United States Patent

Wisecarver

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[45] **Mar. 14, 1972**

[54] CARRYING TRAY

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[73] Assignee: **Bishop-Wisecarver Corporation**, Pittsburgh, Pa.

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[21] Appl. No.: **67,044**

[52] **U.S. Cl.** ..... **224/48 R**, 214/10.5 R

[51] **Int. Cl.** **A47g 23/06**

[58] **Field of Search** ..... 214/10.5 R; 224/48 R, 48 B, 224/48 D, 48 E, 48 F, 45 G, 45 P; 108/91

[56] **References Cited**

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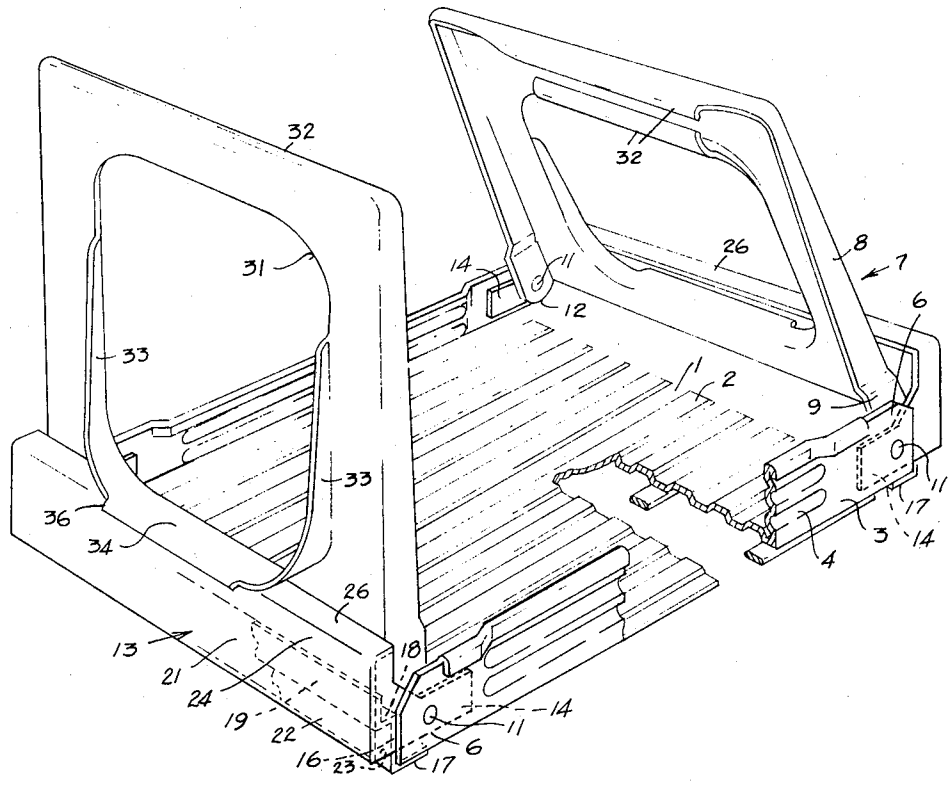
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Primary Examiner—Gerald M. Forlenza
Assistant Examiner—Jerold M. Forsberg
Attorney—George B. White

[57] **ABSTRACT**

A tray with a pivot support in each corner with carrying handles on the opposite ends of the tray being foldable on said pivots to the bottom of the tray and which can be extended into upright position for carrying a loaded tray. Each end structure for the pivots forms a downwardly open nesting pocket and an upwardly extended nesting flange so formed that the trays with the folded handles can be nested one on top of the other. Each pivot is so positioned relatively to the handle and the bottom of the tray that the pivot flange of the handle bears against the bottom in the upright position. Each handle has a central opening with opposite curved edge flanges to form a grip, and in the preferred form has a bracing flange adapted to the clamp over the top nesting flange of the adjacent end member.

