June 2, 1931. M. D. TUCKER 1,807,715

RAILROAD CAR FLOOR AND METHOD OF CONSTRUCTING THE SAME

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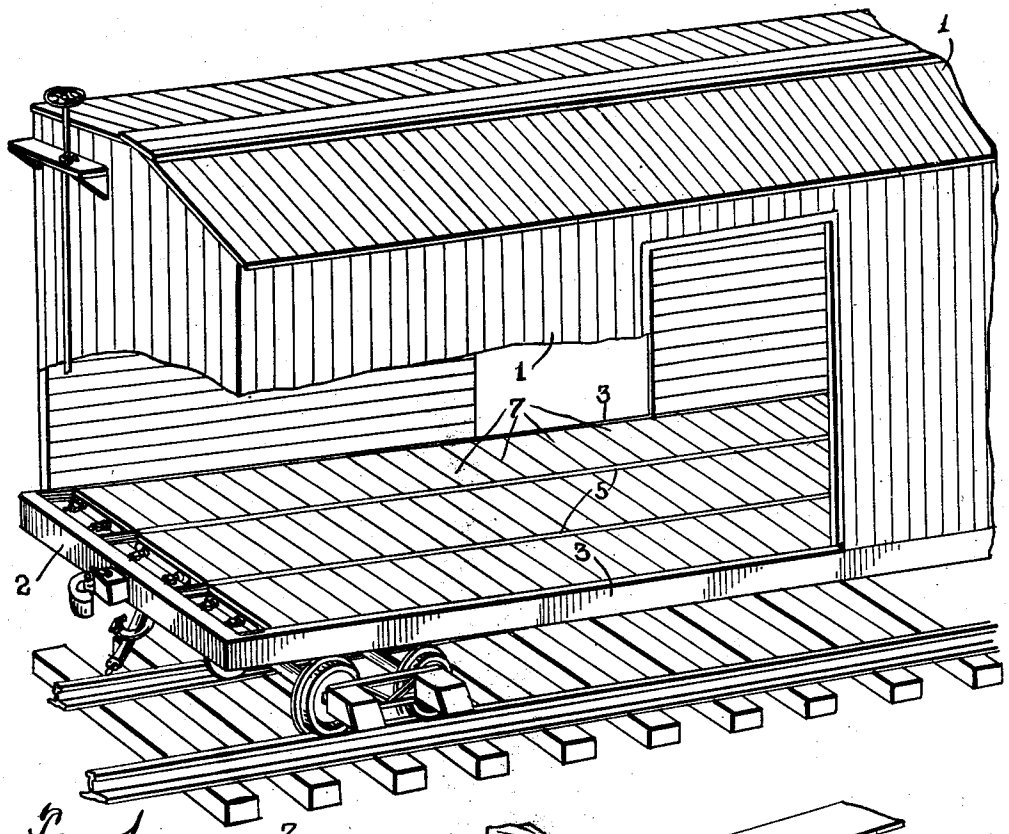


Fig. 1.

