June 12, 1951 W. A. RINGLER 2,556,778

COLLAPSIBLE CARRIER WITH MEANS FOR MAINTAINING EXPANDED CONDITION

Filed Feb. 15, 1949 2 Sheets-Sheet 1

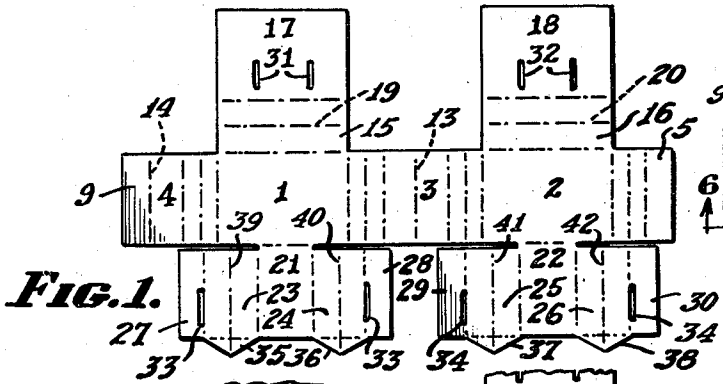


FIG. 1.

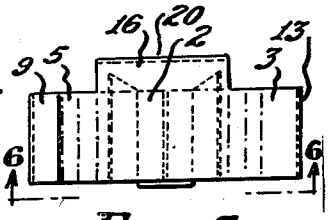


FIG. 5.

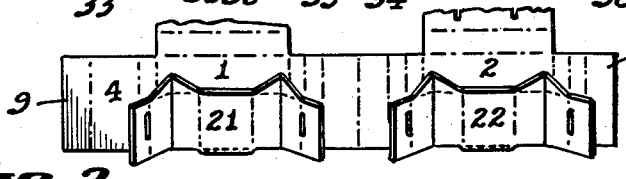


FIG. 2.

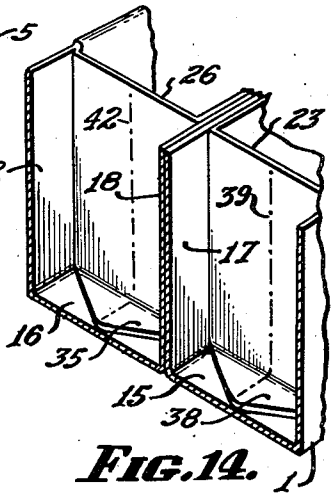


FIG. 14.

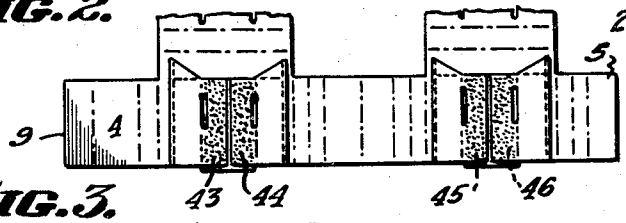


FIG. 3.

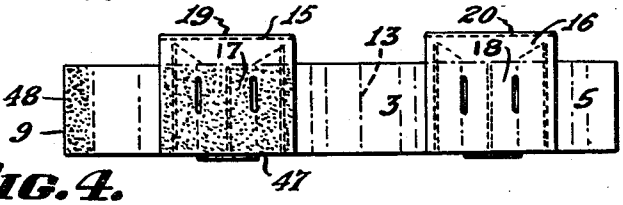


FIG. 4.

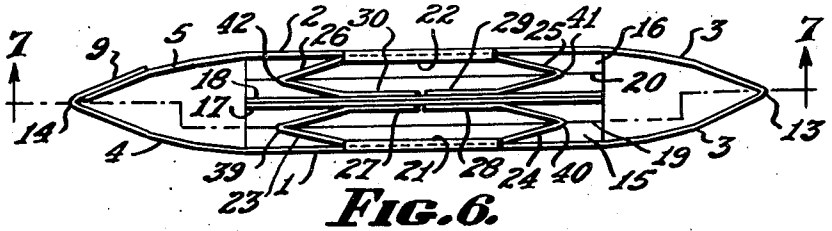


FIG. 6.

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COLLAPSIBLE CARRIER WITH MEANS FOR MAINTAINING EXPANDED CONDITION

Filed Feb. 15, 1949 2 Sheets-Sheet 2

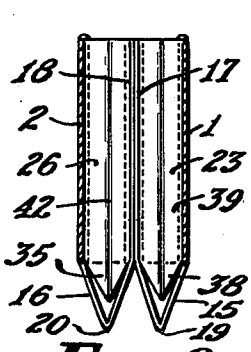


FIG. 8.

