

Aug. 14, 1951

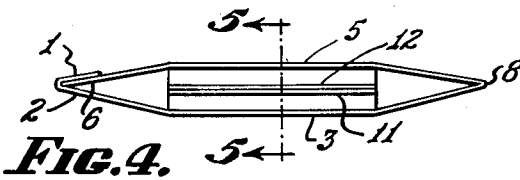
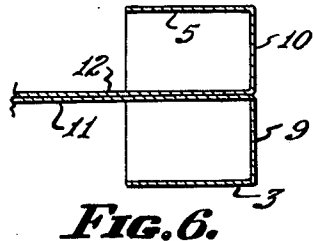
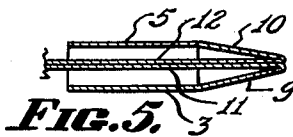
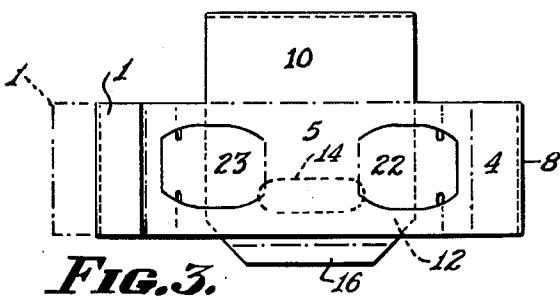
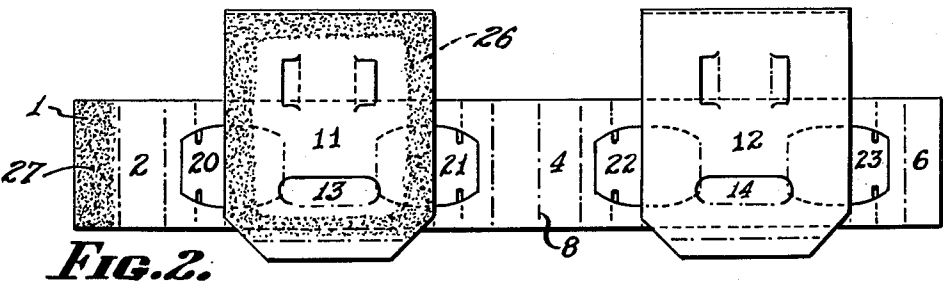
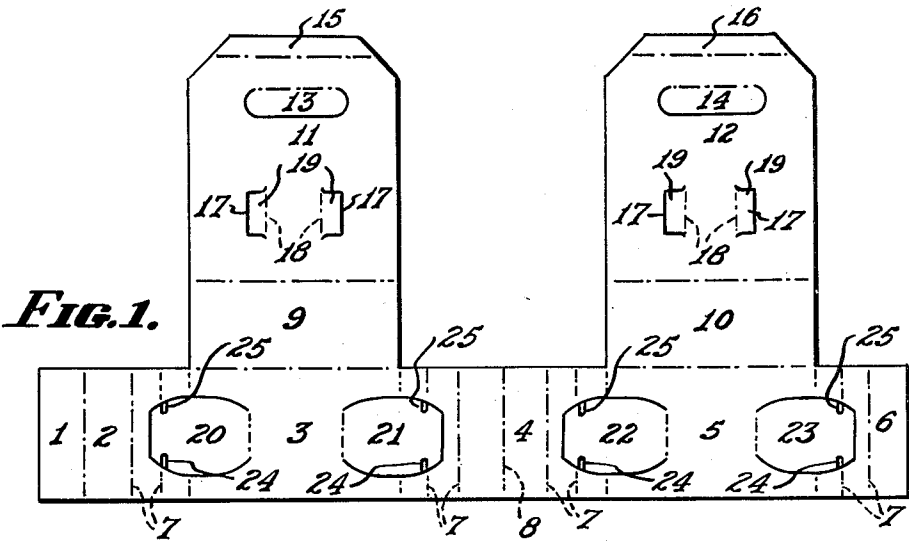
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2,564,449

