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2,765,099

LUG BOX

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FIG. 1

FIG. 6

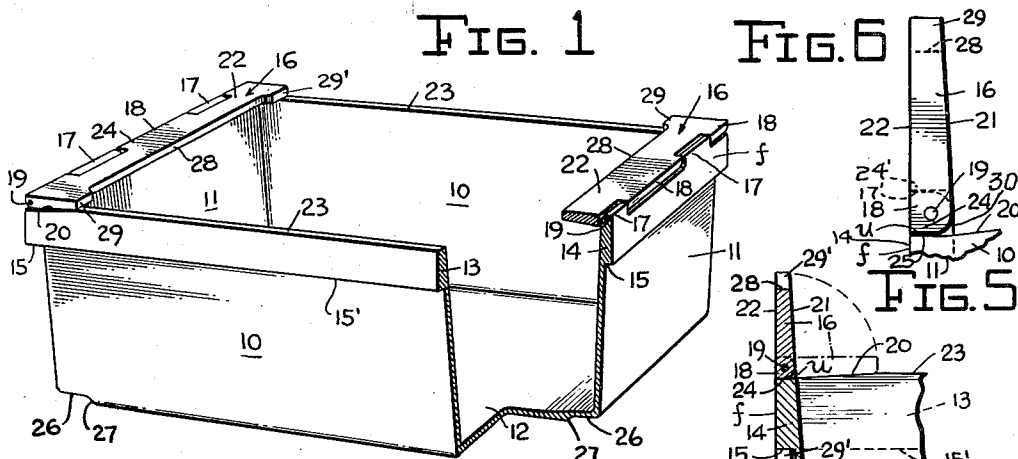


FIG. 2

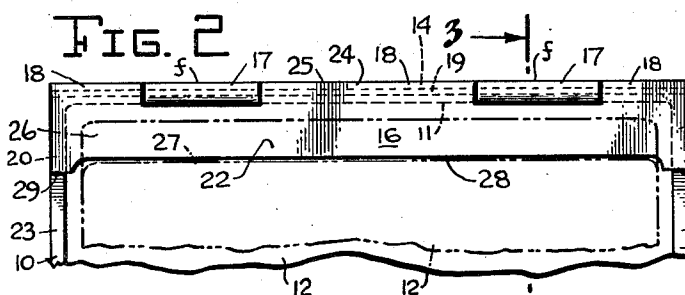
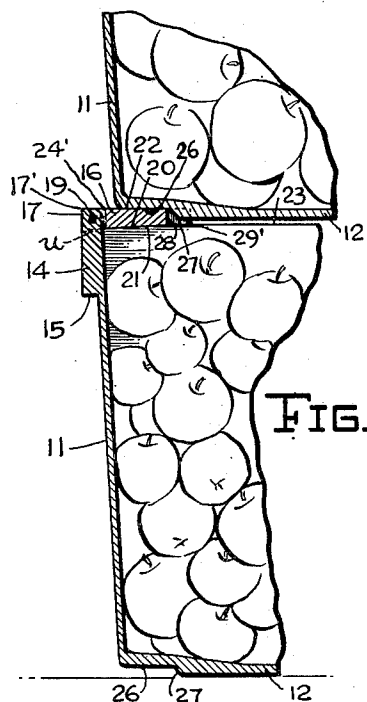
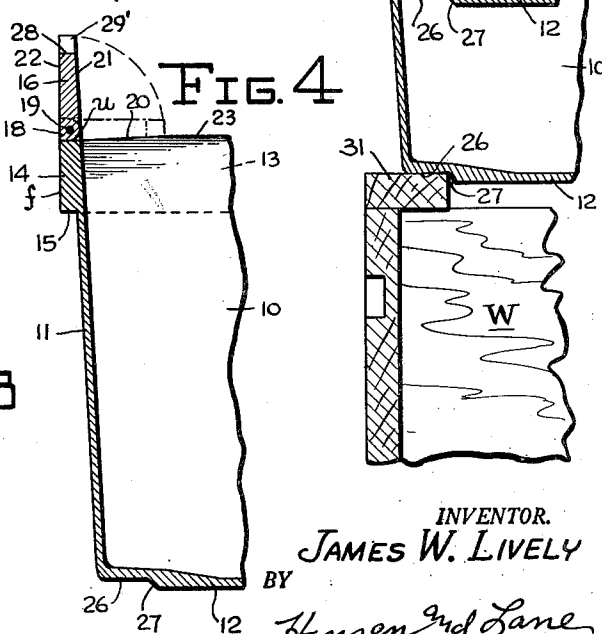


FIG. 3

FIG. 4



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LUG BOX

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4 Claims. (Cl. 220—97)

This invention relates to lug boxes and pertains more particularly to boxes of the type used to carry fruits and vegetables from the field to a storage shed or cannery.

