Dec. 5, 1950 W. J. TYRSECK 2,533,070

CARTON

Filed Oct. 26, 1949

Fig. 1

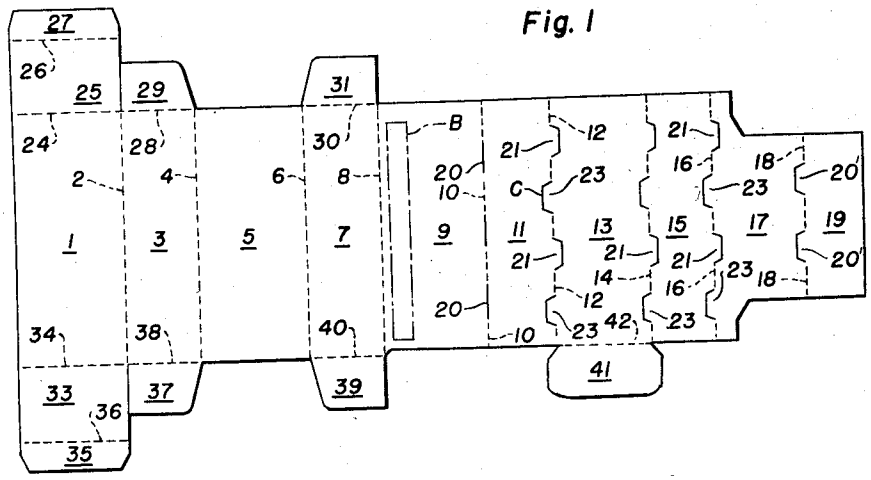


Fig. 2

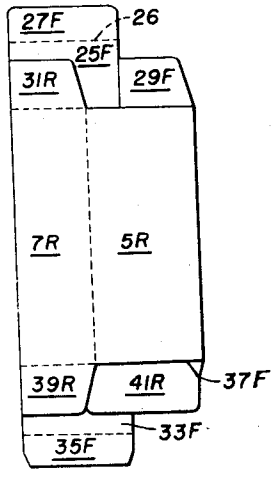


Fig. 3

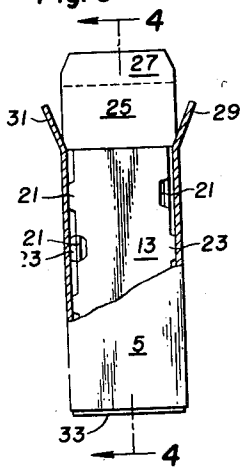


Fig. 4

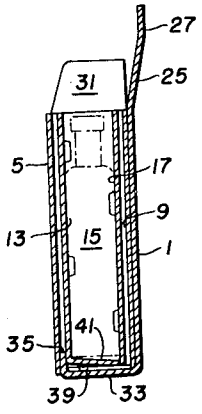
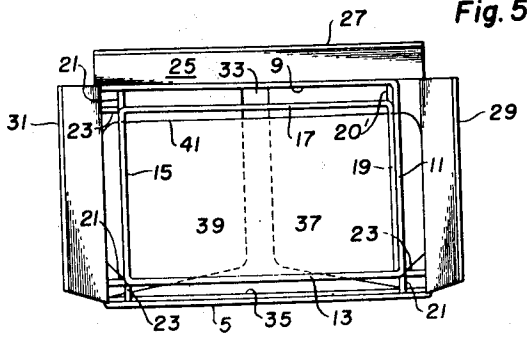


Fig. 5



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2,533,070

CARTON

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Application October 26, 1949, Serial No. 123,766

10 Claims. (Cl. 229—14)

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This invention relates to improvements in cartons.

More particularly, the invention is concerned with providing a shock-proof or cushioned receptacle for packaging bottles or like articles, and which may be made of pasteboard or like inexpensive material on existing automatic machinery.

For a full understanding of the invention, a detailed description of the container will now be given in connection with the accompanying drawing and the features forming the invention will then be specifically pointed out in the appended claims.

