Feb. 21, 1939. C. L. CLARK 2,148,150

PALLET CONSTRUCTION

Filed Feb. 23, 1938 2 Sheets-Sheet 1

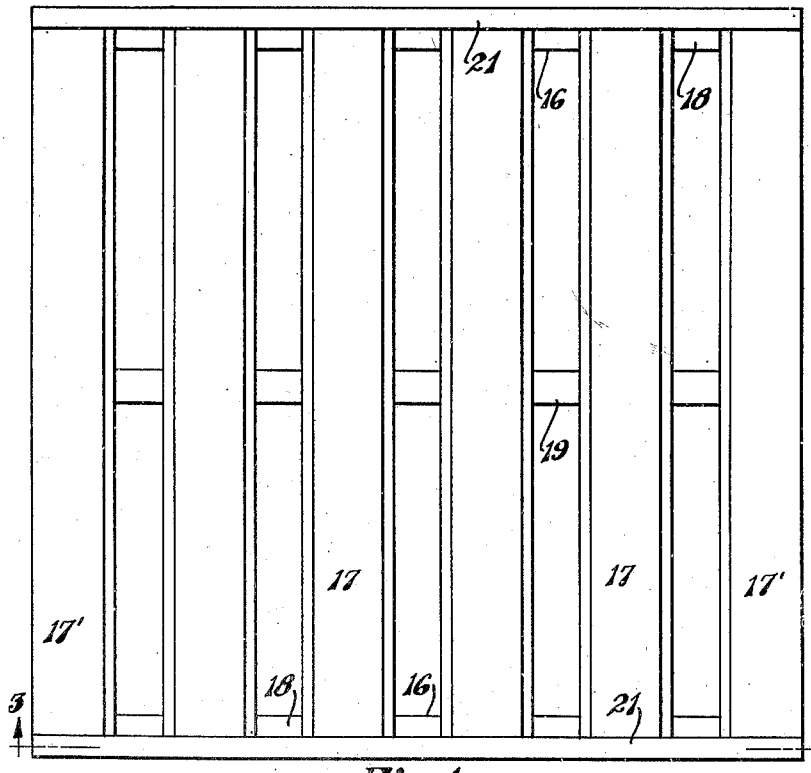


Fig. 1

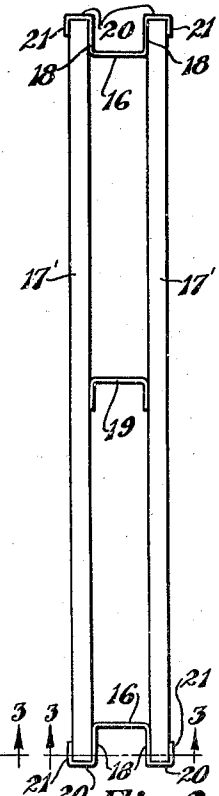


Fig. 2

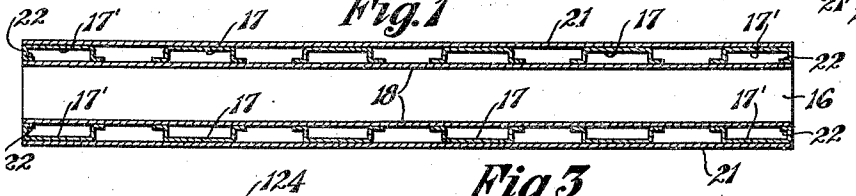


Fig 3

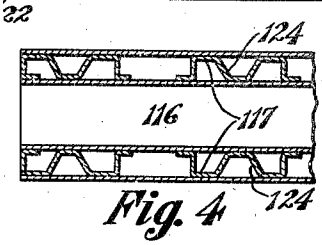


Fig. 4

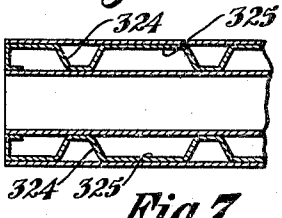


Fig. 7

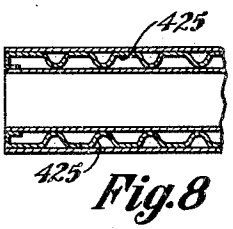


Fig. 8

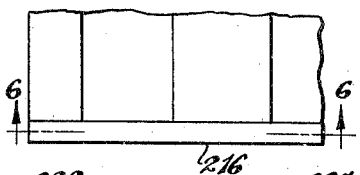


Fig. 5

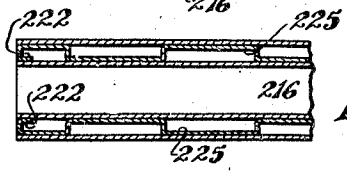


Fig. 6

Inventor

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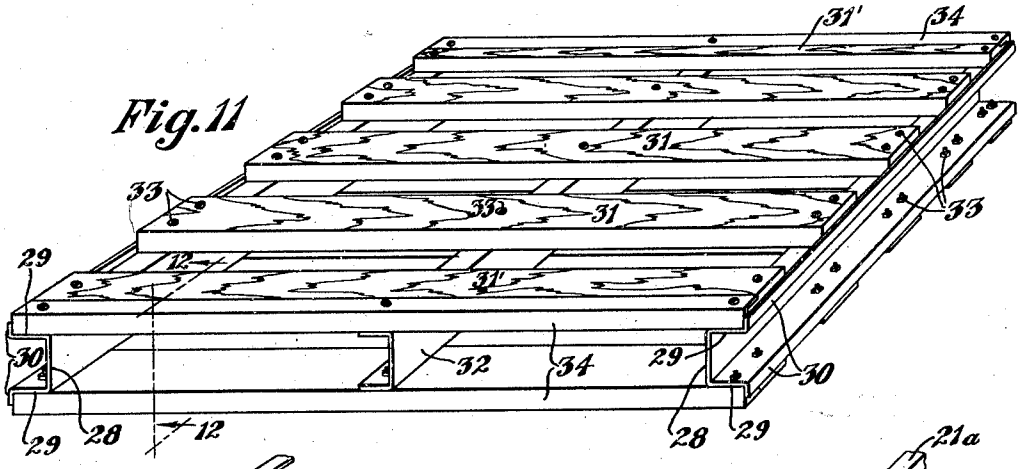
Attorneys

