

1,231,318.

Patented June 26, 1917.

Fig. 1.

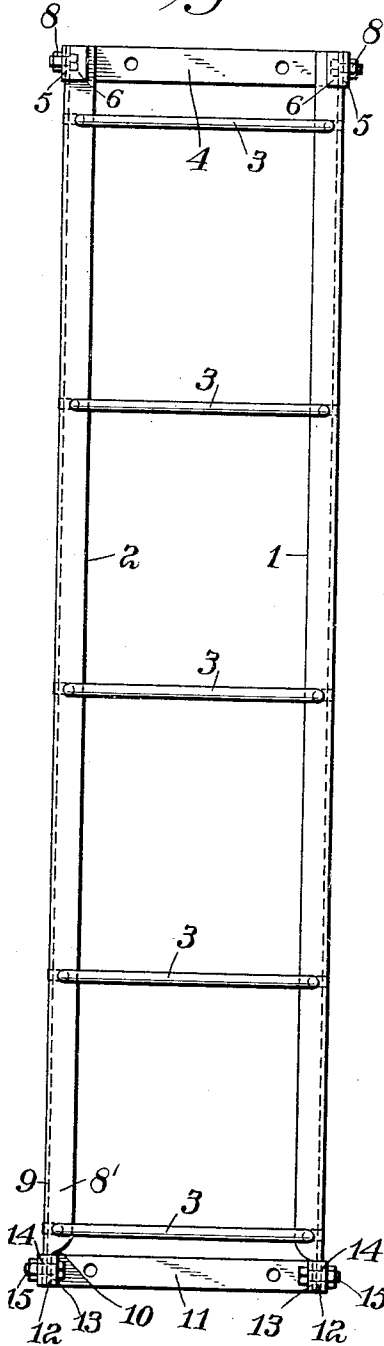


Fig. 2.

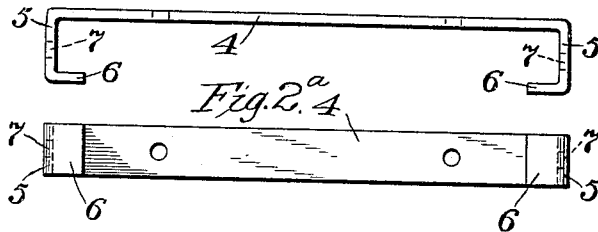


Fig. 3.

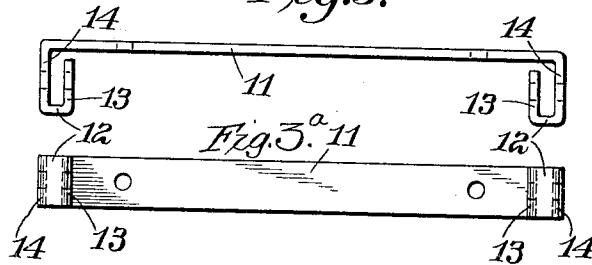


Fig. 4.

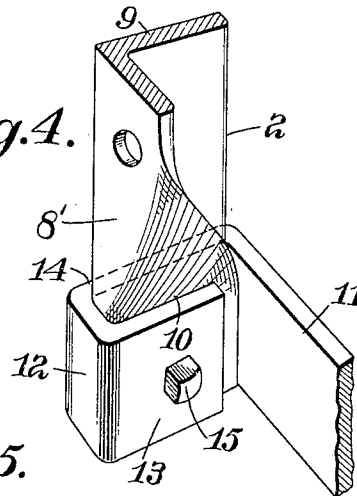
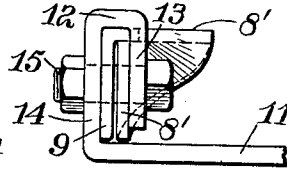


Fig. 5.



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FREIGHT-CAR LADDER.

1,231,318.

Specification of Letters Patent.

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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 certain new and useful Improvements in Freight-Car Ladders, of which the following is a specification.

My invention relates to a new and useful improvement in ladders, and particularly to ladders designed and constructed for use on freight cars.

The invention further relates to the particular manner in which the stiles are held in spaced relation to each other, and to the manner in which they are supported on the freight car.

An object of my invention is to provide a freight car ladder that is exceedingly simple in construction, consisting simply of two stiles formed of angle iron, said stiles having shoulders on their lower ends formed by bending one of the faces inwardly, rungs passing through certain spaced openings in said stiles, an upper bracket, and a lower bracket designed to clamp the lower ends of said stiles directly beneath the aforementioned shoulders.

Another object of my invention is to provide a ladder that may be cheaply constructed, necessitating but a few operations before the same is ready to be assembled.

Still another object of my invention is to provide a ladder wherein the lower ends of the stiles are so bent that a shoulder is formed to rest on a bracket, which bracket in turn is secured to the car.

