June 12, 1951 W. A. RINGLER 2,556,341

COLLAPSIBLE PAPERBOARD BOTTLE CARRIER

Filed Oct. 16, 1947 2 Sheets-Sheet 1

FIG. 1.

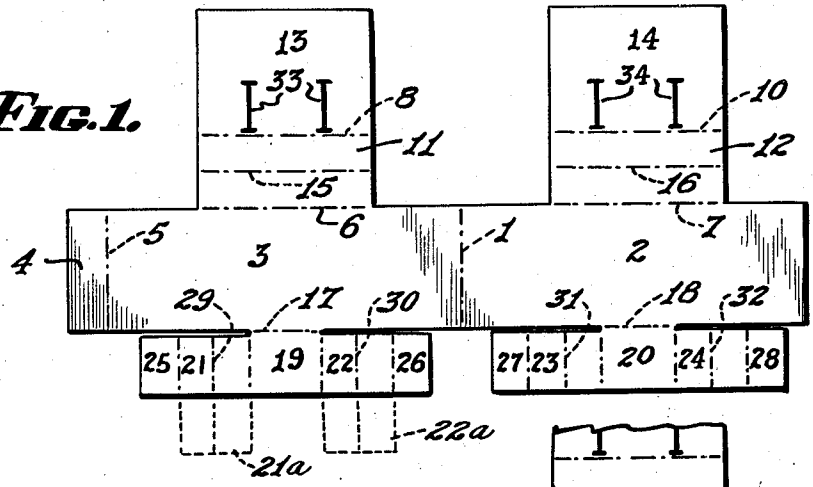


FIG. 2.

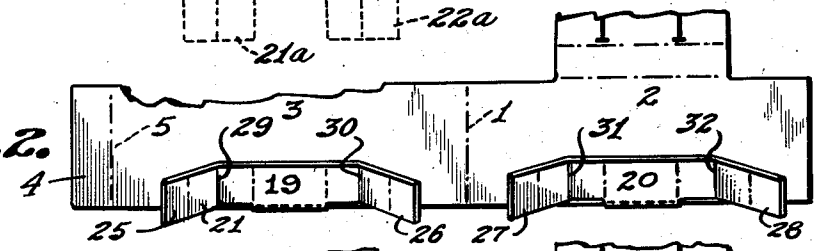


FIG. 3.

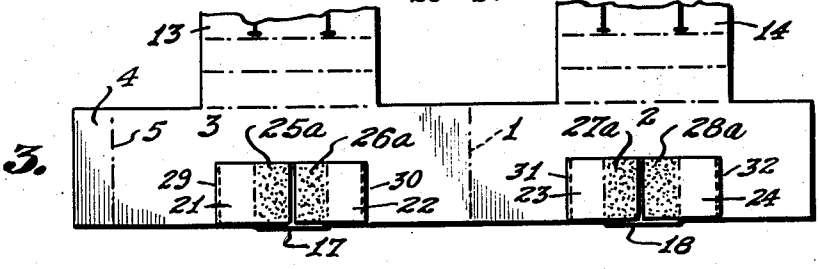


FIG. 4.

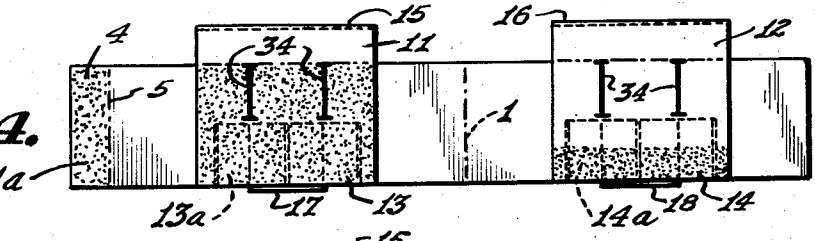
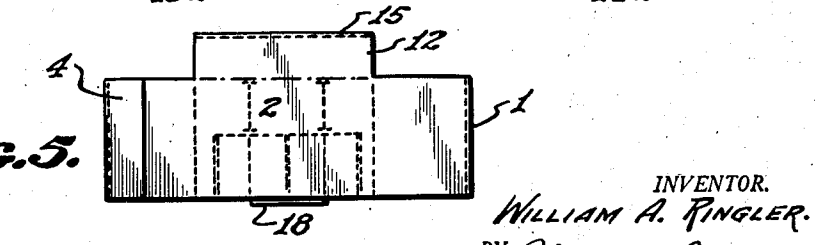


FIG. 5.



