

United States Patent

Goings

[15] 3,656,681

[45] Apr. 18, 1972

- [54] **DISPOSABLE TRAY**
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- [52] U.S. Cl. **229/15, 220/16, 220/23.8, 229/14**
- [51] Int. Cl. **B65d 11/10**
- [58] Field of Search **229/14, 2.5, 15, 28, 42; 206/65, 72, 45.31, 45.19; 220/16, 17, 20, 23.8**

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Primary Examiner—Donald F. Norton
Attorney—Alexander B. Blair

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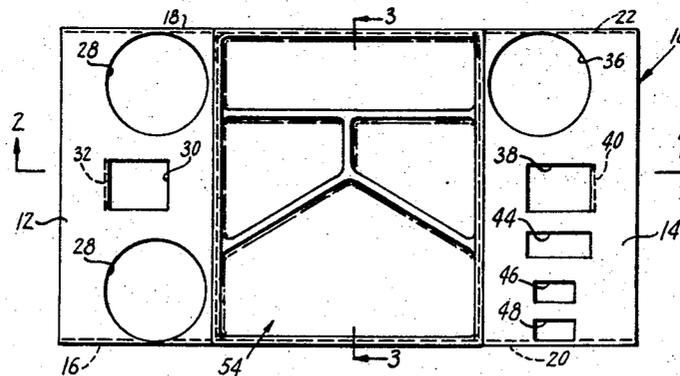
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[57] ABSTRACT

A food tray, pressed or stamped from plastic, is provided with dividing partitions for different types of food, etc., and is adapted to be pressed into and held by friction within a correspondingly shaped recess in a base tray.

