Nov. 28, 1961 J. J. BLACK 3,010,755

INTERLOCKING POST CONSTRUCTION FOR RACK BODY

Filed April 4, 1960 2 Sheets-Sheet 1

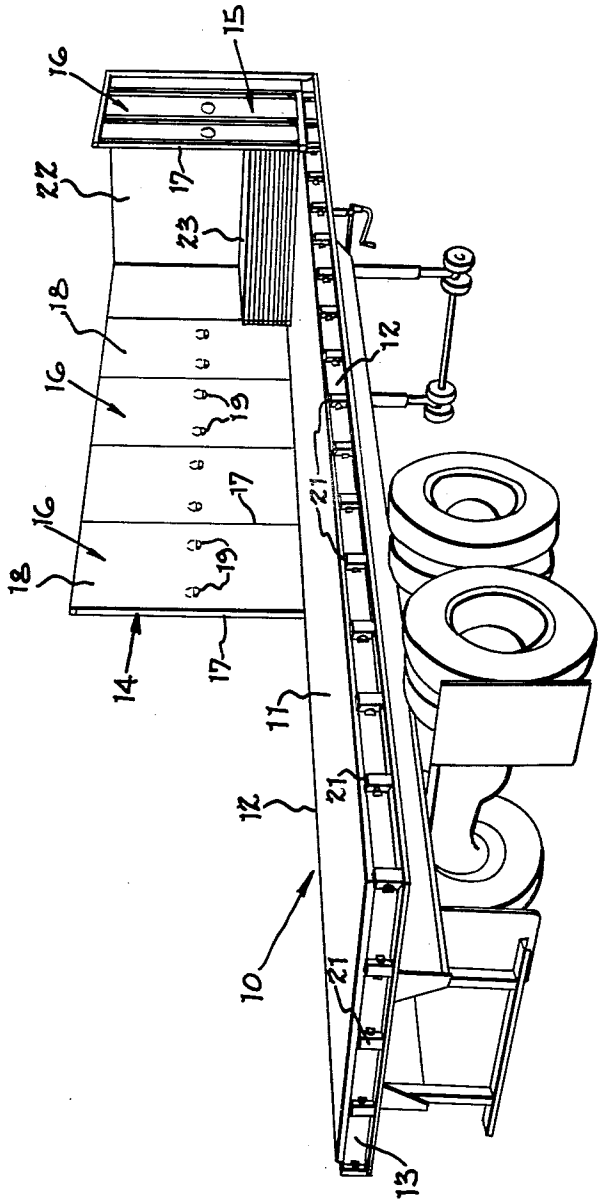


Fig. 1

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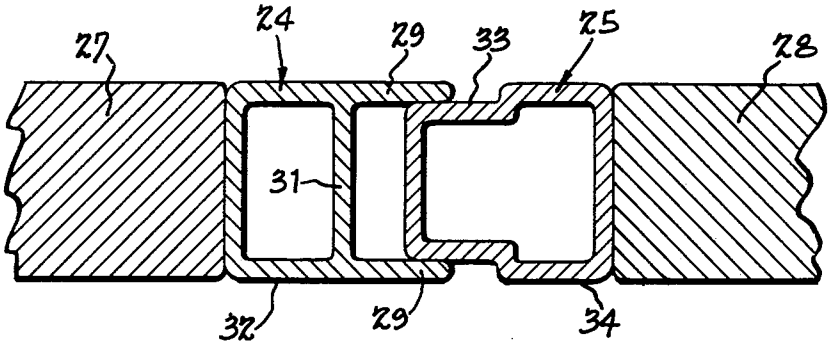


