

(No Model.)

W. W. NORMAN.
EXTENSION LADDER.

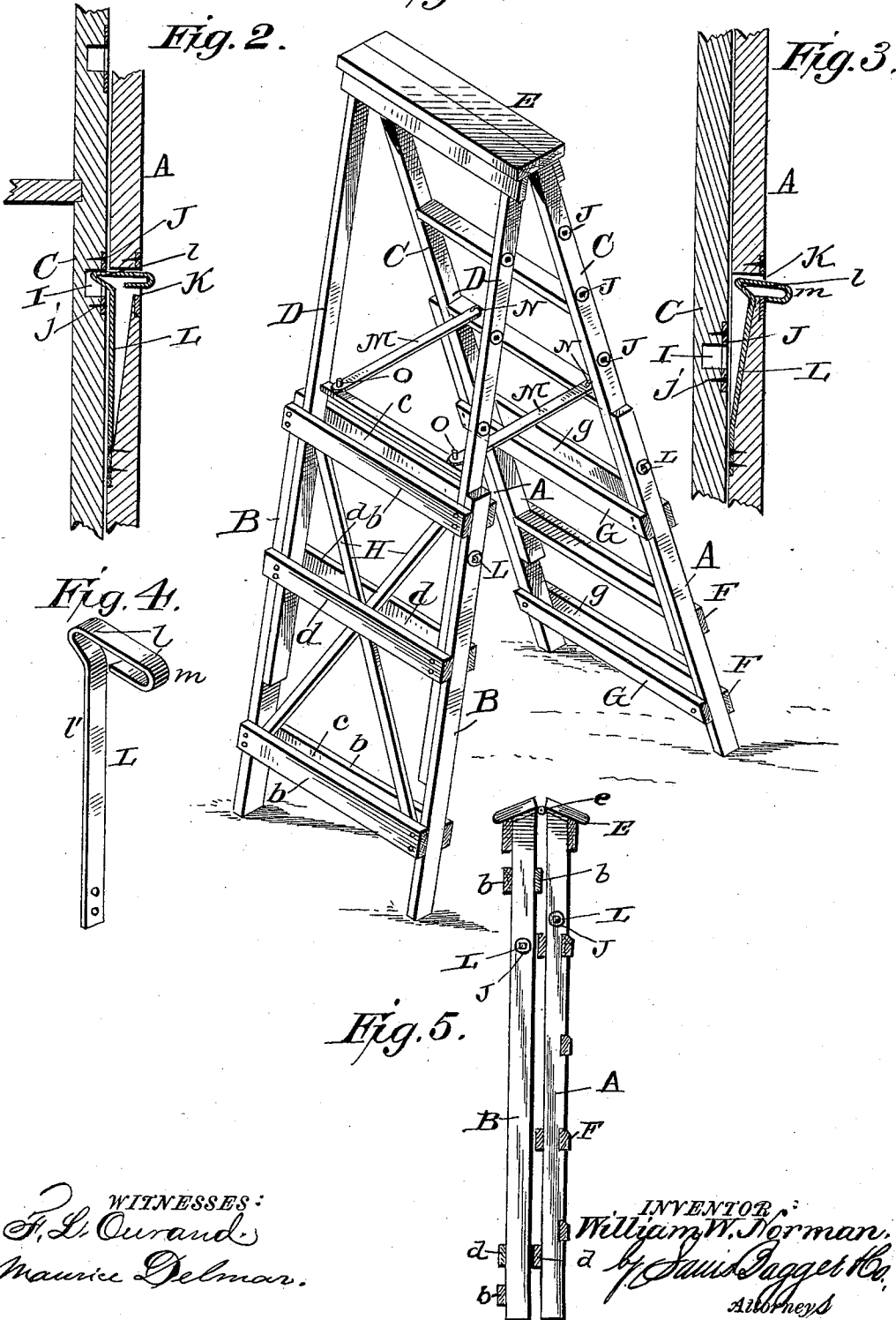
No. 463,868.

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Fig. 1.

Fig. 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM W. NORMAN, OF ALLENVILLE, MISSOURI.

EXTENSION-LADDER.

SPECIFICATION forming part of Letters Patent No. 463,868, dated November 24, 1891.

