

M. D. Myers.

Fire Escape.

N^o 41,443.

Patented Feb. 2, 1864.

Fig. 1.

Fig. 2.

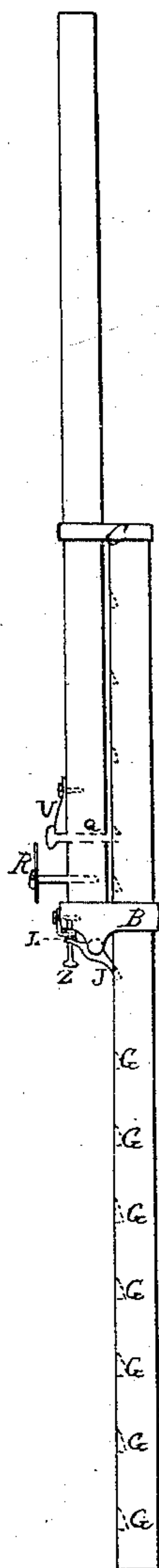
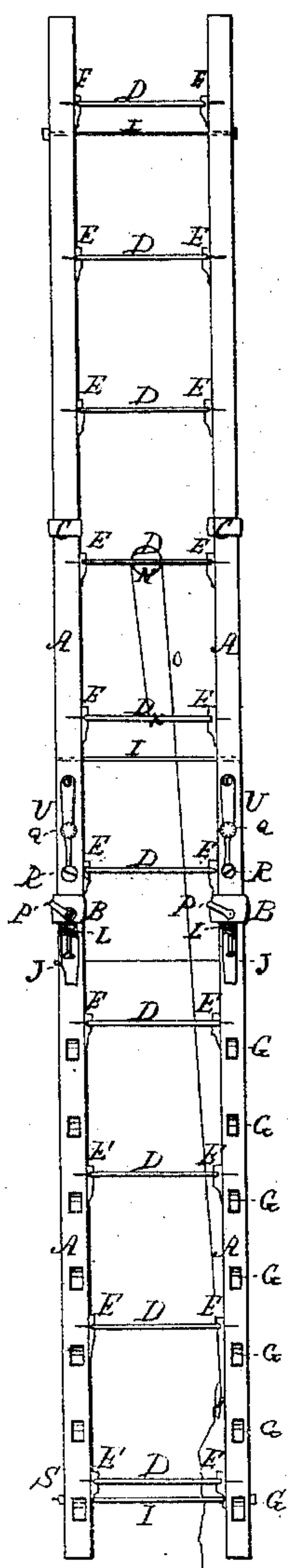


Fig. 3.

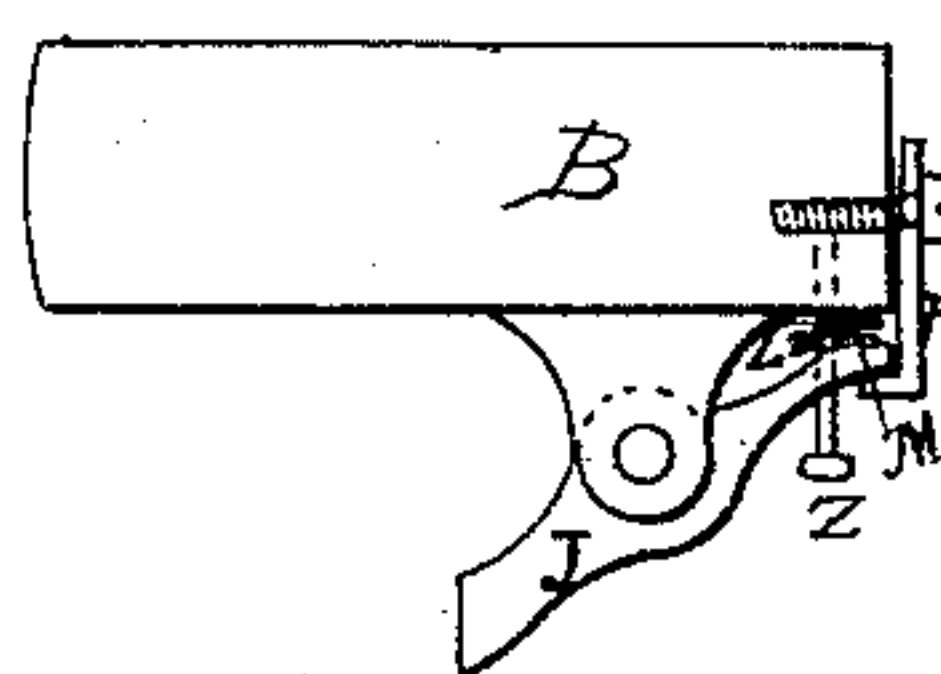


Fig. 7.



