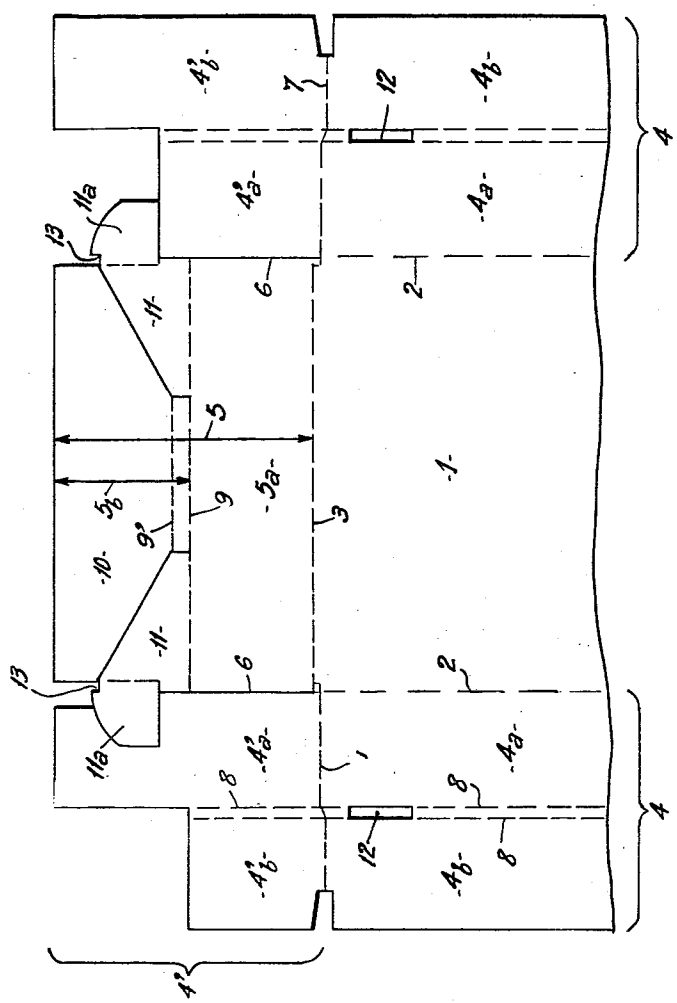
Jan. 21, 1964 A. C. ALLARD 3,118,591

CARDBOARD TRAY FOR FRUIT

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Fig. 1



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Fig. 2

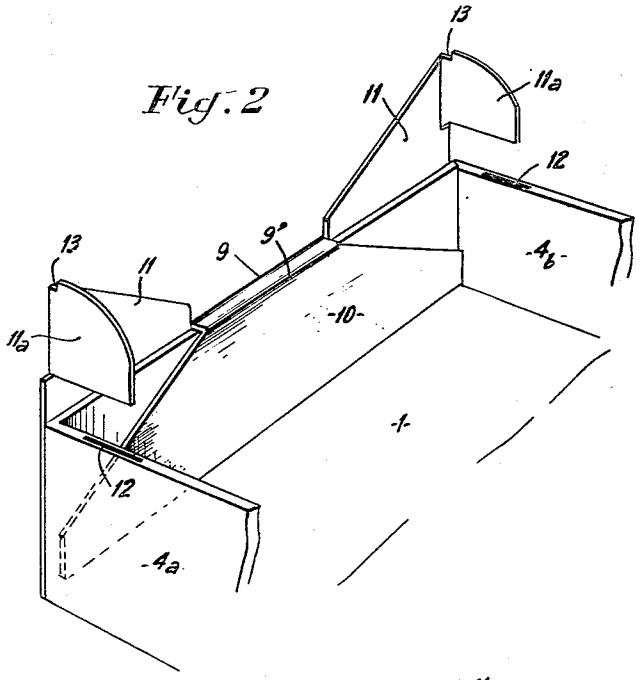
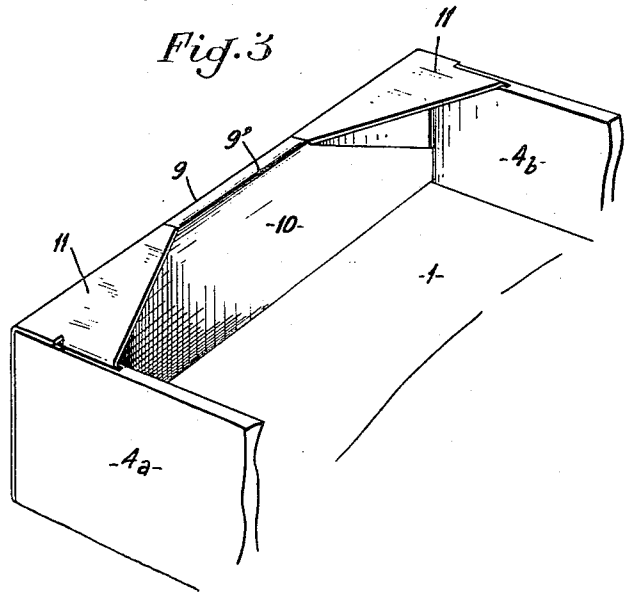