9 Claims, 16 Drawing Figures



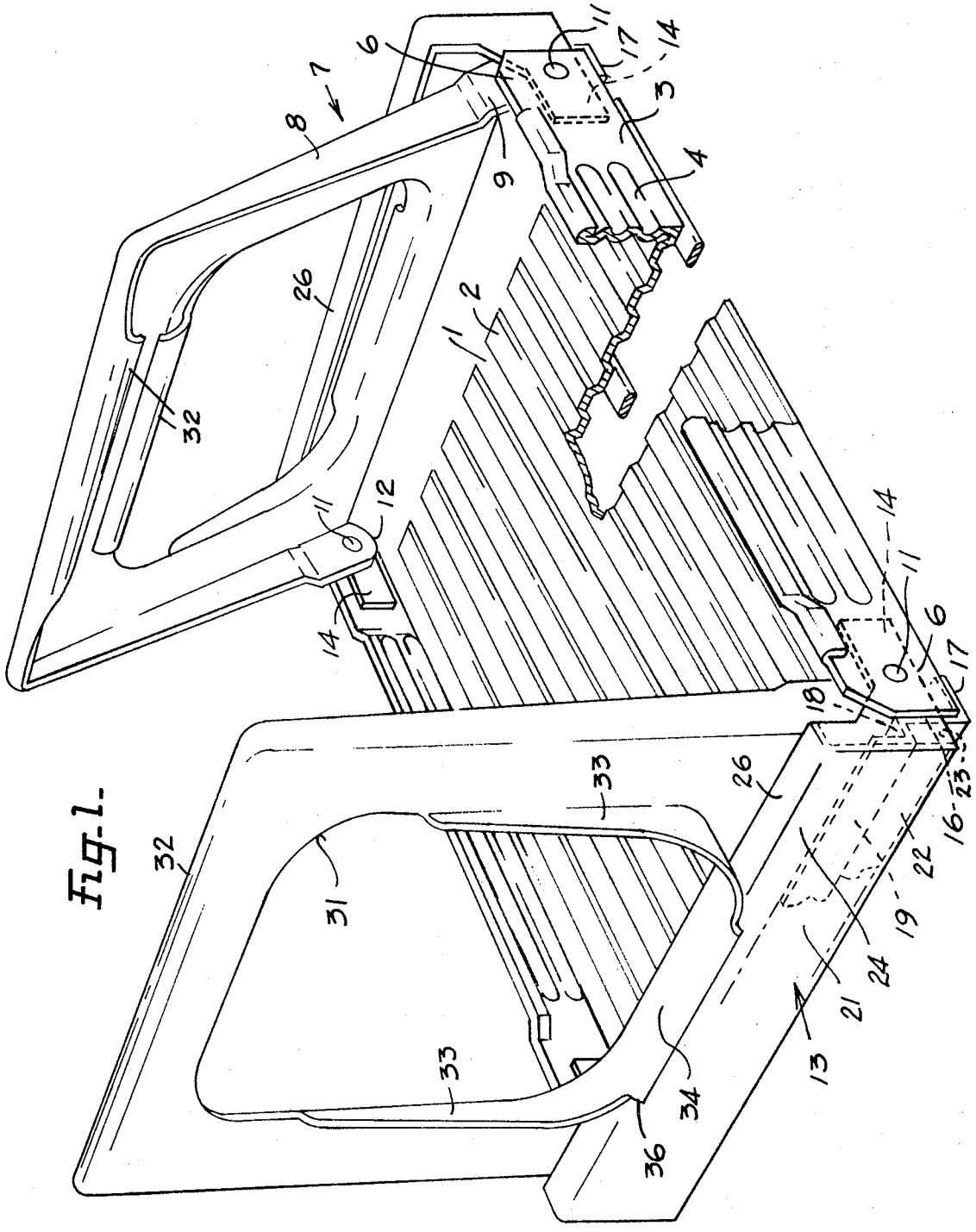


Fig. 1.

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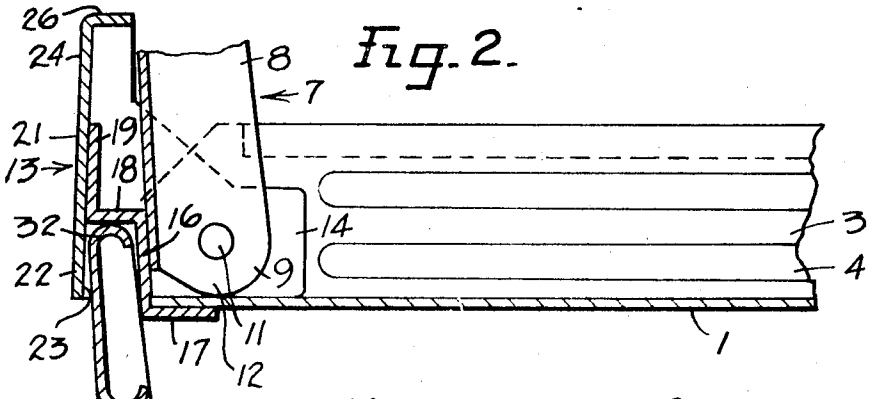


