

May 29, 1956

R. M. BERGSTEIN
SINGLE ROW CARRIER

2,747,766

Filed Dec. 17, 1952

3 Sheets-Sheet 1

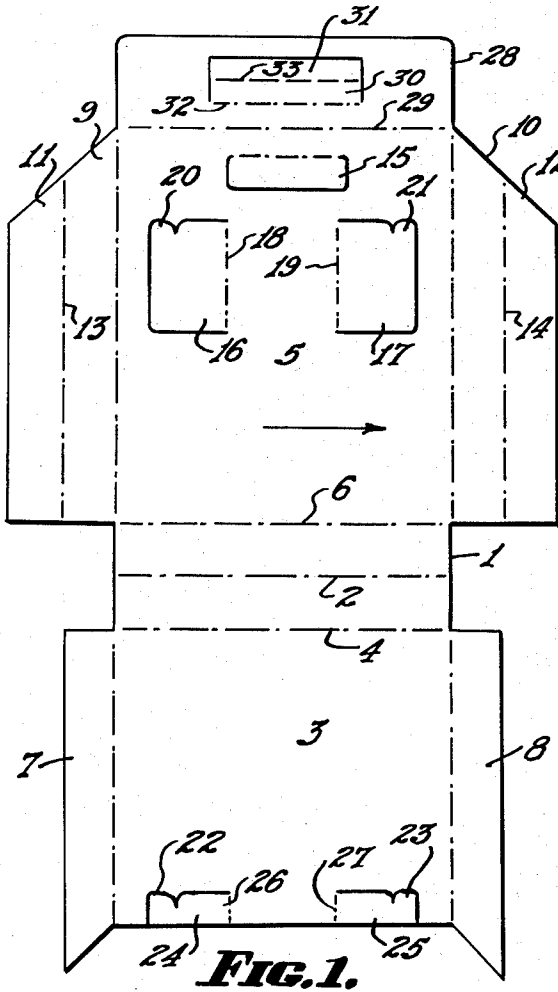


FIG. 1.

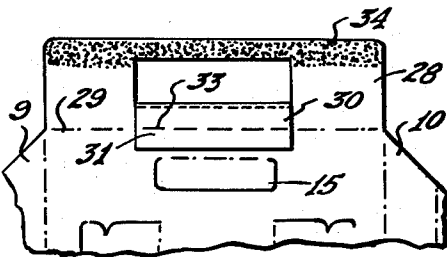


FIG. 2.

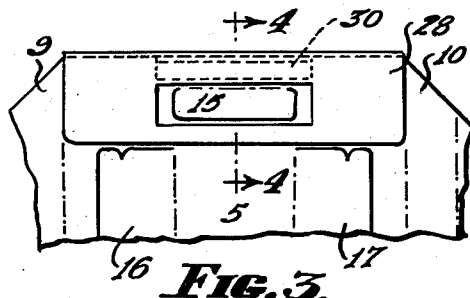


FIG. 3.

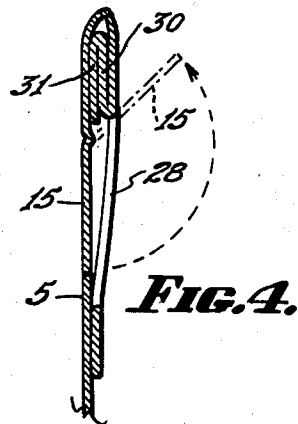


FIG. 4.

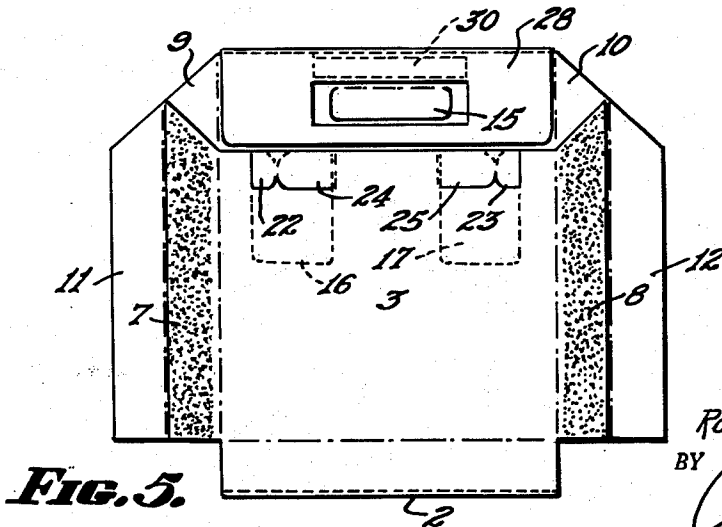


FIG. 5.

