Aug. 7, 1951 W. A. RINGLER 2,563,620

AUTOMATICALLY PARTITIONED CARRIER DEVICE

Filed Aug. 14, 1945 2 Sheets-Sheet 1

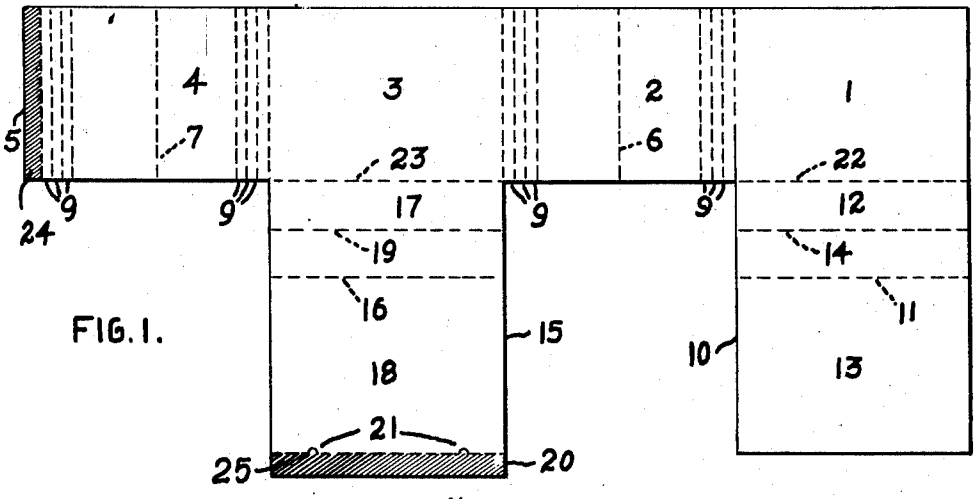


FIG. 1.

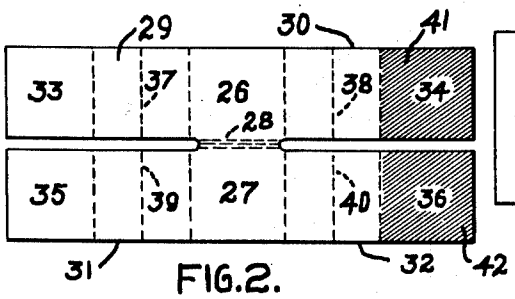


FIG. 2.

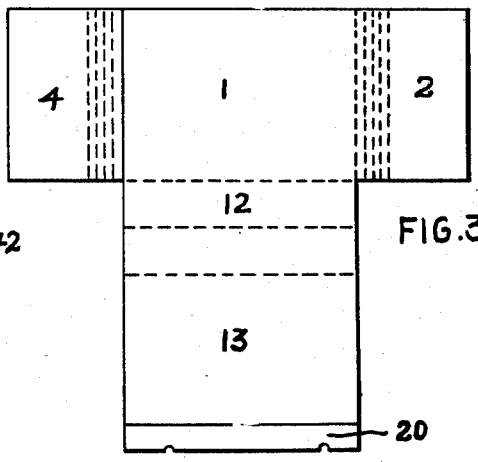


FIG. 3.

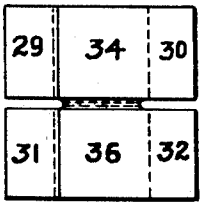


FIG. 5.

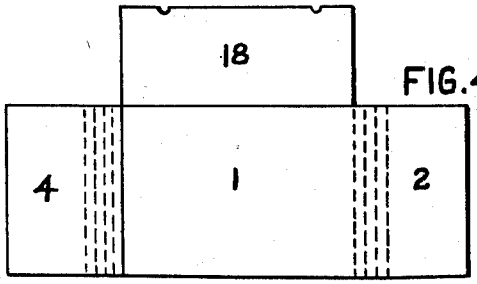


FIG. 4.

