L. T. JOHNSON.

LADDER.

APPLICATION FILED MAR. 25, 1914.

1,149,368. Patented Aug. 10, 1915.

Fig 1.

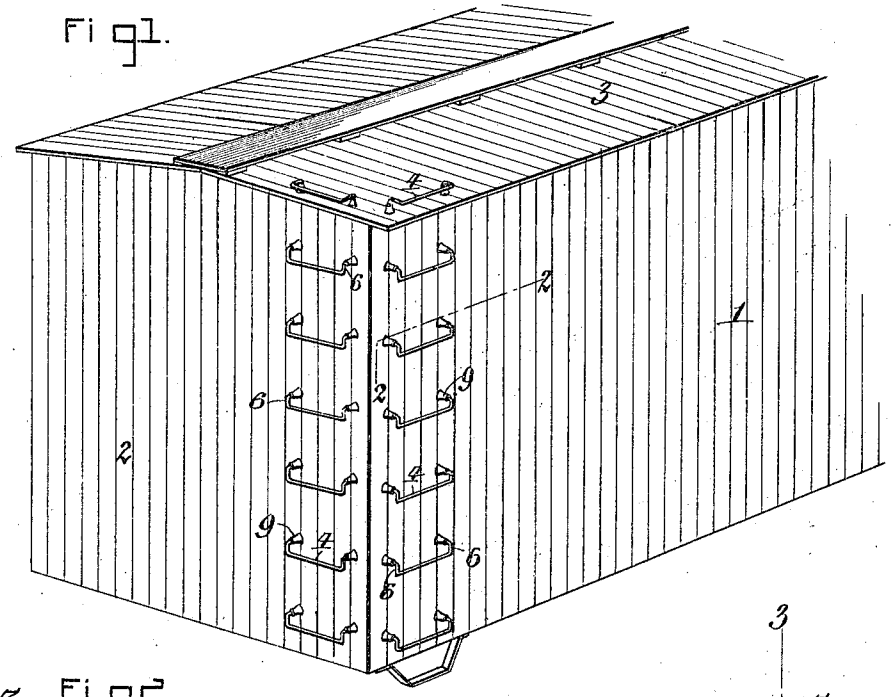


Fig 2.

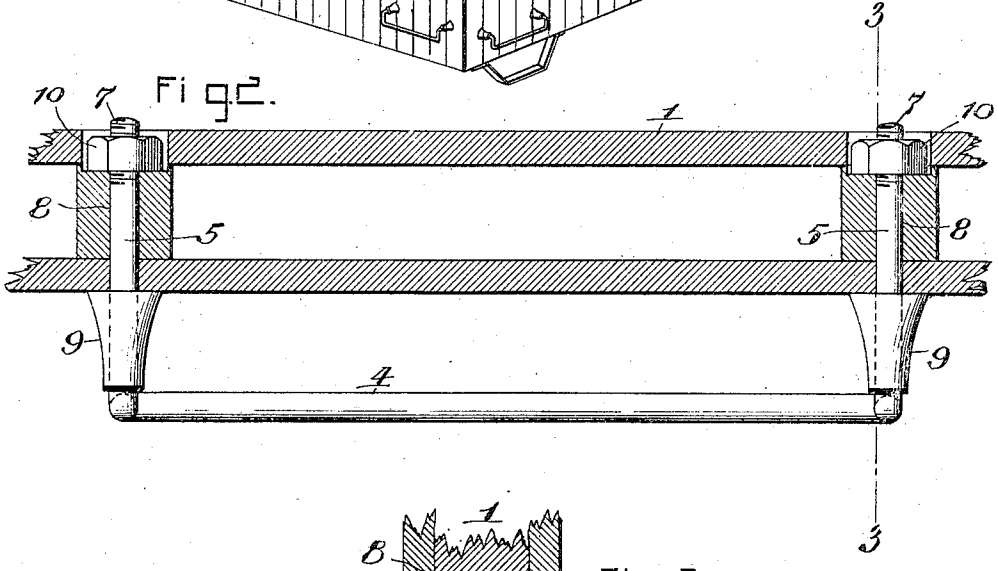
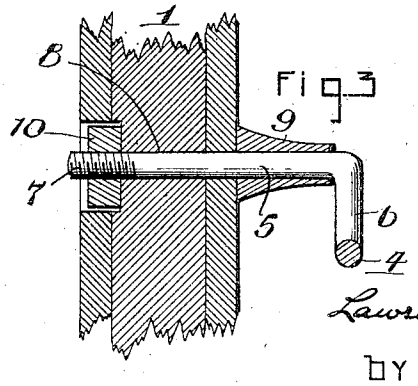


Fig 3.



WITNESSES

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LADDER.

1,149,368. Specification of Letters Patent. Patented Aug. 10, 1915.

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To all whom it may concern:

Be it known that I, LAWRENCE T. JOHNSON, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Ladders, of which the following is a specification.

This invention relates to a ladder which is more particularly designed for use on the ends or sides of freight cars to permit railroad men to ascend to the top of the car or descend therefrom. The ladders heretofore in use for this purpose were not only expensive in construction and in application to the car but the same were also dangerous inasmuch as they were liable to be pulled off from the car and cause injury to the trainmen attempting to use them.

