

July 12, 1966

W. J. WILLHITE
PACKAGE IMPROVEMENT

3,260,359

Filed June 9, 1965

3 Sheets-Sheet 1

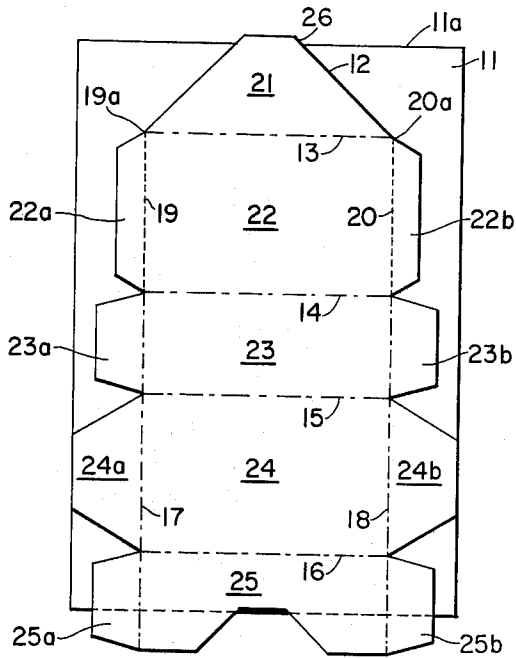


Fig. 1

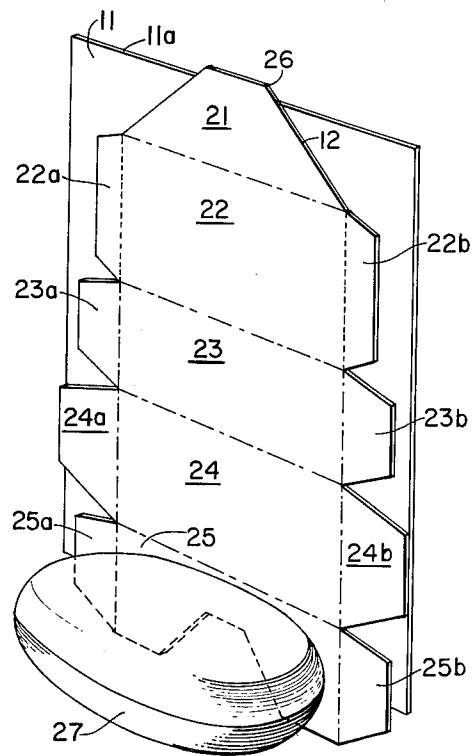


Fig. 2

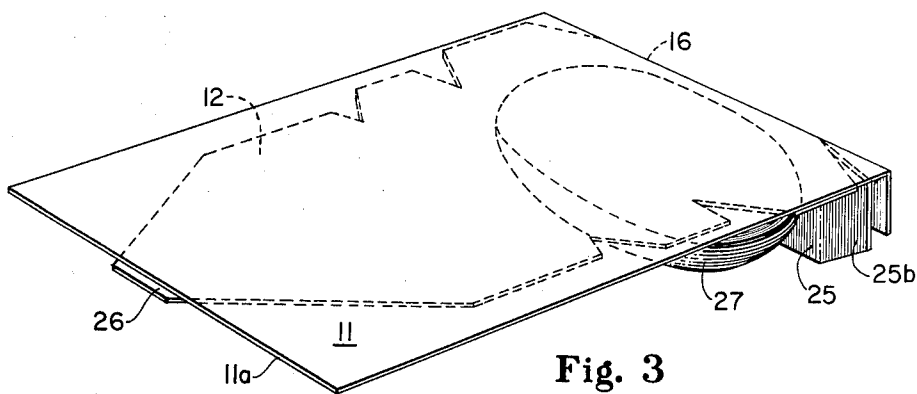


Fig. 3

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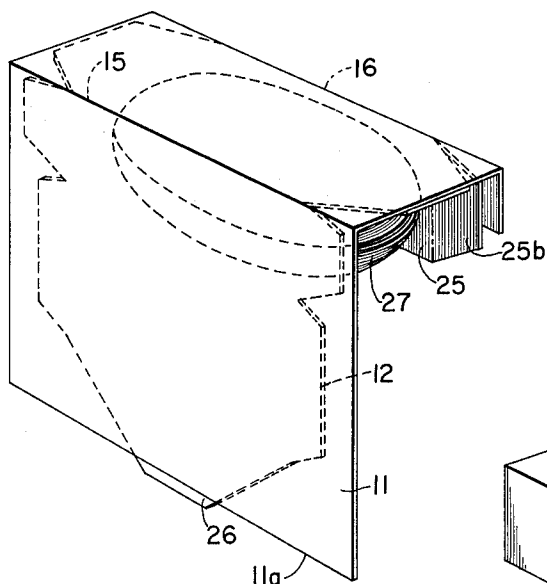


