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N. H. FRANKS

2,932,477

PALLET STACKER

Filed June 10, 1957

Fig. 1

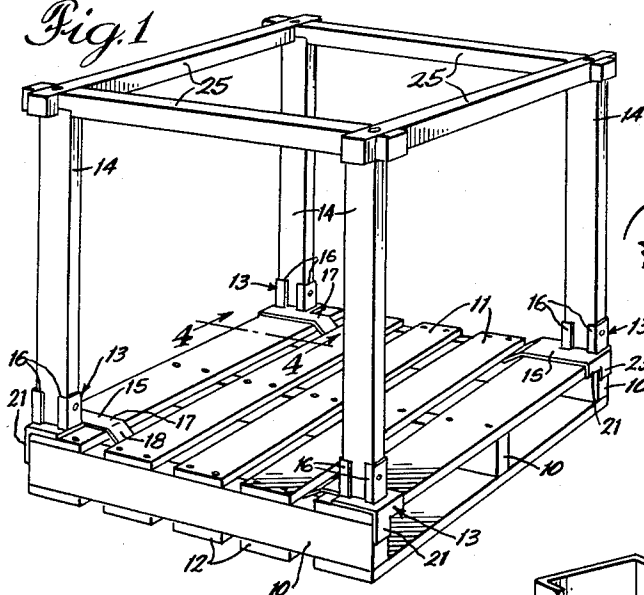


Fig. 2

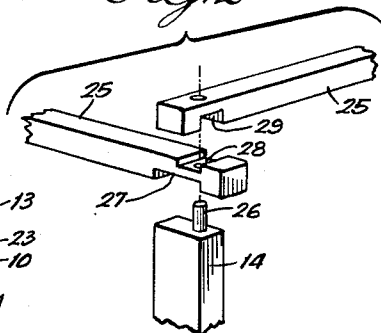


Fig. 3

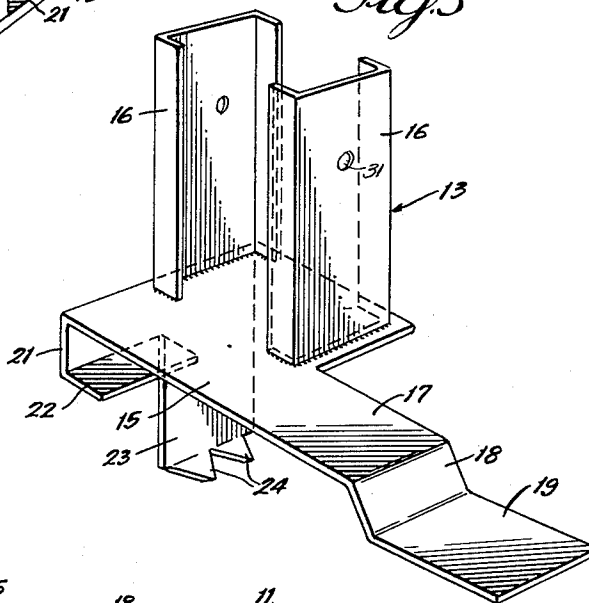
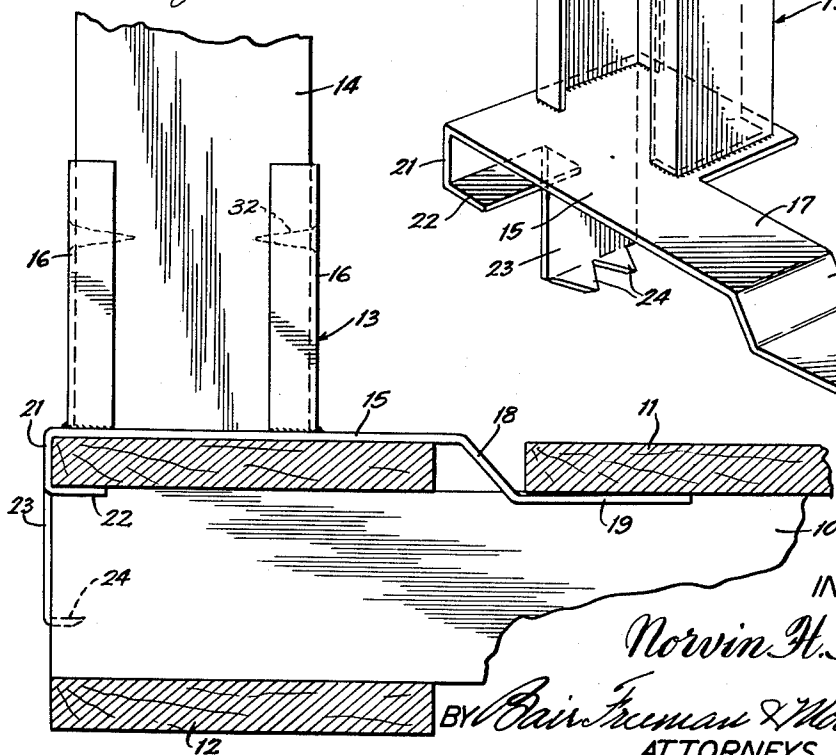


Fig. 4



INVENTOR:

Norwin H. Franks,

BY *Paul Freeman & Molinare*
ATTORNEYS.

