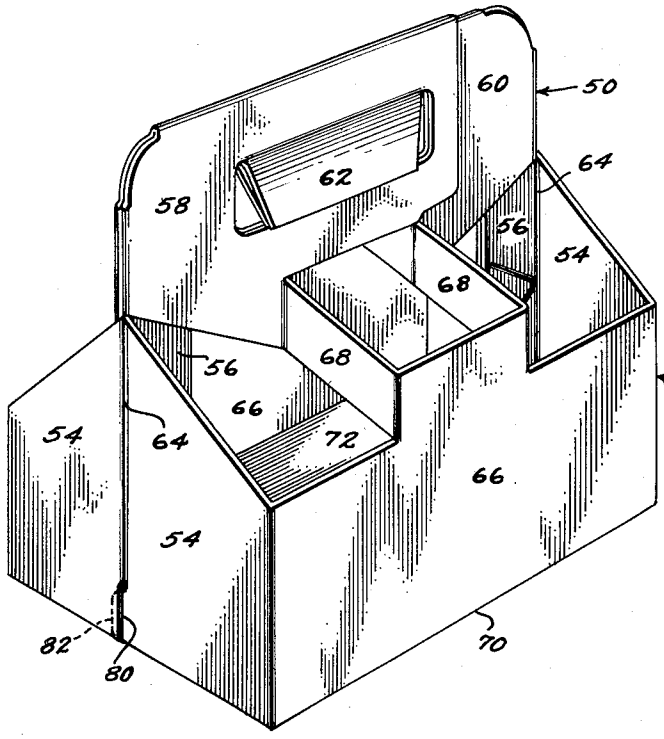
July 28, 1953 H. W. FORRER 2,646,918

BOTTLE CARRIER

Filed Sept. 30, 1949 4 Sheets-Sheet 2

Fig. 2



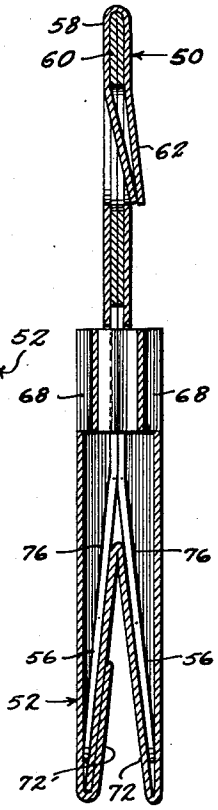
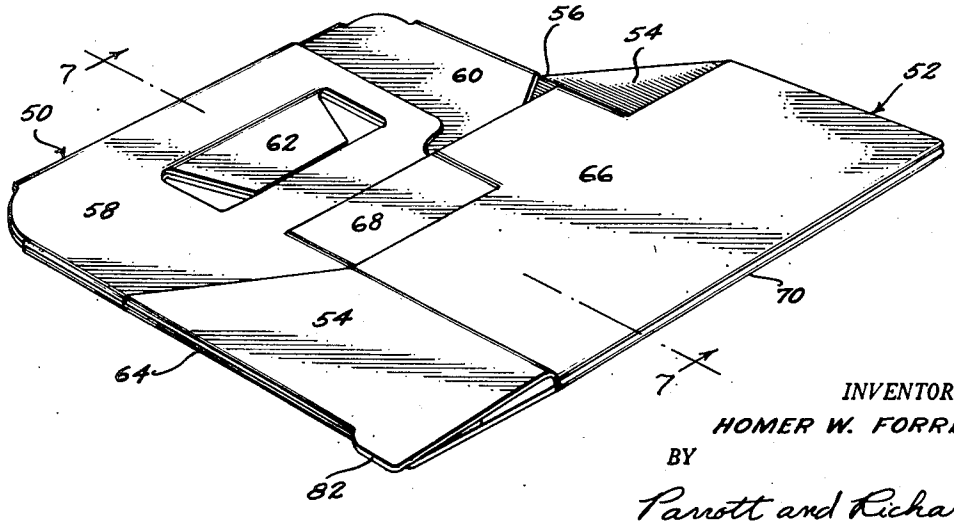