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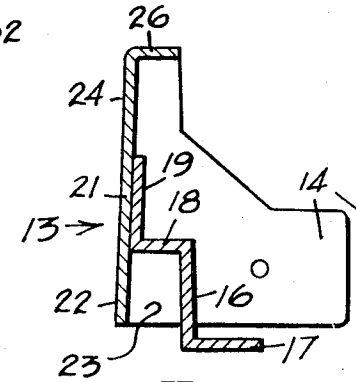


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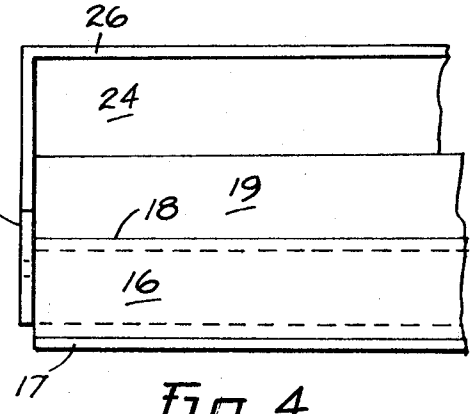


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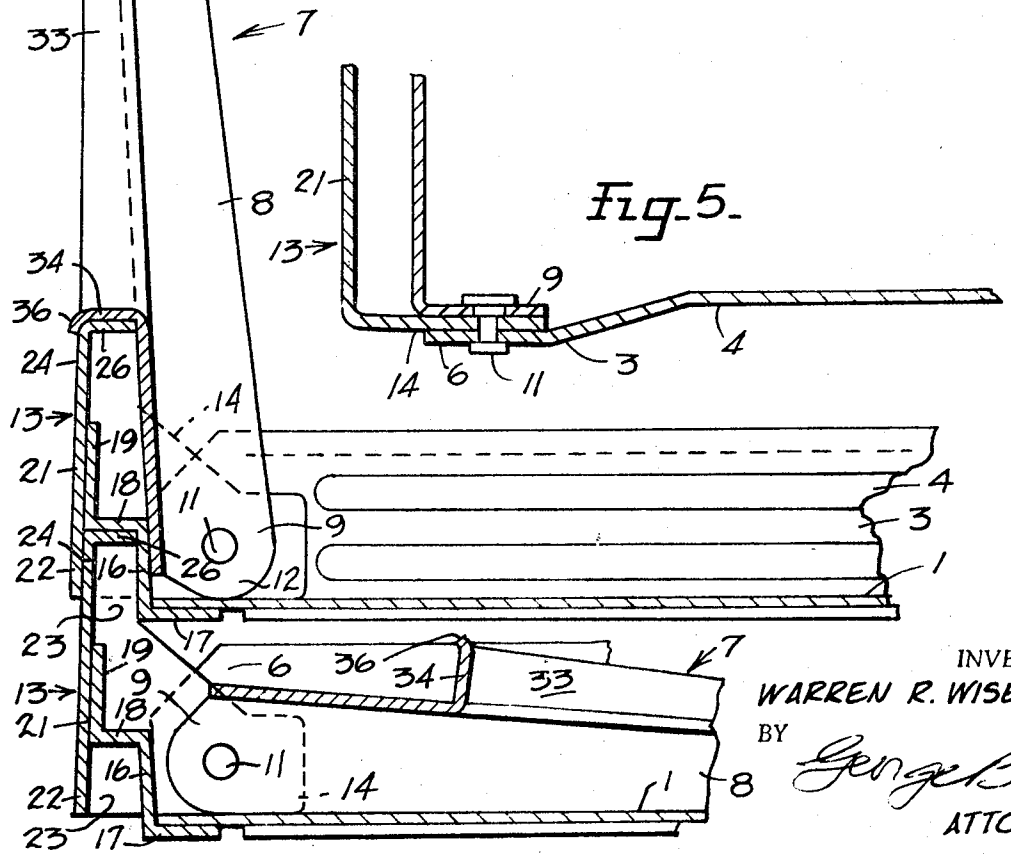


Fig. 5.