Fig. 3



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CARDBOARD TRAY FOR FRUIT

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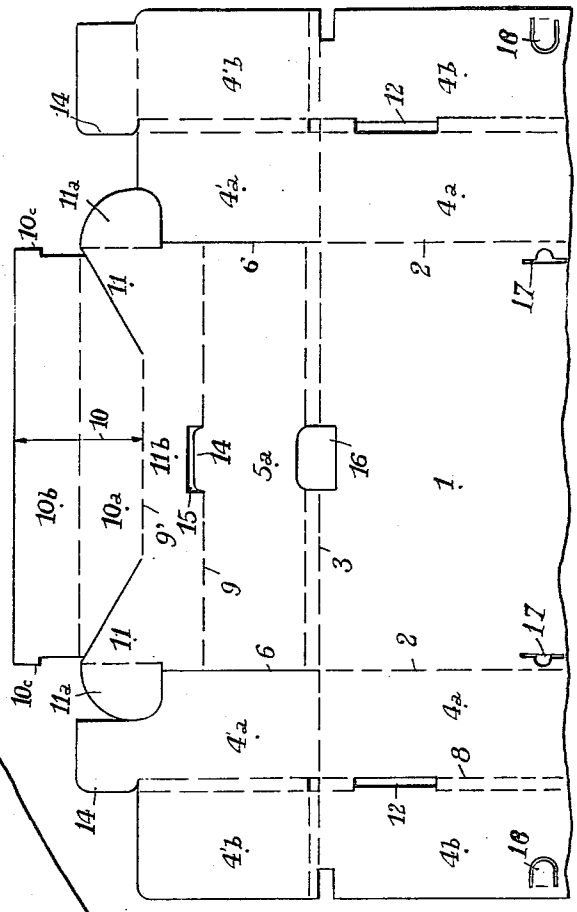


