

(No Model.)

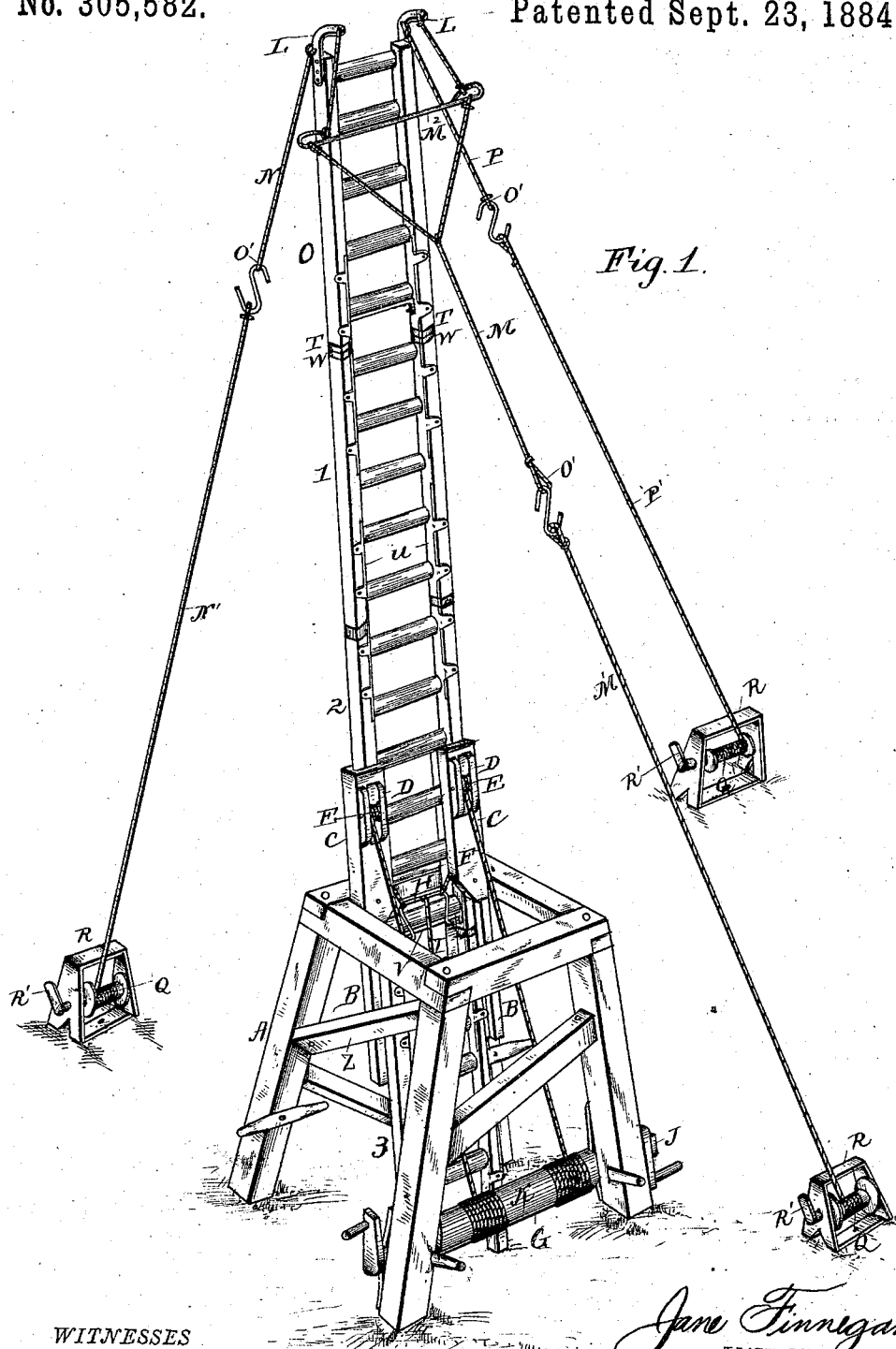
2 Sheets—Sheet 1.

J. FINNEGAN.

FIRE ESCAPE.

No. 305,582.

Patented Sept. 23, 1884.



