

Jan. 1, 1963

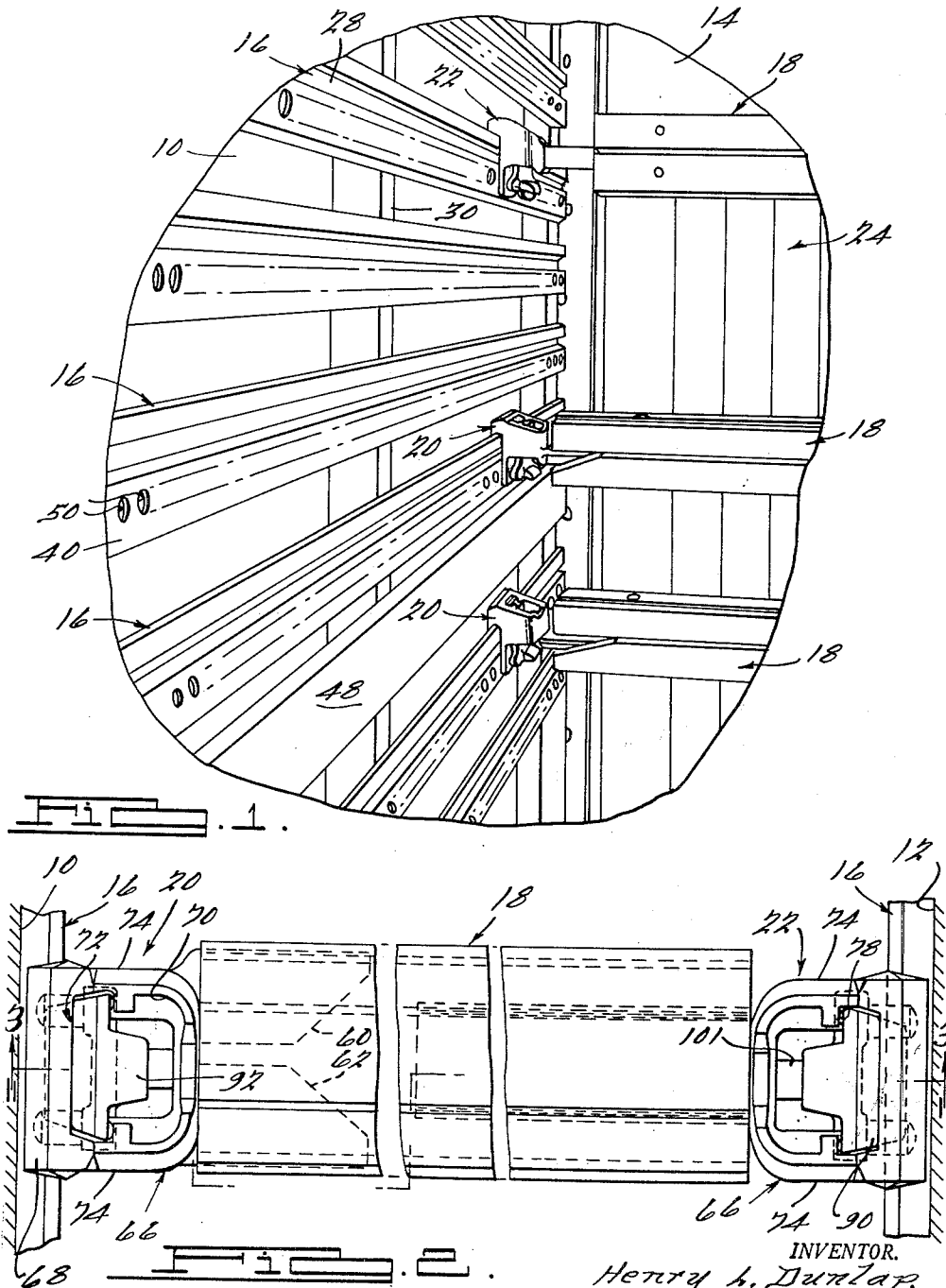
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3,071,086

