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H. W. FORRER ET AL
PAPERBOARD CARRIER

2,967,003

Filed Oct. 9, 1959

3 Sheets-Sheet 1

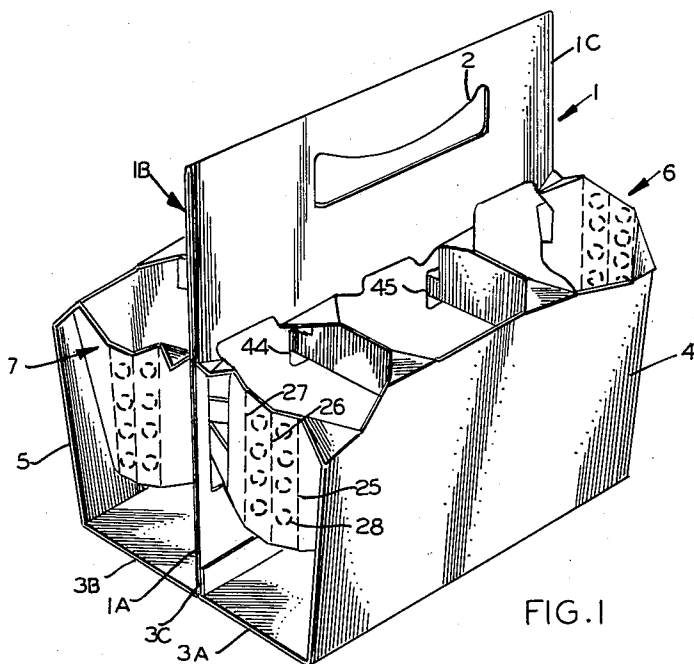


FIG. 1

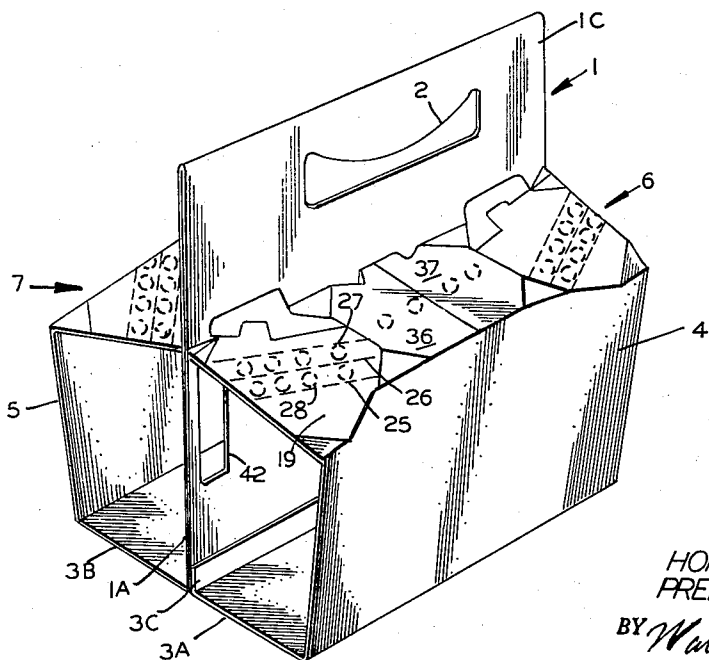


FIG. 2

INVENTORS
HOMER W. FORRER
PRENTICE J. WOOD
BY *Walter M. Rodgers*

ATTORNEY

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3 Sheets-Sheet 2

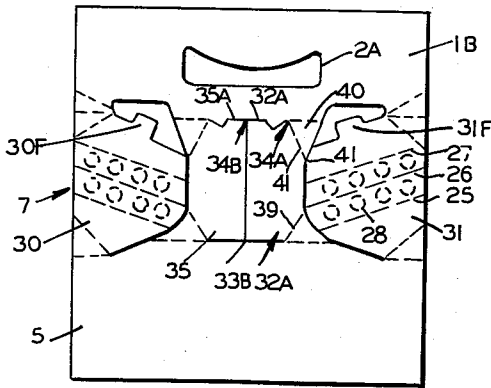


FIG. 3

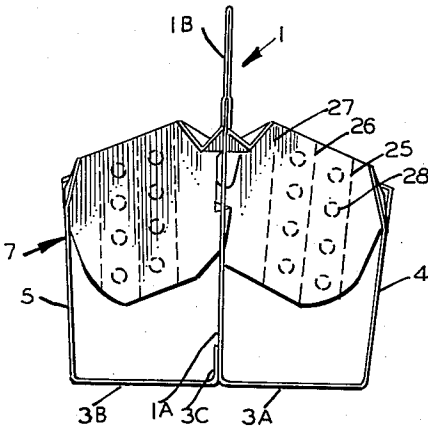


FIG. 4

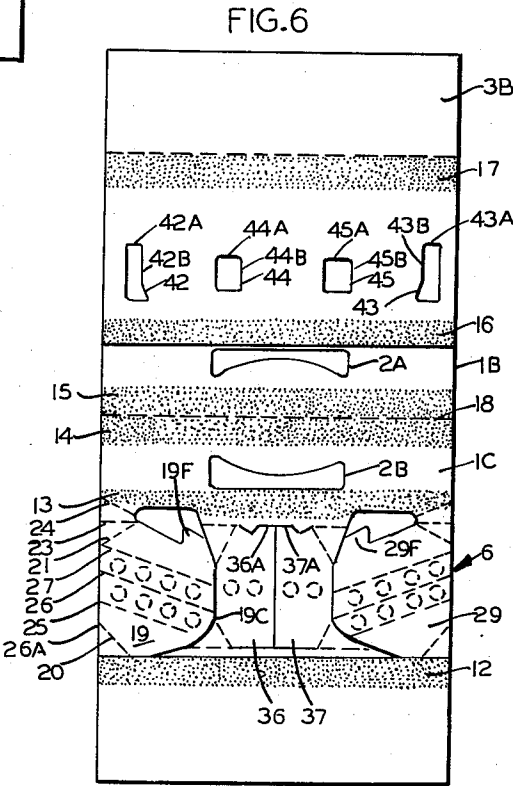


FIG. 6

INVENTORS
HOMER W. FORRER
PRENTICE J. WOOD
BY *Walter M. Rodgers*

ATTORNEY

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PAPERBOARD CARRIER

Homer W. Forrer, East Point, and Prentice J. Wood, College Park, Ga., assignors, by mesne assignments, to The Mead Corporation, Dayton, Ohio, a corporation of Ohio

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4 Claims. (Cl. 220-114)

This invention relates to paperboard carriers and more particularly to carriers which are adapted for use in conjunction with disposable bottles.

Paperboard carriers of the type most commonly used in conjunction with bottled soft drinks are used over and over again and must be constructed in a durable manner. Ordinarily such carriers are made of relatively heavy paperboard and are ruggedly designed for repetitive use so that the customer may return empty bottles to the soft drink retailer via the carrier and so that the bottler may reuse the carrier. In carriers of this type a measure of protection against breakage of the bottles is provided on account of the sturdy construction of the carrier.

Where carriers are used for disposable bottles, the full cost of both bottles and carrier must be borne by the single package unit and may not be charged against a number of package units as in the case of ordinary reusable bottles and carriers. Thus it is desirable that the cost of such single use carrier be kept low, but if the cost of the so-called one-way carrier is reduced too drastically the resulting product may prove inadequate for its intended purpose and may not afford proper protection for the bottles against breakage.

