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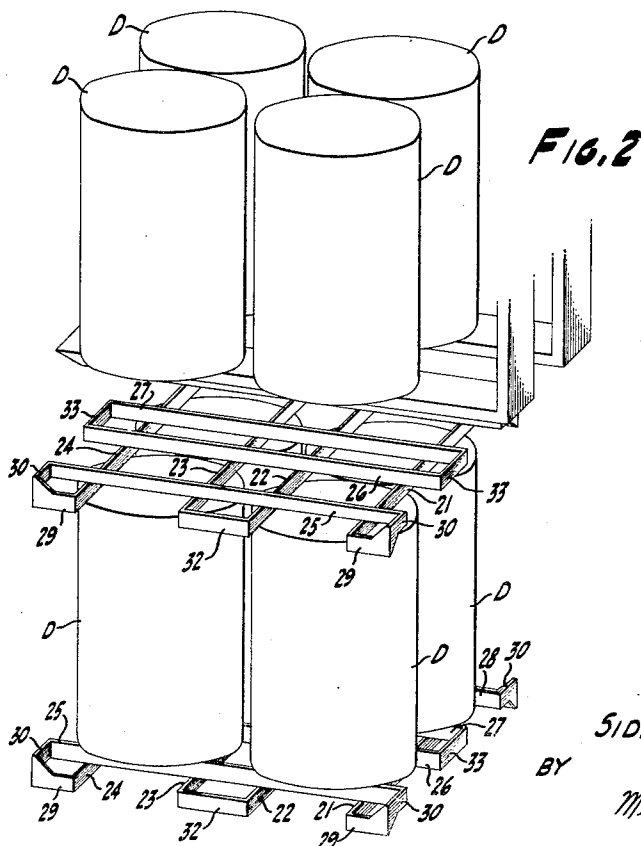
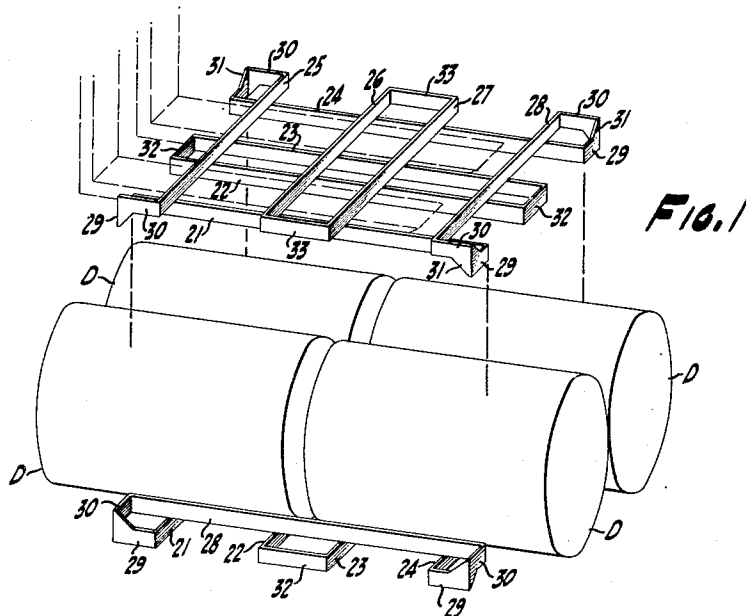
S. D. LAPHAM