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3 Sheets—Sheet 2

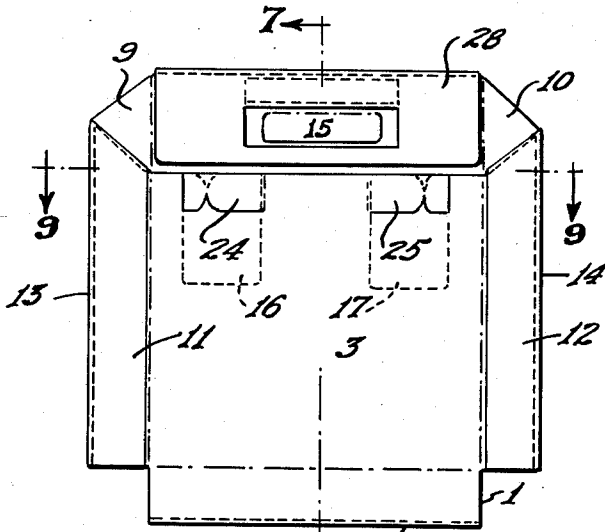


FIG. 6.

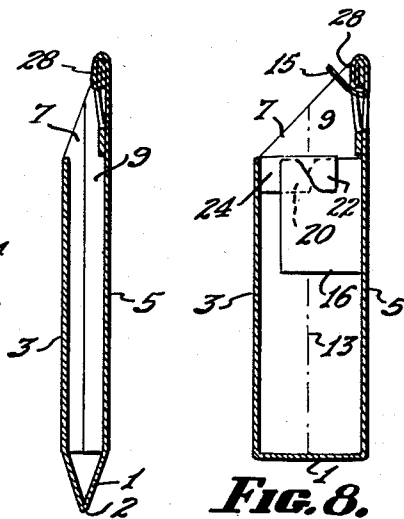


FIG. 7.

FIG. 8.

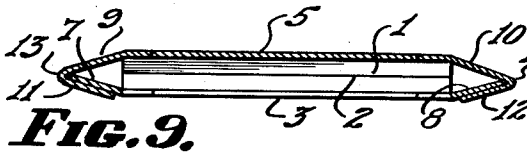


FIG. 9.

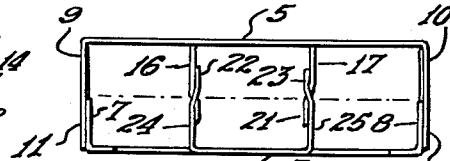


FIG. 10.

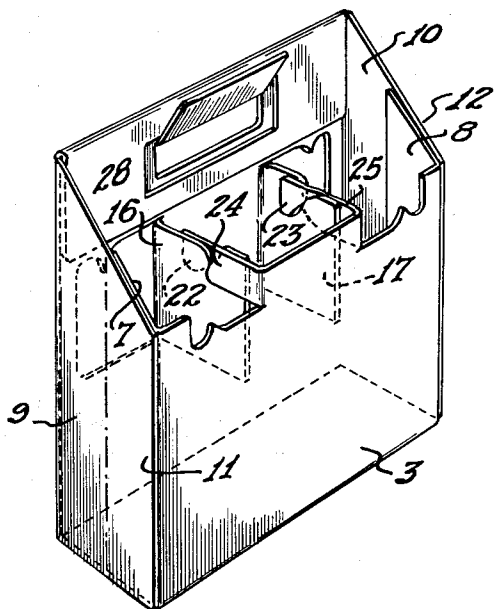


FIG. 11.