Fig. 2

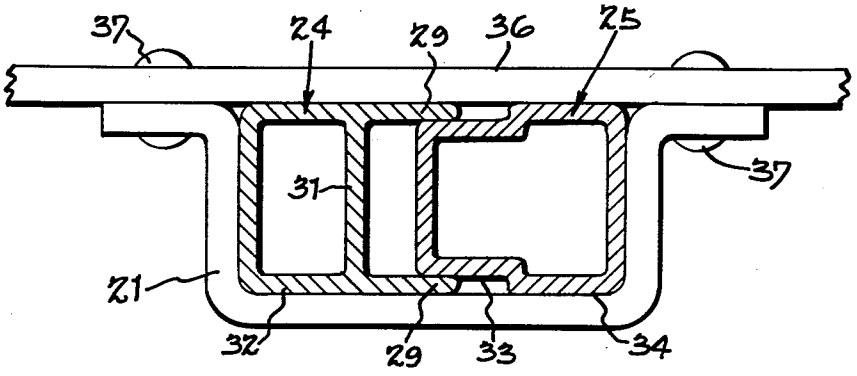


Fig. 3

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INTERLOCKING POST CONSTRUCTION FOR RACK BODY

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This invention relates to a construction for removable side sections, commonly called "racks," for freight vehicles. More particularly, it relates to a construction for the corner posts of racks whereby adjoining racks are enabled to interlock with one another to form a relatively rigid, unitary rack body for the vehicle.

For the sake of description, the invention is primarily disclosed hereinafter in relation to roadway freight vehicles and in particular to semi-trailers, but it will be understood that the invention is not limited thereto and that it is also suited for use on railroad car rack bodies as well as for other freight-carrying vehicles.

Racks are typically utilized in conjunction with, for example, flat semi-trailers, to provide removable side and end walls for the trailer. The individual racks are comprised of spaced posts between which extend enclosure forming means, which may be, for example, slats or panels. The racks are small enough in size and weight to constitute handleable sectional units so that they can be erected on the trailer bed by a single man. The bed is provided with spaced sockets along its sides and ends for receiving downwardly projecting lower ends of the rack posts. By engaging the projecting portions of the posts of a rack in these sockets, the rack is held in upright position as a sectional wall unit, and by thus erecting a series of racks in edge-to-edge relation, the vehicle may be provided with side and end walls.

When the racks are in place, and when the vehicle is provided with a top cover or roof, the vehicle is adapted to carry loads as a container or van; when the racks are removed, the vehicle may be used to transport heavy or bulky loads not requiring enclosed shipment. Convenient removability of racks is therefore desirable from the standpoint of vehicle versatility and usefulness.

In order to provide as rigid and as sturdy a vehicle wall section or unit as is consistent with light weight and convenient removability, various means of interconnecting adjacent racks have been employed, ranging from the simple expedient of tying the racks together, to various sorts of hook and eye connections for the rack corner posts.

The present invention is a rack corner post construction whereby adjoining racks may be erected on a bed in interconnection with one another to form a strong, nearly unitary, rack body construction, which requires no separate connecting means.

Reduced to its fundamentals, the present invention is a rack having a corner post at one vertical edge which is provided with flanges extending outwardly in the plane of the rack, the flanges defining a channel in the post, and having a corner post along its other or opposite vertical edge which is provided with a vertical tongue receivable in the channel of the corner post of an adjacent rack. Otherwise put, the present invention is a corner post construction providing a tongue at one end of the rack and a groove at the other end, whereby rack interconnection along substantially the entire height of the rack may be established.

In contrast to previous rack connectors, the present invention, by the corner post construction described, provides a relatively weather proof, water tight connection between racks forming a vehicle body wall. Inserted in the groove of an adjacent rack, the tongue

forms a sealed vertical joint between the racks, extending from the vehicle bed to the top of the rack.

