

Feb. 1, 1955

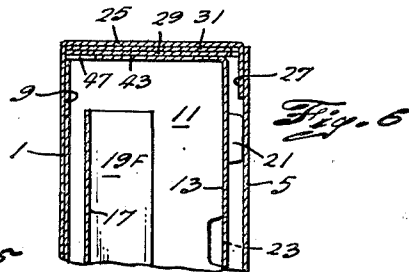
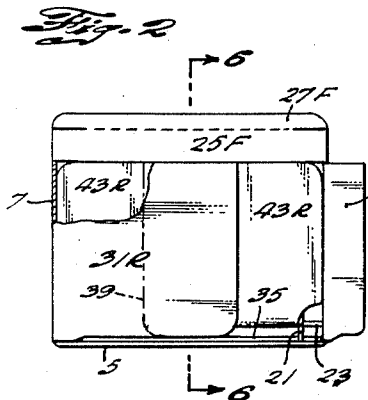
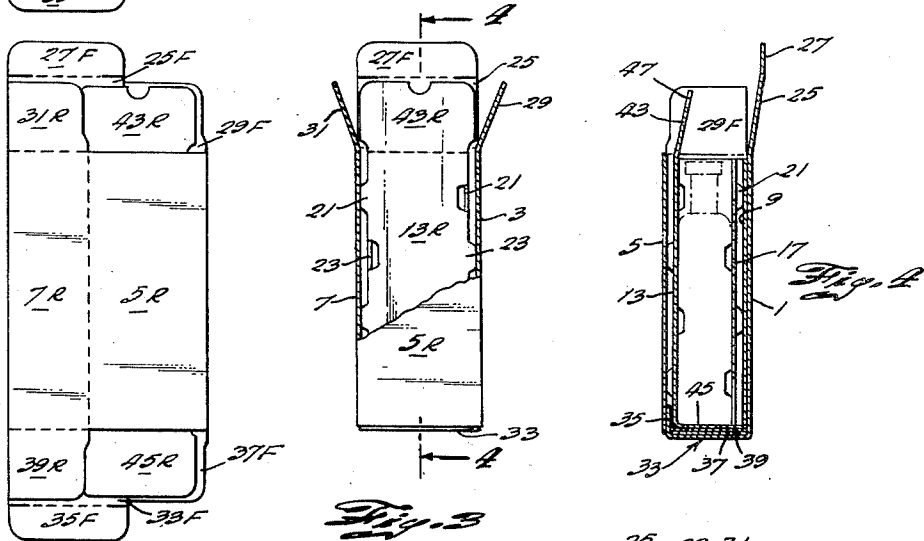
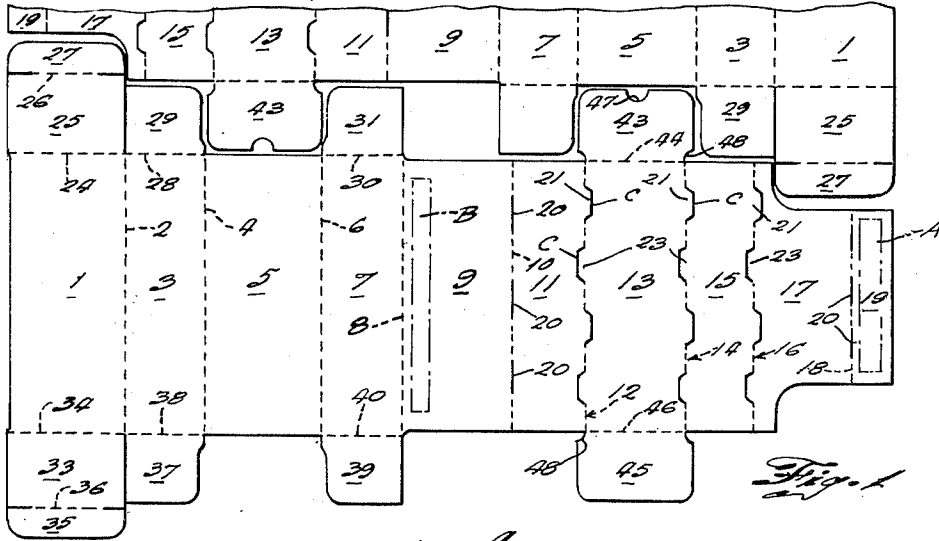
W. J. TYRSECK

