March 11, 1958 J. L. HALL 2,826,156

ATTACHMENT FOR RAILROAD FLAT CARS

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Fig. 1

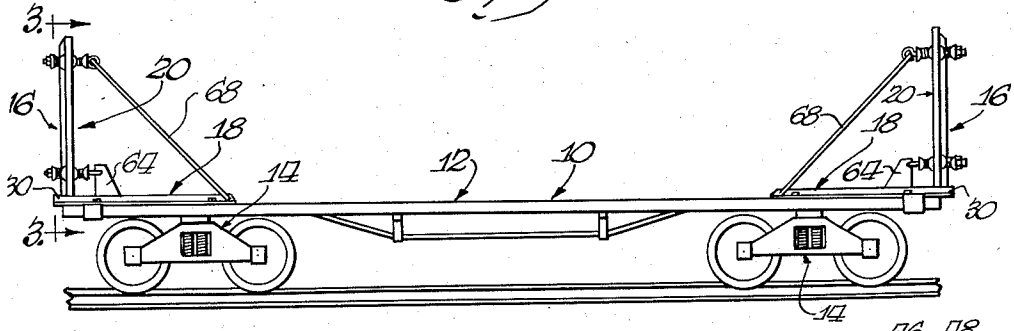


Fig. 2

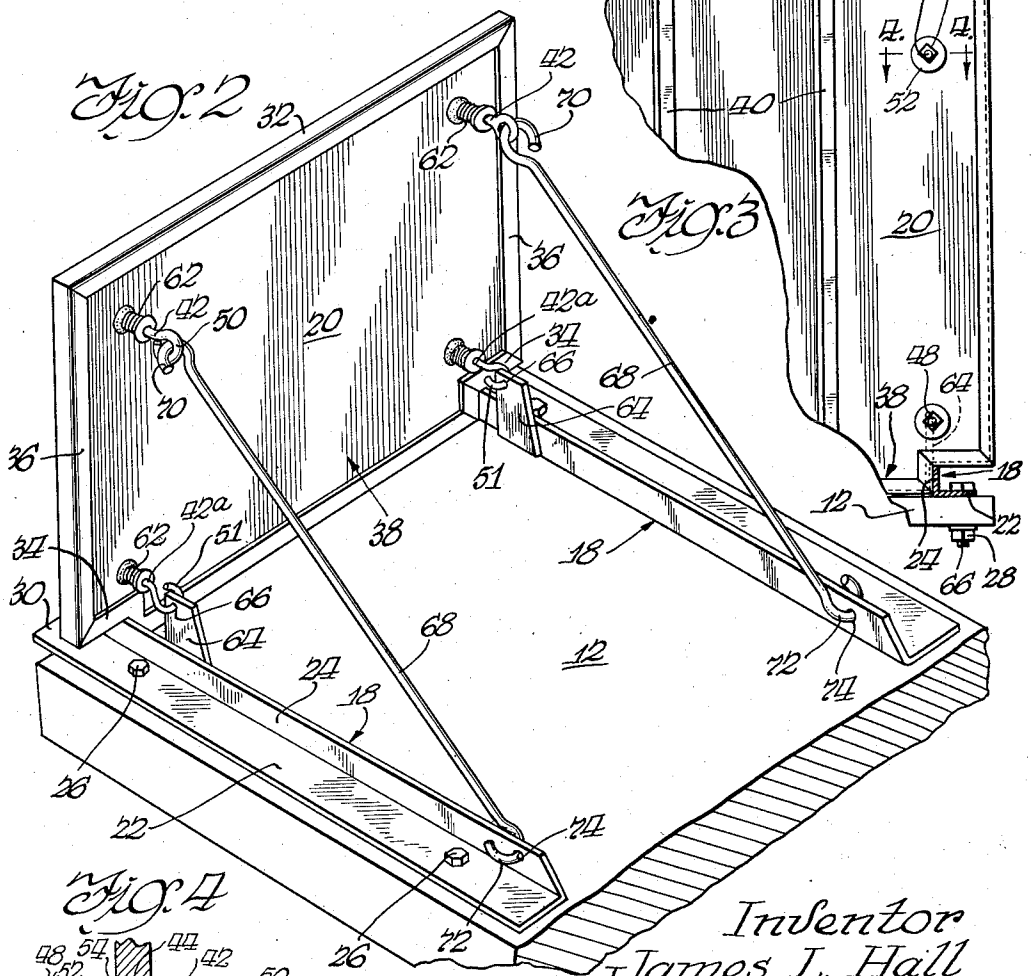
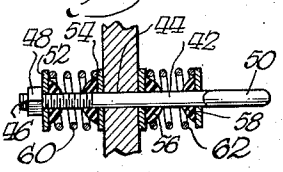