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PALLET CONSTRUCTION

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Fig. 11



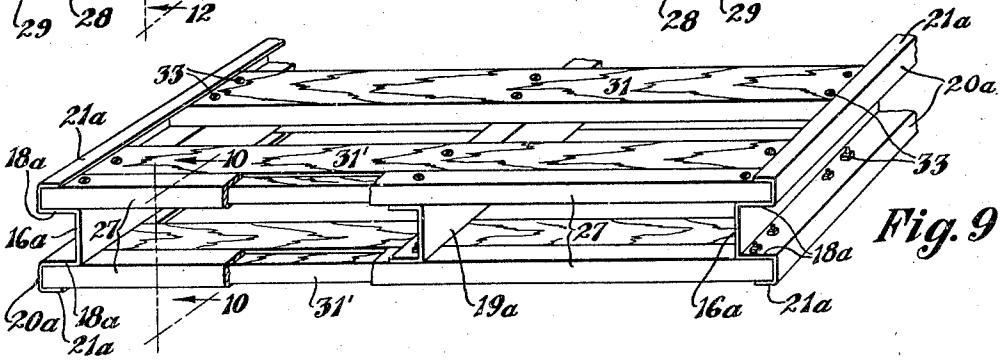


Fig. 9

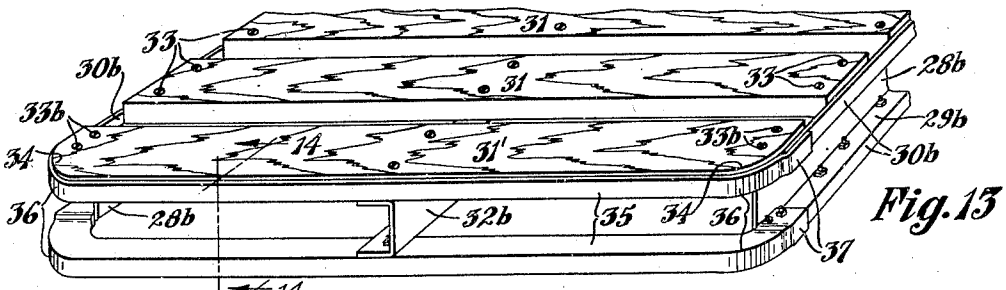


Fig. 13

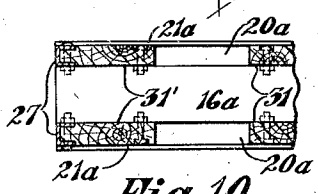


Fig. 10

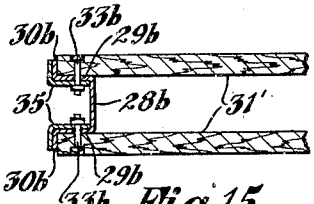


Fig. 15

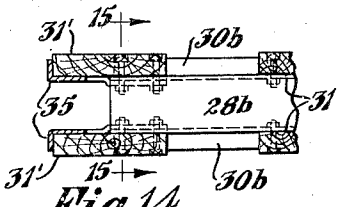


Fig. 14

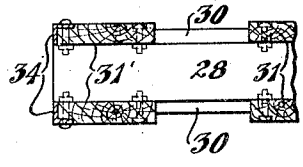


Fig. 12

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UNITED STATES PATENT OFFICE

2,148,150

PALLET CONSTRUCTION

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Application February 23, 1938, Serial No. 192,080

5 Claims. (Cl. 248—120)

The invention relates to material handling platforms generally known as pallets, which are used in conjunction with hand or power operated fork lift trucks, for storing, handling and transporting materials either in boxes, bags, barrels or crates, or baled, bundled or coiled, or in loose or sheet form.

More particularly, the invention relates to pallet construction having novel metal side members adapted for use either with metal or wooden top and bottom deck members.

The greater proportion of pallets which have been and now are in common use are constructed entirely or substantially entirely of wood. Such pallets have sharp or rough edges and corners which constantly cause injuries to workmen in handling, and those wooden pallets are necessarily relatively thick and heavy in order to provide the required compression strength for supporting heavy compression loads, as well as lateral shock loads, and are therefore difficult and awkward to handle.

Moreover, such wooden pallets deteriorate very rapidly due to wear, warpage and breakage, thereby requiring not only frequent repairs and large maintenance expense, but also presenting a constant hazard of injury to workmen from splinters and rough corners and edges.

Accordingly, the objects of the present invention include the provision of a relatively light weight and strong pallet construction which is easily handled, and which is adapted to be conveniently lifted by fork lift trucks, or by means of sling chains and the like, where traveling cranes are available.

Other objects include the provision of an extremely durable pallet construction which requires a minimum of maintenance expense and repairs.

Another object is to provide an improved pallet which minimizes or substantially prevents injury to workmen due to sharp corners and splinters.

A further object is to provide an improved pallet having novel metal side members adapted for use with metal or wooden top and bottom deck members.

A still further object is to provide an improved pallet construction having integral metal side members provided with flange portions for protecting the ends of the top and bottom deck members.