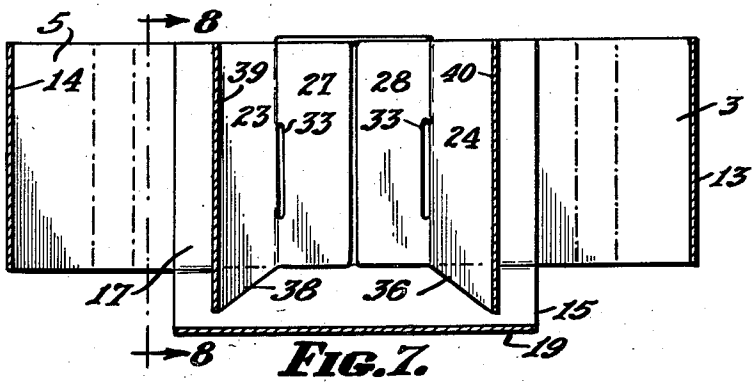


FIG. 7.

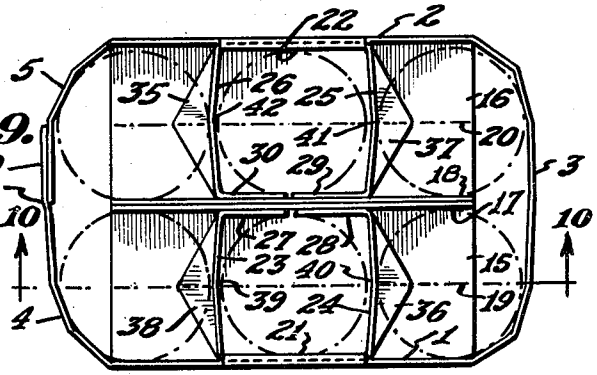


FIG. 9.

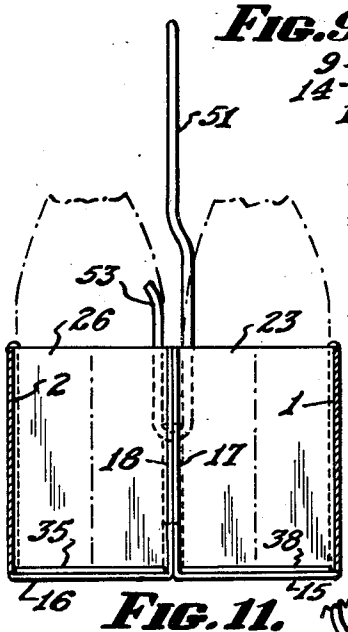


FIG. 11.

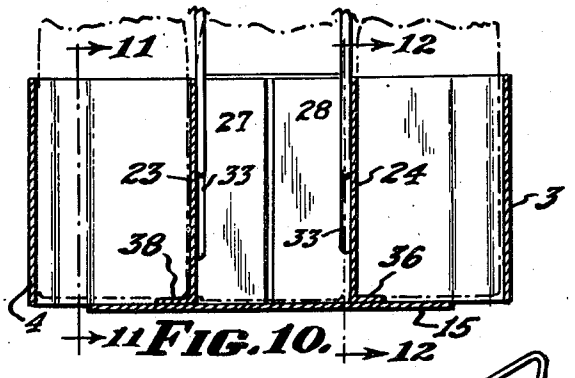


FIG. 10.

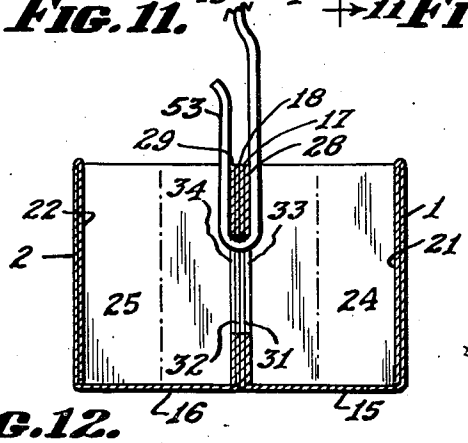


FIG. 12.

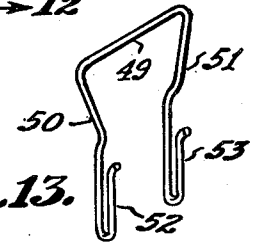


FIG. 13.

