PLASTIC TRAY FOR EGGS

Inventor: Hikoji Noguchi

Filed: Sept. 8, 1970

U.S. Cl. 217/26.5, 229/2.5, 229/29 M
Int. Cl. B65D 81/00
Field of Search 217/26.5, 229/29 M, 2.5

ABSTRACT

Plastic tray for eggs which can readily and stably be stacked or packed in layers within a carton by means of novel convex and concave projections provided thereto which cooperate with the corresponding convex and concave projections provided to another plastic tray of the same kind when a number of trays of the same kind are disposed one over the other by turning them alternately at an angle of 180°, and which can rightly be disposed in the manner mentioned above by means of handling portions provided to opposite two flanges of the tray and having configurations different from each other.

4 Claims, 6 Drawing Figures
3,675,806

1. PLASTIC TRAY FOR EGGS

This invention relates to a plastic tray for eggs. It is a principal object of the present invention to provide a plastic tray for eggs which can readily and stably be stacked or packed in layers within a carton by means of novel convex and concave projections provided thereto which cooperate with the corresponding convex and concave projections provided to another plastic tray of the same kind when a number of trays of the same kind are disposed one over the other by turning them alternately at an angle of 180°, and which can rightly be disposed in the manner mentioned above by means of handling portions provided to oppose two flanges of the tray and having configurations different from each other.

It is another object of the present invention to provide a plastic tray for eggs of the kind mentioned above, in which the flanges are provided with a rib which is made integral with the flanges and extends upwardly therefrom, whereby the mechanical strength of the tray is remarkably strengthened.

It is still another object of the present invention to provide a plastic tray for eggs, in which walls which form a plurality of cavities for receiving eggs therein are downwardly curved at their top edges, whereby the eggs contained in the cavities may easily be taken out.

In the accompanying drawings, in which a preferred embodiment of a plastic tray for eggs in accordance with the present invention is illustrated,

FIG. 1 is a plan view of the plastic tray for eggs made in accordance with the present invention, in which part thereof is cut off for the simplicity of the drawing.

FIG. 2 is a side elevation as viewed from the direction of line II—II in FIG. 1.

FIG. 3 is a sectional view taken along the line III—III in FIG. 1.

FIG. 4 is a sectional view taken along the line IV—IV in FIG. 1.

FIG. 5 is a sectional view taken along the line V—V of FIG. 1, and

FIG. 6 is a sectional view taken along the line VI—VI in FIG. 2.

Now, with reference to the drawing, a plastic tray for eggs made in accordance with the present invention and indicated generally by the numeral 1 is a substantially oblong rectangular tray provided at its four sides with flanges 2, 2', 2'' and 2''' which extend horizontally outwardly from the main body of the tray. A plurality of cavities 3 for receiving therein eggs are provided to the body of the tray in such a way that these cavities are drawn up crosswise in lines. Said cavities 3 are shaped as upset truncated cones and provided at their lower parts with pockets 9 the diameters of which are less than those of the cavities 3 and which are provided around their circumferential walls with flats 9', as illustrated in FIG. 6.

It is advisable for keeping eggs fresh to store or carry them by having their acute ends downward, that is, in other words by having their air chambers upward. When eggs are put into the cavities 3 in the manner as described above, their acute ends come into abutment with the flats 9' of pockets 9 and are resiliently supported in said pockets.

To each of bottoms of pockets 9, there is provided a circular recess 11 which projects upwardly inwardly into the pocket. Being four adjacent cavities 3, there are provided projections 5 which are shaped as upright truncated cones and have top surfaces of a diameter substantially equal to that of the bottom surfaces of pockets 9. To the top surface of each projection 5, there is provided a convex projection 4, the dimension of which is substantially equal to that of the circular recess 11. The projections 5 and convex projections 4 thereof which are along the flange 2 are shaped as halves of other projections 5 and convex projections 4, which are taken in the vertical direction, and are indicated by the numeral 7 in order to distinguish them from the projections 5. The cavities which are along the flange 2' which is opposite to the flange 2 are shaped as halves of other cavities 3, which are taken in the vertical direction, and are indicated by the numeral 6 in order to distinguish them from the cavities 3. Likewise, cavities 6 extending in a row along the flange 2', which is transverse to the flanges 2 and 2' are halves of other cavities 3. And, the projections 5 and convex projections 4 made integral with said projections and extending in a row along the flange 2''' which is opposite to the flange 2' are halves of other projections 5 and convex projections 7 thereof, and indicated by the numeral 7. Inwardly projected portions 8 and 8' of different configurations are provided to the flanges 2 and 2' for handling of the tray.

