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STORAGE RACK

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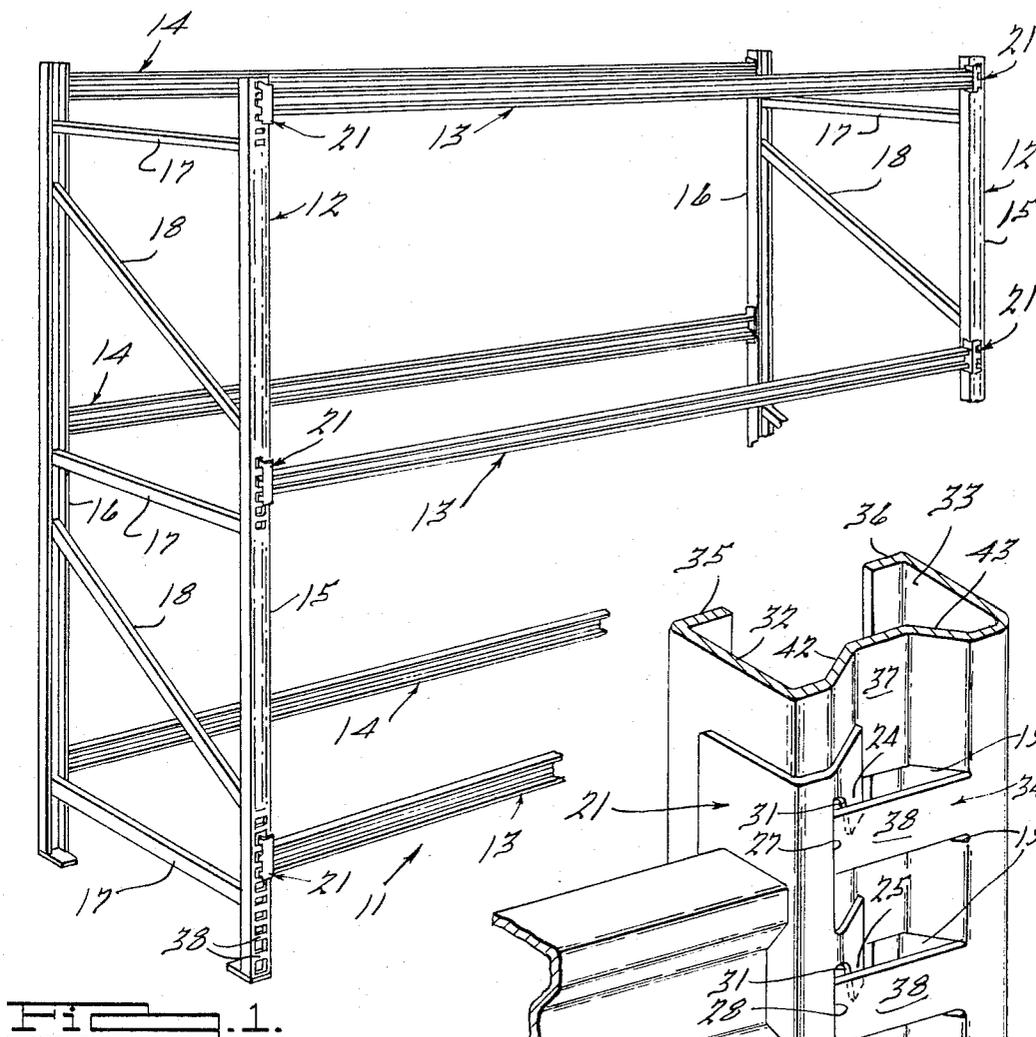


FIG. 1.

