2 Sheets—Sheet 1.

J. A. GROSHON.

FIRE ESCAPE LADDER.

No. 182,660. Patented Sept. 26, 1876.

Fig. 1.

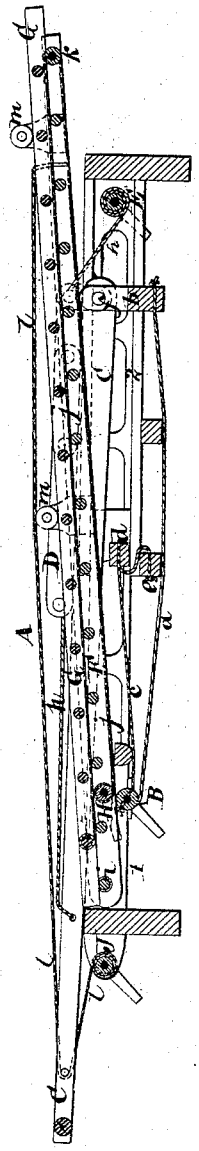
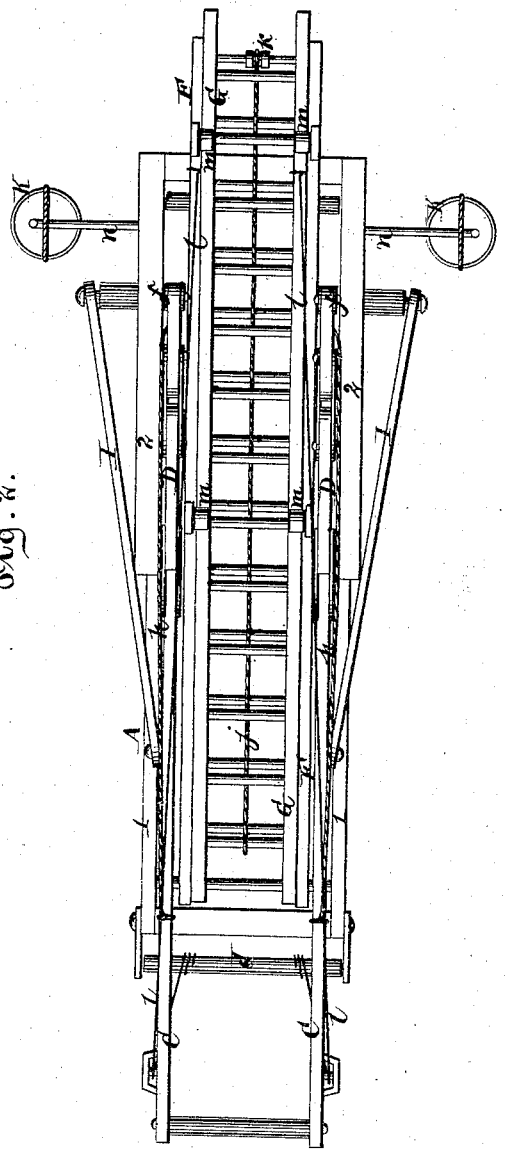


Fig. 2.



Witnesses.

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his attorneys

2 Sheets—Sheet 2.

J. A. GROSHON.

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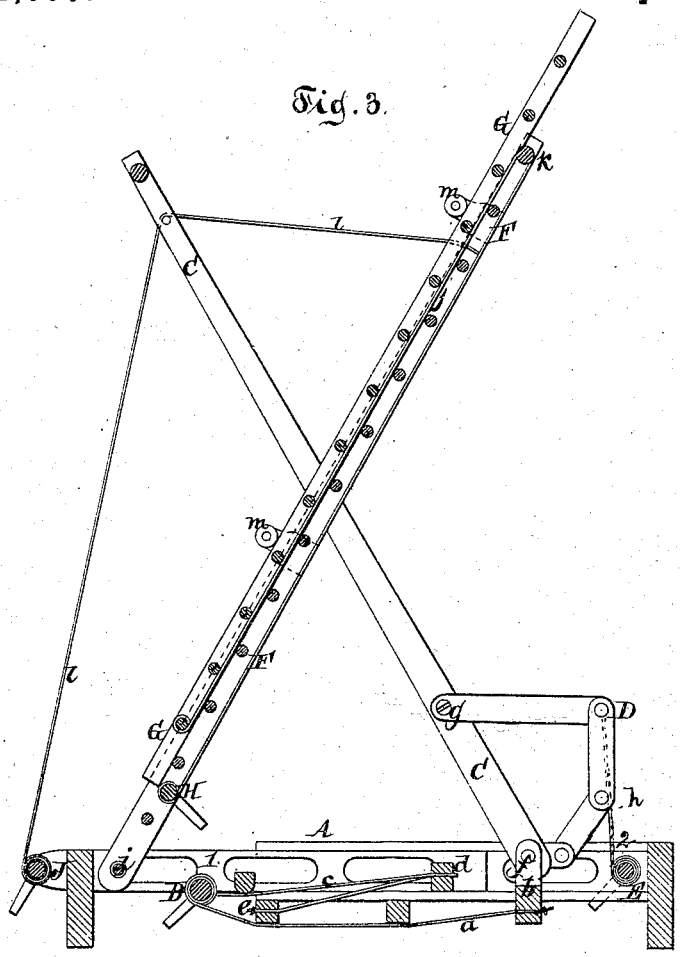
Fig. 3.



