2 Sheets--Sheet 1.

A. M. SMITH.
Fire-Escapes.

No. 152,923. Patented July 14, 1874.

Fig. 1.

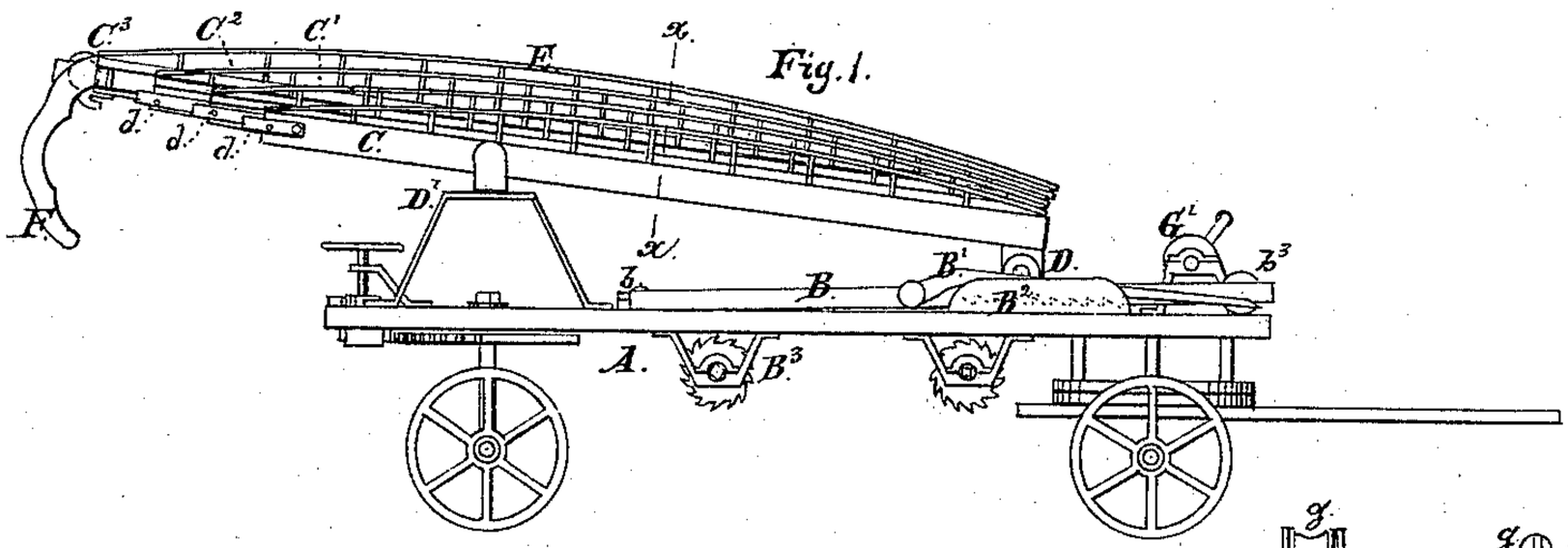


Fig. 6.

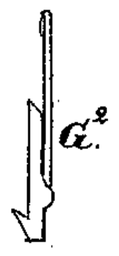


Fig. 5.

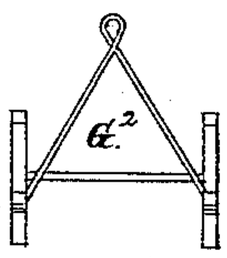


Fig. 9.

Fig. 4.

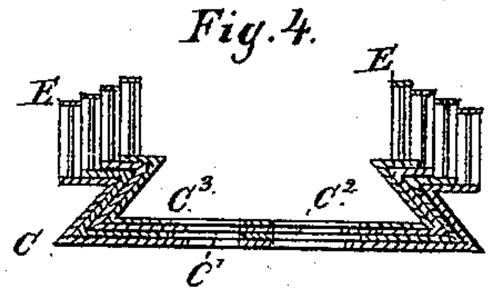


Fig. 7.

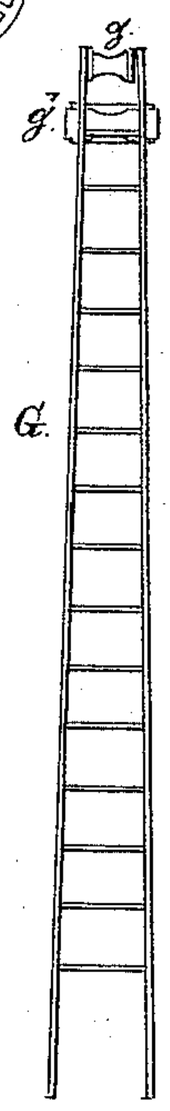
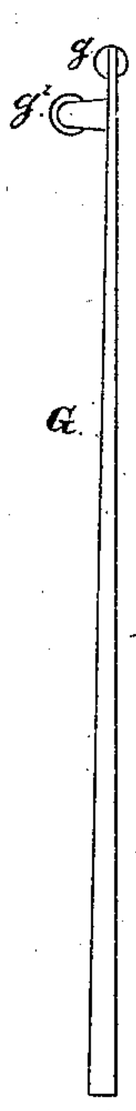


Fig. 8.