Fig. 5.

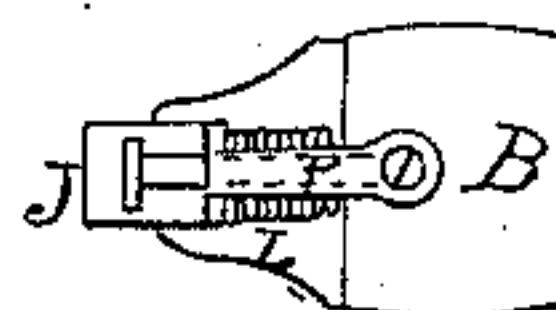


Fig. 4.

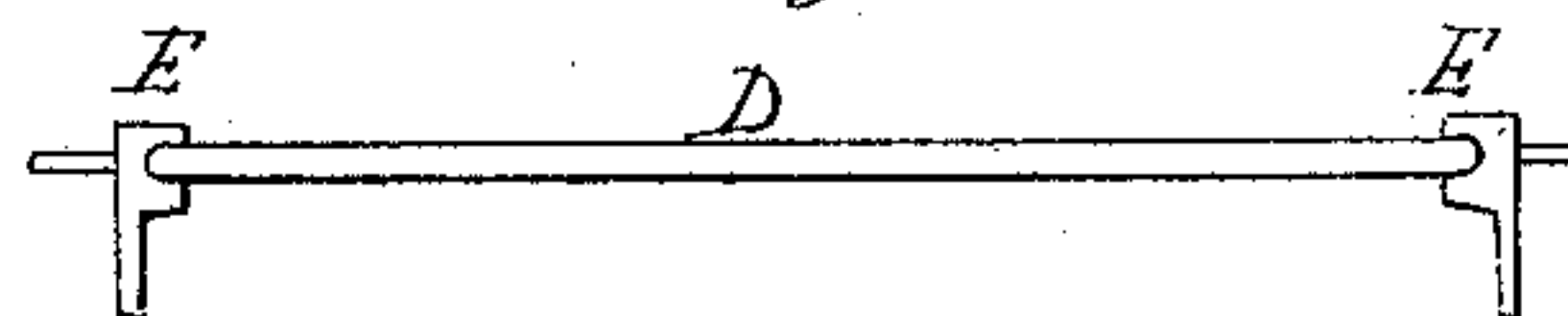
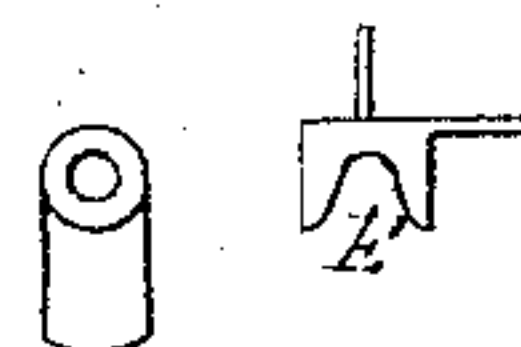


Fig. 6.



Witnesses:

Booke
M. Lewis

Inventor:

M. D. Myers

UNITED STATES PATENT OFFICE.

M. D. MYERS, OF ILION, NEW YORK.

IMPROVEMENT IN EXTENSION-LADDERS.

Specification forming part of Letters Patent No. 41,443, dated February 2, 1864.

To all whom it may concern:

Be it known that I, M. D. MYERS, of Ilion, in the county of Herkimer and State of New York, have invented a new and Improved Extension-Ladder; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Similar letters indicate the same devices in all the figures.

To enable others skilled in the art to make and use my invention, I will proceed to describe its nature, construction, and operation.

The nature of my invention consists in the combination of the ratch-pawl J, Figure 3, with the bands B, which hold the sections A A of the ladder together; also, in the employment of sockets E, Fig. 6, for the reception of the ends of the rounds D D D, in combination with the screw-rods I I, Fig. 1, for holding the sides of the ladder together; and it further consists in the employment of spring-bolts Q, in connection with the stop R, or its equivalent, to be used either with or without the ratch-pawl J, for the purpose of holding the sliding sections A A of the ladder at the desired height, and also securing them firmly when closed.

Fig. 1 is a front view showing the improvements attached thereto, Fig. 2 being an edge view of the same. Fig. 3 represents the ratch-pawl in connection with the bands B B; Fig. 4, an edge view of socket E for holding the ends of the rounds D D firmly in their places. Fig. 5 represents a top view of band B, pawl J, spring L, and catch P. Fig. 6 represents in section the sockets E, which hold the rounds D D in their places; Fig. 7, a bottom view of band B, showing pawl J and catch P.

