

[72] Inventor **Albert B. Curtis, Jr.**
 3088 Fairborn, Memphis, Tennessee 38118
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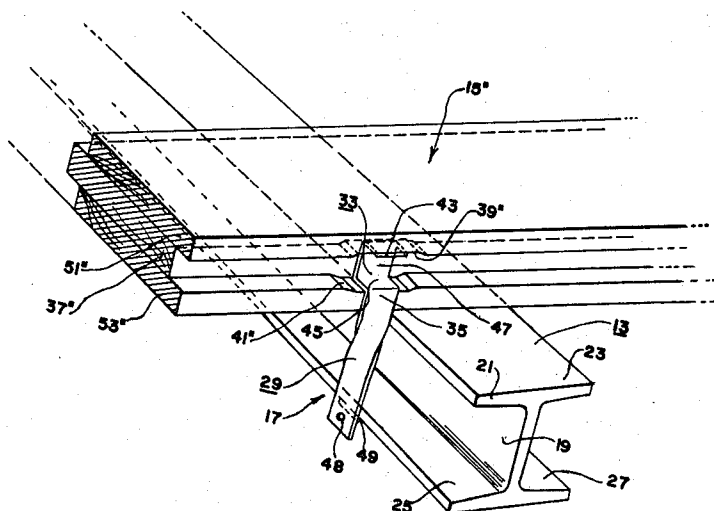
Primary Examiner—Arthur L. La Point
Assistant Examiner—Richard A. Bertsch
Attorney—John R. Walker, III

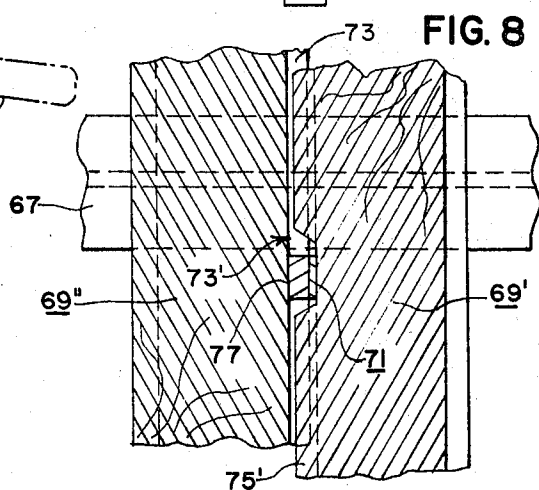
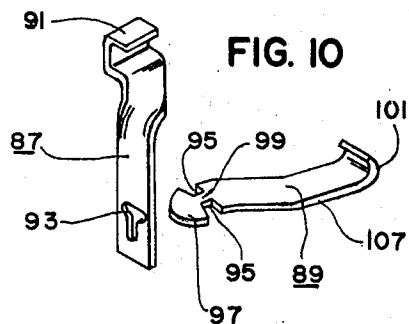
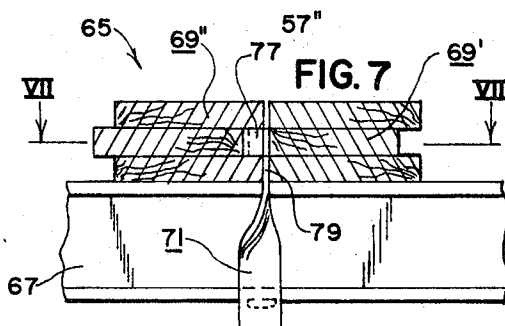
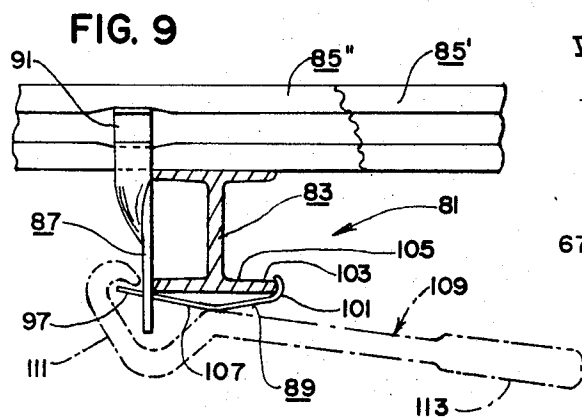
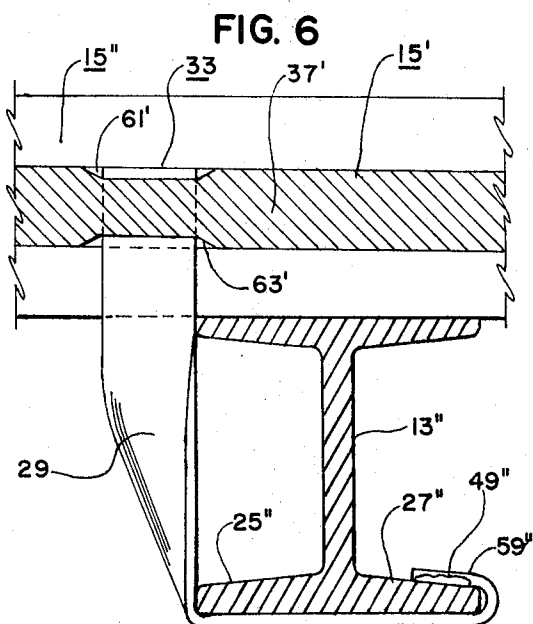
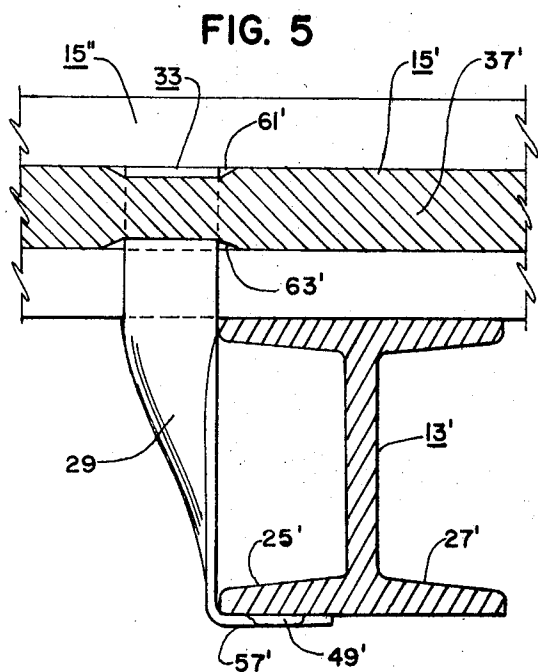
[54] **TIE MEANS FOR RAILROAD FREIGHT CAR
 DECKING**
 11 Claims, 16 Drawing Figs.