WITNESSES

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E. E. Biggers

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INVENTOR

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Fig. 3.

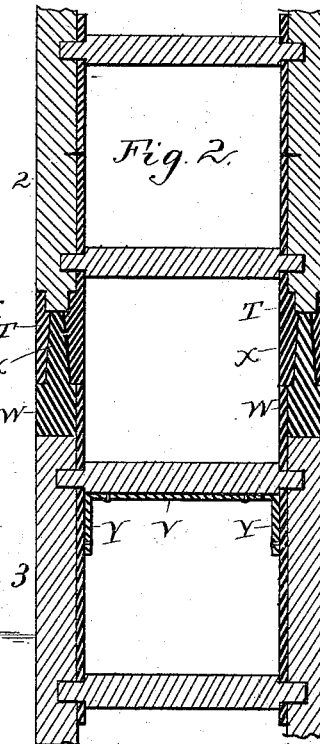
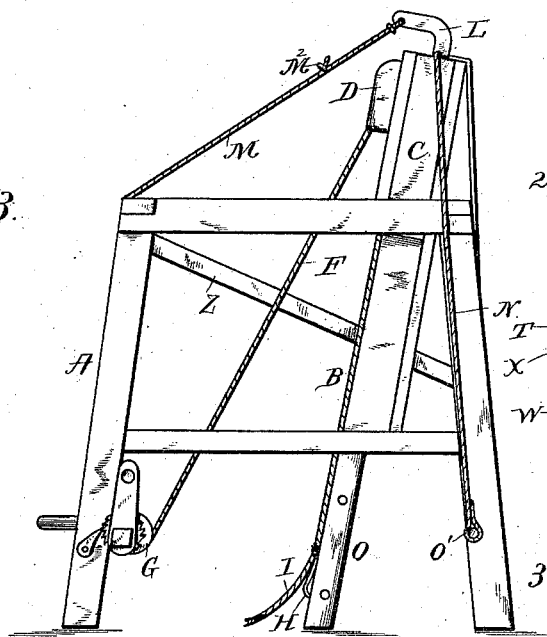
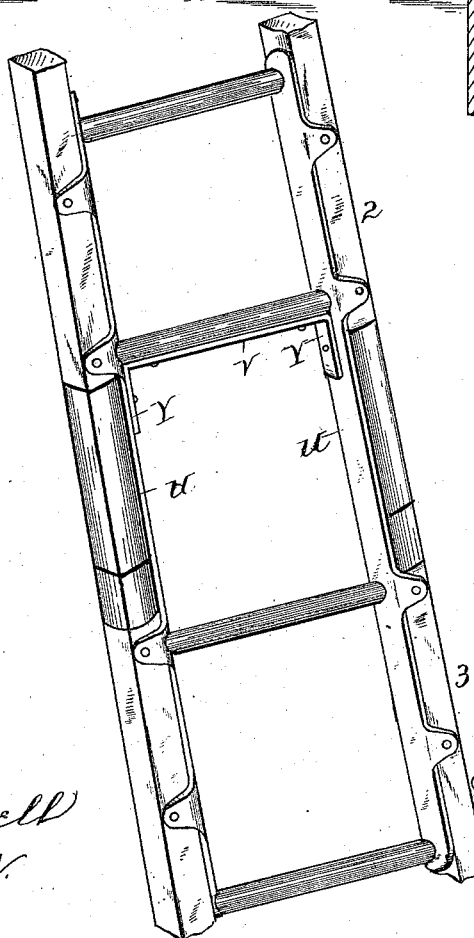


Fig. 4.



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UNITED STATES PATENT OFFICE.

JANE FINNEGAN, OF LITCHFIELD, ILLINOIS.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 305,582, dated September 23, 1884.

Application filed June 14, 1884. (No model.)

To all whom it may concern:

Be it known that I, JANE FINNEGAN, a citizen of the United States, residing at Litchfield, in the county of Montgomery and State of Illinois, have invented a new and useful Fire-Escape, of which the following is a specification, reference being had to the accompanying drawings.

