April 14, 1953 W. A. RINGLER 2,634,895

KNOCKDOWN CARRIER

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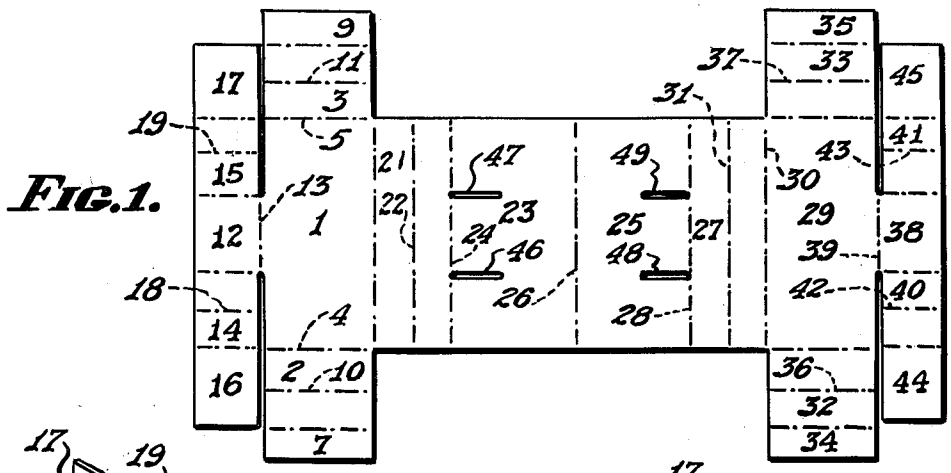


FIG. 1.

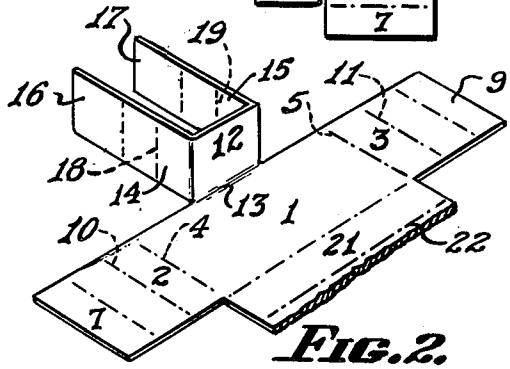


FIG. 2.

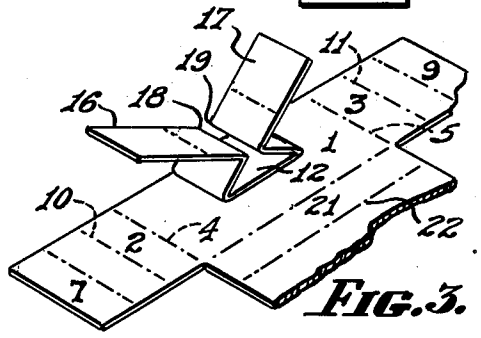


FIG. 3.

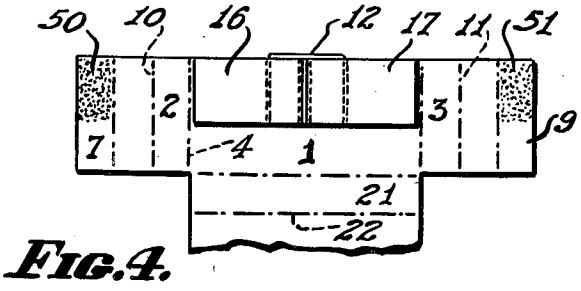


FIG. 4.

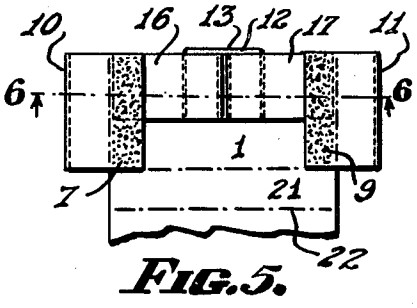


FIG. 5.

