

(No Model.)

C. A. STAPLES.  
EXTENSION LADDER.

No. 368,737.

Patented Aug. 23, 1887.

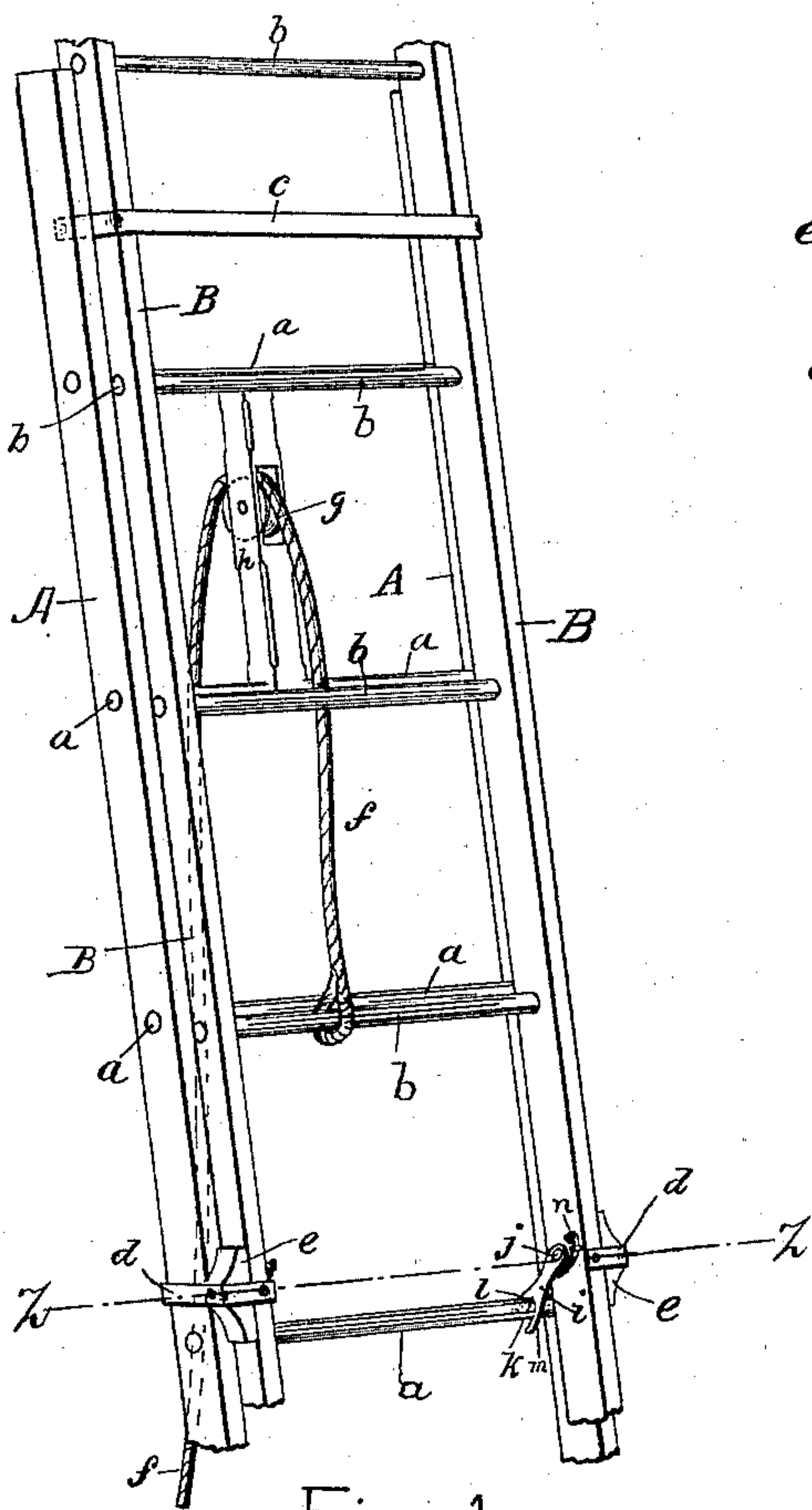


Fig. 1.

