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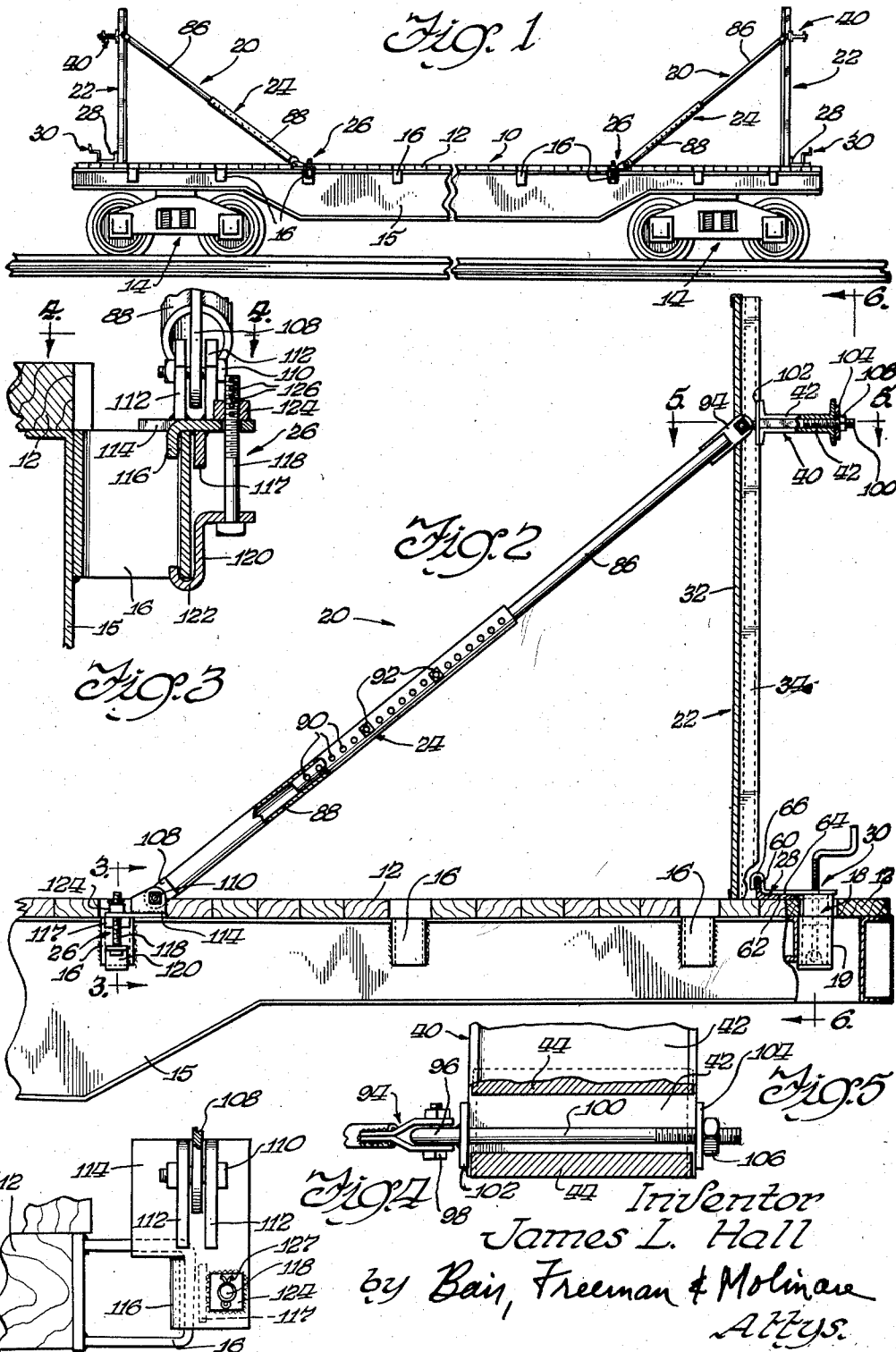
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ATTACHMENT FOR RAILROAD FLAT CARS