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PALLET STACKER

Norvin H. Franks, Chicago, Ill., assignor, by mesne assignments, to Union Asbestos & Rubber Company, Chicago, Ill., a corporation of Illinois

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2 Claims. (Cl. 248—120)

This invention relates to a pallet stacker and more particularly to a device for enabling conventional wooden pallets to be stacked one above the other for storage.

In storing loaded pallets, it has been customary to provide separate racks on which the pallets can be placed and from which they can be removed by a conventional fork truck. This practice requires relatively large and permanent or semi-permanent racks to receive the pallets and while it is extremely satisfactory for many purposes, it is not particularly well suited to temporary storage or even to many types of permanent or semi-permanent storage.

To meet the conditions not satisfied by separate pallet racks it has been proposed to provide frame constructions to be connected to conventional pallets to support a plurality of pallets one from the other in singly spaced relationship. If the frame or the supporting means therefor is permanently attached to the pallets, it will interfere with normal use of the pallets for other purposes and is not satisfactory for this reason. Constructions embodying detachably mounted supporting frames or elements, as heretofore made, have either not provided sufficient rigidity to be satisfactory or have been cumbersome and difficult to attach and detach.

It is accordingly one of the objects of the present invention to provide a pallet stacker in which pallet shoes are easily and quickly attached to and detached from a conventional pallet and when attached provide an extremely rigid support for vertical posts on which additional pallets can be stacked.

Another object is to provide a pallet stacker in which the shoes are in the form of flat plates resting on an edge board of the pallet with an offset extension at one end to slip under the adjacent board and fastening means at the other end to secure the plate to the edge portion of the pallet.

According to a feature of the invention, the fastening means may include either or both a rebent hook portion to hook over the edge of the end board and a downwardly extending flange to fit against the end of a pallet stringer and formed with teeth to be driven into the stringer.

A further object is to provide a pallet stacker in which rails are detachably connected at their ends to the upper ends of the supporting posts to define an upper rectangular framework to support an additional pallet.

The above and other objects and features of the invention will be more readily apparent from the following description when read in connection with the accompanying drawing, in which:

Figure 1 is a perspective view of a pallet completely equipped with a pallet stacker embodying the invention;

Figure 2 is a partial perspective view showing the connections between the posts and rails of the framework in disassembled condition;

Figure 3 is a perspective view of a pallet shoe according to the invention; and

Figure 4 is a partial enlarged section on the line 4—4 of Figure 1.

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The pallet stacker of the present invention is adapted to be used with a conventional wooden pallet, including spaced parallel stringers 10, two of which lie at opposite edges of the pallet with one stringer extending centrally of the pallet length. The stringers are connected by spaced parallel upper face boards 11 upon which the load to be carried may be supported and are preferably also connected by a plurality of bottom face boards 12 to secure the stringers together at their bottoms. The top and bottom boards 11 and 12 may be similarly spaced so that either side of the pallet may be used as its top, as shown, or as is frequently done, there may be only two or three widely spaced bottom boards simply to secure the rails together.

Each corner of the pallet is adapted to receive a pallet shoe, indicated generally at 13, which in turn will support an upright corner post 14 to carry pallets in stacked spaced relationship. As will be apparent, the shoes 13 are of different hand on adjacent corners of the pallet, but are otherwise identical and the posts 14 may be conventional 2 x 2 strips or 2 x 4 strips of any desired length.

As best seen in Figures 3 and 4, each pallet shoe is formed of a flat metal plate 15 adapted to rest on the end board of the pallet near the corner thereof. On the upper surface of the plate a pair of spaced channel members 16 are secured by welding or the like with the channels facing each other to receive between them the upright posts 14. If 2 x 4's, for example, are used for the upright posts the channels of the members 16 preferably have an internal width of about 1.75" with the webs of the channels being spaced apart about 3.50" to engage the 2 x 4's firmly and hold them securely in place.

