March 9, 1965 J. W. ALLEN 3,172,374

PALLETS

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Fig. 1
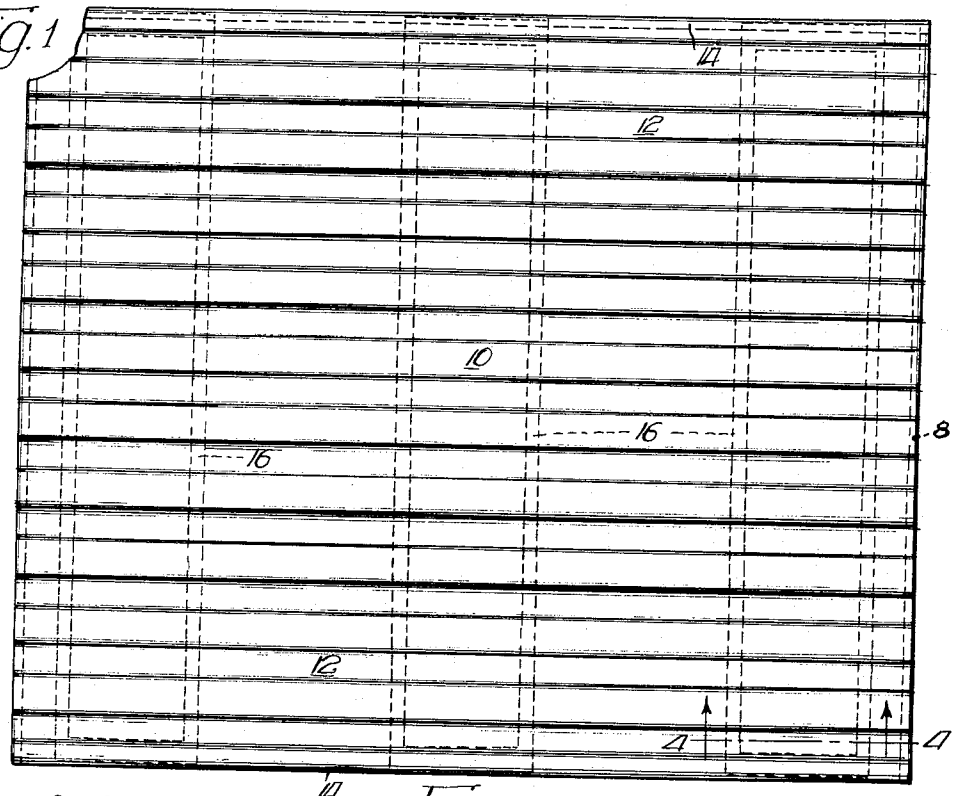
Fig. 2

