

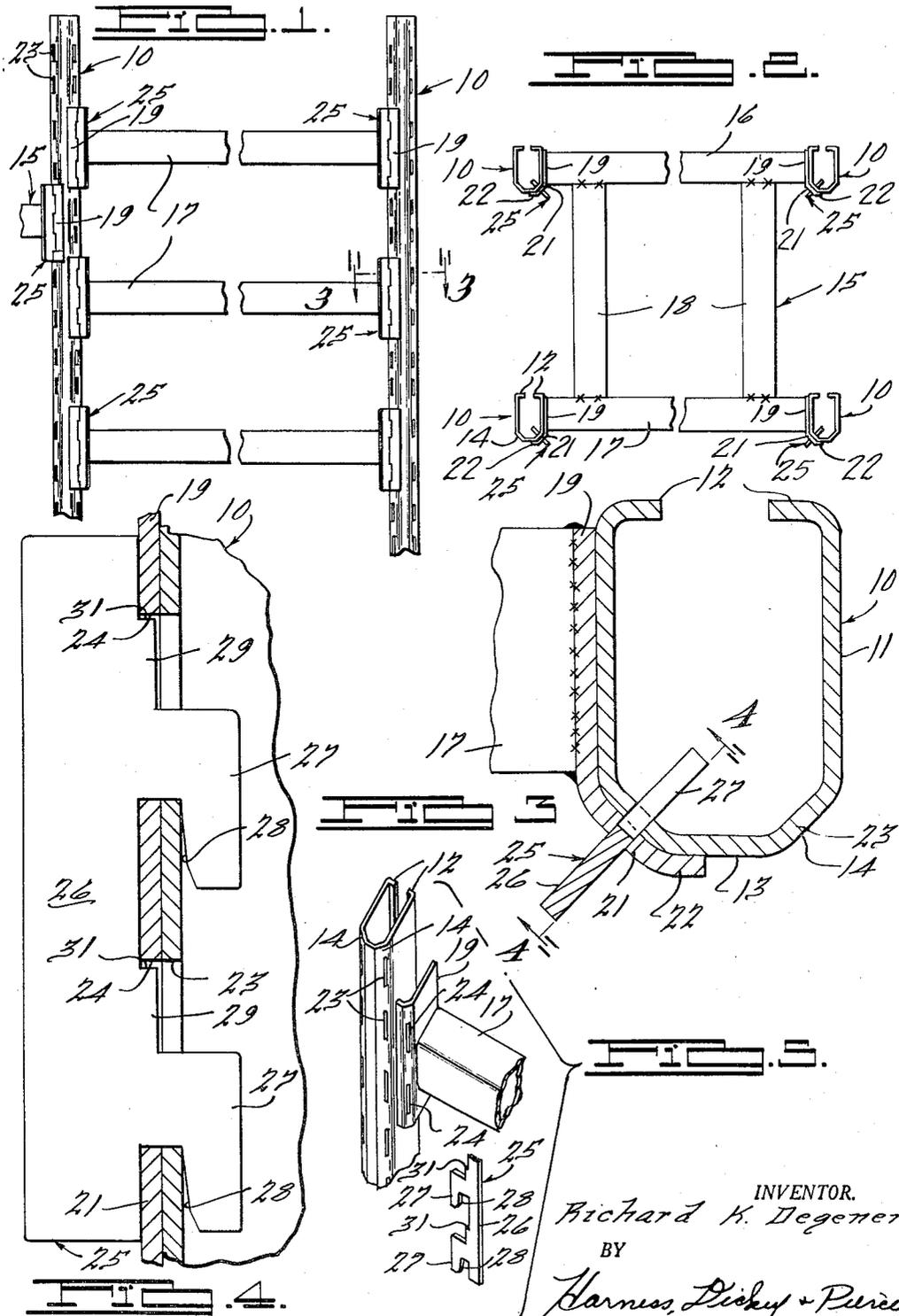
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DEMOUNTABLE RACK

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DEMOUNTABLE RACK

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This invention relates to racks, and particularly to a knockdown rack having posts and beds which are releasably secured together.