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COLLAPSIBLE CARRIER WITH MEANS FOR MAINTAINING EXPANDED CONDITION

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Application February 15, 1949, Serial No. 76,488

8 Claims. (Cl. 229—28)

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My invention is addressed to collapsible carriers for bottles or other articles, ordinarily employed for merchandising such articles in convenient sales groups, the carriers being of the type wherein there are side walls and end walls forming a band surrounding the articles or some of them, together with a bottom element, the end walls and bottom element collapsing on median score lines so that the side walls move toward each other in the collapsing operation, and wherein there are lateral partition elements collapsing also on median score lines. In some forms of such carriers there will be a central partition element, and the bottom element will be divided into two parts each collapsing on a median score line. The carriers themselves may take various forms; but I shall describe my invention in connection with a particular type of carrier such as that set forth in my co-pending application, Serial No. 780,266, filed October 16, 1947 and entitled Carrier and Method. Reference may also be made to my co-pending application Serial No. 729,795, filed February 20, 1947 and entitled Partitioned Carrier and Method of Making It, which describes and claims also a method of folding and gluing the carrier. It will be understood however that the principles of this invention are not limited to the particular carriers set forth in these applications.

Carriers of the type referred to are ordinarily made from cut and scored paperboard blanks which may be printed as desired) folded and glued in the collapsed condition. Such carriers are easily erected from the collapsed or flat condition by pushing inwardly on the end walls, which has the effect of erecting all parts of the carrier. However it is advantageous, upon the initial erection of the carrier, to have it remain in erected condition to facilitate the introduction of the articles therein. Moreover, there is a growing practice in the beverage industry to provide bottle cases having one central and one lateral partition dividing them into four spaces each capable of accepting a paperboard bottle carrier and its contents. The carriers are erected and are placed in the case, whereupon the bottles are introduced into the carrier by automatic bottle loading mechanism. It is essential in this procedure that the carriers as initially erected maintain the erected condition substantially fully, since otherwise displacement of the various walls and partitions may interfere with the automatic introduction of the bottles. Carriers of the type to which I have referred exhibit a tendency to collapse partially on the initial score lines after erection. Hitherto, to overcome this tendency, it

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has been the practice to rebreak the scores, particularly in the lateral partitions, by reversely bending them. This is time consuming and inconvenient, and need has been felt for some means which will act automatically to maintain the initially erected condition of the carriers. It will be understood that after the carrier has been in use, the tendency of the structure to collapse is minimized or obviated.

Hence the fundamental object of my invention is to provide a means which, coming automatically into play upon the erection of the carrier, will maintain the erected condition of the carrier quite accurately to facilitate the introduction of the bottles or other articles, either by hand or by machine.

It is an object of my invention to accomplish the foregoing, without adding significantly to the cost of the carrier, and without complicating its mode of formation.

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

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

Figures 2, 3, 4 and 5 are respectively plan views showing the carrier blank in various stages of folding and gluing, and in the final folded and glued form.

Figure 6 is a top plan view of the collapsed or substantially collapsed carrier showing the relationship of parts.

Figure 7 is a longitudinal sectional view thereof prior to erection taken along the section line 7—7 of Figure 6.

Figure 8 is a transverse sectional view thereof taken along the line 8—8 of Figure 7.

Figure 9 is a top plan view of the erected carrier.

Figure 10 is a longitudinal sectional view thereof taken along the section line 10—10 of Figure 9.

Figure 11 is a transverse sectional view thereof taken along the section line 11—11 of Figure 10.

Figure 12 is a transverse sectional view thereof taken along the section line 12—12 of Figure 10 and showing the mode of engagement of the handle member with the central partition.

Figure 13 is a perspective view of a handle member.

Figure 14 is a sectional perspective of the erected carrier, the section being taken transversely.

Briefly in the practice of my invention I have found that its fundamental object may be attained in a carrier of the type herein generally referred to, by providing full length, collapsible lateral partitions, and by providing upon the lower ends of these partitions, extension elements which are also provided with median score lines, which fold with the partitions during the initial formation of the carrier, which do not interfere in any way with the manufacturing processes, but which upon the erection of the carrier will fold with respect to the partitions so as to assume an angular relationship thereto, paralleling the erected bottom element. These extensions therefore provide means for rigidifying the lateral partitions and preventing them from recollapsing on their median score lines. The rigidifying of the lateral partitions holds the side walls separated from each other substantially the full distance required in the erected carrier, or keeps the side walls and the central partition elements so separated, and hence fully maintains the erected condition unless the bottles or other articles have been introduced.

