March 26, 1963 J. J. PRENDERGAST 3,082,707

MERCHANDISE LOADER FOR RAILWAY FREIGHT CARS

Original Filed Sept. 13, 1956 4 Sheets-Sheet 1

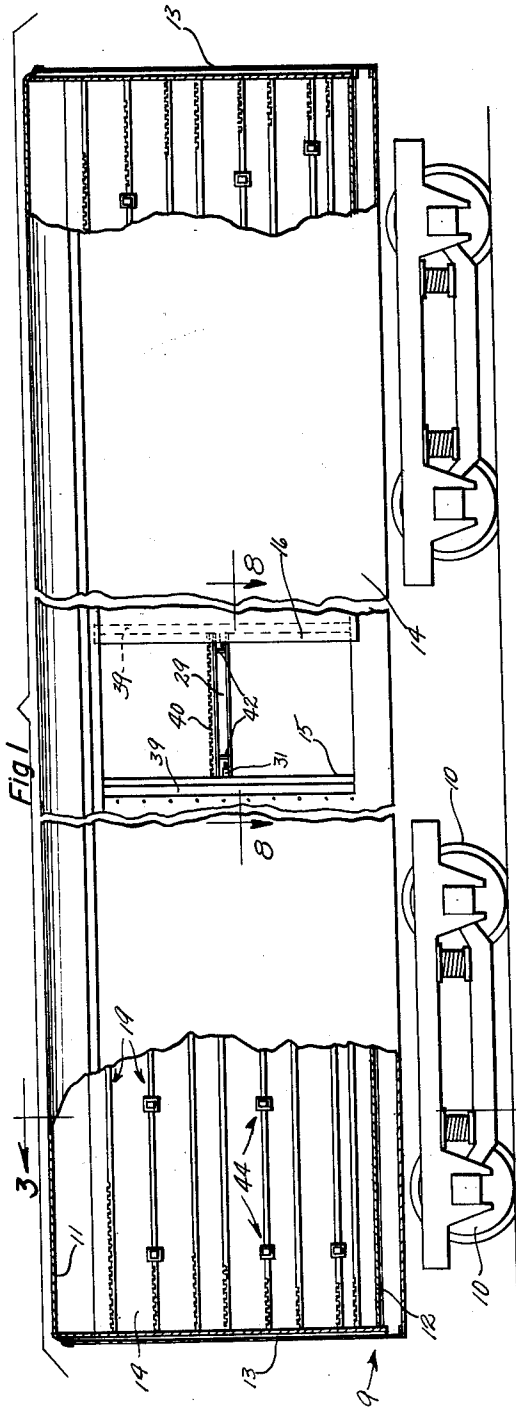


Fig. 1

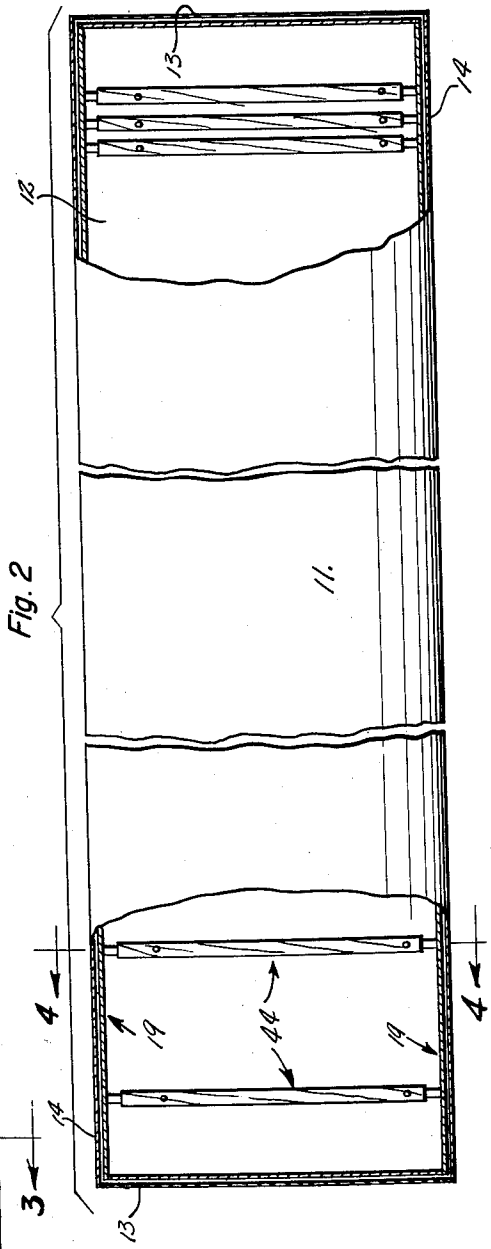


Fig. 2

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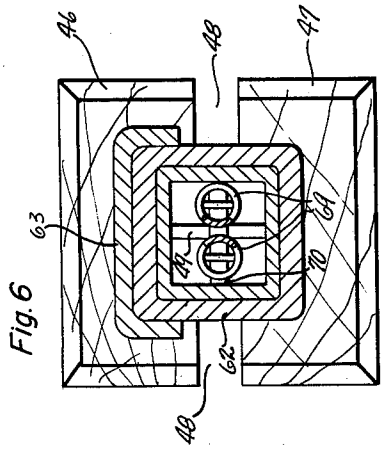


