Dec. 21, 1965 W. W. HANSEN 3,224,577

TUCK-LOCK CARTON AND PACKAGE

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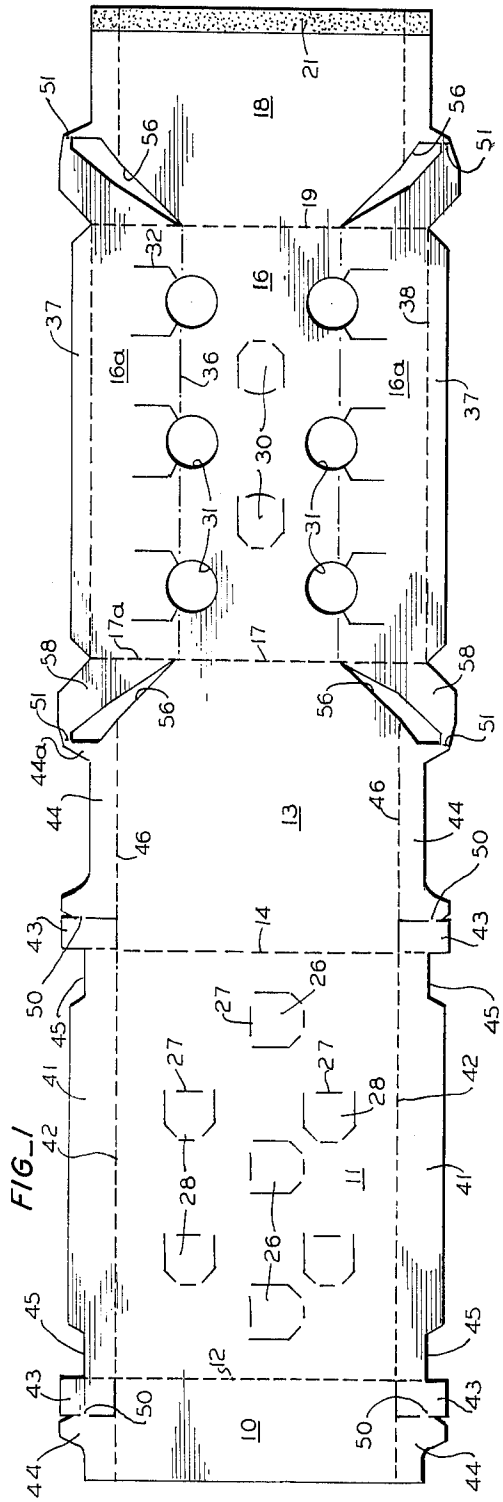


