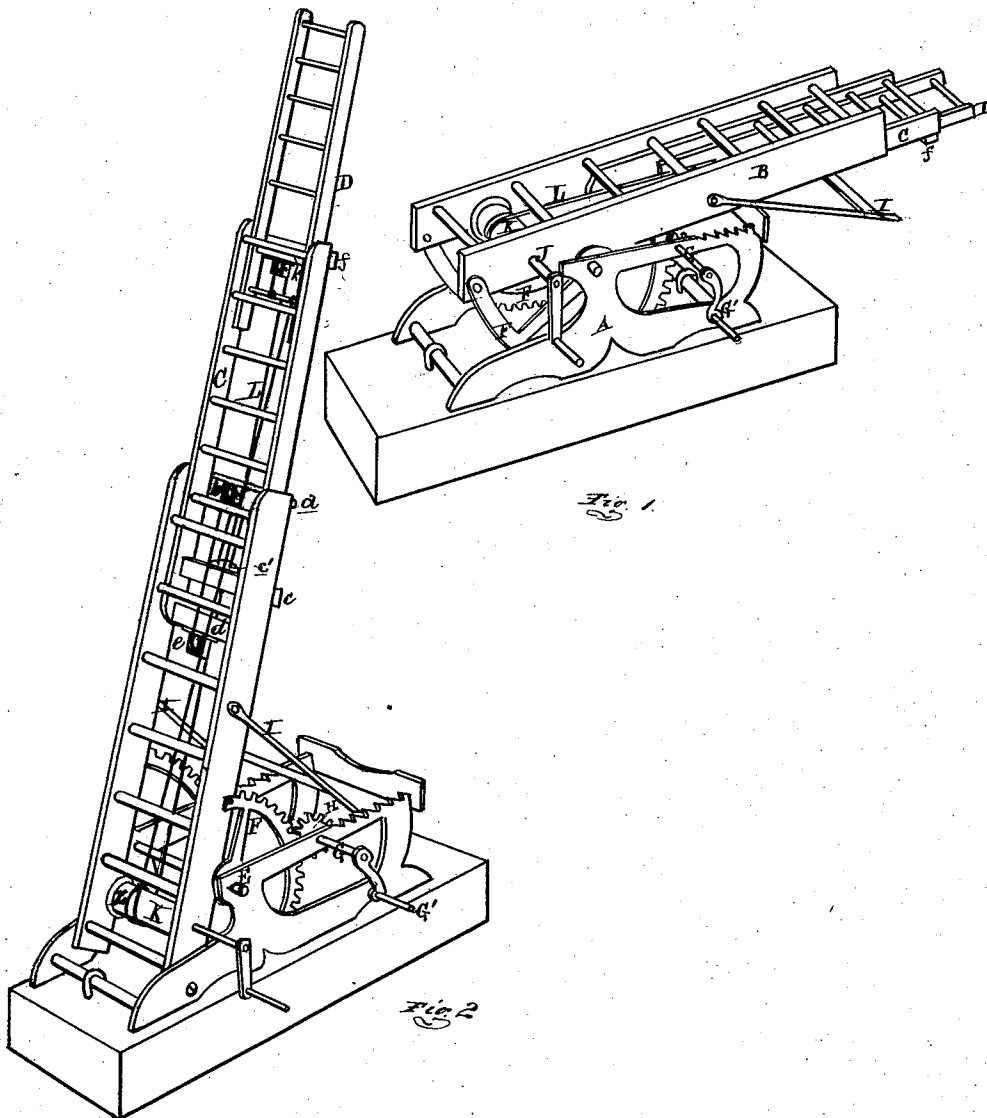


J. G. TAYLOR & J. H. SMITH.

Extension Fire-Ladders.

No. 155,345.

Patented Sept. 22, 1874.



ATTEST:

W. F. Chubb.
W. C. Sprague

INVENTORS:

John G. Taylor
James H. Smith.
per attorney,
W. C. Sprague.

