June 28, 1960 H. S. SHULTZ 2,942,560

BULKHEAD FITTING

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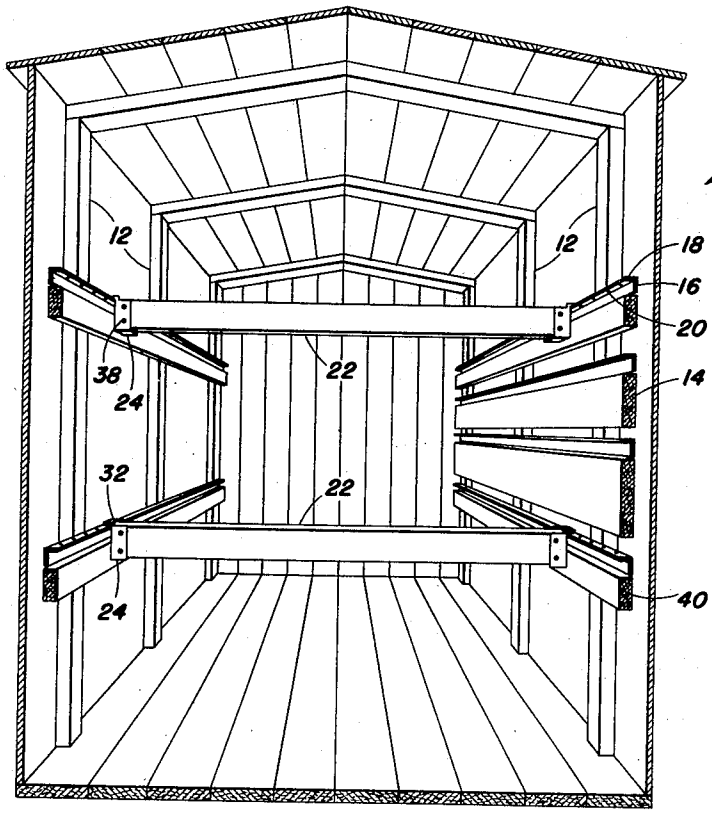


Fig. 1.

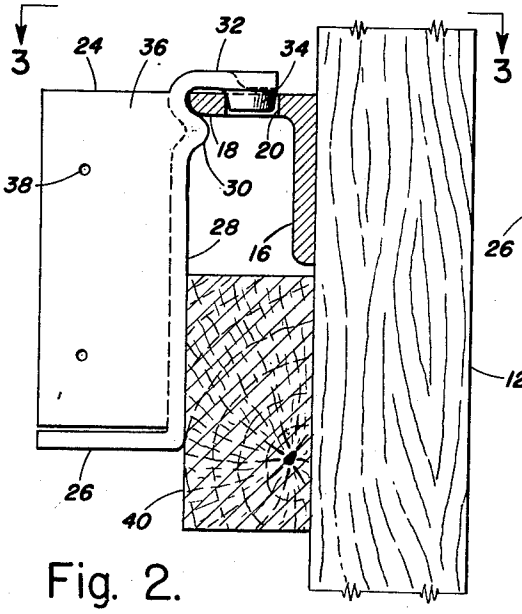


Fig. 2.

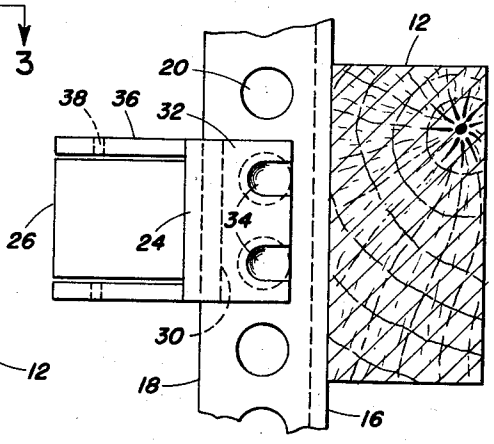


Fig. 3.

