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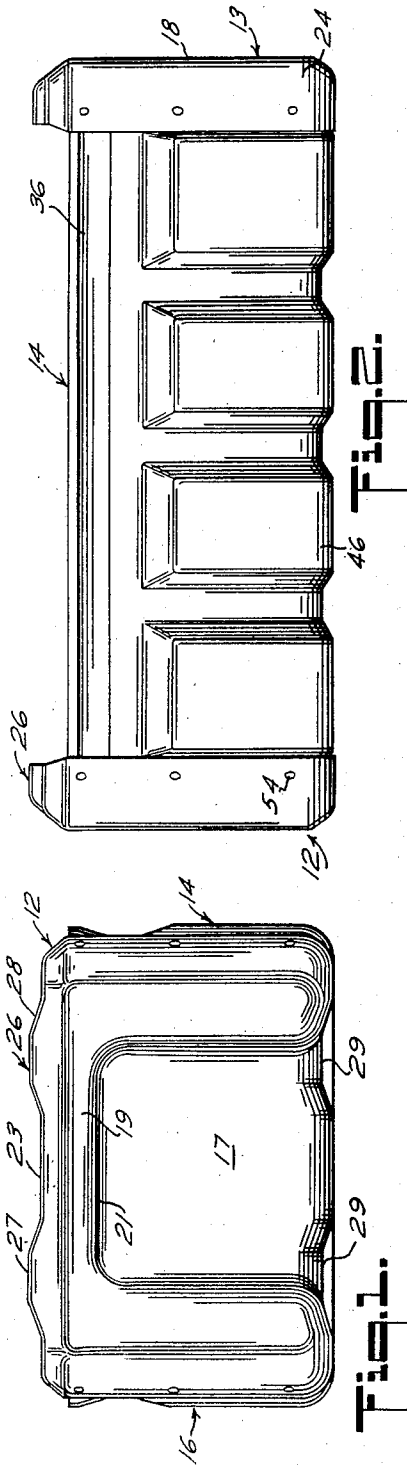
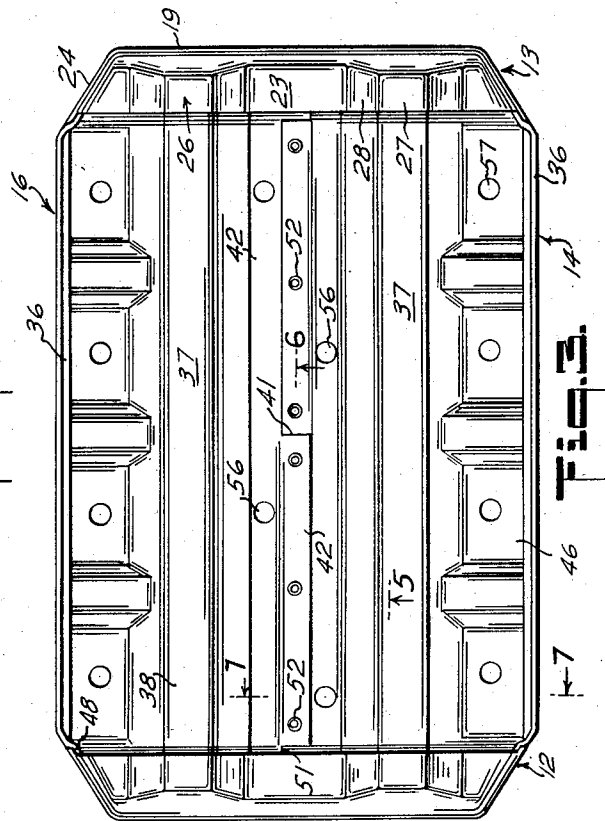
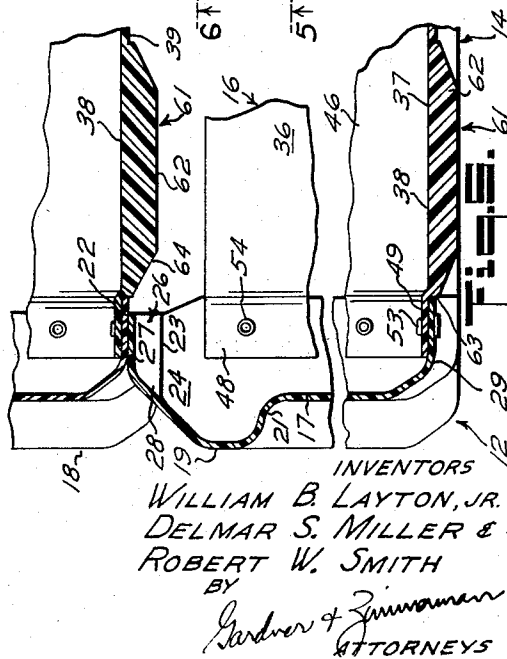
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LUG BOX

