

968,040.

A. M. FERGUSON.
EXTENSION LADDER.
APPLICATION FILED SEPT. 3, 1907.

Patented Aug. 23, 1910.

2 SHEETS—SHEET 1.

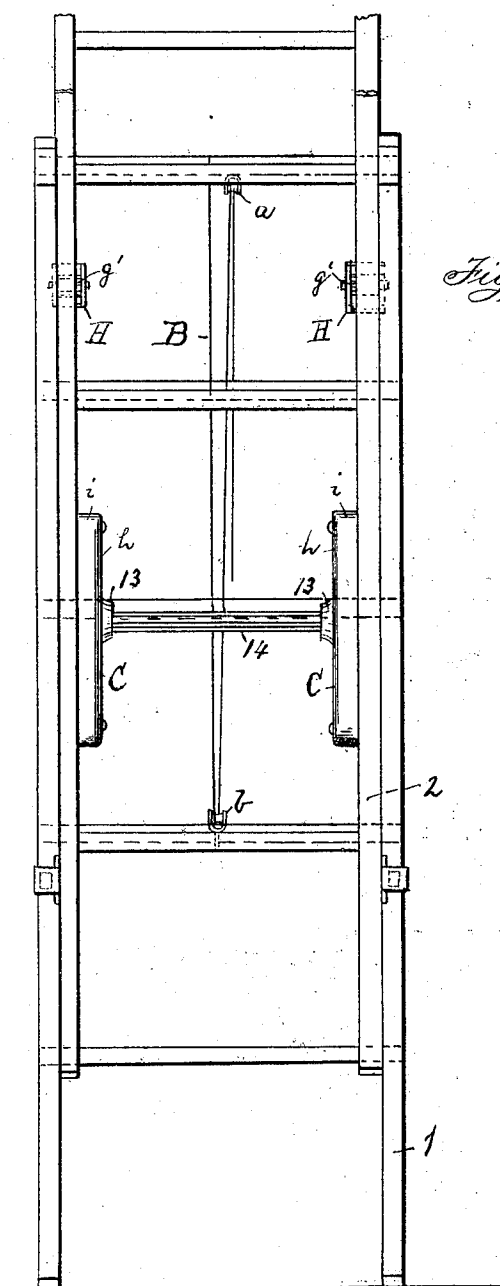


Fig. 1.

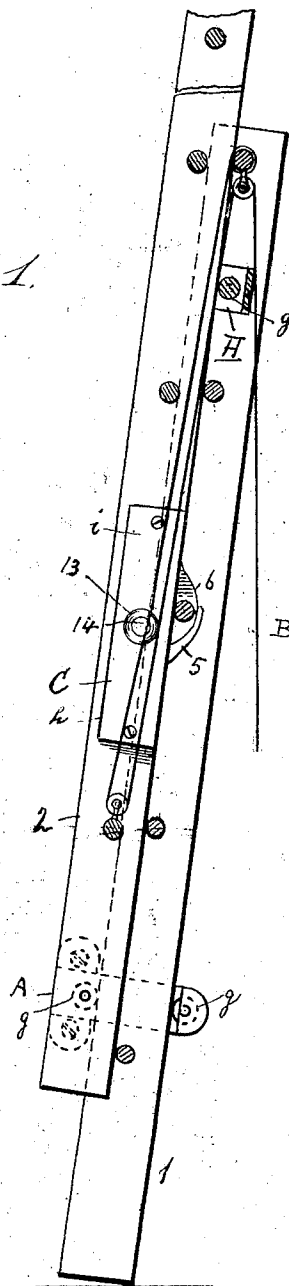


Fig. 2.

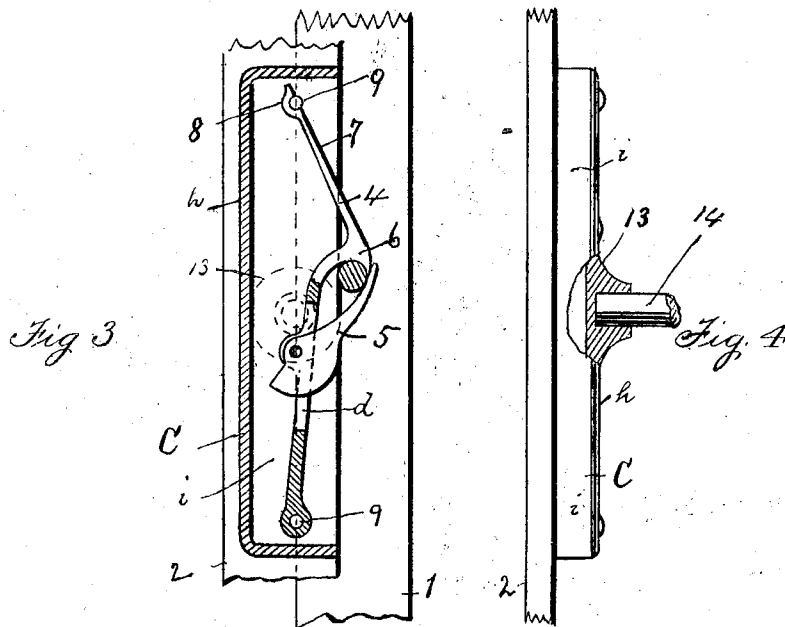
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UNITED STATES PATENT OFFICE.

