J. R. WINTERS.

Fire-Escape Ladder.

No. 214,224. Patented April 8, 1879.

Fig: 1.

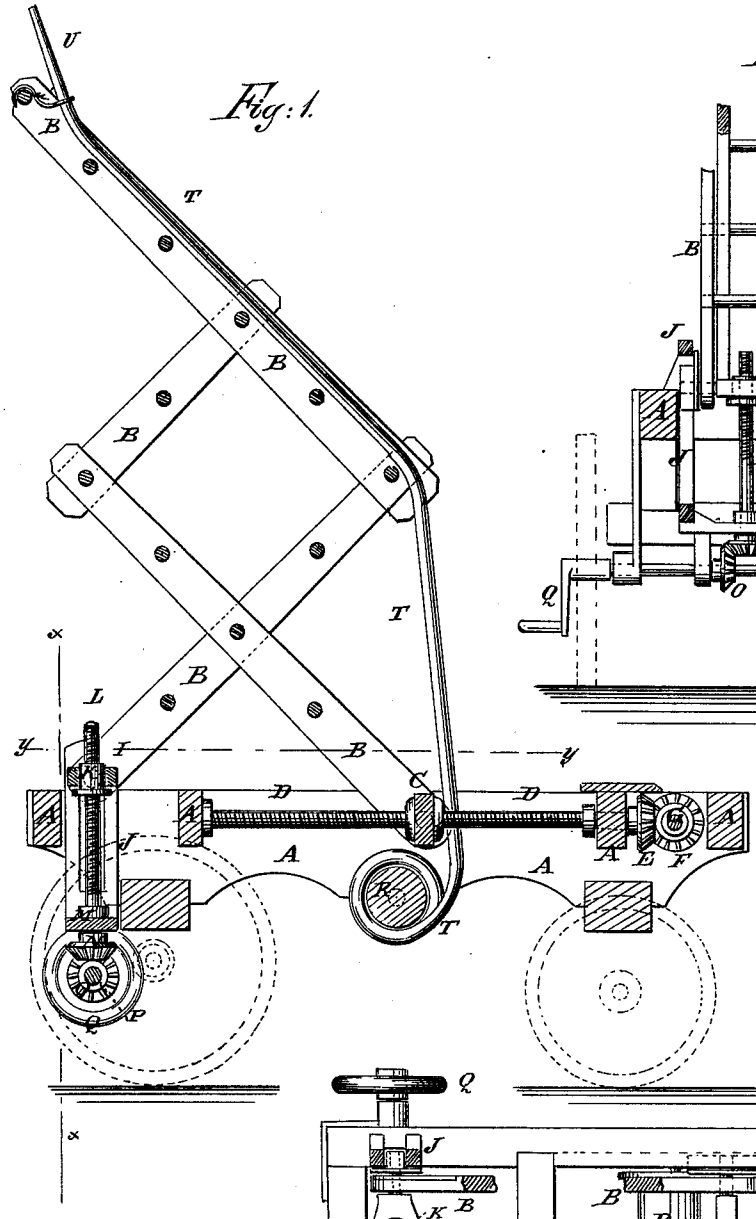


Fig: 2.

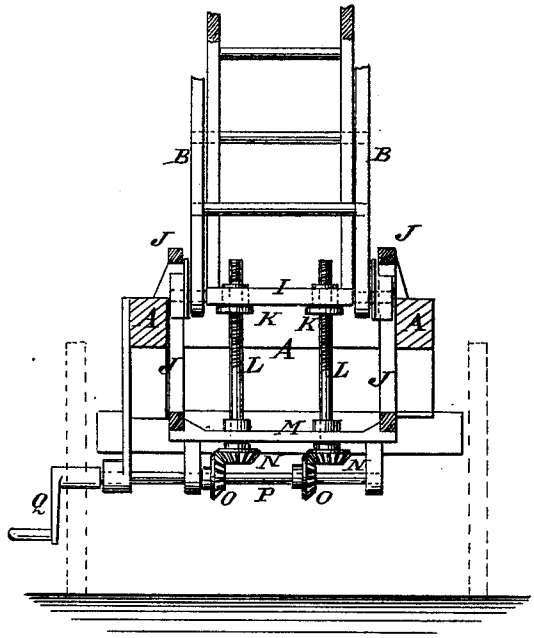
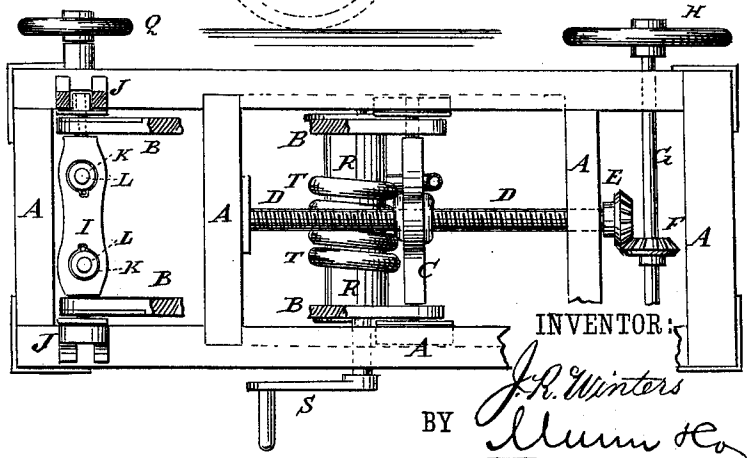


