Nov. 28, 1967 R. E. HEARD Re. 26,309

FREIGHT BRACING APPARATUS

Original Filed March 20, 1963 3 Sheets-Sheet 1

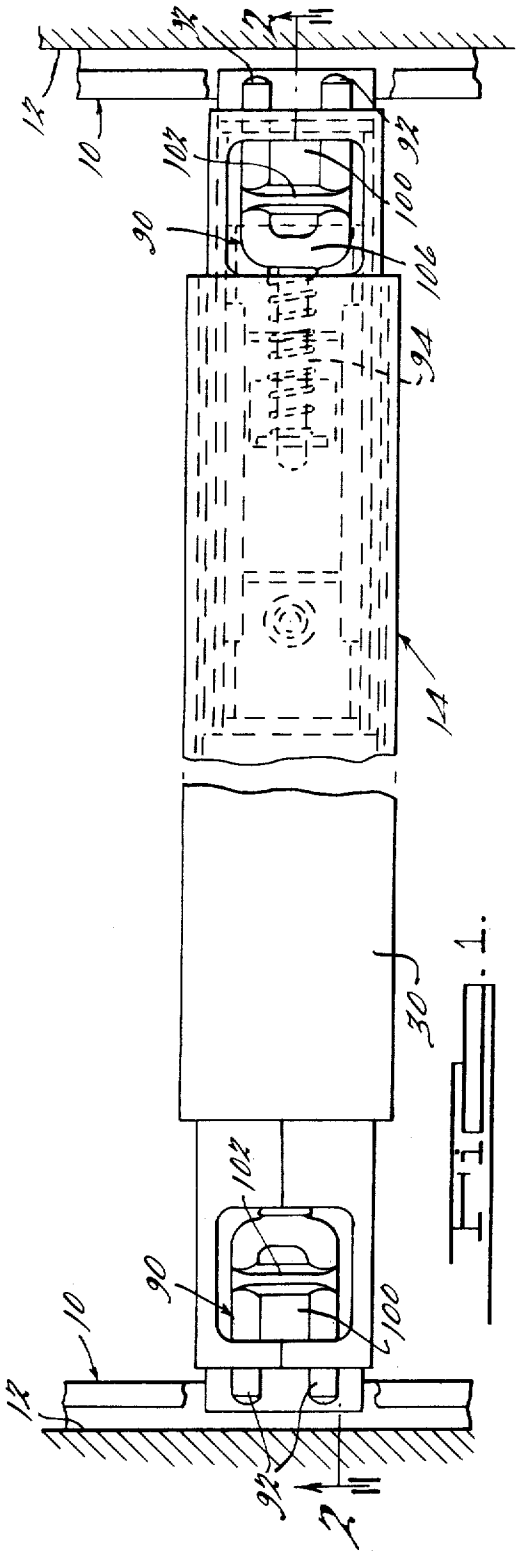


Fig. 1.

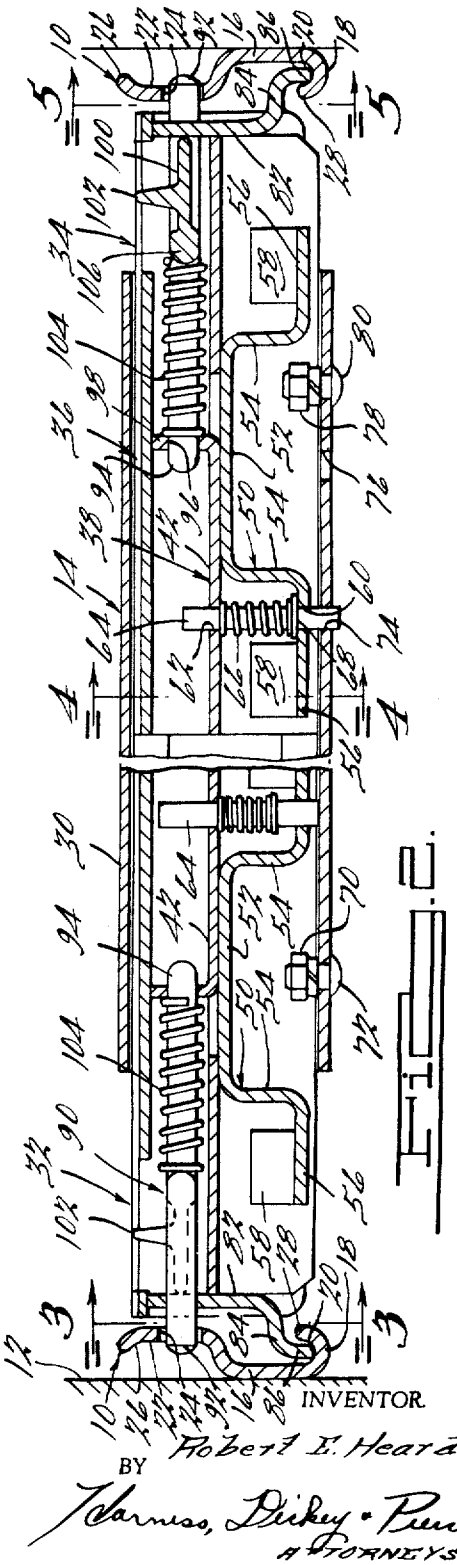


Fig. 2.