Fig. 4

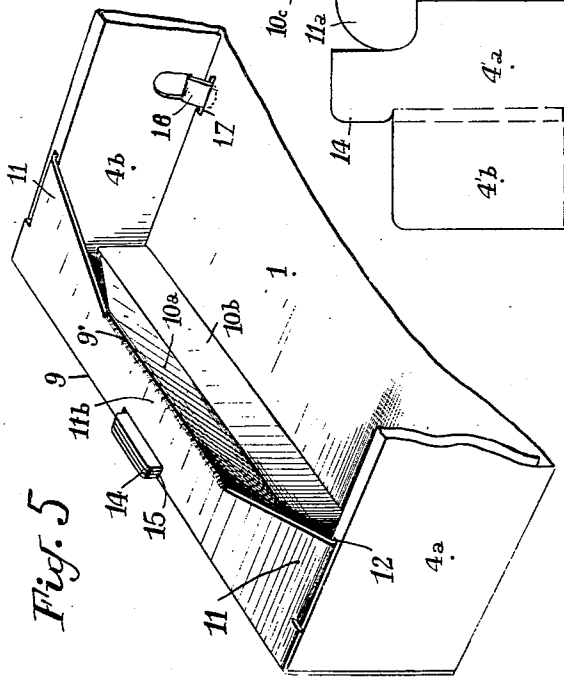


Fig. 5

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3,118,591

CARDBOARD TRAY FOR FRUIT

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2 Claims. (Cl. 229—34)

The present invention relates to a tray of the kind used for transporting fruit, which tray is of generally rectangular shape and is constructed so that identical trays can be stacked one on the other and be transported without the trays moving with respect to each other.

The fruit tray in accordance with the invention is more particularly of the type formed from a rectangular blank with suitable grooves, notches and cutouts, which is especially characterized by the fact that peripheral elements of the said blank are folded along the four edges of the bottom, to form four walls for the tray. Furthermore, the peripheral elements are folded back on themselves towards the interior about folding lines parallel to the said sides, so as to form walls of double thickness.

It is a general object of the invention to provide a fruit tray which is easily assembled from a rectangular blank of foldable material and providing sturdy ledges and sides to permit stacking of the trays when they are filled with fruit.

The fruit tray according to the present invention is essentially characterized in that the parts thus folded back towards the interior of two opposite walls of the tray are cut-out in such manner as to form a central portion folded back towards the interior and two wings which, after final folding of the whole unit, constitute corner pieces extending parallel to the bottom of the tray and fitted on the upper portions of the tray corners, tongues of suitable shape formed at the extremities of the said wings securing the said corner pieces by engaging in corresponding slots formed on the two other opposite walls of the tray.

The corner pieces according to the present invention have the advantage that they provide better behaviour of the trays when stacked and enable their sides to be squared off in an improved manner.

In accordance with an alternative form of the improvement according to the present invention, the said central portion comprises a horizontal element located in the same plane as the corner pieces and forming with the latter a continuous ledge, the portion folded back towards the interior proper, constituting an obliquely-directed bracing member and being fixed to the walls, alternately at the base of the walls against the bottom of the tray, or at a suitable intermediate height.

In accordance with a further particular feature of the invention, the said horizontal portion comprises a window in which is engaged a tenon formed at the upper part of the member forming the transverse wall.

Further features of the tray in accordance with the invention will become apparent from the description which follows, reference being made to the accompanying drawings, in which:

FIG. 1 shows a partial view of a blank cut out, grooved and slotted, from which is formed the tray provided with its corner pieces.

FIG. 2 is a partial view in perspective of the tray with the tongues not yet engaged in the corresponding slots.

FIG. 3 is a partial view in perspective of the completely assembled tray.

FIG. 4 is a partial view of a blank from which is formed an alternative type of fruit tray according to the invention.

FIG. 5 is a partial view in perspective of the tray obtained from the blank formed as shown in FIG. 4.

The blank shown in FIG. 1 comprises a central panel 1 limited by the folding lines 2 and 3 forming the bottom of the tray. Longitudinal peripheral panels 4 and end panels 5 surround the panel 1. The panels 5 are limited laterally by cutting-lines 6, which are extensions of the folding-lines 2.

On the other hand, the longitudinal panels 4 are extended beyond the folding-lines 3, and the folding-lines 7 forming extensions of these latter, by flaps 4' separated from the panels 5 by cutting-lines 6.

The panels 4 and 4' are divided by a central folding line 8 into two elements, *4a*, *4b* and *4'a*, *4'b* respectively. In the same way, the panels 5 are divided by a central folding-line 9 into two elements *5a* and *5b*.

