

[54] **SHOCK ABSORBING PAPERBOARD PACKAGE**

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[58] Field of Search **206/45.14, 45.19, 206/45.31, 46 FR; 229/14 C, 39 B**

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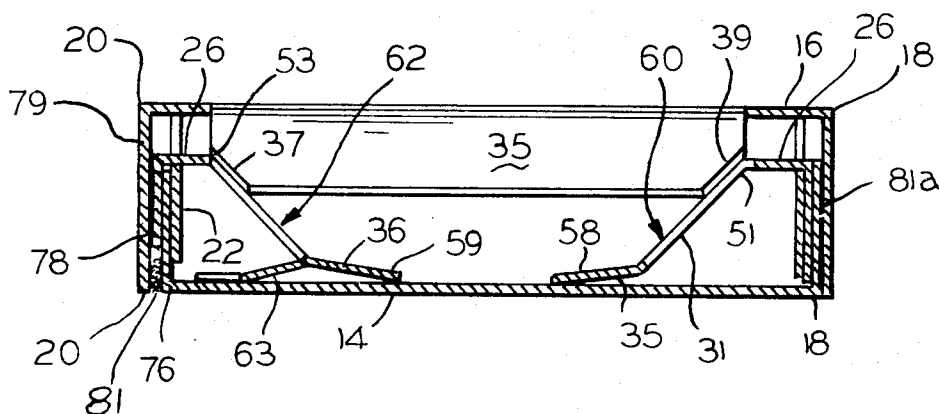
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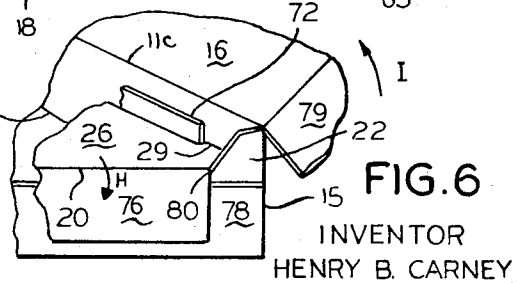
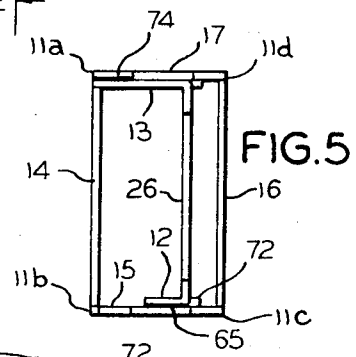
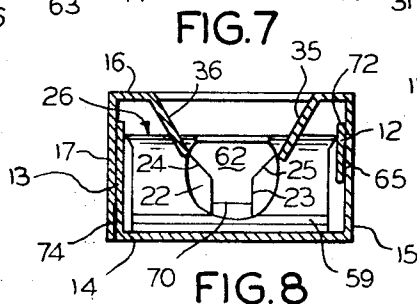
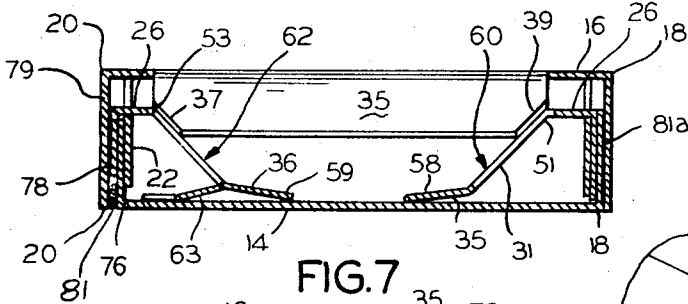
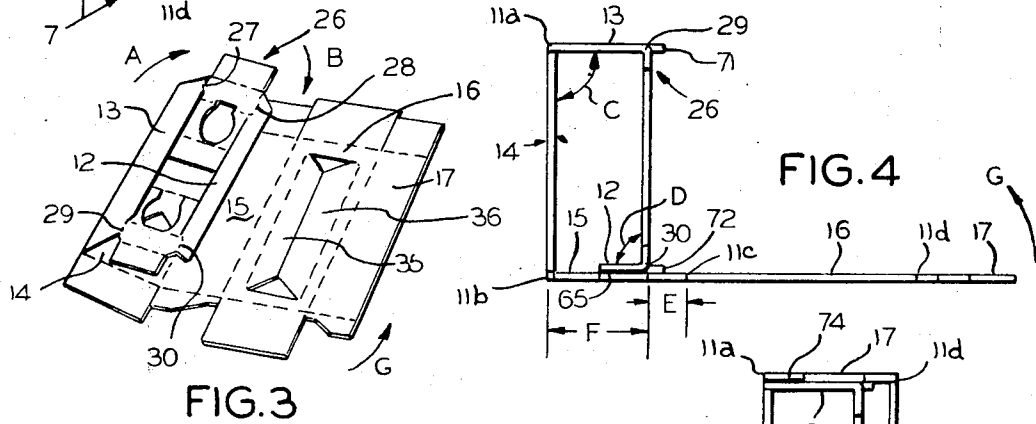
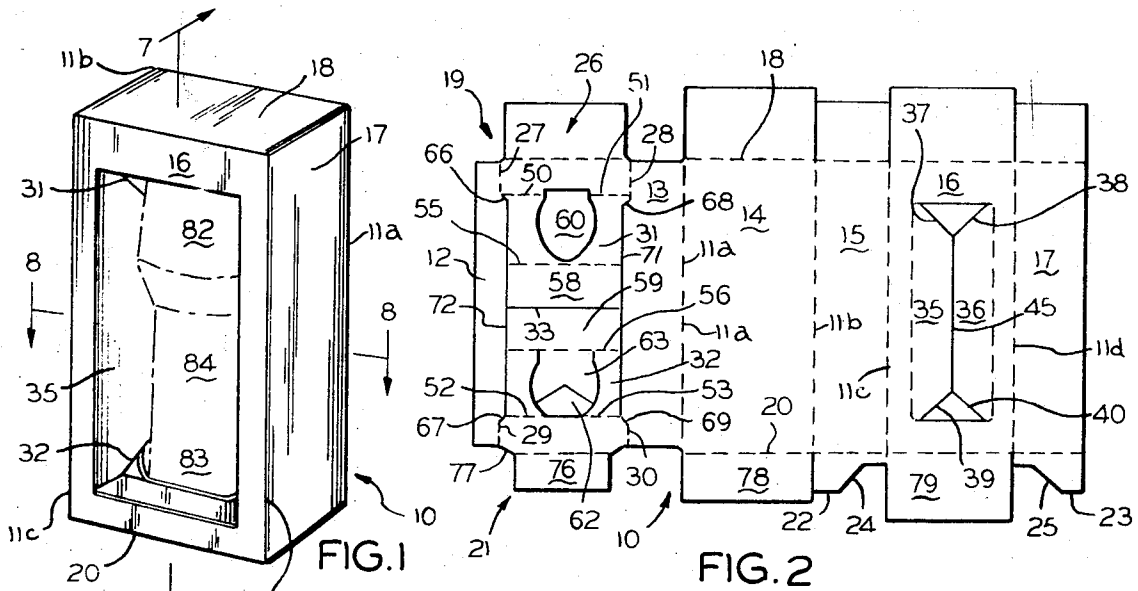
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ABSTRACT