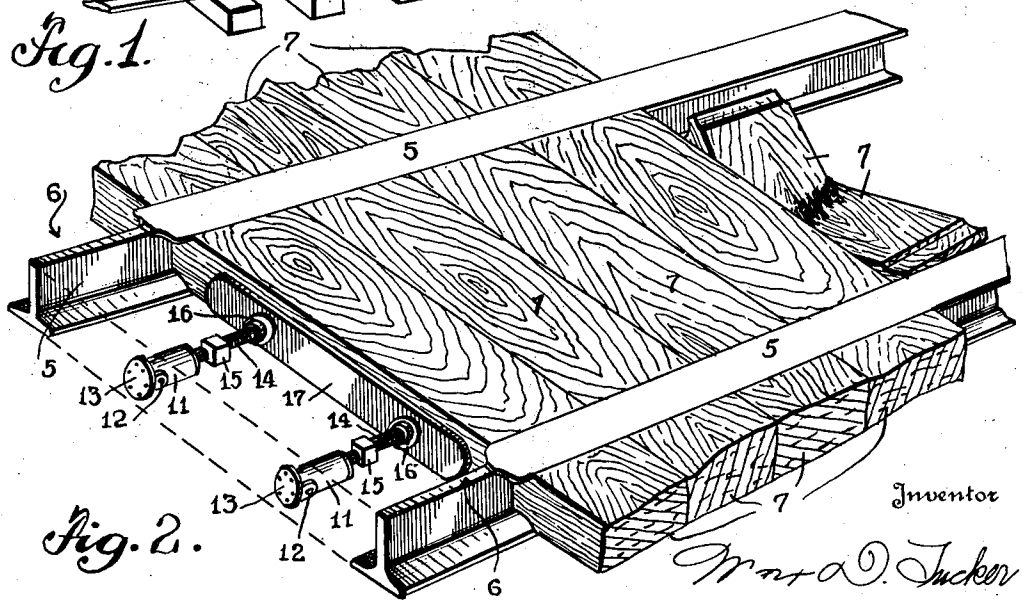


Fig. 2.

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Fig. 3.

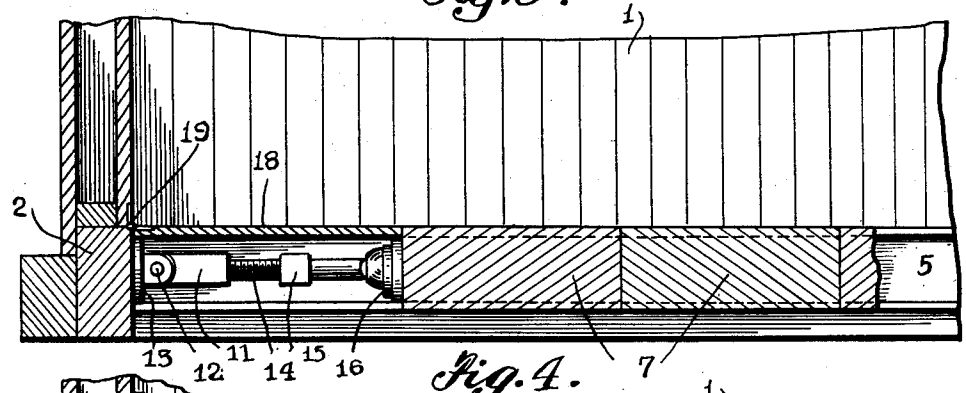


Fig. 4.

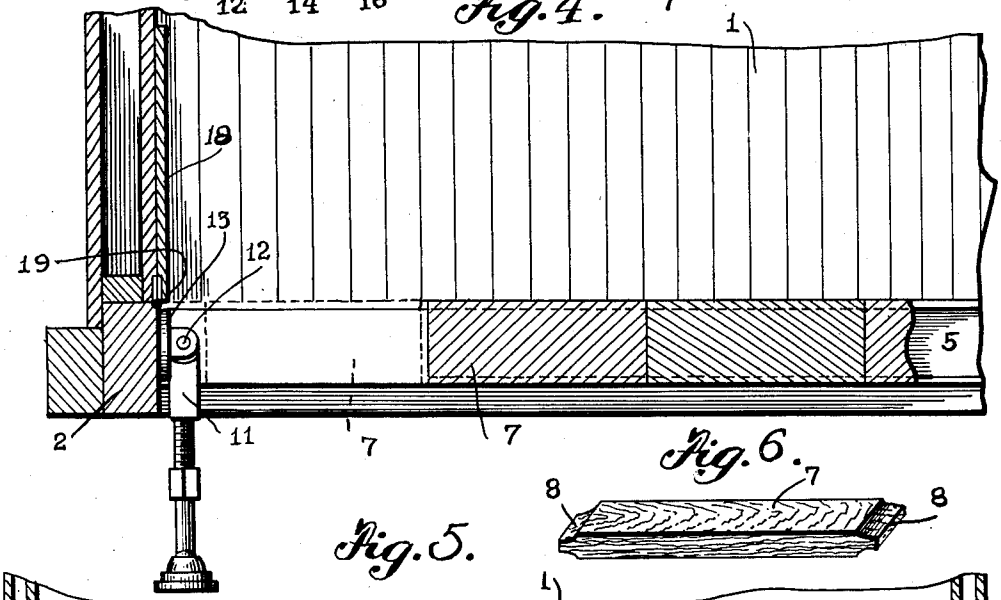


Fig. 6.

Fig. 5.