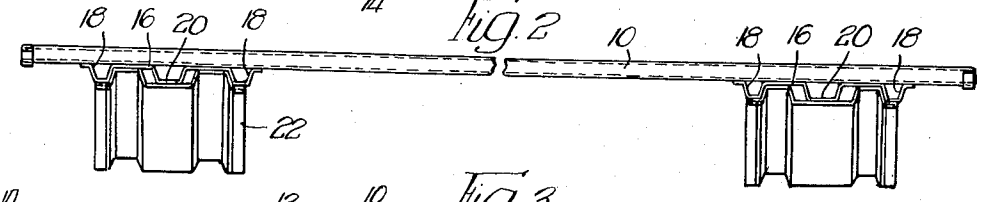

Fig. 3

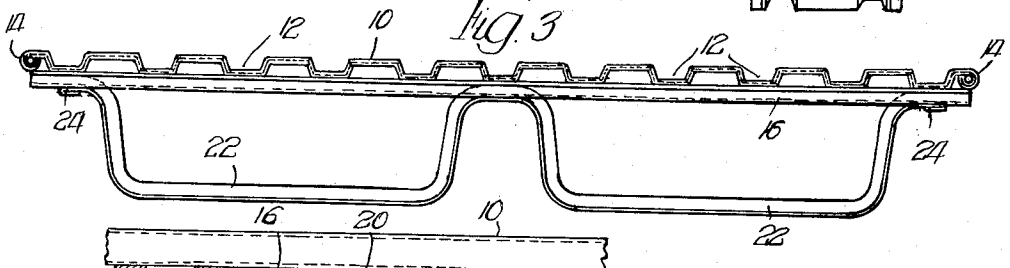

Fig. 4

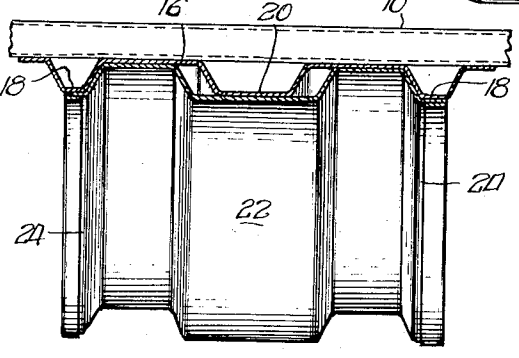

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Fig. 5

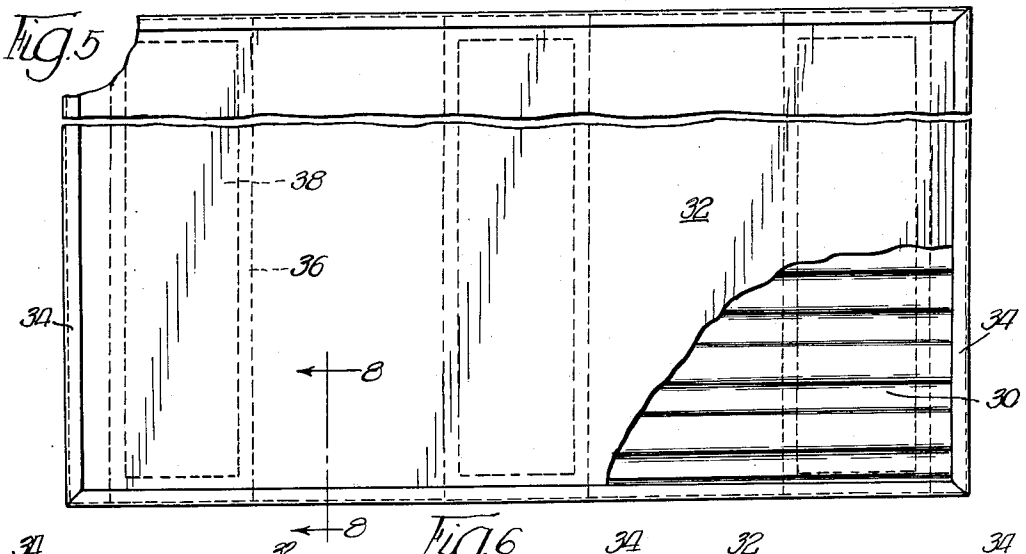


Fig. 6

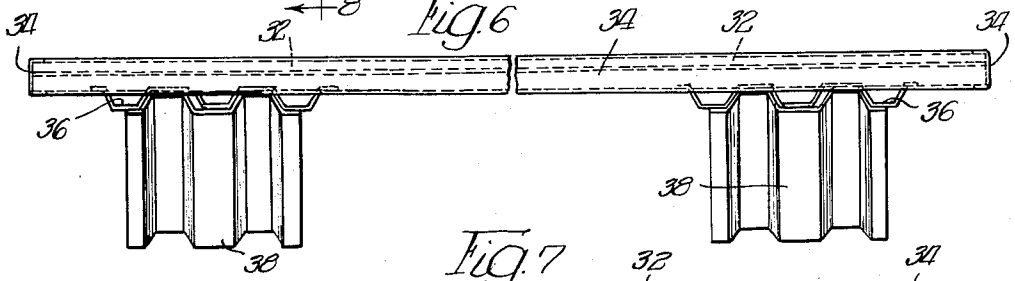


Fig. 7

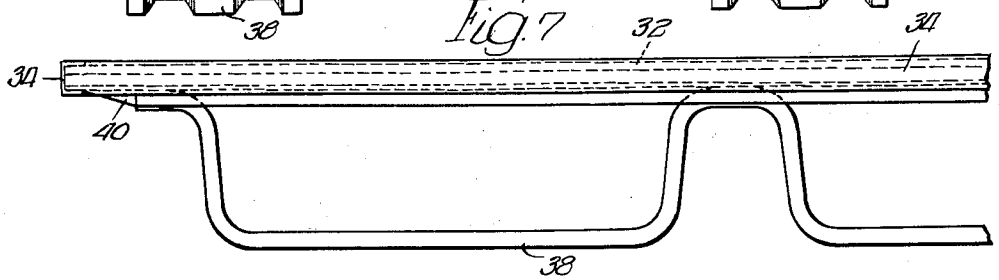
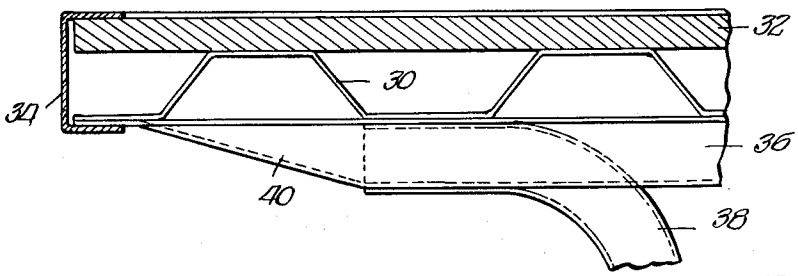