4 Claims, 4 Drawing Figures



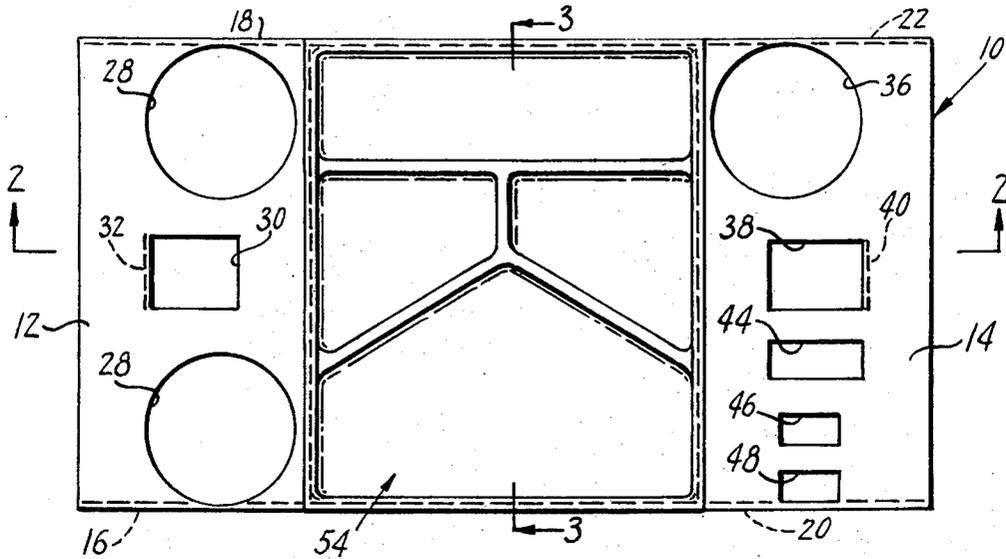


FIG. 1

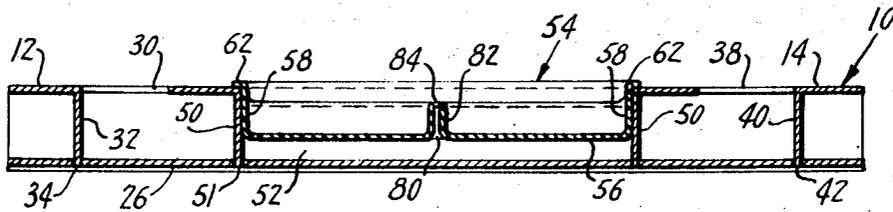


FIG. 2

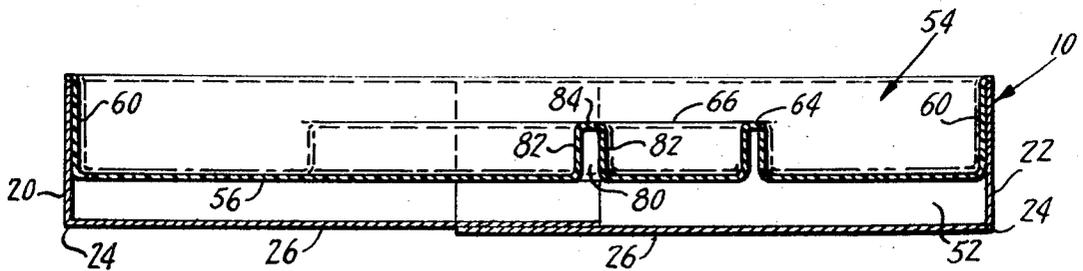


FIG. 3

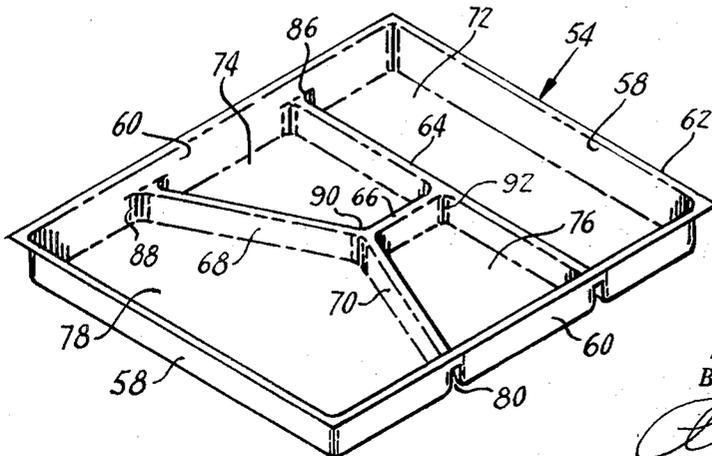


FIG. 4

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DISPOSABLE TRAY

CROSS-REFERENCE TO RELATED PATENT

The present device is adapted to be used in conjunction with the disposable tray shown in my prior U.S. Pat. No. 3,434,649, granted Mar. 25, 1969.

BACKGROUND OF THE INVENTION

The invention relates to disposable trays for helpings of food, silverware, cups of hot or cold drinks, etc., for use in outside service restaurants, food service trays in airplanes, hospitals, schools and trains, and for pre-packaged meals.

DESCRIPTION OF THE PRIOR ART

Numerous types of disposable trays have been used for serving meals in outside service restaurants and in airplanes, and for receiving food portions in a compartmentalized tray in which pre-packaged foods, such as frozen dinners, are served. Such trays in the prior art are all identical with each other and are sold and served as unitary devices.

SUMMARY OF THE INVENTION

The present invention contemplates a compartmentalized tray adapted to contain tableware, and portions of different separated foods, and the food-containing tray is adapted to be inserted in a recess in a base tray to become a unit therewith. The tray forming the principal subject matter of the present invention will correspond in horizontal shape to the recess in the base tray and will be frictionally held in position therein.

The present device is intended to be used primarily in combination with a tray such as that shown in my prior patent referred to above. When so used, the base tray is provided with openings to receive various articles such as cups for hot or cold drinks, packets of sugar, salt, pepper or other condiments. The openings in the base tray will be formed in the top thereof at opposite sides of a recess in which the present device is to be fitted. The present device may be separately filled, in the compartments thereof, with various food items and tableware, whereupon the device is fitted into the recess in the base tray and held therein by friction.

The tray of the present invention is stamped or pressed from suitable plastic material. Usually it will be rectangular in plan and provided with four side walls defining a parallelogram corresponding in shape and size to the recess in the base tray to be pushed downwardly thereinto and the tray will be provided around its upper periphery with an outstanding flange adapted to seat on the top surfaces of the base tray to limit downward movement of the food tray into the base tray.

In the preferred form of the invention, the food tray will be provided with a novel formation of ribs extending across the tray in such a manner that inward forces of the walls of the recess against the sides of the food tray will be absorbed by the compartment ribs uniformly from end to end of opposite side walls thereof to assist in bracing the food tray against inward bowing of such side walls, thus providing a firm frictional engagement of the food tray with the walls of the recess of the base tray. Ideally, one of the ribs of the food tray will extend straight across the tray to effectively brace opposite walls of the tray. Two others of the ribs will terminate at the side walls of the tray so that the ends of the straight ribs and the ends of the last-named ribs will be fairly well distributed as to their spacing to effectively brace the side walls of the tray. The two ribs last described will be inclined toward each other away from the adjacent end wall of the tray to provide a large food receiving compartment, for example, for the entree of the meal and the inner ends of such ribs will be connected to a longitudinal rib extending to the straight rib to brace the inclined ribs to absorb forces at the sides of the tray. The tray will be formed from flat material, and all of the ribs will be formed by pressing the material upwardly from the bottom of the tray to form downwardly opening channels with the top of the ribs closed.