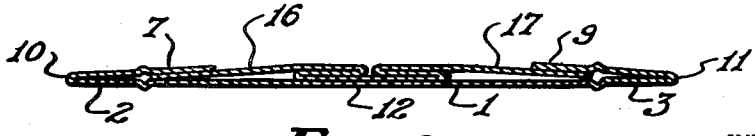


FIG. 6.

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KNOCKDOWN CARRIER

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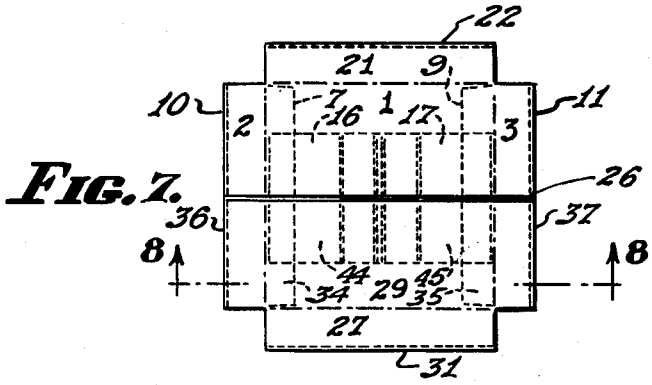


FIG. 7.

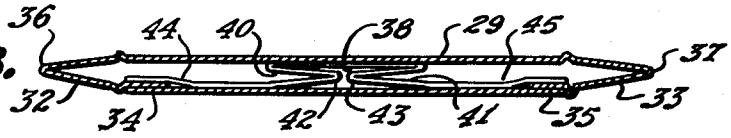


FIG. 8.

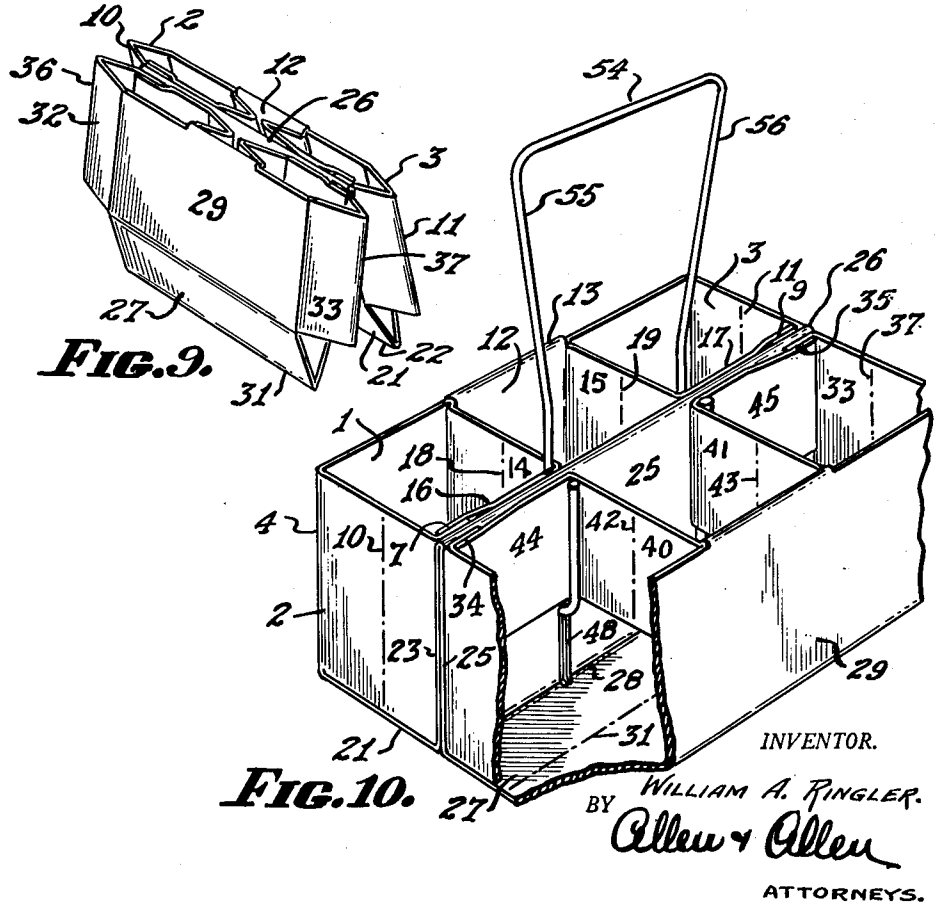


FIG. 9.