STABILIZED PAPERBOARD CARRIER

Filed July 12, 1949

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

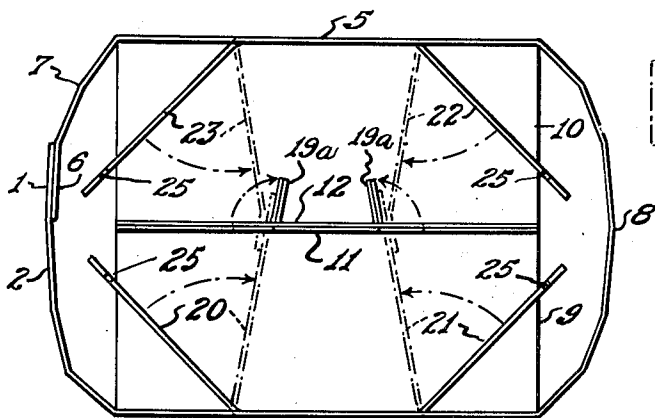


FIG. 7.

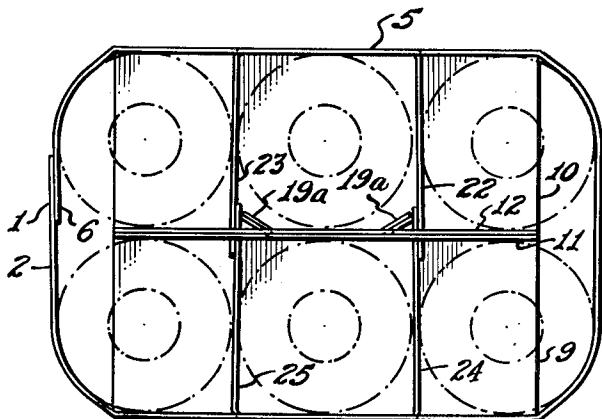


FIG. 8.

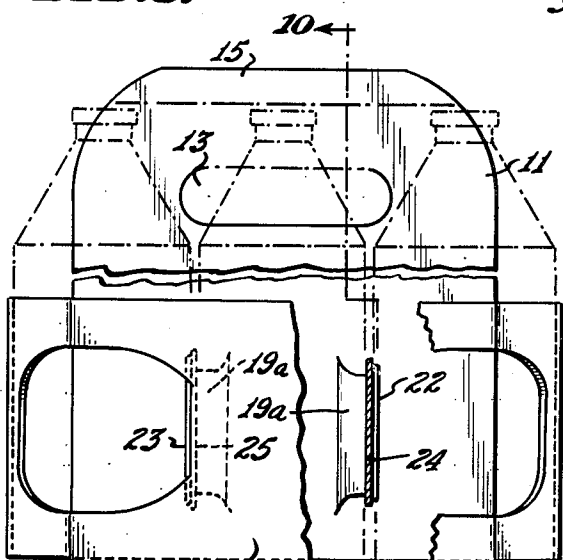


FIG. 9.

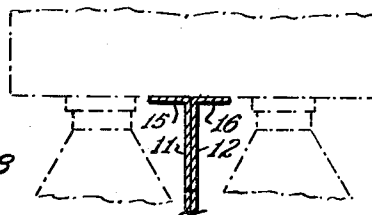


FIG. 10.

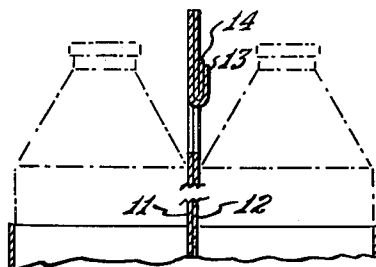


FIG. 11.

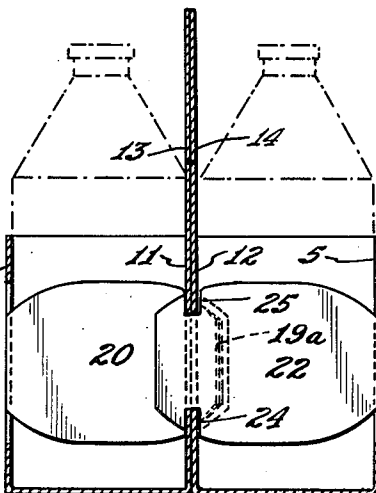


FIG. 12.