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2 Sheets-Sheet 1



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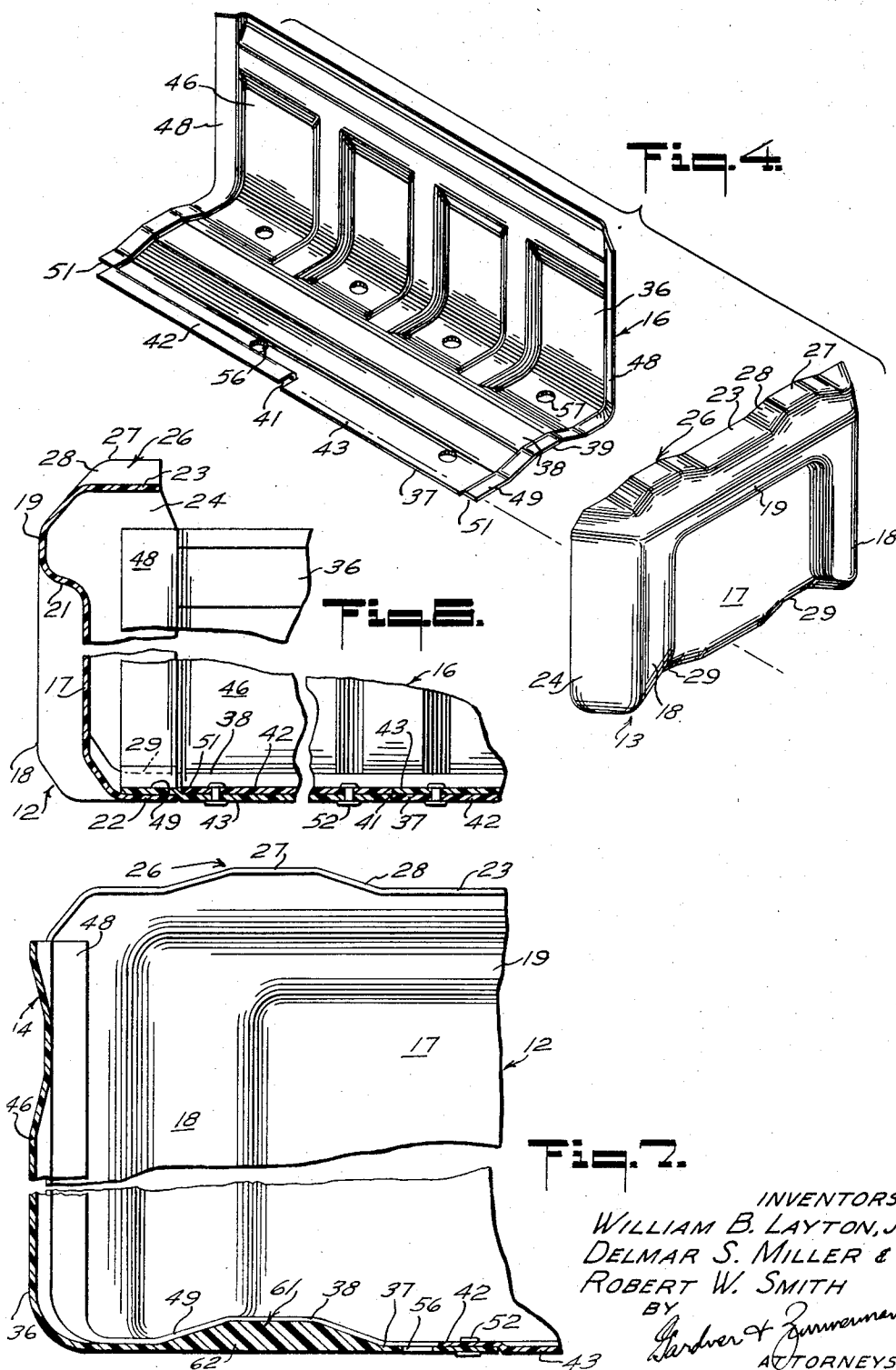
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LUG BOX

