ABSTRACT OF THE DESCRIPTION

A railroad car floor consisting of a plurality of transversely extending floor boards having predrilled openings which are connected to the longitudinally extending stringers of a railroad car underframe. The connection of the floor boards to the longitudinal stringers is by means of an L-shaped bolt having a vertical threaded member which is disposed within the predrilled openings of the floor boards, the bolt also including a laterally bent portion extending horizontally through a T-shaped slot provided in an angle-shaped section which is connected to a side of the stringer. The laterally bent portion has a relationship with respect to the T-slot which permits lengthwise and crosswise adjustment of the L-shaped bolt to accommodate variations in the positioning of the floor boards.

BACKGROUND OF THE INVENTION

Field of the Invention

This invention relates to railway car floor assemblies wherein the underframe is constructed of a plurality of longitudinally extending stringers and floor boards are supported on the stringers they being connected thereto by means of floor clips which are bolted in assembly in a manner to provide a rigid construction. The assembly will however permit quick replacement of the flooring when necessary. The flooring generally is utilized in box cars and flat cars and is subjected to frequent nailing necessary to attach thereto cargo restraining devices. These floors are generally subjected to rough usage.

Description of the prior art

The prior art is disclosed in the Rothbach Patent 2,439,220, patented Apr. 6, 1948. In the floor board construction shown in this patent the floor is assembled and connected to longitudinally extending stringers by means of clips which engage portions of the boards and the stringers upon tightening of a bolt and nut assembly which is disposed in vertically extending openings in the floor boards. In the assembly of this particular type of arrangement it is necessary to drill the openings while the boards are being secured to the stringers. This is necessary since the clips are all of the same size and shape and do not permit any appreciable variation in the hole location in the floor boards. By drilling the holes during assembly the clips are adequate for the purposes intended. The present invention provides an assembly for connecting the floor boards to the stringers with the boards being predrilled and the assembly accommodating variations in the locations of the openings.

SUMMARY

The invention may be summarized by stating that floor boards, in the construction of a wooden floor for railway cars, may now be predrilled away from the installation job during their initial construction in the woodshop and yet during the assembly any variations in the location of the predrilled openings may be accommodated for by means of an improved connector assembly which will permit both lengthwise and crosswise adjustment of the connection to accommodate any variations in location of the predrilled openings or in the positioning of the boards. Further, the assembly is so constructed that the installer can easily assemble the components of the assembly from within the box car on top of the floor without the need of any assistance by another from underneath the car floor.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a cross-sectional view through a portion of a box car floor showing attaching means for connecting the floor boards to longitudinally extending stringers of a car underframe;

FIG. 2 is a cross-sectional view through the floor construction taken particularly along the line 2-2 of FIG. 1.

FIG. 3 is a detail cross-sectional view through a stringer showing the insertion of an L-shaped connecting bolt during assembly of a floor;

FIG. 4 is an exploded perspective view of a stringer, a floor board, and an attaching assembly indicating the manner in which the assembly is connected together.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawing a floor assembly is generally designated by the character reference 10. The floor assembly 10 comprises a plurality of longitudinally extending stringers 11 (only one of which is shown) the said stringers 11 being laterally spaced apart from each other, of I-beam construction and generally forming structural portions of a railroad car underframe. The I-beam construction comprises a web 12 having upper flanges 13 and lower flanges 14. The stringer construction indicated is also known as the open beam type and also may be of channel or similar construction.

As best shown in FIGS. 1 and 2 a floor is generally designated at 15 and comprises a plurality of interconnected boards 16 each having a groove 17 and a tongue 18 to provide, in assembly, an inter-engaging tongue and groove connection. The stringers 11 are horizontally spaced and the floor boards 16 are laid in crosswise fashion on top of the stringers 11. The floor boards during construction at the mill are pre-drilled arriving at the site of assembly in this condition. The openings 19 extend through the boards 16 and at their upper ends are of flared construction as indicated at 20. Each opening also communicates with an enlarged annular recess 21.

Referring now particularly to FIG. 2 an angle section 22 is connected to each stringer 11 and extends substantially coextensive therewith. Each angle section 22 comprises a vertical web 23 and a laterally extending portion 24. The vertical web 23 is suitably connected by means of a weld 25 to the flange 13 and another weld 26 connects the lateral portion 24 to the web 12.

