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L. J. GASNER

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PALLET RACKS

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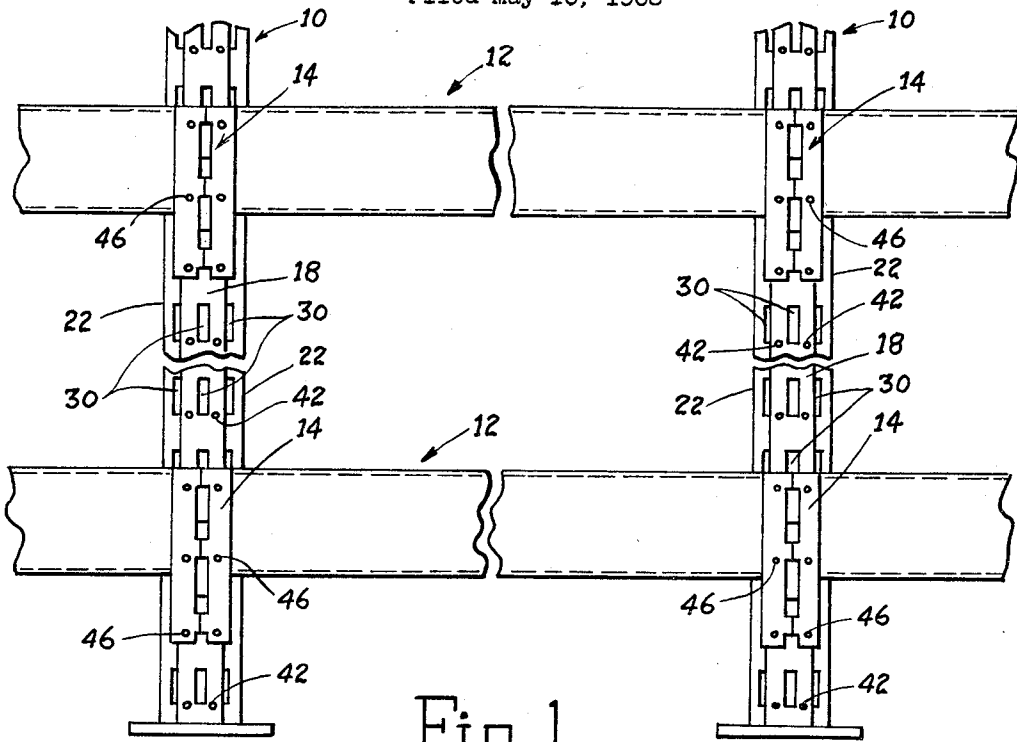


Fig. 1

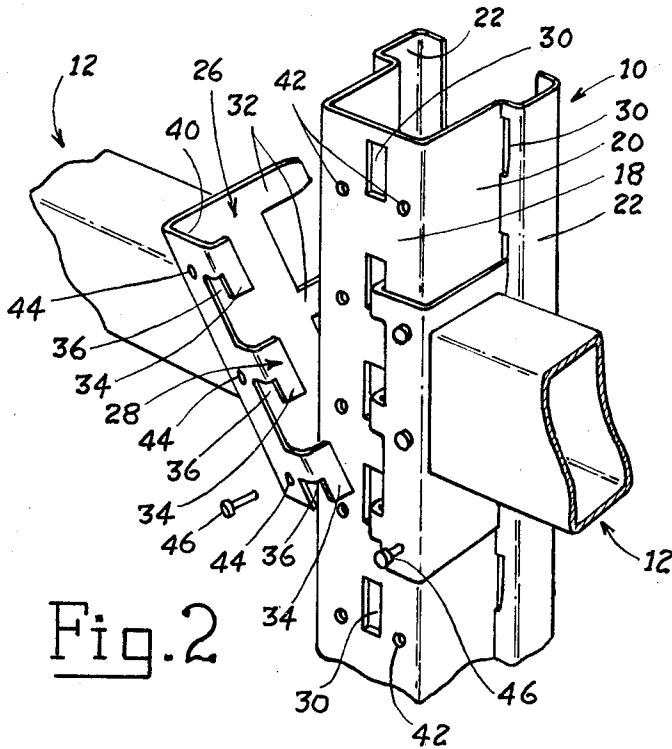


Fig. 2

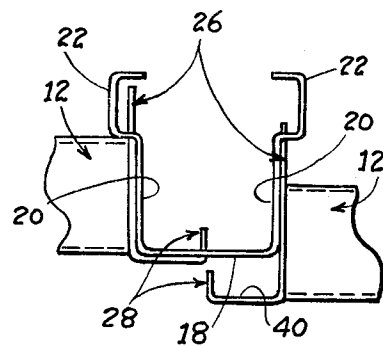


Fig. 3

INVENTOR.

