

[54] PACKAGING TRAY

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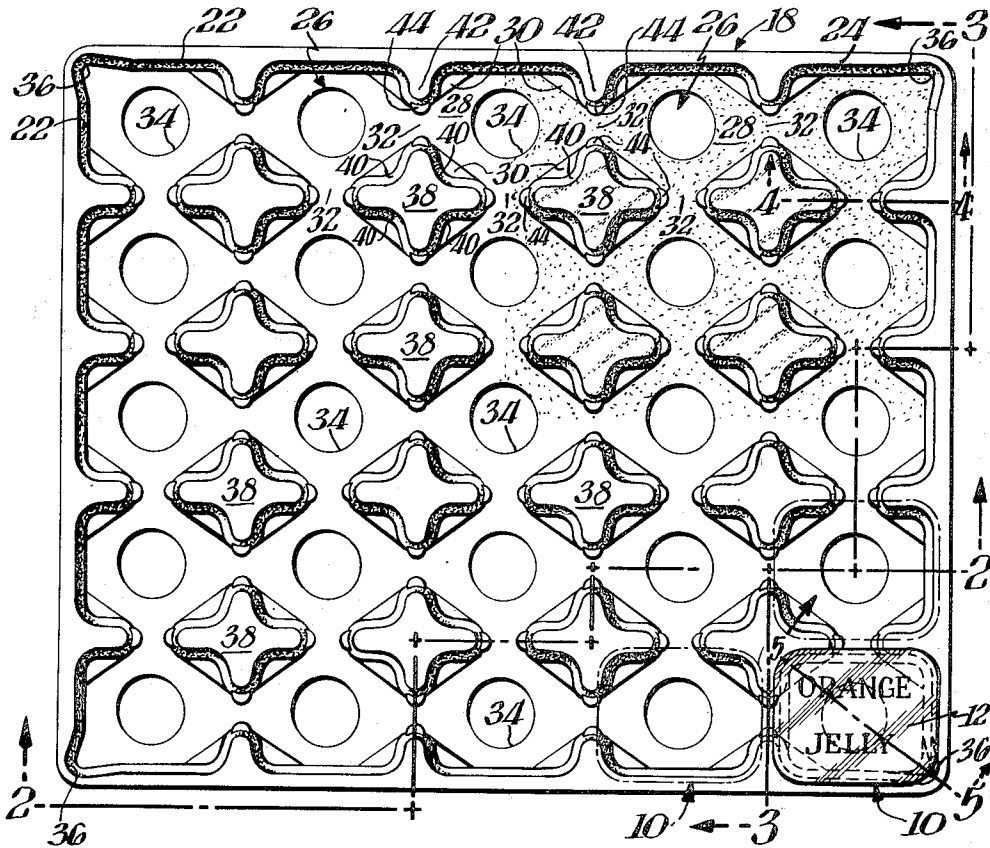
Assistant Examiner—Stephen Marcus