Fig: 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOSEPH R. WINTERS, OF CHAMBERSBURG, PENNSYLVANIA.

IMPROVEMENT IN FIRE-ESCAPE LADDERS.

Specification forming part of Letters Patent No. **214,224**, dated April 8, 1879; application filed January 20, 1879.

To all whom it may concern:

Be it known that I, JOSEPH R. WINTERS, of Chambersburg, in the county of Franklin and State of Pennsylvania, have invented a new and useful Improvement in Fire-Escape Ladders, of which the following is a specification.

Figure 1 is a vertical longitudinal section of my improved ladder. Fig. 2 is a cross-section of the same, taken through the line *x x*, Fig. 1. Fig. 3 is a horizontal section of the same, taken through the line *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The object of this invention is to improve the construction of the fire-escape ladder for which Letters Patent No. 203,517 were issued to me May 7, 1878, so as to make it more convenient and safer in use.

The invention consists in combining nuts, swiveled screws, bevel-gear wheels, and shaft, a cross-bar, and slotted upright bars with a frame and cross-bar, the latter attached to the end of one of the bottom sections, as hereinafter described.

A represents the frame of the carriage, which is designed to be mounted upon wheels. B is a lazy-tongs ladder, the lower end of one of the bottom sections of which is pivoted to a cross-bar, C. The ends of the cross-bar C, or bearing-blocks attached to the said ends, slide in longitudinal grooves in the inner sides of the side bars of the frame A. In the center of the cross-bar C is formed a screw-hole, or to it is attached a nut to receive and fit upon the threads of the screw D, which is swiveled to cross-bars of the frame A.

To the forward end of the screw D is attached a bevel-gear wheel, E, the teeth of which mesh into the teeth of the bevel-gear wheel F, attached to the shaft G. The shaft G revolves in bearings in the side bars of the frame A, and to its end is attached a crank or crank-wheel, H, which is made heavy, so as to serve as a fly-wheel.

With this construction, by turning the crank-wheel H, the ladder B may be raised and lowered, as may be desired. The lower end of the other bottom section of the ladder B is pivoted to a cross-bar, I, the ends of which have bearing-blocks attached, which slide up and down in the slots in the vertical bars J.

The slotted bars J are attached to the inner sides of the rear parts of the slide-bars of the frame A, and have shoulders formed upon the outer sides of their upper ends to rest upon the said side bars, as shown in Fig. 2.

In holes in the cross-bar I are placed nuts K, which are kept from turning by tongues and grooves, and have shoulders or flanges formed upon their lower ends for the said cross-bar I to rest upon.

The screw-threads of the nuts K fit upon the threads of the screws L, which pass through them, and are swiveled to the cross-bar M, attached to the lower ends of the slotted bars J.

To the lower ends of the screws L are attached bevel-gear wheels N, the teeth of which mesh into the teeth of the bevel-gear wheels O, attached to the shaft P. The shaft P revolves in bearings attached to the cross-bar M, or to the frame A, and to its end is attached a crank or crank-wheel, Q, which is made heavy to adapt it to serve as a fly-wheel.

With this construction, by turning the crank or crank-wheel Q, more or less inclination may be given to the ladder, as circumstances may require.

To bearings in the middle part of the frame A is pivoted a drum, R, one of the journals of which projects to receive the crank S, by means of which the said drum is rotated.

To the drum R is attached a hose, T, of such a length that one end may be carried up to the top of the ladder B when fully extended, while its other end is connected with a hydrant or fire-engine.

To the nozzle U of the hose T is attached a hook, *u'*, to be hooked upon a round of the ladder B, so that the said hose may be carried up by and with the said ladder when extended, and may thus be brought quickly into the desired position without its being necessary for the firemen to carry it up the said ladder.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The combination of the nuts K, the swiveled screws L, the bevel-gear wheels N O, the shaft P, the crank or crank-wheel Q, the cross-bar M, and the slotted upright bars J with the frame A, and with the cross-bar I, to which the end of one of the bottom sections of the ladder B is pivoted, substantially as herein shown and described.

JOSEPH R. WINTERS.

Witnesses:
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