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CARTONS FOR ELONGATED ARTICLES

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

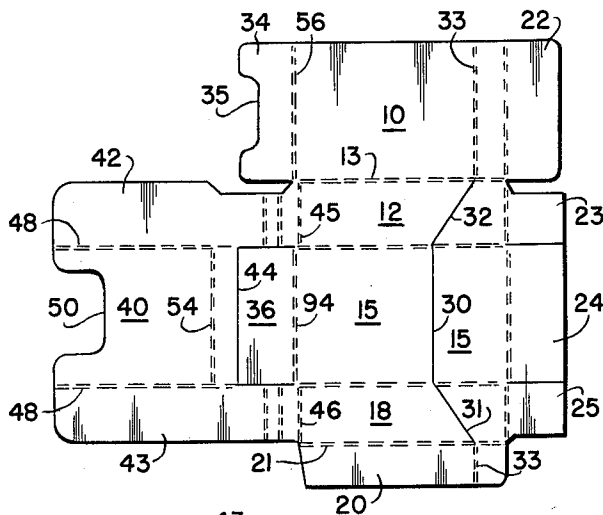


FIG. 8

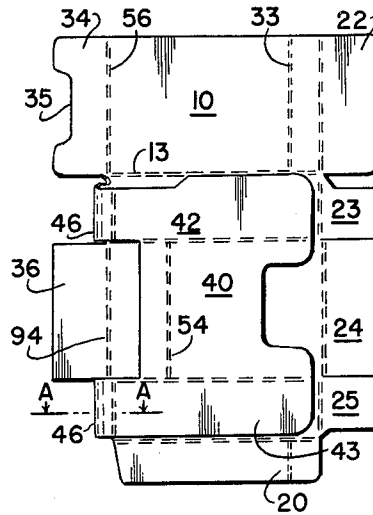


FIG. 9

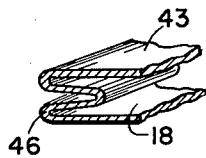


FIG. 10

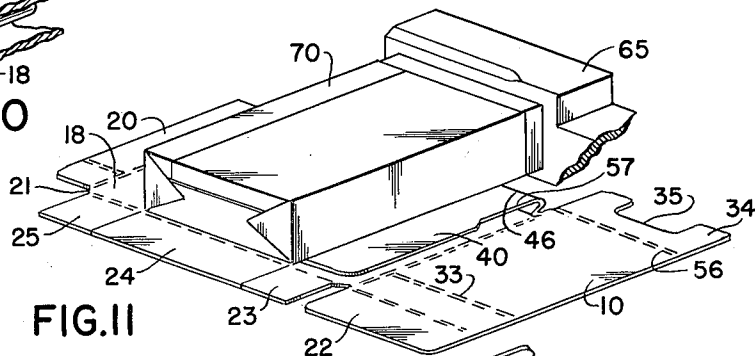


FIG. 11

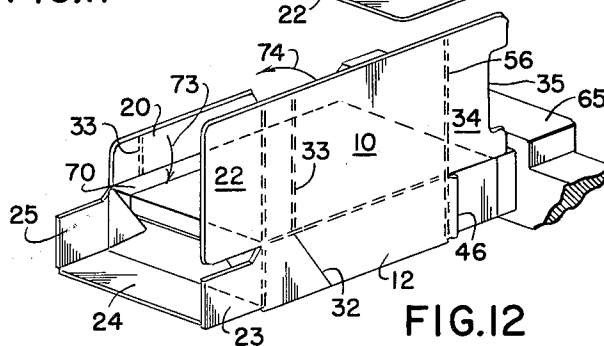


FIG. 12

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CARTONS FOR ELONGATED ARTICLES

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This invention relates to a carton, and particularly to a carton having a reclosable lid.

The carton provided by this invention is intended primarily for use in packaging cigarettes and similar rod-like articles, although this carton could be readily adapted to the packaging of other materials. There are in use many cigarette packing machines manufactured by the American Machine and Foundry Company of New York, and such machines are generally shown in United States Patent 1,926,192. These machines are at present used to provide the well known cigarette package comprising an inner foil wrap and an outer paper pouch which is in turn covered with a cellophane wrapper.