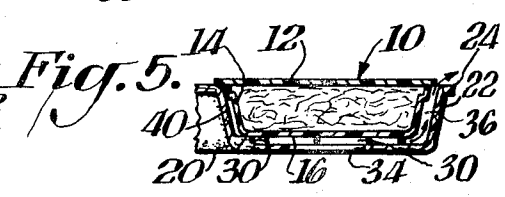
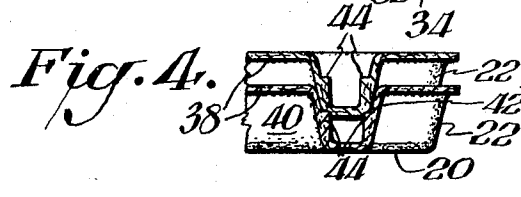
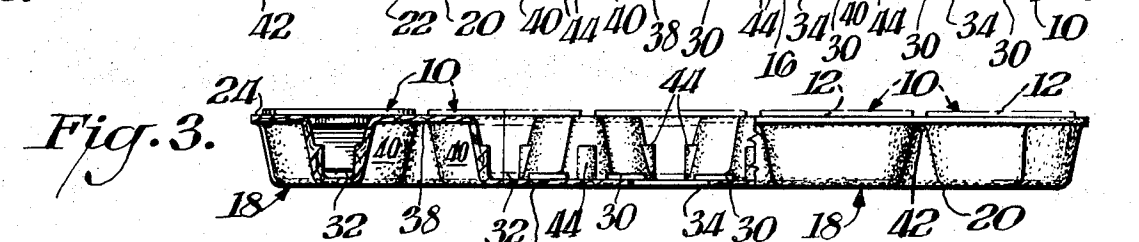
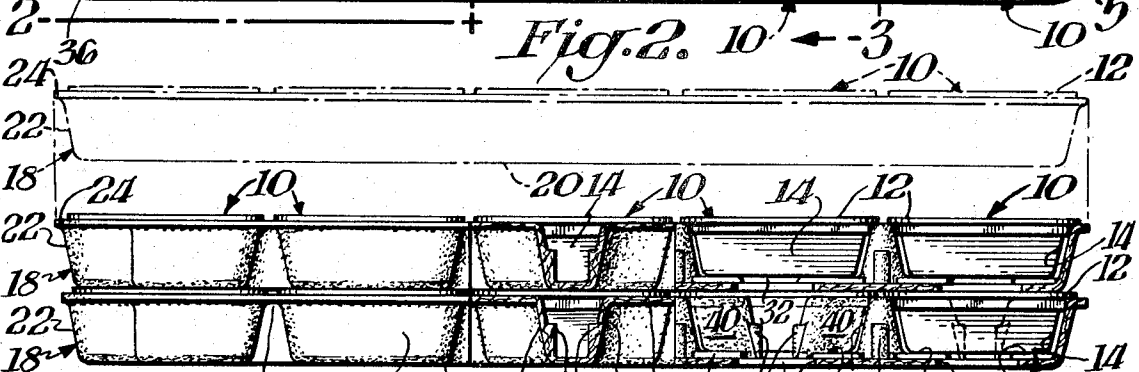
