July 4, 1961 N. D. ELLIS 2,990,992

END LOADING EASY OPENING CARTON

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FIG. 1

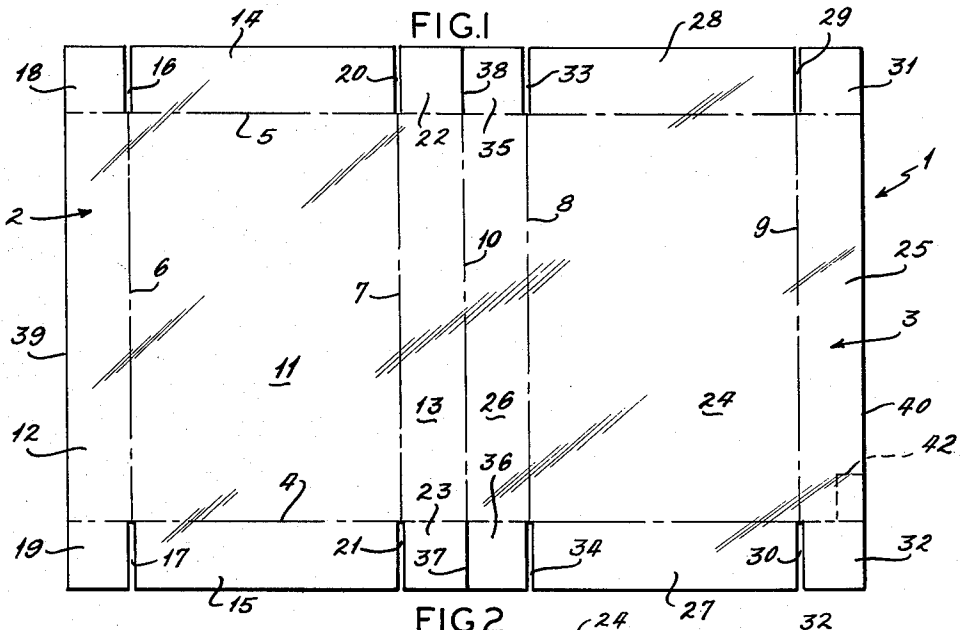


FIG. 2

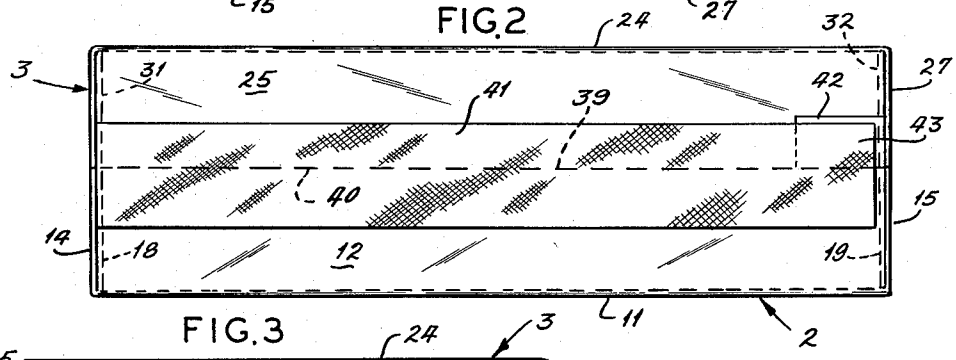


FIG. 3

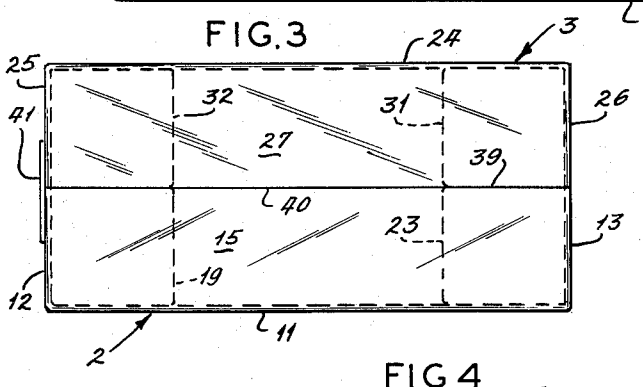


FIG. 4

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FIG.5

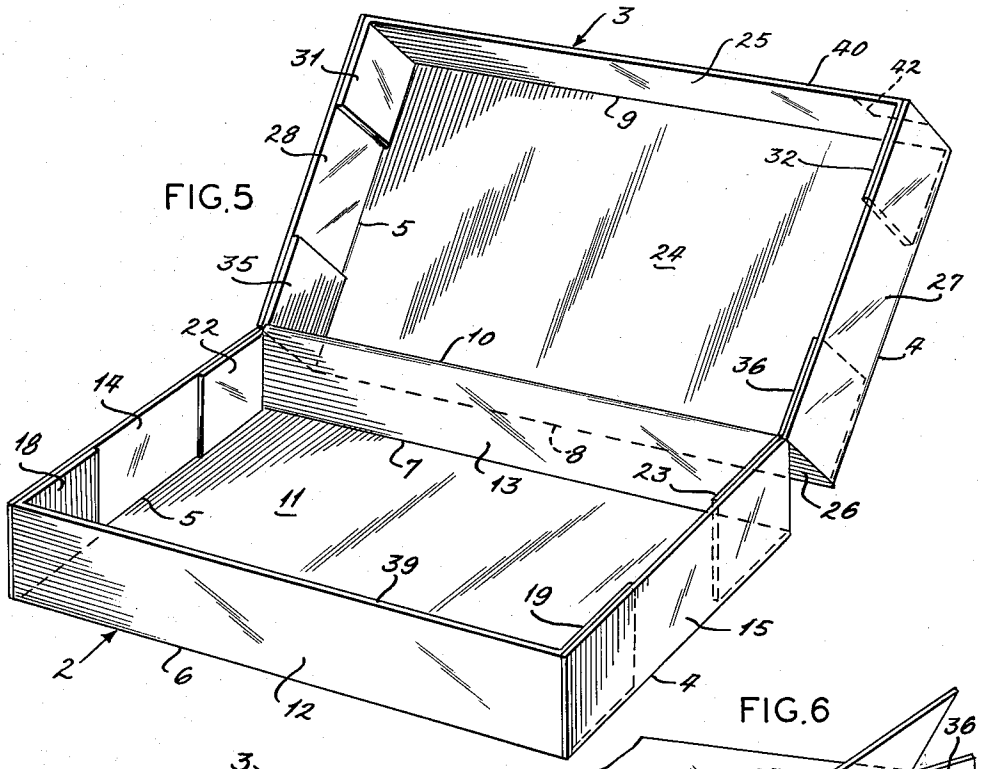


FIG.6

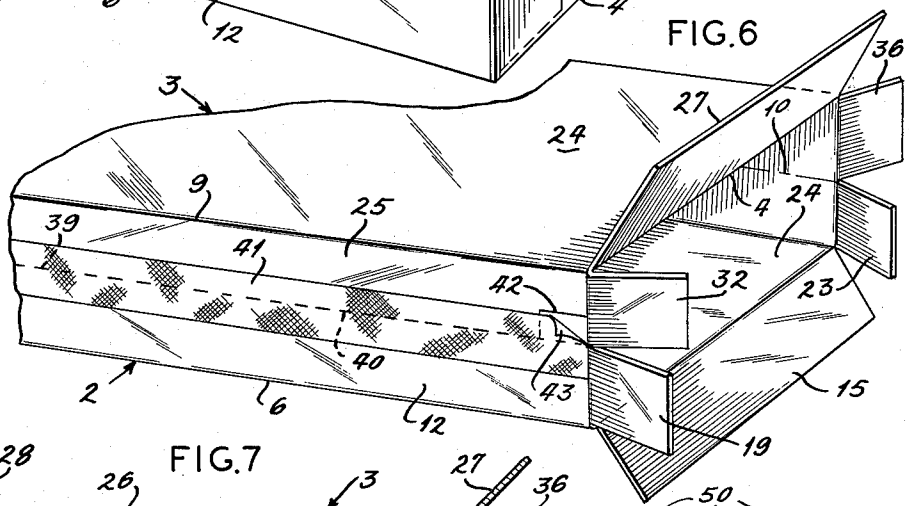
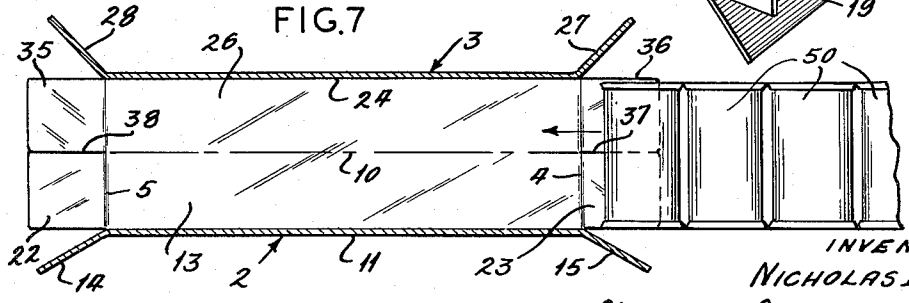


FIG.7



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END LOADING EASY OPENING CARTON

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1 Claim. (Cl. 229—16)

This invention relates generally to boxes, cartons and similar receptacles, and has particular reference to those made of paperboard and employed for containing articles of merchandise, such as canned goods or other products.

One of the principal objects of the present invention is to provide a sturdy one-piece carton that is easily fabricated, folded and set up for filling, and that lends itself to insertion of the goods through an open end of the carton while the carton is in sleeve-like formation, thereby facilitating the rapid endwise loading of the carton by articles conveyed to it by a movable conveyor or inserted into it by hand or by machine operation.