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COLLAPSIBLE PAPERBOARD BOTTLE CARRIER

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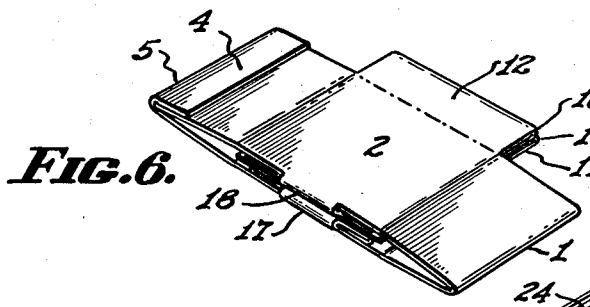


FIG. 6.

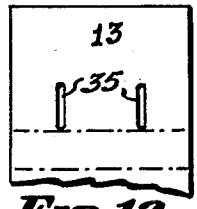


FIG. 12.

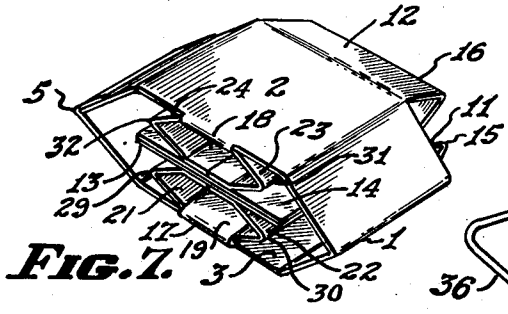


FIG. 7.

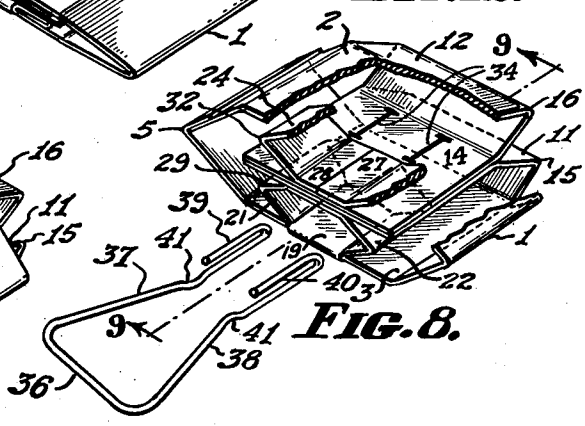


FIG. 8.

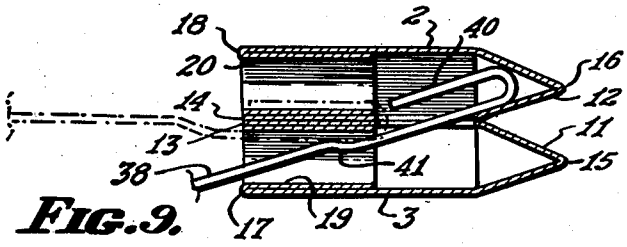


FIG. 9.

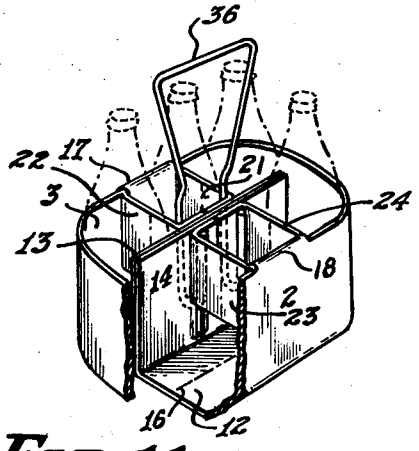


FIG. 11.