Referring now to Figure 1, wherein I have illustrated the blank for an exemplary carrier, and wherein solid lines indicate lines of cut and dot-dash lines indicate lines of score, it will be seen that I have provided a band portion comprising separated side wall elements 1 and 2, separated by an end wall element 3, and provided on their outer edges with end wall elements 4 and 5. A glue flap 9 is formed on the end of one of these end wall elements. The end wall elements are provided with median score lines indicated at 13 and 14.

To the bottom edges of the side wall elements 1 and 2 I provide extensions, scored to present bottom elements 15 and 16 and extensions 17 and 18 which will join to form a central partition. The bottom forming elements 15 and 16 are provided with median score lines 19 and 20. It will be noted that the width of these side wall extensions is equivalent to the width of the side walls, which means that the bottom forming elements will not be fully as long as the erected carrier. End portions of the end wall elements may, if desired, be provided with additional score lines to permit them to assume a rounded configuration conforming to the end bottles in each row.

Centrally, to the top edges of the side walls 1 and 2 I articulate elements indicated at 21 and 22 which will be folded over inside the side walls. These elements have extensions forming partition elements 23, 24, 25 and 26, and these lateral partition elements have extensions 27, 28, 29 and 30 which will ultimately be attached to the central partition forming elements 17 and 18. Slots for the attachment of a clamp-type handle are formed as at 31 and 32 in the central partition elements, and as at 33 and 34 in the lateral partition element attachment flaps. These slots are so positioned as to coincide respectively in the folded and glued carrier.

The partition elements 23, 24, 25 and 26 are of the full depth of the side walls 1 and 2. On their bottom edges I provide extensions 35, 36, 37 and 38 which are articulated to the bottom edges of the lateral partition elements by means of transverse score lines and which carry continuations of the median score lines 39, 40, 41 and 42 of the lateral partition elements. These extensions have been shown in the form of triangular members, but this is not a limitation on the invention. They may be formed in other shapes, e. g. rectangular; but for fully automatic operation it is advantageous to have their corners rounded or cut away since they will be folded by contact with the bottom elements 15 and 16 during the operation of erecting the carrier.

The blank of Figure 1 will be formed of suitable paperboard of appropriate weight for the service requirements, by ordinary cutting and scoring operations current in the paperboard carton art. The carriers may be printed as desired.

As shown in Figure 2 the first operation in folding and gluing the carrier will be to turn inwardly the extensions 21 and 22 on the top edges of the side walls 1 and 2. The operations of folding and gluing are such as can be carried on on readily available commercial machines. In such machines, concurrently with the infolding of the extensions 21 and 22 outlying parts of the lateral partition structures are folded upwardly and inwardly. The start of this operation is illustrated in Figure 2.

The completely folded condition of the lateral partition elements is illustrated in Figure 3, and adhesive is applied to the attachment extensions 27, 28, 29 and 30 as indicated by stippled areas 43, 44, 45 and 46. As a next step in the operation of folding and gluing the central partition forming elements 17 and 18 are folded over onto the lateral partition forming elements so that the extensions 27, 28, 29 and 30 become adhered to them respectively, with the slots aforesaid in juxtaposition. This condition of the blank is illustrated in Figure 4. The folding, as will be evident, is done on the median score lines 19 and 20 of the side wall bottom extensions. An area of adhesive 47 may then be applied to one of the central partition forming elements; and an area of adhesive 48 may concurrently be applied to the glue flap 9 on the end of the band portion.

The final step in folding and gluing the carrier will be the folding over of the right-hand end of the structure shown in Figure 4 on the median score line 13 of the central end wall member 3, and finally the folding over of the glue flap extension 9 onto the outer marginal portion of the end wall member 5, thus closing the band. The completely folded and glued carrier body is illustrated in plan in Figure 6; and a top end view of it, taken along the section line 6—6 of Figure 5, is shown in Figure 6. It will be noted that the lateral partition extensions 35, 36 37 and 38 do not in any way interfere with the folding and gluing operations (since their depth is less than the depth of half the bottom-forming elements 15 and 16). The extensions simply fold on their median fold lines with the lateral partition forming elements.

It will be noted also from Figure 7 and 8 that in the collapsed or partially collapsed condition of the carrier the extensions simply constitute prolongations of the folded lateral partition elements. When, however, the carrer is erected, the side walls being separated from the longitudinal central partition, and the bottom elements unfolding on their median score lines so that their parts become co-planar (as in Figure 14) the bottom extensions on the lateral partition elements will fold over into the plane of the bottom as shown at 35 and 38 in Figure 14 and as also illustrated in Figure 9. The result

is a rigidifying of the unfolded condition of the lateral partition elements, keeping the side walls and central partition separated, and maintaining the erected condition of the carrier.

