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F. M. McCORMICK
CARTON WITH CUSHION LINER
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2,808,977

FIG. 1.

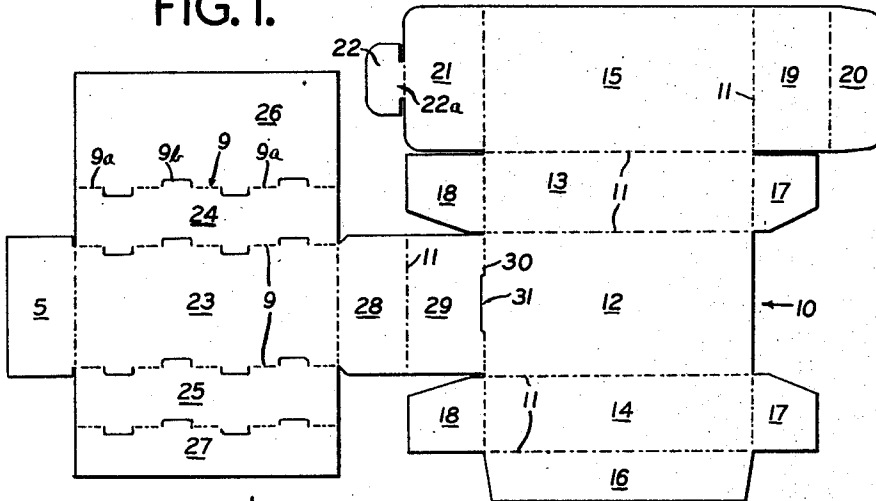


FIG. 2.

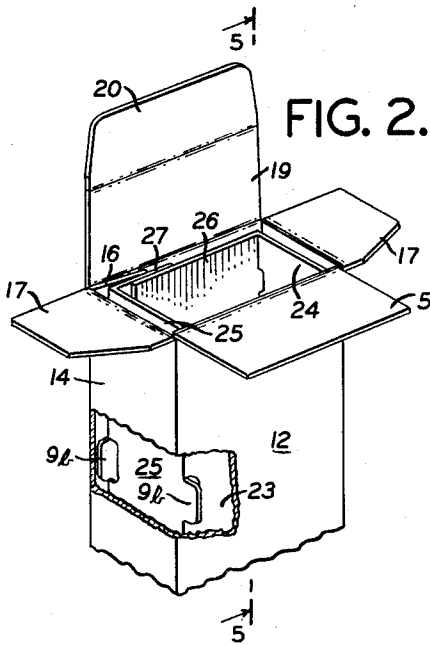


FIG. 3.

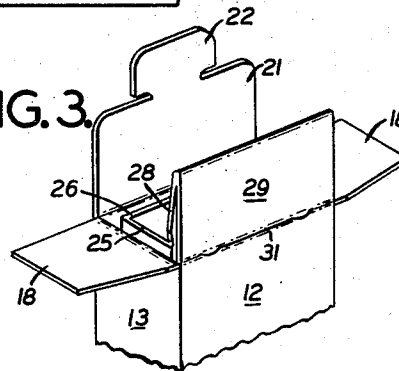


FIG. 4.

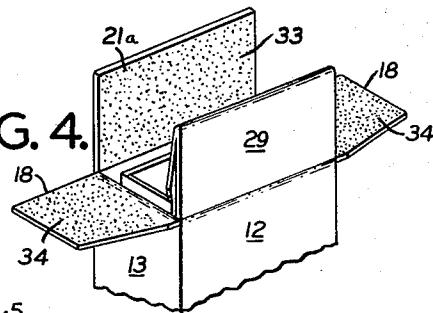
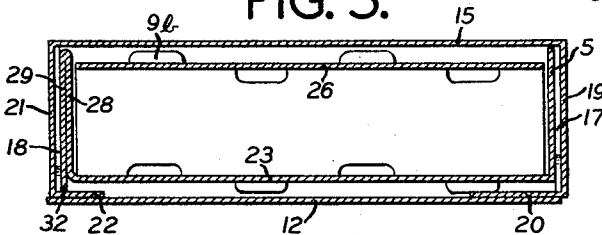


FIG. 5.



