United States Patent [19]

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[54] **RACK ASSEMBLY**

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[52] **U.S. Cl.** **108/108**, 108/114, 211/177, 211/153

[51] **Int. Cl.** **A47f 5/10**

[58] **Field of Search** 108/108, 109, 114, 51; 211/135, 153, 148, 177, 176; 248/243, 247

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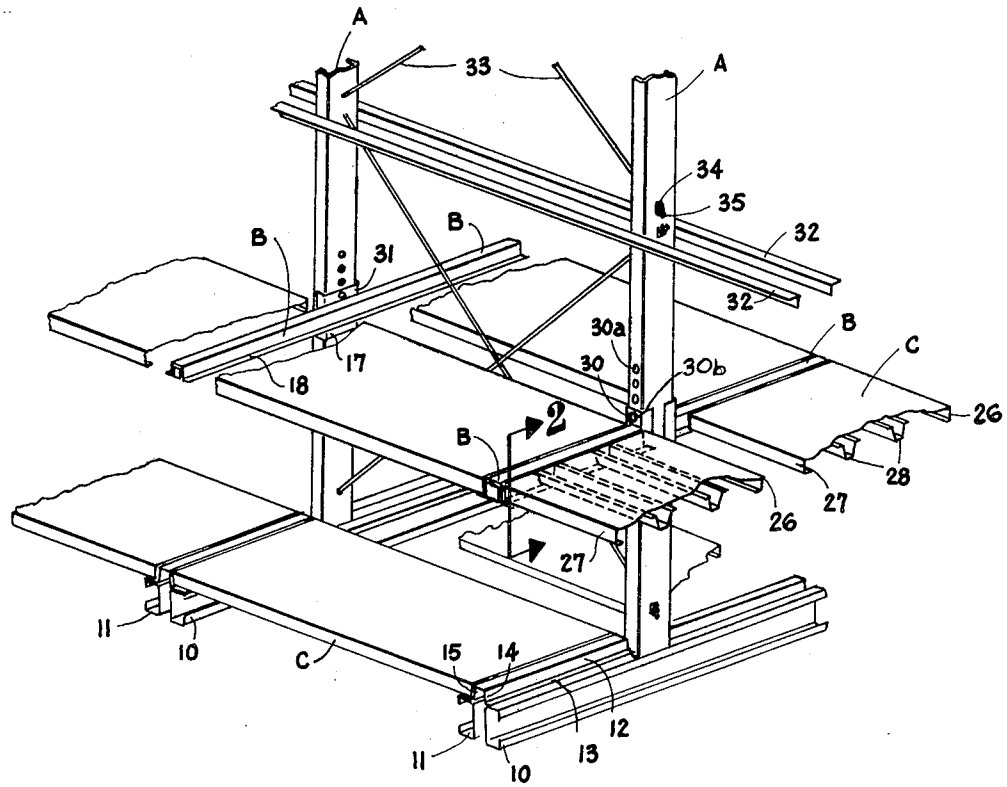
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[57] **ABSTRACT**

A rack assembly including vertical columns that have elongated load arms extending outwardly therefrom. The load arms include a a pair of interlocking sections having outwardly extending flanges adjacent the lower edge thereof. Deck panels are supported on the flanges of the load arms. The deck panels are constructed of an elongated planar sheet of sheet metal having opposed outer edges with a plurality of supporting members carried therebetween. Tie straps interconnect the outer edges of the deck panel adding rigidity thereto.

3 Claims, 3 Drawing Figures



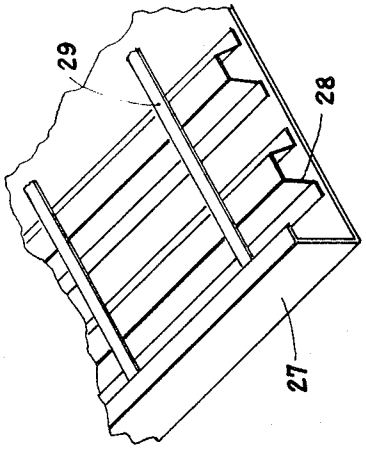


Fig. 3.

