W. A. MITCHELL.

FREIGHT CAR LADDER.

APPLICATION FILED APR. 15, 1912.

1,043,715.

Patented Nov. 5, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

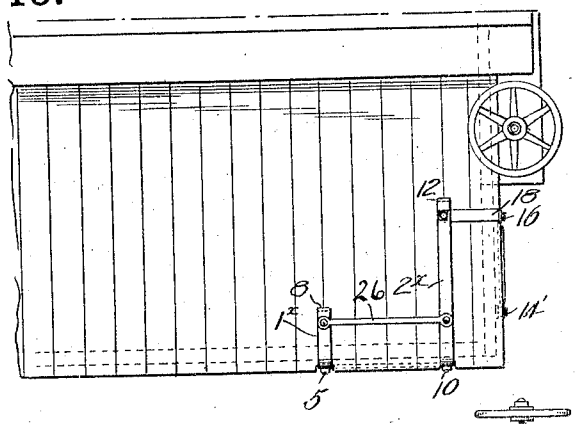


Fig. 2.

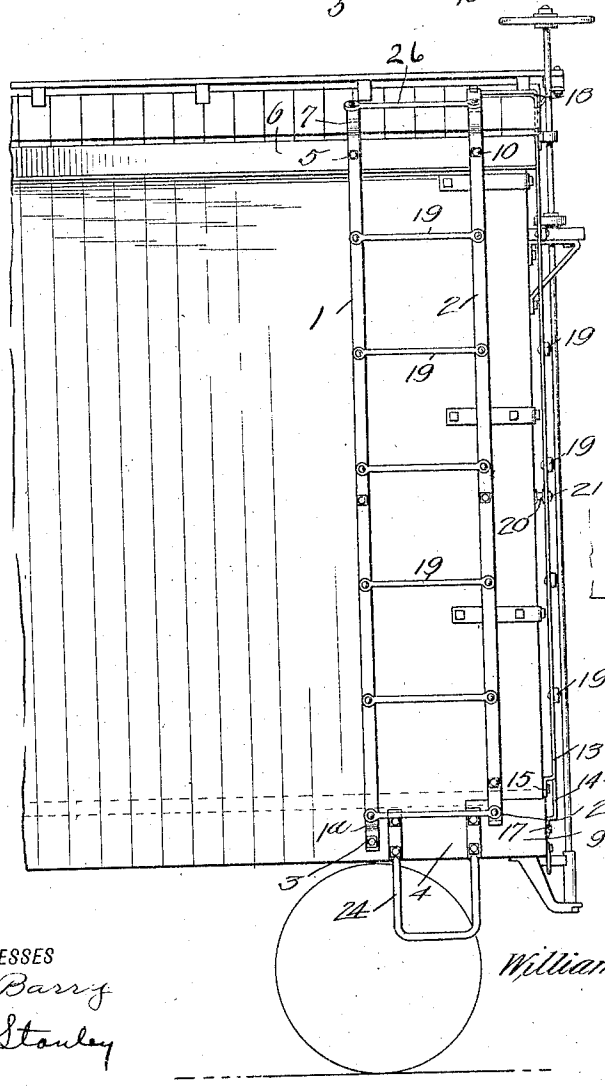
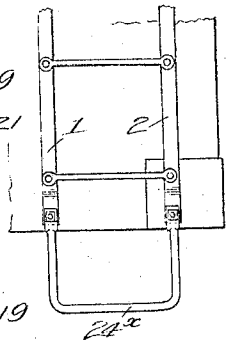


Fig. 6.



WITNESSES

H. C. Barry

L. A. Stanley

INVENTOR

William A. Mitchell

BY Munn & Co.

ATTORNEYS

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2 SHEETS—SHEET 2.

Fig. 3.