Cigarette cartons having integral hinged lids heretofore proposed have met with little commercial success largely because they are not, generally speaking, adaptable to the folding operations of the American Machine and Foundry Company packing machine, and because the conversion of these machines for use with such cartons has either not been possible or has been prohibitive from the standpoint of cost. In spite of the fact that a reclosable lid type of carton provides many advantages from the standpoint of neatness of appearance and resistance to crushing during handling and use, the packaging industry, particularly with regard to cigarette packaging, has largely continued the use of the present well known cigarette package and has not employed the paperboard carton type of package.

It is therefore a primary object of this invention to provide a blank for forming a carton having a reclosable lid which is adapted to the high speed folding and packaging operations of folding and packaging machines now in general use.

Another object of this invention is to provide such a blank which is simple and economical to manufacture, yet which provides a carton having a neat and sturdy appearance.

A further object of the invention is to provide in such a carton an inner member comprised of three panels which include inner side panels hinged to the lower edges of the main or outer side wall panels of the carton for lateral folding with respect to the lower edge of the outer side panels to a position wherein the inner member is superimposed upon the main portion of the carton blank, providing a member for supporting and presenting the contents when the carton top is open.

An additional object of the invention is to provide such a carton wherein the inner front panel only may be adhered to the outer member, leaving the inner side panels free to slide relative to the outer member during the folding operations.

Another object of this invention is to provide a package for cigarettes and like articles wherein the articles are completely covered by a sheet of foil, and wherein the foil enclosed articles are packaged in a paperboard carton having a reclosable lid, and to provide a blank of paperboard material which may be folded by high speed packaging machines to provide such a package.

A further object of this invention is to provide a method of forming a carton having a reclosable lid by providing a blank including inner and outer members, and folding the inner member into superposition upon

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the outer member, and then folding the blank about the mandrel into open tubular form and securing the blank in this form.

Another object of this invention is to provide an inner carton member which is an integral part of the outer carton blank.

Still another object of this invention is to provide an outer carton folded together with an inner foil liner so that the foil is locked to the outer carton to prevent the pull out of the liner when the package is opened.

Other objects and advantages of the invention will be apparent from the following description, the accompanying drawing and the appended claims.

In the drawing:

FIG. 1 is a plan view of a blank for forming a carton in accordance with the invention;

FIG. 2 is a plan view of the blank with the inner member superimposed upon the main portion of the blank;

FIG. 3 is a perspective view of the blank of FIG. 1 partially cut away in tubularly folded form preparatory to forming the top and bottom walls of the carton;

FIG. 4 is a perspective view of a partially cut away carton which has been completely formed except for the final fold and sealing of the end flap and liner flap;

FIG. 5 is the perspective view shown in FIG. 4 showing the folded liner flap and the partially folded end flap;

FIG. 6 is a perspective view of the completed carton formed from the blank of FIG. 1;

FIG. 7 is a view similar to FIG. 6 with the reclosable lid in an open position;

FIG. 8 is a plan view of a modified blank in accordance with the invention;

FIG. 9 is a plan view of the blank of FIG. 8 with the inner member superimposed upon the main portion of the blank;

FIG. 10 is a partial cross sectional perspective view of a pleated bottom tuck made from the blank shown in FIG. 8 through A—A of FIG. 9;

FIG. 11 is a perspective view of the partially folded blank shown in FIG. 9 in position for assembly around a carton liner;

FIG. 12 is a perspective view of the positioned blank of FIG. 11 at a partially assembled stage.

Referring to the drawings, which illustrate a preferred embodiment of the present invention, the blank includes a rear panel 10 at one end thereof having an outer side panel 12 hinged to one side of panel 10 along the score line 13. An outer front panel 15 is connected to the opposite side of panel 12 along line 16 and the other outer side panel 18 is attached to the opposite side of panel 15 along line 19. A glue flap 20 is hinged at 21 to the other edge of panel 18 for connection with rear panel 10 to retain the blank in tubular form. A series of top flaps 22, 23, 24 and 25 are independently hinged to the upper edges of panels 10, 12, 15 and 18, respectively, for forming a top wall on the carton.

