Dec. 17, 1963 E. J. KNAPP ETAL 3,114,457

CUP AND SAUCER TRAY

Filed Dec. 21, 1962

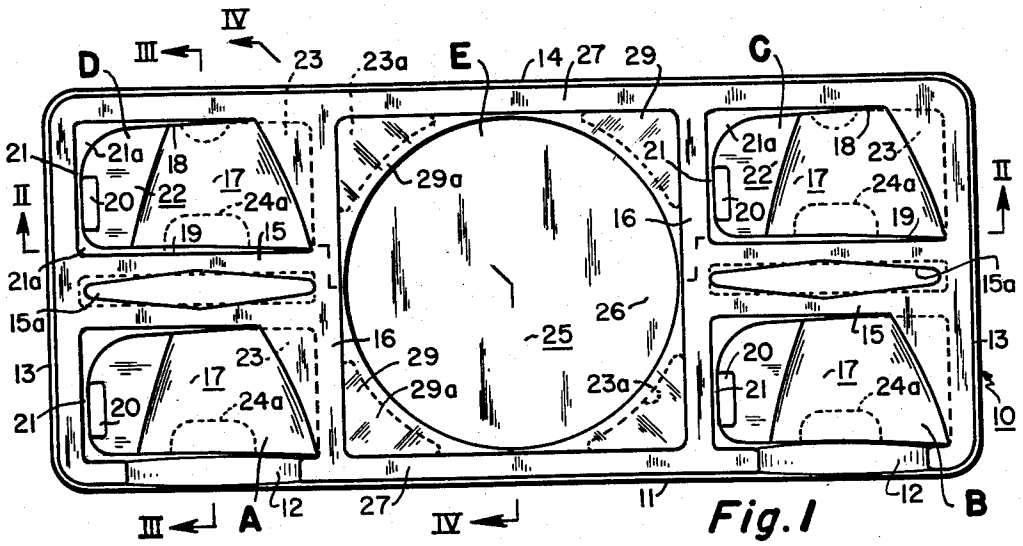


Fig. 1

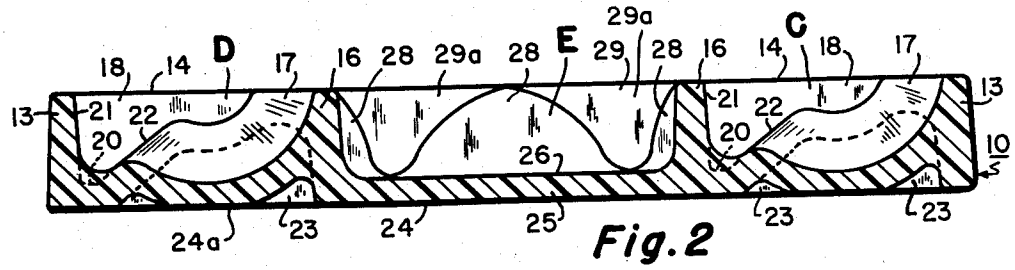


Fig. 2

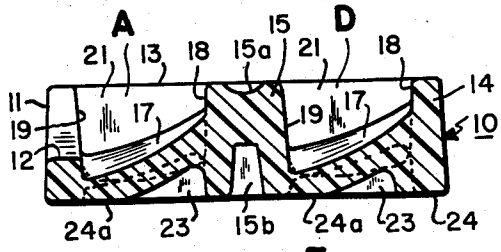


Fig. 3

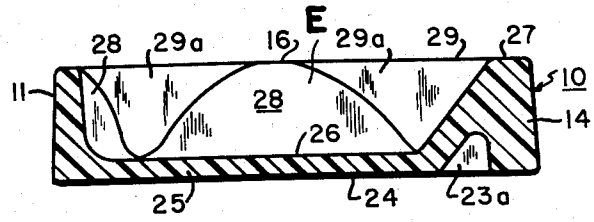


Fig. 4

INVENTORS
Eugene J. Knapp
Harry P. Laffkas

BY
Clarence R. Patty, Jr.
THEIR ATTORNEY

United States Patent Office 3,114,457 Patented Dec. 17, 1963

3,114,457

CUP AND SAUCER TRAY

Eugene J. Knapp, Corning, and Harry P. Laffkas, Addison, N.Y., assignors to Corning Fibre Box Corporation, Corning, N.Y., a corporation of New York

Filed Dec. 21, 1962, Ser. No. 246,524
6 Claims. (Cl. 206—72)

This invention relates to a unitary device for packaging and displaying a plurality of frangible articles, and more particularly to a lightweight one-piece receptacle for positioning and maintaining a plurality of frangible cup-shaped and dish-shaped articles in a protected impact-resistant orientation within a package and for aesthetically displaying such articles.

