United States Patent

[11] 3,626,868

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[54] **TRANSPORTATION SYSTEM AND COMPONENTS THEREOF**
30 Claims, 17 Drawing Figs.

[52] **U.S. Cl.** ..... **105/366 A,** 105/366 C, 105/366 D, 248/119 R
[51] **Int. Cl.** **B65j 1/22**
[50] **Field of Search** ..... 105/366 A, 366 B, 366 C, 366 D, 368 B; 248/119, 361

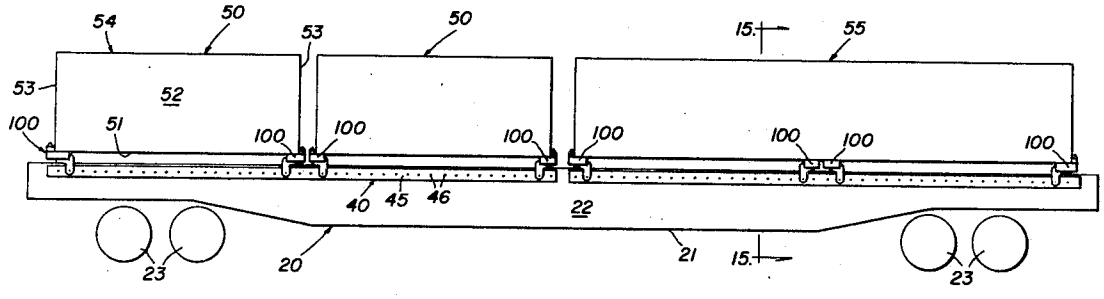
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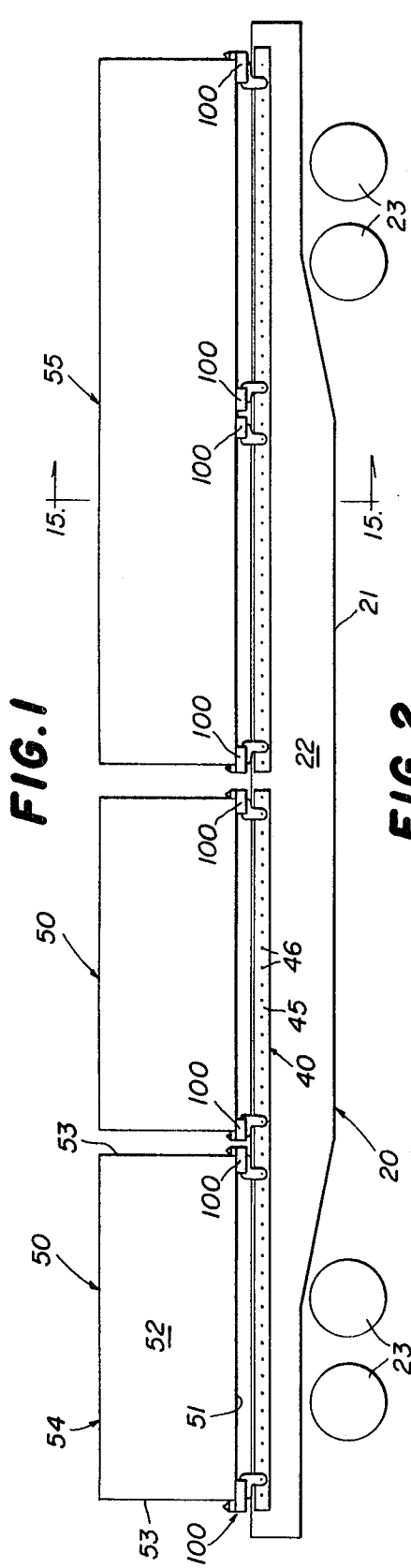
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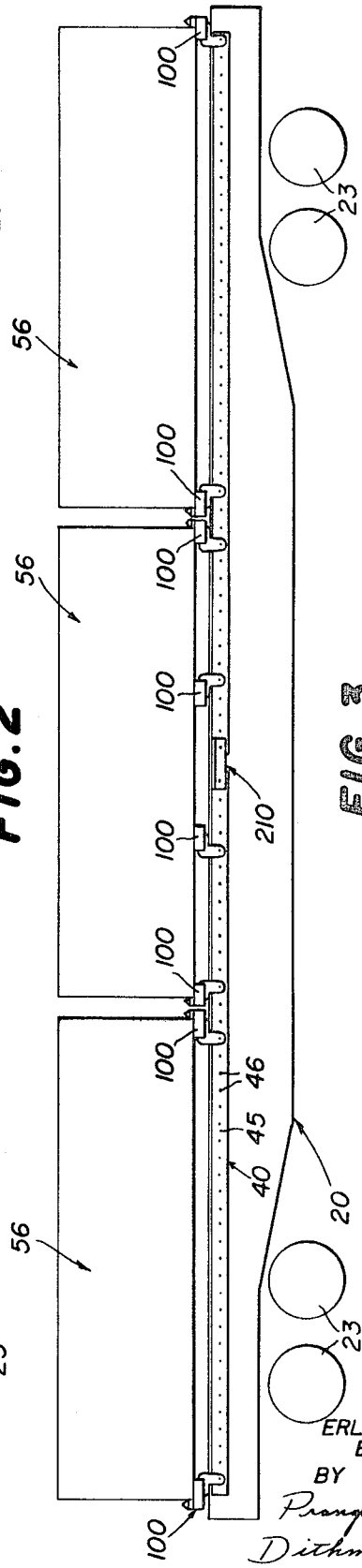
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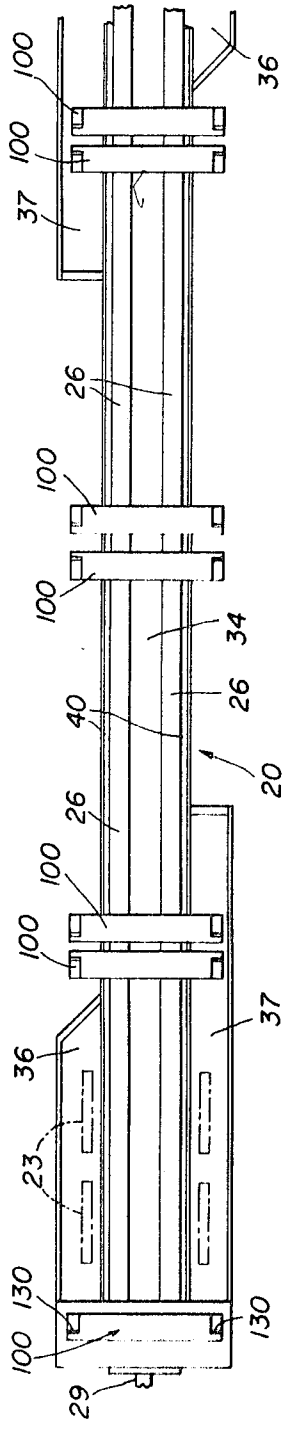
Primary Examiner—Drayton E. Hoffman
Attorney—Prangley, Clayton, Mullin, Dithmar & Vogel

ABSTRACT: This invention is directed to a freight transportation system comprising a railway car for transporting freight containers including a frame, a pair of elongated longitudinally extending narrow beams carried by the frame, at least one pair of longitudinally extending rub rails mounted on the frame, the rub rails of each pair of rub rails being laterally spaced apart and including respectively outer surfaces having longitudinally spaced and laterally opposed openings therethrough, at least two pairs of bolsters arranged on the top surfaces of the beams and slidable longitudinally therealong, a lock assembly on each bolster selectively engageable with the openings in the rub rails for locking the bolster thereto in position to support a freight container on the upper surface thereof, a longitudinal stop mounted on each bolster and being shiftable between an operative position and a storage position, and a side lock assembly mounted on each bolster and engageable with the freight container to prevent lateral and vertical movement thereof, whereby freight containers of different lengths and different numbers of freight containers may be secured to the rub rails of the railway car by the two pairs of bolsters.









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FIG. 5

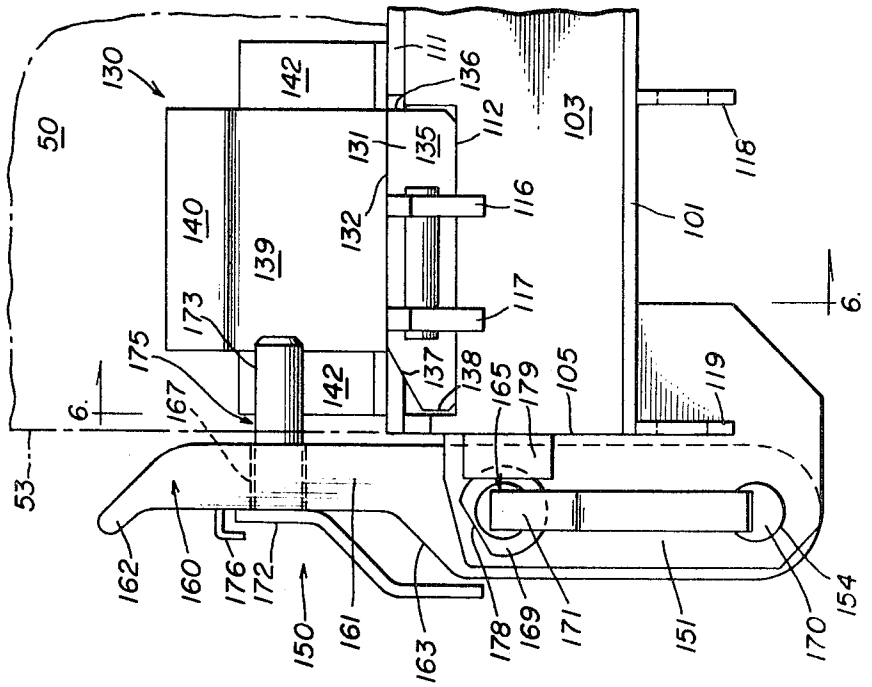

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FIG. 4

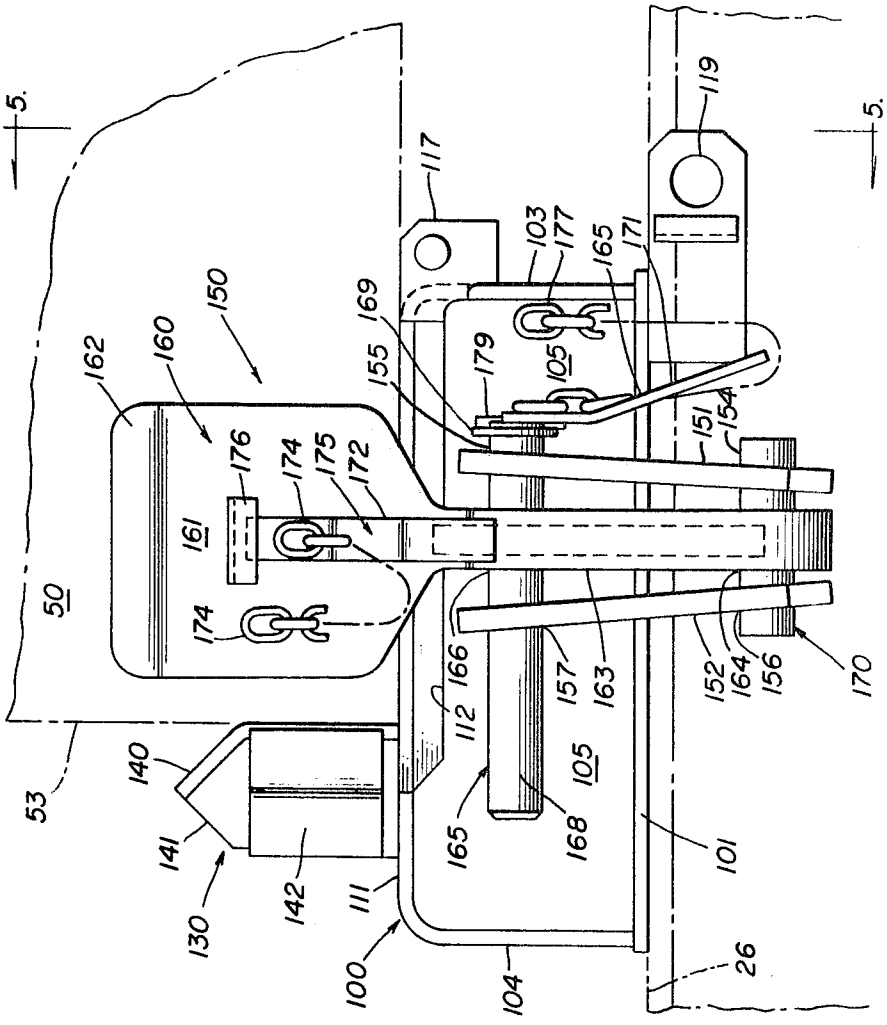
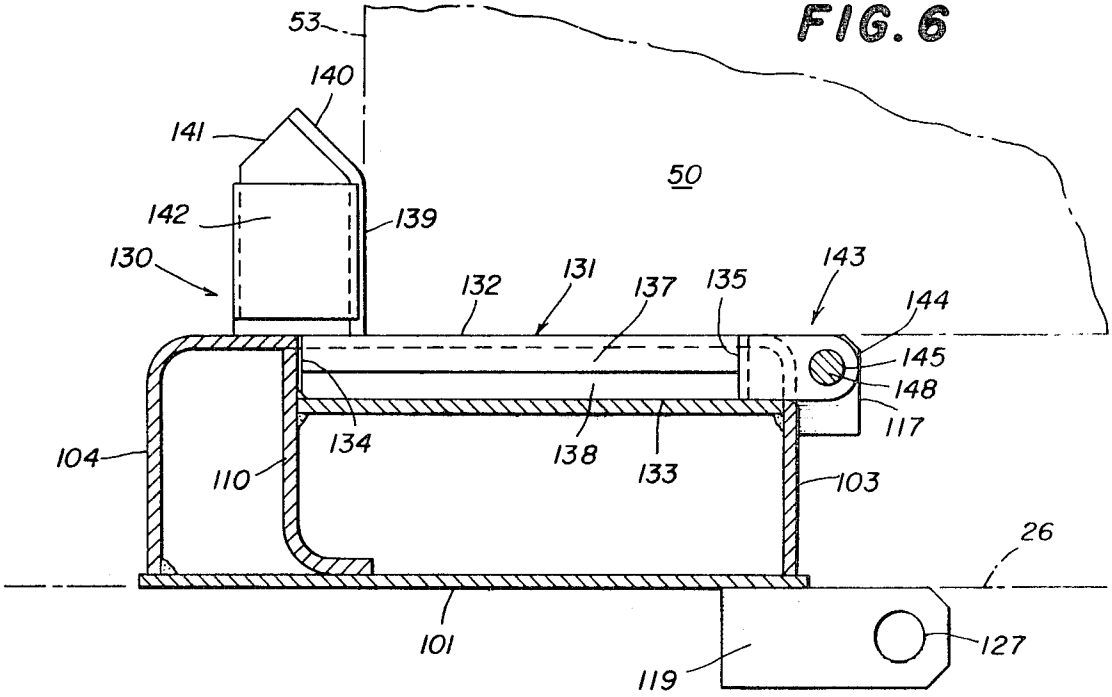