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FREIGHT BRACING APPARATUS

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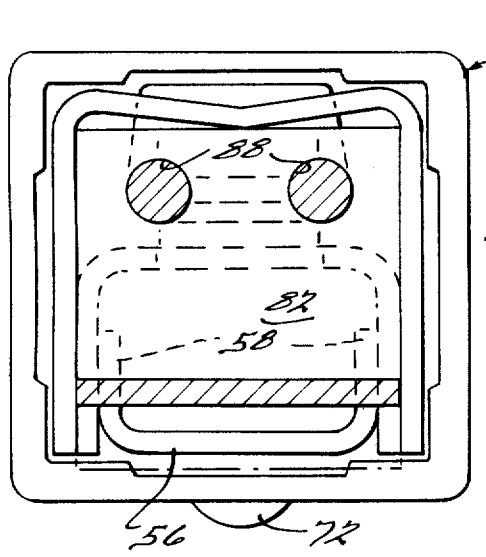


FIG. 3.

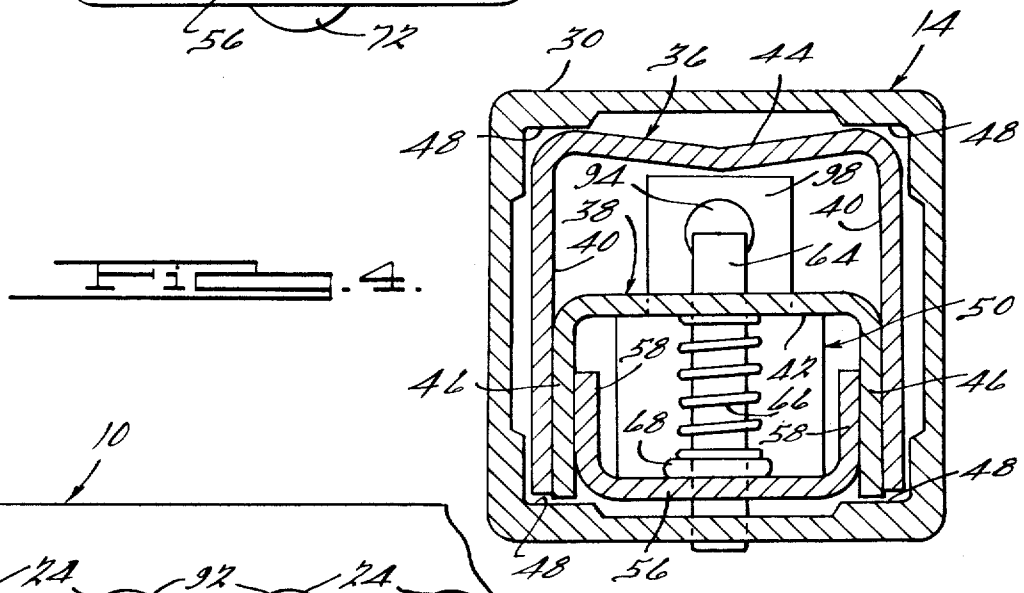


FIG. 4.