Still another object is to provide an improved pallet construction having integral recessed metal side members provided with side binding portions, and associated with end binding members.

These and other objects are attained by the improvements, parts, elements, structures, combinations and arrangements comprising the present invention, which is fully disclosed in the accompanying drawings and hereinafter described and claimed.

The invention may be expressed in general terms as including top and bottom wood or metal deck members, integral recessed metal side members having abutting or binding portions for fitting the ends of the deck members, and said side members being adapted for cooperating with end binding members for the edges of the deck members at the ends of the pallet.

In the accompanying drawings forming part hereof, preferred embodiments of the present improvements are shown by way of example, without limiting the scope of the invention to the embodiments shown, it being understood that various modifications in details of construction and arrangement are to be comprehended within the scope of the appended claims.

Referring to the drawings,

Figure 1 is a plan view of a preferred form of pallet constructed according to the present invention;

Fig. 2 is an end view thereof;

Fig. 3 is a longitudinal sectional view taken on line 3—3 of Figs. 1 and 2, showing the construction of one form of deck members;

Fig. 4 is a fragmentary longitudinal sectional view similar to Fig. 3 embodying the same form of side members but showing a slightly different form of deck members;

Fig. 5 is a fragmentary plan view of a pallet embodying side members of the type shown in Fig. 2 and having corrugated sheet metal deck members;

Fig. 6 is a fragmentary sectional view as on line 6—6 of Fig. 5;

Figs. 7 and 8 are fragmentary sectional views similar to Fig. 6 showing modified forms of corrugated sheet metal deck members used with side members of the type shown in Fig. 2;

Fig. 9 is a fragmentary perspective view showing side members of the type shown in Fig. 2 used with wooden slat deck members;

Fig. 10 is a fragmentary sectional view as on line 10—10 of Fig. 9;

Fig. 11 is a perspective view of another preferred embodiment of the present invention showing slightly different metal side members and wooden slat deck members;

Fig. 12 is a fragmentary sectional view as on line 12—12 of Fig. 11;

Fig. 13 is a fragmentary perspective view of a form of pallet having metal edge members with curved corners at the ends of the pallet;

Fig. 14 is a fragmentary sectional view taken on line 14—14 of Fig. 13;

Fig. 15 is a fragmentary sectional view as on line 15—15 of Fig. 14.

