July 23, 1946. W. P. ROCKER 2,404,532

BOTTLE CARRIER

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FIG. 1.

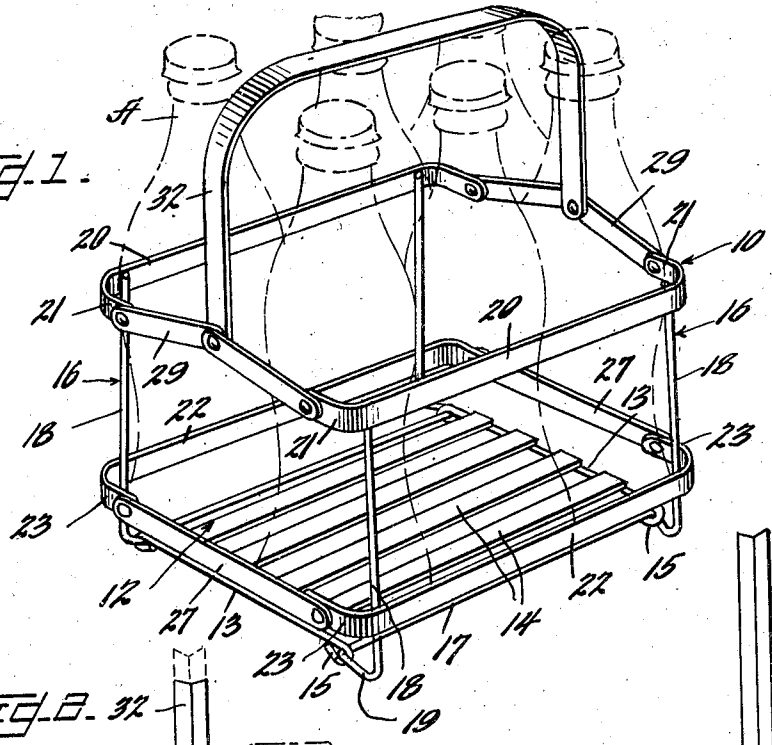


FIG. 2.

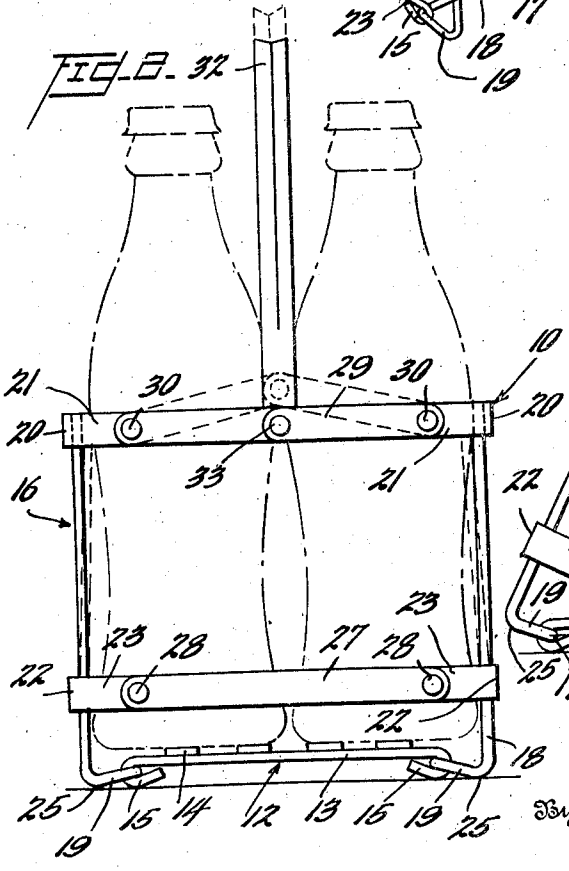
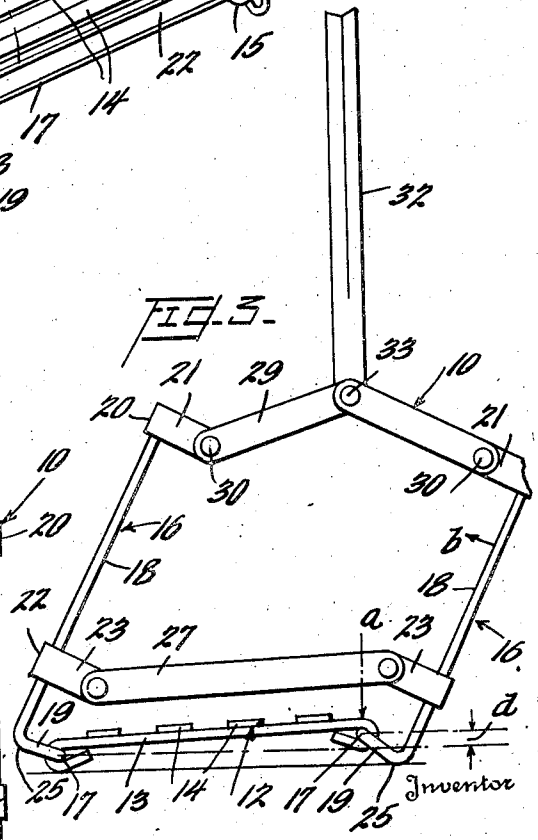


