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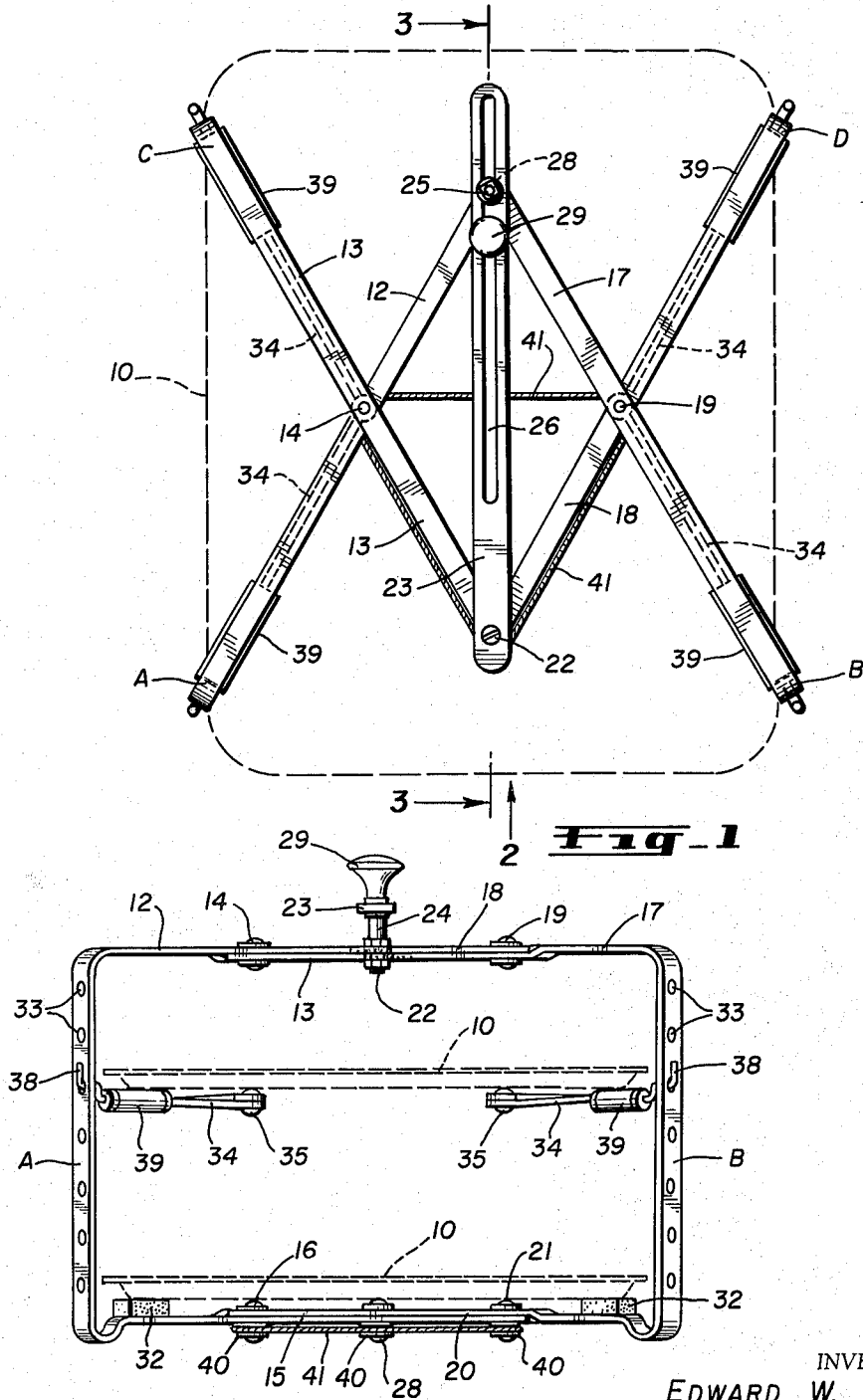
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3,251,521

