

Watson & Perry.

Fire Escalator.

N^o 59,297.

Patented Oct. 30, 1866.

Fig. 1.

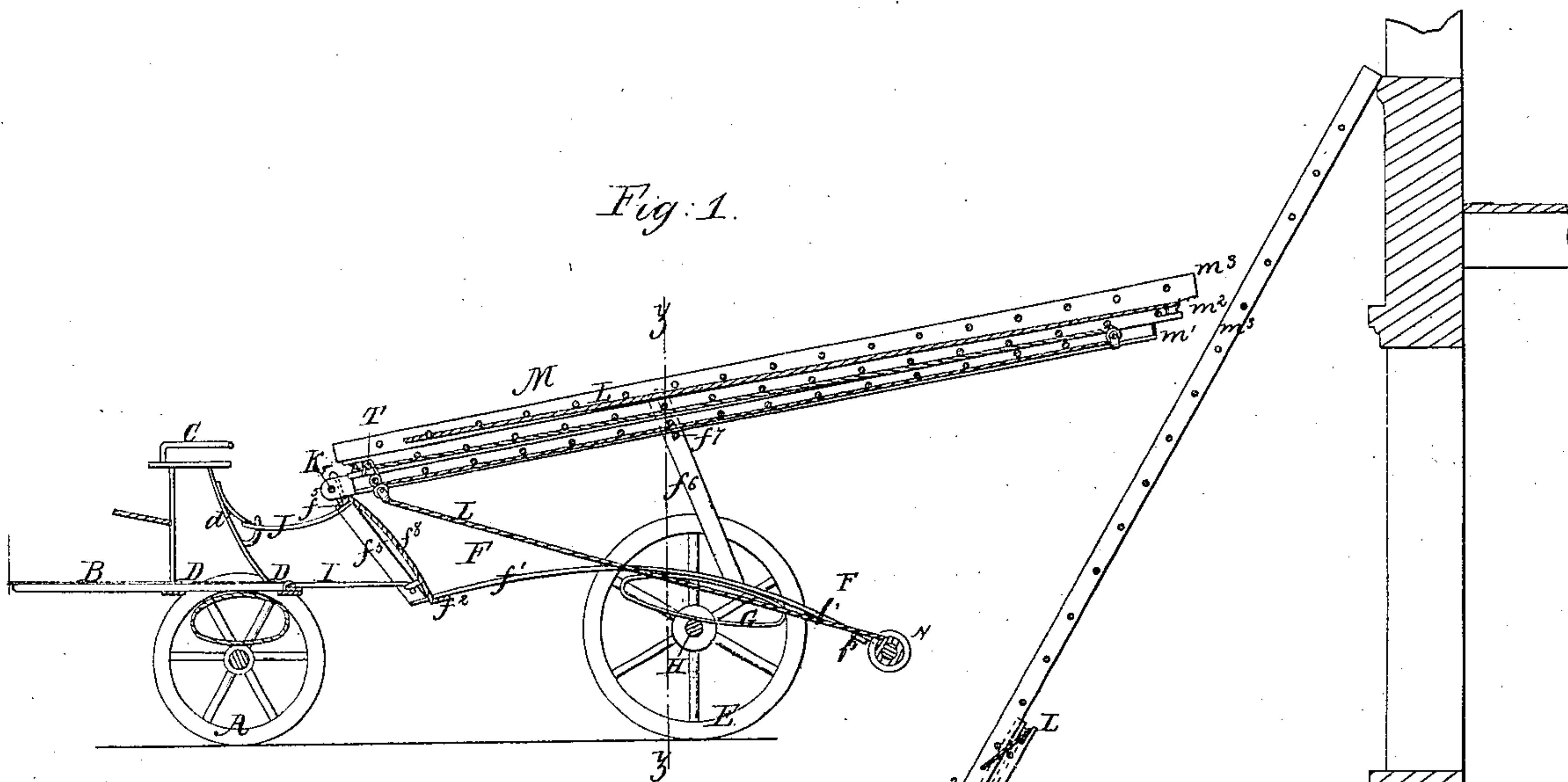


Fig. 2.