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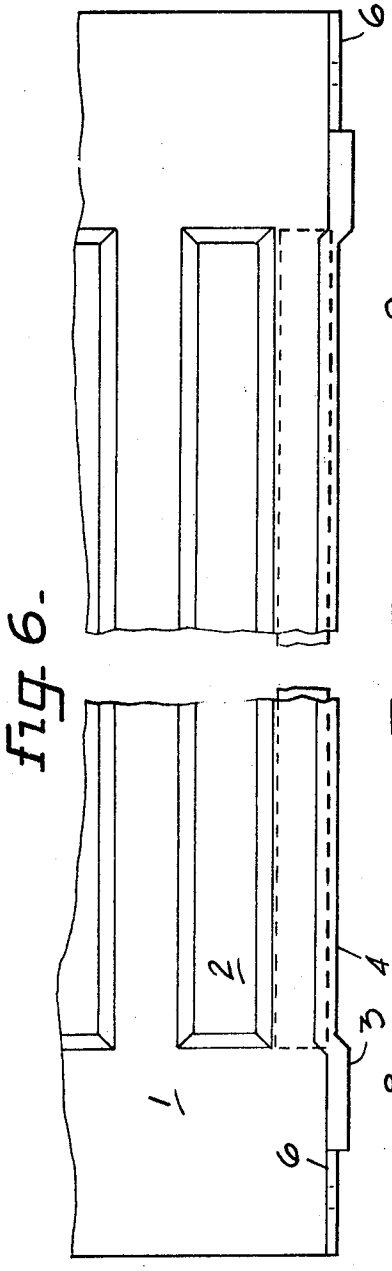


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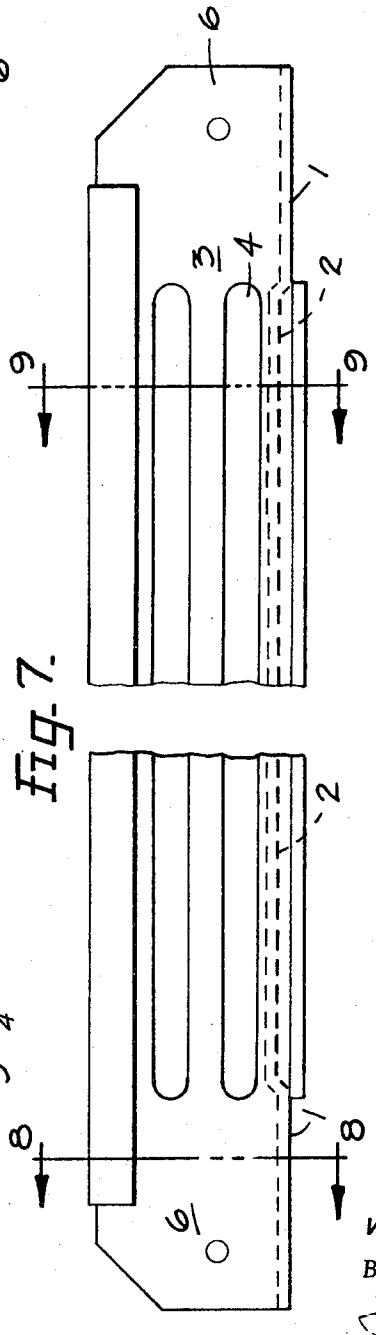


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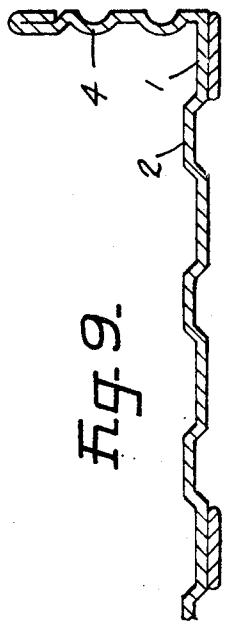


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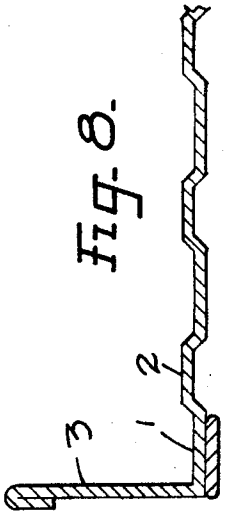


Fig. 8.

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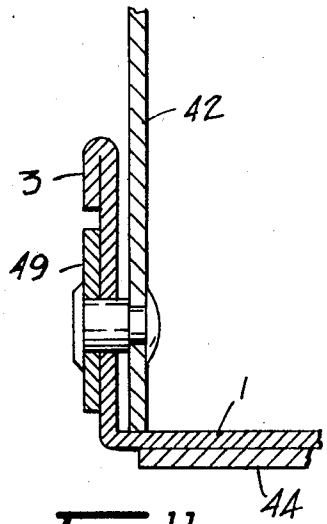


Fig. 11.