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FIG. 6


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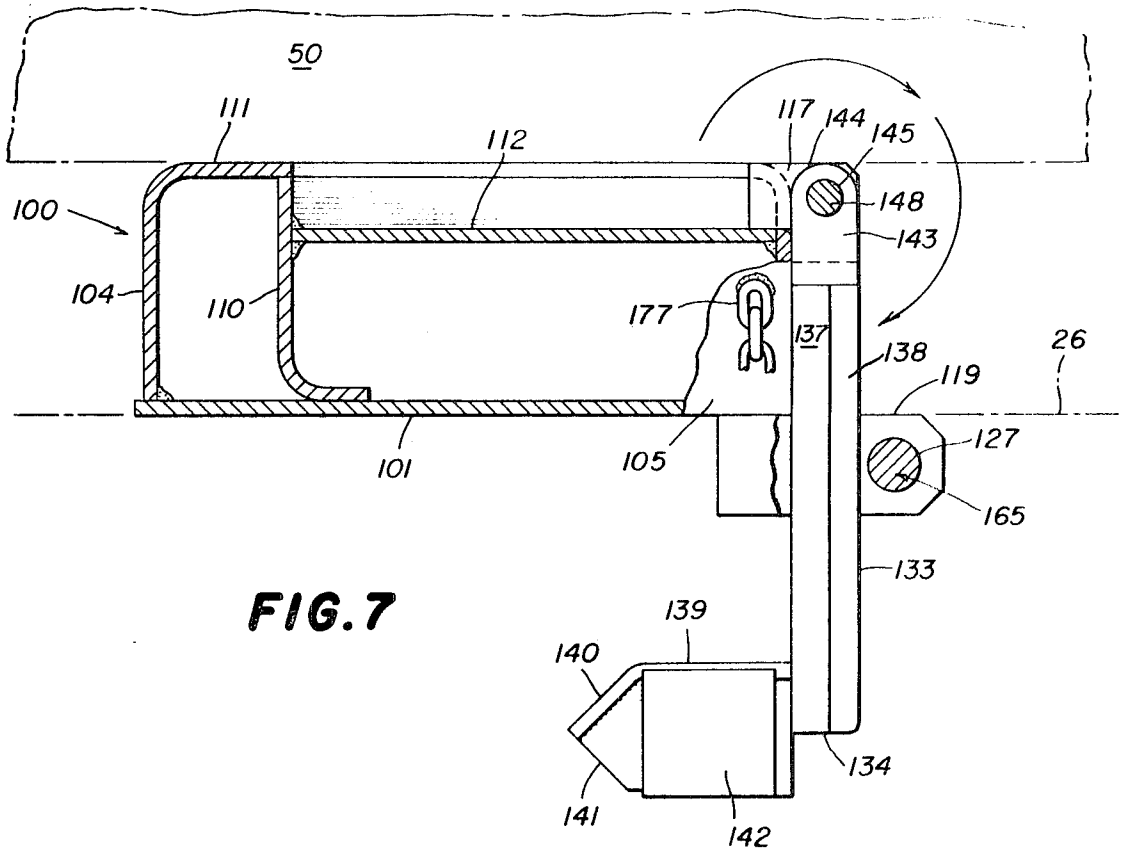

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FIG. 7

FIG. 8

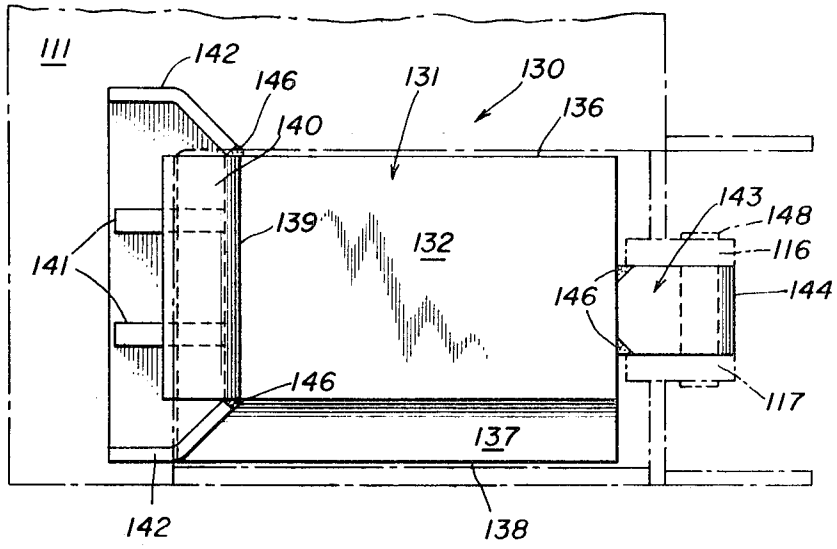


FIG. 9

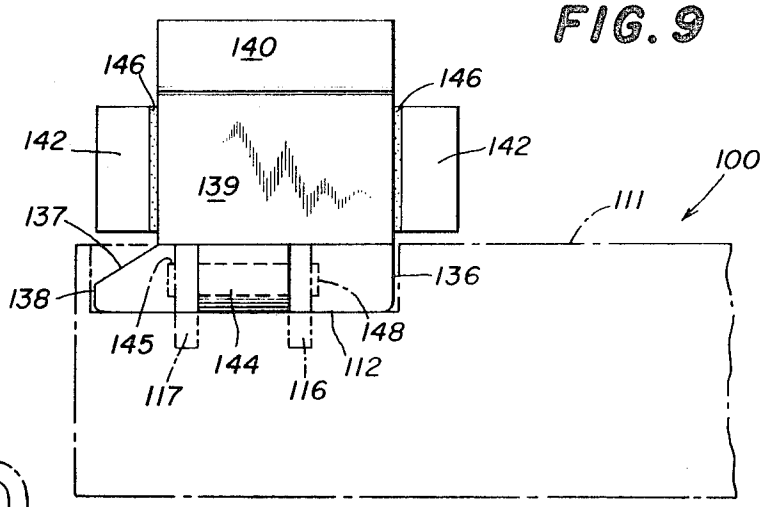


FIG. 11

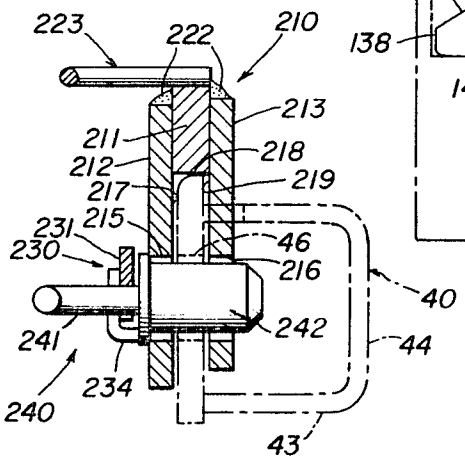
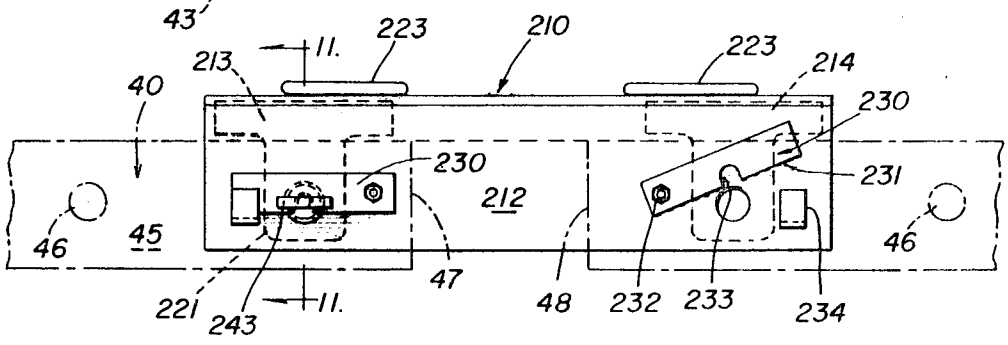