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BULKHEAD FITTING

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4 Claims. (Cl. 105—369)

This invention relates to a bulkhead fitting. More particularly, it relates to a bulkhead fitting particularly suitable for railroad box cars and the like equipped with perforated belt rails.

In U.S. Patent, No. 2,725,826—Tobin et al. and in U.S. Patent, No. 2,497,683—Nampa et al. there is shown the interior of a freight car equipped with belt rails and with adjustable and removable cross-bars for holding in place a wide variety of packages and articles during shipment.

The belt rails are shown and described as a series of horizontally disposed, longitudinally extending, vertically spaced, side rails of the angle iron form, arranged at respectively opposite sides of the car in vertically aligned relation and secured to the vertical side and corner posts of the freight car. Each side rail comprises a vertical flange and a horizontally extending shelf forming flange with punched openings along the length thereof. As a preferred but optional feature, in the space between adjacent pairs of side rails are buffer panels, the inner surfaces of which project into the car slightly farther than do the horizontally extending flanges.

The cross-bars are shown as horizontally disposed members, each extending from a belt rail on one side of the car generally to the corresponding, opposite belt rail on the other side of the car. It will be observed that each cross-bar comprises two cross members secured together by a complex brace structure and at each end by an end head which comprises a pin arrangement adapted to fit in the punched holes of the belt rail, and a spring-biased latch structure to prevent the pin from jumping out of place.

While the general concepts of the aforementioned patents have been rather substantial contributions to the art, there are a number of disadvantages which arise out of the cross-bars. One disadvantage resides in the fact that due to the complex structure of the cross members and end heads, the cross-bars are not expendable items. Hence, each car must be supplied initially with a large number of cross-bars to provide for the probable requirements of shippers and in unloading a freight car the cross-bars must be left in the car. Usually they are left on the floor in hopeless confusion by the consignee. As a result, when the car is again loaded, the cross-bars have to be moved away from the loading area and then moved individually to the desired locations for their intended purpose during the loading. Also, excess cross-bars must be stowed up and out of the way. Under some circumstances, this could result in loss of valuable shipping space.

In addition to the disadvantage of double handling and housekeeping, the cross-bars, being designed for the condition of maximum load, are usually quite heavy, objectionably voluminous, and awkward to handle.

Accordingly, it is a general object of this invention to improve upon the over-all cross-bar structure. Stated another way, it is a general object of this invention to provide the art with a cross-bar structure for freight cars of the perforated horizontal flange, belt rail type, which has none of the noted disadvantages.

A specific object of this invention is to provide the art with a cross-bar structure for freight cars of the perforated, horizontal flange, belt rail type, which enables expendable dunnage lumber without banding or bracing to be used.

Even more specifically it is an object of this invention to provide the art with an end head or bulkhead fitting adapted to be used in freight cars of the perforated, horizontal flange, belt rail type, which fitting permits the use of expendable dunnage lumber. Still another object is to provide the art with an end head or bulkhead fitting which is simple in construction, which assures positive locking of the cross-bar in position under use conditions, which can be easily removed and which is relatively inexpensive and itself probably expendable.

These and other objects which may appear as this specification proceeds are achieved by this invention.

In summary, my invention involves a bulkhead fitting for perforated, horizontal flange, belt rails, which comprises a receptacle of metal or the like, open at the top and at one end, with an outwardly projecting, horizontal flange member, or lip member, at the opposite end having at least two downwardly projecting lug members which are adapted to fit punched openings or perforations in the horizontal flange of the belt rails. Below the horizontal lip member of the receptacle there is an outwardly projecting, vertically curved shoulder member of the receptacle, which engages the underside of the horizontal flange of the belt rail and prevents vertical movement of the receptacle when in position.