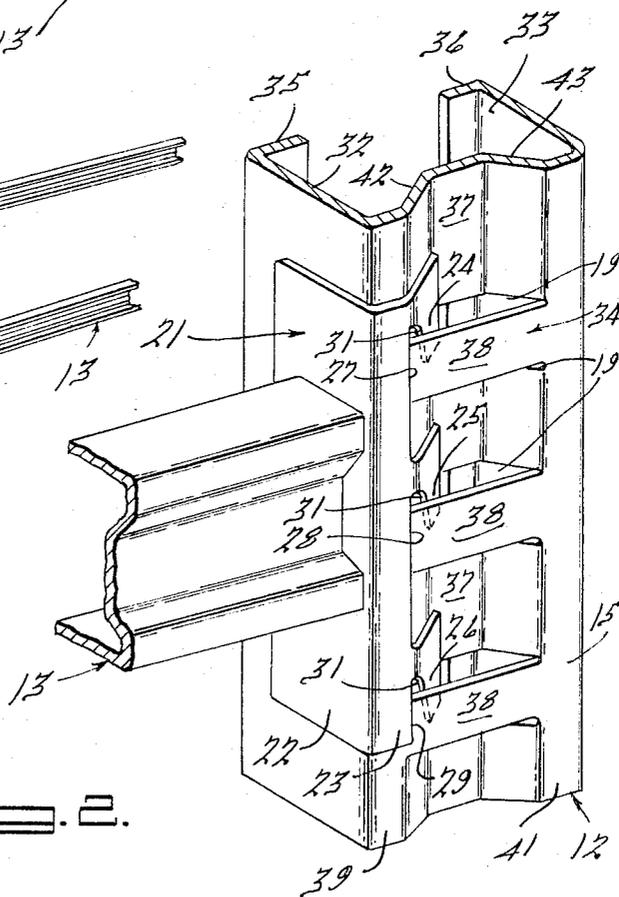


FIG. 2.

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STORAGE RACK

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This invention relates to industrial storage racks, and more particularly to racks of this type having spaced posts with cross rails detachably mounted thereon.

It is an object of the invention to provide a collapsible storage rack of this nature which will not be subject to damage by fork lift trucks which are used to load and unload merchandise.

It is a further object to provide a collapsible storage rack of this character which incorporates a wedging action between the cross rails and posts.

It is another object to provide an improved storage rack having these characteristics which is economical to fabricate and durable in nature.

Other objects, features and advantages of the present invention will become apparent from the subsequent description, taken in conjunction with the accompanying drawings.

In the drawings:

FIGURE 1 is a perspective view of a collapsible storage rack incorporating the construction of this invention, and

FIGURE 2 is an enlarged fragmentary perspective view of a portion of a post and rail member, showing the construction of the connecting means.

Briefly, the illustrated embodiment of the invention is adapted to be used with a collapsible storage rack of the general type disclosed in Patent No. 3,044,633, dated July 17, 1962. That is, the rack comprises a plurality of spaced end members connected by cross rails. Each end member includes a front and a rear post which are rigidly interconnected, and front and rear cross rails extend between adjacent front and rear posts. Each rail has a connecting member secured at its opposite ends, the connecting members each having downwardly facing teeth which fit into upwardly open slots formed in the post web. The connecting member has a generally L-shaped cross section, and the coaction of the teeth with those portions of the post web adjacent the slots will create a wedging action of the connecting member against the facing post flange, securely holding the cross rail in position.

Conventionally, the main portion of the post web is flat and the slots are created by pressing outwardly vertically spaced strip portions of the web, the upper and lower edges of these strip portions being sheared from the main web portions.

It has been found that during loading and unloading of the racks, fork lift trucks may hit these outwardly pressed strips, bending them inwardly and thus partially closing the slots which the teeth of the connecting members must enter.

According to the present invention, the post has an initially flat web but vertically spaced portions of this web are pressed inwardly instead of outwardly, these inwardly pressed portions having inclined connecting portions with the outer flat web portions. The teeth on the connecting member are likewise inclined inwardly, and will therefore be capable of entering the slots created by the inwardly pressed portions. Since no portion of the web projects outwardly from its main surface, the danger of damage from a fork lift truck in a manner described above, will be greatly diminished if not eliminated.

Referring more particularly to the drawings, a knock-down storage rack is generally indicated at 11 in FIG-

URE 1 and comprises spaced end members generally indicated at 12, and front and rear cross rails generally indicated at 13 and 14 respectively. Each end member 12 comprises a front post 15 and a rear post 16 connected by cross braces 17 and 18 to form a rigid unit. Posts 15 and 16 have a plurality of vertically spaced recesses 19 for receiving connecting members generally indicated at 21 which are secured to the opposite ends of each cross rail 13 and 14. End members 21 are removably mountable in recesses 19 at varying heights, depending upon the type of goods to be stored on the storage rack, with each pair of front and rear rails 13 and 14 being at equal heights.