FIG. 10



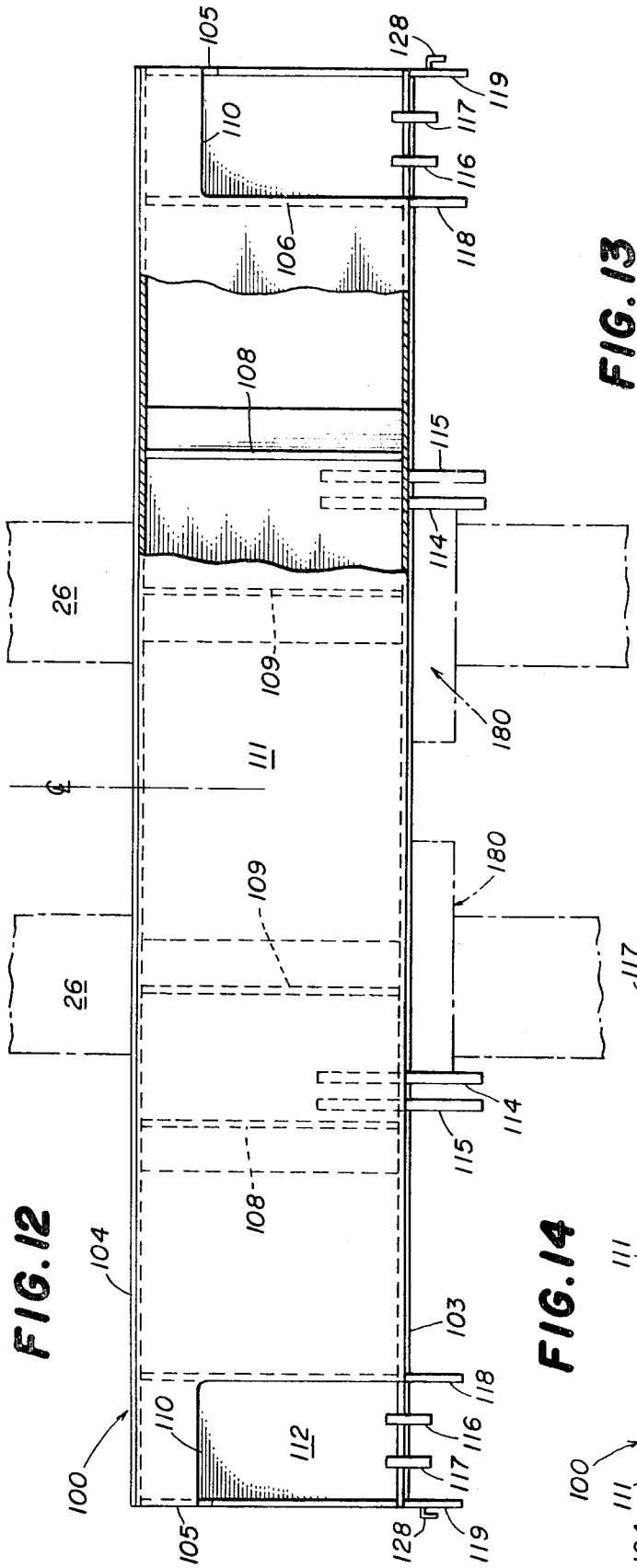


FIG. 12

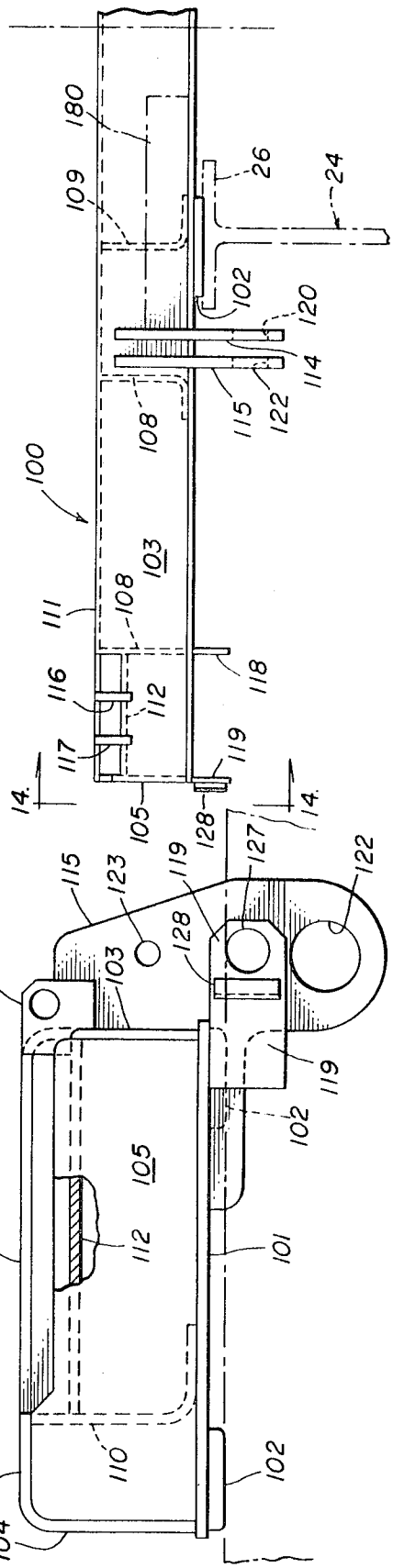


FIG. 13

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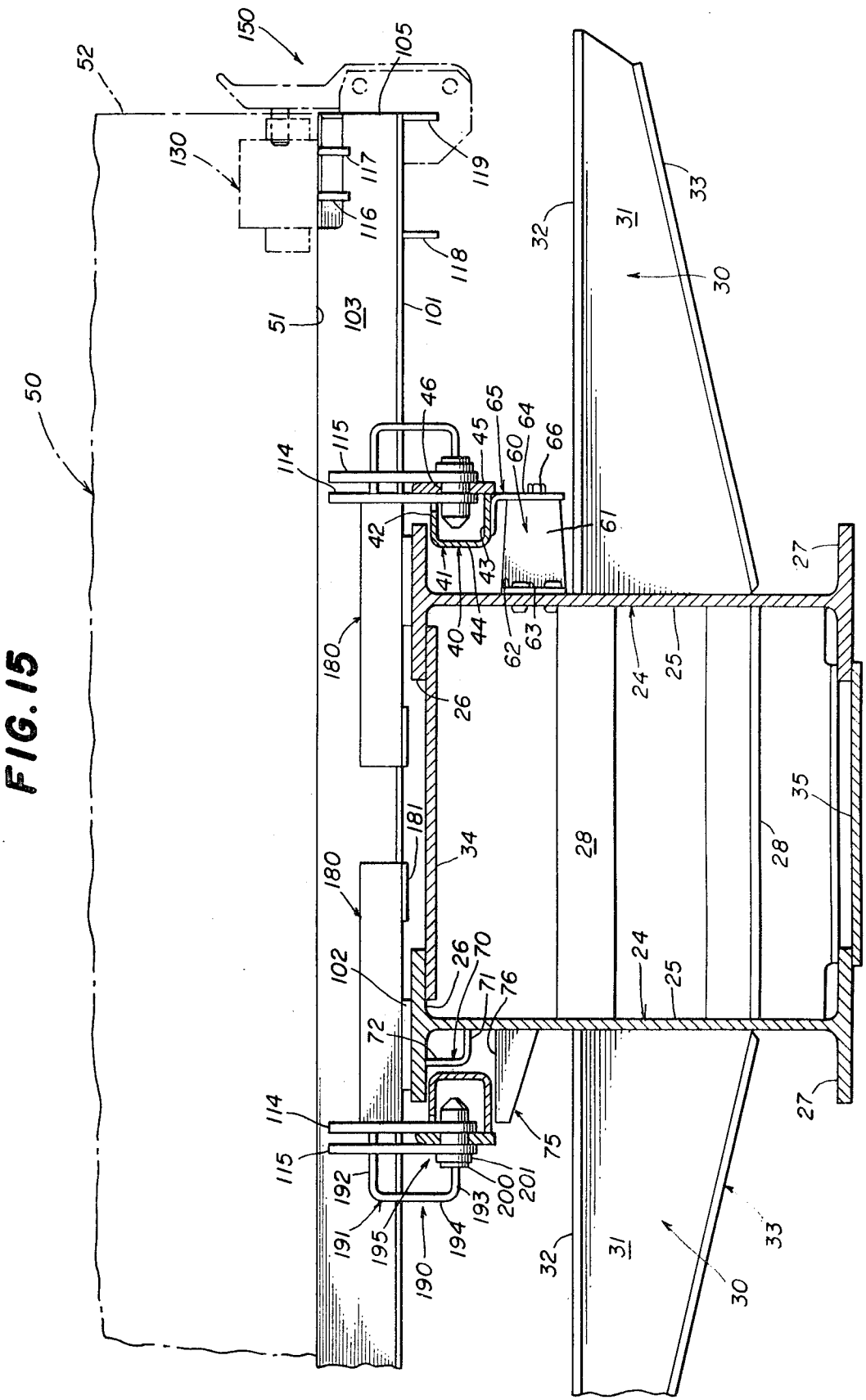

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FIG. 15

FIG. 16

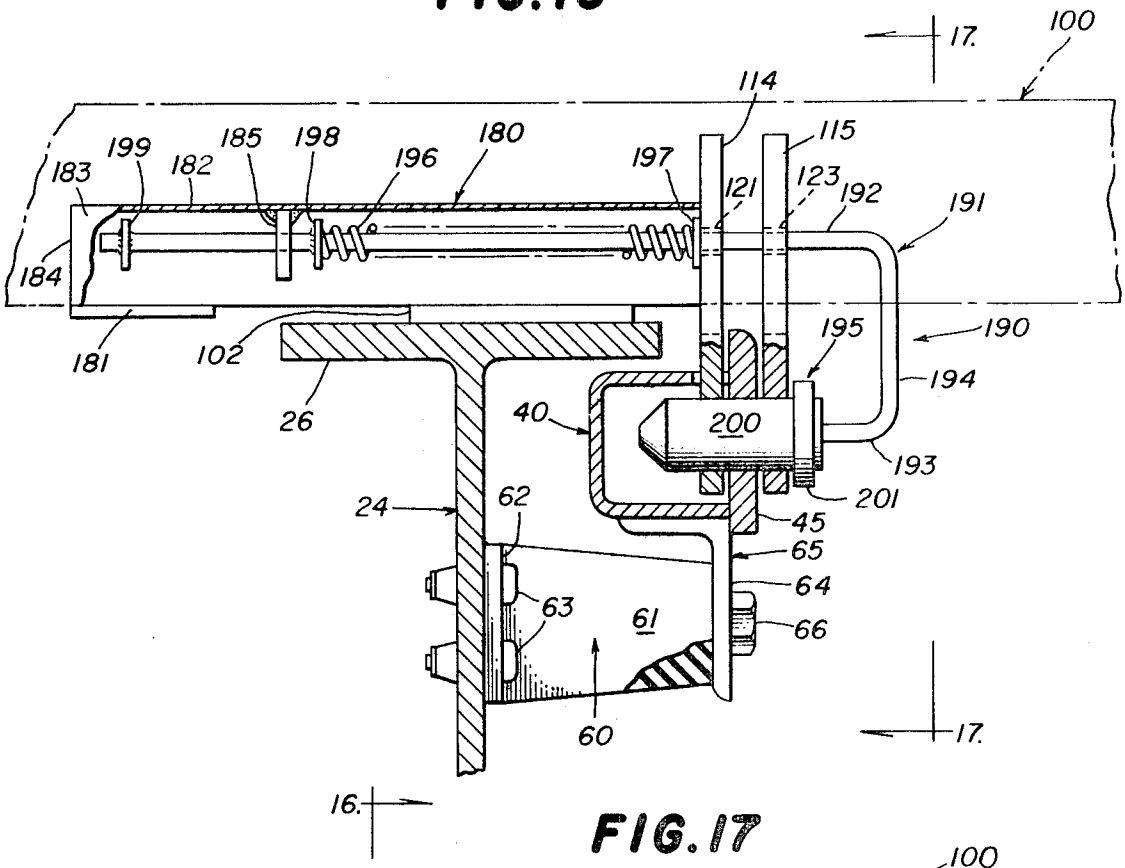
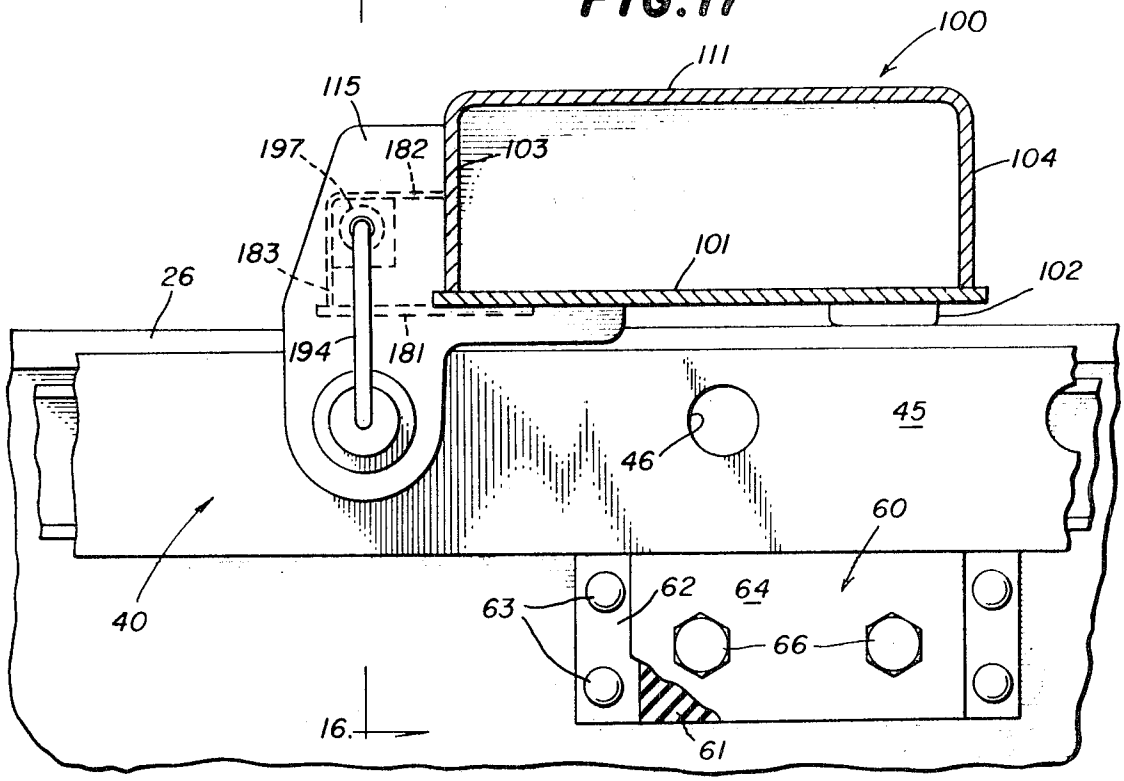

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FIG. 17


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TRANSPORTATION SYSTEM AND COMPONENTS THEREOF

This invention is related to a freight transportation system for mounting freight containers of different lengths and different numbers of freight containers on the bolsters of a railway car without taking the bolsters off the car.

An important object of this invention is to provide a freight transportation system comprising a railway car for transporting freight containers including an elongated longitudinally extending frame having rail wheels, a pair of elongated longitudinally extending narrow beams carried by the frame and extending substantially the entire length thereof, the top surfaces of the beams defining a substantially horizontal plane, at least one pair of longitudinally extending rub rails mounted on the frame, the rub rails of each pair of rub rails being laterally spaced apart a distance slightly greater than the distance between the outer edges of the beams and including respectively outer surfaces having longitudinally spaced and laterally opposed openings therethrough, at least two pairs of bolsters arranged on the top surfaces of the beams and slidable longitudinally therealong, a lock assembly on each bolster selectively engageable with the openings in the rub rails for locking the bolster thereto in position to support a freight container on the upper surface thereof, and a longitudinal stop mounted on each of the bolsters and being shiftable between an operative position and a storage position, the longitudinal stop in the operative position extending above the top surface of the bolster and in position for engaging one end of the freight container mounted on the bolster, the longitudinal stop in the storage position being disposed below the top surface of the bolster and out of position for engaging the freight container mounted on the bolster, the two pairs of bolsters with the longitudinal stops thereof in the operative positions thereof serving respectively to mount two freight containers thereon, the two pairs of bolsters with the longitudinal stops of the end ones thereof in the operative positions thereof and with the longitudinal stops of the intermediate ones thereof in the storage positions thereof serving collectively to mount a single freight container extending across the intermediate bolsters, whereby freight containers of different length and different numbers of freight containers may be secured to the rub rails of the railway car by the two pairs of bolsters.