CARRIERS FOR TRAYS AND THE LIKE

Filed Nov. 27, 1964

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

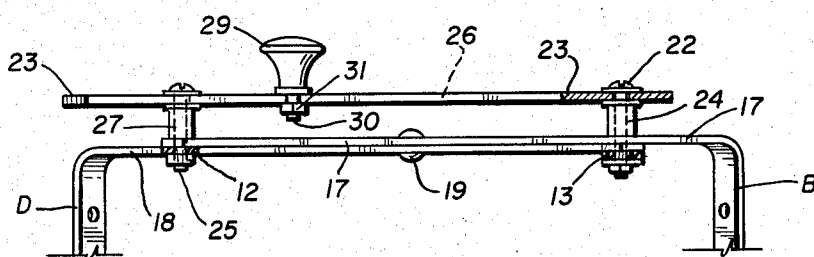


Fig. 3

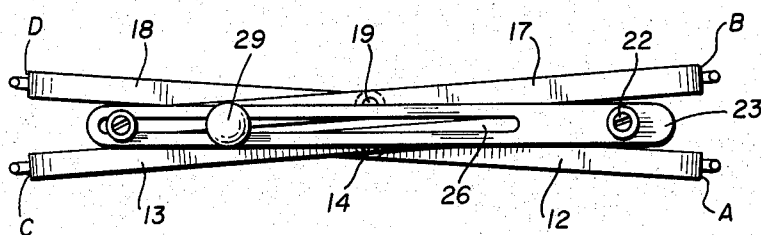


Fig. 4

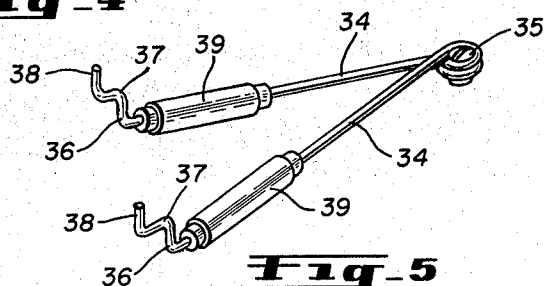


Fig. 5

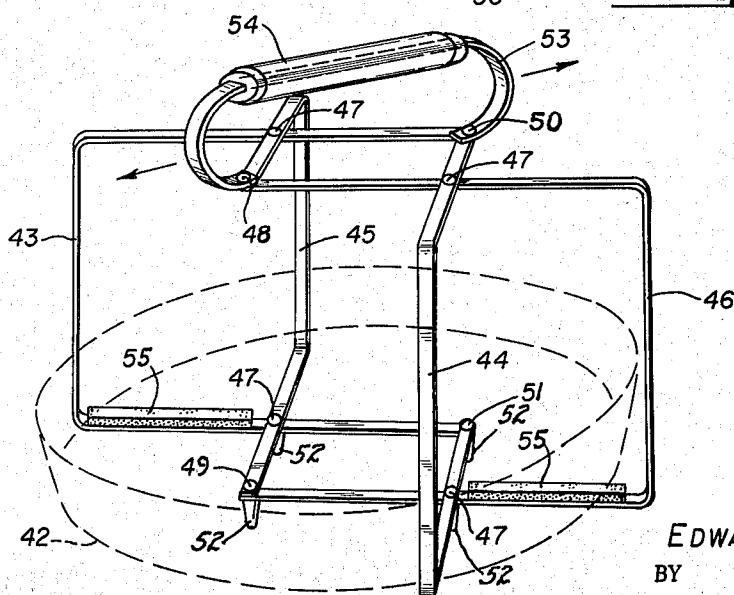


Fig. 6

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CARRIERS FOR TRAYS AND THE LIKE

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8 Claims. (Cl. 224-45)

This invention relates to a hand supported carrier for simultaneously carrying one or more individual articles. It is more particularly intended for use by waiters, waitresses, and airline stewardesses for carrying a plurality of trays of food, but is of course not limited to this particular use as the improved carrier will be found useful for hand carrying and distributing any desired items.

The principal object of the invention is to provide a highly efficient carrier of the above type which can be supported in one hand, leaving the other hand free to place articles, such as service trays, upon the carrier and to remove them therefrom so that an attendant can service from the carrier a plurality of patrons in a single trip to a dining table.

Another object is to so construct the carrier that it can be quickly adjusted as to width so as to readily accommodate a plurality of trays of identical size and to provide shelves or tray supports for the carrier which will be easily adjustable as to number and spacing.

A further object is to provide a carrier which will resiliently grip the articles being carried so as to prevent accidental displacement thereof.