2,662,710

PALLET

Filed Nov. 10, 1947

3 Sheets-Sheet 1



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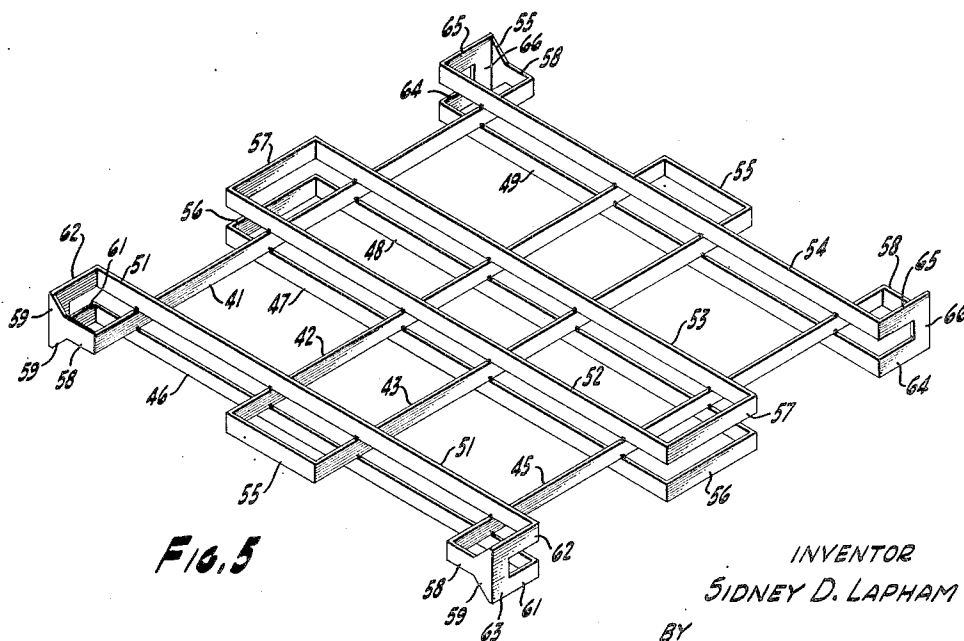
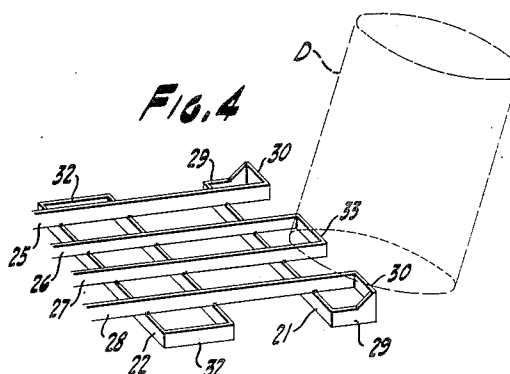
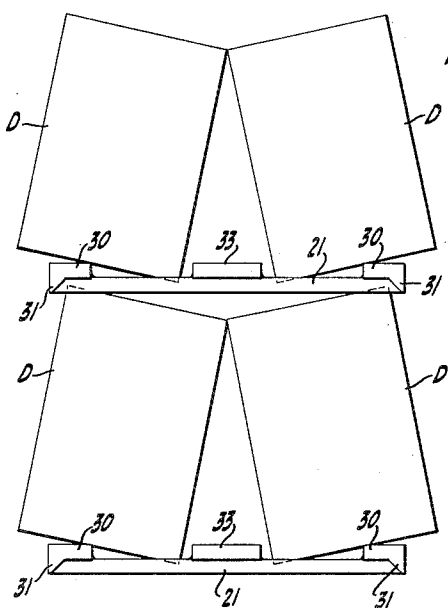
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3 Sheets-Sheet 2



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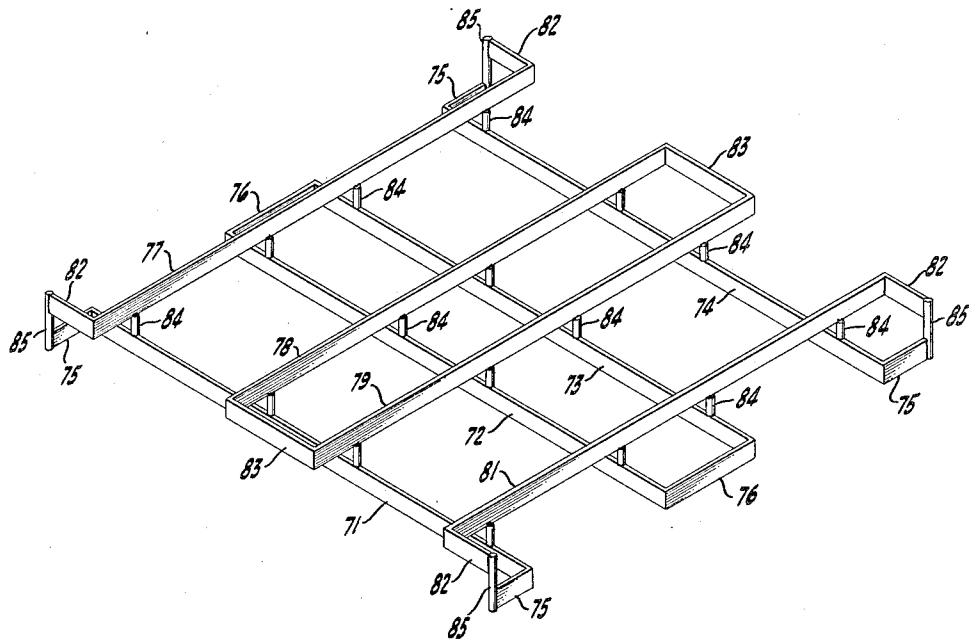