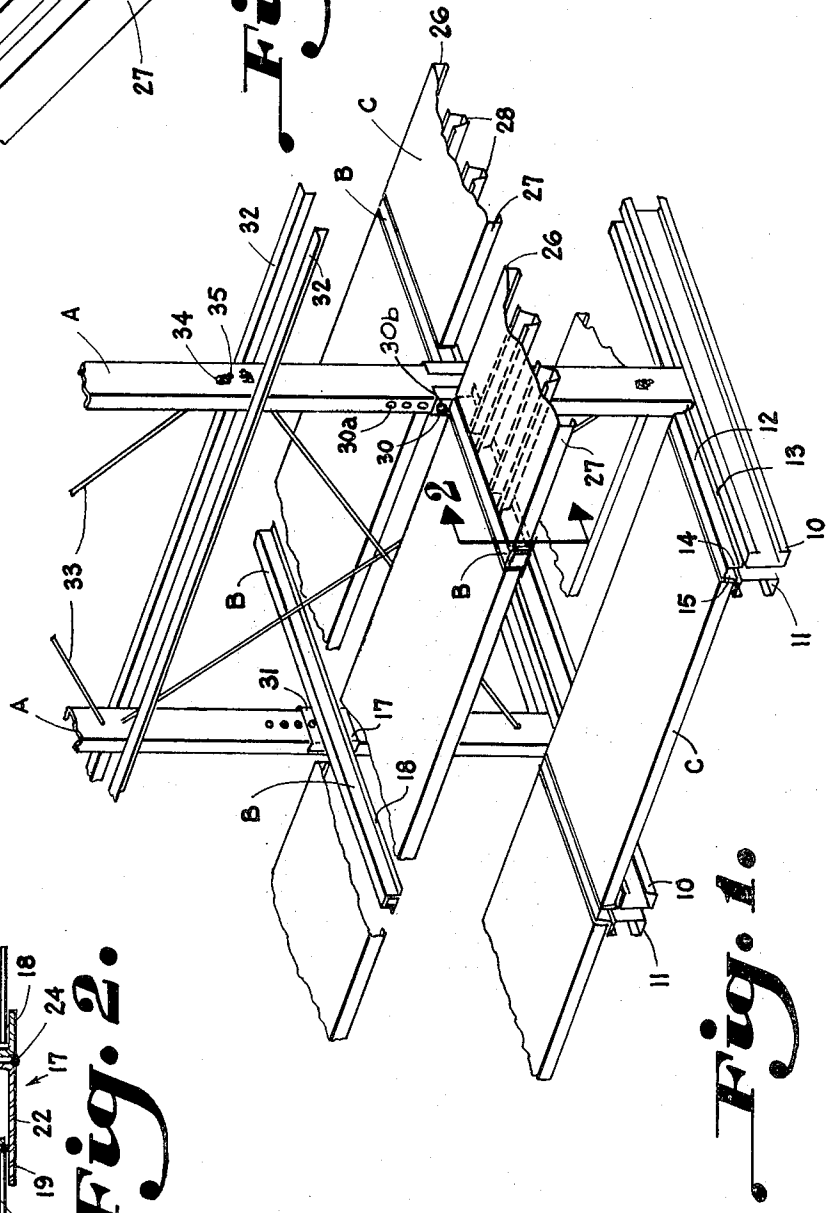


Fig. 1.

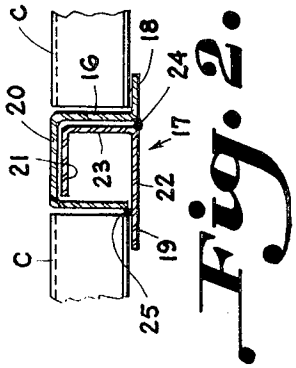


Fig. 2.

RACK ASSEMBLY

This invention relates to a rack assembly, and more particularly to a rack assembly having outwardly extending load arms for supporting a planar deck panel.

There are many rack assemblies presently being utilized, but generally they are difficult to assemble and are extremely heavy, and as a result expensive.

One of the desirable features of the rack assemblies constructed in accordance with the subject invention is that articles can be readily placed on supporting decks with minimum obstructions. In many plants such articles are carried on pallets and loaded onto the racks with fork lift trucks. Often the aisles through which the fork lift trucks travel are relatively narrow, allowing a minimum amount of room for maneuvering when placing the pallet on the rack assemblies. If side bracing were utilized, such would interfere with loading the pallets on the racks. Another disadvantage of some of the rack assemblies presently being used is that the decks are not smooth and planar, therefore, it is difficult to shift articles thereover.

Accordingly, it is an important object of the present invention to provide a rigid and sturdy rack assembly which can be readily assembled.

Another important object of the present invention is to provide a rack assembly onto which articles, such as pallets and the like, can be placed thereon with a minimum of difficulty.

Still another important object of the present invention is to provide a rack assembly with a deck that remains planer whether loaded or not so as to permit articles to be easily shifted thereacross.

Another important object of the present invention is to provide a rack assembly with load arms which extend outwardly from vertical columns constructed of a pair of interlocking sheet metal members producing a rigid and sturdy construction.

The construction designed to carry out the invention will be hereinafter described, together with other features thereof.

The invention will be more readily understood from a reading of the following specification, and by reference to the accompanying drawing forming a part thereof, wherein an example of the invention is shown and wherein:

FIG. **1** is a perspective view showing a portion of a rack assembly, with parts removed for purpose of clarity, constructed in accordance with the present invention,

FIG. **2** is a cross sectional view taken along line **2—2** of FIG. **1** illustrating the construction of the load arm, and

FIG. **3** is a fragmentary perspective view illustrating the bottom side of a deck constructed in accordance with the present invention.

Referring to FIG. **1** of the drawing, there is illustrated a rack assembly comprising aligned vertical columns A which have brackets attached thereto. Elongated load arms B extend outwardly in opposite directions from the brackets carried by the columns A. The load arms B include first and second abutting sections of sheet metal presenting opposed load bearing flanges carried by respective sections. The first section includes a channel member having one edge integral with a respective load bearing flange. The second section has an interlocking member integral with the respective load bearing flange carried within the channel member of the first section. Means, such as welding, is provided for attaching the first section to the second section so that the opposed load bearing flanges or surfaces are aligned. A deck panel C is carried on the load bearing surfaces between adjacent load arms B.