Fig. 6

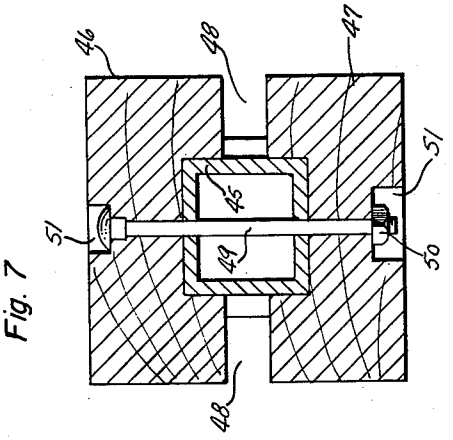


Fig. 7

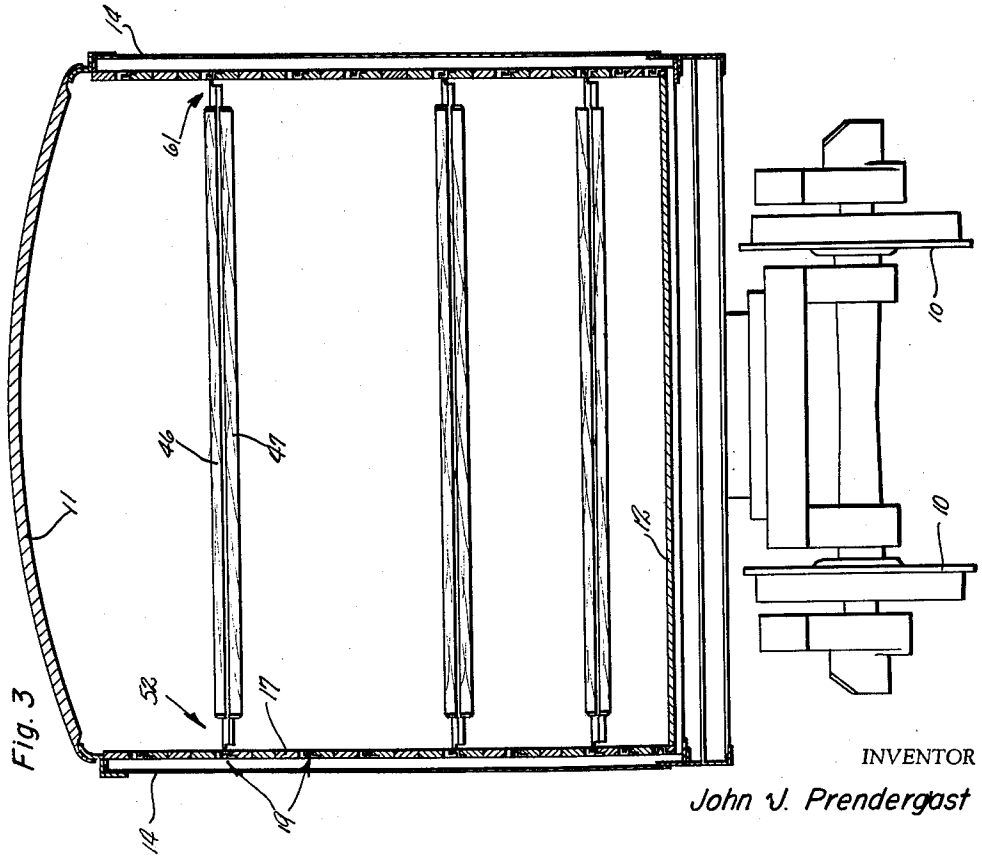


Fig. 3

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MERCHANDISE LOADER FOR RAILWAY FREIGHT CARS

Original Filed Sept. 13, 1956 4 Sheets-Sheet 3

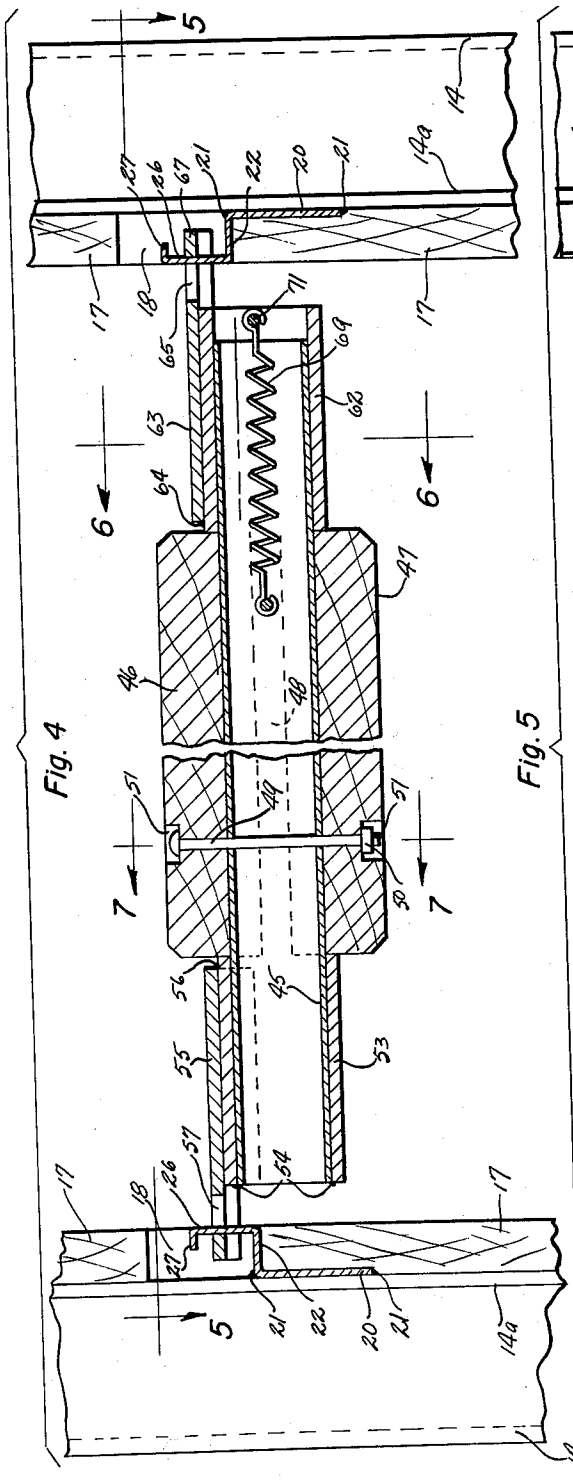


Fig. 4

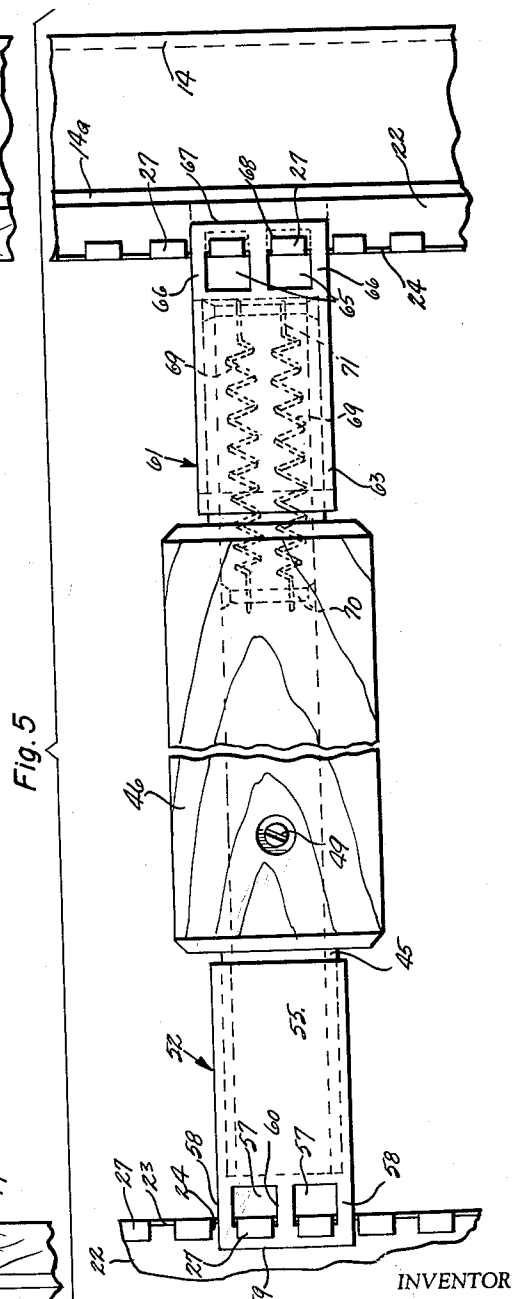


Fig. 5

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MERCHANDISE LOADER FOR RAILWAY FREIGHT CARS