A principal object of this invention is to provide a carrier of the so-called one-way type which is especially constructed to afford maximum protection for the bottles assembled therein.

Another object of this invention is the provision of an improved one-way carrier which utilizes a minimum of paperboard in its construction.

Still another object of this invention is to provide a one-way carrier which is adapted to be made on conventional equipment and which is inherently arranged to hold the bottles packed therein by the application thereto of a gentle retaining force, such retaining force being due to the inherent bias or "fight" of the paperboard.

The invention in one form as applied to bottle carriers comprises a vertically disposed handle panel, a bottom panel having one of its edges foldably joined to the bottom edge of the handle panel, a side panel foldably joined along its bottom edge to the edge of the bottom panel remote from the handle panel, and a plurality of transversely spaced bottle engaging webs foldably joined at one end thereof to the upper edge of the side panel and at the other end thereof to the handle panel, a portion of the width of each web being detached from the handle and side panels and an angularly disposed score line being provided at each end of each web so as to aid in establishing an inherent bottle engaging bias whereby the detached portion of each web gently engages and cushions the adjacent bottle. If desired, an identical structure to that described above may be disposed on the opposite side of the handle panel and, in addition, the inner end portions of the webs may be arranged to enter locking apertures formed in the handle panel and disposed to secure the webs in their normal or carrier set-up positions.