A A represent standards or side pieces, constituting the body of the ladder; B B, lower bands for holding the ladder A A, to which is secured the pawl J, Fig. 3; C C, upper bands attached to the upper end of the lower standards A A, through which the upper standards slide; D D D, rounds of the ladder; E E, sockets secured to the inside of the standards A A, for the purpose of holding the ends of the rounds D D firmly in their places; F, Fig. 6, stem to socket E, for which a small hole is bored in the standards for its reception; G,

inclined recesses cut in the front edge of the lower standards for the reception of the foot of the pawl J, also for the reception of the spring-bolt Q or foot of same to drop in; I I I, Fig. 1, screw-rods for holding the standards A A together; J, Fig. 3, the pawl in connection with the band B; L, Fig. 3, spring located between the band B and upper end of the pawl at M; Z, steady-pin passing through the upper end of the pawl J and through the spring L, for the purpose of keeping the spring L in its proper position; N, pulley; O, rope for elevating the sliding section; P, catch for holding in check the pawl J; Q, spring-bolt in connection with the movable stop R or its equivalent.

I construct my ladders by using four side pieces or standards, A A A A, Figs. 1 and 2, into which I insert on the inside the sockets E, Fig. 6, at the several distances required. These sockets receive the ends of the rounds. Their object is to strengthen the standards by requiring but a small hole to be bored for the admission of the stem F, instead of one the size of the end of the round. I next secure to the upper end of the lower standards the band C, one end of which is sufficiently large to allow the upper standards to pass easily through. I then secure to the lower end of the upper standards the band B, containing the pawl J, the spring L, and catch P, Fig. 3. I now introduce the spring-bolt Q just above the band B, Fig. 2, said bolt passing through the upper standard into the lower standard sufficiently deep to prevent the upper section from descending, as shown in Fig. 2 at Q. This spring-bolt, while in use, is acted upon by the spring U, and when not in use the movable stop R is placed under the end of the spring U, thus preventing the bolt Q from passing into the ratchets G G, and allowing the upper section of the ladder to pass freely through the bands B and C. The cord or rope is now made fast to the lower round of the sliding section, and is passed over the pulley N, the pulley being fastened to the center of the upper round of the lower section. By drawing down on the free end of the rope the upper section is caused to rise, and is held firmly from descending by means of the pawl J and the bolt Q dropping into the ratchets G G. When the upper section is elevated to the required height, the free end

of the rope is tightened and made fast to the cleat X at the lower end of the lower section. When the operator has completed operations at the top of the ladder, he descends to the lower section a few rounds below the pawl J and bolt Q, and throws the upper end of the pawl up, and hooks the catch P over the end of the pawl, as seen at M, Fig. 3, and also turns the stop R under the spring U to hold them out of the recesses or ratchets G G. He then descends and loosens the rope and allows the upper section of the ladder to descend by slacking the rope gradually, which lowers the upper section even with the lower section, when the stop R is removed from the spring U, and the spring-bolt is allowed to drop into the hole S, which holds the sections from sliding either way, making it convenient for transporting them or handling.

Bands with their pawl attached to them, as herein described, are the cheapest and most durable method of holding the sections of an extension-ladder together; but to employ them successfully it is necessary that the standards of the ladder should be so fastened together that they cannot change their position in relation to each other. To obviate this difficulty, I have employed the sockets E, in combination with the rounds D and screw-rods I. In case rounds alone are used, they are liable to become loose by shrinking, when a slight strain will throw the standards nearer together or farther apart, so that they will not slide through the bands. By the employment of the sockets E and rods I with the rounds D the standards are permanently held

in their true position, so as to slide freely through the bands. Another advantage arises from the use of the sockets and rods—viz., the holes for the stems of the sockets may be much smaller than those for rounds, thus saving strength in the standards of the ladders. Consequently the standards may be made lighter in proportion.

By the employment of the pawl, as herein shown, in combination with the bands this device is rendered very much cheaper, effective, and less liable to get out of order than any other method heretofore used.

With the timid climber the addition of the spring-bolt Q will give greater confidence, while it assists in holding the sliding section up when extended, and it is indispensable as a reliable method for holding the sections from sliding apart when closed.

I do not claim as my invention the extending of a ladder; but

What I do claim, and wish to secure by Letters Patent of the United States, is—

The construction and combination of an extension-ladder composed of two or more sections with the bands B to connect the same together, and the pawls J to hold them in position when raised to the proper height, said pawls being operated by means of the springs and catches, in the manner and for the purpose herein described.

M. D. MYERS. [L. S.]

Witnesses:

E. ROCHE,
M. LEWIS.