The carrier in this instance is employed with a wire handle, illustrated in Figure 13 and comprising a bail portion 49, depending legs 50 and 51, and reversely bent lower end portions 52 and 53 on the legs. The reversely bent portions cooperate with the lower ends of the legs in forming clamp members which, engaging the central partition elements (formed from parts 17 and 18) and the attachment portions 27, 28, 29 and 30 of the lateral partition elements serve to hold these parts together and prevent separation due to outward pulls exerted by the bottles, in spite of the adhesive attachement of the members. The handle is engaged with the central partition assembly by having its lower ends passed through the slots. The handle serves as a suspending means for the carrier, and the length of the slots, as most clearly illustrated in Figure 12, is sufficient to permit the handle to be moved downwardly in the erected carrier to clear the upper ends of the bottles and permit stacking of the carriers.

The rigidifying of the lateral partition elements, in a new carrier, opened for the first time, maintains the erected condition of the structure not only for hand filling but for filling by machine. The turned over extensions 35, 36, 37 and 38 do not in any way interfere with the filling of the carrier, or the manner in which the carrier holds the bottles. That these relatively small elements may become damaged subsequently in the use of the carrier is possible; but after a carrier has been in use for a period of time, its tendency to collapse is diminished or disappears entirely. The means described in this application, provide automatically for the maintenance of the initially erected condition in a carrier shipped and stored in the condition illustrated in Figure 5, and then erected for the first time.

As indicated above the teachings of this application may be employed in carriers of different types, but are of value in those types of carriers in which side walls collapse directly toward each other and in which lateral partition elements collapse on median score lines. Modifications may be made in my invention without departing from the spirit of it. Having described my invention in the aforesaid exemplary embodiment, what I claim as new and desire to secure by Letters Patent is:

1. In a paperboard bottle carrier or the like having opposed side walls, a central longitudinal partition, bottom members extending respectively between said side walls and said longitudinal partition member, and lateral partitions extending in a direction transverse the side walls, said lateral partitions and bottom members collapsible on median score lines, extensions articulated to the bottom ends of said lateral partition elements by means of transverse score lines, said extensions carrying prolongations of said median score lines and foldable upon erection of the carrier to an angular relation to said lateral partitions whereby to rigidify said partitions in the unfolded form.

2. The structure claimed in claim 1 wherein said extensions are of substantially the same width as the lateral partition elements adjacent their lines of articulation thereto but are truncated with respect to their outer corners.

3. The structure claimed in claim 1 wherein said extensions are of substantially the same width as the lateral partition elements adjacent their lines of articulation thereto but are truncated with respect to their outer corners and are of a depth less than half the width of the bottom member.

4. The structure claimed in claim 1 wherein said extensions are of substantially the same width as the lateral partition elements adjacent their lines of articulation thereto but are truncated with respect to their outer corners and are of a depth less than half the width of the bottom members, the depth of the lateral partiton elements being the same as the depth of the side walls whereby upon erection of said structure the bottom members act to fold said extensions with respect to the lateral partition elements.

5. The structure claimed in claim 4 wherein said lateral partition elements are articulated to members foldable within said side walls and wherein said latter partition elements have attachment tongues secured to said longitudinal partition.

6. The structure claimed in claim 4 wherein said lateral partition elements are articulated to members foldable within said side walls and wherein said elements have attachment tongues secured to said longitudinal partition, said carrier having end walls connecting ends of said side walls and collapsing on median score lines.

7. In a paperboard bottle carrier having side and end walls, a central longitudinal partition, bottom members extending between said side walls and said central longitudinal partition and lateral partitions extending in a direction transverse the side walls, said partitions, end walls and bottom members collapsible on median score lines, extensions articulated to the bottom ends ends of said lateral partition elements by means of transverse score lines, said extensions being of substantially the same width as the lateral partition elements along their lines of articulation thereto but tapering inwardly therebeyond and carrying prolongations of said median score lines in said lateral partitions, said extension being foldable upon erection of the carrier to an angular relation to said lateral partitions whereby to rigidify said partitions in the unfolded condition.

8. In a paperboard bottle carrier including opposed wall members and a bottom member extending therebetween together with at least one lateral partition element extending between the said opposed wall members, said lateral partition and bottom member collapsible on median score lines, an extension articulated to the bottom end of said lateral partition element by means of a transverse score line, said extension carrying a prolongation of said median score line in said lateral partition, said extension being foldable upon erection of the carrier to an angular relation to said lateral partition whereby to rigidify said partition in the unfolded condition.

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