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

Referring first to Figs. 1 to 8 inclusive, Figs. 1, 2 and 3 show a preferred embodiment of the present improvements including longitudinally extending laterally spaced side members 16 and laterally or transversely extending top and bottom deck members 17. The side members 16 are preferably exteriorly recessed with respect to the pallet, that is, they are channel-shaped with the top and bottom legs 18 of the channels directed outwardly.

A longitudinally extending channel 19 is provided between the side members 16 and preferably spaced centrally thereof. The top and bottom deck members 17 in this embodiment are in the form of sheet metal substantially U-shaped slats, as best shown in Fig. 3, and are supported on the top and bottom legs 18 of the side members 16 and of the central channel 19.

The side members 16 are provided with integral angular top and bottom flange portions 20 extending vertically upward and downward of the pallet and abutting the side edges of the deck members 17, and the flange portions 20 have inturned portions 21 overlapping the side edges or extremities of the slats 17. Thus, each side member 16 includes an outwardly open channel and integral top and bottom inwardly open channels for receiving the extremities of the top and bottom deck members.

The extremities of the deck members may be welded or otherwise secured to both the legs 18 and the overlapping flange portions 21 if desired, and the overlapping portions 21 provide means for binding the deck members so as to constitute an extremely rigid and durable pallet construction.

The deck members 17' at the ends of the pallet are preferably provided with inturned flange portions 22 resting on the legs 18 of the side members and on the legs of the central channel 19, so as to eliminate sharp edges which might cause injury to the workmen. The side members 16 being turned inwardly to overlap the deck members 17, also do not present any sharp edges. Moreover, the exteriorly recessed shape or configuration of the side members 16 provides for ease of handling by workmen and permits the use of sling chains for lifting loaded pallets where traveling cranes are available.

The recessed channel side members together with their overlapping flange portions 21 provide a pallet construction having greatly increased strength and rigidity, so that a relatively light gauge material may be used.

With this all metal construction, the overlapping flange binding portions prevent the crushing of the sides of the top and bottom deck members, and at the same time resist against damage from lateral or end shock loads.

This construction conserves a substantial amount of material and thus produces an inexpensive pallet having a high load carrying capacity in relation to its lightness in weight.

In Fig. 4 is shown a fragmentary sectional view of a slightly modified form of pallet having integral recessed side members 116, and sheet metal slat deck members 117 provided with a central groove or corrugation 124 to give greater strength.

Figs. 5 and 6 show a slightly different form in which the recessed integral side members 216 support corrugated sheet metal deck members 225 having their edges turned under at the ends of the pallet as indicated at 222.

Figs. 7 and 8 show variations of corrugated sheet metal deck members, the deck members 325 being provided with deep corrugations 324 for sustaining heavy loads, and the deck members 425 being provided with relatively shallow corrugations for medium or lighter loads.

All of the various forms shown in Figs. 1 to 8 inclusive are used with the integral metal side members 16, the only variations necessary in the side members being in dimensions in order to accommodate the various thicknesses of deck members. It is understood that the embodiments shown in Figs. 1 to 8 are merely by way of example since many other variations in metal deck members can be used, as for instance, the decks may be made of flat sheet metal either solid or in slats, or of expanded metal or wire mesh or various bar and structural shapes. Also, the deck may consist of a sub-framework for supporting deck members of wood or other materials.

The embodiment shown in Figs. 9 and 10 is a combination steel and wood pallet in which the longitudinally extending recessed metal side members 16*a* are substantially identical to side members 16 shown in Figs. 1, 2 and 3. The top and bottom deck members are shown as wooden slats 31 supported on the legs 18*a* of the side members and on the legs of the central channel 19*a*. Preferably the slats 31 are bolted to the legs 18*a* by bolts 33 as shown, so that the slats may be easily replaced. The slats 31' at the ends of the pallet are preferably rabbeted to receive angular metal edge pieces 27, which are shown in Figs. 9 and 10 as being channels set into the edges of the slats so as to have their surfaces flush with the surfaces of the slats. Obviously these channel pieces 27 could be in the form of angles or the like if desired.