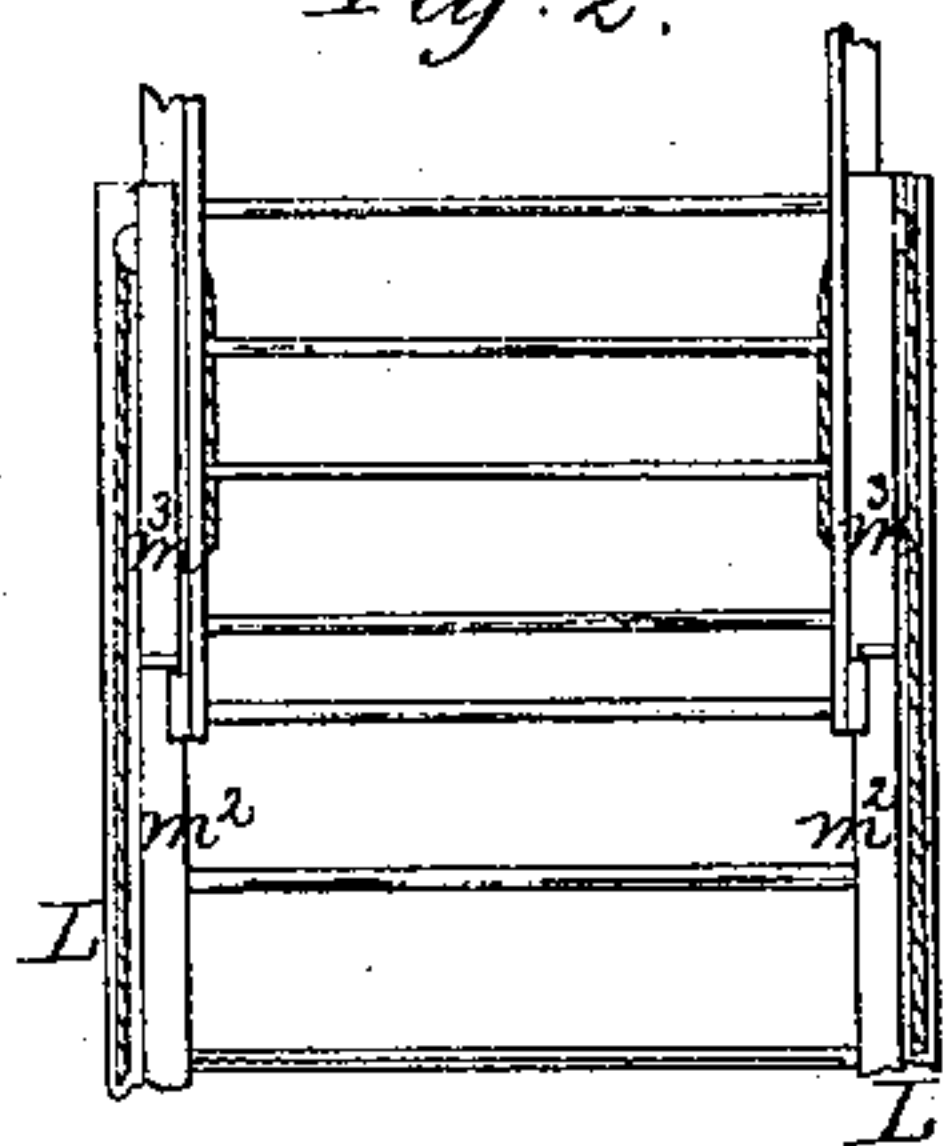


Fig. 3.