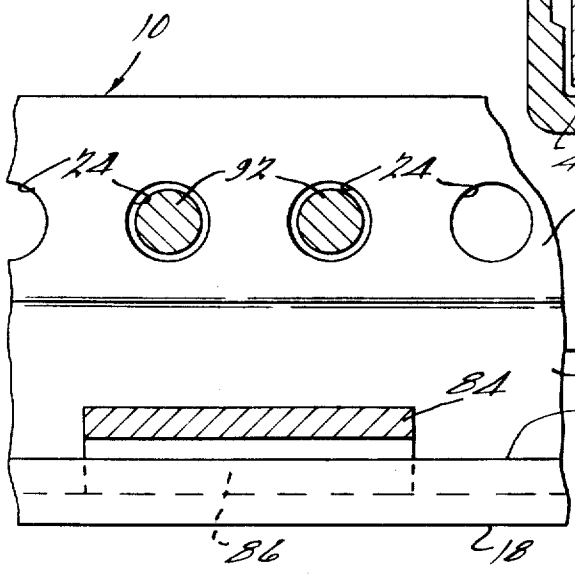


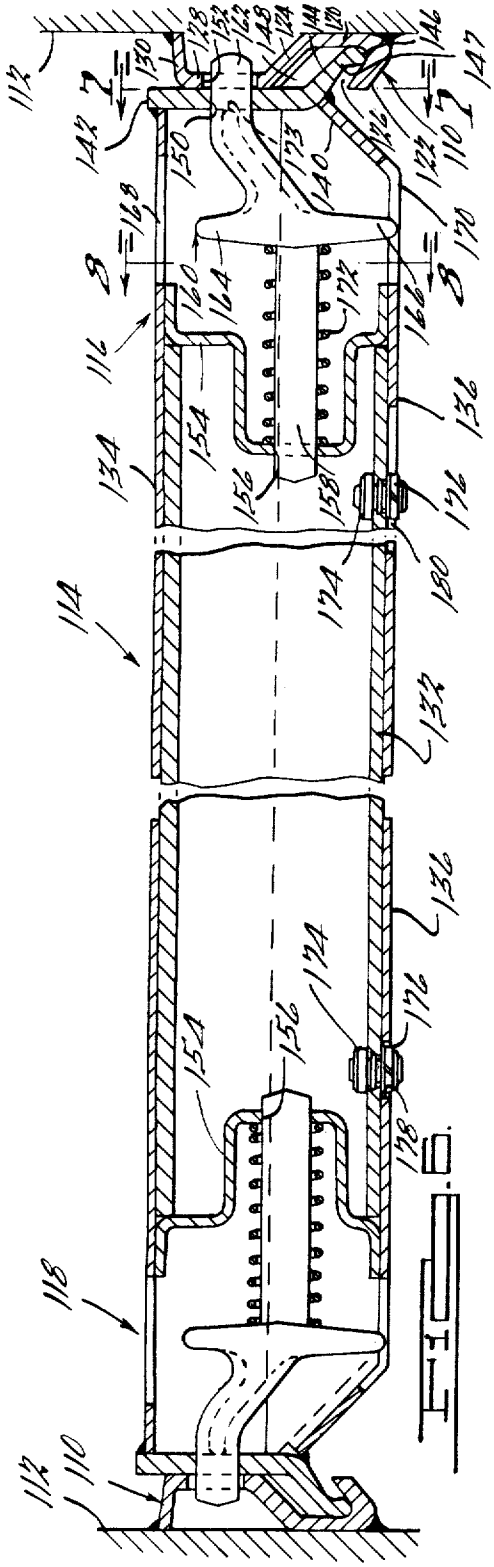
FIG. 5.

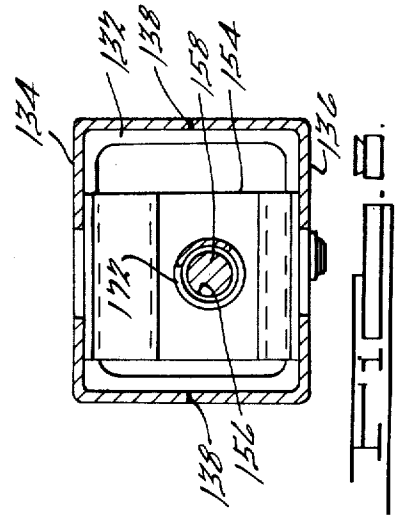
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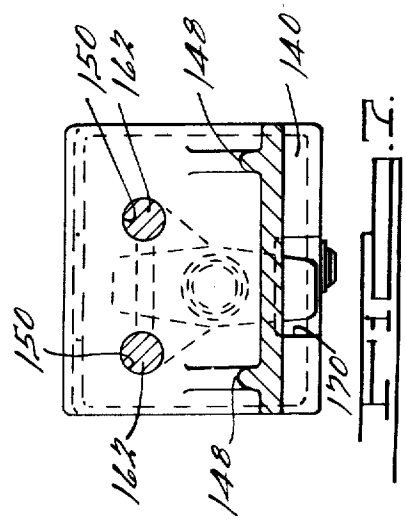
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FREIGHT BRACING APPARATUS

Original Filed March 20, 1963 3 Sheets-Sheet 3







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26,309

FREIGHT BRACING APPARATUS

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Original No. 3,151,571, dated Oct. 6, 1964, Ser. No. 266,663, Mar. 20, 1963. Application for reissue Aug. 25, 1965, Ser. No. 485,146

17 Claims. (Cl. 105—369)

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates the additions made by reissue.

The present invention relates to freight bracing apparatus and more particularly to freight bracing apparatus of the type including belt rails adapted to be secured in position along the side walls of truck bodies, railway boxcars, and the like, and cross members provided with end fittings extending between and connected to and supported on the belt rails.

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

Another object of the present invention is to provide an improved apparatus of the above mentioned type including an improved crossbar end fitting and an improved belt rail structure permitting a novel and highly desirable co-operation therebetween.

It is also an object of the present invention to provide an improved freight bracing apparatus of the above mentioned type in which crossbars may be readily installed by a single workman who may effect a preliminary engagement of one end fitting with one of the belt rails and then slide that end fitting along the belt rail to the position in which its connection to the belt rail is to be completed, and in which completion of the connection is automatically effected as the workman moves the bar to connect the end fitting at the opposite end thereof to another belt rail.