FREIGHT BRACING APPARATUS

Filed Aug. 26, 1959

4 Sheets-Sheet 1



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Jan. 1, 1963

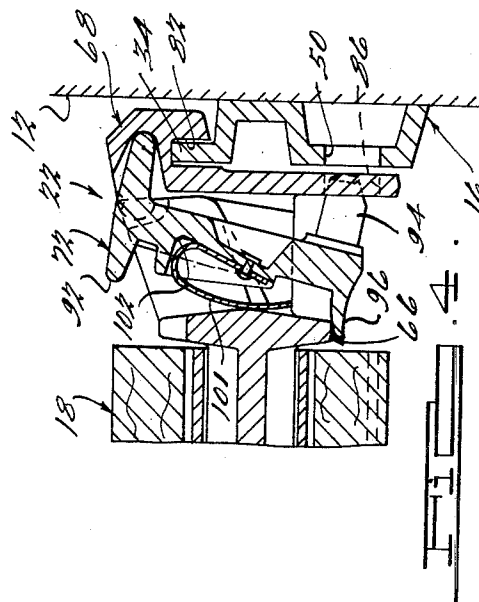
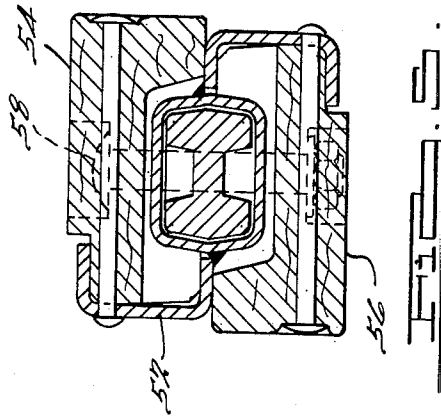
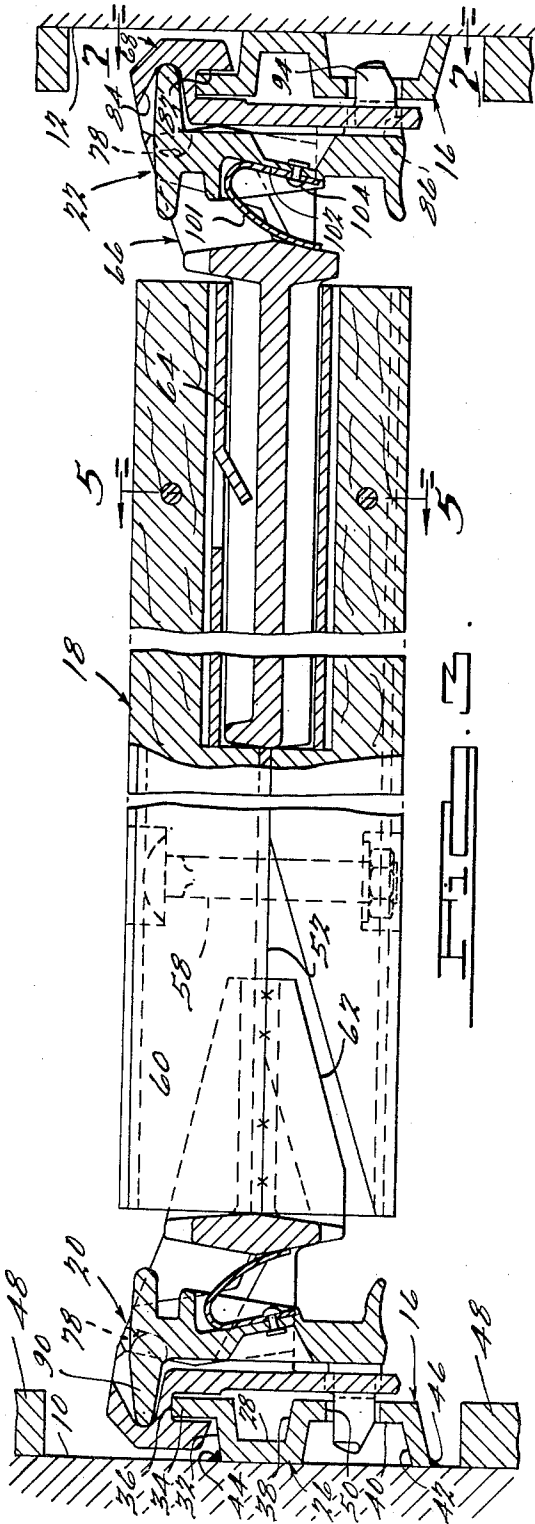
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FREIGHT BRACING APPARATUS

Filed Aug. 26, 1959

4 Sheets-Sheet 2



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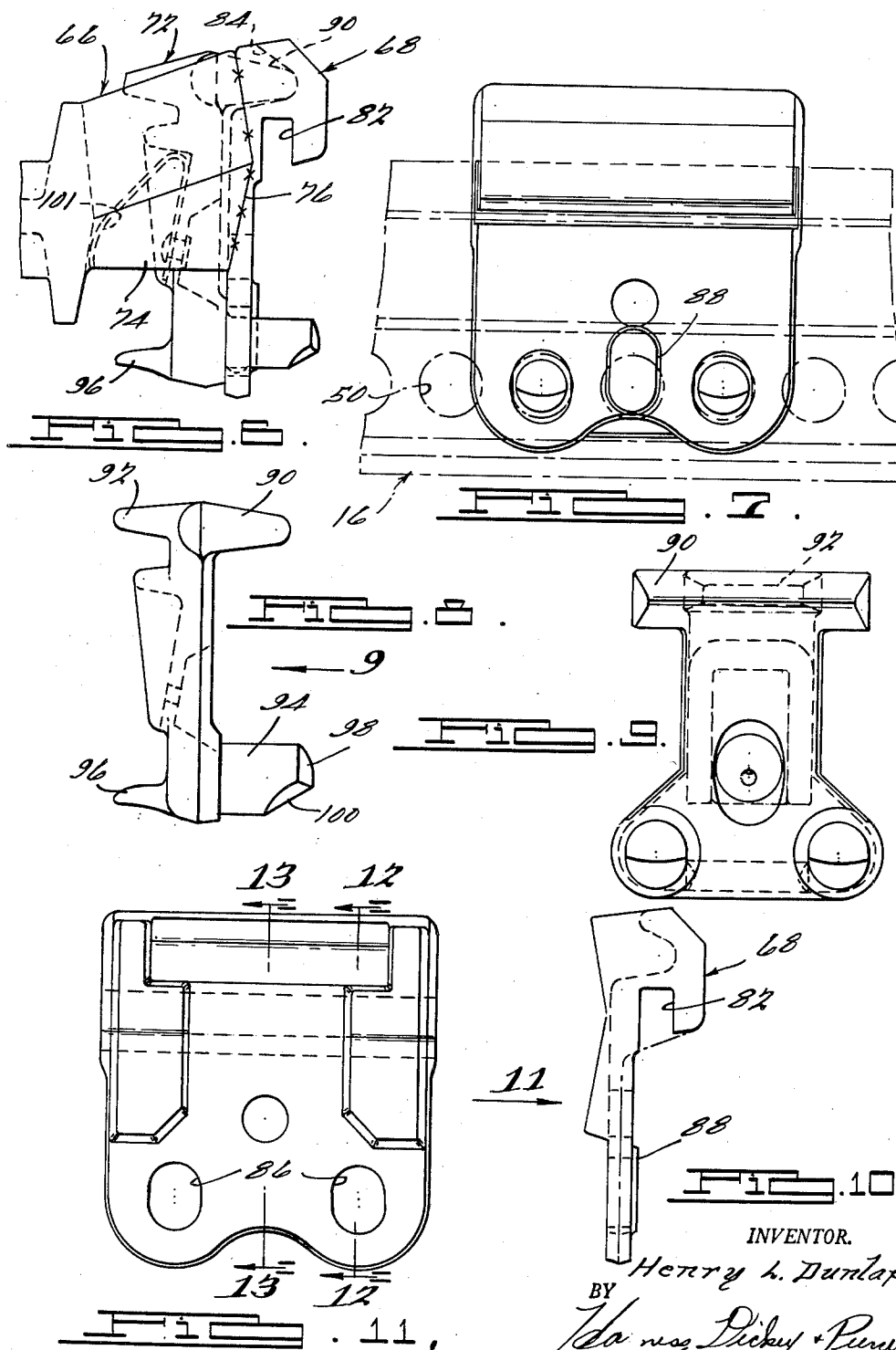
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FREIGHT BRACING APPARATUS

