July 4, 1933. J. J. TATUM 1,916,343

RAILWAY FREIGHT CAR CONSTRUCTION

Filed Nov. 8, 1930 3 Sheets-Sheet 1

Fig. 1.

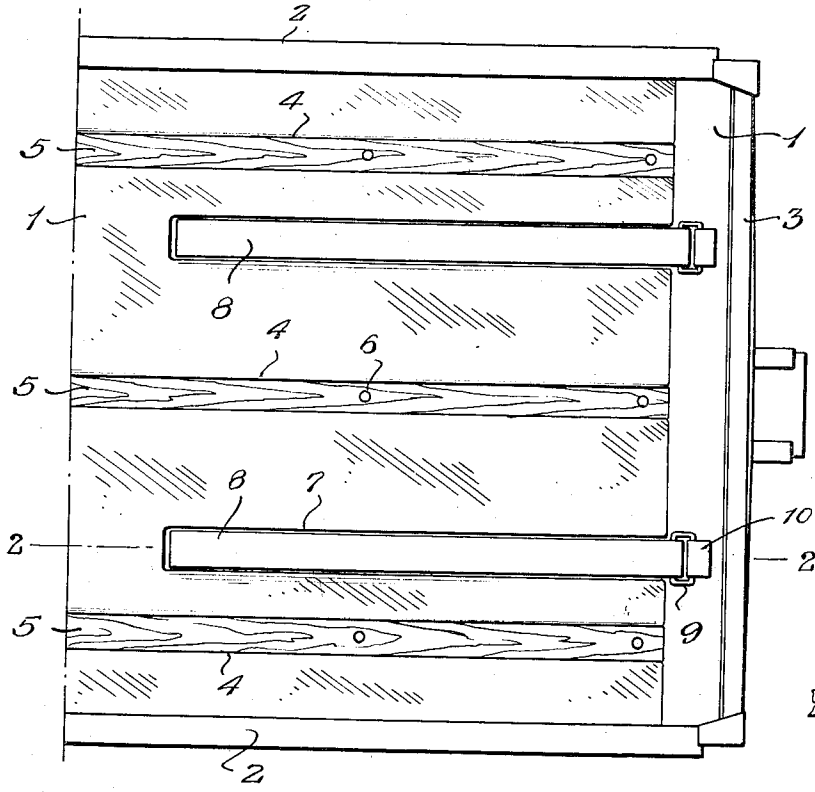


Fig. 2.

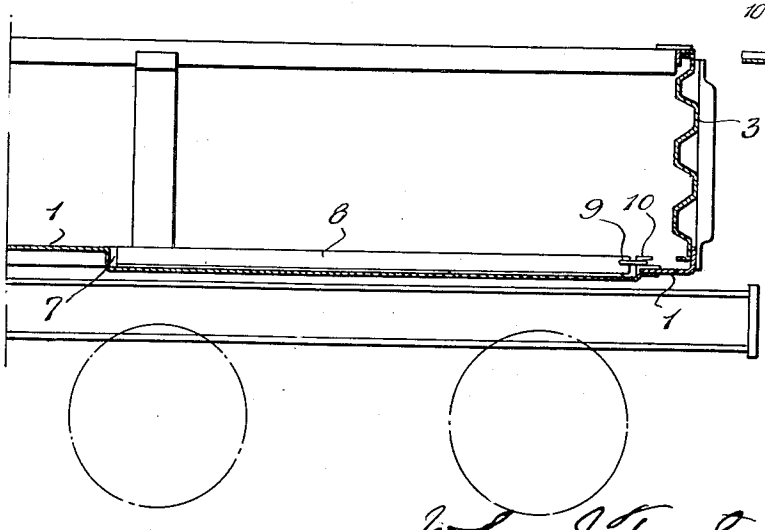
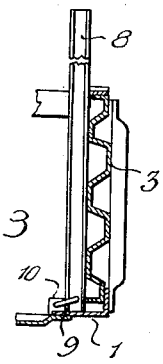


Fig. 3



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RAILWAY FREIGHT CAR CONSTRUCTION

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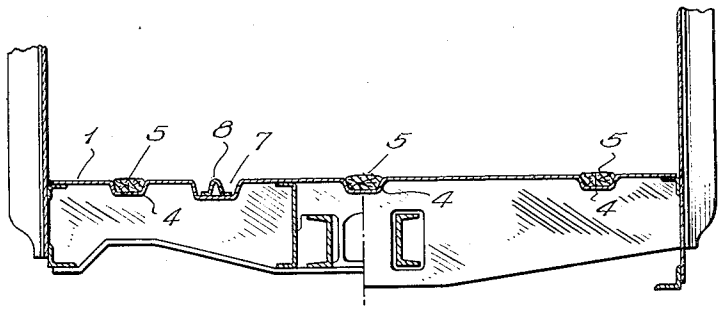


Fig. 4.