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 [51] Int. Cl. E61d 17/10
 [50] Field of Search 105/375,
 422; 114/76; 52/Inquired

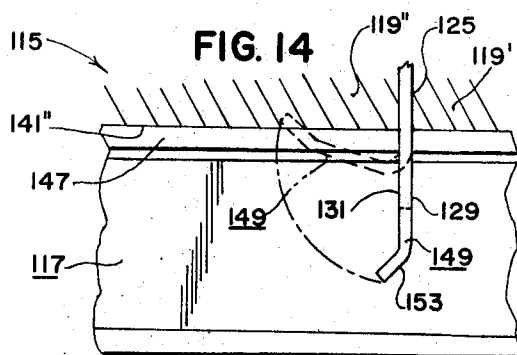
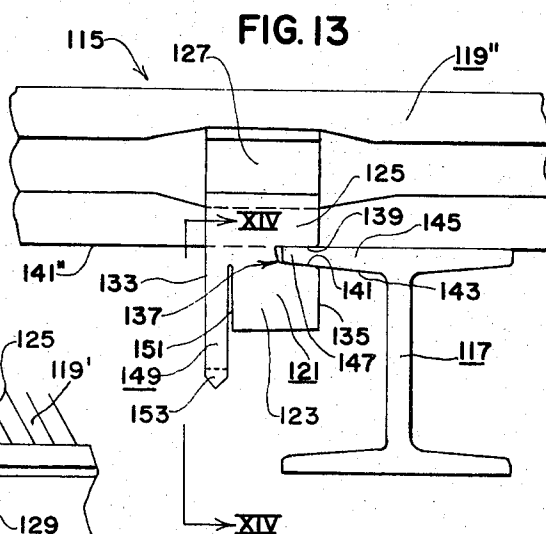
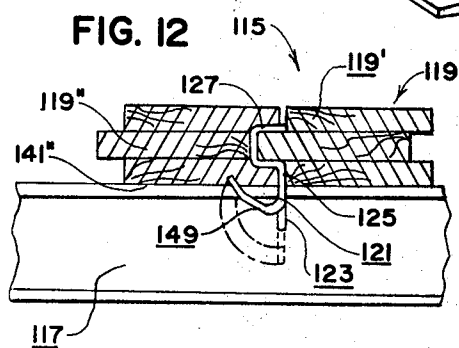
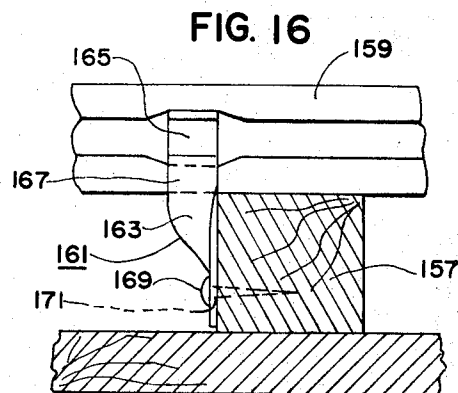
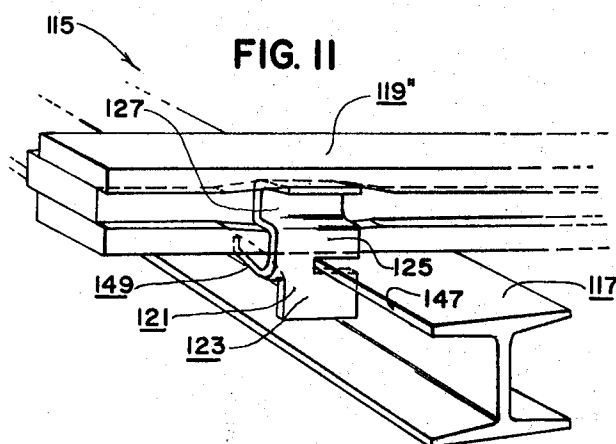
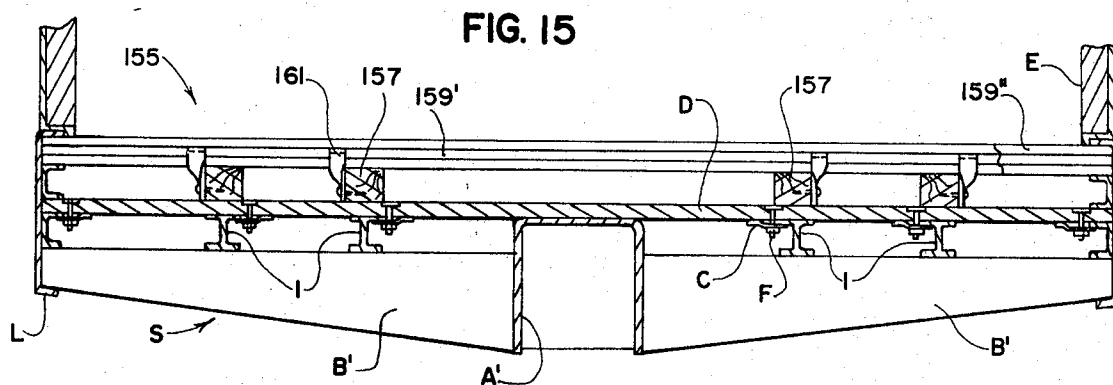
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ABSTRACT: Basically includes clip-like tie member means adapted to fasten tongue and groove rail car deck planks on the rail car deck plank supporting stringers. This patent disclosure illustrating and describing various embodiments of the invention. The clip-like tie members each are adapted to secure the typical tongue and groove rail car planking, with but slight modification to the tongue or groove parts of the existing planking.





