

(No Model.)

H. S. MINOT.  
EXTENSION LADDER.

No. 506,709.

Patented Oct. 17, 1893.

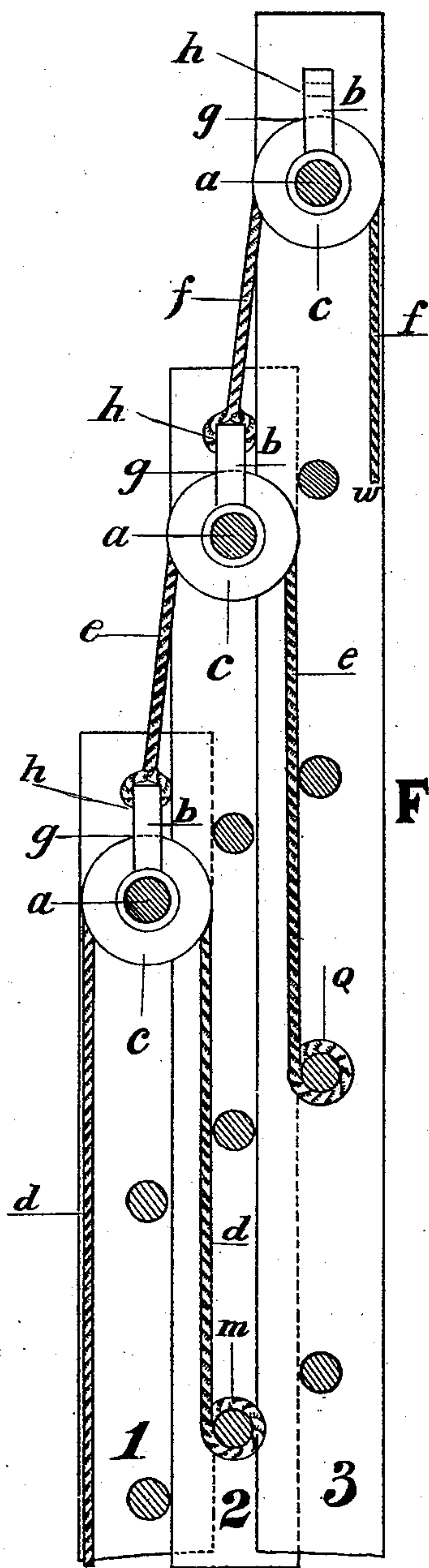


Fig. 1.