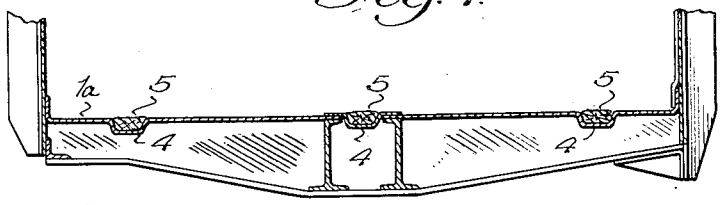


Fig. 5.

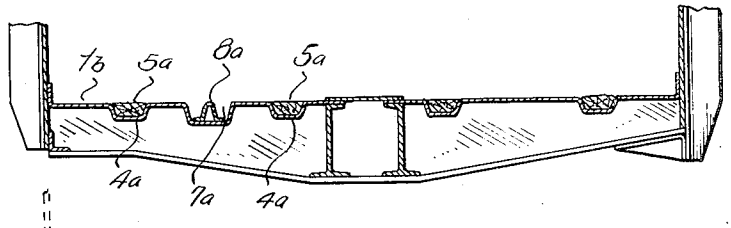


Fig. 6.

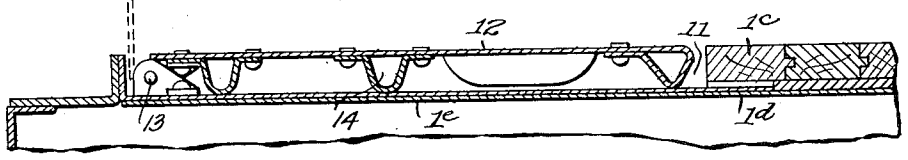


Fig. 7.

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RAILWAY FREIGHT CAR CONSTRUCTION

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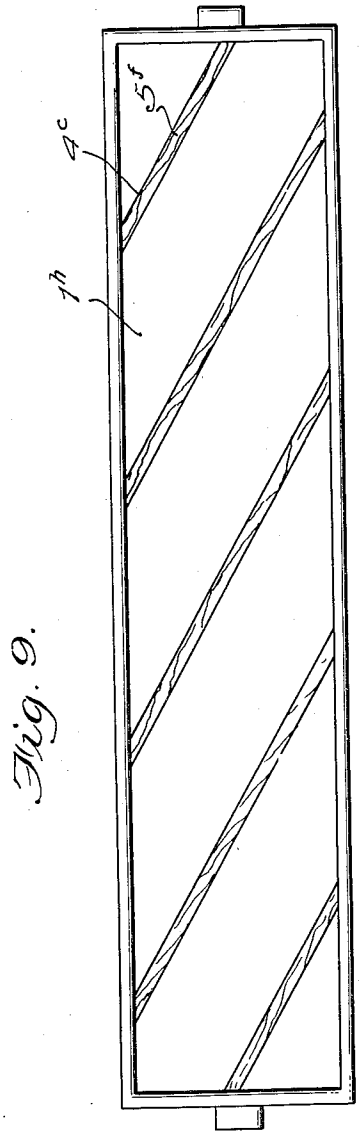


Fig. 9.

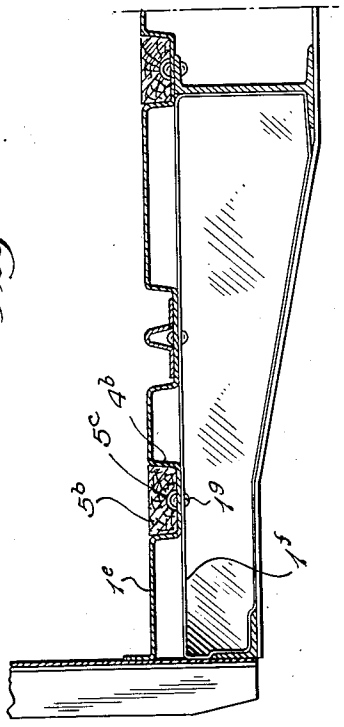


Fig. 8.

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Patented July 4, 1933 1,916,343

UNITED STATES PATENT OFFICE

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RAILWAY FREIGHT CAR CONSTRUCTION

Application filed November 8, 1930. Serial No. 494,399.