INVENTOR.
ALBERT B. CURTIS, JR.
BY *John R. Walker, III*
Attorney



INVENTOR.
ALBERT B. CURTIS, JR.
BY *John R. Walker, III*
Attorney

TIE MEANS FOR RAILROAD FREIGHT CAR DECKING

BACKGROUND OF THE INVENTION

1. Field of the Invention

Pertains to railway car building art generally and particularly to fastening means for fastening the rail car decking to the supporting stringer members.

2. Description of the Prior Art

The typical manner of fastening tongue and groove rail car planking to its supporting stringers is simply by means of bolt fasteners. Although various modifications in the stringer structure or planking members may be found in the art, typically, the freight car planking is secured on stringers by vertical bolts threadedly clamping these parts together. A bolt-type fastening means may be seen in U.S. Pat. No. 2,587,754. A somewhat unorthodox manner of fastening rail car planking is disclosed in U.S. Pat. No. 2,852,815. In this patent right angle bent bolt members are used to fasten the deck planking to the stringer members.

Various problems or disadvantages are apparent in utilizing threaded bolts or fasteners for securing deck planking on a rail car: In fabricating a rail car, considerable time and effort is expended in laying the deck planking on the car stringers; fitting and turnably tightening the threaded fasteners of the decking requires considerable time and effort. Moreover, workmen having substantial experience in such work is needed for proper fabrication of the rail car decking. In securing the deck fastening bolts, it is generally a practice to employ a workman on the topside of the deck and a workman underneath the car deck superstructure. On the car building production line a substantial number of the workmen in the manufacture will be employed in installing the freight car decking.

Certain disadvantages have also been noted in the existing prior art bolt-fastened rail car decking: (1) The necessary holes drilled in the decking for the bolt fasteners weaken the decking and increase the likelihood of breakage at these weakened points. Loads are generally moved on or off a rail car by means of forklift trucks. The small hard-rubber-tired wheels of the forklift trucks exert very great concentrated pressure on the decking; not infrequently, the forklift vehicle wheels fracture and damage the rail car decking. (2) Bolt head portions of the deck fastening members are plainly visible in the car decking and cause protrusions or recesses in the car decking at each fastener; a smooth unblemished freight car deck surface in the prior art apparently is not practical. (3) The bolt fasteners, with use, have a tendency to loosen and present protrusions or sharpened edges on the topside of the decking. Such projections are sharpened edges present a very definite problem when such a freight car is used in transporting material packaged in fabric or paper containers. Not infrequently, a carton, sack or container will be torn and its contents spilled in the handling of the goods and containers in the car. (4) In a refrigerated rail car, the presence of fastener bolt heads in the sealed interior of the car presents a problem: The cold in the inside of the refrigerated rail car readily passes through the metal bolt fasteners to the outside of the car. The exposed bolt heads in the decking present a ready means for absorbing the cold and transferring it from the car interior. A general practice in refrigerator car construction is to embed the bolt heads below the floor surface of the decking; however, the embedded bolt heads, often near the surface of the decking, still bleed off a substantial amount of cold from inside the car.