Application filed April 17, 1891. Serial No. 389,361. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. NORMAN, a citizen of the United States, and a resident of Allenville, in the county of Cape Girardeau and State of Missouri, have invented certain new and useful Improvements in Extension-Ladders; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of my improved extension-ladder, showing the same in its extended position. Fig. 2 is a longitudinal sectional view through a part of one side of the ladder, showing both the stationary and the sliding stile in their interlocked position and the spring-catch by which the two are locked together. Fig. 3 is a similar view of the same parts, but showing the spring-catch in its disengaged or unlocked position. Fig. 4 is a detail view of the spring-catch for interlocking the stationary and the sliding sides or stiles removed from the ladder, and Fig. 5 shows the ladder in side elevation as it appears when folded.

Like letters of reference denote corresponding parts in all the figures.

This invention relates to extensible step-ladders; and it consists in certain improvements upon the ladder described and claimed in Letters Patent of the United States No. 287,793, bearing date of November 6, 1883, which said improvements will be hereinafter more fully described and claimed.

Reference being had to the accompanying drawings, the letters A and B designate, respectively, the front and back sides or stiles of the lower section of the ladder, and C and D the corresponding sides of the upper or sliding section. The latter are connected at top by the jointed top piece or top step E, consisting of two sections hinged together in the middle, as shown at *e*.

The parallel front sides A A of the lower section are connected by the steps F, and also by parallel braces G, set back of and parallel to the steps, thus forming ways or guides *g* for the front stiles C of the extensible section to slide in. Similarly the back part B of the

lower section has, in addition to the usual diagonal braces H, horizontal and parallel braces or cross-pieces *b b*, forming ways or guides *c* for the back D of the extensible section. The lower ends of the sliding parallel back stiles D D are also connected by parallel braces *d d*, the ends of which overlap the stiles B B, between which said stiles D slide, and thus serve as additional guides for the two back sections B and D when the ladder is extended.

At a suitable distance apart the sliding front sides or stiles C are mortised or recessed, as shown at I, the face of each recess being covered with a circular metallic disk or washer J fastened by screws or nails *j j* and having a central square aperture opening up into the recess. The stationary lower front sides A have corresponding holes bored through transversely, as shown at K, covered with similar circular washers with square central apertures. Within each of the apertures K is located a spring-catch L, the construction and operation of which will be readily understood by reference to the enlarged detail view, Fig. 4, from which it will be seen that this catch consists of a flat piece of steel L bent at its free upper end to form an elongated loop *l*, the lower arm *l'* of which is fastened in the bottom of the recess K, while its other end is bent to form a short loop or bail *m*, which projects outwardly through the square aperture in the washer-plate. When this spring-catch is in the position shown in Fig. 3—*i. e.*, with the free end of this outer loop *m* abutting against the washer-plate below the aperture—the inner end of spring-loop *l* will be withdrawn from engagement with its registering recess I in the inner sliding stile C, so that the extensible section is free to be moved upward or downward; but if this catch or loop *m* is released from bearing against the plate the spring-catch will occupy the position shown in Fig. 2, in which the inner end of loop *l* will engage its registering mortise or recess I in the sliding part C, and thus lock the two sides A and C together, either in their folded or extended position, as the case may be. This device is much less complicated than the spring-catch shown in Patent No. 287,793, is less expensive, and is easily manipulated.

When the ladder is in use, its front and back sides are kept the proper distance apart by means of flat metallic brace-rods M, hinged loosely at one end upon staples N and having apertures at their free ends, so that they may be hooked upon the studs O. When the ladder is folded together, these brace-rods will lie up flat against the steps, so as not to be in the way.

10 Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination of the front sections A and C, having, respectively, the spring-recesses K and registering mortises I, spring catches or latches L, constructed as described, rear sections B and D, loosely-hinged brace-

rods M, and jointed top step E, substantially as and for the purpose shown and set forth.

2. In combination with the stationary stiles A, having the spring-recesses K, and sliding or extensible stiles C, having registering mortises I, the peculiarly-constructed spring-catch L, bent at its free end to form the loops *l* and *m*, substantially as and for the purpose shown and set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

WILLIAM W. NORMAN.

Witnesses:

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