Original Filed Sept. 13, 1956 4 Sheets-Sheet 4

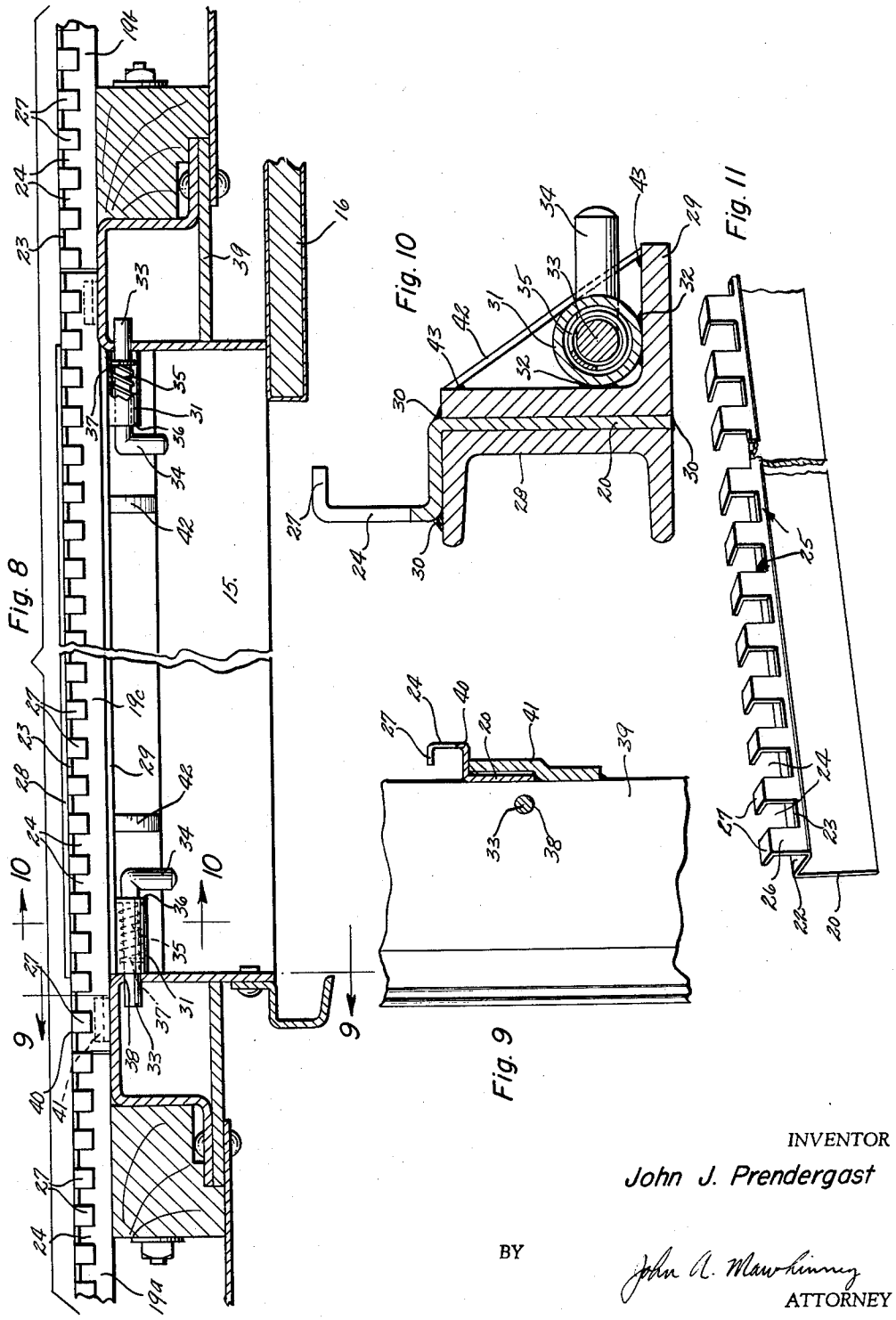


Fig. 8

Fig. 10

Fig. 11

Fig. 9

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United States Patent Office 3,082,707 Patented Mar. 26, 1963

3,082,707
MERCHANDISE LOADER FOR RAILWAY FREIGHT CARS

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Continuation of application Ser. No. 609,601, Sept. 13, 1956. This application Mar. 4, 1959, Ser. No. 797,154
9 Claims. (Cl. 105—369)

The present invention relates to a merchandise loader for railway freight cars and the like and has for an object the provision of a device of this kind which will hold the lading or the goods being transported in position against shifting and resultant damage to the car and the goods.