SUMMARY OF THE INVENTION

A rail car decking fabricated in the manner and means of the present invention has many desirable features: Considerable time and effort is saved in decking a rail car in manufacture; utilizing the means and method of the present invention, a lesser number of workmen are needed in fabricating or decking a rail car; it is substantially unnecessary for a workman to work underneath the decking or for the workmen to work in pairs. Less skill and proficiency by the workmen also is necessary in fabricating car decking.

The present invention obviates the necessity for drilling holes in deck planking as in the prior art. This results in a stronger and more durable deck.

In general, the concept of the present invention comprises a clip-like tie member which has an upper dog portion attached to a vertical body portion and extending perpendicularly therefrom, and attaching means for fixedly attaching the body portion to a stringer or the like in a railroad freight car. The upper dog portion coacts with the tongue and groove of adjacent deck planks to anchor the tie member to the decking of the freight car. The fastening means of the present invention is completely enclosed from the interior or floor surface of the rail car so that the decking presents a smooth unobstructed surface. This eliminates substantially the likelihood of damaging tearable containers in handling the containers in the rail car. Eliminating the presence of bolt heads in the interior of a refrigerated or insulated car also reduces substantially the thermal conductivity of the flooring system of the car. The rail car decking structure of this invention is adapted to use the typical tongue and groove rail car planking and with but slight modification to the tongue and groove parts of the existing planking.

BRIEF DESCRIPTION OF THE DRAWING

FIGS. 1—6 illustrate a preferred embodiment of the present invention illustrating a tie member being secured to the rail car stringer by welding.

FIGS. 7 and 8 illustrate an embodiment utilizing another means for securing the tie member upper end portion to the deck plank means.

FIGS. 9 and 10 illustrate the decking structure of the present invention utilizing tie member means including two separable tying elements. Shown also in FIG. 9 is a hand tool useful for installing the tie member means in decking a rail car.

FIGS. 11—14 illustrate freight car decking structure utilizing a tie member adapted to secure the decking by engagement with an upper flange of the I-beam stringer of the rail car.

FIGS. 15 and 16 illustrate a preferred manner of attaching the decking in a refrigerated type rail car.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1 illustrates the superstructure parts of a rail car with the decking means of the present invention incorporated therewith; FIG. 1 illustrates the superstructure of a rail car and without its railway trucks or running gear for purposes of clarity. The freight car decking structure of the present invention is indicated by numeral 11 and basically includes a plurality of stringer members 13 extending longitudinally of the rail car; a plurality of deck planks 15 crosswise arranged and supported on stringer members 13; and a plurality of tie member means 17 firmly securing stringer and deck plank members together.

Certain rail car parts shown in FIG. 1 are not a part of this invention, and are typical in the rail car building art. Such parts include a center sill A extending coincident with the longitudinal major axis of the rail car and a plurality of crossbearers B (one crossbearer being shown in FIG. 1) intermittently spaced longitudinally along center sill A and projecting oppositely therefrom. As is typical in the art, the upper surface of center sill A projects slightly above crossbearers B and is adapted to directly engage the undersurface of rail car deck planks 15.

Stringers 13 are adapted to be welded as indicated by letter W on the horizontal top surfaces of crossbearers B of the rail car superstructure. Two longitudinally extending stringer members 13 are shown arranged in pairs on opposite sides of center sill A; it will, of course, be understood that more than two stringer members are preferably utilized in the rail car deck structure and such as many be determined by the particular application of the present invention.

The preferred embodiment of the invention is illustrated in FIGS. 1—6 and, for purposes of clarity, a single stringer 13

will be described in conjunction with a pair of deck planks 15' and 15''. Moreover, the tie member means of the invention will be described in embodiment 11 by a single tie member means 17.

Stringer 13 is I-shaped in transverse section and includes a vertical web 19; upper oppositely projecting flanges 21, 23; and lower oppositely projecting flanges 25, 27. Deck plank means 15 will be described as including a tongued deck plank 15' and a grooved deck plank 15''. (It will be understood that designating one deck plank as a tongued plank and the other deck plank as a grooved plank is for purposes of description only; it is apparent that each deck plank in effect is both a tongue and groove plank.)

