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Campbell

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[54] **INVERTIBLE DUAL PURPOSE TRAY HOLDER**

[76] Inventor: **Morris C. Campbell,** 305 Rosewood, S.E., Grand Rapids, Mich. 49506

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[52] **U.S. Cl.** ..... **224/48 R,** 206/72, 220/17, 229/30

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

[58] **Field of Search** ..... 206/72, 77; 224/48 R, 48.7, 48.3, 48.4, 48.2, 48 A, 48 B, 48 W, 45 R, 45.5, 45.6; 229/30; 220/17

[56] **References Cited**

UNITED STATES PATENTS

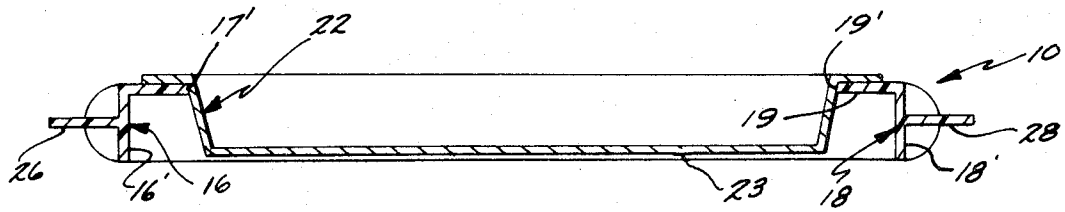
2,771,232	11/1956	Reed	229/30 X
2,545,528	3/1951	Murray	220/17 X
2,175,500	10/1939	Bemis	220/17 X
1,488,462	4/1924	Abram	220/1 R
2,886,225	5/1959	Clarke	224/48

Primary Examiner—Robert J. Spar
Attorney—Price, Heneveld, Huizenga & Cooper

[57] **ABSTRACT**

A one-piece tray holder is provided which has a cradle portion including a first aperture for supporting a tray or the like of a first configuration when the holder is oriented in a first position. When inverted, the cradle presents a different sized aperture for supporting a tray or the like of a second configuration. The tray holder is particularly well adapted to hold frozen dinner trays which are currently available in two standard sizes. The holder performs the dual function of providing mechanical support and stability for the tray being held as well as providing thermal insulation both to protect the consumer during the transportation of a heated tray, and to protect the surface on which the holder and heated tray may be placed.

8 Claims, 5 Drawing Figures



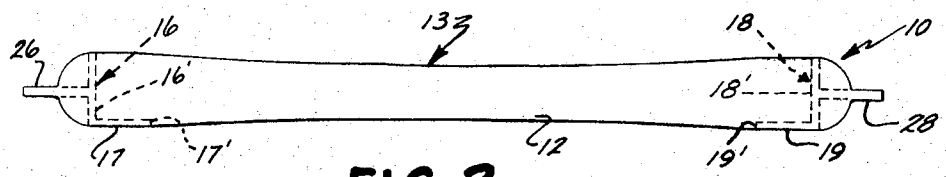


FIG. 2.

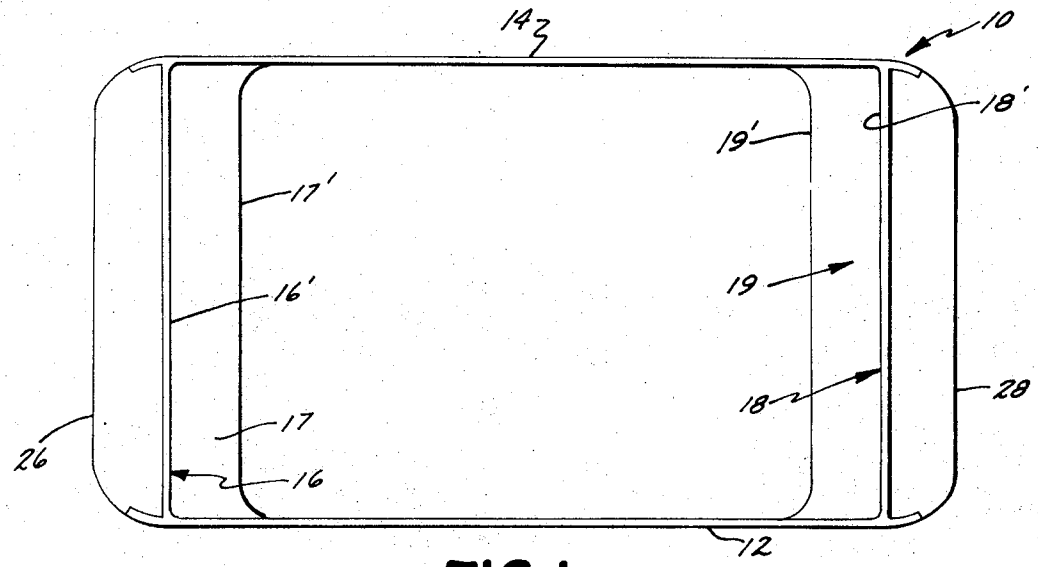


FIG. 1.