The principal object of this invention is to provide an improved lug box so constructed that when a plurality of the boxes are filled with produce and stacked one upon another, the individual boxes will be prevented from sliding off the next lower box. This object contemplates an arrangement whereby the bottom of each box is provided with shoulders adapted to nest into a pair of supporting leaves or cleats at the top of the lower or supporting box.

Another object of the invention is to provide in a lug box constructed from a molded plastic material, such as fibreglass, a light-weight yet strong monolithic structure which is capable of absorbing impacts incurred by rough handling during the course of its use.

Another advantage of using molded plastic is that it is impervious to moisture and therefore will not be susceptible to mold or fungus growth or propagation. By virtue of the characteristics of such a material the interior surfaces of the lug box constructed therefrom can be formed smooth with rounded contours so as to greatly facilitate the task of cleaning and flushing out the boxes, which in turn evades the formation of molds during storage of the boxes over extended periods of time.

A further object is to provide lug boxes having downwardly converging side and end walls whereby empty lug boxes may be nested one within another so as to conserve storage or shipping space; the boxes being so constructed as to prevent them from becoming wedged together and at the same time maintaining an air space between the walls of nesting boxes for ventilation.

A still further object of the invention is to provide stackable boxes of the character described, each having a pair of pivoted and tapered leaves with which to support the next higher box. The said tapered leaves on the ends of each box are adapted to lie in either of two supporting positions depending upon whether the boxes are to be arranged for stacking upon one another or for nesting one within the other.

Also, irrespective of position of the leaves, the inner and outer sides of the leaves are adapted to align themselves with the contours of the box as a whole.

These and other objects and advantages of the invention will be apparent from the following description and the accompanying drawings, wherein:

Fig. 1 is a perspective view, partly broken away, of a box embodying this invention and showing its pivoted leaves in position for supporting another filled box thereupon.

Fig. 2 is an enlarged fragmentary top plan view of one end of the box of the type illustrated in Fig. 1, and showing in phantom lines the outline of the bottom of another box supported thereon.

Fig. 3 is an enlarged fragmentary sectional view taken on the line 3—3 of Fig. 2 and showing, in addition, a portion of a second box stacked thereon.

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Fig. 4 is a fragmentary sectional view similar to Fig. 3 but with the box empty and the pivoted leaf in a position to receive a second box for nesting within.

Fig. 5 is a fragmentary sectional view illustrating a pair of improved lug boxes nested together and showing how such boxes may be stored and stacked in conjunction with a wooden lug box of the conventional type.

Fig. 6 is an enlarged end view of one of the tapered leaves embodied in the lug box of this invention.

Referring in detail to the drawing, the lug box as best illustrated in Fig. 1 comprises inclined side walls 10 and inclined end walls 11 integrally formed with each other and with a closed bottom 12. At their top edges the side and end walls 10 and 11 are formed with a thickened facia rim or collar portion 13 and 14, respectively, for stiffening the edges of the box. In addition to the stiffening effect, these rim portions 13 and 14 overhang the outer sides of the walls to provide supporting ledges or shoulders 15 and 15', respectively, which are at times used to sustain the box, either while carrying the box by hand or while one box is nested within another box as shown in Fig. 5, and as will be described in more detail later.

At their upper end portions each box is provided with a pair of hinge wings or leaves 16. The wings 16 are preferably hingedly connected to the upper edge of each of the end walls 11 of the box, as illustrated in Figs. 1 and 2. Since each of the hinged members 16 and the manner of connecting the same to the upper edge of each of the end walls 11 is identical in construction and operation, only one such arrangement will be explained, like reference numerals being applied to like parts on either of the two end walls of the box.

The rim portion 14 of the end wall 11 is provided with a pair of upwardly projecting ears 17 in spaced relation with respect to each other. The hinged member 16 is provided with companion ears interfitting with the ears 17 as illustrated in Figs. 1 and 2. All of the ears 17 and 18 are provided with an axial aligned bore and receive a pin 19 by which the leaf 16 is pivotally connected to the end wall of the box. It should here be noted that the outer face *f* of the rim portion 14 of the end wall of the box is vertically disposed in contrast to the inclined disposition of the inside face of such end wall. In addition to the foregoing, the upper surface *u* of each end wall 11 is at right angles to the face *f* of the same. However, the upper surface of each side wall is beveled as at 20 at right angles to the inside face of the adjoining end wall. The extent of this beveled area 20 on the upper surface of each adjoining side wall is such as to receive the hinged leaf 16 associated therewith.