Another object of the invention is to provide a carton which can be easily opened by the simple removal of a single adhesive strip, and which when opened, can be used to display the goods to good advantage, and which, while enclosing the goods, will constitute a sturdy shipping container that effectively houses and protects its contents.

The invention is embodied in a special arrangement of fold lines and cuts in a single rectangular blank to form an efficient low-cost instrumentality for forming a carton having the foregoing advantages. The improved carton blank remains intact throughout its use and no part of it is weakened for subsequent cutting or tearing. As a result, the carton is unusually staunch and sturdy, well suited for assembly-line procedures of manufacture, setting up, and loading and admirably adapted to fulfill its contemplated functions and to remain serviceable over long periods of handling shipment storage, and use.

The invention also consists in the parts and in the combinations of parts hereinafter described and claimed. In the accompanying drawings which form part of this specification and wherein like numerals and symbols refer to like parts wherever they occur:

FIG. 1 is a top plan view of a blank from which the improved carton embodying the present invention may be produced;

FIG. 2 is a front elevational view of the completed and sealed carton;

FIG. 3 is an end view, on a reduced scale, of the closed and sealed carton;

FIG. 4 is a vertical cross-sectional view through the body of the carton and through a portion of the cover or closure member;

FIG. 5 is a perspective view of the carton in open position;

FIG. 6 is a perspective view of one end of the carton, showing the end walls and flaps in open position to permit endwise loading of the carton; and

FIG. 7 is a vertical longitudinal cross-sectional view through the carton showing how the goods may be moved into the carton through one of its open ends.

In the form shown, the carton is formed from a blank 1 having two similar, tray-like forming sections, indicated respectively at 2 and 3. Both of these sections are shown as being alike in size and shape, and for convenience in distinguishing them one of them is described herein as the "body member" and the other as the "cover member."

The carton is formed from a single, substantially rectangular paperboard sheet or blank as shown at 1 in FIGURE 1. The thickness of the paperboard employed

is dependent upon the nature and weight of the goods to be placed in the carton, and in the embodiment shown, the carton is primarily intended for the reception of canned goods, but it may well be used for containing other articles or products.