2,701,088

CARTON

Filed June 10, 1949

3 Sheets-Sheet 1



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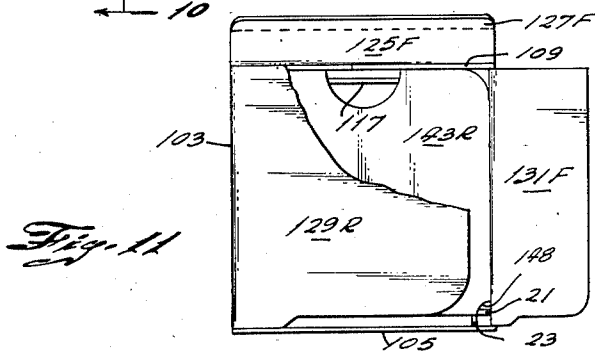
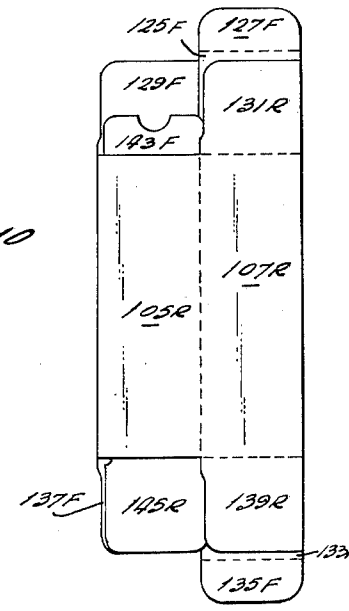
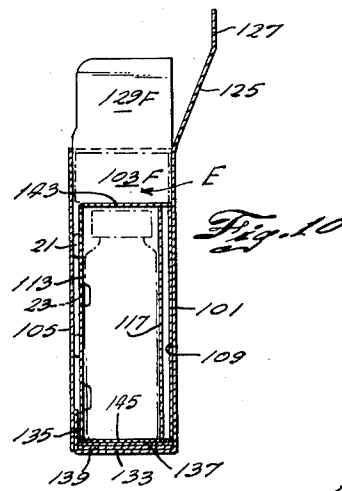
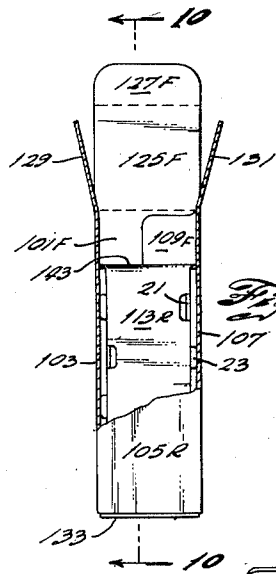
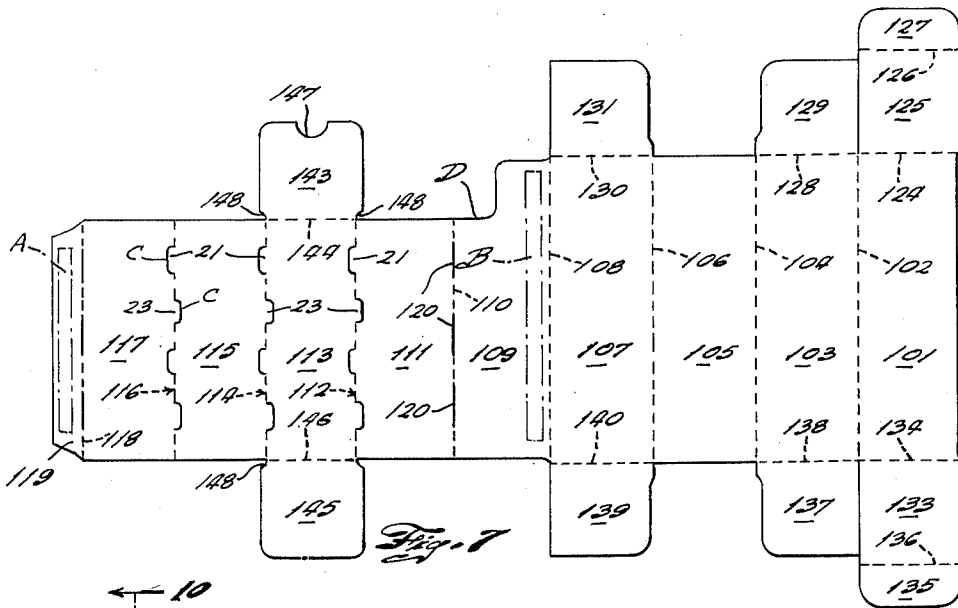
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2,701,088

