

Feb. 16, 1943.

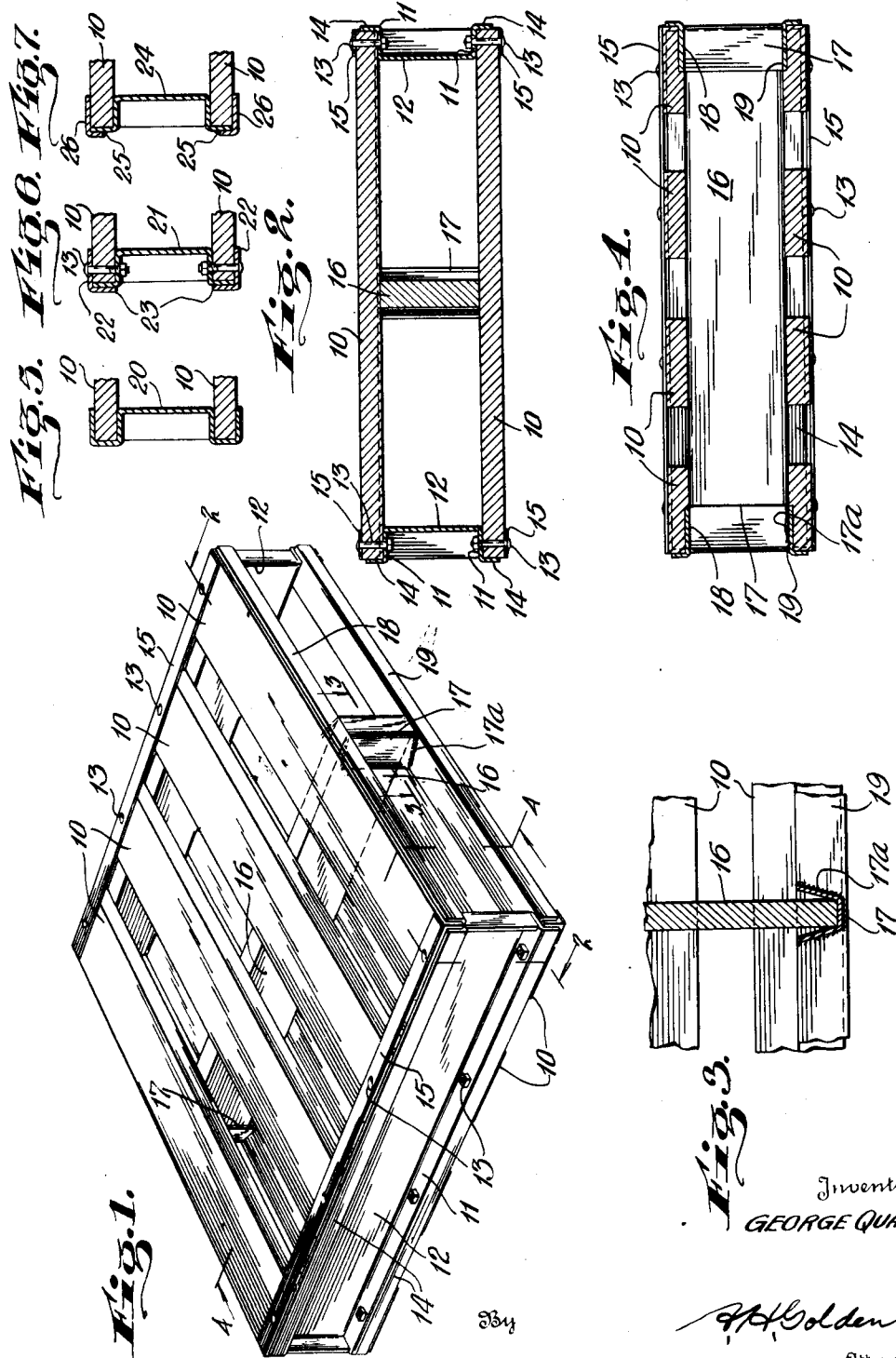
G. QUAYLE

2,311,280

REVERSIBLE PALLET

Filed June 3, 1939

2 Sheets-Sheet 1



Inventor
GEORGE QUAYLE

H. Golden
Attorney

Feb. 16, 1943.