Fig. 8



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PALLETS

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9 Claims. (Cl. 108—51)

This invention relates to pallets or skid platforms and particularly to an improved pallet for use with fork lift trucks in the handling of packaged goods or merchandise which is stacked upon the pallets.

It is an object of the invention to provide an all-metal pallet, the component parts of which are corrugated so that lighter gauge material than customary may be used and yet provide equal strength, and wherein the parts are provided with rolled or hemmed edges, also for strength, and to eliminate all sharp edges of the metal. This avoids the possibility of sharp edges damaging the material or packages containing the same stored or stacked on said pallets.

A further object of the invention is to provide a skid or pallet which may be utilized as an ordinary pallet or as a "take-it-or-leave-it" pallet.

Other objects and advantages of the invention will appear in the following description of the same, reference therein being had to the accompanying drawing, wherein:

FIGURE 1 is a top plan view of a pallet embodying the invention;

FIGURE 2 is an enlarged side elevation of FIGURE 1 partly broken away;

FIGURE 3 is an end view of FIGURE 1;

FIGURE 4 is an enlarged section on the line 4—4 of FIGURE 1;

FIGURE 5 is a top plan view of a modified form of the invention;

FIGURE 6 is an enlarged side elevation of FIGURE 5, partly broken away;

FIGURE 7 is an enlarged partial end view of FIGURE 5; and

FIGURE 8 is an enlarged section on the line 8—8 of FIGURE 5.

In the drawings and referring first to the modification shown in FIGS. 1 to 4 of the drawings, the pallet comprises a single rectangular sheet **10** of suitable metal, although it is readily conceivable that the same may be of any other material having the required strength and rigidity. The sheet **10** forms a deck for the pallet and it is hemmed along the opposite ends as at **8**, and curled into rolled edges **14** at the opposite sides of the sheet. The sheet is provided with a plurality of spaced parallel corrugations **12** therein which are continuous from end to end of the sheet and of the same width and depth throughout. Each side edge of this sheet is curled over forming a rolled edge or bead **14**, which adds strength to said edges against compressive forces. The corrugations **12** add considerable stiffness and rigidity to the sheet from end to end thereof and therefore a lighter gauge of material can be used and still provide the necessary strength.

Transversely under the sheet **10** are three corrugated narrow elongated top runners **16** which are formed with narrow side corrugations **18** and a central wider corrugation **20**, all being of the same depth. These runners **16** are secured along their side edges to the under side of he sheet **10** by being spot welded thereto. Said top runners **16** give considerable rigidity to the deck **10** as they are secured thereto transversely of the corrugations **12** therein, and provide a transverse beam action to carry any load imposed upon the deck to the transverse W-shaped corrugated bottom runners **22**. In other words, the top runners resist any bending of the sheet **10** about lines

parallel with the corrugations **12**. These bottom runners are provided with two corrugations which underlap the corrugations **18** and **20** of the upper runners. Said runners nest together and one supports the other in carrying the load. Runners **22** are formed into a W shape, as best seen in FIGURE 3, and this provides entry for the tines of a lift truck from either end of the pallet. The tines of the lift truck can also enter from either side of the pallet, in the space between the runners. There is thus provided a four-way pallet by this structure. Bottom runners **22** terminate at their side edges in lateral flanges **24** which underlap and are secured to the valleys of corrugations **18** of the top runners **16** at points of contact. These lateral flanges are also hemmed before pressing to obtain a double thickness edge to increase strength and eliminate sharp edges.

In the modification shown in FIGS. 5 to 8, a combination wood and metal pallet is provided, it comprising a rectangular corrugated metal deck **30**, similar in all respects to the deck **10** except the edge beading and edge hemming are not included since the channel **34** provides this protection. Secured on top of this deck is a piece of ¼" plywood **32** which is coextensive with the deck **30** and forms a renewable wear surface for the pallet. A narrow channel shaped frame **34** is placed about the four sides of the deck and plywood, it overlapping and underlapping the said sides snugly, to hold the plywood and deck together and fully protect the edges thereof, as well as form a smooth scuff-free finish for the pallet edges.