In the embodiment illustrated in the drawing, the aforementioned cavities 6 have such a height that they abut at their bottom to the convex projections 4 of the projections 5. However, said cavities 6 might be provided with semicircular recesses which correspond to the recesses 11 and can indeed be fitted to the convex projections 4 of projections 5.

To the flanges 2, 2', 2'', 2''', there is provided a rib 12 which is made integral with the flanges and project upwardly therefrom. Said rib 12 works to reinforce the mechanical strength of the flanges which are comparatively thin in their thickness. Upper edges 13 of walls which form the cavities 3 are inwardly curved at their central portions, as best shown in FIG. 3.

The portion 8 which makes it easy to handle the tray especially when the tray is stored into a carton, inwardly projects to such an extent that the inner linear edges thereof runs substantially in parallel with the innermost upper edges of the cavities 6. And the other portion 8' for handling the tray consists of a linear part 14 and inwardly curved part 14'.

Each part of the tray in accordance with the present invention are made integral with each other by plastics by means of injection, compression or extrusion molding said materials. The numeral 10 indicates an egg to be stored in the tray.

The trays having the constructions as stated above and provided with eggs at each of the cavities thereof may be stored by stacking them in layers one over the other in such a manner that the trays are disposed by turning them alternately at an angle of 180° in the horizontal direction. In other words, the trays are disposed in layers, so that the holding projection 8' of one of the trays may be located above or below the projections 8 of other trays which are vertically next to said one of the trays. By stacking the trays in the manner described above, the convex projections 4 of a tray are insertedly fitted into the circular recesses 11 of cavities 3 of the tray which is stacked over the former tray, and the projections 7 of the former tray come into abutment with the bottoms of the cavities 6 of the latter tray, as best shown in FIG. 2.

When the trays are stored in layers within a carton for the sake of transportation, the circumferential measurement of trays should be substantially equal to the inner diameter of the carton. It shall be noted that the holding portion 8 and 8' do not only help a packer to stack the trays in the order as above mentioned, but also help him to take out the trays from the carton since said holding portions are inwardly recessed and form gaps between the trays and the inner walls of the carton, which permit him to insert his fingers thereinto to grasp the trays.

As the advantageous points of the present invention, it shall be noted also that the provision of rib 12 does considerably reinforce the mechanical strength of the tray as a whole, and that the inwardly curved upper edges 13 of walls of cavities make it easy to take out from the tray the eggs 10 housed within the cavity as shown in FIG. 3.

It will be obvious to those skilled in the art that various changes may be made without departing from the scope of the invention and the invention is not to be considered limited to what is shown in the drawings and described in the specifications.

What is claimed is:

1. A plastic tray for eggs: which comprises a substantially oblong rectangular body provided at its four sides with flanges extending horizontally outwardly from the body and a plurality of cavities for receiving eggs therein which are drawn up crosswise in rows; said cavities being shaped as upset trun-
3,675,806

cated cones having at their bottoms circular recesses; projections provided between each four adjacent cavities and shaped as upright truncated cones having at their top surfaces convex projections; a row of projections extending along the inner edges of two of said flanges and having a height substantially equal to that of the first-mentioned projections; a line of cavities extending along the inner edges of said other flanges which are opposite to the first-mentioned two flanges; and portions for grasping the tray which are provided to two of said flanges which are opposite to each other, said portions having configurations different from each other; said circular recesses provided to the bottoms of said cavities being engageable with the convex projections provided to the top surfaces of the first-mentioned projections, and the line of second-mentioned projections coming into abutment with the bottoms of the row of the second-mentioned cavities when a number of the trays are stacked in layers in such a manner that they are disposed one over the other by turning them alternately at an angle of 180° in the horizontal direction; said portions for grasping the tray acting as indicators for stacking the trays in the manner described above and enabling the removal of a tray from a carton when the trays are housed within the carton.

2. A plastic tray for eggs as claimed in claim 1, in which the second-mentioned projections are shaped as the first-mentioned projections cut perpendicularly into halves, and the second-mentioned cavities are shaped as the first-mentioned cavities cut perpendicularly into halves but not provided with the circular recesses.

3. A plastic tray for eggs as claimed in claim 1, in which the flanges are provided with a rib integrally made therewith and extending upwardly therefrom.

4. A plastic tray for eggs as claimed in claim 1, in which the walls forming the plurality of cavities for receiving eggs are downwardly curved at their top edges.

* * * * *