J. A. GROSHON.

FIRE-ESCAPE LADDER.

No. 170,846. Patented Dec. 7, 1875.

Fig. 1.

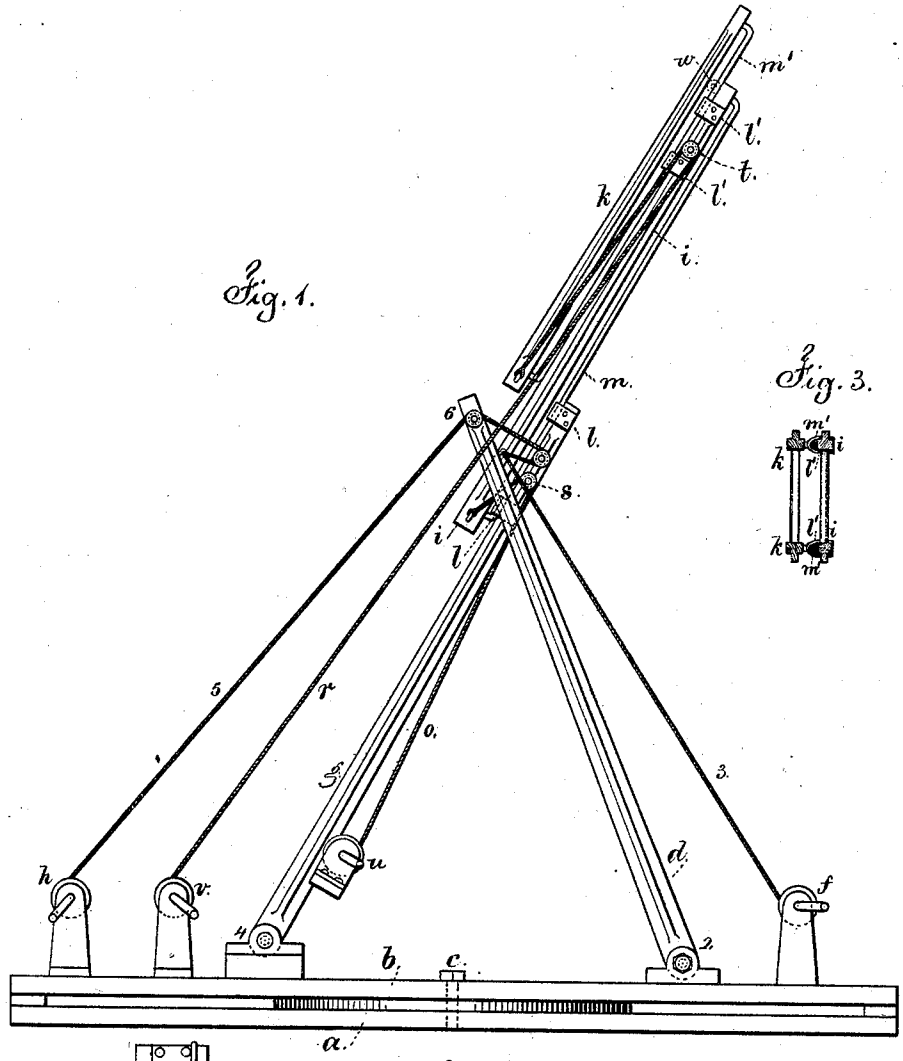
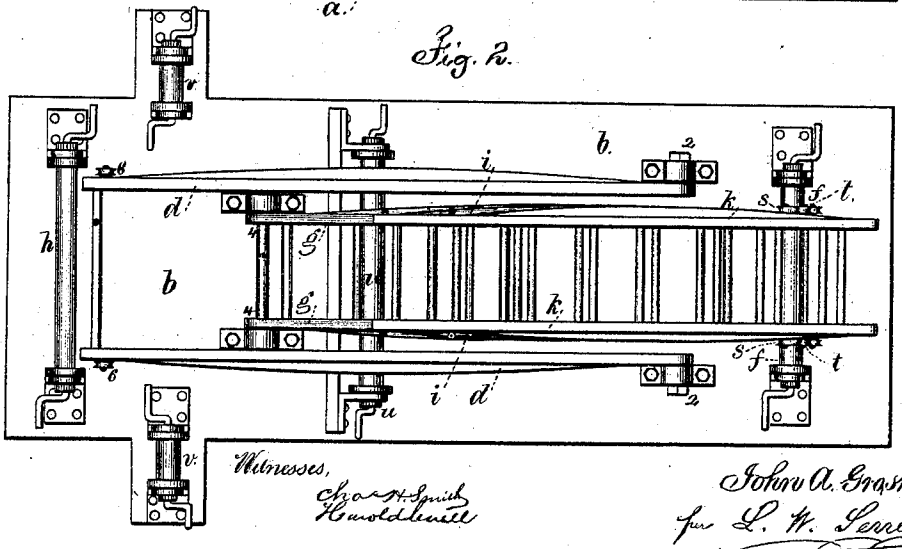


Fig. 3.