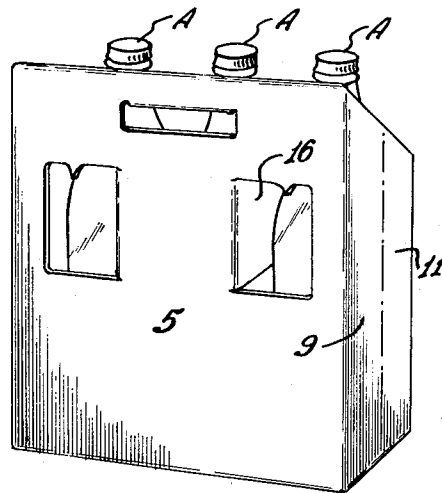


FIG. 12.

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3 Sheets-Sheet 3

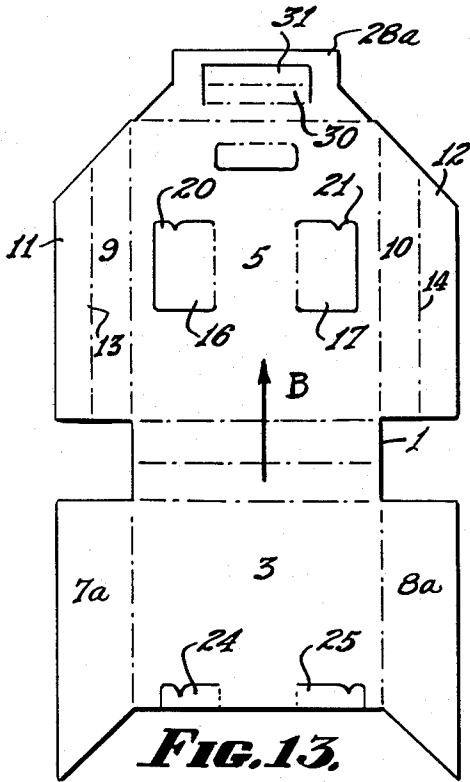


FIG. 13.

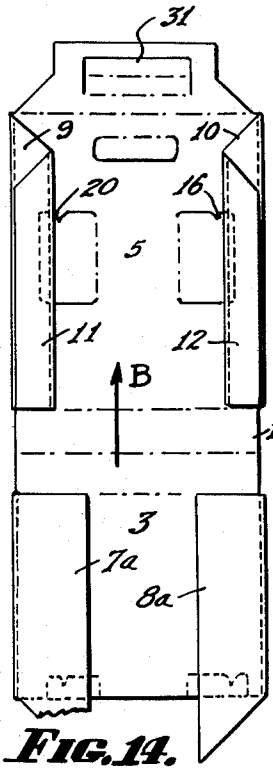


FIG. 14.

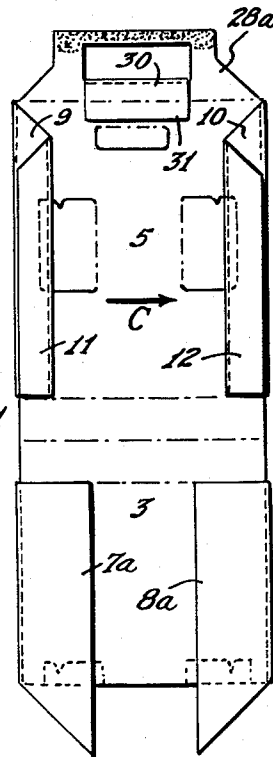


FIG. 15.

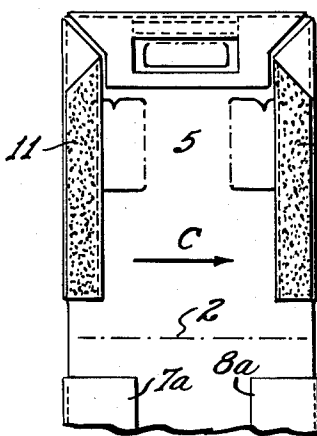


FIG. 16.

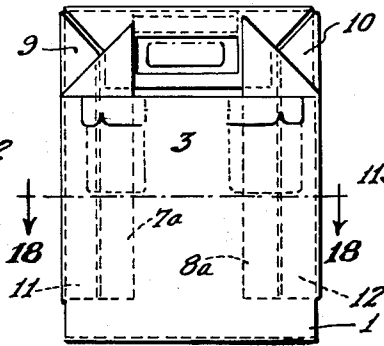


FIG. 17.