Fig. 3

Fig. 4



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ATTACHMENT FOR RAILROAD FLAT CARS

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1 Claim. (Cl. 105—369)

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 expansive 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 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 maintainence.

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 on each of its ends the railroad flat car attachment of this invention;

Figure 2 is an enlarged perspective view of the flat car attachment;

Figure 3 is an enlarged fragmentary elevation view taken substantially on line 3—3 of Figure 1; and

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

Referring now to the figures, there is shown in Figure 1 a railroad flat car generally indicated at **10**, which car includes a floor **12** appropriately mounted on wheel supported trucks **14**. An attachment, generally indicated at **16**, is shown provided at each end of the roalroad flat car. In the preferred use of the invention, attachments **16** are provided at both ends of a flat car, although an attachment **16** may be used at only one end of a flat car, as desired.

In its broadest terms, the attachment **16** includes spaced, parallel guide rails **18**, an upright barrier **20**, and means for detachably securing the barrier **20** to the rails **18**.

In particular, the guide rails **18** are each in a form of an angle iron, one leg of which serves as a mounting leg **22** and the other leg of which extends upwardly to define an upwardly extending leg, or rail portion, **24**. Each mounting leg **22** is rigidly secured to floor **12** of the flat car by any appropriate means, such as bolts **26** and cooperating nuts **28**. Any appropriate washers and lock washers may be provided. The use of bolts **26** and cooperating nuts **28** provides that the guide rails are removable from the flat car, as desired, although the rails may be more permanently attached to the car, such as by welding or the like. While the rails **18**, as shown in the particular form of this invention, are mounted on the upper side of the floor **12** of the flat car, it will be appreciated that the rails may also be mounted on the lateral longitudinal edges of the floor **12**, as desired.

The guide rails **18** are elongated and extend from adjacent one end of the flat car inwardly. Each pair of spaced, parallel guide rails **18** are positioned adjacent the opposite longitudinal edges of the flat car. The guide rails **18** are so positioned relative to the end of the flat car that there is a slight overhang **30** which extends beyond the terminal end of the flat car. This slight overhang **30** permits the positioning of the barrier **20** on the guide rails **18** at a position immediately above the terminal end of the car, thereby providing means for mounting the barrier **20** on the flat car without reducing the longitudinal capacity of the flat car. In an actual design of this invention the overall length of each rail **18** is 8′ 8″ and the over hang is 9″. A typical angle used is of a dimension 3″ x 3″ x ¼″.

Referring now to the upright barrier **20**, said barrier is generally rectangular in shape and has an upper edge **32**, a rail engaging edge **34**, and side edges **36**. The barrier also includes a central depending portion **38**, which may be appropriately attached to the barrier, or may be formed integral therewith as shown. This central depending portion **38** extends below the rail engaging edge **34** of the barrier and defines rail engaging portions which are positioned between the upstanding rail portions **24** in closely adjacent relation thereto. The rail engaging portions of said depending portion **38** are adapted to engage and cooperate with the upstanding rail portions **24** to restrict lateral movement of the barrier **20**.