Another object of the invention is to provide a freight transportation system of the type set forth, wherein a slide pan is mounted on the underside of the bolster and in contact with the top surface of the beams for facilitating longitudinal sliding therealong.

Another object of the invention is to provide a freight transportation system of the type set forth, wherein the longitudinal stop is pivotal through an angle of 270° between the operative position and the storage position.

Another object of the invention is to provide a freight transportation system of the type set forth, wherein the longitudinal stop includes a generally rectangular abutment surface, a retaining wall disposed substantially normal to the abutment surface, the retaining wall having a guide surface thereon inclined in use downwardly toward the abutment surface for guiding the corner of the freight container toward the abutment surface, and a reinforcing support for the guide surface.

Another object of the invention is to provide a freight transportation system of the type set forth, and further comprising means for locking the longitudinal stop in the operative position and in the storage position.

Another object of the invention is to provide a freight transportation system of the type set forth, wherein each bolster includes a base, a front wall disposed on and substantially normal to the base, and a finger mounted on the base and having a portion extending forwardly of the base and the front wall with an opening therethrough, and wherein the lock means comprises a driftpin insertable in the opening in the finger, the longitudinal stop in the storage position being disposed forwardly adjacent to the front wall, whereby insertion of the driftpin through the opening in the finger locks the longitudinal stop in the storage position.

Another object of the invention is to provide a freight transportation system of the type set forth, and further comprising a side lock assembly mounted on the bolster and engageable with the freight container to prevent lateral and vertical movement thereof, whereby to prevent longitudinal, vertical and lateral displacement of the freight container with respect to the two pair of bolsters.

Another object of the invention is to provide a freight transportation system of the type set forth, and further comprising a driftpin for use alternatively to lock the longitudinal stop in the storage position and to lock the side lock assembly to the freight container to prevent lateral and vertical movement thereof with respect to the bolster.

Another object of the invention is to provide a freight transportation system of the type set forth, and further comprising at least two pairs of longitudinally extending rub rails mounted on the frame, the rub rails on each side of the beam being longitudinally spaced apart a predetermined distance, a pair of rub rails connecting links each having a length greater than the predetermined distance and each including an outer surface having longitudinally spaced and laterally opposed openings therethrough with laterally opposed pairs of openings at either end of the link respectively aligned with an opening in the adjacent rub rail, a pair of latch assemblies respectively engageable with the aligned openings in one of the connecting links and the adjacent rub rails for locking the one connecting link to the rub rails thereby to interconnect the adjacent rub rails.

Another object of the invention is to provide a bolster for mounting freight containers on the top surface of a railway car carrying longitudinally extending rub rails mounted on the opposite sides thereof and having laterally opposed openings therein, the bolster comprising a box beam, a lock assembly mounted on the box beam and selectively engageable with the openings in the rub rails for locking the box beam thereto in position to support a freight container on the upper surface thereof, and a longitudinal stop mounted on the box beam and being shiftable between an operative position and a storage position, the longitudinal stop in the operative position extending above the top surface of the box beam and in position for engaging one end of the freight container mounted on the box beam, the longitudinal stop in the storage position being disposed below the top surface of the box beam and out of position for engaging the freight container mounted on the box beam, whereby the bolster with the longitudinal stop in the operative position thereof serves both to support one end of a freight container and to restrain the same against longitudinal movement, and whereby the bolster with the longitudinal stop in the storage position thereof serves to support a freight container extending thereacross.

Further features of the invention pertain to the particular arrangement of the parts of the freight transportation system and of the bolster forming a part thereof, whereby the above-outlined and additional operating features thereof are attained.

The invention, both as to its organization and method of operation together with further objects and advantages thereof, will best be understood by reference to the following specification taken in connection with the accompanying drawings in which:

FIG. 1 is a side elevational view of a freight transportation system made in accordance with and embodying the principles of the present invention;

FIG. 2 is a side elevational view of the freight transportation system of FIG. 1 and further illustrating the rub rail connecting links;

FIG. 3 is a fragmentary plan view of the railway car of FIG. 1 with no freight containers mounted thereon;

FIG. 4 is a fragmentary side elevational view of the bolster and the side lock assembly made in accordance with the present invention;

FIG. 5 is a front elevational view along the line 5—5 of FIG. 4;

FIG. 6 is a view in vertical section along the line 6—6 of FIG. 5;

FIG. 7 is a view in vertical section similar to FIG. 6 but showing the longitudinal stop in the storage position;

FIG. 8 is a plan view of the longitudinal stop in the operative position;

FIG. 9 is a front elevational view of the longitudinal stop of FIG. 8;

FIG. 10 is a side elevational view of a rub rail connecting link illustrated in the operative position on two rub rails illustrated in phantom;

FIG. 11 is a view in vertical section along the line 11—11 of FIG. 10;

FIG. 12 is a plan view of the bolster with a portion of the top surface thereof broken away;

FIG. 13 is a fragmentary front elevational view of one end of the bolster of FIG. 12;

FIG. 14 is a view along the line 14—14 of FIG. 13 with a part of the sidewall broken away to illustrate a section of an inner reinforcing wall;

FIG. 15 is an enlarged sectional view of the freight transportation system of FIG. 1 along the line 15—15 thereof;

FIG. 16 is a view in vertical section along line 16—16 of FIG. 17 of the means for locking the bolster to the rub rail; and

FIG. 17 is a view in vertical section along the line 17—17 of FIG. 16.

Referring now to FIGS. 1 through 3 of the drawings, there is shown a freight transportation system made in accordance with and embodying the principles of the present invention.

As illustrated in FIG. 1 the freight transportation system includes a railway car 20 carrying a plurality of pairs of bolsters 100, the two pairs of the bolsters 100 disposed to the left being in the operative positions thereof and each supporting a freight container 50, and a pair of the bolsters 100 disposed to the right being in the operative positions thereof and serving to mount a longer freight container 55, the freight container 55 extending across an intermediate pair of bolsters 100 disposed in the storage positions thereof.

The railway car 20 includes a frame carrying an elongated center sill 21 having a side 22 with a fish belly configuration as shown in FIGS. 1 and 2, and flanged rail wheels 23 of standard rail gauge. The rail wheels 23 are adapted to engage the rails (not shown) of an associated railway track. As illustrated in FIG. 15, the center sill 21 is of composite construction, including a pair of laterally spaced-apart and longitudinally extending I-beams 24 having the usual top and bottom flanges or rails 26 and 27 and connecting web 25. The beams extend substantially the entire length of the railway car 20. In the center sill 21, the top flanges 26 of the two I-beams 24 are arranged in a substantially horizontal plane and constitute a pair of longitudinally extending and laterally spaced-apart rails. The I-beams 24 are interconnected by horizontally arranged braces 28 to provide a strong and rigid construction. Further support is given the structure by a tie plate 34 welded to the underside of the adjacent top flanges 26 of the I-beams 24 and tie plate 35 welded to the underside of the bottom flanges 33. There further is provided on each end of the railway car 20 a suitable coupling mechanism 29 for connecting the car 20 in the usual railway train.

As is illustrated in FIGS. 3 and 15, there are mounted on the center sill 21 at longitudinally spaced positions therealong and extending outwardly from both sides thereof side arms 30. Each of the sidearms 30 includes a vertically arranged web 31 that is suitably secured as by welding to the web 25 of the adjacent I-beam 24, the web 31 having a generally horizontally arranged top flange 32 on the upper edge thereof, and an upwardly and outwardly inclined bottom flange 33 on the lower edge thereof. The lower outer portion of the web 31 is cut away, whereby the top flange 32 terminates at a point spaced outwardly with respect to the outer end of the bottom flange 33. A platform 36 is supported by the sidearms 30 as illustrated in FIG. 3 and another platform 37 having approximately squared corners is also supported by the side arms 30.

Mounted on each side of the frame of the railway car 20 and having segments extending the length thereof are pairs of laterally spaced-apart rub rails 40. The rub rails 40 of each pair of rub rails 40 are laterally spaced apart a distance slightly greater than the distance between the outer edges of the beams 24 and are identical in construction, whereby like reference numerals have been applied to like parts thereof and only one rub rail 40 will be described in detail.

The rub rail as illustrated in FIGS. 15 and 16 is essentially a U-shaped outwardly opening channel 41 in cross section and includes an upper substantially horizontal flange 42 and a lower substantially horizontal flange 43 extending outwardly a greater distance than the upper flange 42, the flanges 42 and 43 being connected at the respective inner ends thereof by a substantially vertical web 44. A longitudinally extending outer plate 45 is welded to the outermost end of the lower horizontal flange 43, and extends upwardly above the top surface of upper flange 42. The outer plate has a longitudinally arranged row of openings 46 therein whereby the openings 46 on each pair of mounted rub rails 40 are laterally disposed. The adjacent rub rails along each side of the railway car 20 are longitudinally spaced apart equal distances, the end of the one rub rail being given the numeral 47 and the beginning of the adjacent rub rail being given the numeral 48.

The rub rails 40 are mounted upon the railway car 20 by means of a plurality of shear pads 60, see FIGS. 15, 16, and 17 particularly. Each of the shear pads 60 includes a block 61 of elastomeric material such, for example, as live rubber, the inner surface of the block 61 being securely bonded to an inner mounting plate 62 that is secured by bolts 63 to the adjacent interconnecting web 25 of the I-beam 24 and the outer surface of the block 61 is secured to a substantially vertical flange 64 of an L-shaped angle iron 65 by a plurality of fasteners 66, two of the fasteners 66 having been illustrated in FIG. 17. The inwardly extending horizontal flange of the L-shaped angle iron 65 has its upper surface fixedly secured to the bottom surface of the lower horizontal flange 43 of rub rail 40 as by welding. As a consequence, it will be appreciated that the rub rail 40 is resiliently mounted to the I-beam 24 by means of the shear pads 60 for independent limited and cushioned longitudinal movements with respect to the railway car 20.

It is desirable to control in a positive manner the lateral position of the rub rail 40 with respect to the I-beam 24, and to this end lateral support structures or lateral bumpers 70 have been provided at longitudinally spaced-apart points between each of the rub rails 40 and the associated I-beam 24. Referring specifically to FIG. 15 of the drawings, the construction of a typical one of such lateral support structures 70 includes a generally horizontal portion 71 having its free end fixedly secured as by welding to the outer surface of the web 25 and having a substantially vertical lateral arm 72 carried on the other end of the support arm 71, the lateral arm 72 being welded to the bottom surface of the top flange 26 of the I-beam 24. As a result of the above-described construction, the rub rail is free to move longitudinally of the railway car 20 in accordance with the characteristics of the shear pads 60. However, any lateral movement of the rub rail 40 with respect to the railway car 20, is positively restrained by the arm 72 acting against the web 44 of the rub rail 40.

Vertical movement of the rub rail 40 with respect to the railway car 20 is also controlled and limited by a plurality of vertical support structures 75 associated with each of the rub rails 40, eleven of such vertical support structures 75 has provided in association with each of the rub rails 40. A typical one of such vertical support structures 75 has provided on its upper edge a horizontally arranged bearing member or plate 76 which is disposed beneath the lower horizontal flange 43 of rub rail 40. It will be appreciated that, when a container 50 is disposed upon a bolster 100, which is in turn resting upon the rub rails 40, there will be a tendency for the shear pads 60 to permit downturned movement of the associated rub rails 40 until the lower surface of the lower horizontal portion 43 rests upon the bearing member 76. The bearing member 76 does

positively limit such downward movement of the associated rub rail 40, whereby to give sliding support for the rub rail 40 during the limited and cushioned longitudinal movements thereof.

Referring now to FIGS. 1 through 3 of the drawings, it will be seen that each railway car 20 is provided with four pairs of bolsters 100. In the interest of brevity, only one of the bolsters 100 will be described in detail since all of the bolsters 100 are identical one to the other. In addition, each bolster 100 is symmetrical about a centerline taken laterally through the mounted bolster as illustrated in FIG. 12 and therefore the same numbers will be used on the laterally opposed symmetrical members. The bolsters 100 are arranged on the top surfaces 26 of the I-beams 24 and slidable longitudinally therealong, whereby it will be seen that a pair of bolsters 100 is provided for mounting each of the freight containers 50 thereon.