LEON GASNER

BY

Leon Arthurs
AGENT

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PALLET RACKS

Leon J. Gasner, 38 Purdon Drive,

Toronto, Ontario, Canada

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7 Claims

ABSTRACT OF THE DISCLOSURE

A pallet rack assembly wherein each horizontal support beam is provided with a connector at each end for engagement with a channel-shaped upright post of the rack; each connector having two spaced sets of fingers engageable with a post and being so dimensioned with respect to the post that one set of fingers in each connector is engageable in advance of the other set of fingers with the post when a beam is being assembled thereon.

This invention relates to a pallet rack of the type including spaced-apart upright posts or pillars interconnected by horizontally disposed beams comprising the load supports of the pallet rack.

Prior art pallet racks are known wherein such support beams are detachably connected to the upright posts to be mounted thereon by means of connections at each end of the beam disengageably engageable with the uprights. Such connections are known, from the prior art, to include in each such connection two sets of hooks which are spaced-apart in the axial direction of the beam and which are engageable within correspondingly spaced apertures provided in the posts. Thus when a beam is being mounted between two posts, it is necessary substantially simultaneously to engage four such sets of hooks with the associated apertures in the posts.

It is a broad object of the present invention to provide, in a pallet rack, a beam and posts assembly offering certain advantages when compared with the assemblies known in the prior art.

It is a further object to provide such an assembly wherein the engagement of the beam ends with the post is facilitated. It will be appreciated that beams such as are utilized in pallet racks may be relatively massive structures of considerable weight and length and it is, therefore, a great asset to be able to engage the beam with the post in as quick and simple a manner as possible.

It is accordingly a further object to provide a beam and post assembly relatively dimensioned and oriented to enable simple and rapid interconnection therebetween.

It is a still further object to provide a beam and post assembly including connections on the beam disengageably engageable with the post and wherein such connections serve initially to locate the beam relative to the post before it is positively engaged therewith.

It is a yet further object to provide a beam and post assembly having connections as aforesaid, each connection including spaced-apart sets of fingers disengageably engageable within corresponding apertures in the post with at least one finger in one of said finger sets being engageable with the post in advance of the remaining fingers in the finger sets.

In accordance with the invention, there is provided, in a pallet rack, a pair of posts erectly disposed in spaced-apart relation; an elongated beam engageable with each of said posts respectively to interconnect them and be mounted thereon providing a horizontal load support; fingers at each end of said beam for disconnectably connecting the said ends to a post, the fingers for connecting the beam to one said post, at least, being arranged in two sets extending respectively perpendicularly from said beam and in the same general direction; and means

on said one post respectively engageable with each said finger set, said means being located to permit engagement therewith of a finger in one said finger set in advance of a finger in the other said finger set.

The above and other unspecified objects of the invention, more or less broad than the foregoing, will become apparent from the following description of the elements, parts, and principles constituting the invention set out herein solely by way of example with reference to the accompanying drawings wherein:

FIG. 1 is a side elevational view of a pallet rack embodying the instant invention;

FIG. 2 is a perspective view of the ends of two beams respectively mounted and ready for mounting upon a common upright post, and

FIG. 3 is a top cross-sectional view of two upright posts interconnected by a beam illustrating the connections at each end thereof.

The present invention has reference to a pallet rack as illustrated, for example, in FIG. 1 including at least one pair of upright spaced-apart posts 10 interconnected by a horizontally disposed beam 12 providing a load bearing support. It will be understood that a pallet rack will generally include a plurality of such beams and posts providing several load bearing supports for pallets at differing locations and levels on the rack but, since the instant invention is concerned primarily with the means of interconnection between any one beam 12 and a pair of posts 10, it is not deemed necessary herein to refer in detail to the several other beams and posts constituting the pallet rack.

Each end of the beam 12 is provided with connections 14 to enable the beam to be disconnectably connectable to a post 10 as is described herein in more detail. Each such connection 14 and the post 10 with which it is engageable are oriented and dimensioned relative to one another to permit easy and rapid location of the beam relative to the post when the beam is being mounted thereon.