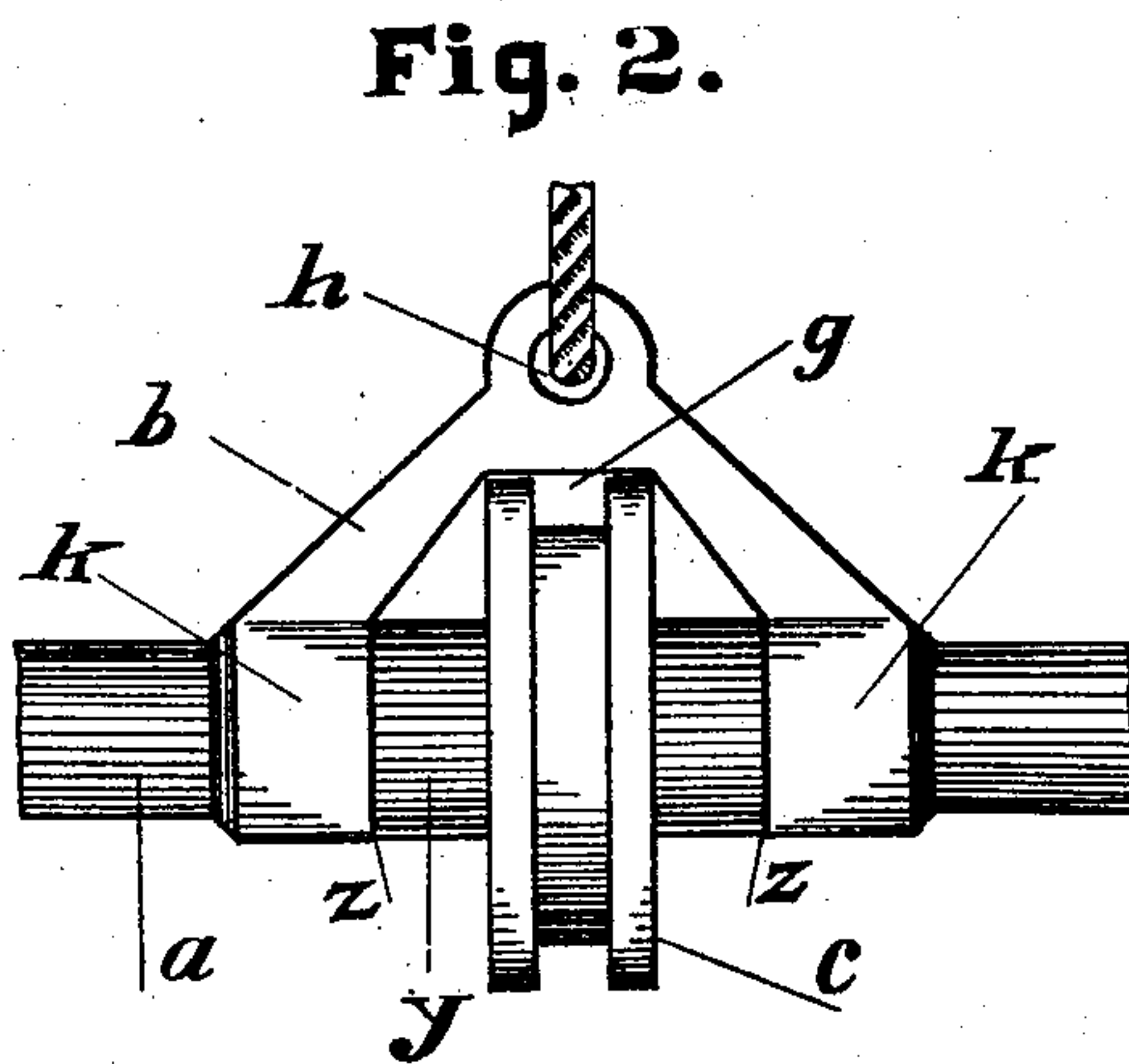


Fig. 2.

