L. B. COVERT.

Step-Ladder.

No. 220,128. Patented Sept. 30, 1879.

FIG. 1.

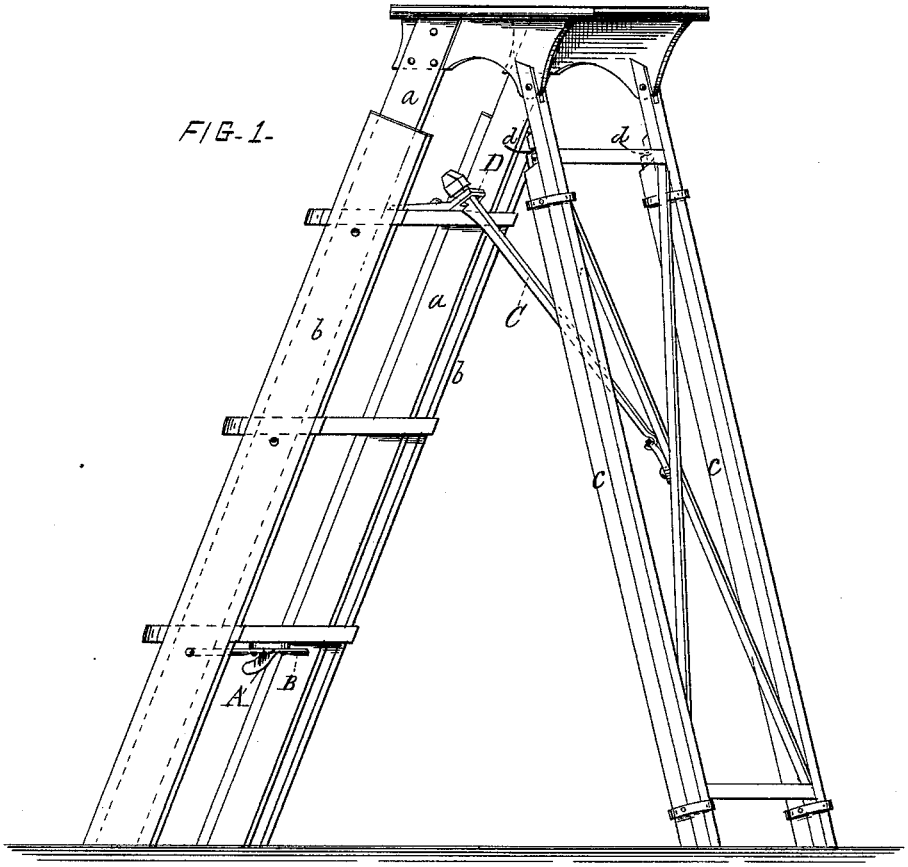
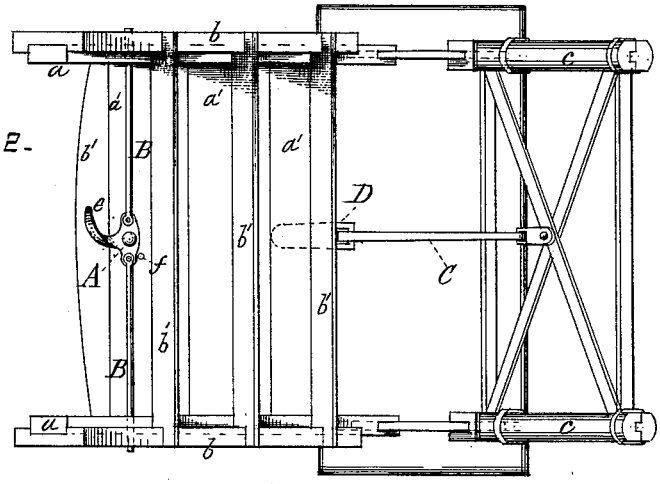


FIG. 2.



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LEWIS B. COVERT, OF NEW YORK, N. Y.

IMPROVEMENT IN STEP-LADDERS.

Specification forming part of Letters Patent No. **220,128**, dated September 30, 1879; application filed June 9, 1879.

To all whom it may concern:

Be it known that I, LEWIS B. COVERT, of New York city, have invented certain new and useful Improvements in Step-Ladders, of which the following is a specification.

My invention relates to the fastenings for holding the steps and the legs of the ladder in their extended positions, and embodies two novel features, as hereinafter fully set forth.

The annexed drawings present, in Figure 1, a side elevation of a step-ladder embodying my improvements, and in Fig. 2 an inverted plan thereof.