CARTON

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3 Sheets-Sheet 2



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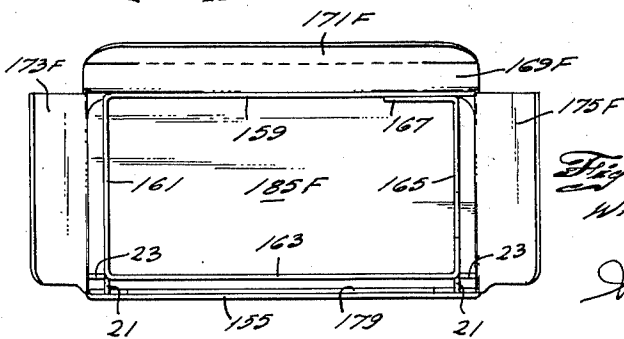
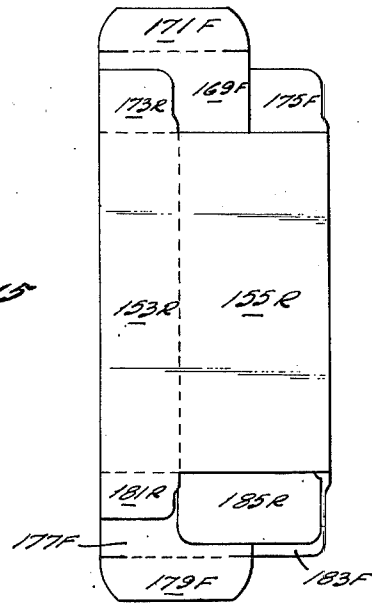
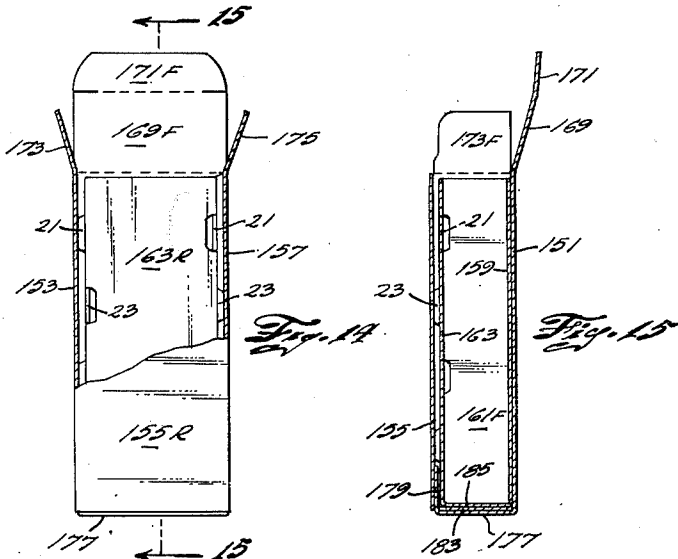
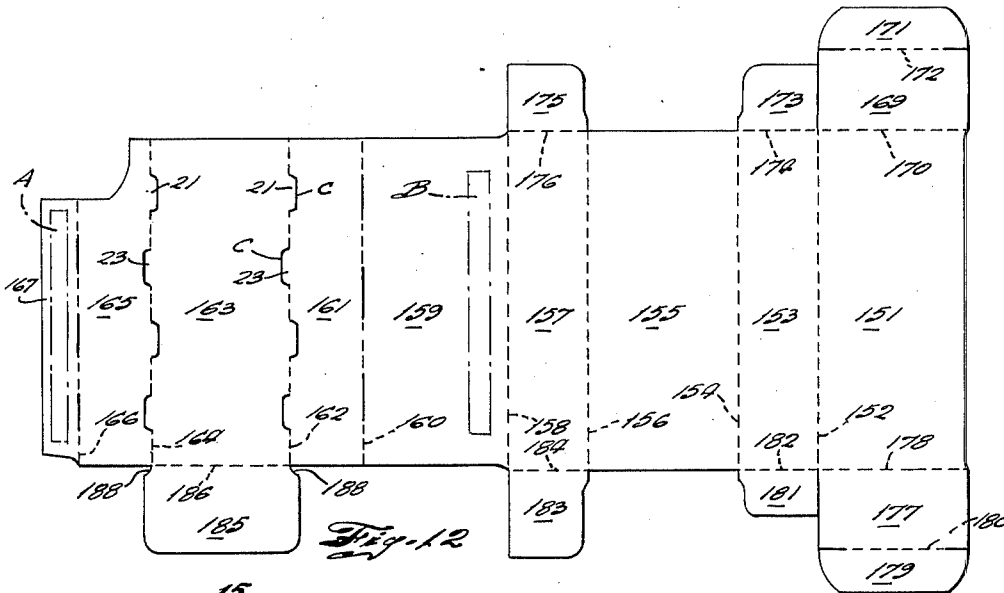
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2,701,088

