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BOTTLE CARTON WITH REINFORCED FINGER OPENINGS

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2 Sheets-Sheet 1

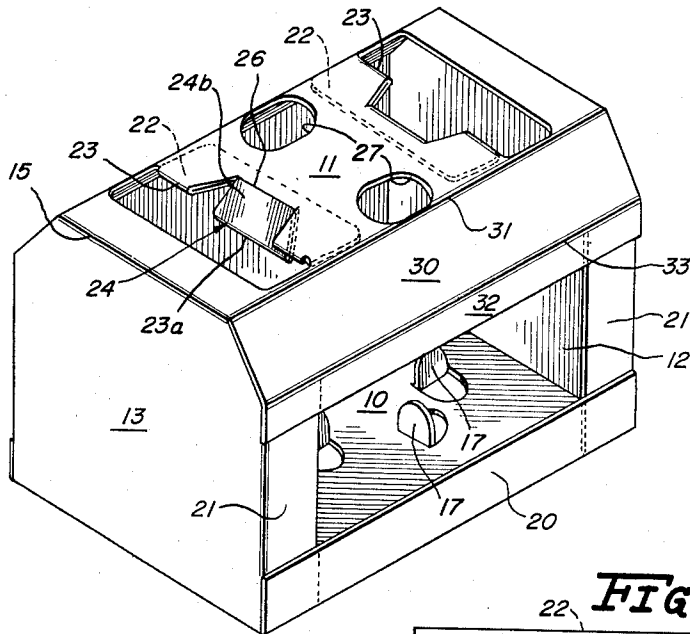


FIG. 1

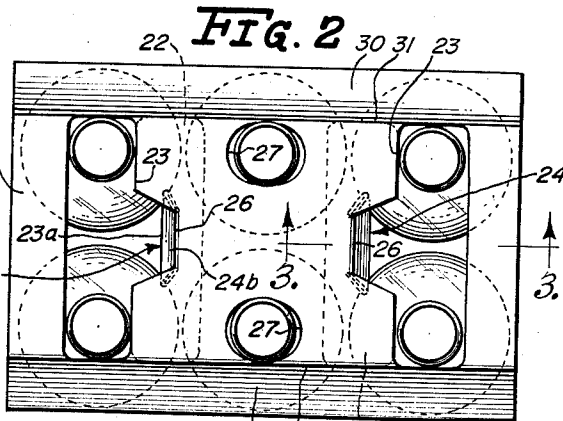


FIG. 2

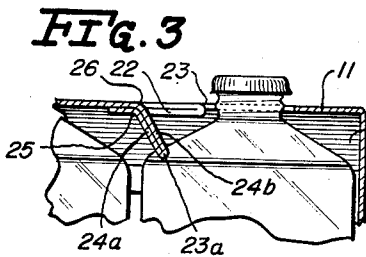


FIG. 3

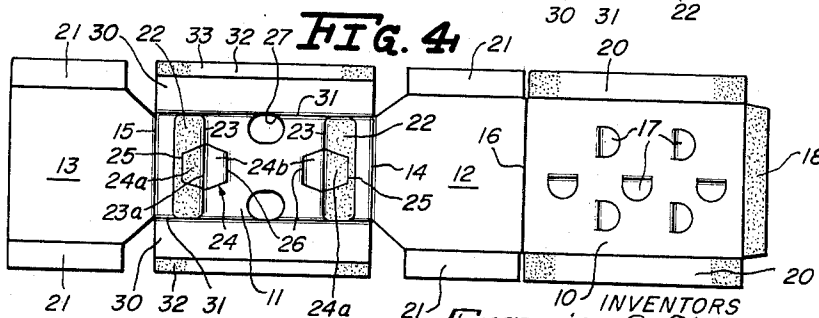


FIG. 4

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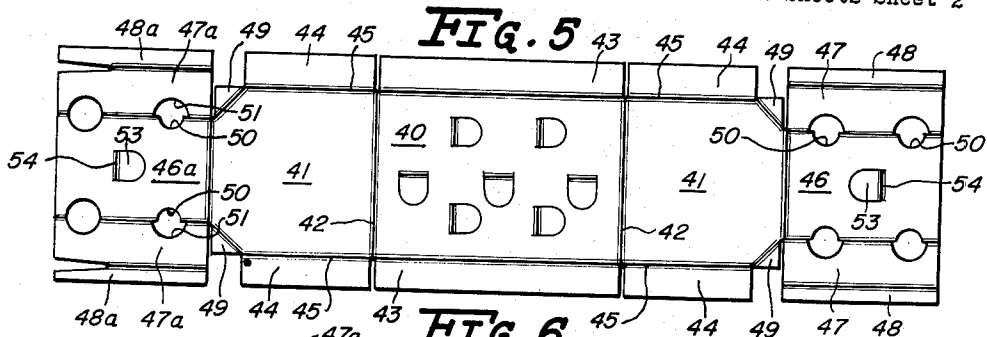
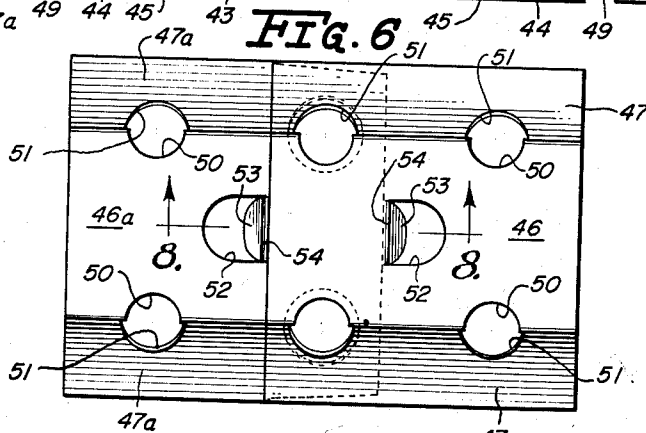
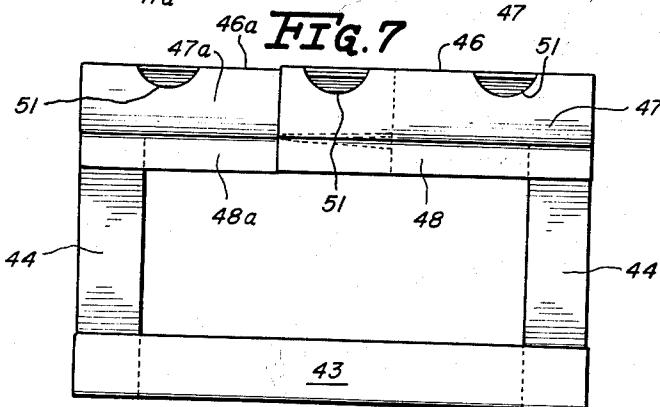
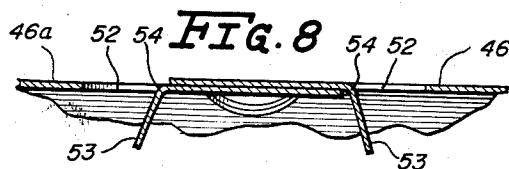
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BOTTLE CARTON WITH REINFORCED FINGER OPENINGS

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The present invention relates to paperboard carriers for bottles or cans and more particularly to an improved construction of top panel provided with finger openings by which the filled carton may be carried.

An important object of the invention is to provide, in a paperboard carton, a top panel having reinforced finger openings for carrying the filled carton, such reinforcements being formed in part from the stock that is removed to permit the tops of contained bottles to project outwardly above the top panel.

A further object of the invention is to form effective reinforcements for finger openings in the top panel of a paperboard carton which will afford a high degree of carrying strength for a given caliper or grade of paperboard, and thus make it feasible to use paperboard of lighter caliper or lower grade and still provide a carton with top panel carrying means having all the strength necessary for a given weight of bottles to be carried.

Additional and more specific objects and advantages of the present invention will become apparent as the description proceeds.

In the drawings—

FIG. 1 is a perspective view of the carton in set up condition with contents omitted;