The outer panels, which constitute the main portion of the blank in FIG. 1, are provided with slitted and scored portions for the formation of a reclosable lid on the completed carton. A continuous slit is provided through panels 12, 15 and 18 including a central portion 30 extending horizontally across front panel 15 parallel to and spaced below the upper edge thereof, and slanted or bias-cut portions 31 and 32 extending from opposite ends of slit portion 30 upwardly at an angle across panels 12 and 18, toward but spaced below the upper edges of these outer side panels. A score line 33 extends transversely of rear panel 10, spaced from the upper edge thereof and intersecting the end of slit portion 32, and a score line 33' is also provided across glue flap 20, intersecting the end of slit portion 31 and located on the glue

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flap to register with score line 33 when the blank is folded into tubular form. Thus, the continuous slit and the associated score lines 33 and 33' divide the main portion of the blank into upper and lower sections, with the sections of the blank between the upper edge thereof and the slit and score lines providing front, side, rear and top walls of a reclosable lid which is hinged to the carton along line 33. The portions of the blank below the slit and score line are foldable to provide an open top box to which the reclosable lid is integrally hinged.

At the bottom of rear panel 10 a bottom flap 34 is articulated. A second bottom flap 36 is articulated to the rear edge of panel 15, and surrounding this flap is a series of inner panels providing an inner member for the completed carton. Thus, the inner member includes an inner front panel 40 and inner side panels 42 and 43. A continuous slit 44 separates flap 36 from all adjacent portions of the inner member, and the inner member is integrally hingedly connected to the outer member along score lines 45 and 46 separating outer and inner side panels 12 and 42, and outer and inner side panels 18 and 43, respectively. The advantage of this structural method is that it provides a neater package bottom than generally results from connecting the inner member to the back panel. Thus, the entire inner member is foldable as a unit along lines 45 and 46 into superposition upon the outer member, and the height of the inner panels is such that they extend across slit portions 30, 31 and 32 and terminate slightly beneath the upper edge of the outer panels 12, 15 and 18. A portion of the fold lines separating inner front panel 40 from the inner side panels 42 and 43 is slit and offset somewhat adjacent the outer edge of the blank to provide tabs 48 extending outwardly from opposite sides of panel 40. These tabs serve to retain the lid of the carton in its normally closed position as will presently be described. Also, the free upper edge of inner front panel 40 is provided with a central cutaway portion 50 which affords an access opening in the completed carton.

In order to adapt the carton of the present invention to high speed packaging operations, it is desirable to fold the inner member onto the outer member, as shown in FIG. 2, by the use of automatic folding equipment either separate from or in combination with a high speed packaging machine. Thus, it is desirable that flap 36 remain coplanar with panel 15 for further folding operations.

The blanks, either in flat condition or in the flat folded assembled condition, are readily adaptable to feeding from a magazine of a packaging machine. In the former instance a preliminary fold is made in the blank feeding mechanism of the packaging machine to superimpose the inner blank member upon the outer member. Or, the blanks may be pre-folded in a high speed machine and then placed in the packaging machine magazine, as in the latter instance. In either event only four folds are required to "tube" the blank, that is, to assemble it in open tubular form. The upper portions of the inner member overlie the continuous slit through panels 12, 15 and 18, and the free upper edges of these panels provide continuations of the front and side panels of the open top box referred to above which extend into the closable lid of the carton.

The sequence of steps shown in FIGS. 11-12, 3, 4 and 5 illustrates the formation of a carton from the blanks shown in FIGS. 2 and 9. These steps may be performed by high speed packaging machines, for example of the type shown in above mentioned United States Patent 1,926,192. As previously explained, the blanks are fed from a magazine. As the inner member of the blank is folded onto the outer member, bottom flap 36 remains coplanar with the outer front panel 15. FIG. 11 shows a hollow mandrel 65 of the type shown in the above mentioned patent, for example, in FIGS. 33-37 thereof. A sheet of foil 70, having a perforation 72 extending across one of its ends, is wrapped about the mandrel in the usual

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manner. Such a foil sheet is also shown in FIG. 7 of this application.