Filed Aug. 26, 1959

4 Sheets-Sheet 3



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FREIGHT BRACING APPARATUS

Filed Aug. 26, 1959

4 Sheets-Sheet 4

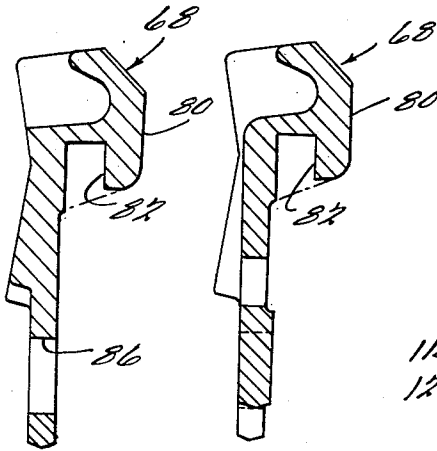


FIG. 12. FIG. 13.

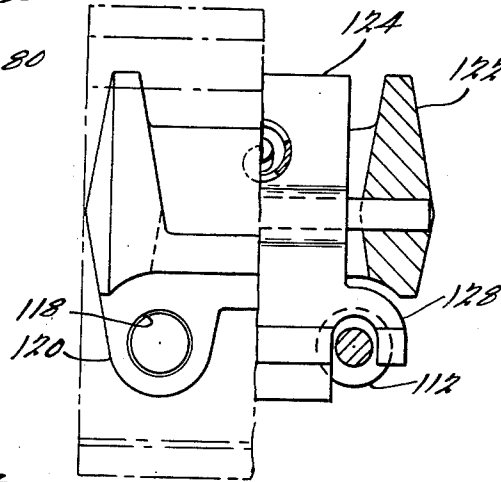


FIG. 15.

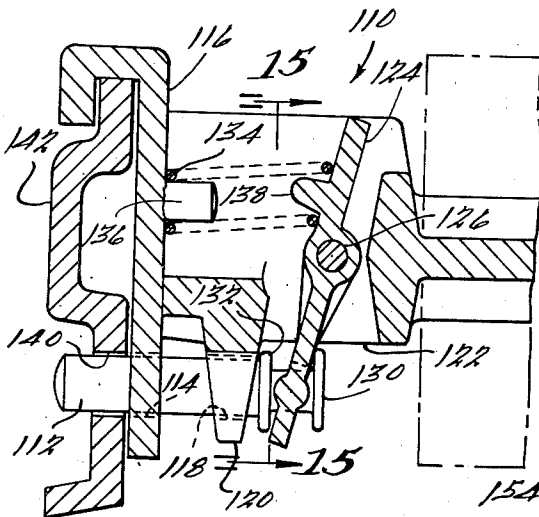


FIG. 14.

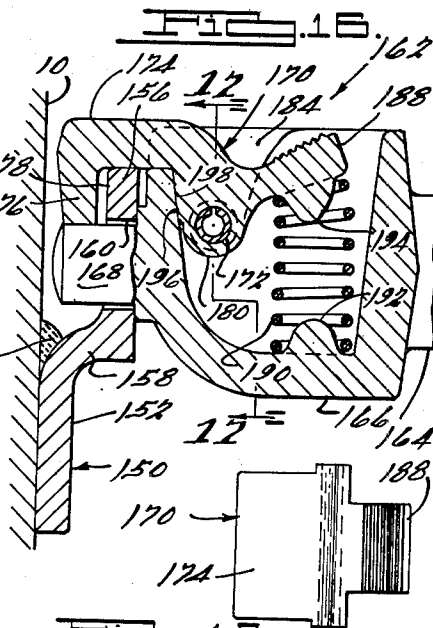


FIG. 18.

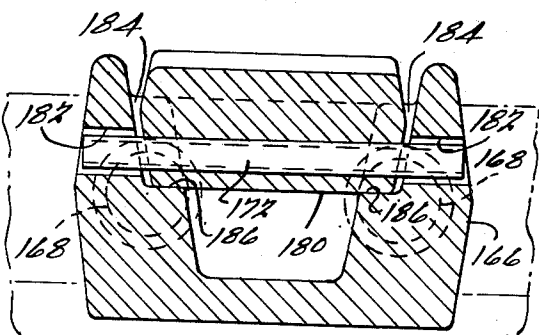


FIG. 17.

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3,071,086

FREIGHT BRACING APPARATUS

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Filed Aug. 26, 1959, Ser. No. 836,168

11 Claims. (Cl. 105—369)

The present invention relates to freight bracing apparatus and more particularly to apparatus for use in railway boxcars and of the type including a plurality of belt rails mounted on opposite sides of the cars and extending generally longitudinally thereof, and crossbars extending transversely of the boxcar and connected at its opposite ends to the belt rails.

More particularly, the present application relates to an improved belt rail construction and improved co-operating end fittings for mounting on the opposite ends of the crossbars for attaching the crossbars to the belt rails.

It is an object of the present invention to provide improved freight bracing apparatus of the above mentioned type which is simple in design, durable in construction, and reliable and efficient in operation.