The invention will be better understood from the fol-

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lowing detailed description taken in conjunction with the accompanying drawings in which Fig. 1 is a perspective view of a one-way bottle carrier constructed according to the invention; Fig. 2 is a perspective view similar to Fig. 1 of a one-way carrier embodying the invention and showing the carrier with the webs in their collapsed position which they occupy during the initial stages of a setting-up operation; Fig. 3 is a plan view of a carrier constructed according to the invention and which depicts the carrier in its folded or collapsed position; Fig. 4 is an end view of a set-up carrier embodying the invention; Fig. 5 is a plan view of a blank constructed according to the invention; Fig. 6 is a view similar to Fig. 5 but showing the blank in an intermediate stage of the manufacture of a carrier according to the invention; and in which Fig. 7 is an end view somewhat similar to Fig. 4 but showing the parts in the positions which they occupy immediately after the beginning of a set-up operation.

With reference to Fig. 1, the numeral 1 generally designates the handle panel. The handle panel 1 is provided with hand-gripping aperture 2 and a bottom panel 3A and 3B is foldably joined to the bottom edge of each side of handle panel 1. Foldably joined to the outer edges of bottom panels 3A and 3B are side panels 4 and 5. Interconnected between the top edge of each of the side panels 4 and 5 and the intermediate portion of the handle panel 1 is a plurality of bottle engaging compartment forming webs generally designated in Fig. 1 by the numerals 6 and 7. As depicted in Fig. 2, the webs 6 and 7 are disposed in a common plane intermediate the handle panel 1 and side panels 4 and 5.

In order to assemble the carrier from the blank of Fig. 5 the end of the blank is folded along the score line designated by the numeral 8 so that the area stippled and designated by the numeral 9 falls into coincidence with the stippled area 10, stippling 9 and 10 being glued areas forming a bond to hold the panels 1A and 3B in position adjacent the panels generally designated by the numeral 7 and the side panel 5 respectively. The other end of the carrier is then folded over along the score line designated by the numeral 11 so that the parts then occupy the positions depicted in Fig. 6. With the parts in the positions depicted in Fig. 6 a suitable application of glue is made as indicated by the stippled areas 12, 13, 14, 15, 16 and 17. Thereafter the blank is folded along the medial fold line designated by the numeral 18. When so folded the stippled area 14 comes into coincidence with the stippled area 15 and the stippled area 13 coincides with the stippled area 16 so as to form a sturdy unitary handle designated, for example, in Fig. 1 by the numeral 1. In addition, the stippled area 17 comes into coincidence with the stippled area 12 and by so doing forms a bond between the bottom flap 3C and the stippled area 17 formed along the bottom edge of the handle panel 1 and adjacent the bottom panel 3B. When the parts are folded along the medial fold line 18 and the glue secured, the carrier will then be in its collapsed position as depicted in Fig. 3.

In order to set the carrier up, i.e., to cause the carrier depicted in Fig. 3 to occupy the position indicated in Fig. 2, for instance, it is only necessary to pull the sides 4 and 5 apart, that is in a direction away from each other, so that the parts will then occupy the positions depicted in Fig. 2. In order to cause the webs 6 and 7 to occupy the positions designated in Fig. 1, it is necessary to fold the webs by an application of a downward force thereto in a manner to be described.

In Figs. 2 and 5, one of the end webs is designated by the numeral 19 and is detached from the remainder of the web section generally designated by the numeral 6 by a cut line beginning at the point designated 19A and continuing to the points designated 19B, 19C, 19D, 19E,

19F, 19G to the point designated 19H. The area bounded by the points 19E, 19F, 19G, 19H, 19I, and 19J is a cut-out part. As is clearly shown in Fig. 5 the point 19I is closer to the left-hand edge of the blank than is the point 19H, i.e., the point of intersection of score lines 21, 23, and 24. Thus when web 19 is folded downwardly the board will bend along a line 19K which line is not a score line but which forms the bend line and thus avoids tearing the web along scores 21, 23, or 24. Furthermore, the end web 19 is joined to the web section 6 along a score line designated 20 which extends from one end designated 20A to the point 19A and also by an angularly disposed score line 21 which extends from the left-hand edge of section 6 to the point designated 19H. Interconnecting the web 19 and the side wall 4 is a horizontally disposed fold line 22. Furthermore, a horizontally disposed fold line 23 interconnects the end web 19 and the handle panel 1C. In addition, an angularly disposed score line 24 is provided adjacent the score line 23 and is disposed with respect thereto at an angle approximately equivalent to the angle between score line 21 and score line 23. As can clearly be seen in Fig. 5, the end web 19 is provided with three perforated lines 25, 26 and 27 which enable the end web 19 to conform to the outer perimeter of a bottle disposed adjacent thereto as indicated generally, for example, in Fig. 1. Furthermore, as is clearly shown in Fig. 5 and in certain other figures of the drawings a plurality of embossments 28 are provided which act as cushioning means whereby to protect a bottle disposed within the end of the carrier shown in Fig. 1 from a bottle disposed in the end of an adjacent carrier.

