June 19, 1962 F. H. WOODWARD 3,039,726

PALLETS

Filed Oct. 20, 1960

Fig. 1.

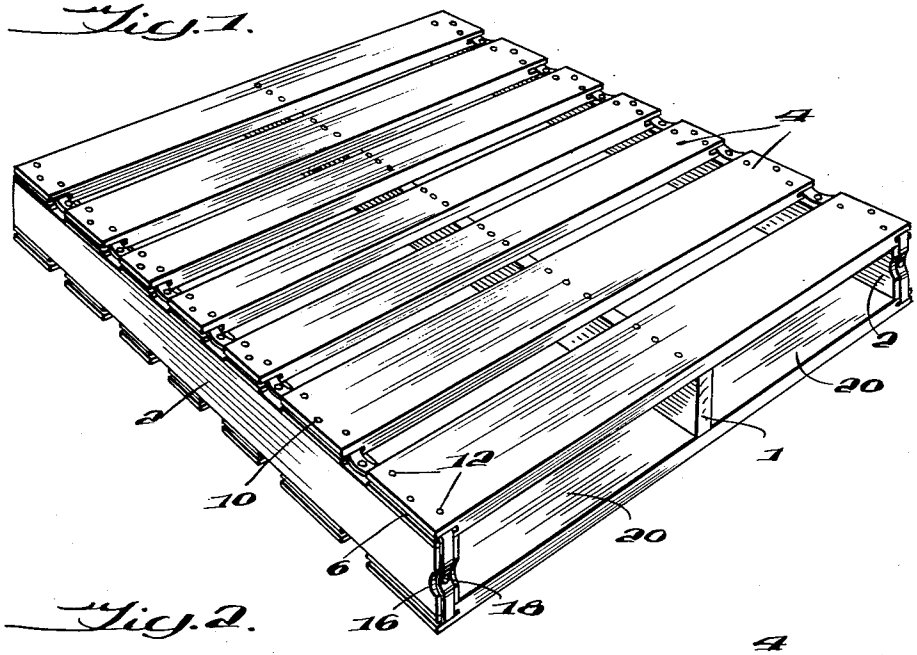


Fig. 2.

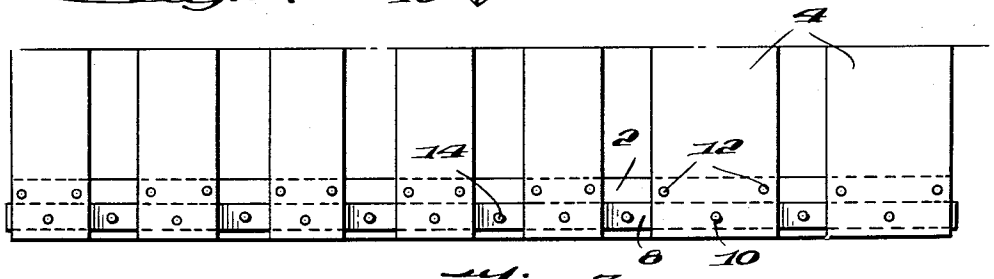


Fig. 3.

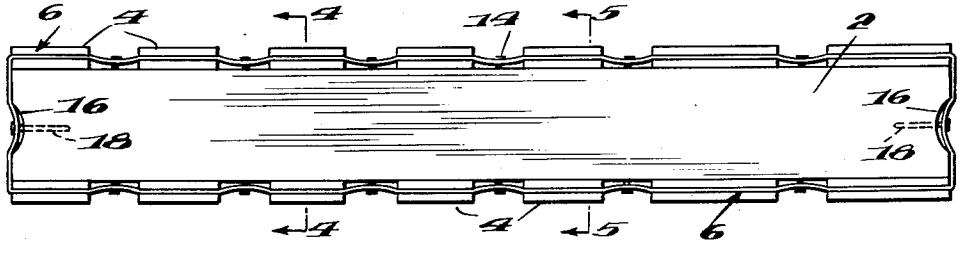


Fig. 4.

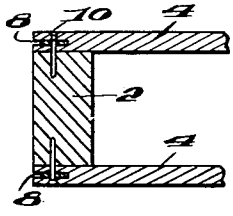
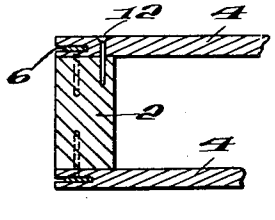


Fig. 5.



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PALLETS

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This invention relates to improvements in pallets of the character used for lifting and supporting many different types and kinds of lading, such as bags, boxes, etc., and which can be handled by lift trucks, fork trucks, and other lifting devices.

The present invention is a continuation in part of my application, Serial No. 711,493, now Patent No. 2,982,507, filed January 27, 1958.

Wooden pallets have been in customary use for this purpose, formed of stringers with wooden boards secured to one or more opposite sides thereof. These are frequently made from relatively green or ineffectively dried lumber which has a tendency to curl, warp or otherwise be deformed as the drying increases during usage. Shrinkage of the green lumber causes the boards to split. As a result, the pallet loses its rigidity, strength and permanency and may be knocked out of shape in service.