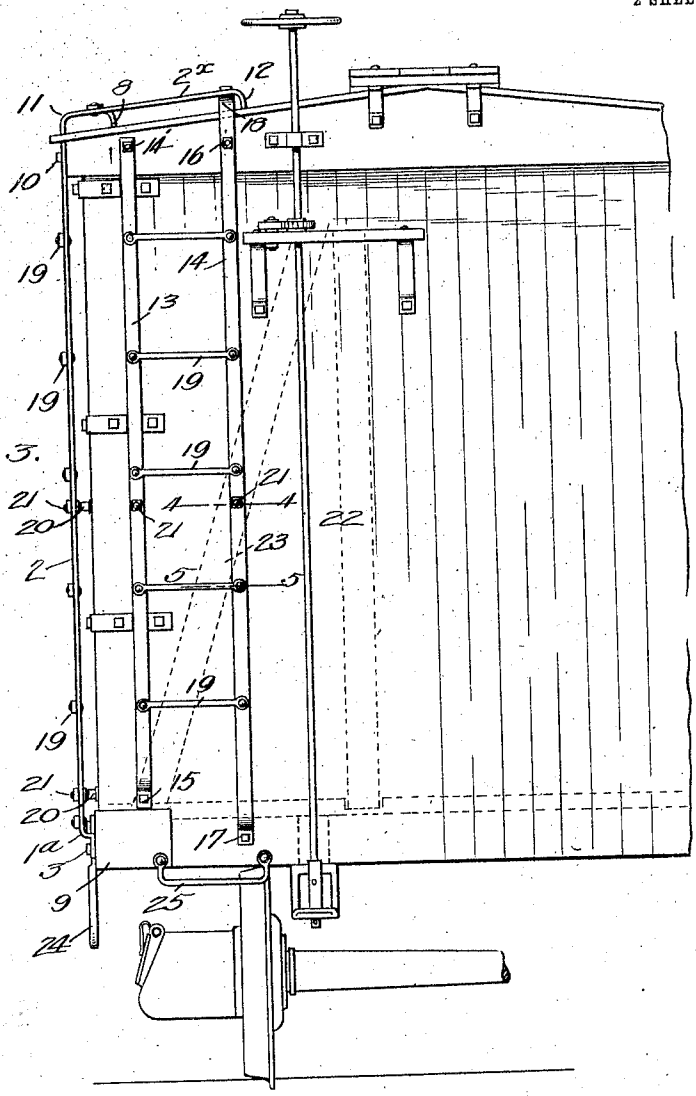


Fig. 4.

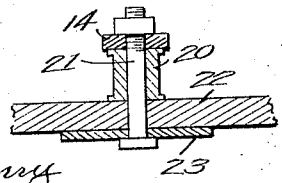
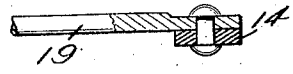


Fig. 5.



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ATTORNEYS

UNITED STATES PATENT OFFICE.

WILLIAM A. MITCHELL, OF SEDALIA, MISSOURI.

FREIGHT-CAR LADDER.

1,043,715. Specification of Letters Patent. Patented Nov. 5, 1912.

Application filed April 15, 1912. Serial No. 690,852.

To all whom it may concern:

Be it known that I, WILLIAM A. MITCHELL, a citizen of the United States, and a resident of Sedalia, in the county of Pettis and State of Missouri, have made certain new and useful Improvements in Freight-Car Ladders, of which the following is a specification.

My invention relates to improvements in side and end ladders for freight cars, and it consists in the combinations, constructions and arrangements herein described and claimed.

An object of my invention is to provide ladders for the ends and sides of freight cars, which are in conformity with the United States safety appliance law, and which possess features that render these ladders safer than the ordinary ladder.

A further object of my invention is to provide side and end ladders, each having roof grab irons firmly secured in position without the necessity of the use of screws or bolts in the roof itself.

A further object of my invention is to provide ladders which may be applied to the sides and ends of cars now in use without any preliminary work on the cars to prepare them for the ladders.

Other objects and advantages will appear in the following specification and the novel features of the invention will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings forming part of this application in which—

Figure 1 is a plan view of a portion of a car equipped with my invention, Fig. 2 is a side view, Fig. 3 is an end view, Fig. 4 is a section along the line 4—4 of Fig. 3, Fig. 5 is a section along the line 5—5 of Fig. 3, and Fig. 6 is a modified form of the device.

In accordance with the United States safety appliance law, four ladders must be placed on each box or other house car, whereas the present practice is to have only two ladders, one on either side or either end. It therefore becomes necessary that two additional ladders shall be placed on each and every box or other house car and to other cars whose sides and ends are more than a specified height. In the application of these additional ladders, to box and other house cars, it is often necessary to tear out a portion of the side and end of the car in order to supply holding means through which the bolts are to pass in securing the ladder irons to the cars. This must be done if the ladders are to be fastened in the old way. My main purpose is to provide means for fastening the ladders which will not require the preliminary work on the car as stated above.

In carrying out my invention I provide a side ladder consisting of the stiles, or vertical side members 1 and 2. The lower end of the side member 1 is bent inwardly at 1^a and is bolted at 3 to the sill 4 of the car. The member 1 is bolted at 5 to the upper part 6 of the car frame. The end of the ladder is bent at 7 to extend a short distance over the roof, and is again bent downwardly at 8 and terminates just above the roof, as shown in Fig. 3, but is not secured to the roof.