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CARTON WITH CUSHION LINER

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2 Claims. (Cl. 229-14)

This invention relates to improvements in cartons having inner cushion liners to protect the contents of the cartons from injury.

In accordance with the invention, a unitary blank is cut, scored, folded and glued to provide an outer carton of generally rectangular shape, as well as an inner cushion liner having four side walls generally corresponding to the four side walls of the outer carton. At the corners of the side walls of the cushion liner, tabs are formed which project outwardly against the walls of the outer carton, so as to space the cushion liner from the outer carton.

As an important feature of the invention, the cushion liner portion of the blank is connected to the outer carton portion of the blank by a panel which is positioned and adapted to be folded upon itself in the final assembly of the carton to serve as a cushion liner for the bottom of the carton.

An important object of the invention is to provide a carton having outer side walls hingedly connected to each other, and having an inner cushion liner with side walls hingedly connected to each other and corresponding to the outer side walls of the carton, one of the side walls of the cushion liner being adapted to be connected at one of its ends to the corresponding end of the corresponding outer side wall of the carton, by means of a panel which is adapted to be folded upon itself to serve as a cushioning end structure for the carton.

Another object of this invention is to provide a carton of the above type which is adapted to be formed from a unitary blank.

Other objects and advantages of this invention will become apparent from the following description, in conjunction with the annexed drawing, in which preferred embodiments are disclosed.

In the drawings,

Fig. 1 is a plan view of blank from which my improved carton is formed.

Fig. 2 is a perspective view of the set up and erected carton, in its upright position and with its cover open. Fig. 2 is partly broken away.

Fig. 3 is a perspective view of the carton of Fig. 2 in its inverted condition. Fig. 3 is also partly broken away. In addition, Fig. 3 shows the bottom part of the cushion lining before it has been completely folded to underlie the bottom of the carton.

Fig. 4 is a perspective view similar to Fig. 3, showing a modification of the bottom end closure structure of the carton.

Fig. 5 is a section on line 5-5 of Fig. 2, the carton being shown completely closed in Fig. 5.

Upon reference to the drawings in detail, it will be noted that Fig. 1 shows a blank 10 of unitary form, which may be made of cardboard or the like, and from which the complete carton may be assembled. Said blank 10 includes a plurality of score lines 11 which are shown in dot-dash form, and which serve to connect adjacent panels of the blank hingedly. Certain other score lines of blank 10, which are interrupted for a purpose to be described below, are designated by the reference numeral 9, and one score line is designated by the reference numeral 30.

Blank 10 includes a generally rectangular outer front panel 12, generally rectangular outer side panels 13 and 14 which are respectively hingedly connected to the side edges of said outer front panel 12, an outer rear panel

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15 of generally rectangular shape which is hingedly connected to the rear edge of outer side panel 13, and an outer glue flap 16 which is hingedly connected to the rear side edge of outer side panel 14.

As shown in Fig. 2, said glue flap 16 is adapted to be positioned in front of the outer back panel 15 in the set-up condition of the carton, and it will be apparent that the rear face of panel 16 may be suitably glued so as to permit it to be secured to rear panel 15.

Outer upper end flaps 17 are respectively hingedly connected to the upper edges of the respective outer side panels 13 and 14.

Outer bottom flaps 18 are respectively hingedly connected to the lower edges of the outer side panels 13 and 14. These flaps 17 and 18 serve to overlie the top and bottom of the outer carton sleeve in the usual manner.

Outer cover flap 19 is hingedly connected to the upper edge of outer rear panel 15, and outer tuck flap 20 is hingedly connected to the front edge of said outer cover flap 19.

Outer bottom closure flap 21 is hingedly connected to the bottom edge of outer rear panel 15. Outer tuck flap 22 is hingedly connected to the front edge of flap 21, said tuck flap 22 having a portion 22a adjacent its hinge line 11 which is of reduced width.