In a preferred embodiment of the invention, the corner posts comprise hollow extruded aluminum members. The channeled, or grooved, corner post has spaced flanges extending outwardly from a hollow, rigid box-like web portion. The other corner post, which may be called the tongue corner post, has a back portion equal in width to the outside width of the web of the groove post. From this back portion, which is preferably hollow, a tongue extends in the general plane of the rack, of width such that which may be easily received in the grooved corner post of an adjoining rack. Between the corner posts of the rack extend area enclosing means which, in the preferred embodiment, comprise flat aluminum panels secured to the corner posts so as to provide a generally smooth and uniform surface on the interior side of the vehicle wall. Reinforcing frame members, which may comprise extruded aluminum channels, are preferably connected between the corner posts to generally rigidify and integrate the structure.

The corner posts of the preferred embodiment extend below the lower edge of the rack panel, so that they may be received in sockets at the edge of the vehicle bed. The sockets position and maintain the racks in proper alignment with one another, holding the interconnected tongue and groove posts of adjoining racks in engaged relationship until the posts are lifted out of the sockets to dismantle the rack body. The two adjacent interconnected corner posts, thus held in engagement by the socket into which their lower portions extend, behave as a relatively rigid single post member by reason of their engagement along their entire vertical extent. In this manner, the racks remain securely interconnected under the vibration and relative strain of road travel, the sockets holding the racks from fore and aft movement and the tongue and groove corner post interlock holding the racks from relative transverse motion. Furthermore, the joint renders the cargo inside quite safe from rain, road dust and wind.

A more complete description of the invention may be made by reference to the accompanying drawings, in which:

FIGURE 1 is a perspective view of a flat semi-trailer showing partial side walls erected from racks embodying the principles of this invention;

FIGURE 2 is a fragmentary horizontal section through interlocked corner posts of adjoining racks, showing the preferred construction of the corner posts and the manner in which the tongue of one post is received in the groove of an adjoining post, and

FIGURE 3 is a fragmentary horizontal section through the downwardly projecting extensions of interlocked corner posts of adjoining racks, showing the manner in which the posts are maintained in engaged relationship by the bed socket in which they are inserted.

In FIGURE 1 is shown a generally conventional flat semi-trailer, designated by **10**, having a rectangular bed **11** defined by side edges **12—12**, a rear edge **13**, and a front edge. Partial side walls **14** and **15** are shown extending upwardly from the side edges of the bed. These walls **14** and **15** are erected from a series of individual sectional units or racks **16**.

In the preferred embodiment shown, the individual racks are small enough to be manageable by a single man, so that a flat trailer can be quickly converted to an open top van. Each rack has corner posts at its two vertical edges **17** embodying the principles of this invention. Apart from the corner post construction, which is described more fully hereinafter, the construction of the rack is generally conventional. As a typical example of the rack construction, flat panels **18** may be secured

to the corner posts of the rack to provide a smooth interior wall surface. The rack panels **18** may be provided with hand grips **19** whereby the racks can be lifted and set in place on the bed.

Adjacent the edges of the trailer bed **11** are provided sockets **21**. These sockets may be set in the bed or, as shown, be secured to the edge of the bed. They are spaced at intervals corresponding to the spacing of the two corner posts of each rack, so that they can receive the downwardly projecting lower ends of the corner posts, whereby they support the racks in vertical position.

At the front of the trailer it is desirable, although not necessary, that there be a permanent, non-removable front wall or nose **22**, to provide a wind shield. This nose does not impede the loading or utility of the trailer, so that removability is not necessary. Racks may conveniently be stored against the nose, as at **23** in FIGURE 1.

The specific details of the rack corner post construction of this invention are best seen in FIGURES 2 and 3, in which are shown the interlocked posts of adjoining racks.

Each rack is provided at one edge with a corner post forming a vertically extending tongue and at its other edge with a corner post forming a vertically extending channel. In the drawings a preferred post construction is shown in which the groove is provided by corner post **24** and the tongue by corner post **25**. Although only the adjoining corner post sections of a left rack **27** and a right rack **28** are shown, it will be appreciated that each rack is provided on its opposite edges with both a tongue corner post and a groove corner post.