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2,564,449

STABILIZED PAPERBOARD CARRIER

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11 Claims. (Cl. 229—28)

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In my Patent No. 2,371,317, issued March 13, 1945, and entitled Bottle Carrier, I have disclosed a type of paperboard carrier for bottles or the like wherein there is a band portion comprising side and end walls in alternate order, this band portion being connected together at its ends for surrounding an assembly of bottles or the like. There are extensions on the lower edges of the side walls scored to form bottom members, and elements extending upwardly medially of the band portion to form a central longitudinal partition and carrying handle elements. The extensions on the lower edges of the side walls are so dimensioned, in connection with the length of the band portion that the blanks for the carriers will nest when produced from sheets of box-board by ordinary cutting and scoring operations. The relative length of the side and end walls is such that the band portion provides rounded corners conforming to the curved shape of end bottles in an assembly; and the patent also teaches that lateral partition elements may be cut from portions of the side and end walls to project inwardly toward the central partition and handle elements to separate from each other the bottles in the several rows of the assembly. The carrier was designed primarily for an assembly of six bottles in two rows of three each.

The structure as described in my patent has a number of advantages, such as simplicity, economy, and ease of manufacture; but it is inherently unstable, especially when not containing the full complement of bottles. Moreover, the central partition and handle elements will not maintain their position if the carrier is empty.

Since the development of the carrier of my said Letters Patent, a number of styles of fully partitioned carriers have been produced in which lateral partition elements are articulated both to the side walls of the carrier and to the central partition. These carriers have greater stability, and some of them in the erected form are fairly rigid. They, however, require more paperboard for their formation, and hence are more costly in the raw material. Furthermore, they are much more complicated to produce, requiring in the main a very large number of folding operations and gluing operations. This in turn requires more elaborate mechanism for the folding and gluing operations, such as right-angled machines or machines which are capable of folding elements fore and aft in the direction of motion of the blank. All of such machines, likewise, must have more than two folding sections, or it is necessary to pass the blanks or semi-finished

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carriers twice or more times through the same or different machines.

It is an object of the present invention to provide improvements in the carriers of my former patent whereby such carriers are given new utility and fields of service.

More particularly, it is an object of the invention to preserve the simplicity of manufacture and low cost of the carriers of my former patent, while gaining advantages of stability not hitherto attainable in such carriers.

It is an object of the invention to provide a carrier of the type set forth which is a fully partitioned carrier, and which in the erected form maintains the position of the central partition and handle members rigidly and accurately.

There has recently grown up a practice of loading carriers by automatic machines while a plurality of the carriers is located in bottle crates. It is an object of this invention to provide a carrier having all of the advantages of the carriers of my former patent and at the same time capable of being filled by automatic machines in the way stated.

It is an object of my invention to provide a carrier having the advantages enumerated above, which at the same time is so inexpensive that it may be used for one-trip service with disposable bottles or containers. In this connection it may be pointed out that there has been developed a practice of merchandising carbonated beverages including beer in disposable containers which are not returned for refilling, and if such beverage containers are to be merchandised in sales groups in a carrier, it is necessary to provide a carrier much less expensive than any hitherto produced having a fully partitioned character and sufficient stability to permit filling by automatic machines. This my invention accomplishes.

The objects described, and others which will be set forth hereinafter or will be apparent to one skilled in the art upon reading these specifications, I accomplish in that procedure and structure of which I shall now present an exemplary embodiment. Reference is made to the accompanying drawings wherein:

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

Figure 2 is a plan view of the blank after an initial folding operation.

Figure 3 is a plan view of the blank after the final folding operation.

Figure 4 is a top view of the carrier in substantially collapsed condition.

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Figure 5 is a partial sectional view thereof taken along the line 5-5 of Figure 4.

Figure 6 is a partial sectional view thereof corresponding to that of Figure 5 but showing the carrier in the erected condition.

Figure 7 is a top plan view of the carrier with the band portion, bottom elements and longitudinal partition elements in erected position, and illustrating the steps of engaging the lateral partition elements with the longitudinal partitions.

Figure 8 is a top plan view of the erected carrier after the effecting of the aforesaid engagement.

Figure 9 is a side elevation of the erected carrier with certain parts broken away.

Figure 10 is a transverse vertical section of the erected carrier taken along the line 10-10 of Figure 9.

Figure 11 is a partial lateral section of the carrier showing the manner of formation of the hand hole elements.

Figure 12 is a partial lateral section of the carrier showing the use of the reinforcing longitudinal partition flaps.

