

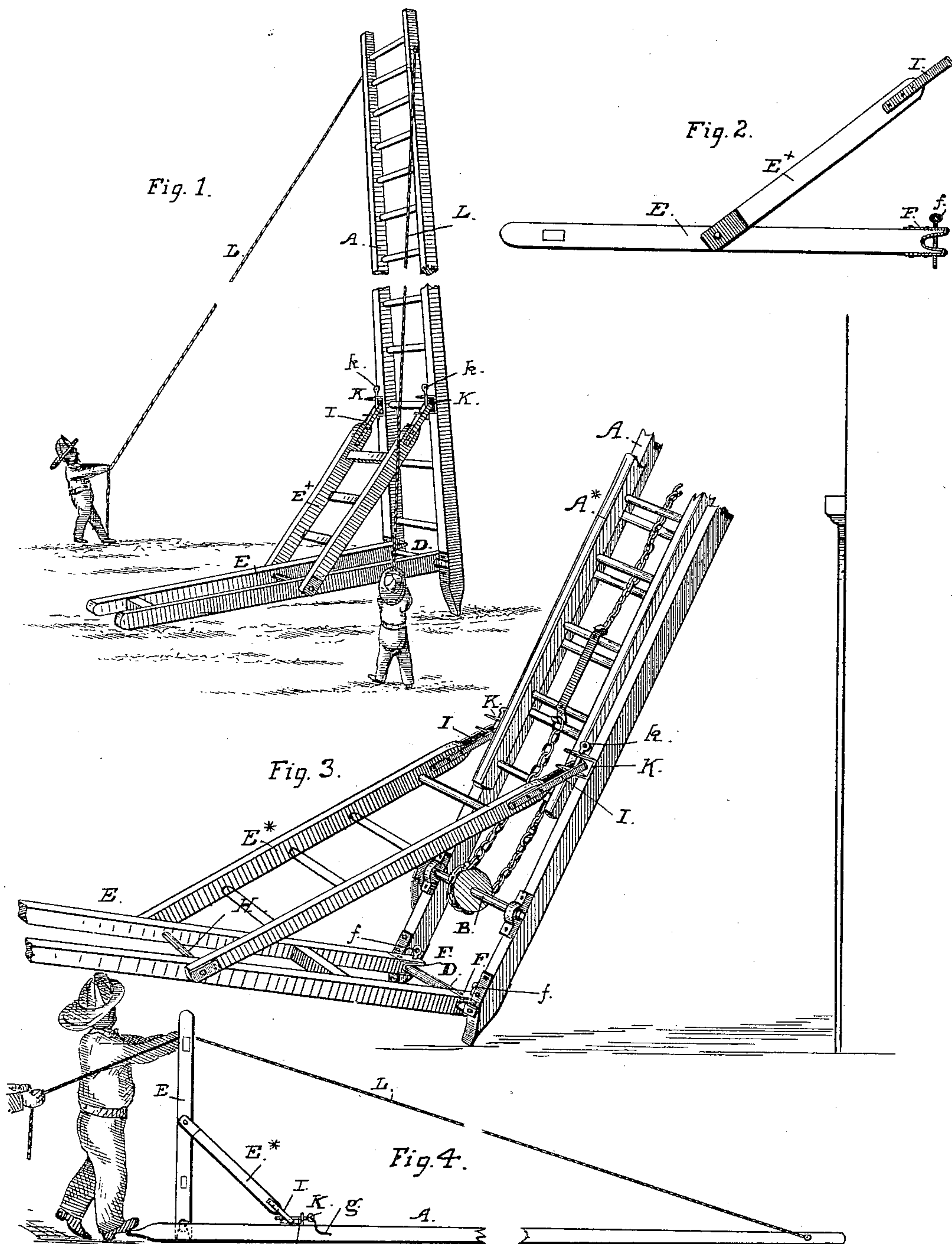
(No Model.)

H. T. HAYES.

FIRE LADDER.

No. 365,128.

Patented June 21, 1887.



Witnesses:

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Inventor:

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UNITED STATES PATENT OFFICE.

HENRY T. HAYES, OF EAST OAKLAND, CALIFORNIA.

FIRE-LADDER.

SPECIFICATION forming part of Letters Patent No. 365,128, dated June 21, 1887.

Application filed February 25, 1887. Serial No. 228,910. (No model.)

To all whom it may concern:

Be it known that I, HENRY T. HAYES, a citizen of the United States, residing at East Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Fire-Ladders, of which the following is a specification.

My invention has for its object to provide a means for raising and handling ladders of large size or heavy character that are to be handled from the ground, as distinguished from those ladders which are mounted on trucks. It is designed to be applied as an attachment to the foot of a ladder, and is intended more especially for construction and use in connection with fire ladders, although it is applicable to ladders of other kinds.