FIG. 10.

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KNOCKDOWN CARRIER

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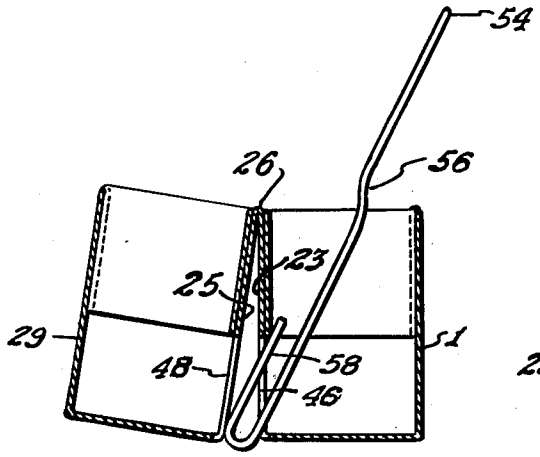


FIG. 11.

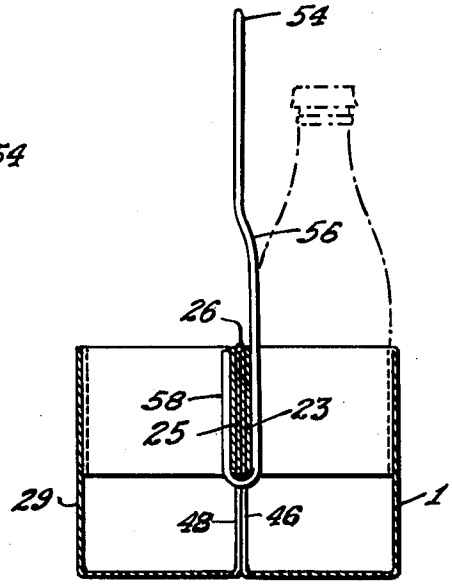


FIG. 12.

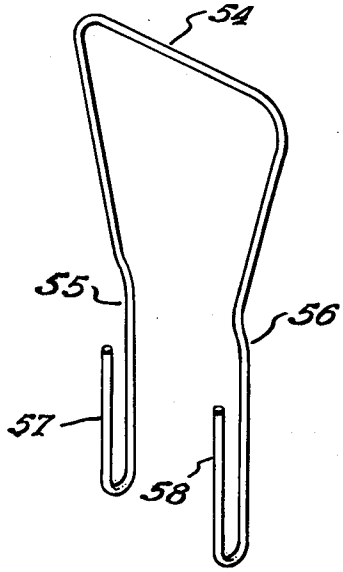


FIG. 14.

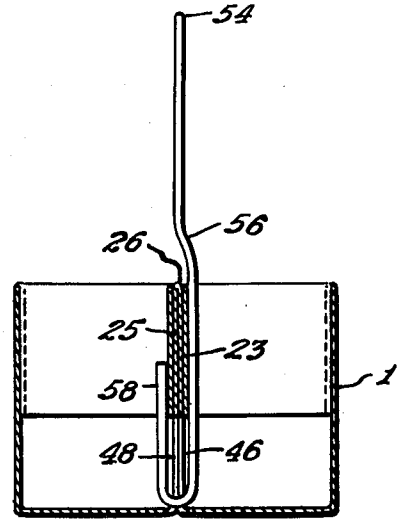


FIG. 13.