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2 Sheets-Sheet 1



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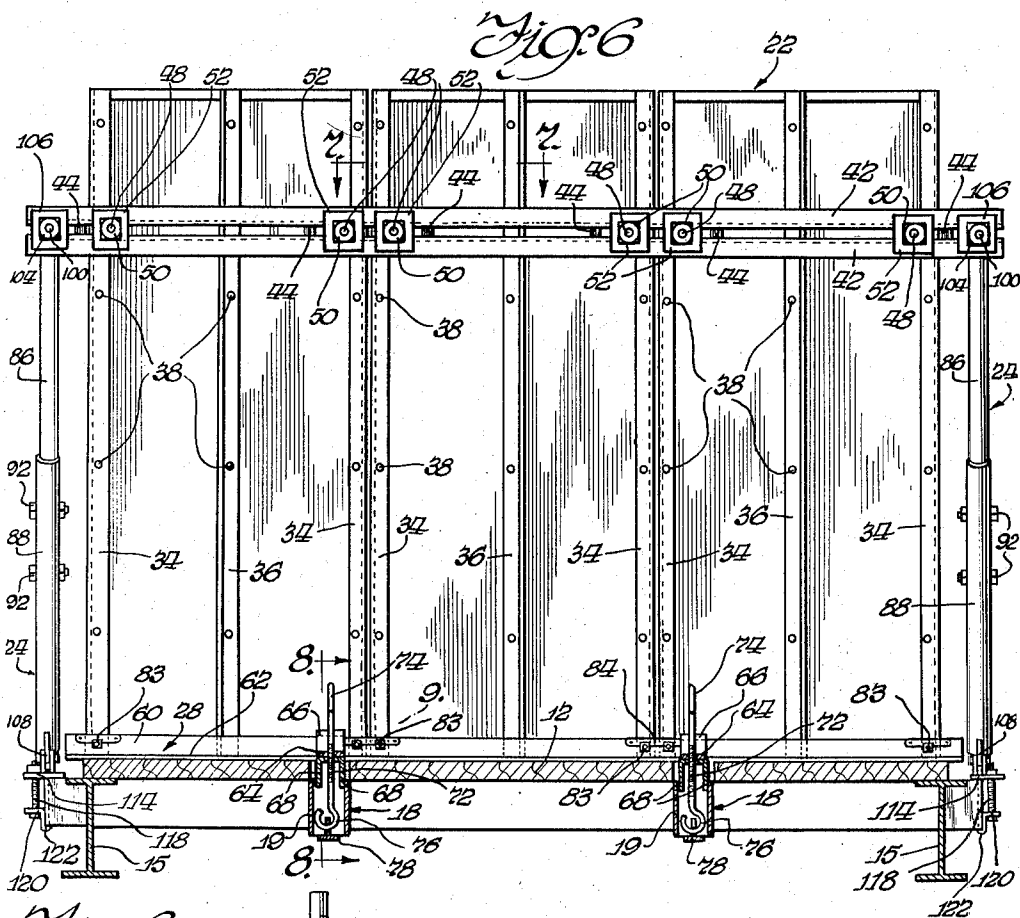
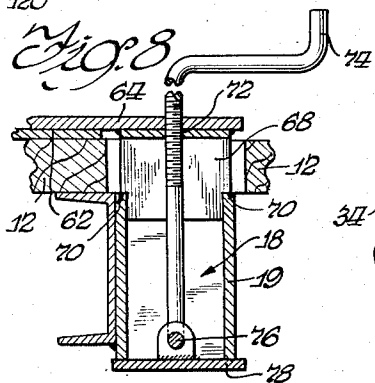
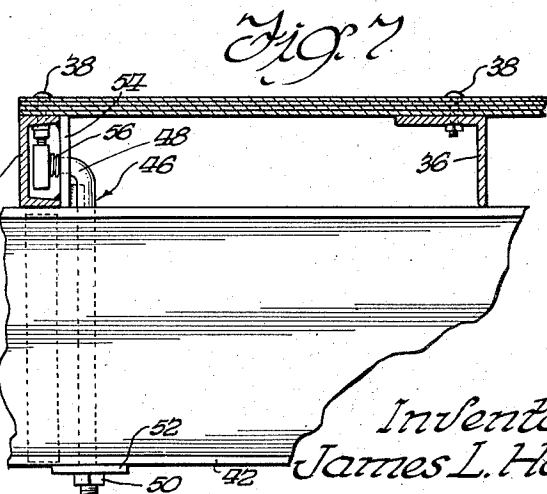
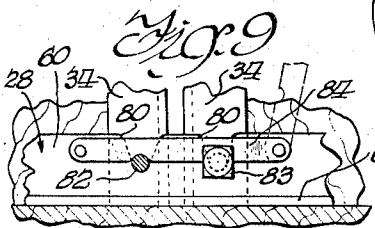
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1