From the description thus far it will be understood that the edge of web 19 defined by line 19A through 19H constitutes a detached portion of the web 19 by which the web is separated along a portion thereof from the handle 1 and from the side wall 4. Thus a downward force applied to the right-hand portion of the web 19 as shown in Fig. 5 would cause the web to swing downwardly about the score lines 20 and 21 and would be in opposition to the inherent bias of the paperboard which would tend to cause the web 19 to swing up and generally toward the right. Such bias or inherent "fight" of the paperboard affords a gentle cushioning force whereby a bottle disposed in the end cell of the carrier is cradled and cushioned against shocks.

Since the end webs are four in number and are similar in construction, two occupying the web section 6 and two occupying the web section 7 and are designated respectively by the numerals 19, 29, 30 and 31, a detailed description of the construction and function of only one of the webs such as 19 is deemed necessary.

Intermediate web 32 will now be described. As is best shown in Fig. 5, intermediate web 32 is separated from the side wall panel 5 by a cut line extending from the point designated 33A to the point designated 33B. Furthermore, the intermediate web 32 is separated from the handle panel 1B by a cut line extending from the point 34A to the point 34B. In addition, a cut line extending from the point 33B to the point 34B separates the intermediate web 32 from the adjacent intermediate web 35. Web 32 is foldably joined to segment 38 of the web section 7 by a score line extending from the point 33A to the point 39A, the score line being designated by the numeral 39. In addition, the intermediate web 32 is separated from the triangular portion 40 of the web section 7 by a score line 41 which extends from the point 34A to the point designated 41A.

Thus it will be understood that a downward force applied to the right-hand portion of intermediate web 32 will impart a twisting moment to the web 32 and will result in the web exerting a bias toward the right against a bottle disposed, for example, in the center cell of the carrier, it being understood that the web 32 will then be vertically disposed and will be folded along the score

lines 39 and 41 and its lower edge will be biased toward engagement with the bottle on the right side thereof as viewed in Fig. 5.

The intermediate webs 35, 36, and 37 are constructed in a manner identical to the construction of web 32 and a detailed description of webs 35, 36 and 37 and of their function is therefore deemed unnecessary.

For the purpose of holding the end web such as end web 19 in its set-up position the projecting portion or locking tab adjacent the point designated 19F is arranged to extend into locking aperture 42 formed within the handle panel. In a similar fashion, the locking tab adjacent point 29F of end panel 29 is locked within the locking aperture 43.

In order to avoid interference between the end panels on opposite sides from the handle panel it will be observed that the locking tabs adjacent points 30F and 31F of the end panels 30 and 31 are offset somewhat and rise above the locking tabs adjacent points 19F and 29F of the end panels 19 and 29 respectively.

For the purpose of holding the intermediate web 32 in its normal set-up position the web is constructed with a locking tab 32A which engages the locking aperture 44 while the intermediate panel 35 is provided with a locking tab 35A which engages the locking aperture 45. In like fashion the locking tabs 36A and 37A engage the locking apertures 44 and 45 respectively so that all of the webs, both the end webs and the intermediate webs, are locked in place.

It will be observed, from Fig. 5 for example, that the locking apertures 42, 43, 44 and 45 are provided with a substantial horizontal dimension designated, for example, by the designations 42A, 43A, 44A and 45A. In this manner it will be understood that the respective locking tabs may be pushed down through the locking apertures and the final set-up position determined by the vertically disposed inner edge portion of the locking apertures designated 42B, 43B, 44B and 45B.

From the description above it will be understood that the forces imparted to the bottles disposed within the carrier are balanced forces. For example, the inherent bias of the end webs 19 and 31 and of the intermediate webs 32 and 36 as viewed in Fig. 5 will be toward the right whereas the inherent bias of the end webs 29 and 30 and of the intermediate webs 35 and 37 will be toward the left. In this manner a balanced distribution of internal stresses is set up which assures a compact unitary package comprising the bottles and the carrier, and furthermore, such balanced forces cause the bottled goods to occupy a minimum of space and gently cradle the bottles. By applying these forces to the bottles, it is possible to construct the carrier of lightweight material using conventional equipment and the cost kept to a minimum.