The ladder illustrated is of that class patented to me May 5, 1868, in which the ladder or steps, and also the hinged supporting-legs, are formed in two oversliding extensible parts, whereby the entire ladder is rendered extensible or contractible in height. Thus the step or ladder proper consists of two concentrically-sliding and relatively-adjustable extensible ladders, *a b*.

The side standards of the inner ladder, *a*, and its steps *a'* slide between the two-part steps *b'* of the outer ladder, *b*, and between the grooved inner faces of the standards of the outer ladder, as illustrated, so that the ladder or ladders may thus be extended one or more stages, equaling the distance between the steps.

The hinged legs of the ladder are also extensible in a corresponding manner by being formed with the sliding stilts *c c*, which are provided with catches *d*, which engage with the main legs at points corresponding to the distance between the steps, so that the legs may thus be extended to correspond with the extension of the steps or ladders.

This construction is fully set forth in my aforesaid patent, and of course no claim is laid thereto in this application; but one feature of my present invention applies particularly to this class of ladders, and consists of an improved fastening or catch for holding the steps of the extensible ladder or ladders in the required position of extension or contraction. This, as shown in the drawings, is fixed on the under side of the lowest step of the inner ladder, and is adapted to engage with the outer ladder at positions corresponding to each step, so as to retain the two ladders at different degrees of extension or contraction.

A is a T-shaped button pivoted centrally on the under side of the said step, and having its opposite arms pivotally connected to two bolt-rods, B B, which extend therefrom in opposite directions, and project through holes in the standards of the inner ladder, just below the steps thereof, and are adapted to engage with a series of holes in corresponding positions in the standards of the outer ladder, or just below each step thereof, as illustrated.

The button is operated by the thumb or finger piece *e*, by turning which a quarter-revolution backward the bolts become withdrawn from the holes in the outer standards, thus permitting the ladders to be extended or contracted to the required extent. When the ladders are adjusted in the required position, they may be there locked by turning the button in the opposite direction, so that its arms come in line with the bolts, thus causing the bolts to be thrown out into the holes of the outer standards, and thereby firmly sustaining the ladders in the desired position. A pin, *f*, driven into the step of the ladder forms a stop to prevent the button being turned too far in its locking or unlocking movement, as will be understood.

It will be readily seen that this form of lock or catch is especially well adapted for this kind of step-ladder, and, while being inexpensive in construction, is simple and secure in its action; and it will also be seen from the toggle action of the device that when locked the strain on the steps has no tendency to retract the bolts.

The brace or stay-rod C holds the hinged legs of the ladder in the extended or spread position. The lower end of this rod is hinged on the cross-frame of the legs at about the center thereof, and its upper end, which is notched or hooked, runs through an eye or staple, D, fixed on the top step of the inner or sliding ladder, as illustrated. The rod shown inclines forward, so that its notched end tends to gravitate into engagement with the forward side of the eye. The extreme end of the rod beyond the notch is formed enlarged, or of arrow-head shape, which prevents its being drawn entirely through the eye or beyond the position of engagement, and hence prevents the legs spreading farther under the

weight of the person, while the square shoulder of the notch engaging with the side of the eye prevents the legs moving in the opposite direction, or inward toward the ladder. By raising the headed end of the rod slightly, however, so as to disengage the shoulder of the notch from the eye, the rod can move freely through the eye to allow the legs to be swung in or folded against the ladder. When the ladder is required for use, however, by swinging out or spreading the legs, the stay-rod moves through the eye till the headed end arrives at the eye, which prevents the legs being spread farther, and at the same time the notch gravitates into engagement with the eye, thus securely retaining the legs in the spread or supporting position.

It will be readily seen that this form of stay-rod has the advantage of inexpensiveness, of simplicity and security, and of being practically automatic in its action, and is of course applicable to almost all kinds of step-ladders.

Another distinctive advantage of this stay is, that owing to its vertical arrangement, when the ladder is folded or the legs swung in, the stay assumes a position parallel with the ladder, and is thus entirely out of the way, and does not project from the line of the ladder, as is the case with curved stays arranged transversely of the ladder on the sides thereof.

What I claim as my invention is—

The combination, with a step-ladder formed of two concentrically-oversliding extensible ladders, of the rotary button A, pivoted on the step of one of the ladders with the bolt-rods B B, pivotally connected to opposite arms of the button and extending through the standards of the inner ladder, and adapted to engage with the standards of the outer ladder at points corresponding to the different steps thereof, substantially as shown and described.

LEWIS B. COVERT.

Witnesses:
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