Another object of the present invention is to provide a device of this character in which a plurality of brace members or crossbracers can be selectively positioned crosswise of the car at various locations to engage the lading regardless of its size and shape so that the car will not be restricted to any special type of lading.

A further object of the present invention is to provide a merchandise loader in which the belt rails are recessed in the car lining so that when the brace members are not being used the belt rails will not damage the lading and the car can be used in the conventional manner, thus eliminating the necessity for empty hauls of the cars as is necessary with other types of loaders.

The present invention aims to provide a device of this type which eliminates blocking of the lading in the car and provides a means of quickly and easily securing the merchandise in place with resultant reduction of cost to the shipper.

The present invention also aims to provide a merchandise loader which has a low initial cost and a low maintenance cost.

The present invention contemplates the provision of a device of this kind which is designed for application to railway cars, motor transport trailers and the like already in service and during construction.

The present invention also contemplates the provision of a merchandise loader in which the crossbrace members can be quickly and easily located and at the same time are securely locked against accidental displacement.

With the foregoing and other objects in view, the invention will be hereinafter more fully described and more particularly pointed out in the appended claims.

In the drawings in which the same parts are denoted by the same reference numerals throughout the several views,

FIGURE 1 is a side elevational view of a railway freight car with a merchandise loader constructed in accordance with the present invention applied thereto and with parts broken away,

FIGURE 2 is a top plan view of the same with parts broken away,

FIGURE 3 is a sectional view on the line 3—3 of FIGURE 1,

FIGURE 4 is a sectional view on an enlarged scale on the line 4—4 of FIGURE 2,

FIGURE 5 is a sectional view on the line 5—5 of FIGURE 4,

FIGURE 6 is a sectional view on the line 6—6 of FIGURE 4,

FIGURE 7 is a sectional view on the line 7—7 of FIGURE 4,

FIGURE 8 is a sectional view on the line 8—8 of FIGURE 1 on an enlarged scale,

FIGURE 9 is a sectional view on the line 9—9 of FIGURE 8,

FIGURE 10 is a sectional view on the line 10—10 of FIGURE 8, and

FIGURE 11 is a fragmentary perspective view of one of the belt rails.

Referring more particularly to the drawings, 9 generally indicates a conventional railway freight car having supporting wheels 10, a top 11, floor 12, ends 13, sides or side walls 14, doorway 15 and door 16. The interior surface of the sides 14 are covered with lining 17 of the conventional type used for this purpose and which is secured to side posts 14*a*. Longitudinally extending portions of the lining 17 are cut away at vertically spaced apart points to form recesses 18 therein which extend substantially the full length of the car. The recesses 18 on one side of the car are in horizontal alignment with the recesses on the other side of the car.

A belt member or belt rail generally indicated at 19 is received by each recess 18 and each rail extends the full length of its recess 18. Each rail 19 has an attaching flange 20 which is secured to the side posts 14*a* as by welding 21 or the like. In order to affix the flange 20 in place, the portion of the lining immediately below each recess 18 may be removed and then replaced after the flange has been secured in place. From its attaching flange 20 each rail 19 has an inwardly extending horizontal flange 22 at substantially right angles to the flange 20 and which terminates substantially flush with the exposed face of the lining 17 and has overlying engagement with the upper edge of the lining which forms the bottom of the recess 18 to protect the same from damage by the lading.

The free end portion of the flange 22 is bent upwardly at substantially right angles to the flange 22 to form a vertical flange 23 which lies substantially flush with the exposed face of the lining 17. The vertical flange 23 is cut away horizontally spaced apart points as indicated at 24 to form a series of keepers generally indicated at 25 in FIGURE 11 of the drawings.

Each keeper comprises a wall 26 extending upwardly from the vertical flange 23 and having its upper free end portion bent towards the side wall 14 to form an overhanging lip 27.

In order for the belt members to extend across the doorway 15 when the door 16 is in its closed or open position, the belt members which extend across the doorway are made in three rail sections 19*a*, 19*b* and 19*c*, as illustrated in FIGURES 8, 9 and 10 of the drawings. The sections 19*a* and 19*b* are secured to the side posts 14*a* on each side of the doorway 15.