Referring now to FIGS. 4 through 8 and 12 through 14 of the drawings, the details of construction of the bolster 100 will be described. The bolster 100 includes a generally rectangular baseplate 101 that is substantially flat and has secured to the underside thereof two pair of slide pans 102, each pair of the slide pans 102 being longitudinally aligned and adapted to rest upon the flat upper surface 26 of the associated beams 24 for facilitating sliding movement therealong. Extending upwardly from the baseplate 101 is a front wall 103 and a backwall 104 and two sidewalls 105, all of the upwardly extending walls being secured to the baseplate 104 as by welding. The backwall 104 is substantially parallel to the front wall 103 and both of these walls extend substantially the entire lateral distance of the bolster 100. The two sidewalls 105 are also substantially parallel to each other and abut the backwall 104 and the front wall 103, whereby the four walls 103 and 104 and 105 form a substantially rectangular box beam. Two reinforcing inner walls 106 extend upwardly from the base plate 101 and are disposed between and substantially parallel to the sidewalls 105 to strengthen the construction of the bolster. Four additional reinforcing upwardly extending L-shaped walls 108 and 109 disposed parallel to the two sidewalls 105 provide additional strength to the bolster, each of the walls 109 and 110 having a bottom flange that is rigidly secured to the top surface of the baseplate 101. Yet another upwardly extending L-shaped reinforcing wall 110 disposed parallel to the front wall 103 between the sidewall 105 and the reinforcing wall 106 is secured to the baseplate 101. A top plate 111 is disposed parallel to the baseplate 101 and is secured to the uppermost ends of the walls 103 through 110. A recess is provided in each front side corner of the bolster 100, and is defined by a plate 112, the plate 112 being generally rectangular in form and disposed horizontally between the top surface of the front wall 103 and the front surface of the reinforcing wall 110 and between the facing side surfaces of the sidewall 105 and the reinforcing wall 106.

Extending outwardly from the front wall 103 of the bolster 100 are several appendages and more particularly are mounting plates 114 and 115 and mounting brackets 116 and 117 and fingers 118 and 119. The inner mounting plate 114 and the outer mounting plate 115 are similarly shaped and each has an upwardly extending flange and a rearwardly extending flange, the top surface of the rearwardly extending flange being secured to the underside of the baseplate 101 and the rear surface of the upwardly extending flange being secured to the front surface of the front wall 103. The plates 114 and 115 are disposed between the reinforcing walls 108 and 109 and parallel to one another and to the sidewalls 105. Each of the mounting plates 114 and 116 has two lateral openings therethrough. A lower opening 120 in plate 114 is parallel to and vertically disposed from an upper opening 121 therethrough and has a much greater diameter than the opening 121. A corresponding relationship exists between a lower opening 122 and an upper opening 123 in the plate 115. The upper openings 121 and 123 are laterally aligned as are the lower openings 120 and 122.

The inner mounting bracket 116 and the outer mounting bracket 117 have similar shapes as shown in FIG. 14, each bracket having a right-angle notch in the lower rear corner thereof with the surfaces of the bracket that form the notch abutting the front wall 103 and the horizontal plate 112 for securing each bracket respectively thereto. The inner bracket 116 and the outer bracket 117 are disposed symmetrically between the sidewall 105 and the reinforcing inner wall 106 parallel to one another and to the walls 105 and 106 so that the flat top surfaces of the brackets 116 and 117 are flush with the top surface of the top plate 111 of the bolster 100. The mounting bracket 116 has an opening 124 laterally therethrough in the upper front corner thereof which opening 124 is laterally disposed from and linearly aligned with corresponding opening 125 in the outer mounting bracket 117.

The inner finger 118 is longitudinally aligned with the reinforcing inner wall 106 and has a rearwardly extending portion with the top surface thereof secured to the underside of the baseplate 101 and a portion extending forward of the front wall 103 having an opening 126 laterally therethrough. Similarly, the outer finger 119 is longitudinally aligned with the sidewall 105 and has a rearwardly extending portion with the top surface thereof secured to the underside of the baseplate 101 and a forwardly extending portion extending in front of the front wall 103 and having an opening 127 laterally therethrough. The fingers 118 and 119 are parallel to one another and the openings 126 and 127 are laterally aligned with one another. In addition, an L-shaped keeper 128 is secured to and extends outwardly from the outer surface of the finger 119 and is disposed rearwardly of the opening 127.

As illustrated in FIGS. 16 and 17, a housing 180 extends forwardly of the front wall 103 of the bolster 100 and laterally across the top surface of the rail 26 of the I-beam 24. The housing has a partial bottom wall 181 with a vertical thickness less than that of the slide pan 102, and a top wall 182 that is parallel to the bottom wall 181, and a front wall 183 that is disposed in front of and parallel to the front wall 103 of the bolster 100 and an inner sidewall 184 that is parallel with the inner lateral surface of the mounting plate 114. The front wall 103 of the bolster serves as the back wall of the housing and in combination with the walls 181, 182, 183, and 184 and the inner mounting plate 114 defines a hollow box. A support member 185 is secured to the top wall 181 and the front wall 183 and depends into the box, the support member 185 being disposed parallel to the sidewall 184 and the inner mounting plate 114 intermediate therebetween and having an opening 186 laterally therethrough, the opening 186 having the same diameter as and being laterally aligned with the opening 121 in the mounting plate 114 and the opening 123 in the mounting plate 115.

A lock assembly 190 is associated with each bolster 100 and is selectively engageable with the openings 46 in the rub rails 40 for locking the bolster 100 thereto in position to support a freight container 50 on the upper surface thereof. Each bolster 100 has two lock assemblies 190 associated therewith, and each lock assembly 190 is identical to the other, being laterally disposed therefrom. Furthermore, the lock assembly 190 includes an integral U-shaped rod 191 and a lockpin 195 and a spring 196. The rod 191 includes a horizontal upper portion 192 and a horizontal lower portion 193 connected by a bight 194 that is substantially normal to the portions 192 and 193. Disposed on the upper horizontal portion 192 and integral therewith is an outer collar 197 and an intermediate collar 198 and a rear collar 199. The lockpin 195 is integral with and disposed on the inner end of the lower portion 193 of the rod 191. The lockpin 195 includes a cylindrical head 200 secured to the end of the horizontal rod 193 and a collar 201 flanged outwardly therefrom near the rod 193. A major portion of the upper portion 192 of the rod 191 is disposed within the housing 180, extending through the openings 186 and 121 and 122, the outer surface of the outer collar 196 being spaced laterally inwardly from the inner surface of the mounting plate 114 and the inner surface of the intermediate collar

198 being spaced laterally outwardly from the guide wall 185 within the housing 180. The spring 196 is spirally disposed around the upper portion 192 of the U-shaped rod 191 between the collars 197 and 198. The inner collar 199 is disposed near the inner end of the rod 192 between the sidewall 184 and the guide wall 185 of the housing 180.

To slide the bolster 100 longitudinally along the rail 26, the lock assembly 190 is disengaged with the openings 46 in the rub rail 40. The lockpins 195 are moved laterally outwardly out of engagement with the rub rail 40 by outwardly pulling on the bight portion 194 of the U-shaped rod 191 with a force sufficient to overcome the inwardly urging force of the spring 196. The bolster 100 is then slid to the desired position, the lockpin 195 being laterally disposed outwardly from the selected opening 46 in the rub rail 40. The rod 191 is thereupon released and the spring 196 urges the lockpin 195 into a locking engagement with the rub rail 40. In this locking engagement the head 200 of the lockpin 195 is urged inwardly through the lower opening 122 in the outer mounting plate 115, the opening 45 in the rub rail 40, and the lower opening 120 in the inner mounting plate 114 and into the recess formed laterally inwardly within the rub rail 45. In this position the outer surface of the collar 197 abuts the inner surface of the inner rub rail 115. The continuously urging of the spring 196 maintains the locking engagement between the lockpin 195 and the rub rail 40. This locking arrangement is maintained by each of the two lockpin assemblies 190 on each bolster 100.

Referring now to FIGS. 6 through 8, a longitudinal stop 130 or pedestal will be described. Associated with each bolster 100 is a pair of longitudinal stops 130 and 130A. Although two forms of the longitudinal stops 130 are provided, namely, the form designated 130 and the form designated 130A, the only difference between these stops 130 and 130A is that one is the mirror image of the other. In the interest of brevity, only the longitudinal stop 130 will be described in detail, like reference numerals with the suffix "A" thereon being applied to like parts of the stop 130A.

The longitudinal stop 130 comprises a baseplate 131 and a back retaining wall 139 and a guide flange 140. The baseplate 131 includes an abutment surface 132, a bottom surface 133 that is parallel to the abutment surface 132, a rear surface 134, a front surface 135 that is parallel to the back surface 134, and inner side surface 136, an outer side surface 137 that is adjacent to the top surface 132 and is outwardly and downwardly declined therefrom, and a vertical outer side surface 138 that intersects the surface 137 and the bottom surface 133 and is parallel to the inner side surface 136. The distance between the abutment surface 132 and the bottom surface 133 of the baseplate 131 is equal to or slightly less than the vertical height of the recess defined in the upper front portion of the bolster 100, and the distance across the bottom surface 133 is slightly less than the lateral distance between the inner lateral surface of the sidewall 105 and the outer lateral surface of the inner wall 106, whereby the baseplate 131 of the longitudinal stop 130 fits snugly into the recess. Secured to the top surface 132 of the baseplate 131 near the rear thereof and parallel to the front surface 135 is the upstanding back retaining wall 139 having a width equal to the lateral distance across the abutment surface 132. Integral with the back retaining wall and carried at the upper end thereof is a rearwardly and outwardly extending guide flange 140. Two gussets 141 are secured to the top surface of the baseplate 131 and extend upwardly therefrom, the gussets 141 being disposed parallel to each other and to the side surfaces 136 and 138 with the front surface of each of the gussets 141 abutting the rear surface of the back retaining wall and the underside of the guide flange 140 to provide a reinforcing support therefor. Secured to each of the outer lateral edges of the retaining wall 139 is an end of a flange 142, each of the flanges 142 extending laterally outwardly and rearwardly from the wall 139 and having a bend therein so that the other end of the flange 142 is disposed parallel to the side surfaces 136 and 138. The bottom surfaces of the flanges 142 are vertically spaced from the abutment surface 132. The flanges 142 are secured to the wall by welds illustrated by the numeral 146. Depending forwardly from the front surface 135 of the baseplate 131 is a block 143. The block has a flat rear surface and flat parallel sides and a curved forwardly extending surface 144, the flat surface of the block being secured to the front surface 135 of the plate 131 by welds 146. An opening 45 is drilled laterally through the side surfaces of the block and the distance between the flat side surfaces is slightly less than the distance between the inner surface of the mounting bracket 117 and the outer surface of the inner mounting bracket 116, whereby the block fits snugly therebetween.

The longitudinal stops 130 are pivotally mounted in each corner recess of each bolster 100 by inserting a pivot pin 148 through the opening 124 in the inner mounting bracket 116, the opening 145 in the block 153 and the opening 125 in the outer mounting bracket 117. The longitudinal stop 130 is shiftable between an operative position and a storage position, the operative position being illustrated in FIG. 6 and the storage position being illustrated in FIG. 7.

Referring now to FIG. 6 the longitudinal stop is shown in the operative position. The abutment surface 132 lies flush with the top surface of the top plate 111. The back retaining wall 139 extends vertically upwardly therefrom, the longitudinal stop 130 extending above the top surface 111 of the bolster 100, and is in position for engaging one end of the freight container 50 when it is mounted on the bolster 100. The top surface of the guide wall 140 serves to guide the end of the freight container toward the abutment surface 132. The gussets 141 serve to reinforce the guide wall 140. The weight of the freight container 50 locks the longitudinal stop 130 in the operative position.

The longitudinal stop 130 is pivotal about the pivot pin 148 through an angle of substantially 270° from the operative position to the storage position as shown in FIG. 7. In the storage position the abutment surface 132 of the longitudinal stop 130 is disposed forwardly adjacent to the front wall 103 whereby the entire longitudinal stop 130 is disposed below the top surface 111 of the bolster 100 and out of position for engaging the freight container 50, which may be mounted on the bolster 100. The locking of the longitudinal stop in the storage position will be described in a later section of this application.

Referring now to FIGS. 4 and 5, a side lock arrangement is shown in the form of a side lock assembly 150 which comprises two mounting plates 151 and 152, a retaining plate 160, a driftpin 165, a pivot pin 170 and a latch 175. The mounting plates 151 and 152 are similar in shape, the plate 151 having a laterally inwardly extending flange portion and an upwardly extending flange portion, the top of the inwardly extending flange being secured to the underside of the baseplate 101 and the inner surface of the upwardly extending flange portion being secured to the outer surface of the sidewall 105 of the bolster 100, the mounting plate 151 protruding laterally outwardly of the sidewall 105 of the bolster 100. The bottom portion of the mounting plate 151 is longitudinally spaced apart from the bottom portion of the mounting plate 152 and the upper portion of the respective plates is angled longitudinally outwardly therefrom, the plates 151 and 152 appearing to form a truncated V. The plate 151 has two openings longitudinally disposed therethrough, a lower opening 154 and an upper opening 155 parallel to and vertically disposed with respect to one another, each opening having a diameter that is the same as the diameter of the opening 127 in the outer finger 119 and the opening 126 in the inner finger 118. The plate 152 also has two openings longitudinally disposed therethrough, a lower opening 156 and an upper opening 157 parallel to and vertically disposed with respect to one another, each opening having a diameter that is essentially the same as the diameter of the opening 127 in the outer finger 119 and the opening 126 in the inner finger 118. The lower opening 154 in the plate 151 is longitudinally aligned with the lower opening 156 in the plate 152 as is the upper openings 155 with the upper opening 157 in the respective plates.