In the past, it has been customary to package cup and dish-shaped articles, such as coffee cups and saucers, with numerous corrugated parts, excelsior, and various types of separators. The use of excelsior has always been objectionable to both the ultimate consumer and the retail merchant due to the inherent untidiness produced when unpackaging the items. The use of multiple corrugated parts has also been objectionable to the retail merchant due to the difficulty encountered in reinserting such parts when repackaging the item after display or examination by the consumer. In addition, due to the number of corrugated pieces utilized and the numerous folds required with such packing, manufacturers found that not only did the excessive time required for packaging subject them to substantial labor costs, but also the additional weight increased their shipping costs.

Further, due to the numerously folded and interfitting packaging materials heretofore required to package such items, it was necessary to completely remove the ware from the carton and its associated packing material in order to adequately display the goods. As a result, it was necessary for the retail merchant to loosely display the ware on his shelves either in a stacked ware to ware contact, or in side by side close adjacency with each other. Not only was this type of display unattractive, but also due to the fact that the pieces of ware were openly displayed in ready contact with each other, they were frequently subjected to chipping and breakage through constant handling and examination by customers. In addition, such loosely displayed items were easily inadvertently knocked from the shelves by hurrying customers. Also, the merchant was eventually confronted with the almost impossible problem of repackaging the item in the proper position within the numerous packaging components and reinserting them into the original container.

Our invention includes a novel, lightweight unitary receptacle for packaging a plurality of cup-shaped and dish-shaped ware in impact-resistant orientation. The receptacle is formed with a plurality of separated curvilinear cup-shaped cavities and a central cylindrical cavity. Each cup-shaped cavity is adapted to receive an individual cup-shaped article and maintain it in cushioned spaced-apart relationship with an adjacent cup-shaped article; whereas the central cylindrical cavity is adapted to retain a plurality of dish-shaped ware in nested relationship therein. The receptacle is formed so that the entire package nad contents may be easily removed from or repackaged within an outer carton by merely removing the ware-retaining receptacle from or reinserting it within the outer carton. The cup-shaped retaining cavities and the cylindrical cavity are upwardly opened, exposing the cup-shaped and dish-shaped articles, respectively, retained therein, so that the ware may be conveniently displayed on the retail shelves in an aesthetic manner while being retained in a protective receptacle or tray-like

device. In addition, since the tray is formed of lightweight material such as foamed plastic, preferably foamed polystyrene, and since only one receptacle is required per package, not only are labor costs materially reduced due to the minimum time required to assemble the package, but also shipping costs are materially reduced due to the reduction in weight over the previously required corrugated parts.

It thus has been an object of our invention to provide an improved packaging media for simplifying and expediting the packaging of a plurality of frangible articles.

A further object of our invention has been to provide a unitary lightweight receptacle for retaining both a plurality of frangible cup-shaped articles and dish-shaped articles in a protective impact-resistant orientation within a package.

A further object of our invention has been to provide a foamed plastic receptacle for protectively retaining a plurality of cup-shaped articles in spaced-apart relationship from a plurality of dish-shaped articles within a package in such a manner so that the receptacle and articles may be easily removed from and reinserted into the package as a unit.

Another object of our invention has been to provide a foamed plastic receptacle for retaining a plurality of frangible cup-shaped and dish-shaped articles in a protective impact-resistant orientation within a package, and for aesthetically displaying such articles when removed from the package.