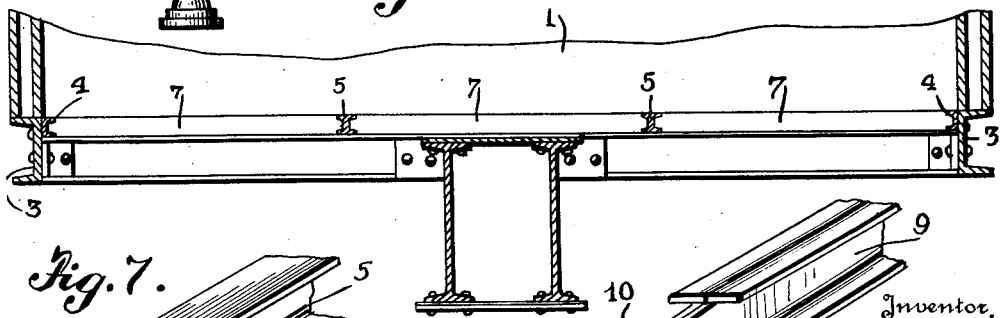


Fig. 7.

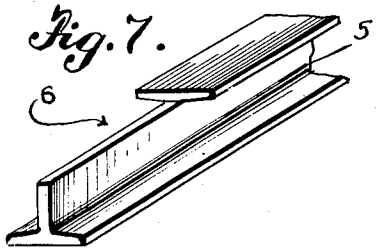
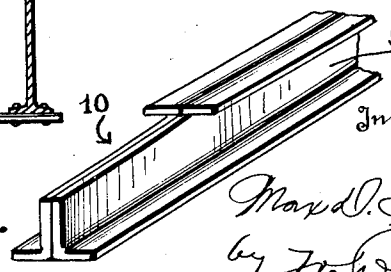


Fig. 8.



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RAILROAD CAR FLOOR AND METHOD OF CONSTRUCTING THE SAME

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Fig. 9.

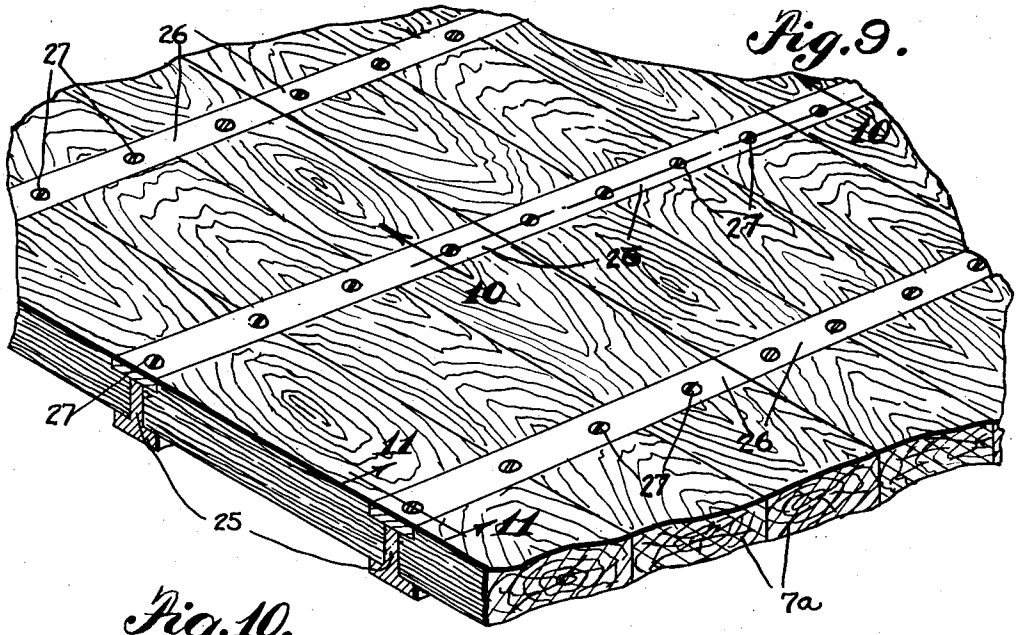


Fig. 10.

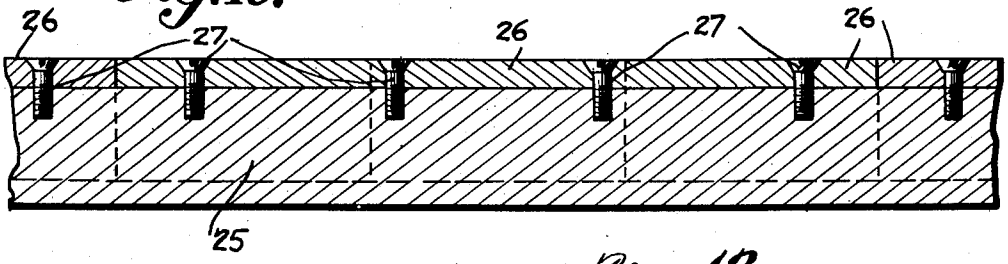


Fig. 12.