The integral retaining plate 160 includes a flat base portion 161 and an upper portion 162 and a leg portion 163. The upper portion 162 is inclined outwardly from the base portion 161 in a direction away from the back surface of the base 161, the back surface of the base 161 and the leg 163 being flat and continuous. The side surfaces of the leg 163 are disposed substantially parallel to each other and are spaced apart a distance substantially less than the distance between the side edges of the base 161, see FIG. 4.

Referring to FIG. 5, it will be seen that the front and back surfaces of the leg 163 are also disposed parallel to each other and are spaced apart a distance greater than the distance between the front and back surfaces of the base 161. In addition, the side surfaces of the leg 163 are spaced apart less than the distance between the bottom portions of the mounting plates 151 and 152 so as to allow the side surfaces of the leg 163 to fit between the respective plates with the back surfaces of the leg 163 adjacent to the sidewall 105 of the bolster 100. The leg 163 of the plate 160 has a lower opening 164 laterally therethrough and an upper opening 166 laterally therethrough, the openings 164 and 166 being vertically spaced from one another a distance slightly less than the distance between the openings 154 and 155 in the outwardly angled support 151 and having a diameter on the same order of magnitude as the diameter of the openings 154 and 155. The base portion 161 of the retaining plate 160 also has a lateral opening 167 therethrough.

The driftpin 165 comprises a cylindrical shank portion 168, a collar portion 169 and a handle 171. A chain 177 links the outer surface of the sidewall to the driftpin 165, thereby to prevent the pin 165 from being lost or misplaced. The diameter of the shank portion of the drift pin is slightly less than the diameter of the openings 155 and 157 of the respective mounting plates 151 and 152. The collar 169 is substantially a thin annular flange intermediate the ends of the shank portion 168 and nearer to the handle 171, the collar 169 having a flat surface 178 between the shank ends. A keeper 179 extends outwardly from the sidewall 105 adjacent to the upper opening 155 in the mounting plate 151. The pivot pin 170 is cylindrical and has a diameter on the same order of magnitude as the diameter of the driftpin 165.

The latch 175 includes a handle portion 172 and a shank pin portion 173, a chain 174 linking the latch 175 to the retaining plate 160.

The side lock 150 is mounted on the bolster 100 and shiftable between an operative position and a storage position. The position of the side lock arrangement 150 corresponds to that of the longitudinal stop 130 so that the arrangement 150 and the stop 130 are both in either the operative position of the storage position when they are in use. In the operative position as illustrated by FIGS. 4 and 5, the side lock assembly 150 engages a sidewall 52 of the freight container 50 to prevent lateral and vertical movement thereof with respect to the bolster 100. In the storage position (not shown), the side lock assembly is out of position to engage the freight container 50.

In the operative position the retaining plate 160 is positioned with its back surface adjacent the sidewall 52 of the freight container 50 and the sidewall 105 of the bolster 100. The upper longitudinal opening 166 of the leg 163 is aligned with the upper openings 155 and 157 in the mounting plates 151 and 152 and the lower opening 164 is longitudinally aligned with the lower openings 154 and 156 in the support plates 151 and 162. The pivot pin 170 is inserted through the openings 154 and 156 and 164. The driftpin 165 is aligned so that the flat surface 178 of the collar 169 is vertically aligned with the outer edge of the keeper 179 disposed on the sidewall 105 and the shank 168 of the driftpin 165 is inserted laterally inwardly through the upper openings 155 and 157 in the support brackets 151 and 152 and the upper opening 166 in the retaining plate 160. The handle 171 of the driftpin 165 is then rotated outwardly and downwardly to the position shown in FIGS. 4 and 5, thereby to prevent lateral displacement of the freight container 50. The latch 175 is then inserted through the opening 167 in the base portion 161 of the retaining plate 160 which is laterally aligned with an opening in a standard hollow casting (not shown) disposed in the bottom of the freight container 50 and the handle 172 is rotated to the locking position shown in FIG. 5, the keeper 179 preventing the latch 175 from falling out of the locking position. The hollow casting just mentioned is so constructed that it will receive this latch pin and prevent vertical and lateral displacement of the freight container 50 with respect to the bolster 100.

To store the side lock assembly 150, the plate 160 must be removed. The latch 175 is rotated out of locking position with the hollow casting and removed from the plate 160. The handle 171 of the driftpin 165 is also rotated moving the collar 169 out of locking position with the keeper 179, and the driftpin 165 is removed from engagement with the mounting plates 151 and 152 and the retaining plate 160. The plate 160 is then removed and stored for future use.

The driftpin 165 serves to lock the longitudinal stop 130 in the storage position as illustrated in FIG. 7. The shank 168 of the driftpin 165 is disposed through the opening 127 in the outer mounting finger 119, and the laterally aligned opening 126 in the inner mounting finger 118, extending across and forwardly adjacent of the bottom surface 133 of the baseplate 131, thereby to lock the longitudinal stop in the storage position thereof.

Referring now to FIGS. 2, 10 and 11 a pair of rub rail connecting links 210 is illustrated. The pair of connecting links 210 is laterally spaced apart and each link has a similar construction. The rub rail connecting link 210 comprises a longitudinal plate 211 and an outer plate 212 and two T-shaped inner plates 213 and 214. The longitudinal plate 211 has a length greater than the distance between the end 47 of one rub rail 40 and the beginning 48 to the adjacent rub rail 40, two longitudinally spaced-apart openings 215, and a lateral thickness slightly greater than the thickness of the outer plate 45 of the rub rail 40. The inner surface of the outer plate 212 is secured to the outer surface of the longitudinal plate 211 along the entire longitudinal length thereof. The T-shaped plates 213 and 214 are similarly shaped. The plates 213 and 214 are longitudinally spaced apart and each plate has its outer surface secured to the inner lateral surface of the plate 211, each of the plates being aligned so that the horizontal portion of the T is disposed parallel to the top lateral surface of the outer plate 212 and slightly thereabove with the leg portion 221 depending therefrom. Each T-shaped plate has an opening 216 disposed in the leg portion 221 of the T, the plates 213 and 214 being longitudinally spaced so that the openings 216 are aligned with the openings 215 in the outer plate 211. The inner surface 217 of the outer plate 212 and the bottom surface 218 of the plate 211 and the outer surface 219 of the inner plates 213 and 214 define a hollow recess thereby to allow the rub rail connecting link 210 to fit over the outer plate 45 of the rub rail 40. The plates 212 and 213 and 214 are secured by welds as illustrated at 222. When the connecting link is inserted into position as shown in FIG. 10, the openings 46 on the rub rail 40 are aligned with the openings 215 and 216 in the connecting link 210. Two handles 223 are secured such as by welding to the top surface of the longitudinal plate 211 at longitudinally spaced-apart intervals.

A latching device 230 is secured to the outer surface of the outer plate 212 of the rub rail 210. The latching device 230 includes a substantially rectangular latch 231 having a U-shaped opening 233 along the bottom longitudinal edge thereof and a stud 232 carried by the outer plate 212, thereby to hold one end of the latching device 230 in a fixed position and allowing the other end to pivot around the stud 232. A keeper 234 extends outwardly from the plate 212 for retaining the end of the latch 231 disposed away from the stud 232. The latch 231 may be manually pivoted upwardly about the stud 232.

A lockpin 240 is provided comprising a shaft 241, a body 242 and a head 243. The lockpin 240, with the latch 231 pivoted upwardly, has its body 242 inserted through the openings 215 and 216 in the rub rail connecting link 210 and the opening 46 in the rub rail. The shaft 241 of the lockpin

240 extends outwardly therefrom whereby the U-shaped opening 233 and fits thereover when the latch is pivoted downwardly, and the head 241, which has a lateral distance greater than the distance between the flanges of the U-shaped opening 233, prevents the lockpin assembly 240 from falling out of locking engagement with the rub rail 40 and the rub rail link 210. The rub rail connecting link 2100 is hoisted into position by, either manually or mechanically, grasping the handles 223 and positioning the links 210 between the adjacent rub rails 40.

The rub rail connecting link 210, when in position, ties the adjacent rub rails 40 together and thereby fixes the distance between the end of the rub rail 47 and the beginning 48 of another rib rail, thereby to prevent the adjacent rub rails from moving longitudinally in opposite directions. When a freight container 50 extends across adjacent rub rails 40 the rub rail connecting link 210 prevents the adjacent rub rails from moving in opposite directions thereby to prevent the initiation of opposed forces which might tend to tear the freight container 50 apart.

As shown in FIGS. 1 and 2, there are light bolsters 100 arranged on the top surface of the rails 26, the bolsters 100 being slidable longitudinally therealong with the slide pans 102 mounted on the underside of the bolster 100 in contact with the top surface 26 of the beams 24 for facilitating longitudinal sliding therealong.

The freight container 50 includes a bottom wall 51, two sidewalls 52 that are parallel to one another, two end walls 53 that are parallel to one another and a top wall 54, that is parallel to the bottom wall 51, the walls 51, 52, 53 and 54 forming a hollow rectangular box. As illustrated in FIG. 1 a longer freight container 55 is shown which has the same lateral cross section as the freight container 50. A freight container 56 is also illustrated and has a length between that of the freight container 50 and the freight container 55. Again referring to FIG. 1 the four pairs of bolsters are mounted on the railway car 20 with the two leftmost pairs having the longitudinal stops 130 in the operative positions thereof serving respectively to mount two freight containers 50 thereon. The two rightmost pair of bolsters 100 have the longitudinal stops 130 of the end bolsters 100 in the operative positions thereof and have the longitudinal stops of the intermediate bolsters 100 in the storage positions thereof serving collectively to mount a single freight container 55 extending across the intermediate bolsters 100. The freight container 55 is restrained against longitudinal movement by the stops 130. The side lock assemblies laterally disposed on the sidewalls 105 of each bolster 100 as illustrated in FIG. 15 engages the sidewalls 52 of the container to prevent the container from moving vertically or laterally.

As illustrated in FIG. 2 the rub rail connecting links 210 are inserted across the adjacent rub rails whereby two pair of bolsters serve collectively to mount an intermediate-sized freight container 56 thereacross. The freight container 56 extending across the intermediate bolsters is longitudinally restrained by the longitudinal stops 130 of the bolsters 100.

From the above discussion it is seen that freight containers of different lengths and different numbers of freight containers may be secured to the rub rails 40 of the railway car 20 by two or more pairs of the bolsters.

Also, when the side lock assemblies 150 and the longitudinal stops 130 are in the operative position, the freight containers 50, 55 and 56 are firmly secured to the respective bolsters 100. The side lock assemblies 150 prevent lateral and vertical movement of the freight containers and the longitudinal stops 130 prevent a vertical displacement of the freight containers with respect to the associated endmost bolsters.

In the storage position, the side lock assembly 150 is removed from the railway car and the bolster is stored in the railway car. To store the bolster the longitudinal stop 130 is simply pivoted to the storage position thereof and, when so positioned, the bolster may also serve as an intermediate support for a freight container 50 mounted thereacross.

While there have been described what at present are considered to be the preferred embodiments of the invention, it will be understood that various modifications may be made therein, and it is intended to cover in the appended claims of such modifications as fall within the true spirit and scope of the invention.

What is claimed is:

1. A freight transportation system comprising a railway car for transporting freight containers including an elongated longitudinally extending frame having rail wheels, a pair of elongated longitudinally extending narrow beams carried by said frame and extending substantially the entire length thereof, the top surfaces of said beams defining a substantially horizontal plane, at least one pair of longitudinally extending rub rails mounted in said frame, the rub rails of each pair of rub rails being laterally spaced apart a distance slightly greater than the distance between the outer edges of said beams and including respectively outer surfaces having longitudinally spaced and laterally opposed openings therethrough, at least two pairs of bolsters arranged on the top surfaces of said beams and slidable longitudinally therealong among a plurality of supporting positions, a lock assembly on each bolster selectively engageable with the openings in said rub rails for locking said bolster thereto in a selected one of said supporting positions to support a freight container on the upper surface thereof, and a longitudinal stop mounted on each of said bolsters and being shiftable between an operative position and a storage position with respect to said bolster, said longitudinal stop in said operative position extending above the top surface of said bolster and in position for engaging one end of the freight container mounted on said bolster, said longitudinal stop in said storage position being disposed below the top surface of said bolster and out of position for engaging said one end of the freight container mounted on and supported by said bolster, said two pairs of bolsters with the longitudinal stops thereof in the operative positions thereof serving respectively to mount and longitudinally restrain two freight containers thereon, said two pairs of bolsters with the longitudinal stops of the end ones thereof in the operative positions thereof and with the longitudinal stops of the intermediate ones thereof in the storage positions thereof serving collectively to mount a single freight container extending across and supported by said intermediate bolsters, whereby freight containers of different lengths and different numbers of freight containers may be secured to the rub rails of said railway car by said two pairs of bolsters.