Fig. 4

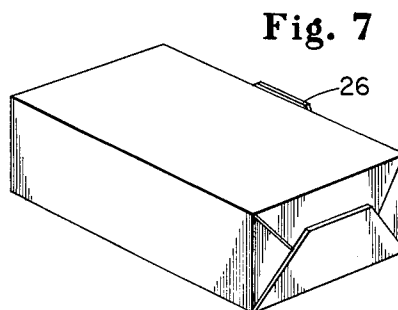


Fig. 7

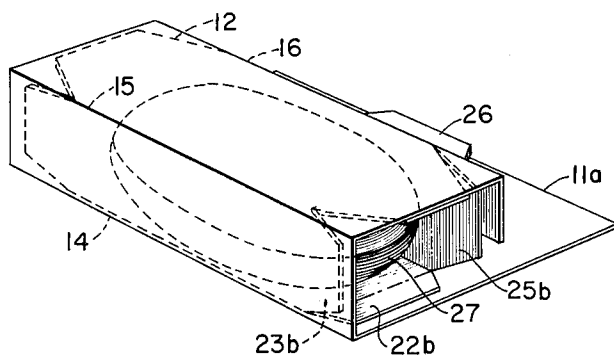


Fig. 5

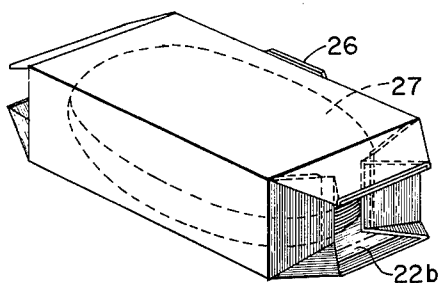


Fig. 6

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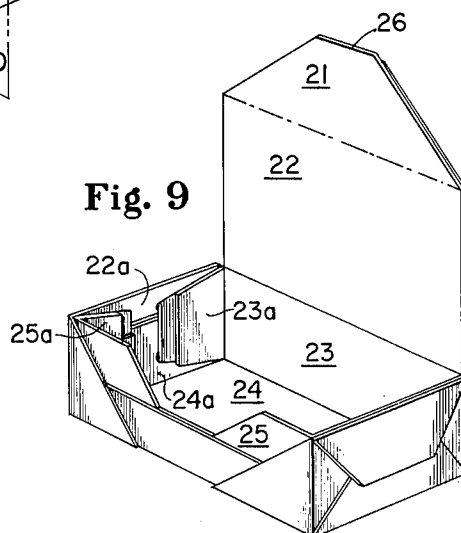
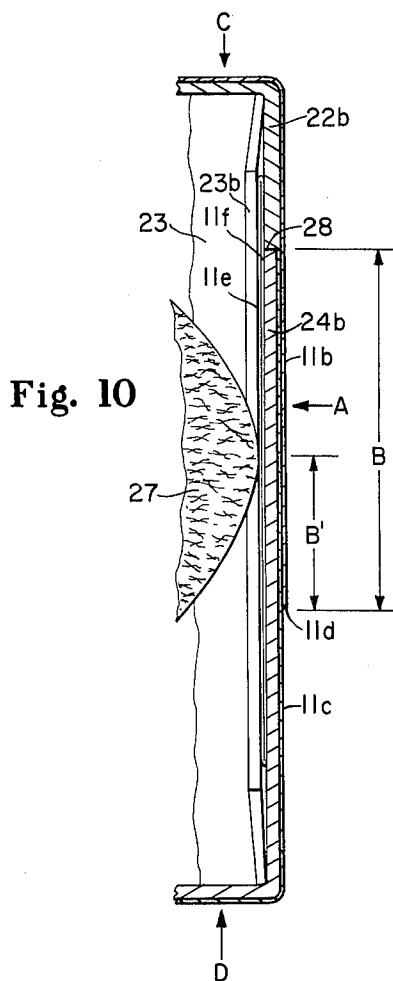
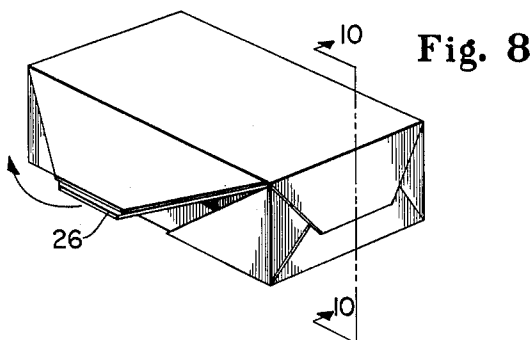
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3,260,359

PACKAGE IMPROVEMENT

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5 Claims. (Cl. 206-46)

The present invention relates to an improvement in box wrap packages. More particularly, the present invention provides added rigidity and improved sealing characteristics to package structures of this type without any sacrifice in the convenience of opening the package and removing the product therein.

