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SELF-LOCKING BOX

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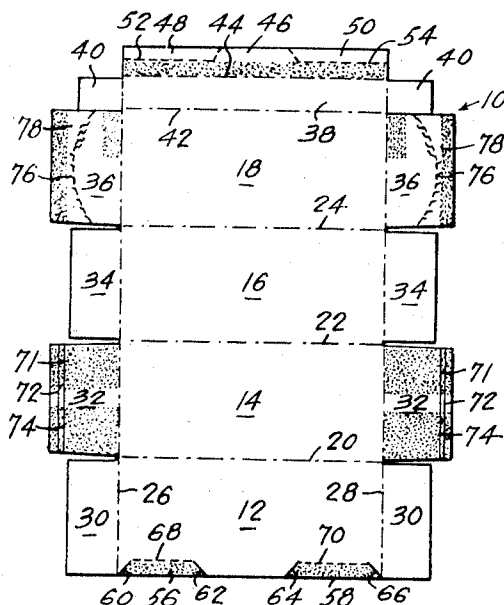


FIG. 1

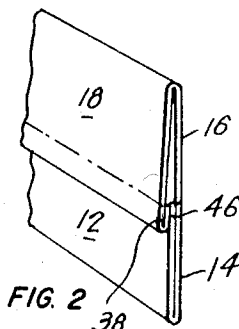


FIG. 2

FIG. 5

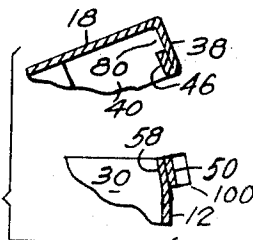
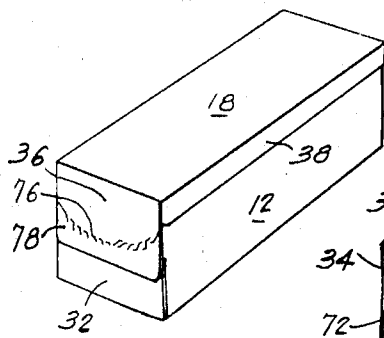


FIG. 3

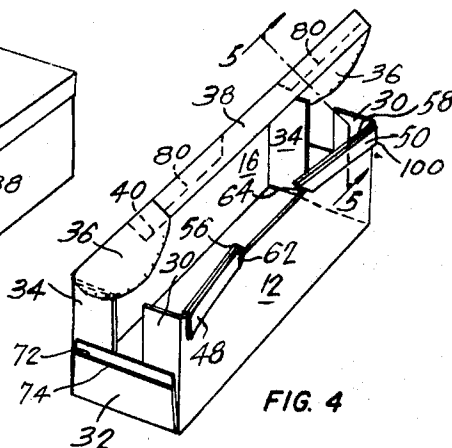


FIG. 4

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3,432,090

SELF-LOCKING BOX

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6 Claims

ABSTRACT OF THE DISCLOSURE

The present invention relates to a box structure having a hinged cover provided with end flaps and a front cover panel telescoping over end forming flaps and the front carton wall, the front cover panel has a locking flap foldably connected thereto, separable sections in said locking flap secured to tabs in said front wall, and separable sections being separable from said locking flap to form a locking slot in said inner panel and a locking projection on said front wall.

The present invention relates to cartons, particularly to reclosable end-loading cartons.

Many reclosable cartons have been proposed heretofor, however, a simple relockable feature has not been provided.

It is the main object of the present invention to provide a simple but effective locking means for reclosable cartons.

Broadly, the present invention comprises a locking section for a container comprising; a first and second panel, a tear-out section in said first panel and secured to said second panel, said tear-out section being separated from said first panel to form a hole in said first panel and remaining connected to said second panel when said box is initially opened, said tear-out section cooperating with said hole to hold said carton in closed position when said carton is reclosed.

Further features, objects and advantages of the present invention will be evident from the following detailed description taken in conjunction with the accompanying drawings in which:

FIG. 1 is a plan view of a blank incorporating the present invention.