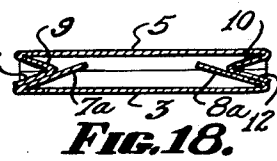


FIG. 18.

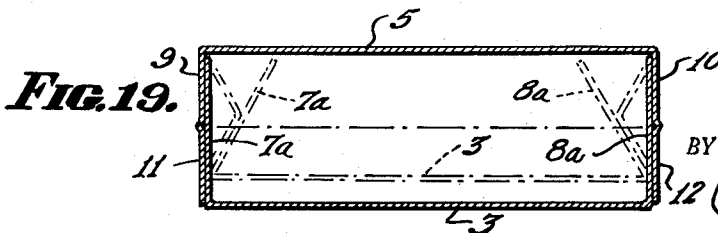


FIG. 19.

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1

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SINGLE ROW CARRIER

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Application December 17, 1952, Serial No. 326,536

4 Claims. (Cl. 220-113)

My invention relates to paperboard bottle carriers, and more particularly to a carrier for a single row of bottles or containers.

To date the practical art has concentrated on the provision of six-bottle carriers wherein the bottles are arranged in two rows of three bottles each, with a carrying handle projecting upwardly from between the rows of bottles. Such carriers are now in widespread use for the transportation of six to twelve ounce bottles and containers. However, to my knowledge there is not a practical bottle carrier on the market suitable for the packaging and transportation of larger bottles, such as quart-size bottles. The size and construction of the conventional six-bottle carrier precludes its use for carrying quart bottles; nor is it feasible to increase the size of the conventional six-bottle carriers to accommodate quart bottles. A conventional six-bottle carton, if enlarged to accommodate six quart-size bottles, would be unduly cumbersome in use and its carrying weight would be excessive to the extent of taxing the strength of the user as well as the strength of the boxboard from which the carrier is made. Thus the present type of six bottle carrier is wholly impracticable where quart bottles are concerned. In addition, consumer demand for beverages and the like in quart containers generally runs in a small number of units, such as three bottles, rather than in a larger number of units.

It is, therefore, a principal object of my invention to provide a practical and efficient single row carrier for large bottles, as for example, three quart bottles in a single row.

It is a further object of my invention to provide a bottle carrier of the character described having a reinforced carrying handle which will safely carry the weight of the bottles placed therein, even where the bottles are of relatively large size.

It is a further object of my invention to provide a one-piece knock-down carrier structure which can be manufactured using folding and gluing equipment currently available in the industry.

Yet another object of my invention is the provision of a single row carrier wherein the bottles are effectively separated by means of partition elements, and wherein the partition elements serve to reinforce the side walls of the carrier and prevent them from bowing outwardly under the weight of the bottles.

Still another object of my invention lies in the provision of simplified procedures for forming my carrier structure in a continuous high-speed operation.

These and other objects of my invention which will appear hereinafter or will be apparent to the skilled worker in the art upon reading these specifications, I accomplish by that construction and arrangement of parts and in those procedures of which I shall now describe certain exemplary embodiments. Reference is now made to the drawings wherein:

Figure 1 is a plan view of the blank for my carrier.

Figure 2 is a partial plan view of the carrying handle

2

portion of the blank illustrating an initial step in the folding and gluing of the handle element.

Figure 3 is a partial plan view similar to Figure 2 illustrating a successive step in the formation of the carrier handle.

Figure 4 is a sectional view taken along the line 4-4 of Figure 3.

Figure 5 is a plan view of the carrier blank in an intermediate stage during the folding and gluing operations.

Figure 6 is a plan view of the flat folded carrier structure formed from the blank of Figure 1.

Figure 7 is a sectional view taken along the line 7-7 of Figure 6 with the parts in slightly expanded condition.

Figure 8 is a sectional view similar to Figure 7 but with the parts in the fully erected condition.

Figure 9 is a sectional view taken along the line 9-9 of Figure 6 with the parts in slightly expanded condition.

Figure 10 is a plan view of the fully erected carrier.