It is a further object of the present invention to provide an improved freight bracing apparatus of the above mentioned type which leaves a maximum boxcar width available for freight storage.

More specifically, it is an object of the present invention to provide an improved freight bracing apparatus of the type in which the belt rail has a minimum extension into the boxcar, thus providing a minimum interference with full use of the boxcar width.

It is also an object of the present invention to provide an improved freight bracing apparatus in which the end fitting has no loose parts which may become detached from the end fitting and become loose, and thus render the crossbar useless.

Another object of the present invention is to provide an improved freight bracing apparatus of the type in which the crossbar end fitting includes a latch movably mounted in the end fitting body portion and including an improved construction for transferring lateral loads from the latch to the end fitting body.

Other and more detailed objects of the present invention will be appreciated from a consideration of the following specification, the appended claims and the accompanying drawings wherein:

FIGURE 1 is a broken perspective view of a portion of the interior of a boxcar equipped with freight bracing apparatus constructed according to the present invention;

FIGURE 2 is a broken plan view of a crossbar constructed according to the present invention extending transversely of a freight car and secured at its opposite ends to belt rails mounted on the freight car side walls which are diagrammatically represented;

FIGURE 3 is a sectional view of the structure illustrated in FIGURE 2, taken substantially along the line 3—3 thereof;

FIGURE 4 is a broken sectional view similar to the right-hand end portion of FIGURE 3, showing the latch in its retracted position;

FIGURE 5 is a transverse sectional view of the structure illustrated in FIGURE 3, taken substantially along the line 5—5 thereof;

FIGURE 6 is a broken side elevational view of the end fitting illustrated at the right-hand end of FIGURE 3;

FIGURE 7 is an end view of the end fitting illustrated at the right-hand end of FIGURE 3, taken along the line 7—7 thereof and showing a portion of the co-operating belt rail in broken lines;

FIGURE 8 is a side elevational view of the latch of the end fitting illustrated in FIGURES 1 to 7, inclusive;

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FIGURE 9 is an elevational view of the latch illustrated in FIGURE 8 looking in the direction of the arrow 9;

FIGURE 10 is an elevational view of the end plate of the end fitting illustrated in FIGURES 1 to 7, inclusive;

FIGURE 11 is an elevational view of the end plate illustrated in FIGURE 10 looking in the direction of the arrow 11;

FIGURES 12 and 13 are sectional views of the end plate illustrated in FIGURE 11, taken substantially along the lines 12—12 and 13—13 thereof;

FIGURE 14 is a broken sectional view showing a freight bracing apparatus constructed according to a modified embodiment of my invention;

FIGURE 15 is a view partly in elevation and partly in section of the construction illustrated in FIGURE 14, taken substantially along the line 15—15 thereof;

FIGURE 16 is a sectional view of another embodiment of my present freight bracing apparatus;

FIGURE 17 is a sectional view of the structure illustrated in FIGURE 16, taken substantially along the line 17—17 thereof; and

FIGURE 18 is a plan view of the latch illustrated in FIGURES 16 and 17.

While it will be readily appreciated by those skilled in the art, that the improvements of the present invention may be readily incorporated in freight bracing apparatus of widely differing types and sizes having numerous applications, the improvements of the present invention are herein illustrated and described as embodied in apparatus for supporting and bracing a wide variety of general merchandise in railroad boxcars.

Referring to the drawings, and more particularly to freight bracing apparatus illustrated in FIGURES 1 through 13 thereof, the freight bracing apparatus of the present invention is there illustrated as mounted in a railway boxcar having opposite side walls 10 and 12 and end walls 14. The side walls 10 and 12 have secured thereto a plurality of belt rails 16. In the preferred embodiment illustrated these belt rails 16 are disposed in vertically spaced parallel relation and are disposed horizontally. The belt rails 16 on the opposite side walls 10 and 12 are disposed at corresponding levels so that crossbars supported thereon will be disposed horizontally.

These belt rails support a plurality of crossbars generally indicated at 18 extending transversely of the boxcar between the side walls 10 and 12 and which are supported on and secured to the belt rails 16 by end fittings 20 and 22. In accordance with previously known practice, the end fitting 20 is secured to the crossbar 18 in fixed relation thereto and the end fitting 22 is telescopically mounted for movement longitudinally of the crossbar 18. In the particular use illustrated in FIGURE 1, the crossbars 18 are employed to support a transversely extending bulkhead or gate 24.

The belt rails 16 are of a cross section best illustrated in FIGURES 3 and 4 and may be suitably formed in a rolling process. These belt rails include a channel-shaped attaching portion 26 having a vertically extending web portion 28 adapted to engage and be secured to the vertically extending frame members 30 of the boxcar. The upper leg 32 of the channel portion 26 terminates in an upwardly turned supporting flange 34 which extends parallel to the side wall of the car spaced inwardly therefrom. The upper edge 36 of the supporting flange 34 provides a horizontal surface extending longitudinally of the freight car which supports the end fittings 20 and 22 for sliding movement therealong, as hereinafter described. The lower leg 38 of the belt rail channel portion 26 is downwardly and outwardly turned to provide a vertically extending portion 40 which, in the preferred embodiment illustrated,

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is vertically aligned with the supporting flange 34 and to provide a leg portion 42 for engaging the wall 10 to support the lower end of the portion 40. The belt rail 16 may be secured to the side wall in any suitable manner. If desired, the belt rail may be removably secured by bolts or screws extending through the web 28 of the channel portion 26.

In the preferred embodiment the belt rails are secured in place by welding, welds 44 and 46 being indicated, respectively, at the upper side of the channel portion 26 and at the bottom side of the leg 42. The number of belt rails 16 spaced vertically of the boxcar side walls may be varied as desired, depending upon the intended use of the boxcar and where the vertical spacing between the belt rails is sufficient, buffer boards 48 may be secured to the side walls between the belt rails, or, where the belt rails are closely spaced, the buffer boards therebetween may be eliminated.