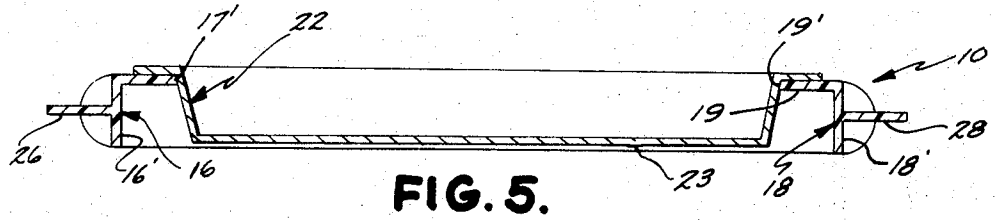


FIG. 5.

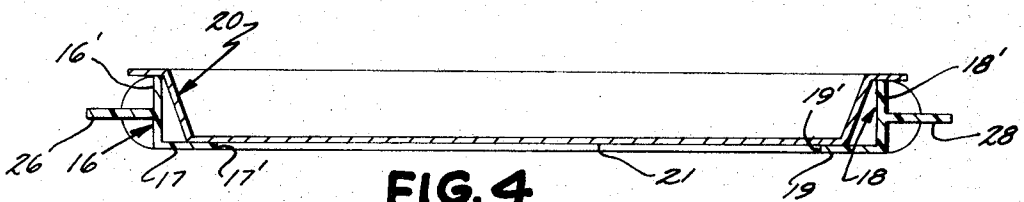


FIG. 4.

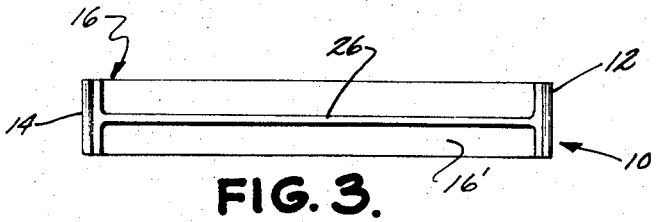


FIG. 3.

INVENTOR.
MORRIS C. CAMPBELL
BY Price, Heneveld, Huizenga & Cooper
ATTORNEYS

INVERTIBLE DUAL PURPOSE TRAY HOLDER

BACKGROUND OF THE INVENTION

The present invention relates to tray holders and particularly to a holder which can be inverted to accommodate different sized trays.

For several years, frozen dinners have been available (so-called T.V. Dinners) which can be placed in an oven for heating prior to consumption. These dinners are generally packaged in rectangular tray or dish-like articles having separate compartments for the food. The trays are generally made of a conducting material which becomes relatively hot when the food is heated for serving, thus, it is necessary to wear insulated mittens or the like when removing the heated dinners from the oven and transporting them to the location where they will be consumed. Frequently, it is necessary also to rest the T.V. Dinner on a dinner plate or the like which serves to protect the table surface on which the dinner is placed from damage due to direct contact with the heated tray.

Although the trays currently in use for the frozen dinners are relatively flat and rectangular, they lack structural rigidity and can easily bend and spill their contents. When placed on a plate or other object, they may tend to slide and are easily tipped or overturned. It is desirable, therefore, to provide support means for positively holding and supporting the tray during the consumption of the food thereon while also providing thermal insulation such that the tray can be moved about without the need for using pot holders or the like. Additionally, it is desirable to protect the surface on which the tray may be placed against damage due to contact with the hot tray. The tray holder of the present invention accomplishes these and other objectives while providing a tray holder which is invertible to hold different size T.V. dinner-type trays currently available.

It is, therefore, an object of the present invention to provide an invertible, dual purpose tray for receiving and holding one of two different sized trays while in a first position, and the other of the different sized trays in its inverted position.

An additional object of the present invention is to provide a holder having handles serving as thermal insulators for transporting the tray.

It is a further object of the present invention to provide a tray holder which provides mechanical stability and support for holding a tray or the like and which holds a heated tray spaced above the surface on which the holder is placed.