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This invention generally relates to the construction of open top containers, and is more particularly directed towards the construction of lug boxes which are used in the transportation of fruits, vegetables and the like from the fields to the canneries or other processing or packaging plants.

So-called lug boxes, adapted for the above mentioned use, have heretofore presented numerous problems to persons using the same. By way of example, such boxes are conventionally constructed out of wood with the flat bottom and side walls nailed together to provide a unitary open top receptacle into which produce or the like is loaded in the fields, then carted to the cannery, etc., whereat the contents of the box are dumped and subsequently processed. As the boxes are subjected to extreme loads and shocks such as by being dropped from a truck to the ground, with the wood construction described, many boxes would not even last a complete season, thereby requiring either continual replacement and/or repair. It might be explained that increasing the strength of the box by greater wall thickness is not an adequate solution, as this renders the tare weight of the box excessive and unsatisfactory for handling. A further disadvantage stemming from the use of conventional boxes is their inability to be vertically stacked so as to resist relative displacement. Other shortcomings are well known to persons having a knowledge of this art.

It is therefore an object of the present invention to provide a lug box which possesses a relatively thin wall thickness, but which is extremely strong and capable of absorbing the impact and other loads imparted thereto without danger of breakage.

Another object of this invention is to provide a box of hte character described which may be economically molded from a plastic material or the like, and which is constructed so as to be sufficiently rigid to satisfy normal container requirements, but which is flexible in certain portions thereof whereby impacts or shocks may be readily dissipated without cracking or otherwise injuring the box.

A further object of our invention is to provide a box of the above type in which a plurality of separately formed parts are interconnected in a novel manner so as to materially increase the strength of the united structure.

Yet another object of the invention is to provide a box as above described in which means are provided permitting vertical stacking of a plurality of boxes while effectively locking adjacent boxes in the stack against all but deliberate displacement.

Still another object of this invention is to provide a

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lug box including improved means for facilitating removal of the box contents upon insertion or upping of the box, and in which suitable provision is made for drainage of water which might otherwise collect in the box.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of the invention which is illustrated in the drawing accompanying and forming part of the specification. It is to be understood, however, that variations in the showing made by the said drawing and description may be adopted within the scope of the invention as set forth in the claims.

Referring to said drawings:

Figure 1 is an end elevational view of the lug box of the present invention.

Figure 2 is a side elevational view of the box.

Figure 3 is a top plan view of the box.

Figure 4 is an exploded perspective view of two pieces comprising one-half of a finished box.

Figure 5 is a cross-sectional side elevational view taken substantially in the plane indicated by line 5—5 of Figure 3, but illustrating a pair of boxes in stacked relationship.

Figure 6 is a cross-sectional side elevational view taken substantially in the plane indicated by line 6—6 of Figure 3.

Figure 7 is a cross-sectional end elevational view taken substantially in the plane indicated by line 7—7 of Figure 3.

In broad terms, the lug box of the present invention generally comprises a bottom and side walls and an open top, as is typical with boxes designed for this general purpose. While as above mentioned, the box is constructed as a molded product, it is not formed or molded as an integral unit as might be expected. While a single piece construction would possess certain advantages, such as economy and simplicity of production, the finished product would not provide the structural characteristics required, without extremely complicated features such as excessive variations in wall thickness or the like.