To minimize horizontal movement of the receptacle, the cross-bar to be inserted into place in the receptacle, preferably being dunnage lumber, is cut to fit snugly in the two opposite bulkhead fittings when in position. Usually, freight cars already provided with belt rails will be provided with the buffer panels already described herein. Such panels will prevent inward, horizontal movement of the receptacle. On the other hand, it may be desirable to adapt existing freight cars with belt rails. In such case, to minimize horizontal movement, a piece of dunnage lumber or the like of width equal to, or slightly greater than, that of the horizontal flange of the belt rail may be attached to the sides of the box car. Alternatively, the receptacle may comprise a spacer element, which preferably would extend outwardly from the end thereof to the required distance.

The fitting of this invention is installed by positioning the lugs in the corresponding punched openings in the horizontal flange of the belt rail at the desired location, while holding the fitting at an angle of in the range of about 45° to about 60° with the freight car wall. The fitting is then swung downwardly to the vertical position. The curvature of the top portion of the shoulder member is such that in proceeding to this vertical position,

the shoulder will snap into place snugly beneath the horizontal flange of the belt rail.

With brackets oppositely placed in position on the belt rails, the cross-bars are then inserted. To prevent movement of the cross-bars under transportation conditions, the sides of the bracket may be provided with holes and nails or other means inserted therethrough into the cross-bars.

To remove the cross-bar members, the nails or other means are taken out, the lumber is lifted from the brace and the braces can then be left in place or removed for use in other locations.

Before proceeding to a description of the drawings, it should be understood that as this invention may be embodied in several forms without departing from the spirit or essential characteristics thereof, the embodiments to be described in the drawings are illustrative and not restrictive, since the scope of the invention is defined by the appended claims rather than by the description preceding them, and all changes that fall within the metes and bounds of the claims or that form their functional as well as conjointly cooperative equivalents are therefore intended to be embraced by those claims.

Turning now to the accompanying drawings, it will be observed that:

Fig. 1 is a perspective view of the interior of a freight car equipped with a preferred embodiment of this invention;

Fig. 2 is a cross-sectional view of the bulkhead fitting and perforated belt rail combination of this invention; and

Fig. 3 is a top view of the bulkhead fitting and perforated, horizontal flange belt rail arrangment, which is taken along the lines 3—3 of Fig. 2.

In somewhat more detail, in Fig. 1 there is shown a freight car **10** comprising vertical side posts **12**, and, attached thereto, buffer panels or lining **14** and horizontally disposed, perforated belt rails **16**. Each perforated belt rail, it will be observed, appears in cross-section in the form of an angle iron having a vertical flange member attached to the side ports **12** and an outwardly extending, horizontal flange member **18** containing punched holes or perforations **20** at regularly spaced intervals. Extending across from one side of the box car to the other are cross-bars each of which comprises a cross-bar member **22** (obtained from expendable dunnage lumber) and at each end thereof a pressed steel bulkhead fitting **24** according to this invention.

In Figs. 2 and 3, it will be observed that the bulkhead fitting comprises an open top, open end box structure or receptacle in the end of which the cross-bar snugly fits. This receptacle has a bottom **26** on which the cross-bar rests and an end wall **28**. Just below the top of the end wall is an outwardly extending, curved shoulder member **30** while at the top of the end wall there is an outwardly extending, horizontally disposed lip member **32** provided with at least two downwardly projecting lugs **34** which fit into corresponding perforations **20** in the horizontal flange member **18** of the belt rail. When the fitting is in position, it will be noted that the horizontal flange member **18** of the belt rail fits snugly into the space between the horizontal lip member **32** of the fitting and the shoulder member **30** of the fitting.

The fitting also has two side walls **36** which contain openings **38** through which nails and the like may be inserted to secure the cross-bar to the fitting.

Although the freight car **10** is shown with buffer panels **14** (on one side only for purposes of illustration), it is possible that older freight cars may not be so equipped. Accordingly, in such instances a spacer bar **40** may be installed along with the belt rails so as to maintain the proper position of the bulkhead fitting **24**.