The corner posts **24** and **25** are preferably extruded in aluminum for strength and lightness. Groove post **24** has spaced flanges **29—29** extending outwardly in the general plane of the rack from a web portion **31**. Preferably but not necessarily the web or back portion **31** of the channel comprises a hollow box-like section **32** for strength and lightness.

Tongue channel **25** has a tongue **33** of width whereby it may be snugly but not forcibly received by groove channel **24**. The tongue projects forwardly from a rear portion **34** which is generally similar in size to the box-portion **32** of post **24**, and which is preferably hollow. Attachment of the corner posts to the racks **27** and **28** is conventional and is not shown in detail.

Although the post construction shown is preferred, it will be appreciated that other post constructions which provide a tongue and groove rack seal are within the scope of the invention.

The manner in which the posts are held in engagement by the bed sockets **21** is shown in FIGURE 3. The side rail **36** of the bed is provided with the U-shaped sockets **21** at spaced intervals, the sockets being affixed to the bed by rivets **37** or the like. The lower ends of both corner posts **24** and **25** are inserted in a single socket, whereby the panels are prevented from becoming disengaged. The socket should be long enough, however, to permit the tongue to slide or shift slightly with respect to the groove while still remaining engaged therein, to adjust to slight bed curvature or sag, as might result from various loading conditions.

The tongue and groove connection between the corner posts in accordance with this invention is an effective seal to wind, dust, road splash and rain, does not open in transit, and provides a rack body which can be easily erected and dismantled without the necessity of engaging hooks or fastenings.

Having described my invention, I claim:

1. A removable rack for a freight vehicle comprising, a generally rectangular panel, means forming a vertically extending tongue at one side of said panel, means forming a vertically extending groove at the opposite side of said panel, portions of both said tongue forming means and said groove forming means extending downwardly below the lower edge of said panel, said downwardly extending portions being adapted to be received in cooperating sockets provided by the bed of said vehicle, whereby when the tongue of one rack is engaged with the groove of a similar adjacent rack and said downwardly projecting portions are received in a common socket, a vertical joint between said racks is formed.

2. A removable sectional wall unit for a freight vehicle comprising, a vertical post at each vertical marginal edge, area-enclosing means extending between said posts and connected thereto, the lower ends of said posts projecting downwardly below said area-enclosing means and being adapted to be received in cooperating sockets provided by the bed of the vehicle, one of said posts having a web disposed perpendicularly to the plane of said wall unit and two spaced parallel flanges extending outwardly from said web in the plane of said wall unit, said flanges and web defining a vertical groove at the edge of said wall unit, the other of said posts having a parallel-sided tongue extending outwardly in the plane of said wall unit, said tongue having a width slightly less than the width of said groove, whereby when the tongue of one wall unit is engaged in the groove of a similar adjacent wall unit and the downwardly projecting ends of the adjacent posts are received in a common socket, a vertical seal between said wall units is formed, the common socket positively holding the adjacent posts of the wall units in interfitting relationship against relative longitudinal movement tending to cause gapping between them and the groove holding the tongue against relative transverse movement.

3. A removable sectional wall unit for a freight vehicle comprising, a hollow, vertical post at each side, each said post having a generally rectangular horizontal cross-section, a flat panel extending between said posts and marginally connected thereto, the lower ends of said posts projecting downwardly below said panel and being adapted to be received in cooperating sockets provided by the bed of the vehicle, one of said posts having two spaced, parallel flanges extending outwardly therefrom in the plane of said wall unit, said flanges defining a vertical groove at the edge of said wall unit, the other of said posts having a tongue extending outwardly in the plane of said wall unit, said tongue having a width slightly less than the width of said groove, whereby when the tongue of one wall unit is engaged with the groove of a similar adjacent wall unit and the downwardly projecting ends of the adjacent posts are received in a common socket, a vertical seal between said wall units is formed, the socket positively holding the adjacent posts in interfitting relationship against relative longitudinal movement and the groove holding the tongue against relative transverse movement.

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