CARTON

Filed June 10, 1949

3 Sheets-Sheet 3



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2,701,088

CARTON

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Application June 10, 1949, Serial No. 98,231

The portion of the term of the patent extending beyond July 3, 1967, has been disclaimed

4 Claims. (Cl. 229—14)

This invention relates to improvements in cartons.

It is an object of the invention to provide a carton incorporating an inner sleeve forming a shockproof support for the contents.

A further object of the invention is to provide improved means for spacing such an inner sleeve from the outer walls of the carton.

A further object of the invention is to provide a compartmented carton of improved construction.

In certain aspects the invention is an improvement upon that disclosed in my application Serial No. 62,609 filed November 30, 1948 for Cartons (now Patent No. 2,513,902, issued July 4, 1950).

For a full understanding of the invention, a detailed description of the carton 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 a blank for forming a container or carton embodying the invention in a preferred form;

Figure 2 is a view showing the completed container formed from the blank of Figure 1 and in collapsed condition;

Figure 3 is a front elevation of the container in set up condition, 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;

Figure 5 is a plan view on an enlarged scale of the container of Figure 3 with the end cover flaps in a different position and partly broken away to show internal structure;

Figure 6 is a fragmentary section on the line 6—6 of Figure 5, showing the container closed;

Figure 7 is a flat view of a blank showing a modified and compartmented container;

Figure 8 is a flat view showing the completed container formed from the blank of Figure 7, in collapsed condition;

Figure 9 is a front elevation of the container of Figure 8 as set up for insertion of the merchandise;

Figure 10 is a section on the line 10—10 of Figure 9;

Figure 11 is a plan view, on an enlarged scale, of the container of Figure 9 with the end cover flaps in a different position and partly broken away to show internal structure;

Figure 12 is a flat view of another modified form of blank;

Figure 13 is a flat view of the collapsed container formed from the blank of Figure 12;

Figure 14 is a front elevation of the container of Figure 13 as set up to receive the merchandise; parts being broken away to show the internal structure;

Figure 15 is a section on the line 15—15 of Figure 14; and

Figure 16 is a plan view on an enlarged scale of the container of Figure 14.