Fig. 2.



Witnesses,

Chas. H. Smith

Harold Sewall

Inventor.

John A. Groshon.

per L. W. Serrell

Atty

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN A. GROSHON, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND JOHN D. BUCKHOUT, OF SAME PLACE.

IMPROVEMENT IN FIRE-ESCAPE LADDERS.

Specification forming part of Letters Patent No. **170,846**, dated December 7, 1875; application filed October 16, 1875.

To all whom it may concern:

Be it known that I, JOHN A. GROSHON, of the city and State of New York, have invented an Improvement in Fire-Escape Ladders, of which the following is a specification:

Ladders have been mounted upon a platform or truck with wheels, and made to be raised upon that platform into an inclined position, and capable of being extended by moving one ladder upon another.

My improved ladder is made to insure strength and reliability. I employ a derrick made of a frame hinged at one end to a platform, and standing in an opposite position to the ladders, the lower one of which ladders is also hinged to the platform, and is within the frame composing the derrick, so that when the derrick and ladders are raised the former becomes a firm support to the ladders within it, so that it is not possible for them to become displaced, or to fall over at either side or toward the front.

The ladders are made with T-shaped side bars, to insure strength and lightness, and there are loops upon the front portions of each ladder, that receive sliding metal rods upon the back part of each ladder next in front of and above such ladder, whereby the respective ladders are connected together in a firm and reliable manner; but end motion in extending the ladders is provided for.

In the drawing, Figure 1 is a side view of the ladders, partially extended. Fig. 2 is a plan of the apparatus in its compact condition for transportation. Fig. 3 is a section of the side bars of the ladder.

The platform *a* is provided with any suitable wheels to facilitate transportation, and upon this is a second platform, *b*, that rests upon an intermediate supporting circle, and is attached by a center bolt, *c*, so that the platform *b* and the ladders it supports can be swung around into any desired position relatively to the platform *a*.

Screws or other suitable means may be provided for sustaining the platform *b* at its angles when in the required position.

Upon the platform *b* the derrick-frame *d* is hinged at 2, and it can be drawn up to its position for use by the cords or chains 3, to the windlass *f*.

The ladders are extensible, the lower length *g* of which is hinged at 4 to the platform, and there is a rope or chain, 5, from the derrick over a pulley upon the ladder *g*, passing thence over a pulley, 6, on the derrick *d*, to the windlass or winch *h*, by means of which the ladders are elevated from their horizontal or nearly horizontal position to the required inclination for use.

The ladders, being within the frame forming the derrick, are firmly sustained by such frame.

The ladders are made in suitable lengths. Each side piece is of a T shape, sectionally, as seen in Fig. 3, so as to obtain strength and lightness, and the rungs or cross-bars are inserted into these side pieces. The portions of the rib or T-piece that are at the outer sides of the ladder are tapered toward the ends, as shown, so as to avoid unnecessary weight.

Upon the front edges of the lower ladder *g*, there are loops *l*, through which pass the bars *m*, that are attached at their ends to the back of each of the side pieces of the second ladder *i*, and this, in turn, has similar loops *l'* upon the front near the upper ends, receiving the bars *m'* of the third ladder *k*, and so on. These bars slide through the respective loops as the ladders are drawn up or lowered, by the action of ropes or chains *o* and *r* over pulleys *s* and *t*, to the respective winch or windlass barrels *u* and *v*.

Rollers may be applied at the upper ends of the ladders, as seen at *w*, against which the back edges of the ladder next above lie, so as to lessen friction.

I claim as my invention—

1. The derrick-frame *d*, hinged at 2 to the platform, and the winch-barrel *f* and chain, to raise and sustain such derrick, in combination with the extension-ladders *g i*, connected to the platform and the winch-band *h*, and chains or ropes to the ladders to raise the same, as set forth.

2. The guide-rods *m m'* at the backs of the extension-ladders, in combination with the

loops *l l'* upon the respective ladders behind such guide-rods, and the winch and hoisting mechanism, substantially as set forth.

3. The extension-ladders formed of T-shaped side bars that taper toward the ends, with the cross-bars or rungs between the said side bars, substantially as set forth.

Signed by me this 14th day of October, A. D. 1875.

JOHN A. GROSHON.

Witnesses:
GEO. T. PINCKNEY,
CHAS. H. SMITH.