This invention relates to improvements in the construction of railway freight cars and similar vehicles, and particularly to gondola or other flat or open top cars and house cars, as well as motor trucks and like vehicles.

For years railroads have been building cars with both wood and metal floors. The metal floors are regarded as most desirable for use by railroads, because of their long life and the economic service they provide. However, shippers have objections to the use of metal floors, because they provide no means for cleating and bracing articles of freight loaded in the cars, with consequent disadvantages.

One object of my invention is to provide a car having a floor which combines the advantages of the metal floor and the wood floor, and which, to this end, is furnished with a metal floor having formed therein channels, depressions or pockets in which are disposed and held cleating timbers, to which timbers the articles of freight may be cleated and braced to prevent such articles from shifting.

It is desirable, in the case of gondola cars, or other cars having short walls, to prevent lading, which is loose or may become loose, from shifting outward over the low walls, particularly the end walls of the car, while the car is moving under load from loading point to destination.

Another object of my invention, therefore, is to provide simple and effective means in the form of bracing stakes for supporting timbers across an end or the ends of a car to prevent lading from shifting over the end walls, which stakes, when not in use, are adapted to be folded downwardly into depressions or pockets in the floor so as to be out of the way when their use is not required.

In cars of the character described in which the end walls are hinged, or in the form of folding gates, adapted to be swung down upon the floor of the car, for the purpose of permitting long freight to be loaded upon two adjacent cars, it frequently happens that the folded gates lying on the floors of the cars make it difficult for the freight to be properly disposed and the gates and freight frequently come in contact in the movements of the cars, resulting in the breaking or damaging of the gates so that they are rendered partially or wholly inoperative for their intended purposes.

Still another object of my invention, therefore, is to provide a car floor with a channel, depression or pocket in which an end gate or wall of the character described may be folded flush with the main surface of the car floor, so that it will not interfere, when its use is not desired, with the proper disposal of the freight and will not in travel be damaged by contact with the freight.

With these and other objects in view, the invention consists of the features of construction, combination and arrangement of parts, hereinafter fully described and claimed, reference being had to the accompanying drawings, in which:—

Fig. 1 is a top plan view of one end of a gondola or other like car provided with a metallic floor and fastening cleats and bracing stakes embodying my invention, the stakes being shown in folded position.

Fig. 2 is a vertical longitudinal section on line 2—2 of Fig. 1.

Fig. 3 is a fragmentary section similar to Fig. 2, showing a bracing stake turned up to supporting position against the end wall of the car.

Figs. 4, 5 and 6 are vertical transverse sections, in the plane of the bolster and crossbearer on opposite sides of the center of the car, showing different forms which my invention may take.

Fig. 7 is a vertical longitudinal section through one end of a car having a folding end wall or gate, showing a pocket for the reception of the gate constructed in accordance with my invention.

Fig. 8 is a view similar to Figs. 4, 5 and 6 showing still another modification.

Fig. 9 is a plan view showing a different arrangement of feed channels or pockets in the car floor.

Referring now more particularly to the drawings, and especially to Figs. 1, 2 and 3, 1 designates the floor, 2 the side walls and 3 an end wall of a car of gondola or other open or short-walled type embodying my in-

vention. The floor 1 is made of metal, of proper gage to give required strength and durability, and the walls 2 and 3, in this particular disclosure, are shown as being fixed and also as being made of metal. In accordance with the invention, the floor 1 is provided with longitudinally extending channels, depressions or pockets 4, in each of which is countersunk or fitted a cleating timber 5 of any desired and suitable kind of wood. The channels or pockets 4 may extend the extreme length of the car, from end to end thereof, in parallel relation to each other, or only a part of the length of the car, and be disposed in any other relative position with respect to each other and to the car walls. In the arrangement shown in Fig. 1, three longitudinally extending channels or pockets 4 are shown, one extending centrally of the floor, above and on a line between the two center sills, and the others being disposed between the said center pocket and the side walls of the car and adjacent to the latter. The timber 5 in each channel or pocket 4 may be either continuous or arranged in sections, as desired, and the timber or timber sections may be secured in position by suitable fastening means, as by means of fastening bolts 6. The upper surfaces of the cleating timbers lie flush with the surface of the floor 1, so as not to interfere with the free manual shifting of freight over the floor, and to these timbers the lading or articles of freight may be anchored by fastening connections of any suitable character, the wooden cleats allowing nails or spikes securing such fastenings to be readily and conveniently driven thereinto and extracted therefrom in applying and removing the freight. This construction provides for the use of metal floors, giving greater strength and durability and better protection against fire and collision hazards, while also enabling the articles of freight to be anchored or fastened securely against any possibility of shifting and becoming marred or damaged while in transit. A floor construction of this character, therefore, combines the advantages to the railroad and shipper of the metal floor with the conveniences as heretofore employed of the wooden floor.