The carton blank, with the inner and outer members folded together, is positioned against the mandrel with the inner front panel 40 abutting one of the larger flat faces thereof and overlying foil sheet 70, preferably on the side of the foil, opposite from the overlapped edges thereof. The side panels of the blank are then folded around the smaller sides of the mandrel, as shown in FIG. 12. Suitable adhesive is applied to the outer face of glue flap 20, and the glue flap is then folded along line 21 onto the other large side of the mandrel as indicated by arrow 73, and finally rear panel 10 is folded in the direction of arrow 74 into contact with glue flap 20 for adherence thereto. Thus, the blank is folded into open tubular form about the mandrel.

The top wall of the carton is next formed by folding flaps 23 and 25 inwardly over the foil, as shown in FIG. 3. Flap 22 is then folded across the end of the carton in the direction of arrow 75, and finally flap 24 is folded over in the direction of arrow 76 and adhered to the outer surface of flap 22 by a suitable adhesive (not shown). With the top wall of the carton formed, the articles to be packaged, for example cigarettes indicated generally at 80 in FIG. 4, are pushed into the interior of the hollow mandrel by a plunger (not shown) and the stroke of the plunger is extended until the cigarettes abut the now closed top wall of the carton and push the entire assembly of carton, foil and cigarettes off the hollow mandrel.

The sides of the foil sheet, which extend below the lower edges of side walls 12 and 18, are next tucked inwardly over the open bottom of the carton, the bottom flaps 96 are folded in, and the flap 34 is folded over as shown in FIG. 4 to fold the part of the foil overlying that flap across the bottom of the carton. Finally, flap 36 is folded over along fold line 56 across the bottom of the carton, carrying with it the remaining portion of the foil. Flaps 36 and 34 are secured together by a suitable adhesive (not shown) to complete the forming of the carton. Due to the provision of cut away portion 35 in flap 34 when that flap is folded downwardly, it contacts only portions of the foil sheet which have been tucked in from the sides, and when flap 36 is folded over the portion of the foil folded in by this movement contacts the foil already folded over and none of the carton material comes into contact with the contents packaged within the carton.

The completed carton is shown in FIG. 6 with the lid in its closed position, and in FIG. 7 the carton is shown with the lid swung to its open position. It will be noted that the cut away portion 50 provides an access opening in the upper frontal edge of the open top box portion of the carton. The height of panel 40 is such that the free upper edges thereof at the corner of the box intersect the arc through which the front wall of the lid swings about hinge line 33, and thus a certain amount of force is required to slide the front wall of the lid over the upper edge of the box. In addition, tabs 48 engage the front corners of the lid and assist in retaining it in its normally closed position.

FIGS. 8-12 show a modified form of the invention. The bottom flaps 96 are omitted from the side panels 12 and 18. Two extra parallel transverse folds are provided at the hinge position 45 in the inner side panels 42 and 43 as shown in FIGS. 10 and 11. An integral corrugated connection is thus formed between inner and outer side panels. This expedient provides a pleated or corrugated tuck 46 at the bottom of the side panels of the finished box as shown in FIG. 12 and thereby automatically eliminates any gap which slightly irregular forming operations introduce between the bottom and side panels in the absence of the bottom side flaps 96.

So far, the present invention has been described in connection with cigarette packaging machines, but it is to be

understood that the cartons provided by the invention are adaptable to use in any number of high speed packaging machines. Thus, for example, the blanks of FIGS. 2 or 9 can be assembled into flat folded tubular form for shipping and/or storage, and in this form the blanks are adaptable to use in high speed packaging machines which erect the flat tubed blank, form the top wall thereon, fill the erected carton, and finally form the bottom wall from the bottom flaps thereof. This folding can be performed by high speed gluing and folding machines which apply a suitable adhesive to the glue flap 20, fold the glue flap and adjacent side panels over onto the front panels, and then fold the rear panel 10 onto the glue flap for adherence thereto.