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ATTACHMENT FOR RAILROAD FLAT CARS

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3 Claims. (Cl. 105—374)

This invention relates to railroad flat cars and more particularly to a removable attachment for positioning across the end of the flat car to restrict longitudinal shifting of the load carried by the flat car.

Railroad flat cars have been used very extensively for many, many years. While flat cars possess certain advantageous features over railroad box cars in that they are less expensive and can be more easily loaded and unloaded from the sides and top thereof, they possess and have possessed for the many years that they have been used, a serious deficiency, or disability. This deficiency is that during sudden acceleration changes, such as occurs in starting and stopping, there is a tendency for the load carried on top of the flat car to shift longitudinally of the flat car, and when the load shifts it may pass over the end of the flat car and strike a load on an adjacent flat car, or strike the walls of an adjacent box car, thereby causing damage either to itself, or to the adjacent car or to the load carried by the adjacent car.

While this situation has existed for many, many years and while damage to loads and to railroad equipment has been, annually, in the amount of many thousands of dollars, no successful economical solution to this problem has ever been suggested.

One reason that this problem has never been successfully solved is that the means for meeting the problem must be simple and economically practical, and must not destroy the advantageous features of flat cars heretofore noted. Apparently until now, no invention has ever been able to meet these requirements.

Accordingly, it is one object of this invention to provide a novel attachment for use in combination with railroad flat cars which, when positioned upon a railroad flat car, will operate to restrict longitudinal shifting of loads carried thereby and will, thereby, protect the loads and adjacent railroad cars from damage occasioned by shifting loads.

Another object of this invention is to provide a novel attachment for railroad flat cars which is operative to restrict shifting of loads carried by said flat cars and which attachment does not detract, in any substantial manner, from the advantageous features of flat cars, such as free access for loading and unloading of the flat car throughout substantially the entire length of the flat car.

A further object of this invention is to provide a novel attachment for railroad flat cars which is operative to restrict shifting of loads carried by said flat cars and which is characterized by its simplicity of operation and inexpensiveness of construction and maintenance.

Railroad flat cars are usually provided with fastening means, often referred to as "stake pockets" located along the side edges of the floor of the car or in the floor of the car adjacent the ends of the floor of the car. These stake pockets are utilized in the practice of this invention, as they provide means for securement of the device of this invention to the flat car without resorting to modification of the flat car structure.

According to one feature of this invention, there is pro-

2

vided a removable upright barrier, or end gate, to be placed across the open end of the flat car to help restrict shifting of the loads carried by the flat cars, and brace means are provided for the upright barrier which are located wholly outside, laterally, of the portion of the floor of the car upon which the load is positioned.

Further objects and advantages of this invention will become apparent as the following description proceeds and the features of novelty which characterize this invention will be pointed out with particularity in the claims annexed to and forming part of this specification.

A preferred embodiment of this invention is shown in the accompanying drawings, in which:

Figure 1 is a side elevation view of a railroad flat car having mounted each of its ends the railroad flat car barrier attachment of this invention.

Figure 2 is an enlarged side elevation view of the flat car attachment.

Figure 3 is a fragmentary cross-section view taken substantially on line 3—3 of Figure 2.

Figure 4 is a cross-section view taken on line 4—4 of Figure 3.

Figure 5 is a cross-section view taken on line 5—5 of Figure 2.

