(No Model.)

C. H. JACKSON.

LADDER.

No. 347,608. Patented Aug. 17, 1886.

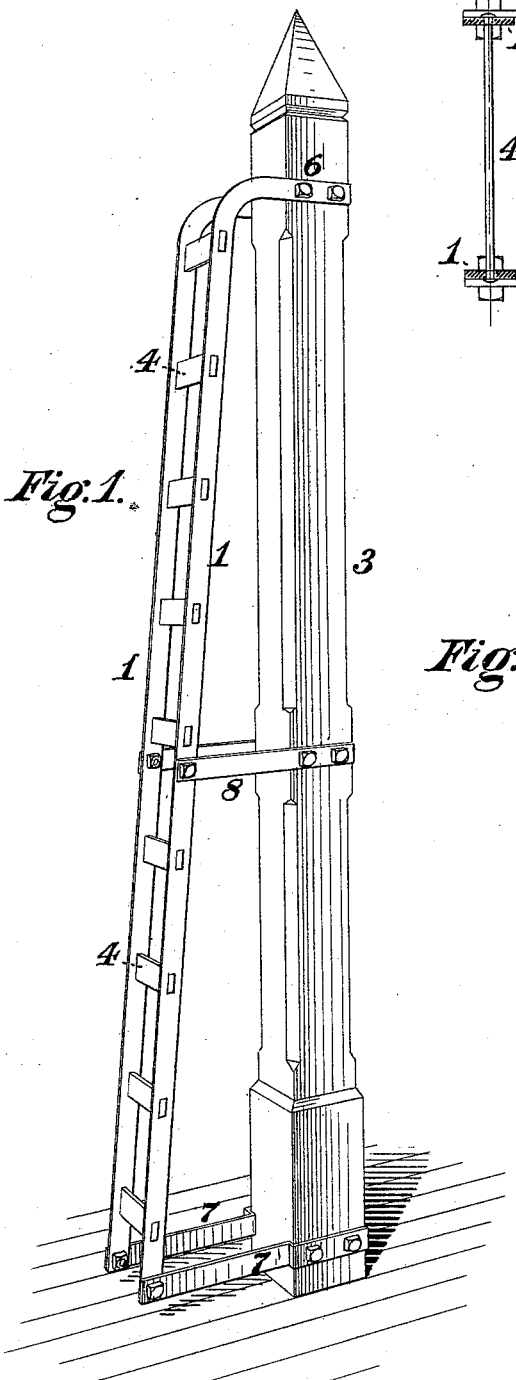

Fig. 1.

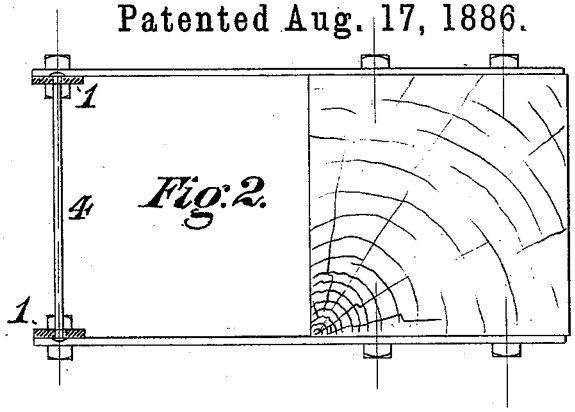

Fig. 2.

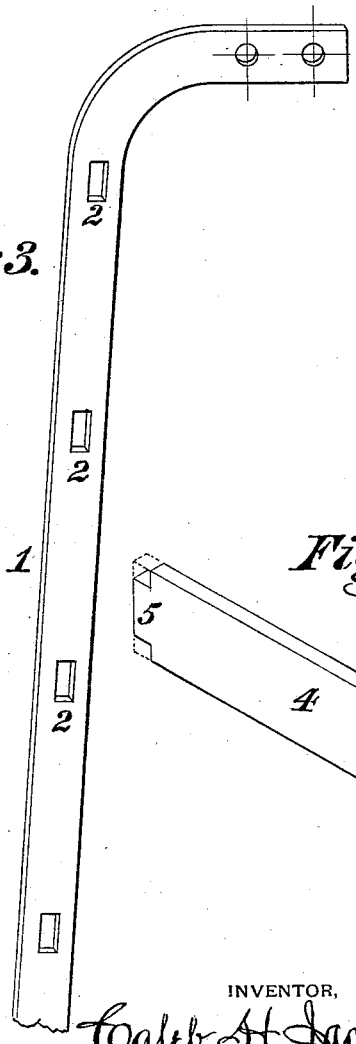

Fig. 3.