FIG_1

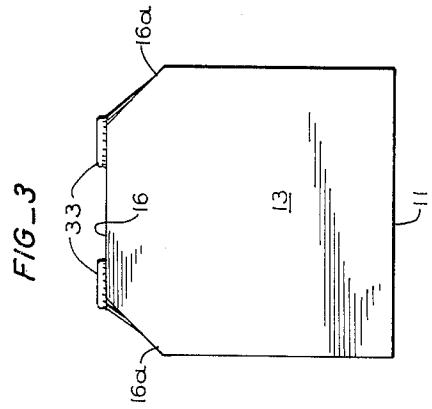


FIG_3

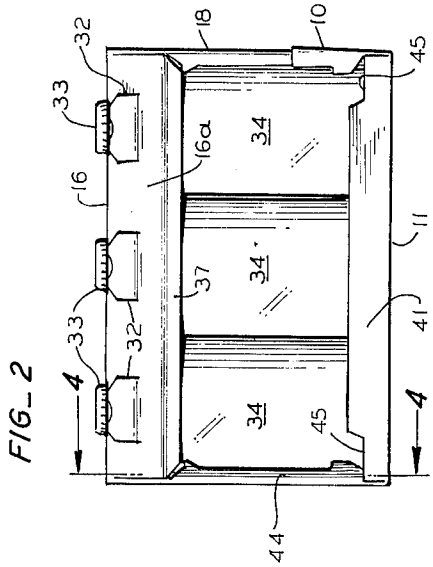


FIG_2

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FIG_4

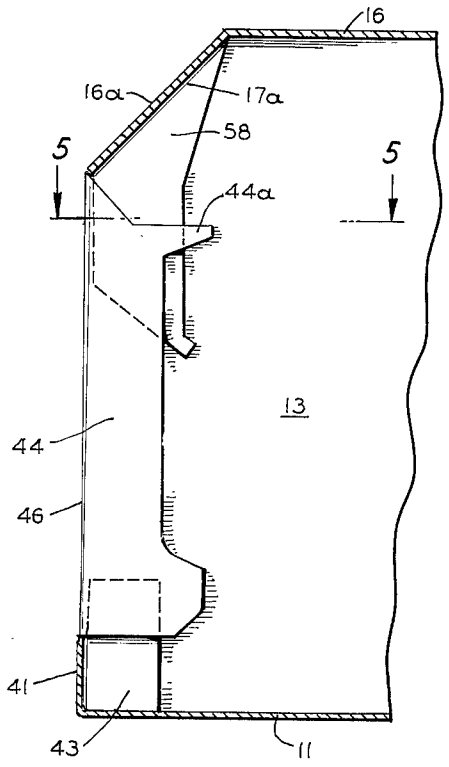


FIG_5

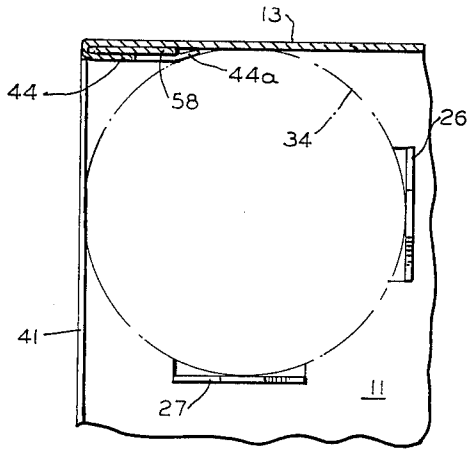


FIG_6

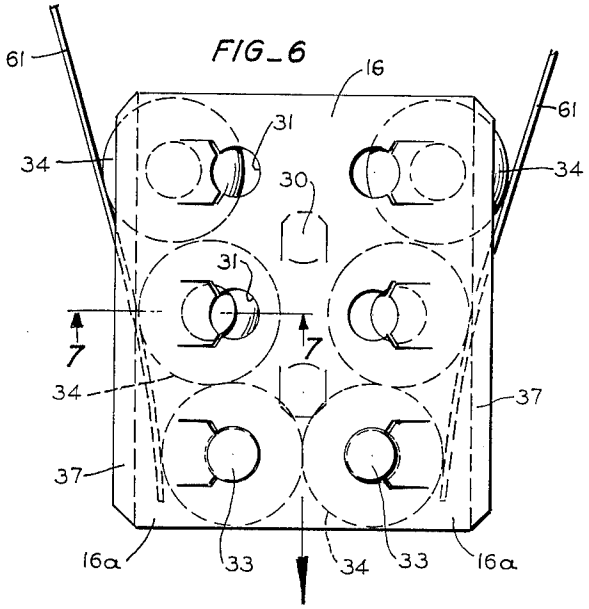
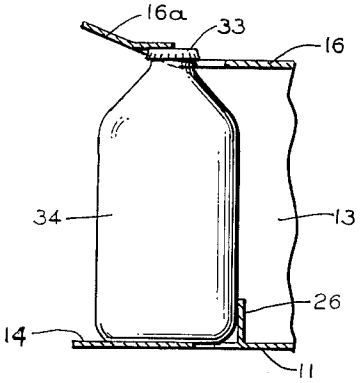


FIG_7



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TUCK-LOCK CARTON AND PACKAGE

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3 Claims. (Cl. 206—65)

The present invention relates to carton packages for containers such as bottles or cans of beer, for example, wherein the carton is economical to manufacture and is constructed to enable easy filling and closing of the carton by automatic means.