Other and more detailed object of the present invention will be apparent to those skilled in the art from a consideration of the following specification, the appended claims, and the accompanying drawings wherein:

FIGURE 1 is a broken plan view of the freight bracing apparatus constructed according to a preferred form of the present invention;

FIGURE 2 is a broken sectional view of the structure illustrated in FIGURE 1 taken substantially along the line 2—2 thereof;

FIGURES 3, 4 and 5 are enlarged sectional views of the structure illustrated in FIGURE 2 taken substantially along the lines 3—3, 4—4 and 5—5 thereof, respectively;

FIGURE 6 is a broken longitudinal sectional view similar to FIGURE 2 showing freight bracing apparatus constructed according to a modified form of the present invention; and,

FIGURES 7 and 8 are transverse sectional views of the structure illustrated in FIGURE 6 taken substantially along the lines 7—7 and 8—8 thereof, respectively.

Referring to the drawings, and particularly to FIGURES 1 through 5, inclusive, the freight bracing apparatus there illustrated is particularly adapted for use in bracing freight in trucks or other installations where the freight bracing apparatus is subjected to lighter loads and impacts than is the case with freight bracing apparatus employed in railway boxcars. The freight bracing apparatus there illustrated generally comprises a pair of belt rails **10** adapted to be welded or otherwise suitably

secured to the side walls diagrammatically represented at **12** of a truck body or the like, and a crossbar generally indicated at **14** extending between and connected to and supported on the belt rails **10**. The belt rails **10** may be formed of sheet metal or of extruded aluminum, or as in the preferred embodiment illustrated, may be a rolled steel section.

As is best illustrated in FIGURE 2, the belt rail **10** is of generally S-shaped cross section and the lower portion thereof includes a generally flat vertically extending section **16** adapted to extend along and be welded or otherwise suitably secured to the side wall **12**. This lower portion of the belt rail terminates in an upwardly opening U-section **18** integral with the vertical section **16** which provides a groove **20** which extends longitudinally of the belt rail and opens upwardly. The belt rail has an upper vertically extending portion **22** which extends in spaced parallel relation to the side wall **12** and is provided with a plurality of horizontally opening apertures **24** spaced uniformly therealong. The belt rail terminates at its upper edge in a raterally turned edge portion **26** which provides added structural strength to the belt rail. The U-shaped portion **18** at the bottom of the belt rail terminates in an upwardly turned flange portion **28** which is disposed substantially in the plane of the apertured upper belt rail portion **22**, but in spaced relation therebelow to permit access to the groove **20** defined by the U-shaped portion **18**.

The crossbar **14** comprises an elongated body **30** which, in the preferred embodiment illustrated, is generally square in cross section and formed as an aluminum extrusion. At its opposite ends the crossbar body **30** is provided with end fittings generally indicated at **32** and **34** which serve to connect the crossbar body to the belt rails. In the preferred embodiment illustrated, the end fittings **32** and **34** are identical and accordingly, the same numbers will be used on corresponding parts of the two end fittings. The end fittings in the preferred embodiment illustrated include elongated body portions formed of interfitting sheet metal channels **36** and **38**. As best illustrated in FIGURES 3 and 4, the channels **36** and **38** both open downwardly with the channel **38** received between the legs **40** of the channel **36**, with the web portion **42** of the channel **38** extending generally parallel to the web portion **44** of the channel **36** and spaced approximately midway from the web **44** to the lower end of the legs **40**. The legs **46** of the inner channel **38** are welded to the legs **40** of the outer channel **36**. The extruded bar body **30** is formed as best illustrated in FIGURES 3 and 4 with angularly shaped bearing portions **48** integrally formed at each of the interior corners thereof to engage and support the end fitting in the bar body **30**.

A sheet metal stiffener element **50** is received between the depending legs **46** of the inner channel **38**. This stiffener element **50** extends longitudinally of the end fitting as best illustrated in FIGURE 2 and is generally channel-shaped with a web portion **52** extending along and welded to the inner surface of the web **42** of the inner channel **38** and has leg portions **54** thereof outwardly turned as indicated at **56** to extend along the end fittings. These outer end portions **56** are themselves channel-shaped as best illustrated in FIGURES 3 and 4 and have their upwardly turned leg portions **58** extending along and welded to the inner surface of the depending legs **46** of the inner channel **38**. At the end of the stiffener element **50** adjacent the inner end of the end fitting and intermediate the legs **58** and the legs **54**, the outwardly turned portion **56** has an aperture **60** which is aligned with a co-operating aperture **62** formed above it in the web **42** of the channel element **38**. These apertures co-operate to support a vertical pin **64** which extends therethrough and is urged downwardly

