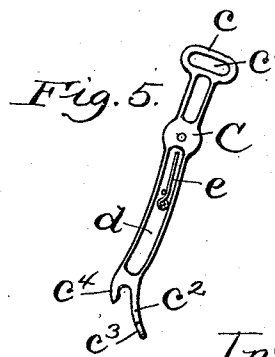
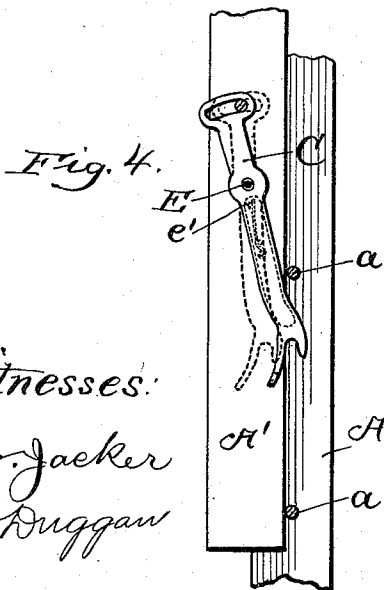
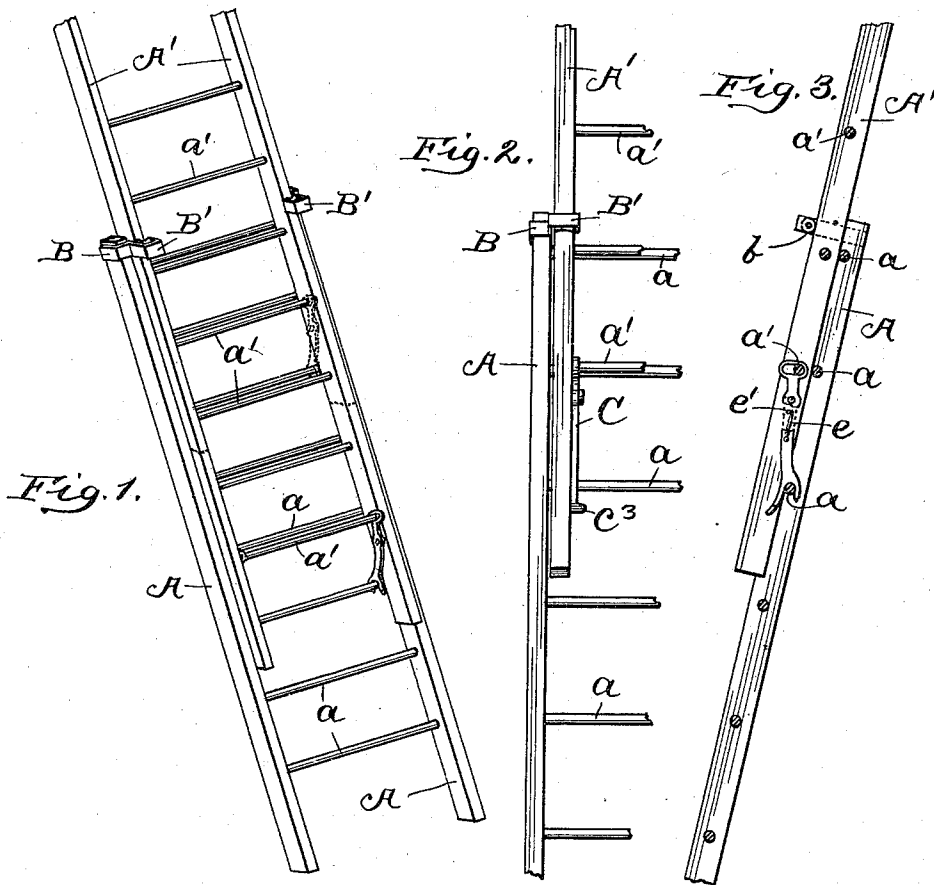


(No Model.)

P. JOHNSON.
EXTENSION LADDER.

No. 533,358.

Patented Jan. 29, 1895.



Witnesses:

R. J. Jaeger
C. A. Duggan

Inventor:

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By Chas. C. Tillman. Atty.

UNITED STATES PATENT OFFICE.

PETER JOHNSON, OF CHICAGO, ILLINOIS.

EXTENSION-LADDER.

SPECIFICATION forming part of Letters Patent No. 533,358, dated January 29, 1895.

Application filed April 30, 1894. Serial No. 509,491. (No model.)

To all whom it may concern:

Be it known that I, PETER JOHNSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Extension-Ladders, of which the following is a specification.

This invention relates to improvements in extension ladders, and it consists in certain peculiarities of the construction, novel arrangement, and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The objects of my invention are first, to provide a ladder, which shall be simple and inexpensive in construction, strong and durable, and may be readily extended or shortened; and second, such a ladder in which the sliding or movable section thereof shall be automatically locked and supported in such a way that it will sustain great weight, and in a safe and secure manner.