Tie means 17 includes a tie member 29 arranged vertically and having its upper end portion secured in deck plank means 15 and its lower end portion secured on stringer member 13. Tie member 29 is preferably formed of thin, flat strap metal material and includes a longitudinally twisted body portion 31 and a generally C-shaped dog portion 33. The upper end portion of body 31 comprises a medial portion 35 adapted to snugly interposedly fit between deck planks 15', 15''. C-shaped dog portion 33 is adapted to snugly fit over tongue portion 37' of deck board 15' and be received in groove portion 37'' of deck plank 15''. Upper and lower recesses 39'', 41'' are routed out respectively in the grooved portion 37'' of deck plank 15''. Upper and lower horizontal portions 43, 45 respectively of C-shaped dog portion 33 are adapted to fit respectively in recesses 39'', 41''. Vertical center portion 47 of dog 33 is adapted to lie flat against the back or groove bottom surface of grooved portion 37'' of deck plank 15'' and in engagement with tongue portion 37' of deck board 15'.

The lower end portion of tie member body 31 lies flat against the distal edge portion of lower flange 25 of I-beam stringer 13 and is secured thereto by welding. Preferably, an aperture 48 is provided through body portion 31 adjacent the lower end thereof so that, if desired, a tool may be inserted therein and used as a fulcrum to pull, prior to welding, the decking 15 snugly against stringers 13. A weld bead 49 permanently integrally secures the distal edge of lower flange 25 of stringer 13 to the lower end portion of tie member 29. Upper and lower flange portions 51'', 53'' of deck plank 15'' snugly engage tongue portion 37' of deck plank 15' and dog portion 33 of tie member 29.

It may be desirable in embodiment 11 to plane off or recess out the vertical edge portion of lower flange portion 53'' of deck plank 15''. By recessing lower flange 53'' of deck plank 15'' space is provided for the reception of medial portion 35 of tie member 29; providing recess means for the reception of medial portion 35 of tie member 29 eliminates a gap 55 between deck planks 15', 15'' (see FIG. 2).

In certain applications of embodiment 11 it may be desirable to form tie member 29 with a longer body portion 31 which may be turned under and welded to stringer flange 25' (see FIG. 5). The lower end portion 57' of tie member body 31 may be turned under stringer flange 25' and welded as at weld bead 49'. It may also be desirable to form tie member lower portion 57'' long enough so that the end portion may be turned fully across the underside of stringer 13'' and double back over the distal edge of stringer flange 27'' (see FIG. 6). In this arrangement weld means 49'' welds terminal end portion 59'' of tie member 29 to the distal edge of stringer flange 27''.

In embodiment 11 (FIGS. 1-6) the means for securing the upper end portion of tie member 29 to deck plank 15', 15'' may be modified as shown in FIGS. 4-6. Rather than rout out or recess groove flange portions 51'', 53'' of deck plank 15'', it may be desirable in certain applications to recess the upper and lower portions of tongue portion 37' of deck plank 15' (see FIGS. 4-6). If desirable, recesses 61', 63' may be formed in opposite upper and lower portions of tongue 37' of deck plank 15'. It will be noted that dog portion 33 of tie member 29 will be configured to conform to the proportions of the recessed tongue 37' of deck plank 15'.

A second embodiment 65 is illustrated in FIGS. 7 and 8. Second embodiment 65 includes an I-beam stringer 67; a pair of tongue and groove mated deck planks 69', 69''; and tie means including a tie member 71. The primary difference in first embodiment 11 and second embodiment 65 lies in the means for securing the tie member upper end portion to the deck plank means of the structure. Second embodiment 65 includes notch means including a notch 73' formed fully vertically through tongue portion 75' of deck plank 69', and a solid dog portion 77 arranged on the upper end of tie member 71. Dog portion 77 preferably is formed of solid bar stock and welded on the upper end portion of tie member medial portions 79. In second embodiment 65 block-like dog portion 77 is snugly received in notch 73' formed in tongue portion 75' and snugly received in the grooved portion of deck plank 69''.

The third embodiment of the invention is indicated by numeral 81 and illustrated in FIGS. 9 and 10. Third embodiment 81 includes an I-beam stringer 83, tongue and groove deck plank means including a pair of deck planks 85', 85'', corresponding to and similar to deck planks 15', 15'', but with only a broken away portion of deck plank 85' being shown, and tie means including a tie member 87 and a locking member 89. Tie member dog portion 91 is C-shaped and snugly received between the mating tongue and groove portion respectively of deck planks 85', 85''. The lower end portion of tie member 87 includes structure defining a generally T-shaped slot 93 adapted to receive an end portion of locking member 89. The locking member includes structure defining a pair of oppositely opening slots 95 and a tongue 97. Locking member 89 is adapted to be engaged with T-shaped slot 93 of tie member 87 by engagement of tongue 97 with the slot. The tongue of locking member 89 is adapted to be inserted through the upper broad portion of slot 93 and moved downwardly and to a position with tongue base portion 99 restingly lockingly engaging the lower portion of slot 93.