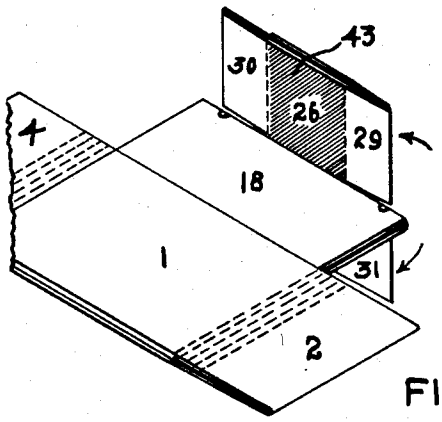


FIG. 6.

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AUTOMATICALLY PARTITIONED CARRIER DEVICE

Filed Aug. 14, 1945 2 Sheets-Sheet 2

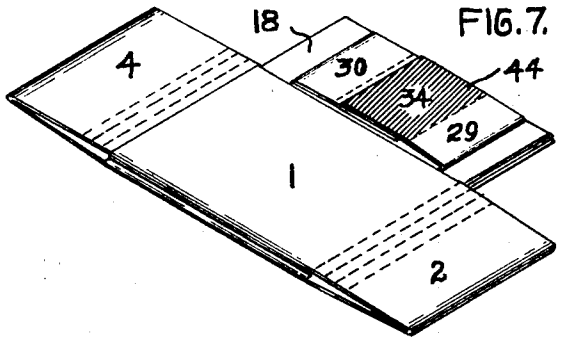


FIG. 7.

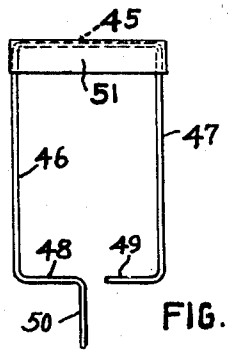


FIG. 10

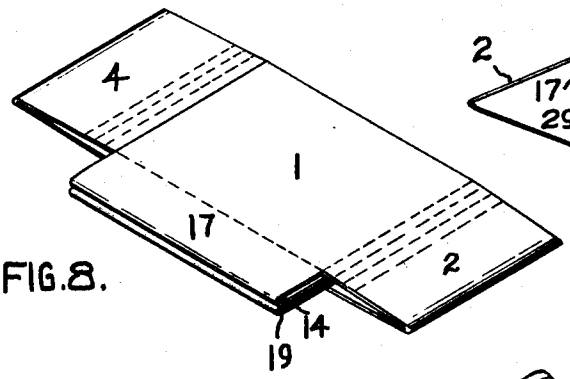


FIG. 8.

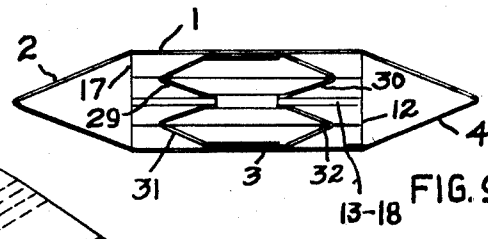


FIG. 9.