SUMMARY OF THE INVENTION

Apparatus embodying the present invention includes a cradle formed from relatively straight sidewalls and end walls joining end portions of opposite sidewalls. The end walls are formed from L-shaped members such that a first aperture is formed by the edges of the side and end walls of the cradle when in a first position, and a second aperture having a different size is formed by the opposite edges of the sidewalls and end walls of the cradle when in an inverted position. Handle means are attached to each of the end walls and extend outwardly from the apertures formed by the side and end walls.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of the tray holder shown in a first position;

FIG. 2 is a front edge view of the tray holder shown in FIG. 1;

FIG. 3 is an end view of the tray holder shown in FIG. 1 as viewed from the left side;

FIG. 4 is a sectional elevation view of the tray holder shown in FIG. 1 taken along the section lines IV—IV and shows the insertion of a tray having a first size onto the holder, and

FIG. 5 is a sectional elevation view of the tray holder shown in the FIG. 4 but inverted such that the tray holder can accommodate a different sized tray as shown in the figure.

DETAILED DESCRIPTION OF THE FIGURES

In the figures, there is shown a tray holder **10** having a cradle formed by the junction of sidewalls **12** and **14** with end walls **16** and **18.** It is noted that the sidewalls **12** and **14** are realtively flat sections (FIG. **1**) whereas the end walls **16** and **18** are L-shaped (FIG. **2**) including vertical portions **16'** and **18'** and flange portions **17** and **19,** respectively. The flange portions of the end walls are joined to the sidewalls to form curved corners as shown in FIG. **1.** A first rectangular aperture is defined by the substantially flat vertically extending interior surfaces of the space between the sidewalls **12** and **14** and the space between the substantially flat vertically extending interior surfaces of portions **16'** and **18'** of the end walls **16** and **18,** respectively. A somewhat smaller second aperture is formed in the bottom (FIG. **1**) of the holder. Its shape is defined by the distance between the sidewalls **12** and **14** and the distance between the inner edges **17'** and **19'** of flange portions **17** and **19** of the end walls **16** and **18.** It is seen that this second aperture has a width identical to the first aperture and is contiguous therewith but has a length which is somewhat shorter than the length of the first aperture and accommodates a correspondingly smaller tray. In one embodiment, for example, the first aperture had a dimension of approximately 6 5/16 inches × 10 3/16 inches while the dimensions of the second aperture was approximately 6 5/16 inches × 8 5/8 inches. These dimensions are purely exemplary.

The use of the holder with different tray sizes is illustrated in FIGS. **4** and **5.** In FIG. **4,** for example, a tray **20** has a body portion which fits into the first aperture. The overhanging edges of tray **20** rest on the first tray holding rim comprising the top edges of sidewalls **12** and **14** and the top edges of the vertical portions **16'** and **18'** of the end walls **16** and **18.** When the tray holder **10** is inverted as shown in FIG. **5,** a somewhat smaller tray has a body portion which is accommodated by the second aperture. The overhanging edges of tray **22** rest on the second tray holding rim comprising the bottom edges of the sidewalls **12** and **14,** and the flange portions **17** and **19.** It is noted that the height of the sidewalls **12** and **14** and end walls **16** and **18** is sufficient to prevent the bottom portions **21** and **23** of trays **20** and **22,** respectively, from touching the surface upon which the tray holder is positioned. Thus, the tray holder will prevent contact between the heated tray contained therein and the surface upon which the tray holder is placed.

In the embodiment illustrated, the height of the sidewalls is tapered slightly inwardly from end wall **16** to a midpoint **13** (FIG. **2**) at which the height of the sidewalls are a minimum. From midpoint **13** to the end wall **18,** the sidewalls are tapered outwardly. This design al-

lows only the edges of the end walls to come into contact with the surface upon which the holder is placed. Such design adds to the stability of the holder since the weight of the T.V. Dinner will firmly seat the two end wall edges on the suppprting surface. Thus, the sidewalls need not be critically formed such that all four edges (end wall and sidewall edges) lie in the same plane.

The tray holder can be molded from any suitable plastic material which has sufficient mechanical rigidity and a melting point which is above the maximum temperature to which the tray used with the tray holder is heated. The tray holder can be manufactured in a relatively inexpensive manner by employing a two-section injection mold. The resultant tray holders can be disposable by the consumer after use, or the tray holder may be manufactured such that it is sufficiently durable to be reusable by the consumer. In this latter case, the material should be durable when the tray is subjected to mechanical or automatic washing.