FIG. 3.



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FIG. 5.

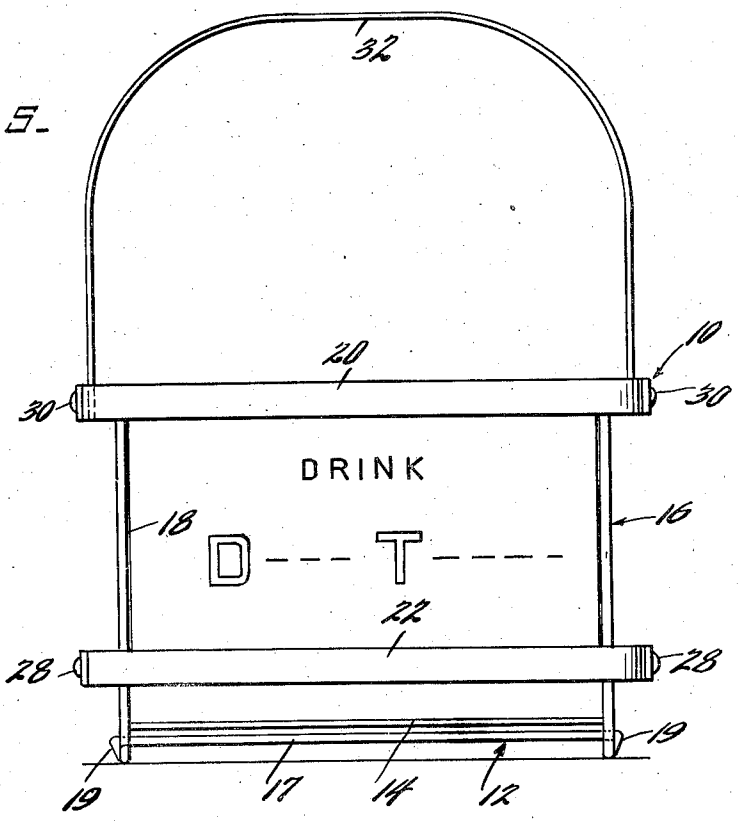


FIG. 4.

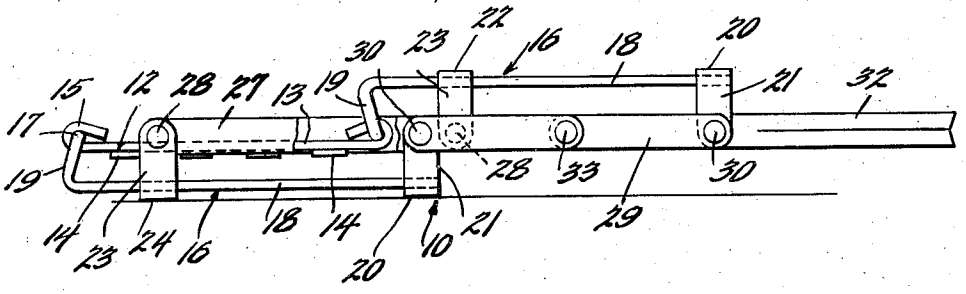
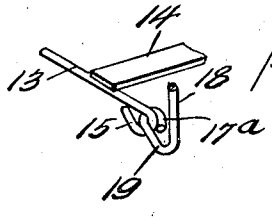


FIG. 6.



