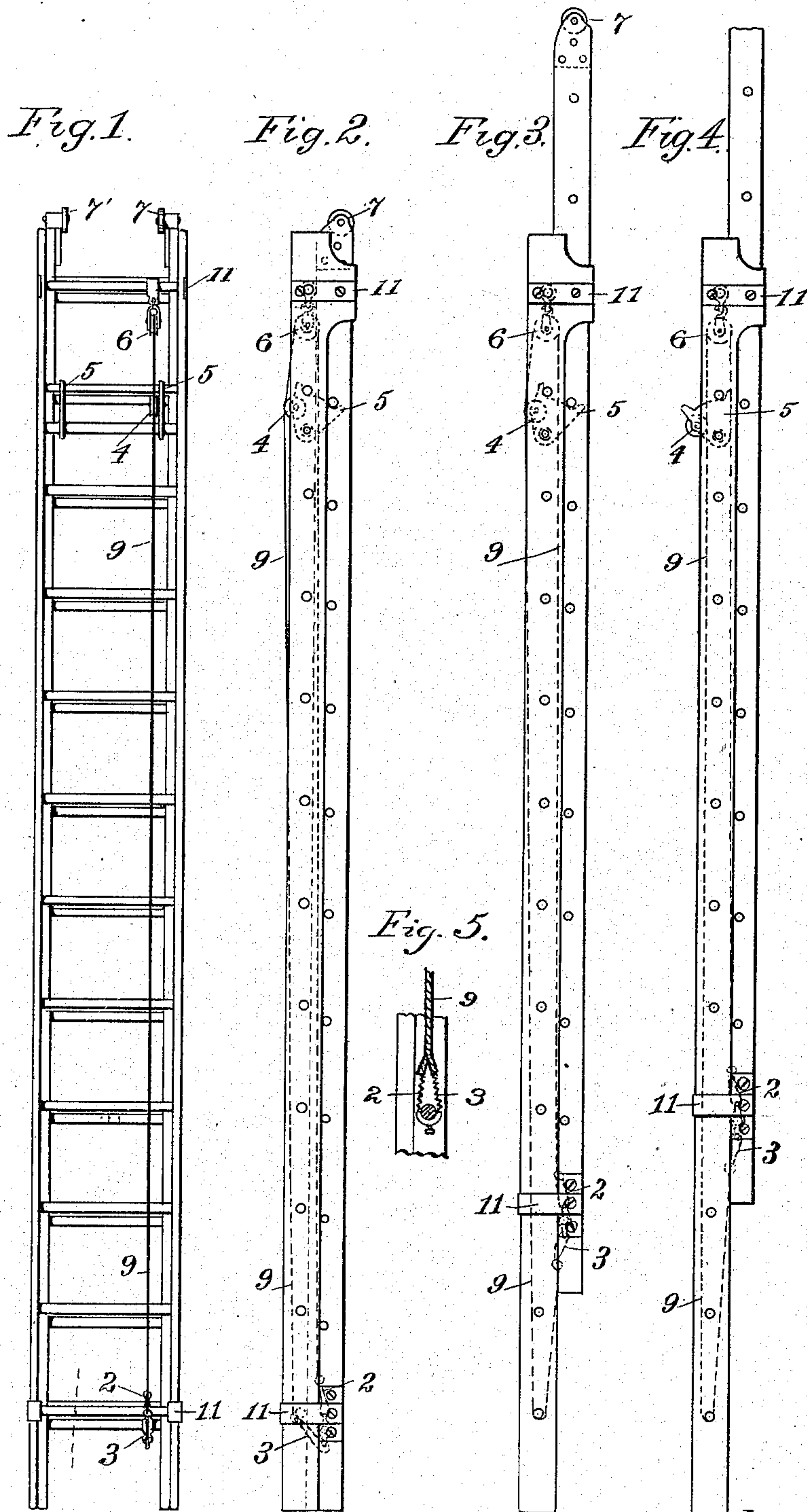


(No Model.)

B. A. HILL.
EXTENSION LADDER.

No. 565,750.