A cardboard or paperboard container, carton or package (hereinafter collectively called "package") is made from a single blank having top, bottom, side, and end panels. In addition to these panels, the blank also includes a floating center panel which cooperates with angular side panels to form an inner carton which floatingly supports a product displayed in the package. If the package is dropped, the floating panel tends to absorb the shock.

6 Claims, 8 Drawing Figures





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SHOCK ABSORBING PAPERBOARD PACKAGE

This invention relates to point of sale packaging and more particularly to shock mounting cardboard containers for attractively displaying—especially, although not exclusively breakable—bottles, jars, and other container items.

Point of sale packaging is, of course, very well known. Usually there is an artistically designed box which is both attractive and attention getting. Advertising or other attention getting devices are generally printed on parts of the box. Very often, the box displays an enclosed product to the buyer so that he can see what he is getting, how it is bottled or encased, how big the bottle is, and the like. Also, if the package is dropped and the bottle is breakable, it generally breaks. Thus, it is desirable to provide a point of sale packaging with all these desirable features and having a shock mounting support to protect the bottle.

Another consideration relates to the machinery which makes the package. It is desirable to provide a blank which can be stamped out, folded, glued, and filled by automatic machinery. This automatic machinery should ideally be general purpose machinery requiring a minimum number of special purpose tools, jigs, or dies, which would tend to increase the cost of entry into a market place with a new product.

Accordingly, an object of the invention is to provide new and improved point of sale packaging. A more particular object is to provide a shock mounted point of sale package for breakable items. Here an object is to provide a package with a floating panel therein.

Still another object is to provide a sturdy package which is attractive and well designed to display and advertise a product.

Yet another object is to provide packages with novel end panels which floatingly support displayed products.

In keeping with an aspect of the invention, these and other objects are accomplished by a carton made from a single blank having top, bottom, side and end panels. In addition, the blank includes a floating panel having an end flap which cooperates with angular side panels to form an inner carton support which floatingly holds the displayed article in a shock absorbing cradle.