This invention has relation to fire-escapes of the class termed "hoisting-escapes;" and it has for its objects to produce a fire-escape of the class referred to that shall possess superior advantages over others of its class in point of simplicity, durability, safety, and general efficiency; and the invention consists in the construction and novel arrangement of parts, as will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings, Figure 1 is a view in perspective of a fire-escape embodying my improvements. Fig. 2 is a vertical sectional view through one of the joints that connect the sections of ladder together. Fig. 3 is a side elevation of the derrick and the section of ladder which remains normally in it until raised out by placing a second section beneath it, and hoisting the second section; and Fig. 4 is a perspective view of two of the ladder-sections joined.

Referring by letter to the accompanying drawings, A designates the derrick, which consists of a strong, durable, rectangular frame, twelve or fourteen feet high, although the dimensions may be varied without departing from the spirit of the invention. This frame or derrick A is suitably braced, preferably as shown, so that one side of the frame will be practically open to permit the introduction to the frame of the ladder-sections, as they are needed. The derrick A is provided with the guideways B B for the ladder-sections to slide in when hoisted, the top portions, C C, of the guideways being of iron and closed on three sides. The front walls of the portions C C of the guideways are provided with lugs D D, which form the bearings for the journals of the iron pulleys E E, which are made as light and strong as may be necessary. The front walls of the portions C C of the guideways are also provided between their respective lugs D D with openings for the hoisting-rope

F, so that the rope F, which is connected at its middle portion to the middle of the windlass G, may pass from the windlass over the pulleys E E, and down through the portions C C of the guideways B B to the double hook-rod H, to which the ends of the rope F are connected at opposite ends of the rod. The hook-rod H is made of a single rod bent as shown to form the hooks, and is made strong enough to raise the required number of ladder-sections. This hook-rod H is also provided at its middle with a draw and guide rope, I, by which the hook-rod H is manipulated to engage and disengage the hooks from the bottom rounds of the ladder-sections in raising and lowering said sections in the guideways B B.

The windlass-shaft J is rectangular in form, and is of iron, as are also the handles, which are provided with rectangular collars to fit the ends of the shaft. The drum K of the shaft is of wood, and the windlass is provided with the usual pawl-and-ratchet mechanism, to prevent accidental backward movement of the windlass. The windlass has its boxes secured to the rear faces of the two front uprights of the derrick, and is provided with a handle at each end. Hand-pieces for lifting the derrick for moving it are also provided on each of the four uprights of the derrick. The section O of the ladder-sections (the other sections being numbered 1 2 3 4, &c., according to the number designed to go with the derrick) remains normally in the derrick. Its upper end is provided with rub-irons L L, which are curved, as shown, forwardly over the derrick. These rub-irons serve also as guide-irons, and the guide-ropes M N P are connected thereto through perforations made in said irons. The upper end of the guide-rope is spliced and forked, and the ends of the fork are connected to the upper ends of the irons L L. The lower ends of the ropes M N P are provided with loops O', and terminate, normally, at the hand-pieces on the uprights. When section 1 and additional sections are to be added to the ladder-section O, other ropes, M' N' P', provided with hooks at their upper ends, are connected to the loops O' of the ropes M N P. These ropes M', N', and P' are wound upon iron spools Q, having bearings in frames

R, staked to the ground at proper distances from the derrick, and provided with cranks R' on the spool-shafts, by which they may be worked to guide the ladder as it is being hoisted and lowered. The fork at the upper end of the rope M is distended by a rod, M', so that it will not interfere with persons ascending and descending the ladder. The lower ends of the rails S of the ladder-sections are provided with sleeve-irons T, which are rectangular in form on three sides, and may be rectangular on all sides, if desired, but must be flush with the three outer sides of the rails, in order to work in the guideways B B. They are cast heavier or re-enforced on the inner sides to give the requisite strength to the joints at the junction of the sections. The re-enforcing irons U extend up above the sleeve-irons T. A re-enforcing bar, V, is secured to the under side of the lowest round of each ladder-section, and is connected at its ends to the re-enforcing irons U, and prevents the hooks on the hook-rod H from wearing or breaking the lower rounds of the ladder-sections, with which they engage in raising and lowering the sections. The bores of the sleeve-irons T are of two diameters, the smaller ones being the uppermost.

