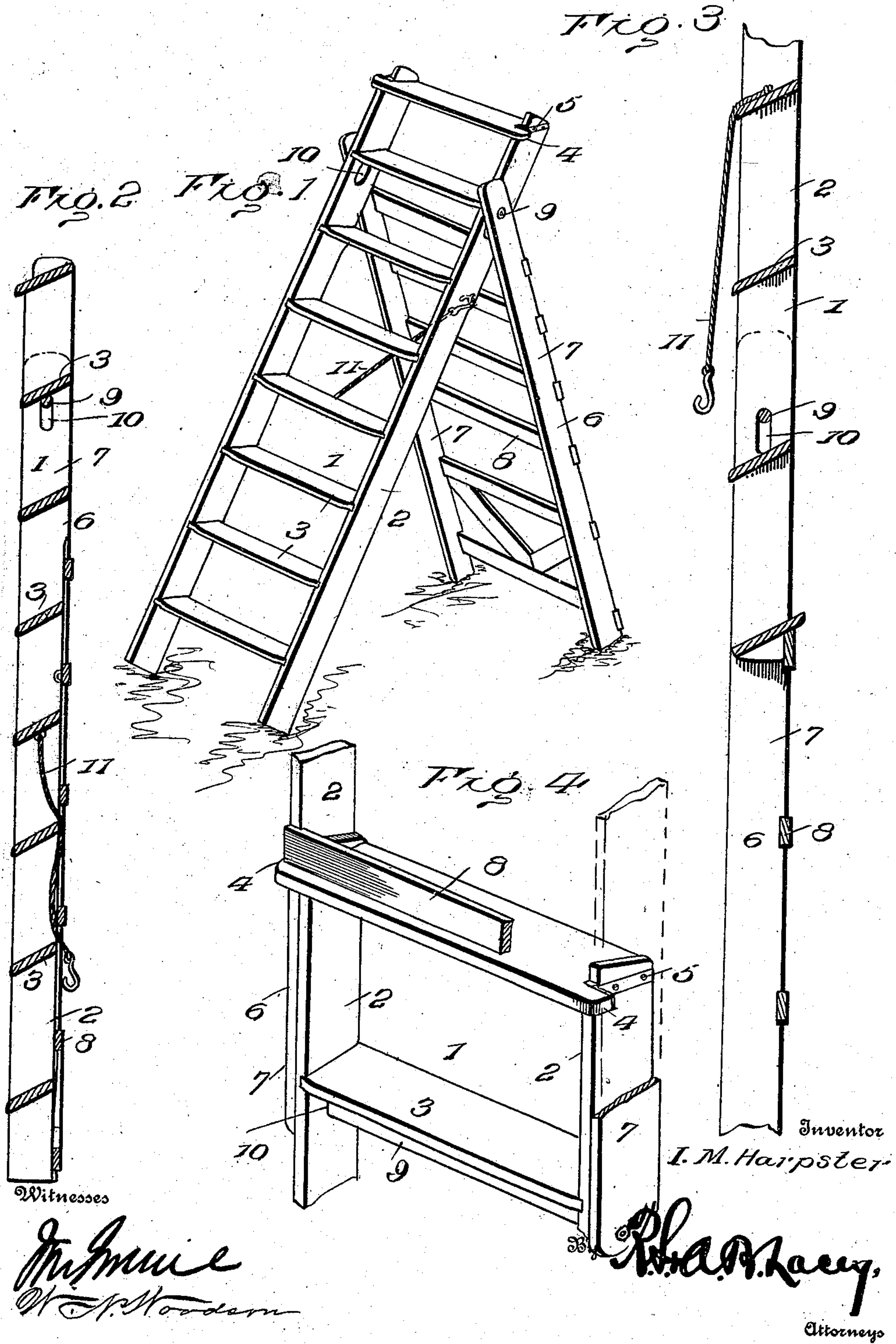


No. 881,400.

PATENTED MAR. 10, 1908.

I. M. HARPSTER.
COMBINED STEP AND EXTENSION LADDER.
APPLICATION FILED MAY 12, 1906.



UNITED STATES PATENT OFFICE.

ISAAC M. HARPSTER, OF IRONWOOD, MICHIGAN.

COMBINED STEP AND EXTENSION LADDER.

No. 881,400.

Specification of Letters Patent.

Patented March 10, 1908.

Application filed May 12, 1906. Serial No. 316,586.