The blank 1 from which the carton is produced is provided with the two longitudinal fold lines indicated respectively at 4 and 5 and with the four transverse fold lines indicated respectively at 6, 7, 8 and 9. The fold lines 4, 5 lie adjacent to and parallel to the longitudinal edges of the blank; and the transverse fold lines extend between said first-named fold lines. There is another transverse fold line 10, centrally disposed, which divides the blank into two halves. The half in which the fold lines 6, 7 lie is adapted to be folded or adjusted into a tray-like body, while the other half is foldable to define an opposed tray-like cover. The central fold line 10 serves as a permanent hinge between the rear walls of the body and cover, in a manner to be described.

The fold lines 4, 5, 6 and 7 form areas on the body of the carton defining a bottom wall 11, a front wall 12, a rear wall 13 and end walls 14 and 15. The blank is cut inwardly from its longitudinal edges, as indicated at 16 and 17, along the fold line 6 and in alignment therewith to produce attachment flaps 18 and 19 at the opposite ends of the front wall 12. Similar slits 20 and 21 are provided at the opposite ends of the fold line and in alignment therewith to form flaps 22 and 23 at the opposite ends of the rear wall 13 of the body of the carton.

The cover member of the carton is similarly divided into areas defining a bottom wall 24, a front wall 25, a rear wall 26 and end walls 27 and 28. Slits 29 and 30 extending inwardly from the opposite longitudinal edges of the blank at the ends of the fold line 9 provide the flaps 31 and 32 at the opposite ends of the front wall 25. Cuts 33 and 34, at the opposite ends of the fold line 8, form the flaps 35 and 36 at the opposite ends of the rear wall 26 of the cover member.

At the ends of the score line 10 and in alignment therewith are cuts or slits 37 and 38, these slits thus separating the flap 23 from the adjacent flap 36 and separating the flap 22 from the adjacent flap 35, all of which flaps are secured to the rear wall forming member of the carton. Each of the eight flaps 18, 19, 22, 23, 31, 32, 35 and 36 is substantially square so as to be substantially of the same height as the end portions of the end walls 14, 15, 27 and 28 so that in assembled relation, as best shown in FIGS. 4 and 5, the top edges of the flaps are flush with the top edges of the end walls in the bottom section 2 and the bottom edges of the flaps are flush with the bottom edges of the end walls in the cover section 3. This results in a rectangular carton which is completely sealed and closed when in assembled relation as shown in FIG. 2. In practice, the slits 16, 17, 20, 21, 29, 30, 33 and 34 are about a quarter of an inch wide in material of a strength and thickness normally used for carrying twenty-four twelve ounce cans of beer, whereas the slits 37 and 38 are simply cuts with no material removed. Therefore, while the flaps are substantially square in shape, the slits are slightly longer in length than the portions of the fold lines 4 and 5 which hingedly connect said flaps to the front and rear walls in order to compensate for the thickness of and the bending of the material.

In the erection of the carton, the blank is folded on the transverse fold lines 6, 7, 8 and 9 to bring the carton body and its cover into the form of a sleeve, as shown in FIGURE 6. This brings the upper edge 39 of the front wall 12 of the body into substantial abutting contact with the lower edge 40 of the front wall 25 of the cover. The two walls 12 and 25 are held in this edge-

abutting relation and without overlap by means of a strip of adhesive sealing tape **41** secured over the meeting edges **39** and **40** substantially as shown in FIGURES 2, 3 and 6, except at the small printed area **42** to which the tape **41** does not stick thereby automatically forming a starting or pull tab **43** on the tape **41**. This places the carton in the sleeve-like form shown in FIGURES 6 and 7 and while in this form it is in readiness to be filled with the goods through either one of its open ends. Assuming that the right-hand end of the carton is the open end to receive the goods, as shown in FIGURES 6 and 7, it will be noted that this end is provided with the end walls **15** and **27**, and the flaps **19**, **23**, **32** and **36**. These walls and flaps when disposed in the open position shown in FIGURES 6 and 7 permit access or passage into the interior of the carton. If it is desired that the carton be loaded through the opposite end, then the walls **14** and **28** and flaps **22**, **35**, **18** and **31** would be permitted to remain open or unsecured to one another.