Fig. 6

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UNITED STATES PATENT OFFICE

2,662,710

PALLET

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Application November 10, 1947, Serial No. 785,040

8 Claims. (Cl. 248—120)

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This invention relates to article handling pallets, and in general has for its object the provision of a reversible pallet formed by two or more vertically offset and crossed sets of strip metal beams or rails, the beams of the upper set being arranged to serve as article supporting rails which in turn are supported in spaced relation from the floor or other support by the lower set of beams.

A further object of the invention is the provision of a pallet of the character above described wherein selected pairs of adjacent beams of the upper set of beams are arranged to serve as cradles for the reception of oil drums or other cylindrical objects, and from which such drums or objects may be removed individually by an industrial lift truck.

Still another object of the invention is the provision of a pallet of the character above described, so arranged that by the use of a number of such pallets, it becomes possible to stack and handle a multiple tier of drums or other objects.

The invention possesses other advantageous features, some of which, with the foregoing, will be set forth at length in the following description where those forms of the invention which have been selected for illustration in the drawings accompanying and forming a part of the present specification, are outlined in full. In said drawings, three forms of the invention are shown, but it is to be understood that it is not limited to such forms, since the invention as set forth in the claims may be embodied in other forms.

Referring to the drawings:

Fig. 1 is a perspective view of a pair of article handling pallets embodying the objects of my invention, one of which is shown loaded with a tier of drums and the other being shown in the process of being positioned over said drums.

Fig. 2 is a perspective view of a pair of pallets such as shown in Fig. 1, but with the drums standing on end.

Fig. 3 is a diagrammatic front elevation of a pair of pallets such as shown in Figs. 1 and 2, illustrating the manner in which two tiers of drums may be stacked in an inclined position.

Fig. 4 is a fragmentary perspective view of a pallet of the type shown in Figs. 1 and 2 illustrating the manner in which a drum supported thereon may be manually removed therefrom.

Fig. 5 is an isometric projection of a modification of the pallet embodying my invention illustrated in Figs. 1, 2, 3 and 4.

Fig. 6 is an isometric projection of a further modification of the pallet illustrated in Figs. 1, 2, 3 and 4.

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Each of the pallets as shown in Figs. 1 and 2 includes a lower set of parallel, co-planar and spaced strip metal beams or rails 21, 22, 23 and 24, and an upper identical set of beams 25, 26, 27 and 28 supported thereon and welded at right angles thereto. The distance between the outer beams 21 and 24 of the lower set of beams and between the outer beams 25 and 28 of the upper set of beams is less than the length of each beam. Provided on each end of each of the outer lower beams 21 and 24 at right angles thereto, is a lower return bend 29. Similarly provided at each end of the outer upper beams 25 and 28 is a lower return bend 30 welded to the immediately adjacent lower return bend 29 by means of gussets 31 provided thereon so as to form a looped corner.

Extending across and welded to the ends of the inner beams 22 and 23 of the lower set of beams, and forming a rectangle therewith, is a return bend or cross member 32. Similarly, welded to the ends of the inner beams 26 and 27 of the upper set of beams are return bends or cross members 33. Each pair of beams 25 and 26, and 27 and 28 of the upper set of beams, serves as a cradle for the reception of a set of drums D, the corresponding pairs of beams 21 and 22, and 23 and 24 of the lower set of beams being arranged to straddle the drums of the lower tier of drums. As illustrated in Figs. 1 and 2, these pallets may be lifted by an industrial truck by inserting the forks thereof between the inner beams 21 and 22, and 23 and 24 of the lower set of beams.

