Jan. 16, 1968 H. S. CLOYD ETAL 3,363,590

PALLET

Filed Nov. 22, 1966

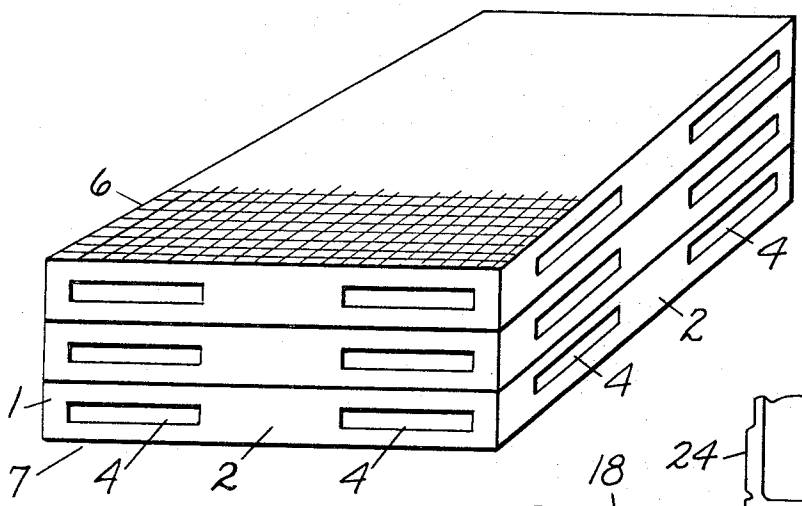


FIG. 1

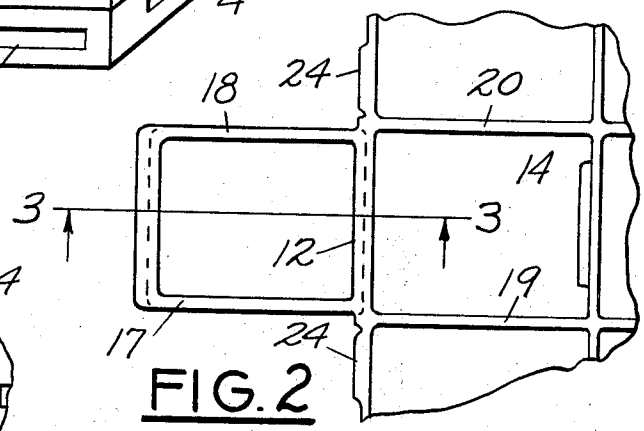


FIG. 2

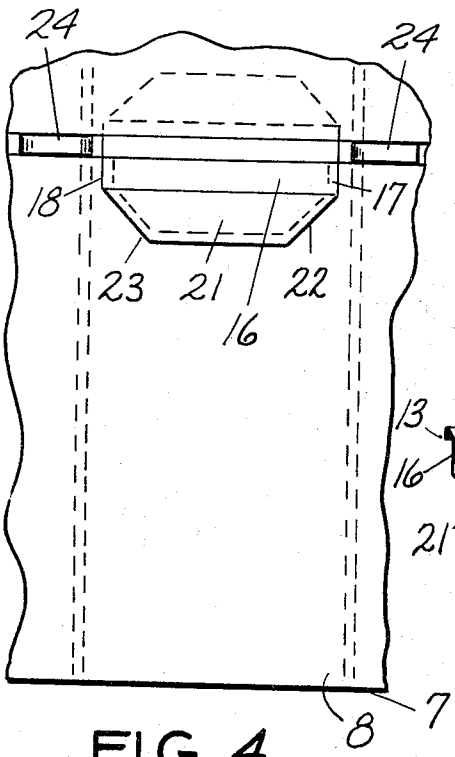
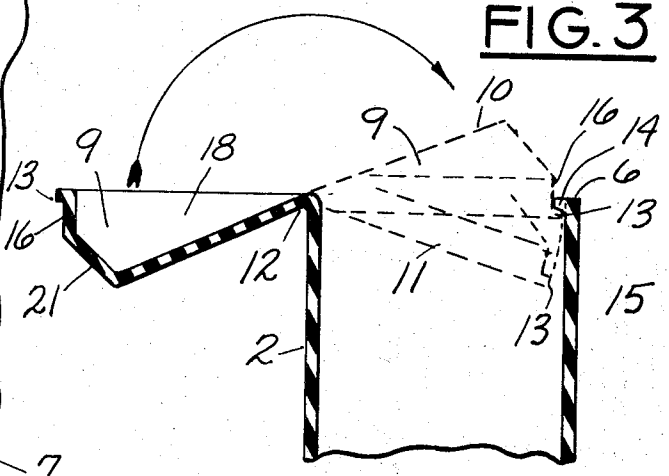


FIG. 4

FIG. 3



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PALLET

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This invention is intended to align stacked empty pallets by a construction which does not interfere with the load carrying function of the pallets. The alignment is accomplished by latch members in each pallet which project above its load carrying surface into sockets in the immediately overlying pallet in the stack. Under load, the latch members recess into the load carrying surface.

In the drawing, FIG. 1 is a perspective of a stack of empty pallets, FIG. 2 is a fragmentary top plan view of the load carrying surface 1 of a preferred pallet, FIG. 3 is a section on line 3—3 of FIG. 2, and FIG. 4 is a side view of FIG. 3.