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UNITED STATES PATENT OFFICE

2,634,895

KNOCKDOWN CARRIER

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Application November 20, 1947, Serial No. 787,088

2 Claims. (Cl. 229—15)

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My invention relates to carriers for bottles or the like, which carriers have a collapsible or knock-down body formed of paperboard.

An object of my invention is the provision of a strong and simple paper board bottle carrier, capable of repeated use, which may be shipped to the user in the knock-down condition, and which requires no interfolding of parts or gluing to fit it for service.

It is an object of my invention to provide a collapsible paperboard carrier which is fully partitioned, the partitions being self erecting along with the carrier.

It is an object of my invention to provide a paperboard carrier body which may be folded and glued in its manufacture on available carton folding and gluing equipment, including those folding and gluing steps required to form self erecting partitions referred to above.

These and other objects of my 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 construction and arrangement of parts, and in that procedure of which I shall now describe exemplary embodiments. Reference is made to the accompanying drawings wherein:

Figure 1 is a plan view of the paperboard blank which I employ.

Figure 2 is a partial perspective view showing an initial stage of the folding of the partition members.

Figure 3 is a partial perspective view showing a further stage in the folding of one of the members.

Figure 4 is a partial plan view showing the partition member in completely folded condition.

Figure 5 is a partial plan view showing the next stage of blank folding.

Figure 6 is a sectional view taken along the line 6—6 of Figure 5 and showing the folded condition of the end portion of the blank.

Figure 7 is a plan view of the blank in finally folded condition.

Figure 8 is a sectional view of the folded blank taken along the line 8—8 of Figure 7.

Figure 9 is a perspective view showing an initial stage in the erection of the carrier.

Figure 10 is a perspective view of the completely erected carrier including a handle element.

Figure 11 is a cross sectional view showing an initial step of handle engagement.

Figure 12 is a cross sectional view showing the handle in its upper or carrying position.

Figure 13 is a cross sectional view showing the handle element in its lower or stacking position.

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Figure 14 is a perspective view of the handle element.

In Figure 1, I have illustrated a cut and scored paperboard blank, which may be formed on the usual cutting and scoring press, from boxboard which may have been printed in any way desired. I am not limited as to the weight or nature of boxboard to be employed, but my preference is for the heavier boxboards by reason of their strength.

This blank provides a side wall element 1, to the end of which are articulated end wall elements 2 and 3 along score lines 4 and 5. The end wall elements carry articulated glue flaps 7 and 9, and are provided with intermediate score lines 10 and 11. A partition forming element, having a central portion 12 is articulated to the top edge of the side wall member 1, along a score line 13. The partition element is provided with side portions 14 and 15 and attachment flaps 16 and 17. The side portions 14 and 15 have intermediate score lines 18 and 19.

To the bottom edge of the side wall member 1, along a score line 20, I articulate a bottom forming portion 21. This is provided with a median score line 22. Another side wall element 23 is articulated to the bottom forming portion along a score line 24, and to a third side wall forming element 25 along a score line 26. A bottom forming portion 27 is articulated to the third side wall 25 along a score line 28, and to a fourth side wall element 29 along a score line 30. The bottom forming element 27 is provided with a median score line 31.

The fourth side wall element 29 has end wall elements 32 and 33 articulated to its ends, and to these I articulate glue flaps 34 and 35. The end wall portions 32 and 33 are provided with median score lines 36 and 37.

A partition element having a central portion 38 is articulated along a score line 39 to the top edge of the fourth side wall 29. The partition forming element has side portions 40 and 41 provided with median score lines 42 and 43, and end attachment flaps 44 and 45.

Dimensions are not a limitation upon my invention. Since the particular exemplary carrier is designed to hold six bottles in two groups of three each, the length of the end wall portions 2, 3, 32 and 33 is made to be approximately one-third of the length of the side wall portions 1, 23, 25 and 29. The two intermediate side wall portions 23 and 25 are provided with slits or slots 46, 47, 48 and 49. These slots are of a

length not greater than half the depth of the side wall portions 23 and 25, and the respective pairs of slots are spaced from each other a little more than one-third of the distance representing the length of the side walls 23 and 25. The slots are so positioned that when the walls 23 and 25 are folded along the score line 26 so as to lie parallel and in face-to-face relationship, the respective slots of the two pairs will match.