The inner foil wrapper 70 is provided within the carton to enclose the cigarettes, as previously described, and this foil includes the weakened or perforated line 72 extending around its entire periphery, as shown in FIG. 7. The perforations 72 are preferably located to extend across the upper end of the package between the upper and lower ends of access opening 50. Thus, the upper section of the foil wrapper above perforation line 72 may be removed to provide access to the cigarettes. The reclosable lid for the carton provides easy access to the cigarettes at all times, yet keeps them enclosed and thus relatively fresh. Furthermore, the stiff stock from which the carton component of the package is made is resistant to crushing and affords ample protection to the cigarettes during normal handling.

Thus, the present invention provides a carton having a reclosable lid which is simple and economical to manufacture and assemble, and which is particularly adaptable to use with high speed folding and packaging machines now in general use. The present invention provides a carton which is readily adaptable to present day packaging operations.

Also, since the outer front panels of the cartons are continuous across the slits 30, there is no problem of registry between adjacent portions of the box portions and the lid portions of the carton when it is desired to print upon the outer surface of the blanks.

While the method and the articles herein described constitute preferred embodiments of the invention, it is to be understood that the invention is not limited to this precise method and these forms of articles, and that changes may be made therein without departing from the scope of the invention which is defined in the appended claims.

What is claimed is:

1. A carton blank of the character described comprising an inner member and an outer member, said outer member including outer front, rear and side panels connected side by side in longitudinally aligned relation, flaps on all the bottom edges of said outer panels for forming a bottom wall on the assembled carton, said inner member including inner front and side panels connected side by side in longitudinally aligned relation and said inner side panels being integrally connected to said outer side panels and adapted to be superimposed upon said outer side panels, said superimposed inner and outer members being arranged for folding through a series of four folds into open tubular form, a glue flap on said outer member for retaining said blank in said open tubular form, said outer front and side panels having a continuous transverse slit therein extending through the portions thereof upon which said inner member is superimposed, a score line extending across said outer rear panel below the upper edge thereof and adapted to extend between opposite ends of said slit in the assembled carton, the portions of said outer panels between the upper edges thereof and said score line and said slit providing front, side and rear walls of a reclosable lid in the assembled carton, flaps on the upper edges of said outer panels for forming a top wall on said lid, and portions of said inner panels extending toward the upper edge of said outer

member to be positioned in the path of movement of said front wall when the lid of the assembled said carton is swung about said score line.

2. A carton blank of the character described formed from a single blank of sheet material and comprising integrally connected inner and outer members, said outer members including outer front, rear and side panels connected side by side in longitudinally aligned relation, flaps on all the bottom edges of said outer panels for forming a bottom wall on the assembled carton, said inner member including inner front and side panels connected side by side in longitudinally aligned relation and a flexible connection between said inner side panels and said outer side panels whereby said inner front and side panels are adapted to be superimposed upon said outer front and side panels, said superimposed inner and outer members being arranged for folding through a series of folds into open tubular form, a glue flap on said outer member for retaining said blank in said open tubular form, said outer front and side panels having a continuous transverse slit therein extending through the portions thereof upon which said inner member is superimposed, a score line extending across said outer rear panel below the upper edge thereof and adapted to extend between opposite ends of said slit in the assembled carton, the portions of said outer panels between the upper edges thereof and said score line and said slit providing front, side and rear walls of a reclosable lid in the assembled carton, flaps on the upper edges of said outer panels for forming a top wall on said lid, and portions of said inner panels extending toward the upper edge of said outer member to be positioned in the path of movement of said front wall when the lid of the assembled said carton is swung about said score line.