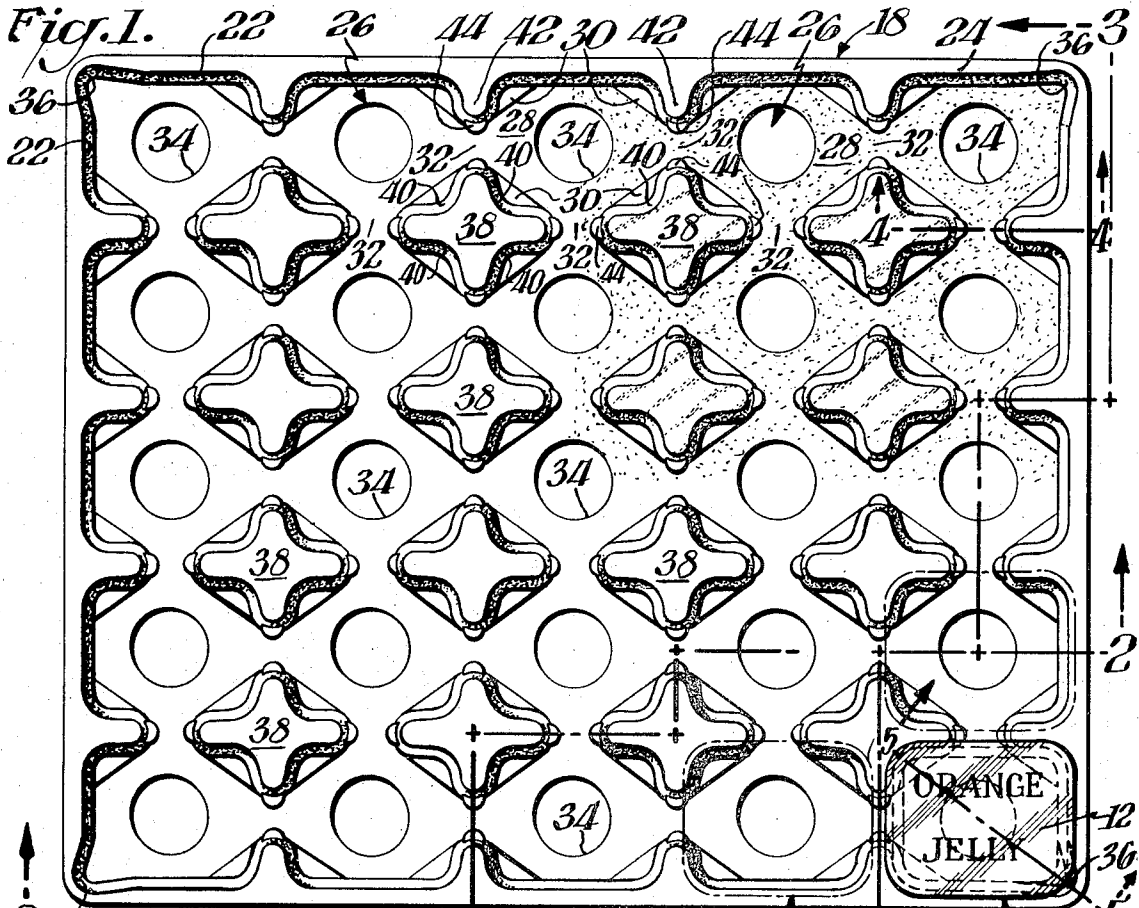
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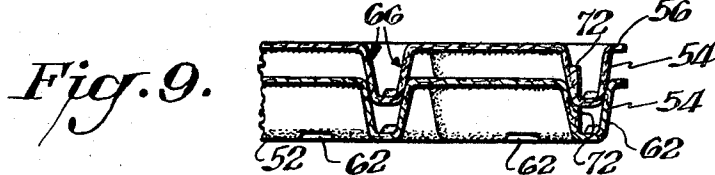