The invention includes a novel construction of frame or foot-piece and its combination with the foot of a ladder for raising and handling it, and the production of an improved fire-ladder with a ground extension-frame, constituting a means for lifting and setting it to a building, and a base or foot to steady and prevent it from falling backward.

I proceed to construct, apply, and use my said invention as follows, the accompanying drawings being referred to by figures and letters.

Figure 1 is a perspective view of a ladder with my improvement applied to it. It represents the ladder as raised and supported in an upright position by the frame preparatory to being lowered at the top against the wall. Fig. 2 is a side view of the attachment. Fig. 3 shows the position of the parts when the ladder is set at an angle against a building. Fig. 4 shows a ladder lying on the ground, and illustrates the manner of raising it to an upright position by means of my improvement.

A represents a ladder of heavy construction—in the one view a single ladder and in the other having an extension, A*, and a windlass for running it up and down.

E E are two strong rails or bars secured together by rods or cross-bars H H at such width apart that their ends may fit in between the rails or sides of the ladder near the foot or lower end. These rails and cross-bars therefore form a light but strong and stiff frame,

somewhat narrower than the lower end portion of the ladder, for which it is intended, and it is attached by the ends to the foot or lower portion of the ladder in such manner that it stands out from the ladder at about ninety degrees or thereabout. Such attachment may be made in several ways; but in most cases it will be more convenient to use a fastening of such character that the frame can be readily detached from the ladder. I have accordingly shown a means of this kind to enable the frame to be quickly secured in place. The ends of the bars E are slotted and are shod with metal to provide in each one an open or forked socket, F, of suitable size to embrace a rod or bar, D, fixed across the ladder. The ends have holes in line to let a locking-pin pass through them from the upper side and outside the bar, as clearly seen in Figs. 2 and 3; and thus, the forked ends being set against the cross-bar, the pins *ff* are inserted in place and lock the frame to the bar.

A brace formed of bars E*, constituting part of this frame, serves to join it stiffly to the ladder and to secure that rigid position and angular projection at the foot which is necessary. The bars E* are hinged or similarly attached to the bars E, so that they can be raised up or turned down as required for use, or to bring the attachment into small compass when detached from the ladder. The two bars E* are joined by one or more cross-bars, and, if preferred, as many of these may be fixed in place and suitably spaced to serve for ladder-rounds, as shown in Fig. 1.

To secure the brace to the ladder, the fastenings at the ends of the bars E* are of the same character as those provided on the foot-frame—that is, they permit the bars to be readily detached from the ladder. The brackets K' have ears with holes for a pin, *k*, and the ends of the bars have loops I to set into the brackets.

The parts of the fastening and their position when locked, are shown in Fig. 3, as the same device can be employed first on one ladder and then on another to raise and set them into position against a wall or building.

The manner of raising and operating this device will be understood from the drawings. The ends of the frame and braces are secured

to the ladder as it lies on the ground. This position will bring the frame upright, or nearly so, and by grasping the top end of the frame and drawing it over toward the ground the ladder is raised up toward the vertical. At such time the foot of the ladder is held from slipping, to form a fulcrum, and the frame then constitutes a lever to draw upon the ladder at the points K K' beyond the fulcrum. Fig. 4 illustrates the operation. In the next position, when the ladder is raised to the vertical, the frame forms a stable base or support and also furnishes a means for moving and setting the ladder to the building. To assist in this work and to hold the upper end of the ladder while raising or lowering it to the building, I provide a guy-rope, L, at each side, as shown in Fig. 1. These are attached at the upper end by eyes or rings to the sides, and are of suitable length to be carried to a distance at each side on the ground and secured to stakes, if necessary, when the ladder is raised and such additional means to steady it are required. In this way I can support a ladder in nearly upright position, clear of a building in an emergency, and hold it sufficiently stable for ascent and descent.

As an attachment to fire-ladders my device will be found of great service, and as a part of or fixture to a heavy ladder it will prevent accident and save time and considerable effort in raising and setting the ladder to its work.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A device for raising and handling fire-ladders and other heavy ladders from the ground, consisting of the ground-frame E and braces E*, attached to the ladder at the foot, and fastenings, constructed substantially as specified, by which the ends of the frame and braces are secured to and can be detached from the ladder, substantially as hereinbefore described.

2. A ladder having a ground-frame, as E, attached to and projecting from the foot of the ladder, as described, and a diagonal base-frame, as E*, secured at one end to the ground-frame and at the other end to the ladder, substantially as and for the purpose set forth.

3. The combination, with a ladder, of the frame or bars E E at the foot, projecting at an angle to the side rails, and the diagonal frame or bars E* E*, attached to the frame E E and to the ladder at a point above its foot, and the guy-ropes L, substantially as described, for operation as set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

HENRY T. HAYES. [L. S.]

Witnesses:

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