(No Model.) 2 Sheets—Sheet 1.

S. CATANZANO & N. TACCONE.

FIRE ESCAPE.

No. 603,440. Patented May 3, 1898.

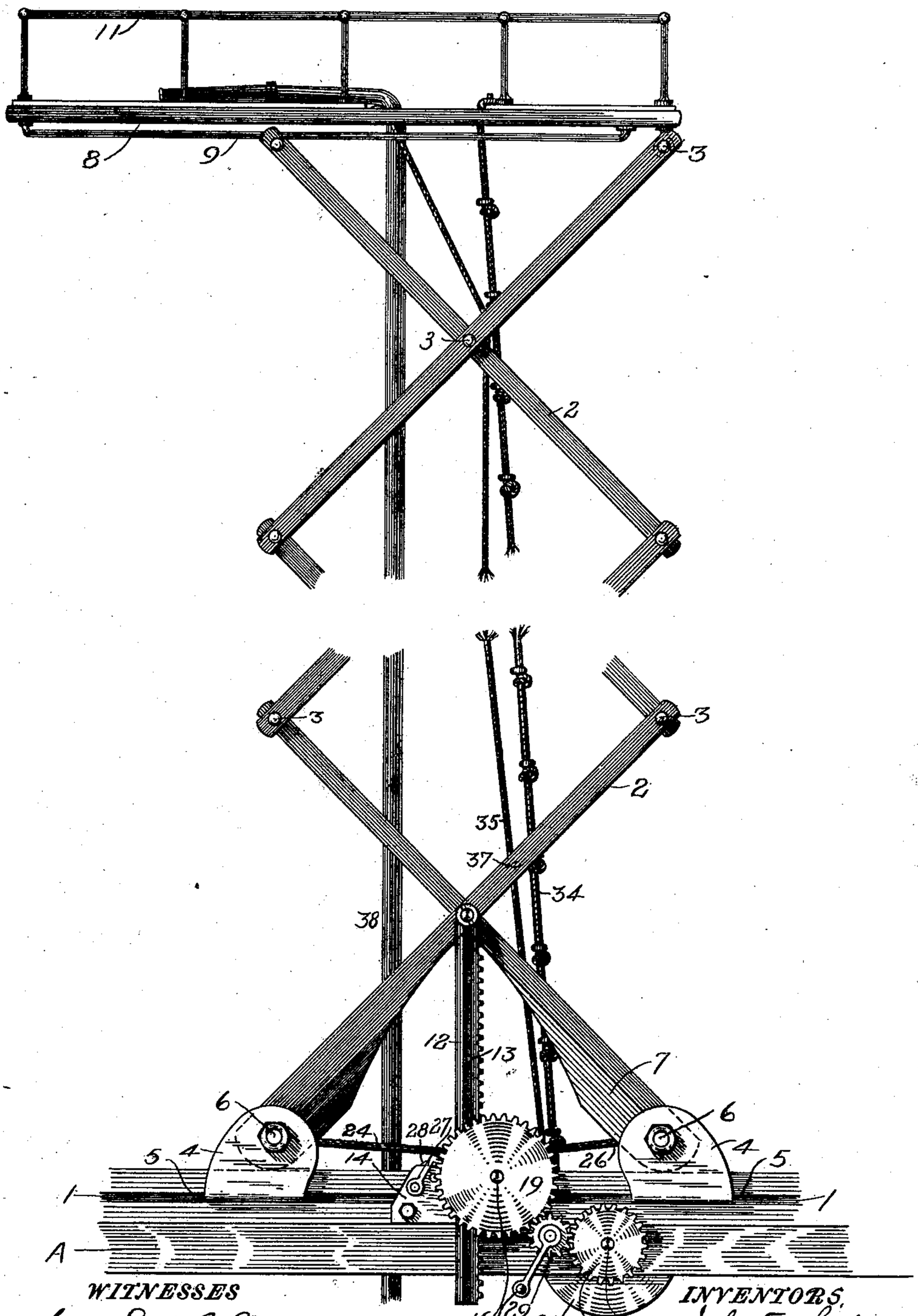

Fig. 1.

WITNESSES

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(No Model.) 2 Sheets—Sheet 2.