Fig. 10.

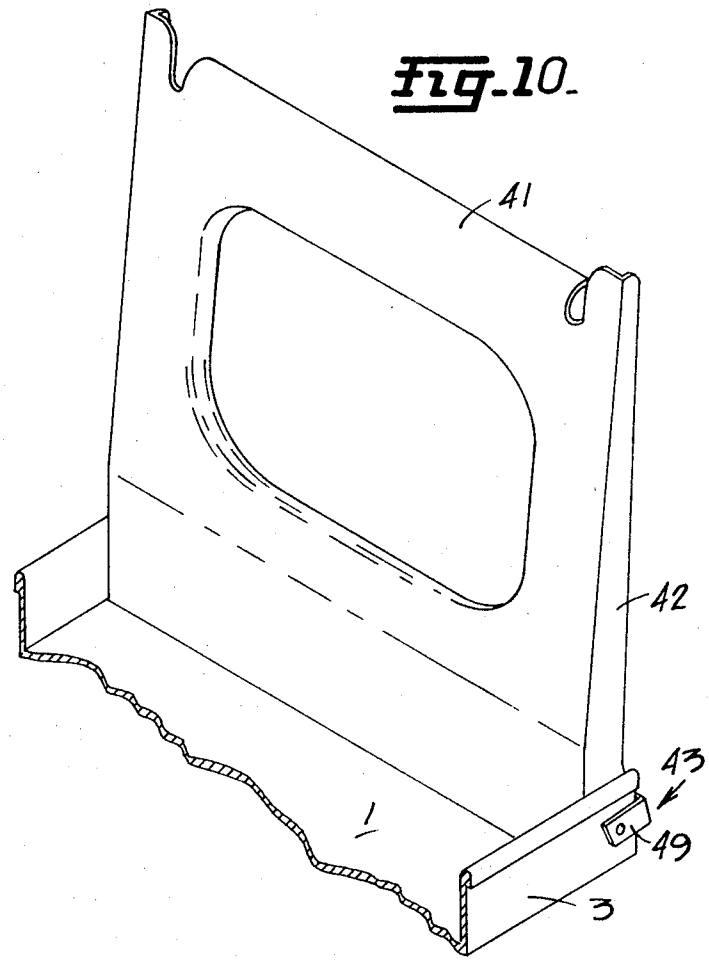


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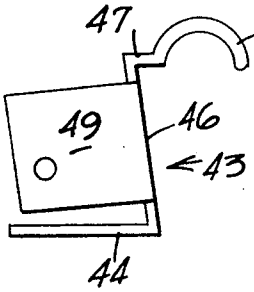
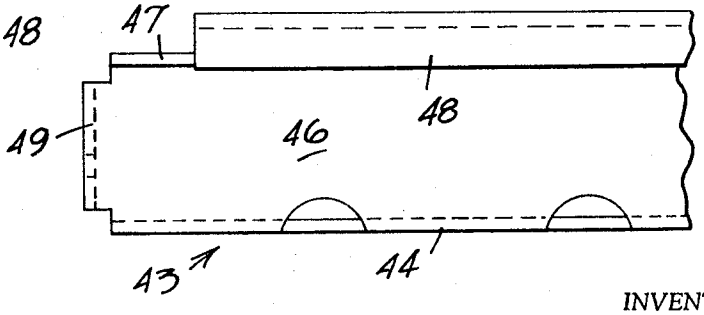


Fig. 13.



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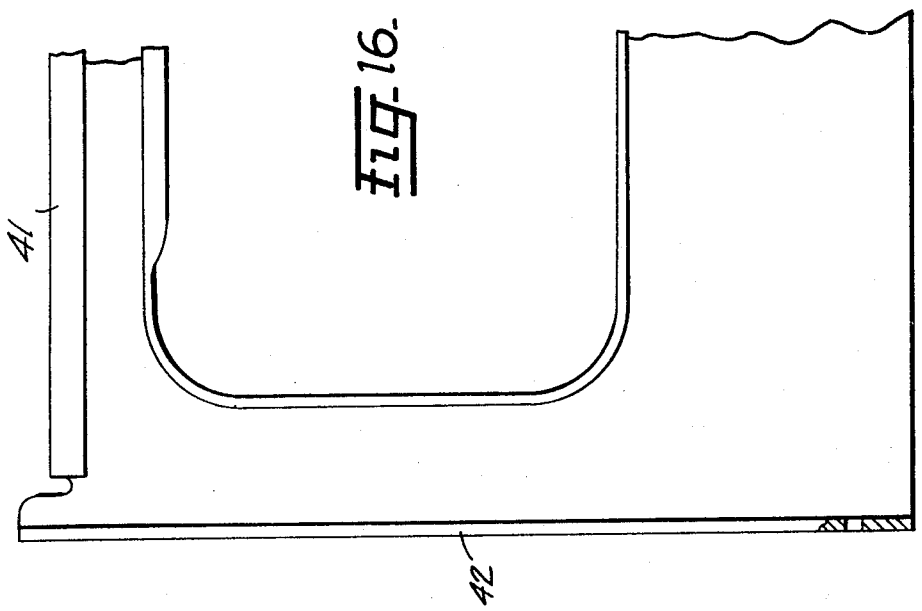


