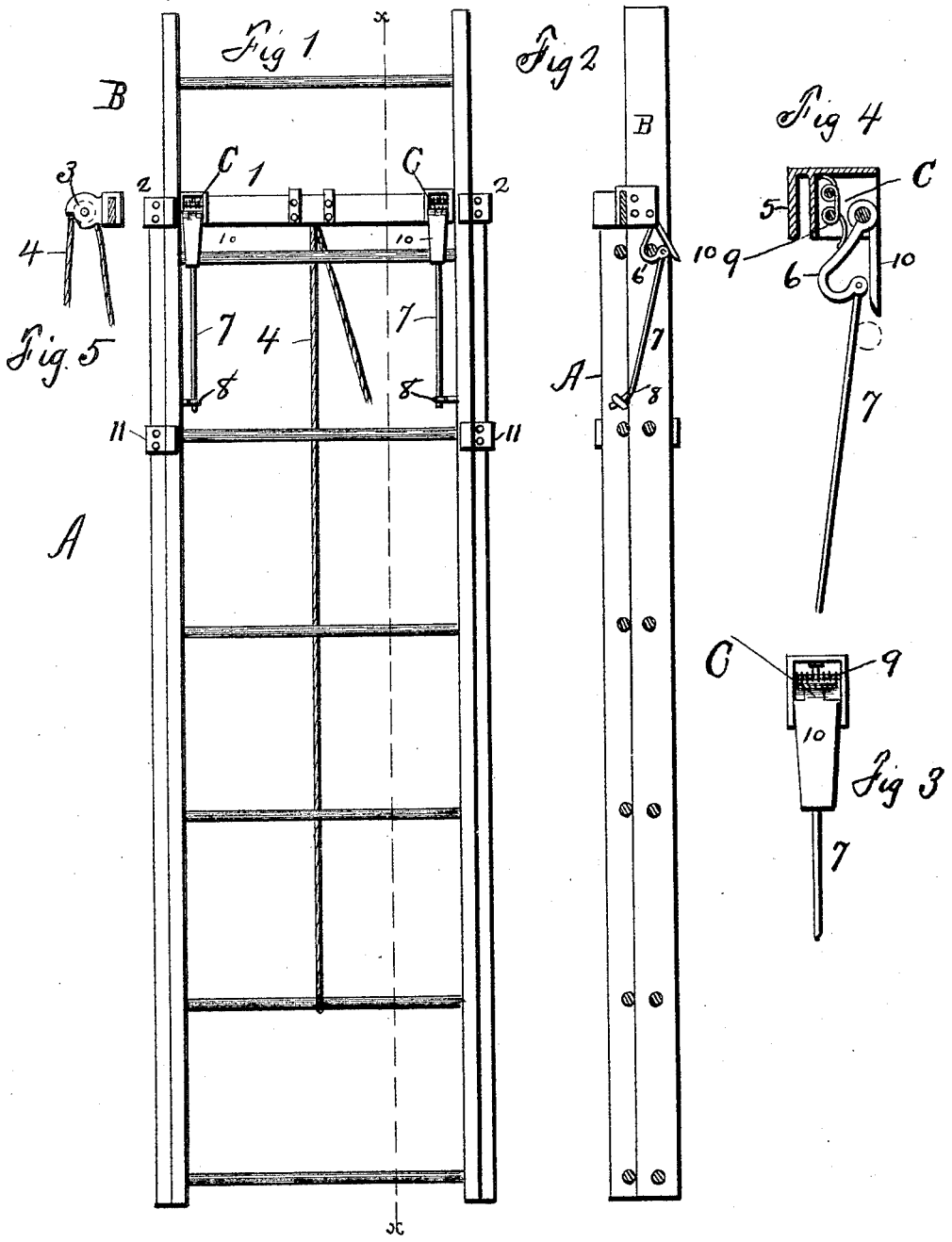
(No Model.)

W. E. BROWN.

EXTENSION LADDER.

No. 454,454. Patented June 23, 1891.



WITNESSES:
E. V. Mack
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UNITED STATES PATENT OFFICE.

WILLIAM E. BROWN, OF KIRKWOOD, NEW YORK.

EXTENSION-LADDER.

SPECIFICATION forming part of Letters Patent No. 454,454, dated June 23, 1891.

