STRUCTURE FOR A TOP-LOADING END-OPENING CONTAINER

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Filed May 29, 1967, Ser. No. 642,036
Int. Cl. B65d 5/02, 17/00, 5/54, 5/70
U.S. Cl. 229—37

ABSTRACT OF THE DISCLOSURE

A structure for use in assembly of a top-loading end-opening container. It is constructed from a single piece blank which is folded to produce abutment of a pair of partial end panels and releasably secured in the area of end panel abutment. In use the structure is shipped flat to a distributor, erected, top-loaded, closed, shipped erect to a consumer, end-opened, and emptied. One species provides an end reclosing feature.

Background of the invention

My invention relates to shipping containers suitable for top-loading and end-opening. It relates more specifically to an intermediate structure intended for production by a carton manufacturer and shipment in a folded flat condition to a distributor of packaged goods. Additionally, my invention relates to improved packaging methods and to reclosure features for end-opening containers. Modern high speed packaging operations have created an increasing demand for intermediate structures adapted to be set up into inexpensive yet versatile containers. Among the versatility characteristics which are in great demand are plural side access and easy opening. Furthermore, in the case of shipping containers the design must be of a simplicity which is compatible with rugged construction.

Prior art structures are generally either simple and rugged or else versatile with complex features appropriate primarily for light weight construction. Heretofore there has not been an inexpensive practical structure adapted for erection into a container meeting the diverse requirements associated with shipping, easy opening, and full wall access at two sides.

Summary of the invention

I have found that the foregoing requirements can be met by constructing a blank of five central panels with associated top and bottom flaps and folding this blank so as to produce abutment of two partial end panels. A joint is made in the area of partial end panel abutment but limited to this area so as to permit independent movement of the depending tucking flaps at the tops and bottoms of the two partial end panels. When this structure is set up into a container, the joined partial end panels cooperate to form a single wall. The container is loaded at the top and then the loading closure is sealed. Afterwards end wall access is available by breaking the end wall joint and swinging open the partial end panels.

My invention is useful in any container application where plural wall access is desired. However, it is particularly useful to the distributor who packages articles having differing preferences as to directions of loading and unloading. For instance sheet material such as paper must be loaded flat to avoid damage. This dictates top loading with the sheets parallel to the plane of the container bottom. However, for unloading it is desirable to pull the sheets out edgewise. My invention provides the access required for these operations.

Another feature of my invention is a recloseable end inspection capability which is exercised by opening one partial end panel only. Then upon reclosure the tucking flaps attached to the unopened partial end panel restrain the package contents and provide a reclosing guide for the opposing tucking flap pair. This feature, however, is available only in those species wherein the reclosing tucking flaps have leading edges longer than the open space at the end of the package.

Description of the drawings

FIGURE 1 is a blank for use in assembly of the invention.
FIGURE 2 is the container structure in the preferred embodiment.
FIGURE 3 is a container set up from the structure of FIGURE 2 and open for top loading.
FIGURE 4 is the container of FIGURE 3 after loading and sealing.
FIGURE 5 is the container of FIGURE 4 after end unloading.
FIGURE 6 is the container of FIGURE 4 end-opened for inspection of the contents.
FIGURE 7 is the container of FIGURE 6 after reclosing has been commenced.
FIGURE 8 is an enlarged sectional view of a portion of FIGURE 7 and illustrating the cooperation of the tucking flaps during reclosure.
FIGURE 9 is a modified blank with the tucking flaps cut to increase the lengths of their leading edges.
FIGURE 10 is an alternate container structure without overlapping partial end panels.
FIGURE 11 is an alternate container structure with a grasping tab for easy opening of the loaded container.

Description of preferred embodiments

The blank which is used in assembly of my container structure is illustrated in FIG. 1 as generally indicated by the numeral 13. The blank is divided by score lines 20 through 25 into a full end panel 1, a first side panel 2, a second side panel 3, end cover flap 4, side cover flaps 5, end bottom flap 6, side bottom flaps 7, a first partial end panel 8, a second partial end panel 9, first tucking flaps 10, and second tucking flaps 11.

The preferred embodiment of my novel container structure is shown in FIG. 2 and designated generally by the numeral 14. The structure is formed by folding blank 13 along score lines 23 and 25 and joining partial end panels 8 and 9 by a piece of tape 12. As illustrated, partial end panel 9 overlaps partial end panel 8. In its broad sense, however, my invention does not require that the partial end panels overlap. An abutment as shown for structure 14b of FIG. 10 will suffice. The overlap is preferred, though, because it seals out dirt and facilitates reclosure as will be explained subsequently.