I have shown the partition elements as having a width approximately half the width of the side walls of the carrier. If it is desired to have the partitions extend for the full depth of the carrier, it is within the scope of my invention to increase the width of the partition elements to equal that of the side walls, or so to increase the depth of the side portions 14, 15, 40 and 41 only. The attachment flaps 16, 17, 44 and 45, may remain at the width shown; but if increased to the width of the side walls it will be necessary to slot them to match the slots 46, 47, 48 and 49.

The blank illustrated in Figure 1 may be folded and glued in any available folding and gluing machine which is capable of folding members fore and aft along score lines transverse the direction of motion of the blank through the machine. Such machines ordinarily have at least one section having folding elements traveling with the blank and operating in fore and aft directions. The first folding operations to be performed on my blank are the folding of the partition elements. Folding of these two sets of elements may occur simultaneously or in sequence. In Figure 2 I have shown the folding of a partition element in an intermediate stage. The central portion 12 has been folded forwardly and upwardly with respect to the side wall member 1, and at the same time the remaining portions of the partition element including the side elements 14 and 15 and the attachment flaps 16 and 17 have been folded rearwardly as indicated. The latter operation may be accomplished by means of rods located along the path of the moving blank in a position to engage and retard portions of the partition structures as the central portions are folded upwardly.

In a later stage of the folding as illustrated in Figure 3 the central portion of the partition structure has been folded inwardly over the blank, and the immediately adjacent portions of the remainder of the partition structure have been folded inwardly over the central portion 12. However the partition structure is now shown as being folded along the median score lines 18 and 19 in the side portions of the partition structure. This operation may be accomplished through the action of a second set of rods so located as to engage the outlying parts of the partition structure as they are folded inwardly, and reversely fold them, causing them to bend along the score lines 18 and 19. As illustrated in Figure 4 the final folded condition of the partition structure is one in which the central portion 12 has been completely folded in over the side wall element 1 so as to parallel it, portions of the side elements 14 and 15 of the partition structure being folded in laterally to overlie the central portion 12, and the remaining portions of the partition structure being in out-folded condition.

The operations just described in connection with the folding of the rear or trailing partition structure may be duplicated with respect to the front or leading partition structure, which is similarly folded with respect to the side wall element 29.

When the partition structures have been folded as described, as the next operation I apply adhesive to portions of the glue flaps 7, 9, 34 and 35. The portions so treated are those which will lie on the attachment flap portions of the partition structures when the end wall elements 2, 3, 32 and 33 are folded on their median lines. Areas of adhesives are indicated in Figure 4 at 50 and 51. It will be understood that the adhesive can instead be applied to corresponding portions of the partition structures. The end portions 2, 3, 32 and 33 of the blank are folded over on the score lines 10, 11, 36 and 37 to provide, at each end of the blank, the structure illustrated in Figures 5 and 6.

Next adhesive is applied to the outer sides of the glue flaps 7, 9, 34 and 35 as indicated in the shaded areas 52 and 53 in Figure 5, and if desired to the attachment portions of the lateral partition members (or to corresponding areas in the second and third side wall members 23 and 25). The final folding operation comprises folding the first and fourth side wall members 1 and 29, and their associated folded parts as hereinabove described, inwardly on the score lines 22 and 31, which are the median score lines of the bottom forming elements. The result of this folding is to cause the glue flaps 7, 9, 34 and 35 to be brought into adhesive union with the side edge portions of the second and third side wall members 23 and 25. The resultant structure is shown in plan in Figure 7. The knock-down structure may be shipped to the user in this form.