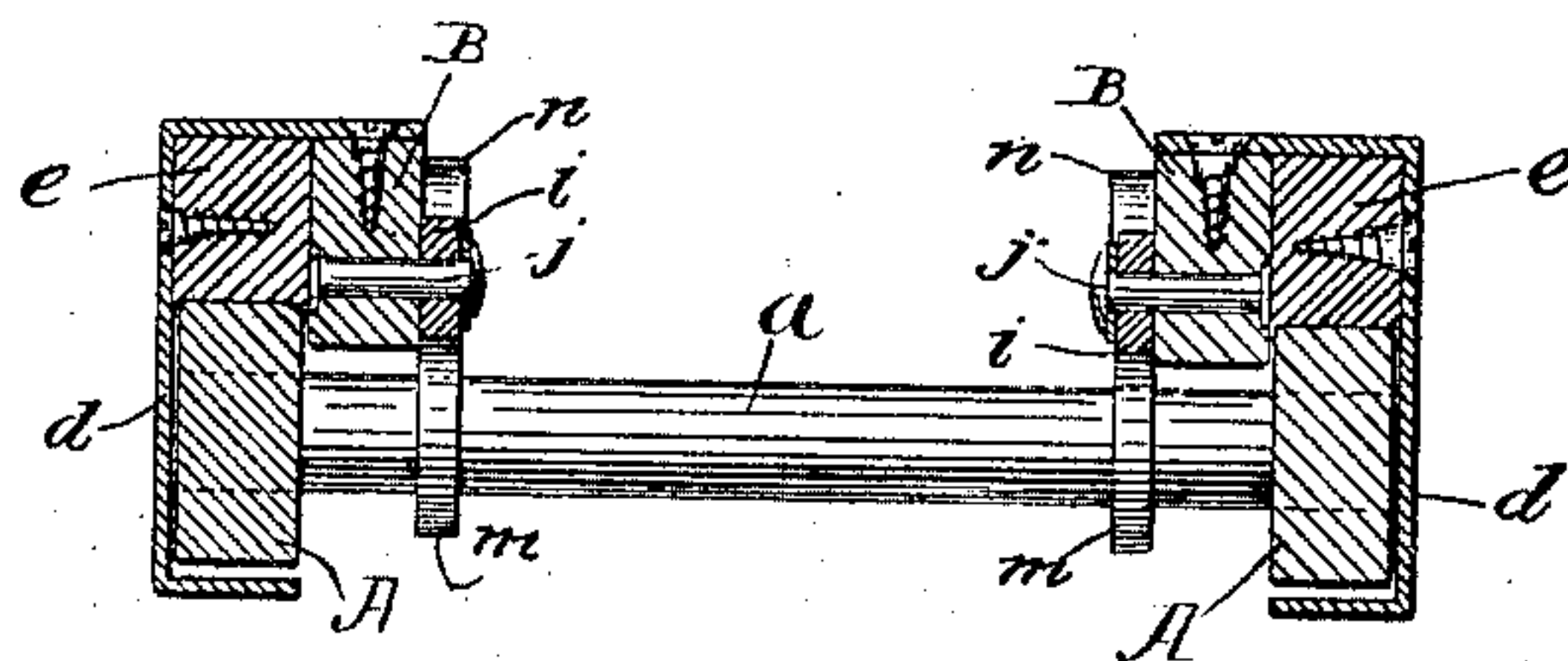


Fig. 2.