To install a cross-bar **22** at a desired location, a bulkhead fitting **24** is placed on the belt rail **16** at the desired height on each side of the freight car. This is accomplished by positioning the lug members **34** over, and partially into, the corresponding perforations **20** in the belt rail while holding the fitting out from the vertical post **12** at an angle of 45° to 60°. The bottom portion of the fitting is then swung downwardly and towards the vertical post, whereby the shoulder member **30** is snapped into place. Each end of a precut cross-bar **22** is then inserted into the corresponding receptacle and secured thereto by driving nails and the like through the openings **38**.

To remove the cross-bar, the nails, bolts, screws and the like are removed and the cross-bar pieces are lifted out of the fittings. Each fittings may then be removed by swinging out and up the receptacle until the shoulder **30** has cleared the end of the horizontal flange **18** of the belt rails, and then merely lifting up the receptacle until the lug members **24** are out the openings **20** in the horizontal flange of the belt rails.

It is a feature of advantage in this invention that the fittings or brackets can be readily and inexpensively manufactured and thereby can be regarded as expendable items. Moreover, the cross-bar members and spacer elements can be expendable shipper's lumber. Thus, the complex structure of the prior art can be avoided without sacrificing any of the advantages, such as, for example, flexibility and interchangeability.

What is claimed is:

1. In a railway car having belt rails extending along and secured to opposite walls of said car, said belt rails being in substantially the same horizontal plane and having an inwardly extending perforated horizontal flange, an improved cross-bar structure comprising (1) a cross-bar, (2) receptacles detachably engaged to said oppositely disposed belt rails for receiving and positioning the ends of said cross-bar and (3) spacer elements; each of said receptacles comprising a cross-bar supporting bottom wall, vertically disposed side walls and a vertically disposed end wall; said side walls and end wall projecting above said bottom wall so as to form a pocket for receiving the end of said cross-bar, and at the top of said end wall is an outwardly extending, horizontally disposed lip member resting on said horizontal flange and having at least two downwardly projecting lug members which fit into corresponding perforations in said horizontal flange, said lug members being aligned in a plane substantially parallel to the plane of said end wall, said end wall having near the upper end thereof an outwardly extending curved shoulder portion engaging the underside of said horizontal flange, said shoulder member not extending beyond about the plane of said lug members; said cross-bar extending between a pair of oppositely disposed receptacles; and each of said spacer elements being of width approximately equal to that of said horizontal flange and disposed between the end wall of said receptacle and the wall of said car such that the lower portion of the end wall of said receptacle rests firmly against the inward face of said spacer element.

2. In a freight car according to claim 1, the improvement wherein said spacer element is a buffer panel corresponding in length to said belt rail.

3. A freight car, cross-bar receptacle comprising a bottom wall, two side walls and an end wall, said side walls and end wall projecting above said bottom wall so as to form a pocket for receiving and positioning the end of a cross-bar; at the top of said end wall a lip member, said lip member being in a horizontal plane and extending in a direction outwardly from said pocket, said lip member having at least two lugs projecting downwardly therefrom for engaging perforations in a horizontal flange of a freight car belt rail, said lugs being in a plane substantially parallel to said end wall; and said end wall having near the upper end thereof an outwardly extending curved shoulder member for detachably interlocking said receptacle to said belt rail, said shoulder member not extending beyond about the plane of said lugs.

4. In a portable receptacle for receiving and positioning the end of a freight car, cross-bar comprising a cross-bar supporting bottom wall, vertically disposed side walls and a vertically disposed end wall, said side walls and end wall projecting above said bottom wall so as to form a pocket for receiving the end of said cross-bar, the improvement wherein (1) a lip member extends outwardly from the top of said end wall and lies within a substantially horizontal plane, said lip member containing projecting means adapted for engaging perforations in a horizontal flange of a belt rail extending along and secured to a wall of a freight car, and (2) said end wall

having near the upper end thereof an outwardly projecting, vertically curved, shoulder for detachably interlocking said receptacle to said belt rail thereby assuring positive locking of the cross-bar receptacle in position under use conditions.

References Cited in the file of this patent

UNITED STATES PATENTS

2,467,681	McKinney	Apr. 19, 1949
2,665,869	Samuels	Jan. 12, 1954