A further object is to provide a carrier for the above purposes which can be quickly and easily folded so as to occupy a minimum of space when not in use.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention, reference is made to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:

FIG. 1 is a top plan view of the improved carrier in an open position;

FIG. 2 is a side elevational view thereof looking in the direction of the arrow "2" in FIG. 1;

FIG. 3 is a fragmentary section through the upper portion of the carrier, taken on the line 3-3, FIG. 1;

FIG. 4 is a top view of the carrier of FIG. 1 in the completely folded position;

FIG. 5 is a detail perspective view of a shelf element such as used for supporting a plurality of superimposed articles in the carrier; and

FIG. 6 is a perspective view of an alternate form of the carrier designed for carrying a single hot plate or bowl to a table.

In the drawing, conventional restaurant service trays 10 are indicated in broken line to illustrate a use of the carrier.

The carrier employs four, similar, vertical, frame members A, B, C and D. Each frame member joins integrally, at its upper extremity with a top horizontal arm and similarly joins at its bottom with a bottom horizontal arm to form U-shaped element, the axis of the U being horizontal. The top horizontal arm of the frame member "A," indicated at 12, crosses under the top horizontal arm of the frame member "C," indicated at 13, and is pivotally secured thereto by a first top pivot rivet 14. The bottom horizontal arms of the frame members "A" and "C," indicated at 15, are similarly joined by a first bottom pivot rivet 16 positioned in vertical axial alignment with the first top pivot rivet 14. The top horizontal arm of the frame member "B," indicated at 17, crosses the

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top horizontal arm of the frame member "D," indicated at 18, and is pivotally secured thereto by a second top pivot rivet 19. The bottom horizontal arms of the frame members "B" and "D," indicated at 20, are similarly

crossed and joined upon a second bottom pivot rivet 21.

The extremity of the top horizontal arm 13 is joined to the extremity of the top horizontal arm 18 upon a pivot bolt 22 which extends upwardly through a horizontal handle bar 23 adjacent one extremity of the latter. The handle bar is maintained in vertical-spaced relation with the horizontal arms by means of a suitable spacing sleeve 24 which surrounds the pivot bolt 22.

The extremity of the horizontal arm 17 is pivotally secured to the extremity of the horizontal arm 12 upon a slider bolt 25 which extends upwardly through a longitudinal guide slot 26 in the handle bar 23. The slider bolt is surrounded by a suitable spacing sleeve 27 to maintain the handle bar 23 in horizontal spaced relation with the top of the carrier. The extremities of the bottom arms 15 and 20 are similarly pivotally secured together by means of lower pivot rivets 28 positioned below and in alignment with the pivot bolt 22 and the slider bolt 25, respectively.

Thus, it can be seen that if the frame members "A" and "C" are urged toward or away from the frame members "B" and "D" the slider bolt 25 will move outwardly or inwardly in the guide slot 26. This enables the frame members to be adjusted into close relation to sides of the service trays 10 regardless of the width of the latter.

To prevent the frame members from being separated beyond a predetermined distance, which might result in dropping the trays, a presetting knob 29 is provided. A threaded stem 30 on the latter knob passes downwardly through the guide slot 26 into a clamping nut 31 which may be tightened against the handle bar 23 to lock the knob 29 at a preset position to stop inward travel of the slider bolt 25 at a desired point.

With carrier in the position of FIGS. 1 and 2 one of the trays 10 can be rested on suitable resilient supporting pads 32 cemented or otherwise attached to the lower horizontal arms 15 and 20. Should it be desired to superimpose additional trays 10 in the carrier, detachable shelf members are provided, such as illustrated in detail in FIG. 5 to be mounted in vertically spaced mounting holes 33 in the vertical frame members A, B, C and D to support additional trays.

The shelf members are similar and each consists of two rod 34 hinged together at their one extremity upon a hinge bolt or rivet 35. The other extremity of each rod has a first upwardly extending bend 36 joining a short horizontal portion 37 which terminates in a second upwardly terminal bend 38. The shelf members are attached to the vertical frame members by passing the bent extremities of the rods outwardly through the mounting holes 33, in adjacent frame members, to position the hinge rivets 35 below and in vertical alignment with the top pivot rivets 14 and 19, as shown in FIGS. 1 and 2, so that the shelf members may fold and unfold simultaneously with the carrier. The upwardly extending bends 36 and 38 engage the opposite faces of the frame members to maintain the shelf members in a horizontal position. The rods 34 of the shelf members are preferably provided with tubular pads 39 of cork or rubber or similar material to provide cushions for the trays.