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UNITED STATES PATENT OFFICE

2,404,532

BOTTLE CARRIER

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Application September 8, 1944, Serial No. 553,229

4 Claims. (Cl. 224—48)

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This invention relates to display carrier devices and more particularly to devices of the type commonly employed to display and transport relatively small groups of bottles or similar containers or articles.

The carrier which is the subject of the present invention possesses all of the advantages and is capable of performing all of the functions of the carrier disclosed in United States Patent No. 2,333,954, granted to William P. Rocker and J. B. Taylor on November 9, 1943. Among these are the durability, relative rigidity, and long life of the carrier, as well as the special features of construction which enable the carrier to firmly embrace the bottles when lifted by the bail and to be folded or collapsed into relatively flat condition when not in use.

The principal object of the present invention is to provide in a carrier of this general type, means for ensuring that the carrier when filled shall remain in a fully extended upright position, without danger of collapsing. It is customary in displaying the bottled goods for ready sale, to fill a number of the carriers and stack them, usually in the form of a pyramid, upon the retailer's floor, counter, or other flat base. It is desirable therefore that each individual carrier be maintained in its upright position to preserve the equilibrium of the stack, especially when one or more carriers are removed therefrom, or even if the display stack is jarred or bumped by customers or by the shopping carts generally employed in self-service markets where carriers of the type described are widely used.

Locks or latching devices, or other mechanical contrivances or attachments, probably could be devised to accomplish the purpose stated, but such devices would not only increase the cost of production but would prove a nuisance to both the storekeeper and the customer. The present invention therefore provides novel means incorporated in the structure of the carrier itself which will ensure the stability of the carrier once it is filled with the bottles or other articles intended to be displayed or carried thereby.

The invention, in its preferred form, contemplates the provision of a substantially rectangular collapsible skeleton frame having a bottom grid, side and end frames, and a bail or handle, the various elements up to a certain point corresponding to equivalent elements disclosed in the patent to which reference has been made. In the instant case, however, each of the side frame members is continued downwardly to the extreme bottom of the device and rests upon the surface

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upon which the carrier is supported at any given time. The lower-most parts of the side frames are turned inwardly toward the center of the bottom of the carrier and are pivotally connected with the respective side edges of the bottom member along lines spaced somewhat inwardly from the planes of the side frames.

These pivotal connections comprise two of the main pivot points for collapsing the carrier, and the provisions just described make it necessary to move the bottom frame or rack of the carrier upwardly from the surface upon which the carrier is resting in order to collapse the device. However, when the carrier is loaded, the weight of the bottles resists any upward movement of the bottom rack and the carrier is thus maintained in fully open erect condition against all ordinary forces which might tend to disturb its equilibrium.

The novel carrier may be constructed of metal rods or strips or any other suitable relatively stiff but slightly resilient material. The several parts may be soldered at all points of rigid connection and the pivot joints may be provided by either rivets or eyes or loops bent into the rod or wire elements.

Other objects and features of novelty will be apparent from the following specification when read in connection with the accompanying drawings in which one embodiment of the invention is illustrated by way of example.

In the drawings:

Figure 1 is a perspective view of a carrier embodying the principles of the invention, and shown in its fully extended position and sustaining the weight of its load of bottles from the bail or handle;

Figure 2 is an end view of the carrier showing in solid lines the position of the parts when the carrier is fully loaded and with the load carried by the surface upon which the carrier rests, and in dotted lines the position of certain of the parts when the load is supported by the handle as in Figure 1;

Figure 3 is an end view of the carrier in partially collapsed position, indicating graphically the toggle-like movement of the parts whereby the load forces the carrier toward erect or fully open position;

Figure 4 is an end view of the carrier in fully collapsed position, as for storage or transportation in unloaded condition;

Figure 5 is a side view of the carrier substantially in the condition shown in solid lines in

Figure 2, and with a name plate or advertising panel applied thereto; and

Figure 6 is a fragmentary detail view showing a slight modification in the side frame and bottom frame connections.

The novel bottle carrier according to the exemplary illustration in the drawings is indicated generally by the reference numeral 10, and comprises essentially the bottom member or grid 12, and the side members 11. The bottom member 12 comprises the two side bars 13 which may be formed of fairly heavy wire. Secured to the side bars 13 at their ends and extending from one bar to the other across the length of the carrier are the spaced slates 14 which are preferably made of sheet metal and attached to the bars 13 by welding. Each end of each of the bars 13 is bent to form an eye 15.