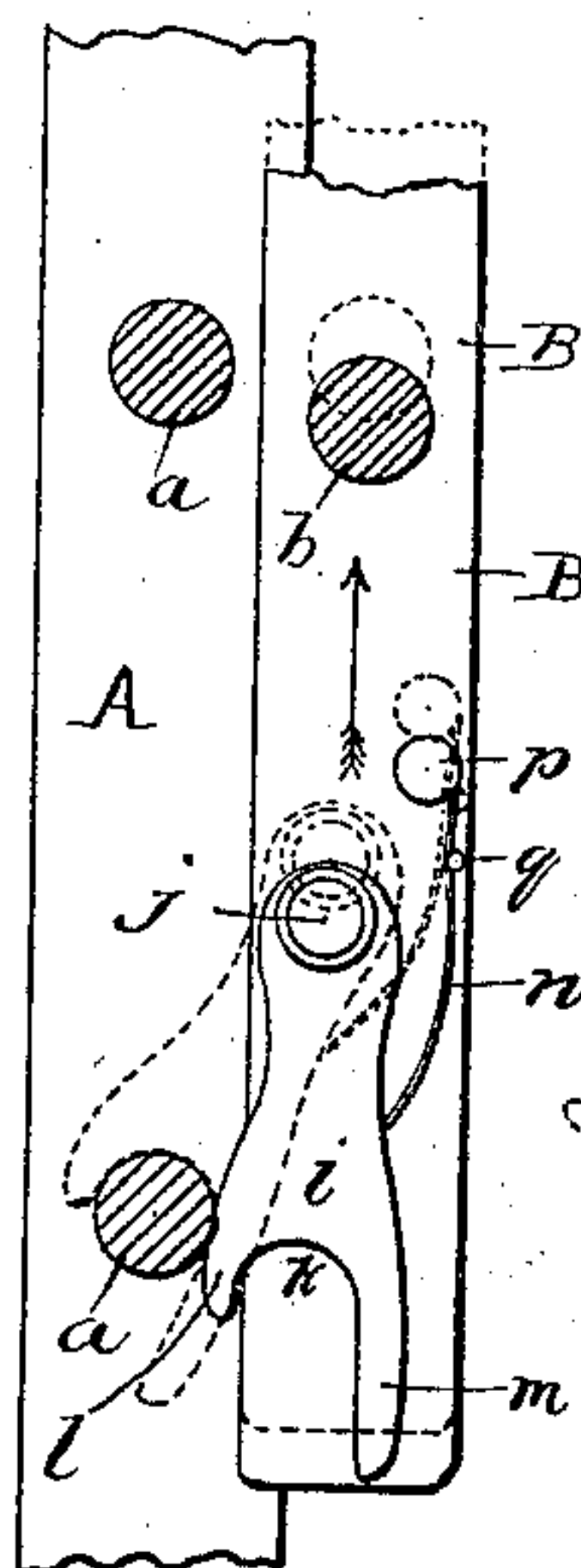


Fig. 3.