It has been proposed heretofore to provide a metal strap over the ends of the pallet, over the boards and around the stringers, to give strength and durability to the pallet. Nails are driven through the metal straps and through the boards into the stringers. This arrangement, however, is not entirely satisfactory when the pallets are made out of green lumber. The nails in the metal strapping may prevent the boards from shrinking or cause checking or splitting. Also, as the stringers shrink, the metal straps may become loose and ineffective.

One object of this invention is to overcome these deficiencies and to improve the construction of the pallet.

Another object of the invention is to provide pallets which may be constructed out of green lumber.

A further object of the invention is to prevent the checking or splitting of the boards in a pallet construction.

A still further object is to provide an improved pallet construction in which means are provided to compensate for shrinkage of the lumber as it dries out.

These objects may be accomplished, according to a preferred embodiment of the invention, by forming grooves in the ends of the boards, parallel with the top surfaces thereof, and extending metal straps through said grooves, which straps are held in place by nails or other fastenings that secure the boards on the stringers. Usually, only one nail in each board passes through the metal strap and into the stringer and other nails are driven through each board beside the strap. Also, a groove is provided in the end of each outside stringer over which the metal strap passes. A nail through the strap and into the bottom of the groove deflects the strap, thus tightening it, as the lumber dries out and shrinks.

This embodiment is illustrated in the accompanying drawings, in which;

FIG. 1 is a perspective view of one form of pallet embodying this invention;

FIG. 2 is a sectional plan view thereof;

FIG. 3 is an end elevation thereof;

FIG. 4 is a cross section therethrough on the line 4—4 in FIG. 3; and

FIG. 5 is a cross section therethrough on the line 5—5 in FIG. 3.

The invention is shown as applied to a pallet of conventional form, as illustrative of certain embodiments of the invention. Such pallet structure includes intermediate and end stringers, generally indicated at 1 and 2, respectively. These stringers customarily are formed of wooden pieces substantially of the size of 2 x 4's, although the size and character thereof may be varied as desired.

Secured on one or both opposite edges of the stringers are a plurality of boards, indicated at 4. Each of the boards 4 is provided with grooves 6 in the opposite ends thereof, formed in planes parallel with the top surfaces of the boards. These grooves may be formed as saw kerfs and should extend to a depth corresponding substantially with one-half the thickness of the end stringers 2, or somewhat less.

Metal strapping 8 is inserted in the kerfs 6, extending lengthwise along both opposite edges of each end stringer 2, and over the ends of each end stringer. The metal strapping 8 is held in place by means of nails 10 which, as shown in FIGS. 2 and 4, extend through the boards and metal strapping and into the end stringer 2. Outside nails 12 are driven through the boards and into the end stringers 2. As shown in FIG. 5, these nails 12 do not pass through the metal strapping 8, but are located beside the strap, preferably in close proximity to the adjacent edge thereof and as far as possible from the lateral face of the stringer.

It is also desirable that additional fastenings be driven through the strapping 8 intermediate the boards, as indicated at 14 in FIGS. 2 and 3. Portions of strapping 8 extend in bridging relation between the adjacent spaced edges of the boards 4, and as nails or other suitable fastenings 14 are driven through these bridging portions of the straps, they not only anchor the straps in place, but also tend to keep the boards rigidly and properly separated from each other. The nails 14 form depressed portions in the strapping 8 between the boards, thereby drawing the metal down into the spaces between the boards as the nails are driven into the stringers.

Opposite ends of the stringers 2 are provided with transverse grooves 16. The metal strapping 8 extends over the grooves 16 in bridging relation between opposite edges thereof. Nails 18 are driven through the strapping 8 and into the ends of the stringer, thus drawing the strapping into the grooves. At the time the pallets are assembled, the nails are driven only partially into the grooves so that the heads of the nails are spaced from the bottoms of the grooves.

As previously stated, pallets are usually assembled from green lumber or partially dried lumber. A certain amount of shrinkage will occur as the lumber dries out. The 2 x 4 end straingers 2 will shrink as much as a quarter inch in width as the green lumber dries. This shrinkage will cause the metal strapping 8 to become loose. When this has occurred, the strapping can be tightened by driving the nails 18 farther into the grooves 16, the grooves being of sufficient depth to compensate for the anticipated shrinkage. If the pallets are delivered to the user in the green condition, the nails 18 are only partially driven into the grooves 16.

The pallets are designed to be picked up by fork-lift trucks. The forks of the truck will enter the cavities 20 formed between the boards 4 and stringers 1 and 2. Through normal usage, the ends of the forks will batter the ends of the stringers 2. This will cause the nails 18 to be driven into the bottoms of the grooves 16, thus taking up any slack in the strapping which may be caused by shrinkage of the stringers. The strapping over the ends of the stringers also protects the stringers from damage by the forks.

Usually a single strap 8 will completely encompass each stringer, lengthwise thereof. The ends of the strap may be brought together and overlapped and secured by a fastening, such as a nail. These ends can be secured, if desired, within one of the grooves 6 in a board 4, or in the space between boards or at an end of the stringer.