In order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe it, referring to the accompanying drawings, in which—

Figure 1, is a perspective view of a portion of a ladder embodying my invention, and showing it partly extended. Fig. 2, is a front view of a part thereof. Fig. 3, is a view in side elevation partly in section, showing the manner of securing the parts of the ladder together. Fig. 4, is a similar view of a like part showing the locking or supporting hook in position ready to engage the rounds or rundles of the ladder; and Fig. 5, is a detail view of one of the locking or supporting-hooks detached from the side-rails.

Similar letters refer to like parts throughout the different views of the drawings.

A, represents the side-pieces or upright standards of the stationary or ground section of the ladder, which is made of any suitable dimensions and material, and is provided as usual with a number of rounds or rundles *a*, which unite the two pieces, and afford steps upon which the user may climb. To the upper portion of each of the side-rails A, is secured a guide-bracket B, which extends outwardly from said rails a short distance and is then bent inwardly and then downwardly to

form a guide-piece B', for the side-rails or upright standards A', of the movable section of the ladder. Each of the guide-pieces B', may be provided with an anti-friction roller *b*, which will rest on one edge of the side-rails A', and permit of the free movement up or downward thereof.

To the inner surface of the rails A', and near the lower ends of the same is pivotally secured a supporting and locking hook or piece C, which is provided at its upper portion with an enlargement *c*, having therein a horizontal slot or opening *c'*, for the reception and operation of one of the rounds *a'*, of the movable section of the ladder. The lower portion of the piece C, is bifurcated, as is clearly shown in Figs. 3, 4, and 5, of the drawings, and is substantially of the form of a boot, the toe-piece or longer prong *c²*, of which is provided with a lateral projection *c³*, in order that it may be readily caught by means of the thumb or hand, when it is desired to hold the hooks out of engagement with the rounds *a*, of the stationary section of the ladder. The heel-piece or shorter prong *c⁴*, is slightly rounded on its outer surface, as is clearly shown in Figs. 4 and 5, in order to offer as little obstruction as possible to the movement of the side rails A', when the ladder is being extended and also to cause the pieces or hooks C, to assume the position shown by dotted lines in Fig. 4, when the movable section is being raised. Each of the pieces or hooks C, are formed on their surfaces adjacent to their respective side-rails A', with a longitudinal mortise or recess *d*, within which is secured a spring *e*, the free end of which impinges against a pin or projection *e'*, secured to the inner surface of the side-rail A', just below the pivot point E, of the piece C. This spring normally holds the piece C, in the position indicated by continuous lines in Fig. 4, yet yields sufficiently to allow it to assume the position shown by dotted lines in said figure, when the heel-piece *c⁴*, is passed over the rounds *a*, of the lower section of the ladder.

From the foregoing and by reference to the drawings, it will be seen that the movable section is somewhat narrower than the stationary or ground portion, and telescopes therein, the rounds *a*, of the ground or sta-

tionary section, and the brackets B', serving to hold the two sections together. When it is desired to extend the ladder, the movable section may be raised, when the rounds *a*, of the stationary or lower section, will contact with the rounded portion of the heel-pieces or shorter prongs *c*⁴, of the locking or supporting hooks or pieces C, when they the said hooks will assume the position indicated by dotted lines in Fig. 4, and will allow them as soon as the heel-piece shall have passed the round *a*, to be thrown by reason of the spring, to the position indicated by continuous lines in the last named figure, and engage with said round, as well as the round *a'*, of the movable section, as is clearly shown in Figs. 1, and 3, of the drawings. When in this position, the movable section of the ladder is automatically locked and strongly supported against downward displacement, and will sustain an enormous weight with safety and surety. By using my spring actuated hooks or pieces C, it is evident that they will automatically engage and lock or fasten the two sections of the ladder together, and that if it is desired to prevent the hooks or pieces C, from engaging with the lower or stationary

portion of the ladder, they can be held out of engagement by means of the lateral projections or lugs *c*³, on their lower portions. 30

In the drawings, I have shown the ladder composed of two sections, only, but it is obvious that my invention is applicable to a ladder composed of a number of series or sections, and that it will be equally as effective. 35

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination with an extension ladder of the supporting and locking hooks C, pivotally secured near their middle to the side rails of one section of the ladder, and having on their inner surface a recess or mortise *d*, and a spring *e*, located in said mortise to actuate the hooks, the same being provided at their upper parts with the horizontal slots *c'*, to engage the round or rundle *a'*, and bifurcated at their lower portions to engage a round on the lower section of the ladder, substantially as described. 45

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Witnesses:

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