Preferably, the box of the present invention is constructed from a base of sisal mat which may be preformed to the general configuration, and subsequently sealed with a phenolic or polyester resin or other suitable plastic. This type of construction is well known in the art, and as the specific material constitutes no independent part of the present invention, no further explanation is deemed necessary.

In order to maintain a desired minimum uniform wall thickness, our lug box is constructed of four interlocking pieces, namely, a pair of end wall members 12 and 13, and a pair of combination side and partial bottom wall members 14 and 16. As the members 12 and 13 are identical, as are the members 14 and 16, it will be appreciated that only two separate dies are required to produce the four pieces which make up the completed box.

Referring first to one of the end wall members, the same will be seen to include a generally flat central wall portion 17 recessed inwardly from the outermost face of the member which includes a pair of vertical side portions 18 on opposite sides of recessed portion 17 and a horizontal header portion 19 interconnecting side portions 18. At the juncture of wall 17 with header 19 a horizontally extending shoulder 21 is provided which serves as a manual hand grip in picking up the box at the end walls. Wall portion 17 is provided adjacent its bottom

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with an inwardly directed flange 22, and header 19 is curved inwardly as best illustrated in Figure 6 to provide an upper flange 23 substantially coterminous with the lower flange 22. Side portions 18 are likewise provided with flanges 24 which will be seen are directed outwardly at greater than a right angle to the general plane of portions 18. Lower flange 22 merges with flange portions which extend inwardly from the bottom of flanges 24. In this manner, each of end wall members 12 and 13 are of generally rectangular and cup-like configuration, with the flanges 22, 23 and 24, as well as the recessed face 17 providing an extremely rigid construction. It will be further noted that upper flange 23 has a pair of raised projections 26 having a generally flat top 27 extending along the length of the flange with inclined walls 28 extending from said top to the flange surface. Lower flange 22 is provided with a pair of complementary shaped recesses 29 which are positioned in vertical alignment with the projections 26. The purpose of these projections and recesses will be hereinafter discussed in detail.

As to the members 14 and 16, whose connection to the members 12 and 13 will be later described, each of such members is of generally right angular configuration to provide one side wall 36 and substantially one-half of a bottom wall 37. Wall 37 includes a longitudinal ribbed portion 38 extending upwardly from the general plane of the wall so as to define a lower grooved portion 39 of complementary cross-sectional form to projections 26. The distal edge of wall 37 is transversely slotted as indicated at 41 with edge portions 42 and 43 each occupying approximately one-half the length of the wall and being in vertical offset parallel relationship. It should be clear that with this arrangement, when the members 14 and 16 are brought into interfitting relationship, the edge portions 42 of the respective members will overlies the edge portion 43 of the other member, and a good interlocking construction will result.

A plurality of outwardly deformed ribs 46 of generally rectangular form extend from adjacent the upper edge of side wall 36 to a position on the bottom wall 37 beyond the juncture of walls 36 and 37. These ribs, due to their particular length and width, provide sufficient rigidity to the member to prevent deformation in normal handling, yet permit deflection of the member upon the impositions of sudden impact loads or the like so as to avoid cracking or breakage.

Extending angularly from the edges of wall 36 and at substantially the same angle that flange 24 makes with side portion 18 of the end wall member, are flanges 48 which join with bottom wall flanges 49 which extend beyond the edges of the wall and are deformed upwardly from the general plane thereof an amount approximately equal to the thickness of the material. Flanges 49 terminate at 51, spaced inwardly from the edge of portions 42 and 43.

With the foregoing description in mind, the manner in which members 12, 13, 14 and 16 are secured together should be quite clear. By way of example, members 14 and 16 are brought together with the respective edge portions 42 and 43 in overlapping and interfitting relationship as hereinabove described. Rivets 52 or other fastening means are passed through such portions whereby the walls 37 define a complete bottom wall and each of the walls 36 provides a separate side wall.