Each connecting member 21 is of generally L-shaped cross section, and is substantially longer than the height of rail member 13. One side 22 of connecting member 21 is secured at its midportion to the end of rail member by welding or similar means. Portion 23 of connecting member 21 extends at right angles to portion 22. A series of three teeth 24, 25 and 26 are formed on connecting member portion 23. These teeth are formed by recesses 27 and 28 which extend inwardly from the outer edge of portion 23, and a recess 29 which extends upwardly from the lower edge of portion 23. Each of these recesses is so formed as to create downwardly extending teeth 24, 25 and 26, with a substantial space between the lower ends of teeth 24 and 25 and the upper ends of teeth 25 and 26 respectively. The edges 31 of teeth 24, 25 and 26 which face recesses 27, 28 and 29, respectively, are inclined downwardly and outwardly with respect to portion 23. The three teeth are also bent inwardly from the plane of portion 23 by an angle of perhaps 20°.

Each post 12 comprises a pair of parallel flanges 32 and 33, connected by a web generally indicated at 34, with inturned flanges 35 and 36 extending toward each other from flanges 32 and 33 respectively.

The central portion of web 34 comprises alternate sections 37 and 38 in vertical relation. Sections 38 are flat and contiguous with flat side portions 39 and 41 of web 34, which extend along its entire length. The width of portions 39 and 41 is about the same as the width of portion 23 of connecting member 21. The height of sections 38 is somewhat less than the spacing between the lower ends of teeth 24 and 25 and the upper ends of teeth 25 and 26 respectively. Sections 37 are intended inwardly from sections 38. More particularly, each section 37 has a central portion parallel to section 38 but spaced inwardly therefrom, and inclined portions 42 and 43 which connect portion 37 with portions 39 and 41 of the web. The angle of inclination of portions 42 and 43 is the same as the angle at which teeth 24, 25 and 26 are inclined.

It will be seen that slots or recesses 19 are formed between each section 38 and the section 37 above and below it. In order to adequately form these recesses, narrow strips of metal between portions 37 and 38 may be removed during the stamping process.

In operation, connecting member 21 will be placed against post 13 or 14 in such manner as to permit teeth 24, 25 and 26 to enter downwardly into recesses 19. As the teeth enter the recesses, their edges 31 will engage the upper edges of sections 38, thereby creating a wedging action which will draw sections 22 of connecting members 21 against the facing flanges of post 12 or 13.

It will be noted that since posts 12 and 13 have no projecting portions, sections 38 thereof being flat and sections 37 indented, the danger of damage to the posts which might prevent proper insertion or removal of the connecting member teeth will be largely eliminated. As pointed out above, this problem in the past has been

3

created by the impact of fork lift trucks which are loading or unloading merchandise on the racks.

While it will be apparent that the preferred embodiment of the invention disclosed is well calculated to fulfill the objects above stated, it will be appreciated that the invention is susceptible to modification, variation and change without departing from the proper scope or fair meaning of the subjoined claims.

What is claimed is:

1. In a knock-down storage rack, a plurality of horizontally spaced end members, each end member comprising a rigidly connected front post and rear post, cross rails extending between pairs of front and rear posts, each post comprising a web and a flange at right angles to each other, said web being flat with vertically spaced sections thereof indented inwardly, and a connecting member secured to each end of each cross rail, said connecting member comprising a first section engageable with the flange of said post and a second section extending at right angles to said first section, said second section having downwardly extending teeth with recesses formed between said teeth, said teeth being inclined inwardly, said post having upwardly open recesses formed between the alternate flat and indented sections of the post web into which said teeth are inserted.

2. In a knock-down storage rack construction, a post comprising a pair of parallel flat flanges connected by a web at right angles thereto, said web being flat except

4

for vertically spaced sections which are indented inwardly, each of said vertically spaced sections having a central portion parallel to the flat web portions and inclined portions connecting said central portion with the main flat portion of said web, a cross rail having a connecting member at one end thereof, said connecting member having a first flat section engageable with one of said flanges, and a second section having a shape complementary to the adjacent flat side section of the post web and the inclined portions contiguous therewith, downwardly extending teeth on said second connecting member section, and upwardly open recesses formed between the indented post web sections and the flat sections between them, said teeth being insertable in said recesses, the spaces between said teeth being greater than the width of the flat web sections, whereby said teeth may enter said recesses.

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