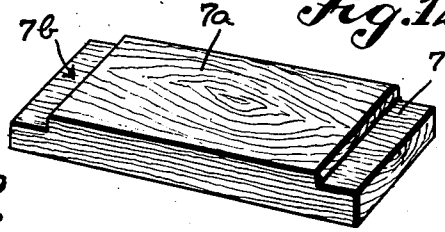


Fig. 11.

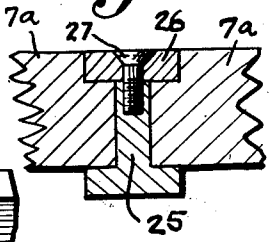
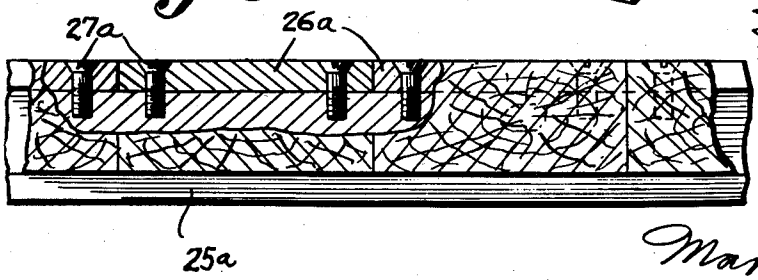


Fig. 13.



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UNITED STATES PATENT OFFICE

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RAILROAD CAR FLOOR AND METHOD OF CONSTRUCTING THE SAME

Application filed December 9, 1929. Serial No. 412,889.

This invention relates to certain new and useful improvements in a railroad car floor and method of constructing the same.

In the shipment and loading of automobiles in freight cars, it is the usual practice to anchor the automobile in the car against movement by the use of chock blocks that are nailed to the car floor and anchor feet associated with decking apparatus for automobiles in freight cars are also secured to the floor by nailing or the like. This practice includes the removal of the chock blocks and decking apparatus from the car floor and the repeated use of nails or spikes in anchoring such devices to the car floor results in rapid deterioration and destruction of the floors representing a great expense to railroad companies in the repair of the car floors. The floor planking of freight car floors usually extends from one side wall to the other side wall and when boards or planking require replacement, due to damage, by nailing and removing chock blocks and decking apparatus to the floor, it is necessary to remove the entire board or plank, resulting in considerable waste and a material loss of time in replacement due to the present construction of car floor.

It is therefore the primary object of this invention to so construct the car floor that the cross-boards thereof are represented by relatively short sections that are interlockingly engaged with frame bars in the car floor that render unnecessary individual fastening or nailing of each floor board in position.

The invention further contemplates the employment of I-beams or double channels spaced from each other and running longitudinally of the car bottom in spaced relation to the side walls thereof with a cooperating channel member at each side of the car with the relatively short cross-floor board dropped into position at one end of the car in the channel guide and thereafter shifted longitudinally to form a continuous flooring.

With the above and other objects in view that will become apparent as the nature of the invention is better understood, the same consists in the novel form, combination and arrangement of parts hereinafter more fully described, shown in the accompanying drawings and claimed.

In the drawings:—

Figure 1 is a fragmentary perspective view of a freight car constructed in accordance with the present invention showing the short cross floor boards retained in assembled relation by end jacks;

Figure 2 is a fragmentary perspective view of a part of the car floor showing one of the cross floor boards partially dislodged from position and the jacks engaged with the remaining floor boards to shift them longitudinally of the car floor for closing the gap;

Figure 3 is a fragmentary vertical longitudinal sectional view;

Figure 4 is a similar view showing the jacks lowered to an inoperative position and out of the way to permit insertion of a new floor board;

Figure 5 is a fragmentary vertical cross-sectional view showing the channel guides for the cross floor boards;

Figure 6 is a perspective view of one of the floor boards;

Figure 7 is a fragmentary perspective view of an I-beam providing guides for adjacent ends of floor boards with a portion of the head of the beam cut away to permit insertion of the floor board;

