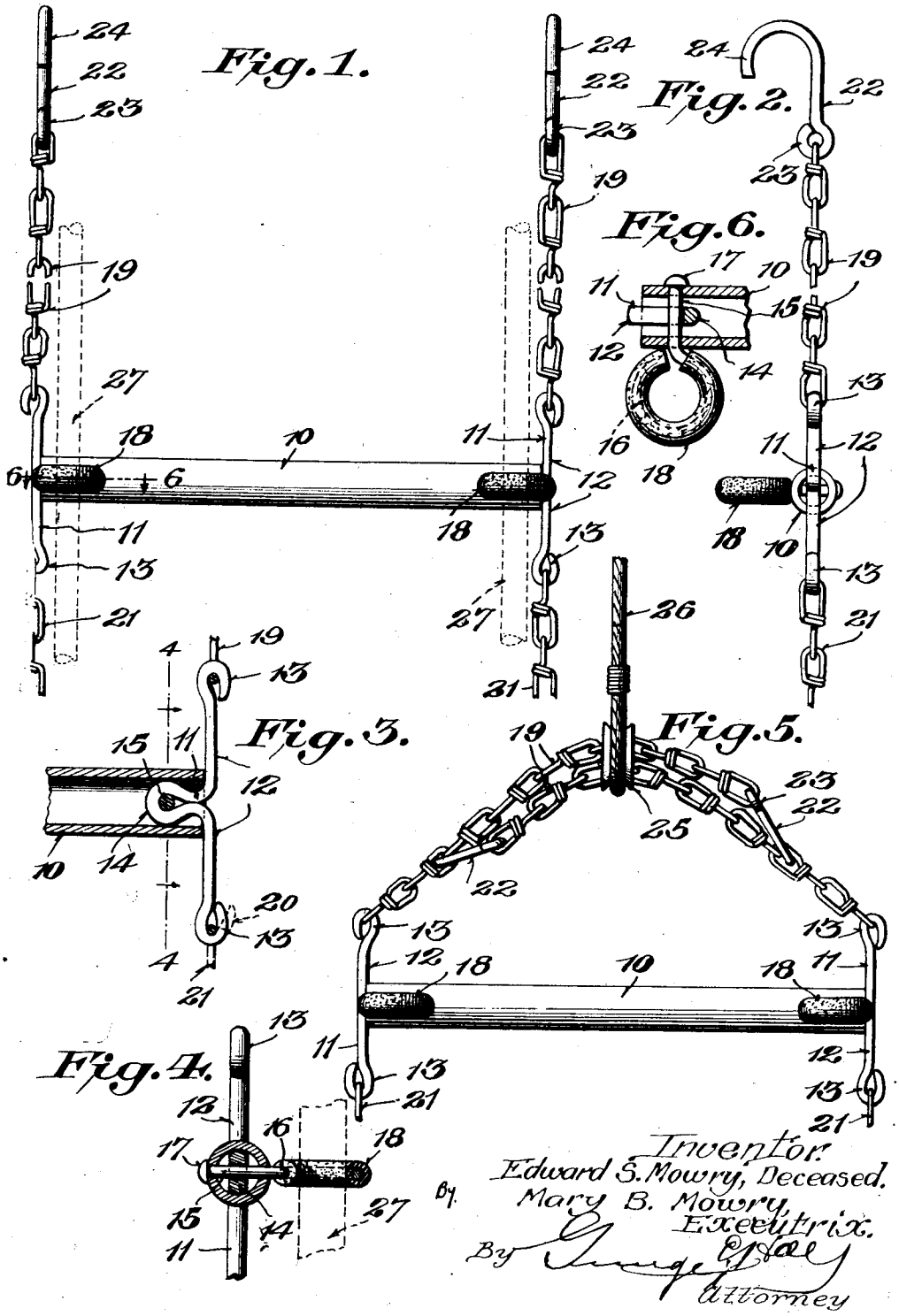
Aug. 20, 1929. E. S. MOWRY 1,725,367

LADDER

Filed Sept. 1, 1927



Patented Aug. 20, 1929. 1,725,367

# UNITED STATES PATENT OFFICE.

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## LADDER.

Application filed September 1, 1927. Serial No. 216,850.

This invention relates to a new and improved ladder.

It is the object thereof, among other things, to produce a ladder that is composed of sections or units, separably secured together, whereby the ladder may be made of any desired length, and which may when not in use be folded, thus minimizing the space required for its storage; another object being to so design the sections or units that they are substantially uniform in size and shape, the user procuring only such number of units as he may require; and also to provide means whereby the ladder may be either flexible or rigid, as may be most convenient or required.

To these, and other ends, my invention consists in the new and improved ladder, composed of units substantially as hereinafter shown and described, and wherein like numerals of reference designate like parts in the several figures.

Referring to the drawings;

Figure 1 illustrates one of the improved ladder units;

Figure 2 is a side elevation thereof;

Figure 3 is an enlarged fragmentary sectional view of one end of one of the units;

Figure 4 is a cross sectional view thereof, taken generally upon line 4—4 of Figure 3;

Figure 5 is a view of one of the units composing my improved ladder, so arranged as to be supported at a point between the ends thereof instead of at the ends, as in Figures 1 and 2; and

Figure 6 is a fragmentary plan view of one end of one of the units.