The flange 20 of the section 19*c* which may be termed a doorway bar is secured to and between a channel member 28 and an angle iron member 29 by welding 30 or the like. A barrel 31 is secured by welding 32 or the like to the member 29 adjacent each end thereof and a latch bolt 33 is slidably mounted in each barrel. The shank of the bolt is longer than the barrel and extends beyond both ends thereof. On one extended end of the bolt 33 is formed a handle 34. The bolt is normally held in its projected latching position by a coil spring 35 which encircles that part of the shank of the latch bolt housed by the barrel.

One end of the spring abuts the closed end 36 of the barrel adjacent the handle 34 and the other end of the spring abuts a collar 37 fixed to the bolt 33. The projected end of each bolt is received by an opening 38 formed in each of door posts 39. The rail section or doorway bar 19*c* has a portion 40 extending beyond the opposite edges of the members 28 and 29 which engage behind door rail brackets 41 carried by each door post 39. Stops 42 are secured to the member 29 by welding 43 or the like for limiting the unlatching movement of the bolts 33. The doorway bars 19*c* can be

removed by raising them up until the portions 40 thereof are clear of the rail brackets 41.

For the purpose of engaging and bracing the lading or material being transported in the freight car 10, a plurality of brace members or crossbraces generally indicated at 44 are provided. Each brace member comprises a tubing 45 which may be of any desired shape but is shown to be substantially square in cross section and is of a length slightly less than the inside width of the car. The intermediate portion of this tubing 45 is covered by a top covering 46 and a bottom covering 47 which may be made of wood or other suitable material so as not to damage the merchandise being held in place by the brace members.

Each covering is of substantially U-shape in cross section and is milled out to fit over the tubing 45 so that the free ends of the legs of each covering terminate short of one another to provide spaces 48. The coverings 46 and 47 are secured to the tubing 45 by bolts 49 and nuts 50. The bolts extend through suitable aligned openings in the coverings and tubing and the heads of the bolts and the nuts are received by countersinks 51 formed in the coverings so that the bolts and nuts cannot damage the lading.

A fixed or stationary latch assembly generally indicated at 52 is mounted on one exposed end portion of the tubing 45 and comprises a tubular section 53 of the same shape as the tubing 52 over which it fits and is secured thereto by welding 54, or the like. A latch plate 55 is secured by welding 56 or the like to the top of the section 53 and is U-shaped in cross section. The latch plate extends outwardly beyond the free end of the tubing 45 and the section 53. The extended end portion of the latch plate has formed therein a pair of openings 57 defined by side walls 58, end wall 59 and medial wall 60. While the tubular section and the latch plate are shown to be welded together, it is to be understood that they can be formed in one piece by drop forging or casting or in any other appropriate manner.

A movable or slidable latch assembly generally indicated at 61 is mounted on the opposite exposed end portion of the tubing 45 and comprises a tubular sleeve or latch slide 62 of the same shape as the tubing 45 mounted for sliding movement on the tubing. A latch plate 63 is secured by welding 64 or the like to the top of the sleeve 62. The latch plate 63 is similar in structure to the latch plate 55 and has the openings 65 defined by side walls 66, end wall 67 and medial wall 68. It is to be understood that the latch plate 63 and the sleeve 62 can be formed in one piece by drop forging or casting or in any other appropriate manner.

A pair of coil tension springs 69 are housed within the tubing 45 and each has one attached to an anchor pin 70 carried by the tubing 45 and extending through suitably aligned holes formed in the sides thereof within the confines of the spaces 48. The opposite end of each spring 69 is secured to an anchor pin 71 carried by the sleeve 62 and extending through suitably aligned holes therein.

In the use of the device as many belt rails 19 as is desired can be secured to the side walls 14 of the car 9 in desired vertically spaced apart relation. As many of the brace members 44 as desired, depending upon the size and shape of the merchandise being loaded into the car, can be used. These brace members will be located vertically and/or horizontally spaced apart by engaging the openings 57 in the fixed latch plate over the selected keepers 25 of the selected belt rails 19.

The movable latch assembly of each brace member will then be engaged with the corresponding keepers of the corresponding belt rail by engaging the openings 65 of the latch plate 63 over the selected keepers 25. The overall length of each brace member is such that in order to engage the movable latch plate 63 with the keepers 25 of its belt rail when the fixed latch plate 55 is in engagement with its keepers, it is necessary to slide the assembly 61 outwardly on the tubing 45 against the contracting forces of the springs 69 to engage the openings 65 of the latch plate 63 over its keepers. When this has been accomplished and the outwardly sliding pressure removed from the movable latch assembly, the springs 69 will contract and, due to the built up tension in the springs, the movable latch assembly will be contracted or moved inwardly so that the inner face of the end wall 67 will abut the adjacent faces of the flange 26 of the keepers 25.