U.S. Patent 3,073,436 was issued to the assignee of Robert V. Burt on January 15, 1963. This patent describes and claims a package structure composed of an inner liner and an outer wrapper which are superposed and wrapped around an article to form a "box wrap" package. The package described in the Burt patent includes a protruding tear tab integral with the liner to provide a convenient easy-opening device for the consumer in removing the product. That package is quite suitable for packaging articles such as bars of soap having conventional shapes. When using the package of the Burt patent to package articles such as bars of soap having convex edge surfaces, however, it was found that the package was structurally weak at its ends in that the package was easily deformed under compression. Furthermore, when packaging irregularly shaped articles, it was found difficult to make consistently good end seals on the package inasmuch as the package structure afforded no substantial backing surface for the heat sealing elements used in the formation of the end seals.

The present invention was made to overcome the above-mentioned problems and is, therefore, an improvement upon the package described in the cited Burt patent which is commonly owned by the assignee of the present invention.

The principal object of the present invention is the provision of an improved structure for strengthening the ends of a box wrap package and to add rigidity to the package structure.

Another object of the invention is the provision of an improved end structure for box wrap packages of this type in order to obtain a consistently better and stronger seal at the package ends.

A further object of the invention is the provision of the aforesaid improvements to box wrap packages without any sacrifice in the convenience with which the package can be opened and the article in the package removed.

The nature and substance of the invention can be briefly summarized as comprising a box wrap package consisting of an inner liner having a plurality of face panels including an adjoining tear tab panel and top panel and an outer wrapper which are superposed and sequentially folded around an article to form a rectangular tube which is sealed across the front face of the package. The liner and outer wrapper are positioned so that one edge of the tear tab panel of the liner protrudes beyond the corresponding edge of the outer wrapper to provide an opening tab for the package. End tabs project from both ends of each face panel of the liner and are sequentially folded simultaneously with the outer wrapper to complete the package. One of the broad face panels is provided with relatively long end tabs which are folded against the product in the package to provide a relatively rigid surface for making the end seals. The line of definition between the top panel of the liner and its end tabs comprises cut perforations. In addition, the first cuts of the perforated lines extend through the edges of the

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liner board. When the tear tab is pulled on the finished package, the top panel is separated from the end tabs extending therefrom by tearing along the cut perforation lines so that the outer wrapper is first torn along the edges of the tear tab panel and then the top panel.

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

FIGURE 1 is a plan view of the superposed outer wrapper and inner liner showing the relative position of these elements prior to initiating the folding operation.

FIGURE 2 is a perspective view showing the superposed liner and outer wrapper with a bar of soap in position to be wrapped.

FIGURES 3 through 7 are perspective views showing the sequence of folding and forming the outer wrapper and liner into a completed package around the bar of soap.

FIGURE 8 is a perspective view of the completed package in which opening has been initiated.

FIGURE 9 is a perspective view of the package after opening with the bar of soap removed.

FIGURE 10 is a fragmentary elevation, in cross section, taken on the line 10-10 of FIGURE 8 showing a portion of the folded end tab structure of the present invention in exaggerated detail.

Referring to FIGURE 1, the outer wrapper 11 is shown in flat condition supporting the inner liner 12 in superposed relation. The outer wrapper 11 is preferably rectangular in shape and is preferably made from commonly available flexible packaging materials having a seat sealable coating composition on their inner surface.

The inner liner 12 is preferably made from paperboard, cardboard or like materials and is relatively stiff and rigid to give the finished package the necessary strength and rigidity and to properly support and protect the article to be packaged therein.

The inner liner 12 may be shaped by cutting the material into an outline approximately as illustrated. Transverse score lines 13, 14, 15 and 16 are used to horizontally divide the liner 12. The liner is divided vertically by score lines 17 and 18 extending downwardly from the score line 14, and cut perforations 19 and 20 impressed on the liner 12 between the horizontal scores 13 and 14. The aforesaid score lines and cut perforations subdivide the liner 12 into a plurality of face panels including a tear tab panel 21, a top panel 22, a back panel 23, a bottom panel 24 and a front panel 25.