End wall members 12 and 13 are then secured to the bottom and side wall construction in the following manner. First, it will be noted that flanges 49 of the bottom wall overlies the lower flanges 22 of the end walls and may be secured thereto by rivets 53 or the like. Then, the vertical flanges 48 are positioned immediately adjacent the inner surface of end wall flanges 24 and may be similarly riveted thereto as indicated at 54. Not only will this secure the end walls in proper positions, but the overlapping relationship of flanges 48 and 24 will provide a

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reinforced column at each corner of the box. Also, as such corners are tapered rather than at right angles, additional strength will be added, and more uniform stress will be imparted such as when the box is dropped on one corner. Such a bevelled construction further serves to guide the box contents out through the open top of the box when the box is being dumped.

Drainage of water or other liquid may be simply accomplished by providing drain apertures 56 in bottom walls 37 adjacent edge portions 42 and 43, and similar apertures 57 in the bottom wall portions of ribs 46, all of such apertures being located at the lowermost portions of the bottom wall.

As previously mentioned, an important feature of our lug box resides in its ability to be vertically stacked while resisting displacement in all directions. This is primarily effected by virtue of projections 26 on one box engaging the complementary recesses 29 on another box stacked thereon. Such engagement will effectively prevent any lateral or transverse displacement of the several boxes, but as the projections have the tapered or inclined walls 28, a person handling the boxes may readily effect a deliberate transverse displacement by a minor tilting or lifting action. Means are likewise provided to prevent longitudinal displacement of the stacked boxes, and such means are best disclosed in Figures 5 and 7 of the drawings. As there shown, a downwardly extending projection 61 is provided adjacent each end of the bottom wall groove 39 which forms a continuation of recess 29, such projection having a cross-sectional form matching that of the groove and a lower surface 62 substantially coterminous with the lower surface of the bottom wall. In Figure 5, the projection will be seen to have a leading edge or shoulder 63 and an inclined portion 64 connecting the shoulder with surface 62. In this manner, when the boxes are stacked, the upper flange 23 of each box may engage the shoulder 63 of the adjacent box positioned thereabove, and prevent longitudinal movement therebetween. However, to permit such movement, it is only necessary to raise one box sufficiently to permit flange 23 to be disengaged from shoulder 63 and ride along the inclined portion.

What is claimed is:

1. A lug box of the character described having a pair of end wall elements and a pair of members each including a side-wall and an integrally formed approximately one-half width of a bottom wall, the longitudinal edge portion of each of said bottom half walls having a transverse notch medially of the ends thereof with the portions on opposite sides of said notch being in parallel planar offset relationship, means securing said edge portions of the respective members together in interlocking relation, said end elements having inwardly directed lower and side flanges, the transverse edges of said bottom wall portions being deformed to provide parallel offsets with the amount of offset being substantially the thickness of said lower flanges, and the side wall edges being deformed to overlap with said side flanges, and means securing said flanges to the edges of said bottom and side walls respectively.

2. A box as set forth in claim 1 further characterized by said side flanges forming an obtuse angle with the general plane of said end wall elements, and said side wall edges being deformed at a comparable angle from the plane of said side walls.

3. A molded lug box having a bottom and side walls and a pair of end walls attached thereto; said side walls being integrally formed with said bottom, said end walls having integral inwardly directed flanges adjacent the upper and lower edges thereof extending generally normal to the plane thereof and side flanges defining an obtuse angle with the general plane of said wall and continuous with said upper and lower flanges, said wall being inwardly recessed in a central portion thereof, said bottom wall having an offset lateral flange at each end thereof disposed in parallel relation to the general plane of

said bottom wall and overlying the lower flanges of said end walls, and said side walls having side flanges defining an obtuse angle with the general plane thereof integrally formed with said bottom wall flange and positioned in overlapping parallel relation to said end wall side flanges.

4. A box as set forth in claim 3 in which said bottom wall is formed of two longitudinally extending members, each of said members having substantially one-half of the length of its edge portion disposed in parallel offset relation to the other one-half of the length thereof defining a slot therebetween whereby when said members are brought together each of said members will have

an edge portion overlying an edge portion of the other member.

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