Patented Aug. 11, 1896.



Witnesses:
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UNITED STATES PATENT OFFICE.

BENJAMIN A. HILL, OF HARTFORD, CONNECTICUT.

EXTENSION-LADDER.

SPECIFICATION forming part of Letters Patent No. 565,750, dated August 11, 1896.

Application filed July 15, 1895. Serial No. 558,018. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN A. HILL, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented new and useful Improvements in Extension-Ladders, of which the following is a specification.

My invention relates to improvements in extension-ladders, and especially to devices for operating the same and holding the different sections of an extensible ladder at different points positively and firmly.

Referring to the drawings, Figure 1 is an elevation view of the ladder as seen from the back in a closed position. Fig. 2 is a side view with the ladder in the same position as Fig. 1. Fig. 3 is a view similar to Fig. 2, but showing the ladder partly extended and the two sections secured positively together. Fig. 4 is a view similar to Figs. 2 and 3, but showing the position of the two sections of the ladder during the operation of extending the same, when the two sections are not positively locked together. Fig. 5 is a detail view, showing the connection between the operating-cord and the sliding ladder.

As shown in the figures of the drawings, my ladder is composed of two sections, the one adapted to telescope within the other, the second section being provided with engaging devices whereby the two sections may be locked positively together at any desired point within the range of movement of one section upon the other.

In the drawings are shown two ladder-sections, a fixed and a sliding section, the latter designed to be moved or extended within the former.

I represent metal clips secured to each side of the sliding section near the top and bottom thereof, and having their ends bent to engage with the sides of the fixed section, which serve as guides and ways for the sliding section to move on.

6 indicates a sheave hooked to the upper rung of the fixed ladder.

5 indicates a triangular rocking stop-plate or elbow-lever with its base cut and centrally to form a convex edge and two side fingers, as shown, and this plate is pivoted at its apex with fingers uppermost to the inside of one side of

the fixed ladder-section near the top thereof, but below the sheave, and secured on the rear edge of the stop-plate is a pulley 4, the functions of all of which parts will be hereinafter set forth.

A rope or chain 9, having hooks 2 3, respectively, on its ends, is engaged over the sheave 6, passed under the lower rung of the fixed ladder section, and has its ends hooked about the lower rung of the sliding section, so that the rearward bight of said rope or chain bears against the pulley 4.

If the ladder be closed and it be designed to extend it from the sliding position shown in Fig. 2, the sliding section is pushed upward, whereby the rope or chain, bearing on the pulley 4, as the sliding section is moved, causes the stop-plate to rock rearward and to keep in that position with its forward finger withdrawn out of the way of the rungs of the sliding section, so that said section may be moved up to the desired extent, and when the designed point of extension is reached the said sliding section is pushed slightly in again, by which movement the stop-plate is rocked forward by the reverse movement of the rope or chain 9 on the pulley 4, so that its forward finger is projected beneath a rung of said sliding section and its rearward finger is projected beneath a rung of said sliding section, and its rearward finger engaged beneath a rung of the fixed section, whereby the sliding section is firmly locked in its extended position, the locking device operating automatically, as described. Anti-friction rollers 7, secured on the upper ends of the sliding section, serve to lessen the friction when it is pushed up against a wall.

In order to close the ladder, the rope 9 may be disengaged from the stop-plate, so that the latter will be free to swing or the rope ends may be disengaged from the lower rung of the sliding section.

What I claim as new is—

1. An extension-ladder, comprising a plurality of sections a cord or chain attached to the lower portion and upper section and passing over a pulley on a lower section, an engaging device, consisting of an elbow-lever carrying a friction-pulley upon which the said cord operates, whereby the two sections

are positively locked together, substantially as shown and described.

2. An extension-ladder, comprising two or more sections a cord or chain attached to the lower portion and upper section and passing over a pulley on a lower section, an engaging device, consisting of an elbow-lever carrying a friction-pulley upon which the said cord

operates, whereby the two sections are positively locked together, and antifriction-rollers carried on the uppermost section, substantially as shown and described. 10

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