Fig. 3

Fig. 7



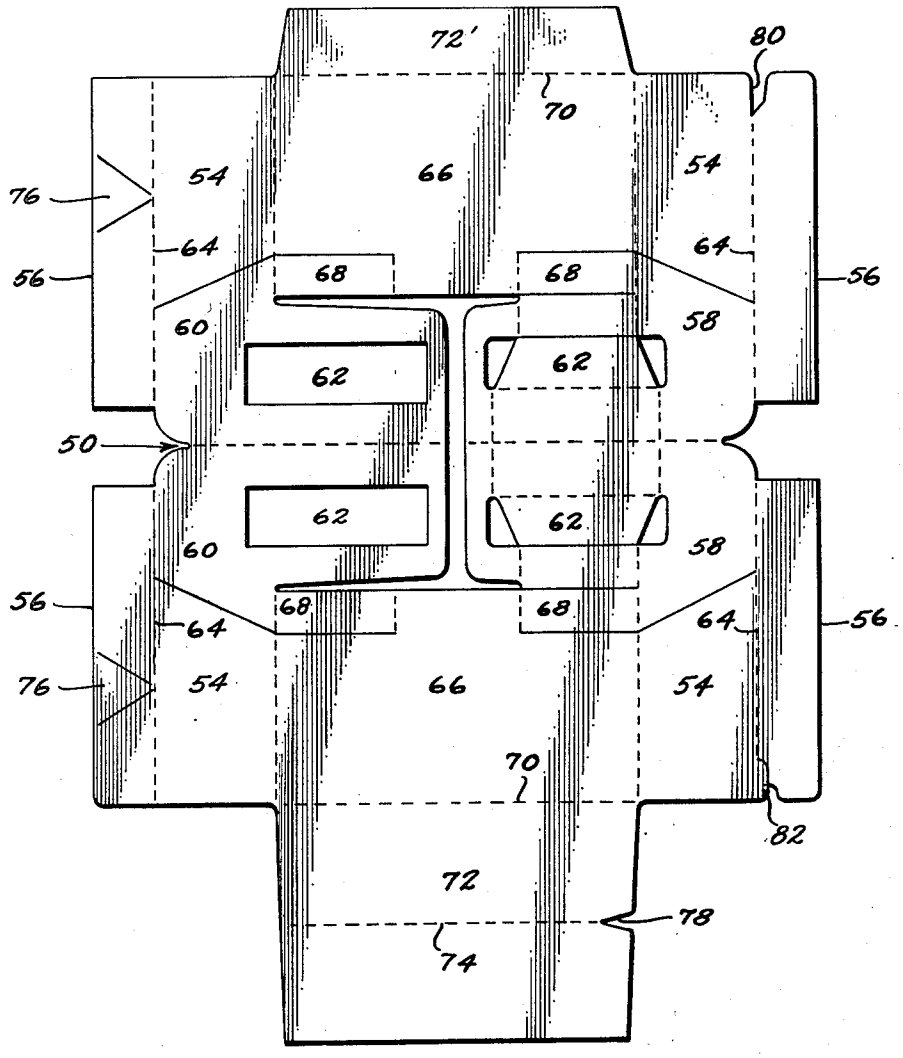
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BOTTLE CARRIER

