

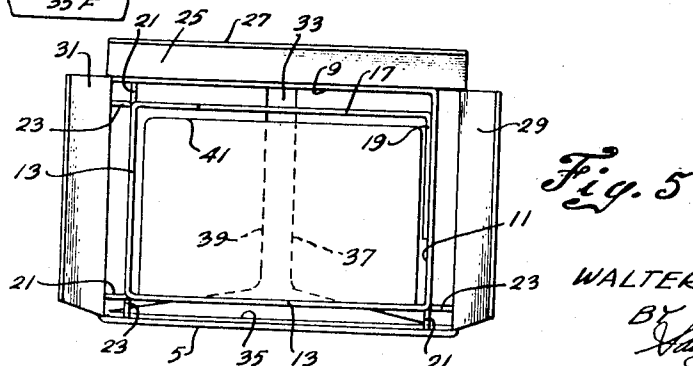
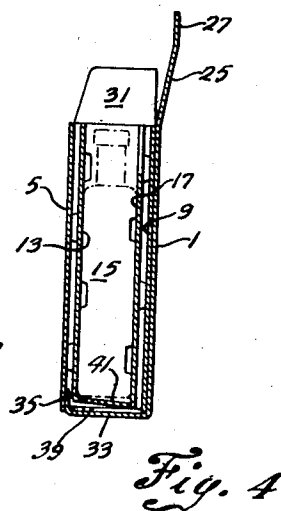
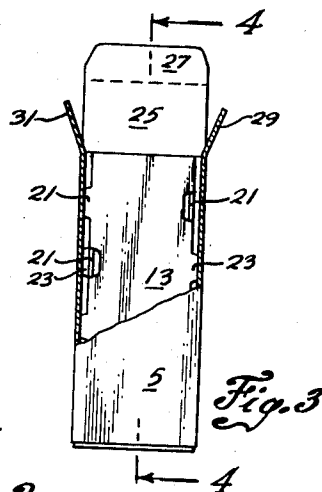
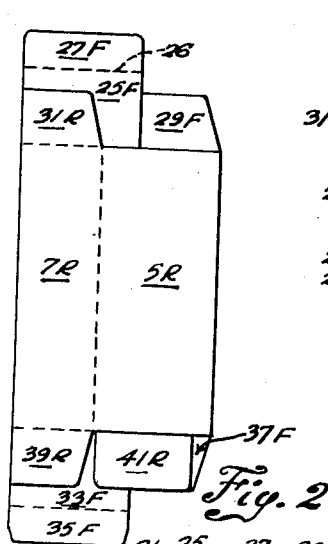
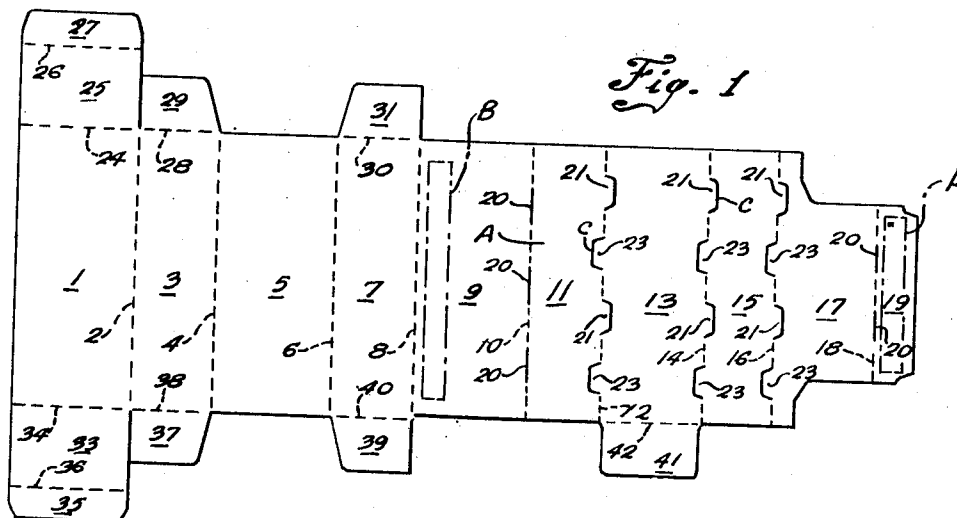
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2,513,902

CARTON

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## UNITED STATES PATENT OFFICE

2,513,902

CARTON

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4 Claims. (Cl. 229-14)

1

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 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 19 separated from the panel 17 by score line 18 is also provided. Score lines 10 and 18 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. The blank includes also top flap elements 25, 27, 29 and 31, bendable along the transverse score line 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 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.

2

The first fold occurs on the line 16, flap 19 and panel 17 being folded over onto panels 15 and 13 and in face to face relation thereto. The reverse of terminal panel or flap 19 will have previously been prepared with adhesive over the area indicated at A. The next fold occurs at line 12, bringing the reverse of panels 17 and 19 over panels 11 and 9. Flap 19 is thus joined to panel 11 by adhesive. 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 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 projection 23.

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

3

from those figures, panels 11, 13, 15 and 17 form an inner 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. 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, 31 will be folded over and tucked in in the usual way to close the package.

While the spacing projections 21, 23 are most conveniently formed by means of the cutout 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 terminal panel 1 can 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 glueing 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.

What is claimed is:

1. A collapsible shock-proof box, rectangular in cross section, formed from a folded single blank,

4

comprising a series of ten successive panels integrally connected along parallel fold lines to form inner and outer sleeves, the outer sleeve comprising five panels adjacent one end, with the first panel glued to the outside face of the fifth panel, and the inner sleeve comprising five panels adjacent the other end, with the tenth panel glued to the inside face of the sixth panel, the inner sleeve panels being narrower than the corresponding outer sleeve panels, spaced therefrom and having cuts along opposite sides of their fold lines forming oppositely facing projections of length corresponding to the distance between the inner and outer sleeves, the inner sleeve being supported from the outer sleeve surrounding the same by means of the said projections and the fold line between the ninth and tenth panels being spaced inwardly on the sixth panel from the fold line between the fifth and sixth panels.

2. A collapsible shock proof box according to claim 1, comprising also crossed flaps on the outer sleeve panels, forming an end sleeve.

3. A collapsible shock proof box according to claim 2, in which an inner sleeve panel is shorter than the corresponding outer sleeve panel and has an end flap being in slanted position against the said end closure flaps.

4. A collapsible shock-proof box rectangular in cross section, formed from a folded single blank, comprising a series of at least ten successive panels integrally connected along parallel fold lines to form inner and outer spaced sleeves, the outer sleeve comprising at least five panels adjacent one end, with the first panel glued to the outside face of the fifth panel, and the inner sleeve comprising at least five panels adjacent the other end including a first inner sleeve panel connecting the inner sleeve to the outer sleeve with the fifth inner sleeve panel fixed in faced contact relation throughout with, and held against the inside of the said connecting panel, the inner sleeve panels being narrower than the corresponding outer sleeve panels, spaced therefrom and having cuts along opposite sides of their fold lines forming oppositely facing projections of length corresponding to the distance between the inner and outer sleeves, the inner sleeve being supported from the outer sleeve surrounding the same by means of the said projections and the fold line between the fourth and fifth inner sleeve panels being spaced inwardly on the first inner sleeve panel from the adjacent fold line connecting the said first inner sleeve panel with the adjacent outer sleeve panel.

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