The entire structure is very economical to manufacture, and when a meal is finished, the entire tray structure will be disposed of.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a plan view of the assembled structure;
FIG. 2 is a section on line 2—2 of FIG. 1;
FIG. 3 is a section on line 3—3 of FIG. 1; and
FIG. 4 is a perspective view of the compartmentalized food tray.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIGS. 1, 2, and 3, the numeral 10 designates a base tray as a whole formed generally in the same manner as the tray of my prior U.S. Pat. No. 3,434,649, referred to above. This tray is formed of flat material having co-planar top walls 12 and 14, and the sheet of plastic material is bent at its forward and rear edges as at 16 and 18 to form front and rear walls 20 and 22 (FIG. 3). At the bottoms of these walls, the material is bent as at 24 to provide overlapping bottom wall sections 26, as in my prior patent referred to.

One of the top walls, such as the wall 12, is provided with circular openings 28 to receive cups or other drink containers, and a preferably rectangular opening 30 is formed in the wall 12 by cutting therethrough and turning downwardly flap 32, the lower extremity of which is formed as a tab 34 to extend through the bottom wall 26 to brace the top and bottom walls relative to each other. The opening 30 may receive any desired article which might be served with a tray of this character.

The top wall 14 is also preferably provided with a circular opening 36 for any desired purpose, and such wall is also provided with a rectangular opening 38, similar to the opening 30, and formed by cutting the top wall 14 and bending downwardly a flap 40, the lower end of which terminates in a tab 42 extending through the bottom wall 26 to brace the walls 14 and 26 relative to each other. The top wall 14 is also preferably provided with a series of small openings 44, 46, and 48 to receive small articles such as packets of sugar, salt or pepper, or other condiments.

The front and rear walls 20 and 22 extend continuously through the length of the base tray and at the inner extremity of the top walls 12 and 14, the material of the base tray is turned downwardly as at 50 so that the walls 50 and the front and rear walls 20 and 22 between the walls 50 define a compartment 52 which is preferably rectangular. The lower edges of the walls 50 are provided with tabs 51 extending through suitable openings in the bottom wall 26. The compartment 52 is adapted to receive a food tray indicated as a whole by the numeral 54 forming the principal subject matter of the present invention.

The tray 54 is preferably formed of a single piece of flat plastic stock of an inexpensive type. This tray is provided with a bottom wall 56 turned upwardly at two extremities to form side walls 58 and turned upwardly at its other extremities to form side walls 60. These side walls define a rectangle corresponding in shape and size to the compartment 52 of the base tray and is adapted to fit thereinto, as shown in FIGS. 2 and 3, with the walls 58 frictionally engaging the walls 50 and with the walls 60 frictionally engaging the walls 22. The top edges of the walls 58 and 60 are turned outwardly to form flanges 62 extending entirely around the food tray, these various flanges seating on the top walls 12 and 14 and upon the upper edges of the walls 22 as shown in FIG. 3.

The tray 54 carries therein a plurality of integral ribs 64, 66, 68, and 70, as clearly shown in FIG. 4. These ribs define with the walls of the tray 54 a plurality of compartments 72, 74, 76, and 78, for a purpose to be described.

As stated, the tray 54 may be pressed into shape or molded, and in either case, each of the ribs 64, 66, 68, and 70 is formed by extending the material of the tray upwardly to provide a downwardly opening channel 80 so that each rib is provided

with spaced side walls 82 and a top wall 84. This construction lends substantial rigidity to each of the ribs.

The rib 64 is preferably straight, as shown in FIGS. 1 and 4, and merges as at 86 into the side walls 60. This rib is spaced from the adjacent wall 58 to provide the compartment 72 for whatever purpose may be desired, for example, tableware such as a knife, fork and spoon. The remote ends of the ribs 68 and 70 merge into the side walls 60 as at 88 and they diverge toward their inner ends away from the adjacent wall 58 to provide the relatively large compartment 78 to receive an entree, such as a small steak. The inner ends of the ribs 68 and 70 merge as at 90 with one end of the rib 66, the opposite end of which merges as at 92 into the rib 64. This provides efficient bracing between the angular ribs 68 and 70, as further referred to below.

OPERATION

Assuming that the device is to be used for serving meals on an airplane, or for other uses, different food trays 54 may be filled with different food items according to the passenger's particular order. A number of the trays may be so filled and since the tray occupies much less space than the assembled structure in FIG. 1, a number of the trays may be filled on a limited table space. Such tray 54 then may be inserted into the compartment 52 of one of the base trays, which then may be supplied with cups of coffee, fruit juice or round containers of ice cream or other products in the circular openings 28 and 36. Whatever items are desired for the passenger will then be placed in the openings 30, 38, 44, 46, and 48, whereupon the tray assembly is adapted to be served to the passenger. Since the assembly may be made very economically of low priced material, the entire assembly may be disposed of after the meal has been consumed.