That end of locking member 89 distant from tongue 97 is provided with anchor means for securing locking member 89 to a lower flange of stringer 83. Anchor means preferably is in the form of a semi-circular longitudinally upturned hook portion 101 formed integrally with locking member 89. The locking member, after being engaged with tie member 87, is adapted to be passed transversely underneath stringer 83 and hook portion 101 is adapted to be hooked over distal edge 103 of stringer flange 105 (see FIG. 9). Tie member 87 is adapted to be permanently secured to stringer 83 by pressing upwardly on medial portion 107 of locking member 89 thereby lengthening the locking member and permitting hook portion 101 to pass over and embrace distal edge 103 of stringer flange 105. A hand tool 109 (shown in broken lines) having a hooked end 111 preferably is provided for fastening locking member 89 to stringer 83.

In using tool 109, its hooked end 111 is engaged with locking member tongue 97 and is then fulcrumed upwardly against medial portion 107 of the locking member. Pressing upwardly on handle 113 fulcrums medial portion 107 against the undersurface of stringer 83, thereby lengthening locking member 89 and permitting hook portion 101 to pass over distal edge 103 of flange 105. Releasing the pressure on handle 113 permits the locking member medial portion to spring outwardly away from stringer 83 and hook portion 101 to permanently seat against stringer flange 105.

A fourth embodiment of the invention indicated 115 is illustrated in FIGS. 11-14. Embodiment 115 includes I-beam stringer means including I-beam stringer 117; deck plank means 119 including a mated pair of decks planks 119', 119''; and tie means including a tie member 121 adapted for permanently securing stringer member 117 and deck planks 119', 119''.

Tie member 121 is preferably formed of flat strap metal stock and includes a vertical flat body portion 123 including a medial portion 125 and a C-shaped dog portion 127 integrally secured right angularly on medial portion 125. Body 123 of tie member 121 has a front face 129, a back face 131, and respec-

tively left and right oppositely arranged vertical edge portions 133, 135 (see FIGS. 13, 14). Body 123 includes structure defining a horizontally extending slot 137 intersectingly opening into right edge portion 135 of tie member body 123. Upper edge 139 of slot 137 is arranged subjacent to tie member medial portion 125 and is arranged coplanar with undersurface 141 of deck plank 119. Lower edge 141 of structure defining slot 137 is inclined on an angle corresponding substantially with the angle of undersurface 143 of stringer flange 145 (see FIG. 13).

Tie member 121 is adapted to be clampingly engaged with stringer member 117. With C-shaped dog portion 127 received in the groove portion of deck plank 119, the tie member is lockingly engaged with the stringer member by striking the tie member with a hammer on left edge portion 133 and driving the slotted portion over stringer flange 145. The relative configurations of stringer flange 145 and slot 137 is such that upper and lower edge surfaces 139, 141 of slot 137 will bindingly lock on flange 145 before distal edge 147 of flange 145 bottoms in slot 137 (see FIG. 13).

A spur portion 149 is included in tie member 121 for preventing the tie member slot structure 137 from working loose from stringer flange 145. Spur portion 149 is shown in an active position in FIGS. 11 and 12, and in an inactive position in FIGS. 13 and 14. The spur portion is adapted to be bent upwardly from an inactive position to an active position and embeddedly engaged in the underportion of deck plank 119. Spur portion 149 preferably is formed integrally with body 123 and projects coplanar downwardly from the body when in an inactive disposition. Preferably, spur portion 149 is formed substantially by making an upwardly extending cut 151 along left edge portion 133 of body 123 (see FIG. 13). Tie member 123 is adapted to be locked in place on stringer flange 145 by a percussory bending of spur portion 149 rearwardly from back face 131 and embedding spur distal end 153 in the undersurface of deck plank 119. After deck plank 119 has been secured in this manner, tongued deck plank 119 is put in place and matingly engaged with plank 119.

A fifth embodiment of the invention is indicated by numeral 155 and illustrated in FIGS. 15 and 16. Embodiment 155 is adapted to be fabricated or installed on existing top decking D of a refrigerator or insulated car superstructure S. Plurality of stringers I, center sill A', crossbearers B', side sills L and car walls E form no part of embodiment 155 and are typical in the art. The bolts or fastening means F and clips C also are typical and well known deck plank-stringer fastening means to those working in the art.

Embodiment 155 includes stringer means including a wooden stringer 157, and deck plank means including mated tongue and groove deck planks 159', 159" corresponding to and similar to deck planks 15', 15", but with only a broken away portion of deck plank 159' being shown. Stringer 157 is permanently secured by suitable means (not shown) on decking D and supportingly engages the undersurface of grooved deck plank 159". Tie means including a tie member 161 fastens stringer 157 and deck plank 159". Tie member 161 is formed of flat strap material and includes a body 163 and C-shaped dog portion 165. Tie member body 163 is twisted 90° between medial portion 167 and the lower end portion of the tie member. A nail 169 or other such fastener is passed through an aperture 171 in tie member 161 and is embeddedly secured in stringer 157.

Although I have described preferred embodiments of the invention it will be understood that certain changes in structure may be made without departing from the scope of the invention.