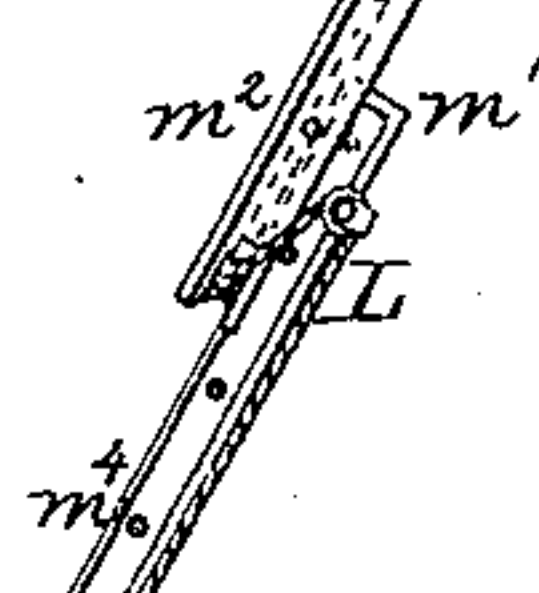
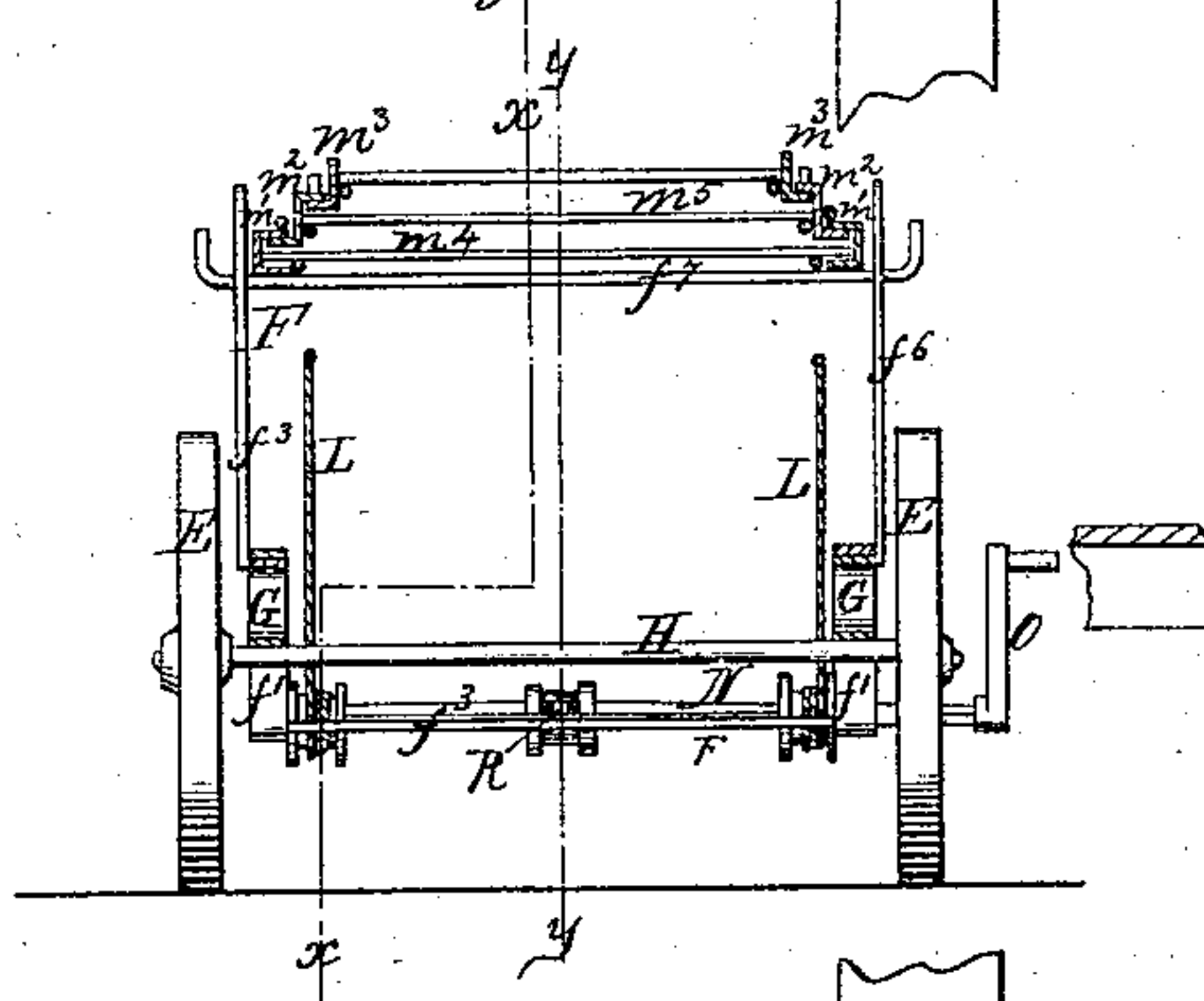


Fig. 4.



Witnesses;
Geo. A. Service
Thos. Lusch

Inventors;
Thomas Watson.
Charles Perry.
Per [Signature] Atty.

UNITED STATES PATENT OFFICE.

THOS. WATSON AND CHAS. PERRY, OF BROOKLYN, NEW YORK.

IMPROVED EXTENSION-LADDER.

Specification forming part of Letters Patent No. 59,297, dated October 30, 1866.

To all whom it may concern:

Be it known that we, THOMAS WATSON and CHARLES PERRY, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Fireman's Extension-Ladder; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a longitudinal section of our improved ladder, taken through the line *xx*, Fig. 4, showing the ladder in position for transportation. Fig. 2 is a front view of a portion of the ladder, showing the connection between the lengths when extended. Fig. 3 is a vertical longitudinal section of the ladder, taken through the line *yy*, Fig. 4, showing the ladder extended. Fig. 4 is a cross-section of the same, taken through line *zz*, Fig. 1.

Similar letters of reference indicate like parts.

Our invention has for its object to furnish an improved fireman's extension-ladder, so constructed and arranged that it may be quickly and easily extended to any desired height, and may, while wholly or partly extended, be easily removed from one place or position to another; and it consists, first, in the form of the carriage-frame upon which the ladder is carried, to which it is pivoted, and by which it is supported while being raised; second, in the combination of a windlass with the rear end of the carriage-frame; third, connecting the carriage-frame to the fore part of the truck as herein described—that is to say, in such a way that the forward end or foot of the ladder may be brought to the ground and a sufficient angle be obtained, so that the ladder can be raised to the desired point by the windlass; and, fourth, constructing the side bars of the ladders in the form herein described, so that the side bars of each part of the ladder may form guides and slides for the adjacent parts, as hereinafter more fully described.