Figure 11 is a perspective view of the fully erected carrier as seen from the front thereof.

Figure 12 is a perspective view of the fully erected and filled carrier as seen from the rear thereof.

Figure 13 is a plan view of a blank for a modified form of my carrier.

Figures 14, 15, 16 and 17 illustrate successive stages in the folding and gluing of the blank of Figure 13 to form a flat folded carrier structure.

Figure 18 is a sectional view taken along the line 18-18 of Figure 17 with the parts in slightly expanded condition.

Figure 19 is a sectional view similar to Figure 18 but with the carrier parts in the fully expanded or erected condition.

Referring now to Figure 1 of the drawings, the carrier blank is formed from boxboard or paperboard die-cut and scored to provide a bottom panel 1 divided by a medial score line 2. A side wall panel 3 is articulated to one edge of the bottom panel along the line of articulation 4 and similarly the side wall panel 5 is articulated to the opposite side edge of the bottom panel along the line of articulation 6. The dimensioning of the parts is such that the side wall panels are of equal width, but the side wall panel 5 is of a depth substantially greater than the depth of side wall panel 3 so as to extend thereabove in the erected carrier.

Partial end wall panels 7 and 8 are articulated to the opposite side edge of side wall panel 3, and cooperating partial end wall panels 9 and 10 are articulated to the opposite side edges of side wall panel 5. Attachment flaps 11 and 12 are in turn articulated to the partial end walls panels 9 and 10, respectively, along the score lines 13 and 14. A hand-hole forming tab 15 is formed in the side wall panel 5 spaced from the upper edge thereof in the manner illustrated; and lateral partition forming elements 16 and 17 are also formed in the side wall panel 5, being articulated thereto along the vertically disposed score lines 18 and 19, the said partition elements having tongues 20 and 21 formed therein for engagement with the tongues 22 and 23 of the locking elements 24 and 25 formed adjacent the top edge of side wall panel 3 and articulated thereto along the score lines 26 and 27. The positioning of the lateral partition elements and the locking elements is such that their top edges will coincide in the erected carrier, with their respective tongue elements in interengagement.

At the top edge of the side wall panel 5, I provide a reinforcing panel 28 articulated to the side wall panel along the line of articulation 29. In accordance with my copending application Serial No. 293,530, filed June 14,

3

1952 and entitled Bottle Carrier With Reinforced Handle And Method Of Making It, the reinforcing panel 28 is provided with reinforcing portions 30 and 31, the portion 30 being articulated to the panel 28 along the score line 32 with the reinforcing portion 31 articulated to portion 30 along score line 33. The reinforcing portions 30 and 31 are preferably longer than the overall length of the hand-hole opening in the side wall panel and positioned so as to extend somewhat beyond the hand-hole opening at either end.

In assembling the blank just described into a knocked-down carrier structure, the blank may be folded by hand, if desired; but preferably it will be folded and glued using automatic machinery. The construction of the carrier blank is such that the carrier may be formed on a conventional right-angle folding and gluing machine, or it may be formed on a straight-line gluer such as the Staude Master Gluer.

With the carton blank illustrated, I prefer to form the handle part of the carrier first, the initial folding step, as seen in Figure 2, comprising the infolding of the reinforcing portions 30 and 31 along the score line 32. The infolding of the reinforcing portions may be accompanied by the interposition of adhesive between the reinforcing portions and the parts which they overlie when infolded, although in many instances the application of such adhesive may be eliminated. As will be evident from Figure 2, the dimensions of the reinforcing portions and their position is such that, in the folded condition, the score line 33 separating the reinforcing portions will lie along the line of articulation 29 separating the reinforcing panel 28 from side wall panel 5. The reinforcing portion 31 thus overlies the side wall panel in the area between the top edge thereof and the hand-hole opening. Upon the application of adhesive to the outer edge of the reinforcing panel 28, as indicated by the shaded area 34, the reinforcing panel is infolded along the score line 29 to bring the blank to the condition illustrated in Figure 3.

