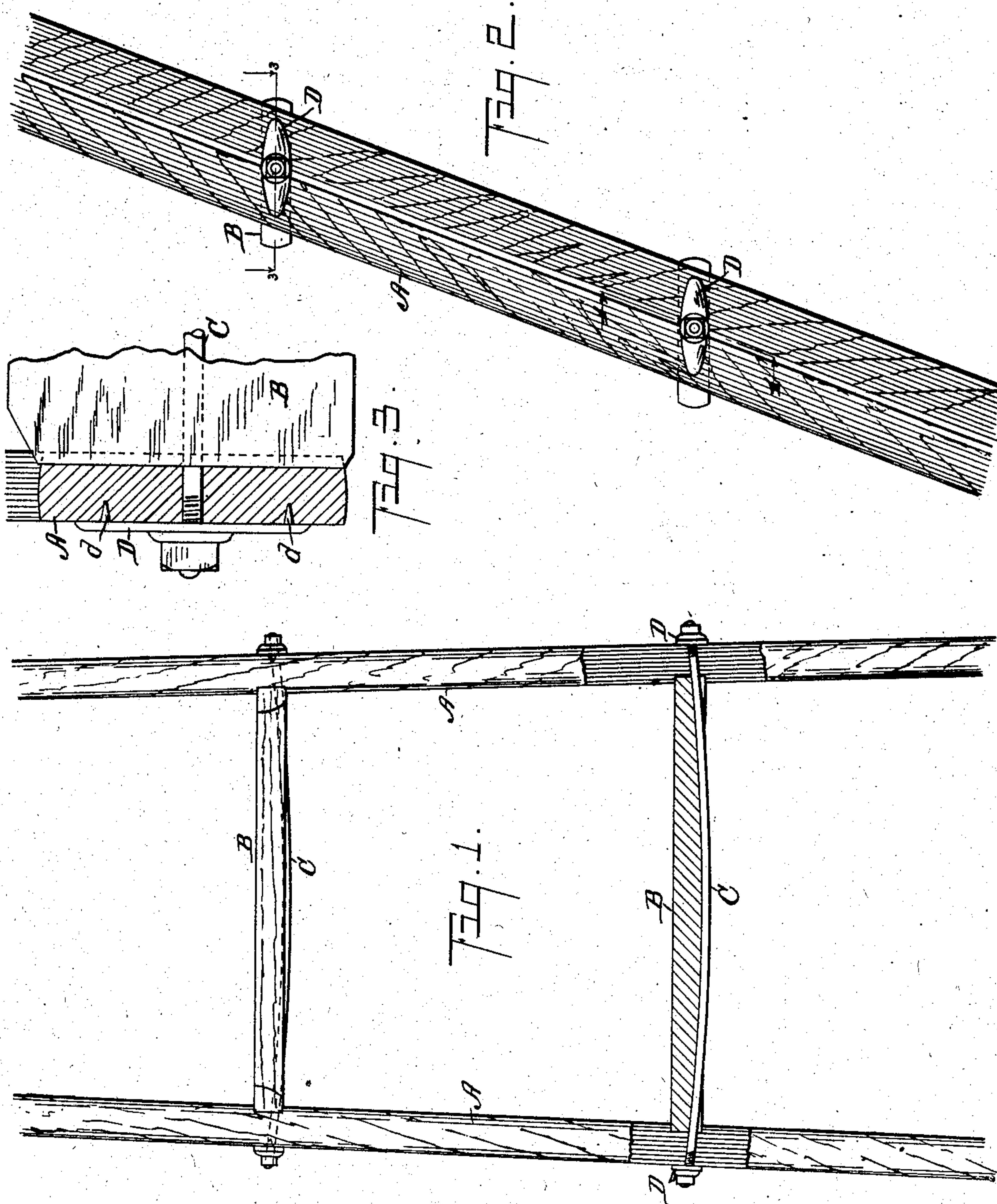


No. 796,208.

PATENTED AUG. 1, 1905.

A. HARTZLER.
LADDER.

APPLICATION FILED APR. 29, 1904.



Witnesses:

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UNITED STATES PATENT OFFICE.

AARON HARTZLER, OF GOSHEN, INDIANA.

LADDER.

No. 796,208.

Specification of Letters Patent.

Patented Aug. 1, 1905.

Application filed April 29, 1904. Serial No. 205,470.

To all whom it may concern:

Be it known that I, AARON HARTZLER, a citizen of the United States, residing in the city of Goshen, county of Elkhart, State of Indiana, have invented certain new and useful Improvements in Ladders, of which the following is a specification.

This invention relates to improvements in ladders.

It relates particularly to improvements in step-ladders, although it is adapted for use in other relations.

As ladders are commonly constructed the nails or screws for securing the steps to the side rails or risers soon become loosened by the shrinking of the wood and the racking of the ladder, and when loosened it is practically impossible to tighten the same in a satisfactory and durable manner.

The main object of my invention is to provide an improved ladder in which the side rails and steps are rigidly secured together without the use of nails or screws and by the same means trussed and braced, forming a structure which is comparatively light and at the same time a structure which is very strong, rigid, and durable.

Further objects and objects relating to structural details will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined, and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a detail front elevation view of my improved ladder, partially in section, on a line corresponding to line 1 1 of Fig. 2, showing the arrangement of the parts. Fig. 2 is a detail side elevation view of my improved ladder. Fig. 3 is a detail cross-sectional view taken on a line corresponding to line 3 3 of Fig. 2, the tie-rods C and the washer-plates D being shown in full lines.

In the drawings the sectional views are taken looking in the direction of the little

arrows at the ends of the section-lines, and similar letters of reference refer to similar parts throughout the several views.

Referring to the drawings, the risers or side rails A are provided with gains or grooves at suitable intervals in their inner faces to receive the ends of the steps B. The risers or side rails A are clamped upon the ends of the steps B by rods C. The steps B are grooved at each end on their under faces to receive these rods, which are curved upwardly, so that their ends project through the risers or side rails directly opposite the ends of the steps. On the ends of the rods I place elongated washer-plates D. By means of suitable nuts the risers are clamped against the ends of the steps, and the pull is direct thereon.

The washer-plates D are provided with short brads *d*, which are driven into the side rails or risers to prevent the plates slipping down thereon while the rods are being tightened. As the rods are drawn against the under side of the steps, they serve as effective trusses therefor. The risers or side rails are also thoroughly braced, so that although the parts may be made of comparatively light material the structure is very strong and rigid. The structure is also very durable, as the parts are not likely to work loose; but should this occur by the shrinking of the wood or the like the nuts are readily tightened.

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

1. In a ladder, the combination of the risers or side rails gained at suitable intervals; steps having grooves on their under faces extending from each end partially across the same, arranged in said gains; upwardly-curved rods arranged in said grooves and through said side rails so that they engage the under sides of said steps at their central portions and so that their ends project opposite the ends of said steps; washer-plates having brads thereon adapted to be driven into said side rails; and nuts for said rods whereby said side rails and steps are clamped together and trussed, as specified.

2. In a ladder, the combination of the risers or side rails gained at suitable intervals; steps

having grooves on their under faces extending from each end partially across the same, arranged in said gains; upwardly-curved rods arranged in said grooves and through said side rails so that they engage the under sides of said steps at their central portions and so that their ends project opposite the ends of said steps; washer-plates; and nuts for said rods

whereby the said side rails and steps are clamped together and trussed, as specified.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

AARON HARTZLER.

Witnesses:

JOHN B. CRIPE,
CHAS. H. MEYERS.