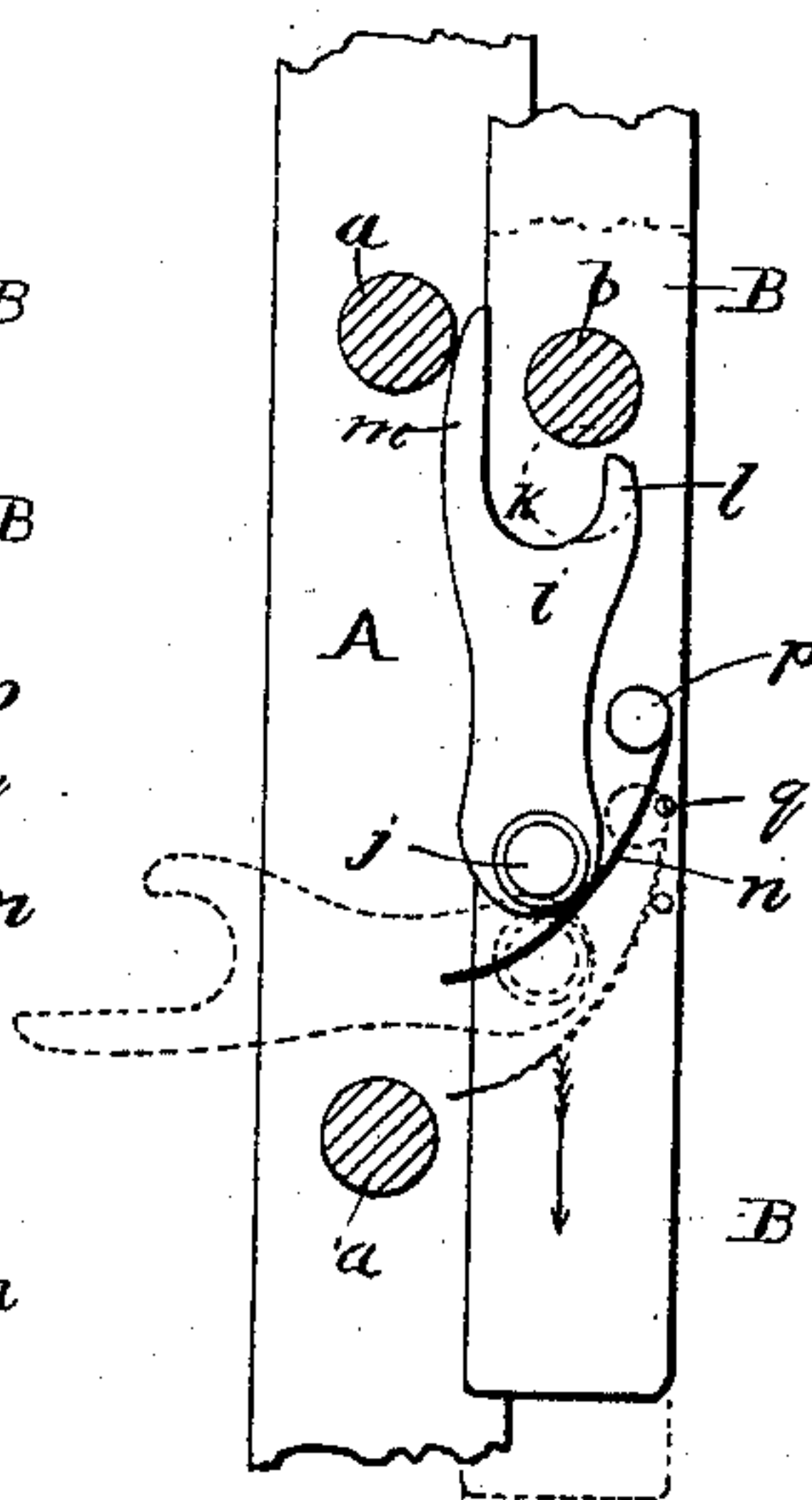


Fig. 4.