Underneath the deck **30**, extending transversely of the corrugations of the deck **30**, are the top corrugated runners **36** which are similar in all respects to the runners **16**, previously described, except that the corrugations of the runners **36** decrease in depth at their ends, feathering out as at **40** and merging into the plane of the runners at the end margins thereof. The ends are thus flat and are tucked into and held within the channel frame as clearly seen in FIGURE 8. The runners **36** are welded to the underside of the deck **30**, and there is one at the center and one adjacent each end of the deck, as shown in dotted lines in FIGURE 5.

The bottom runners **38** are also similar to the runners **22**, are similarly corrugated, nest against the top runners **36** and are welded thereto. The bottom runners **38** are bent into a somewhat W form with the bottoms of the bends horizontal, or parallel with the top runners and thereby provide a flat supporting or skid surface for the pallet.

This pallet is substantially identical with that of the first described modification, excepting for the provision of the wooden deck **32**, the frame **34** and the tapered feathered ends **40** of the top runners **36** held within the frame **34**.

From the above it will be apparent to those versed in the art that the advantages of a corrugated surface are utilized in permitting a pallet structure to be constructed of lighter gauge material than would otherwise be required and still provide equal strength. This results in lesser cost of construction, easier handling, lowering of weight, etc. It is apparent, of course, that different sizes and capacities of pallets may be required for specific needs and in this connection the deck and supporting elements may vary in gauge.

I claim:

1. A pallet comprising a rectangular sheet forming a material supporting deck, and a plurality of spaced continuous corrugated runners formed into a W configuration, said runners being coextensive with opposite sides of and secured to said sheet at points of contact therewith, the side edges of said runners being folded over to form a hem to provide a double thickness edge to increase

strength and eliminate sharp edges and the corrugations in said runners extending in the direction of the length of said runners.

2. A pallet comprising a rectangular sheet forming a material supporting deck, spaced parallel corrugations press-formed into said deck, the ends of said deck transversely of said corrugations being folded back upon the deck, thereby forming hemmed edges, and the sides of said deck parallel to said corrugations being rolled into a hollow bead, thereby providing a double thickness of material at all edges of said deck, and a plurality of corrugated runners formed into a W configuration secured to said deck at points of contact therewith, and extending transversely of the corrugations in said deck, said corrugations running in the direction of the length of said runners.

3. A pallet comprising a metal sheet having spaced parallel corrugations formed therein, said corrugations being parallel to opposite sides of said sheet, said opposite sides being curled into a hollow bead and the ends of said sheet transversely of said corrugations being folded backwardly upon the deck, thereby forming hemmed edges, a plurality of top corrugated runners coextensive with and secured to the under surface of said deck transversely of said deck corrugations, and a like number of corrugated bottom runners formed into a W configuration in the direction of the corrugations and secured to said top runners at points of contact, said corrugations of the top and bottom runners extending in the direction of their lengths.

4. The pallet structure of claim 3, wherein the corrugations of the bottom runners are parallel to and nest into the corrugations of the top runners, the valleys of said corrugations abutting and being secured together at points of contact.

5. The pallet structure of claim 3, wherein the corrugations of the top runners feather out and merge into the plane of said runners at the end margins thereof.

6. A pallet consisting of a corrugated metal deck, a plurality of spaced metal reinforcing upper runners corrugated in the direction of their length and welded at points of contact to the under surface of the deck transversely of the corrugations therein, and a plurality of bottom runners, corrugated and nesting into the corrugations of the upper runners, said bottom runners being coextensive with the upper runners and pressed into W shape, with the corrugations thereof nesting into and welded to the corrugations of the said upper runners at points of contact.

7. The pallet structure of claim 6 wherein the material of each bottom runner is folded over upon itself along its side margins, forming a reinforcing hem.

8. A pallet comprising a metal sheet having spaced parallel corrugations formed therein, a non-metallic wear surface coextensive with and covering said sheet, reinforcing upper runners secured to the under surface of said sheet at the points of contact therewith and extending between opposite edges of said sheet transversely of said corrugations, a channel shaped frame about the edges of said sheet and wear surface and ends of said upper runners, and W shaped bottom runners underlapping said upper runners and secured thereto at points of contact therewith.

9. The structure defined in claim 8 wherein said upper and bottom runners are corrugated in the direction of their lengths and nest one within the other at points of contact.

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