by a spring **66** surrounding the pin **64**, the upper end of the spring **66** abutting against the lower surface of the web portion **42** of the channel **38** and the lower end of the spring acting against a washer **68** fixed on the pin **64**. In the preferred embodiment illustrated, one of the end fittings, namely, the end fitting **32**, is freely slidable longitudinally of the crossbar body **30** between limits determined by a stop nut **70** mounted on a stud **72** mounted on the crossbar body **30** and extending inwardly thereof between the spaced legs **54** of the stiffener element **50**. The other end fitting **34** is held against movement longitudinally of the bar body **30** by the locating pin **64**, the lower end of which extends downwardly through a locating aperture **74** formed in the wall of the crossbar body **30**. In the preferred embodiment illustrated a second locating aperture **76** is provided in the crossbar body **30** in spaced relation to the aperture **74** to enable the end fitting **34** to be moved outwardly from the position illustrated in FIGURE 2 to a position in which the pin **64** will be received in the aperture **76**, thus providing an adjustment for the over-all length of the bar to permit the bar to be used between differently spaced side walls. A stop nut **78** mounted on a stud **80**, similar to the stop **70**, prevents inadvertent withdrawal of the end fitting **34** from the crossbar body **30** during movement of the end fitting between the fixed positions provided by the engagement of the pin **64** in the apertures **74** and **76**. The vertically disposed pin **64** of the end fitting **32** performs no function and is present only because the end fittings **34** and **36** are identical, thus providing important economies in their manufacture and in the assembly of the end fittings with the crossbar body. During the sliding movement of the end fitting **32** longitudinally of the crossbar body **30** within the limits provided by the engagement of the stop **70** with the legs **54** of the channel-shaped stiffener element **50**, the lower end of the pin **64** of the end fitting **32** rides on and slides along the inner surface of the crossbar body **30**.

At the outer end of each end fitting the larger channel **36** extends slightly beyond the end of the inner channel **38** and a sheet metal face plate **82** extends transversely of the end fitting between and is welded to the legs **40** of the larger channel element **36** and is disposed against the outer end of the inner channel element **38** as best illustrated in FIGURE 2. The lower portion of the face plate **82** is bent outwardly away from the channel **38** to provide a generally horizontal portion **84** and terminates in a downwardly turned foot portion **86** adapted to hook over the upwardly extending flange **28** of the belt rail **10** and extend into the groove **20** formed on the belt rail **10** to support the end fitting on the belt rail. The upper portion of the fixed plate **82** is provided with a pair of apertures **88** adapted to be aligned with two of the apertures **24** of the belt rail **10** when the face plate foot **86** is in supporting engagement with the U-shaped portion **18** of the belt rail **10** in the groove **20** and the end fitting extends at right angles to the adjacent side wall **12**.

A latch pin assembly **90** is mounted in the end fitting between the webs **44** and **42** of the channels **36** and **38**, respectively, and includes a pair of parallel latch pins **92** extending through the apertures **88** of the face plate **82** and adapted to extend into the apertures **24** of the belt rail **10**. In the preferred embodiment illustrated the latch assembly **90** is a forging which resembles a two-tined fork, the two tines being the latch pins **92** and the portion corresponding to the handle of the fork is a shank **94** which extends inwardly of and longitudinally of the end fitting and has its inner end slidably supported in an aperture **96** provided in an upwardly turned tab portion **92** of the web **42** of the inner channel **38**. The latch assembly **90** is provided with a generally flat web portion **100** extending between and interconnecting the pins **92** and which has an upwardly

extending handle portion **102** adapted to be engaged by a workman for moving the latch assembly **90**. The web portion **100** engages the inner surface of the face plate **82** to prevent movement of the latch assembly beyond the extended position illustrated by a coil spring **104** surrounding the shank **94** between the upwardly turned tab **90** and the transverse latch portion **106** interconnecting the inner ends of the pins **92**.