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Fig. 1



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BOTTLE CARRIER

Filed Sept. 30, 1949 4 Sheets-Sheet 3

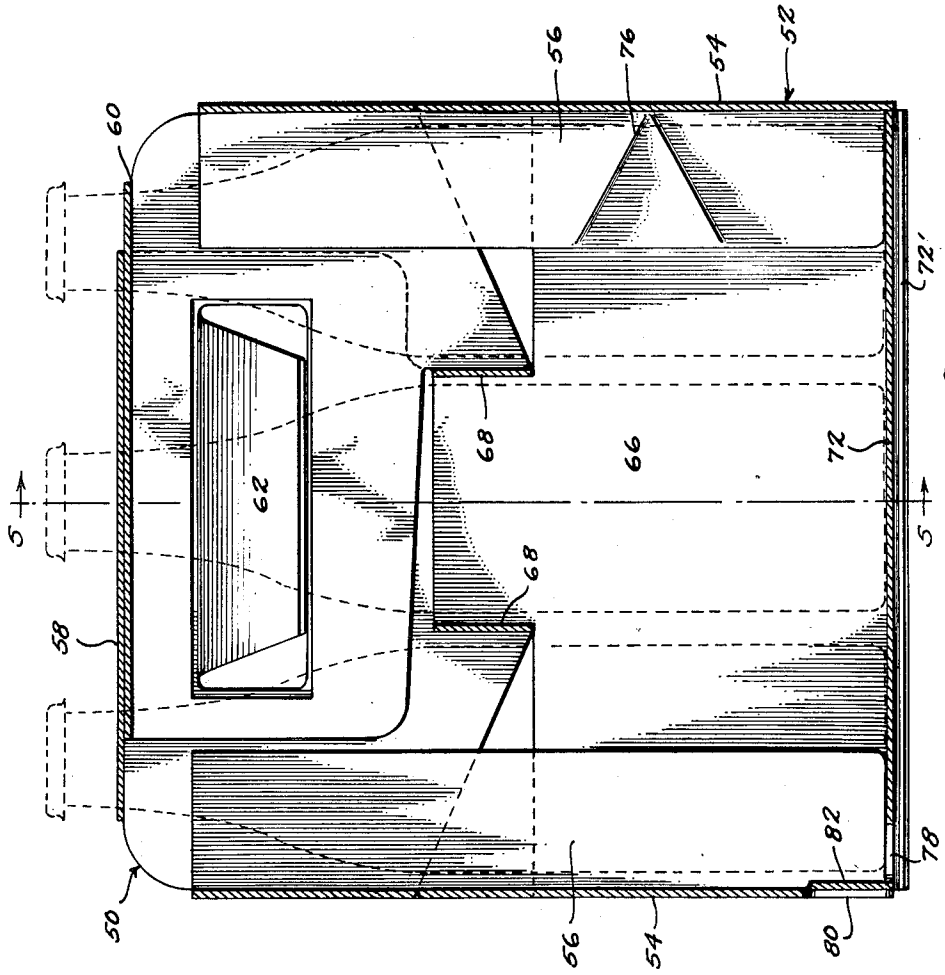


Fig. 4.

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BOTTLE CARRIER

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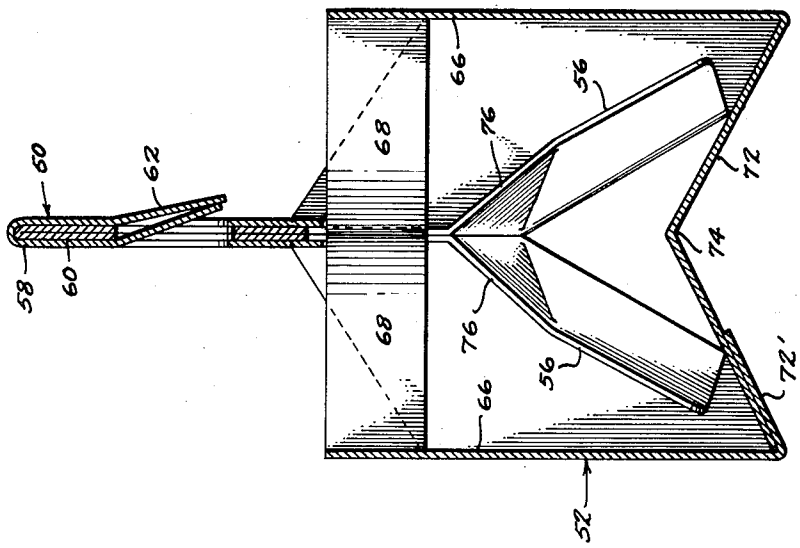