In my application Serial No. 62,609 above referred to, I have disclosed a cushion box or carton formed by folding a single blank, and in which the inner sleeve supporting the bottle or other contents within the package is spaced from and supported by the outer walls thereof by means of projections extending from the score or hinge lines between the panels forming the inner sleeve.

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According to the present invention, further or alternative support may be given to the inner sleeve and a construction providing therefor is shown in Figures 1 to 6 of the drawing.

The container blank shown in Figure 1 is adapted to form a collapsed carton or box as shown in Figure 2 by bending along score lines on a continuous roll around principle which is adapted to high speed automatic machinery. The four generally rectangular panels 1, 3, 5 and 7 at one end of the blank form an outer box, and the panels 11, 13, 15 and 17 form an inner box or sleeve. These two elements are connected together by intermediate panel 9, and a terminal glue flap 19 at the end is provided for joining the inner sleeve panels together. The various panels are defined and separated from each other by score lines 2, 4, 6, 8, 10, 12, 14, 16 and 18, as indicated. Some of these lines, as the lines 10 and 18, may be partially cut through as indicated 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 transverse score lines 24, 26, 28 and 30 and bottom flap elements 33, 35, 37 and 39 bendable on the score lines 34, 36, 38 and 40. Score lines 2 to 20 are referred to herein as longitudinal score lines for the reason that the blank in folding, as hereinafter described, will normally pass through the folding machinery in parallelism to these score lines.

As thus far described, the blank is similar to that disclosed in my application above referred to, and is folded to form the collapsed container in a similar manner.

According to the present invention, one or more additional flaps or panel elements 43 and 45 are provided, these being hingedly joined to the inner sleeve panel 13 along transverse score lines 44 and 46. It will be noted that the flaps or panels 43 and 45 are of greater width than the panel 13 to which they are joined, extending beyond the edges thereof by a distance substantially equal to the width of the projections 21 and 23 on the score lines 12 and 14 running along the sides of the panel 13. The upper element 43 may be provided with a cut-out 47 for insertion of a finger in opening the package and the panels 43 and 45 are preferably curved in concavely as at 48 where they join the panel 13.

It will be noted that the inner sleeve panel 17 is of less height than panels 1 to 15, thus permitting the saving of paper in cutting out of the blank by facilitating a very close interlock between blanks cut out from a single sheet. The manner in which the blanks are interlocked on the sheet from which they are cut is indicated in Figure 1, this figure showing a portion of an identical blank to that already described in the position which it would occupy prior to cutting from the sheet. For clarity in the figure, the interlocked blanks are indicated as spaced apart but it will be understood that in view of the corresponding shape of facing elements, there need, in general, be no more spacing between complementarily shaped edges than is required by the thickness of the cutting edge of the die.

For convenience of reference, the surfaces of the blank which are uppermost as shown in Figure 1 will be referred to as the faces of the blank, while the opposite sides will be referred to as the reverse thereof. It will be understood that the reverse of the blank will be the outer surface thereof in the completed box and may be printed or decorated in any desired manner.

In forming the collapsed container of Figure 2, the first fold occurs on the line 16, flap 19 and panel 17 being folded over onto the panels 13 and 15 and in face to face relation thereto. The reverse of panel or flap 19 will previously have been prepared with adhesive over the area indicated at A. The next fold occurs on line 12 bringing the reverse of panels 17 and 19 over the panels 11 and 9, and flap 19 is thus joined to panel 11 by the 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

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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 panels 9 and 1 will thus be joined together. While the last fold occurs from left to right, as it is more convenient to handle the 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 lines 12 and 16 will have separated the projections 23 and 21 along the U-shaped cuts defining the same, projections 21 protruding from the edge of panel 11 and projections 23 protruding from the edge of panel 13 along score line 12. Projections 21 and 23 extend similarly from the panels 15 and 17. 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 complete 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, the panels 43 and 45 will be of the same width. Similarly, the width of panel 15 counting in the projections 21 and 23 thereon will equal the width of panel 7, panel 17, counting in the projections 23 thereon will equal the width of panel 9; and again, apart from the folding allowance, panel 9 will be less in width than panel 1 by the width of the projection 23.