Application filed July 25, 1890. Serial No. 359,908. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. BROWN, of Kirkwood, in the county of Broome, in the State of New York, have invented new and useful Improvements in Extension-Ladders, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to extensible ladders.

My object is to produce a ladder capable of being extended or shortened at pleasure for use by printers, carpenters, and other artisans, safe, cheap in construction, very durable, and of great utility.

My invention consists in the several novel features of construction and operation hereinafter described, and specifically set forth in the claims hereunto annexed, reference being had to the accompanying drawings, in which—

Figure 1 is a front view of the ladder complete. Fig. 2 is a longitudinal section thereof through line X X, Fig. 1. Fig. 3 is a front elevation of the automatic fastening device. Fig. 4 is a transverse section thereof. Fig. 5 is a view of the pulley over which the rope passes.

A and B are sections of the ladder, provided with rounds constructed substantially similar, one of which, however, is narrower than the other and adapted to move within the frame of the other, as freely illustrated in the drawings. At or near the top of the base-ladder A, I secure a cross-piece 1, and having on either end, constructed integral therewith, clips 2, all constructed from a continuous piece of metal. Upon the back side of this cross-piece 1 I secure centrally a pulley 3, over which I place the rope 4, fastening one end of it to the lower round of the extensible section B, by which rope the ladder may be extended or shortened, as desired, in the ordinary way.

On the front side of the cross-piece 1 and at either end thereof, just inside of the bars of the ladder B, I secure automatic fastening devices C. This fastening device consists of a U-shaped piece of metal having a rearwardly and downwardly extending hook 5 attached to the upper rear edge thereof. This is for the purpose of allowing the fastening device to be placed upon ladders of varying widths. In the front edge of this U-shaped fastening device I journal a downwardly-extending hook 6, to the point of which I loosely secure or journal a guide-rod 7, which extends downwardly and terminates after passing through eyes 8, extending inwardly from the base-ladder A.

9 is a spiral spring, constructed as shown and journaled just back of the hook 6, having its lower end extending down and engaging with the back of the said hook for the purpose of exerting a tension and throwing the point of the hook forward. This will allow the round in descending to be caught by the hook and retained therein.

10 is a tongue journaled with the hook 6 and extending down below its point. This tongue serves the purpose of keeping the round of the ladder in the hook when once there, and the further purpose of guiding the rounds over the point of the hook when the ladder is being shortened or returned to its original position. The purpose of these rods 7 is to always force the rounds in their upward passage in front of the hook 6. A short distance below the cross-piece 1 I secure on either side clips 11 for the purpose of holding the foot of the extensible ladder B and give it greater strength.

To operate this ladder I pull upon the free end of the rope, forcing the inner ladder up. The rounds then pass over the guide-strip 7, raising the tongue 10 until the ladder is extended to the length desired. I then allow any desired round to drop into the hook, as shown in Fig. 2, where it is securely held.

To shorten the ladder I first raise the round by means of the rope out of the socket and let it drop down. The tongue 10 then drops over the point of the hook 6 to allow each successive round to pass over it.

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

1. In an extension-ladder, the combination, with the stationary and sliding sections, of a retaining device on the stationary sections, consisting of a casing having a slot in its rear by which it may be attached, a spring-actuated hook pivoted in the forward portion of said casing, a depending tongue loosely pivoted on the pivot-pin of the hook and extending down over the nose of said hook, and

a rod secured on the nose of the hook, whereby upon the downward pressure of the rod the hook will be thrown out of engagement, substantially as described.

2. In an extension-ladder, the combination, with the stationary and sliding sections, of a cross-bar I, secured on the upper end of the stationary section and having clips formed on its ends adapted to partially encircle the sliding section, of independent removable fastening devices on said cross-bar, said fastening devices consisting of a casing having a slot in its rear for engaging the cross-bar, a pivot-pin in its forward portion, a spring-actuated hook journaled thereon, a tongue extending below the nose of the hook, loosely mounted on said pivot-pin, and a rod pivoted in the nose of the hook, substantially as described.

In witness whereof I have hereunto set my hand this 12th day of July, 1890.

WILLIAM E. BROWN.

In presence of—
E. W. EVANS,
HENRY MAREAN.