

[54] **LOAD BEARING PALLET AND INTERLOCK**

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 3,664,271 5/1972 Wolder..... 108/58

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[57] **ABSTRACT**

A load bearing pallet including two identical mold formed halves each having a load bearing surface and a plurality of relatively spaced supporting pads with an interlocking feature provided thereon and comprising a projection on the supporting pad extending thereacross and with an overhanging lip formed on one side thereof immediately over a draft opening, and with an opening immediately behind the projection formed for interference snap-lock and press fitted engagement therethrough of a like projection on a pallet half disposed in complimentary relation thereover.

[52] U.S. Cl..... 108/51, 108/58

[51] Int. Cl..... B65d 19/18

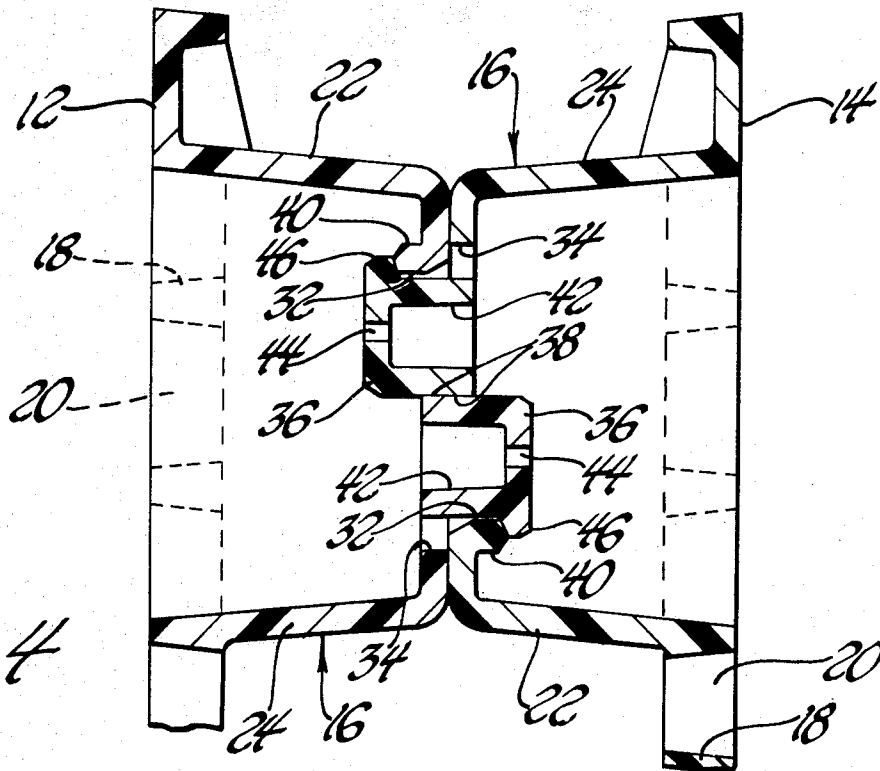
[58] Field of Search..... 108/51-58

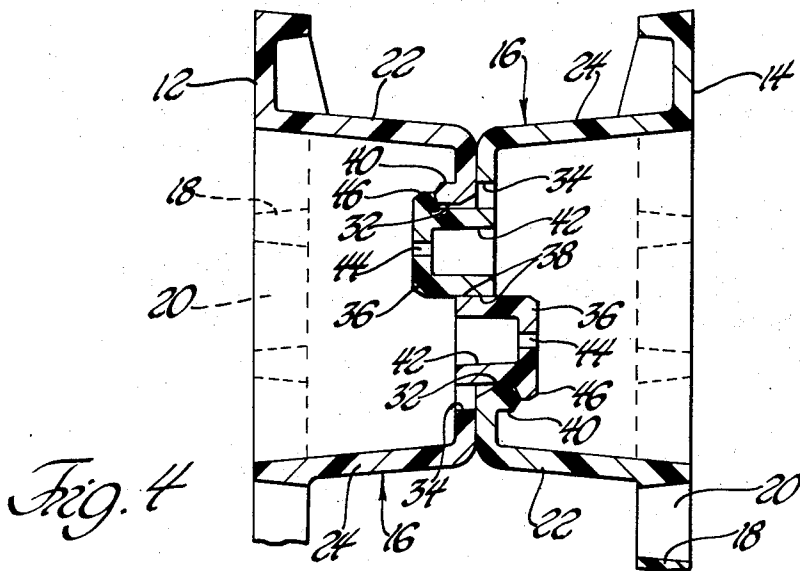