The carrier may be provided with resilient means for automatically drawing the frame members against the sides of the trays. For instance, the pivot rivets 14 and 19 and the pivot bolt 22 may be extended downwardly to receive three grooved band rollers 40 and an endless stretchable band 41 of rubber, or an endless coiled spring, is stretched about the rollers 40 to act to urge pivot rivets 14 and 19 toward each other.

In FIG. 6 an alternate form of the invention is illustrated. This form is for carrying a single hot dish, platter or bowl, such as indicated in broken line at 42, from the kitchen to the service point. It employs four U-shaped horizontally positioned frame members 43, 44, 45 and 46, similar to the frame members previously described, pivoted together in pairs at their tops and bottoms by means of pivot rivets 47. The extremities of the frame members 45 and 46 are hinged together at their tops and bottoms by means of hinge rivets 48 and 49, respectively. The extremities of the frame members 43 and 44 are similarly hinged together at their tops and bottoms by means of hinge rivets 50 and 51, respectively. Suitable cushions 55 are mounted on the frame members to support the bowl 42 in firm level position.

The alternate form as thus far described is similar to the previously described form. In the alternate form, however, short supporting legs 52 are mounted on, and extend below, the pivot rivets 47 and the hinge rivets 49 and 51, to support the carrier, and an inverted U-shaped leaf spring 53 is mounted on, and extends upwardly and between, the top hinge rivets 48 and 50 to form a handle for the carrier. The spring 53 is formed and tempered to constantly urge its extremities outwardly from each other as indicated by the arrows in FIG. 6. The result is the frame members 43, 44, 45 and 46 are constantly and resiliently urged inwardly toward each other to retain the bowl 42, or other article, securely in place. The spring 53 is preferably provided with a flexible, tubular hand grip portion 54.

While a specific form of the improvement has been described and illustrated herein, it is to be understood that the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:

1. A carrier for trays and the like comprising: four vertical frame members; a top arm fixed to and projecting horizontally from the upper extremity of each frame member; a bottom arm similarly fixed to and projecting from the lower extremity of each frame member in vertical alignment with its top arm; the arms of two of said frame members crossing and being pivoted to each other intermediate their extremities to form a first pair of frame members; the horizontal arms of the remaining two frame members being similarly crossed and pivoted to each other to form a second pair of frame members; and hinge means joining the free ends of the arms of the first pair to the free ends of the arms of the second pair to form an extendible, foldable enclosure for an article to be carried.

2. A carrier as described in claim 1 having resilient

means acting to force said ends apart to cause said frame members to move inwardly to grip said article.

3. A carrier as described in claim 1 having shelf members supported by and being vertically adjustable along said frame members for supporting articles in vertically spaced relation.

4. A carrier as described in claim 3 in which each shelf member comprises: a pair of shelf rods; hinge means securing said rods together on a vertical axis at their one extremity; and hook means at the other extremity of said rods for selective engagement with vertically-spaced holes in said frame members.

5. A carrier as described in claim 4 in which the lengths of said shelf rods is such as to position the below and in vertical alignment with said top arms and such as to position the vertical axis of the rod hinge means in vertical alignment with the pivots between the arms of the frame means so the shelf member may fold simultaneously with the foldable enclosure.

6. A carrier as described in claim 1 having a handle bar and means for supporting said handle bar from and horizontally above the free ends of said arms.

7. A carrier for trays and the like comprising: four vertical frame members; a top arm joined to and extending horizontally from the upper extremity of each frame member; a bottom arm similarly extending horizontally from the lower extremity of each of said frame members, said frame members being assembled in two pairs with the top and bottom arms of the frame members of each pair crossing each other; top and bottom rivets joining the top and bottom arms, respectively, in vertically aligned pivotal relation; two top pivot means joining the extremities of the top arms of one pair to the extremities of the top arms of the other pair; two bottom pivot means similarly joining the bottom arms of the two pairs together; and a horizontal elongated handle bar, one of said top pivot means being pivotally secured to said handle bar adjacent one extremity of the latter the other top pivot means extending through and travelling in a longitudinal slot in said handle bar to permit expansion and contraction of said carrier.

8. A carrier as described in claim 7 having adjustable stop means adapted to be preset at any desired point in said slot for limiting the travel of the top pivot means therein.

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