The side member 2 is bolted at its lower end at 2^a, this bolt passing through the end plate 9. The member is also bolted to the frame member 6 at 10, is bent at 11 to pass above the roof of the car and is bent downwardly at 12 (see Fig. 3) terminating above the roof of the car. It will be noted that the portion 2^x above the car is longer than the portion 1^x of the companion side member.

The end ladder includes two side members 13 and 14. The former is bolted to the car frame 6 at 14 and to the body of the car at its lower end at 15, while the latter is secured at its upper end at 16 to the car frame, and at its lower end at 17 to the sill. The upper end of the member 14 is bent at 18 and passes over the roof of the car being bolted, riveted, or otherwise secured to the portion 2^x.

The ladders are provided with rungs 19, which are riveted to the side members in the manner shown in Fig. 5. In order to space the ladders from the body of the car and at the same time to afford additional security I provide cast iron furring spools or thimbles 20, such as those shown in Fig. 4, bolts 21 being provided which pass through the ladder stiles or sides, through the spools, through the walls 22 of the car, plates 23 being provided for holding the bolts. The distance between the rungs may be varied as may also the number of spools, according to the construction of the cars to which the ladders are to be applied. Sill steps 24 and 25 are provided for the sides and ends of the cars respectively. The sill step 24 is bolted on one side to the sill 4 and on the other

side the bolts pass also through the end plate 9. Similarly the sill step 25 is bolted to the sill on one side, while on the other side the bolt passes through the end plate 9.

I also contemplate making the lower steps an integral part of the ladder, as shown in Fig. 6 at 24^x.

From the foregoing description of the various parts of the device the use and purpose thereof may be readily understood.

In the old form of ladder, where each ladder arm was secured either with bolts or lag screws separately to the body of the car, the timber very frequently became decayed, allowing the lag screws or bolts to pull out and the hand hold to come off. The trainmen were very often thrown from the car by the giving away of the hand hold. In fact, this has been a source of more accidents perhaps than any other cause since the abolition of the old link and pin coupling devices. With my invention, however, the chances for an accident of this kind are very remote. The rungs are riveted to the side members, and the latter are firmly secured to the substantial parts of the car, *i. e.*, to the sill and to the frame of the car. Moreover, the bending of the ladder at the top to constitute grab irons also affords an additional support to the ladder.

It will be noted that in this construction each of the side ladders is provided with a grab iron for the roof, that for the side ladder being the rung 26 between the portions 1^x and 2^x which are bent over the roof and that for the end ladder being the portion 2^x itself. The ends of the members 1^x and 2^x are bent downwardly for the purpose of preventing trainmen or others from getting their feet or clothing caught on the projecting ends of the ladder stiles or sides. The stopping of the member 13 below the roof of the car eliminates one of the extensions over the roof, thus taking a part out of the way of the trainmen, while at the same time the end of the ladder is provided with a roof grab iron, in accordance with the law.

It will thus be seen that I have provided a device which may be applied directly to cars already in use without the necessity of going to the expense of tearing out a portion of the side and end in order to supply means by which the bolts which hold the ladder irons may be secured.

It is obvious that other forms and dimensions than those shown in the accompanying specification might be used, but I desire to claim all such modifications as fairly fall within the spirit and the scope of the invention.

I claim:

1. The combination with a freight car, of an end ladder and a side ladder, the stiles of said side ladder being bent over the roof of the car, one of said stiles being extended beyond the other, and one of the stiles of said end ladder being bent over the roof of the car and being secured to said extended stile, said extended stile serving as a roof grab for the end ladder.

2. The combination with a freight car, of an end ladder and a side ladder, the stiles of said ladder being bent over the roof of the car, one of said stiles being extended beyond the other, and one of the stiles of said end ladder being bent over the roof of the car and being secured to said extended stile, said extended stile serving as a roof grab for the end ladder, a rung disposed between the bent over portions of the side ladder and serving as a roof grab for the side ladder, and the ends of the bent over portions of the side ladder being bent downwardly toward the roof of the car.

3. The combination with a freight car, of an end ladder and a side ladder, the stiles of said side ladder being bent over the roof of the car, one of said stiles being extended beyond the other, and one of the stiles of said end ladder being bent over the roof of the car and being secured to said extended stile, said extended stile serving as a roof grab for the end ladder, a rung disposed between the bent over portions of the side ladder and serving as a roof grab for the side ladder, the ends of the bent over portions of the side ladder being bent downwardly toward the roof of the car, each of said ladders being secured at their bottoms to the sill of the car, and means carried by the car body for spacing said ladders from the car body, said spacing means constituting an auxiliary fastening means.

WILLIAM A. MITCHELL.

Witnesses:
W. H. HOLCROFT,
F. F. DURHAM.