The above described construction lends itself to operation by a single worker who need only manually operate the latch mechanism **90** of one of the end fittings during either installation or removal of the crossbar **14**. For example, when it is desired to install the crossbar **14**, the fixed end fitting **34** is first moved to the position of the locating pin **64** in the one of the holes **74** and **76** which will provide the proper length for the crossbar. The worker may then move the bar so as to hook the foot portion **86** of either of the end fittings, but preferably of the fixed end fitting **34**, over the upwardly extending flange portion **28** of the belt rail **10**, while the crossbar **14** is disposed extending downwardly at an acute angle to the wall, rather than in the right angle position illustrated in the drawings. With the crossbar extending downwardly in this manner, the pins **92** while in their extended position will not be in engagement with the belt rail **10** and the crossbar may be slid along the belt rail to the desired position of installation. The workman then raises the opposite or left-hand end of the crossbar as viewed in FIGURE 2, and telescopes the end fitting **32** inwardly to prevent interference with the belt rail **10**. As the crossbar **14** is raised to the horizontal position, it will be seen that the pins **92** of the end fitting **34** at the right-hand end of the crossbar, may automatically move into the holes **24** of the belt rail. If the pins **92** happen to fall between the holes **24** of the belt rail, the latch assembly **90** will be pushed to the retracted position against the action of the spring **104**, and upon a slight movement of the crossbar along the belt rail, upon alignment of the pins **92** with the belt rail holes **24**, the spring **104** will cause the latch assembly to snap into the latched position with the pins **92** extending into the belt rail apertures **24** as illustrated. The workman, in attaching the end fitting **32** at the left-hand end of the crossbar to its associated belt rail **10**, engages the handle **102** to retract the latch assembly **90** and the pins **92** thereof, and upon raising the end fitting sufficiently to allow the foot portion **86** of the face plate **82** to pass over the upwardly turned flange **28** of the belt rail, the end fitting **32** is then telescoped outwardly relative to the bar body **30** and the end fitting is moved downwardly to engage the face plate foot **86** in the belt rail groove **20**, as illustrated. The workman then releases the handle **102** and the spring **104** moves the latch assembly into the latched position when the pins **92** are aligned with the belt rail apertures **24**. In removing the crossbar, the above-described procedure is simply reversed. It will be noted that preferably, and as illustrated, the end fittings are supported against vertically downward loads by the engagement of the foot portion **86** in groove **20** and not by the pins **92** which resist vertically upward loads and loads longitudinally of the belt rail **10**. Also, it will be noted that the pins **92** and belt rail holes **24** are so proportioned that during removal, as the workman disconnects and lowers one end fitting, the pins **92** of the other end fitting will be automatically withdrawn from the belt rail apertures **24** and will not become bound up therein, nor will any movement of these pins be required or effected during such removal of the crossbar.

FIGURES 6, 7 and 8 illustrate a modified construction wrich is well adapted for use in railway boxcars and the like. The freight bracing apparatus there illustrated comprises belt rails **110** which, in the construction illustrated, are formed of a rolled steel section adapted to extend along and be suitably secured as by

welding to a side wall **112**. The crossbar there illustrated is generally indicated at **114** and is provided with end fittings **116** and **118** at opposite ends thereof adapted to connect the crossbar to the belt rails. In the construction illustrated in these figures the belt rail **110** includes a lower generaly channel-shaped portion having a vertically disposed web **120** adapted to extend along and be welded to a side wall **112** and having the lower leg portion **122** sloping upwardly at an angle to the web portion **120** and co-operating with an intermediate portion **124** of the belt rail to define an inwardly and upwardly facing groove **126** extending longitudinally of the belt rail. At its outer end the intermediate belt rail portion **124** is integrally connected with an apertured belt rail portion **128** extending in spaced parallel relation to the side wall **112**. To provide added structural strength, the belt rail has an upper flange portion **130** extending from the vertical belt rail portion **128** to the side wall **112**, to which it is welded as shown.

The crossbar **114** includes an elongated tubular aluminum body **132** and the end fittings **116** and **118** which in this modification differ from the end fittings previously described, in that they telescope over the outside of the bar body **132** rather than telescoping into it. The end fittings **116** and **118** are the same except for the differences resulting from the fact that the end fitting **116** is mounted for free telescoping movement relative to the bar body **132** between fixed limits, whereas, the end fitting **118** is fixed against movement longitudinally of the bar body. These end fittings each include upper and lower channel-shaped sheet metal sections **134** and **136** which face each other with the outer edges of the legs welded together as indicated at **138** to form a tubular body of the end fitting adapted to telescopically fit over the end portion of the tubular bar body **132**. The lower channel element **136** adjacent its outer end has its web portion bent upwardly as indicated at **140** and the leg portions thereof similarly shaped to form a reduced outer end of the end fitting body which is closed by a face plate **142** extending transversely thereof and welded to the channel elements **134** and **136** as shown. The face plate **142**, which is preferably formed as a forging, includes an outwardly and downwardly extending foot portion **144** having a bulbous or beaded lower end portion **146** adapted to fit into the lower portion of the groove **126** formed at the juncture of the vertical portion **120** and the upwardly inclined lower flange **122** of the belt rail. Adjacent the bead **146**, the foot portion **144** has on its lower side a depression or groove **147** to facilitate hooking the foot portion over the flange **122**. The foot flange **144** is reinforced by a pair of laterally spaced upwardly extending ribs **148** which connect to the vertical portion of the face plate **142**. The face plate **142** is also provided with a pair of transversely spaced apertures **150** which are aligned with apertures **152** in the belt rail **110** when the foot portion **144** of the face plate is engaged in the belt rail groove **126** as shown.