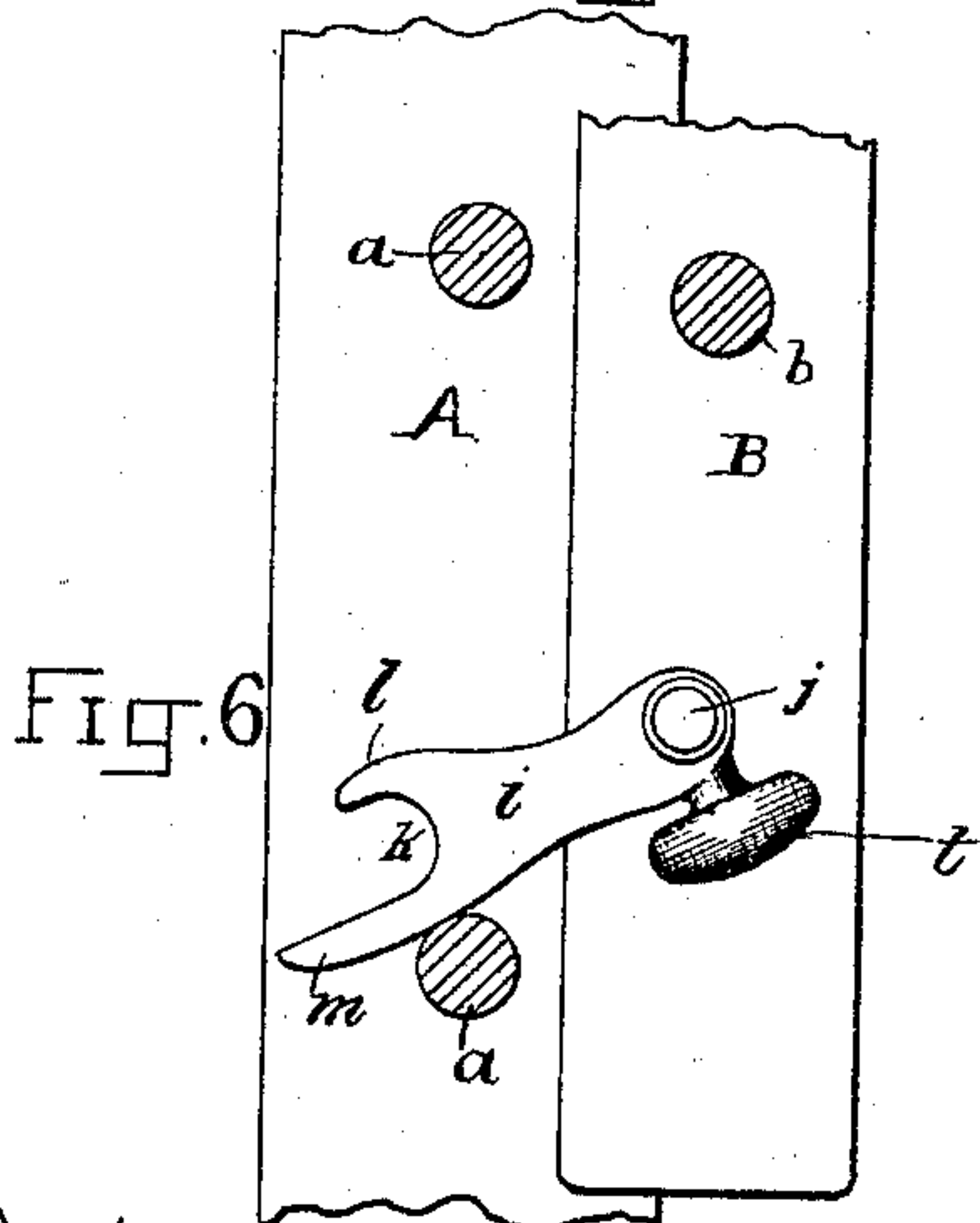


Fig. 5.

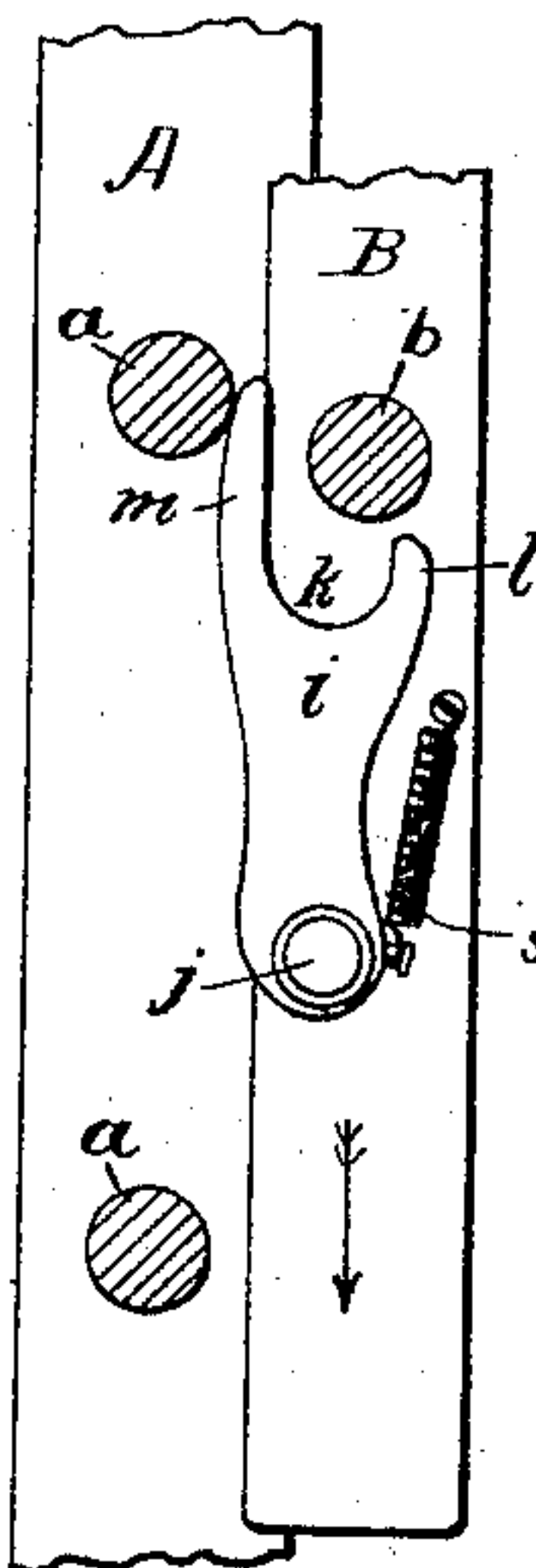


Fig. 6.