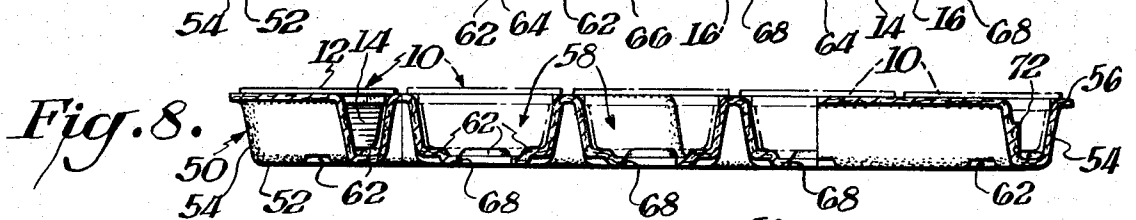
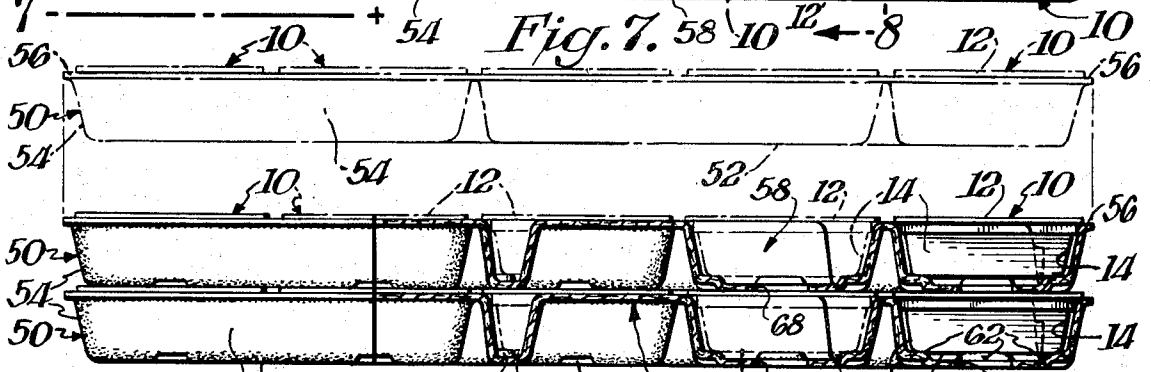
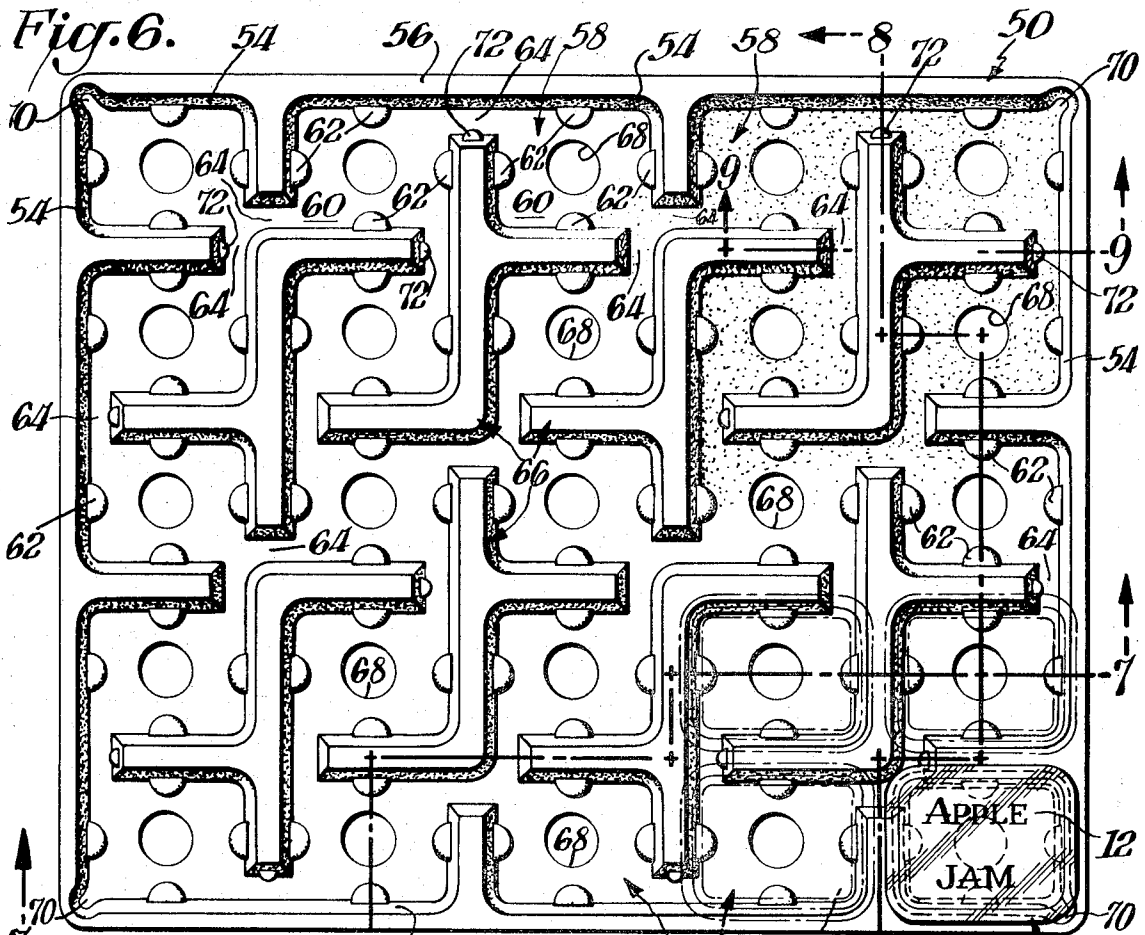
[57] ABSTRACT