The location of the metal strapping intermediate the

top and bottom faces of the boards, within the end grooves, parallel to the top faces, prevents interference by the straps with bags, boxes and other items of lading that may be piled on the pallet, thus leaving a uniform top surface, which will not cause a hazard to the lading or damage thereto in any way.

While the invention has been illustrated and described in certain embodiments, it is recognized that other variations and changes may be made therein without departing from the invention as set forth in the claims.

I claim:

1. A pallet comprising wooden stringers at opposite ends of the pallet, each of the stringers being relatively long and narrow, spaced cross-boards on at least one of the long sides only of the stringers, metal strapping extending lengthwise around the respective stringers and over the opposite ends of the stringers directly in abutting relation with said ends, fasteners extending through the boards and through the strapping and into the stringers and securing the boards to the stringers, and means for drawing the strapping taut comprising transverse grooves in the ends of the stringers and fasteners passing through portions of the strapping spanning the transverse grooves and bowing said strapping downwardly into the transverse grooves, said last-mentioned fasteners extending into the straingers and being anchored thereto.

2. A pallet comprising wooden stringers at opposite ends of the pallet, each of the stringers being relatively long and narrow, spaced cross-boards on the opposite long sides only of the stringers, metal strapping extending lengthwise around the respective stringers and over the opposite ends of the stringers directly in abutting relation with said ends, fasteners extending through the boards and through the strapping and into the stringers and securing the boards to the stringers, and means for drawing the strapping taut, comprising transverse grooves in the ends of the stringers and fasteners passing through the portions of the strapping spanning the transverse grooves and bowing said strapping downwardly into the transverse grooves, said last-mentioned fasteners extending into the stringers and being anchored thereto.

3. A pallet comprising wooden stringers at opposite ends of the pallet, each of the stringers being relatively long and narrow, spaced cross-boards on the opposite long sides only of the stringers, said cross-boards having aligned grooves in the ends thereof intermediate the top and bottom surfaces of the boards, metal strapping extending lengthwise around the respective stringers through the grooves in the ends of the boards and over the opposite ends of the stringers directly in abutting relation with said ends, fasteners extending through the boards and through the portions of the strapping in the grooves and into the stringers and securing the boards to the stringers, and means for drawing the strapping taut comprising transverse grooves in the ends of the stringers and fasteners passing through portions of the strapping spanning the transverse grooves and bowing said strapping downwardly into the transverse grooves, said last-mentioned fasteners extending into the stringers and being anchored thereto.

4. A pallet comprising wooden stringers at opposite ends of the pallet, each of the stringers being relatively long and narrow, spaced cross-boards on the opposite long sides only of the stringers, said cross-boards having aligned grooves in the ends thereof intermediate the top and bottom surfaces of the boards, metal strapping extending lengthwise around the respective stringers through the grooves in the ends of the boards and over the opposite ends of the stringers directly in abutting relation with said ends, fasteners extending through the boards and through the portions of the strapping in the grooves and into the stringers and securing the boards to the stringers, and means for drawing the strapping taut and for anchoring the boards comprising transverse grooves in opposite ends of the stringers, fasteners passing through portions of the strapping spanning the grooves and bowing said strapping downwardly toward the bottom of the grooves, said fasteners extending into the stringers and being anchored thereto.

5. A pallet comprising wooden stringers at opposite side ends of the pallet, each of the stringers being relatively long and narrow, spaced top and bottom cross-boards on the opposite long sides only of the stringers providing unobstructed vertical openings between the cross-boards at the front and rear ends of said pallet to accommodate a lifting fork, said cross-boards having aligned grooves in the ends thereof, the depth of said grooves being no gerater than half the thickness of the stringers, metal strapping extending lengthwise around the respective stringers through the grooves in the ends of the boards, fasteners extending through the cross-boards and through the portions of the metal strapping in the grooves and into the stringers, and additional fasteners extending through the boards spaced laterally of said first-named fasteners and spaced from a longitudinal edge of the strapping and extending in the stringers for securing said cross-boards to the stringers, and means for drawing the strapping taut comprising transverse grooves in the ends of the stringers and fasteners passing through portions of the strapping spanning the transverse grooves and bowing said strapping downwardly into the transverse grooves, said last-mentioned fasteners extending into the stringers and being anchored thereto.

6. A pallet comprising wooden stringers at opposite ends of the pallet, each of the stringers being relatively long and narrow, spaced cross-boards on at least one of the long sides of the stringers, said cross-boards having aligned grooves in the ends thereof intermediate the top and bottom surfaces of the boards, metal strapping extending lengthwise around the respective stringers through the grooves in the ends of the boards and over the opposite ends of the stringers, fasteners extending through the boards and through the portions of the strapping in the grooves and into the stringers, said fasteners being located approximately midway of the width of the respective boards, and additional fasteners adjacent longitudinal edges of the boards extending through the boards and spaced from a longitudinal edge of the strapping and into the stringers and securing the board to the stringers.

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