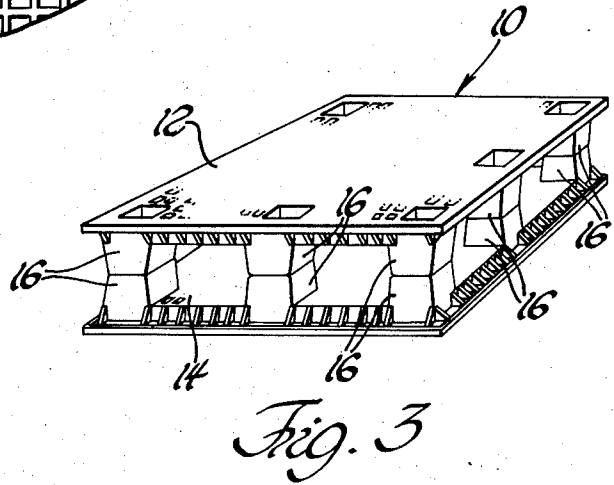
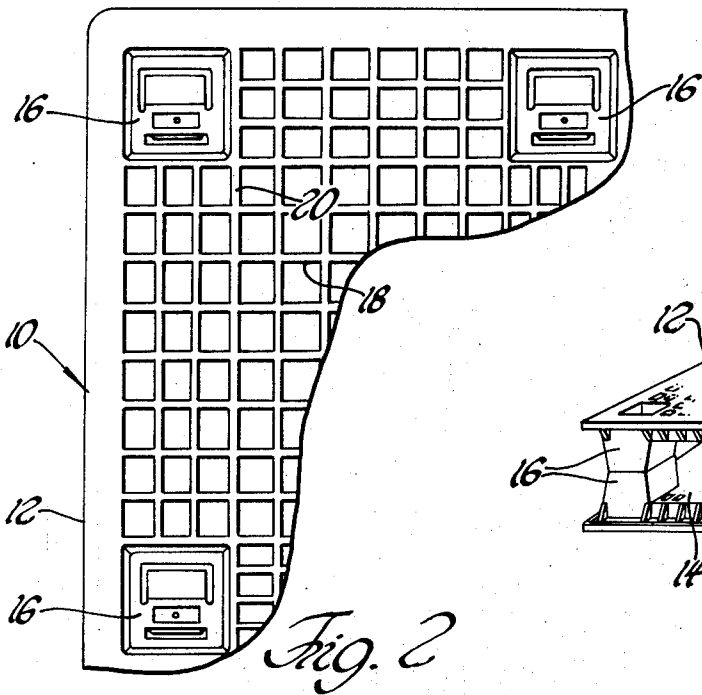
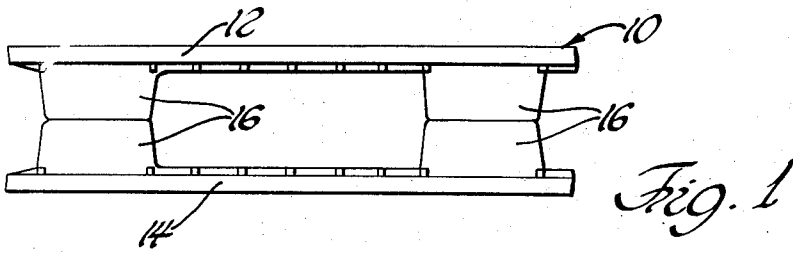
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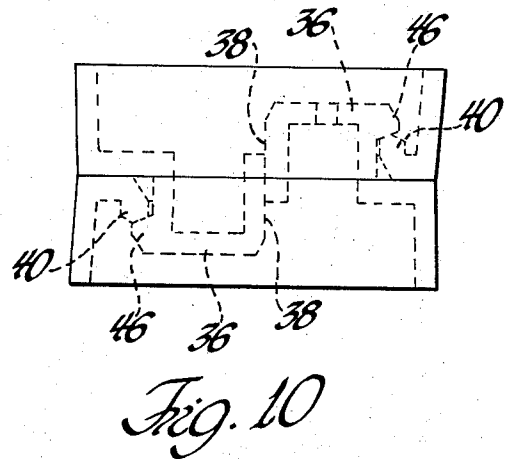
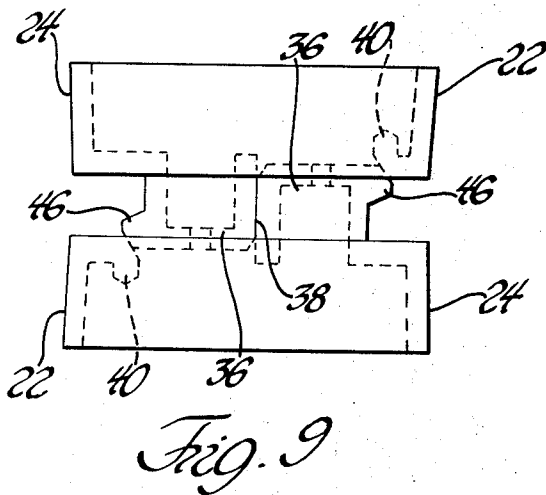
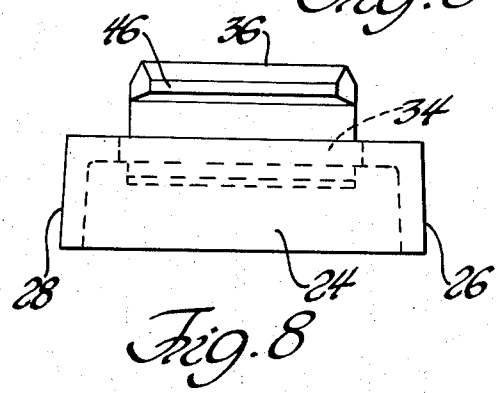
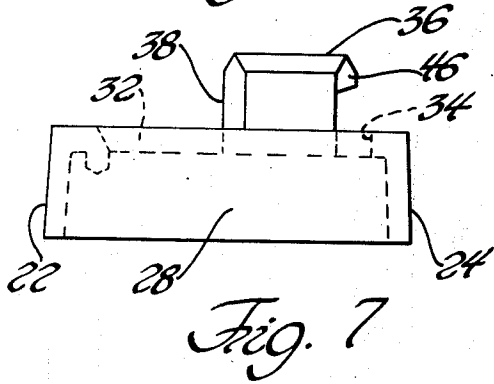
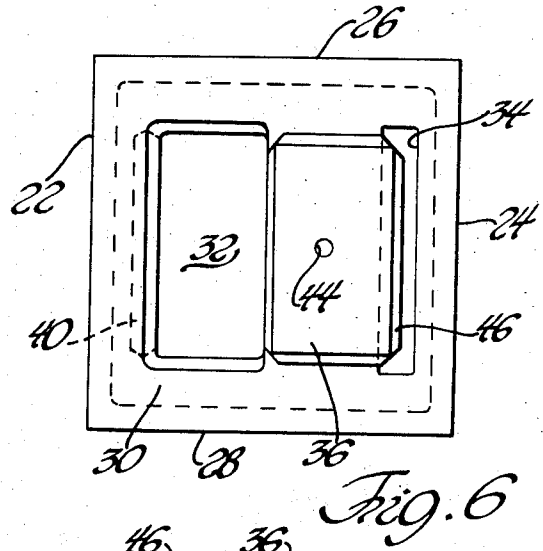
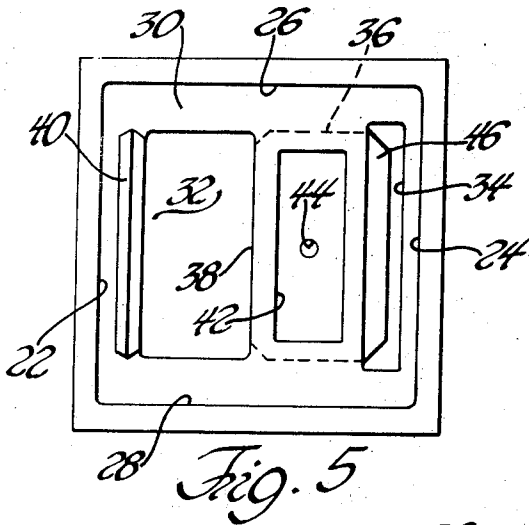
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4 Claims, 10 Drawing Figures