The element *5b* which is folded back during the assembly is cut-out according to the present invention as shown in FIG. 1.

This cut divides the element *5b* into a central folded-back portion 10 and two wings 11, the latter being provided with small tongues *11a* cut-out from the adjacent element *4'a* during the cutting of the dividing line 6.

A folding-line 9' extends parallel to the line 9 over the width of the central folding-back portion 10.

As shown in the drawings, one of the elements *4'a* located on the right-hand side of the panel 5 is cut-off at a suitable length, as is also the element *4'b*, located on the left-hand side of the same panel 5. This permits the formation of an end wall of two thicknesses of material for its entire length, as will be shown hereinafter.

Slots 12 are formed in the panels 4 along the folding-lines 8, at a suitable distance from the folding-line 7.

The assembly of the tray is carried out in the following manner:

The peripheral elements *4b* and their extensions *4'b* are folded-back along the folding-line 8 against the elements *4a* and their extensions *4'a*. These elements thus folded-back on each other are erected around the bottom 1 by folding along the lines 2.

The superposed elements *4'a* and *4'b* are folded in turn at right angles about the folding-line 7, which is folded-back on itself, to a vertical position immediately above the folding-line 3. It will be observed that by reason of the asymmetric cutting-out of the elements *4'b* and *4'a* located on each side the panel 5, the latter elements can join and overlap each other without producing any additional thickness, whereby the end wall is constituted by two thicknesses of material along its entire length.

In order to complete the end wall of the tray, the element *5a* of the end panel 5 is erected vertically by folding about the line 3, so that it overlies the elements *4'b* and the elements *4'a*. The central folding-back portion 10 is then folded-back above the latter elements, the folding-lines 9 and 9' acting as a hinge. The extremities of the folding back portion 10 are wedged in the slots provided for that purpose in the elements *4b*, thus preventing any accidental lifting of the folded-back portion 10.

In this way, the longitudinal sides and end walls of the tray are formed.

In accordance with the invention, the wings 11 are placed in a horizontal position, the lines 9 acting as a hinge. The tongues *11a* are folded perpendicularly to the planes of the wings 11 and are engaged in the slots 12 opposite which they are located when the wings 11 are correctly folded-back (FIGS. 2 and 3).

The tongues *11a* are thus engaged between the elements *4a* and *4b* which form the longitudinal side walls of the tray.

In order that the tongues may be perfectly locked in

the engaged position, their profile may be such that they jam slightly when introduced into the slots 12 and that they only take their normal position when the edges of the slots located between the folding-lines 8 are engaged in the notches 13 formed in the tongues 11*a*. It can be seen that the wings 11, when correctly locked in the horizontal position, form corner pieces fitted on the upper portion of each of the corners of the tray and give the tray the advantages which have been referred to above.

It is quite clear that the shapes given to the cut-out of the element 5*b* of the panel 5 (and in consequence the shapes of the corner pieces) may vary as may also the profiles of the small tongues 11*a* and the size or the precise position of the slots 12, without such forms of construction falling outside the scope of the present invention.

The blank shown in FIG. 4, which is cut-out in a manner similar to that shown in FIG. 1, is essentially distinguished from this latter in that the portion included between the folding-lines 9 and 9', instead of having a width substantially equal to the thickness of the double walls formed by the elements 4'*a* and 4'*b*, has a considerably greater width and constitutes a strip 11*b* joining together the two wings 11 which form the corner pieces.

In the form of embodiment shown, the folding-back portion 10 is itself sub-divided into a first element 10*a* of trapezoidal shape, extended by a second rectangular element 10*b* provided at its extremities with locking-tongues 10*c*.

When the tray is assembled (FIG. 5) the central strip 11*b* and the wings 11 form a continuous shelf joining together the two longitudinal side walls of the tray. The trapezoidal element 10*a*, which takes up an oblique position between the folding-line 9' and the transverse wall, forms a bracing member which supports the said shelf, and strengthens and increases the resistance to compression of the shelf of the tray. The rectangular element 10*b* lies against the end wall and is fixed to the elements 4*b* by means of locking tongue 10*c*.