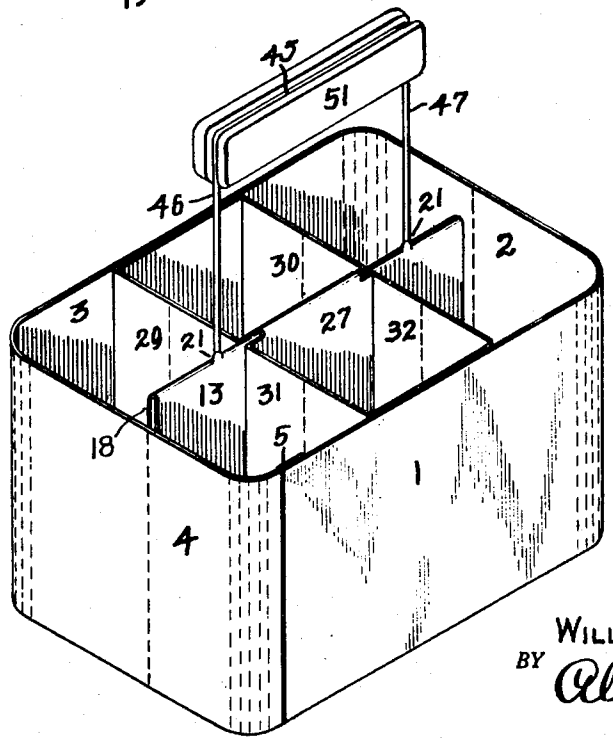


FIG. 11.

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UNITED STATES PATENT OFFICE

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AUTOMATICALLY PARTITIONED CARRIER DEVICE

William A. Ringler, Wayne, Pa., assignor to The Gardner Board and Carton Co., a corporation of Ohio

Application August 14, 1945, Serial No. 610,728

2 Claims. (Cl. 229—28)

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In a copending application Serial No. 582,907 filed March 15, 1945, and entitled Carriers for Bottles, now abandoned, I have described a type of knock down carrier comprising a band portion having a plurality of articulated walls for surrounding an assemblage of bottles and a loop portion comprising extensions from opposite side walls articulated together, the loop portion being thrust upwardly inside the band portion in the knocked down structure. When the structure is erected, the loop portion forms a bottom for supporting the bottles and an upstanding double-thickness member in the center of the container which not only provides a longitudinal partition but also provides means to which a handle element may be attached.

The present invention embodies this structure in essence; but it has for its object the provision of a knock down carrier of the type referred to which also embodies fully automatic partition means. These partition means separate all bottles from each other in the usual commercial unit. They are built-in parts of the carrier, capable of collapsing and assuming a knocked down form when the carrier is to be stored and shipped, but erecting themselves automatically when the carrier is erected to receive bottles.

This fundamental object and others 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 construction and arrangement of parts and by that method of which I shall now describe exemplary embodiments. Reference is made to the accompanying drawings wherein:

Figure 1 is a plan view of a blank for an exemplary form of my container.

Figure 2 is a plan view of a blank for an automatic partition structure.

Figure 3 is a plan view of the carrier blank of Figure 1 with the band tubed and the loop closed.

Figure 4 is a plan view of the structure with the loop thrust upwardly within the band.

Figure 5 is a plan view of a tubed automatic partition structure.

Figures 6, 7 and 8 are isometric views illustrating successive stages of the assembly of the carrier and the automatic partition structure.

Figure 9 is a top view of the partially collapsed carrier showing the relationship of parts.

Figure 10 is an elevational view of a form of handle structure which I may employ.

Figure 11 is an isometric view of the erected carrier complete with handle.

Referring to Figure 1, I have shown the blank

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for the carrier. This blank will usually be made of heavy paper board, by cutting and scoring operations current in the carton industry. It may be and preferably will be printed attractively with designs and indicia appropriate to the contents for which it is made. The blank comprises a side wall 1, an end wall 2, a side wall 3, an end wall 4 and a glue flap 5 in articulation in the order named. The end walls 2 and 4 are provided with intermediate score lines 6 and 7. Since the carrier is to have rounded corners I prefer to provide adjacent the ends of the end walls a series of spaced parallel score lines as indicated at 9. An extension 10 is articulated to the bottom edge of the side wall 1 and is divided by a score line 11 into a bottom forming portion 12 and a portion 13 to form part of the central upstanding partition means. The bottom forming portion is also provided with a median score line 14. A somewhat similar extension 15 is articulated to the lower edge of the side wall 3 and is divided by a score line 16 into a bottom forming portion 17 and an upstanding member 18. The bottom forming portion 17 has a median score line 19. A glue flap 20 is provided at the end of the extension 15. Also along the line of articulation of the glue flap 20 to the extension 15 I make either spaced holes or spaced U-shaped cuts 21. These provide perforations for the engagement of a handle member as hereinafter set forth. The score lines by which the extensions 10 and 15 are themselves articulated to the side walls of the carrier are indicated respectively at 22 and 23. Further operations in the formation of the carrier proper comprise a tubing operation in which the band portion is bent along the intermediate score lines 6 and 7 in the end walls of the carrier with adhesive union of the glue flap 5 to the free edge of the side wall 1. A shaded area 24 indicates the area of application of adhesive to the glue flap. The tubing operation may be accomplished on the usual carton tubing and gluing machines. After the band has been tubed the blank may be reoriented and sent through the machine again for the purpose of bending over the glue flap 20 onto the extension 13. An area of application of adhesive to the glue flap 20 is indicated at 25. The result of the tubing operation is indicated in plan in Figure 3. It will be understood that the result is the formation of a band and a loop, as hereinabove described. As a further operation the loop portion is thrust upwardly within the band (and is reversed), as will be evident from Figure 4.