I claim:

1. Car decking structure in a railroad freight car comprising stringer means including at least one stringer extending longitudinally of said car; deck planking means including at least two deck planks supported on and arranged crosswise relative to said stringer and in edge to edge relationship, the edge of a first deck plank including structure defining horizontally

ridged tongue structure extending longitudinally of said first deck plank, the edge of the second deck plank including structure defining a longitudinally opening grooveway extending longitudinally of said second deck plank and defined substantially by a pair of vertically spaced flanges including an upper and a lower flange, said first and second deck planks being arranged with the tongue and groove portions thereof being matingly engaged and with the tongue portion of said first plank being snugly fitted between said upper and lower flanges of said second plank; a tie member having an elongated vertical body and having disposed on the upper end thereof a thin flat medial portion, and including a dog portion secured on and projecting generally horizontally and perpendicularly from said medial portion of said tie element body; first attaching means firmly attaching said tie member and said first and second deck planks together with said medial portion thereof being arranged between the confronting edge portions of said first and second deck planks and with said dog portion of said tie member being arranged over and engaging the lower flange of said second plank; and second attaching means conjointly attaching said tie member and said stringer member; said stringer member being formed of metal and said tie member body portion being configured flat and straplike and with a 90° twisted portion disposed between the medial portion and the lower end portion of said body, and said second attaching means conjointly attaching said tie member and said stringer member including weld means integrally securing the lower end portion of said tie member with the bottom edge portion of said horizontal stringer.

2. Tie means for attaching railroad freight deck flanking means to stringer means including at least one stringer extending longitudinally of the freight car and said deck planking means including at least two deck planks supported on and arranged crosswise relative to said stringer and in edge to edge relationship, the edge of a first deck plank including structure defining horizontally ridged tongue structure extending longitudinally of said first deck plank, the edge of the second deck plank including structure defining a longitudinally opening grooveway extending longitudinally of said second deck plank and defined substantially by a pair of vertically spaced flanges including an upper and a lower flange, said first and second deck planks being arranged with the tongue and groove portions thereof being matingly engaged and with the tongue portion of said first plank being snugly fitted between said upper and lower flanges of said second plank; said tie means comprising an elongated flat and straplike vertical body portion having a thin flat medial portion adapted to extend between the confronting edge portions of said first and second deck planks, a dog portion secured on and projecting generally horizontally and perpendicularly from said medial portion adapted to be arranged between the confronting edge portions of said first and second deck planks and over the lower flange of said second plank in engagement therewith and said body portion including a 90° twisted portion disposed between the medial portion and the lower end portion of said body, the horizontal width of said tie means being less than the vertical length thereof.

3. Car decking structure in a railroad freight car comprising stringer means including at least one stringer extending longitudinally of said car; deck planking means including at least two deck planks supported on and arranged crosswise relative to said stringer and in edge to edge relationship, the edge of a first deck plank including structure defining horizontally ridged tongue structure extending longitudinally of said first deck plank, the edge of the second deck plank including structure defining a longitudinally opening grooveway extending longitudinally of said second deck plank and defined substantially by a pair of vertically spaced flanges including an upper and a lower flange, said first and second deck planks being arranged with the tongue and groove portions thereof being matingly engaged and with the tongue portion of said first plank being snugly fitted between said upper and lower flanges of said second plank; a tie member having an elongated verti-

cal body and having disposed on the upper end thereof a thin flat medial portion, and including a dog portion secured on and projecting generally horizontally and perpendicularly from said medial portion of said tie element body; first attaching means firmly attaching said tie member and said first and second deck planks together with said medial portion thereof being arranged between the confronting edge portions of said first and second deck planks and with said dog portion of said tie member being arranged over and engaging the lower flange of said second plank; and second attaching means conjointly attaching said tie member and said stringer member; said stringer being configured generally I-shaped in transverse section and including upper and lower, left and right horizontally projecting flanges, said stringer being adapted to underlie and support said deck planks with the top surface of said right and left upper flanges of said stringer member supportingly engaging the underside surfaces of said deck planks, and said second means conjointly attaching said tie member and said stringer member including structure in said tie member defining a slot opening extending transversely through the lower portion of said tie member, and including an elongated generally flattened locking member having a tongue portion projecting longitudinally from an end portion of said locking member, and with the base portion of said tongue being defined substantially by a pair of oppositely opening notches in said locking member; that end portion of said locking member distant from the tongue end portion thereof including anchor means adapted to engage the distal edge portion of said lower right flange of said stringer; said tie member extending vertically along said stringer member and arranged contiguous the distal edges respectively of said upper and lower left flanges of said stringer member and with said locking member tongue portion extending through said slot opening in said tie member, and with the oppositely opening notches of said locking member lockingly engaging the slot openings in said tie member; said locking member extending transversely underneath said stringer with the anchor means being firmly engaged with the distal edge of said lower left flange of said stringer.