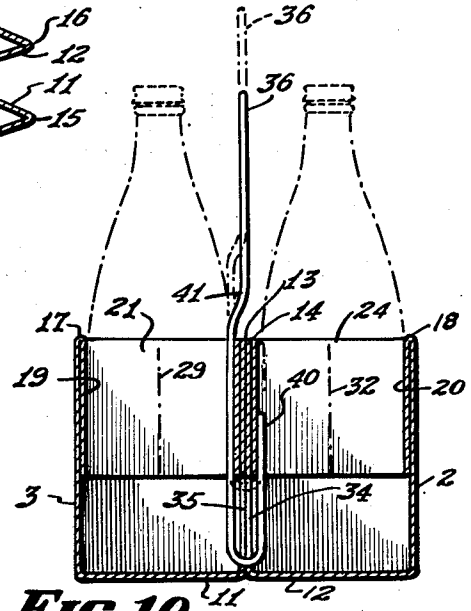


FIG. 10.

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UNITED STATES PATENT OFFICE

2,556,341

COLLAPSIBLE PAPERBOARD BOTTLE CARRIER

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Application October 16, 1947, Serial No. 780,266

4 Claims. (Cl. 229—52)

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My invention has to do with knock-down or collapsible paperboard bottle carriers, and is related to my co-pending applications Serial No. 582,907 filed March 15, 1945 and entitled: Carriers for Bottles, and Serial No. 729,795 filed February 20, 1947 and entitled: Collapsible Paperboard Bottle Carrier.

The specific objects of this invention are the provision of an improved collapsible paperboard bottle carrier which is integrally partitioned, the provision of a mode of making such a carrier, and the attainment of greater strength and security in bottle carriers of this class.

Another object of the invention is the provision of a combination of carrier and handle in which the handle coacts with the carrier in certain new ways. The handle, while depressible for stacking purposes, can not be engaged with the bottle carrier proper except when the carrier is in collapsed or semi-collapsed condition, and can not be disengaged therefrom while the carrier is in fully erected condition. The handle serves to prevent the peeling away of integral, collapsible partition elements from a central longitudinal partition under the outward strains incident on use, especially where the carrier is filled with less than a complete complement of bottles. The handle further coacts with the container in such a way as to prevent tilting and loss of bottles if bottles are placed only in one side of the carrier.

It is also an object of the invention to provide a combination of paperboard bottle carrier and handle element in which the handle element can not become displaced with respect to the carrier.

It is an object of the invention to provide a paperboard carrier which may be made of single faced board, printed upon one side only, but in which no portions of the rear, unfinished and unprinted surface of the board will be visible above the tops of the main walls of the carrier.

These and other objects of the invention which will be set forth hereinafter or will be apparent to one skilled in the art upon reading these specifications I accomplish by that certain structure and arrangement of parts and in that procedure of which I shall now describe an exemplary embodiment. Reference is made to the accompanying drawings wherein:

Figure 1 is a plain view of a blank for the paperboard portion of my carrier.

Figures 2, 3, 4, and 5 are respective plan views showing various stages in the folding and gluing of my paperboard structure.

Figure 6 is a perspective view of the finished, collapsed paperboard element of my carrier.

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Figure 7 is a perspective view of the carrier in a partial stage of erection.

Figure 8 is a perspective view with parts in section of the paperboard element of my carrier together with the handle element showing the initial stage of engagement of the handle element with the carrier.

Figure 9 is a sectional view taken along the line 9—9 of Figure 8 showing a later stage in the engagement of the handle element with the paperboard element of my carrier.

Figure 10 is a sectional view of the erected carrier showing the handle in fully engaged position.

Figure 11 is a perspective view with parts broken away showing the fully erected carrier in a position for receiving bottles.

Figure 12 is a plan view showing a modified form of handle receiving slot.

Referring to Figure 1, I have shown a paperboard blank having a band portion divided by a score line 1 into two main parts 2 and 3, to the latter of which a glue flap 4 is articulated by a score line 5. The main parts 2 and 3 in their central portions will form side walls for the carrier, while end portions thereof taken together will form end walls, the entire band being collapsible along with score lines 1 and 5. In order to assist the band to surround and conform in a curved condition at the corners to an assembly of bottles, I may demark the end wall portions by score lines or a series of spaced score lines as will be readily understood, and as illustrated in my co-pending application referred to above.

