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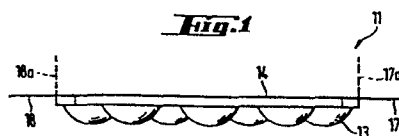
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(54) Packing trays.

(57) A packing tray comprising:
main body means (12),
said main body means including receptacle means (13)
for retaining articles for packaging in boxes,
characterized in that there are provided handle means
(17, 18) external to said main body means (12), and
in that said handle means (17, 18) are coupled to said
main body means (12) so as to maintain the dimensions of
said main body whereby said main body with said handle
means (28, 29) can fit into the boxes in the same manner as
without the handles. The tray is useful for stacking in boxes.



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Packing trays

This invention is concerned with trays and more particularly with packing trays used to protect and separate items being shipped in cartons, or
5 boxes, for example.

At one time many delicate items such as fruit, were shipped in burlap bags. Thus, for example, citrus fruits were packed in burlap bags for shipment. Soon it became apparent that the damage to the fruit
10 during shipment in this manner was extensive. Accordingly it was found that it was economical to ship the delicate fruit in boxes and/or cartons. The money saved by avoiding damage to the fruit more than paid for the cartons. Subsequently it was found that
15 if the fruit was separated during the shipment by first putting the fruit in trays and then packing the trays in the carton, a further significant reduction in the amount of damage was effected. Therefore, it was economical to provide such packing trays.

Generally such prior art packing trays comprise a main body section having a plurality of receptacles such as partial cup sections in the main body of the tray for receiving the individual fruits.

5 The trays must be inexpensive, accordingly they are generally made of thin material which bends easily. The trays, in fact, tend to bend when the fruit is in the tray and the tray is being transferred to the cartons. Thus, there is a long-standing problem when

10 using such trays. The problem is the inherent difficulty of placing the loaded trays into the cartons or boxes. The same problem arises when removing the loaded trays from the boxes.

A solution in the prior art has been to make

15 the trays of a more substantial material and provide integral finger grips on the sides of the trays. However this solution has not proved generally feasible. For one thing, it is clumsy to insert the trays into the boxes using the integral finger grip arrangement.

20 Also it is clumsy to remove the trays using the finger grip arrangement. Further the finger grip arrangement is only feasible, if at all, when the tray itself is of a sufficiently rigid material or sufficiently thick to provide rigidity for supporting the fruit. Thus when

25 using such finger grip equipped trays less fruit can be packed within the same cubic volume and more expensive trays are required. Since shipping charges

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are generally based on volume, this adds significantly to the expense of the shipping.

Accordingly, there has been a long standing need for some means to facilitate handling such trays
5 without decreasing the number of fruit per unit volume that can be shipped.

Accordingly it is an object of the present invention to provide new and improved packing trays in which the above referred to disadvantages are substan-
10 tially reduced or overcome and the above referred to features are substantially attained.

According to the present invention an improved packing tray is provided, said tray comprising:

main body means,

15 said main body means including receptacle means for retaining articles for packaging, and handle means external to said main body means,

said handle means coupled to said main body
20 means to maintain the dimensions of said main body whereby said main body means with said handle means can fit into packages in the same manner as without handles.

A feature of the invention provides external
25 handle means that are planar and extremely flexible.

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A further feature of the invention provides such external handles at the longitudinal ends of the main body means.

Yet another feature of the invention
5 provides such external handles at the sides of said main body means.

Yet another feature of the invention uses handles characterized so that packed trays with the handles do not interfere with ventilating openings in
10 the cartons.

Still another feature of the invention provides handle means that are solid and planar while a further feature of the invention provides planar handle means that have cut-outs therein for receiving
15 the user's hand in the handles.

The operation and utilization of the present invention will be more fully apparent from the description of a preferred embodiment taken in conjunction with the following drawings, in which:

20 Fig. 1 is a pictorial showing of a preferred embodiment of the improved packing tray with external handles,

Fig. 2 is a side view of the tray of Fig. 1,
Fig. 3 shows the trays as packed in cartons,
25 and

Fig. 4 shows another embodiment of the handle means.