More particularly, each connection 14 includes fingers arranged in two spaced-apart finger sets 26 and 28 arranged relative to a post 10 to permit it to be engaged by a finger in one said set before being engaged by any of the fingers in the other said set.

Specifically, each post 10 is of elongated generally channel-shaped cross-sectional form comprised of a basic channel-shaped centre portion having a front face 18 and parallel webs 20 generally perpendicular to the face 18. Integral with and projecting outwardly from each web 20 is a wing portion 22 which is channel-shaped in this embodiment and which is disposed rearwardly of and generally parallel to the front face 18 of the post 10; the linear distance between the planes of said front face 18 and wing portion 22 being slightly less than the minimum distance between the respective tips of the finger sets 26 and 28 for reasons which will appear.

Each beam 12 is conveniently of box-like cross-sectional configuration and in this embodiment carries a connection 14 at each end thereof. Each said connection 14 is respectively comprised of two finger sets 26 and 28 as aforesaid which are disengageably engageable with corresponding means on the associated post 10; said means being located to permit engagement of one of them by at least one finger in one of said finger sets before the corresponding means is engaged by the other finger set whereby said beam may be positively located relative to the post before full connection thereto.

As will be seen in the drawings, such means on each post 10 comprises the aforesaid front face 18 and wing portions 22—22 together with a plurality of vertically spaced-apart apertures 30 formed in each of these parts. In this embodiment the apertures 30 are in the form of ver-

tically elongated slots to receive the fingers comprising the finger sets 26 and 28.

Each connection 14 comprises a channel-shaped member with two parallel sides which respectively provide the two finger sets 26 and 28; each comprising one or more elongated fingers 32 and 34 respectively with three fingers being provided in each finger set in this example. Each finger 32 and 34 extends perpendicularly from the beam 12; the fingers 32 extending further rearwardly than the fingers 34.

Each finger is conveniently of planar configuration for removable insertion into a slot 30 in a post 10. As stated hereinbefore, the dimensions of the finger sets 26 and 28 relative to the post 10 are such that at least one of the fingers 32 or 34 is engageable within a slot 30 before any of the other fingers are so engaged.

In this embodiment all of the fingers 32 are engageable in slots 30 in the wing portion 22 of the post 10 in advance of the engagement of fingers 34 within their associated slots 30 in face 18 of the post 10. To enable such advance engagement of the fingers 32, the difference in length between fingers 32 and 34 exceeds the linear spacing between the front face 18 and wing portion 22 of post 10. Since, in this embodiment, all the fingers 32 are of the same length, all of said fingers 32 are engageable within their associated slots 30 in advance of the fingers 34; the fingers 34 also all being of uniform length.

Provision of such relative dimensioning between the finger sets 26 and 28 and the post 10 thus enables a positive location of one finger set to be obtained in advance of the other with respect to the post. Since the beam 12 may be of considerable length and weight and may require simultaneous engagement at each of its ends with a post 10, it will be apparent that location as aforesaid is an extremely advantageous feature.

To enable the beam 12 to remain in positive engagement interconnecting two posts 10, at least some of the fingers are provided with hook formations 36.

In this embodiment, all of the shorter fingers 34 are provided with vertically extending notches in their lower edges to provide a hook 36 in each said finger 34.

In this construction, and as is shown clearly in FIG. 1 of the drawings, the connections 14 and posts 10 are so dimensioned and oriented relative to one another that the inner faces of the finger sets 26 lie in abutting engagement with the webs 20—20 of the post when the beams 12 are mounted thereon. It will be appreciated that this abutting relationship between the said inner faces and web 20 prevents any rocking motion of the beam 12 relative to the post 10 about an axis normal to the length of the beam 12. Furthermore, rocking motion of the beam about its longitudinal axis is substantially prevented by the abutting engagement of the base portion 40 of the channel section member comprising the connection 14 with the front face 18 of the post 10.

The several beams 12 are mounted between posts 10 to form load bearing supports in the pallet rack in a manner as hereinbefore described, the assembled position of a beam between two posts being shown in FIG. 1 of the drawings. After assembly, it may be considered desirable to lock the beam securely in position upon the post and to this end a plurality of vertically spaced-apart pin holes 42 are formed in the front face 18 of each post 10 which, in the aforesaid assembled condition, coincide with vertically spaced-apart pin holes 44 formed in the base portion 40 of each connection. Locking means such as, for example, a pin 46 are passed through one or more pairs of such coincident openings to retain the beam in position upon the post.