The manner in which the contents are loaded into the carton through one open end of the carton is shown in FIGURE 7 wherein a number of cans **50** or other articles is shown as being moved in the direction of the arrow and into the carton. This can be done by hand or mechanically. For example, a selected number of the cans can be palletized and then moved simultaneously into the carton. After the contents **50** are inserted, the flaps **19** and **23** are folded inwardly on the fold line **4** and then the end wall **15** is folded against and adhesively attached to these infolded flaps. Similarly, the flaps **32** and **36** are folded inwardly and the end wall **27** is folded inwardly against and adhesively attached to them. The opposite end of the carton is closed in the same manner if that end was not previously closed. When both ends of the carton are sealed in the manner described, the closure of the carton is complete and it is ready for transportation. Ultimately, the carton is opened by either tearing off the sealing strip **41** or by longitudinally slitting it. This permits the cover member **3** to be swung to open position as shown in FIGURE 5 wherein the contents have been omitted to more clearly show the carton construction. When the carton is arranged in this open position all of its contents are exposed for display or rendered accessible for complete or partial removal. If a completely filled carton is purchased after having been opened for display, the cover member is merely swung down to closed position and a sealing strip **41** replaced to re-seal the carton and permit it to be delivered to the purchaser.

By means of the end-filling method herein described, the filling of the cartons is greatly expedited since a number of cans can be inserted simultaneously. The structural nature of the carton and its several component panels and flaps as described, and the closure of the carton by a single sealing strip, makes it possible to retain the carton body in sleeve-like condition during the filling operation; facilitates the packing operation; and makes it possible for the carton to be readily opened and re-closed for display or dispensing purposes. Withal, the carton is composed of an economically shaped single blank of material and its manufacture is therefore practical, simple and efficient.

Although only a single embodiment of the invention has been described, it is obvious that the invention is not restricted thereto but is broad enough to cover all structure coming within the scope of the annexed claim.

What I claim is:

A collapsible one piece substantially rectangularly shaped elongated carton for holding a plurality of cans or the like in a vertical position, and having at least one end thereof open for filling the carton, in which the cans are loaded into the carton simultaneously laterally only through said open end, said carton comprising two substantially identical tray like sections in superposed relationship, the lowermost tray consisting of a rectangular bottom with front and rear rectangular walls extending vertically upwardly from the sides of said bottom along the entire length of the said bottom, the uppermost tray consisting of a rectangular top wall with front and rear rectangular walls extending vertically downwardly from the sides of said top wall along the entire length of said top wall, said rear walls of said trays being joined together and provided with a horizontal score fold line therein extending the entire length thereof at the midpoint between the top and bottom of said rear walls, the upper edge of the front wall of said lowermost tray and the lower edge of the front wall of said uppermost tray terminating at a point so as to be in substantial horizontal alignment with said score line in the rear wall, rectangular end wall flaps on the opposite ends of said top and bottom walls extending substantially the full width thereof and of a depth substantially equal to the depth of said front and bottom wall respectively for closing the ends of said carton, closure flaps on the opposite ends of said front walls of said trays, said flaps being of slightly less depth than the respective front wall on which it is disposed, other closure flaps on the opposite ends of said rear walls, said other flaps being of slightly less depth than the respective rear wall on which it is disposed, edges of said front walls being in abutting contact with each other, and a removable adhesive tape secured along the entire length of said front walls and coextensive therewith bridging the line formed by the abutting contact of said front walls and which tape when removed allows for upward movement of the top tray which folds on the score line of the rear wall to which it is attached and thus exposing all of the cans in the bottom tray.

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