24 is provided for the formation of the manufacturer's joint. The manufacturer's joint is the seam formed by the container manufacturer and serves to connect the ends of the container blank, forming the container sleeve from a flat blank. The glue tab 24 extends from the distal edge of the end wall portion 13b and may, as shown, be substantially trapezoidal in

configuration. The shape, of course, is not critical and consequently any suitable configuration may be used so long as the flap 24 is made as an integral extension from the adjacent end wall portion along substantially the full length thereof.

Side flaps 10a, 10b, 11a and 11b extend outwardly from the top and bottom of the container blank, each being integrally attached to a correspondingly numbered side wall. End flaps 13aa, 13ab, 12a, 12b, 13ba and 13bb are marginally interconnected with correspondingly numbered end walls or end wall portions along substantially the full width thereof, extending outwardly therefrom from the top and bottom of the blank. As shown, the juxtaposed end and side flaps are separated by cuts 16', 17', 18' and 19' located at opposite sides of each of score lines 16, 17, 18 and 19 respectively. The end and side flaps are each substantially rectangular and approximately identical in dimension from score line to distal end, and as is usual in the case of containers, this dimension is equal to one half of the width of the end walls 12 and 13. So constructed, the side flaps of the container cover substantially the entirety of the top and bottom closures in use—an aid in eliminating the possibility of dirt entering the sealed container.

The side walls 10 and 11 are substantially identical in dimension as are the end wall portions 12 and 13, so as to form a rectangular receptacle in use. In this connection, the width of the end wall portion 13a intermediate score line 16 and the end 20 of the blank plus the width W (as shown in FIGURE 1) of end wall portion 13b intervening score line 19 and the glue flap 24 are such that when placed side-by-side they present an effective width equal to that of the end wall 12 between score lines 17 and 18. It should be noted, however, that the width of end wall portion 13a and end wall portion 13b are not equal. In connection with a container approximately 13" long, 6 $\frac{7}{8}$ " wide, and 13 $\frac{1}{4}$ " deep, it has been found that the width of the larger of the two end wall portions should exceed the width of the other by an amount of at least about 1", thus making the seam fall at least about $\frac{1}{2}$ " from the center line of end panel 13. The purpose of this construction will be explained more fully hereinafter.

End flaps 12a and 12b are slotted as shown at 22 and 23. The slots 22 and 23 are out of alignment with the center line of the end flaps of the end wall 12, i.e., are located off-center on the end flaps 12a and 12b. While these may be placed off-center in any direction, it is necessary that the eccentricity be governed according to the width and location of the end wall portions 13a and 13b. The width of the sections of the end flaps 12a and 12b between the slots 22 and 23 and the cuts 17' should be approximately the same as the width of end flaps 13aa and 13ab of the end wall portion 13a. Similarly, the width of the sections of end flaps 12a and 12b between the slots 22 and 23 and the cuts 18' should be approximately the same as the width of the end flaps 13ba and 13bb of the end wall portion 13b. From the above it will be seen that the section of the slotted end flap located adjacent to the side wall from which extends the end wall portion of greater width will be the section of the slotted end flap having the greater width. Each of the slots 22 and 23 extends from the outer edge of the flap in which it is made to a point located outwardly from the score lines 14 and 15, respectively, by an amount equal to about 1". This spacing from the score lines prevents the container from tending to form a fold between the ends of the cuts 22 and 23 when the carton is squared for use. The tendency to form an additional fold in the container would be extremely undesirable in utilizing the receptacle.

The end flaps 13ba and 13bb extending outwardly from the end wall portion 13b are each provided with an area of printing 25 and 26, the ink used being a type which prevents the firm adhesion of glue to the board

underlying it. Alternatively, areas 25 and 26 could be coated with a suitable varnish to prevent firm adhesion in the areas 25 and 26. The procedures for so treating selective areas of packaging materials are well known and will therefore not be described in detail herein. While the length of the areas 25 and 26 are substantially equal to the full length of the respective end flaps 13ba and 13bb, the width is regulated by the difference in the widths of the end wall portions 13a and 13b. The printing is done along the inner edges 21' of the end flaps 13ba and 13bb, which edges also constitute parts of the cut forming the end of the blank. The width of each of the areas 25 and 26 from the edges 21' is equal to the distance by which the inner edge 21' is removed from the center line of end wall 13 after the manufacturer's joint is made, thereby resulting in an unprinted width of the end flap on which it is placed which measures one-half of the width of end wall 12 or 13. From the above it will be seen that the printing must necessarily be placed on the end flaps extending from the end panel portion of greater width. In the illustrated embodiment, the wider end flap portion is 13b and for this reason the printing is located as described hereinafter on end flaps 13ba and 13bb. If the larger of the two end wall portions had been 13a, then the printing of areas 25 and 26 would have been done alongside the oppositely disposed edges 20' of the end flaps 13aa and 13ab.