Referring to Figure 1, wherein I have illustrated the blank for the exemplary embodiment of my invention, and wherein solid lines indicate lines of cut and dash-dot lines indicate lines of score, it will be seen that I provide a band portion comprising in the order named the glue flap 1, a partial end wall member 2, a side wall member 3 and a partial end wall member 6. The length of the side wall members, as will be evident from Figure 8, is less than the length of the assembly of bottles. The length of the end wall elements is slightly greater than the width of the assembly of bottles; and the end wall elements are provided with score lines 7 facilitating a curving of end portions of the end walls to conform to the curved configuration of the end bottles in the assembly.

In addition, the end wall element 4 is provided with a medial score line 8 on which the band portion of my structure may be bent or folded for tubing, and on which the tubed structure may collapse into the knocked down condition.

To the edges of the side walls 3 and 5, I articulate bottom forming elements 9 and 10, each of a width to extend half way across the erected band. To the bottom forming elements I articulate longitudinal partition and handle structures 11 and 12. The length of these structures may be as desired, and ordinarily the length will be proportioned to the height of the bottles to be placed in the carrier. The elements 11 and 12 are provided with hand holes by lines of cut and lines of score so as to provide hand hole flaps 13 and 14 as understood in the art. Also, I prefer to provide narrow flap portions 15 and 16 on the tops of the elements 11 and 12, and articulated thereto by score lines.

The elements 11 and 12 are further provided with lines of cut 17 and lines of score 18 so as to produce bendable flaps 19, for a purpose hereinafter to be described. These flaps are generally of trapezoidal form, the score lines 18 being substantially longer than the straight portions of the cut lines 17. The spacing between the cut lines 17 in their straight portions will be substantially that of the spacing of the lateral partitions from each other in the erected carrier. The spacing of the score lines 18 from each other will be substantially less than the spacing of the lateral partition elements in the erected carrier.

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Lateral partition elements 20, 21, 22 and 23 are formed from the side walls and portions of the end walls by appropriate lines of cut surrounding the lateral partition elements on three sides, the fourth side being provided with a score line as shown. The length of the lateral partition elements from the score line to the side opposite is greater than the width of the bottom elements 9 and 10, i. e. greater than the proper distance between the side walls and the central longitudinal handle and partition elements in the erected carrier, for a purpose hereinafter to be set forth. Near the cut ends of the lateral partition elements I provide notches indicated at 24 and 25. These notches are located inwardly from the cut ends of the lateral partition elements by such a distance that the remainder of these lateral partition elements, i. e. their portions lying between the slots and the score line, are equivalent to the normal distance between the side walls of the carrier and the longitudinal partition elements in the erected structure. The distance between the ends of the slots 24 and 25 for any individual lateral partition element is substantially the same as the length of the straight portion of the cut 17 in the longitudinal partition elements 11 and 12.

It will be understood that the blank illustrated in Figure 1 hereof may be made from paperboard sheets by ordinary cutting and scoring operations on a cutting and scoring press. The paperboard may be printed as desired. The weight of the paperboard employed may be proportioned to the service required of the carrier, i. e. the weight of the load it will be called upon to bear, but by reason of the extraordinary stability of the erected carrier, very much lighter weights of board may be employed for the same weight of contents, particularly where the carrier is not intended for more than one trip but is to be disposed of along with disposable containers for the liquids carried.

In folding and gluing my improved carrier blanks, the only operation required is a tubing of the band portion thereof, by folding it along the medial score line 8 of the end wall element 4, and folding over and adhesively securing the glue flap 1 to the outer marginal portion of the partial end wall elements 6. All other operations required in the erecting of the carrier may be performed by hand by the user. However, further folding operations may be performed on the carrier at the box plant so as to minimize the operations required in its ultimate erection, and so as to produce packages of the knocked down carriers which are smaller in longitudinal and lateral dimensions. Thus, as illustrated in Figure 2, before tubing the band portion, I may fold over the elements 11 and 12 onto the bottom and side wall elements 9 and 3 and 10 and 5 respectively, the folding being done on the lines of articulation between the bottom elements and the central longitudinal partition and handle extensions.