Each of the two side frames 11 of the carrier comprises a generally U-shaped wire element 16, the lower bar 17 of the U being offset inwardly from the plane of the upright elements 18 and connected thereto by the short end portions 19. The lower portion 17 of the element 16 is received adjacent its ends in the eyes 15 at opposite ends of the bottom member 12.

Secured as by welding to the upper ends of the side uprights 18 of the side member element 16 is the upper side bar 20 which may be in the form of a flat strip having inwardly bent arms 21 at each end thereof. A similar flat strip 22 is secured adjacent the lower portions of the uprights 18 of the side elements and this element also has inwardly turned end portions 23. The elements 16, 20, and 22 thus comprise the skeleton side frame members 11 of the carrier which are pivoted to the bottom member 12 along the axes of the rod portions 17. It will be noted that these pivotal or hinged axes are displaced inwardly from the planes of the side frames by a distance equal to the length of the offset portions 19 of the elements 16, and also that when in fully opened position the lower ends of the upright portions 18 of the side frame element 16 rest directly upon the supporting surface as at the points 25.

The inwardly directed end arms 23 of the lower side bars 22 are connected at each end of the carrier by the link 27, this pivotal connection being effected by means of the rivets 28. The inwardly directed arms 21 of the upper side bars 20 are similarly connected at each end of the carrier, but by means of the double linkage or toggle connection 29 the toggle being pivotally connected to the arms 21 by means of the rivets 30, and the two parts of the toggle being pivotally joined to each other and to the adjacent lower end of the bail or handle 32, as by means of the rivets 33.

It is noteworthy that the centers of the pivot points of the side members and the bottom frame along the bar 17, and the pivot points 28 and 30 between the intermediate and upper portions of the side frames and the connecting linkages, all normally occupy the same vertical plane upon each side of the carrier, and in any case the respective pivot points upon either side of the carrier occupy the same straight line. This will be clearly understood from an inspection of Figures 2 and 3 of the drawings. It will also be noted that the arms 21 and 23 of the side frames, and the cross connection linkages 27 and 29 substantially comprise the end frames of the carrier.

The showing in Figure 2 clearly demonstrates the function of the toggle connection 29 at the

upper portion of the carrier. In the solid line position, the upper side bars 20 are at their greatest distance apart and when in this position the bottles may be very readily inserted or removed from the carrier. When the loaded carrier is lifted by the bail 32, the toggle 29 is broken, the pivot point 33 moving upwardly and the side bars 20 being drawn inwardly toward each other to firmly grip the bottles.

One of the more important features of the invention will now be described with particular reference to Figures 2 and 3 of the drawings. As previously indicated, when the carrier is in its normal open or erect position, the lower portions 19 of the side frame elements 16 rest at the points 25 on the surface upon which the carrier is supported. Now upon collapsing the carrier in either direction from this open or extended position, the pivot point 17 between the arms 19 of the side frames and the side portions of the bottom member 13 will rise at one side of the carrier and that particular side frame will fulcrum upon the point of contact 25. The pivot point 17 at the opposite side of the carrier will however remain at the same height, but the arm 19 and the point of contact 25 at this opposite side of the carrier will rise and swing about the pivot axis 17. The end view shown in Figure 3 indicates very clearly the extent of this movement when the carrier has been moved to the partially collapsed position shown. It will be seen that the pivotal axis 17 upon the right hand side of the carrier has risen through a distance *d* from its original position, and the floor or bottom rack member 12 at this side of the carrier has risen a corresponding distance above the supporting surface. Therefore any weight applied to the bottom of the carrier will exert a downward force upon the axis 17 in the direction of the arrow *a*. This will tend to restore the carrier to its fully open position, the adjacent side frame 11 tending to move in the direction of the arrow *b*. It will thus be clearly understood that any force resting upon the bottom member 13 will tend to maintain the carrier in its fully open position against any forces which would tend to collapse the carrier, since any such forces would necessarily have to raise one side or the other of the bottom frame about the fulcrums at the points of contact 25.

In Figure 4 of the drawings, the carrier is shown in fully collapsed or folded position. It will be seen that in this condition the bottom frame member 12 occupies an approximately intermediate position in alignment with link 27, toggle 29, and bail 32, the toggle being enclosed at one end by the link 27 and the bail being enclosed by one half of the toggle member. The side frame elements 16 together with the side bars 20 and 22 are displaced outwardly somewhat from the center line of the folded construction, this displacement being substantially the length of the offset portions 19 of the side elements. It will be seen that all of the pivot points of the structure at both sides of the carrier have been brought into alignment, these pivots being the points 17, 28, 30, and 33. Thus the carrier is brought to a substantially flat position whereby they may be stacked for storage or transportation when not in use.