LOAD BEARING PALLET AND INTERLOCK

BACKGROUND OF THE INVENTION

Most load bearing pallets, which are used with fork lift trucks, are made of wood slats nailed to cross members, on each side, and are usually of unfinished lumber so roughly and crudely made that they are generally expendable after a relatively short period of time. Normally they are made so that fork lift entry is possible from only two opposite sides and since they are seldom painted or treated in any way they are prone to collect and retain moisture which results in mildew, rot and their ultimate deterioration.

Although efforts have been made to make pallets out of other more durable and longer lasting materials, the expense and/or added weight of the pallets have proven impractical on any large scale basis.

Aluminum and plastic materials have been tried, because of their relative light weight, but with these materials another problem has been that only single faced pallets can be made, due to the mold forming process from which they are derived. This, in turn means even further expense in fastening and retaining two complementary pallet halves together, if a two faced pallet is desirable.

SUMMARY OF THE PRESENT INVENTION

The present invention is directed to a two faced pallet having four way entry, which is made of a light weight high impact resistant plastic material, and which is mold formed to include a particularly new and novel means of interlocking opposite and relatively identical pallet halves together without the use of separate and distinct fastener means.

The basic pallet form is of an open honey cone structure with supporting pads formed at and between its corners which include the pallet interlock feature. The interlock on each pad includes a projection extending across the pad which has an overhanging lip provided on the outermost end of one side, immediately over a relatively narrow draft opening beside the projection which enables the overhanging lip to be mold formed right on the cross projection.

There is, in turn, an opening provided immediately beside and behind the pad projection which is formed to receive in an interference and snap-lock fitted engagement therethrough a like pad projection of an identical pallet half complementarily disposed thereover for press fitted interlocking engagement therewith.

As a consequence, identical pallet halves, with like supporting pads, including complementarily disposed interlocking features are received one over the other, in back-to-back relation, and may be force fitted into a secure and positive engagement to provide a two faced light weight pallet which allows four way entry and one which will not warp or rot and is capable of steam cleaning as and when desired.

DESCRIPTION OF THE DRAWING FIGURES

FIG. 1 is a side edge view of one end of a pallet made in accord with the teachings of the present invention.

FIG. 2 is a top plan view of one corner of the pallet.

FIG. 3 is a perspective view of a whole pallet including the interlock feature of the present invention.

FIG. 4 is an enlarged cross-sectional view taken through one of the interlocking lugs or pads of the pallet shown in the previous drawing figures.

FIG. 5 is a bottom plan view of one of the interlocking parts, in and of itself.

FIG. 6 is a top plan view of the same interlocking part.

FIG. 7 is a side elevational view of the interlocking part with certain features shown in dotted outline as they are therewith.

FIG. 8 is a front face elevational view of the interlocking part, again with certain features shown in dotted outline as they are therewithin.

FIG. 9 is a side elevational view of two of the interlocking parts, as provided on like pallet halves and disposed relative to each other immediately prior to being press fitted into locking relationship with each other.