In the drawing:

Figure 1 is a flat view of the container blank;

Figure 2 is a view showing the completed container in collapsed condition;

Figure 3 is a front elevation of the container with part of one wall broken away to show the internal structure;

Figure 4 is a section on the line 4—4 of Figure 3; and

Figure 5 is a plan view on an enlarged scale of the container with the top flaps open.

The invention is an improvement upon that disclosed in my previous application Serial No. 62,609 filed November 30, 1948 for Cartons, now Patent No. 2,513,902, issued July 4, 1950.

The blank comprises four generally rectangular panels 1, 3, 5 and 7, adapted to form an outer box, an intermediate panel 9 and inner box panels 11, 13, 15 and 17. These various panels are disposed in an aligned series and are separated from each other by score lines 2, 4, 6, 8, 10, 12, 14 and 16. An end flap or inner terminal panel 19 separated from the panel 17 by score line 18 is also provided. Score line 10 may be partially cut through as at 20, to facilitate a sharper fold, and the score lines 12, 14 and 16 are interrupted by generally U-shaped cuts c, defining oppositely facing projections or tabs 21 and 23. Similar cuts along the score line 18 separating panels 17 and 19, defining projections or tabs 20' extend from panel 19 into panel 17. It will be noted that these projections are not accompanied by any reversely facing projections as in the case of the projections formed along score lines 12, 14 and 16. The blank includes also top flap elements 25, 27, 29 and 31, bendable along the transverse score lines 24, 26, 28, 30 and bottom flap elements 33, 35, 37, 39 and 41 bendable on the score lines 34, 36, 38, 40 and 42. Score lines 2 to 20 inclusive are referred to as longitudinal score lines for the

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reason that the blank in folding as hereinafter described will pass through the folding machinery in parallelism to these score lines.

For convenience of reference, the surfaces which are uppermost in the blank as shown in Figure 1 will be referred to as the faces of the panels, while the opposite surfaces will be referred to as the reverses thereof.

The container is designed for manufacture on a continuous roll-around principle and in the manner about to be described.

The first fold occurs on the line 16, panel 19 and panel 17 being folded over onto panels 15 and 13 and in face to face relation thereto. The next fold occurs at line 12, bringing the reverse of panels 17 and 19 over panels 11 and 9. The next fold occurs on line 8, bringing the reverse of panels 15 and 13 over the faces of panels 7 and 5. The last fold occurs on the line 4, bringing the faces of panels 1 and 3 over the folded structure and hence over the reverse of panels 11 and 9. The reverse of panel 9 will previously have been prepared with adhesive over the area indicated at B and will thus join panel 9 and outer terminal panel 1 together. While the last fold occurs from left to right, as it is more convenient to handle two panels to the left of line 4 in automatic folding machinery than to fold over the entire assembly to the right of this line, it will be observed that the actual folds imparted to the material are the same as though this last fold on the line 4 had been made by folding the entire assembly to the right thereof over, so that the collapsed box produced is folded continuously in one direction.

The container thus produced is shown in collapsed condition in Figure 2, in which the various panels are identified by reference numerals with the suffix F where the face of the panel is shown, and with the suffix R where the reverse is shown. The folding operation along score line 14 will have separated the projections 23 and 21 along the U-shaped cuts defining the same, projections 21 protruding from the edge of panel 13 and projections 23 protruding from the edge of panel 15.

Panels 11, 13, 15 and 17 will be somewhat narrower than the panels 3, 5, 7 and 1, to which they are juxtaposed in a completed box. The width of panel 13, including the projections 21 and 23 thereof, will equal the width of panel 5 apart from the usual allowance for folding. Similarly, the width of panel 15, counting in the projections 21 and 23 thereon, will equal the width of panel 7, while panel 17, counting the

projections 23 thereon, will equal the width of panel 9. Again, apart from the folding allowance, panel 9 will be less in width than panel 1 by the width of a projections 23. Similarly, the width of panel 19 including the projections 20' will equal the width of panel 11 excluding the projections 21, which is to say that the width of this panel as measured on the score line 10 to score line 12.