In FIG. 1 there is shown a stack of a plurality of pallets 1 of generally rectangular shape having peripheral side and end walls 2, each provided with a pair of fork entry openings 4 to provide the usual four-way entry. Each pallet has an upper or load carrying surface 6 and a lower surface 7 (not shown) for transmitting the weight of the pallet and its load to an underlying pallet or other support.

The particular pallet shown is constructed in accordance with application Ser. No. 510,790, now U.S. Patent No. 3,307,504. As described in greater detail in that application, the load carrying surface 6 and the load transmitting surface 7 of each pallet is associated with a lattice of intersecting ribs presented edgewise to the surfaces and providing a rigid construction which is adapted to molding in one or more pieces from one of the impact resistant plastics such as polyethylene. This is merely one of the pallets to which the present invention is applicable.

In order to hold the empty pallets in stacked relation as shown in FIG. 1, at several (e.g., 4) points around the periphery of the pallet there is provided a socket 8 in the lower surface 7 directly below and registering with a spring biased latch 9 movable between an extended position 10 projecting above the load carrying surface 6 and a retracted position 11 recessed below the load carrying surface 6, both positions being shown respectively by dotted lines. When empty pallets are stacked one on top of the other, the catches 9 of an underlying pallet enter the sockets 8 in the immediately overlying pallet and hold the pallets in the stack in alignment.

In the particular pallet shown, the sockets 8 may be formed by intersection of the edgewise presented ribs associated with the surfaces 6, 7. In other pallet constructions, the sockets 8 may be specially formed.

The latch 9 is of rectangular plan view as shown in FIG. 2 to cooperate with the rectangular socket 8. If sockets of other shape were used, the shape of the latch would be correspondingly changed. In order to obtain the latch at a minimum of cost, it is molded integrally with the upper edge of one of the side or end walls 2 and is connected to the side or end wall by an integral hinge section 12. When four latches are used, one latch is preferably associated with each side and end wall and the latches are symmetrically distributed so no particular orientation of the stacked pallets is required. The latch and hinge could obviously be molded as a separate piece and attached to any one of the walls of the socket 8. As molded, the latch projects outwardly from the associated wall 2 and after molding, the latch is swung into the position shown by dotted lines 10 in which a lip 13 on the latch moves below a lip 14 at the upper edge of socket

wall 15. In moving to the dotted line position 10, the hinge 12 is placed under tension, tending to hold the lip 13 in engagement with the under side of the catch or retainer lip 14. The latch member may be moved downward to the position shown by dotted lines 11, but upward movement of the latch is prevented by the engagement of the lips 13 and 14.

In the position indicated by dotted lines 10, the latch member 9 projects above the load carrying surface 6 of the pallet. In this position, flat surfaces or abrupt shoulders 16, 17 and 18 are in position to cooperate respectively with socket walls 15, 19 and 20 of an overlying pallet. The latch member has upwardly converging, sloping surfaces 21, 22 and 23 which guide the latch into the socket 8 of an overlying pallet so that entry of the latches into the associated sockets is effected even though the pallets being stacked are not perfectly aligned. The sloping surfaces cam the pallets into alignment.

When the latches are molded integrally with the upper edges of the side and end walls, protuberances 24 are provided on opposite ends of the hinge sections to protect the hinge sections from accidental impact. These protuberances are not necessary when the latches are molded as separate pieces and attached to inside walls so that the hinge sections are recessed within the outer periphery of the pallet nor would these protuberances be necessary if the hinge sections were within the periphery of the pallet.

In use, the load carried on the surface 6 recesses the latches into the surface so there is no interference with the use of the pallet. When the pallet is unloaded, the latches spring up into position to enter the sockets of an overlying pallet of like construction to obtain alignment desirable for transporting and storing empty pallets.

What is claimed as new is:

1. In a pallet having an upper surface for receiving a load and a lower surface for transmitting the weight of the pallet and its load to a support or to an underlying pallet, means providing a plurality of sockets in said lower surface, a plurality of latches positioned on said upper surface directly above said sockets so as to register with the sockets in the lower surface of an overlying pallet of like construction and retractable below said upper surface so as to avoid interference with the load carried by said upper surface, means biasing the latches to a position projecting above said upper surface and to enter the sockets and hold in alignment an overlying pallet of like construction, and means for limiting the projection of said latches.

2. The pallet of claim 1 in which the biasing means is of plastic and comprises a resilient strap hinge associated with each latch having one end fixed to the latch and the other end fixed to the pallet and stressed to urge the latch to said projecting position.

3. The pallet of claim 2 in which the latches and the associated strap hinges are formed integrally of plastic.

4. The pallet of claim 3 in which the pallet is of plastic and the other ends of the strap hinges are formed integrally with the pallet.

5. The pallet of claim 1 in which the pallet is of plastic and the strap hinges each have one end integral with the associated latch and the other end integral with a peripheral edge of the pallet, said strap hinges and latches being formed extending outward from the associated peripheral edge whereby the hinges are stressed as the latches are swung over the upper surface of the pallet.

6. The pallet of claim 5 in which the latches have abrupt shoulders adapted to enter the sockets in an overlying pallet of like construction and upwardly converging sloping surfaces adapted to guide the sockets of the overlying pallet into register with the latches.

7. The pallet of claim 1 in which the latches have abrupt shoulders adapted to enter the sockets in an over-

lying pallet of like construction and upwardly converging sloping surfaces adapted to guide the sockets of the overlying pallet into register with the latches.

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