It is important to note that structure 14 is fastened only in the region of opposing partial side panels. Tucking flaps 10 and 11 are free and independently foldable along score lines 20 and 21. The fastening means need not necessarily be a piece of tape but may be a weak bundling glue, staples, or other of many well known fasteners; the only requirement being that the fastening action be restricted to the region between score lines 20 and 21. For easy opening of nontaped species a grasping tab such as tab 18 of structure 14c (FIG. 11) may be employed.

Structure 14 is assembled by a carton manufacturer and shipped flat to a distributor of packaged goods. The distributor erects structure 14 to form a container 15 as shown in FIG. 3 in the top-open state.

Container 15 is top loaded and sealed by a piece of tape 16 (FIG. 4) or other suitable means. Tucking flaps 10 and 11 must remain free or at least releasable, but
cover flaps 5 may be glued permanently to cover flap 4. The same is true of the bottom flaps.

The loaded container may then be shipped to a consumer whereupon it is end opened and emptied as shown in FIG. 5. In the case of the preferred embodiment, opening is accomplished by merely pulling off tape 12 and swinging out partial end panels 8 and 9. At this point the important feature of releasable tucking flaps becomes quite clear. Fastening them either together or against other flaps would prohibit end opening as illustrated. Furthermore, restricting the end fastening means to the region of partial end panel abutment results in ready external access for breaking the joint.

If it becomes necessary to open the container for inspection of the content, then a single end panel section may be opened as illustrated in FIG. 6. Reclosure may then be accomplished as shown in FIG. 7. Such reclosure takes advantage of an optional feature of my invention which is best observed by referring again to FIGURE 6. The content as shown is a stack of sheet material with the sheet edges exposed at the opening. By making leading edges 19 of tucking flaps 11 sufficiently long to bridge the reclosing gap, tucking flap entry can be greatly facilitated. The mechanics of the actual reclosure are best illustrated in FIG. 8 which is an expanded section view taken from FIG. 7.

As shown in FIG. 8 the contents 17 are laterally restrained by the fully closed tucking flap 10. This provides a reclosing channel between flap 10 and cover flaps 5. The leading edge 19 of tucking flap 11 is inserted into this channel, and entry is then completed easily and without damage to the contents.

In containers having proportions generally as illustrated leading edge 19 is automatically long enough to bridge the reclosing gap. If desired, flaps 11 may be lengthened, or else trimmed as illustrated in the modified blank of FIG. 9. The cut as shown results in tucking flaps 11a having leading edges 19a longer than the case for untrimmed flaps.

The foregoing description of my invention has employed terms such as top, bottom, cover, side, and end. It is obvious to one skilled in the art these are descriptive appellations only and that structural proportions as well as container orientation may be changed without departing from my invention.

What is claimed is:
1. An intermediate folded blank structure for a top-loading, end-opening container comprising:
   (a) a full end panel,
   (b) a first side panel overlying the full end panel and foldably joined thereto along one side thereof,
   (c) a second side panel coplanar with the full end panel and joined thereto along a score line opposite the fold line joining the full end panel to the first side panel,
   (d) a cover flap joined to the full end panel along a score line at the top thereof,
   (e) a pair of cover flaps joined to the side panels along score lines at the top thereof,
   (f) a bottom flap joined to the full end panel along a score line at the bottom thereof,
   (g) a pair of bottom flaps joined to the side panels along score lines at the bottom thereof,
   (h) a first partial end panel coplanar with the first side panel and joined thereto along a score line opposite the fold line joining the first side panel to the full end panel,
   (i) a second partial end panel foldably joined to the second side panel and extending toward the first partial end panel at least to abutting relationship,
   (j) a pair of first tucking flaps joined to the first partial end panel along score lines at opposite sides thereof,
   (k) a pair of second tucking flaps joined to the second partial end panel along score lines at opposite sides thereof,
   and
   (l) fastening means releasably securing opposing sides of the two partial end panels to create a temporary joint therebetween;

2. A structure according to claim 1, each flap in said pair of second tucking flaps being non-joined to said pair of first tucking flaps whereby the folded blank may be shipped flat, set-up, top-loaded, and end-opened at said joint.

3. A structure according to claim 2, the fastening means comprising a strip of adhesive material adhering exteriorly to the opposing edges of the two partial end panels.

4. A structure according to claim 2, one partial end panel overlapping the other partial end panel to provide for end sealing.

5. A structure according to claim 4, the fastening means comprising a low strength adhesive between the overlapping portions of the partial end panels, and the external partial end panel being provided with a grasping tab to facilitate end-opening at said joint.

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U.S. Cl. X.R.

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