The infolding of the panel 28 brings about the folding of the reinforcing portions 30 and 31 relative to each other along the score line 33 so that, in the folded condition, the reinforcing portions are juxtaposed and sandwiched between the upper portion of the side wall panel 5 and the reinforcing panel 28. This results in the provision of a reinforced handle having four thicknesses of boxboard in the area immediately above the hand-hole opening. The reinforcing portions 30 and 31, being of a length somewhat greater than the length of the hand-hole opening, act to prevent tearing of the side wall panel 5 in the areas immediately above the ends of the hand-hole opening which have been found from experience to be the points of greatest weakness in a carrier handle. As best seen in Figure 4, the hand-hole tab 15 is folded through the opening in reinforcing panel 28 created by the handle reinforcing portions 30 and 31, when it is desired to pick up the carrier by means of the handle portion thereof.

Following the formation of the reinforced handle, the carrier is next folded along the medial score line 2 to bring the parts to the condition illustrated in Figure 5, whereupon adhesive may be applied to the partial end wall panels 7 and 8 and the attachment flaps 11 and 12 infolded to overlie the partial end wall panels to bring the carrier structure to the condition illustrated in Figure 6, which is the knocked-down condition of the carrier. As will be evident, the adhesive may be applied to the attachment flaps 11 and 12 rather than to the partial end wall panels.

As will be clearly evident from Figures 5 and 6, the dimensioning of the parts is such that the side wall panel 3 overlies side wall panel 5, the bottom and side edges of the side wall panel 3 coinciding with the corresponding edges of the side wall panel 5. The top edge of the side wall panel 3, however, terminates just below the

4

lowermost edge of the reinforcing panel 28, and the arrangement is such that the top edges of the locking elements 24 and 25 coincide with the top edges of the lateral partition forming elements 16 and 17. Also, the dimensions of the attachment flaps 11 and 12 are such that they will overlie the partial end wall panels 7 and 8 in the manner best seen in Figure 6.

The carrier just described may be conveniently shipped to the user in the knocked-down or flat folded condition, and the user has but to press inwardly on the end walls of the carrier to effect its erection. It will be noted that the carrier is characterized by having medial lines of fold in the end walls and bottom, which facilitates the erection of the carrier. Upon erection of the carrier body walls, the lateral partition elements and the locking elements are infolded along their respective score lines and the tongues 20 and 22, and 21 and 23 brought into interlocking engagement to bring the carrier into the condition illustrated in Figures 8, 10 and 11, which is the completely erected condition. As seen in Figure 12, three bottles A are placed in the carrier side-by-side and the bottles are effectively separated from each other by means of the lateral partition forming elements 16 and 17. Preferably, the top edge of the side wall panel 5 will coincide with the tops of the bottles A so that, where desired, a plurality of the carriers may be stacked one upon the other.

The carrier structure just described is essentially an outfolded structure in that the end wall forming panels extend outwardly beyond the ends of the main body walls in the flat folded condition of the carrier. It is, however, within the spirit of my invention to provide a three-bottle carrier in which the end wall panels are infolded rather than outfolded. Referring to Figure 13 of the drawings, I have therein illustrated a blank similar to that illustrated in Figure 1 but modified so as to permit the infolding of the end wall panels. In this modification of my invention, like parts have been given like reference numerals for simplicity in identification. As will be evident from a comparison of Figures 1 and 13, the only changes in the blank are a reduction in the size of the reinforcing panel 28a and a widening of the partial end wall panels 7a and 8a to have a combined width substantially equal to the width of the partial end wall panel 9 and its attachment flap 11 or the partial end wall panel 10 and its attachment flap 12.

To assemble the modified blank, the blank is preferably first moved in the direction indicated by the arrow B, whereupon the partial end wall panels 9 and 10 are infolded to overlie the side wall panel 5 and the attachment flaps 11 and 12 are reversely folded to overlie the partial end wall panels. Concurrently the partial end wall panels 7a and 8a are infolded to overlie the side wall panel 3. Following the infolding of these parts the blank is next moved in the direction of the arrow C (Figure 15) whereupon the reinforcing portions 30 and 31, and the reinforcing panel 28a will be infolded and secured in the same manner as described in connection with the blank of Figure 1. The purpose for reducing the size of the reinforcing panel 28a will be evident from Figure 16, the reduction in size or recessing of the reinforcing panel being such as to permit the reinforcing panel, when infolded, to clear the infolded partial end wall panels.