In Figs. 1, 2 and 3 I have also shown the floor 1 provided with auxiliary channels, depressions or pockets 7, adjacent to a wall, such as the end wall 3 of the car, and of proper depth to receive bracing stakes 8 which may be made of wood or metal. These bracing stakes, when disposed within the pockets 7, lie flush with the body of the floor and therefore do not interfere with free manual shifting of freight or packing of freight from end to end of the car when the use of the stakes is not required. Each stake, as shown, is hinged at one end by means of an oblong rectangular hinge link 9 to a keeper member 10 fastened to the floor adjacent to the wall 3 and in such relation thereto that the stake 8, when its use is desired, may be swung upwardly to rest its hinged end upon the floor between the wall 3 and keeper 10 and so that the stakes so swung upwardly and disposed will rest against and be supported against outward movement by the wall 3. When the stakes are thus arranged and supported in position for use, cross timbers may be placed across the end of the car and held against outward movement by the stakes to serve as abutments to prevent articles of freight from becoming displaced and falling outwardly over the end wall while the car is moving under load from loading point to destination. On the other hand when use of the stakes is not required these stakes may be folded downwardly into the pockets, in an out of the way position, so that they will not interfere with the use of the car as an ordinary type gondola or short-walled car, as will be readily understood. The keepers 10 are grooved on their sides facing the walls 3 to slidably receive the hinge links 9 so that by sliding movement of the link 9 toward or from the wall 3 the hinging end of the stake may be engaged with or released from the keeper, allowing the stake when damaged to be removed and a new stake substituted therefor, without the necessity of removing and reapplying any hinging connections, while at the same time the hinging structure adapts the hinged end of the stake to be held securely against casual displacement when the stake is in supporting position.

Fig. 4 shows in cross-section the construction disclosed in Figs. 1, 2 and 3, the stake and its pocket at one side of the car only appearing because of the sectional planes on which the view is taken. The car structure here shown is one of cushioned under-frame type, and it will be seen that the invention may be applied to a car of this type with great convenience and facility.

Fig. 5 shows the application to the floor 1^a of a car of A. R. A. standard type, i. e., not a cushioned underframe car, of three cleats and cleat pockets arranged in the same manner in the floor 1^a as in the floor 1 of Figs. 1 to 4, inclusive. The end stakes and their pockets are not herein shown, because of the points of section at which the view is taken, but they may be employed or not in this structure, as desired.

Fig. 6 is a section through a car of the type shown in Fig. 4, in which the centrally disposed cleat and cleat pocket are dispensed with and the floor 1^b of the car provided at each side of its longitudinal center with a pair of parallel cleat pockets 4^a and cleats 5^a fitted therein. Between each pair of these cleat pockets may be disposed a stake pocket 7^a and stake 8^a, the stake pocket and stake at one side of the car only being shown be-

cause of the sectional planes on which the view is taken.

The foregoing and other changes in the arrangement of the cleat pockets and cleats and stake pockets and stakes, as well as in their form, may be made within the scope of the invention, as set forth in the appended claims, without departing from the spirit or sacrificing any of the advantages of the invention. The provision of the pockets allowing wooden cleats to be placed thereon flush with the floor surface, allows a metal floor to be used with all of its advantages, while at the same time furnishing a means by which freight or lading may be anchored or fastened to the floor in a secure manner to prevent it from becoming displaced by jolts and jars while the car is in transit. The provision of the folding stake further provides a means whereby the car, when desired, may be used without the stakes or the latter employed whenever it is desired to provide supporting means to prevent displacement of articles of freight and shifting the same over the end of the car when the freight is shipped in cars of platform or gondola or short-walled types.