Also, if desired, I may apply adhesive as at 26 to one of the longitudinal partition elements, say the element 11. Actually, adhesion of the longitudinal partition and handle elements to each other is not required in my carrier, since the ultimate engagement of the lateral partition elements with the longitudinal partition element will have the effect of fastening these elements rigidly together. Thus an operation may be saved in folding and gluing the carriers. Where, however, the handle elements are very long and the

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carrier is made of very light and hence excessively flexible board, an adhesive union of the elements 11 and 12 to each other will tend to prevent sagging or displacement of handle portions which extend a great distance upwardly beyond the top of the band portion, and hence facilitate the use of the carriers in automatic filling operations. If adhesive attachment is desired, at the same time that the area of adhesive 26 is applied to the element 11 an area of adhesive 27 may be applied to the glue flap 1 as also shown in Figure 2.

Figure 3 illustrates the final folded and glued condition of the knocked down carrier. It may be shipped to the user in this form.

Figures 4 and 5 illustrate the relationship of parts in the collapsed carrier, while Figures 6 and 7 illustrate their relationship in the erected structure. It will be understood that in erecting my carrier the side wall portions 3 and 5 are drawn outwardly away from each other, and the bottom forming portions 9 and 10 are bent over at right angles to the side walls. This results in an upward motion of the handle and longitudinal partition forming elements 11 and 12 which now rise above the top edges of the side and end walls of the carrier.

To complete the erection of the carrier, the lateral partition elements 20, 21, 22 and 23 are now folded inwardly, their ends being passed through the longitudinal partition elements 11 and 12 and interlocked therewith.

The passing of the end portions of the lateral partition elements through the longitudinal partition elements is rendered possible by the formation of the flaps 19 hereinabove described. The respective flaps 19 will have been brought into juxtaposition as respects the longitudinal partition elements 11 and 12 by the folding operations hereinabove described; or if these elements have not previously been folded, by passing them through the erected band portion of the carrier and bringing the longitudinal partition forming elements into face-to-face juxtaposition, as will be understood from my drawings. The respective pairs of flap elements 19 in the central longitudinal partition structure are bent inwardly as shown in Figure 7. The end portions of the lateral partition elements are passed through the longitudinal partition structure adjacent the longitudinal score lines 18, where space is provided to accommodate the width of the end portions of the lateral partition elements. When these elements have been so positioned, the slots 24 and 25 adjacent their ends will lie in the plane of the longitudinal partition structure; and the lateral partition elements may be moved from the slanted positions shown in dotted lines in Figure 7 to the parallel positions shown in solid lines in Figure 8. In this movement, the ends of the lateral partition elements approach the straight line portions of the cuts 17 in the longitudinal partition structure, and since these cut portions are of reduced length as respects the over-all width of the ends of the lateral partitions, portions of the longitudinal partition structure engage in the slots 24 and 25. Then the previously folded flaps 19 are permitted to return as nearly as they can into the plane of the longitudinal partition structure, as illustrated at 19a in Figure 8. Thus a positive lock is formed. The lateral partition elements are not only interlocked with the longitudinal partition structure and with each other, but by reason of the fact that end portions of them have been

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passed entirely through the lateral partition structure and lie in face-to-face engagement with each other, braced by the resilient flaps as at 19a, a particularly rigid structure is effected. The longitudinal partition and handle structure is not only maintained with the proper spacing between the two side walls 3 and 5, but the whole structure is rigidified so that the longitudinal partition and handle structure cannot tilt with respect to the band portion of my carrier in any direction. The carrier is extraordinarily well braced in the erected condition and is well adapted for filling by automatic machines.

The manner in which the end portions of the lateral partition elements lap in extending through the longitudinal partition is illustrated in Figure 10. The two elements 11 and 12 of the longitudinal partition and handle forming structure are held together in spite of an omission of adhesive union, as will be evident.

When the hand hole is to be made available for carrying, the hand hole flaps 13 and 14 are passed through to one side, as illustrated in Figure 11. The small flaps 15 and 16 are bent over at the top of the handle structure, as illustrated in Figure 12. This not only provides for ease in carrying, but very considerably strengthens the handle portion per se and rigidifies it laterally.

Modifications may be made in my invention without departing from the spirit of it. Having thus described my invention in an exemplary embodiment, what I claim as new and desire to secure by Letters Patent is:

1. A paperboard bottle carrier or like structure having a band portion with side and end walls in articulation for surrounding an assembly of articles to be carried, extensions on the lower edges of the side walls providing bottom elements and a central longitudinal partition and handle structure of two plies; and lateral partition elements struck from portions of the side and end walls and articulated to the side walls, said lateral partition elements having a detachable interlocking engagement with said central longitudinal partition and handle structure.