As shown in Fig. 2, pallets of the character above described can be loaded with up-ended drums, and for this purpose the optimum distance between each pair of drum supporting beams should be equal to the cord of a 90° sector of one of the drums so as to form the most stable support therefor without sacrificing clearance between these beams for the insertion of the lift forks. When the drums are loaded up-ended in this fashion, four or any lesser number of drums may be picked off the upper tier by using one or both forks of a truck as diagrammatically illustrated.

As shown in Fig. 3, this type of pallet can also be used for loading drums in tilted fashion either in one tier or multiple tiers, and as shown in Fig. 4, the drums may be manually removed from this type of pallet by upsetting it to an inclined position and sliding it off an edge of the pallet. In this connection it is to be noted that in tilting a drum D over the edge of the pallet, its lower chime is supported on an upper return bend 30, and on an upper adjacent cross member or return bend 33. During this operation the lower

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outwardly extending return bends 29 prevent the pallet from tilting about the lower edge of this beam.

An additional function of the looped or closed corners of my pallet is to enable an operator to rotate the pallet while on the ground. This can be done readily by inserting a fork diagonally into the take off way adjacent one of the pallet corners, and then turning the truck so that its forks slide outwardly along and against the adjacent outer beam.

The pallet shown in Fig. 5 includes an intermediate set of spaced parallel co-planar beams 41, 42, 43 and 45 welded to and sandwiched between a lower and similar set of beams 46, 47, 48 and 49, and an upper identical set of beams 51, 52, 53 and 54. Welded to the ends of the inner beams 42 and 43 are return bends or cross-members 55, and similarly welded to the inner beams 47 and 48 and 52 and 53, respectively, are return bends or cross members 56 and 57. Each of the outer beams 41 and 45 of the intermediate set of beams is provided at its ends with a return bend 58 formed with upper and lower gussets 59. The ends of outer beams 46 and 51 of the lower and upper set of beams are respectively provided with return bends 61 and 62 connected by vertical cross members 63, these latter cross members being welded to the return bends 58 and gussets 59. Similarly, the outer beams 49 and 54 are respectively provided at their ends with return bends 64 and 65, connected by vertical cross members 66. These cross members are welded to the adjacent return bends 58 and their gussets 59 so as to form looped corners. Here again the two upper pairs of beams 51 and 52, and 53 and 54 serve as rails or ways for supporting a load such as drums or lug boxes which can be removed therefrom by inserting the forks of an industrial truck in the channels formed by each pair of adjacent beams. As in the case of the modification illustrated in Figs. 1 and 2, a pallet of this type and its load may be picked up either by placing the forks of a truck beneath the upper set of beams or beneath the intermediate set of beams. By resorting to this expedient, it is possible to pick the pallet up from either direction. Furthermore, the entire load or any unit thereof can be unloaded from the pallet by inserting the forks between the beams of the upper set of beams.

The pallet illustrated in Fig. 6 includes a lower set of spaced, parallel co-planar beams 71, 72, 73 and 74. Formed as right angle extensions of the side beams 71 and 74 are return bends 75, and extending across and welded to the ends of the inner beams 72 and 73 are return bends or cross members 76. Overlying the lower set of beams at right angles thereto is an upper and identical set of beams 77, 78, 79 and 81. Formed as right angle extensions of the outer beams 77 and 81 are return bends 82, and extending across and welded to the ends of the inner beams 78 and 79 are return bends 83. These two right angularly disposed sets of lower and upper beams are held in vertically spaced relation with respect to each other and formed into a rigid integral structure by upstanding steel rods or columns 84 welded to the upper and lower beams. Each pair of adjacent return bends 75 and 82 are formed into an integral looped corner by steel rods or columns 85 butt-welded to the ends thereof. If the beams forming this structure are made of $\frac{1}{4}$ " strap steel, the rods 84 and 85 can be made conveniently of $\frac{1}{2}$ " diameter stock.

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This latter type of pallet has all of the advantages of the two modifications previously described, but has the further advantage that it can be lifted by a truck from one of the corners thereof by inserting the forks around any corner thereof between the upper and lower sets of beams.