FIG. 2 is a plan view showing openings in the top panel and the tops of the bottles in registration with the openings;

FIG. 3 is a fragmentary detail view showing an infolded flap formed from paperboard cut from the opening through which the bottle necks project;

FIG. 4 is a plan view of a preferred form of paperboard blank from which the carton is made;

FIG. 5 is a plan view of modified construction of carton blank in which the top panel is formed of two sections located at the extremities of the blank;

FIG. 6 is a top plan view of the carton showing a central area of double thickness with tabs released from the finger openings and foldable below the double thickness area;

FIG. 7 is a side elevation of the carton; and

FIG. 8 is a fragmentary, sectional view, taken along line 8-8 of FIG. 6.

In paperboard bottle carriers of open end or open side construction it is advantageous from the viewpoint of economy to allow the necks of the bottles to project through the top wall. By such a construction the bottles may be sufficiently enclosed and a somewhat smaller area of paperboard is required than is the case when the sides or ends are made high enough so that the top wall completely covers the bottle tops. However, when the top panel is formed with openings to receive the projecting bottle necks, the top wall is rendered somewhat weaker if it is also formed with finger openings for carrying purposes. The two modifications herein shown have load bearing areas of double thickness adjacent the finger

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openings, and also have tabs at the finger openings which can fold inward and then upward below the double-thickness, load bearing area and furnish additional layers of paperboard to make the grasping of the carrier by the fingers more comfortable and at the same time reinforcing the load bearing area.