To the bottom edges of each of the main portions 2 and 3 I articulate extensions, along score lines 6 and 7. These extensions have further score lines 8 and 10 dividing them into portions adjacent to the parts 2 and 3 and having a width to form bottom elements for the carrier, these parts being designated at 11 and 12, and additional parts 13 and 14 which, taken together, will form a longitudinal middle partition for the carrier, and which in depth are equivalent to the depth of the main elements 2 and 3. The bottom forming portions 11 and 12 have median longitudinal score lines 15 and 16. The extensions themselves are preferably so spaced that the distance between extensions is equal to the width of an extension. This makes the width of the extension somewhat less than the total length of the erected band, but permits the blanks to be nested in cutting them from boxboard, whereby a very substantial saving in boxboard is attained.

Partition elements are articulated to the upper edges of the main parts 2 and 3 along score lines

17 and 18. These partition elements consist of central portions 19 and 20 respectively designed to lie inwardly of and parallel to the side wall sections of the band, additional portions 21, 22, and 23, 24, designed to extend between the portions 19 and 20 respectively and the central longitudinal partition of the carrier formed by the parts 13 and 14, together with glue flap extensions indicated at 25, 26, 27 and 28. These parts are set off from each other by appropriate score lines, and the parts 21, 22 and 23, 24 are provided with intermediate score lines indicated at 29, 30, and 31, 32.

It will be noted that the depth of the partition elements is substantially less than the depth of the main band portions 2 and 3. If it is desired to partition all bottles fully from each other throughout the entire depth of the paperboard portion of my carrier, I may prolong those portions of the lateral partition elements which extend from the central portions 19 and 20 to the longitudinal partition 13, 14. Prolongations of portions 21 and 22 are illustrated in dotted lines in Figure 1 at 21*a* and 22*a*. It is possible concurrently to extend the central portions 19 and 20 to the full depth of the band element, if desired; but this is likely to increase the resistance to folding of the lateral partition element. The glue flaps 25, 26, 27 and 28 are preferably left in the shortened condition since, if they are prolonged it will be necessary to form slots in them to match with the slots in the central partition hereinafter described.

To provide for the engagement of a handle element as will be hereinafter described, I form slits or slots in the elements 13 and 14 extending substantially from the score lines 8 and 10 upwardly a distance approximately equal to the depth of the elements 13 and 14 less the depth portions 25, 26, 27 and 28 of the partition elements. In Figure 1, I have shown I-shaped slits, 33 in element 13, and 34 in element 14. In Figure 12 I have shown slots 35, somewhat wider than the diameter of the wire employed for the handle element hereinafter described. The slits or slots are spaced from each other in my exemplary embodiment a distance somewhat less than the width of the partition elements 19 and 20.

The blank in the form just described may be made in the usual way on carton cutting and scoring presses from board which has been printed in any way desired on its outer surface. My invention is not limited to the use of board of any particular weight or thickness, but the design of carrier herein described may with advantage be made from heavy board. The carrier construction is an especially durable one, and one advantage of my carriers is that they may be reused repeatedly in the merchandising of materials sold in bottles. As commercially produced, they are capable of making many trips from the retail store to the home of ultimate consumers.

Furthermore my carriers are capable of being folded and glued on standard or conventional folding and gluing equipment, especially those machines having sections in which paperboard elements may be folded, transverse the direction of motion of the blank, in fore and aft directions. In the use of such machines my blanks are placed in a hopper and fed therefrom by the conventional mechanism, moving through the machine in a direction transverse to the extent of the band portion of the blanks as hereinabove described. During such motion the first operations comprise a folding of the partition

elements 19 and 20 inwardly so as to overlie the main band portions 2 and 3. Concurrently with this folding, rod elements engaging remaining portions of the partition elements operate to fold these remaining portions on the intermediate score lines 29, 30, 31 and 32, as indicated in Figure 2, and finally to fold these portions of the partition elements over upon the first folded portions to bring them into the relationship illustrated in Figure 3.