It will be appreciated that the supporting flange 34 and the belt rail portions 40 define substantially flat surfaces facing the interior of the car which substantially eliminate the likelihood of damage to the freight by engagement with the belt rail. The vertically extending portion 40 of each belt rail 16 is provided with a plurality of longitudinally spaced apertures 50 extending therethrough for receiving co-operating portions of end fittings 20 and 22 as hereinafter described for locking the end fittings in desired positions of adjustment longitudinally of the belt rail.

The crossbar 18, except for the end fittings, may be of any suitable construction and in the preferred embodiment illustrated is of the general construction illustrated and described in my prior United States Patent No. 2,887,963 and includes a generally Z-shaped reinforcing metal member 52 (best illustrated in FIGURE 5) and a pair of wood members 54 and 56 secured to opposite sides thereof by through bolts 58. The end fittings 20 and 22 differ from each other only in their structure for connection to the body of the crossbar 18. The fixed end fitting 20 may be connected to the body of the bar 18 in any suitable way and in the preferred embodiment illustrated, has spaced attaching legs 60 and 62 which are similar in construction to and are secured to the Z-shaped reinforcing member 52 of the crossbar 18 in the same manner as are the legs of the fixed end fitting illustrated and described in my above mentioned Patent No. 2,887,963. In the present construction each of the legs 60 and 62 is welded to the member 52. The end fitting 22, in the preferred embodiment illustrated, has a shank portion 64 which is telescopically connected to one end of the crossbar 18 in the same manner and by the same construction as the telescoping end fitting illustrated and described in United States Patent No. 2,837,039 issued to the assignee of the present application on an invention of G. M. Schueder.

Referring now to the portions of the end fittings 20 and 22 which, as viewed in FIGURE 3, are disposed externally of the body portion of the crossbar 18, it will be seen that the end fittings are of the same construction and accordingly, like reference characters are employed for each. This outer portion of the end fittings 20 and 22 comprises a generally U-shaped body 66 which is integrally connected with the attaching legs 60 and 62 in the case of the end fitting 20 and which is integrally formed with the shank 64 in the case of the end fitting 22. An end plate 68 is welded across the outer end of the U-shaped body 66 and co-operates therewith to define a vertically extending opening 70 in which is mounted the latch 72. The U-shaped body portion 66 has two spaced arms 74 which extend generally longitudinally of the crossbar 18 in spaced parallel relation, as best illustrated in FIGURE 2. The end plate 68 extends across the outer ends of the arms 74 and is welded thereto along the line indicated at 76 in FIGURE 6.

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Each of the arms 74 at its outer end and at the upper and inner portion thereof has a recess 78, see FIGURES 2 and 3, which co-operates as hereinafter described in retaining the latch 72. The end plate 68, which is best illustrated in FIGURES 10 to 13, inclusive, has a generally hook-shaped upper end portion 80 which has a downwardly opening slot 82 machined therein and extending transversely of the end fitting for fitting over the supporting flange 34 of the belt rail 16, as clearly illustrated in FIGURES 3 and 4. Above the downwardly opening slot 82 and at the side of the plate facing the body portion 66, the end plate 68 has a recess 84 which extends transversely of the end fitting and the opposite ends of which communicate with the recesses 78 formed in the upper inner portion of the arms 74 of the body 66.

The end plate 68 extends downwardly from its hook-shaped upper end portion 80 along the belt rail 16 and includes a lower end portion which, when the slot 82 is fitted over the supporting flange 34 of the belt rail, faces the vertical belt rail portion 40 in which the spaced apertures 50 are formed. This lower plate portion has a pair of spaced apertures 86 which are best illustrated in FIGURE 11 and which are spaced to be aligned with certain of the apertures 50 in the belt rail. In the preferred embodiment illustrated the spacing between the apertures 86 is double the spacing between the apertures 50 in the belt rail. Intermediate the apertures 86 the lower portion of the end plate 68 has a boss 88 adapted to engage the belt rail portion 40 when the end plate is disposed with the belt rail supporting flange 34 received in the end plate slot 82. It will be noted that, as best illustrated in FIGURES 7 and 10, the boss 88 is of oval shape and extends above the elevation of the holes 50 in the belt rail so that it cannot move into these apertures 50.

The latch 72 is disposed within the opening 70 defined by the U-shaped body portion and the end plate 68. The latch includes an upper supporting portion or mounting pad 90 which is received in the recess 84 extending transversely of the end plate and has its opposite end portions received in the recesses 78 formed in the adjacent upper end portion of the arms 74 of the body 66. From a complete understanding of the construction illustrated and described herein, it will be appreciated that the latch 72 must be in place within the latch opening 70 and with the latch mounting pad 90 received in the end plate recess 84 and in the body arm recesses 78 before the end plate 68 is welded to the outer ends of the arms 74. The weld symbols indicated in FIGURE 6 are intended to indicate a continuous weld along the line 76. At its upper end the latch 72 also includes a centrally disposed handle portion 92 integral with the mounting pad 90 and extending in a direction away from the end plate 68 and movable between the arms 74 of the body portion. The latch 72 extends downwardly between the body arms 74 and carries a pair of spaced parallel pins 94 which extend into the apertures 86 in the lower portion of the end plate 68.