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The packing tray 11 as shown in the drawings is a plastic embodiment used in packing citrus fruits. However, it should be understood that while this embodiment is described in an exemplary fashion herein, such description is not a limitation on the scope of the invention. Thus the packing trays can be used for goods other than citrus fruits. Similarly, material other than plastic with which to fabricate the trays can also be used within the scope of this invention.

The plastic tray 11 comprises a main body section 12. The main body section has therein a plurality of receptacles such as receptacle 13 for receiving the products to be packaged. It also has slightly raised border therearound shown as border 14.

The material used for packaging of fruit in this preferred embodiment is a very thin PVC material in the order of 1/10 to 3/10 of a mm of thickness. The main body section is also shown to have therein ventilating holes such as hole 16 to assure ventilation throughout the package. Drainage holes (not shown) for condensation or other fluids may also be provided at the bottoms of the receptacles.

Integral to the main body sections are means for handling the transporting the packaging tray when loaded with the articles to be packages. More particularly two wings or handles 17 and 18 are

provided, one on either longitudinal side of the main body. The handles are shown as having a trapezoidal shape. This shaped handle enables the handles when turned up in the cartons such as shown in Fig. 3 to remain clear of ventilating holes normally placed in the cartons to assure constant ventilation of the fruit within the carton, for example. If the devices held in the packing are devices that do not require ventilation then the holes in the main body are not required.

When the packing tray comes out of the mold with the integral handles thereon they are normally in the position shown in Figs. 1 and 2. However by making scoring lines such as shown at 19 and 21 for handles 17 and 18 respectively, the handles then assume a position normal to the main body such as shown in dashed line form in Fig. 1 at 17a and 18a.

The upstanding position of the handles 17a and 18a provides a synergistic benefit for the packing tray with handles. Oftentimes, the trays are automatically filled. They are sent on a conveyor to be automatically loaded with fruit. The prior art trays without handles tend to climb over each other rather than push each other along as intended. The handles assure that there is no climbing and that the trays move as intended.

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Fig. 3 shows the trays in a packing carton. The packing carton is designated as carton 22. In it there is located the tray 11 having a main body 12, receptacles 13, a border 14 and side handles 17 and 18 which are held by the carton in a position normal to the main body 12. Because of the thinness of the material used, the handles take up almost no room. Similarly the handles use very little material during molding of the trays.

10 The articles to be packed are shown as oranges such as orange 23. Stacked on top of the first tray full of oranges is a second tray having a main body 24, a border or abutment region 26, receptacles such as 27 and handles 28 and 29. Note that the
15 handles of the stacked trays overlay each other.

 The trapezoidal shape of the handles assures that the handles do not cover the ventilating holes normally placed in the cartons when fruit is packed. Note that a plurality of trays loaded with the articles
20 can be stacked one on top of the other without the handles taking any room and still being in a position to aid a person in removing the trays from the carton.

 Fig. 4 shows another embodiment 31 of the handle. In this embodiment the handle has an arcuate
25 shape with a space 32 therein to enable the fingers to encircle the outer section 33 of the handles. The

space separates the outer section 33 from the inner section 34 which is integral to the main body 36.

Many different shapes can be utilized within the scope of the invention. The key thing is that the
5 handle does not interfere with the packaging but enables the packers to handle the packing trays with greater facility and ease. In addition the handles take up almost no room, cost almost nothing since they simply are part of the same molding process which makes
10 the trays.

In use the handles are made external to the main body but integral thereto. The handles are either extremely flexible or are inherently positioned normal to the main body so as not to take up any room or any
15 additional volume when packing the trays having the goods therein. These trays with the handles are ideal for automatic loading since the handles prevent one tray from climbing on another and thus implement the use of the trays for the automatic loading by assuring
20 that one empty tray pushes the next empty tray along. When the trays are loaded the packer merely lifts the tray using the external handles and places the tray in the open carton.

