March 22, 1949. R. L. TOFFOLON 2,465,134

PALLET AND SLING MECHANISM THEREFOR

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FIG. 1

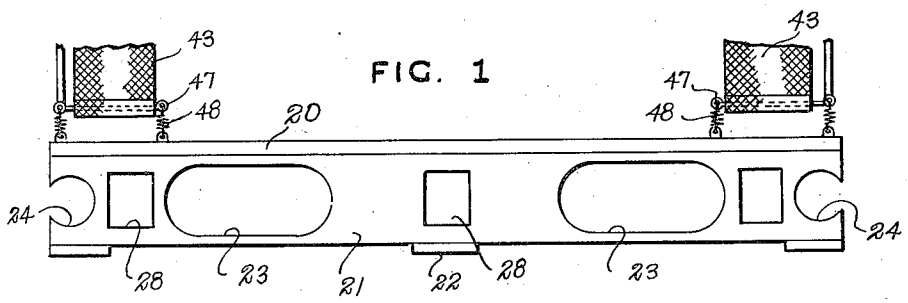



FIG. 2

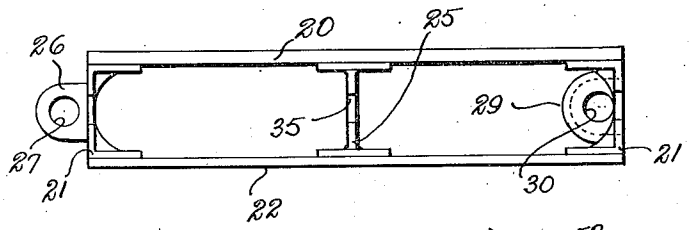



FIG. 3

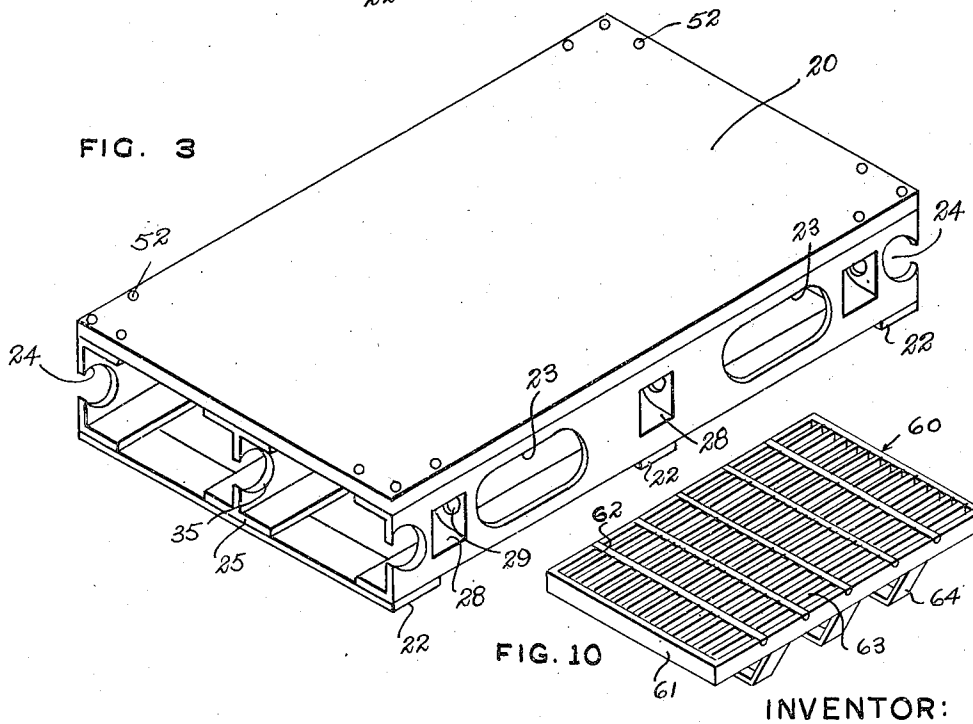



FIG. 10

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PALLET AND SLING MECHANISM THEREFOR

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FIG. 4.

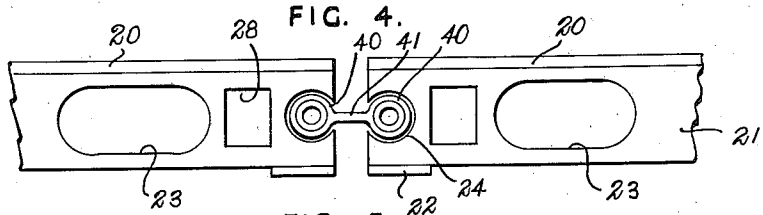



FIG. 5.