It is desirable, when constructing racks, to provide corner posts and beds which are securable together in such manner as to permit the beds to be adjusted to different heights and to be entirely removed from between the posts without disturbing other of the beds and posts. The present invention accomplishes this by providing a bed having an angle plate at the ends of the longitudinal rails, with the corner of the plate provided with a pair of aligned apertures which mate with corner apertures in the posts. Locking clamps have fingers which extend through the corner apertures for binding the angular portion of the plates to the corners of the posts. An extremely tight joint results which retains the bed and posts in firm, fixed relation to each other. The locking clamps may be readily removed so that the bed can be shifted to a different height or may be removed from between the posts as the angle plates are so positioned as to permit the bed to be pulled outwardly and then tilted to have the rear angle plates pass between the front posts of the assembly. The fingers of the locking clamps have a sloping surface and shoulders are provided to locate the fingers in the apertures of the angle plates. This retains the apertures in the angle plate and post in substantially aligned relationship when the fingers clamp the metal of the post, preventing the distortion of the metal of the post which might otherwise occur.

Accordingly, the main objects of the invention are: to provide a rack which is composed of at least four posts and a plurality of beds, with the longitudinal rails of the beds having angular plates releasably secured to the posts by locking clamps; to provide apertures in the corners of angle plates of a bed and supporting posts through which the fingers of locking clamps extend in fixed relation to the angle plates and adjustable in the apertures of the post; to provide a locking clamp with a pair of angularly disposed fingers and shouldered portions, the latter of which retain the fingers in the apertures against longitudinal shifting, causing the metal of the angle plate to back up the metal of the post when the fingers lock the angle plate to the post; to provide a bed having longitudinal rails at the forward and rear edges, the ends of which are provided with angularly disposed plates with the angle portions at the forward side so that the bed may be removed forwardly from the posts, and, in general, to provide a knockdown type of rack with removable clamping means which rigidly secures a bed to four corner posts, all of which is simple in construction, positive in operation and economical of manufacture.

Other objects and features of novelty of the invention will be specifically pointed out or will become apparent when referring, for a better understanding of the invention, to the following description taken in conjunction with the accompanying drawing, wherein:

Figure 1 is a front view in elevation of a rack made

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up of posts and beds releasably secured together in a manner embodying features of the present invention;

Fig. 2 is a broken plan view of the structure illustrated in Fig. 1;

Fig. 3 is an enlarged sectional view of the structure illustrated in Fig. 1, taken on the line 3-3 thereof;

Fig. 4 is a sectional view of the structure illustrated in Fig. 3, taken on the line 4-4 thereof, and

Fig. 5 is a broken exploded view of portions of a post, bed and a locking clamp which secures the bed to the post.

The rack of the present invention comprises a plurality of like posts 10 which may be rectangular in section or which may be of substantially U-shape, as illustrated in the figures. The posts are U-shaped, have parallel sides 11 with aligned inturned flanges 12 at the open end, with the closed side having a web 13 joined by angle webs 14 to the sides 11. The bed 15 which is supported by the posts has spaced longitudinal rails 16 and 17 joined by transverse members 18. The ends of the longitudinal members 16 have angle plates 19 welded or otherwise secured thereto, with an angle web 21 and a right-angle flange 22 on the forward ends thereof. The post has a plurality of aligned slots 23 in each of the angle webs 14 which mate with a pair of slots 24 in the angle plate 19. It will be noted in Fig. 2 that the angle web 21 and flange 22 of the plates 19 are on the forward side of the bed so that it may be tilted and moved rearwardly between the front posts, thereby permitting the bed to be inserted or removed from any vertical position on the post without interfering with other beds which are supported by the posts.