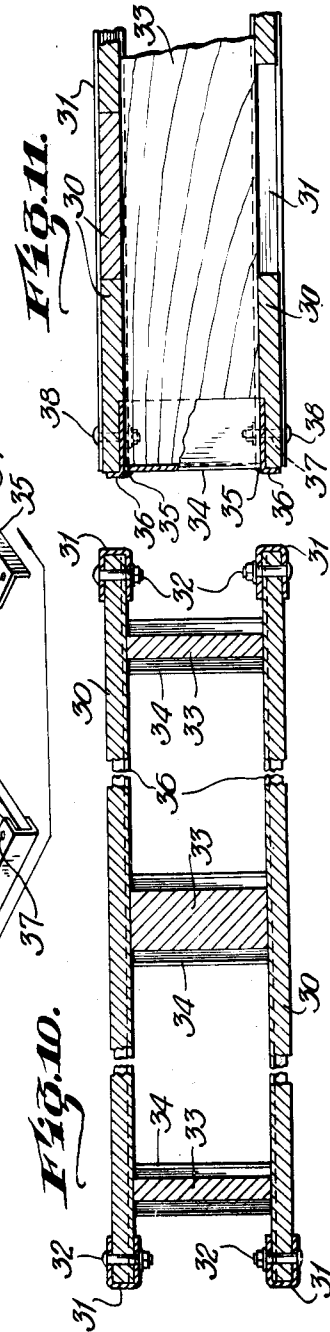
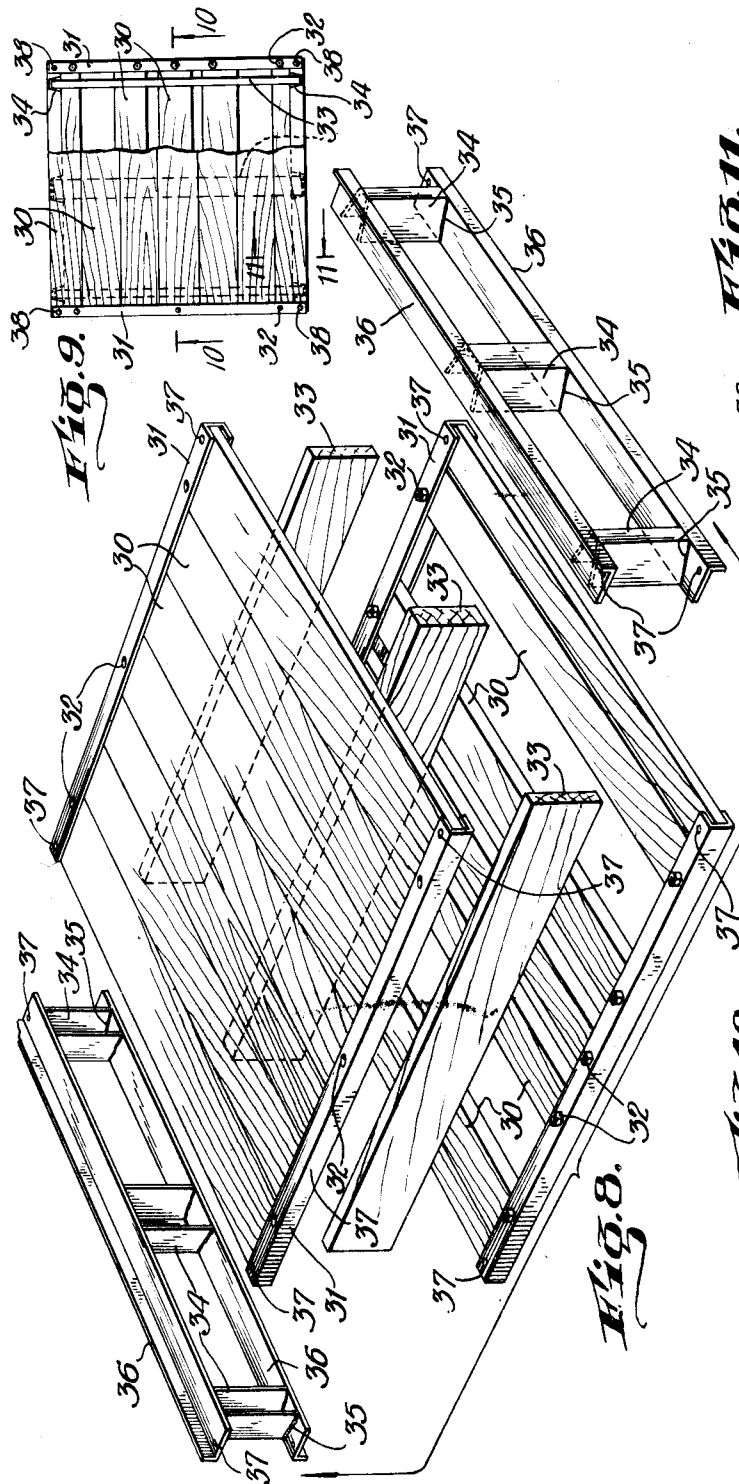
G. QUAYLE