From the above description it will be apparent that all three modifications illustrated include crossed sets of beams, the upper set of which serves as rails for supporting a load, and from which the entire load or any unit thereof may be picked up. In each pallet the upper rails form a supporting structure having a limited area of contact with its load so as to diminish the friction between the load and its supporting rails during such time as the load is being slid on or off of such rail. The construction of pallets of this type is simple, relatively inexpensive, and due to its skeleton type of construction, its weight is relatively low.

In addition to the functional advantage of these pallets, they have the further advantage of being of simple construction and require no expensive dies for their manufacture.

I claim:

1. An article handling pallet comprising: a first set of spaced, parallel, substantially rigid strip metal beams; and a second and identical set of spaced, parallel, substantially rigid strip metal beams fastened at right angles over and to said first set of beams in edge to edge relation with respect thereto and forming therewith a symmetrical, generally rectangular frame wherein the beams of either set of beams can be made to serve as article supporting beams and wherein the height of said beams and the spaces between the beams of either set of beams are arranged to accommodate the forks of an industrial lift truck whereby said pallet can be lifted by said truck and whereby a load can be placed on or removed from said pallet by means of said truck.

2. An article handling pallet comprising: a first set of spaced, parallel, substantially rigid strip metal beams; and a second and identical set of spaced, parallel, substantially rigid strip metal beams fastened at right angles over and to said first set of beams in edge to edge relation with respect thereto and forming therewith a symmetrical, generally rectangular frame wherein the beams of either set of beams can be made to serve as article supporting beams and wherein the spaces between the beams of either set of beams are arranged to accommodate the forks of an industrial lift truck whereby said pallet can be lifted by said truck and whereby a load can be placed on or removed from said pallet by means of said truck, the length of said beams being greater than the over-all distance across the outer beams of each set of beams.

3. An article handling pallet comprising: a first set of spaced, parallel, strip metal beams; and a second and identical set of spaced, parallel, strip metal beams fastened at right angles over and to said first set of beams in edge to edge relation with respect thereto and forming therewith a symmetrical, generally rectangular frame wherein the beams of either set of beams can be made to serve as article supporting beams and wherein the spaces between the beams of either set of beams are arranged to accommodate the forks of an industrial lift truck whereby said pallet can be lifted by said truck and whereby a load can be placed on or removed from said pallet by means of said truck, the length of said

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beams being greater than the distance between the outer beams of each set of beams and the crossed ends of said outer beams being provided with a return bend so as to form a pallet having looped corners.

4. An article handling pallet comprising: a first set of four spaced, parallel, strip metal beams; a second and identical set of four, spaced, parallel, strip metal beams fastened to said first set of beams at right angles and in edge to edge relation therewith to form a symmetrical grid structure wherein the over-all distance across the two outer beams of each set of beams is less than the length of said beams; end beams formed integral with and bridging the adjacent ends of the two center beams of each set of beams; and corner beams formed integral with the ends of the outer beams of both sets of beams.

5. An article handling pallet comprising: a first set of a plurality of pairs of spaced, parallel, strip metal beams, and a second similar set of a plurality of pairs of spaced, parallel strip metal beams overlying and fastened to said first set of beams at right angles and in edge to edge relation thereto and arranged to form a symmetrical, generally rectangular frame; the distance between the beams forming each pair of beams being greater than the distance between each adjacent pair of beams.

6. An article handling pallet comprising: a first set of spaced parallel, strip metal beams; a second and identical set of beams fastened at right angles over and to said first set of beams on one side thereof and in edge to edge relationship thereto; a third and identical set of beams fastened at right angles over and to said first set of

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beams on the other side thereof in edge to edge relationship thereto; said three sets of beams forming a symmetrical, generally rectangular latticed frame wherein the beams of either said second or third set of beams can be made to serve as article supporting beams and wherein the spaces between the beams of either said second and third sets of beams are arranged to accommodate the forks of an industrial lift truck.

7. An article handling pallet, as defined in claim 6, wherein the length of each of said beams is greater than the over-all distance across the outer beams of each set of beams and wherein the crossed ends of said outer beams are provided with return bends so as to form a pallet having looped corners.

8. An article handling pallet such as defined in claim 1 and where each beam of said first set of beams is welded to each beam of said second set of beams.

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