The vertical columns A may be constructed of any suitable steel members, such as channel irons. The vertical columns A have their lower ends welded between a pair of spaced transverse channel members **10** and **11**, respectively. Positioned on top of the spaced channel members **10** and **11** and spanning the gap therebetween is an elongated U-shaped member **12** which has outwardly extending flanges **13** integral with the lower edge of a pair of spaced downwardly extending legs **14** and **15**, respectively. The flanges **13** are, in turn, welded to the upper surfaces of the channel members **10** and **11**. As can be seen, the lower deck panel C is carried on the flanges **13** between adjacent supporting base members which include channels **10** and **11**.

The load arms B which extend outwardly in the opposite direction from the vertical column A includes first and second abutting sections **16** and **17** constructed of sheet metal and presenting opposed load bearing surfaces **18** and **19**, respectively. The first section includes a channel shaped portion **20** having a lower edge integral with the horizontal load bearing surface **18**. The second section **17** is carried within the channel member **20** of said first section **16** and includes an upper horizontal flange **21** and a lower horizontal member **22** which are joined by vertical side wall **23**. Integral with the lower member **22** is the load bearing surface **19**. The first and second abutting sections **16** and **17** are attached together by elongated welds, such as shown at **24** and **25**. As can be seen in FIG. **2**, the deck panels C rest on the load bearing surfaces **18** and **19**, respectively. The load arms which are relatively lightweight since they are made out of sheet metal are very strong due to the fact that the first and second sections **16** and **17**, respectively, includes three elongated vertical walls, as well as three elongated horizontal supporting flanges.

It is important that the upper surface of the deck panel C be smooth and planer with a minimum amount of buckling so that a load, such as carried on a pallet, may be readily shifted thereover. The deck panel is constructed of an elongated continuous sheet of sheet metal having opposed outer edges **26** and **27** which are turned downwardly and inwardly. A plurality of elongated metallic supporting members **28** in the form of elongated hat sections are carried between the opposed downwardly extending outer edges **26** and **27** and are welded to the bottom surface of the deck panel C. Transverse tie straps **29** are welded between the outer edges **26** and **27** for adding rigidity to the deck panels.

As can be seen in FIG. **1**, the load arms B may take at least two different forms. The load arms B shown on the right are single load arms, whereas, the load arms shown on the left are referred to as double load arms. The single load arms are welded to a channel shaped bracket **30** which is, in turn, bolted to the vertical column A. As can be seen, the vertical column has holes **30*a*** located in the side thereof, so that the vertical position of the load arms B may be adjusted. For purpose of clarity, the bolts which extend through holes **30*a*** and

30*b* are not shown. The double load arm shown on the left has a portion of the supporting flange **19** removed so that the bracket **31** can be welded thereto. The bracket, in turn, is bolted to the vertical support arm A. Longitudinal braces in the form of elongated angle iron members **32** are attached to the vertical columns for adding rigidity to the rack assembly. Additional bracing in the form of tension rods **33** criss-cross between adjacent vertical colums A, and are secured thereto by beveled washers **34** and a nut **35.** Holes are provided in the vertical columns for accommodating the tension rod **33.**

The rack assembly can be readily assembly and loads can be placed on the decks C with minimum obstructions interferring with the manipulation thereof. In one particular rack assembly the deck panel is constructed of **16** gauge hot roll sheet metal and the load arms are constructed from **10** gauge hot roll steel.

While a preferred embodiment of the invention has been described using specific terms, such description is for illustrative purposes only, and it is to be understood that changes and variations may be made without departing from the spirit or scope of the following claims.

What is claimed is:

1. A rack assembly comprising aligned vertical columns, brackets attached to said vertical columns, elongated load arms carried by said brackets and extending outwardly in opposite directions from said brackets, said load arms including first and second abutting sections of sheet metal presenting opposed elongated horizontal load bearing surfaces carried by respective sections, said first section including an inverted "U" shaped member defined by a pair of spaced elongated vertically extending side walls joined at the top thereof by an elongated horizontal top member, a lower edge of one of said side walls being integral with one of said horizontal load bearing surfaces, said second section including an interlocking member carried within said "U" shaped member of said first section, said interlocking member being defined by an elongated vertical side wall having an elongated horizontal base member integral with a bottom edge thereof, said horizontal base member being integral with said other load bearing surface, means for attaching said first section to said second section so that said opposed load bearing surfaces are aligned, and a deck panel carried on said load bearing surfaces between adjacent load arms.

2. The rack assembly as set forth in claim **1,** wherein said deck panel includes: an elongated continuous sheet of sheet metal having opposed outer edges turned downwardly and inwardly, a plurality of elongated metallic supporting members carried between said opposed downwardly and inwardly turned outer edges, and tie straps interconnecting said outer edges for adding rigidity to said deck panel.

3. The rack assembly as set forth in claim **2,** wherein said elongated metallic supporting members are elongated metallic hat sections.

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