At this time the end wall 67 will lie beneath the overhanging lip 27 and prevent the escape of the latch plate 63 from its keepers 25 in an upwardly direction. The side walls 66 and the medial wall 68 will lie in the spaces 24 and prevent lateral movement of the brace member by engaging the side edges of the flanges 26. In the same manner the fixed latch assembly will be held in engagement with its keepers 25.

This application is a continuation of applicant's copending application, Serial No. 609,601, filed September 13, 1956.

It is obvious that various changes and modifications may be made in the details of construction and design of the above specifically described embodiment of this invention without departing from the spirit thereof, such changes and modifications being restricted only by the scope of the following claims.

What is claimed is:

1. In a freight bracing system having a pair of spaced and substantially parallel walls, opposed support members mounted on said walls, and a cross brace extending between said walls and connected to and supported on said support members, at least one of said support members having a plurality of longitudinally and closely spaced keepers extending in generally spaced parallel relation to the one of said walls upon which said one of said support members is mounted and having a free end, and a lip disposed at the free end of each of said keepers and extending generally perpendicular thereto and in a direction away from the other of said walls, said cross-brace having a bar body and an end fitting mounted on one end thereof for movement longitudinally thereof including a fixed rigid latch portion extending, when said cross brace is connected to said support members, between an adjacent pair of said keepers and between one of said pair of keepers and the adjacent wall and engaging said one of said pair of keepers to limit movement of said end fitting at right angles to said keeper and in a direction away from said adjacent wall and co-operating with said lip of said one of said pair of keepers to limit movement of said fitting along said keeper toward said free end, spring means engaging said end fitting and said bar body to urge said end fitting toward the center of said bar body.

2. In a freight bracing system having a pair of spaced and substantially parallel walls, opposed support members mounted on said walls and a cross brace extending between said walls and connected to and supported on said support mmebers, one of said support members having a keeper extending generally parallel to the one of said walls upon which said one of said support members is mounted and having a free end, and a lip at the free end of said keeper and extending generally perpendicular thereto and in a direction away from the other of said walls, said cross brace having an end fitting on one end thereof including a stationary rigid latch member having an aperture therethrough extending at right angles to the length of the cross brace and having a closed periphery, said aperture being of a size to and receiving said lip and said keeper therethrough when said cross brace is connected to said supporting members, said latch member having a portion at one side of said aperture disposed, in one position of said end fitting, to engage said lip to limit movement of said end fitting in one direction

along said keeper, and means on said cross brace engaging said fitting and yieldably holding said end fitting in said one position when said cross brace is connected to said support members.

3. In a freight bracing system having a pair of spaced and substantially parallel walls, opposed support members mounted on said walls and including a plurality of longitudinally spaced keepers each of which extends parallel to the wall upon which it is mounted and has a laterally extending lip at its outer end extending generally at right angles to such wall, an elongated cross brace for extending between said walls and connected to said support members, said cross brace including a latch plate at each end thereof, each latch plate extending longitudinally of said cross brace and having an aperture opening transversely of said cross brace to selectively receive said keepers therethrough, each of said latch plates having a portion at one side of said aperture aligned, in one position of the latch plate, with said lip to engage said lip to limit movement of said latch plate relative to said keeper in a direction to withdraw said keeper from said aperture, and means on said cross brace engaging said latch plates and yieldably holding each of said latch plates in such alignment with one of said lips when said cross brace is connected to said support members.

4. In an apparatus for bracing freight in a freight car or the like having a pair of spaced and substantially parallel side walls, spaced opposed belt rails secured to and extending longitudinally of said side walls, at least one of said belt rails having a plurality of keeper projections extending transversely of and spaced longitudinally of said belt rail and each including a main portion extending with a vertical component and a lip portion extending laterally from the upper end of said main portion with a component away from the side wall opposite the one upon which said one of said belt rails is mounted, a cross member extending between and connected to said belt rails, an end fitting mounted on one end of said cross member and connected to said one of said belt rails, said fitting comprising a first portion disposed between adjacent keeper projections for engaging the main portions thereof to limit movement of said fitting longitudinally of said one of said belt rails, a second portion extending laterally of said first portion and disposed behind said main portion of said keeper for engaging said main portion to prevent said end fitting from pulling away from the wall and for engaging said lip portion to limit movement of said end fitting upwardly along said keeper, and means on said cross member yieldably holding said end fitting with said second portion thereof so disposed when said cross member is connected to said belt rails.