It is the object of this invention to provide a ladder which is very simple and inexpensive in construction and which when applied to the car is not liable to give way so that the safety of the trainmen is not endangered.

In the accompanying drawings: Figure 1 is a perspective view of a freight car equipped with my improved ladder. Fig. 2 is a horizontal section thereof, on an enlarged scale, taken in line 2—2 Fig. 1. Fig. 3 is a vertical section in line 3—3 Fig. 2.

Similar characters of reference indicate corresponding parts throughout the several views.

Although my improved ladder may be used in various places the same is represented in the drawings applied to a box freight car the body of which comprises a side wall 1, an end wall 2, and a top or roof 3.

My improved ladder may be applied to the side and end walls as well as to the roof of the car body and comprises a plurality of sections which are arranged in vertical tiers or rows and each of which is constructed as follows:

4 represents a horizontal supporting bar, 6, 6 two guard arms each connected at one end with one end of the supporting bar and projecting laterally therefrom and 5, 5 two fastening or attaching shanks each connected at one end with the other end of one of the guard arms and having its opposite end provided with an external screw thread 7, as shown in Figs. 2 and 3. The supporting bar, guard arms and fastening shanks are preferably formed integrally by bending the same into the form described from a single rod of iron or other metal.

In its end and side walls and also in its roof the car body is provided with a plurality of pairs of openings 8, 8 which are adapted to receive the pair of fastening shanks of one of the ladder sections.

9, 9 represent a pair of spacing sleeves each of which is arranged on one of the fastening shanks and engages at one end with the shoulder formed by the adjacent guard arm while its opposite end bears against one side of the adjacent wall or roof of the car body on which the ladder is mounted. 10, 10 represent a pair of clamping screw nuts each arranged on the threaded portion of one of said shanks and bearing against the opposite side of said wall or roof of the car body. Those ladder sections which are mounted on the vertical walls of the car body have their fastening shanks arranged horizontally, their guard arms depending from the shanks and the supporting bar of each section connected with the lower ends of guard arms so that the latter serve to prevent the hands or feet placed on the supporting bar from slipping off the ends thereof. The spacing sleeves hold the guard arms and supporting bar of each section the required distance apart from the car body so as to permit of obtaining a good and reliable hand hold or foot hold on said supporting bar.

By extending the fastening shanks through openings in the car body and applying retaining means to the inner ends thereof, such as clamping screws, it is impossible for the ladder section to be pulled off from the car body by the usual load imposed upon it, thereby furnishing a perfectly safe and reliable means whereby the workman may ascend the car body or descend therefrom without any possibility of being injured.

By constructing the supporting bar, guard arms and fastening shanks in the manner described and assembling the same on the car with the spacing sleeves and clamping nuts a much cheaper construction of ladder is produced than that heretofore in use with the added advantage of greater security to the workmen and greater ease of applying the same to the car body.

I claim as my invention:

1. A ladder comprising a horizontal sup-

porting bar, two guard arms arranged at opposite ends of the supporting bar and at an angle thereto, and fastening shanks each of uniform diameter and projecting laterally from one of the guard arms and adapted to pass through on opening in the wall adapted to receive the ladder, said bar, arms and shanks being bent from a single rod of metal which is of the same size throughout its length.

2. A ladder comprising a horizontal supporting bar, two guard arms arranged at opposite ends of the supporting bar and at an angle thereto, fastening shanks each of uniform diameter and projecting laterally from one of the guard arms and adapted to pass through an opening in the wall adapted to receive the ladder, said bar, arms and shanks being bent from a single rod of metal which is of the same size throughout its length, and spacing sleeves each arranged on one of said shanks and adapted to bear at its outer end against one of said guard arms and at its inner end against one side of said wall.

3. A ladder comprising a horizontal supporting bar, two guard arms arranged at opposite ends of the supporting bar and at an angle thereto, fastening shanks each of uniform diameter and projecting laterally from one of the guard arms and adapted to pass through an opening in the wall adapted to receive the ladder, said bar, arms and shanks being bent from a single rod of metal which is of the same size throughout its length, spacing sleeves each arranged on one of said shanks and adapted to bear at its outer end against one of said guard arms and at its inner end against one side of said wall, and screws arranged on said shanks and bearing against the opposite side of said wall.

4. The combination of a wall provided with a pair of openings, and a ladder mounted on said wall and comprising a horizontal supporting bar, guard arms each connected at one end with one end of said supporting bar and projecting therefrom at right angles thereto, fastening shanks each of uniform diameter and projecting laterally from the other end of one of said guard arms and arranged in one of said wall openings, said bar, arms and shanks being bent from a single rod of metal which is of the same size throughout its length, spacing sleeves each arranged on one of said shanks between the adjacent guard arm and one side of said wall, and screw nuts each arranged on one of said shanks and engaging with the opposite side of said wall.

Witness my hand this 23rd day of March, 1914.

LAWRENCE T. JOHNSON.

Witnesses:

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E. M. GRAHAM.