The inner cushion liner portion of blank 10 includes a generally rectangular inner front panel 23. Generally rectangular inner side panels 24 and 25 are respectively hingedly connected by hinge lines 9 to the respective side edges of the inner front panel 23. A generally rectangular inner rear panel 26 is hingedly connected by a further hinge line 9 to the rear edge of inner side panel 24. Inner glue flap 27 is hingedly connected by a still further hinge line 9 to the rear edge of the inner side panel 25. It will be apparent that glue may be applied to flap 27, similarly to flap 16, so as to glue the front face of flap 27 to the rear face of inner rear panel 26. Preferably, the inner rear panel 26 is of slightly less width than the inner front panel 23. An inner, generally rectangular top flap 5 is hingedly connected to the upper edge of panel 23.

The hinge lines connecting the various panels heretofore described of the cushion liner portion of the blank differ from the previously mentioned hinge lines 11. Specifically, each hinge line 9 consists of score lines 9a respectively alternating with cut-out tabs 9b, the tabs 9b being cut out alternately from the respective panels joined by the hinge line 9. In other words, taking as an example hinge line 9 joining the panels 24 and 26, as viewed in Fig. 1, this comprises first an ordinary scored section 9a, next a tab 9b which serves as an extension of panel 26 and which is cut out of and extends into panel 24, next a further score line 9a, next a tab portion 9b which is a part of panel 24 and which is cut out of and extends into panel 26, and so forth.

Preferably, the width of inner front panel 23, together with the width of the tabs 9b at each side thereof, equals the width of outer front panel 12. Similar relationships preferably exist between the inner and outer side panels. Similarly, the width of the combined inner rear panel 16, 26, together with the width of its tabs 9b, preferably equals the width of outer rear panel 15. Preferably, also, the width of panel 5 is substantially equal to the width of panel 12, although the hinge line 11 connecting panel 5 and panel 23 is of the same width as panel 23.

As an important feature of the invention, the outer carton portion and the inner cushion liner portion of blank 10 are joined by a pair of bottom cushion panels 28 and 29. Panel 28 is hingedly connected to the bottom edge of inner front panel 23. This panel 28 is preferably generally rectangular in shape and of the same width as panel 12, although the hinge line 11 connecting panel 28 and panel 23 is of the same width as panel 23.

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Panel 29 is hingedly connected to the edge of panel 28 which is opposite to the edge thereof connected to panel 23. Panel 29 is also generally rectangular in shape and is preferably of the same width as panel 28 and panel 12. Panel 29 is hingedly connected to the bottom edge of outer front panel 12 by means of a hinge line 30 which differs from the score lines 11 and the hinge lines 9 previously described. This hinge line 30 comprises a score line which is interrupted intermediate its ends by a tab 31 which is cut out of panel 29 and which serves as an extension of outer front panel 12.

The manner in which blank 10 is erected into carton form is as follows:

Blank 10 is folded upon the score line 11 joining panels 28 and 29 so as to bring panels 23 and 12 into registration. Panels 23—27 are then folded on their hinge lines 9 so as to bring panels 27 and 26 into registration, as shown in Fig. 2, and panel 27 is glued to panel 26. Panels 12—16 are then folded so as to bring panel 14 into registration with panel 25, panel 13 into registration with panel 24 and panel 15 into registration with panel 26, as well as bringing panel 16 into registration with the inner face of panel 15, as shown in Fig. 2, to which said panel 16 may then be glued.

While Fig. 2 shows the carton in its set up condition, it will be apparent that to the extent that the carton has been assembled, as above described, it may be shipped in flat form with the various inner and outer side walls folded upon their hinge lines so as to bring the inner panels 23 and 25 into abutment with the inner panels 26 and 24, the outer panels being correspondingly folded.

When it is desired to complete the erection of the carton, it is first folded into its generally rectangular shape of Fig. 2. The inner upper end flap 5 is then folded to overlie the upper end of the carton; the outer upper end flaps 17 are folded to overlie the flap 5; and cover 19 is folded against flaps 17 and 5 and the inner face of outer front panel 12.

The abutting flaps 28 and 29 are then folded on hinge line 30 so that they underlie the lower end of the carton, with flap 28 uppermost.

A slot 32 (Fig. 5) is thereby provided between tab 31 and the opposing spaced edge portion of panel 29. Lower end flaps 18 are then folded to underlie panel 29. The lower closure 21 is then folded to underlie flaps 18, and flap 22 is tucked through slot 32 to lie against the inner face of outer front panel 12.

