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SELF-LOCKING-CLOSING CARTON

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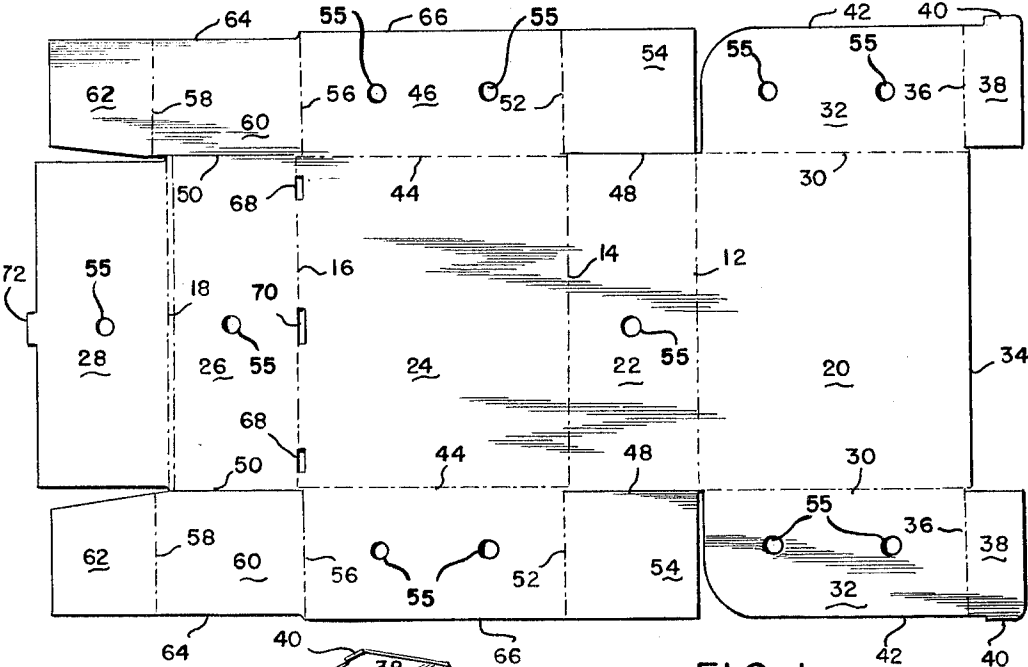


FIG. 1

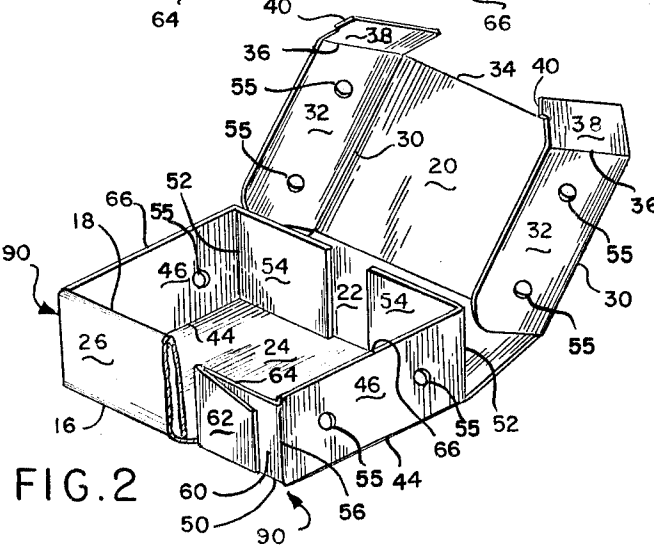


FIG. 2

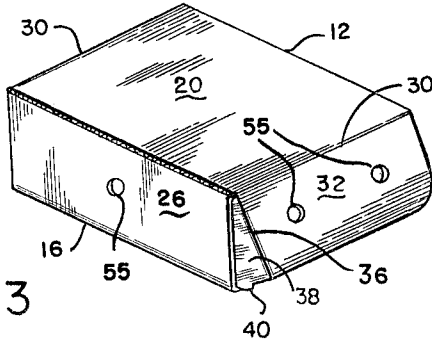


FIG. 3

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SELF-LOCKING-CLOSING CARTON

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5 Claims. (Cl. 229—33)

This invention relates to fiberboard containers of corrugated or uncorrugated design and more particularly to a die cut fiberboard blank which, when properly folded, forms a self-locking-closing container.