A sheet metal supporting strap **154** is mounted in the end fitting body and welded to the channel elements **134** and **136** thereof and has a horizontally opening aperture **156** extending centrally therethrough, which slidably supports the shank **158** of a latch element **160** which includes a pair of laterally spaced pins **162** slidably supported in the apertures **150** of the face plate. The latch element **160** has upwardly and downwardly extending handle portions **164** and **166** adapted to be engaged by the fingers of a workman through suitable openings **168** and **170** provided in the upper and lower channel elements **134** and **146** for moving the latch element **160** from the latched position illustrated, to a retracted position in which the pins **162** are withdrawn from the belt rail apertures **152**. The latch element **160** is yieldably urged toward the latched position illustrated by a coil spring **172** which encircles

the shank **158** of the latch element and acts between the supporting strap **154** and the oppositely extending handle portions **164** and **166**. The latch element **160** is held against movement beyond the latched position illustrated under the influence of the spring **172** by a web portion **173** extending between the pins **162** and engaging the inner surface of the face plate **142** between the apertures **150** therein. In spaced relation to its opposite ends, the bar body **132** in the bottom wall thereof carries stop elements **174** removably fastened in place and including a cylindrical stop portion **176** which, in the case of the fixed end fitting **118** at the left-hand end of FIGURE 6, is received in a circular aperture **178** formed in the web of the lower channel element **136** of the end fitting and holds the end fitting **118** against movement longitudinally of the bar body **132**. In the case of the stop element **174** at the right-hand end of the bar body **132**, the stop portion **176** thereof is received in an elongated slot **180** formed in the web of the lower channel element **136** of the end fitting **116**, thus permitting movement of the end fitting longitudinally of the bar body **132** within the limits permitted by the length of the slot **180**.

It will now be appreciated that the general operation of the modified construction illustrated in FIGURES 6, 7, and 8 is the same as the operation of the embodiment of the invention illustrated in FIGURES 1 through 5, inclusive, and need not be repeated herein, except of course, that this construction does not include means for locating the fixed end fitting **118** in a plurality of positions.

While only two specific embodiments of the invention have been illustrated and described in detail 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 a freight bracing apparatus including a crossbar body adapted to brace freight in a truck, railway boxcar or the like having a pair of opposed side walls, the combination of a belt rail adapted to be mounted on and extend along a said side wall and having a lower portion including a longitudinally and upwardly extending flange and an upper portion having a plurality of horizontally opening apertures spaced therealong, an end fitting for connecting one end of said crossbar to said belt rail and comprising an end fitting body adapted to be connected to one end of said crossbar body and having a foot portion extending transversely thereof and outwardly and downwardly therefrom, said foot portion being adapted to hook over said flange and co-operate therewith to support said end fitting on said belt rail for sliding movement therealong when said end fitting extends downwardly from said belt rail at an acute angle to said side wall, and pin means mounted on said end fitting body for movement to and from an extended position and disposed to be alignable with said apertures in said belt rail when said foot portion is hooked over said flange and said end fitting body extends generally at right angles to the side wall, said pin means when so aligned and moved to said extended position, extending into certain of said apertures.

2. The invention as defined in claim **1** including means yieldably urging said pin means toward said extended position.

3. The invention as defined in claim **2** wherein said end fitting body is elongated and has one end adapted to coaxially interfit with one end of said crossbar body and has at its other end a face plate extending generally at right angles thereto and having its lower portion extending outwardly and downwardly to comprise said foot portion.

4. The invention as defined in claim **3** including a latch assembly including said pin means and mounted in said body for sliding movement longitudinally thereof with said pin means slidably supported in said face plate.

5. The invention as defined in claim 4 wherein said latch assembly includes a pair of parallel pins constituting said pin means, a web portion extending therebetween and engaging said face plate when said pin means is in said extended position.

6. The invention as defined in claim 4 wherein said end fitting body comprises a pair of similarly facing nesting sheet metal channel elements having their web portions disposed in spaced parallel relation and their leg portions disposed in overlapping relation and welded together.

7. The invention as defined in claim 6 including an elongated sheet metal stiffener element received between the overlapping leg portions of said channel elements and having attaching flanges welded to said leg portions.

8. The invention as defined in claim 7 including a transversely extending locating pin mounted on said stiffener element and the web of the inner of said channel elements, and spring means urging said locating pin transversely of said end fitting body into a selected locating opening provided in said crossbar body.

9. The invention as defined in claim 4 wherein said foot portion of said face plate includes a generally horizontally extending portion and a lowermost generally vertically extending portion.

10. The invention as defined in claim 4 wherein said flange of said belt rail extends upwardly at an acute angle relative to said side wall and said foot portion of said face plate extends outwardly and downwardly relative to the remainder of said face plate so as to be substantially parallel to said flange of said belt rail when said end fitting is connected to said belt rail and extending at right angles to said side wall.