These and other objects of our invention will be more apparent to those skilled in the art from the following disclosure and accompanying drawings in which:

FIGURE 1 is a top plan view of a tray embodying our invention;

FIGURE 2 is an elevational view in section taken along line II—II of FIGURE 1;

FIGURE 3 is an elevational view in section taken along line III—III of FIGURE 1; and

FIGURE 4 is a sectional view in elevation taken along line IV—IV of FIGURE 1.

Referring now to the drawings, a tray or receptacle **10** having a unitary body portion of rectangular configuration is shown having a front wall **11** provided with curvilinear recessed portions **12**, side walls **13**, and a back wall **14**. A discontinuous longitudinal wall **15**, which may be provided with recessed portions **15***a*, **15***b*, and a pair of transverse walls **16** intersect to divide the receptacle into four cup-retaining cavities A, B, C, and D, and a central cylindrical dish-retaining cavity E. With the exception of the recessed portions **12**, formed in front wall **11** for facilitating visual examination of displayed ware, the cup-retaining cavities A, B, C, and D are identical. Accordingly, only cavity D and E will be described in detail, since the description of one cup-retaining cavity will suffice for all.

Each cup-retaining cavity is provided with a curvilinear or frusto-paraboloidal surface **17** in the form of a partial paraboloid, which not only forms a base portion but also one side wall surface of the cavity. The frusto-paraboloidal surface communicates with a back wall surface **18** and a front wall surface **19**, which may be provided with a slight taper. A transversely extending horizontal or planar base portion **20** extends along a portion of the base of tapered side wall **21**, which is provided with corner fillets **21***a*. An inclined planar surface portion **22** extends upwardly from base portion **20** and fillets **21***a* so as to intersect the frusto-paraboloidal surface **17**. It thus can be seen that the bottom surface of each cup-receiving cavity is composed of a planar surface **20**, an inclined planar surface portion **22**, and a frusto-paraboloidal or

curvilinear surface 17, the extension of which also forms one side wall surface of the cavity.

The bottom surface portion 24 of the receptacle 10 is provided with undercut or relieved portions 23 and 23*a* adjacent each cup-receiving cavity and the cylindrical cavity respectively. Each relieved portion 23 is open to the bottom surface 24 of the receptacle 10 and substantially conforms with the contour of the inclined planar surface 22 and the frusto-paraboloidal surface 17, with the exception of the flat bottom surface 24*a* formed adjacent the front of the cavity.

The cylindrical cavity E is shown having a planar bottom portion 25 with a circular upper surface 26 and bonded by portions of upright walls 11, 14, and 16, all of which terminate in a common planar top surface 27. Arcuate surface portions 28, having the configuration of the periphery of surface 26, surround cavity E for retaining a plurality of dish or saucer-like articles therewithin. A plurality of recessed corner portions 29 are formed in surface 28 adjacent the intersection of the bounding walls. The recessed corner portions have downwardly-inwardly tapered surface portions 29*a* which communicate between top surface 27 and edges of arcuate portions 28 downwardly to a periphery of circular surface 26 along a diagonal axis of the tray 10.

The inner surface of the bounding walls 11, 14, and 16, surrounding central cylindrical cavity E, is thus composed of a plurality of cylindrical or arcuate surface portions 28 extending upwardly from and having the general configuration of the periphery of surface 26, with a plurality of recessed corner portions 29 therebetween having tapered surfaces 29*a*. Undercut or relieved portions 23*a* communicate with bottom surface 24 and extend upwardly within the bounding walls adjacent each of the recessed corner portions 29.

In operation, a cup-shaped article such as a coffee cup is positioned within each of the cavities A, B, C, and D of receptacle 10, with the base of the cup against back wall surface 18 and the top edge thereof against front wall surface 19. Side wall portions of the cup are nestibly received by the curvilinear or frusto-paraboloidal surface 17, and the handle portion of such cup is supported by inclined planar surface portion 22 with the outer edge thereof cushionably received by base portion 20 and side wall 21. It thus can be seen that the cup is snugly positioned within the cavity and that lateral movement is prevented by side wall 21 and the upper extent of curvilinear surface 17, and that transverse movement is prevented by back wall surface 18 and front wall surface 19. The overall weight of the receptacle 10 is of course reduced by the relieved or recessed portions 23 and 23*a*.

