Aug. 23, 1932. G. S. CHILES 1,872,680

LADDER FOR FREIGHT CARS

Filed March 5, 1929

Fig. 1.

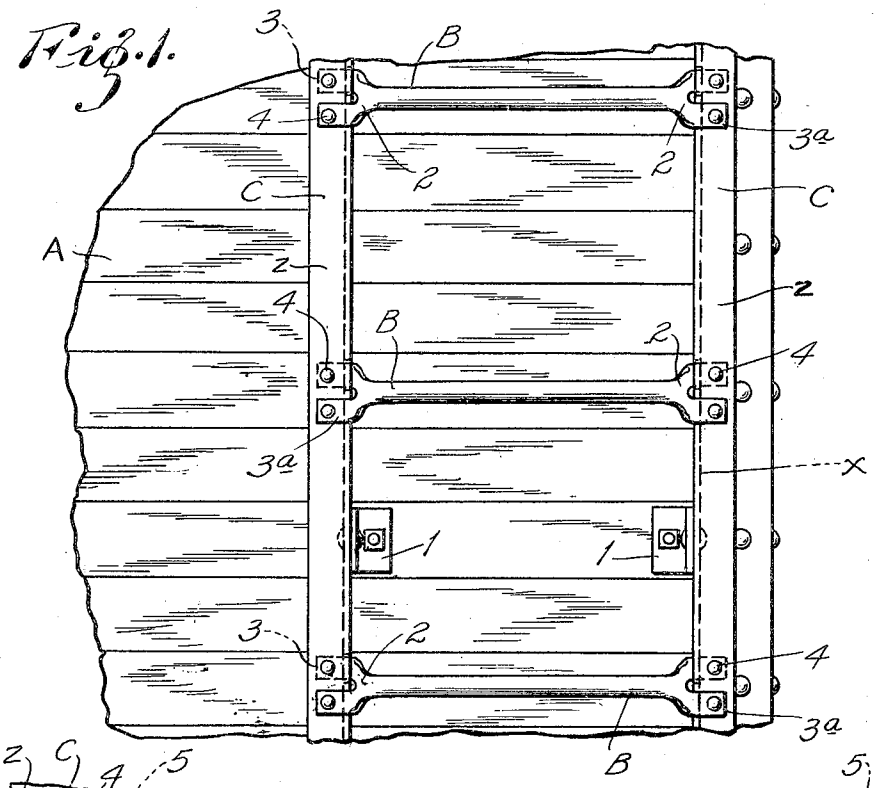


Fig. 2.

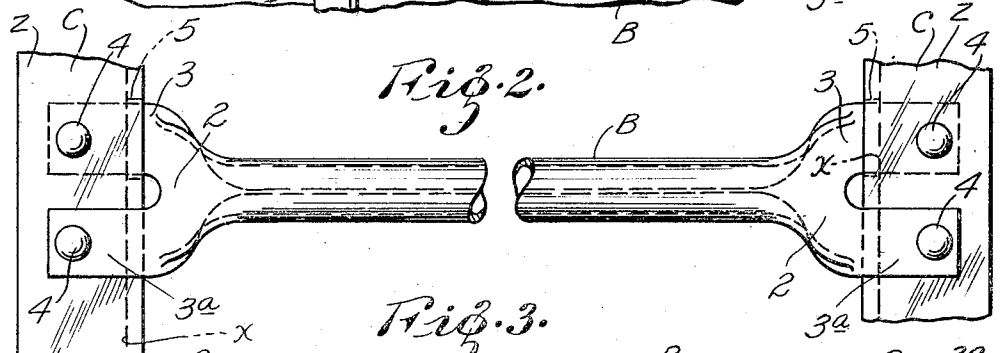


Fig. 3.

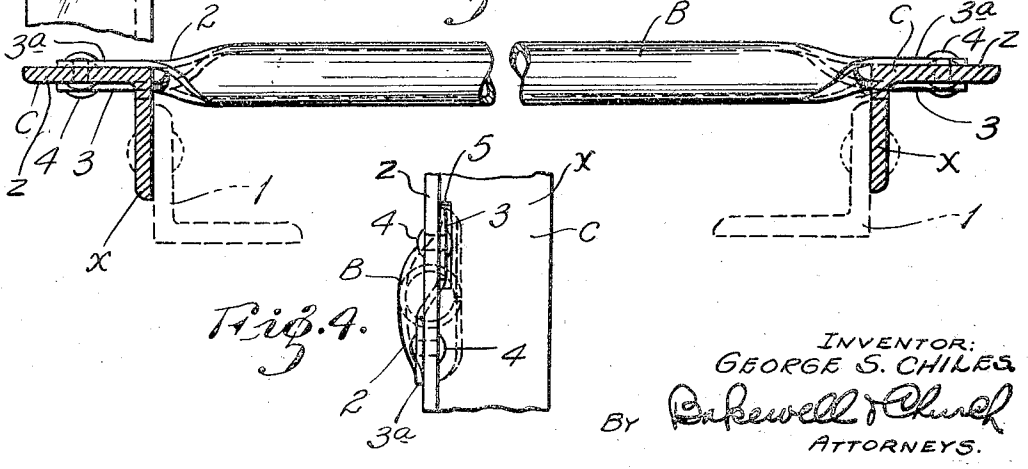


Fig. 4.