FIG. 10 is a side elevational view of the same two parts as shown in the immediately preceding drawing figure, following their press fitted interlocking engagement together.

DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENT

The first three drawing figures show a load bearing pallet 10 made up of two identical halves 12 and 14 which are joined and locked together by means of special locking lugs 16.

Each pallet half is made of a polypropen plastic such as polypropylene, polyethylene or polystyrene material in an open waffle pattern which includes transversely crossed ribs 18 and 20 that are about $\frac{3}{4}$ of an inch deep and with a wall thickness of about $\frac{1}{4}$ of an inch in the ribs and the locking lugs 16.

The pallet halves are formed with a narrowing taper or draft downwardly from their face sides, to facilitate their mold form release, as is shown principally in FIG. 4, and to include three locking lugs 16 along each side edge, and one centrally, for a total of nine locking lugs in all.

As joined and locked together the pallet halves provide a two face pallet having four way entry, that is from any accessible side, by a fork lift truck or like pallet lifting and moving means. And, they are impact tested and approved, will not warp or rot, can be steam cleaned, are light weight (about 35 pounds) and have a static load bearing capacity of 14,000 pounds which enables their use in at least four high stacks.

Of particular note are the locking lugs 16 which will hereafter be described in further detail. Since each pallet half 12 and 14 is identical, the locking lugs are identical and identically located so that they are relatively aligned when one pallet half is turned over and placed on another pallet half.

The locking lugs include a generally square box sectioned form, about 3 inches deep, with opposite side walls 22, 24 and 26, 28 including about a 5° draft. They also include a bottom wall 30 within which is provided two openings 32 and 34, one on each side of a projection 36 that extends between the relatively opposite side walls 26 and 28.

The larger of the two openings, which is identified as 32, is relatively behind the projection 36 and is formed on its outer side to include a chamfer of about 30° around three of its side edges and to have a straight, no draft, edge inclusive of the back wall 38 of the projection 36. It also includes on its inner side edge, opposite

the projection 36, a rib 40 which stands about one-fourth of an inch high and extends in parallel spaced relation to the projection on the inner side of the bottom wall 30.

For reasons later more fully appreciated, the rib 40 has about a 15° chamfer on each edge of its extreme end and about a 2° draft along its side edge bordering the opening 32.

The projection 36, that is formed from the bottom wall 30, is not solid but inclusive of an opening 42 within its underside and a drain hole 44 centrally thereof through its top wall. It extends a little under 7/8 of an inch apart from the bottom wall 30 and is formed to include a lip 46 near its outermost end which extends relative over the smaller bottom wall opening 34 on its other side.

The back corners of the projection 36 and the front corners of the lip 46 each include about a 45° chamfer and the top or end wall of the projection includes about 30° chamfer around all four edges, including the projecting lip. In addition, the underside of the lip 46 is formed to include a 15° chamfer fully thereacross.

As shown in the top and bottom views of the locking lugs 16, in FIGS. 5 and 6, the locking lug projection 36 is of substantially the same width as the opening 32 relatively behind it, except for the lip 46. Accordingly when two locking lugs, or pallet halves with locking lugs, are disposed as shown in FIG. 9, their back walls 38 are relatively aligned against each other and the chamfered edge of their lips 46 lie on the chamfered edge of the opening 32.

Since the shorter ends of both the projections 36 and the openings 32 are also chamfered there is a natural centering of the projections within the openings for relative alignment of the two pallet halves being joined together, and since the side edge corners of the projections are chamfered and the corners of the opening 32 are radiused, as shown, it follows that with a sufficient impact force, properly applied, the locking lug projections 36 may be forced through the openings 32, for the interlock shown in FIGS. 4 and 10, with the projection member lips 46 engaged over the ends of the ribs 40.

As previously mentioned, both the underside of the lips 46 and the end of the ribs 40 include about a 15° chamfer. Additionally, the lips 46 project out from the projections 36 at a height of substantially the same amount as the thickness, or standing height of the ribs 40, together with the thickness of the bottom wall 30, so that there is a secure and tight interfit between the lips 46 and ribs 40 and the assurance of a positive and relatively fixed engagement between each pair of inter-engaged locking lugs.