The hinged leaf 16 is tapered in thickness, the taper being formed on the inner or underside 21 of the leaf 16 so as to conform to the inner face of the box when the leaf 16 is in vertical position and to rest upon the beveled edges 20 on each adjoining side wall of the box when the leaf 16 is in horizontal position.

The beveled surface 20 referred to is most easily identified in Fig. 4. The tapered face 21 of the leaf 16 has the same gradient of slope as the gradient of the beveled surface 20, so that when a leaf 16 rests upon the bevel surfaces 20, the exposed top side of the leaf 16 presents a perfectly horizontal surface upon which to stack other boxes as shown in Fig. 3.

The outer or upper face 22 of the leaf member 16 is disposed to lie perfectly horizontal when the leaf is at rest upon the beveled surfaces 20 of the adjoining side walls 10. By the same token, when the leaf member 16 is swung into vertical disposition the outer or upper face 22 thereof is disposed to align perfectly with the vertical facia *f* of the rim portion 14 of the end wall 11 of the box.

In connection with the foregoing it will be remembered

that the upper edge *u* of the rim portion 14 is horizontal or at right angles with respect to the facia *f* thereof. This upper edge *u* is at a lower level than the normal plane of the upper edges 23 of the side walls 10 of the box. In this manner the ears 17 project only partially above the plane of the upper extremity or edges 23 of the box. In addition to adding strength to these ears 17 this arrangement facilitates the formation of the beveled surfaces 20 on the adjoining portions of the side walls 10.

The heel edge 24 of each leaf member 16 is provided with a surface 25 which is at right angles with respect to the outer, upper face 22 of the same. This heel surface 25 is adapted to abut the upper edge *u* of the rim portion 14 to limit swinging movement of the leaf member 16 beyond vertical disposition.

The bottom 12 of each box is provided with recessed end surfaces 26 extending the full width of the boxes. These recessed surfaces 26 define a shoulder 27 running adjacent and parallel thereto at the ends of the depressed bottom 12. When one box is stacked atop another box as shown in Fig. 3, the recessed surfaces 26 bear directly upon the upper surfaces 22 of the pivoted leaves 16. In addition to the foregoing, each leaf member 16 is provided with a recess 28 along its extreme edge for receiving and abutting the shoulder portion 27 formed at the ends of the depressed bottom 12 of the box stacked upon the same. It should here be noted that by reason of the recess formation 28 at the extreme edge of each hinge member 16, a pair of projections 29—29' are provided on each hinge member on that portion thereof overlying the beveled edges 20 of the adjacent side walls 10. These projections 29—29' serve to embrace the depressed bottom 12 of the uppermost box to prevent sidewise shifting thereof relative to the lower or supporting box. Moreover, since the shoulder portions 27 engage in the recesses 28 of the supporting box, end to end shifting of these two boxes relative to each other is prevented.

In their other extreme position (Fig. 4) in which the tapered leaves 16 are disposed vertically, the outer face of each leaf becomes flush and parallel with the outside of the rim 14 as before explained. The other or inner surface 21 of the leaf 16 is tapered and therefore becomes flush and parallel with the inclined inner surface of the respective end wall 11 with which the leaf is associated. With this arrangement, the boxes will nest one within another most ideally and the upper box will come to rest with its overhanging ledges 15 bearing upon the corner projections 29—29' of the leaf 16 of the next lower box. Since the free end of each leaf 16 is provided with an edge recess 28, a clearance space is afforded so that the ledge 15 is easily grasped as a bail with which to handle the upper box.

It is to be noted that when the nested box is supported in the manner just explained with its ledge 15 resting on the corner projections 29—29' of the leaves 16 of the next lower box, the upper box is not permitted to drop any further into the lower box and therefore will not become wedged within or jammed into the lower box. It will also be noted that an air space is thereby provided between the walls of the nested boxes to allow for ventilation.

While the leaves 16 are pivoted to the end rails 14, their arcs of swinging are limited to the two positions previously described. The leaves 16 cannot swing outwardly beyond the vertical position shown in the drawings by virtue of the fact that the right angled edges 24 on the ears 18 (see Fig. 6) will abut against the top edge *u* of the rims 14 and thus prevent further swinging. This feature is reversely incorporated by also providing the ears 17 with the square outer edges 17' to receive correspondingly square surfaces 24' on the leaf which also act to similarly stop the leaf. All other similar edges adjacent to the axis of pivoting are provided with clearance radii (as at 30) to enable free swinging of the leaves 16 within the prescribed limits.

It is proposed to manufacture boxes incorporating the

present invention in such a size as to conform to the general overall maximum dimensions and carrying capacity of conventional wooden boxes currently in use. This will permit stacking of both types of boxes in the same pile and could be accomplished as shown in Fig. 5 wherein is shown an end portion of a wooden box W. Furthermore, the improved boxes of this invention could be made so that their bottom recessed surfaces 26 would properly seat upon the transverse end members 31 of the older wooden boxes W as shown in Fig. 5.