2. The structure claimed in claim 1 wherein said interlocking engagement involves end portions of said lateral partition elements which pass through said central longitudinal partition and handle forming structure and lie in face-to-face engagement with each other.

3. The structure claimed in claim 1 wherein the length of said lateral partition elements is greater than the normal distance between said side walls and the central longitudinal partition and handle forming structure in the erected carrier, and wherein end portions of said lateral partition elements pass entirely through said central longitudinal partition and handle forming structure.

4. The structure claimed in claim 1 wherein the length of said lateral partition elements is greater than the normal distance between said side walls and the central longitudinal partition and handle forming structure in the erected carrier, and wherein end portions of said lateral partition elements pass entirely through said central longitudinal partition and handle forming structure, said longitudinal partition structure having flaps formed therein, the outer edges of said flaps being spaced apart the normal distance between said lateral partition forming elements and the inner or articulated edges of said flaps being spaced apart less than the normal distance

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between the lateral partition elements, said lateral partition elements having adjacent their ends means for engagement with said central longitudinal partition structure.

5. The structure claimed in claim 3 wherein flaps are formed in said central longitudinal partition and handle forming structure, said flaps having outer edge portions spaced from each other substantially the normal distance between lateral partition elements in said carrier, and inner, articulated edges, spaced a lesser amount, said flaps being depressible to one side of said central longitudinal partition and handle forming structure, and having a length adjacent their inner articulated edges substantially equivalent to the width of end portions of said lateral partition forming elements, and a length adjacent their outer free edges less than the first mentioned length, said lateral partition forming elements having notches therein adjacent their ends which notches will engage portions of said central longitudinal partition and handle forming structure adjacent said flaps when said lateral partition elements are passed through said central longitudinal partition and handle forming structure adjacent the articulated edges of said flaps and then moved outwardly.

6. The structure claimed in claim 5 wherein said flaps tend to return to the plane of said central longitudinal partition and handle forming structure and in doing so engage said lateral partition forming elements to maintain the locking relationship thereof with said central longitudinal partition and handle forming structure.

7. The structure claimed in claim 6 in which said central longitudinal partition and handle forming structure is provided with hand hole flaps.

8. The structure claimed in claim 6 in which said central longitudinal partition and handle forming structure is provided with hand hole flaps, and additional bracing flaps articulated to the upper end thereof.

9. The structure claimed in claim 8 wherein said side wall elements are less in length than the length of an assembly of articles to be carried therein, and wherein said side wall elements are of greater length than the distance between the side wall elements in the erected carrier, whereby said band portion assumes a rounded configuration at the corners of the erected carrier to conform to the rounded configuration of articles carried therein.

10. In a bottle carrier or like structure, a band portion in closed form comprising side and end wall elements for surrounding a series of articles to be carried, extensions on the lower edges of said side walls and scored to provide bottom forming elements and juxtaposed up-

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wardly extending longitudinal partition and handle forming elements, lateral partition elements struck from portions of said side and end walls, having a length greater than the normal distance between said side walls and the central longitudinal partition of said carrier, said lateral partition elements being passed through said central longitudinal partition and handle forming structure and interlocked therewith to rigidify the carrier in erected condition.

11. A one-piece knock-down paperboard bottle carrier having a band portion with side and end walls in articulation for surrounding an assembly of articles to be carried, extensions on the lower edges of said side walls providing bottom elements and a double thickness central longitudinal partition, lateral partition elements articulated to said side walls, said lateral partitions each being greater in length than the normal distance between said side walls and the central longitudinal partition in the erected carrier, said central longitudinal partition having flaps formed therein, said flaps providing openings in said central longitudinal partition the outer edges of which are spaced from each other substantially the normal distance between lateral partition elements in said carrier, the inner edges of said openings having said flaps articulated thereto and being spaced from said first mentioned edges, said flaps being depressible to one side of said central longitudinal partition and having a length adjacent their inner articulated edges substantially equivalent to the width of end portions of said lateral partition forming elements, and a length adjacent their outer edges less than the first mentioned length, said lateral partition forming elements passing completely through said openings and having notches adjacent their free ends for engaging portions of said central longitudinal partition adjacent the outer edges of said opening, the portions of the lateral partition elements which pass through said flaps lying in face to face contact with each other.

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