Unitary molded packaging tray carries individual portion cups and is nestable with tray of like configuration. Tray comprises substantially flat bottom wall with upwardly and outwardly flaring side wall extending from bottom wall. Individual compartments are constructed and arranged to receive portion cups, each compartment having bottom portion with spaced apart plateaus raised therefrom for supporting portion cup above bottom portion of compartment. At least one broad flat bottom wall segment extends between each adjacent pair of compartments and is contiguous with bottom portions thereof so that when trays filled with portion cups are stacked one above the other broad flat bottom wall segments of upper tray in stack rest upon outer periphery of portion cups in tray directly therebelow in stack.

4 Claims, 9 Drawing Figures







PACKAGING TRAY

BACKGROUND OF THE INVENTION

The present invention relates to a unitary molded packaging tray, and more particularly to a tray adapted to carry a plurality of portion cups each containing an individual serving of jelly or the like.

Prior to the present invention, numerous tray constructions have been proposed for packaging individual portion cups of jelly, catsup, mustard or the like, such as the construction disclosed in Bessett U.S. Pat. Nos. 3,416,695, dated Dec. 17, 1968, and 3,497,102, dated Feb. 24, 1970. It is important that the portion cups be adequately supported in a manner that eliminates the thin top closures of the cups from being pushed in or otherwise damaged when filled trays are stacked one above the other. It is also important with hot packed foods that adequate ventilation be provided when the filled trays are stacked. For the most part, the prior art constructions fail to provide adequate portion cup support and ventilation, and as such these constructions have significant drawbacks.

SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to avoid the above shortcomings of the prior art by providing a unitary molded packaging tray for a plurality of portion cups, the packaging tray having structural features which enable filled trays to be stacked one above the other without the thin top closures of the cups being pushed in or otherwise damaged.

Another object of the present invention is to provide a unitary molded packaging tray having unique ventilation features whereby circulating currents flow around the individual portion cups carried by the trays in a stack.

In accordance with the present invention a unitary molded packaging tray comprises a substantially flat bottom wall with an upwardly and outwardly flaring side wall extending therefrom. The tray is divided into a plurality of individual compartments constructed and arranged to receive portion cups, and each compartment has a bottom portion with spaced apart plateaus raised therefrom for supporting a portion cup above the bottom portion of the compartment. At least one broad flat bottom wall segment extends between each adjacent pair of compartments and is contiguous with the bottom portions thereof. When trays filled with portion cups are stacked one above the other the broad flat bottom wall segments of an upper tray in the stack rest upon the outer periphery of the portion cups in the tray directly therebelow in the stack. The tray is nestable with trays of like configuration.

The unitary molded packaging trays of the present invention may also include a central opening in the bottom portion of each compartment. Additionally, several of the compartments around the periphery of the tray may include outwardly depressed channel portions in the upwardly and outwardly flaring side wall. The channels provide communication from outside the tray to the underside of the portion cups carried by the tray.

In one embodiment of the invention, the unitary molded packaging tray is divided into individual compartments by a plurality of equally spaced apart full post portions which extend upwardly from the substantially flat bottom wall. Each full post portion is surrounded by four individual compartments and includes

four faces, one face associated with one compartment. A stepped portion in each face defines one of the plateaus associated with each compartment. Specifically, the full post portions are spaced apart by the broad flat bottom wall segments that extend between each adjacent pair of compartments.

In another embodiment of the invention, the unitary molded packaging tray is divided into individual compartments by a plurality of hollow rib structures which extend upwardly from the substantially flat bottom wall of the tray. The hollow rib structures cooperate with the upwardly and outwardly flaring side wall of the tray to define the individual compartments. The plateaus associated with each compartment extend outwardly from the rib structures and the side wall of the tray into the compartments.

BRIEF DESCRIPTION OF THE DRAWING

Novel features and advantages of the present invention in addition to those mentioned above will become apparent to those skilled in the art from a reading of the following detailed description in conjunction with the accompanying drawing wherein:

FIG. 1 is a top plan view of a unitary molded packaging tray according to the present invention;

FIG. 2 is a sectional view taken along line 2—2 of FIG. 1 with several trays stacked one above the other;

FIG. 3 is a sectional view taken along line 3—3 of FIG. 1;

FIG. 4 is a sectional view taken along line 4—4 of FIG. 1 with a pair of packaging trays in nested relationship;

FIG. 5 is a sectional view taken along line 5—5 of FIG. 1;

FIG. 6 is a top plan view of another unitary molded packaging tray according to the present invention;

FIG. 7 is a sectional view taken along line 7—7 of FIG. 6 with several trays stacked one above the other;

FIG. 8 is a sectional view taken along line 8—8 of FIG. 6; and

FIG. 9 is a sectional view taken along line 9—9 of FIG. 6 with a pair of packaging trays in nested relationship.

DETAILED DESCRIPTION OF THE INVENTION

Referring in more particularity to the drawing, the molded packaging tray of the present invention may be formed as a unitary structure integrally molded of fibrous wood and/or paper pulp material according to known pulp slurry deposition processes to provide a packaging tray of generally uniform thickness throughout. Thermoplastic and similar materials may also be used for fabrication purposes. The packaging tray is specifically adapted to carry individual portion cups 10 constructed from thin gauge metal or plastic material, for example. Such portion cups are commonly used in the restaurant business for dispensing individual servings of jelly, catsup, mustard and the like. As is well known, the top of the portion cup is normally sealed by a thin top closure 12 of plastic or metal foil. The body section of the portion cup comprises an upwardly extending side wall 14 and a bottom wall 16.