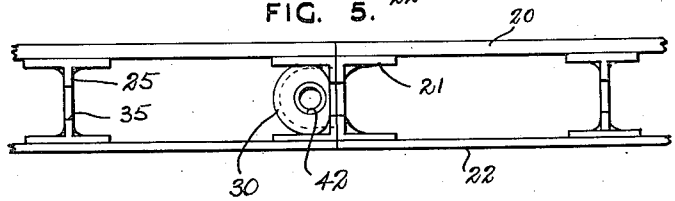
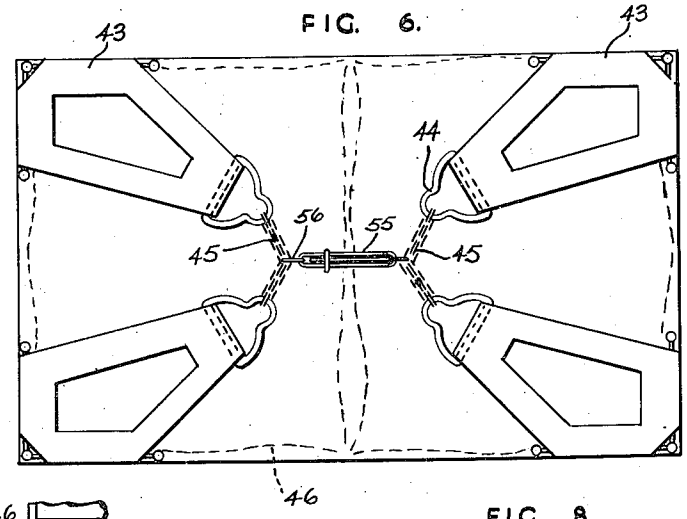



FIG. 6.



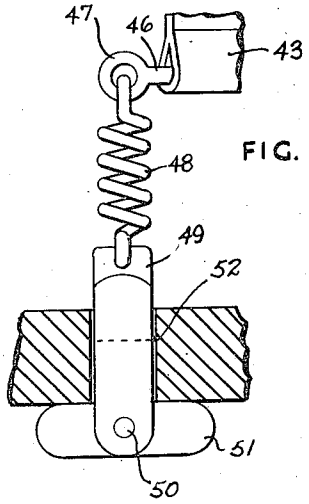




FIG. 7.

FIG. 8

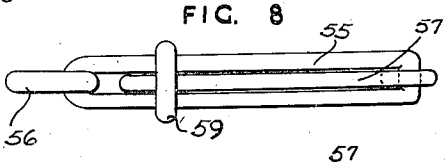
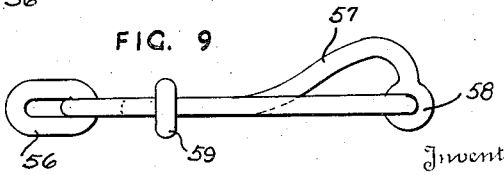



FIG. 9




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# UNITED STATES PATENT OFFICE

2,465,134

## PALLET AND SLING MECHANISM THEREFOR

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Application January 8, 1946, Serial No. 639,730

3 Claims. (Cl. 248—120)

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This invention relates to a pallet and sling mechanism therefor, and more particularly to such a pallet adapted for the disposition of commodities, such as bagged cement, flour, grain, or the like.

A primary object of this invention is the provision of an improved pallet characterized by means whereby a plurality of pallets may be joined in related assembly to provide a relatively great load-supporting surface.

A further object of the invention is the provision of an improved sling means, and means whereby the same may be connected to the pallet, characterized by relative resiliency of connection, and having means whereby the sling connection may be readily assembled and disassembled with the pallet.

Still another object of the invention is the provision of an improved pallet characterized by means for connecting a plurality of pallets in side-by-side and end-to-end relation, whereby the pallet may be utilized for other purposes, such as platforms, runways, scaffolds and the like.

Still another important object of this invention is the provision of slings as above mentioned adapted to secure and protect the load during transit and storage, and to permit box car loading and unloading of palletized commodities.