While we have shown and described a particular embodiment of the invention, we do not wish to be limited thereto and intend in the appended claims to cover all such changes and modifications as fall within the true spirit and scope of the invention.

What we claim as new and desire to secure by Letters Patent of the United States is:

1. A paperboard carrier for containers comprising a normally vertical handle panel, a bottom panel having one edge thereof foldably joined to said handle panel adjacent the bottom edge of said handle panel and normally disposed in a substantially horizontal plane, a side panel foldably joined to said bottom panel along the edge thereof opposite from said one edge, and a plurality of transversely spaced container engaging webs each foldably joined at one end thereof to the upper edge of said side panel and at the other end thereof to said handle panel, a portion of the width of each web on one side thereof being detached from said handle panel and from said side wall and each web having an angularly disposed score line at each end thereof to facilitate downward

folding of the webs to form yieldable container engaging elements, a locking tab formed on the detached end portion of each web adjacent said handle panel, and a locking aperture formed in said handle panel below each web for receiving the locking tab of the adjacent web thereby to aid in holding the carrier in set-up condition.

2. A paperboard carrier for containers comprising a normally vertical handle panel, a bottom panel having one edge thereof foldably joined to said handle panel adjacent the bottom edge of said handle panel and normally disposed in a substantially horizontal plane, a side panel foldably joined to said bottom panel along the edge thereof opposite from said one edge, and a plurality of transversely spaced container engaging webs each foldably joined at one end thereof to the upper edge of said side panel and at the other end thereof to said handle panel, a portion of the width of each web on one side thereof being detached from said handle panel and from said side wall and each web having an angularly disposed score line at each end thereof to facilitate downward folding of the webs to form yieldable container engaging elements, a locking tab formed on the detached end portion of each web adjacent said handle panel, and a locking aperture formed in said handle panel below each web for receiving the locking tab of the adjacent web thereby to aid in holding the carrier in set-up condition, each locking aperture having a substantial transverse dimension and a locking edge disposed to determine the normal set-up position of the associated locking tab.

3. A paperboard bottle carrier for a plurality of bottles arranged in two rows said carrier comprising a normally vertical handle panel, a pair of bottom panels each having one edge thereof foldably joined to said handle panel adjacent the bottom edge of said handle panel and normally disposed on opposite sides of said handle panel and in a substantially horizontal plane, a side panel foldably joined to each of said bottom panels along the edge thereof opposite from said one edge, an end web at each end of the carrier on each side of said handle panel, each end web being foldably joined to the upper edge of one of said side panels along a substantially horizontal fold line and to said handle panel along an angularly disposed fold line and a portion of the width of each end web on the inner side thereof being detached from said handle panel and from said side panel and each web having an angularly disposed score line at each end, said score lines extending from the side panel and from the handle panel respectively to the outer edge of each end panel so as to

facilitate downward folding of the webs to form bottle engaging and supporting panels for the carrier which tend to exert an inward supporting force on the adjacent end bottles, and a pair of transversely spaced intermediate webs interposed between said end webs on each side of said handle panel, each of said intermediate webs being foldably joined to said handle panel and to one of said side panels along substantially horizontal fold lines on the outer edges thereof and being detached from said handle panel and from the associated side panel along the inner edges thereof, an angularly disposed score line at each end of each intermediate web, said score lines extending from the side panel and from the handle panel respectively to the outer edge of each intermediate panel so as to render the intermediate panels foldable downwardly as a unit to form inwardly biased bottle engaging and supporting panels.

4. A paperboard carrier for containers comprising a normally vertical handle panel, a bottom panel having one edge thereof foldably joined to said handle panel adjacent the bottom edge of said handle panel and normally disposed in a substantially horizontal plane, a side panel foldably joined to said bottom panel along the edge thereof opposite from said one edge, and a plurality of transversely spaced container engaging webs each foldably joined at one end thereof to the upper edge of said side panel and at the other end thereof to said handle panel, a portion of the width of each web on one side thereof being detached from said handle panel and from said side wall and each web having an angularly disposed score line at each end thereof to facilitate downward folding of the webs to form yieldable container engaging elements and a portion of said handle panel immediately above the intersection between the fold line adjoining said handle panel to the end webs and the adjacent angularly disposed score line being cut away so as to cause said end webs to fold along an unscored line generally transverse to said fold line and said score line and thereby to prevent tearing of said web along said fold line or said score line.

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