Fig. 6

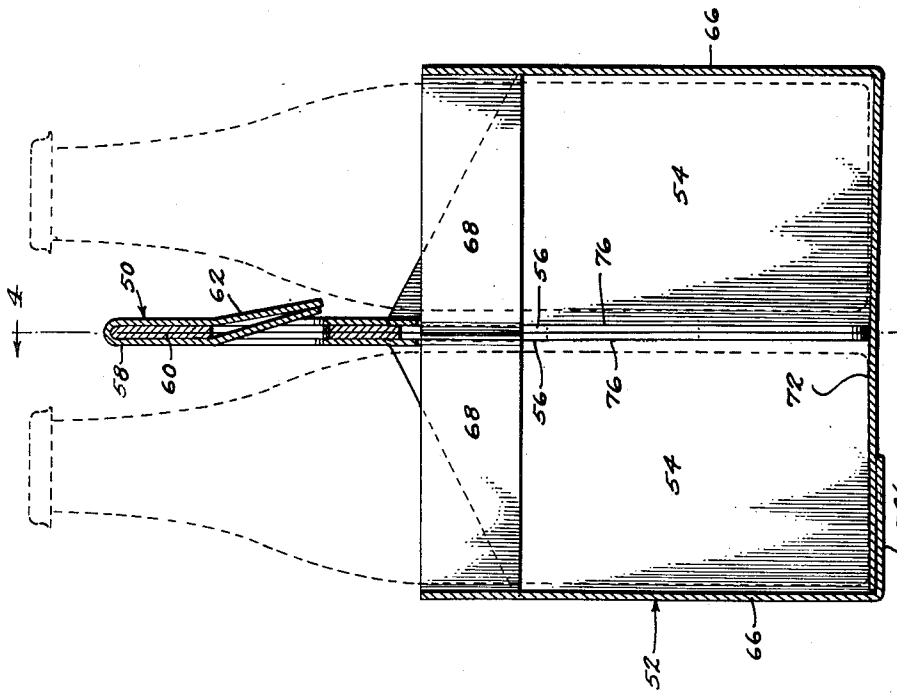


Fig. 5

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UNITED STATES PATENT OFFICE

2,646,918

BOTTLE CARRIER

Homer W. Forrer, Atlanta, Ga., assignor to Atlanta Paper Company, a corporation of Georgia

Application September 30, 1949, Serial No. 118,770

4 Claims. (Cl. 229—41)

1

This invention relates to a carrier for bottles, and more particularly to a collapsible bottle carrier formed from a blank of paperboard or the like, so that it is foldable to either a flat collapsed position for shipping or storage, or to an erect position for loading with bottles.

The present invention constitutes an improvement of the invention disclosed in my copending application, Ser. No. 35,389, filed June 26, 1948, now Patent No. 2,537,452, in which a bottle carrier is disclosed having a uniquely arranged handle portion by which the carrier structure is rendered particularly strong and sturdy, and which allows the carrier to be formed in an entirely symmetrical pattern so that it presents a neat, balanced appearance. Another feature of the bottle carrier disclosed in my above noted copending application is an arrangement of the bottom wall panel so that it folds inwardly between the side wall panels to collapsed position.

This latter feature not only provides a more compact arrangement of the carrier in collapsed position, but the inward folding of the bottom wall panel also results in an inward springing tendency of the bottom wall panel in erect position so that when erected, and before filling with bottles, the carrier rests on the bottom wall panel only adjacent each side wall panel and is thereby conditioned for standing alone until filled with bottles. This is an important feature because it allows the carrier to be used with great facility in automatic loading equipment as carriers formed in this manner will naturally maintain a proper erect position to receive the bottles being loaded automatically.