In Fig. 7 I have shown a car having a wooden floor 1^c mounted upon a floor base 1^a, which floor is cut away or terminates short of each end of the car to provide a pocket or chamber 11 between an end edge of the floor and the adjacent end of the car to receive a folding end wall or gate 12. This gate is hinged at its lower edge, as at 13, to the base or floor 1^e of the pocket or recess 11, which base or floor 1^e may be of metal, so that it may be swung upward to the vertical position, as partially indicated in dotted lines, to form a wall or end support, or turned down to the inoperative position shown in which it folds into the pocket or recess 11 with its surface lying flush with the upper surface of the wooden floor 1^c. Thus it will be apparent that the gate may be turned up for use into working position or turned down to an inoperative position, in which latter position it will lie flush and form a part of the floor surface of the car. When the gate is turned up for use the car will serve its normal purpose of a gondola or like car, but at any time the gate may be turned down to allow poles and other long freight to rest upon the floors of two adjacent cars and to be supported thereby without interference from the gate. In practice, a metal floor surface may be substituted for the wooden surface 1^c. The gate 12 is shown as formed of sheet metal of suitable gage provided on its inner surface with stiffened members 14 adapted to rest upon the floor and to serve as braces when the gate is in folded position. The gate, however, may be of any suitable form and construction to serve the purpose.

Fig. 8 shows a construction in which superposed plates or portions 1^e and 1^f of the floor are united by rivets 1^g at the points where the channels 4^b are formed. In this case the cleats 5^b may be formed with cutouts or recesses 5^c to receive the heads of the rivets. This construction will avoid the necessity of the heads of rivets projecting from the floor surface and marring certain kinds of lading.

In the form of my invention shown in Fig. 9 the floor 1^h is provided with diagonally extending channels or pockets 4^c to receive the cleats 5^d, which arrangement may be employed when desired.

A feature of my invention resides in the fact that the metal floor is transversely integrally continuous or integrally semi-continuous between the body side walls, as shown respectively in Fig. 4 and in Figs. 5 and 6. In Fig. 4 the floor sheet 1 is integrally continuous, that is, of single width or single-piece construction between the body side walls, while in Figs. 5 and 6 a three piece sheet is employed, two of which, however, respectively extend the full distance between the body side walls and the respective center sill beams at the sides of the center of the body at which they are arranged and a center strip overlaps these side sheets over the center sill. These arrangements ensure the provision of a floor which is either entirely seamless between the body side walls and over a center support, as in Fig. 4, or seamless between each body side wall and a center support, as in Figs. 5 and 6, thus avoiding the use of riveted seams between points of support whereby the floor is weakened. By the arrangement shown in Fig. 4 the transversely continuous floor sheet may be fastened at the center to beams by vertical rivets and at the side edges to angle brackets by vertical rivets, thus doing away entirely with horizontally riveted or other riveted joints liable to be strained and to open under the weight of heavy trucks or lading on the floor, allowing access of moisture to the joints with deleterious results to the floor and causing a leaky floor which is seriously objectionable in both open and closed cars. The construction in Fig. 4 also allows flanging of the side edges of the sheet metal, as in Figs. 5 and 6, against the body side walls, thus making the floor absolutely tight at the sides and continuously across the car in the construction shown in Fig. 4. With the construction shown in Figs. 5 and 6, it will be evident that the center strip or lap plate may be riveted with the side sheets to the center sill beams by vertical rivets by which means the only joints present are over a supporting base preventing depression of the sheets at the joints and the use of vertical rivets relieves such rivets of all strains tending to cause opening and gapping of the

seams. Hence the floors disclosed are fundamentally tight and maintain such tightness against service wear and tear and load strains. The use of one piece plates, either continuously across the car, or from the center to the sides of the car, allows the channels, pockets or depressions 4 and 4ª to be formed to better advantage and points desired, without the necessity of considering seams, and these pockets or depressions in unseamed plates act in effect as reinforcing beams to strengthen the floor, so that a floor of maximum strength and tightness against leakage is produced.

It will of course be understood that the floor may be made of other materials than metal, for instance of concrete or other suitable mastic materials.

Having thus fully described my invention, I claim:—

1. A railway car or other freight carrying vehicle having a metallic floor provided with longitudinally extending pockets adjacent an end wall thereof, and stakes hinged to the floor adjacent to said end wall for swinging movement downwardly into said pockets or upwardly so as to rest against said wall.

2. A railway car or like freight carrying vehicle having a metallic floor provided with longitudinally extending channels and pockets between the channels adjacent to one end of the car, anchoring cleats fitted and secured in said channels, and stakes hinged at an end of the car to swing upwardly against said end wall or to fold downwardly into said pockets.

3. A railway car or like freight carrying vehicle having a metallic floor provided with pockets each spaced at one end from an end wall of the car, keepers in the spaces between the pockets and end walls, and stakes having a detachable hinging connection with the keepers for swinging movement to a vertical position so as to rest against said end wall or downwardly to an inoperative position within the pockets.

In testimony whereof I affix my signature.

JOHN J. TATUM.