FIGS. 1—5 of the drawing illustrate a unitary molded packaging tray 18 adapted to carry individual portion cups 10. As explained more fully below, in conjunction with FIG. 4, the packaging tray 18 is nestable with trays of like configuration. The tray 18 comprises a substan-

tially flat bottom wall 20 with an upwardly and outwardly flaring side wall 22 extending therefrom. The side wall terminates at the upper periphery of the tray in a marginal rim 24. As shown best in FIG. 1, the tray 18 has a plurality of individual compartments 26 which are constructed and arranged to receive the portion cups 10. Each compartment has a bottom portion 28 with a plurality of spaced apart plateaus 30 raised therefrom for supporting a portion cup 10 above the bottom 28 of the compartment 26. A broad flat bottom wall segment 32 extends between each adjacent pair of compartments, and the segments 32 are contiguous with the bottom portions 28 of the compartments. In essence, when trays 18 filled with portion cups 10 are stacked one above the other the broad flat bottom wall segments 32 of an upper tray in the stack rest upon the outer upper periphery of the side wall 14 of each portion cup 10 in the tray directly therebelow in the stack. This specific support arrangement prevents the thin top closures 12 of the cups 10 from being pushed in or otherwise damaged when the filled trays are stacked one above the other. Such is accomplished by having the load of the stack bear directly upon and above the side walls 14 of the portion cups 10 rather than at some other location. Also, the broad flat bottom wall segments 32 that extend between each adjacent pair of compartments 26 distribute the load of the stacked trays over a very broad portion of the side walls 14 of the portion cups 10.

The bottom portion 28 of each compartment 26 has a central opening 34 to facilitate removal of the portion cups 10 from the compartments of the tray 18 during an unloading operation. Also, as explained more fully below, the openings 34 allow cooling air exposure to a significant portion of the exterior surfaces of the portion cups. In this regard, several of the compartments 26 around the periphery of the tray 18 adjacent the marginal rim 24 include outwardly depressed channel portions 36 that provide communication from outside of the tray to the underside of the portion cups 10 carried thereby. In the embodiment of the invention illustrated in FIGS. 1-5, the channel portions 36 are located at each of the four corners of the packaging tray 18.

The tray 18 also includes a plurality of equally spaced apart full post portions 38 which extend upwardly from the substantially flat bottom wall 20. Each full post portion 38 is surrounded by four individual compartments 26 and includes four faces 40, one face associated with one of the surrounding compartments. A stepped portion is provided in each face 40 of the full post portions 38, and these portions define the plateaus 30 associated with each compartment. Also, half post portions 42 are located in the upwardly and outwardly flaring side wall 22 of the tray 18. Each half post portion has two stepped portions which define some of the plateaus 30 associated with the compartments adjacent the marginal rim 24. As shown best in FIG. 1, the full post portions 38 are spaced apart by the broad flat bottom wall segments 32 that extend between each adjacent pair of compartments 26, and as noted above, the broad flat bottom wall segments 32 are contiguous with the bottom portions 28 of the compartments 26. The substantially flat bottom wall 20 of the tray 18 comprises the bottom portions 28 of the compartments 26 and the broad flat bottom wall segments 32.

In use, each of the compartments 26 of the unitary molded packaging tray 18 is loaded with an individual portion cup 10. The filled trays are than stacked one above the other, and the broad flat bottom wall segments 32 engage the upper side walls 14 of the portion cups 10 in the tray directly therebelow in the stack. Usually, the individual portion cups 10 are loaded hot, and circulating air currents are necessary for cooling the cups. As shown best in FIG. 2, each cup 10 is supported above the bottom portion 28 of its respective compartment 26 by the raised plateaus 30. Thus, cooling air currents circulate from one compartment to another. Also, since the portion cups 10 are preferably slightly smaller than the compartments 26, cooling air currents may also circulate around the side wall 14 of each cup 10. The channel portions 36 assist in the circulation of the cooling air. Moreover, the central opening 34 in the bottom of each compartment exposes the thin top closures 12 of the cups directly therebelow in the stack to cooling air currents.