Prior to the next folding operation adhesive may be applied to the glue flaps of the partition elements, 25, 26, 27 and 28 in areas indicated at 25*a*, 26*a*, 27*a* and 28*a* in Figure 3. The extensions are then folded over upon the main parts 2 and 3 along the intermediate score lines 15 and 16 of the bottom forming portions. The lateral partition forming elements are thus adhesively secured to the longitudinal partition forming elements 13 and 14.

Preparatory to the next folding step one or the other of these latter elements may be treated with adhesive. This may be done in an all-over coating as at 13*a* in Figure 4 or the upper edge only of the member may be coated as at 14*a* in the same figure. In the one instance the members 13 and 14 will be adhered solidly together all over their areas when the band portion of the blank is folded on the intermediate score line 1. In the other instance the central longitudinal partition forming elements 13 and 14 will be adhered together at their upper edges only.

When the blank has been folded on the intermediate score line 1 with the super-position and adhesive union of the central longitudinal partition forming elements 13 and 14, the glue flap 4 may be coated with adhesive as at 4*a* and folded over onto the free edge of the main band element 2, giving the structure shown in knockdown condition in Figure 5. The folding operations for the band and band glue flap may be accomplished by stationary sweeps in conventional folding and gluing equipment.

The paperboard portion of my carrier is shown in perspective in completely collapsed condition in Figure 6 and in partially erected condition in Figure 7. It is in this partially erected condition that the handle element must be attached to the paperboard portion of my carrier. The handle element is a wire element shown in Figure 8 as comprising a handle or bail portion 36, and dependent legs 37 and 38 terminating in reversely bent portions of the wire as at 39 and 40. The wire of the leg portions may be displaced as at 41 to bring the main portion of the handle including the bail to a position coplanar with the median line of the erected carrier, the position of the displacement from the lower ends of the legs being equivalent to the depth of the central partition member of the paperboard structure. The length of the reversely bent portions 39 and 40 will be longer than the length of the slots or slits 33, 34 or 35 by a substantial distance.

The handle is attached to the paperboard portion of the carrier while the latter is in a semi-collapsed position. One way of doing this is illustrated in Figure 9, where the legs of the carrier are passed into the paperboard portion of the carrier, through the slits or slots in both central partition members 13 and 14, and down into the partially collapsed bottom forming portion, until the ends of the reversely bent portions 39 and 40 have passed entirely through the slots. Then the handle element is brought

into general parallelism with the central longitudinal partition element and drawn upwardly. The distance between the reversely bent portions 39 and 40 and the respective portions of the legs of the handle member is such as to cause these portions tightly to embrace the central longitudinal partition element formed of members 13 and 14 plus the means in the nature of glue flaps 25, 26, 27 and 28 whereby the lateral, collapsible partition elements are adhesively attached to the central longitudinal partition element. This relationship is indicated in dotted lines in Figure 9.

Another way of attaching the handle element, effective when the central longitudinal partition elements have been adhered together only at their upper edges as by an area of adhesive 14a in Figure 4, is to slightly separate the lower portions of these longitudinal partition forming elements and pass the handle member down through one of the slots until its reversely bent ends project beyond the plane of the bottom in the erected carrier. Then by righting the handle element and drawing it upwardly it will assume the relationship shown in dotted lines in Figure 9.

In either event, as will be clear from Figure 10 where the handle element is shown in solid lines in its lowermost position, the handle element can not be disengaged from the paper board portion of the carrier so long as the carrier is in fully erected condition, or when loaded. Especially when drawn upwardly, the compression of the glue flaps 25, 26, 27 and 28 against the longitudinal central partition forming elements 13 and 14 holds these elements together and prevents release of the adhesive attachment, in spite of outward strains imposed upon the side wall portions of the band of the carrier. In this way the handle coacts in a new fashion with the paper board carrier. The lateral partition forming elements do not tend to tear away from the carrier side walls, because they are integrally united therewith along the score lines 17 and 18. But hitherto in carriers having collapsible lateral partitions there has been a tendency for outward strains on the carrier's side walls to peel the attachment portions of the lateral partition elements away from the central longitudinal partition with consequent weakening and disruption of the carrier. My handle prevents this completely.

Yet again, the engagement of the handle with the central longitudinal partition element is not a hinged connection but a rigid one. Hence loading one side only of the carrier can not cause the carrier to tip on the handle element with consequent loss of the bottles.