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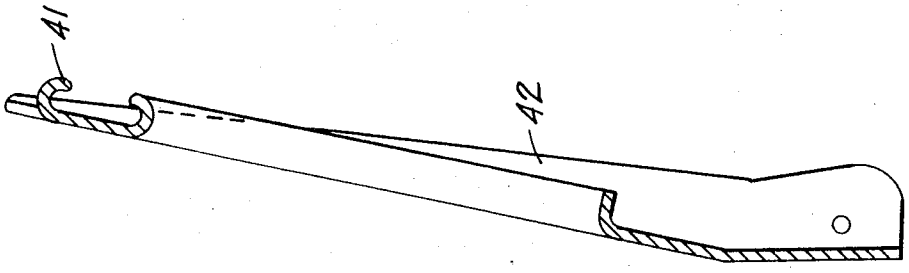


Fig. 15.

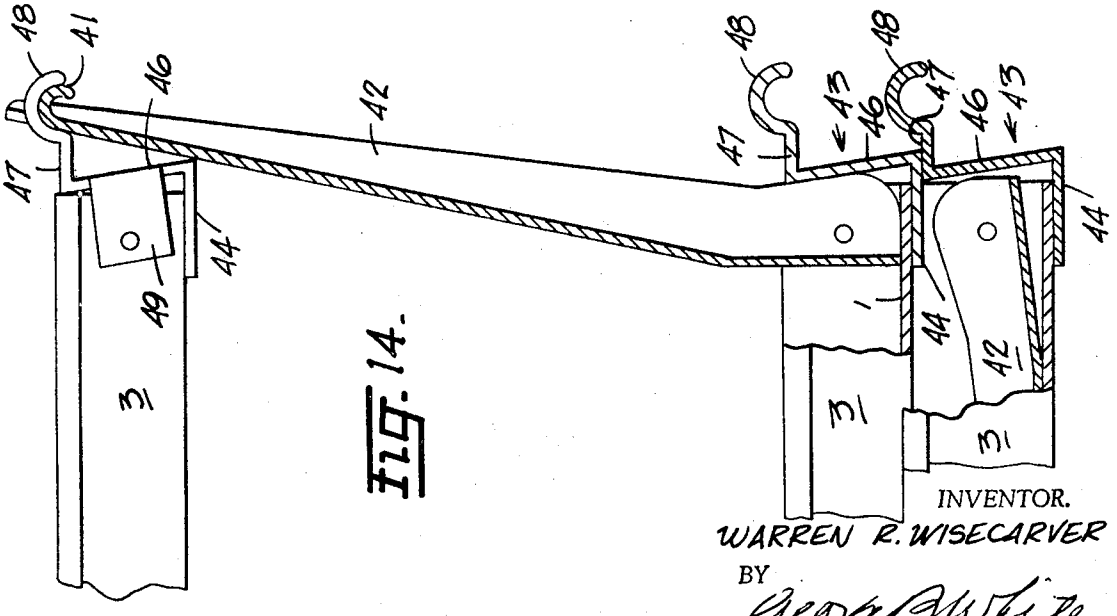


Fig. 14.

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CARRYING TRAY

BACKGROUND OF THE INVENTION

The general type of carrier tray with foldable handles is shown in patent of Widenhofer U.S. Pat. No. 1,006,328, and of Barefoot U.S. Pat. No. 2,747,748 showing two types of foldable handles on such carrier trays. The disadvantages of the prior trays are that they are not adapted to carry taller articles, such as milk cartons, and the various moving parts project in such a manner as to wear or damage the cartons adjacent to them. Furthermore, the handles are not biased outwardly so as to be suitably braced to render them firmer to support stacked trays in extended or upright positions of the handles.