FIG. 4 illustrates a pair of trays 10 in nested relationship with lugs 44 thereon that prevent jamming of the trays when they are nested together. Accordingly, when each of a stack of nested trays is removed from the balance of the stack during a cup loading operation, it is easily removed since the lugs 44 prevent jamming, as is well known.

FIGS. 6-9 illustrate another embodiment of the present invention comprising a unitary molded packaging tray 50 adapted to carry individual portion cups 10. The tray 50 includes a substantially flat bottom wall 52 with an upwardly and outwardly flaring side wall 54 extending therefrom. The side wall 54 terminates at the upper periphery of the tray in a marginal rim 56. The tray 50 has a plurality of individual compartments 58 which are arranged to receive the portion cups 10. Each compartment includes a bottom portion 60 with spaced apart plateaus 62 raised therefrom for supporting a portion cup 10 above the bottom 60 of the compartment. Moreover, the tray 50 includes a broad flat bottom wall segment 64 which extends between each adjacent pair of compartments 58, and the segments 64 are contiguous with the bottom portions 60 of the compartments. When trays 50 filled with portion cups 10 are stacked one above the other the broad flat bottom wall segments 64 of an upper tray in the stack rest upon the outer upper periphery of the side wall 14 of each portion cup 10 in the tray directly therebelow in the stack. The result is the same as discussed above in conjunction with the segments 32 of the tray 18, namely, that the thin top closures 12 of the cups 10 are prevented from being pushed in or otherwise damaged.

The unitary molded packaging tray 50 is divided into the individual compartments 58 by a plurality of hollow rib structures 66 which extend upwardly from the substantially flat bottom wall 52 of the tray. The hollow rib structures 66 cooperate with the upwardly and outwardly flaring side wall 54 of the tray to define the compartments.

Each compartment 58 of the packaging tray 50 has a central opening 68 in the bottom portion 60. Also, several compartments around the periphery of the tray 50 include outwardly depressed channel portions 70 in the upwardly and outwardly flaring side wall 54 for providing communication from outside the tray to the underside of the portion cups carried thereby. In the embodiment of the invention illustrated in FIGS. 6-9, a

channel portion 70 is located at each of the four corners of the tray. The central openings 68 and the channel portions 70 function in the same manner as described above in conjunction with the tray 18. Cooling air currents circulate around the portion cups and from one compartment to another to thereby cool the portion cups.

Finally, as in the case of the packaging tray 18, tray 50 has lugs 72 for denesting purposes. As is well known, the lugs 72 prevent the nested trays from jamming together to thereby facilitate removal of the trays singly from the nested stack.

What is claimed is:

1. A unitary molded packaging tray adapted to carry individual portion cups and nestable with a tray of like configuration comprising a substantially flat bottom wall with an upwardly and outwardly flaring side wall extending therefrom, a plurality of individual compartments constructed and arranged to receive portion cups, each compartment having a bottom portion with a plurality of spaced apart plateaus raised therefrom for supporting a portion cup above the bottom portion of the compartment, at least one broad flat bottom wall segment extending between each adjacent pair of compartments and disposed in the plane of the flat bottom wall of the tray whereby when trays filled with portion

cups are stacked one above the other the broad flat bottom wall segments of an upper tray in the stack rest upon the outer periphery of the portion cups in the tray directly therebelow in the stack, and a plurality of equally spaced apart full post portions extending upwardly from the substantially flat bottom wall, each full post portion being surrounded by four individual compartments and including four faces, one face associated with one compartment, and a stepped portion in each face defining one of the plurality of plateaus associated with each compartment.

2. A unitary molded packaging tray as in claim 1 wherein the full post portions are spaced apart by the broad flat bottom wall segments that extend between each adjacent pair of compartments.

3. A unitary molded packaging tray as in claim 2 including a central opening in the bottom portion of each compartment.

4. A unitary molded packaging tray as in claim 2 wherein several of the compartments around the periphery of the tray include outwardly depressed channel portions in the upwardly and outwardly flaring side wall that provide communication from outside the tray to the underside of the portion cups carried by the tray.

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