5. A merchandise loader for a railway car or the like having a pair of spaced and substantially parallel walls, said loader comprising opposed supporting belt members attached to said spaced walls, said belt members having a plurality of keepers spaced longitudinally thereof and extending upwardly therefrom and each having a lip extending laterally therefrom in a direction away from the wall opposite the one to which it is attached, a cross brace extending between said walls and connected to and supported on said belt members, said cross brace having an end fitting at each end thereof including a stationary rigid latch member having an aperture therethrough extending at right angles to the length of said cross brace and having a closed periphery, said aperture receiving said lip and said keeper therethrough when said cross brace is connected to said belt members, each said latch member having a portion at the side of said aperture remote from the opposite end of said crossbar disposed to engage said lip to limit movement of its said end fitting in one direction along said keeper, and spring means connected between said cross brace and one of said end fittings to urge said one of said end fittings toward the other of said end fittings to hold said portions of each of said latch members so disposed.

6. In a freight bracing system having a pair of spaced and substantially parallel walls, opposed supporting members mounted thereon and having attaching means spaced therealong, a cross brace extending between said walls and having an end fitting having co-operating attaching means engaging said first named attaching means to attach said cross brace to said supporting members, said first named attaching means and said co-operating attaching means co-operating to provide a lost motion connection between said end fitting and one of said supporting members in a direction longitudinally of said cross brace and providing for movement of said end fitting relative to said one of said supporting members between a first position in which said end fitting may be detached from said one of said supporting members and a second position spaced from said first position in a direction generally at right angles to the adjacent of said side walls and toward the other of said side walls, said first named attaching means and said cooperating attaching means including means positively preventing detachment of said end fitting from said one of said supporting members when it is in said second position and positively holding said end fitting against movement along said one of said support members or at right angles thereto in a direction away from the adjacent wall, and means on said cross brace engaging said end fitting and yieldably holding said end fitting in said second position when said cross brace is attached to said supporting members.

7. In a freight bracing system having a pair of spaced and substantially parallel walls, opposed support members mounted on said walls and having attaching means spaced therealong, a cross brace extending between said walls and connected to and supported on said support members, said cross brace including an elongated body and an end fitting mounted on each end thereof, each end fitting having co-operating attaching means selectively engaged with said first named attaching means to hold said end fittings attached to said support members to prevent movement of said end fittings therealong and positively prevent movement at right angles thereto in a direction away from the adjacent wall, said co-operating attaching means being held so engaged so long as said co-operating attaching means exerts a pull on the selected attaching means with which it is engaged, one of said end fittings being mounted for movement relative to said body longitudinally thereof and spring means engaging said body and said one of said end fittings and effective when said cross brace is connected to said support members to exert a pull on the attaching means with which the co-operating attaching means of the cross brace are engaged.

8. A cross brace for bracing freight comprising an elongated metal tube, a covering adapted for engaging freight secured to said tube and covering at least a part of the central portion of said tube, said tube having end portions extending beyond said covering, a latch assembly mounted on each end portion of said tube for connecting said cross brace to a suitable co-operating support and adapted to be maintained connected thereto while said cross brace exerts a pull on said supports, one of said latch assemblies including a slide telescopically fitted over one of said end portions to mount said one of said latch assemblies on said one of said end portions for sliding movement relative thereto, and means connecting said slide to said tube and yieldably urging said slide toward said covering to exert a pull on said supports when said cross brace is connected thereto.

9. In a freight bracing system having a pair of spaced and substantially parallel walls, opposed support members mounted on said walls and a cross brace extending between said walls connected to and supported on said support members, one of said support members having a plurality of stationary and rigid attaching means spaced longitudinally thereof, said cross brace having an end fitting at one end thereof having stationary and rigid latch means thereto engaging said attaching means to connect

said end fitting to said one of said support members for movement relative thereto to and from a first position, said attaching means and said latch means including co-operating means preventing disconnection of said end fitting from said one of said support members when it is in said first position, said attaching means and said latch means being so constructed and arranged that said end fitting may be connected to and disconnected from said one of said support members upon bodily movement of said end fitting in translation relative to said one of said support members both parallel to the length of said cross brace to and from said first position and in a direction downwardly at right angles thereto, and means on said

cross brace engaging said end fitting and yieldably opposing such bodily movement from said first position in said one direction when the cross brace is attached to said support members.

References Cited in the file of this patent

UNITED STATES PATENTS

1,450,539	Bishop	Apr. 3, 1923
1,637,748	Harmon	Aug. 2, 1927
1,840,927	Woodruff	Jan. 12, 1932
2,262,085	Allen	Nov. 11, 1941
2,659,319	Hermann	Nov. 17, 1953
2,769,404	Dietrichson	Nov. 6, 1956