2,311,280

REVERSIBLE PALLET

Filed June 3, 1939

2 Sheets-Sheet 2



INVENTOR
GEORGE QUAYLE
BY *A. H. Golden*
ATTORNEY

UNITED STATES PATENT OFFICE

2,311,280

REVERSIBLE PALLET

George Quayle, Philadelphia, Pa., assignor to The
Yale & Towne Manufacturing Company,
Stamford, Conn., a corporation of Connecticut

Application June 3, 1939, Serial No. 277,249

8 Claims. (Cl. 248—120)

This application is a continuation in part of my application for patent filed January 14, 1938, Serial No. 184,918, for an industrial truck which matured into Patent No. 2,242,436 May 20, 1941.

My invention relates to a pallet of the type especially adapted for handling by industrial trucks. Pallets of this type comprise upper and lower floors, or platforms, whereby they may be used to transport goods, and whereby they may be readily stacked. The pallet of my invention is a considerable improvement over pallets of the prior art both as to structure and ease of manufacture, all as will appear quite clear to those skilled in the art.

An important feature of my invention is the means whereby the upper and lower floors or platforms are maintained in spaced relation, and are held in that spaced relation. In one form of my invention, I use a series of metal reinforcing members, or armoring members which take the form of structural side plates forming the sides of the skid platform and supporting and maintaining in spaced relation the wood boards of the upper and lower floors or platforms.

A further feature of my invention is the use of a beam for holding in spaced relation the upper and lower floors or platforms, with the beam itself being held in place and its ends armored or reinforced by structural members secured as by welding to other structural steel members, and preferably through structural members which are used to armor the ends of the platform.

Still a further feature of the invention resides in my utilization of the armoring members for the beams previously described for holding in assembled relation the end structural reinforcing members, whereby assembly of my pallet is facilitated.

I have thus described generally the structure of my pallet in order that the detailed description which follows may be better understood, and that the broad contribution I have made to the art may be appreciated. In the description which follows, I shall point out several detailed modifications of my invention whereby my contribution may best be utilized. I do, however, expect to obtain a monopoly which will prevent utilization of the principles of my invention by others in specific forms different from the specific forms I shall show.

Referring now more particularly to the drawings, Figs. 1 to 4 show the structure of the reversible pallet shown in my application Serial No. 184,918, filed January 14, 1938. In these figures, Fig. 1 is a perspective view of a skid plat-

form embodying my invention, while Figs. 2, 3 and 4 are views taken along lines 2—2, 3—3 and 4—4 of Fig. 1. Figs. 5, 6 and 7 are partial sections similar to that portion of Fig. 2 which they resemble, and illustrate modified forms of structural steel members which may be used instead of those shown in Fig. 2. Fig. 8 is an exploded view showing parts of a modified form of my invention. Fig. 9 is a plan view, partially cut away, showing the pallet of Fig. 8 in assembled form. Figs. 10 and 11 are sections taken respectively along lines 10—10 and 11—11 of Fig. 9.

Referring now more particularly to the drawings, and especially to Figs. 1—4 inclusive, the floors or platforms of the pallet there shown are each made up of a series of wood boards 10. Naturally, boards of material other than wood may be utilized, depending on the industry in which the pallet is to be used. It will also be appreciated that while the boards 10 are shown separated in Fig. 1, they may be placed side to side, if desired.