End tabs 22a and 22b extend from the top panel 22. End tabs 23a and 23b extend from the back panel 23. End tabs 24a and 24b extend from the bottom panel 24. End tabs 25a and 25b extend from the front panel 25. The outer edges of the end tabs are substantially parallel to the vertical score lines 17 and 18. The side edges of the end tabs are cut at an angle to facilitate simultaneous folding with the outer wrapper material when forming the end structure of the package.

In the preferred structure, the long end tabs 24a and 24b are substantially more than half as long (when viewed horizontally in FIGURE 1) as the width (when viewed vertically in FIGURE 1) of the back panel 23. Similarly, the short end tabs 22a and 22b are substantially less than half as long as the width of the aforesaid back panel. On the other hand, the combined length of the end tabs 22a and 24a and the combined length of the end tabs 22b and 24b is preferably slightly less than the width of the back panel 23. A larger and more reliable end seal can be made on the finished package by providing end tabs

in pairs of unequal length extending from the top panel 22 and the bottom panel 24 as will be apparent in the following description. Similar results can be accomplished with a liner structure wherein the long end tabs extend from the top panel 22 and the short end tabs extend from the bottom panel 24.

The perforations 19 and 20 must cut at least 50% of the lineal distance between the horizontal scores 13 and 14 to obtain good opening performance in the finished package. In practice, the length of the cut perforations 19 and 20 is preferably at least 70% of the lineal distance between the horizontal scores 13 and 14 up to a limit which will effect easy opening of the package depending on the caliper and type of material used in making the inner liner 12. It is essential that the first perforation 19a and 20a be cut through the edge of the liner 12 in order to initiate proper straight line tearing when opening the finished package.

As a first step in forming the package, the liner 12 is placed in superposed relation with the outer wrapper 11 substantially as illustrated in FIGURE 1. It will be noted that one end of the tear tab panel 21 is exposed beyond the edge 11a of the outer wrapper 11. The portion of the panel 21 extending beyond the edge 11a constitutes the tear tab 26 in the finished package. However, it is also within the contemplation of the invention that the tear tab 26 be exposed through an aperture in the outer wrapper 11 near the edge 11a.

The superposed liner and outer wrapper can be formed around a bar of soap by the machine and method described and claimed in U.S. Patent 3,149,446, issued to the assignee of Charles R. Hood on September 22, 1964, and commonly owned by the assignee of the present invention. As shown in FIGURE 2, a bar of soap 27 having convex edge surfaces is placed with its long dimension in contact with the inner surface of the front panel 25. As a next step, the liner 12 and outer wrapper 11 are folded on the score line 16 to arrive at the configuration of FIGURE 3. The next folding step is illustrated in FIGURE 4 wherein the superposed liner 12 and wrapper 11 have been folded on the score line 15. Folding on the score line 14 brings the assemblage to the condition shown in FIGURE 5. The tubular structure is completed around the bar 27 by folding on the score line 13. The superposed portions of the outer wrapper 11 on either side of the panel 21 are sealed to complete the formation of the face panel 21-25 into a tubular structure around the bar 27.

As a next step, the end tabs 23b and 25b are simultaneously tucked with the superposed portion of the outer wrapper material as shown in FIGURE 6. The end tabs 23a and 25a located at the other end of the package are similarly tucked. The longer end tabs 24a and 24b are thereafter infolded simultaneously with the superposed portions of the outer wrapper material. Folding of the end of the package is completed by infolding the shorter end tabs 22a and 22b simultaneously with the superposed portions of the outer wrapper material to form the structure of FIGURE 7.

One of the important aspects of the present structure lies in the provision of a comparatively larger seal area by the use of a long end tab 24b and a short end tab 22b. It will be noted in FIGURE 10 that the outer wrapper layer 11b which extends downwardly from the top surface of the package overlaps the underlying layer 11c from the end 28 of the tab 24b to the end 11d of the outer wrapper. This permits the formation of a comparatively wide end seal between the superposed portions of the layers 11b and 11c. Dimension B represents the width of this end seal area. By way of contrast, if the tabs 22b and 24b are of equal length, the dimension B is reduced to dimension B' (FIGURE 10) since the overlapped length of outer wrapper material 11b and 11c is diminished because of the change in the length of the end tabs 22b and

24b and the normal folding sequence in making the package.