Figure 6 is a rear elevation view of the barrier and is taken substantially on line 6—6 of Figure 2.

Figure 7 is a cross-section view taken on line 7—7 of Figure 6.

Figure 8 is a cross-section view taken on line 8—8 of Figure 6.

Figure 9 is an enlarged fragmentary view showing the connection encircled by circle 9 in Figure 6.

Referring now to the drawings, there is shown in Figure 1 a railroad flat car generally indicated at 10, which car includes a floor 12 appropriately mounted on the wheel supported trucks 14. The flat car is provided with side girders 15 for providing additional strength to the car. The railroad flat car is also provided with side stake pockets 16, made of steel or the like, disposed along the longitudinal edges of the flat car, and end stake pockets 18 formed in the floor 12 of the flat car adjacent the ends of the flat car and having tubular inserts 19, of steel or the like, bounding the walls of the end stake pockets 18 and located below the upper surface of floor 12.

An attachment generally indicated at 20 is shown provided at each end of the railroad flat car. In the preferred use of the invention, attachments 20 are provided at both ends of a flat car, although an attachment 20 may be used only at one end of the car, as desired.

In its broadest terms, the attachment 20 includes an upright barrier 22, a pair of spaced braces 24, means 26 securing the braces 24 to the side stake pockets 16, an elongated abutment 28 for engaging the outer side of the barrier 20, and means 30 securing the abutment 28 to the end stake pockets 18.

In particular, the barrier 22 includes a wooden abutment wall 32, of plywood or the like, having secured thereto, on the outer or rear side thereof, a plurality of structural steel members including channels 34 and angles 36. The abutment wall 32 may be formed in a plurality of upright panel sections, and each panel has secured to it a channel 34 at its upright edges and an angle 36 between the channels 34. The use of panel sections permits removal of damaged sections and substitution of new sections without having to replace the entire barrier. In the present design the barrier is formed of three panel sections. The channels 34 and angles 36 are secured to the wooden panel 32 by any appropriate means, such as by means of carriage bolts 38 which may be spaced, for example, 12 inches on centers.

3

The barrier 22 carries an elongated beam means generally indicated at 40 mounted on the rear side of the barrier 22, in the upper half region of the barrier, or closer to the upper edge of the barrier than to the lower edge of the barrier. These beam means 40 include a pair of channels 42 spaced by means of spacer bars 44. The means for securing beam means 40 to the panel sections of the barrier includes a mounting means generally indicated at 46. This mounting means includes a threaded bolt 48, that is bent near the head end thereof, as shown. The threaded bolt 48 operates through a nut 50 to cause a clamping plate 52 to engage the channels 42 so as to clamp the channels 42 of the beam means 40 against the structural members 34 and 36 of each panel section of the barrier 22. The bolt 48 and clamping plate 52 are located within the projected boundaries of the panel section with which the mounting means 46 is associated, thereby providing for the connecting of adjacent panel sections to the beam means 40 without interference between mounting means 46 of adjacent panel sections.

The head of the bent bolt 48 is positioned between a plate 54 and a channel 34, the plate 54 being secured to the legs of channel 34 by any appropriate means, such as by welding. A spring 56 is provided between the head of bolt 48 and plate 54 to provide a resilient mounting between the bolt 48 and the plate 54. The ends of the elongated beam means 40 extend beyond the side edges of the barrier 22 for a reason that will become apparent as the description proceeds.

The barrier 22 above described is adapted to be mounted in an upright manner adjacent one end of the flat car 10, with the wooden panel 32 facing the opposite end of the car and with the structural members 34 and 36 located outwardly, or on the rear side, of the wooden panel 32. An abutment 28 is provided for engaging the outer side of the upright barrier 22. This abutment 28 consists of a structural angle section having an upright leg 60 and a horizontal leg 62. The upright leg 60 engages the structural members 34 and 36 of the barrier 22 and the horizontal leg 62 is adapted to engage the floor 12 of the flat car. A bent plate 64 engages the upper side of the horizontal leg 62 and has a hook portion 66 which overlies the upper edge of the upright leg 60. Each said plate 64 has attached thereto by any appropriate means, such as by welding, a pair of vertical plates 68 which are adapted to enter the end stake pocket 18 and engage the upper edge of the insert 19 as indicated at 70.