11. In a freight bracing apparatus including a crossbar body adapted to brace freight, the combination of a belt rail adapted to be secured to a side wall or other suitable support and which includes a lower portion having a groove opening upwardly and away from the side wall and an upper portion extending vertically and having a plurality of horizontally opening apertures spaced longitudinally thereof, an end fitting for connecting one end of said crossbar body to said belt rail, said end fitting comprising an end fitting body adapted to be connected to said crossbar body, a face plate secured to and extending transversely of said end fitting body at the outer end thereof and including a laterally offset foot portion adapted to be moved into said groove and to be moved therealong while said end fitting body extends downwardly at an acute angle relative to the side wall, said face plate being apertured above said foot portion for selective alignment with the apertures of said belt rail when said foot portion is received in said groove and said end fitting body extends substantially at right angles to said side wall, and pin means mounted on said end fitting body for movement longitudinally thereof and extending through said face plate, said pin means being movable between an extended position in which it extends into said belt rail when said face plate foot portion is received in said groove and the end fitting body extends at right angles to the side wall and a retracted position in which said pin means is withdrawn from said belt rail.

12. In a freight bracing apparatus including a crossbar body adapted to brace freight in a truck, railway boxcar or the like having a pair of opposed side walls and including attachment means including an upwardly facing edge extending along said wall and an aperture disposed in spaced relation above said edge, an end fitting for connecting one end of said crossbar to and supporting it on said attachment means and comprising an end fitting body adapted to be connected to one end of said crossbar body and having a foot portion extending outwardly and downwardly therefrom, said foot portion being adapted to hook over said edge when said end fitting extends downwardly from said edge at an acute angle to said side wall, and pin means mounted on said end fitting body for movement to and from an extended position and disposed to be alignable with said aperture in said attachment means when said foot portion is hooked over said flange and said end fitting body extends generally at right angles to the side wall, said pin means when so aligned and moved to said extended position, extending into said aperture.

13. An end fitting for a crossbar for bracing freight in a truck, railway boxcar or the like, said end fitting having means at one end for connecting said end fitting to a crossbar body and having attachment means for connecting said end fitting to co-operating attachment means on a side wall or the like, said end fitting attachment means comprising pin means movable from a normal extended position in which said pin means are adapted to extend into aperture means of the cooperating attachment means to a retracted position, and foot means extending outwardly of said end fitting and having a laterally turned end portion extending away from said pin means, said foot means being adapted to hook over cooperating means of the cooperating attachment means.

14. An end fitting for a crossbar for bracing freight in a truck, railway boxcar or the like, said end fitting having means at one end for connecting said end fitting to a crossbar body and having attachment means for connecting said end fitting to co-operating attachment means on a side wall or the like, said end fitting attachment means comprising at least one pin extending longitudinally of said end fitting and mounted thereon for longitudinal movement from a normal extended position in which said pin extends into aperture means of the cooperating attachment means to a retracted position, and a foot portion disposed at the other end of said end fitting and extending longitudinally of said end fitting, said foot portion having an end portion extending transversely of said end fitting away from said pin, said foot portion being adapted to hook over cooperating means of the cooperating attachment means.

15. An end fitting for a crossbar for bracing freight in a truck, railway boxcar or the like, said end fitting having means at one end for connecting said end fitting to a crossbar body and having attachment means for connecting said end fitting to co-operating attachment means on a side wall or the like, said end fitting attachment means comprising pin means movable between a normal extended position in which said pin means is adapted to extend into aperture means of the cooperating attachment means and a retracted position, and foot means extending outwardly of said end fitting and having a laterally turned end portion extending in a direction away from said pin means, said foot means being adapted to hook over cooperating means of the cooperating attachment means, said foot means including a portion spaced transversely of said end fitting at a right angle to said direction and adapted to hook over the cooperating means of the cooperating attachment means.

16. An end fitting for a crossbar for bracing freight in a truck, railway boxcar or the like, said end fitting having means at one end for connecting said end fitting to a crossbar body and having attachment means for connecting said end fitting to co-operating attachment means on a side wall or the like, said end fitting attachment means comprising interconnected spaced parallel pins movable longitudinally *to and from a normal extended position in which said pins are adapted to extend into aperture means of the cooperating attachment means, and foot means extending outwardly of said end fitting and having a laterally turned end portion extending away from said pins, said foot means being adapted to hook over cooperating means of the cooperating attachment means.*

17. An end fitting for a crossbar for bracing freight in a truck, railway boxcar or the like, said end fitting having means at one end for connecting said end fitting to a crossbar body and having attachment means for connecting said end fitting to co-operating attachment means on a side wall or the like, said end fitting attachment means compris-

ing a plate extending transversely of said end fitting at the opposite end thereof, at least one pin extending longitudinally of said end fitting and mounted for longitudinal movement to and from a normal extended position in which said pin extends outwardly from said opposite end and is adapted to extend into aperture means of the cooperating attachment means, and a foot portion extending outwardly of said opposite end and terminating in a laterally turned end portion extending transversely of said end fitting away from said pin.

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