

1

3,352,584

LOCKING PIN DEVICE FOR PALLET RACK
Teofil Engel, Ville St. Michel, Quebec, Canada, assignor
to Redirack Industries Limited, Weston, Ontario, Canada, a corporation of Canada

Filed Dec. 16, 1964, Ser. No. 418,610

1 Claim. (Cl. 287—189.36)

ABSTRACT OF THE DISCLOSURE

A locking pin of L-shape which has its entrant end weighted so that on inserting the weighted entrant end into the registering slots formed in a pair of members of a knock-down pallet rack, the pin rotates by gravity to its locking position. It remains in that position until deliberately withdrawn.

Summary of invention

This invention relates to a locking pin for a knock-down type pallet rack having an upright column member formed with modularly spaced lug-receiving-slots and horizontal rail members having at each end thereof a connecting bracket connectable to the upright column member by means of complementary lugs carried by the bracket which engage with a sliding fit into the said slots, each bracket having an aperture located between a pair of lugs and registering with one of the slots in the upright column when the bracket is connected thereto, a locking pin insertable in the registering slot and aperture and held therein by gravity to lock the horizontal member against accidental dislodgement by an externally applied force acting on a rail member, said locking pin comprising a main body portion, a support portion at right angles to the main body portion, the angle between the body portion and the support portion forming a pivot for the locking member, and a head on the free end of the support member engageable with the edges of said slots, the main body being heavier and longer than the combined length and weight of the support portion, said main body portion acting as a counter-weight whereby on inserting the main body portion through said slot and aperture the main body portion will rotate into and remain in a vertical position by gravity with the support portion lying across the upright column and the bracket, thereby locking the upright column and the bracket against accidental vertical displacement.

Adjustable pallet racks have come into extensive use for the storage of material. One type of storage racking, with which the present invention may be usefully employed, is the structure disclosed and described in Frederick William Reilly's United States Patent No. 3,151,745 dated Oct. 6, 1964. The advantage of that type of structure is that it can be quickly assembled and, when assembled, forms an extremely rigid structure. It will be observed however, that the rails can be readily disconnected from the upright post by an upward movement of the rail members which immediately disconnects the lugs which interconnect with the holes in the upright.

It is also common practice in the material handling field to load and unload the racks by means of lift forks which carry the loaded pallets to the racks and load them thereon or remove the pallets therefrom. One of the disadvantages of the type of pallet racking disclosed in the above mentioned United States patent is that the lift truck when being raised can accidentally dislodge the rail member. This creates a serious hazard not only to the truck operator but also for any workman that may be in the vicinity of the pallet rack structure.

It is therefore, an object of the invention to provide a locking member, of simple construction, which will lock

2

the rails of a knockdown pallet rack construction and thus eliminate the hazard already referred to.

I propose to describe my invention as applied to the structure shown in Frederick William Reilly's U. S. Patent No. 3,151,745, but it is to be understood that this is being done merely for the purpose of illustration and not with the intention of limiting the invention to that particular structure. It will be apparent to those skilled in the art that the invention can be applied to other types of knockdown rack structure where it is necessary to provide a locking member to avoid the accidental displacement of the interconnected members.

Referring now to the following disclosure, I have herein described an embodiment of the invention for the purpose of illustrating its construction.

In the drawings:

FIGURE 1 is a perspective view of a pair of horizontal rails connected to an upright post employing the locking member of the present invention;

FIGURE 2 is a cross-sectional view on the line 2—2 of FIGURE 1; and

FIGURE 3 is an enlarged fragmentary cross-sectional view showing the locking member partly inserted in position.

