

Jan. 1, 1957

H. W. FORRER

2,776,072

BOTTLE CARRIER HANDLE STRUCTURE

Filed March 24, 1954

2 Sheets-Sheet 1

*Fig. 1*

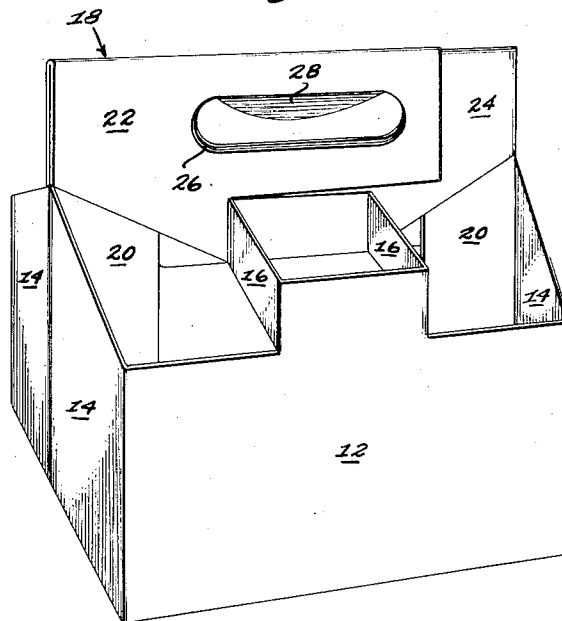


*Fig. 2*

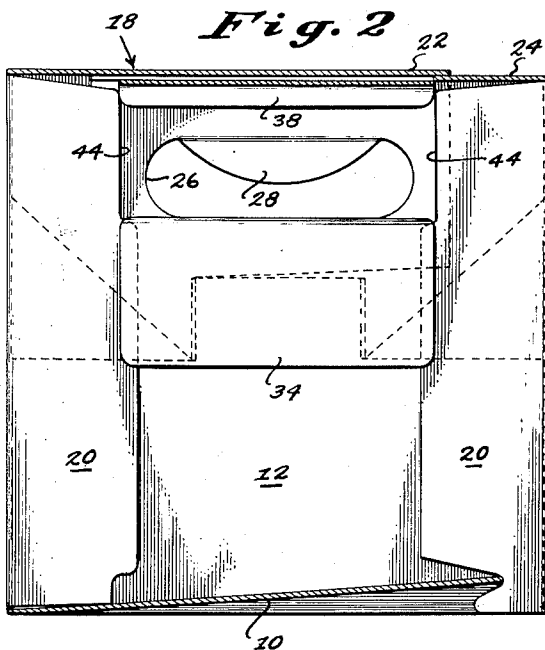
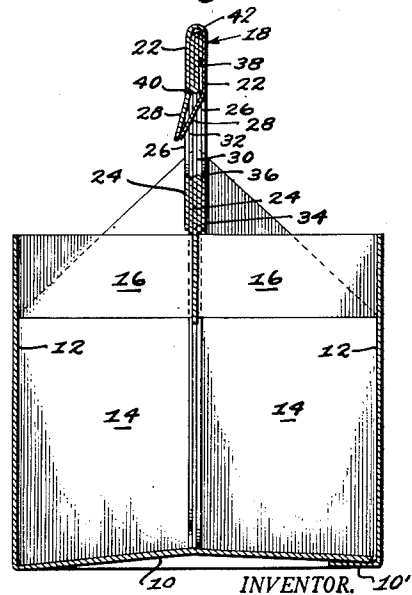