I also provide a partition structure the blank

of which is illustrated in Figure 2. A pair of spaced walls **26** and **27** are articulated together by a connecting neck which is preferably scored as at **28**. To the ends of the wall portions **26** and **27** I articulate additional wall portions **29**, **30**, **31** and **32**. To the ends of these walls respectively I articulate attachment portions **33**, **34**, **35** and **36**, of slightly less than full wall width. The walls **29**, **30**, **31** and **32** are bisected by median score lines **37**, **38**, **39** and **40**.

This box board structure may also be tubed by the usual carton tubing and gluing machine by being bent along score lines **37**, **38**, **39** and **40** with the adhesive attachment of the lapping attachment members **33** to **34** and **35** to **36** respectively. Adhesive areas for this purpose are indicated at **41** and **42**. The tubed condition of the partition blank is shown in plan in Figure 5.

There are various ways in which the partition structure may be assembled to the carrier. A convenient mode of operation, and one which may be carried on by machine, is illustrated in Figures 6, 7 and 8. With the up-thrust loop extending beyond the top of the band portion of the carrier, the walls **26** and **27** of the tubed partition structure are coated with adhesive as indicated at **43** in Figure 6, and the partition structure is brought in centered position against the end of the loop, the neck portion of the partition structure contacting the end of the loop as shown. Proper positioning of the parts may be attained through the use of suitable guides or jigs.

The next operation is to fold the partition structure about the end of the projecting loop as is shown in Figure 7. Direction of motion of the parts is indicated by arrows in Figure 6. The result of this operation is to bring the walls **26** and **27** into face-to-face contact and adhesive union with the side wall portions **13** and **18** of the carrier loop.

When this adhesive union has been accomplished, adhesive may be applied to the portions **34** and **36** of the partition structure, one such area being indicated at **44** in Figure 7. Then the band portion of the carrier is slightly expanded and the loop portion is thrust downwardly into it in the direction of the arrow in Figure 7, still keeping the loop centered in the band. The loop portion now bends on the intermediate scores **14** and **19** in the bottom forming portions.

The proportioning of the various parts is such that when the loop portion extends beyond the tops of the walls of the body portion as shown in Figures 5, 6 and 7, the folded partition structure will extend wholly beyond the tops of the band portion's side walls. When the loop is thrust downwardly into the band and brought into the position shown in Figure 8, the end of the loop and the edges of the partition structure will be substantially co-terminous with the top edges of the band's side walls. After the folding operation, the structure is again collapsed as shown in Figure 3 and is held under pressure until the adhesive has set.

I now have a fully automatic carrier which in knocked down form consists of a band portion folded along intermediate score lines in the end walls, a loop portion folded along intermediate score lines in the bottom forming parts but with an upthrust central partition member, and a further partition structure folding bellowswise in two parts lying respectively between the central partition member of the loop and the two side walls of the carrier and attached to both. The relationship of these parts, giving a structure which folds bellowswise in a plurality of directions, is illustrated in Figure 9.