The plate 64 has a threaded bore therethrough to receive a threaded rod 72. The rod 72 is shaped at its upper end to form a hand crank 74. A hook 76 is formed at the lower end of the threaded rod 72, and there is mounted on said hook 76 a plate 78. The plate 78 is smaller in one dimension than the inner dimension of the insert 19 and is larger in its other dimension than all inner dimensions of insert 19. This permits mounting of plate 78 on hook 76 and insertion of plate 78 down through and below tubular insert 19, whereupon the plate 78 is pivoted on hook 76 to a horizontal position. The plate 78 is rotated with rod 72 as said rod 72 is caused to be advanced by means of the threaded connection to the plate 64. Thus, plate 78 is adapted to move up into engagement with the lower edge of the insert 19 in stake pocket 18 and thus there is provided said means 30 for securing the abutment 28 to the end stake pockets 18, by clamping onto opposite edges of the insert 19 in the end stake pocket 18.

The upright leg 60 of the abutment 28 has a plurality of recesses 80 therein. The structural members 34 of the barrier carry headed pins 82 that are adapted to enter recesses 80. The upright leg 60 of the abutment 28 carries thereon a plurality of pivotally mounted latches 84 which may be swung across the recesses 80 and be positioned between the upright leg 60 and the heads 83 of pins 82 to thereby lock the barrier 22 to the abutment

4

28. Thus, the engagement of the structural member 34 with the upright leg 60 of the abutment 28 limits the movement of barrier 22 outwardly of the flat car while the engagement of the heads 83 of pins 82 with the latches 84 carried by the abutment 28 limits movement of the barrier 22 inwardly with respect to the flat car.

The braces 24 above referred to are telescopic and each includes an upper pipe member 86 telescopically mounted within a lower pipe member 88. The braces 24 are adjustable as the pipe members 86 and 88 have registerable apertures 90 into which bolts 92 may be inserted to lock the braces at various selected lengths. The pipe member 86 carries a bifurcated member 94 at its upper end. The bifurcated member 94 is pivotally secured to a mounting flange 96 by means of bolt 98. The mounting flange 96 is, in turn, secured to a threaded bar 100 which is adapted to extend between the channels 42 of the beam means 40. The threaded bar 100 carries spaced abutment plates 102 and 104 which are adapted to engage the beam means 40 on opposite sides thereof, and a nut 106 is provided for clampingly securing the threaded bar 100 to the beam means 40.

The lower end of the pipe member 88 carries a flange 108 which is adapted for pivotal mounting on a bolt 110 carried by the bifurcated member 112. The bifurcated mounting member 112 is, in turn, secured by means 26 to the side stake pockets 16.

The means 26 above referred to includes a plate 114 to which the bifurcated mounting member 112 is appropriately secured, such as by welding. The plate 114, in turn, carries a downwardly depending flange 116 bent therefrom, and another flange 117, welded to plate 114, and spaced in parallel relation to flange 116 to define a recess therebetween for receiving, in said recess, the upper edge of a side stake pocket 16. The plate 114 also has a threaded bore therethrough into which is threaded a headed bolt 118 which is disposed substantially parallel to the downwardly depending flange 116. The headed bolt 118 carries a clamping plate 120 which is rotatably mounted on the bolt and which has an upwardly opening hook 122. The bolt 118 carries a lock-nut 124, and the bolt 118 is bored at 126 for entrance therein of a cotter pin 127. This arrangement constitutes the means 26 for securing the braces 24 to the side stake pockets 16 by clamping engagement with the upper and lower edges of the stake pockets 16.