UNITED STATES PATENT OFFICE

JOHN G. TAYLOR AND JAMES H. SMITH, OF PORT HURON, MICHIGAN.

IMPROVEMENT IN EXTENSION FIRE-LADDERS.

Specification forming part of Letters Patent No. **155,345**, dated September 22, 1874; application filed April 23, 1874.

To all whom it may concern:

Be it known that we, JOHN G. TAYLOR and JAMES H. SMITH, of Port Huron, in the county of St. Clair and State of Michigan, have invented a new and useful Improvement in Extension-Ladders; and we do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon and being a part of this specification, in which—

Figure 1 is a perspective view of the ladder, contracted for transportation. Fig. 2 is a similar view of the same, extended.

Like letters refer to like parts in both figures.

The nature of this invention relates to an improvement in the construction and method of operating extension-ladders, more especially designed to be used by firemen, to enable them to carry the hose to the tops of lofty buildings, and also for use as a means to enable persons in the upper stories of a burning building to escape therefrom; and to this end it consists in the peculiar construction and arrangement of the devices for extending and contracting the sections of the ladder, and of the gear for inclining the lower section, which is pivoted in a frame which may be mounted on wheels for transporting the whole, as more fully hereinafter set forth.

In the drawing, A represents a strong wooden frame, which may be mounted on wheels for transportation, or, in winter, where there is snow enough to warrant it, the lower sills may be made to serve as sleigh-runners. BB are the side pieces of the main ladder, connected by the usual rounds near the face-edges. CC are the side pieces of a ladder-section sliding between those of the main ladder. DD are the side pieces of a third ladder-section sliding between those of the second section. E is a shaft, journaled across the upper part of the frame near the front end thereof, and on it are keyed two semicircular gears, F, to which are securely fastened the side pieces B of the main ladder. G is a shaft, with a crank, G', at each end, journaled across the standards of the frame, carrying two pinions, H H, which mesh with the segment-gears F, so that, by rotating the shaft G, the main ladder is raised from its resting-place on the top of the

frame to a vertical position, or inclined to any intermediate angle, where it is supported by one or more pawls or adjustable braces, I. The movable ladder-sections are kept between their inclosing side pieces by the ladder-rounds in front, and by cross-bars on the rear faces of the side bars, a being the cross-bar at the top of the main ladder, with a spool or guide-pulley, b, at its middle. c is a cross-bar below the bar a, with a fair-leader, c', in its middle. d is a cross-bar at the bottom of the second section, with a sheave, e, through its middle. f is a cross-bar at the top of the second section, with a bracket-pulley, h, projecting from the middle of its rear face. J is a shaft, journaled through the side pieces BB of the main ladder, squared at the outer ends to receive cranks, and carrying at the middle a drum, K, around which several turns of a rope, L, are taken, one limb of which is taken up through the fair-leader c', and secured to the top round of the top ladder-section. The other limb is also taken through the fair-leader c', over the guide-pulley b, thence down through the fair-leader again, passed through the sheave e from the front, thence up over the bracket-pulley h, at the top of the second ladder-section, thence down and secured to the lower round of the upper or third ladder-section, to which it is fastened.

When the movable sections are contracted into the main ladder, and the ladder raised to the desired angle of inclination, by turning the shaft J the upper section will be raised until arrested, when the middle section is drawn up its full height. By reversing the movement of the shaft J, the middle section is lowered into the main ladder, after which the upper section is drawn into it.

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

The construction and arrangement of the frame A, the ladder-sections B C D, the cross-bars a c d f, pulleys b h, fair-leader c', sheave e, shaft J, drum K, rope L, and braces I with their ratchet-bars, substantially as and for the purpose set forth.

JOHN G. TAYLOR.

JAMES H. SMITH.

Witnesses:

H. F. EBERTS,
H. S. SPRAGUE.