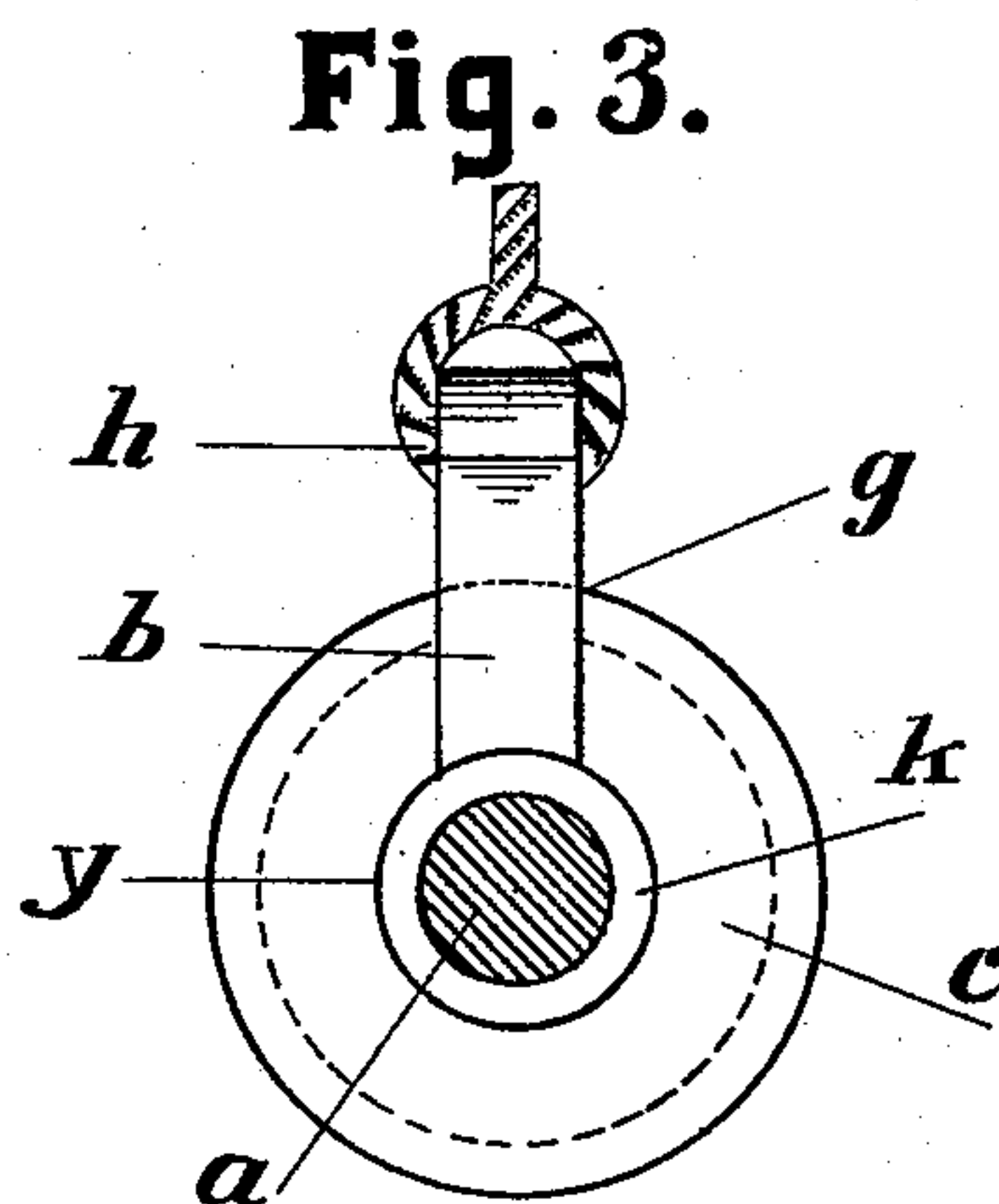


Fig. 3.

Witnesses.

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# UNITED STATES PATENT OFFICE.

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## EXTENSION-LADDER.

SPECIFICATION forming part of Letters Patent No. 506,709, dated October 17, 1893.

Application filed December 15, 1892. Serial No. 455,247. (No model.)

*To all whom it may concern:*

Be it known that I, HOMER S. MINOT, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented a new and useful Improvement in Extension-Ladders, of which the following is a specification.

My invention relates to improvements in extension ladders embodying the principle of extending two or more sections at the same time as described in the following general manner. By securing one end of a cable, to the first or ground-section, then passing the cable, to and over a pulley, located at or near the top of the second section, then passing it downward between the second and third sections and securing the other end thereof, to the bottom of the third section, to the end, that the second section in being extended, will cause the extension of the third.

The best method in which I contemplate applying the foregoing described principle, is by means of the device set forth and described in the following detailed specification, which, in connection with the accompanying drawings, in which like parts are referred to and indicated by like characters, will enable any one skilled in the art to make and use the same.

Figure 1, is a side view in section of the upper portions of several sections, showing the general relation and arrangement of the mechanism. Figs. 2 and 3, are views showing the details of the mechanism itself.

*a*, is a shaft, constituting an upper-rung of each section and serving as the frame-work for holding arch *b*, and pulley *c*, in proper relation to each other. It is rounded so that it will fit and pass through the boring *u*, of the upright-beams or standards of the ladder, arms *k*, of arch *b* and hub *y*, of pulley *c*.

*b*, is an arch overhanging and spanning pulley *c*, and provided with arms whose lower ends *k*, have a circular bore, through which shaft *a*, is passed, (that being the means by which it is fastened to said shaft and held in proper relation to pulley *c*.) At *g*, it is so formed, that it will nearly touch the flanged

rims of pulley *c*, and thereby prevent the cable from becoming detached. At its top or crown, it is provided with an aperture *h*, through which one end of a cable is passed, looped over and fastened.

*c*, is a pulley, having a grooved face for guiding the arch *b*, and having a hub *y*, provided with a circular bore, through which shaft *a*, is passed, (that being the means, by which it is secured to said shaft and held in proper relation to arch *b*.)

*d*, is a cable, secured by one end, to a winlass, located at or near the bottom of the first or ground-section, thence running to and over pulley *c*, of the same section, thence running in a downward direction, between the first and second sections, and secured by its other end, to the bottom of the second section.

*e*, is a cable, secured by one end, to arch *b*, of the first or ground-section, thence running to and over pulley *c*, of the second section, thence running in a downward direction, between the second and third sections, and secured by its other end, to the bottom of the third section.

*f*, is a cable, secured by one end, to arch *b*, of the second section, thence running to and over pulley *c*, of the third section, thence running in a downward direction, between the third and fourth sections, and secured by its other end, to the bottom of the fourth section.

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

The combination with an extension ladder of the shaft *a*, arch *b* and pulley *c* having its periphery closely approaching the crown of said arch, said pulley provided on either side with the hub *y* abutting against the ends *k*, of said arch, substantially as described and for the purpose specified.

In witness whereof I have hereunto set my hand and subscribed myself in the presence of the two witnesses.

HOMER S. MINOT.

Witnesses:

J. J. BARRETT,  
ARTHUR MAXON.