The advantages of the present invention are the pivot support for the handles in such a manner that the parts do not rub or wear and damage packages such as milk cartons and wherein the end members forming the parts of the pivot support also form the top and bottom nests for nesting the collapsed carrier trays securely and the top nest is adapted to be engaged by the adjacent handle in the upright position so as to hold and brace the handle which latter is biased outwardly. The top portion of each handle is formed into a grip and fits into the bottom or lower nest of the end member so as to nest the loaded trays stacked one upon the other securely, firmly pressed, and positively prevented from inward movement or collapsing.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a preferred form of the carrier tray partly in section.

FIG. 2 is a fragmental cross-sectional view of trays stacked on one another.

FIG. 3 is a fragmental sectional detail of the end member with the top and bottom pockets.

FIG. 4 is a fragmental face view of one of the end members.

FIG. 5 is a fragmental sectional view of one of the pivots of the handle.

FIG. 6 is a fragmental top view of the tray itself.

FIG. 7 is a fragmental side view of the tray member itself.

FIG. 8 is a sectional view taken on lines 8—8 of FIG. 7.

FIG. 9 is a sectional view the section being taken on lines 9—9 of FIG. 7. FIG. 10 is a perspective fragmental view of one end of a modified form of the tray.

FIG. 11 is a sectional fragmental view of the pivot support for the modified form.

FIG. 12 is a detailed view of the end member of the modified form.

FIG. 13 is a fragmental face view of the end member of the modified form.

FIG. 14 is a sectional fragmental view of the modified form of the trays stacked attitude.

FIG. 15 is a sectional detailed view of one of the handles of the modified form.

FIG. 16 is a fragmental face view of the handle shown in FIG. 15.

DETAILED DESCRIPTION

In the preferred form of the tray there is a bottom 1 formed with suitable spaced longitudinal ribs 2. Longitudinal sides 3 are also provided with suitable reinforcing ribs 4. At each end of each side 3 there is provided pivot support 6 to pivotally support a handle 7. Each handle 7 is provided with a pivot flange 8 along each perpendicular edge thereof in the upright position of the handle 7. The pivoted end 9 of each pivot flange 8 is enlarged into a bearing portion to accommodate a pivot 11, which latter in turn extends through the adjacent portion of the side 3 near the adjacent corner of the tray. Each pivot 11 is spaced from the abutment end 12 of the pivot end 9 of the pivot flange 8 about the same distance as the distance between the pivot and the bottom 1 of the tray so that in the upright position of the handle the abutment end 12 abuts the tray bottom 1 at each corner thereby to transmit the load of stacked trays from the respective pivots 11 to the reinforced bottom 1 of the tray.

The pivot support also includes an end member 13 which extends along each transverse edge of the tray bottom 1. Each end member 13 has a pivot flange 14 at each end thereof welded to the inside face of the adjacent end of the longitudinal side 3 so as to accommodate the pivot 11 therein and thereby to reinforce the pivot bearing.

Each end member 13 includes an end strip 16 with a bottom flange 17 extended along the underside of the ribbed bottom 1 and being fixedly held in place, for instance by welding. From the top of the end strip 16 extends a spacer flange 18 outwardly of the tray and has a substantially perpendicular upward flange 19. To the outside of the upward flange 19 and spaced from the end strip 16 is secured a longitudinal plate 21, a portion of which forms a downward flange 22 opposite to and spaced from the end strip 16 to form a bottom next 23. The upper portion of the plate 21 forms an upward wall 24 extending considerably above the end strip 16 to form the top nest. The upper end of the wall 24 has a seating flange 26 bent from its upper edge back toward the tray and substantially parallel with the spacer flange 18.

As shown in FIG. 2 in the collapsed position of the handles 7, the bottom pocket 23 of the stacked tray is in engagement with the top of the wall 24 and the seating flange 26 so that the upper tray is securely held in stacked position.