It is the general object of the invention to provide a tuck-type carton for containers where the carton is maintained closed by the positioning of the beer bottles in the carton, and subsequent conditioning of the carton with respect to the beer bottles.

A further object of the invention is to provide a carton having a corner locking joint of overlapping nature providing a very rigid and sturdy construction which can be opened easily.

Another object of the invention is to provide a carton for containers such as bottles having narrow necks and openings closed by a crown type cap, in which effective locking means is provided employing the crown type cap in locking the bottles securely in the package.

Another object of the invention is to provide a carton for packing of bottled goods in which the separation of the bottles at their larger bottom ends is effected by separator flaps constructed to insure erection of these flaps or separators to opened condition.

Other objects and advantages of the invention will be apparent from the following description of a preferred embodiment thereof, as illustrated in the accompanying drawings, in which:

FIG. 1 is a plan view of the interior side of an extended carton blank;

FIG. 2 is a side elevational view of the filled package in closed condition, ready for use with the containers therein;

FIGURE 3 is an end view of the carton shown in FIG. 2;

FIG. 4 is a fragmentary enlarged sectional view taken as indicated by the line 4—4 in FIG. 2 and illustrating the corners of the present carton;

FIG. 5 is a fragmentary sectional view taken as indicated by the line 5—5 in FIG. 4 disclosing certain details of construction;

FIG. 6 is a plan view of the carton in erected position ready for filling and illustrating the pushing of the bottles into the carton;

FIG. 7 is a fragmentary sectional view taken in a plane indicated by the line 7—7 in FIG. 6.

Referring to FIG. 1, the carton blank includes an end panel portion 10, a bottom panel 11 connected to end panel portion 10 by a hinge line 12, a second end panel 13 connected to the bottom panel 11 by hinge line 14, and a top panel 16 connected to the end panel 13 by hinge line 17, and a second end panel portion 18 connected to the top panel by hinge line 19. The panel portion 13 has at its end a strip of glue 21 by means of which it is secured to the end panel portion 10 in the manufactured finished condition of the carton to form with it a complete end panel.

From the above description it will be seen that by bending the carton on the hinge lines between the various panels, and by fastening the panel portion 18 to the panel portion 10, a carton is provided which, in its erected condition, is rectangular in shape and is open at both sides for introduction of containers such as bottles into the carton.

To aid in the securing and holding of the bottles within the carton, the bottom panel 11 (FIG. 1) is provided with a series of three central separator tabs 26 for hinging about bend lines 27 to an erect position at 90° to the bottom panel 11, and two pairs of separator tabs 28 for erection about hinge lines 29 to also separate the bottles in the carton.

The top panel 16 (FIG. 1) has certain holding means for the bottles, including bottle neck receiving apertures 31, which are of a size to fit closely around the neck of the bottle immediately under the crown cap thereof. One side portion of these apertures 31 is formed by the end of a locking or retaining tab 32 which is cut out from the carton at its sides and is attached at the other end. These locking tabs 32 are adapted to snap underneath the crown caps 33 of the bottles 34, as seen for example in FIGS. 2 and 3, after introduction of the bottles in the carton to provide for secure fastening thereof. The apertures 31 are spaced far enough apart to hold the upper portion of the bottles apart in the same spacing that the separator tabs 28 separate the lower portions of the bottles. The top panel is also provided with a pair of tabs 30 to provide finger holes.