4. The structure of claim 3 wherein said flattened locking member is formed of spring steel material and is curved downwardly medially of its length and wherein said anchor means adapted for engaging said stringer flange is in the form of a broad semi-circular longitudinally upturned hook portion formed integrally with said locking member and with said locking member being adapted to be operatively configured by convergently pressing the medial portion of said locking member and the undersurface of said stringer thereby lengthening the extension of said locking member for permitting said hook portion to pass over and engage the distal edge portion of said stringer right lower flange and to permanently resiliently tension said tie member horizontally laterally against the distal edge portion of said stringer left lower flange.

5. Car decking structure in a railroad freight car comprising stringer means including at least one stringer extending longitudinally of said car; deck planking means including at least two deck planks supported on and arranged crosswise relative to said stringer and in edge to edge relationship, the edge of a first deck plank including structure defining horizontally ridged tongue structure extending longitudinally of said first deck plank, the edge of the second deck plank including structure defining a longitudinally opening grooveway extending longitudinally of said second deck plank and defined substantially by a pair of vertically spaced flanges including an upper and a lower flange, said first and second deck planks being arranged with the tongue and groove portions thereof being matingly engaged and with the tongue portion of said first plank being snugly fitted between said upper and lower flanges of said second plank, said lower flange of said second plank being unbroken and contiguous to said first plank; a tie member having an elongated vertical body and having disposed on the upper end thereof a thin flat medial portion,

and including a dog portion secured on and projecting generally horizontally and perpendicularly from said medial portion of said tie element body, the width of said tie member being substantially less than the length of said deck planks; first attaching means firmly attaching said tie member and said first and second deck planks together with said medial portion thereof being arranged between the confronting edge portions of said first and second deck planks and with said dog portion of said tie member being arranged over and engaging the lower flange of said second plank; and second attaching means conjointly attaching said tie member and said stringer member.

6. The structure of claim 5 wherein said means securing the upper end portion of said tie member to said first and second deck planks includes recess means in said second deck plank including structure in the underportion of said grooveway upper flange and in the top portion of said grooveway lower flange defining a confronting pair of recesses and wherein said dog portion is thin and straplike and configured C-shape in longitudinal vertical section, said tie member being secured to said first and second deck planks with said C-shaped dog portion being snugly fitted over said longitudinal tongue of said first deck plank and received in the grooveway of said second deck plank and with the upper and lower portions of said C-shaped dog portion being received respectively in the confronting recesses in the upper and lower flanges of said second plank.

7. The apparatus of claim 5 wherein said means securing the upper end portion of said tie member to said first and second deck planks includes recess means in said first deck plank including structure in the underportion of said tongue and the top portion of said tongue defining an oppositely facing pair of recesses, and wherein said dog portion of said tie member is thin and straplike and configured generally C-shape in longitudinal vertical section; said tie member being secured to said first and second deck planks with said C-shaped dog portion being snugly fitted over said longitudinal tongue portion of said first deck plank with the upper and lower portions of said C-shaped dog portion being received respectively in the oppositely facing pair of recesses in the longitudinally extending tongue of said first deck plank.

8. The structure of claim 5 wherein said means securing the upper portion of said tie member to said first and second deck planks includes notch means in said first deck plank including structure defining a notch formed substantially fully transversely through the tongue of said first deck plank, and wherein said dog portion of said tie member is block-like; said tie member being secured to said first and second deck planks with said block-like dog portion being snugly received in the notch of said notch means and snugly received in the grooveway of said second deck plank.

9. The structure of claim 5 wherein said stringer is formed of metal and is configured I-shape in transverse section and includes upper oppositely horizontally projecting flanges adapted to underlie and support said deck planks and includes lower oppositely horizontally projecting flanges, said second attaching means conjointly attaching said tie member and said stringer member together including means defining a generally right angular lower portion of said tie member defining a vertical and a horizontal portion, said horizontal portion being in flat face-to-face engagement with a lower one of the lower oppositely projecting flanges of said stringer, and weld means integrally securing the distal end portion of said tie member horizontal portion to said lower one of the lower oppositely projecting flanges of said stringer.

10. The structure of claim 5 wherein said stringer is formed of wood and wherein said tie member body is configured flat and straplike and with a 90° twisted portion disposed between said medial portion and the lower end portion of said body, and wherein said second attaching means conjointly attaching said tie member and said stringer member includes nail means passed transversely through said tie member and embeddedly secured in said stringer.

11. The structure of claim 5 wherein said stringer is configured generally I-shape in transverse section and includes upper horizontally projecting flanges adapted to underlie said deck planks and wherein said tie member body portion is configured generally thin, flat and arranged vertically and has a front face and a back face, and left and right edge portions, and wherein said second attaching means conjointly attaching said tie member and said stringer member includes structure in said tie member body defining a horizontally extending slot intersectingly opening in said right edge portion of said body

and includes a spur portion extending generally along a vertical plane intersecting said left edge portion of said body and with said spur portion projecting cantilever fashion away from the back face of said body; said tie member being adapted for conjointly securing said stringer and said first and second deck planks with the slotted portion of said tie member being tightly fitted over the distal edge of said stringer upper flange and with the distal end of said spur portion being embeddedly secured in the under portion of said second deck plank.

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