In accordance with other forms of embodiment, permitting a certain economy in material, the oblique element 10*a* is not extended by element 10*b* but is supported directly, at any desired height, on the wall 5*a* and is fixed thereon by appropriate means such as tongues, studs or tenons engaged in the cut-out female portions. There is thus obtained a kind of angle-iron profile extending over the entire length of the transverse wall, the inclination of which is a function of the height of its point of fixing on this wall or on the extremities of the two adjoining walls.

In accordance with a further feature of the invention, tenons 14 are formed at the extremities of the elements 4'*a* and 4'*b* which are to be overlapped. During the folding operation, these tenons are tightly engaged in an opening 15 formed in the centre of the strip 11*b*. When the tray is assembled, these tenons project through the shelf (FIG. 5) and constitute means securing the overlapped elements to the end panel in operative position. When the trays are stacked, the projecting tenons enter into an opening 16 formed in the bottom 1 of another tray, opening 16 is located centrally and at the bottom of each end wall as best seen in FIG. 4.

The alternative form of the invention which constitutes the subject of FIGS. 4 and 5 makes it possible on the one hand to obtain a better assembly of the elements 4'*a* and 4'*b*, by virtue of the co-operation of the tenons 14 and the opening 15, and on the other hand providing means for stacking the trays. This latter feature results

from the size of the overlapping surface constituted by the shelves, which serves as a ledge for the trays and also from the connection made between the trays by the co-operation of the tenons 14 of the lower tray with the opening 16 of the tray above.

In accordance with the invention, the securing of the longitudinal sides of the tray to the bottom is effected by the insertion of tongues 18, cut-out in the elements 4*b*, into slots 17 formed in the bottom 1 of the tray. These slots 17 have a semi-circular widened portion centrally thereof, which facilitates the introduction and the correct fixing of the extremities of the tongues 18 thereinto.

All or part of the improvements which have been disclosed could of course be applied to any other packing means not specifically intended for the presentation and conditioning of fruit.

The tray according to the invention is constituted from a blank preferably of cardboard which has been made rigid and impermeable by appropriate treatment.

What I claim is:

1. A tray formed from a generally rectangular blank of material comprising a pair of peripheral elements folded and erected to form parallel side walls and a rectangular base, said peripheral elements being folded back on themselves in facing relation along fold lines parallel to the base to form side walls of double thickness, said pair of peripheral elements each including a projecting end portion extending perpendicularly from the erected side walls towards a corresponding end portion of the other of the pair of peripheral elements, each said end portion partially including peripheral elements folded back on themselves to form walls of double thickness and a single thickness of material completing each said end portion, said end portions forming an end wall for said tray in which the portions of single thickness thereof overlap one another in facing relation and together with the portions of double thickness provide two thicknesses of material for said end wall all along the length of the end wall, said blank including an end panel extending from the base beyond the end wall and coextensive in length therewith, means securing the said overlapped portions of single thickness and the end panel together in operative position, a pair of wings foldably connected to the upper edge of said end panel, each wing including a tongue hinged to the outer edge thereof, said blank being provided with a slot in the fold line defining the upper edge of each side wall, said tongues each being engaged in a corresponding one of said slots with the tongues folded downwardly relative to the wings and with the end panel overlying the entire end wall in facing relation and said wings are folded thereover such that said wings are parallel to said base, said tongues being effective to secure the end panel to the side walls and thereby cause the end panel to reinforce the end wall and provide a third thickness of material therefor along the entire length thereof.

2. A tray as claimed in claim 1 comprising a portion on said end panel folded along a fold line extending between said wings downwardly towards said base to sandwich the end wall between the thusly folded end panel whereby four thicknesses of material constitute said end wall.

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