Referring in detail to the drawings, the carton blank, as shown in FIG. 4, is cut and scored to provide a bottom panel 10 and top panel 11. Between the top and bottom panel is an end wall panel 12 and on the other end of the top panel, at the end of the blank, is an end wall panel 13. The top and end panels are separated from each other by score lines 14 and 15, and the end wall 12 and bottom panel 10 are separated by score line 16. The bottom panel is formed with U-shaped cuts to provide upwardly foldable tabs 17, 17 to separate adjacent bottles. At the end of the bottom panel is a flap 18 for attachment to the free edge of the end panel 13 to produce thereby a carton of tubular form.

The bottom and end panels each have side flaps 20, 20 and 21, 21 which may be folded over at right angles to their attached walls as shown in FIG. 1. These flaps are adhesively secured in their overlapping areas and this will partially close the sides of the package.

The top panel 11 is die-cut at each side of the center to form displaceable panels 22, 22, folded along score lines 23, 23. Supplemental foldable portions 24, 24 are formed, located symmetrically with respect to the score lines 23. These foldable portions are illustrated as being hexagonal in shape but their particular configuration may be altered without essentially changing their function. The portions 24 each have two similar sections 24a and 24b, hinged to each other along central score lines 23a which are aligned with the score lines 23. The section 24a is cut from the panel 22 and is hinged to such panel along score line 25. Section 24b, cut from the top panel inwardly of score line 23, is hinged to such top panel along score line 26.

When each of the displaceable panels 22 is folded inward through 180°, it will contact the under side of the top panel. In this position the sections 24a and 24b of portions 24 will be in contact with each other and the score lines 25 and 26 will be in substantial registration with each other. The folded portions 24 may then be folded, in the manner of a tab, inwardly of the top panel. In preparing the carton for use, each panel 22 and section 24a will have adhesive applied thereto and will be folded over to engage flat against the underside of the top panel. The panel 22 will thus be secured to the top panel and the sections 24a and 24b will be secured to each other. It is not essential for the sections 24a and 24b to be secured together as in any event they will be held in contact when the panel 22 is secured to the underside of the top panel.

By folding and securing the displaceable panels to the top panel in the manner above explained, openings are provided through which the necks of the two bottles at the ends of the rows within the carton may project. It is thus apparent that the parts of the top panel that are necessarily cut away, if the bottle necks are to project above the top wall, are utilized to form parts of the displaceable panels 22.

The folded tab-forming sections 24a and 24b preferably remain in place in the general plane of the top wall until it is desired to carry the filled package by hand. These

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folded sections are then easily pushed down and swung partially up beneath the edge portion of panel 22 attached to the underside of the top panel. When these folded sections are moved to this position there are three thicknesses of paperboard beneath the top panel to serve as a load bearing area. Also there are two folded edges—one within the other—giving a somewhat rounded edge surface where a finger and thumb of a person will apply most of the grasping force in carrying a filled package.

The central part of the top panel has two additional die-cut openings 27, 27 through which the necks of the two center bottles project.

By an inspection of FIGS. 1 and 2, it is apparent that the displaceable panels 22, 22 bear upwardly against the under side of the top panel and tend to distribute the forces tending to tear the top wall panel in the areas where it is suspended by insertion of a person's fingers. It is also apparent that by provision of the double-thickness tab, formed by the parts 24a and 24b, the area immediately adjacent the place where the fingers will bear is additionally strengthened. The package is thus not only more comfortable for the person carrying it, but the likelihood of tearing the top wall is greatly diminished.

Along the sides of the top panel 11 are inclined supplemental top panels 30, 30 defined from the panel 11 by score lines 31, 31. An attaching flap 32 on each panel 30 is defined from such panel by score line 33 and the flaps 32 are preferably secured adhesively to the upper end portions of the flaps 21 on the end walls. By employing downwardly inclined supplemental top panels 32 the top structure of the carton is additionally stiffened and strengthened, as substantially all of the downward force imposed upon the panel 11 will be effectively distributed to the end walls and intumed end wall flaps 21, 21 through the supplemental top panels and their flaps 32.

In the modified form, illustrated in FIGS. 5 to 8, the top panel is preferably formed in two sections to provide an overlapping area centrally of the top wall and with tabs at the finger openings which are foldable beneath this overlapping area.

Referring to FIG. 5, the bottom panel 40 is formed centrally of the blank with end panels 41, 41 at the ends of the bottom panel and defined from this panel by score lines 42, 42. The bottom and ends have flap extensions 43, 43 and 44, 44 foldable along score lines 45, 45. The top wall panels each have central sections 46 and 46a and supplemental sections 47, 47 and 47a, 47a, defined by score lines from the central sections. The supplemental sections carry extension flaps 48, 48 and 48a, 48a arranged to be folded over the upper end portions of the respective flap extensions 44, 44 and secured to such flaps by adhesive.