Following the formation of the reinforced handle, the blank, while still being moved in the direction of the arrow C, will have adhesive applied to the reversely folded attachment flaps 11 and 12 whereupon the blank is folded along the medial score line 2 in the bottom panel to bring the side wall panel 3 into overlying relationship with side wall panel 5, with the partial end wall panels 7a and 8a into adhesive contact with the attachment flaps 11 and 12, the blank thus assuming the condition illustrated in Figure 17. Since the partial end wall panels 7a and 8a are substantially twice as wide as the attachment flaps 11 and 12, the partial end wall panels

5

7a and 8a will extend inwardly beyond the innermost edges of the infolded partial end wall panels 9 and 10 and the attachment flaps 11 and 12, in the manner best seen in Figure 18. Upon erection of the carrier to the position illustrated in Figure 19, the partial end wall panels 7a and 8a will extend completely across the ends of the carton and, being unscored, will act to maintain the parts in the erected condition. The construction is such, however, that the carrier may be readily collapsed by inwardly directed pressure against the end wall panels thereof.

While I have illustrated the infolded form of the carrier as it would be constructed using a right angle folding and gluing machine, it will be evident that a carrier having the infolded construction as to its end walls could also be provided where the carton is assembled on a straight line gluer.

With either of the exemplary modifications described above, the carrier construction is such that three quart-size bottles may be conveniently transported and adequately protected. While it would be possible to form the carrier with side wall panels of equal height, I prefer an arrangement wherein the one side wall is lower than the other with the end wall panels having their upper edges inclined. This construction enables me to form the locking flap adjacent the top edge of the one wall panel rather than well below the top edge, as would be the case if the two side walls were of equal height, and it is therefore much easier to interconnect the locking flaps and transverse partition elements. Also, I have found that the offset relation of the side walls provides the best carrying condition for the bottles placed therein; provides for better display of the bottles; and, as already indicated, greatly facilitates the locking of the transverse partition elements. It will be evident, also, that two of my carriers may be placed back-to-back so as to bring the handle members into juxtapositions and the two carriers picked up as a single unit.

Other modifications may be made in my invention without departing from the spirit of it. For example, while I have described my invention as it applies to a carrier for three bottles, the invention is equally applicable to carriers for a greater or lesser number of bottles to be aligned in a single row. Having, however, described my invention in several exemplary embodiments, what I desire to protect and secure by Letters Patent, is:

1. In a one-piece, collapsible single row carrier, opposed side walls connected to each other along three edges by panels collapsing on medial lines of fold, one of said side wall panels extending above the other and having a hand-hole opening formed therein spaced from

6

the top edge of said last named side wall, a reinforcing panel articulated to the top edge of said last named side wall, said reinforcing panel having a flap formed therein defining, when displaced from the plane of said reinforcing panel, a hand-hole opening adapted to be juxtaposed to said first named hand-hole opening, said flap being divided by a longitudinal score line into a pair of articulated reinforcing portions said reinforcing panel being infolded and secured to said last named side wall with said reinforcing portions juxtaposed to each other and interposed between said last named side wall and said reinforcing panel in the area above said hand-hole openings, thereby providing a quadruple thickness reinforced carrying handle, transverse partition elements formed in said last named body wall below said reinforcing panel, and locking flaps formed in the other of said side walls adjacent the top edge thereof for engagement with said transverse partition elements to divide said carrier into a plurality of cells.

2. The bottle carrier claimed in claim 1 wherein said reinforcing portions are longer than the hand-hole opening in said last named side wall and extend beyond the ends thereof, whereby to reinforce the said hand-hole openings at the ends thereof where tearing is most likely to occur.

3. The structure claimed in claim 2 wherein said locking flaps and said transverse partition elements include mating locking tongues for interconnecting said locking flaps and said transverse partition elements.

4. The structure claimed in claim 3 wherein the panels connecting the ends of said opposed side walls comprise end walls having their upper edges inclined downwardly from the top edge of the handle forming side wall to the top edge of the other of said side walls, and wherein the top edges of said transverse partition elements and said locking flaps coincide with the top edge of the other of said side walls.

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