It will be apparent that in the completely assembled and closed carton, each of the cushion panels 23, 24, 25 and 26 has tabs 9b projecting beyond its respective side edges, toward the outer side panels of the carton. For example, the side cushion panel 24 has tabs 9b projecting beyond the respective front and rear edges thereof toward the respective outer front panel 12 and outer rear panel 15, these tabs 9b serving to keep the wall 24 spaced from panels 12 and 15. Similarly, all of the cushion walls 23, 24, 25 and 26 are held spaced from the corresponding outer side walls of the carton by the spacer tabs 9b. In addition, the lower edges of the cushion panels rest upon the panel 28, which in turn rests upon the panel 29, these panels 28 and 29 serving to space the side cushion panels from the bottom closure structure 18, 21 of the carton. Preferably, of course, panels 28 and 29 are of a size to substantially completely close the bottom end of the carton.

At the top of the carton, the inner cushion panel 5 adds a certain amount of protection and spacing of the cushion liner from the top closure of the carton. Preferably, the length of the inner sleeve is slightly less than the length of the outer sleeve, in order to accommodate the various end closure elements.

It will be apparent that when a bottle or other container is placed in the carton, the inner cushion walls 23—26 serve to cushion the container from forces exerted

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upon the outer side walls of the carton, and the double layer 28, 29 on the bottom of the carton serves to cushion the bottle or the like from sudden shocks or jars such as occur if the carton is placed roughly upon a table or the like.

A modification of the bottom closure is shown in Fig. 4 of the drawings. In this view, rather than the tuck flap 22, glue means or the like are provided to connect the outer bottom flap 21a to the end flaps 18, the upper face of said panel 21a being shown appropriately coated with glue or the like 33. Optionally, the upper faces of flaps 18 are coated with glue 34 and are glued to panel 29.

While I have disclosed a preferred embodiment of my invention, and have indicated various changes, omissions and additions, which may be made therein, it will be apparent that various other changes, omissions and additions may be made in the invention without departing from the scope and spirit thereof.

The drawings are substantially to scale of working models of the invention, and reference is made to the drawings to complete the disclosure.

I claim:

1. A collapsible shock-proof box, rectangular in cross-section, formed from a folded single blank, comprising an outer sleeve having front and rear walls and connecting side walls, an inner sleeve having front and rear walls and connecting side walls, the inner sleeve walls being narrower than the corresponding outer sleeve walls, 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, an inner sleeve bottom panel hingedly connected to the bottom edge of the inner front wall and adapted to extend rearwardly therefrom to cover the bottom opening of the inner sleeve, an outer sleeve bottom panel hingedly connecting the lower edge of the outer front wall and the rear edge of the inner sleeve bottom panel, said inner sleeve bottom panel and said outer sleeve bottom panel being biased away from each other by their hinged connection, and outer bottom closure flaps hinged to the lower edges of the other outer walls and adapted to be secured to each other to seal the bottom end of said box, said inner sleeve bottom panel and said outer sleeve bottom panel serving as the only integral connection between the inner sleeve and the outer sleeve.

2. A collapsible shock-proof box, rectangular in cross-section, formed from a folded single blank, comprising an outer sleeve having front and rear walls and connecting side walls, an inner sleeve having front and rear walls and connecting side walls, means formed on said inner sleeve and adapted to co-act with the walls of the outer sleeve to support said inner sleeve spaced from said outer sleeve, an inner sleeve bottom panel hingedly connected to the bottom edge of the inner front wall and adapted to extend rearwardly therefrom to cover the bottom opening of the inner sleeve, an outer sleeve bottom panel hingedly connecting the lower edge of the outer front wall and the rear edge of the inner sleeve bottom panel, said inner sleeve bottom panel and said outer sleeve bottom panel being biased away from each other by their hinged connection, and outer bottom closure flaps hinged to the lower edges of the other outer walls and adapted to be secured to each other to seal the bottom end of said box, said inner sleeve bottom panel and said outer sleeve bottom panel serving as the only integral connection between the inner sleeve and the outer sleeve.

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