While the handle is in the preferred embodiment
25 ment shown at the longitudinal ends, the handle can also be placed on the shorter ends or sides of the packing tray within the scope of this invention.

While the principles of the invention have been described above in connection with specific apparatus and applications, it is to be understood that this description is made by way of example only
5 and not as a limitation on the scope of the invention.

CLAIMS

1. An improved packing tray, said tray comprising:
main body means,
said main body means including receptacle means for retaining articles for packaging in boxes,
characterized in that there are provided handle means external to said main body means, and
in that said handle means are coupled to said main body means so as to maintain the dimensions of said body whereby said main body with said handle means can fit into the boxes in the same manner as without the handles.
2. The packing tray of Claim 1 characterized in that said handle means are flexible.
3. The packing tray of Claims 1 and 2 characterized in that said handle means are thin being in the order of 0.1 to 0.3 millimeter.
4. The packing tray according to any one of the preceding claims characterized in that said external handle means are at the longitudinal ends of said packing tray.

5. The packing tray according to any one of the preceding claims characterized in that said external handle means are at the sides of said packing tray.

6. The packing tray according to any one of the preceding claims characterized in that said handles are formed in such a manner that stacking trays with handle means does not interfere with ventilating openings in said boxes.

7. The packing tray according to any one of the preceding claims characterized in that said handle means are solid and planar.

8. The packing tray of Claims 1-6 characterized in that said handles are planar with cut-outs for the user's hands and improved ventilation.

9. The packing tray of Claim 6*characterized in that said handles are trapezoidal shaped.

10. The packing tray according to any one of the preceding claims characterized in that said tray is thermoformed from PVC.

