United States Patent

[11] 3,602,157

[72] Inventors **Abie Cohen**
P.O. Box 584;
Louis Cohen, P.O. Box 2313, both of
Abilene, Tex. 79604

[21] Appl. No. **763,613**
[22] Filed **Sept. 30, 1968**
[45] Patented **Aug. 31, 1971**

[54] **PALLET**
1 Claim, 8 Drawing Figs.

[52] **U.S. Cl.** **108/51,** 108/57
[51] **Int. Cl.** **B65d 19/00**
[50] **Field of Search** 108/51, 58; 189/36

[56] **References Cited**

UNITED STATES PATENTS

3,082,850	3/1963	Weening	189/36 D X
2,306,752	12/1942	Riemenschneider et al.	108/57
1,612,382	12/1926	Lehman	108/58
2,152,086	3/1939	Powell	108/57
2,463,214	3/1949	Stoner	108/58 X
2,570,326	10/1951	Angelis	108/51 X
2,705,120	3/1955	Owen	108/56
2,933,339	4/1960	Airden	108/58 X
3,007,663	11/1961	Huck	108/57
3,118,400	1/1964	Kemp, Jr. et al.	108/58
3,172,374	3/1965	Allen	108/51

Primary Examiner—Bobby R. Gay
Assistant Examiner—Glenn O. Finch
Attorneys—Clarence A. O'Brien and Harvey B. Jacobson

ABSTRACT: An industrial pallet having a plurality of parallel spaced channel members which transversely mount a number of parallel hollow spaced slats between respective upper and lower sides of the channel members. The channel members include plates at spaced intervals therein for rigidifying the channels. The slats are corrugated for increasing the structural strength of the pallet. A second embodiment provides overhanging slats including rigidifying bars therein for permitting straddle lifting of the pallet.