All of the units in my ladder are substantially alike, and as disclosed in the preferred form of the invention, comprise a rung 10, shown herein as a tube section, but, of course, not limited thereto, a supporting member 11 at each end of the rung having extension portions 12 that terminate in the hooks 13, and an intermediate eye 14, which projects into the opening in the rung 10 and through which passes the shank 15 of the eye bolt 16 having a head 17 upon one end and a loop at the other end, whereby the rung and supporting member are rigidly secured together. The loop may, if desired, and as shown herein, be covered with a piece of rubber tubing 18, or the like, to prevent scratching or marring of the surface against which the ladder is placed.

To each of the hooks 13 at opposite ends of the rung 10, and upon one side thereof, is connected a chain 19 of suitable length to properly space apart the rungs 10 when assembled. The hooks upon the opposite ends of the supporting members are left open before assembly of the units, as shown by the broken lines 20 in Figure 3, so as to receive the link in the chain of the next adjacent unit. The hook is then closed, as shown in Figure 3. Obviously any number of these units may be connected with each other to provide an extension ladder of the desired length.

The ladder may be supported by numerous means, as shown in Figures 1 and 2 such means being the hooks 24, which have an eye 23 on the shank 22 to connect the chain thereto. The hook 24 is positioned on the rail of a boat, the sill of a window, or any other convenient place that may be adapted to support a ladder. Another means is shown in Figure 5, wherein the chains 19 are passed through the thimble 25 and each of the hooks 24 projected through the opening in a link of the other chain. A rope 26 encircling the thimble 25 may be fastened in any suitable manner to a structure capable of supporting the ladder.

The open space within the rubber tubing 18 is of sufficient size to permit a rod 27 to pass through the aligned eyes of the several units and thus hold the units in a fixed relation to each other, producing a rigid ladder.

The invention is not limited to the specific construction, arrangement or form of parts as described herein, as it is capable of numerous modifications and changes without departing from the spirit of the appended claims.

What is claimed as new is:—

1. A ladder composed of a plurality of rungs; a rigid supporting member at the end of each of the rungs constructed with an intermediate eye portion, an extension portion on each side of the eye portion which terminates in a hook, the said eye projecting into

the open end of the rung with the extension portions adjacent to the outer ends thereof; flexible members connecting the adjacent hook portions of the supporting members; and an eye bolt, the shank of which projects through the rung and eye and rigidly secures the same together, said eye bolt terminating at one end in a loop, the opening through which is at substantially a right angle to that of the axis of the rung.

2. A ladder composed of a plurality of rungs; a rigid supporting member at the end of each of the rungs constructed with an intermediate eye portion, an extension portion on each side of the eye portion which terminates in a hook, the said eye projecting into the open end of the rung with the extension portions adjacent to the outer ends thereof; flexible members connecting the adjacent hook portions of the supporting members; and an eye bolt, the shank of which projects through the rung and eye and rigidly secures the same together, said eye bolt terminating at one end in a loop, the opening through which is at substantially a right angle to that of the axis of the rung and in line with the opening of the eye bolts in the other rungs, whereby a single element may pass through all of the said openings and hold the rungs rigid relatively to each other.

3. A ladder composed of a plurality of rungs; a rigid supporting member at the end of each of the rungs constructed with an intermediate eye portion, an extension portion on each side of the eye portion which terminates in a hook, the said eye projecting into the open end of the rung with the extension portions adjacent to the outer ends thereof; flexible members connecting the adjacent hook portions of the supporting members; and an eye bolt, the shank of which projects through the rung and eye and rigidly secures the same together, said eye bolt terminating at one end in a loop, the opening through which is at substantially a right angle to that of the axis of the rung, such of said flexible members as are associated with the end rung having parts connected therewith, whereby one flexible member may be joined to the other flexible member and thereby form a loop.

4. A ladder composed of a plurality of rungs; a rigid supporting member at the end of each of the rungs constructed with an intermediate eye portion, an extension portion on each side of the eye portion which terminates in a hook, the said eye projecting into the open end of the rung with the extension portions adjacent to the outer ends thereof; flexible members connecting the adjacent hook portions of the supporting members; and an eye bolt, the shank of which projects through the rung and eye and rigidly secures the same together, said eye bolt terminating at one end in a loop, the opening through which is at substantially a right angle to that of the axis of the rung, such of said flexible members as are associated with the end rung having parts connected therewith, whereby one flexible member may be joined to the other flexible member and thereby form a loop of variable length, whereby the last mentioned rung may occupy various positions relative to the element that supports the ladder.

5. A ladder composed of a plurality of rungs; a rigid supporting member at the end of each of the rungs constructed with an intermediate eye portion, an extension portion on each side of the eye portion which terminates in a hook, the said eye projecting into the open end of the rung with the extension portions adjacent to the outer ends thereof; flexible members connecting the adjacent hook portions of the supporting members; an eye bolt, the shank of which projects through the rung and eye and rigidly secures the same together, said eye bolt terminating at one end in a loop, the opening through which is at substantially a right angle to that of the axis of the rung; and a rod that projects through the openings in the eye-bolts that are in substantially the same line, whereby to form a rigid ladder.

In testimony whereof, I have hereunto affixed my signature.

MARY B. MOWRY,
*Executrix of Edward S. Mowry, Deceased.*