Figure 8 is a fragmentary perspective view of a pair of assembled channel irons;

Figure 9 is a fragmentary perspective view of another form of car floor construction showing I-beams with removable head flange sections to permit removal and replacement of floor boards;

Figure 10 is a longitudinal sectional view taken on line 10—10 of Figure 9;

Figure 11 is a detail sectional view taken on line 11—11 of Figure 9;

Figure 12 is a perspective view of another form of floor board for use with the I-beam construction shown in Figure 9; and

Figure 13 is an edge elevational view, partly in section showing an I-beam of the form illustrated in Figure 9 with a removable head

flange section of a length equal to the width of a single floor board.

The railroad car includes a body 1 carried by a base frame structure comprising end sills 2 and side rails 3, the body structure of the car being of the usual type and supported on a wheeled truck as shown in Figure 1.

The car bottom or floor comprises a skeleton frame work having side channel irons 4, each secured to a side rail 3 as shown in Figure 5 and extending the entire length of the car with the channel faces opposing each other. A pair of I-beams 5 spaced from each other and parallel with side channel irons 4 extend the full length of the car between the end sills 2 dividing the car bottom into three sections, it being understood that any number of I-beams may be employed in the car floor construction. As shown more clearly in Figures 2 and 7, the upper cross-flange of each I-beam 5 is cut away as at 6 to permit assembly of the cross floor boards 7 with the I-beams 5 and channel irons 4. As shown in Figure 6, the floor board 7 is cut away on opposite sides at each end to provide a tongue or rib 8 to fit into the grooves of the I-beams and channel irons with the intermediate portion of the board 7 flush with the upper cross head of the I-beams and channel irons. The boards 7 are lowered into position at the cut-away ends of the I-beams and when shifted laterally of the cut away portions 6, the boards are interlockingly engaged with the I-beams and channel irons. In lieu of the unitary I-beam construction, shown in Figs. 2 and 7, there may be employed other devices for performing this function, such as double channel irons shown in Fig. 8 having the top flanges 10 thereof cut away at one end.

With the floor boards 7 assembled in the car bottom as shown in Figure 1, they are held in position against movement longitudinally of the car by devices, herein shown for purpose of illustration as screw jacks, a pair of such jacks being disposed between the I-beams 5 and the channel irons 4, each jack comprising a screw barrel 11 pivotally connected at one end as at 12 with a mounting plate 13 that is attached to the end sills 2, the screw 14 threading into the barrel and operated by the nut 15 carrying a swiveled head 16 at its outer end engaged with a follower plate 17 that is associated with the adjacent side edge of the end floor board 7. The screw jacks are operated for moving the several floor boards in each longitudinal section of the car floor bottom into binding engagement with each other and to prevent relative movement thereof. With the jacks engaged with the end board as shown in Figure 3, the filling opening of the car floor for the floor board that is occupied by the screw jacks is covered by the wall or plate 18 hinged at one side thereof as at 19 to the car body, the plate 18 when in closed position being flush with the bottom of the car floor.

As previously stated, floors of freight cars used in the shipment of automobiles become damaged due to the nailing of chock blocks and decking apparatus thereto and removal therefrom, repeated driving of nails or spikes into the car floor board, rendering them useless for the proper anchorage of such vehicle holding devices. With this invention, it is unnecessary to remove a floor board of a length equal to the width of the freight car, a single sectional board being removed resulting in a great saving of time and expense in the repair of such car floor. When a car floor board of relatively short length as disclosed herein has become damaged to the extent of failing to provide proper anchorage for the hold fast device of a motor vehicle, or for any other purpose, the damaged sectional boards may be easily removed by forceful breakage as shown in Figure 2, the severance of the sectional board between its ends causing the ends to be disengaged from the I-beams and channel irons. The screw jacks are then brought into play for shifting the other floor board sections longitudinally of the car bottom to provide an opening adjacent the entrance passage at cut-away ends of the I-beams for a new board. The new board is then shifted into proper position as shown in Figure 3 and there retained by the screw jacks. The dotted line position of the new board when inserted in position in the entrance passage is shown in Figure 4 and when shifted to the right, the screw jacks are elevated upon their pivot mountings 12 for engagement with the board as shown in Figure 3 to retain the several boards of the floor against movement. The cover plate 18 for the entrance passage is then lowered into position as shown in Fig. 3 as a protection for the screw jacks and also for providing a continuous floor bottom for the car.