Figure 11 is a perspective view of the completed, erected carrier with the handle element in carrying position.

Modifications may be made in my invention without departing from the spirit of it. The two central longitudinal partition elements 13 and 14 may if desired be connected together by means of a glue flap as taught in my co-pending application Serial No. 729,795 filed February 20, 1947, set forth above. Having thus described my invention in an exemplary embodiment what I claim as new and desire to secure by Letters Patent is:

1. In a bottle carrier including a body having side and end walls for surrounding an assembly of bottles, a central longitudinal partition terminating substantially in the plane of the top edges of said side and end walls, and lateral partition elements extending between the side walls and the central longitudinal partition and having attachment portions lying along said central longitudinal partition, a wire handle element having reversely bent legs for engaging said central longitudinal partition, said central longitudinal partition being slotted to receive said handle element, said slots being elongated and lying substantially within the lower half of said central longitudinal partition, said lateral partition elements contacting said central longitudinal partition adjacent said slots with said attachment portions extending in the direction of said slots and secured to said central longitudinal partition in the areas above said elongated slots, said legs passing through said slots in said central longitudinal partition and serving to clamp together said central longitudinal partition and the attachment portions of said lateral partition elements.

2. In a bottle carrier including a body having side and end walls for surrounding an assembly of bottles, a central longitudinal partition, and lateral partition elements extending between the side walls and the central longitudinal partition and having attachment portions lying along said central longitudinal partition, a wire handle element having reversely bent legs for engaging said central longitudinal partition, said central longitudinal partition being slotted to receive said handle element, said slots being elongated and lying substantially within the lower half of said central longitudinal partition, said lateral partition elements contacting said central longitudinal partition adjacent said slots with said attachment portions extending in the direction of said slots with portions lying above said slots, the legs of said handle passing through the slots in said central longitudinal partition and serving to clamp together said central longitudinal partition and the attachment portions of said lateral partition elements contacting said central longitudinal partition in the areas above said slots.

3. In a bottle carrier including a body having side and end walls for surrounding an assembly of bottles, a central longitudinal partition, and lateral partition elements extending between the side walls and the central longitudinal partition and having attachment portions lying along said central longitudinal partition, a wire handle element having reversely bent legs for engaging said central longitudinal partition, said central longitudinal partition being slotted to receive said handle element, said slots being elongated and lying substantially within the lower half of said central longitudinal partition, said lateral partition elements contacting said central longitudinal partition adjacent said slots with said attachment portions extending in the direction of said slots with portions lying above said slots, the legs of said handle passing through the slots in said central longitudinal partition and serving to clamp together said central longitudinal partition and the attachment portions of said lateral partition elements contacting said central longitudinal partition in the areas above said slots, the reversely bent portions of said handle being of greater length than said elongated slots whereby said handle may be moved in the plane of said central longitudinal partition without detachment therefrom.

4. In a bottle carrier including a body having side and end walls for surrounding an assembly of

bottles, a central longitudinal partition, and lateral partition elements extending between the side walls and the central longitudinal partition and having attachment portions lying along said central longitudinal partition, a wire handle element having reversely bent legs for engaging said central longitudinal partition, said central longitudinal partition being slotted to receive said handle element, said slots being elongated and lying substantially within the lower half of said central longitudinal partition, said lateral partition elements contacting said central longitudinal partition adjacent said slots with said attachment portions extending in the direction of said slots with portions lying above said slots, the legs of said handle passing through the slots in said central longitudinal partition and serving to clamp together said central longitudinal partition and the attachment portions of said lateral partition elements contacting said central longitudinal partition in the areas above said slots, the reversely bent portions of said handle being of greater length than said elongated slots whereby said handle may be moved in the plane of said central longitudinal partition without detachment therefrom, said paperboard body including

bottom portions extending between the bottom edges of said side walls and the bottom edge of said central longitudinal partition and collapsible upon medium score lines in said end walls, said bottom elements and said lateral partition elements, the collapsing of said bottom elements providing pockets to which the reversely bent ends of said handle may be thrust for attachment and detachment when said paperboard body is in collapsed condition.

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