*Fig. 3*



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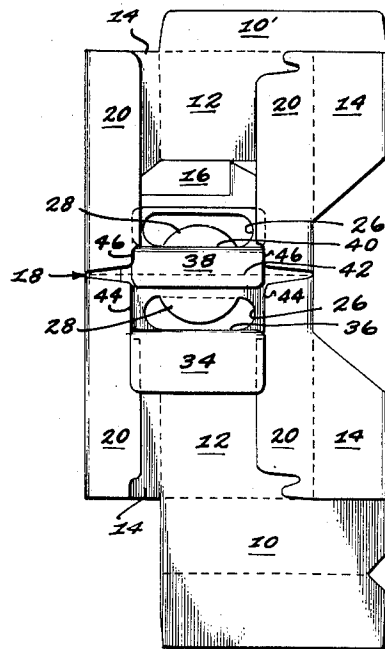
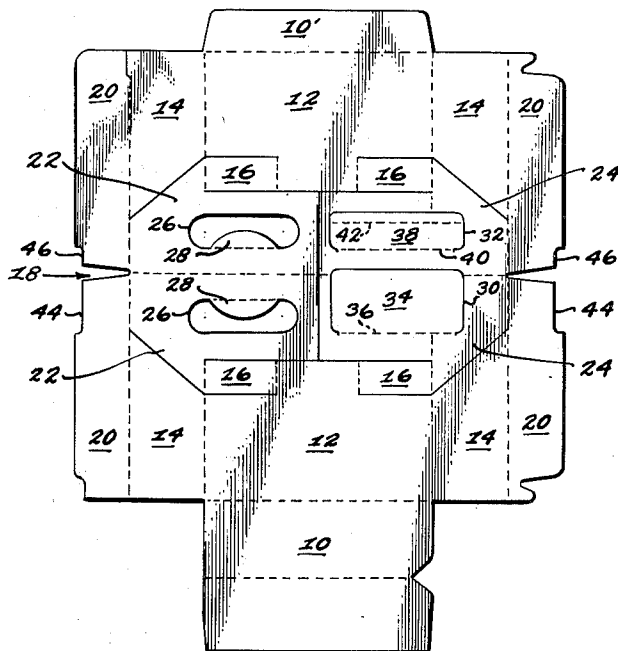
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## BOTTLE CARRIER HANDLE STRUCTURE

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2 Sheets-Sheet 2

*Fig. 4*



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*Fig. 5*

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## BOTTLE CARRIER HANDLE STRUCTURE

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Application March 24, 1954, Serial No. 418,279

5 Claims. (Cl. 220—113)

This invention relates to paperboard carriers for bottles and other similar articles, and more particularly to an improved handle structure for such carriers by which the strength of the handle against endwise loads is substantially increased and the handle structure is otherwise advantageously reinforced, without requiring any substantial addition of paperboard in the blank from which the carrier is formed.

Paperboard bottle carriers of the type with which the present invention is concerned are used to a large extent in packaging bottled soft drinks for retail sale, so that a supply of the bottled soft drinks (e. g., six bottles) may be carried conveniently when purchased by a customer. The empty bottles are commonly returned in the same carrier by the customer, and the carriers are used over and over again by the bottlers as many times as possible.

In the bottling plants, the carriers are normally handled by various sorts of conveyor means on which they are pushed along end-to-end in the course of loading or unloading bottles therefrom. It often happens that the carriers become damp from conditions to which they are subjected either in the bottling plant, or during delivery to or from retail stores, and there is a tendency on the part of the damp paperboard carriers to collapse under the endwise pressure applied to them during handling on the bottling plant conveyors.

According to the present invention an improved carrier handle structure is provided in which paperboard that was formerly cut out and discarded in forming hand hold openings in the carrier handle is retained in the handle structure and arranged to form inner handle reinforcing plies in a manner that greatly increases the endwise strength of the handle.

These and other features of the present invention are described in further detail below in connection with the accompanying drawings, in which:

Fig. 1 is a perspective view of a bottle carton incorporating a handle structure arranged according to the present invention;

Fig. 2 is a central longitudinal section of the carrier shown in Fig. 1;

Fig. 3 is a central transverse section of the carrier shown in Fig. 1;

Fig. 4 is a plan view of the blank from which the carrier shown in Fig. 1 is formed; and

Fig. 5 is a related plan view illustrating the manner in which the blank shown in Fig. 4 is folded to form the handle structure of the present invention.

Referring now in detail to the drawings, the improved handle structure of the present invention is shown incorporated for purposes of illustration, in a bottle carrier of the general type disclosed in U. S. Patent No. 2,537,452, issued January 9, 1951, in which type of bottle carrier this handle structure is particularly well adapted for use, although it may otherwise be similarly employed in any paperboard bottle carrier having a multi-ply handle structure.