Pressure on the edges of the collapsed container of Figure 2 will open it into rectangular form in the usual way, so that when the bottom tabs have been folded and tucked in it presents the appearance of Figures 3, 4 and 5. As will be observed from those figures, the four successive panels 11, 13, 15 and 17 form an inner sleeve box spaced from the outer box, formed by the panels 1, 3, 5 and 7 and connecting panels thereon, by a distance equal to the width of the projections 21, 23. The inner terminal panel 19 forms a fifth inner sleeve panel joined along fold line 18 to the fourth inner sleeve panel 17 and lying flat against the first inner sleeve panel 11. The width of panel 19 including the projections 20' is substantially equal to that of panel 11, so that the edge of panel 19 will extend substantially to panel 13 and the projections 20' will extend substantially to panel 9. In consequence, the fold line 18 and panel 17 attached thereto are held in position widthwise of panel 11. Moreover, this spacing is maintained by the projections. If now a bottle is inserted in the package, as indicated in phantom in Figure 4, it will be held by the inner box or sleeve, made up of panels 11, 13, 15 and 17, in spaced relation to the outer wall of the box. This construction, in which an inner sleeve or container spaced from the outer container and in which the spacing is maintained by the projections 21 and 23, furnishes protection equivalent to that usually afforded by a separate insert of corrugated board, and eliminates the assembly operations and expense, since the entire container, including the inner sleeve is formed from a single blank by high speed and economical automatic machinery. The top flaps 25, 27, 29 and 31 will be folded over and tucked-in in the usual way to close the package. The container of the present application differs from that of my application above mentioned in that the gluing down of the terminal element corresponding to panel 19 is eliminated. As is apparent from Figure 5, the panel 19 lies against panel 11 and holds the edge of panel 17 along score line 18 in proper position widthwise of panel 11. Movement forwardly in the box being prevented by the engagement of panel 19 against panel 13, and movement rearwardly being prevented by engagement of projections 20' against panel 9. Although the adhesive is eliminated, it will be observed that the present container is similar to that of my above mentioned application in that the four panels which completes the inner sleeve are positioned with reference to the first panel of the sleeve by means of a terminal panel or flap lying flat against this first panel and serving to limit or prevent movement of the four panels of the inner sleeve widthwise of the first panel.

While the spacing projections 21, 23 are most conveniently formed by means of the cut out C and are most advantageously placed at the fold lines between panels, projections formed by bendable portions of the inner box panels in other ways may be utilized where desired, without departing from the invention in its broader aspects. It will also be noted that in certain cases

the outer terminal panel 1 may be narrowed considerably, since this panel and panel 9 form a double thickness wall across the major part of the width of the box. Where such double thickness wall is unnecessary, panel 1 can be narrowed down so as to become little more than a gluing flap capable of bridging the space between panel 11 and panel 3 and overlapping panel 9 sufficiently to provide for an adhesive joint.

Provision for protecting the top or bottom of an article within the container against shock may also be made and such provision is provided at the bottom of the box in the embodiment illustrated. Since the cap of the bottle, when inserted in the box of Figure 4, is at the top it may readily be made shock-resistant. Such provision is ordinarily unnecessary at the top but may be provided where desired. The bottom is rendered shock-proof by placing the lower edges of the panels to the right of fold line 8 and the transverse fold line 42 at a somewhat higher level than the fold line 40 and the bottoms of panels 1, 3, 5 and 7. Because of this formation of the blank, the completed container as shown in Figure 4 has an inner diagonal false bottom formed from the flap 41, upon which the bottle sits, thus spacing it from the bottom of the container and protecting it against shock. This result can be achieved broadly by the elevation of the fold line 42 by comparison with the fold line 40 and transverse fold lines to the left thereof, without correspondingly elevating the bottom edges of the adjacent panels, but the construction is more conveniently and economically constructed in the form in which shown. The flap 41 preferably extends to each side beyond the fold lines 12 and 14 for a distance equal to the width of the projections 21 and 23, so that this flap in the completed box will engage against the outer box panels 3 and 7, thus furnishing additional lateral support for the bottom of the inner sleeve.