Containers of the type contemplated herein are generally shipped flat and are erected at the point of use by properly folding the various panels into their respective positions. In the absence of any self-locking design, the carton has to be glued or taped in the upright position. Where self-locking designs have been used, the slots for the locking flaps have been poorly designed in width and location, making it difficult to snap the lock tabs into position.

One of the primary objects of the present invention is to provide a fiberboard carton from a single blank of material which is self-locking, self-closing and self-supporting once it has been formed.

Another object of the present invention is to provide a fiberboard carton that can be erected in a minimum of time with a minimum of hand motion.

These objects are accomplished by cutting and scoring a single blank of fiberboard material so that it can be molded to form a completely enclosed carton. A lock flap is provided on the ends of the side panels which can be folded into a slot provided on each end of the front panel. The lock flap is provided with a tab which fits into a slot in the junction between the base panel and front panel of the carton and when it has been properly positioned within the slot, it cannot be removed without deforming or tearing the carton. The slot on each end of the front panel is formed by folding an overlap panel onto the inside surface of the front panel with a spacer flap and an overlap flap in the space between the overlap panel and front panel. The spacer flap and overlap flaps separate the two panels so that a slot or gap is provided at each end of the front panel to receive the lock flaps. This simplifies the assembly procedure since no time is lost in trying to fit the lock flaps between the two overlying panels.

Other objects and advantages will become more readily apparent from the following detailed description when read in connection with the accompanying drawings, in which:

FIG. 1 is a plan view of a fiberboard blank showing the cut and score lines of the container.

FIG. 2 is a perspective view of the container with the top panel open.

FIG. 3 is a perspective view of the container with the top panel closed and the lock flap positioned in the slot formed in the front panel.

Referring more specifically to FIG. 1 of the drawing, a fiberboard blank 10 is shown having transverse score lines 12, 14, 16 and 18 which provide top panel 20, end panel 22, base panel 24, front panel 26 and overlap panel 28. Score lines 30 on each end of the top panel define outwardly extending side flaps 32. These side flaps are extended outward beyond the front edge 34 of the top panel and have score lines 36 located slightly inward from front edge 34 to define lock flaps 38. A small lock tab 40 is provided on the side edge of each lock flap which extends outward beyond the side flap edge 42.

Score lines 44 on each end of the base panel are aligned with score lines 30 in the top panel and define end flaps 46 on each end of the base panel. Cut lines 48 and 50

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on the ends of the end panel and front panel, respectively, provide extensions at each end of the end flaps 46. Score lines 52 define wing flaps 54 at one end of the end flaps and score lines 56 and 58 at the other end of the end flaps form spacer flaps 60 and overlap flaps 62. The outer edge 64 of the spacer flap and overlap flap is cut slightly inward of the outer edge 66 of the end flaps to allow for proper clearance in folding these flaps into the front panel.

Score lines 16 is provided with a slot 68 at each end and a slot 70 at the center. Slots 68 are spaced inward a distance sufficient for tabs 40 on the lock flap to engage the slot when it has been properly aligned therewith. The center slot is positioned for engagement with tab 72 when overlap panel 28 is folded over front panel 26.

In erecting the carton, spacer flaps 60 are folded on score line 56 to a perpendicular or normal position with respect to end flaps 46. The overlap flaps are then folded on score lines 58 into engagement with the outer surfaces of the spacer flaps. The end flaps are then folded on score lines 44 to a perpendicular or normal position with respect to the base panel with the spacer flaps and overlap flaps aligned with score line 16. Front panel 26 is folded on score line 16 to a perpendicular or normal position with the base panel and parallel to the outer surface of overlap flaps 62. Overlap flap 28 is folded over the top of the spacer flap and overlap flap to a position perpendicular or normal to the base panel. Tab 72 is inserted into slot 70 to lock the overlap panel in position. The front panel and overlap panel will be spaced apart by the overlap flap and the spacer flap. Since the edge of the overlap flap is spaced from the junction of the spacer flap with the end flap, an open slot 90 will be formed at each end of the front panel for the lock flaps 38.