From the above it will be seen that there has been provided an end gate, or upright barrier, adapted for attachment to pre-existing flat cars which are provided with stake pockets at the side and end edges of the flat car. There are in use a great number of such flat cars to which the construction above described may be attached. It will be seen that the telescopic brace means are located wholly outside of the side edges of the flat car and thus do not interfere with any load which will be mounted within the lateral confines of the flat car, thus preserving the capacity of the flat car. In addition, it will be seen that by detaching the lower edge of the upright barrier from the abutment 28, the upright barrier 22 may be pivoted about the axes of mounting bolts 98 until the barrier 22 lies substantially in the same plane as the braces 24 and the braces 24 and barrier 22 may be pivoted about the axes of the mounting bolts 110 so that the barrier 22 and brace means 24 may be collapsed for lying substantially flat on the floor of the car when not in use. If the beam means 40 should fall within the confines of the flat car 10, when it is desired that the attachment be collapsed to the non-use position above described, it will be seen that the brace means 24 may be telescopically expanded until the beam means 40 are located beyond the edge of the flat car 10, and in that way the barrier 22 and the brace means 24 can be caused to lie closely adjacent the floor of the flat car when collapsed to the non-use position.

5

In an actual design of this invention, the structural members that have been hereinabove described are of the following dimensions, although it is pointed out that this design is merely typical and the invention being claimed herein is not restricted to such limitations of design.

While there has been shown and described a particular embodiment of this invention, it will be obvious to those skilled in the art that various changes and modifications may be made therein without departing from the invention and, therefore, it is intended in the appended claims to cover all such changes and modifications as fall within the true spirit and scope of the invention.

What I claim as new, and desire to secure by Letters Patent of the United States is:

1. A removable attachment for use on an elongated railroad flat car that is provided with stake pockets on the floor thereof including stake pockets along the longitudinal edges of the flat car; said removable attachment being mountable on and de-mountable from a flat car without adding any structure to, or requiring modifications of, the existing structure of the flat car, said attachment comprising, in combination, upright barrier means of substantially the same width as the flat car and positioned transversely of the flat car, said barrier means presenting a front side, against which a load may abut, and a rear side; an elongated abutment engaging the rear side of said barrier means adjacent the lower end thereof and removably positioned upon the floor of the flat car, and a first connecting means securing said elongated abutment to stake pockets on said flat car; an elongated beam means of greater length than the width of said barrier means spaced above said elongated abutment and secured to the rear side of said barrier means and having the ends thereof extending laterally of said barrier means, a pair of elongated braces each connected at one end thereof to an end of said elongated beam means, said braces extending forwardly of the front side of said barrier means and being spaced laterally outwardly of the longitudinal edges of the flat car, and second connecting means connecting the other ends of said braces to side stake pockets on said flat car.

6

2. A flat car barrier attachment as set forth in claim 1, wherein said upright barrier means comprises a plurality of individually replaceable upright panel sections connected to said beam means, and cooperating latch members carried by said panel sections and by said elongated abutment member respectively for releasably connecting the panel sections to said elongated abutment member.

3. A removable attachment for use on an elongated railroad flat car that is provided with stake pockets on the floor thereof including side stake pockets along the longitudinal edges of the flat car; said removable attachment being mountable on and de-mountable from a flat car without adding any structure to, or requiring modification of, the existing structure of the flat car, said attachment comprising, in combination, upright barrier means of substantially the same width as the flat car and positioned transversely of the flat car, said barrier means presenting a front side, against which a load may abut, and a rear side; an elongated abutment engaging the rear side of said barrier means adjacent the lower end thereof and removably positioned upon the floor of the flat car, and first connecting means securing said elongated abutment to stake pockets on said flat car; elongated inclined braces spaced laterally outwardly of the longitudinal edges of a flat car and extending forwardly of the front side of said barrier means and being connected at their upper ends to said barrier means at points spaced above said elongated abutment, and second connecting means connecting the lower ends of said braces to side stake pockets on said flat car.

References Cited in the file of this patent

UNITED STATES PATENTS

301,855	Bueno	July 15, 1884
1,499,229	Laffey	June 24, 1924
2,388,304	Ackerman et al.	Nov. 6, 1945

OTHER REFERENCES

"Loading Rules." Published by American Railway Association. 1930 (page 314). (Copy in Div. 34.)