INVENTOR:
GEORGE S. CHILES
BY Pakewell & Church
ATTORNEYS.

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UNITED STATES PATENT OFFICE

GEORGE S. CHILES, OF ST. LOUIS, MISSOURI, ASSIGNOR TO SCULLIN STEEL COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF DELAWARE

LADDER FOR FREIGHT CARS

Application filed March 5, 1929. Serial No. 344,473.

This invention relates to ladders for freight cars, and has for its main object to provide an inexpensive ladder that is light in weight, inexpensive to construct, easy to install and equipped with rungs that are stronger and more rigid than the rungs of conventionel freight car ladders.

Another object is to provide a ladder for freight cars whose rungs and side members are combined in such a way that the loads imposed on the rungs are taken up directly by the side members of the ladder, thereby reducing the shearing stresses and strains on the means or fastening devices that are used to connect the rungs to the side members.

Figure 1 of the drawing is a side elevational view, illustrating my improved ladder installed on the body of a freight car.

Figure 2 is an enlarged front elevational view of one of the ladder rungs and portions of the side members of the ladder to which said rung is attached.

Figure 3 is a top plan view of said rung with the side members shown in horizontal section; and

Figure 4 is a fragmentary side elevational view of the ladder, illustrating how the rungs are attached to the side members.

In the accompanying drawing which illustrates the preferred form of my invention, A designates one wall of the body of a freight car, B designates horizontally-disposed members mounted on said wall in such a way that they serve as hand holds or ladder rungs, and C designates two vertically-disposed members that carry the rungs B and which in effect serve as the side pieces of the ladder. The side members C are herein illustrated as being formed from pieces of angle-iron that are adapted to be connected to the wall A of the car body by brackets 1, as shown in broken lines in Figure 3, but I wish it to be understood that various other types and kinds of supporting members may be used for the rungs B without departing from the spirit of my invention.

The rungs or hand holds B consist of pressed metal members, each of which is constructed from a flat plate or strip of metal that is die-shaped, or pressed so as to form a straight, bar-like portion of cylindrical shape or other preferred tubular shape in cross section, which is provided at its ends with integral portions for attaching it to the supporting members C of the structure. In the form of my invention herein shown the attaching portions at the ends of the rung B each consist of a forked or bifurcated device 2 whose legs 3 and 3ª are disposed horizontally and are arranged slightly staggered or in offset relationship, so as to permit the supporting members C to which the rungs are attached to lie between the two legs 3 and 3ª of each of the forked connecting devices 2. This method of joining the rungs B to the side members or supporting members C of the structure is highly desirable, in that it tends to prevent the rungs from twisting or turning relatively to the supporting members, due to the fact that each rung has legs or lateral extensions 3 at the ends of same which lie on one side of the supporting members and also legs or lateral extensions 3ª that lie on the other side of the supporting members, said legs and supporting members being joined together by a welding operation or by means of fastening devices 4.

If the side members or supporting members C are formed from angle-irons, as herein illustrated, the flanges x of said members which project outwardly from the wall of the car are provided with slots 5, shown more clearly in Figure 4, so as to receive the lateral projecting legs 3 of the forked connecting devices 2 that lie behind or which bear against the inner side of the flanges z of the supporting members C which are disposed parallel to the wall A of the car. Due to the fact that each of the rungs B is provided at its ends with lateral extensions or integral portions which fit in slots or openings formed in the supporting members C, the shearing stresses and strains on the means that is used to fasten the rungs to the supporting members are reduced to a minimum, because the loads on the rungs are directly taken up by the supporting members C of the structure. Moreover, if the fastening devices 4 or other means that is used to attach the rungs to the supporting members C fail,

the rungs will not become displaced or drop out of position, because each rung is interlocked with the supporting structure by the devices at the opposite ends of the rung which project into the slots 5 in the supporting members C.

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

1. In a ladder or grab iron structure, a side member provided with two angularly-disposed parts, a metal rung of substantially tubular shape, and an integral plate-like attaching portion at one end of said rung provided with staggered legs that bear upon opposite faces of one of the said parts of said side member, the other part of said side member being provided with a slot that receives one of said legs.

2. In a ladder or grab iron structure, a side member, a rung formed from a metal plate deformed so as to produce a rung of substantially tubular shape provided at one end with a plate-like portion that is bifurcated to form attaching legs, said legs being offset or staggered so that they will bear against opposite faces of said side member, and means for securing said legs to said side member, said side member having a means that co-operates with one of said attaching legs to reduce the shearing strains on said securing means.

3. In a ladder or grab iron structure, a side member formed from a vertically-disposed angle-iron, one of the legs of which is provided with an opening, and a rung having a plate-like portion at one end thereof provided with attaching legs, one of the attaching legs being positioned in the said opening in the leg of the said angle-iron, and said attaching legs being offset so as to bear against the opposite faces of the other leg of said angle-iron.

4. In a ladder or grab iron structure for cars, a side member consisting of a vertically-disposed angle-iron, one of the legs of which is provided with a hole, and a sheet metal rung of substantially tubular shape having an integral plate-like portion at one end thereof provided with offset legs, one of which legs is positioned in the said hole in the leg of said angle-iron, and said offset legs being arranged so as to bear against opposite faces of the other leg of the angle-iron.

GEORGE S. CHILES.