For securing the plates 19 to the posts, locking clamps 25 are provided which have a body portion 26 of a length to span a pair of the slots 24 from one edge of which outwardly and downwardly projecting fingers 27 extend in position to pass through the slots 23 of the angle plates and 24 of the posts to have a sloping inner face 28 of the finger produce a wedge relationship with the metal of the plate and post. The fingers 27 have the metal 29 extending upwardly therefrom to form a shoulder 31 which retains the locking clamps 25 against longitudinal movement relative to the angle plate. The body of the fingers 27 and the metal 29 fills the slots 24 and prevents the locking plate from shifting relative to the plate 19. With the locking clamp in this position, the wedging produced by the sloping face 28 of the fingers will be directly between the metal of the post and angle plate. Both thicknesses of metal will take the strain of the locking action, and the bending or distortion of the metal of the post will be prevented.

When it is desired to apply a bed to the rack, it is only necessary to insert the bed from the forward face of the posts as the bed is tilted to permit the rear plates 19 to pass between the front posts, after which the bed is raised to a desired height and the locking clamps 25 are then inserted in the slots 24 and 23 of the angle plate 19 and post 10, respectively. The metal 29 and finger 27 will lock within the slot 24 of the plate 19 and as the bed is moved down the sloping face 28 will rigidly clamp the plate to the post and thereby maintain a rigid connection between the ends of the bed 15 and the post in all directions.

When it is desired to remove a bed or move it to a higher or lower position, the plates 19 are driven upwardly relative to the post so as to release the fingers 27 so that the clamps 25 may be withdrawn from the apertures 23 and 24. When the clamps are removed, the bed may be adjusted to a different position or may be removed by being drawn forwardly and then tilted to have the rear angle plates pass between the front

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posts. In this manner, beds may be added or removed from an assembly without interfering with the remainder of the beds and posts which have been securely locked together. As is evident from Fig. 1, the post is so formed that additional beds 15 may be applied to the outer half of the posts so that a series of beds and the posts may be built up in the manner above described. By locating the slots in the corner webs of the posts and angle plates, the clamping force produced by the fingers 27 locks the face of the angle plate to the side of the post and the flange 22 to the front web 13 thereof, providing stability in all directions.

What is claimed is:

1. A rack or shelf assembly embodying a plurality of posts, each having on one corner thereof a series of aligned slots, a bed to be supported by the posts having longitudinal members with transversely extending plates on the ends thereof having a pair of slots therein matable with a pair of slots on the posts, and locking clamps each having a pair of fingers which project through the pairs of mating slots in a plate and post and extend within the posts in engagement with the inner side thereof, said locking clamps having an offset portion above the fingers which fills the slot of the plate to prevent the locking plate from moving longitudinally of the end plate.

2. In a rack or shelf assembly, a post having substantially parallel sides and an end web at right angular relation thereto with corner portions between the sides and web containing a series of aligned slots, an angle plate having a corner portion adapted to be secured to a corner portion of the post and having in the corner portion a pair of slots matable with the slots of said post, and locking clamps each having a body portion

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from which fingers extend outwardly and downwardly and project through pairs of mating slots in said plate and said post, with the inner face of the fingers sloping to produce a wedging action on the inner faces of the post, each said finger having a portion on one side extending upwardly an amount which, when added to the width of the finger, substantially fills a slot in the angle plate.

3. A rack or shelf assembly embodying a plurality of posts having on one corner thereof a series of aligned slots, longitudinal members to be supported by the posts with transversely extending plates on the ends thereof, each plate having at least one slot therein matable with the slots in the posts, and locking clamps each having a pair of angularly disposed downwardly extending fingers thereon which project through the slot in the plate and thence through the slots in the posts in order to lock the longitudinal members to the posts, a portion of each finger passing through the slots in the plates substantially filling the plate slots to prevent longitudinal movement therebetween.

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