Conversely, when empty boxes are stored during off season they are stacked upside down and nested within each other as in Fig. 5 inverted. In this manner ventilation is afforded by the structure of the instant invention. Moreover, the nested boxes would not become adhered together by reason of the clearance afforded.

While I have illustrated and described a preferred embodiment of my invention, it will be understood however that other changes and modifications may be made in the details thereof without departing from the scope of the invention as set forth in the appended claims.

Having thus described the invention, what I claim as new and desire to protect by Letters Patent is defined in the following claims.

1. In a lug box having inclined side and end walls formed integrally with a bottom, the combination with leaf members hingedly connected along the upper edge of opposite end walls of said box, of a thickened collar on the outer side of each said end wall to provide a vertical outer facia at right angles to the upper surface of said end wall, said upper surface of each said end wall being disposed at a lower level relative to the upper surface of the adjoining side walls, said adjoining portions of said side walls having a beveled upper surface inclined upwardly from said upper surface of said end walls at right angles relative to the inner inclined face of the latter, and said leaf member being tapered to facilitate alignment of its inner-lower surface with the inclined inner face of said end wall when in raised position and for supported engagement with the inclined beveled surfaces of the adjoining side walls when in lowered position and to facilitate alignment of the outer-upper surface of said tapered leaf member with the vertical outer facia of said collar when in raised position.

2. In a lug box having inclined side and end walls formed integrally with a bottom, the combination with leaf members hingedly connected along the upper edge of opposite end walls of said box, of a thickened collar on the outer side of each said end wall to provide a vertical outer facia at right angles to the upper surface of said end wall, said upper surface of each said end wall being disposed at a lower level relative to the upper surface of the adjoining side walls, said adjoining portions of said side walls having a beveled upper surface inclined upwardly from said upper surface of said end walls at right angles relative to the inner inclined face of the latter, and said leaf member being tapered to facilitate alignment of its inner-lower surface with the inclined face of said end wall and alignment of its outer-upper surface with the vertical facia surface of said thickened collar when said leaf member is in its raised position and for facilitating supported engagement of the inner-lower surface of said leaf member with the inclined beveled surfaces of the adjoining side walls to dispose the outer-upper surface of said leaf member in a horizontal position when the latter is in its lowered position.

3. In a box having inclined side and end walls formed integrally with a depressed bottom having parallel recessed surfaces adjacent opposite ends thereof, the combination with leaf members hingedly connected along opposite end walls of said box, of a collar on the outer side of said end wall providing finger engaging shoulders and presenting a vertical outer facia at right angles to the upper surface of said end wall, said upper surface being disposed at a level below the upper surface of the

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adjoining side walls, said adjoining portions of said side walls having a beveled upper surface inclined upwardly from the upper surface of said end walls at right angles relative to the inclined inner face of the latter, said leaf member being tapered on its inner-lower surface for alignment with the inner face of said end wall when the leaf member is raised and for supported engagement with the inclined beveled surfaces of the adjoining side walls when said leaf member is lowered, each said leaf member having a recessed free edge for receiving the depressed bottom of a similar box between them and providing projected ends adapted to overlie the beveled surfaces of said side walls for embracing the depressed bottom of the box supported on said leaf member.

4. In a lug box having inclined side and end walls formed integrally with a depressed bottom having a recessed surface defining a shoulder running adjacent the ends thereof, the combination with leaf members hingedly connected along opposite end walls of said box, of a thickened collar on the outer side of said end wall to provide a finger engaging ledge adjacent the upper edge of said box and to present a vertical outer facia at right angles to the upper surface of said end wall, said upper surface of each said end wall being disposed at a lower level relative to the upper surface of the adjoining side walls, said adjoining portions of said side walls having a beveled upper surface inclined upwardly from the upper surface of said end walls at right angles relative to the inclined inner face of the latter, said leaf member being tapered on its inner-lower surface for alignment with the

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inclined inner face of said end wall when said leaf member is in raised position and for supported engagement with the inclined beveled surfaces of the adjoining side walls when said leaf member is in lowered position, each said leaf member having a recessed free edge adapted to engage the shoulder defined on the bottom of a similar box supported thereon and providing projected ends adapted to overlie the beveled surfaces of said side walls for embracing the depressed bottom of the box supported on said leaf member, said projecting ends on each leaf member when the latter is in raised position engaging the finger engaging ledge on a similar box nested within said lug box to afford finger clearance between said finger engaging ledge and the recessed free edge of said left member.

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