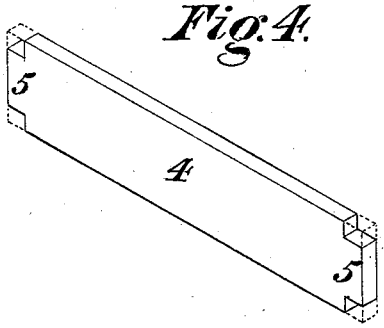

Fig. 4.

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UNITED STATES PATENT OFFICE.

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LADDER.

SPECIFICATION forming part of Letters Patent No. 347,608, dated August 17, 1886.

Application filed February 21, 1886. Serial No. 193,031. (No model.)

To all whom it may concern:

Be it known that I, CALEB H. JACKSON, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, a citizen of the United States, have invented or discovered a certain new and useful Improvement in Ladders, of which improvement the following is a specification.

In the accompanying drawings, which make part of this specification, Figure 1 is a view in perspective of a ladder embodying my invention; Fig. 2, a transverse section on an enlarged scale through the same; Fig. 3, a view in perspective of one of the side bars, and Fig. 4 a similar view of a rung detached.

The object of my invention is to provide a metallic ladder specially designed for use in connection with railroad signal-posts, which shall be of simple and inexpensive construction, substantial, and durable.

To this end my invention, generally stated, consists in a ladder formed of longitudinally-slotted side bars connected by transverse rungs or steps, having tongues passing through the slots of the side bars and riveted over on the outside thereof.

The improvement claimed is hereinafter fully set forth.

In the practice of my invention the two side bars, 1, are formed from plates or bars of iron, of suitable width and thickness to properly sustain, without deflection when connected, the load to which they will be subjected, and of any desired length which can be conveniently handled in a machine-shop. A series of rectangular longitudinal slots, 2, is punched centrally in each of the bars, two or more bars being simultaneously operated on, according to the capacity of the machine. The slots 2, which are designed to receive the ends of the rungs, are spaced at such determined distance apart as may be desired for the location of the rungs, and after the punching of the rung-slots the bars 1 are cut into lengths proper to form the ladders desired, and curved longitudinally adjacent to one end for attachment to a supporting-post, 3.

To form the rungs 4 a rectangular bar or strip of iron is cut into lengths or sections slightly greater than the width desired for the ladder, and tongues or tenons 5, of such width as to pass through one of the slots 2 of the side bars, are preferably formed upon the ends of the rung-sections, this operation being best effected by punching from the rungs a rectangular piece at each corner, the portions thus removed being indicated by the dotted lines in Fig. 4. As two or more sections may be punched simultaneously, the tongues can be readily and inexpensively formed.

The side bars, 1, and rungs 4 are connected and the ladder completed in readiness for attachment to a post, 3, by passing the tongues 5 of the rungs through opposite slots, 2, of the side bars, and riveting over the projecting ends of the tongues, at the inner ends of which the shoulders formed by the removal of the corner pieces bear against the inner sides of the side bars. If the rungs are unprovided with tongues, pins may be passed through them or swells formed upon them adjacent to their ends to maintain the side bars at the desired distance apart. The rungs and side bars are thus firmly united without the use of separate rivets or other extraneous fastenings, and corresponding lightness and economy of material is attained without involving any sacrifice of proper strength and stiffness or liability to displacement of the parts. The curved upper ends of the side bars are secured to the post 3 by bolts 6, and the ladder, which is preferably outwardly inclined toward its lower end, is connected at or near the same to the post by braces 7, bolted to the post, and bolted or riveted to the side bars, intermediate braces, 8, being applied to insure steadiness, if the length of the ladder is such as to render them desirable.

I am aware that ladders having the ordinary cylindrical rungs secured to the side bars by riveting over their ends have been heretofore known, and do not, therefore, broadly claim such construction, my improvement being confined to that in which a rectangular rung end and a similar slot or socket are combined with a riveted connection, and in which, in addition to attaining an economy of material, the turning of the rungs in the hands of persons using the ladder is effectively prevented.

I claim herein as my invention—

1. The combination, in a metallic ladder, of a pair of longitudinally-slotted side bars and

a series of rungs or steps of rectangular section passing through the slots of the side bars and riveted over on the outer sides thereof, substantially as set forth.

2. The combination, in a metallic ladder, of a pair of longitudinally-slotted side bars and a series of rungs or steps of rectangular section having each of their ends cut away at top and bottom to form tongues or tenons passing through the slots of the side bars, said rungs bearing against the inner sides of the side bars by shoulders at the inner ends of the tongues, and being held to the side bars by riveted or turned-over edges on the outer sides thereof, substantially as set forth.

In testimony whereof I have hereunto set my hand.

CALEB H. JACKSON.

Witnesses:
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