According to the present invention, these features are incorporated in a bottle carrier with the further improvement of the provision of entirely closed ends for the carrier, which are often desired or required to protect the bottles adequately, or to provide for display of particular advertising indicia to the best advantage.

In my above noted copending application, the inward folding of the bottom wall panel was allowed by reason of the fact that only end partition strips were used at the ends of the carrier so that adequate clearance was provided for inward folding of the bottom wall panel. It will be recognized, however, that if these end partition strips were extended to close the ends of the carrier entirely, they would normally prevent inward folding of the bottom wall panel; and it is a fact, in so far as I am aware, that every collapsible bottle carrier heretofore proposed with entirely closed ends has employed as

2

a matter of course an outwardly folding bottom wall panel. The tendency of such outwardly folding bottom wall panels is naturally to spring outwardly in erect position, so that the carrier will not maintain itself in erect position, because the outwardly springing central portion of the bottom wall panel will cause it to topple over, so that special provision must be made for handling such bottle carriers in automatic bottle loading equipment.

The present invention provides a collapsible bottle carrier in which the advantages of an inwardly folding bottom wall panel and entirely closed ends for the carrier are combined. These advantages are combined according to the present invention by incorporating opposed pairs of end panels in the carrier which extend from each side wall panel of the carrier and are foldably joined to the carrier handle portion for folding medially of the carrier to a collapsed position. These opposed pairs of end panels are formed in an extent completely closing the ends of the carrier, but below the handle portion the extending edges of at least one pair of the end panels are arranged free for a distance above their bottom edges sufficient to provide clearance for accommodating the inward folding of the bottom wall panel.

In the embodiment of the invention illustrated and described below, the end panels are formed with infolded reinforcing flaps by which they are greatly strengthened and stabilized against the weight of the bottle load. The problem of still accommodating inward folding of the bottom wall panel when these reinforcing flaps are used is provided for in this embodiment of the invention by a unique arrangement of bellows folds in the reinforcing flaps for one pair of the end panels, which bellows folds adapt the reinforcing flaps for easy displacement as necessary to allow inward folding of the bottom wall panel.

The bottle carrier of the present invention is described in further detail below in connection with the accompanying drawings, in which:

Fig. 1 is a plan view of the blank used for forming the embodiment of the present invention in which the carrier end panels are provided with reinforcing flaps as mentioned above;

Fig. 2 is a perspective view of a bottle carrier formed from the blank shown in Fig. 1, and in erect position;

Fig. 3 is a perspective view of this same bottle carrier in collapsed position;

Fig. 4 is a longitudinal sectional detail as indicated by the line 4—4 in Fig. 5;

Fig. 5 is a transverse sectional detail as indicated by the line 5—5 in Fig. 4;

Fig. 6 is a corresponding transverse sectional detail illustrating the manner in which the bellows folds allow displacement of the reinforcement flaps to accommodate inward folding of the bottom wall panel in collapsing the bottle carrier; and,

Fig. 7 is a further transverse sectional detail of the bottle carrier as indicated by the line 7—7 in Fig. 3.

A blank from which a bottle carrier constructed in accordance with the above noted embodiment of the present invention may be formed is illustrated in Fig. 1, and as shown this blank is arranged with the handle portion 50 at the central area of the blank consisting of pairs of panels 58 and 60 adapted to be secured in overlapping relation in assembling the carrier with a hand grip provided at 62, as disclosed more particularly in my previously noted copending application. The reinforcing flaps 56, which are arranged to be folded and secured between the panels 58 and 60 in forming the handle portion 50, are foldably joined at fold lines 64 to the extending edges of the end panels 54 for the full height of these end panels 54 as mentioned above.