A is the wheels, B the thills, C the driver's seat, and D the frame, of the forward part of the truck. E is the wheels, and F the frame of the rear part of the truck or carriage.

The side pieces, *f*¹, of the frame F are of the

form shown in Fig. 1, and rest upon the springs G and axle H. The fore and rear ends of the side pieces, *f*¹, are connected together by the cross-bars *f*² and *f*³. To the front ends of the side pieces, *f*¹, are attached two bars, *f*⁴, inclining forward, as shown in Fig. 1, the upper or top ends of which are connected by a cross-bar, *f*⁵. To the rear part of the side pieces, *f*¹, are attached the lower ends of two bars, *f*⁶, inclining forward, as shown in Fig. 1. These bars, near their upper ends, are connected by a cross bar or rod, *f*⁷, upon which the ladders rest, as shown in Fig. 4.

I is a bar pivoted to the frame D of the forward part of the truck, and terminating in a hook hooking into an eye attached to the bar *f*⁸ of the frame F, as shown in Fig. 1. The bar *f*⁸ extends from the lower front cross-bar, *f*², to the upper one, *f*³, being securely attached to each.

J is a bar extending from the central part of the bar *f*² to the bar *d'* of the frame, to which it is connected by a snap-hook, as shown, or by some other detachable device.

The ladder M is made in three pieces or parts, *m*¹, *m*², and *m*³, and when being transported rides upon the frame F, as shown in Fig. 1—that is to say, the front end or foot of the ladder rests upon the cross-bar *f*⁵, in which position it is held by a pin or pins, K, passing through the foot of the ladder, as shown in Fig. 1. The side bars of the part *m*¹ are made with two inwardly-projecting flanges, as shown in Fig. 4, and they are connected together by the rounds *m*⁴ in the ordinary manner. The side bars of the second part, *m*², are made with two flanges, the one projecting outward and passing under the flange of the side bars of the part *m*¹, as shown; the other projecting inward. The rounds *m*⁵ of this part are shorter than the rounds *m*⁴, to accommodate the part to its inward position. The side bars of the third part, *m*³, are made with one flange projecting outward and passing under the inwardly-projecting flange of the part *m*², each lower part thus forming guides and slides for the parts above it, as shown in Fig. 4. To each side bar of the part *m*³, near its lower end, is attached the end of a rope or chain, L, which passes up along the inside of the said side bars and around pulleys placed in the upper ends of the side bars of the part *m*²; thence they pass

down along the outside and around pulleys at the end of said side bars. From these pulleys they pass up along the inner sides of the said bars of the said part m^2 around pulleys at the upper ends of the side bars of the part m^1 , and down along the inner and under side of the side bars of the said part m^1 to near their foot, where they pass around pulleys, and are carried thence back to the shaft or windlass N, to which the ends of the said ropes or chains L are secured.

The ropes or chains are wound upon the shaft N by means of the crank O, and they are kept from running back by the pawl P and ratchet-wheel R.

In using the machine, it is drawn to the desired place in the position shown in Fig. 1; the fore part of the carriage is then removed and the forward end of the frame F lowered to the ground; then remove the pin or pins K, and operate the windlass enough to allow the lower end or foot of the ladder to drop into the angle of the frame F, where it is secured in place by one or more pins, S, passing through said frame and through the lower end of the ladder, as shown in Fig. 3. This brings the ladder to such an angle that it may be elevated to the desired height by simply turning the crank O, the upper end of the ladder sliding up along the wall of the building. To diminish the friction between the upper end of the ladder and the wall, friction wheels or rollers may be attached to the upper end of the ladder, if desired. The lower ends of the parts m^1 and m^2 being secured together by a hook,

T, the first effect of turning the crank O will be to project the upper part m^3 to its full extent. The said hook T may then be unhooked and the ladder run out to the desired height.

It should be observed that the ladder may also be used as a fire-escape; for if any one should pass from the upper part of a building to the upper part of the ladder, and from any cause should be unable to descend the ladder, by means of the crank O the ladder may be drawn in and the person or persons quickly and safely lowered to the ground.

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

1. The frame F, constructed as herein described, when used for supporting and operating an extension-ladder, substantially as described.

2. The combination of the windlass N with the rear end of the frame F, for the purpose of raising and lowering an extension-ladder, substantially as described.

3. Connecting the rear carriage-frame F to the forward part of the truck in the manner described, and for the purpose set forth.

4. Constructing the side bars of the ladder in the forms herein shown and described, so that the side bars of each part may form slides and guides for the adjacent parts when raising and lowering the ladder.

THOMAS WATSON.
CHAS. PERRY.

Witnesses:

M. M. LIVINGSTON,
JAMES T. GRAHAM.