DE-NESTABLE MOLDED PULP TRAYS

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Another object of the present invention is to provide a molded pulp tray which, although being free of jamming characteristics, is yet of no greater overall size than standard trays of the same type.

Other objects and many of the attendant advantages of this invention will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings wherein:

FIG. 1 is a top plan view of an egg tray embodying the present invention.

FIG. 2 is a side elevational view of the tray of FIG. 1 taken on line 2--2 of FIG. 1, the tray being illustrated in nested position with other similar trays.

FIG. 3 is a fragmentary sectional view of the tray of FIG. 1 taken on line 3--3 of FIG. 1, the tray being shown in nested position with another similar tray.

Referring now in greater detail to the figures of the drawing wherein similar reference characters refer to similar parts, there is shown in FIGS. 1--3, an egg tray, generally designated 10, made of molded paper pulp and provided with a peripheral rim 12. The rim 12 constitutes the base plane of the tray, and from this base plane a plurality of rows of hollow posts 14 extend upwardly while alternately-arranged rows of generally complementary pockets 16 depend downwardly.

In addition to being arranged in alternate parallel rows, the posts and pockets are also arranged in alternate columns which extend transversely to the rows. Ribs 18 connect the posts to the posts adjacent thereto both in the rows and in the columns. The ribs 18, which radiate out from each post 14, also act to encompass each pocket 16 in a generally square pattern with the posts 14 at each corner, as best seen in FIG. 1.

At the edges of the tray, adjacent the peripheral rim, are provided half-posts 20 and half-pockets 22, the half-posts being aligned with each row of pockets. The half-posts 20 are further arranged in pairs with a rib 24 connecting each pair; these ribs 24 being approximately equal in height to the ribs 18. Between each pair of half-posts is a space 26 in the median or base plane of the tray. The half-pockets 22 are each separated from the other by lands 28 also in the base plane of the tray.

Projecting laterally from each end-wise positioned post and half-post on each row of posts and half-posts is a small lug or button 30; these lugs 30 being integrally connected to the corresponding post or half-post and being upstanding on the corresponding land 28. In addition, a pair of similar lugs 30 are positioned on each rib 24, with one lug of each pair extending from the adjacent sides of each half-post of the corresponding pair of half-posts. On the interior of the tray, identical lugs 30 are formed on the ribs 18 between alternate pairs of columns of posts; the lugs 30 extending from the adjacent sides of the posts of each alternate pair. As illustrated, the lugs 30 on the ribs 18 are disposed in a laterally offset relation to the lugs 30 on the ribs 24. The particular shape of the egg tray and the particular arrangement of the lugs 30 are illustrated by way of example and form, for some purposes, the preferable form of the invention, especially insofar as regards the arrangement of the lugs. However, other sizes and shapes of the pockets and posts may be used in combination with the lugs with equal effect, and the lugs may, if desired, be disposed in other arrangements.

In operation, when a set of egg trays 10 are nested, one within the other, and squeezed down with sufficient force to pack them tightly and efficiently into a self-contained package or stack, such as indicated in FIGS. 2 and 3, if it is desired to remove one or more of the trays from the stack, it is merely necessary to slip one's fingers into the notches provided by the spaces 26 and lift up

This invention relates to stable trays, and it particularly relates to molded pulp trays having means to prevent jamming when the trays are nested, one within the other, during storage or shipment.

One well-known characteristic of articles made from molded paper pulp is that it is generally not possible to construct side walls of absolutely vertical contour since it would be almost impossible to remove such articles from the forming die. It is, therefore, necessary to construct the side walls of such articles with a greater or lesser degree of inclination in every instance. Although this is generally true of any molded pulp tray, it is especially true of the so-called egg trays which consist of a large number of alternately arranged, generally complementary, hollow posts and pockets often interspersed with strengthening ribs, etc., which results in a very varied and intricate contour of the tray.

When packing these trays for storage or shipment, they are always nested one within the other in order to save space. In this nested relationship, a large number of trays are so stacked that the pockets of each lower tray snugly receive the pockets of each next adjacent upper tray while the posts of the upper tray enclose the corresponding posts of the lower tray. Since the pockets and posts, whether they be conical or polygonal, are provided with inclined side wall surfaces, when they are nested one within the other and then firmly packed together, as is necessary to use as little space as possible, the nested pockets and posts are so firmly wedged together that it is, therefore, necessary to use some means of disengaging these trays from each other by hand without tearing or distorting the trays.

Because of the above condition, it has become the general practice in the egg packing industry to use specially designed machines for de-nesting the stacks of egg trays after they are received from the manufacturer. These machines are rather complex and expensive and create an obviously burdensome problem to the egg packer—especially to the smaller egg packer or farmer who cannot readily afford to purchase and maintain such a machine. This has been one of the primary factors in preventing the universal substitution of this type of egg tray for the older but generally less effective packing materials otherwise in use.

In order to prevent the jamming or wedging together, various means have previously been used. Such means have, for example, taken the form of indentations or shoulders or of outwardly extending flanges or beads. However, such indentations have not only involved the disengagement of the trays or tray portions in order to compensate for the indentations while yet permitting the required insertion of the eggs. This resulted in a general enlargement of the trays which did not permit them to be packed within a standard sized egg case. The same result was effected by the use of the outwardly-extending beads or flanges. Furthermore, none of the prior type of non-jamming means was really effective to permit easy disengagement of all parts of the trays simultaneously. On the contrary, they were generally only partially effective in particular areas. Consequently, up to this time, it has still been necessary to use the above-mentioned de-nesting machines.

It is an object of the present invention to overcome the above difficulties by providing a molded pulp tray which is completely free of jamming characteristics when nested.
3 gently. This immediately effects a release of the tray from the stack. This is due to the fact that the lugs 30, while sufficiently small to permit the close nesting of the trays, are, nevertheless just large enough to prevent the tightly wedged, vacuum-like jamming between the trays.

Obviously many modifications and variations of the present invention are possible in the light of the above teachings. It is, therefore, to be understood that within the scope of the appended claims the invention may be practiced otherwise than as specifically described.

What is claimed is:

1. A molded pulp tray comprising a sheet defined by a peripheral rim, a plurality of parallel rows of hollow posts extending up from the plane of said sheet, a plurality of parallel rows of pockets extending down from the plane of said sheet, said rows of pockets being alternately arranged with said rows of posts, ribs connecting said posts to each other, and a plurality of integrally molded solid lugs of relatively narrow width, each said lug being joined to the side wall of one post and to the top of an adjacent rib and being outside of said pockets.

2. A molded pulp tray comprising a sheet defined by a peripheral rim, a plurality of parallel rows of hollow posts extending up from the plane of said sheet, a plurality of parallel rows of pockets extending down from the plane of said sheet, said rows of pockets being alternately arranged with said rows of posts, ribs connecting said posts to each other, a column of relatively narrow solid lugs between at least one pair of rows of posts, each said lug being joined to the side wall of one post and to the top of an adjacent rib and being outside of said pockets.

3. The molded pulp tray of claim 2 wherein additional narrow solid lugs are provided adjacent said peripheral rim.

4. A molded pulp tray comprising a sheet defined by a peripheral rim, a plurality of parallel rows of hollow posts extending up from the plane of said sheet, a plurality of parallel rows of pockets extending down from the plane of said sheet, said rows of pockets being alternately arranged with said rows of posts, ribs connecting said posts to each other, and a plurality of integrally molded solid lugs of relatively narrow width, each said lug being joined to the top of one of said ribs and being outside of said pockets.

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