Fig. 1

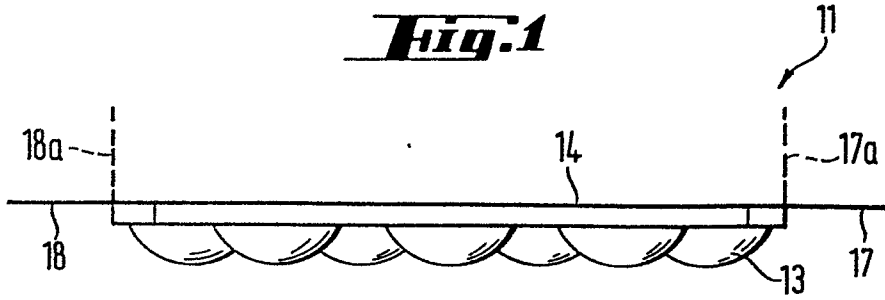


Fig. 2

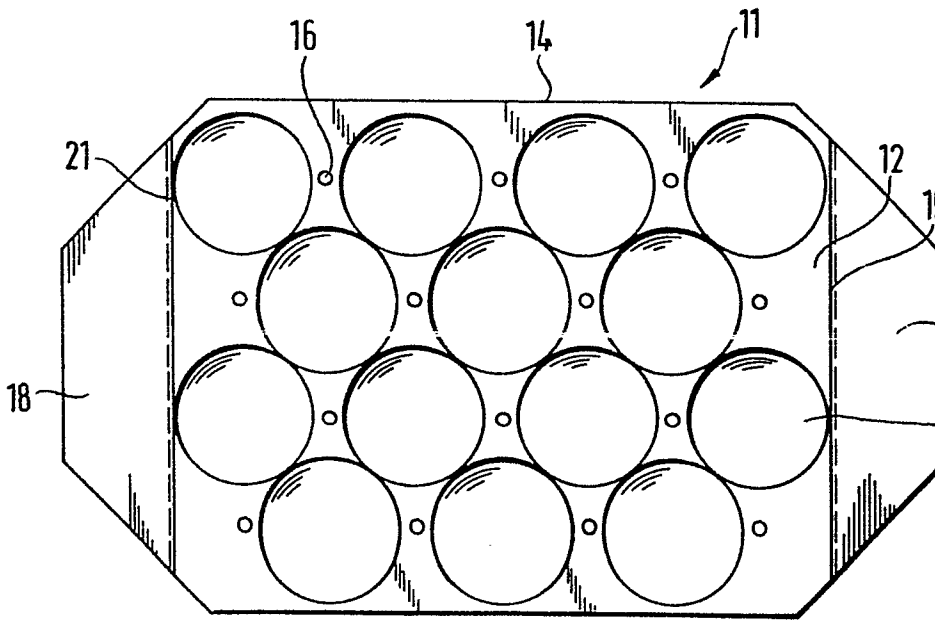


Fig. 4

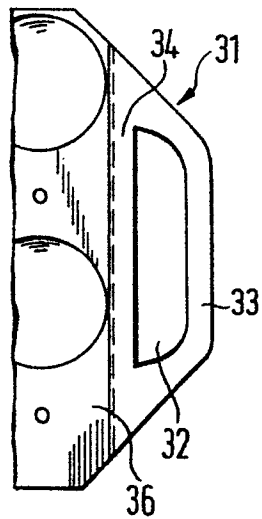
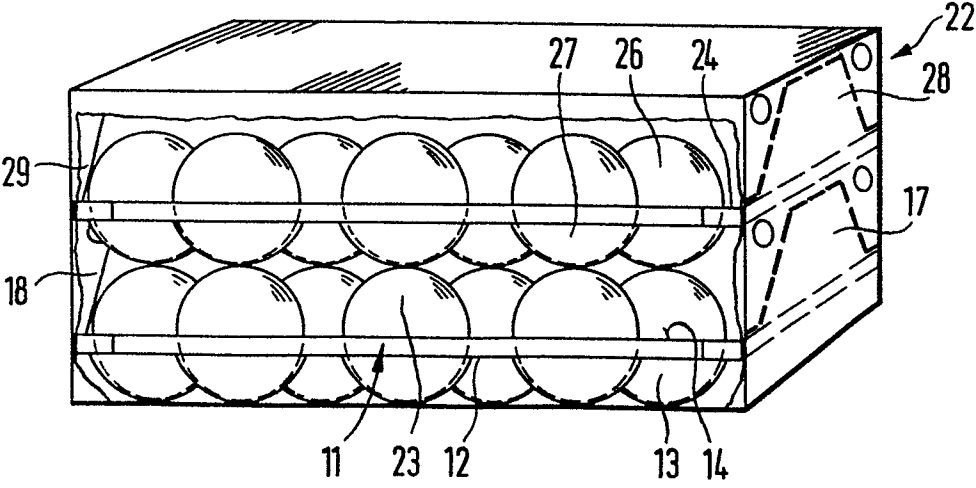


Fig. 3





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EUROPEAN SEARCH REPORT

0087925
Application number

EP 83 30 0967

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
X	US-A-2 778 490 (EMERY) * Column 2, lines 13-25, 59-63; column 4, lines 18-28; figures 1-7 *	1,2,4,5	B 65 D 85/34 B 65 D 1/36
X	--- US-A-3 306 484 (PADOVANI) * Column 3, lines 14-20; figure 1 *	1,2,4,5,9	
A		6,10	
X	--- DE-B-1 080 475 (MAZZI) * Column 3, lines 13-33; figures 1-3 *	1,2,4,5	
X	--- US-A-3 565 321 (WEISS) * Whole document *	1,2,4,5,6,10	B 65 D
P	--- FR-A-2 493 812 (SOCIETE D'INTERET COLLECTIF AGRICOLE) * Whole document *	1,4,7,8	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 01-06-1983	Examiner VANTOMME M. A.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			