Each handle 7 has a comparatively large substantially rectangular opening 31 cut out. The top edge of each handle 7 is bent over toward the tray, and the adjacent edge of the opening 31 is bent oppositely upwardly. The curved grip flanges 32 form a suitable rounded hand grip for carrying the tray by its handles. The upper grip flange 32 can be nested in the bottom nest 23 of the next stacked tray as shown in FIG. 2. Reinforcing or bracing flanges 33 extend outwardly of the tray from the perpendicular edges of the opening 31 and are tapered so as to terminate in a clamping flange 34 spaced from the pivot 11 the same distance as the vertical distance between the seat flange 26 and the pivot 11 so that in the upright position the clamping flange 34 rests on the seating flange 26. A lip 36 on the outer edge of the clamping flange 34 is so spaced from the face of the handle 7 that it tightly springs over the outer edge of the seating flange 26 thereby clamping the handle in upright position. The perpendicular pivot flanges 8 are slanted so as to converge upwardly toward the top of each handle 7 thereby to bias the handle 7 outwardly of the tray. The load of stacked trays in the upright position of the handles 7 is transmitted through the bottom pocket nest 23 on to the nesting flange 26 and the load on the handle is also transmitted through the flange 34 on to the seating flange 26 thereby to distribute the strain and stress more or less evenly on the strongest and most reinforced portions of the tray.

The modified form of the tray shown in FIGS. 10 to 16 inclusive has a handle 41 on which the edge or pivot flanges 42 are so formed that the handle is slanted outwardly of the tray and the bearing end of each flange is pivoted substantially in the manner heretofore described. Each end piece 43 has a bottom flange 44 welded to the adjacent bottom 1 of the tray and has an end wall 46 extending along the adjacent end of the tray so slanted as to be engaged by the correspondingly slanted edge of the pivot end of the flange 42. From the upper end of the wall 46 extends outwardly a spacing flange 47 on which can be seated a bottom flange 44 of the next stacked tray. On the upper end of the spacing flange 47 is a nest member 48 which is substantially semicircular in cross section so as to form a nest which can be nested on the top grip flange 32. The end wall 46 also has pivot flanges 49 extended over the adjacent longitudinal sides 3 to accommodate the outer end of the pivot 11.

I claim:

1. In a carrying tray having a tray portion with sides and foldable handles at opposite ends of the tray portion,

the improvement of

a pivot support in each corner of the tray portion, comprising

an end strip substantially at right angles to the adjacent side forming said corner, said end strip extending along the adjacent end of the tray,

a flange along each edge of each handle,

a bearing portion on the end of each flange adjacent said corner,

a pivot spaced from the adjacent end and extended through said side and through said bearing portion of said handle flange at said corner,

said handle being foldable about said pivot away from said end and inwardly of the tray thereby to lie above the bottom of the tray in folded attitude,

a top nesting flange on the outside of each end strip,

a coacting nesting flange facing toward the bottom of each end being nestable on a similar top nesting flange of another tray,

a nesting portion of each handle adapted to be nested in the upright position of said handle on said coacting nesting flange of a tray stacked thereon,

said edge flanges being so formed relative to the top of the respective handles as to direct the stacked load on the handle outwardly relative to the adjacent tray end.

2. The improvement specified in claim **1**, and

said pivot being spaced from the bottom end of said bearing portion in the upright position of said handle to about the same distance as from the bottom of the tray whereby the bottom edge of the handle flange bears against the bottom of the tray in said upright position of the handle.

3. The improvement specified in claim **2**, and

said coacting nesting flange forming a pocket on the outside of the adjacent end and being open toward the bottom.

4. The improvement specified in claim **1**, and

said top nesting flange and said coacting nesting flange including

a spacer flange extended from each end strip outwardly,

a substantially perpendicular wall extended upwardly from said spacer flange so as to project to above said end strip,

and a wall extended downwardly from said spacer flange spaced from said end strip to form a nesting pocket.

5. The improvement specified in claim **4**, and

a top nesting flange extending from said substantially perpendicular wall,

and clamping means extended from said handle for engagement with said top nesting flange in the upright position of said handle.

6. The improvement specified in claim **5**, wherein said clamping means consists of an outwardly extending horizontal flange with a lip along its free edge adapted to be snapped over said top nesting flange thereby to hold and brace said handle.

7. The improvement specified in claim **5** and

each handle having an opening,

cross-sectionally curved lips along the top of each handle and along the top edge of said opening, curved oppositely toward one another and spaced so as to form a grip portion on said handle.

8. The invention specified in claim **7**, and

said clamping means including,

a clamping flange extended outwardly from said handle in substantial registry with and for engagement with said top nesting flange in the upright position of said handle thereby to hold and brace said handle in said upright position,

and a clamping lip on said clamping flange adapted to be sprung over said top nesting flange.

9. The improvement specified in claim **8**, and a bearing portion of each end strip extending over the respective adjacent sides at said corners forming part of the pivot supports.

* * * * *