This invention has uses in fields where labor costs of conventional food service have become excessive. Hospital use is one such field. In hospitals, the cost of washing, storing and distributing food with conventional china has reached the point of exceeding the cost of using disposable food containers. If a convenient means of handling such containers were available, the use of disposable food containers would permit hospitals to utilize outside food preparation facilities.

This invention makes this possible since it provides a holder having a stabile base and support for very thin, lightweight food containers of the disposable type. For institutional uses of this type, the tray holder can be manufactured of materials which make it feasible to employ it as a one-use, disposable item or it can be manufactured of materials which permit reuse and will withstand repeated automatic washing. It is feasible to wash and reuse the tray holder of this invention even under institutional circumstances where the washing and reuse of conventional dishes is impractical. Dishes require careful sorting and placement for both washing and storage. The tray holder of this invention does not require any such attention. Therefore, labor involved in its reuse is minimal. Further, since it can be used with two sizes of food containers, a single inventory of the tray holders can satisfy the complete requirements of the institution. Different diet meals may be placed on different sized trays which can be held by the holder of the present invention.

It will be recognized that the tray holder's shape may be adapted to the requirements of its use. Thus, it may be square, round or some other gemoetric configuration, so long as it provides top and bottom openings to receive food holders of two different sizes, has a depth sufficient to suspend the food holder above the surface on which the tray holder rests, and provides a supporting surface to engage the rim of the food holder.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A tray holder comprising a cradle having a bottomless unobstructed central opening defined by sidewalls which are sections of material having vertically extending flat interior surfaces unobstructed along a major portion of their length and joined at end segments thereof by end walls, each of said end walls comprising a first vertically extending portion and a horizontal flange extending from said first portion adjacent a bottom edge of at least one of said end walls, the cradle thus formed includes a first tray holding rim defined by a top edge of said sidewalls and the top edge of said first portion of said end walls for supporting a first sized tray having edges extending over said first rim when positioned on said holder when said holder is in a first position, and a second tray holding rim defined by the bottom edge of said sidewalls and the flange portion of said at least one end wall for supporting a second sized tray having edges extending over said second rim when positioned on said holder when said holder is inverted.

2. A tray holder as defined in claim 1 and further comprising handle means mounted to said end walls and extending away from said apertures.

3. A tray holder as defined in claim 1 wherein said flange portion associated with each of said end walls is in orthogonal relationship thereto.

4. A tray holder as defined in claim 3 wherein said flange portions extend from an edge of each of said end walls and are joined to said sidewalls.

5. A tray holder comprising an open cradle having sidewalls which are flat sections of materials joined at end segments thereof by end walls wherein the height of each of said sidewalls is reduced in a tapered manner from one of said end walls to a center portion, and increased from said center portion to the other said end wall, each of said end walls comprising a first portion and at least one flange portion extending orthogonally from an edge of said first portion of said end wall and joined to said sidewalls, the cradle thus formed includes a first aperture defined by the distance between said sidewalls and the distance between the first portion of said end walls adapted to receive a first sized tray when said holder is in a first position, and a second aperture contiguous with said first aperture along said sidewalls and extending between the edges of said flange portions of said end walls adapted to receive a second sized tray when said holder is inverted, and handle means mounted to said end walls and extending away from said apertures.

6. A tray holder as defined in claim 1 which is manufactured from a plastic material suitable for injection molding.

7. A tray holder for holding one of two different sized trays, said tray holder comprising an open cradle having a first rectangular aperture whose dimensions conform with the dimensions of a first sized tray when said cradle is in a first position, and a second rectangular aperture in said cradle whose dimensions conform to the dimensions of a second sized tray when said holder is in an inverted position; said cradle comprising sidewalls which are substantially flat sections, and end walls comprising L-shaped sections which join end segments of said sidewalls to form a generally rectangular cradle structure, wherein said sidewalls have a height dimension which is reduced in a tapered manner from each end of each of said sidewalls to a center portion and wherein the height of said sidewalls at each end is sufficient to hold said trays in spaced relationship above a surface in which said tray holder is placed, and said end walls having a vertical portion and a flange portion which is orthogonally joined to said vertical portion at one edge thereof, said first aperture being defined by the distance between said sidewalls and the distance between said vertical portion of said end walls, and said second aperture being contiguous with said first aper-

ture along said sidewalls and extending between the edge segments of said flange portions of said end walls, and handle means extending orthogonally from said end walls at a midpoint thereof and away from said apertures.

8. A tray holder as defined in claim 7 wherein said tray holder is manufactured of a plastic material.

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