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CORRUGATED BOARD CONTAINER WITH INTERLOCKING FLAPS

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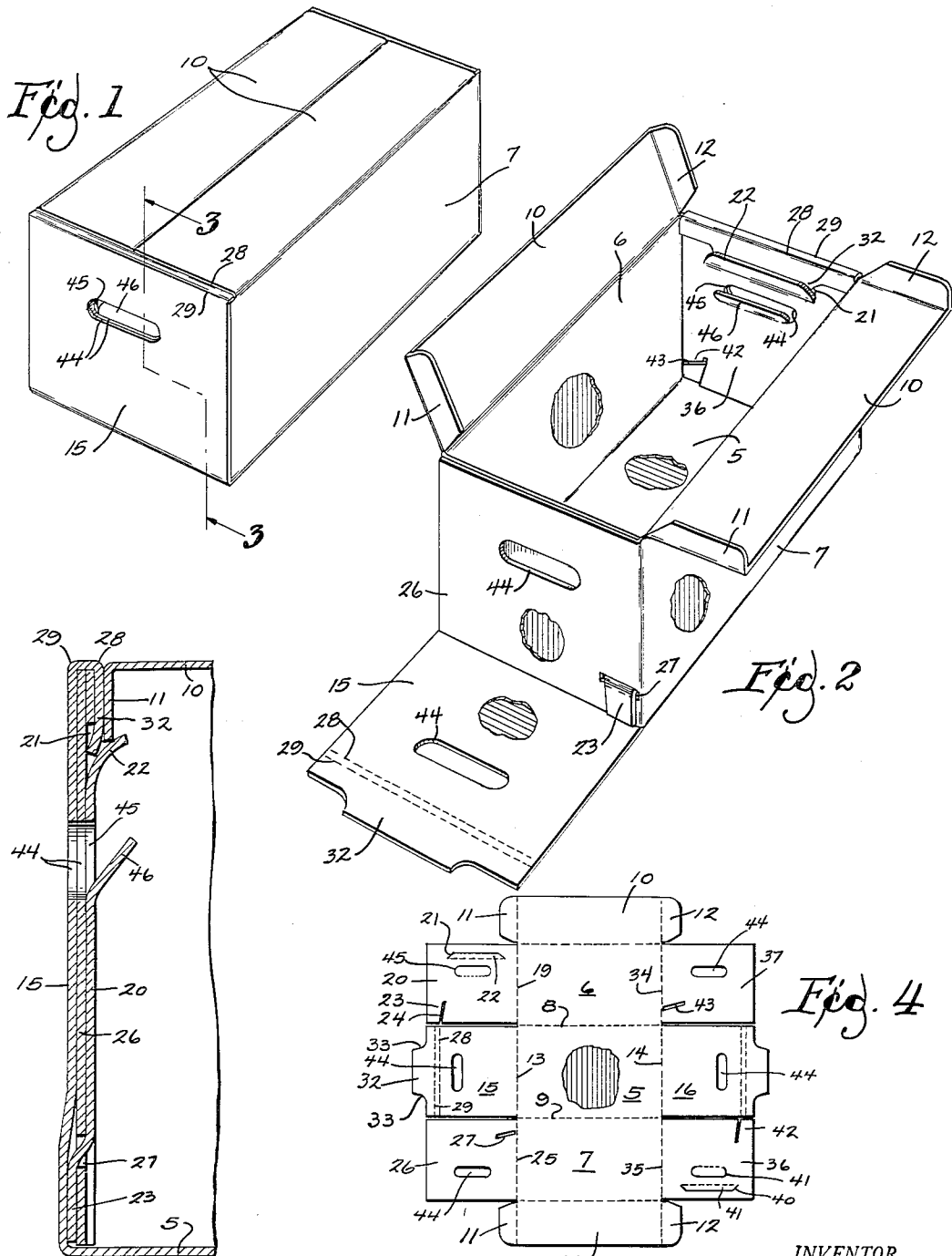


Fig. 3

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CORRUGATED BOARD CONTAINER WITH INTERLOCKING FLAPS

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2 Claims. (Cl. 229—36)

This invention relates to a corrugated or fiber board container with interlocking flaps.