2. The freight transportation system set forth in claim 1, wherein the rub rails are resiliently mounted on said frame for independent, limited and cushioned longitudinal movements with respect thereto.

3. The freight transportation system set forth in claim 1, and further comprising lateral support structures mounted on said beam for accommodating cushioned longitudinal movements of the associated rub rail with respect to said frame while limiting the lateral movement of said rub rail with respect to said frame.

4. The freight transportation system set forth in claim 1, and further comprising vertical support structures mounted on said frame and respectively underlying at least one of said rub rails to limit downward movement of the associated rub rail with respect to said frame while a freight container is mounted on said bolsters.

5. The freight transportation system set forth in claim 1, and further comprising a slide pan mounted on the underside of said bolster and in contact with the top surface of said beams for facilitating longitudinal sliding therealong.

6. The freight transportation system set forth in claim 1, wherein said bolster is substantially hollow beam having recessed portions along the top surface thereof for accommodating and firmly supporting said longitudinal stop.

7. The freight transportation system set forth in claim 1, wherein said lock assembly further comprises an integral U-shaped member having one end shiftably connected to said

bolster and the other end engageable with the openings of said rub rail for locking said bolster thereto.

8. The freight transportation system set forth in claim 1, wherein said lock assembly further comprises a U-shaped member having one end shiftably connected to said bolster and the other end engageable with the openings of said rub rail for locking said bolster thereto, and a spring disposed on said one end for urging the other end into locking engagement with said rub rail.

9. The freight transportation system set forth in claim 1, wherein said longitudinal stop is pivotal between said operative position and said storage position.

10. The freight transportation system set forth in claim 1, wherein said longitudinal stop is pivotal through an angle of substantially 270° between said operative position and said storage position.

11. The freight transportation system set forth in claim 1, wherein said longitudinal stop includes a generally rectangular abutment surface and a retaining wall disposed substantially normal to said abutment surface.

12. The freight transportation system set forth in claim 1, wherein said longitudinal stop includes a generally rectangular abutment surface and a back retaining wall disposed substantially normal to said abutment surface, said back retaining wall having a guide surface hereon inclined in use downwardly toward said abutment surface for guiding the end of the freight container toward said abutment surface.

13. The freight transportation system set forth in claim 1, wherein said longitudinal stop includes a generally rectangular abutment surface, a retaining wall disposed substantially normal to said abutment surface, said retaining wall having a guide surface thereon inclined in use downwardly toward said abutment surface for guiding the corner of the freight container toward said abutment surface, and a reinforcing support for said guide surface.

14. A freight transportation system comprising a railway car for transporting freight containers including an elongated longitudinally extending frame having rail wheels, a pair of elongated longitudinally extending narrow beams carried by said frame and extending substantially the entire length thereof, the top surfaces of said beams defining a substantially horizontal plane, at least one pair of longitudinally extending rub rails mounted on said frame, the rub rails of each pair of rub rails being laterally spaced apart a distance slightly greater than the distance between the outer edges of said beams and including respectively outer surfaces having longitudinally spaced and laterally opposed openings therethrough, at least two pairs of bolsters arranged on the top surfaces of said beams and slidable longitudinally therealong among a plurality of supporting positions, a lock assembly on each bolster selectively engageable with the openings in said rub rails for locking said bolster thereto in a selected one of said supporting positions to support a freight container on the upper surface thereof, a longitudinal stop mounted on each of said bolsters and being shiftable between an operative position and a storage position with respect to said bolster, said longitudinal stop in said operative position extending above the top surface of said bolster and in position for engaging one end of the freight container mounted on said bolster, said longitudinal stop in said storage position being disposed below the top surface of said bolster and out of position for engaging said one end of the freight container mounted on said bolster, and means for locking said longitudinal stop in said operative position and in said storage position, said two pairs of bolsters with the longitudinal stops thereof in the operative positions thereof serving respectively to mount two freight containers thereon, said two pairs of bolsters with the longitudinal stops of the end ones thereof in the operative positions thereof and with the longitudinal stops of the intermediate ones thereof in the storage positions thereof serving collectively to mount a single freight container extending across and supported by said intermediate bolsters, whereby freight containers of different lengths and different numbers of freight containers may be secured to the rub rails of said railway car by said two pairs of bolsters.

15. The freight transportation system set forth in claim 14, wherein the weight of the freight container locks said longitudinal stop in said operative position.

16. The freight transportation system set forth in claim 14, wherein each bolster includes a base, a front wall disposed on and substantially normal to said base, and a finger mounted on said base and having a portion extending forwardly of said base and said front wall with an opening therethrough, and wherein said lock means comprises a driftpin insertable in the opening in said finger, said longitudinal stop in said storage position being disposed forwardly adjacent to said front wall, whereby insertion of said driftpin through the opening in said finger locks said longitudinal stop in said storage position.

17. The freight transportation system set forth in claim 16, wherein said lock means further comprises a keeper integral with said forwardly extending finger for keeping said driftpin in the locking position thereof.

18. A freight transportation system comprising a railway car for transporting freight containers including an elongated longitudinally extending frame having rail wheels, a pair of elongated longitudinally extending narrow beams carried by said frame and extending substantially the entire length thereof, the top surfaces of said beams defining a substantially horizontal plane, at least one pair of longitudinally extending rub rails mounted on said frame, the rub fails of each pair of rub rails being laterally spaced apart a distance slightly greater than the distance between the outer edges of said beams and including respectively outer surfaces having longitudinally spaced and laterally opposed openings therethrough, at least two pairs of bolsters arranged on the top surfaces of said beams and slidable longitudinally therealong among a plurality of supporting positions, a lock assembly on each bolster selectively engageable with the openings in said rub rails for locking said bolster thereto in a selected one of said supporting positions to support a freight container on the upper surface thereof, a longitudinal stop mounted on each of said bolsters and being shiftable between an operative position and a storage position with respect to said bolster, said longitudinal stop in said operative position extending above the top surface of said bolster and in position for engaging one end of the freight container mounted on said bolster, said longitudinal stop in said storage position being disposed below the top surface of said bolster and out of position for engaging said one end of the freight container mounted on and supported by said bolster, said two pairs of bolsters with the longitudinal stops thereof in the operative positions thereof serving respectively to mount two freight containers thereon, said two pairs of bolsters with the longitudinal stops of the end ones thereof in the operative positions thereof and with the longitudinal stops of the intermediate ones thereof in the storage positions thereof serving collectively to mount a single freight container extending across and supported on said intermediate bolsters, and a side lock assembly mounted on said bolster and shiftable between an operative position and a storage position, said side lock assembly in said operative position being in position to engage the freight container to prevent lateral and vertical movement thereof with respect to said bolster, said side lock assembly in said storage position being out of position to engage the freight container, whereby freight containers of different lengths and different numbers of freight containers may be secured to the rub rails of said railway car by said two pairs of bolsters, and whereby to prevent longitudinal, vertical and lateral displacement of the freight container with respect to said two pairs of bolsters.

19. The freight transportation system set forth in claim 18, and further comprising a driftpin for use alternatively to lock said longitudinal stop in said storage position and to lock said side lock assembly to the freight container to prevent lateral and vertical movement thereof with respect to said bolster.

20. A freight transportation system comprising a railway car for transporting freight containers including an elongated lon-

gitudinally extending frame having rail wheels, a pair of elongated longitudinally extending narrow beams carried by said frame and extending substantially the entire length thereof, the top surfaces of said beams defining a substantially horizontal plane, at least two pairs of longitudinally extending rub rails mounted on said frame, the rub rails of each pair of rub rails being laterally spaced apart a distance slightly greater than the distance between the outer edges of said beams and including respectively outer surfaces having longitudinally spaced and laterally opposed openings therethrough, the rub rails on each side of said beam being longitudinally spaced apart a predetermined distance, a pair of rub rail connecting links each having a length greater than said predetermined distance and each including an outer surface having longitudinally spaced and laterally opposed openings therethrough with laterally opposed pairs of openings at either end of said link respectively aligned with an opening in the adjacent rub rail, a pair of latch assemblies respectively engageable with the aligned openings in one of said connecting links and the adjacent rub rails for locking said one connecting link to said rub rails thereby to interconnect the adjacent rub rails, at least two pairs of bolsters arranged on the top surfaces of said beams and slidably longitudinally therealong and respectively disposed on the opposite sides of said links, a lock assembly on each bolster selectively engageable with the openings in said rub rail for locking said bolster thereto in position to support a freight container on the upper surface thereof, and a longitudinal stop mounted on each of said bolsters and being shiftable between an operative position and a storage position, said longitudinal stop in said operative position extending above the top surface of said bolster and in position for engaging one end of the freight container mounted on said bolster, said longitudinal stop in said storage position being disposed below the top surface of said bolster and out of position for engaging the freight container mounted on said bolster, said two pairs of bolsters with the longitudinal stops thereof in the operative positions thereof respectively serving to mount two freight containers thereon, said two pairs of bolsters with the longitudinal stops of the end ones thereof in the operative positions thereof and with the longitudinal stops of the intermediate ones thereof in the storage positions thereof and with said links interconnecting said rub rails serving collectively to mount a single freight container extending across said intermediate bolsters and across said links, whereby freight containers of different lengths and different numbers of freight containers may be secured to the rub rails of said railway car by two pairs of said bolsters.

21. A freight transportation system comprising a railway car for transporting freight containers including an elongated longitudinally extending frame having rail wheels, a pair of elongated longitudinally extending narrow beams carried by said frame and extending substantially the entire length thereof, the top surfaces of said beams defining a substantially horizontal plane, at least two pairs of longitudinally extending rub rails mounted on said frame, the rub rails of each pair of rub rails being laterally spaced apart a distance slightly greater than the distance between the outer edges of said beams and including respectively outer surfaces having longitudinally spaced and laterally opposed openings therethrough, the rub rails on each side of said beam being longitudinally spaced apart a predetermined distance, a pair of rub rail connecting links each having a length greater than said predetermined distance and each including an outer surface having longitudinally spaced and laterally opposed openings therethrough with laterally opposed pairs of openings at either end of said link respectively aligned with an opening in the adjacent rub rail, a pair of latch assemblies respectively engageable with the aligned openings in one of said connecting links and the adjacent rub rails thereby to interconnect the adjacent rub rails, at least two pairs of bolsters arranged on the top surfaces of said beams and slidable longitudinally therealong and respectively disposed on the opposite sides of said links, a pair of lock assemblies on each bolster selectively engageable with the openings in said rub rail for locking said bolster thereto in position to support a freight container on the upper surface thereof, and a pair of longitudinal stops mounted on opposite ends of each of said bolsters and each being shiftable between an operative position and a storage position, each of said longitudinal stops in said operative position extending above the top surface of said bolster and in position for engaging one end of the freight container mounted on said bolster, each of said longitudinal stops in said storage position being disposed below the top surface of said bolster and out of position for engaging the freight container mounted on said bolster, said two pairs of bolsters with the longitudinal stops thereof in the operative positions thereof serving respectively to mount two freight containers thereon, said two pairs of bolsters with the longitudinal stops of the end ones thereof in the operative positions thereof and with the longitudinal stops of the intermediate ones thereof in the storage positions thereof and with said links interconnecting said rub rails serving collectively to mount a single freight container extending across said intermediate bolsters and across said links, whereby freight containers of different lengths and different numbers of freight containers may be secured to the rub rails of said railway car by two pairs of said bolsters.

22. A freight transportation system comprising a railway car for transporting freight containers including an elongated longitudinally extending frame having rail wheels, a pair of elongated longitudinally extending narrow beams carried by said frame and extending substantially the entire length thereof, the top surfaces of said beams defining a substantially horizontal plane, at least one pair of longitudinally extending rub rails mounted on said frame, the rub rails of each pair of rub rails being laterally spaced apart a distance slightly greater than the distance between the outer edges of said beams and including respectively outer surfaces having longitudinally spaced and laterally opposed openings therethrough, at least two pairs of bolsters arranged on the top surfaces of said beams and slidably longitudinally therealong among a plurality to supporting positions, a lock assembly on each bolster selectively engageable with the openings in said rub rails for locking said bolster thereto in a selected one of said supporting positions to support a freight container on the upper surface thereof, and a pair of longitudinal stops mounted adjacent to the opposite ends of each of said bolsters and each being shiftable between an operative position and a storage position with respect to said bolster, each of said longitudinal stops in said operative position extending above the top surface of said bolster and in position for engaging one end of the freight container mounted on said bolster, each of said longitudinal stops in said storage position being disposed below the top surface of said bolster and out of position for engaging said one end of the freight container mounted on and supported by said bolster, said two pairs of bolsters with the longitudinal stops thereof in the operative positions thereof serving respectively to mount two freight containers thereon, said two pairs of bolsters with the longitudinal stops of the end ones thereof in the operative positions thereof and with the longitudinal stops of the intermediate ones thereof in the storage positions thereof serving collectively to mount a single freight container extending across and supported by said intermediate bolsters, whereby freight containers of different lengths and different numbers of freight containers may be secured to the rub rails of said railway car by said two pairs of bolsters.