The end panels 54 extend in each case from the respective ends of side wall panels 66 so that they connect the bottle supporting portion 52 of the carrier with the handle portion 50. The panels 54 are again formed in an extent completely closing the ends of the carrier, and as they are arranged in pairs and foldably joined to the reinforcing flaps 56, they are adapted for folding medially of the carrier to collapsed position.

The side wall panels 66 of the bottle supporting portion 52 may be further connected to the handle portion 50 by spaced partition strips as at 68, and it should be noted that the partition strips 68 incorporated in the presently described embodiment are defined entirely by straight lines and are disposed horizontally, rather than having a curved form as in my previously noted copending application. The bottle carrier construction employed according to the present invention, and more fully disclosed in my above noted copending application, allows the form of the partition strips to be varied in this manner as desired without otherwise affecting the structural arrangement of the carrier.

The side wall panels 66 are formed in each case with fold lines 70 at their bottom edges, a bottom wall panel 72 being joined to one side panel 66 and a glue flap 72' to the other along the fold lines 70 for completing the bottle supporting portion 52 of the carrier (compare Figs. 1 and 5), and the bottom wall panel 72 being formed with a medial fold line 74 for collapsing between the side wall panels 66.

The above described arrangement of the reinforcing flaps 56 extending from the handle portion 50 and foldably joined to the end panels 54, adapts the reinforcing flaps 56 for disposition at right angles along the extending edges of the end panels 54 whenever the carrier is in erect position, and for folding flat with respect to the end panels 54 when the carrier is collapsed (compare Figs. 2 and 3). It will be apparent that this right angle disposition of the reinforcing flaps 56 in erect position greatly strengthens the end panels 54, and it should be further noted that as these reinforcing flaps 56 extend for the full height of the end panels 54, they rest at their bottom ends on the bottom wall panel 72 when the carrier is erected (see Fig. 4), which stabilizes the carrier structure nicely when it is loaded with bottles.

In arranging the presently described embodiment of the bottle carrier of the present invention for allowing inward folding of the bottom wall panel 72 in collapsing, only one pair of the opposed pairs of end panels 54 need be left free below the handle portion 50, so that the reinforcing flaps 56 joined to the other pair of panels 54 may be secured together and thereby obtain the greatest strengthening effect possible. Either pair of end panels 54 may be selected to be left free as desired. But because the reinforcing flaps 56 strengthen the end panels 54 very substantially even when left free, some provision must be made for displacement or bending of the free end panels 54 and related reinforcing flaps 56 as necessary in collapsing the bottom wall panel 72 inwardly between the side wall panels 66.

This is done according to the present embodiment of the invention by forming bellows folds as at 76 in the reinforcing flaps 56 for the free pair of end panels 54. As shown, the bellows folds 76 are arranged intermediately of the length of the reinforcing flaps 56 and generally adjacent the handle portion 50. The action of these bellows folds 76 is illustrated in Figs. 5 and 6 of the drawing. In erect position, as shown in Fig. 5, the bellows folds 76 allow the reinforcing flaps 56 to assume an entirely straight and vertical position, as inward folding of the bottom wall panel 72 is begun, however, to collapse the carrier, the bellows folds 76 break as shown in Fig. 6 to allow the necessary bending or bowing of the end panels 54 so that they may be displaced easily to the extent required for accommodating the inward folding of the bottom wall panel 72.

With respect to the other pair of end panels 54 having the reinforcing flaps 56 secured together, a notch 78 may be formed in the adjacent end of the bottom wall panel 72 on the axis of the medial fold line 74 to insure adequate clearance of the reinforcing flaps 56 for these end panels in collapsing the carrier. It should be noted, however, that as the end panels 54 have some degree of lateral movement before actual collapsing of the bottom wall starts, the reach of this notch 78 may be limited so that the bottom ends of the reinforcing flaps will still rest on the bottom wall panel 72 at this end when the carrier is erected; i. e., the reach of the notch 78 may be limited to less than the width of the reinforcing flaps 56 (see Fig. 4).