Wing flaps 54 are folded into alignment with score line 14 thereby forming an open carton defined by the front panel, end flaps and wing flaps. When the carton has been filled, end panel 22 is folded upward on score line 14 to a perpendicular relation with the base panel and top panel 20 is folded on score line 12 to a parallel spaced relation with respect to the base panel. The top panel will engage the edge of the wing flaps preventing their upward motion and in effect, locking the end flaps in position.

The lock flaps 38 are then folded downward on score line 36 so that they are aligned with slots 90. The side flaps 32 are folded downward on score line 30 and the lock flaps inserted into slots 90. By pushing the bottom of the lock flaps into the slots, tabs 40 will engage slots 68 in score line 16. This provides a lock fit and will hold the side flaps tight against the sides of the end flaps.

From the above it should be apparent that the present invention contemplates the provision of a self-locking-closing carton which cannot be opened without deforming or tearing the carton. This has particular application in the handling of meat where it is important that the carton be permanently closed after packing and not re-opened until used. Vent holes 55 can be provided if necessary for the product contained in the carton.

Although only one embodiment of the present invention has been shown and described, it should be apparent that various changes and modifications can be made without departing from the scope of the appended claims.

What is claimed is:

1. A self-locking-closing carton including a base panel, end flaps extending outwardly from each side margin of said base panel and adapted to be folded along their lines of junction with the base panel into planes normal to the base panel, spacer flaps extending outwardly from one end of each of said end flaps and folded to a plane normal to the end flaps and to the base panel, overlap flaps extending outward from the spacer flap

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- and adapted to be folded to an overlapping position with respect to the spacer flap with one end of said overlap flap spaced a predetermined distance from the junction of the spacer flap with the end flap,
- a front panel extending outwardly from the base panel and folded to a plane normal to the base plane and parallel to the outside surface of the overlap flap,
- an overlap panel extending outward from the front panel and folded back toward the inside surface of the front panel with the spacer flap and overlap flap positioned between the overlap panel and the front panel,
- a top panel closed in spaced overlying relation to the base panel,
- side flaps extending outward from each side margin of said top panel and folded along their lines of junction with the top panel into planes normal to the top panel,
- lock flaps extending outward from one end of each of said side flaps and folded to a plane normal to the plane of the side flap,
- whereby on folding said side flaps downward to the normal plane, said lock flaps will be inserted into the gap between the front panel and overlap panel.
2. A self-locking-closing carton according to claim 1 including
- means for locking said overlap panel in the normal position comprising
- a tab on the edge of the overlap panel, and
- a slot in the junction between the front panel and base panel for engaging said tab when folded to a normal position with respect to the base.
3. A self-locking-closing carton according to claim 1 including tabs on said lock flaps, and
- corresponding slots in the junction between the front panel and base panel whereby on insertion of said lock flaps into the space between the front panel and overlap panel, said tabs will engage said slots to lock the carton closed.
4. A reinforced self-locking-closing carton including
- a top panel adapted to be closed in spaced overlying relation to a base panel,

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- side flaps extending outwardly from each side margin of said top panel and folded along their lines of junction with the top panel into planes normal to the plane of said top panel, said flaps extending the full length of said top panel,
- wing flaps extending outwardly from the free ends of said side flaps and including tabs on their outer side edge extending beyond the free edge of said side flaps, end flaps extending outwardly from each side margin of said base panel, and folded to a normal position with respect to said base panel,
- a front panel extending outwardly from one end margin of said base panel,
- an overlap panel connected to the front panel,
- a number of slots located in the line of connection between the front panel and base panel,
- spacer flaps connected to one end of each of said end flaps and folded into alignment with said connection between the front panel and base panel, said front panel and overlap panel being folded to a normal position with respect to said base panel in spaced relation with respect to each other and with the spacer flaps located therebetween, lock flaps extending outward from one end of each of said side flaps and folded normal to the plane of the side flap,
- whereby on folding said top panel over said base panel, said lock flaps can be inserted into the space between the front panel and overlap panel.
5. A self-locking-closing carton according to claim 4 wherein said lock flaps include
- tabs positioned to engage the corresponding slots in the junction between the front panel and base panel to thereby lock the top panel in position.

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