A further important object of the invention is the provision of means whereby a plurality of bags of any desired commodity, such as cement, may be packed, strapped, shipped, and delivered to the customer, secured to the pallet, the arrangement being such that the pallet may be picked up, moved and tiered by a single man operating a lift truck, including loading into or unloading from box cars, motor trucks, or similar vehicles.

A still further object of the invention is the provision of an improved pallet characterized by means for connecting the same with other pallets, whereby the handling of individual bags of cement, or other commodities, is precluded from the time the bagged commodity leaves the conveyor at the mill or the like, until it is actually ready for use, this being permitted by the continuous securing of the bag to the pallet or pallets by means of the slings associated therewith, during the entire transportation and storage of the same until ready for use.

Still another object of the invention is the provision of an improved sling means, as above mentioned, serving securely to retain the load in related assembly with the pallet and by means of which the pallet may be lifted, if desired, which

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may be readily secured to and detached from the pallet with a minimum of effort and difficulty, as desired.

A further object of the invention is the provision of such a pallet characterized by means whereby the same may be lifted from any desired angle, regardless of the relative position of the lift truck, and the pallet.

Still another object of the invention is the provision of such a pallet which is sturdy and durable in construction, reliable and efficient in operation, readily associable with adjacent pallets, and relatively simple and inexpensive to manufacture and assemble.

Still other objects reside in the combinations of elements, arrangements of parts, and features of construction, all as will be more fully pointed out hereinafter and shown in the accompanying drawings, wherein there are shown preferred embodiments of this inventive concept.

In the drawings:

Figure 1 is a side elevational view of one form of pallet embodying the instant inventive concept, fragments of the sling associated therewith being also indicated.

Figure 2 is an end elevational view of the device of Figure 1.

Figure 3 is a perspective view of the pallet shown in Figures 1 and 2.

Figure 4 is a fragmentary end elevational view showing portions of two pallets connected in related assembly to provide a relatively large load-carrying surface.

Figure 5 is a fragmentary side elevational view disclosing two pallets connected in related assembly.

Figure 6 is a top plan view of the pallet of the instant invention, shown in association with a load, the latter being indicated in dotted lines, and the slings therefor which comprise a feature of the instant invention.

Figure 7 is an enlarged fragmentary view partially in elevation and partially in section, disclosing the method of connecting the sling to the pallet.

Figure 8 is a top plan view of the hook connection disclosing the method of assembling the component parts of the sling.

Figure 9 is a side elevational view of the device disclosed in Figure 8.

Figure 10 is a perspective view of a modified form of construction.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Referring now to the drawings, the pallet of the instant invention is comprised of an upper plate 20 characterized by a plain surface, to the side extremities of which are secured channel irons 21. The lower portions of the channel irons 21 are connected by transversely extending supporting strips 22, and are provided at suitable intermediate points with apertures 23 for the reception of the fork of a conventional lift truck. An intermediate reinforcing member comprised of an I-beam 25 is provided centrally of the pallet.

Each of the channel irons 21 is provided at its opposite extremities with partially circular recessed depressions 24, adapted, in a manner to be more fully described hereinafter, for the reception of a connecting member whereby pallets may be connected end to end, and which also permit the lifting of the pallet by a sling when suitable tubing is inserted therein.

Correspondingly, each pallet is provided on one side with a plurality of protruding lugs 26, each provided with an aperture 27 adapted to engage recesses 28 on the opposite sides of associated pallets, each of the recesses comprising an indented portion 29 having aligned apertures 30 extending through the sides thereof. It may here be pointed out that the I-beam 25 is provided at its extremities with recesses 35 corresponding in configuration to the recesses 24 of the channel irons 21, the purpose of which will be more apparent hereinafter.

Means are provided, as best shown in Figure 4, for joining pallets in end-to-end relation, and take the form of tubular or cylindrical members 40, joined or connected, as by web portions 41, and adapted to engage slidably in the recesses or apertures 24. Obviously, this affords a secure and end-to-end connection for the pallets.

As best shown in Figure 5, means are correspondingly provided for joining adjacent pallets in side-to-side relationship. Under such conditions the lugs 26 are positioned in the recessed portions 29 of the associated pallets, and rods or tubes 42, as best shown in Figure 5, are passed through the aligned associated apertures 27 and 30, thus securing the pallets in relatively fixed related assembly.