Within the purview of the invention, both the bottom member 12 and the side members 11, or either of them may be made solid instead of in skeleton form, and in any case, the side members may be thought of as comprising a flat planar

body portion with inwardly directed side and bottom edges or flanges. Furthermore, advertising panels of sheet material may be secured in any suitable way to the side frames.

In accordance with a modification of the invention, the bottom hinge bar 17 of the side frame elements 11 may be omitted and the inner ends of the offset portions 19 made into eyes or loops which form pivotal connections with the eyes of the bottom member 12. This alternative arrangement interferes in no way with the functioning of the stabilizing features since the side members will still fulcrum upon the contact points 25 and the pivot points between the interconnected eyes will rise just as in the case of the pivot axis 17 of the first embodiment.

It is understood that various other changes and modifications may be made in the device as illustrated and described herein without departing from the scope of the invention as determined by the subjoined claims.

Having thus described the invention what is claimed as new and desired to be secured by Letters patent is:

1. A collapsible bottle carrier comprising a rigid rectangular bottom member, a pair of oppositely disposed relatively rigid side frames, substantially L-shaped in vertical section, the bottom bars of the L of each frame normally adapted to rest upon any surface upon which the carrier is supported, said bottom bars being inwardly offset toward each other and hingedly connected with the side edges of the bottom member, and means pivotally connecting the side frames at points spaced from the bottom member for maintaining said side frames in approximate parallelism under all conditions, all whereby in order to collapse the carrier by swinging movement at the hinged connections, one of said hinged connections and the major portion of the bottom member must be elevated as the angle portion of the adjacent L-shaped side frame fulcrums on the supporting surface and, contrariwise a load on said bottom member when the carrier is in partly collapsed position will tend to erect the carrier.

2. A collapsible bottle carrier comprising, a rigid rectangular bottom member, a pair of oppositely disposed relatively rigid side frames, the side frames having mutually inwardly projected substantially E-shaped portions at each end thereof, the corresponding lowermost bars of the E-shaped end portions at each end of the side frames being pivoted to the ends of the side portions of the bottom member, the corresponding middle bars of said end portions being connected by means of links, and the corresponding upper bars also being connected by means of links, said links and said bottom member being all of substantially the same length, whereby upon collapsing the carrier about all pivot points the side frames are maintained in parallelism.

3. A collapsible bottle carrier comprising a rigid rectangular bottom member, a pair of oppositely disposed relatively rigid side frames, the side frames having mutually inwardly projecting substantially E-shaped portions at each end thereof, the corresponding lowermost bars of the E-shaped end portions at each end of the side frames being pivoted to the ends of the side portions of the bottom member, the corresponding middle bars of said end portions being connected by means of links, and the corresponding upper bars also being connected by means of links, said links and said bottom member being all of substantially the same length, whereby upon collapsing the carrier about all pivot points the side frames are maintained in parallelism, the bars of the E being also substantially of the same length whereby when the carrier is fully collapsed, the bottom members and the links are in the same plane, while the two side frames are offset respectively to one side or the other of said plane to distances substantially equal to the length of said bars.

4. A collapsible bottle carrier comprising a rigid rectangular bottom member, a pair of oppositely disposed relatively rigid side frames, the side frames having mutually inwardly projecting substantially E-shaped portions at each end thereof, the corresponding lowermost bars of the E-shaped end portions at each end of the side frames being pivoted to the ends of the side portions of the bottom member, the corresponding middle bars of said end portions being connected by means of links, and the corresponding upper bars being connected by toggles, and a bail pivotally connected to the center pivots of said toggles, said links, said toggle, and said bottom member being all substantially the same length, whereby upon collapsing the carrier about all pivot points the side frames are maintained in parallelism, the bars of the E being also substantially of the same length whereby when the carrier is fully collapsed, the bottom member, the links, the toggle, and said bail are in partially overlapping relationship in the same plane, while the two side frames are offset respectively to one side or the other of said frame to distances substantially equal to the length of said bars.

WILLIAM PARKS ROCKER.