Witnesses.

Otto Hufeland
Chas. Wahlers

Inventor.

John A. Groshon
by
Van Santwood & Hauff
his attorneys

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. **182,660**, dated September 26, 1876; application filed August 18, 1876.

To all whom it may concern:

Be it known that I, JOHN A. GROSHON, of the city, county, and State of New York, have invented a new and useful Improvement in Fire-Escape Ladders, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a longitudinal vertical section of my improvement when the parts are folded together. Figure 2 is a plan or top view of the same. Fig. 3 is a longitudinal vertical section thereof when the parts are unfolded.

Similar letters indicate corresponding parts.

My invention consists in the combination of a telescopic truck-frame, with a windlass arranged in the extensible section of the frame, and with two ropes or chains, one of which extends from the windlass to a traverse of the main section, while the other passes through a traverse of the extensible section, and thence to a traverse of the main section, so that by means of this windlass and the two ropes, the frame can either be extended or contracted.

It consists also in a derrick for supporting the ladder, and a windlass and rope for elevating such derrick, in conjunction with a compound lever made in two sections, which are hinged to the sides of the derrick, and connected by hinged straps or links, by means of which lever the operation of hoisting the derrick is facilitated; further, in the combination, with the derrick and with the truck-frame, of side braces, which are pivoted to the truck-frame and to the derrick, and serve to stiffen and prevent a lateral movement of the latter.

In the drawing, the letter A designates the frame of my ladder, made in two sections, 1 2, which are arranged to telescope one within the other. In the extensible section 1 of the frame is mounted a drum, B, and to this drum is fastened one end of a rope or chain, *a*, (one or more,) the other end of which is fastened to a cross-piece, *b*, of the main section 2, so that when the said rope or chain *a* is wound on the drum B, the two sections 1 2 are extended.

It may be here remarked that the sections 1 2 are intended to be extended when the ladder and derrick (which will be presently described) are not in use.

To the main section 2 of the frame is hinged a derrick, C, a pivot, *f*, being used for this purpose. With the derrick C are combined levers D, which are composed of a series of jointed links, as shown, these levers being hung at one end on the pivot *f*, and being pivoted to the derrick at their other ends, as at *g*. To the round by which the levers D are pivoted together is attached one end of a rope or chain, *h*, the lower end thereof being fastened to a windlass or drum, E, which is mounted in the main section 2 of the frame.

When the drum E is revolved so as to wind the ropes or chains *h* thereon, the derrick C is raised, and can thus be set at any desired angle. When the ladders are in a horizontal position the round of the levers D, to which one end of the rope is attached, will be somewhat above said ladders, giving sufficient purchase to the rope to raise the ladders, which would be almost impossible if the rope were attached directly to said ladders.

The levers D are so connected to the derrick C that they can be detached therefrom and laid alongside thereof when the machine is folded up, as seen in Fig. 1.

For the purpose of strengthening the derrick C, and preventing lateral sway thereof, I connect to each side thereof a brace, 1, these braces being pivoted to the derrick and to the part 2 of the truck-frame at their respective ends, so as to move with the derrick.

To the section 1 of the frame is connected a ladder, F, by means of a pivot, *i*, and with this ladder is combined a secondary ladder, G, which is made to slide on the said main ladder. The secondary ladder G is supported by means of a rope or chain, *j*, one end of which is fastened to a suitable part thereof, and which passes over a pulley, *k*, at the upper part of the main ladder F, while its other end is fastened to a drum, H, so that when the said rope or chain *j* is wound on this drum the secondary ladder G is elevated, and vice versa. To the sides of the main ladder F are affixed anti-friction rollers *m*, in such a way that the secondary ladder G slides under such

rollers and is guided thereby, by which means the movement of the said secondary ladder is greatly facilitated, and the same is prevented from dropping off. To the main ladder F is fastened one end of a rope or chain, *l*, (one or more,) which passes over a pulley affixed to the derrick C, and the other end of which is fastened to a drum, J, mounted in the part 1 of the truck-frame.

After the derrick C is raised, the ladder or ladders can be hoisted up by winding the rope or chain *l* on the drum J, the ladder being then supported primarily by the derrick, but also by the drum J.

I prefer to close the buckets K, and provide them with one or more stop-cocks, through which they can be filled or emptied.

With the several drums or windlasses herein mentioned are combined suitable ratchet-wheels and stop-pawls for holding the drums in any position to which they may be adjusted.

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

1. The combination of the telescopic truck-frame with a windlass secured in the extensible section of the frame, and with two ropes, one of which extends from the windlass to a traverse of the main section, while the other passes through a traverse secured to the extensible section, and thence to a traverse secured to the main section of the frame, so that by one and the same windlass the frame can be extended and contracted, substantially as shown and described.

2. In combination with the compound lever D, made of two sections, which are hinged to the derrick, and connected by hinged straps, the rope *h* attached to the round of the levers and passing around a windlass journaled in the derrick, substantially as described.

3. The combination, with the derrick and with the truck-frame, of side braces, which are pivoted to the truck-frame and to the derrick, substantially as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 16th day of August, 1876.

JOHN A. GROSHON. [L. S.]

Witnesses:

JOHN R. MARSTON,

W. HAUFF.