ALBERT M. FERGUSON, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR OF ONE-HALF TO TOBIAS BUSH, OF WASHINGTON, DISTRICT OF COLUMBIA.

EXTENSION-LADDER.

968,040.

Specification of Letters Patent.

Patented Aug. 23, 1910.

Application filed September 3, 1907. Serial No. 391,073.

To all whom it may concern:

Be it known that I, ALBERT M. FERGUSON, a citizen of the United States, residing at Washington, in the District of Columbia, have invented new and useful Improvements in Extension-Ladders, of which the following is a specification.

This invention relates mainly, to an automatic locking-device for the ladder-sections and provides for an interchangeable locking-device, or lock-casing, the said casing being simply reversed, end for end, to accomplish the object in view, thus but one pattern is required for the casing whether the same is for connection with the right or left rail of the ladder section.

The invention also consists in certain arrangements and combinations of parts, all of which are hereinafter fully described and specifically claimed.

In the accompanying drawing—Figure 1 is a front view of an extension-ladder provided with my improvements, and Fig. 2 a vertical cross-section thereof. Fig. 3 represents parts of two adjacent ladder-sections, a sectional view of my locking-device casing, and mechanism contained therein. Fig. 4 is an edge view of one of the ladder-rails and locking-casing, a portion of the latter broken away, to show a rung-socket and a rung connected therewith.

Referring again to the drawing, the numeral 1 designates the main or lower section of the ladder, and 2 a movable or slidable section thereof. To the outer sides of the movable section 2, at or near its lower end, are bolted or otherwise secured a pair of brackets A, having bent ends, or stirrups e, f, within which are journaled friction-rollers g, g, for operation against the front and rear edges of the lower section of the ladder and thus insure a free movement of the slidable ladder-section. A second pair of brackets, likewise provided with friction rollers are secured to the upper ends of the side rails of the lower ladder-section 1, so that the rails of the slidable ladder-section may operate between the friction rollers thereof; thus the aforesaid brackets and rollers serve to hold the two ladder-sections together and facilitate the operation thereof. The ladder is extended or contracted, by means of a rope B, operating over pulleys a, b, as in other apparatus of like character.

My locking-device comprises a casing C having a face plate h provided at its top, bottom and rear edge with an inwardly projecting rim i; and at the center of its front with a projection 13 in which is a socket for the reception of one end of a ladder-rung 14, whereby a uniform space is insured between the rungs of the ladder. At equal distance from the ends of the casing its face plate is provided with holes for the passage of bolts 9, 9, by which it is secured to the ladder-rail, with its open edge to the front and either of its ends uppermost.

The mechanism adapted to operate within the casing C, consists of a locking-arm 4, provided with a recess d in which is pivoted a trip, or releasing trigger 5 so that its free end shall normally close the hook 6 of the locking bar 4. The lower end of the locking-bar is provided with a bolt-hole for the passage of the lower bolt 9, whereby the casing is secured to the ladder-rail, thus the said bolt serves as a support for the locking-bar and permits of its rocking back and forth when in use. The upper end of the locking-bar has a rearward inclination as shown at 7, terminating in a hook 8 which normally rests against the upper bolt 9 and is thereby prevented from dropping out of the casing.

The operation of the apparatus is as follows, when the operator desires to increase the length of the ladder, power is applied to the rope B which draws the movable section upward and at same time causes the rung, which is at that time engaged with the locking device to bear against the releasing trigger 5, depressing same until the rung has cleared the trigger, when the latter immediately falls back into its normal position. By this time the hook 6 comes in contact with the rung next above and is thereby pressed backward until the point of the said hook is cleared, then the hook moves outward over the rung, which meanwhile depresses the free end of the trigger to a sufficient extent to pass between it and the hook; then the power on the rope is diminished to allow the said hook to engage the rung, the trigger meanwhile returning to its normal position. In lowering the movable section of the ladder the reverse of the above operation is pursued.

Having thus described my invention, what

I claim as new, and desire to claim by Letters Patent, is—

1. As a new article of manufacture, a reversible ladder hook-holder comprising a rectangular frame open at that side which is to rest against the ladder rail and having an open edge, a hook and releasing trigger adapted to operate within the casing and its open edge; the holder provided in a line parallel with its sides and at even distances from its ends, with bolt-holes and bolts, as and for the purpose set forth.

2. In extension ladders, the combination of a reversible ladder hook-holder consisting of a rectangular case having an open side and edge, the outer surface of the solid side provided at its center with a projecting rung holder, the said solid side also provided midway between its edges and at even distances within its walls with bolt holes, and bolts to fit said holes, a ladder hook having an upper and a lower member, the lower member pivoted within the casing by one of its securing bolts and the upper member

terminating in a hook adapted to normally rest against the second bolt; the two bolts serving as means for securing the device to a ladder rail, as set forth.

3. In combination with the rails of an extension-ladder, an interchangeable locking-device consisting of a locking-hook having a trip latch pivotally connected therewith, a bolt hole in the lower end of the locking-hook and a transverse groove near the upper end thereof, of a reversible, end for end casing, said casing having an open side and edge, a bolt hole near each end of the casing, and bolt adapted to fit therein, to secure the device to a ladder rail and serve, respectively, as a pivot for the locking-hook and a retainer for the upper end thereof.

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

ALBERT M. FERGUSON.

Witnesses:

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