The upper ends of the sections 1 2 3, &c., have sleeve-irons W, from which, and made therewith, project shouldered arms X. The sleeve-irons W correspond in shape with the sleeve-irons T, and the shouldered arms X fit the sleeve-irons T when the sections are joined. Re-enforcing irons Y are used on the rails of the sections at their upper ends also, so that there will be no danger of a break at the joints. The section O is made the lightest, and the sections 1 2 3, &c., gradually increase in weight toward the base-section.

In putting the sections together, section O is run up to the top of the derrick by engaging the hooks of the hook-rod H with the lower round of said section O and operating the windlass for that purpose, the hooks on the ropes M' N' P' being first engaged with the loops O'. Section 1 is then introduced to the derrick by passing its upper end under the inclined brace Z at the upper portion of the derrick, and its shouldered arms X are direct toward the sleeve-irons T on section O, and said section O is let down to permit said arms and sleeve-irons to engage and form the joint between the sections O and 1. The section 1 now rests upon the ground and supports the section O, which is steadied and guided by the guide-ropes. The hook-rod H is now disengaged from the lower round of section O by reversing the windlass and pulling down upon the draw and guide rope I, and the hook-rod H is drawn down and made to engage the lower round of section 1. This section 1 is then raised in the same manner as was section O, and carries section O up with it. Then sections 2 and 3, and so on, are put in in the same manner until the ladder has reached the desired height, the last

section resting on the ground, the hook-rod H remaining engaged with the lower round of the next higher section.

To take the ladder down, the operation is necessarily just the reverse of that described for raising it. The base-section must be removed and all of the sections above lowered until the lower section rests on the ground. The hook-rod H must be then disengaged from the lower round of the section then resting on the ground and the windlass operated to draw the hook-rod up to the next higher section. The draw and guide rope I is then used to guide the hook-rod H to the lower round of said next higher section. When the hook-rod H has been placed into engagement with the lower round last before mentioned, the windlass must still be operated to lift the sleeve-irons T of said next higher section from the shouldered arms X of the section on the ground. This latter section is then removed, and the operation is continued until the section O reaches its normal position in the derrick. The guide-ropes must be wound up on their respective spools as the ladder is being lowered, and the hooks must be disconnected from the loops O' if the apparatus is to be moved from where it has been operated.

By this arrangement of parts the ladder can be hoisted to any of the upper windows of a burning building and persons can be rescued from the building; or when ingress is shut off from below by reason of fire, the firemen can enter the building from above for the purpose of extinguishing the flames. The ladder can be hoisted in a few minutes' time, and is strong, safe, and durable.

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

1. The combination, with the derrick provided with the ways, as described, of the ladder-sections having the rub-irons at the upper end of the same, and the sleeve-irons, re-enforcing irons, and re-enforced lower round, and mechanism, substantially as described, for raising and lowering said ladder-sections, as set forth.

2. The combination, with the derrick having the guideways with their upper iron portions closed on three sides, and provided with iron pulleys between lugs on the front walls of said upper portions, of the windlass and hoisting-rope secured to the middle of the windlass, running over the pulleys at the upper portion of the guideways, down the guideways, and connecting to a hook-rod, the hook-rod, the guide-ropes connected to the rub-irons of section O, and wound upon the iron spools, and the iron spools with cranks having bearings in frames staked to the ground near the derrick, as set forth.

3. The combination, with the ladder-section O, provided at the lower ends of its rails with sleeve-irons T, having bores of two diameters, the upper ones being the smaller, the re-en-

forcing irons U, and re-enforcing bar V for the lower round, of the section 1, having sleeve-irons W, provided with integral shouldered arms X at the upper ends of its rails, and the re-enforcing irons Y, as set forth.

4. The combination, with the derrick provided with the guideways and the ladder-sections, and mechanism, substantially as described, for operating the ladder-sections, of the inclined brace Z, arranged near the top of the derrick, substantially as and for the purposes specified.

5. In a fire-escape, the combination, with the hoisting-rope, windlass, and double hook-rod, of the draw and guide rope I, connected to said hook-rod, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JANE FINNEGAN.

Witnesses:

P. F. CARROLL,
JOHN FINNEGAN.