The nature of a preferred embodiment of the invention will be understood best from a study of the attached drawing, in which:

FIG. 1 is a perspective view of the inventive package or container with a displayed product or item (shown in phantom) mounted therein;

FIG. 2 is a plan view of a flexible cardboard or paperboard blank, employed in fabricating the improved container, illustrating the manner in which the blank is die cut and creased;

FIG. 3 is a perspective view of the blank of FIG. 2 following an initial folding thereof, wherein adhesive is used to attach the floating panel, prior to a further folding operation;

FIG. 4 is an end view which shows an inner tube wherein the unit is initially folded and glued prior to a final folding operation.

FIG. 5 is an end view showing inner and outer tubes of the package or display unit in its completely folded condition;

FIG. 6 is a fragmentary perspective view of a corner construction; and

FIGS. 7 and 8 are side and end cross sectional views, respectively, taken along 7—7 and 8—8 of FIG. 1.

FIGS. 1 and 2 show the improved point of sale carton or packaging unit fabricated from an initially flat blank 10 of flexible cardboard or paperboard of suitable gage or thickness. The blank is subdivided by a series of vertical parallel creases 11 into successive, integrally hinged wall forming panels 12, 13, 14, 15, 16 and 17 of generally rectangular outline. An upper horizontal margin of each of these walls is defined by the longitudinally extending crease 18 which integrally hinges upper flap members 19 to the respective panels 12–17. An elongated bottom marginal crease 20, paralleling crease 18, similarly defines the lower extremity of the panels and integrally hinges thereto a succession of bottom forming flaps 21. These include flaps 22, 23 having outer edges defined by diagonal lines 24 and 25 and hinged to the panels 15, 17. Panel 12, in effect, is a glue tab integrally hinged to an internal floating panel 26 situated between creases 27–30. Inner end forming product support panels 31, 32 are separated by a cut along line 33. Panel 16 is separated into two guide and cradle panels 35, 36, having angular cut ends 37–40 which cooperate with the end support panels 31, 32. These two panels 35, 36 are separated by a cut along line 45.

A plurality of crease lines enable the cut out parts of panels 26, 16 to be folded into a shock mounting arrangement. Thus, the crease lines 50, 51 and 52, 53 enable panels 31, 32 to fold downwardly (i.e. panels 31, 32 move down into the plane of the paper, as viewed in FIG. 2). The crease lines 55, 56 enable supporting ends 58, 59 to fold up and form feet (i.e. ends 58, 59 move up and out of the plane of the paper, as viewed in FIG. 2). A first cut out section, at 60, is shaped to receive one end of the packaged product, and a second cut out section, at 62, is shaped to receive the other end of the packaged product. In addition, cuts at lines surrounding tab 63 cause it to lay down in a resilient load supporting position which extends toward the end of the package.

After the blank of FIG. 2 is cut out, preferably by a steel rule die, or the equivalent, the blank is folded in any suitable manner, as by an automatic folding machine. For example, FIG. 3 show the first step in the folding process wherein panels 12, 13, and 26 are folded in direction A by a distance which forms a 90° angle C (FIG. 4). The panel 12 is also folded over in direction B to form a 90° angle D between panels 12 and 26. Glue or other adhesive material 65 is formed or deposited on panel 12, which is then applied to panel 15. This completes an inner cardboard or paperboard tube formed from panels 15, 14, 13, 26, 12, and having rectangular cross section, as seen in FIG. 4. The end flap 12 is positioned on panel 15 at a point which is a distance E from the crease line 11c and a distance F from the crease line 11b.

It is important to note that the inside ends of the panels 12 and 13 are cut on an angle along the lines 66–69 and then along the lines 71, 72, to recess the end support panels 31, 32 away from panels 13, 15, as seen in FIG. 4. Thus, the edges of panels 12, 13 project upwardly and act as longitudinal reinforcing tabs 71, 72 extending longitudinally along the walls of the inner tube at opposite sides of the floating panel.

The next step (FIG. 5) in the folding process is to fold the panel 17 upwardly in the direction G (i.e. out of the plane of the paper, as viewed in FIG. 3). Glue or other adhesive is applied at 74 to cement panel 17 to panel 13, thus completing an outer paperboard tube compris-

ing sides 14, 17, 16, 15, and having a rectangular cross section, as seen in FIG. 5. Upon reflection, it should be apparent that the panel 26 is floating between the panels 14 and 16.