The post A is constructed according to the disclosure in Frederick William Reilly's United States Patent No. 3,151,745 which post is made in the shape of a channel substantially U-shape in cross-section having opposite faces 21, 22 joined by outwardly facing webs divided into a right portion 23 and a left portion 24 and an inwardly depressed medial channel 25 disposed between said portions. The right and left portions 23, 24 are formed with a plurality of outwardly facing equidistantly spaced and vertically arranged slots 26, 27 respectively. The slots 26, 27 are arranged in parallel rows so that they are substantially coplanar. The medial channel 25 is formed with a plurality of medial slots 28 which are also equidistantly spaced in a vertical direction with the bottom edge of all of the slots are in substantial alignment but with the slots 28 slightly longer to permit the connecting means hereinafter mentioned to enter the slots when the connecting means are being attached to the post as described in the said patent. The horizontal rails are indicated by the numerals 13, 14. The means for connecting the horizontal rails 13, 14 to the upright post A comprises a right connecting bracket 29 welded to the end of the rails 13 and a left connecting bracket 30 welded to the end of the rail 14 as described in the said patent to Frederick W. Reilly.

The right bracket 29 is formed with three equidistantly spaced lugs 33, 34 and 35 arranged vertically and spaced inwardly from the inner face of the front of the bracket 29 as described in the said patent. The lugs 33, 34 and 35 are arranged to enter the slots 26 and engage the right portion 23 as described in the said prior patent. The flange 36 is arranged to fit into the medial channel 25, the flanges terminating in teeth 37, 38 and 39 which engage in slots 28. The other bracket 30 is similarly formed and attached to the left portion 24.

Each of the brackets are brought into interengaging position as described in the patent to Frederick W. Reilly aforesaid and disconnected therefrom as described. The means for locking the horizontal members or brackets 29, 30 to the post A in attached position will now be described. The bracket 29 and the bracket 30 are each provided or formed with orifices 40, 40a which are positioned to register, in the present illustration, with a slot 26 or 27 respectively when its rail member is connected to the post A. The locking member is generally indicated by the letter B having a main body portion 41, a supporting portion 42, bent at right angles to the main body portion and a head 43.

3

The body portion 41 is substantially heavier and longer than the combined weight and length of the portion 42 and the head 43 so that when the locking member is inserted to a point where the angle 44 rests in the slot 40 or 40a as the case may be, the weight of the portion 41 will overbalance the portion 42 and head 43 so that gravitational pull will cause the locking member to take the position shown in FIGURE 2. It will also be observed that the locking member by reason of the structure cannot be accidentally dislodged nor can it become loose as in the case of nuts and bolts by vibration. Furthermore, this locking member is very easily removed if it is desired to disconnect or dismantle the racking.

What I claim as new and desire to protect by Letters Patent of the United States is:

In a knock-down type pallet rack having upright column members formed with modularly spaced lug-receiving-slots and horizontal rail members having at each end thereof a connecting bracket connectable to the upright column members by means of complementary lugs carried by the bracket which engage with a sliding fit into the said slots, each bracket having an aperture located between a pair of lugs and registering with one of the slots in the upright column when the bracket is connected thereto, a locking pin insertable in said registering slot and aperture and held therein by gravity to lock the horizontal members against accidental dislodgement by an externally applied force acting on a rail member, said locking pin comprising

(a) a main body portion,

4

(b) a support portion at right angles to the main body portion, the angle between the body portion, and the support portion forming a pivot for the locking member,

(c) a head on the free end of the support member engageable with the edges of said slots, the main body being heavier and longer than the combined length and weight of the support portion, said main body portion acting as a counterweight whereby on inserting the main body portion through said slot and aperture the main body portion will rotate into and remain in a vertical position by gravity with the support portion lying across the upright column and the bracket, thereby locking the upright column and the bracket against accidental vertical displacement.

References Cited

UNITED STATES PATENTS

220,544	10/1879	Oakes	287—20.924
637,506	11/1899	Fries	287—189.36
2,984,363	5/1961	Lang et al.	211—148
3,151,745	10/1964	Reilly	211—148
3,195,735	7/1965	Jay	211—148

FOREIGN PATENTS

1,171,302	5/1964	Germany.
581,703	10/1946	Great Britain.

30 MARION PARSONS, JR., *Primary Examiner.*