Pressure on the edges of the collapsed container of Figure 2 will open the box 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 these 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 by a distance equal to the width of the projections 21, 23. In this the container is similar to that in my application referred to above. However, the panel 45 extends the full width from outer box panel or wall 3 to outer box panel or wall 7 and may also engage outer box panel or wall 1 (Figure 5). In consequence, the panel 45 serves to maintain the spacing of the inner sleeve from the outer walls of the box, supporting the end of the sleeve firmly in position. To increase this support, panel 45 and end flaps 33, 37 and 39 may be joined together with adhesive applied centrally of the flap 45. As will be noted from Figure 1, the bottom edges of panels 9, 11 and 15 and also the score line 46 are somewhat above score lines 34, 38 and 40 and the bottom edge of panel 5. In consequence, the bottom panel 45 will slant somewhat, thus providing a bottom cushioning effect for the box. While various articles may be placed in a cushioned container constructed according to the invention, a typical article is a bottle, such as indicated in phantom in Figure 4, and it may be fitted closely within the inner sleeve of the container without creating danger of breakage. After placing the bottle in the container, the top panel 43 may be folded down and flaps 29, 31, 25 and 27 folded in to close the top end of the package. These elements also may be secured by adhesive for increasing the supporting effect of the top panel 43 from the inner sleeve.

When the maximum protection of the contents is desired, the projections 21 and 23 are utilized in addition to the end supporting panels 43 and 45. In certain cases, however, where less support is needed, these projections may be eliminated, in which case the fold line between panels 11, 13, 15 and 17 may be defined by straight score lines without the cut-outs C extending to either side thereof for forming the projections. By abbreviating the inner sleeve panels, end compartments may be provided within the container or the panels 43 and 45 may be spaced from the end of the outer sleeve of the container at either or both ends as desired. A construction providing for such spacing and the formation of a compartmented carton is shown in Figures 7 to 11 of the drawing. In those figures, similar elements are identified by the same reference numerals as utilized in previous

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figures but increased by 100, so that the structure of the blank and method of forming the box therefrom will in general be apparent and such description will, accordingly, not be repeated in detail, the comments on Figures 7 to 11 being confined to the features of difference in this modification.

As will be noted from Figure 7, the intermediate panel 109, corresponding generally to panel 9 of Figure 1, is cut down as at D and the upper edges of panels 111, 113, 115 and 117 are also spaced below the upper edges of panels 107, 105, 103 and 101. In consequence, when top panel 143 is folded over, as indicated in Figures 9, 10 and 11, it will set on the upper edges of panels 111, 115 and 117, extending clear across the box from outer wall panel 103 to outer wall panel 107, forming a compartment E in the upper part of the box. Where the box holds a perfume bottle, as indicated in phantom outline in Figure 10, an atomizer or the like may be inserted in the compartment E. Where the lower part of the box holds a bottle containing a different product or holds different merchandise, the upper compartment E may be utilized for any suitable auxiliary article which is sold with such merchandise. It will be observed that the upper compartment E within the box and its contents may provide further cushioning at this end. Apart from dimensions, the bottom structure of the box shown in Figures 7 to 11 is similar to that already described and requires no further description. It will be apparent without detailed description that a compartment similar to the compartment E may be provided at the bottom of the box instead of at the top or that such compartment may be provided at both ends, if desired.

In certain cases, a carton can be constructed as described above without carrying the cushioning effect around all four sides. This may prove desirable for conserving shipping space where the individual cartons are packed in a larger box or carton so that one may cushion another and where it is desired to reduce the bulk of the package. This result may be achieved very simply by eliminating one of the inner box panels and a suitable blank with this panel eliminated is shown in Figure 12, in which the panel corresponding to panel 17 has been eliminated. The blank as there shown comprises panels 151, 153, 155, 157, 159, 161, 163 and 165, as indicated, and a terminal glue flap 167. These elements are separated and defined by score lines 152 to 166. Panels 151 to 157 which form the outer box are similar to panels 1, 3, 5 and 7 as above described and are provided with similar upper and lower end flaps 169, 171, 173, 175, 177, 179, 181 and 183 bendable on the score lines 170 to 184.