This application is a continuation-in-part of my application Serial No. 153,424, filed April 1, 1950, and entitled "Corrugated Board Container With Interlocking Flaps."

The object of the present invention, as in the invention described in my application aforesaid, is to provide a carton which is easily erected without using either adhesive or staples and which has exceptional strength when erected, but which may be readily collapsed for shipment, storage and re-use.

In the carton of the present invention I provide an end panel which externally covers the interlocking tab and slot of an intermediate and inner panel. This cover feature protects the interlock from dislodgement and presents a smooth surface at the end of the carton. The inner panel in the carton of the present invention is provided with an opening and a guide tongue to receive a flap on the outer panel which is curled over the lapping margins of the end panels. This flap engages the tongue and extends into the opening to interlock all end panels in a multi-ply structure. The side walls of the carton are also provided with top panels having tucking flaps which engage the tongue aforesaid to define the closed position of the top panels and additionally interlock the carton in erected position.

In the drawings:

Fig. 1 is a view in perspective showing a closed carton embodying the present invention.

Fig. 2 is a view in perspective showing the carton of Fig. 1 with the top flaps and an outermost end panel open.

Fig. 3 is a fragmentary cross sectional view taken along the line 3—3 of Fig. 1.

Fig. 4 is a plan view on a reduced scale of the blank from which the carton is erected.

The blank may be either of board or corrugated stock. Corrugations, where provided, desirably run continuously across the bottom and up the sides of the carton blank as shown in Fig. 4. This arrangement is such that when the side walls and end panels are folded into the carton, as shown in Figs. 1 and 2, the side walls and lapping end panels connected thereto will have their corrugation disposed vertically.

The blank shown in Fig. 4 is scored upon the broken lines and slit upon the full lines to divide the blank into panels. The side wall panels 6 and 7 are joined to the bottom panel 5 upon the score lines 8 and 9. Hinged to the top margin of each of the side wall panels is a closure 10 provided at its ends with tucking flaps 11 and 12. Hinged to the bottom panel 5 upon score lines 13 and 14 are outer end panels 15 and 16, respectively.

Connected to one end of side wall panel 6 upon the score line 19 is end panel 20 which, when the box is erected, is the innermost end panel. Panel 20 is provided with a transverse opening 21 having a transversely elongated tongue 22 formed along the bottom margin of the opening and projecting into the box when the panel

is in erected position (see Fig. 3). Panel 20 is also provided with a tab 23 formed near the outer end margin of the panel by oblique slit 24 which runs out the bottom margin of the panel.

Side wall panel 7 is provided on score line 25 with end panel 26 which is next adjacent inner panel 20 when the box is erected. Panel 26 is provided near score line 25 with a transverse slot or opening 27 so formed as to receive the tab 23 of panel 20 when the end panels 20 and 26 are interlocked as shown in Figs. 2 and 3. When the carton is erected, slots 27 and 21 are substantially parallel and vertically spaced in the multi-ply end wall of the carton.

As hereinbefore indicated, panel 20 is the innermost panel, panel 26 is the intermediate panel, and panel 15 is outermost when the carton is erected. Panels 20 and 26 are interlocked by passing tab 23 outwardly through slot 27 during the course of carton erection. This interlock is covered and protected by outermost panel 15 so that only the smooth wall of the outermost panel 15 is exposed as shown in Fig. 1.

Panel 15 is further provided at its top margin with a flap 32 hinged thereto on the spaced scored lines 28 and 29. As best shown in Fig. 3 flap 32 is folded over the adjacent top margins of lapping panels 20 and 26 and guided by tongue 22 into the opening 21 in innermost panel 20, thus further interlocking the three panels in multi-ply end wall assembly. Note that flap 32 is shouldered at 33 to reduce the width of flap 32 for its reception within the opening 21. Opening 21 is of less extent than the width of panel 20, and its shouldered engagement with the flap laterally restrains end wall 15.