23. A freight transportation system comprising a railway car for transporting freight containers including an elongated longitudinally extending frame having rail wheels, a pair of elongated longitudinally extending narrow beams carried by said frame and extending substantially the entire length thereof, the top surfaces of said beams defining a substantially horizontal plane, at least one pair of longitudinally extending rub rails mounted on said frame, the rub rails of each pair of rub rails being laterally spaced apart a distance slightly greater than the distance between the outer edges of said beams and including respectively outer surface having longitudinally spaced and

laterally opposed openings therethrough, at least two pairs of bolsters arranged on the top surfaces of said beams and slidable longitudinally therealong among a plurality of supporting positions, a pair of lock assemblies on each bolster in spaced-apart relation and selectively engageable with the openings in said rub rails for locking said bolster thereto in a selected one of said supporting positions to support a freight container on the upper surface thereof, a longitudinal stop mounted on each of said bolsters and being shiftable between an operative position and a storage position with respect to said bolster, said longitudinal stop in said operative position extending above the top surface of said bolster and in position for engaging one end of the freight container mounted on said bolster, said longitudinal stop in said storage position being disposed below the top surface of said bolster and out of position for engaging said one end of the freight container mounted on and supported by said bolster, and means for locking said longitudinal stop in said operative position and in said storage position, said two pairs of bolsters with the longitudinal stops thereof in the operative positions thereof serving respectively to mount two freight containers thereon, said two pairs of bolsters with the longitudinal stops of the end ones thereof in the operative positions thereof and with the longitudinal stops of the intermediate ones thereof in the storage positions thereof serving collectively to mount a single freight container extending across and supported by said intermediate bolsters, whereby freight containers of different lengths and different numbers of freight containers may be secured to the rub rails of said railway car by said two pairs of bolsters.

24. A freight transportation system comprising a railway car for transporting freight containers including an elongated longitudinally extending frame having rail wheels, a pair of elongated longitudinal extending narrow beams carried by said frame and extending substantially the entire length thereof, the top surfaces of said beams defining a substantially horizontal plane, at least one pair of longitudinally extending rub rails mounted on said frame, the rub rails of each pair of rub rails being laterally spaced apart a distance slightly greater than the distance between the outer edges of said beams and including respectively outer surfaces having longitudinally spaced and laterally opposed openings therethrough, at least two pairs of bolsters arranged on the top surfaces of said beams and slidable longitudinally therealong among a plurality of supporting positions, a pair of lock assemblies on each bolster in spaced-apart relation and selectively engageable with the openings in said rub rails for locking said bolster thereto in a selected one of said supporting positions to support a freight container on the upper surface thereof, a pair of longitudinal stops mounted adjacent to the opposite ends of each of said bolsters and each being shiftable between an operative position and a storage position with respect to said bolster, each of said longitudinal stops in said operative position extending above the top surface of said bolster and in position for engaging one end of the freight container mounted on said bolster, each of said longitudinal stops in said storage position being disposed below the top surface of said bolster and out of position for engaging said one end of the freight container mounted on and supported by said bolster, and means for locking each of said longitudinal stops in the operative positions thereof and in the storage positions thereof, said two pairs of bolsters with the longitudinal stops thereof in the operative positions thereof serving respectively to mount two freight containers thereon, said two pairs of bolsters with the longitudinal stops of the end ones thereof in the operative positions thereof and with the longitudinal stops of the intermediate ones thereof in the storage positions thereof serving collectively to mount a signal freight container extending across and supported by said intermediate bolsters, whereby freight containers of different lengths and different numbers of freight containers may be secured to the rub rails of said railway car by said two pairs of bolsters.

25. A freight transportation system comprising a railway car for transporting freight containers including an elongated longitudinally extending frame having rail wheels, a pair of elongated longitudinally extending narrow beams carried by said frame and extending substantially the entire length thereof, the top surfaces of said beams defining a substantially horizontal plane, at least one pair of longitudinally extending rub rails mounted on said frame, the rub rails of each pair of rub rails being laterally spaced apart a distance slightly greater than the distance between the outer edges of said beams and including respectively outer surfaces having longitudinally spaced and laterally opposed openings therethrough, at least two pairs of bolsters arranged on the top surfaces of said beams and slidable longitudinally therealong among a plurality of supporting positions, a pair of lock assemblies on each bolster in spaced-apart relation and selectively engageable with the openings in said rub rails for locking said bolster thereto in a selected one of said supporting positions to support a freight container on the upper surface thereof, a pair of longitudinal stops mounted adjacent to the opposite ends of each of said bolsters and each being shiftable between an operative position and a storage position with respect to said bolster, each of said longitudinal stops in said operative position extending above the top surface of said bolster and in position for engaging one end of the freight container mounted on said bolster, each of said longitudinal stops in said storage position being disposed below the top surface of said bolster and out of position for engaging said one end of the freight container mounted on and supported by said bolster, said two pairs of bolsters with the longitudinal stops thereof in the operative positions serving respectively to mount two freight containers thereon, said two pairs of bolsters with the longitudinal stops of the end ones thereof in the operative positions thereon and with the longitudinal stops of the intermediate ones thereof in the storage positions thereof serving collectively to mount a single freight container extending across and supported by said intermediate bolsters, and a pair of side lock assemblies mounted on the opposite ends of said bolster and engageable with the freight container to prevent lateral and vertical movement thereof, whereby freight containers of different lengths and different numbers of freight containers may be secured to the rub rails of said railway car by said two pairs of bolsters, and whereby to prevent longitudinal, vertical and lateral displacement of the freight container with respect to said two pairs of bolsters.

26. A bolster for mounting freight containers on the top surface of a railway car carrying longitudinally extending rub rails mounted thereon on the opposite sides thereof and having laterally opposed openings therein defining a plurality of supporting positions therealong, said bolster comprising a box beam, a lock assembly mounted on said box beam and selectively engageable with the openings in the rub rails for locking said box beam thereto in a selected one of the supporting positions to support a freight container on the upper surface thereof, and a longitudinal stop mounted on said box beam and being shiftable between an operative position and a storage position with respect to said box beam, said longitudinal stop in said operative position extending above the top surface of said box beam and in position for engaging one end of the freight container mounted on said box beam, said longitudinal stop in said storage position being disposed below the top surface of said box beam and out of position for engaging said one end of the freight container mounted on and supported by said box beam, said longitudinal stop including a generally rectangular abutment surface and a back retaining wall disposed substantially normal to said abutment surface, said back retaining wall having a guide surface thereon inclined in use downwardly toward said abutment surface for guiding the end of the freight container toward said abutment surface, whereby said bolster with said longitudinal stop in the operative position thereof serves both to support one end of a freight container and to restrain the same against longitudinal movement, and whereby said bolster with said longitudinal stop in the storage position thereof serves to support a freight container extending thereacross.

27. A bolster for mounting freight containers on the top surface of a railway car carrying longitudinally extending rub rails mounted thereon on the opposite sides thereon and having laterally opposed openings therein defining a plurality of supporting positions therealong, said bolster comprising a box beam, a lock assembly mounted on said box beam and selectively engageable with the openings in the rub rails for locking said box beam thereto in a selected one of the supporting positions to support a freight container on the upper surface thereof, and a longitudinal stop mounted on said box beam and being shiftable between an operative position and a storage position with respect to said box beam, said longitudinal stop in said operative position extending above the top surface of said box beam and in position for engaging one end of the freight container mounted on said box beam, said longitudinal stop in said storage position being disposed below the top surface of said box beam and out of position for engaging said one end of the freight container mounted on and supported by said box beam, said longitudinal stop including a generally rectangular abutment surface and a retaining wall disposed substantially normal to said abutment surface, said retaining wall having a guide surface thereon inclined downwardly toward said abutment surface for guiding the corner of the freight container toward said abutment surface, and a reinforcing support for said guide surface, whereby said bolster with said longitudinal stop in the operative position thereof serves both to support one end of a freight container and to restrain the same against longitudinal movement, and whereby said bolster with said longitudinal stop in the storage position thereof serves to support a freight container extending thereacross.

28. A bolster for mounting freight containers on the top surface of a railway car carrying longitudinally extending rub rails mounted thereon on the opposite sides thereon and having laterally opposed openings therein defining a plurality of supporting positions therealong, said bolster comprising a box beam including a base, a front wall disposed on and substantially normal to said base, and a finger mounted in said base and having a portion extending forwardly of said base and said front wall with an opening therethrough, a lock assembly mounted on said box beam and selectively engageable with the openings in the rub rails for locking said box beam thereto in a selected one of the supporting positions to support a freight container on the upper surface thereof, said lock assembly comprising a driftpin insertable in the opening in said finger, and a longitudinal stop mounted on said box beam and being shiftable between an operative position and a storage position with respect to said box beam, said longitudinal stop in said operative position extending above the top surface of said box beam and in position for engaging one end of the freight container mounted on said box beam, said longitudinal stop in said storage position being disposed below the top surface of said box beam and out of position for engaging said one end of the freight container mounted on and supported by said box beam, said longitudinal stop in the storage position thereof being disposed forwardly adjacent to said front wall, whereby insertion of said driftpin through the opening in said finger locks said longitudinal stop in said storage position, and whereby said bolster with said longitudinal stop in the operative position thereof serves both to support one end of a freight container and to restrain the same against longitudinal movement, and whereby said bolster with said longitudinal stop in the storage position thereof serves to support a freight container extending thereacross.

29. A bolster for mounting freight containers on the top surface of a railway car carrying longitudinally extending rub rails mounted thereon on the opposite sides thereof and having laterally opposed openings therein defining a plurality of supporting positions therealong, said bolster comprising a box beam including a base, a front wall disposed on and substantially normal to said base, and a finger mounted in said base and having a portion extending forwardly of said base and said front wall with an opening therethrough, a lock assembly mounted on said box beam and selectively engageable with the openings in the rub rails for locking said box beam thereto in a selected one of the supporting positions to support a freight container on the upper surface thereof, said lock assembly comprising a driftpin insertable in the opening in said finger and a keeper integral with said forwardly extending finger for keeping said driftpin in the locking position thereof, and a longitudinal stop mounted on said box beam and being shiftable between an operative position and a storage position with respect to said box beam, said longitudinal stop in said operative position extending above the top surface of said box beam and in position for engaging one end of the freight container mounted on said box beam, said longitudinal stop in said storage position being disposed below the top surface of said box beam and out of position for engaging said one end of the freight container mounted on and supported by said box beam, said longitudinal stop in the storage position thereof being disposed forwardly adjacent to said front wall, whereby insertion of said driftpin through the opening in said finger locks said longitudinal stop in said storage position, and whereby said bolster with said longitudinal stop in the operative position thereof serves both to support one end of a freight container and to restrain the same against longitudinal movement, and whereby said bolster with said longitudinal stop in the storage position thereof serves to support a freight container extending thereacross.

30. A bolster for mounting freight containers on the top surface of a railway car carrying longitudinally extending rub rails mounted thereon on the opposite sides thereof and having laterally opposed openings therein defining a plurality of supporting positions therealong, said bolster comprising a box beam, a lock assembly mounted on said box beam and selectively engageable with the openings in the adjacent rub rail for locking said box beam thereto in a selected one of the mounting positions to support a freight container on the upper surface thereof, and a longitudinal stop mounted on said box beam and shiftable between an operative position and a storage position with respect to said box beam, said longitudinal stop in said operative position extending above the top surface of said box beam and in position for engaging one end of the freight container mounted on said box beam, said longitudinal stop in said storage position being disposed below the top surface of said box beam and out of position for engaging said one end of the freight container mounted on and supported by said box beam, a side lock assembly mounted on said box beam and shiftable between an operative position and a storage position, said side lock assembly in said operative position being in position to engage the freight container to prevent lateral and vertical movement thereof with respect to said box beam, said side lock assembly in said storage position being out of position to engage the freight container, and a driftpin for use alternatively to lock said longitudinal stop in said storage position and to lock said side lock assembly to the freight container to prevent lateral and vertical movement thereof with respect to said box beam, whereby said box beam with said longitudinal stop and said side lock assembly in the operative positions thereof serves both to support one end of a freight container and to restrain the same against longitudinal and lateral and vertical movement, and whereby said box beam with said longitudinal stop and said side lock assembly in the storage positions thereof serves to support a freight container extending thereacross.

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,626,868 Dated December 14, 1971

Inventor(s) Erling Mowatt-Larssen and Edward Milton Melin

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 12, Claim 1, line 15, "in" should be -- on --.

Column 13, Claim 12, line 25, "hereon" should be -- thereon --.

Column 14, Claim 18, line 28, "fails" should be -- rails --. (first occurrence)

Column 15, Claim 21, line 71, after "rails" insert

--for locking said one connecting link

to said rub rails --.

Column 16, Claim 22, line 38, "slidably" should be -- slidable --.

Column 18, Claim 25, line 29, after "positions" insert

-- thereof --.

Column 18, Claim 25, line 32, "thereon" should be -- thereof --.

Signed and sealed this 23rd day of May 1972.

(SEAL)
Attest:

EDWARD M.FLETCHER, JR.
Attesting Officer

ROBERT GOTTSCHALK
Commissioner of Patents

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