The product of these folding operations is a knock-down carrier of fully partitioned type. The structure of Figure 7 may be bent along the score line 26 to bring the side walls 23 and 25 into face-to-face parallel relationship. A band portion is provided to surround each of two groups of three bottles. The first band portion comprises the side walls 1 and 23 and the end walls 2 and 3. The second band portion comprises the side walls 25 and 29 and end walls 32 and 33. Each of these structures is erected by opening up its band portion, the end wall parts coming into coplanar relationship by unfolding along the median score lines 10, 11, 36 and 37, and the bottom forming portions coming into coplanar relationship by unfolding along their median score lines 22 and 31. Simultaneously the partition structures become erected by the unfolding of the side portions 14, 15, 32 and 33 along their median score lines 10, 11, 36 and 37.

The first stage of erection is indicated in Figure 9 where the main sections of the carrier are folded with respect to each other along the score line 26. The final stage of erection is indicated in Figure 10. The two side wall members 23 and 25, coming together in face-to-face relationship form a central partition for the carrier, the carrier otherwise presenting six cells for bottles as shown.

With this carrier I employ a handle of the type illustrated in Figure 14. This handle is a wire member comprising a bail portion 54 and depending legs 55 and 56. These legs are spaced from each other slightly more than one-third the length of the side wall members. Their lower ends are reversely bent as shown at 57 and 58, the length of the reversely bent portions being longer than the length of the slots 46, 47, 48 and 49.

To engage this handle with the carrier, the legs are passed downwardly into one of the carrier sections, the reversely bent ends being brought through, say, the slots 46 and 47 to a

position where the upper ends of the reversely bent portions lie below the tops of the slots **46** and **47**, the ends of the handle passing between the slightly separated side walls **23** and **25**. Then these walls are brought together, and the handle drawn upwardly. A snug engagement results in which the two side wall portions **23** and **25** and the attachment flaps **16** and **44** of the partition forming portions are clamped together between the leg **55** and its reversely bent portion **57**. In a similar way the two side wall portions **23** and **25** and the attachment flaps **17** and **45** of the partition forming structures are clamped together between the leg **56** and its reversely bent portion **58**. The mode of attaching the handle is illustrated in Figure 11 as to its initial stage. Figure 12 shows the handle in full engagement and in an upper or carrying position. Figure 13 shows the handle depressed so that it comes below the tops of bottles in the carrier for stacking purposes. The construction is such however that the handle can not be detached from the paperboard portion of the carrier without forcibly separating the side wall elements **23** and **25**. It is thus impossible to detach the handle accidentally when the carrier is loaded.

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

1. In a knock-down paperboard carrier, a common wall foldable on a median score line and forming inner side walls of two parts of said carrier, bottom wall portions articulated to the bottom edges of said inner side wall members, outer side wall members articulated to said bottom wall portions, end walls articulated to end edges of said outer side wall members and carrying glue flaps which are in adhesive union with marginal end edges of said inner side wall members, said end walls and bottom wall portions being foldable on median score lines, collapsible transverse partition elements connecting the inner and outer side walls of each part, said transverse partition elments having their central portions in

articulation with central portions of the upper edges of the outer side wall members, additional portions extending between said outer side wall members and the inner side wall members of said carrier and collapsible on median score lines, and attachment flaps articulated to said additional portions and serving to attach said additional portions to the inner side walls of said carrier, the common wall of said carrier when folded on its median score line serving to bring the two carrier parts into side-by-side relationship, and said median score lines in said end walls, bottom wall portions and the additional portions of said transverse partition elements serving to permit said carrier parts to be collapsed, said inner side walls being slotted for the reception of a handle member serving to clamp together said inner side walls so as to maintain said carrier parts in side-by-side relationship, said inner side walls being otherwise unsecured to each other.

2. The structure claimed in claim 1 wherein the inner and outer side walls are substantially coterminous, and wherein the slots in the inner side walls are spaced so as to lie adjacent the juncture of said lateral partition elements with said inner side walls, said attachment flaps of said transverse partition elements extending in the direction of said slots, whereby the handle member will also serve to clamp together said inner side wall members and the attachment flaps of said transverse partition elements.

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