After the blank is cut, scored and printed as described above, glue is applied to the area 27 of end wall portion 13a, the width of the glue area being at least about $\frac{1}{2}$ " less than the width of the glue flap 24. The type of glue which should be used is preferably that which results in the type of bond which may be termed a "soft seal." A soft seal is a joint which is strong in shear but low in tensile strength or "peel." Many soft seal adhesives are presently being marketed and it has been found that polyvinyl acetate resins are suitable, e.g., Swift & Co. soft seal resin #2581 or Arabol Adhesive Co. adhesive number E1534B. Alternatively, the adhesion of the glue flap 24 may be accomplished by spot gluing using any suitable container board adhesive. In either case, the disparity between the width of the glue area 27, and that of the glue flap 24 will result in the distal end of the glue flap on the formed container sleeve being free and easily grasped for an opening operation to be described. If desired, other means of obtaining removable securement of the manufacturer's joint could be used, one such feasible arrangement being by means of staples. As stated above, however, the use of a soft seal adhesive is preferred.

Then the end wall portion 13a and the attached end flaps 13aa and 13ab are folded inwardly 180° along the score line 16. Next, the side wall 10, end wall 12, the inwardly folded end wall portion 13a and the associated end and side flaps are folded inwardly 180° along the score line 18. This places the glue flap 24 in a position overlying the adhesive area 27 and the edges 20' and 21' abutting. Pressure upon this portion of the blank causes the proximal areas of the glue flap to adhere to the area 27 of the end wall portion 13a, thus completing the manufacturer's joint on the container.

To use the container, the flattened sleeve shown in FIGURE 2 is squared and the bottom closure flaps 13ab, 13bb, 12b, 10b and 11b inwardly folded and glued. In accomplishing this, the juxtaposed end flaps 13bb and 13ab and the oppositely disposed end flap 12b are folded inwardly and an adhesive applied thereto or to the side flaps 10b or 11b, as the case may be. Then the side flaps 10b and 11b are folded into overlapping relationship with the aforementioned end flaps and sufficient pressure applied to adhesively unite them.

Next the packages to be placed in the container are inserted through the open top closure of the container with the uppermost ends thereof in contact with the interior of sidewall 11. Following the packing operation, the top closure flaps 13aa, 13ba, 12a, 10a, and 11a are

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inwardly folded and adhesively united in the same manner as described above in connection with the bottom closure. Alternatively, of course, the flattened sleeve may be squared, the package inserted and the top and bottom closure flaps sealed subsequently.

Because of the comparative widths of the end flaps extending from end wall portions 13a and 13b and the related location of the slots 22 and 23, each of the side flaps extending from side wall 10 will, upon sealing of the closures, contact all of the individual end flaps included in the respective closures. Thus, side flap 10a will cover parts of end flaps 13aa, 13ba, and 12a. Moreover, the side flap 10a will extend across slot 22 so as to permit attachment of the overlaying side flap to both sections of end flap 12a. Similarly, side flap 10b will extend across slot 23 and be attached to both sections of end flap 12b. This arrangement is very important since it will increase the torsional strength of the container substantially as compared with the torsional strength of a similar structure wherein the end wall portions are identically sized and the slots centrally located on the end wall flaps. It will also be noted that because of the relationships described above, the printed areas 25 and 26 will always underlie the part of the side flaps extending across the abutting ends of the end flaps 13ba and 13aa of the top closure and 13bb and 13ab of the bottom closure, and will be contiguous to the glue tab 24. Such an arrangement facilitates easy separation of the container in the manner to be described.

When the container has been shipped to the retail outlet, opening may be accomplished in the following manner. The container is placed flat with the sidewall 10 in the lowermost position. This orientates the container so that the glue flap 24 is adapted to be lifted in order to break the manufacturer's joint. The outwardly extending unglued distal end portion of the glue flap 24 is grasped and pulled firmly in an upward direction to thereby sever the soft seal bond along the area 27. Due to the fact that the areas 25 and 26 of end flaps 13ba and 13bb are printed, the top and bottom closure seals along those areas are readily broken, permitting the hinge opening action shown in FIGURE 4 to commence. As the pulling of the flap 24 continues, the overlapped parts of the wider sections of end flaps 12a and 12b (one of which is shown as 12a' in FIGURE 4) are torn loose of their adhesive attachment with the side flaps 10a and 10b and the flaps 12a and 12b are ripped along a line interconnecting the inner end of the slots 22 and 23 with the scores 14 and 15, respectively. Thus, in the opened condition shown in FIGURE 4, the only connection existing between the upwardly raised half of the container and the tray comprising the bottom half thereof, is a hinge line formed across end wall 12 in line with the slots 22 and 23. If it is desired to employ the tray in the display of products in the retail establishment, the hinge line mentioned above may be cut so as to separate the tray from the upper portion of the container. Price marking of the individual cartons may be accomplished while the product is maintained in its packed condition within the confines of the tray portion, whether the device is ultimately to serve as a tray or not.

Many modifications of the above invention may be used and it is not intended to limit it to the particular embodiment shown and described. The terms used in describing the invention are used in their descriptive sense and not as terms of limitation, it being intended that all equivalents thereof be included in the scope of the appended claims.