It will be noted that the mounting pad 90 and the recess 84 are formed to permit swinging of the lower end of the latch 72 about the engagement of the mounting pad 90 with the end plate 68 to move the pins 94 between the engaged position illustrated in FIGURE 3, in which the pins 94 extend through the apertures 86 in the end plate 68 and through the apertures 50 in the belt rail, and the retracted position illustrated in FIGURE 4 in which the pins 94 are withdrawn from the apertures 50 of the belt rail. For this purpose the mounting pad 90 is tapered as best illustrated in FIGURES 6, 8 and 9 and the walls of the recess 84 taper at a substantially larger angle, as best illustrated in FIGURE 6. The lower end of the latch 72 includes a projection 96 extending in the opposite direction from the pins 94 and adapted to be engaged by the operator for effecting movement of the latch between the engaged and retracted positions. It is a feature of the

present invention that the projection 96 engages the body portion 66, as illustrated in FIGURE 4, to limit movement of the latch in a direction to withdraw the pins 94 from the end plate apertures 86. It will thus be appreciated that during assembly, when the latch 72 is put in place preparatory to welding of the end plate 68 to the body 66, the pins 94 of the latch project into the apertures 86 of the end plate 68. Once the end plate 86 has been welded in place, along the line 76 of FIGURE 6, it is impossible for the latch to fall from the opening 70 defined by the body and the end plate, both because the upper end of the latch cannot be removed from the recesses 84 and 78 and because the pins 94 cannot be withdrawn from the end plate apertures 86. It will be noted that the outer ends of the pins 94 are rounded as indicated at 98 and that the lower portion is relieved as indicated at 100 to facilitate insertion of the pins 94 into the belt rail apertures 50 and prevent interference between the pins 94 and the end plate 68.

A spring 101 is carried by the latch 72 for urging the latch toward the engaged position. This spring is generally in the shape of an inverted U and is received within a recess 102 formed in the latch at the side thereof opposite the end plate 68. One end of the spring 101 is secured to the latch by a rivet 104.

Attention is directed to the fact that the width of the latch 72, intermediate the mounting pad 90 and the lower end portion carrying the pins 94, is slightly less than the spacing between the body arms 74 and that the mounting pad 90 has a loose fit in the recesses 84 and 78 which permits sufficient lateral movement of the lower end of the latch 72 so that any loads imposed on the pins 94 by the belt rail 16 will be transferred by the pins directly to the end plate 68 at the sides of the apertures 86 in the end plate.

From the foregoing description, it will be appreciated that in using a crossbar 18, having end fittings of the construction of the present invention, the crossbar is put in place by engaging the hook-shaped upper end portions 80 of the end plate 68 over the supporting flanges 34 of the belt rails so that the end fitting at each end of the crossbar receives the supporting flange 34 in the transverse slot 82 thereof so that the end fitting is supported on the upper edge surface 36 of the support flange 34. The latches 72 may then be held in the retracted position illustrated in FIGURE 4 by engaging the projection 96, or the projection 92, if the latter is more readily accessible. With the latches held in this retracted position the bar may then be slid along the belt rails to the desired adjusted position. The latches are then released and the pins 94 permitted to be moved into the apertures 50 of the belt rail 16 under the action of the spring 101. It is noted that the point at which the mounting pad 90 engages the end plate 68 to support the latch is such that the center of gravity of the latch acts to move the latch in a direction toward or retain it in its operative or engaged position illustrated in FIGURE 3. In the preferred embodiment illustrated in FIGURES 1 to 13, inclusive, the end fittings 20 and 22 may be formed of forgings requiring a minimum of machining and affording a very rugged construction.

In the modified form of the present invention illustrated in FIGURES 14 and 15, the end fitting 110 differs from the end fitting 22 in that the pins 112 are separately formed and are slidably mounted for movement along their axes in apertures 114 provided in the end plate 116 and corresponding to the above described apertures 86, and in aligned apertures 118 provided in bosses 120 integrally formed on the end fitting body portion 122 and projecting downwardly therefrom as viewed in FIGURES 14 and 15. The pins 112 are moved between the engaged or operative position illustrated in FIGURE 14 and the retracted position by an actuator lever 124 pivotally mounted in the end fitting body 122 by pivot pin 126 extending transversely thereof, the lower end of the actuator lever 124 having spaced yoke portions 128 which engage

between spaced collar portions 130 and 132 provided on the pins 112. The actuator lever plate 124 is urged to the position illustrated in FIGURE 14, in which the pins are held in the operative or engaged position by a spring 134, one end of which fits over a spring guide projection 136 on the rear of the end plate 116 and the other end of which fits over a spring guide projection 138 formed on the actuator lever plate 124. It will now be appreciated that by engaging the upper end of the lever 124 it may be pivoted in a counterclockwise direction, as viewed in FIGURE 14, to withdraw the pins 112 from the apertures 140 in the belt rail 142. The end fitting 110 may then be readily slid along the belt rail 142 or raised to completely disengage it from the belt rail 142.

FIGURES 16 and 17 illustrate another construction embodying differences in both the belt rail and the end fitting. In this construction the belt rail 150 is generally Z-shaped and includes an attaching flange 152 which is welded to the boxcar wall 10 as indicated at 154, a vertical supporting flange 156 parallel to and offset from the attaching flange 152 and an interconnecting portion 158. The supporting flange 156 has a plurality of longitudinally spaced apertures 160 extending horizontally there-through.

The end fitting 162 includes a shank 164 similar to the shank 64. The body portion 166 of the end fitting is generally cup-shaped, having the shank 164 integrally formed therewith and disposed generally in the position of the cup handle. In opposed relation to the shank 164, the body portion 166 carries a pair of laterally spaced pins 168 which extend parallel to the shank 164 and are spaced for insertion into the belt rail apertures 160. When the end fitting is connected to the belt rail as illustrated in FIGURE 16, withdrawal of the pins 168 from the belt rail apertures 160 is prevented by a latch 170 which is pivotally connected to the body portion 166 by a pivot pin 172 extending through the latch and disposed transversely of the body portion 166 and parallel to the belt rail 150. The latch 170 has a hook portion 174 extending generally parallel to the pins 168 and adapted, when the pins are inserted through the belt rail apertures 160, as illustrated in FIGURE 16, to extend over the upper edge of the belt rail supporting flange 156 and to turn downwardly to the pins 168. The downwardly extending portion 176 of the latch is thus disposed in the space between the belt rail supporting flange 156 and the side wall 10. It will thus be appreciated that this portion 176 of the latch will prevent movement of the fitting 162 in a direction away from the belt rail, or to the right as viewed in FIGURE 16, to withdraw the pins 168 from the belt rail apertures 160, by engaging the inner face 178 of the belt rail supporting flange 156.