FIG. 2 is a partial perspective view showing a section through the middle of a blank folded to form a knocked down carton.

FIG. 3 is a perspective view of a closed, filled carton.

FIG. 4 is a perspective view of an opened carton and

FIG. 5 is a section along the line 5—5 of FIG. 4.

The blank 10 of FIG. 1 has a front wall 12, a bottom wall 14, a rear wall 16 and a top wall 18 interconnected by fold lines 20, 22 and 24 respectively. Connected to opposite ends of these walls via fold lines 26 and 28 are end wall forming flaps 30, 32, 34 and 36 respectively, some of which will be described in more detail hereinbelow. A front cover panel 38 having a pair of end tabs 40 connected thereto via fold lines 26 and 28 is joined at one side edge to the free edge of top wall 18 by fold line 42. A crease line 44 connects the opposite side edge of panel 38 to a locking flap 46. The crease line 44 is slit partially through the thickness of the blank to facilitate folding of the flap 46 into face-to-face relationship with the panel 38.

Flap 46, in the illustrated embodiment, has a pair of separable sections 48 and 50 located in the corners of this flap and defined by the free edges of the flap and lines of weakness 52 and 54 respectively. The front wall

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12 has a pair of tabs 56 and 58 defined by the free edge of the wall 12, pairs of slits 60, 62 and 64, 66 and fold lines 68 and 70 respectively. These tabs 56 and 58 cooperate with the sections 48 and 50 of the flap 46 to form locking means as will be described hereinbelow. The present disclosure describes only the use of pairs of tabs and cooperating sections but obviously fewer or greater numbers of these may be used.

Each of the end flaps 32 in the illustrated embodiment has a band 71 defined by a pair of spaced slits 72, 74 extending part way through the thickness of the board, the band 71 tears off between the slits 72 and 74 to remove a partial thickness of the board and permit opening of the container as will be more fully described hereinbelow. Alternate means of opening, wherein the slits 72, 74 and thus the band 71 are omitted, may also be used.

A tear line 76 extends across each of the flaps 36 to form a tear strip 78 along the free end of these flaps. These tear strips 78 may be torn from the flaps 36 for opening of the container. The tear line 76 has been shown as extending along an arc but obviously these lines may be of any convenient shape.

To assemble the blank, adhesive is applied to the requisite sides of the blank in the shaded areas as indicated in FIG. 1. The first folding step is generally to fold the flap 46 into face-to-face relationship overlying the panel 38 by folding along crease line 44. The adhesive strip on flap 46 secures the flap 46 and panel 38 together. Next, the manufacturer's joint is secured by folding along the lines 20 and then 24 to bring the flap 46 into contact with the front wall 12. The adhesive on the tabs 56 and 58 secures these tabs to the tear-out sections 48 and 50 on the flap 46 to form the manufacturer's joint (as shown in FIG. 2) and thereby provide a knocked down, easily erected carton particularly adapted for end loading. If desired, the flap 46 may be tacked at its edge adjacent the middle of wall 12 by adhesive to form a stronger manufacturer's joint, however, this tacking together of the wall 12 and flap 46 must be such that it is easily separated for opening of the container.

After the cartons have been erected and filled, the end flaps 30 and 34 together with the tabs 40 are first folded to a position substantially perpendicular to the walls of the container with the tabs 40 overlying the flaps 30. If desired, the tabs 40 may be tacked to the flaps 30 by means of adhesive or the like so that the flaps 30 and tabs 40 are folded together, however, the joint between these flaps 30 and tabs 40 must be relatively easily separated for opening of the container. Next, the flaps 32 are folded and secured in overlying relation to the flaps 30 and 34 by means of the banks or patterns of adhesive on the flaps 32 and finally, the flaps 36 are folded into overlying relationship to the flaps 30, 34 and 32 and tabs 40 to close the ends of the carton. These flaps 36 are secured to the tabs 40 by patches of adhesive in the appropriate location on the flaps 36 and to the bands 71 on the flaps 32 by strips or patterns of adhesive adjacent the free edges of the flaps 36 remote from the fold lines 26 and 28.