In addition, a plurality of frangible dish-shaped articles, such as saucers, are positioned within central cylindrical cavity E of tray 10 in a nested stacked relationship, preferably with paper separators therebetween. The outermost edges of the saucers cushionably engage arcuate portions 28 of the bounding wall surfaces. The bounding walls, being unitarily formed with the remainder of the tray of a foamed plastic such as foamed polystyrene, protect the edges of the dish-shaped articles from impact, and the arcuate portions 28 prevent lateral movement of the articles. The recessed corner portions 29 not only provide a ready access to the dish-shaped articles so that they may be easily grasped and removed from the tray, but also provide a slight access to the stacked dish-shaped articles when displayed within the tray so that the consumer may readily see the number of articles in each set and the design thereon.

Although we have disclosed the now preferred embodiment of our invention, it will be apparent to those skilled in the art that various changes and modifications may be made thereto without departing from the spirit and scope thereof as defined in the appended claims.

We claim:

1. An improved lightweight device of foamed plastic material for packaging and displaying a plurality of cup and saucers which comprises, a receptacle having a unitary body portion, said body portion having a plurality of upwardly-extending wall portions forming a plurality of upwardly-open separated cup-retaining cavities and an upwardly-open saucer-retaining cavity; each of said cup-retaining cavities having the bottom surface composed of a curvilinear surface portion for receiving side portions of a cup, an inclined planar surface portion communicating at its upper end with said curvilinear surface portion for supporting a handle on such cup, and a horizontal base portion communicating with the lower end of said inclined planar surface portion for facilitating the positionment of the outer edge of such handle; and said saucer-retaining cavity having a bottom portion provided with a circular upper surface bounded by upright walls having upwardly-outwardly tapered recessed corner portions formed therein.

2. An improved lightweight receptacle for packaging and displaying a plurality of cup-shaped and dish-shaped articles comprising, a unitary body of foamed plastic material having a bottom portion and upwardly extending wall portions, a pair of transverse walls and a discontinuous longitudinal wall cooperating with said first-mentioned wall portions to form a plurality of spaced-apart upwardly-open cavities, one of said cavities having a circular lower surface bounded by cylindrical wall surfaces communicating with the periphery of said circular lower surface, a plurality of recessed portions formed in said cylindrical wall surfaces having tapered surface portions inclined outwardly from portions of the periphery of said circular lower surface; the remainder of said upwardly-open cavities having a curvilinear surface portion for receiving side edge portions of a cup-shaped article, an inclined surface portion for receiving a handle on such article, and a horizontal surface portion for facilitating the positionment of an outer edge of such handle.

3. An improved lightweight receptacle as defined in claim 2 wherein said receptacle is formed of foamed polystyrene.

4. An improved device for protectively packaging and displaying a plurality of cup-shaped and dish-shaped articles which comprises, a unitary lightweight receptacle of molded plastic material, said receptacle having front, back and sidewall portions extending upwardly from a base portion, a pair of transversely extending walls and a discontinuous longitudinally extending wall intersecting and cooperating with said front, back, and side wall portions to divide said receptacle into a central cylindrical dish-retaining cavity and a plurality of adjoining cup-retaining cavities, each of said cup-retaining cavities having a curvilinear surface portion forming a portion of the base and a side wall of such cavity, and an inclined planar surface also forming a portion of the base communicating with said curvilinear surface portion; and said central cylindrical cavity having cylindrical side wall portions communicating with the periphery of a circular upper surface, and a plurality of recessed corner portions formed in said cylindrical surface having outwardly-upwardly tapered surface portions communicating with a portion of the periphery of said circular upper surface.

5. An improved device as defined in claim 4 wherein said front wall has a pair of curvilinear recessed portions each communicating with a cup-retaining cavity formed adjacent said wall so as to facilitate visual examination of the ware retained therein.

6. An improved device as defined in claim 4 wherein said base portion is provided with a plurality of relieved portions to minimize the weight of said device.

References Cited in the file of this patent

UNITED STATES PATENTS

D. 86,061	Shepard	Jan. 19, 1932
3,061,089	Higgins	Oct. 30, 1962