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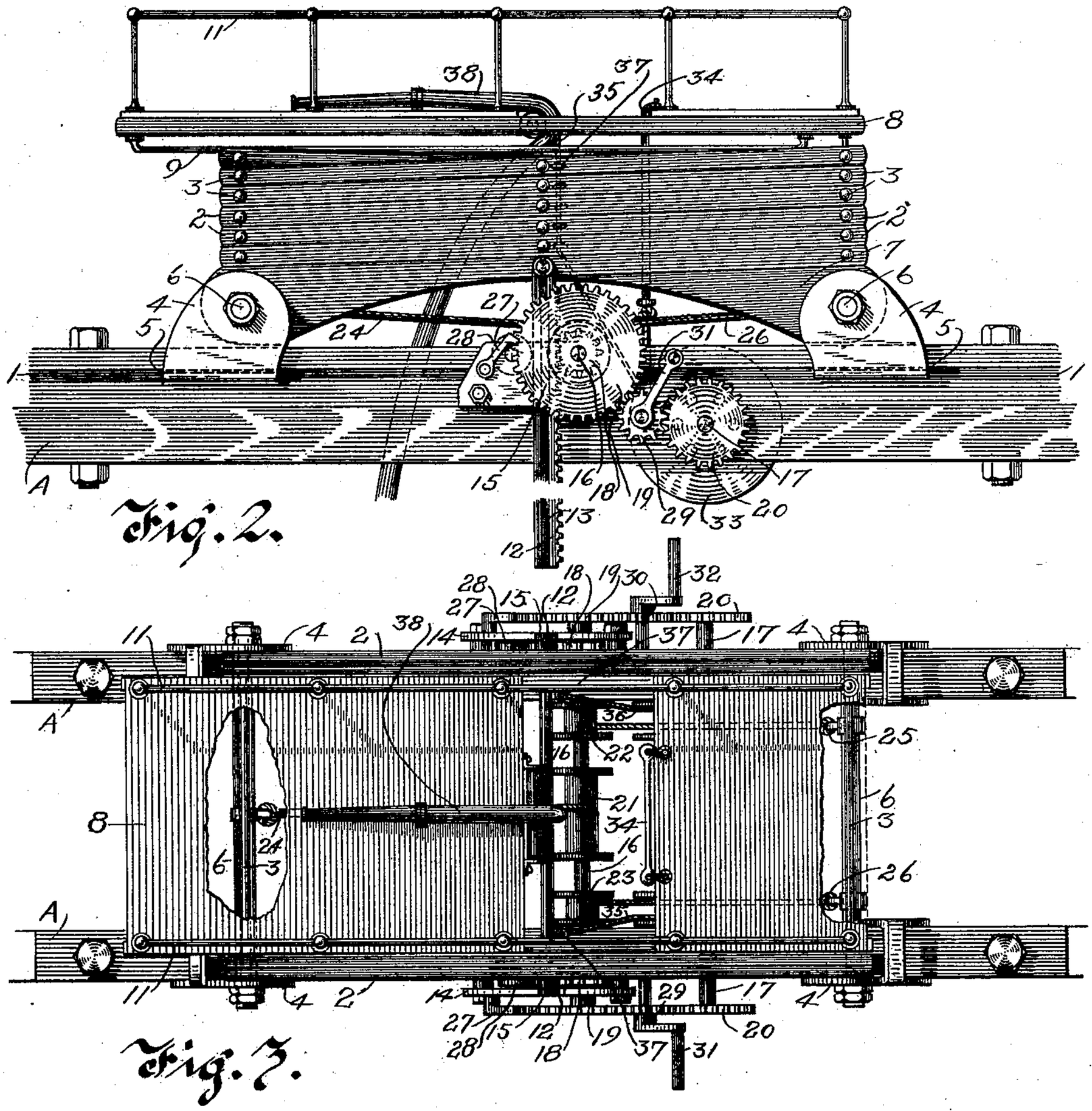

Fig. 2.

Fig. 3.

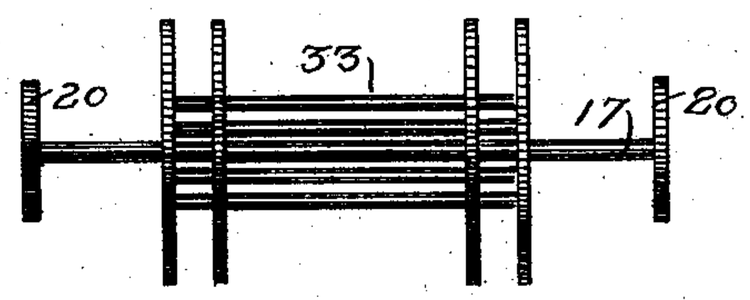

Fig. 4.

WITNESSES

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UNITED STATES PATENT OFFICE.

SALVATORE CATANZANO AND NICHOLAS TACCONE, OF BIRMINGHAM, ALABAMA.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 603,440, dated May 3, 1898.

Application filed September 4, 1896. Serial No. 604,897. (No model.)

