

(No Model.)

H. H. LANG.
SECTIONAL LADDER.

No. 511,849.

Patented Jan. 2, 1894.

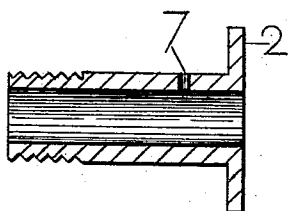


Fig. 2.

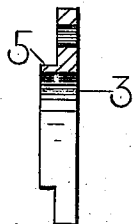


Fig. 3.

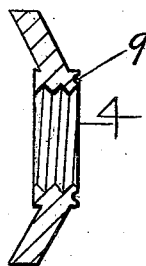


Fig. 4.

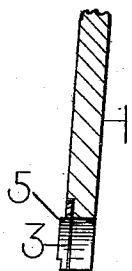


Fig. 6.

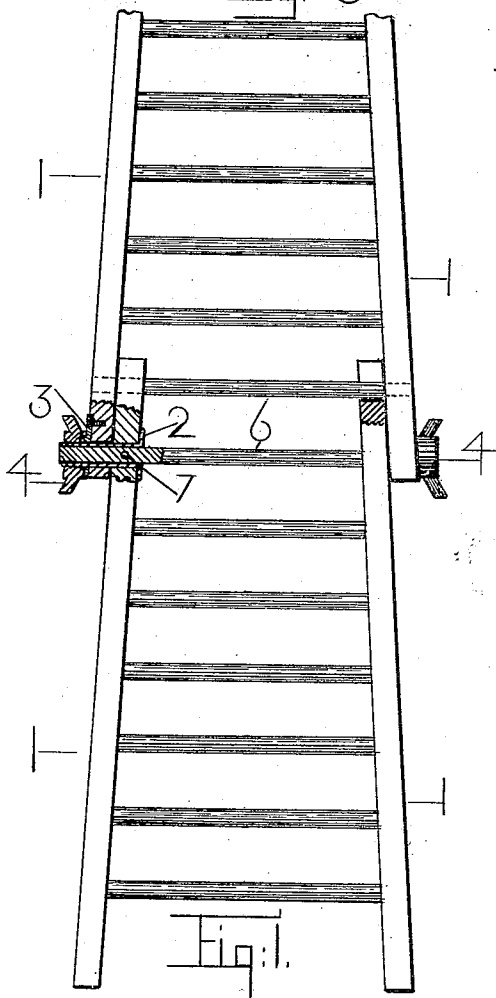


Fig. 1.

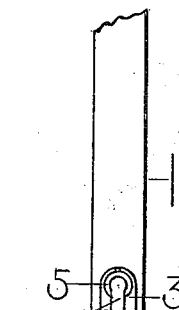


Fig. 5.

Witnesses
J. F. Harris:
A. M. Turner.

Inventor
HENRY H. LANG.
By his Attorney
A. M. Brown

UNITED STATES PATENT OFFICE.

HENRY H. LANG, OF ALBANY, NEW YORK, ASSIGNOR TO WALTER M. BROWN, OF SAME PLACE.

SECTIONAL LADDER.

SPECIFICATION forming part of Letters Patent No. 511,849, dated January 2, 1894.

Application filed October 6, 1892. Serial No. 448,092. (No model.)

To all whom it may concern:

Be it known that I, HENRY H. LANG, a citizen of the United States, residing at Albany, Albany county, New York, have invented certain new and useful Improvements in Sectional Ladders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

The object of my invention is to provide a new and improved sectional ladder.

Figure 1 shows a side elevation of a portion of one of my ladders, my coupling device being shown in longitudinal section; Fig. 2 a longitudinal sectional view of a shouldered thimble; Fig. 3 a vertical sectional view of the bearing-plate; Fig. 4 a similar view of the holding-nut; Fig. 5 a side elevation of one of the bars of the ladder showing the bearing-plate and an opening in the bar; Fig. 6 a vertical sectional view of one of the bars and said bearing-plate.