While the screw jacks have been described as a part of the car equipment, it is to be understood that other devices may be employed for effecting longitudinally shifting movement of the floor boards 7 and be entirely extraneous of the car. For instance, crow-bars or air jacks may be inserted into the end openings and after performing their office of shifting the boards are entirely removed or any other type of impeller may be employed. If desired, the cover plate 18 may be omitted and an additional floor board set into the end opening. Also, each end of the car may be similarly constructed so that maximum length of movement of the floor boards would be from one end to the middle of the car or half the length of the car.

Another form of channel iron guide and support for the cross floor boards is shown in Figs. 9 to 12, the car floor embodying longitudinally extending I-beams 25 with the

upper head flange 26 detachably engaged with the web of the I-beam and formed of sections of a length equal to the combined width of two or more floor boards 7*a*, the removable head flanges 26 having counter-sunk openings therein to receive anchoring screws 27 that pass therethrough and enter the web of the I-beam as shown in Figs. 10 and 11. The floor boards 7*a* as shown in detail in Fig. 12 is mitered at one end on the same side as at 17 to provide a clearance for the removable head flange 26 of the I-beam so that when the floor boards are assembled, the upper sides are in the same plane with the upper faces of the removable head flanges 26 as shown in Figures 9 and 11. In this form of the invention, it is unnecessary to shift the floor boards 7*a* longitudinally of the car bottom for removal and replacement of a new floor board, the head flange 26 of the I-beam being removed by separating the anchoring screws 27 therefor, permitting access for removal and replacement of several floor board sections at one operation.

It is also contemplated, as illustrated in Figure 13 to provide the head flange sections 26*a* of the I-beam of a length equal to the width of each floor board permitting removal of any floor board sections upon removal of the head flange 26*a* associated with each end thereof.

From the above detailed description of the invention, it is believed that the construction and operation thereof will at once be apparent, and while there are herein shown and described the preferred embodiments of the invention, it is nevertheless to be understood that minor changes may be made therein without departing from the spirit and scope of the invention as claimed.

I claim:—

1. In a car floor, sectional cross boards assembled in the floor in a manner to permit forceful breakage of an intermediate or end board for removal with the remaining boards moved into edge contacting relations.

2. In a car floor, sectional cross boards, channel members supporting and retaining the ends of the boards, and the ends of the channel members having cut away portions to permit insertion of a new board section.

3. In a car floor, sectional cross boards, channel members supporting and retaining the ends of the boards, the ends of the channel members having cut away portions to permit insertion of a new board section, and a cover plate for each cut away portion.

4. In a car floor, sectional cross boards, channel members supporting and retaining the ends of the boards, the ends of the channel members having cut away portions to permit insertion of a new board section, and means insertible within the cut away portions for moving the boards longitudinally of the car into edge binding contact.

5. In a car floor, sectional cross boards, channel members supporting and retaining the ends of the boards, the ends of the channel members having cut away portions to permit insertion of a new board section, a cover plate for each cut away portion, and means insertible within the cut away portions for moving the boards longitudinally of the car into edge binding contact.

6. In a car floor, side and end rails, channel guides on the side rails, double grooved members extending longitudinally of the floor in spaced relation and parallel with the channel guides with the upper portions at each end cut-away and sectional cross-boards for the floor having a section inserted at the cut away ends of the member and slid longitudinally of the floor in interlocking engagement with the channel guides and double grooved members.

7. In a car floor, side and end rails, channel guides on the side rails, double grooved members extending longitudinally of the floor in spaced relation and parallel with the channel guides with the upper portions at one end cut-away and sectional cross-boards for the floor having a section inserted at the cut away ends of the member and slid longitudinally of the floor in interlocking engagement with the channel guides and double grooved members, and means at the cut away ends of the members and guides to hold the board sections against movement.

8. In a car floor, side and end rails, channel guides on the side rails, double grooved members extending longitudinally of the floor in spaced relation and parallel with the channel guides with the upper portions at one end cut-away and sectional cross-boards for the floor having a section inserted at the cut away ends of the member and slid longitudinally of the floor in interlocking engagement with the channel guides and double grooved members, and means at the cut away ends of the members and guides to move the board sections longitudinally of the car when one of the sections has been removed for replacement.

In testimony whereof I affix my signature.

MAX D. TUCKER.