In the preferred embodiment illustrated, the pivot pin 172 extends through a transverse pivot boss 180 formed on the latch and is a pressed fit therein. The opposite ends of the pivot pin 172 extend outwardly of the latch pivot boss 180 and are loosely journaled in apertures 182 provided in the body portion 166. The pivot boss 180 of the latch extends into recesses 184 formed in the opposite side walls of the cup-shaped body 166. The bottoms of the recesses 184, as viewed in FIGURES 16 and 17, provide shoulders 186 which pivotally support the pivot boss 180 to permit any loads to be transferred directly from the latch pivot boss 180 to the body portion 166. The latch 170 has a handle portion 188 which is of reduced width as illustrated in FIGURE 18, which extends generally in the opposite direction from the hook portion 174 and is movable within the cup-shaped body portion 166 for pivoting the latch in a clockwise direction from the engaged position illustrated in FIGURE 16 to a disengaged position in which the hook portion is raised clear of the belt rail 150 so that the pins 168 may be withdrawn from the belt rail apertures 160. The latch 170 is yieldably held in the engaged position illustrated in FIGURE 16 by a spring 190 disposed within the body

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portion 166 and having its lower end fitted over a spring guide projection 192 formed on the body portion 166 and the upper end of which fits over a spring guide projection 194 formed on the under side of the latch handle 188.

Movement of the end fitting 162 to the right, as viewed in FIGURE 16, which is in a direction to withdraw the pins 168 from the belt rail apertures 160, is prevented, as pointed out above, by engagement of the downwardly extending portion 176 of the hook section 174 of the latch, with the surface 178 of the belt rail. This engagement tends to pivot the latch 170 in a counterclockwise direction. Such movement of the latch is positively limited by the engagement of the above mentioned surface 196 of the latch with the co-operating surface 198 forming a part of the inner wall surface of the body portion 166. Because of this engagement, this movement of the end fitting in a direction to withdraw the pins cannot impose any excessive loads on the pivot pin 172.

While only three specific embodiments of the invention have been illustrated and described herein, it will be readily appreciated by those skilled in the art that numerous modifications and changes may be made without departing from the spirit of the present invention.

What is claimed is:

1. In an apparatus for supporting and bracing general merchandise in freight cars and the like, a crossbar end fitting comprising a body member having means at one side thereof for connecting said end fitting to an associated crossbar, said body member including a yoke portion extending in opposed relation to said means and a plate portion secured across the outer end of said yoke portion and co-operating therewith to define an opening extending transversely of said body member, said plate portion including a hook section including a support surface for supporting said end fitting on an associated support member and having an anti-pullaway surface extending substantially at right angles to said support surface for engaging behind a part of said associated support member to prevent said end fitting from pulling away therefrom, said plate portion also having an aperture therethrough extending substantially parallel to said support surface and substantially at right angles to said anti-pullaway surface, a latch member disposed within said opening in said body member and having a latch pin disposed within said aperture in said plate portion, means mounting said latch member on said body member within said opening for movement to move said latch pin to and from a position in which said latch pin extends outwardly of said aperture in a direction away from said opening for engaging said support member, and means disposed in said opening for holding said latch member disposed with said latch pin in said position.

2. In an apparatus for supporting and bracing general merchandise in freight cars and the like which are provided with a support member, a crossbar end fitting comprising a body member having connecting means extending from one side thereof for connecting said end fitting to an associated crossbar, said body member having a yoke portion extending in opposed relation to said connecting means, an end plate secured across the outer end of said yoke portion and co-operating therewith to define an opening transversely of said body member, means on said plate portion for supporting said end fitting on said support member for movement therealong, said plate portion defining an aperture therethrough extending parallel to said connecting means, a latch member disposed in said opening and having a latch pin disposed in said aperture, means mounting said latch member on said body member and in said opening for movement to advance said pin through said aperture to extend outwardly thereof in a direction away from said opening for engaging said support member, and co-operating means on said body member and said latch member for preventing

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movement of said latch member relative to said body member to withdraw said pin from said aperture.

3. The combination defined in claim 2 including means mounted in said opening and holding said latch member disposed with said pin in said advanced position.

4. In an apparatus for supporting and bracing general merchandise in freight cars and the like which are provided with a support member, a crossbar end fitting comprising a body member having connecting means extending from one side thereof for connecting said end fitting to an associated crossbar, said body member having a yoke portion extending in opposed relation to said connecting means, an end plate secured across the outer end of said yoke portion and co-operating therewith to define an opening transversely of said body member, means on said plate portion for supporting said end fitting on said support member for movement therealong, said plate portion defining an aperture therethrough extending parallel to said connecting means, a latch member disposed in said opening and having a latch pin disposed in said aperture, means mounting said latch member on said body member and in said opening for movement to advance said pin through said aperture to extend outwardly thereof in a direction away from said opening for engaging said support member, said latch including a mounting pad disposed in spaced relation to said pin, said end plate and said body member co-operating to define a recess receiving said mounting pad and co-operating with said latch to prevent movement of said latch to withdraw said mounting pad from said recess.

