

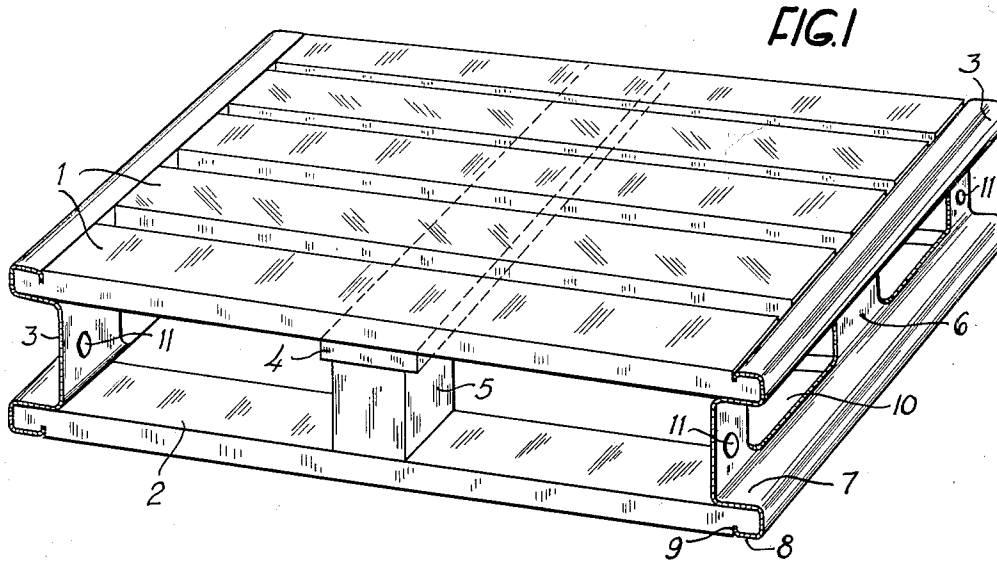
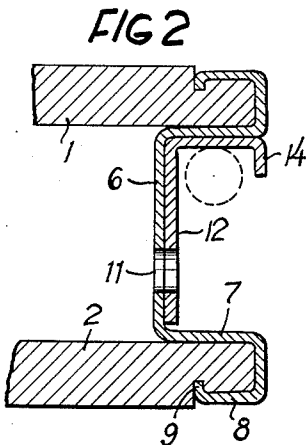
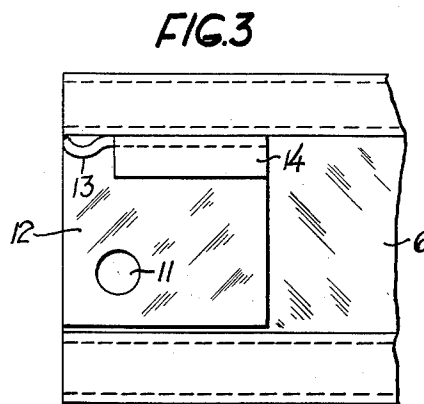
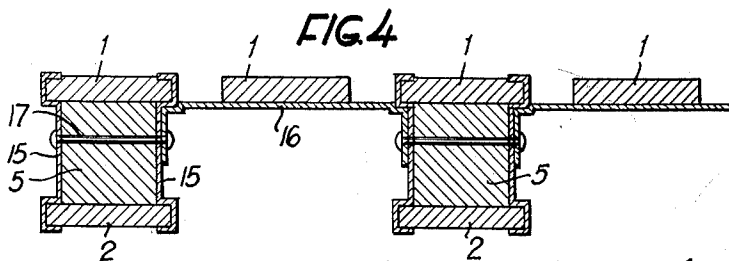
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PALLETS AND SIMILAR CONSTRUCTIONS FOR CARRYING HEAVY GOODS

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PALLETS AND SIMILAR CONSTRUCTIONS FOR CARRYING HEAVY GOODS

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Pallets and similar constructions for carrying heavy loads generally are made of boards or staves which are joined together by nailing. This method of making pallets is difficult and the ends of the staves are unprotected, so that they often are damaged during use of the pallet. An important disadvantage also consists in the fact that when pallets made by nailing are lifted in a hoisting device by means of straps or hooks the nails are pulled out and the pallet is weakened.

This invention relates to improvements in pallets or corresponding constructions of flaps or casing bottoms, the stave formed elements therein being arranged in two horizontal layers spaced apart one above the other, and it is generally characterized in that the staves are kept together by means located at the ends of the pallet and passing transversely to the pallet and suitably made of bent metal plates arranged to clasp the ends of the staves. In this way a construction is obtained wherein the carrying staves mainly are kept together without the aid of nails, wherein the ends of the staves are protected against injuries, wherein means are provided to fasten hooks or straps belonging to a hoisting device without damaging the pallet and wherein forks or similar devices may be applied from all sides.

The accompanying drawings illustrate by examples some embodiments of the invention. Figure 1 is a perspective view of a plain pallet of the so-called 4-way type. Figure 2 shows in enlarged scale a section adjacent to one of the short sides of a modification. Figure 3 is an elevational view of the corner of the short side in the same embodiment as that shown in Fig. 2. Figure 4 is a transverse section at about the middle of a third embodiment of the invention.

Referring now to Fig. 1 the pallet consists of a top layer of staves 1 and of a lower layer of staves 2. The staves of the top layer on which the goods rest preferably are arranged tighter than those of the lower layer. The two layers are kept together at their ends by plate bands 3 arranged in such a manner that they clasp and lock the ends of the staves and also by a staple located at the middle of the pallet consisting of a yoke 4 passing through the pallet between the layers of staves 1 and 2 and blocks 5 attached on each stave of the lower layer. The staple construction suitably may be joined with the staves, the middle part of the pallet not being exposed to strains which damage the structure.