The reinforcing flaps 56 associated with the end panels 54 at this end of the carrier may be further notched adjacent their bottom ends, as shown best in Fig. 1, to cut the reinforcing flap 56 away at this point from the extending edge of one end panel 54 of this pair as at 80, and to leave an extending flap 82 on the other end panel 54 of this pair. With this notched arrangement, the extending flap 82 can be disposed inside the extending edge (compare Fig. 2) by initially overfolding the end panels 54 as the carrier is erected, and thereby provide resistance to the tendency of the carrier until filled with bottles, to shift in the direction of the set of its fold lines resulting from its folded position when collapsed.

I claim:

1. In a carrier for bottles and other similar containers, of the type including a bottom wall panel, opposed side wall panels associated with said bottom wall panel, and a handle portion

for said carrier arranged centrally with respect to said side wall panels, the improvement which comprises a medially foldable bottom wall panel adapted for collapsing inwardly between said side wall panels, and opposed pairs of end panels extending from said side wall panels in an extent completely closing the ends of said carrier, each panel of said opposed pairs of end panels being foldably joined at the edges thereof remote from said side wall panels to a reinforcing flap extending downwardly from said handle portion whereby said pairs of end panels are likewise foldable medially of said carrier to a collapsed position, said reinforcing flaps extending for the full height of said end panels and being arranged for disposition at right angles to said end panels whenever the carrier is in erect position and for folding flat with respect to said end panels when the carrier is collapsed, the reinforcing flaps joined to one pair of said end panels being free of each other below said handle portion and thereby allowing inward folding of said bottom wall panel for collapsing between said side wall panels, and the reinforcing flaps joined to this pair of end panels being formed with bellows folds adjacent said handle portion and thereby adapted for easy displacement as necessary in allowing inward folding of said bottom wall panel.

2. In a carrier for bottles and other similar containers, the improvement defined in claim 1 and further characterized in that said bottom wall panel is formed with a notch on the axis of its medial fold at the end remote from said pair of end panels joined to the reinforcing flaps that are formed with bellows folds and are free of each other below said handle portion, whereby clearance is provided for the reinforcing flaps associated with the other pair of end panels during inward folding of said bottom wall panel, the reach of said notch being less than the width of said last mentioned reinforcing flaps.

3. In a carrier for bottles and other similar containers, the improvement defined in claim 1 and further characterized in that the reinforcing flaps associated with the other of said pairs of end panels are notched adjacent their bottom ends to cut the reinforcing flap away at this point from the adjacent edge of one end panel of this pair and to leave an extending flap on the other panel of this pair, whereby said adjacent flap may be disposed inside said cut extending edge by initially overfolding the end panels as the carrier is erected and thereby provide resistance to the tendency of the carrier until filled with bottles to shift in the direction of the set of its fold lines resulting from its folded position when collapsed.

4. A collapsible carrier for bottles and other similar containers comprising a bottom wall panel, opposed side wall panels associated with said bottom wall panel, a handle portion for said carrier arranged centrally with respect to said side wall panels, and opposed pairs of end panels extending from said side wall panels to said handle portion and completely closing the ends of said carrier, said bottom wall panel being formed with a medial fold line adapting it for medial folding inwardly between said side wall panels in collapsing the carrier, said end panels of said opposed pairs each being foldably joined along the adjacent edges thereof remote from said side wall panels to flap members extending downwardly from said handle portion whereby said pairs of end panels are likewise adapted for folding medially of said carrier to collapsed position, said flap members extending for the full height of said end panels and being arranged for disposition in reinforcing relation at right angles to said end panels whenever the carrier is in erect position and for folding flat with respect to said end panels when the carrier is collapsed, the adjacent edges of one pair of said end panels and the flap members foldably joined thereto being free below said handle portion and said free flap members being formed with bellows folds intermediately of their extending length below said handle portion for accommodating the inward folding of said bottom wall panel between said side wall panels.

HOMER W. FORRER.

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