W. E. WINE.

CAR LADDER.

APPLICATION FILED SEPT. 3, 1914.

Patented Feb. 13, 1917.

1,215,455.

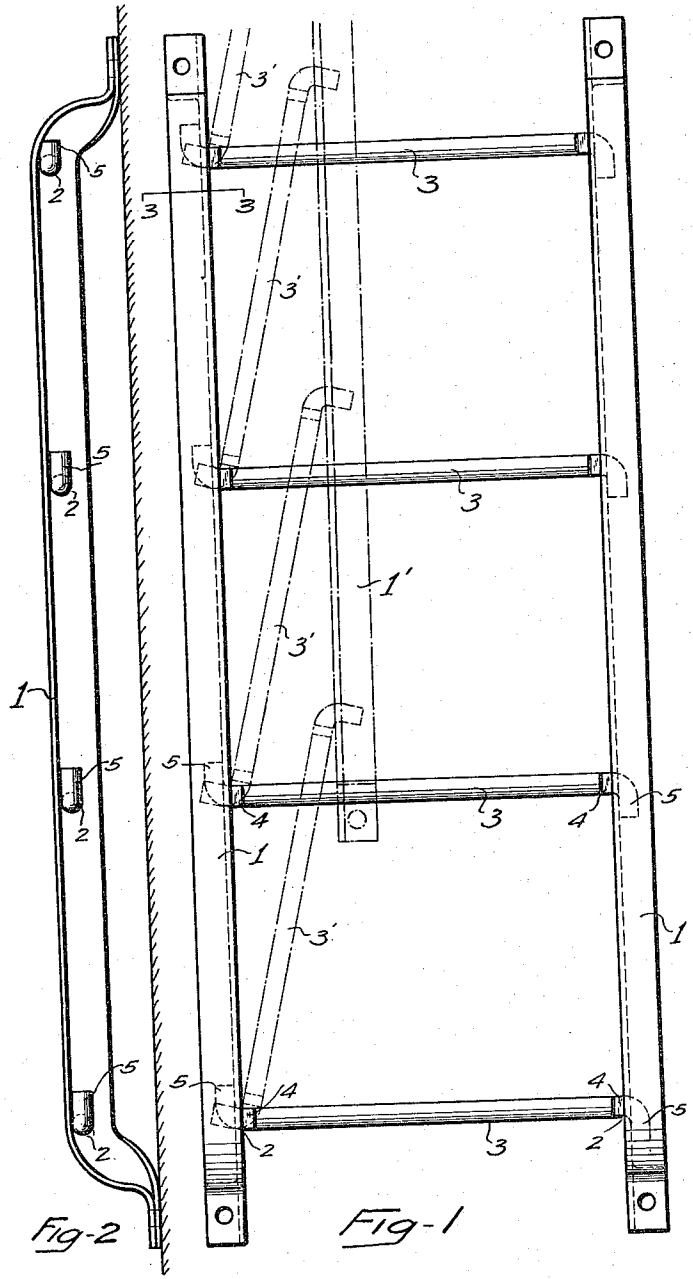


Fig-2

Fig-1

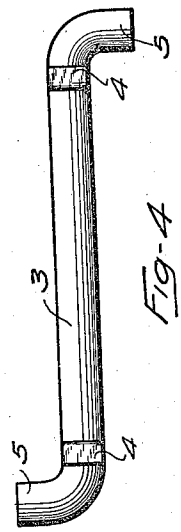


Fig-4

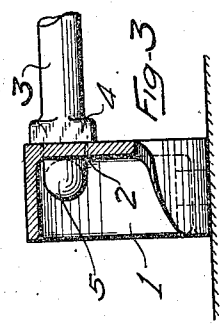


Fig-3

WITNESSES:

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CAR-LADDER.

1,215,455. Specification of Letters Patent. Patented Feb. 13, 1917.

Application filed September 3, 1914. Serial No. 860,042.

To all whom it may concern:

Be it known that I, WILLIAM E. WINE, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented new and useful Improvements in Car-Ladders, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to ladders in general but more especially to those used on freight cars.

Ladders in general use on freight cars comprise stiles of wood or metal to which the treads are bolted or riveted, or the treads are bolted direct to the car. Where wooden stiles are used and where the treads are bolted direct to the car the bolts frequently work loose caused by shrinkage of the wood and vibrations of the car body. Where the treads are riveted to or upset into metal stiles the expense of construction becomes quite an item.

Therefore the object of my invention is to so construct the stiles and treads of a ladder that they may be assembled without the use of either bolts or rivets.

A further object of my invention is to produce a ladder that will not fall apart if the treads become disconnected from the stiles in case of accident to the car.

A further object of my invention is to produce a ladder which can be built and applied at a minimum cost.

With these and other objects hereinafter explained in view my invention consists in the construction and combination of elements hereinafter described and claimed.

In the accompanying drawings which illustrate the preferred embodiment of my invention: Figure 1 is a front elevation of a ladder embodying my invention. Fig. 2 is a side elevation of same. Fig. 3 is a section on line 3—3 Fig. 1, shown to an enlarged scale. Fig. 4 is an enlarged view of one of the treads.

Similar characters designate similar parts throughout the several figures of the drawings.

Referring now to the parts by number, the angle iron ladder stiles are denoted by 1 which are provided with a row of holes 2 in their inner leg into which are inserted the treads 3.

The ends of the stiles are turned down to form brackets for attaching the ladder to a car.

The treads 3 are provided with shoulders 4 and bent ends 5 which serve to hold the treads rigidly within the holes 2 of the stiles.

In Fig. 1 is shown in dotted lines the treads just as they have engaged the holes 2. The position of the treads and stiles being denoted at 3′ and 1′ respectively.

It will thus be seen that in order to assemble the ladder it is only necessary to insert the treads in one of the stiles in the position shown at 3′ in Fig. 1 of the drawings and then swing about one end into position 3.

The bent ends 5 of the treads will thus engage the inner surface of the vertical legs of the stiles and the shoulder 4 will engage the outer surface.

By making the distance from the shoulder 4 to the bent end 5 slightly shorter than the thickness of the leg of the angle stile 1, the stile will be clamped tightly therebetween upon moving the stile from position 1′ to 1.

It will be understood from this description that although the improvements of this invention are simple they accomplish in a thoroughly practical manner all the objects sought and that by their employment danger of accidents hitherto arising from detached rungs is prevented. Furthermore, repairs may readily be made and the separation of the rungs from the stiles be positively prevented so long as the ladder remains bolted to the car.

It will of course be understood that I do not desire to be limited to the specific construction or arrangement of elements shown and described, as it is obvious that changes in construction and arrangement may be made without departing from the spirit of the invention.

Having thus described my invention, I aim in the appended claim to cover all modifications which do not involve a departure from its spirit and scope.

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

A ladder comprising stiles provided with openings in their opposed faces, a detachable rung having its ends passing through the said openings and the said ends deflected in the opposite directions to engage a face of said stile said rungs provided with shoulders near their opposite ends to coöperate with the said deflected ends in securing the rung in its said position.

This specification signed and witnessed this 28th day of August 1914.

W. E. WINE.

In the presence of—
FRED H. KRUSE,
J. A. TILLMAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."