It will be realized from the foregoing description and from the accompanying drawings that a complete pallet rack may include several such beams 12 and posts 10 as hereinbefore described. Since each post 10 includes two wing portions 22, it will be apparent that each post may receive two beams 12 in end-to-end relation thereon as is

illustrated in FIG. 3 of the drawings. Furthermore, to complete the pallet rack into a rigid assembly it may be found convenient to provide bracing members 46 welded or otherwise rigidly secured between posts 10.

It may also be mentioned at this juncture that the channel formation of wing portions 22 is intended not only to reinforce post 10 but also to shield the tips of the fingers 32 engaged therein.

It will be apparent to those skilled in the art that various modifications may be made to the foregoing embodiment of beam and post assembly in a pallet rack without departing from the spirit of the instant invention; the true scope of which is to be determined as set forth in the hereinafter following claims.

What I claim is:

1. In a pallet rack;

a pair of posts erected disposed in spaced-apart relation; an elongated beam engageable with each of said posts respectively to interconnect them and be mounted thereon providing a horizontal load support;

fingers at each end of said beam for disconnectably connecting the said ends to a post; the fingers for connecting the beam to one said post, at least, being arranged in two sets extending respectively perpendicularly from said beam and in the same general direction;

a pair of spaced-apart faces laterally offset from one another on said one post, each having a plurality of vertically spaced-apart apertures provided therein for engagement by a said finger set; and

the distance between the extremities of the finger sets, in the direction of said fingers, being unequal to the spaced-apart distance between said faces on said post whereby a finger in one said finger set is engageable with an aperture in one said face in advance of the engagement of a finger in the other said finger set with an aperture in said other face.

2. The assembly as claimed in claim 1 wherein:

each said finger set comprises a plurality of fingers.

3. The assembly as claimed in claim 1 wherein:

each said finger set comprises a plurality of fingers, some at least of said fingers including a hook formation engageable with a said aperture on said post.

4. The assembly as claimed in claim 2 wherein:

all of the fingers in each said finger set are of the same length and said distance between the extremities of the finger sets is greater than said distance between said faces on said post.

5. The assembly as claimed in claim 3 wherein:

all of the fingers in one said finger set are plain and all of the fingers in the other said finger set include a hook formation positively engageable with a set of said apertures on said post.

6. The assembly as claimed in claim 5 wherein:

the distance between the extremities of said plain fingers and said hooked fingers is greater than said distance between said faces on said post, said plain fingers being engageable with their associated apertures in one said face of said post in advance of the engagement of said hooked fingers with their associated apertures in said other face.

7. In a pallet rack;

a pair of posts erected disposed in spaced-apart relation; each post comprising an elongated channel portion having two wing portions extending laterally therefrom, one at each side of said channel portion; an elongated beam engageable with each of said posts respectively to interconnect them and be mounted thereon providing a horizontal load support;

fingers at each end of said beam for disconnectably connecting the said ends to a post; the fingers for connecting the beam to one said post, at least, being arranged in two sets extending respectively perpendicularly from said beam and in the same general direction;

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faces on said wing and channel portions of each said post; the face on each said wing portion being spaced-apart, and laterally offset, from the face on said channel portion and each said face having a plurality of vertically spaced-apart apertures provided therein for engagement by a said finger set;

each of said finger sets comprising a plurality of fingers, each of the fingers in one set being plain and each of the fingers in the other set including a hook formation, said plain fingers extending further from said beam than said hooked fingers;

said plain fingers being engageable within said apertures provided in said face of said wing portion of the post in advance of the engagement of said hooked fingers within said apertures provided in said face of said channel portion of said post.

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References Cited

UNITED STATES PATENTS

2,937,767	5/1960	Butler et al.	211—148
3,097,747	7/1963	Selkregg et al. ..	287—189.36 X
3,127,995	4/1964	Mosinski	211—148
3,097,747	7/1963	Selkregg et al. ..	287—189.36 X
3,273,720	9/1966	Seiz	211—148
3,291,319	12/1966	Novales et al.	211—148

10 DAVID J. WILLIAMOWSKY, Primary Examiner

W. L. SHEDD, Assistant Examiner

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15 211—148, 177; 248—243; 287—209.24, 189.36