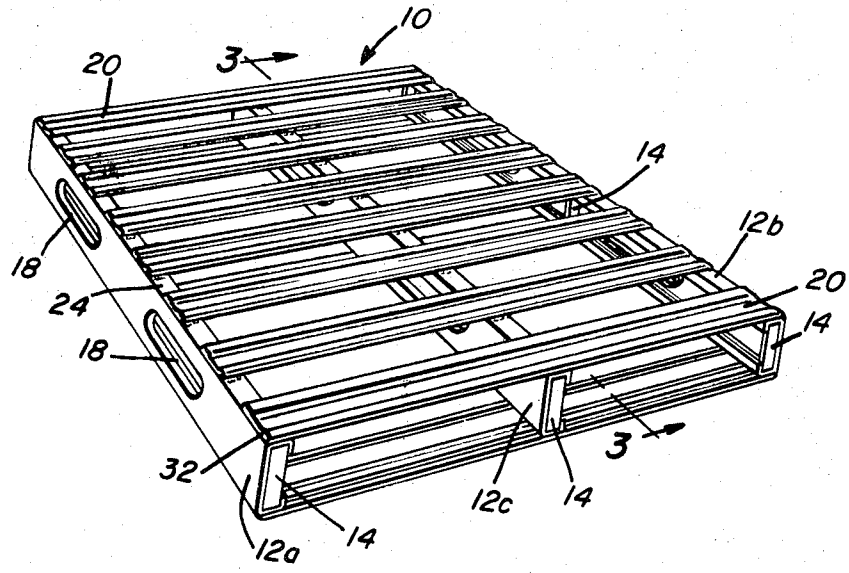


Fig. 1

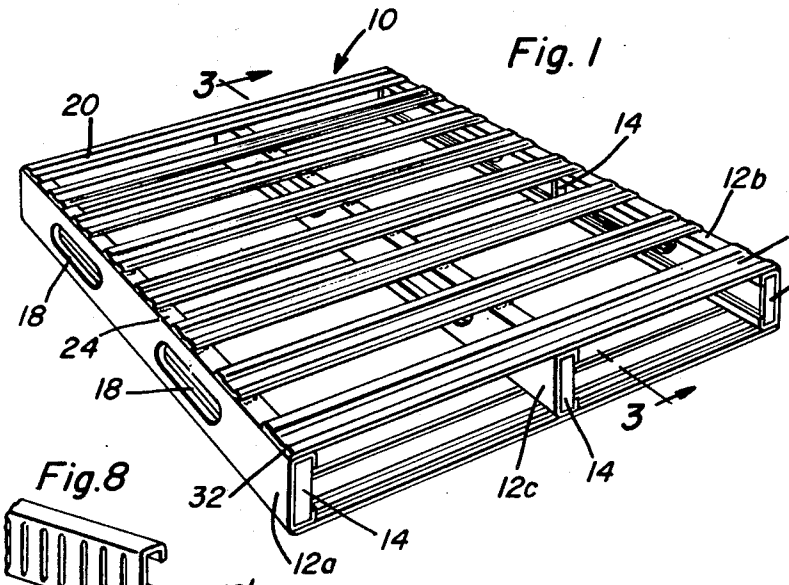


Fig. 5

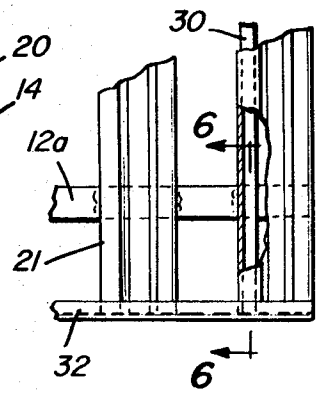


Fig. 8

Fig. 2

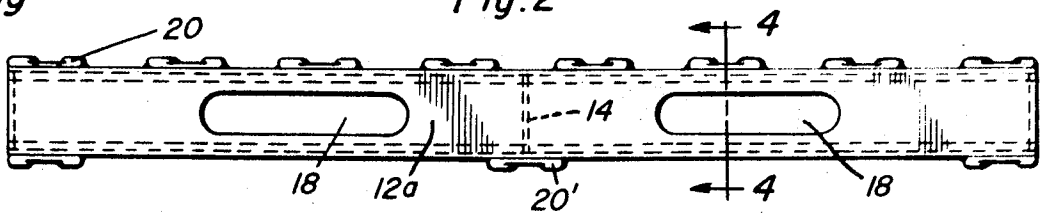


Fig. 3

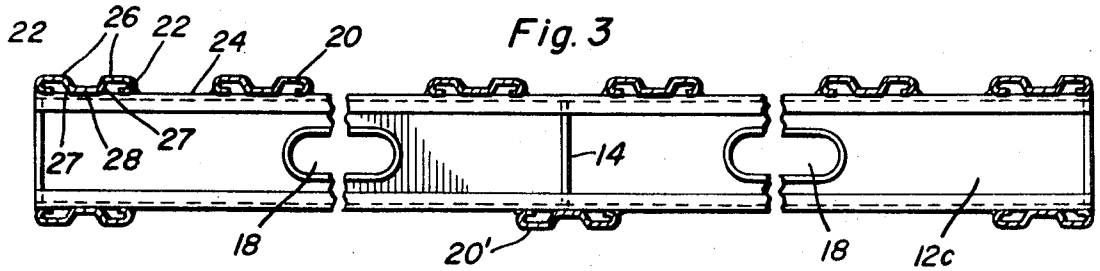


Fig. 4

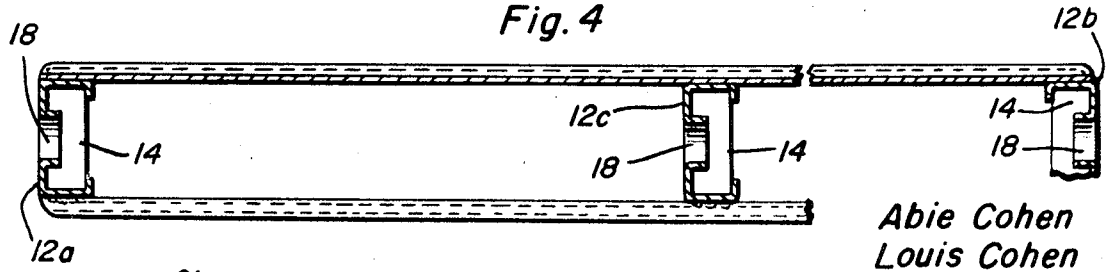


Fig. 6

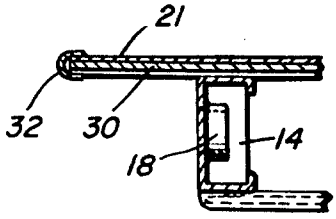
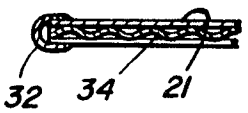


Fig. 7



Abie Cohen
Louis Cohen
INVENTORS.
BY Clarence A. O'Brien and Harvey B. Jacobson
Attorneys

PALLET

The present invention relates to material handling platforms and more particularly to industrial pallets used in conjunction with forklift trucks and the like.

The majority of industrial pallets currently being used are constructed entirely or substantially entirely of wood. Such pallets develop splintered edges and corners which have a tendency to cause injuries to workmen when handling the pallets. Further, the wooden pallets are necessarily relatively thick and heavy in weight in order to provide the required compression strength for supporting heavy material loads as well as lateral shock loads which are received during normal use of the pallet. Thus, conventional wooden pallets are awkward and difficult to handle due to their size and weight. Also, their additional weight reduces the amount of material that may be successfully lifted by a forklift truck or the like in a single operation.

Still further, such wooden pallets deteriorate rapidly due to normal wear, warpage and breakage thus requiring frequent replacement and relatively high maintenance expense.

The present pallet is entirely fabricated from metal. The component parts of the present pallet include reinforced channel members and corrugated cross braces for slats. The pallet provides the user with a lighter, safer, more durable, more sanitary, and more easily repaired pallets than is now available in wooden models, while at the same time maintaining a cost to the user that is economically feasible. The metal parts of the present pallet structure are formed in four basic shapes and the lengths of the various metal parts may be cut to desired lengths to render the availability of the pallets of various lengths and widths.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIG. 1 is a perspective view of the present industrial pallet.

FIG. 2 is a side elevational view of the pallet illustrated in FIG. 1.