It will be apparent that the food tray 54 is held in position solely by friction, but the formations of the parts are such that the frictional engagement is highly efficient. The flaps 32 and 40 and walls 50 have engagement with both the top and bottom walls to brace them against movement toward each other, and the tab engagement of the lower extremities of the walls 50 with the bottom wall 26 braces these walls against movement away from each other. Thus the walls 58 of the tray 54 are adapted to snugly engage the walls 50 with a high degree of friction to maintain the food tray in position. Downward movement of the food tray is limited by the flanges 62.

Particular attention is invited to the fact that the merging points 86 and 88 of the ribs 64, 68, and 70 with the side walls 60 of the tray 54 are so distributed as to their spacing from each other and from the walls 58 that inward forces from the base tray walls 50 against the food tray walls 58 is absorbed, and accordingly, it will be apparent that frictional engagement between the walls 50 and 58 will not distort any of these walls and they will remain in tight engagement with each other.

Particular attention is also invited to the fact that the angular arrangement of the ribs 68 and 70 provides a compartment 78 of substantial size for the purpose referred to. The partition 66, connected between the wall 64 and the walls 68 and 70 effectively braces the angular walls to provide the necessary stiffness at the junction between the inclined ribs 68 and 70 and the side walls 60.

It will be noted that the base tray is substantially deeper than the food tray. The openings 28 and 36 thus permit relatively heavy cups to be supported at their peripheries a substantial distance above the bottom wall 26 on which they rest, thus providing a high degree of stability. It is more convenient to use a food tray of limited depth, and it will be noted that the bottom 56 of the food tray is spaced substantially above the bottom 26 of the base tray. The top surface of the base tray is planiform, and the same is true of the continuous flange 62. This flange therefore rests on the top of the base tray and limits downward movement of the food tray into the substantially deeper base tray.

From the foregoing it will be apparent that the handling of meals with the present assembly of elements is greatly assisted. The openings of the base trays 10 may be filled separately from the food trays and a number of the latter may have their compartments filled with food of various types and quickly assembled in the base tray merely by pushing one food tray into each of the base tray compartments 52.

From the foregoing it will now be seen that there is herein provided an improved disposable tray which accomplishes all of the objects of this invention and others, including many advantages of great practical utility and commercial importance.

As various embodiments may be made of this inventive concept, and as many modifications may be made in the embodiment hereinbefore shown and described, it is to be understood that all matter herein is to be interpreted merely as illustrative, and not in a limiting sense.

I claim:

1. In combination with a disposable base tray having an open topped recess, a food tray arranged in said recess, said food tray being of the same shape and size as said recess to frictionally engage the latter to be firmly held in position therein, said base tray provided with substantially upright walls defining said recess, said food tray having substantially upright walls defining its shape to correspond to the shape of said recess, whereby the walls of said food tray frictionally engage the walls of said base tray, said food tray provided with ribs forming partitions defining with said walls of said food tray a plurality of food compartments, said ribs extending to two opposite side walls of said food tray to brace them against inward bowing of said opposite side walls of said food tray incident to pressure against such side walls by the walls of said base tray with which they are frictionally engaged, one of said ribs extending substantially straight across said food tray at a point spaced from one end thereof, another of said ribs extending across said food tray at a point spaced from the other end thereof, said last-mentioned rib sloping away from said other end of said food tray to form therewith a relatively large food compartment, and a bracing rib connected between said sloping rib and said relatively straight rib.

2. The combination defined in claim 1 wherein said substantially straight rib separates said plurality of food compartments from and forms a compartment for holding utensils.

3. In combination with a disposable base tray having an open topped recess, a food tray arranged in said recess, said food tray being of the same shape and size as said recess to frictionally engage the latter to be firmly held in position therein, said base tray provided with substantially upright walls defining said recess, said food tray having substantially upright walls defining its shape to correspond to the shape of said recess, whereby the walls of said food tray frictionally engage the walls of said base tray, said base tray being deeper than said food tray and provided with a bottom wall, said food tray having a flange engaging the top surface of said base tray to limit downward movement of said food tray in said base tray, said base tray provided with coplanar top walls at opposite sides of said recess, at least one of said top walls having an opening to receive a cup resting on said bottom wall of said base tray, the distance between said top wall and said bottom wall of said base tray being such that engagement of a cup in said opening in said top wall lends stability to said cup, said recess and said food tray being rectangular.

4. A disposable food tray comprising side walls and a bottom wall, and a plurality of ribs dividing said tray into food compartments, said ribs being formed at their ends integral with opposite side walls of said tray to brace said side walls relative to each other, one of said ribs extending substantially straight across said tray at a point spaced from one end thereof, another of said ribs being formed integral at its ends with said opposite walls at a point spaced from the other end of said tray, said other rib formed of sections inclined away from said other end of said tray to define therewith a relatively large food compartment, and a bracing rib integral at its ends with said first and second named ribs to brace said other rib centrally of the length thereof.

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