5. In an apparatus for supporting and bracing general merchandise in freight cars and the like which are provided with a support member, a crossbar end fitting comprising a body member having connecting means extending from one side thereof for connecting said end fitting to an associated crossbar, said body member having a yoke portion extending in opposed relation to said connecting means, an end plate secured across the outer end of said yoke portion and co-operating therewith to define an opening transversely of said body member, means on said plate portion for supporting said end fitting on said support member for movement therealong, said plate portion defining an aperture therethrough extending parallel to said connecting means, a latch member disposed in said opening and having a latch pin disposed in said aperture, means mounting said latch member on said body member and in said opening for movement to advance said pin through said aperture to extend outwardly thereof in a direction away from said opening for engaging said support member, said opening having a portion of minimum size, said latch having an intermediate portion extending through said portion of said opening and said latch having its opposite end portions disposed above and below said portion of minimum size and being so proportioned that they cannot be moved through said portion of minimum size.

6. In an apparatus for supporting and bracing general merchandise in freight cars and the like, a crossbar end fitting comprising a body member having means at one side thereof for connecting said end fitting to an associated crossbar, said body member having a first surface adapted to engage said associated support member for supporting said end fitting thereon for sliding movement longitudinally thereof, said body member having a second surface disposed substantially at right angles to said first surface for engaging behind a part of said associated support member to prevent said end fitting from pulling away therefrom, said body member defining at least one aperture selectively alignable with apertures in said associated support member upon movement of said first surface along and in engagement with said associated support member, means on said body member defining a second aperture aligned with said at least one aperture, a pin slidably mounted in said aligned apertures of said body member for movement between an extended position

in which said pin extends through said at least one aperture and extends outwardly of said body member for projecting into an aligned aperture in said associated support member and a retracted position in which the outer end of said pin is disposed within said at least one aperture in said body member, an actuator member, means mounting said actuator member on said body member for movement between an operative position and an inoperative position, co-operating yoke and collar means on said pin and said actuator member interconnecting said pin and said actuator member so that movement of said actuator member between said operative and inoperative positions moves said pin between said extended and retracted positions respectively.

7. Apparatus as defined in claim 6 including means for holding said actuator member in said operative position.

8. In an apparatus for supporting and bracing general merchandise in freight cars and the like, a crossbar end fitting comprising a body member having means at one side thereof for connecting said end fitting to an associated crossbar, said body member including a yoke portion extending in opposed relation to said means and a plate portion secured across the outer end of said yoke portion and co-operating therewith to define an opening extending transversely of said body member, said plate portion including a hook section including a support surface for supporting said end fitting on an associated support member and having an anti-pullaway surface extending substantially at right angles to said support surface for engaging behind a part of said associated support member to prevent said end fitting from pulling away therefrom, said plate portion also having an aperture therethrough extending substantially parallel to said support surface and substantially at right angles to said anti-pullaway surface, means on said body member defining a pin aperture aligned with said aperture in said plate portion, a pin slidably mounted in said pin aperture and said aperture in said plate portion for movement to and from an extended position in which said pin extends through said aperture in said plate portion and outwardly of said body member for engaging said support member, an actuator member, means mounting said actuator member on said body member for movement to and from an operative position, means interconnecting said pin and said actuator member for moving said pin to and from said extended position in response to movement of said actuator member to and from said operative position, and means acting between said body member and said actuator member for holding said actuator member in said operative position.

9. In an apparatus for supporting and bracing general merchandise in freight cars and the like, a crossbar end fitting comprising a body member having means at one side thereof for connecting said end fitting to an associated crossbar, said body member having a first surface adapted to engage an associated support member for supporting said end fitting thereon for sliding movement therealong, said body member having a second surface disposed at an angle to the horizontal when said first surface engages said associated support member for engaging behind a part of said associated support member to prevent said end fitting from pulling away therefrom, said body member defining at least one aperture selectively alignable with apertures in said associated support member upon movement of said first surface along and in engagement with said associated support member, latch mechanism mounted on said body member and including a pin disposed in said aperture in said body member and adapted in its operative position to project from said body member and into an aligned aperture in said asso-

ciated support member, means mounting said latch mechanism for movement between said operative position and a retracted position in which the outer end of said pin is disposed within said aperture in said body member, and means on said end fitting yieldably holding said latch mechanism disposed with said pin in said operative position.

10. In an apparatus for supporting and bracing general merchandise in freight cars and the like, a crossbar end fitting comprising a body member having means at one side thereof for connecting said end fitting to an associated crossbar, said body member including a hook portion having a surface adapted to engage an associated support member to support said end fitting thereon for sliding movement longitudinally thereof, said hook portion also having an anti-pullaway portion for engaging behind a part of said associated support member, when said surface is supportingly engaged with said associated support member, to prevent said end fitting from pulling away from said support member, said body member having a vertically extending flange having at least one aperture selectively alignable with apertures in said associated support member, a latch member adapted to lock said end fitting against movement relative to said associated support member and including a pin extending through said aperture in said flange of said body member, means mounting said latch member on said body member for movement to and from a position in which said pin extends beyond said body member outwardly of said aperture therein and is adapted to extend into an aligned aperture in said associated support member, and means on said end fitting yieldably holding said latch member in said position.

11. An apparatus for supporting and bracing general merchandise in freight cars and the like including a belt rail adapted to be secured in a position extending horizontally along one wall thereof and having a generally vertically disposed portion extending in spaced parallel relation to said wall and having a plurality of horizontally extending apertures spaced therealong and an upper edge, a crossbar end fitting comprising a body member having means at one side thereof for connecting said end fitting to an associated crossbar, said body member having pin means extending longitudinally of said body member in opposed relation to and in a direction away from said means at one side of said end fitting and selectively extending into said apertures to transmit vertical loads to said belt rail and hold said end fitting against movement longitudinally of said belt rail, a latch hook, means mounting said latch hook on said body member for pivotal movement about an axis substantially at right angles to said pin means to and from an operative position in which said latch hook hooks over said upper edge of said belt rail portion to engage said belt rail to prevent withdrawal of said pin means therefrom, said latch hook having a vertically extending end which when said hook is in said operative position is disposed between said belt rail portion and said wall, and means for holding said latch hook in said operative position.

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