FIG. 3 is a longitudinal sectional view taken along a plane passing through section line 3—3 of FIG. 1.

FIG. 4 is a transverse sectional view taken along a plane passing through section line 4—4 of FIG. 2.

FIG. 5 is a partial cutaway view illustrating the utilization of a reinforcing bar inserted in the slat members of a modified form of the present invention.

FIG. 6 is a partial sectional view taken along a plane passing through section line 6—6 of FIG. 5.

FIG. 7 is a partial sectional view illustrating the use of a corrugated reinforcing strip in the slat members.

FIG. 8 is a partial perspective view of an alternate channel member construction.

Referring specifically to the drawings, and more particularly FIG. 1, reference numeral **10** generally denotes the present industrial pallet structure which is seen to include three laterally and parallel spaced stringers in the form of channel members **12***a*, **12***b* and **12***c*, each channel member having a C-shaped cross section. Channel members **12***a* and **12***b* are positioned so that the channel opening therein confront one another. Channel member **12***c* is interposed between the other channel members. It will of course be appreciated that the number of channel members may be increased or decreased depending upon the size, nature, and weight of the load handled.

As shown in FIGS. **1** and **4**, rectangular plates **14** are positioned within the openings of the channel members, several such plates being positioned at spaced intervals along the length of each channel member. For purposes of presenting a finished appearance, each end of the channel members includes a flush mounted plate **14**. These plates increase the load bearing capability of the channel members. Additional

structural strength may be imparted to each channel member by pressing corrugated impressions **19** into the base portion of each channel members **12'** as shown in FIG. **8**.

Two longitudinally oriented oblong slots **18** are formed in each channel member to permit the passage of forklift members through the entire pallet structure. The apertures are formed by punching an oblong strip from the normally vertically disposed walls of the channel members. The material immediately surrounding the aperture is pressed inwardly thereby forming a flange or ledge on the interior surface of the aperture. The ledge on the top and bottom of the aperture provides a flat surface for forks to work against and the ledges also provide extra reinforcement to the channel members.

Referring to FIGS. **1** and **3**, there is shown a number of closely spaced and parallel disposed slat members **20** which are attached to the normally upwardly horizontal surface of the channel members. As illustrated in FIGS. **2** and **3**, three slat members identical in configuration to those previously discussed are connected to the normally positioned bottom surface of the channel members in a manner connecting the mutually aligned ends of the channel members as well as their median points.

Referring to FIG. **3** the slat members **20** are shown in cross section to include inwardly turned lateral edges **22** which are suitably connected to the upper surface **24** of intersecting channel members. The rounded lateral edges integrally append to coplanar spaced horizontal flange portions **26** which in turn append inwardly to downwardly inclined flange portions **27**. An elongated flat flange portion **28** connects the angularly inclined flange portion **27** and also provides a surface for connecting each slat member **20** to the upper surfaces **24** of the channel members by welding or the like. As will be appreciated by viewing FIG. **3**, the slat members **20'** disposed on the underside of the normally oriented pallet are identical to slat members **20** and are similarly attached to the undersurface of the channel members.

Thus, the complete metallic structure of the pallet shown in FIG. **1** is described and as will be appreciated from viewing the Figure, the pallet permits fork entry through the oblong apertures **18** or through the transverse open ends of the pallet.

FIG. **5** illustrates a modification of the basic design shown in FIG. **1** and is seen to include slat members **21** which extend over or overhang the laterally outward channel members **12***a* and **12***b* for purposes of permitting straddling support of the pallet which is desired in certain material handling applications. In order to increase the rigidity of the overhanging slat members **21**, and inhibit the bending thereof due to prolonged handling and abuse, elongated reinforcing bars **30** are inserted within the void created between flange portions **26** and upper surfaces **24** of the channel members. Thus, the corrugated structure of the slat members are reinforced to provide necessary structural strength. In order to protect the laterally outward ends of the overhanging slat members **21**, elongated runners **32** having a generally U-shaped cross section are disposed over the outward flat member ends. The disposition of reinforcing bars **30** and runners **32** is clearly shown in FIG. **6**.

A modification of the reinforcing bar **30** is shown in FIG. **7** to include a corrugated or rippled reinforcing strip **34** which replaces the previously discussed reinforcing bar. Due to the corrugated contours of strip **34**, the overhanging slat member portions are rigidified.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

We claim:

1. A pallet construction for use with a material handling machine comprising a plurality of single ply stringers positioned in parallel spaced relation and having upper and lower sides, transversely and inwardly fluted aligned apertures

formed in the stringers for supportingly receiving the lifting members of a material handling machine, and a plurality of slat members being transversely disposed between respective upper and lower sides, each slat ember having a corrugated cross section with inturned concealed side edges, all of the components of the pallet being constructed of metal with the slats being welded to said stringers, the outer ends of said slats terminating flush with the outer surfaces of the remote stringers, the outer ends of the slats also being rounded and closed to eliminate sharp edges, each of said channel shaped stringers having a plurality of vertical plates welded interiorly thereof to reinforce the stringers, each stringer having one of said plates welded to and closing each open end thereof.