To open the carton the flaps 36 are torn off along the lines 76 to separate the tear strip 78 from the flaps 36 and bands 71 from the end panels 32. Alternatively, particularly if the bands 71 are not used and the strips 78 are permanently secured to the panels 32, the carton may be opened by running a finger or the like under the lines 76 to separate strips 78 from flaps 36 along the said lines 76. The front cover panel 38 and flaps 46 are also separated from the front wall 12 whereby sections 48 and 50 are torn from the flap 46 and remain adhered to the tabs 56 and 58. The tabs 56 and 58 together with the sections 48 and 50 are bent in towards the center of the

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box adjacent the free edge of panel 12, either manually or in any other suitable manner. The sections 48 and 50 are larger in area than the tabs 56 and 58 by triangular areas 100. The triangular areas 100 are formed because the free ends of sections 48 and 50 are parallel to the end of the box while the adjacent ends of tabs 56 and 58 are defined by angled slits 60 and 66 (see FIG. 1). These triangular areas 100 are not connected to the panel 12 where the manufacturers joint is formed and therefore are movable outwardly as the tabs 56 and 58 are folded inward. The overlap of these triangular areas 100 with the front wall 12 tends to prevent the tabs 56 and 58 adjacent slits 60 and 66 from being folded inwardly, however, movement of the remainder of the tabs 56 and 58 is sufficient to force the areas 100 outwardly, particularly adjacent the free edges of these areas (see FIGS. 4 and 5). The tabs 56 and 58 combine with the sections 48 and 50 to form male elements of the locking combination for holding the top of the carton in closed position. The sections 48 and 50 slide into the holes 80 (see FIG. 5), formed in the flaps 46 when these sections are torn therefrom in the initial opening of the carton, thereby to lock the carton in closed position. The bentout areas 100 facilitate secure locking of the carton since they tend to positively engage the sides of holes 80. To reopen the carton it is merely necessary to relatively displace the front wall 12 along with tabs 56 and 58 and sections 48 and 50 so that the flap 46 will clear the section 48 and 50 and be free to open.

Applicant has disclosed one form of the instant invention, however, other forms will be immediately apparent to those skilled in the art and therefore the claims are intended to include modifications falling within the terms thereof.

I claim:

1. In a reclosable folding carton having a locking flap and a wall cooperating to form an opening means for said carton, a separable section in said locking flap, said separable section being secured to a tab formed in said wall by an edge of said wall, a fold line spaced from said edge and a pair of slits extending between said edge and said fold line, said separable section separating from said locking flap and remaining connected to said wall thereby forming a hole in said locking flap and a projection on said wall when said carton is opened, said projection cooperating with said hole to hold said carton in closed position when said carton is reclosed.

2. A carton as defined in claim 1 wherein said separable section is larger than said tab and forms an overlap projecting across the boundary of said tab defined by one of said pair of slits.

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3. In a reclosable carton having a front wall and a top wall, end forming flaps foldably connected to opposite ends of said top wall and a front cover panel connected to said top wall, and means connecting said end flaps and front cover panel, the improvement comprising; a locking flap underlying and secured in face-to-face relationship with said front cover panel, a separable section defined by lines of weakness in said locking flap, said separable section being spaced from the edge of said front cover panel remote from said top wall, means securing said separable section to a tab formed in said front wall by the top edge of said front wall, a fold line in said front wall and slits between said fold line and said top edge, said separable section separating from said locking flap and remaining secured to said tab thereby forming a hole in said locking flap and a projection on said front wall when said carton is opened, said projection cooperating with said hole to hold said carton in closed position when said carton is reclosed.

4. A carton as defined in claim 3 wherein said separable section is larger than said tab and forms an overlap projecting across the boundary of said tab defined by one of said pair of slits.

5. A carton as defined in claim 4 wherein said overlap is of triangular shape but is not secured to said front wall.

6. A carton as defined in claim 5 wherein there are two said sections and two said tabs on said locking flap and said front wall respectively and wherein each of said sections is defined on two sides by free edges of said locking flap.

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