When the carrier is expanded, the parts automatically come into the relationship shown in Figure 11. The partition structure, including the central partition, divides the carrier into a plurality of cells as shown. The central partition is also automatically held in place even in the empty container. In the illustrated construction a container has been provided with automatic partitioning means dividing it into six cells of equal area.

This container is very strong, the partition structure contributing substantially to its strength. It may be noted among other things that the partition structure relieves the side walls of the carrier from strain to a very substantial degree, making feasible the adhesive union of glue flap **5** to wall **1** and obviating the necessity for a stronger fastening such as stapling or the like, even though the structure be made of very heavy box board.

As a handle member I may use the structure illustrated in Figure 10. It comprises a wire element bent to form a bail portion **45** and depending legs **46** and **47**, the ends of which are bent over inwardly as at **48** and **49**. One of these parts has an extension **50** bent over downwardly. A suitable wooden or other handle **51** may be engaged with the bail portion. This structure is passed through the openings **21** in the loop portion of the carrier in such manner that parts **48**, **49** and **50** lie within the loop. When the carrier is lifted by means of the handle, parts **48** and **49** engage inside the closed edge of the loop to bear the weight. When filled carriers are to be stacked, the handle is thrust downwardly, the length of the legs **46** and **47** and the length of the extension **50** being so proportioned that the top of the handle may be brought to a level with or somewhat below the tops of the bottles in the carrier. The extension **50** also serves two other functions. It facilitates the initial engagement of the handle with the loop and, when the handle is drawn upwardly to carrying position, it serves to keep the handle upright where it may be easily grasped.

My carriers may be shipped in the collapsed condition indicated in Figure 8 with or without the handle already in place.

Modifications may be made in my invention without departing from the spirit of it. For example, it will be understood that carriers of different shapes for different assemblies of bottles and for different numbers of bottles or other articles may be made by an appropriate change in dimensions with or without multiples of parts as may be required. Again in the copending application Serial No. 582,907 I have shown another type of blank from which the band and loop carrier structure may be formed. Having, however, described my invention in an exemplary embodiment, what I claim as new and desire to secure by Letters Patent is:

1. A process of producing an automatic, collapsible carrier which consists in providing a carrier structure having a band with alternate side and end walls in articulation and a loop having bottom forming portions and central partition forming portions in articulation, said loop being attached to the edges of the side walls of the band, providing a partition structure having a pair of tubed portions with a plurality of walls in articulation, said tubed portions being connected together by a neck joining a wall of each, positioning the carrier with the loop thrust

through the band and projecting beyond the tops of the side and end walls, applying adhesive to the connected walls of the tubed partition structure, bringing the neck of the partition structure against the end of the loop and folding the parts of the partition structure against the loop from either side so as to bring the connected walls of the partition structure in face-to-face adhesive union with the walls of the loop, then applying adhesive to opposite walls of the partition structure, slightly expanding the band, thrusting the loop downwardly therein to bring the partition structure inside the band, the loop bending along score lines intermediate the said bottom forming portions, and then collapsing the structure so as to effect adhesive union of the parts.

2. In a bottle carrier structure of knock-down character, a band portion having side and end walls in articulation and collapsible upon median score lines in the end walls, a loop portion comprising extensions connected respectively to the bottom edges of the said side walls, said loop being scored to provide bottom forming portions and a double thickness central partition, said extensions being connected together at the top of said partition, said bottom forming portions being collapsible on median score lines, the proportioning of the partition being such that the top edge of said central partition is substantially coterminous with the top edge of the side walls in the collapsed structure, and partition means in the form of a pair of collapsible tubular members lying on opposite sides of the said central partition and attached both to said central partition and to the said side walls of the band, said collapsible tubular members being articulated together by a connecting neck overlying the top edge of said central partition.

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