The channels 27 provide protection to the deck members against end shocks and the like, and prevent the formation of splinters along the outer edges of the end deck members. The angular flange portions 20*a* and the overlapping binding portions 21*a* of the side members serve to abut and overlap the extremities of the slats so that in handling the pallet construction shown in Fig. 9 no contact or wear is taken on the wooden slats and no exterior wooden edges are presented to become splintered by wear.

A further modification of the present improved pallet is shown in Fig. 11 and constitutes a reversible combination steel and wood pallet. In this embodiment, the longitudinally extending side members are exteriorly recessed integral metal channel members 28 having their legs 29 outwardly directed and provided with upturned and downturned angular flange portions 30 for abutting the side edges or extremities of the deck members. The deck members may be wooden slats 31 spaced apart longitudinally of the pallet as shown, or substantially abutting each other. The deck members are supported on the legs 29 of the side members 28, and also on the legs of a central longitudinally extending channel 32. Preferably the slats are bolted to the legs 29 of the side members and to the legs of the central

channel, by bolts indicated at 33, so that the slat members may be easily replaced when desired.

The deck members or slats 31' at the ends of the pallet are preferably rabbeted to receive angles 34 at their outer edges, said angles providing inturned metal edge portions for the end deck members to protect the same from end shocks and the like and prevent the occurrence of splinters thereon. The angles 34 may be set into the deck members 31' as shown so that their surfaces are flush with the surfaces of the deck members.

Thus the construction, including the flanges 30 of the side members 28 and the end angles 34, provides a combination steel and wood pallet in which sharp edges and the danger of splinters is substantially eliminated.

The modified form of pallet construction shown in Figs. 13, 14 and 15 is a further modification of a combination steel and wood pallet. In this form the longitudinally extending exteriorly recessed integral side members 28b have outwardly directed legs 29b and upturned and downturned angular flange portions 30b for abutting the extremities of wooden slat deck members 31. The deck members 31 are supported on the legs 29b of the side members 28b, and also on the legs of a central longitudinally extending channel 32b. Preferably the slats are bolted to the legs 29b and to the legs of the central channel 32b by bolts indicated at 33.

The deck members or slats 31' at the ends of the pallet preferably have their outer corners convexly curved as shown at 34, and metal edge members 35 are provided at the ends of the pallet to fit the outer edges of slats 31'. These edge members 35 are preferably angular in cross section, having curved corner portions 36 conforming to the curved corner portions 34 of the deck members, and the ends 37 of said edge members 35 are preferably enlarged to fit over and overlap the ends of the side members 28b. The enlarged portions 37 are preferably bolted or otherwise secured to the top and bottom legs 29b of the side members 28b, as by bolts 33b.

In all of the forms of the present invention herein shown and described the integral metal side members are exteriorly recessed so as to be adapted for easy handling and for use with a sling chain where desired. Moreover each of the forms provide a pallet construction having vertically spaced top and bottom deck members adapted to receive the fork of a fork lift truck therebetween.

I claim:

1. Pallet construction including longitudinally extending one-piece side members, and top and bottom deck members extending transversely of and supported on said side members, said side members being channel shaped in cross section and having outwardly directed legs, said legs having integral angular flange portions with exteriorly rounded corners and abutting the extremities of said top and bottom deck members.

2. Pallet construction including two laterally spaced longitudinally extending recessed metal side members, a longitudinally extending channel member midway between said side members, top and bottom laterally extending deck members supported on said three longitudinally extending members, and said side members having integral angular upwardly and downwardly directed flange portions abutting the extremities of the top and bottom deck members.

3. Pallet construction including longitudinally extending side members, and top and bottom deck members extending transversely of and supported on said side members, said side members being channel shaped in cross section and having outwardly directed legs, said legs having integral angular flange portions with exteriorly rounded corners extending vertically and then inwardly for binding the extremities of said top and bottom deck members.

4. Pallet construction including two laterally spaced longitudinally extending exteriorly recessed metal side members, a longitudinally extending channel midway between and spaced from said side members, top and bottom laterally extending deck members supported by said three longitudinally extending members, and said side members having integral inwardly bent top and bottom flange portions overlapping the extremities of the top and bottom deck members, and the deck members being provided with inturned metal edge portions at the ends of the pallet and between the side members.

5. Pallet construction including longitudinally extending transversely spaced side members, top and bottom deck members extending transversely of and supported on said side members, said side members being channel shaped in cross section and having outwardly directed legs, said legs having integral vertical flange portions abutting the extremities of said top and bottom deck members, and the deck members having inturned metal edge portions with curved corners at the ends of the pallet.

CARL L. CLARK.