WITNESSES  
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# UNITED STATES PATENT OFFICE.

CHARLES A. STAPLES, OF CAMBRIDGE, MASSACHUSETTS.

## EXTENSION-LADDER.

SPECIFICATION forming part of Letters Patent No. 368,737, dated August 23, 1887.

Application filed April 2, 1886. Serial No. 197,502. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES A. STAPLES, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Extension-Ladders, which will, in connection with the accompanying drawings, be hereinafter fully described, and specifically defined in the appended claim.

Figure 1 is a perspective view of a ladder embodying my invention, a portion at each end being broken away. Fig. 2 is a transverse section taken on line Z, Fig. 1. Fig. 3 is a detached view showing the relation of parts when the ladder is being raised. Fig. 4 is a view similar to Fig. 3, except that the parts are shown as when the ladder is being lowered. Fig. 5 is a view like Fig. 4, except that the pawl is shown as provided with a helical spring in lieu of an arm-spring for tilting it. Fig. 6 is a view like Figs. 4, 5, except that the pawl is shown as provided with a weight instead of a spring for tilting it.

The object of my invention is to provide an extension-ladder with supports or pawls that will automatically engage the rungs of the lower or stationary section when the upper or sliding section is being raised, and so support the upper section when raised to the desired height, and which will disengage themselves from the rungs of the lower section when the upper section is being lowered; and these results I accomplish by means hereinafter fully described in connection with the accompanying drawings.

In said drawings, A A represent the standards or side bars of the lower or stationary section of the ladder, the same being united by rungs *a* in the usual manner, as shown. The side bars of the upper or adjustable section are shown at B B, and are united by the rungs *b*, as shown. These upper and lower sections are in the usual manner formed with such relative widths that the upper section fits and slides freely within the side bars of the lower section, sliding upon the rungs *a* and chocks *e*, and the sections are at the upper end secured together by the clamp or bar *c*, which embraces the upper section, and at its ends is secured to bars A A, while the clamps *d d* secure the lower end of bars B relatively to the lower section, the chocks *e* being of equal thickness with bars A, as shown; but the method of securing the sections together constitutes no part of my invention.

The upper or sliding section is raised and lowered by means of rope *f*, passing over sheave *g*, supported in vertical bar *h*, secured to rungs *a* of the lower section; but said means of raising and lowering the upper section constitute no part of my invention and may be substituted by other well-known means.

For the purpose of supporting the upper section at the desired height, I have invented the pawl *i*, having the short arm *l* and longer arm *m*, and the seat *k* between said arms to receive the rungs *a*. One of said pawls is pivoted to each standard B at *j*, and is provided with an arm-spring, *n*, secured at P to the standard, and is provided with a fulcrum, *q*, so that the spring tends constantly to force the pawls inward to the position shown in dotted lines in Fig. 4, thus insuring their contact with each rung *a* in passing it. Therefore, when the sliding section is raised, as soon as arm *l* of the pawls is above a rung in the lower section the action of spring *n* will bring arm *m* against the rung, as shown in Fig. 6, when, by slightly lowering the upper section, the pawl will be seated upon the rung, as shown in Figs. 1 and 3, and the upper section thereby supported. To lower the upper section it is only necessary to raise the upper section till arm *m* is above the rung engaged by the pawls, when they assume the position shown by dotted lines in Fig. 4, when the section may be lowered, the pawls in passing rungs *a* assuming the position shown in Figs. 4, 5. Instead of an arm-spring, *n*, a helical spring, *s*, as shown in Fig. 5, or a weight, *t*, rigidly secured to or formed upon the pawls, may be employed to tilt the same out of contact with rungs *a* when the upper section descends.

I claim as my invention—

In combination with sections A B of an extension-ladder, the pawls *i*, pivoted on section B, and formed with longer arm, *m*, and shorter arm, *l*, parallel, or nearly so, with each other, with open seat *k*, arranged to serve as a thrust-support of section B, and means, substantially as described, whereby said pawls are held in the line of and are engaged with rungs *a*, substantially as specified.

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Witnesses:

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