To all whom it may concern:

Be it known that we, SALVATORE CATANZANO and NICHOLAS TACCONE, citizens of the United States, residing at Birmingham, in the county of Jefferson and State of Alabama, have invented certain new and useful Improvements in Fire-Escapes; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to vertically-movable fire-ladders of the lazy-tongs type which are adapted to be carried on a suitable vehicle from place to place.

The objects sought after are the provision of an improved ladder of the class described which shall be better adapted for immediate use and more light, portable, and durable than has heretofore been produced.

The invention consists of certain novel features and combinations, as will appear more fully hereinafter.

In the accompanying drawings, Figure 1 represents a side elevation of our complete invention when the ladder is up or in raised position; Fig. 2, a like view, but showing the ladder down or folded; Fig. 3, a plan view, and Fig. 4 a detail, of the reel.

The ladder is adapted to be supported upon a suitable form of vehicle, so that it can be moved from place to place. The side bars A of the vehicle-platform constitute the base or foundation of the ladder. These side bars are provided with longitudinal guide-grooves 1 on their inner and outer faces.

The ladder consists of sets of lazy-tongs 2, braced by cross-bars 3, the free ends of the lower pair of each set being connected to shoes 4, which are adapted to slide on the side bars and are guided in their movement by being provided with lips 5, which slide in the guide-grooves. The shoes are connected by braces or cross-bars 6. Extensions 7 on the lower levers of the lazy-tongs prevent the ladder from descending too far. A partially-open platform 8 is carried on the tops of the sets of lazy-tongs. This platform is fulcrumed to one of the uppermost cross-bars 3 and is preferably of sufficient length to overhang the opposite end of the top of the ladder. Its under side is provided with two supporting-rods 9, and it also has hand-rails 11.

The mechanism for raising and lowering the ladder will now be described.

A rack-bar 12 is connected to and depends from the pivotal point of the lowermost pair of lazy-tongs on each side of the ladder and is provided with a longitudinal guide groove or slot 13. Bearing-plates 14 are bolted to the side bar A, being provided with a vertically-disposed rib 15, which is adapted to move in the slot of the rack-bar. There are two shafts 16 and 17. Shaft 16 is journaled on the bearing-plates 14 and carries two gears 18 and 19 on each end, the former being pinions and meshing with the rack-bars. Shaft 17 is journaled in side bars A and carries gears 20 on both ends. Shaft 16 carries a central winding-drum 21 and two additional drums 22 and 23. A rope 24 connects the central drum with one of the lower cross-bars 6, while two other ropes 25 and 26, winding on the other drums, but in an opposite direction, connect with the lower cross-bar 6 at the opposite end of the lazy-tongs. As shaft 16 is turned the ropes are wound on the drum and the ends of the lower pairs of lazy-tongs pulled inward, raising the ladder. There are two latches 27, which engage with gears 19. Two rollers 28 bear on the rack-bars and keep them engaged with the gear. Small crank-gears 29 and 30 mesh with the gears 19 and 20 and afford means for actuating the ladder. Operating-handles 31 and 32 are connected to the crank-gears. The shaft 17 carries a reel 33, adapted to receive a rope ladder 34, connected to the platform 8, as well as guide-ropes 35 and 36, which are also connected to the platform and pass freely through eyes 37 on the lazy-tongs. A fire-hose 38 runs from the vehicle which carries the ladder up to the top of the latter, as shown.

The operation is as follows: On turning the operating-handle the shoes are drawn toward the center of the ladder, and the gears also act on the rack-bars and push up the center of the lazy-tongs, whereupon the ladder rises, meanwhile unwinding the rope ladder from its wheel. When the limit of the upward movement has been reached, the parts are held suspended and the guide-ropes and rope

ladder kept taut by the ratchet mechanism. The platform on top of the ladder may be lifted, as desired.

It is obvious that the ladder is also applicable for other purposes than for use at fires, and hence we do not limit ourselves to the precise construction herein shown and described, but consider ourselves entitled to all such variations as properly come within the spirit and scope of the invention.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

In a fire-ladder, the combination with sets of lazy-tongs adapted for vertical extension, of guiding devices adapted to permit a sliding movement of the lower ends of the lowermost levers of the lazy-tongs, rack-bars connected to the central pivotal points of the lowermost pairs of levers of said lazy-tongs, said rack-bars having grooves, fixed ribs received loosely in said grooves, winding-drums, cables connecting one winding-drum with the sliding ends of the levers on one side of the lazy-tongs, a cable connecting the other drum with the other levers, and gearing meshing with the rack-bars and connected to the winding-drums whereby the pivotal points of the levers of the lazy-tongs are pushed upward simultaneously with the drawing together of the sliding ends of said levers.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

SALVATORE CATANZANO.
NICHOLAS TACCONE.

Witnesses:
JOHN VOLLMERS,
H. L. FAELEY.