Side walls 6 and 7 are likewise provided at their ends remote from score lines 19 and 25, and on the score lines 34 and 35 respectively, with intermediate end panel 37 and inner end panel 36. Inner end panel 36, like inner end panel 20 aforesaid, is provided with transverse opening 40 and tongue 41 connected thereto along the bottom margin of the opening 40 and with a tab 42. Intermediate panel 37, like intermediate end panel 26 aforesaid, is provided with a transverse slit 43. In the preferred embodiment the corresponding end panels 20, 36 and 26, 37 are diagonally arranged in the blank to dispose the interlocked tabs diagonally opposite in the erected carton.

When the carton is erected the cover flaps 10 are folded to close the carton. Tucking flaps 11 and 12 will then engage the tongues 22 and 40 of the innermost end panels 20 to define the closed position of the cover as best indicated in Fig. 3. In this manner the tongues 21 and 44 serve both to interlock the multi-ply end panels and cooperate with flaps 10 in retaining the top cover flaps in carton closing position. When erected the carton is firmly anchored at all parts which interlock. Because the corrugations are arranged vertically in the side and end walls, the carton is of exceptional strength.

The outer and intermediate end panels 15, 26, 16 and 37 are also provided with transverse openings indicated generally by reference character 44. The inner end panels 20 and 36 are provided with like openings 45. Openings 44 and 45 align when the end panels are erected as shown in Figs. 2 and 3. The inner panels, however, are additionally provided with transversely elongated tongues 46 formed along the bottom margins of openings 45. These tongues 46 normally close the aligned openings 44, 45, but are free of connection with the top margins of the apertures 45 to yield inwardly as shown in Fig. 3 to permit the fingers of one handling the carton to enter the carton. Thus the aligned openings 44, 45 provide convenient hand grips. When the fingers are withdrawn, the pressure of the carton contents will return the tongues 46 to aperture closing position. The

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multi-ply end walls are sufficiently yieldable endwise to accommodate the handler's fingers in this fashion.

I claim:

1. A carton blank comprising bottom and side wall panels in hinged connection, first end wall panels connected to opposite ends of the bottom panel, second and third end wall panels connected to opposite ends of respective side wall panels and lying laterally adjacent the first end wall panels at opposite sides thereof, the said second and third wall panels being foldable in opposite directions upon respective first wall panels in carton erection to constitute three-ply carton end walls, each second end wall panel having a closed ended slot adjacent its hinged connection with its respective side wall panel and generally parallel to and adjacent the side of the first end wall panel near which it lies, each third end wall panel being provided near its free end with an open-ended cut opening toward the side of the first end wall panel adjacent which it lies, to form a tongue directed toward the outer end of the respective first end wall panel, the said outer end of each first end wall panel comprising a foldable tab for which the adjacent third wall panel provides a slot generally paralleling and proximate to its margin remote from the first wall panel, whereby the second and third end wall panels may be lapped at opposite ends and may be interlocked at respective diagonally opposite lower corners of the erected carton by engaging the tongues of third end wall panels in closed-ended slots of second end wall panels, the respective first end wall panels being thereupon foldable outside of the interlocked first and second wall panels to be secured by engagement of their tabs through respective third wall panel slots.

2. A carton comprising a bottom, side walls connected therewith, and multi-ply end walls, said end walls comprising innermost and intermediate panels unitarily connected with the said sidewalls and an outermost panel

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connected with said bottom, the innermost of said panels having near its top edge a slot substantially parallel to the carton bottom, the outermost of said panels having a flap extending over the top of the lapping panels and engaged in said slot, said intermediate panel having a transverse slot substantially parallel to and vertically spaced from said first mentioned slot and disposed near the bottom edge of said panel at a corner of the carton adjacent the connection between the intermediate panel and the side wall, said innermost panel having a tab extending downwardly through said second mentioned slot, the portion of said tab extending beyond said slot being offset from the innermost panel and confined between the outermost panel and the intermediate panel, the portions of said tab connecting its offset portion with the innermost panel being interlocked with the intermediate panel about said second mentioned slot whereby to restrain relative movement of the interlocked panels either in a lateral or in a vertical direction, and thereby to maintain said flap against displacement from said first slot.

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