As best shown in Figure 6, sling means are provided for securing bags to a pallet, or a plurality of associated pallets, and take the form of canvas straps 43 arranged in spaced opposed relation contiguous to the external face of the upper plate 20, the outer ends of each of said straps being movably connected to said plate. Each of the straps 43 is provided at their inner end or extremity with a metallic loop 44 adapted to be engaged by chain 45. In Figure 6, the load of the pallet is indicated in dotted lines, and may take the form of bags, or similar receptacles. The chains 45 are adapted to be secured in quickly releasable related assembly, in a manner to be more fully described hereinafter, and the canvas slings 43 are adapted to be movably connected to the associated pallets in such manner that they may be readily released. Such movable means take the form, as best shown in Figure 7, of metallic rods 46 provided at their extremities with eyes 47, in which eyes are seated one extremity of a relatively heavy coil spring 48 which forms a shock absorber, the opposite end of each spring being secured to a pin member 49. The lower extremity of the pin member 49 is bifurcated and has pivotally mounted therein, as on a pivot 50, a rotatable lug 51 adapted to pass through a



suitable related aperture 52 in an associated pallet. When it is desired to release the assembly, it will be readily apparent that by unfastening the chains at the top of the pallet, the pin 49 is permitted to drop downwardly in the aperture 52, and the member 51 rotated about the pivot 50, the entire assembly being readily passed through the hole 52 with which it is associated.

The means for securing the sling portions 43 and their associated chains 45 in related assembly take the form of a conventional pelican hook, which is comprised of a loop 55, as best shown in Figure 8, having associated therewith a link 56 adapted to be permanently secured to one of the chains 45. On the loop 55 is pivotally mounted a hook member 57 provided with a loop portion 58, as best shown in Figure 9, and which is adapted to fit between the opposite portions of the member 55. A transversely slidable link 59 is adapted to slide over and engage the depending extremity of the member 57, thus securely holding the hook, and consequently the chains in their associated slings in relative juxtaposition. Obviously, when it is desired to release the load, the link 59 may be slid toward the link 56 in such manner as to release the extremity of the member 57, which, it is to be noted, is looped about the opposite chain 45 in such manner that the slings may be readily removed from related assembly.

A modified form of construction is generally indicated at 60 in Figure 10, and takes the form of a lattice-work grille comprised of an outer boundary portion 61, transverse reinforcing members 62, and a plurality of lattice slats 63. The pallet is supported on looped steel members 64 provided with apertures longitudinally of the pallet, whereby lift truck forks may be inserted in the ends of the pallets, and spaced apart in such manner that correspondingly the lift truck forks may be readily inserted sidewise of the pallet, if desired, as in the manner previously discussed. Obviously, in the use of the pallet construction shown in Figure 10, the slings including the bifurcated pin members 49 and their associated pivotally mounted extremities 51 may be inserted between the lattice struts 63 in such manner as readily to secure bags or the like to the pallet.

From the foregoing it will now be seen that there is herein provided an improved pallet and sling therefor which accomplishes all the objects of this invention, and others, including many advantages of great practical utility and commercial importance.

As many embodiments may be made of this inventive concept, and as many modifications may be made of the embodiment hereinbefore shown and described, it is to be understood that all matter herein is to be interpreted merely as illustrative and not in a limiting sense.

I claim:

1. In a pallet, a load-supporting surface having apertures therein, side supports for said pallet having apertures transversely and longitudinally thereof for insertion of the forks of a lift truck from any direction, sling means for securing commodities to said pallet engageable with said first-mentioned apertures, and means for securing adjacent pallets in end-to-end relation, said last-mentioned means including apertures and parallel connected rods insertible in adjacent apertures.

2. In a pallet, a load-supporting surface having apertures therein, side supports for said pallet having apertures transversely and longitudi-

nally thereof for insertion of the forks of a lift truck from any direction, and sling means for securing commodities to said pallet engageable with said first-mentioned apertures, and means for securing adjacent pallets in side-to-side relation, said last-mentioned means including apertured lugs and apertured recesses in opposite side supports and rod means insertible through aligned apertures in juxtaposed lugs and recesses.

3. In a cargo carrying pallet, a load supporting plate having apertures in the corners thereof, spaced parallel supporting beams mounted on the under surface of the plate, said beams having vertically disposed webs with openings therethrough, sling supporting elements, and springs having depending posts with pivotally mounted cross bars



in the lower ends thereof removably mounting the sling supporting elements in the apertures at the corners of the plate.

ROGER L. TOFFOLON.


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