As best shown in FIG. 1 a plurality of T-slots 27 are provided in the web 23 of each angle section 22. The slots 27 are evenly spaced along the section 22 and each comprises an elongated horizontal portion 28 which communicates with a vertical slot portion 29. Each slot 27 includes horizontal edges 30 and vertical edges 31.

An assembly for connecting the floor boards 16 to the stringers 11 includes, as best shown in FIGS. 2 through 4, an L-shaped bolt generally designated by the reference character 32. The bolt 32 comprises a vertical threaded leg 33 which is disposed in the opening 19. The bolt 32 also includes an integrally formed laterally bent leg 34 having at its extremity a projection or bolt head 35. The lateral leg 34 is disposed within the horizontal portion 28 of the slot 27 and is tightened against the upper edge 30.
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by means of a fastener 36 as best shown in FIGS. 2 and 4. The fastener 36 comprises a threaded bore 37 extending through a tapered body 38 which conforms to the flared or tapered portion 20 of the opening 19. The fastener 36 also includes a screwdriver slot 39.

During assembly the floor boards 16 are positioned in crosswise relation relative to the stringers 11. The assemplier from inside the car now inserts a bolt 32 through each slot 27 of a group of transversely aligned slots 27 of the stringers 11. As indicated in FIG. 3, the vertical length of the slot portion 29 accommodates a portion of the leg 34 to permit the bolt head 35 to be inserted through the horizontal portion 28. He then moves the vertical leg 33 into an upright position and since the lateral leg 34 is now positioned in the vertical slot 29 the L-shaped bolt 32 is maintained in a vertical position. The floor board may now be lowered onto the stringer 11 with each vertical threaded leg being placed into registry with the openings 19. A fastener 36 is now screwed onto each of the threaded legs 33 and is tightened whereupon the lateral leg 34 is moved out of the slot 29 and into the horizontal portion 28. Prior to final tightening of each fastener 36 the floor boards 16 may be adjusted longitudinally or crosswise in relation to the stringers 11 and each fastener 36 is then finally tightened. As indicated in FIG. 2 a line through the axis of the threaded leg 33 or opening 19 is spaced from the web 23 by a distance indicated as A. The length of the lateral leg 34 is substantially greater than the distance A so that in the assembly the leg 34 may be moved crosswise to accommodate any required adjustment of the floor board 16. Further as indicated in FIG. 4 the enlarged horizontal portion 28 will permit a certain amount of lengthwise adjustment or positioning of the leg 34 where such adjustment is needed by virtue of the location of the floor boards 16.

It can thus be seen that an approved assembly for connecting a floor to the stringers of a railroad car has been described. The assembly provides for an effectively rigid construction which can readily be assembled from within the car which permits predrilling of the floor boards and which will accommodate variations in the location of the boards either lengthwise or crosswise. The arrangement also is such that it permits ease of replacement of damaged floor boards.

The foregoing description and drawings are given to explain and illustrate the invention, and the invention is not to be limited thereto, except as far as the appended claims are so limited, as those skilled in the art who have the disclosure before them will be able to make modifications and variations therein without departing from the scope of the invention.

What is claimed is:
1. An attaching assembly for supporting a floor board on a stringer, with said floor board having a vertical opening there through, comprising:
vertical web means on said stringer, said web means being laterally offset a distance with respect to said opening.

said web means including a slot disposed below said board and having horizontal and vertical edges, an L-shaped member having a vertical leg within said opening, and a horizontal leg, said horizontal leg having a length substantially greater than said offset distance and projecting through said slot,

said horizontal leg having a cross-sectional area substantially smaller than the area of said slot, projecting means adjacent the end of said horizontal leg overlapping at least one of said edges of said slot, and

fastener means engaging said vertical leg and said floor board adapted to tighten said horizontal leg against one of said edges whereby said board is clamped to said stringer.

2. The invention in accordance with claim 1, said L-shaped member comprising a bolt having threads on its vertical legs, and a head on its horizontal leg forming said projecting means, and

said fastener means including threads engaging the threads on said vertical leg.

3. The invention in accordance with claim 2 wherein said stringer is of open beam construction including a vertical web,

said web means being supported on said stringers and horizontally spaced from said vertical web,
said slot having a T-shaped configuration to provide a horizontal elongated portion permitting lengthwise adjustment of said bolt to a plurality of positions relative to said stringer, and

a vertical connecting portion of said slot accommodating insertion of said horizontal leg and head through said slot.

4. The invention in accordance with claim 3, said web means having an L-shaped configuration including a horizontal connecting portion supported by said vertical web.

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