The plate bands 3 extend along the short ends of the pallet and have a vertical web member 6 the height of which determines the distance between the layers 1 and 2. From the ends of the latter two flanges extend, each of them being bent in a similar manner horizontally outwards at 7 from the web, then vertically and then horizontally inward at 8. The height of the vertical part of each flange corresponds to the thickness of the stave ends and the latter consequently are well-protected by the plate band.

In order to facilitate a secure fastening of the staves an arrangement known to those skilled in the art is used

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consisting in bending the free edge of the horizontal portion 8 so that a guide bar 9 is formed. Transverse notches are made in the staves and in forming the pallet the staves are inserted laterally in the channels formed in the plate bands. At the same time short pieces may be inserted between the staves to make the distances between them correct. Very important for the stability of the construction is the fact that the chamfering caused by the notches in the staves are not seated at the web of the band, the entire weight being transmitted to the bottom layer, and because of that it is very important that the part 7 is longer than the part 8. The height of the guide bar 9 commonly is of the order 2-5 mm.

The pallet is of so-called 4-way type i.e. it is possible to lift it with a fork truck from every side. From the long sides the lifting means are introduced at both sides of the transverse yoke and in order to facilitate a corresponding operation from the short sides the plate bands are provided with suitably formed apertures 10. The plate bands 3 then give to the pallet a considerable stiffness at right angles to the staves, a property generally absent in pallets with wooden yokes now being used.

The plate bands located at the ends also permit lifting of the pallet with aid of hooks or bands. The straps accordingly at their ends are provided with holes 11 so that lifting hooks may be applied at the four corners of the pallet. Further, slings or straps may be placed under the upper horizontal parts 7 and the pallet may be hoisted without in any way reducing its carrying capacity.

The plate band of the embodiment of the Figs. 2 and 3 in point of principle has the same appearance as the one described in Fig. 1. However the vertical part between the parts 7 and 8 in this case is somewhat shorter than the normal thickness of the stave, the outer horizontal part 8 thus being situated below the plane of the stave.

If required, the ends of the bands are reinforced by a plate 12 suitably fastened by spot welding in the first place around the holes 11. The plate 12 may be drawn up under the part 7 in the upper layer and provided with a round seat 13 for the strap and eventually also forming a hook 14 preventing the strap from accidental sliding off transversely.

The embodiment shown in Fig. 4 relates to a modification of the middle yoke of the pallet in order to provide a mounting without nails. In this embodiment there are also blocks 5 resting on the lower staves 2. However here they reach up to the staves of the upper layer and are enclosed by short plate cuttings 15 substantially of the same section as the plate bands 3 excepting guide bars. Material for those cuttings to some extent may be provided by punching the holes 10 in the plate bands 11. Between the blocks 5 plate carriers 16 extend taking up the load upon the staves of the upper layer where no blocks are provided. The cuttings and the carriers may be fastened to the blocks and the staves respectively in a suitable manner, e.g. by rivets 17.

The above illustrated and described embodiments are only to be regarded as examples of the invention the details of which may be varied in many ways without departing from the meaning of the following claims. Thus the invention besides for pallets may be applied in other corresponding constructions, i.e. flaps or casing bottoms for carrying heavy goods. The reinforcement applied at the end of the plate bands may be achieved by extension of the material in the web, the lower horizontal bending 8 is bent back 180°.

What I claim is:

1. A pallet comprising two spaced apart horizontal layers of stave elements secured together at their ends by plate bands, each plate band consisting of a vertically disposed web portion and two channel portions

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positioned outwardly of said web portion, each channel portion enclosing the ends of the staves of one of said layers with sufficient tightness to retain said staves without the aid of stave piercing members, the end portions of the web portions of said plate bands being provided with openings for pallet lifting hooks, and reinforcing members attached to said end portions for cooperation with said hooks, said reinforcing members extending upwardly along the web and outwardly along the lower wall of the upper of said channel portions, the outwardly turned part of each said reinforcing member being shaped to provide a rounded alignment for a lifting strap at the free end of the channel.

2. A pallet comprising two spaced apart horizontal layers of stave elements secured together at their ends by plate bands, each plate band consisting of a vertically disposed web portion and two channel portions positioned outwardly of said web portion, each channel portion enclosing the ends of the staves of one of said layers with sufficient tightness to retain said staves without the aid of stave piercing members, the end portions of the web portions of said plate bands being provided with openings for pallet lifting hooks, and reinforcing members attached to said end portions for cooperation with said hooks, said reinforcing members extending upwardly along the web and outwardly along the lower wall of the upper of said channel portions, the outwardly turned part of said reinforcing members being bent downwards adjacent the corner of said channel portion to provide a lifting strap retaining hook.

3. A pallet comprising two spaced apart horizontal layers of stave elements secured together at their ends by plate bands, each plate band consisting of a vertically

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disposed web portion and two channel portions positioned outwardly of said web portion, each channel portion enclosing the ends of the staves of one of said layers with sufficient tightness to retain said staves without the aid of stave piercing members, the web portions of said plate bands including spaced apertures therein for receiving lifting forks, a reinforcing yoke parallel to said plate bands extending transversely across the middle part of said pallet, a member in said yoke for carrying the staves of the upper horizontal layer of staves, blocks between said yoke member and staves in said lower layer of staves arranged between parts of said plate band webs unbroken by said lifting fork receiving apertures, and clasp means tying the middle part of superimposed staves of said upper and lower stave layers to said yoke member and to an intermediate piece of said blocks.

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