The ends of the boards 10 are secured to the flanges 11 of side structural steel members 12, as by bolts 13. Each side structural steel member 12 has, preferably, a flange 14 which protects the edges of the floor boards 10, and which protects also the side of the pallet formed by the assembly of the boards 10. The bolts 13 traverse upper protecting plates 15, as is probably best shown in Fig. 2, so as to avoid crushing the wood boards as the bolts 13 are tightened.

Running centrally of the pallet is a wood beam member 16 which maintains separated the upper and lower boards 10 of the pallet. This wood beam member 16 is preferably not secured in any way to the upper and lower boards 10, but instead is maintained in an effective position through the use of reinforcing or armoring structural members 17. Incidentally, the beam member 16 need not necessarily be wood.

The beam armoring structural members 17 are secured as by welding at 17a, or in any other way which may be preferred, to upper and lower structural members 18 and 19. The structural members 18 and 19 are termed by me end armoring members, and are utilized for armoring each end of the pallet. The end armoring members 18 and 19 may be secured as by welding or as by bolting to the side structural members 12, all as will be understood by those skilled in the art.

The manner in which the beam armoring members 17 maintaining the beams 16 assembled and positioned relatively to the finished pallets is probably best illustrated in Fig. 3. Fig. 3 show-

ing also the relation of a beam armoring member 17 to the lower end armoring member 19. The form of the armoring members 18 and 19 is probably best illustrated in Fig. 4, in which figure the relation of the end armoring members 18 and 19 to the beam armoring member 17 are also well illustrated.

Referring now to Fig. 5, I show a modified form 20 of a side structural member, this to take the place of the side structural member 12. It will be noted that with this form of structural member, the wood floor boards 10 are held in place without bolts.

In Fig. 6, a form of side structural member 21 similar to the structural member 12 is utilized. The upper plate 22 corresponding to the plate 15 of Fig. 2 has a downwardly depending flange 23 whose function will be obvious.

In Fig. 7, the side reinforcing member 24 is welded as at 25, in clamping relation to the floor boards 10, to an upper plate 26 quite similar to the plate 22 of Fig. 6. Those skilled in the art will readily appreciate that many varying means may be utilized to maintain the floor boards assembled and reinforced, which means will, as has already been indicated, function as the side members of the finished pallet.

Referring now to Figs. 8-11, inclusive, I show a pallet whose upper and lower floor members are formed of boards 30, which may be of wood or any other suitable material, as has already been indicated. The lower floor boards are shown with spaces left therebetween, while the upper floor boards are placed edge to edge. The boards of the upper and lower floors are each maintained in assembled relation by side structural steel members 31, which may be of varying shapes, and which may be bolted as through bolts 32 to the several boards 10, or may be secured to the boards 10 in any of the various ways illustrated in Figs. 5, 6 and 7.

It will be noted that in Fig. 8, the upper and lower floors are each assembled as a separate unit, this being quite a variation from the modification of Figs. 1-4, inclusive. It will also be noted that a series of beams 33 are utilized, there being one beam to run longitudinally through the center of the pallet, and one beam at each side of the pallet. These beams may be of varying thicknesses, depending upon the stresses placed thereon. Preferably, the beams 33 are not secured to the upper and lower floor boards, but are held in assembled relation by suitable beam armoring members 34 similar to beam armoring members 17 of Fig. 1.

Each of the beam armoring members 34 is secured as by welding at 35 to upper and lower structural steel end armoring members 36. By bolting the upper and lower end members 36 at the several points 37, to the structural side members 31 of the upper and lower floors of the pallet, the pallet parts shown exploded in Fig. 8, become the assembled pallet unit shown in Fig. 9, all as is quite apparent.

It will be appreciated that the armoring members 34 for the beams hold the beams assembled and vertical, so that they may function as reinforcing and separating members for the pallet floors. It will be appreciated also that the ends of the pallet thus formed are protected by the armoring ends 36. It will be further appreciated that the sides of the pallet so formed are protected by the metal side structural members 31, all as is quite apparent.

In Fig. 10, the relationship of some of the parts

is better shown, with the relative sizes of the beams 33 and their end armoring members 34 best illustrated. The end armoring members 36 are also well illustrated, due to the breaking away of certain portions of the floor boards 30.

In Fig. 10, the manner in which the floor boards are held assembled by the side structural members 31 is also well illustrated.