With these and other objects in view my invention consists in certain new and novel constructions and combination of parts as will be hereinafter more fully described, and pointed out in the claims.

In the drawings Figure 1 is a view in elevation of my improved ladder.

Figs. 2 and 2^a show two detailed views of the upper bracket.

Figs. 3 and 3^a show two detailed views of the lower bracket.

Fig. 4 is a perspective of the lower end of the stiles showing how the shoulder is formed thereon, and

Fig. 5 is a bottom plan view of the lower end of one of the said stiles.

Referring now to the drawings it will be seen that the ladder is composed of the two stiles 1 and 2, which stiles are prefer-

ably formed from angle iron, and in the face of the said stiles are spaced openings through which the deflected ends of the rungs 3 are passed.

At the upper ends of the stiles 1 and 2 is placed a bracket 4, which bracket has formed at its ends the arms 5, extending at right angle to the said bracket and also the farther arms 6, which extend at right angles to the said arms 5. These arms 5 are provided with the openings 7 therein and when the said bracket 4 is placed in position, the inner faces of the arms 5 and 6 contact with the two faces of the stiles and the bolts 8 are passed through the said stiles and bracket to securely hold the said stiles in their correct position.

Referring now to the lower ends of the stiles and to Figs. 1, 4 and 5 in particular, (a description of the bent end of one of the stiles is a description of the other) it will be noticed that the face 8' of the stile 2 is bent backwardly toward the other face 9 so that at its end the face 8' is parallel with the face 9, thus forming the shoulder 10, which shoulder, it will be seen, is gradual and shades off into the face 8'.

The purpose of forming this shoulder in this manner is that it provides a very convenient method of supporting the said stiles on a bracket 11 to be now described.

Referring now to the lower bracket 11 as clearly shown in Fig. 3 it will be noticed that it is very similar to the upper bracket with the exception that in this instance the arms 12 are shorter in length than the arm 6, and additional arms 13 are provided, which extend at right angles to the arm 12. These arms 13 as well as the arms 14 are provided with openings for the reception of bolts 15 which are passed through the said arms and through the bent ends of the stiles, which stiles are also provided with openings for the reception of the said bolts 15 directly below the shoulder 10. In other words the lower bracket 11 clamps the parallel face of the stiles directly beneath the shoulders so that the said shoulders will contact and rest on the arms 13 of the bracket 11 and be supported thereby.

From the foregoing it will be seen that the brackets are exceedingly simple to bend to shape; that the stiles are also easily formed, and that by forming the shoulders as shown the ends may fit within a lower

bracket and the shoulders contact with one of the arms of said bracket to thus take up the weight and strain on said ladder.

I am aware that it is old to support the lower ends of the stiles of freight car ladders by brackets which fit under the ends of said stiles, however they are more or less complicated, that is, in comparison with the simplicity of the bracket and stile shown and described in this application.

The stiles, rungs and brackets may be shipped separately or in other words the ladder may be shipped in its "knocked down condition" thus taking up but little room. The ladder may be quickly assembled when desired and after the rungs are fastened in and the stiles and brackets placed in position they may be quickly secured to the car body.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A freight car ladder comprising stiles formed from angle iron; said stiles provided with openings, rungs fastened through said openings, an upper bracket, for securing the upper ends of the stiles, a face of each of said stiles being bent near its lower end to form a shoulder, a lower bracket having its ends bent to clamp the stiles directly beneath the said shoulders.

2. A freight car ladder comprising angular shaped stiles, said stiles provided with openings therein, rungs fastened through

said openings, a bracket securing the upper ends of said stiles, a shoulder formed at the lower end of each of the said stiles, said shoulders formed by deflecting one of the faces of the angular shaped stiles, and a bracket securing said stiles and contacting with the said shoulders formed on said stiles.

3. A freight car ladder, comprising stiles formed of angle iron, said stiles provided with openings therein, the lower ends of each of said stiles forced inwardly so that at their ends the two faces of the stiles are parallel to each other, rungs fastened through the openings in said stiles, an upper bracket, a lower bracket having its ends so bent that it grips the said parallel faces of the said stiles directly beneath the bent portions.

4. A freight car ladder comprising stiles formed of an angle iron, and the faces of said stiles provided with openings therein for the reception of rungs, the lower ends of said stiles having one of their faces forced inwardly so that a part of the same lies in a plane parallel to the other face, an upper bracket adapted to be secured to the said stiles and a lower bracket having its ends bent so as to surround the parallel faces of the said stiles, and means for securing the said stiles and the said bracket together.

In testimony whereof I affix my signature.

WILLIAM E. WINE.

Witnesses:

GEO. G. LYNCH,
L. J. TILMAN.