The top panel 16 is adapted in its final form to have two inclined edge portions designated respectively 16*a*, which are connected to the central body portion by respective hinge lines 36, extending the length of the top and intersecting the apertures 31 at approximately the point of connection of the locking tabs 32. These side panel portions 16*a* are bent downwardly, as shown in FIG. 3 for example, and are provided with side flaps 37 connected thereto by a bend or hinge line 38 so that each side flap 37 can be bent to a vertical position overlying the upper side edges of the bottles 34 but being spaced above any labels placed on these bottles.

The bottom panel 11 is provided with side extensions 41 connected thereto about hinge lines 42. At the end of each side extension 41, there is provided a lock tab 43 connected thereto by an extension 14*a* of fold line 14 adjacent a cut-out 45 in the adjacent extension 41 to provide for the passage of an overlapping locking extension from the end panel, as later described. Each lock tab 43 is connected to the adjacent side extension 44 by a frangible connection 50.

The four bottom corners of the carton have similar tucking and locking constructions whose operation will be described in detail in connection with the method of closing the carton.

The upper corners of the carton are also provided with overlapping means to provide a very secure fastening and a rigid corner construction. For this purpose each of the end panels is provided at its upper end at each side with an inclined edge 56 which terminates in a right angular extension 44*a* of the panel extension 44, which is connected by a frangible tie 51 with the end of a locking tab or flap 58 fastened to the adjacent side portion 16*a* of the top panel 16 by a scored line 17*a* forming an extension of the line 17. A clearance aperture 56 is provided

between each locking tab 56 and the adjacent end panel to avoid overlapping of the tab 58 with an adjacent container.

With the carton erected as shown in FIGS. 6 and 7, and with all of the extensions 41 and 44 projecting outwardly, the frangible ties or connections 50 and 51 are broken and the side portions 16a of the top panel 16 are elevated so that a bottle with a crown cap can be slid freely without interference into the socket or aperture 31, the aperture or opening provided by the locking tab 32 being wider than the width or diameter of the crown cap. Suitable rails may be provided for holding the side portion 16a in elevated position. The bottles 34 may be introduced by suitable guides 61 as shown in FIG. 6, and the separator tabs 26 and 28 are erected to space the bottles apart. Then, in closing the carton, the tabs 58 are then folded downwardly about the bend lines 17a so as to lie inside of the respective end panels 13 or 10–18, this condition being shown in FIG. 4 for example. Then the side portions 16a of the top panel 16 are forced downwardly by breaking the top at the bend lines 36 so that these side panels 16a are resting against the edges 56 at the top of the respective end panels 13 and 10–18. Thereafter, the side flaps or side extensions 44 of respective end panels 13 and 10–18 are turned inwardly through 180° and the respective extended or projecting end portions 44a and 44b thereof are tucked or forced past the bottle so as to lie between the bottle and the end panel 10, for example, as shown most clearly in FIG. 5, thereby overlapping the locking tabs 58 with the upper extensions 44a and the upper portions of the panels 44 so as to provide a secure and strong corner lock.

At the same time that the top corners are folded, the side extensions 41 are prepared by folding the lock tabs 43 at right angles and then the extensions are folded at right angles so that lock tabs 43 overlie the adjacent end panel portion 10 or the end panel 13 and thereafter the side flaps or side extensions 44 of the respective end panels 13 and 10–18 are folded inwardly to overlap and embrace the locking tabs 43 in much the same fashion as they overlap and embrace the upper locking tabs 58.

Also, in drawing down the side portions 16a of the top panel 16, the locking tabs 32 are carried past the crown caps and snapped underneath these caps to perform an effective lock therefor.

Following the above directions, the six bottles of products, such as beer for example, are placed and securely held in the carton.

As the bottles are being introduced, the straight edges of the separator flaps 28 which are pushed upwardly ahead of the introduction of the bottles, are raised sufficiently above the rounded lower edge of the bottles to avoid the camming closing effect of this rounded edge and to be certain of erection.