Between the flaps 48a and the supplemental top panels is formed a V-shaped cut aligned with the fold line for the purpose of preventing undue crowding of the fold between the flaps and attached panels after the two top panel sections have been secured in overlapping relation.

Triangular tabs 49, 49, if desired, may be formed on the sloping edges of the end walls and these tabs are preferably folded in to lie beneath the inclined supplemental top panels when the carton is set up.

Bottle neck receiving openings 50, 50 are formed in the top panel. The openings at the outer edge of each top panel section are located so as to be in registration when the sections are joined and comprise in effect single openings. See FIGS. 6 and 7. Each opening 50 has an enlarged half-portion 51 which extends into the supplemental top panel 47. The purpose of this enlarged section is to accommodate the bottle cap when the carton is employed in a loading method in which the bottles are moved into position on the bottom panel from each of the sides while the end and bottom flap extensions 43 and 44 are directed outwardly in the planes of their attached panels. The bottles are moved into position while the supplemental top

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panels are raised to an inclined position somewhat above the plane of the main top panel 46. The carton is proportioned so that the top panel 46 will be at a level just below the lower rim of the bottle caps. Thus the bottle necks will be received within the smaller parts of the openings and, when the bottles are in place, the supplemental top panels are swung down. By reason of the larger parts of the openings, the edges will swing free about the outer edges of the caps. When the supplemental panels are swung down to their final inclined position the edges of the openings will engage against the outer surfaces of the bottle necks.

Finger openings 52, 52 are cut in the top panel sections, providing a tab 53 at each opening, hinged to fold along a score line 54. The tab hinge lines are formed so as to coincide approximately with the edges of the top panel sections when such sections are secured in their overlapped position. Thus, by depressing the tabs from their position within the plane of the top panel and swinging them in beneath the central part of the panel which is of double thickness, the filled carton may be carried. The three thicknesses of paperboard, provided by the folded tab and the two thicknesses at the over lap, will resist tearing of the board and provide a relatively comfortable carrying means.

As in the case of the first modified form, the inclined supplemental panels tend to stiffen the top structure and the double thickness central portion of the composite top panel, extending into the inclined panel area, assists in the distribution of the lifting force from the finger openings to the end portions of the inclined panels and through these panels to the end walls.

From the foregoing it is apparent that the present invention provides a bottle carrier having a top wall panel with a transverse portion of multiple thickness with a finger opening adjacent this portion, there being a foldable tab at the finger opening which can be swung beneath the multithickness portion, whereby to facilitate carrying and also to provide a reinforced top panel which will resist tearing at the point or points where the carrier is suspended. In addition, by combining the reinforcement for the load bearing area, as herein disclosed, with the feature of providing inclined supplemental top wall panels, joined to intumed flap extensions on the end walls, the load imposed on the top panel at the finger openings is effectively distributed and the tendency toward tearing is minimized. Accordingly, by the constructions disclosed herein a high degree of carrier strength may be obtained with relatively light caliper paperboard or with board of greater caliper but lower quality.

While the foregoing description has referred to the carriers as adapted for bottles, they are equally adapted for use with crown top cans or other similar articles.

While the embodiments described above and illustrated in the drawings are preferred embodiments, it is to be understood that various changes may be made in the constructions without departing from the spirit of the invention, and it is therefore desired that the present embodiments be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

What is claimed is:

1. A paperboard bottle carrier including a rectangular top wall panel formed with bottle neck receiving openings adjacent two opposite edges, at least one of the openings being narrow and elongated with its long dimension parallel to the adjacent edge of the top panel, a narrow, elongated, reinforcing panel hinged along the side of the opening remote from such edge of the top panel, the reinforcing panel being folded toward the central part of the top panel into contact with the under side of the top panel, a double-thickness tab formed in the folded edge portion of the reinforcing panel and top panel provided

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by spaced, centrally located slits extending from such folded edge, such tab, when folded downward below the top panel, providing a finger-receiving notch centrally of the bottle neck receiving opening.

2. A paperboard bottle carrier including a rectangular top wall panel having a central, elongated portion, such top wall panel being formed with bottle neck receiving openings adjacent two opposite edges, at least one of the openings being narrow and elongated with its long dimension parallel to the adjacent edge of the top panel, a reinforcing panel secured on the top panel to provide a double thickness of paperboard along the edge of the opening remote from such top panel edge, a double thickness tab formed in the attached reinforcing panel and top panel by spaced, centrally located slits cut in the top panel and reinforcing panel, such tab, when folded down below the

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top panel, providing a finger-receiving notch located centrally of the bottle neck receiving opening, narrow, downwardly inclined panel portions extending along the opposite longitudinal edges of the central panel portion and serving to stiffen the central panel portion and resist deflection of same as the carrier is supported by a person's finger inserted beneath the infolded tab.

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