In Fig. 11, the welded relationship between the beam armoring members 34 and the end armoring members 36 is best illustrated. In Fig. 11, there are also shown the bolts 38 traversing the bores at the several points 37 for securing the end armoring members 36 to the side structural members 31 for assembling the pallet.

While the pallet of Figs. 8-11 will probably now be clear to those skilled in the art, I believe it will be best to review the manufacture and the assembly of a pallet embodying the teachings of my invention. First, I assemble a series of floor boards 30 through the use of side structural steel members 31 forming the independent upper and lower floors of what is to be my finished pallet. I then place a series of wood beams 33 between the floors thus formed for separating the floors. These beams 33 need merely be placed vertically without any securing means whatsoever.

I then fabricate the end assemblies shown in Fig. 8, using for each end three flared reinforcing members 34, one for each of the three beams 33, and I weld each of the members 34 at 35 to the upper and lower armoring members 36. By then bolting the end armoring members 36 at the several points 37 to the side bars 31 of the upper and lower platform or floor assemblies, the assembled skid of Fig. 9 is obtained, all as will be quite clear to those skilled in the art.

It may be well to indicate that the flaring of the beam armoring members 34 is done in order to guide the parts of a lift truck into the space between the upper and lower floor members. Due to this, the beam reinforcing members really have three functions, that is, they act to armor the ends of the beams, to maintain the beams in their particular relation to the assembled pallet, and they act to guide the parts of a lift truck as indicated.

I now claim:

1. In a reversible pallet of the class described, upper and lower floors formed of boards secured in assembled relation to metal structural members, a wood beam between said floors and in contact with the boards of said floors, and beam armoring metal members secured between the metal structural members of said upper and lower floors at each end of said beam whereby to protect the ends of said beam.

2. In a reversible pallet of the class described, spaced upper and lower floors formed of wood boards secured in assembled relation to metal structural members, a series of wood beams between said floors and in contact with the wood boards of said floors, there being one beam at each longitudinal side of said pallet and one in its longitudinal center, and beam armoring metal members secured between the metal structural members of said upper and lower floors at each end of said wood beams whereby to protect the ends of said beams.

3. In a pallet of the class described, spaced upper and lower floors formed of wood boards secured in assembled relation to metal structural members, a wood beam between said floors and in contact with the wood boards of said floors, said wood beam lying substantially in the

longitudinal center of said pallet, and armoring metal members secured as by welding to said structural members and in juxtaposed relation to the ends of said wood beam, for holding said wood beam in predetermined relation to said upper and lower floors while protecting the ends thereof.

4. In a reversible pallet of the class described, spaced upper and lower floors formed of wood boards, side structural steel members for said pallet to which the ends of the wood boards of each of said floors are secured, end structural members for the ends of each of the said floors, a wood beam between said floors and extending longitudinally of said floors for supporting the boards of said floors, beam armoring metal members secured to said end structural members for armoring the ends of said wood beam, and means securing said end structural members to said side structural members.

5. In the combination of claim 1, the feature that the beam end armoring members of the pallet have flared portions for guiding the entry of a portion of a truck between the floors of said pallet.

6. In a reversible pallet of the class described, upper and lower floor members, a central spacing and supporting beam secured between said floor members, metal structural members secured at each end of said beam for protecting the ends of said beam against injury, and structural steel

members at each side of said pallet for holding the sides of the floor members in spaced relation, while covering the edges of said floor members.

7. In a reversible pallet of the class described, upper and lower wood floor members, a unitary structural steel channel-like member at each side of said pallet and having integral upper and lower flanges resting against the inner upper and lower surfaces of said floor members, edge binding steel members covering the outer sides of said floor members, and bolts for securing said edge binding steel members to said floor members and simultaneously to said structural steel members.

8. In a reversible pallet of the class described, upper and lower wood floors having a central spacing and supporting beam positioned between said floors and extending longitudinally from end to end of said pallet, an armoring unit for armoring one end of said upper and lower floors and one end of said beam, comprising a metal end armoring structural member for the end of the upper floor and a similar end armoring structural member for the lower floor, and a metal armoring member for one end of said beam extending between and welded to the said upper and lower floor end armoring structural members for application in protecting relation to the end of said beam.

GEORGE QUAYLE.