To all whom it may concern:

Be it known that I, ISAAC M. HARPSTER, citizen of the United States, residing at Ironwood, in the county of Gogebic and State of Michigan, have invented certain new and useful Improvements in Combined Step and Extension Ladders, of which the following is a specification.

The present invention relates to certain new and useful improvements in the construction of ladders, and has for its primary object to provide a novel device of this character which is peculiarly designed so as to be employed either as an extension-ladder, or as an ordinary step-ladder, as may be required.

A further object of the invention is to construct a ladder of this character which is simple and durable in its construction and can be readily collapsed so as to be stored in a comparatively small amount of space when not in use.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a perspective view of my improved ladder, showing the device in the position assumed when in use as a step-ladder; Fig. 2 is a longitudinal sectional view through the ladder when folded; Fig. 3 is a similar view through the ladder when extended, a portion being broken away; and, Fig. 4 is a detail perspective view of the meeting ends of the two sections when extended.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

In general, the ladder comprises two sections having a hinged connection and designed to be either folded together or locked in a position in alinement with each other. The section 1 of the ladder comprises the spaced parallel side pieces 2 connected by the steps 3 which are disposed at an angle to the edges of the side pieces 2 in the usual manner so as to lie in approximately horizontal planes when the ladder is inclined in the position assumed in use. The upper step 3 extends forwardly beyond the forward

edges of the side pieces 2 and is formed with the lateral extensions 4. Metallic reinforcing strips 5 of approximately L-shape are employed in connection with the uppermost step 3 and are let into the outer face of the side pieces 2, the ends of the said strips being extended outwardly and secured to the lateral extensions 4. The opposite section 6 of the ladder comprises the side pieces 7 which are spaced somewhat further apart so as to receive the first mentioned section 1 between them. The rear edges of the side pieces 7 are connected by the slats 8 which constitute steps corresponding to the steps 3 of the section 1, but are so positioned as to enable the first mentioned section 1 to be folded against the section 6 and received between the side pieces 7 so as to occupy a comparatively small amount of space when the ladder is not in use.

The two sections 1 and 6 have their upper end portions pivotally connected by means of a transverse rod 9 which in the present instance is carried by the side pieces 7 and passes loosely through longitudinal slots 10 in the side pieces 2 of the section 1. These slots 10 are shown as positioned immediately below the second step 3 from the top of the section 1, and the distance between the top of the section 1 and the slots 10 is approximately equal to the distance between the uppermost slat 8 and the rod 9.

When the device is employed as an ordinary step ladder; the two sections are swung slightly apart in the usual manner and connected by the tie member 11 to limit their spreading. Should it be desired to utilize the device as an extension ladder, the rod 9 is moved into the upper portions of the slot 10 and the section 6 swung into alinement with the section 1. When in this position, the side pieces 7 abut against the lateral extensions 4 which serve as stops to prevent further swinging movement of the section 6. By sliding the section 6 downwardly upon the section 1 to move the rod 9 into the lower portions of the slots 10, the upper extremities of the side pieces 7 which project slightly above the top step can be then slipped under the uppermost slat 8 so as to engage with the same and lock the two sections of the ladder rigidly in alinement with each other. It will thus be apparent that by a simple manipulation of the sections of the ladder, the

same can be readily positioned to enable the device to be employed either as an ordinary step ladder or as an extension ladder.

Having thus described the invention, what
5 is claimed as new is:

In a ladder, the combination of a pair of loosely connected sections, one of these sections comprising spaced side pieces connected by steps, longitudinal slots being formed in the
10 said side pieces and the uppermost step projecting beyond the forward edge of the side pieces and the forwardly projecting portion thereof carrying lateral extensions, the side pieces extending upwardly above the upper-
15 most step, L shape reinforcing strips applied to the sides of the said section and engaging the lateral extensions of the uppermost step, the second section comprising side pieces designed to receive the side pieces of the first
20 mentioned section and having their rear edges connected by slats, a rod connecting

the side pieces of the second section and extending through the slots in the side pieces of the first mentioned section, the lateral extensions of the uppermost step of the first
25 section serving to engage the side pieces of the second section when the latter is swung into alinement with the former, the movement of the rod within the slots then permitting the second mentioned section to be
30 moved longitudinally to throw one of the slats against the projecting portion of the uppermost step of the first mentioned section whereupon the slat engages the extremity of the side pieces projecting beyond the upper-
35 most step and the two sections are locked rigidly together.

ISAAC M. HARPSTER.

Witnesses:

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