What is claimed is:

1. A shock-proof box formed of a single blank, comprising a plurality of aligned successive panels folded around each other in one direction only and forming an inner sleeve and an outer sleeve surrounding the same, the inner sleeve including four successive panels forming a rectangular structure and a fifth panel connected to the fourth such panel and overlying the inner surface of the first such panel, the said fifth inner sleeve panel having a projection extending outwardly from its fold line to engage the outer sleeve and having its edge substantially in engagement with the second inner sleeve panel, for maintaining the fold line between the fourth inner sleeve panel and the said fifth inner sleeve panel in position widthwise of the first inner sleeve panel.

2. A box according to claim 1, comprising also flap elements attached to the panels and foldable to form an end closure.

3. A shock-proof box according to claim 2, including a flap element attached to an inner sleeve panel and folded to form an end support within the end closure, the fold line for the said inner end flap being spaced above the edges of the outer panels so that it lies in a slanted position to cushion the end of the box.

4. A blank according to claim 1, having an end flap on an inner sleeve panel extending beyond the fold lines defining the said panel, to engage against outer sleeve panels to each side thereof for furnishing additional lateral support for the inner sleeve.

5. A shock-proof box formed of a single blank, comprising a plurality of aligned successive panels folded around each other in one direction only and forming an inner sleeve and an outer sleeve surrounding the same, and spaced therefrom around all sides, the panels forming the inner sleeve having projections from their fold lines engaging the outer sleeve which surrounds the same to maintain the spacing and to support the inner sleeve and including a series of four successive inner sleeve panels forming a rectangular sleeve structure, a fifth inner sleeve panel joined to the fourth such panel along a fold line and lying against the inner surface of the first such inner sleeve panel, the said fifth inner sleeve panel also having projections from its fold line and its width, plus its said projections, being substantially the same as that of the said first inner sleeve panel.

6. A box blank for forming a shock-proof container, comprising a plurality of aligned successive panels defined and separated from each other by score lines and including panels adjacent one end for forming an inner sleeve and panels adjacent the other end for forming an outer sleeve surrounding the same, the width of the panels being such as to space the inner sleeve from the outer sleeve, the panels forming the inner sleeve being cut out along the score lines separating the same to form oppositely facing projections of length corresponding to the distance between the inner and outer sleeves, whereby the blank may be folded to form a box in which the inner sleeve is supported from the outer sleeve surrounding the same by means of the said projections, the terminal inner panel having a projection from its score line, and its width, plus its projection, being substantially equal to that of the fourth panel away from it counting from the inner end of the blank, whereby the terminal inner panel will maintain the fold line between itself and the adjacent inner sleeve panel in position widthwise of the said fourth panel away from the terminal inner sleeve panel when the terminal inner panel is folded flat against the inner surface thereof.

7. A blank according to claim 6, comprising also end flaps in the outer sleeve panel for forming an end closure.

8. A blank according to claim 7, comprising also an end flap on an inner panel foldable to form an end support within the end closure.

9. A blank according to claim 8, in which the fold line for the inner end flap is spaced above the edges of the outer panels so that it will lie in a slanted position to cushion the end of the box.

10. A blank according to claim 8, in which the said end flap on the inner panel extends beyond the fold lines defining said panel for engaging against outer sleeve panels to furnish additional lateral support for the inner sleeve.

WALTER J. TYRSECK.

REFERENCES CITED

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

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Number	Name	Date
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