In actual assembly the pallet material, and more particularly the locking lugs 16, are maintained at between 80° and 110° so that they are more pliable and have more lubricity for the forced engagement required.

The narrower opening 34, over which the locking lips 46 project is purposely made slightly longer than the lips to provide for any necessary drainage at each end, in the final assembly, and, as mentioned, the locking projections 36 themselves are provided with drain holes 44 so that no accumulation of water will catch and stagnate around the pallet interlocks.

In conclusion, although the interlocking system shown has been designed for use with load bearing pal-

lets, it will be appreciated that the same interlock may have countless other uses as well.

I claim:

1. A load bearing pallet including two identical halves each having a load bearing surface and a plurality of relatively spaced members formed therewith interlocking said halves together and relatively spacing said load bearing surfaces apart, said interlocking members comprising; a depending form under said load bearing surface and including a bottom wall providing a supporting pad, a projection on said supporting pad extending relatively thereacross near one side thereof and having an overhanging lip provided on the outermost end of the outermost side thereof, an opening provided in said supporting pad next adjacent and relatively behind said projection near the other side thereof, and of a relatively like breadth and width thereto exclusive of said overhanging lip, and a rib rail formed on said bottom wall on the side edge of said opening opposite and in parallel spaced relation to said projection extending within said depending form, said lip and rib rail being formed for a yielding interference fit with a corresponding rib rail and lip, respectively, on a like depending form received in complimentary relation and into pressed engagement therewith, said pallet halves being of molded plastic material and said supporting pads having a second opening formed therein immediately under said over hanging lip for mold form manufacturing ease and providing added elasticity in the interlocking use thereof, said first mentioned opening having the side edges therearound chamfered on the outer disposed side thereof and said projection being chamfered on the end thereof for complimentary alignment therebetween preceding the pressed engagement of said projection therethrough, said lip and rib rail having a complimentary chamfer provided on the underside of said lip and on the extreme end wall of said rib rail for closer fitting interengagement therebetween.

2. The load bearing pallet of claim 1, said plastic material of said pallet halves and inclusive of said overhanging lip and rib rail being retained at a temperature of 80° to 110° for added pliability and lubricity conducive to the press fitted interengagement required therebetween.

3. A snap lock interference fitted connection for interlocking different plastic molded parts together, and comprising: two identical halves each having a load bearing surface and a plurality of relatively spaced members formed therewith interlocking said halves together and relatively spacing said load bearing surfaces apart, said interlocking members comprising a depending form under each of said plastic molded parts and including a bottom wall providing a supporting pad, a projection on said supporting pad extending relatively thereacross near one side thereof and having an overhanging lip provided on the outermost end of the outermost side thereof, an opening provided in said supporting pad next adjacent and relatively behind said projection near the other side thereof, and of a relatively like breadth and width thereto exclusive of said overhanging lip, and a rib rail formed on said bottom wall on the side edge of said opening opposite and in parallel spaced relation to said projection extending within said depending form, said lip and rib rail being formed for a yielding interference fit with a corresponding rib rail and lip, respectively on a like depending form received in complimentary relation and into pressed engage-

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ment therewith, said supporting pads having a second opening formed therein immediately under said overhanging lip for mold form manufacturing ease and providing added elasticity in the interlocking use thereof, said first mentioned opening having the side edges therearound chamfered on the outer disposed side thereof and said projection being chamfered on the end thereof for complimentary alignment therebetween preceeding the pressed engagement of said projection therethrough, said lip and rib rail having a complimen-

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tary chamfer provided on the underside of said lip and on the extreme end wall of said rib rail for closer fitting interengagement therebetween.

4. The snap lock interference fitted connection of claim 3, said plastic material of said molded parts and inclusive of said overhanging lip and rib rail being retained at a temperature of 80° to 110° for added pliability and lubricity conducive to the press fitted interengagement required therebetween.

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