When it is desired to open the carton, it is only necessary to insert a finger or a hook of some sort and engage one or both of the side extensions 44 of the end panels 13 and withdraw them from their locking relation, as shown in FIG. 5, so that the carton can again be opened and, by forcing the tabs 32 upwardly past the crown caps, or by complete reverse bending of the side portions 16a of the top panel 16, the bottles are freed for removal.

From the above description it will be seen that each of the sides of the carton provide a panel structure which assists and cooperates in the tuck-lock provided at each of the eight corners of the carton. The top panel structure comprising the panel 16 and the locking tabs 58, for example, cooperates with the respective end panel structures comprising for example the panel 13 and its side extensions 44. It will also be noted that by using a tuck-lock structure similar to the four bottom corners of the carton illustrated at the four top corners that a carton adaptable for the packing of cans or other containers with flat ends can be performed.

While I have shown and described a preferred form of carton package, and preferred method of closing the package, it will be understood that this invention is capable of modification and variation from the form shown so that the scope thereof should be limited only by the scope of the claims appended hereto.

What I claim is:

1. A package comprising a group of adjacent upright containers, a carton having vertical opposed end panels extending over the two ends of the group, each of said end panels having panel extensions integral therewith and extending into said carton to positions between said end panels and said containers adjacent thereto, with the last-mentioned containers solely holding said end panel extensions in their positions, top and bottom panels extending between and integral with said end panels and having side portions joined thereto by scored lines and bent at an angle to the intermediate panel portions, and said side portions having locking tabs formed at the ends thereof and integrally connected thereto, each of said locking tabs in the collapsed condition of the carton having a lateral dimension which is greater than the lateral dimension of the adjacent side portion to which it is connected, whereby in the erected position of the carton each locking tab has a tab portion projecting beyond said adjacent side portion in position to be overlapped by the adjacent end panel extension, said locking tabs being positioned in 90° relation with said top and bottom panels and in overlapping relation with said end panels, and two of said locking tabs being disposed underneath each of said end panel extensions.

2. A package comprising a group of upright containers having tapered upper ends and crown-type closures, a carton having vertical opposed end panels extending over the two ends of the group, each of said panels having end panel extensions integral therewith and extending into said carton to positions between said end panels and said containers adjacent thereto with the last mentioned containers solely holding said end panel extensions in their positions, said end panels having their upper corners formed diagonally, top and bottom panels extending between and integral with said end panels and extending over the upper and lower ends of the containers, said top panel having side portions joined thereto by scored lines and bent at an angle to the intermediate top panel portion to engage said diagonally formed corners, said top panel having a group of holes engaging the upper ends of said containers underneath said closures, each of said holes intersecting one of said scored lines and being formed in part by a retaining tab cut free at the sides from the adjacent side portion and said retaining tab having a width at least equal to the diameter of said closures, and said side portions having locking tabs formed at the ends thereof and integrally connected thereto, said locking tabs being positioned in 90° relation with said top panel, and in overlapping relation with said end panels, and being disposed underneath said end panel extensions, and said bottom panel having side portions with locking tabs formed at the ends thereof and integrally connected thereto, said locking tabs being positioned in 90° relation to said bottom panel and in overlapping relation with said end panels, and being disposed underneath said end panel extensions.

3. A carton having four walls hingedly connected to each other as a series and with two adjacent ones of walls disposed at an angle to each other, a side extension on one of said two walls bent 180° into substantially parallel relation with said one wall, the other of said two wells having a side extension bent at an angle thereto, in the collapsed condition of the carton said extensions being disposed in end-to-end relation, said last-named side extension having a locking tab at the end thereof and bent at 90° thereto, said locking tab in collapsed condition of the carton having a lateral dimension which is greater than the lateral dimension of the adjacent side portion to which it is connected, whereby in erected position

of the carton said locking tab has the tab portion projecting beyond said adjacent side portion in position to be overlapped by the adjacent panel extension, said tab being disposed in flat engagement with said one wall and being overlapped and retained by said side extension of said one wall, and means for securing said side extension of said one wall in place.

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