As disclosed in the above noted prior patent, the bottle

2

carrier shown in the drawings comprises a medially foldable bottom wall 10 having opposed side walls 12 joined thereto, with pairs of end walls or partitions 14 joined at the ends of the side walls 12 to serve, together with partition strips 16 hinged intermediately on the side walls 12, in forming bottle compartments in the carrier. The foregoing elements of the bottle carrier are all arranged in relation to a centrally disposed handle portion for the carrier which is indicated generally in the drawings by the reference numeral 18.

This handle portion 18 comprises end flaps 20 joined respectively along the inwardly extending adjacent edges of the end walls 14 and similarly joined on the same respective axes at an upwardly extending portion with outer paired handle panels 22 at one end of the carrier and inner or intermediate paired panel elements 24 at the other end of the carrier. In this manner, the outer handle panels 22 and inner panel elements 24 are each connected with a respective end wall 14, and each handle panel 22 and panel element 24 is further joined to one of the intermediate partition strips 16, so as to dispose these partition elements in proper relation when the handle portion 18 is formed by disposing the pair of outer handle panels 22 in face-to-face relation with the pair of inner panel elements 24 similarly arranged therebetween, all as described in detail and claimed in the above noted prior patent. It should be further noted that in the embodiment illustrated the pair of outer handle panels 22, and the paired inner panel elements 24 are joined respectively at the top edge of the handle portion 18, and a bottom wall securing flap 10' is employed to complete the carrier structure, but that the bottom wall 10 might instead be joined directly to both of the opposed side walls 12, if desired, with the several panels of the handle portion 18 formed separately.

The outer handle panels 22 of the handle portion 18 are further formed with hand hold apertures 26 at which partial flaps 28 are left to provide a comfortable bearing surface for the hand of a person holding the loaded carrier suspended. Formerly it was standard practice to cut away aligned clearance apertures in the inner panel elements 24 to complete the hand hold opening provided in the handle portion 18, the paperboard cut away to form these clearance apertures in the inner panels 24 constituting waste in the blank from which the carrier was formed. According to the present invention both of these inner panel clearance apertures, as at 30 and 32, are rearranged so that the paperboard cut away in forming them is retained in the blank for the carrier and employed for reinforcing the handle portion 18.

At one of these clearance apertures 30 the paperboard cut away therefor is retained as a flap 34 hinged along the lower aperture edge as at 36 and folded downwardly as a central stiffening ply between the inner panel elements 24, while the paperboard available after forming the other clearance aperture 32 is arranged as a flap 38 hinged along the upper edge at 40 of the clearance aperture 32 and formed with an intermediate score line 42 so that this flap 38 may be folded upwardly and doubled between the inner panel elements 24 to reinforce the handle portion 18 above the hand hold opening therein. As the apertures 30 and 32 are concealed by the superimposed outer handle panels 22 when the carrier is completely formed, and serve only as clearance apertures for the hand hold opening in the handle portion 18, their size and shape may be varied from the hand hold apertures 26 in the outer panels 22, this is done in forming the improved handle structure of the present invention to the best advantage.

It should also be noted that the previously mentioned end flaps 20 are each formed in a sufficient width, according to the present invention, to overlap the adjacent extending edge of the handle panel 22 or 24 joined to the

3

opposite end flap 20 at the other end of the carrier, so that the inner panel elements 24 reach between these end flaps 20 and are disposed directly at the outer faces thereof with the outer handle panels 22 superimposed to form a strong outer face tie between the end flaps 20. The downwardly folded stiffening flap 34 similarly forms a direct tie between the inner faces of the end flaps 20, the clearance aperture 30 being formed in a sufficient length to allow overlapping of the stiffening flap 34 between the inner faces of the end flaps 20.

In order to allow downward folding of the stiffening flap 34 to this inner face overlapping relation with the end flaps 20, each of the adjacent end flaps 20 is notched as at 44 along the inner edge thereof upwardly from a level even with the lower edge 36 of the clearance aperture 30 at which the stiffening flap 34 is hinged, these notches 44 being proportioned for alignment with the end edges of the clearance aperture 30 so as to provide clearance for downward folding of the stiffening flap 34. Similar notches 46 are formed in the other end flaps adjacent the clearance aperture along the inner edges thereof upwardly from a level even with the upper edge 40 of the clearance aperture 32 at which the intermediately foldable flap 38 is joined, so that by forming the clearance apertures 30 and 32 with corresponding lengths, the intermediately foldable flap 38 is arranged to internest in edge abutting relation at the end flap notches 46 and 44 in its upwardly folded and doubled position in the fully formed handle structure 18. As a result, the handle structure 18 is not only substantially thickened both above and below the hand hold opening therein, but also has the additional flap elements 34 and 38 by which this thickening is obtained disposed to cooperate structurally with the end flaps 20, so that the handle structure 18 formed as described above is very substantially stiffened against endwise pressure.