In the drawings the numeral 1 shows the ladder, having the usual rungs, the ends of the bars having openings sunk in them at their upper extremities and preferably U-shaped as shown at 8 in Fig. 5, and their lower extremities having a similar opening but, having the bearing-plate 3 attached to the side of the bar 1 so as to protect the said opening from excessive wear and, also for the purpose of assisting in locking the sections of the ladder together, as will be more fully explained hereinafter. In each section there is a rung 6, which rung is longer than the other rungs of the ladder and passes through the two side bars, and on each of its ends it carries the shouldered thimble 2, the shoulder of said thimble, resting against the inner faces of the bars 1 and passing through said bars and extending preferably to the extremities of said rung 6, the outer ends being preferably provided with screw-threads. In the thimble 2 is an opening 7, through which a pin is driven which passes also through the bar and holds the thimble 2, the bar 1 and the rung 6 securely in place. The bearing-plate 3 has an

annular offset 5, so arranged that when the winged-nut 4 is turned upon the threaded end of thimble 2, as shown in Fig. 1, the annular recess 9 in winged-nut 4 receives the annular offset 5 on bearing-plate 3, as shown in Fig. 1, and greatly assists in preventing the sections of the ladder from pulling apart endwise.

I am aware that ladders have been made having a thimble through the side bars and a bolt set in the thimble and the ends of the wooden rung driven home in the thimbles against the bolt heads, the threaded ends of the bolts projecting out beyond the outer faces of the side bars. This arrangement of wooden rung and iron bolt produced what I call a compound rung, and the bolt was liable to work loose, and liability to sheering was greatly increased. I avoid these difficulties by using a continuous wooden, or other rung, passing unbroken through my thimbles 2, forming a permanent and immovable single rung as distinguished from a compound rung as heretofore used.

The operation is as follows:—When the sections are placed together, the opening 8 with its bearing-plate 3 is set astride the projecting ends of the rung 6 while the U-shaped openings in the upper extremities of the section receive the rung next higher or above the rung 6. The extremities of rung 6 will now project beyond the lapped ends of the bars 1.1. and the bearing-plate 3, with its annular offset 5 will be upon the outer face of the outside bar. The winged-nut 4 is now turned up tightly when its annular recess 9 receives the annular offset 5 and while the nut 4 remains turned up tightly it will be impossible to draw the sections apart endwise; and the sections will remain securely in place.

I do not confine myself to a nut turned upon the end of thimble 2, as various other locking devices may be used in its place and stead. Nor do I confine myself to the form of bearing-plate 3 shown; but

What I claim, and desire to secure by Letters Patent, is—

1. A ladder consisting of sections and having openings in the ends of its bars arranged to receive the rungs of other sections, each sec-

tion having thimbles passing through the bars and a rung with its extremities passing through the thimbles and extending beyond the outer faces of the sections when placed together in extension, and having a locking device attached to said thimbles to hold the overlapping ends of the bars together, substantially as described.

2. A ladder consisting of sections, each section having a thimble or thimbles passing through its bars, and a rung passing into the thimbles, the outer ends of the thimbles projecting beyond the outer faces of the bars and having a locking device attached to said thimbles, for the purposes described.

3. A ladder consisting of sections, each section having a shouldered thimble or thimbles passing through the bars, and projecting beyond the outer faces of the bars and having a rung passing through said thimbles and practically to or beyond their outer extremities, and a locking device engaging with the outer extremities of the thimbles and adjustably attached thereto, for the purposes described.

4. A ladder consisting of sections, and having openings in the ends thereof as at 8, and threaded and shouldered thimbles passing

through the bars and extending out beyond the outer surfaces of the bars of the sections when overlapped, and a rung passing into and practically through the thimbles and having a threaded nut arranged to engage with the threads on the thimbles that the sections may be locked together, for the purposes described.

5. A ladder consisting of sections, and having thimbles passing through the bars thereof and extending out beyond the overlapped ends of the sections, the outer ends of said thimbles being threaded, for the purposes described and substantially as shown.

6. A ladder consisting of sections, and having thimbles passing through the bars thereof arranged to receive the ends of a rung, the outer ends of the thimbles being threaded and passing practically through the outer bars of the overlapping ends, and having a threaded locking device engaging therewith, for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY H. LANG.

Witnesses:

J. F. HARRIS,

W. W. BROWN.