To attach the plate to the pallet a reduced extension 17 is provided at one end thereof which is offset, as indicated at 18, to leave a tongue portion 19 which will fit beneath the upper board 11 next adjacent to the end board when the shoe is assembled on the pallet, as indicated in Figure 4. The extension 17 lies at one side only of the plate so that the offset 18 and the tongue portion 19 will fit under the second board 11 closely adjacent to one of the end stringers 10. This extension and tongue portion securely hold the plate against tilting outwardly of the pallet and reinforce it substantially against lateral tilting.

The opposite end of the plate is also secured to the pallet and for this purpose two separate means either or both of which may be employed are illustrated. As shown, the opposite edge portion of the plate in alignment with the extension 17 is bent downward, as illustrated at 21, and is then rebent, as shown at 22, to form a hook portion having an opening to receive the edge of the end board 11 closely, as illustrated in Figure 4. In addition, the opposite side of the same end of the plate is formed with a downwardly extending flange 23 which will lie against the edge of the end board 11 and the end of the side stringer 10 when the shoe is assembled on the pallet. To secure the shoe firmly in place, the lower end of the flange 23 is formed with inwardly bent teeth 24 which can be driven into the end of the stringer 10 in assembling the shoe.

To assemble a shoe, as so far described, on an existing pallet, the shoe may be tilted to run the tongue 19 under the board 11 next adjacent the end board and the plate 15 may then be pressed down against the upper surface of the end board. To complete the assembly, the plate is forced inwardly to hook the hook portion 22 over the end board and to drive the tongues 24 into the end of the edge stringer 10. Preferably for this purpose a mallet or the like is employed. When so assembled, it will be seen that the entire shoe is held very rigidly on the pallet against accidental removal and against tilting in any direction. At the same time, the shoes can be removed

relatively easily by pulling them outward from the edge portion of the pallet to unhook the hook portion 22 from the end board and to withdraw the tongues 24 from the stringer. Furthermore, shoes after having been removed can be replaced easily on the same or different pallets and will still hold securely.

It is desirable to tie the upper ends of the posts together so that they will not tend to spread when a pallet is placed thereon and for this purpose bars 25 are provided which are detachably connectable to the upper ends of the posts 14. As best seen in Figure 2, the upper end of each post 14 is provided with a projecting pin 26 and the bars 25 are notched, as illustrated at 27, 28 and 29, to interfit with each other and with the upper ends of the posts. The notched portions of the bars are drilled to receive the pins 26 so that when the posts are in place the bars can simply be slipped over their upper ends with the notches interfitting with the posts and with each other and with the pins 26 extending through the openings in the bars. In this way, the bars form an easily assembled rectangular framework at the upper ends of the posts on which a pallet can be received.

With the present invention, conventional wooden pallets can be stacked to substantially any desired height for storage of different types of goods and when so stacked will provide spaced storage surfaces in a rigid assembly. Pallets can be added to or removed from a stack very easily with a conventional fork truck and the shoes of the present invention can easily be attached to or removed from the pallets to meet the service requirements.

In cases where an extremely high degree of rigidity is required or where the corner posts 14 are long it may be desirable to secure the lower ends of the posts in the sockets. For this purpose the webs of the channels 16 may be punched as shown at 31 to receive fastenings such as screws 32 to extend into the posts. These fastenings will hold the posts tightly in the sockets and will increase the rigidity of the assembly but may be omitted in most cases.

While one embodiment of the invention has been shown and described herein, it will be understood that it is illustrative only and not to be taken as a definition of the scope of the invention, reference being had for this purpose to the appended claims.

What is claimed is:

1. In combination with a pallet having a plurality of spaced parallel stringers and a plurality of spaced parallel boards secured to the stringers a pallet stacker comprising a flat plate to rest on an end board adjacent to a corner thereof, a downwardly offset extension at one end of the plate and at one side only thereof extending loosely under a board spaced from the end board and beside the end stringer, the other end of the plate being formed with a rebent hook portion at one side only of the plate hooking over the outer edge of the end board beside the end stringer, and means forming a vertical socket on the upper surface of the plate to receive an upright post.

2. In a combination with a pallet having a plurality of spaced parallel stringers and a plurality of spaced parallel boards secured to the stringers a pallet stacker comprising a flat plate to rest on an end board adjacent to a corner thereof, a downwardly offset extension at one end of the plate and at one side only thereof extending loosely under a board spaced from the end board and beside the end stringer, the other end of the plate being formed into a pair of laterally spaced flange portions one of which will extend downward over the end of a stringer and is formed with inwardly extending teeth to be driven into the stringer and the other of which is formed into a rebent hook portion to hook over the outer edge of the end board beside the end stringer, and means forming a vertical socket on the plate to receive an upright post..

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