The details of the lower corner support are seen in FIG. 6. First, the tabs 22, 23 are folded along the crease line 20 (FIG. 2). Then, the end flap 78 is folded up (as viewed in FIG. 6) and over the tabs 22, 23. A diagonal or mitered edge 24 on the tab 22 comes into contact with a mitered edge 77 (FIG. 2) which separates end flap 76 and glue flap 12. Thus, there is a sturdy load supporting and sliding contact at the point 80. Next, the lower end flap 76 folds down (as viewed in FIG. 6), in the direction H. The end flap 79 on panel 16 folds in direction I over the top of the panel 26. Then the end flap 79 folds down over top of the flap 78. Suitable glue or adhesive 81 (FIG. 6) may be positioned between the flaps 78, 79. This leaves the flaps 76, 22, 23 captured, but unconnected to provide support with a little give, in case the package is dropped on a corner. At the other end, glue or adhesive 81a also holds the end flaps together.

FIG. 7 shows how the two ends 82, 83 (FIG. 1) of the product 84 are supported by the end support panels. The end 58 on the panel 31 bends or angles out and lies along the floor formed by the panel 14, which is the inner tube panel opposite to the floating panel 26. The part of the end support panel 26, which is above the fold lines 50, 51, forms a web support for the top 82 of the product 84 which fits into the hole 60. Likewise, at its bottom, 83, the product 84 fits into the hole 62. The lower end 59 of the other product support panel 32 and the tab 63 angle out and loosely lay along the floor formed by the panel 14. The part of the panel 26 between fold lines 52, 53 and flap 76 forms a web support for the bottom 83 of the product 84.

FIG. 8 is an end view which illustrates the manner in which the side guide and cradle panels 35, 36 angle in from the top to rest against and bear upon the floating panel 26 to form a depression which cradles and supports the sides of the product.

The shock absorbing qualities of the package should now be clear. The end support panels 58, 59, and 63 are not rigidly held on the bottom of the package. Rather, there is a slippage of the panel on the bottom. If the package falls on the back panel 14, the initial shock is absorbed by a flexing of the web parts at the ends of the panel 26 and by the slippage and give of parts 63, 59 and 58 as they move toward and along the floor formed by the panel 14. Also the product rests upon the cradle and guide panels 35, 36 which tend to flex.

If the package falls on the top side 16, the shock is again absorbed by the flexing of the web parts at the ends of the panel 26. The cradle and guide panels 35, 36 tend to press the product ends into contact with the bottom of the panel 26.

If the package lands in some other manner, there are vectors of shock force which are absorbed in a similar manner wherein the various panels flex in combination.

The invention does not attempt to make a rigid and nonflexible container with fixed points of support.

While the foregoing specification describes, and the drawing shows, a preferred embodiment of the invention, it should be apparent that various modifications may be made without departing from the spirit or the scope of the invention. Therefore, the appended claims are to be construed to cover all equivalent structures.

I claim:

1. A rectangular shock-absorbing cardboard or paperboard package comprising a plurality of rectangular panels integrally connected to one another by crease lines, said panels being folded along said crease lines to form inner and outer tubes having generally rectangular cross section, each of said tubes sharing three common panels, the fourth panel of the inner tube forming a floating panel cooperating with guide and cradle panels on the fourth panel of the outer tube for giving a flexible shock-absorbing cradle support to a product enclosed within the package, said floating panel being formed into two separate product end support panels having cutout portions for receiving the top and bottom ends of a product enclosed within the package, the inner ends of said two separate end support panels being loosely positioned to be supported by and to slide over a floor formed by a panel of said inner tube which is opposite said floating panel, and at least one of said end support panels having a tab member extending away from the center and toward the end of the package, said tab member resting on and sliding over said floor.

2. The rectangular package of claim 1 wherein at least one panel of the outer tube has two longitudinal guide and cradle panels which fit down into an open space in the floating panels for cushioning and supporting the sides of a product against said floating panel.

3. The rectangular package of claim 1 wherein the panel of the outer tube which is opposite the floating panel has two longitudinal guide and cradle panels which fit down into the space in the floating panels from which the end support panels are formed.

4. The rectangular package of claim 1 wherein at least some of said rectangular panels terminate on their lower ends in a plurality of end flanges and at least two oppositely disposed ones of said end flaps being cut to flexibly support said floating panel.

5. The rectangular package of claim 1 wherein said end support panels are recessed from the longitudinal walls of the inner tube by a distance which shapes said support panel to form a reinforcing tab on the walls of the inner tube and at the opposite sides of said floating panel.

6. The rectangular package of claim 5 wherein at least some of said rectangular panels terminate at their lower ends in a plurality of end flaps, at least two oppositely disposed ones of said end flaps being cut diagonally, said floating panel having an end flap with a mitered recess fitting over and supported by said diagonal cut flaps.

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