It will be noted by reference to FIGURE 10 that the end tab 24b is folded against the convex end of the bar of soap 27 with two layers 11e and 11f of outer wrapper material interposed. The end tab 24a is similarly folded at the other end of the package. This structure constitutes another of the important aspects of the present invention. When heat sealing the superposed layers 11b and 11c, a heated sealing element is passed over the end surface of the package under a light pressure in the direction of arrow A. When this is done, the end tabs 24a and 24b are supported by the convex surface of the bar of soap 27 thereby providing a substantially firm supporting surface for the heat sealing element and facilitating the formation of consistently reliable end seals between the layers 11b and 11c.

An additional advantage of the present structure is that the use of four end tabs at each end of the package adds considerably to the rigidity of the package. For example, when the end of the package is placed under compression by forces acting in the direction of the arrows C and D (FIGURE 10), the package is inherently resistive to deformation by reasonable loads without structural support from the shape of the bar or other article in the package.

FIGURES 8 and 9 illustrate the manner of opening the package to expose and remove the bar of soap. First the tear tab 26 is grasped and pulled upwardly to pivot the liner around the score line 13. The edges of the tear tab panel 21 tear the outer wrapper material 11 as shown. On further pulling and lifting, the liner tears along the line of cut perforations 19 and 20 to separate the top panel 22 from the end tabs 22a and 22b so that the side edges of the top panel 22 tear the outer wrapper material to fully expose the contents of the package. Thus, the present invention retains the easy opening advantages for product exposure and removal as set forth in the afore-said Burt patent while adding substantially to the rigidity of the package and allowing the formation of stronger and more reliable end seals.

The present improvement has been described in the packaging of a bar of soap, especially one having convex edge surfaces, purely for convenience and since the invention has, in fact, been used in this manner. The term "bar of soap" is used therein in a generic sense and includes not only soap bars but also soap-synthetic detergent bars, laundry and bleach tablets and scouring pads. However, it will be understood that this is not to be considered a limitation on the invention as the package improvement can be applied in the packaging of articles of any class regardless of shape.

While particular embodiments of the invention have been illustrated and described, it will be obvious to those skilled in the art that various changes and modifications can be made without departing from the spirit and scope of the invention and it is intended to cover in the appended claims all such changes and modifications that are within the scope of this invention.

What is claimed as new is:

1. A package enclosing an article, said package comprising a liner and a superposed outer wrapper, said liner comprising a cut and scored paperboard member divided into a plurality of side-by-side panels including successively a tear tab panel and four face panels including a top panel, a back panel, a bottom panel and a front panel, a pair of end tabs extending from both sides of said back and front panels, a pair of long end tabs extending from one of the face panels adjoining the back panel, the length of each of said long end tabs being more than half the full width of the back panel, a pair of short end tabs extending from the other face panel adjoining the back panel, the length of each of said short end tabs being substantially less than half the full width of the back panel, the sum of the lengths of one short and one long

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end tab being slightly less than the width of the back panel, a line of cut perforations dividing the top panel from each of the end tabs extending therefrom, each of said lines of cut perforations having spaced cuts through the liner the sum of the lengths of which are at least 50% of the total lineal length of each cut perforation line, said outer wrapper being superposed with the liner so that the end portion of the tear tab panel is exposed to provide a tear tab, each of said face panels being positioned at right angles with respect to each of its adjoining face panels thereby forming a rectangular tube around the article, the said end tabs extending from the front and back panels being infolded with the superposed portion of the outer wrapper and positioned at substantially right angles to said face panels, the long end tabs being infolded with the superposed portion of the outer wrapper material to a position substantially at right angles to said face panels, said short end tabs being infolded with the superposed portion of the outer wrapper material so that the outer wrapper extending beyond the short end tabs overlaps the outer wrapper material superposed with said long end tabs to provide wide areas of overlap at the ends of the package, said wide areas of overlap being adhered to form broad end seal areas for said finished package.

2. A package as claimed in claim 1 wherein the long end tabs extend from the bottom panel and the short end tabs extend from the top panel.

3. A package as claimed in claim 1 wherein the first perforation of each of said lines of cut perforations is cut through the edge of the liner at the juncture of the top panel and the tear tab panel.

4. A package as claimed in claim 1 wherein the cut

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perforations dividing the top panel from each of its adjoining end tabs are cut through at least about 70% of the lineal length of the cut perforation line up to a limit which will effect easy opening of the package depending on the caliper and the material of the liner.

5. A package as claimed in claim 4 wherein the first perforation of each of said lines of cut perforations is cut through the edge of the liner at the juncture of the top panel and the tear tab panel.

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