3. A blank adapted to be formed by high speed machine operations into a carton having a reclosable lid, said blank comprising an inner member including front and side panels connected to each other along fold lines, an outer member including front, rear and side panels and a glue flap, the side panels of said inner member having integral connections with the side panels of said outer member, flaps on the top and all the bottom edges of said outer member to provide top and bottom walls for said carton, means for providing a lid for said carton including a continuous transversely slitted portion in the front and side panels of said outer body separating a portion of said outer front and side panels from the remainder of said outer body, and said outer rear panel having a hinge portion integral with said lid and connecting said lid to the remainder of said carton.

4. A carton having an integral reclosable lid and formed from a single blank of sheet material, comprising outer front, rear and side panels arranged in line and scored for folding into a generally tubular body, a glue flap on the free edge of one of said panels for fastening the panel to the opposite edge of said blank, top flaps separate from each other and each integrally hingedly connected to said front, rear and side panels for forming a top wall on said carton, said outer front and side panels having a continuous slit transversely thereof adjacent and slightly spaced from said top flaps, said outer rear panel having a transverse score line extending between the ends of the slit in said side panels to provide a lid for said carton hinged along said score line, inner side panels hingedly connected to said outer side panels, an inner front panel extending between said inner side panels, and bottom flaps separate from each other and hingedly connected to the bottom edges of said outer, rear, front and side panels for forming a bottom wall on said carton.

5. A carton blank of the character described, adapted to be formed by high speed machine operations into a carton having a reclosable lid, comprising an inner member and an outer member, said outer member including outer front, rear and side panels connected side by side in longitudinally aligned relation, flaps on all the bottom edges of said outer panels for forming a bottom wall on

the assembled carton, said inner member including inner front and side panels connected side by side in longitudinally aligned relation and said inner side panels being integrally connected to said outer side panels and adapted to be superimposed upon said outer side panels, said superimposed inner and outer members being arranged for folding through a series of four folds into open tubular form, a glue flap on said outer member for retaining said blank in said open tubular form, said outer front and side panels having a continuous transverse slit therein extending through the portions thereof upon which said inner member is superimposed, a score line extending across said outer rear panel below the upper edge thereof and adapted to extend between opposite ends of said slit in the assembled carton, the portions of said outer panels between the upper edges thereof and said score line and said slit providing front, side and rear walls of a reclosable lid in the assembled carton, flaps on the upper edges of said outer panels for forming a top wall on said lid, and portions of said inner panels extending toward the upper edge of said outer member to be positioned in the path of movement of said front wall when the lid of the assembled said carton is swung about said score line.

6. A blank adapted to be formed by high speed machine operations into a carton having a reclosable lid, comprising an outer member including outer front, rear and side panels joined in side by side relation, flaps on the upper and lower edges of said panels for providing top and bottom walls on the carton, said front and side panels having a continuous transverse slit therein spaced below the upper edges thereof, an inner member including front and side panels joined in side by side relation, a plurality of parallel transverse folds across the inner side panels whereby an integral corrugated connection is formed between the outer and inner side panels, said inner member being dimensioned to extend across said slit by folding thereof about said integral connection between said inner and outer side panels.

7. A package for cigarettes and the like comprising a sheet of foil completely enclosing the cigarettes, a carton formed from a single blank of sheet material surrounding said sheet of foil, said carton having an outer member in-

cluding outer front, rear and side panels arranged in line and scored for folding into a generally tubular body, flaps on the upper and lower edges of said outer panels providing top and bottom walls on the carton, said carton also including an inner member having inner front and side panels, a plurality of parallel transverse folds across said inner side panels forming an integral corrugated connection between said outer and inner side panels, said inner side panels being of substantially the same height and width as said outer side panels, said inner front panel extending between said inner side panels adjacent the upper portion of said carton, and said outer front and side panels having a continuous slit extending transversely of said outer front panel across the upper portion thereof overlying said inner front panel, said slit being slanted upwardly across said outer side panels to adjacent said rear panel and spaced below said top wall of said carton to provide a lid for said carton hinged to said rear panel thereof, said lid being movable between open and closed positions for providing access to the upper portion of said sheet of foil and the cigarettes enclosed therein, and means on said inner front panel for retaining said lid in its closed position.

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