A bottom panel 185, similar to the panel 45 previously described, is joined to panel 163 along a score line 186. As in the case of bottom panel 45 and inner sleeve panel 13 in the embodiment of Figure 1, panel 185 extends outwardly to both sides of panel 163 so as to be the full width of the inside of the outer box and curves in to join panel 163 along the score line 186 as indicated at 188. In the box illustrated, no corresponding upper panel is provided but it will be apparent that the lower structure of the blank may be reduplicated at the top if desired, as in the case of the embodiments of Figure 1 or Figure 7. Cut-outs C along the score lines 162 and 164 provide oppositely facing projections 21 and 23 as before. In folding the blank of Figure 12, the first fold occurs along the score line 164 bringing terminal flap 167 and panel 165 over panel 163 in face to face relationship and the second fold occurs along the line 160 bringing the reverse of panels 165 and 167, and part of the face of panel 163 and panel 161, over panels 157 and 159. The reverse of terminal flap 167 will have previously been prepared with adhesive and will thus be joined to the panel 159. The third fold occurs on line 156 and brings the reverse of panels 161 and 163 over panels 155 and 153. The last fold occurs on the line 152 bringing the face of panel 151 over panel 159. The reverse of panel 159 will previously have been prepared with adhesive over an area B and will thus be joined to panel 151.

The completed box in collapsed condition for shipment to the customer is shown in Figure 13, the front and reverse of the panels being indicated by suffixes F and R as before and the manner of setting up the box and the proportions of the panels will be evident from the

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description of those features in connection with previous figures. In the complete box as shown in Figures 14, 15 and 16, cushion spacing by means of the projections 21 and 23 and the end panel 185 is provided around only three sides of the box, the construction being otherwise similar to those previously described.

What is claimed is:

1. A rectangular 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 a rectangular inner sleeve and a rectangular outer sleeve surrounding the same, one panel of the inner sleeve forming a wall portion common to the inner sleeve and outer sleeve along one of the four sides of the box and being glued to an outer sleeve panel spaced four panels away from it, the three other sides of the box each being formed of an outer sleeve panel spaced outwardly from a respective inner sleeve panel adjacent and parallel to said outer sleeve panel, and means for maintaining said inner sleeve panels in said spaced relation to said respective outer sleeve panels, whereby said inner sleeve is restrained against lateral movement within said outer sleeve by said one panel of the inner sleeve being glued to said outer sleeve panel spaced four panels away from it.

2. A box as recited in claim 1 wherein said means comprises projections formed integral with said inner sleeve panels along the fold lines therebetween and extending outwardly to engage the outer sleeve panels.

3. A box as recited in claim 2 and comprising a glue flap panel connected to the inner sleeve panel which is three panels removed from said one panel, said glue flap panel being adhesively secured to said one panel, and a support panel hingedly joined to the inner sleeve panel opposite said one panel, the support panel being

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wider than the panel to which joined and extending across the interior of the box from outer wall to outer wall thereof.

4. A flat collapsed box structure adapted to be expanded into a shock-proof rectangular box upon the application of pressure to the opposite edges thereof, said structure comprising a blank divided by fold lines into a series of successive panels and folded in one direction into a flattened configuration, said structure comprising four outer panels at one end of the blank and at the opposite outer sides of said collapsed structure and a plurality of inner panels at the opposite end of the blank and sandwiched between said first-recited panels, the outer panels being wider than said corresponding inner panels and forming four outer walls of the box when the structure is expanded, a plurality of the fold lines between said inner panels being cut out to form projections extending outwardly to engage the outer box walls, when the structure is expanded, to maintain several of said inner panels in spaced parallel relation to the respective adjacent outer walls, the inner sleeve panel adjacent one end of the blank having hingedly joined thereto a glue flap adhesively secured to another of the inner sleeve panels.

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