The present invention has been described in detail above for purposes of illustration only and is not intended to be limited by this disclosure or otherwise except as defined in the appended claims.

I claim:

1. A paperboard carrier for bottles and similar articles, said carrier comprising a bottom wall, opposed side walls joined to said bottom wall, end partitions joined at the ends of said opposed side walls and extending transversely inward therefrom, end flaps joined at the inwardly extending edges of said end partitions and extending longitudinally inward of said carrier therefrom, said end flaps also extending above said end partitions and having respectively joined thereto in alignment with the joined edges of said end partitions at one end of said carrier a pair of outer handle panel elements and at the other end of said carrier a pair of inner handle panel elements, said pair of inner panel elements being arranged in face-to-face relation and said pair of outer panel elements being similarly disposed thereover with aligned hand hold apertures formed in all of said panel elements, each pair of panel elements extending from the end flaps to which they are joined in an overlapping extent with respect to the end flaps at the other end of the carrier, and the hand hold aperture in one of said inner panel elements being formed in a length exceeding the spacing between the inner edges of said end flaps below said aperture and having a coextensive flap joined at the lower edge thereof and folded downwardly between said inner panel elements and between said end flaps.

2. A paperboard carrier as defined in claim 1 and further characterized in that the hand hold aperture in the other of said inner panel elements is formed in a length corresponding to the spacing between the inner edges of said end flaps above said other panel element

4

aperture and in a width exceeding the spacing from the top edge of said other panel element to the upper edge of the aperture therein, and an intermediately foldable coextensive flap is joined at the upper edge of said other panel element aperture and folded upwardly and doubled between said panel elements in edge abutting relation with said end flaps.

3. A handle structure for a paperboard carrier for bottles and other similar articles, said handle structure comprising a pair of inner handle panel elements and a pair of outer handle panel elements, said inner and outer panel elements arranged in face-to-face relation and having aligned hand hold apertures formed therein, pairs of end flaps arranged in face-to-face relation at each of said handle structure and extending inwardly between adjacent end portions of said panel elements, and a stiffening flap joined at the lower edge of the hand hold aperture in one of said inner panel elements and folded downwardly between said inner panel elements with opposite end portions thereof disposed respectively between said pairs of end flaps.

4. A handle structure for a paperboard carrier for bottles and other similar articles, said handle structure comprising a pair of inner handle panel elements and a pair of outer handle panel elements, said inner and outer panel elements arranged in face-to-face relation with aligned hand hold apertures formed therein, a first flap joined at the lower edge of the hand hold aperture in one of said inner panel elements and folded downwardly between said inner panel elements, a second flap joined at the upper edge of the hand hold aperture in the other of said inner panel elements and folded upwardly and doubled between said inner panel elements, and pairs of end flaps at each end of said structure extending inwardly between said panel elements, the inner edges of said pairs of end flaps overlapping adjacent end portions of said first flap at both faces thereof and being arranged in edge abutting relation at the adjacent ends of said second flap.

5. A handle structure for a paperboard carrier for bottles and other similar articles, said handle structure comprising a pair of outer handle panel elements arranged in face-to-face relation and a pair of inner panel elements similarly disposed therebetween with a hand hold opening provided through all of said panel elements, a first flap hinged at the lower edge of the hand hold opening in one of said inner panel elements and folded downwardly between said inner panel elements, a second flap hinged at the upper edge of the hand hold opening in the other of said inner panel elements and folded upwardly and doubled between said inner panel elements, and pairs of end flaps at each end of the handle structure formed by said panel elements, said pairs of end flaps being disposed inwardly between said panel elements and the inner edges of said pairs of end flaps extending between adjacent end portions of said inner panel elements in overlapping relation with respect to both faces of adjacent end portions of said first flap and in edge abutting relation with respect to adjacent ends of said second flap.

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