What is claimed is:

1. An easy opening tray-forming container having in combination:

(A) two pairs of marginally connected and alternating end walls and side walls, and bottom and top closures;

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(B) each of said closures comprising substantially rectangular and full width end flaps hinged to and extending from the said end walls, respectively, inwardly folded toward one another so as to lie in the same plane, and equally sized rectangular side flaps hinged to and extending from the side walls, respectively, inwardly folded in overlapping relationship with said end flaps and adhesively united therewith, each of said flaps having a dimension from hinge line to distal end which approximates one-half of the width of the said end walls, said side flaps in the inwardly folded condition being coplanar and the distal ends thereof contiguous;

(C) the ends of the blank forming said container lying within the confines of one of said end walls and thereby dividing said one end wall into two portions, each of which has a pair of oppositely disposed end flaps connected therewith, the combined widths of said end wall portions being approximately equal to that of the other said end wall, the end wall portion at one end of the blank having a full length flap extending therefrom which overlies and is removably secured to the other end of the blank, the balance of the end edges of said blank being butted against one another;

(D) the line of the abutting edges of said ends of the blank being located in a position removed from the center line of the said one end wall so that one end wall portion is wider than the other;

(E) the end flaps extending from the other of said end walls being slotted along lines perpendicular to the flap hinge lines, each of said slots extending from the outer flap edge to a point short of the respective flap hinge line, said slots both lying in substantially the same plane as the abutting end edges of said blank located in the oppositely disposed end flaps when the container is in use.

2. The container of claim 1 in which the removable securement of the flap is made by means of a soft seal adhesive.

3. The container of claim 1 in which the end flaps attached to the wider of the said end wall portions are provided with areas treated to resist firm adhesion thereto, said areas extending substantially full length along the edges thereof which abut the end flaps attached to the narrower of said end wall portions and having a width at least as great as the amount by which the abutting edges of said ends of the blank are removed from the center line of said one end wall.

4. The container of claim 3 in which the abutting edges of said ends of the blanks are removed from the center line of said one end wall by at least about one-half inch.

5. An easy opening tray-forming container having in combination:

(A) two pairs of marginally connected and alternating end walls and side walls, and bottom and top closures;

(B) each of said closures comprising substantially rectangular and full width end flaps hinged to and extending from the said end walls, respectively, inwardly folded toward one another so as to lie in the same plane, and equally sized rectangular side flaps hinged to and extending from the said side walls respectively, inwardly folded in overlapping relationship with said end flaps and adhesively united therewith, each of said side flaps having a dimension from hinge line to distal end which approximates one-half of the width of the said end walls, said side flaps in the inwardly folded condition being coplanar and the distal ends thereof contiguous;

(C) the ends of the blank forming said container lying within the confines of one of said end walls and thereby dividing said one end wall into two portions each having a pair of oppositely disposed end flaps connected therewith, the combined widths of

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said end wall portions being approximately equal to that of the other said end wall, the end wall portion at one end of the blank having a full length glue flap extending therefrom which overlies and is removably secured to the other end of the blank, the balance of the end edges of said blank being butted against one another;

(D) the line of the abutting edges of said ends of the blank being located in a position removed from the center line of the said one end wall by at least about $\frac{1}{2}$ " so that one end wall portion is at least about 1" wider than the other;

(E) the end flaps extending from the other of said end walls being slotted along lines perpendicular to the flap hinge lines, each of said slots extending from the outer flap edge to a point short of the respective flap hinge line, said slots both lying in substantially the same plane as the abutting end edges of said blank located in the oppositely disposed end flaps when the container is in use.

6. The container of claim 5 in which the end flaps attached to the wider of the said end wall portions are provided with areas treated to resist firm adhesion thereto, said areas extending substantially full length along the inner edges of said end flaps and having a width at least as great as the amount by which the abutting edges of said ends of the blank are removed from the center line of said one wall.

7. An easy opening tray-forming container having in combination:

(A) two pairs of marginally connected and alternating end walls and side walls, and bottom and top closures;

(B) each of said closures comprising substantially rectangular and full width end flaps hinged to and extending from the said end walls, respectively, inwardly folded toward one another so as to lie in the same plane, and equally sized rectangular side flaps

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hinged to and extending from the side walls, respectively, inwardly folded in overlapping relationship with said end flaps and adhesively united therewith, each of said side flaps having a dimension from hinge line to distal end which approximates one-half of the width of the said end walls, said side flaps in the inwardly folded condition being coplanar and the distal ends thereof contiguous;

(C) the ends of the blanks forming said container lying within the confines of one of said end walls and thereby dividing said one end wall into two portions, each of which has a pair of oppositely disposed end flaps connected therewith, the combined widths of said end wall portions being approximately equal to that of the other said end wall;

(D) means securing the two said end wall portions in juxtaposed position with the distal ends thereof adjacent one another to thereby form said one end wall;

(E) the adjacent edges of said end wall portions being located in a position removed from the center line of the said one end wall so that one end wall portion is wider than the other;

(F) the end flaps extending from the other of said end walls each being slotted along a line perpendicular to the flap hinge lines, each of said slots extending from the outer flap edge to a point short of the respective flap hinge line, said slots each lying in substantially the same plane as the adjacent edges of said end wall portions when the container is in use.

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