The barrier **20** is generally in an upright position, preferably vertical, and is positioned just above the terminal end of flooor **12** of the flat car **10**, and may, if desired, be positioned just outwardly of the terminal end of the flat car. The barrier **20** rests on the upper edges of the rails **18** and is slidably mounted thereon for reciprocal movement therealong.

The barrier **20** may be made of any material of appropriate strength, such as aluminum, steel, or reinforced wood. In an actual design of the barrier **20**, ¾" plywood is used as the main element of the barrier and the wood is reinforced along its edges by steel angles of size 1" x 1" x 3/16", and by vertical stiffener angles **40**, of the size 2" x 2" x 3/16".

The rectangular barrier **20** carries adjacent each corner thereof an attaching member **42**, the upper attaching members being denoted **42** and the lower attaching members being denoted **52***a*. Each attaching member **42** is slidably positioned in a bore **44** through the barrier **20**. Each attaching member **42** is threaded, at one end, as at **46**, to receive a nut **48** thereon. The upper attaching members **42** have an eye **50** formed at the other end, while the lower attaching members **42***a* have a hook **51** formed at the other end, for reasons which will become apparent as the description proceeds.

Resilient mounting means are provided for each attaching member **42** by means of pairs of oppositely facing rubber bumpers **52**—**54** and **56**—**58** located on opposite sides of the barrier **20**. Each rubber bumper consists of an annular rubber member appropriately mounted on a metal washer which provides both support for the rubber member and a reacting surface for cooperation with members against which the rubber bumpers are adapted to bear. Positioned between each pair of rubber bumpers are coiled compression springs **60** and **62**. The springs **60** and **62** provide resilient mountings between the barrier **20** and the attaching members **42**, and the arrangement of springs on opposite sides of the barrier **20** accommodates movement of the barrier **20** in either of two opposite directions relative to the attaching members **42**.

For connecting the barrier **20** to the rails **18** there is provided a pair of upstanding flanges **64** which are appropriately secured, such as by welding, to legs **24** of the rails **18** at positions between the barrier **20** and the inner terminal ends of the rails. The flanges **64** are apertured at **66** permitting hooking of the hook **51** of attaching members **42***a* therethrough. For securing the upper attaching members **42** to the rails **18** there are provided rigid links **68** having hooks **70** and **72** formed at their terminal ends. The hook **70** is hooked through the eye **50** of the attaching members **42**, and the other hooks **72** are hooked through apertures, or bores, **74** in the upstanding leg **24** of the rails **18** at points close to the inner terminal ends of the rails. The attachment of the barrier **20** to the flanges **64** and to the rails **18** close to the inner terminal ends of the rails thereby provides connection of the upstanding barrier **20** to the rails **18** at spaced points therealong. The rigid links **68** are capable of resisting both compressive and tensile forces that may be applied thereto.

It will be appreciated that the arrangement of hooks and eyes provides means for simple mounting and dismounting of the barrier **20**. The links **68** may be easily disconnected and laid flat against the floor **12** of the car to permit substantially free lateral access through the side of the flat car to the load thereon.

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:

A removable attachment for use in combination with an elongated railroad flat car; said removable attachment comprising a pair of spaced elongated guide rails having upwardly extending rail portions which are parallel to each other, said guide rails being adapted to be secured to said flat car adjacent opposite longitudinal edges of said car, a removably mounted upright rectangular barrier of substantially the same width as said flat car slidably supported on said guide rails adjacent one end thereof for reciprocal movement thereon, said barrier carrying thereon rail engaging portions which are positioned between and closely adjacent said upwardly extending rail portions and are adapted to engage said upwardly extending rail portions for restraining said barrier from lateral movement, resilient mounting means carried on said barrier including attaching members slidably extending through said rectangular barrier adjacent each corner thereof, spring means engaging opposite sides of said barrier and being carried by each said attaching member for resiliently mounting said barrier for movement thereof relative to said attaching members, and hook means detachably securing said attaching members, and thereby said barrier, to said rails.

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