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THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

2 Sheets--Sheet 2.

A. M. SMITH.
Fire-Escapes.

No. 152,923. Patented July 14, 1874.

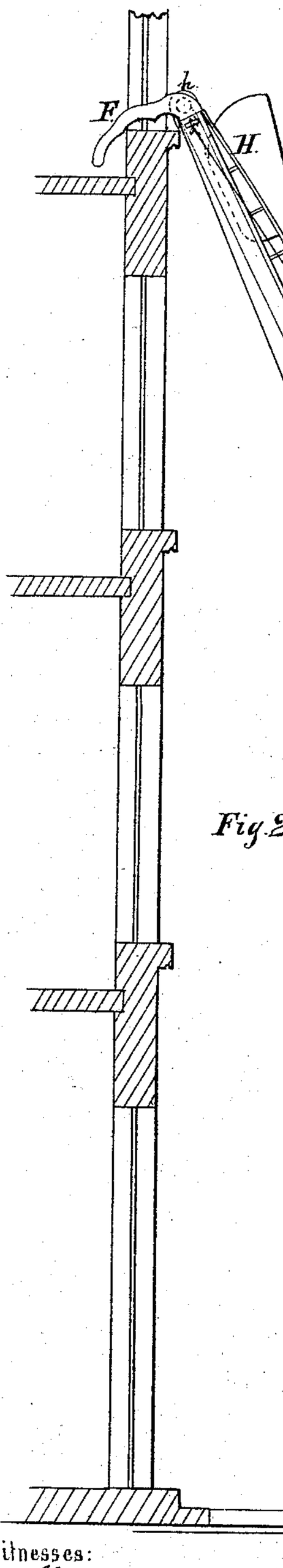

Fig. 2.

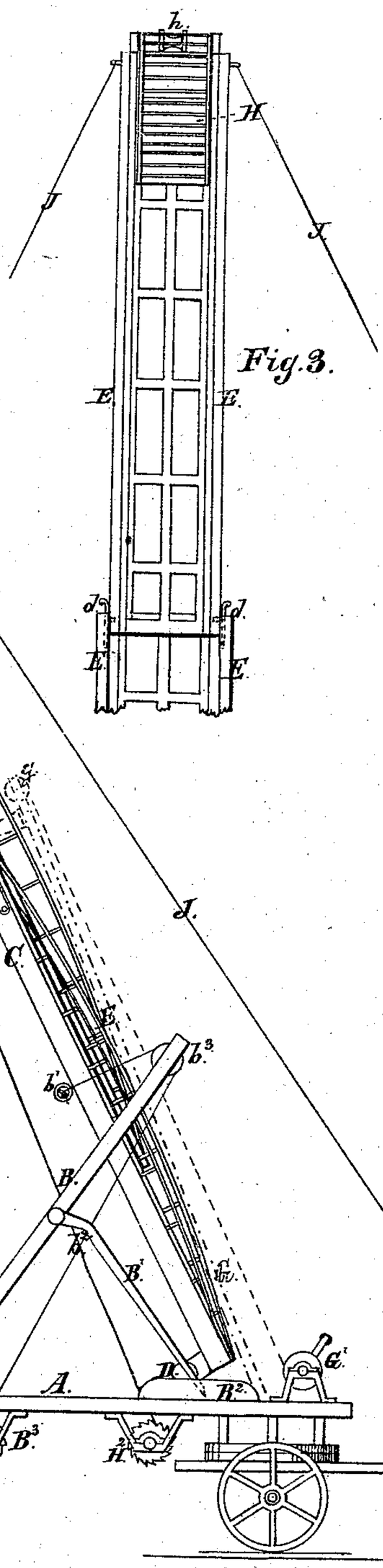

Fig. 3.

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UNITED STATES PATENT OFFICE.

AMOS M. SMITH, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN FIRE-ESCAPES.

Specification forming part of Letters Patent No. **152,923**, dated July 14, 1874; application filed April 2, 1874.

To all whom it may concern:

Be it known that I, AMOS M. SMITH, of Chicago, in the county of Cook and State of Illinois, have invented certain Improvements in Fire-Escapes and Hose-Elevators, of which the following is a specification:

This fire-escape and hose-elevator consists of a series of extension-bridges, telescoping one within the other, mounted upon a wagon for convenience of transferring it from place to place, furnished with windlasses and derrick contrivances for hoisting it to its full extension and lowering it again. The entire mechanism above the wagon is made of metal, including the bridges, guys, car, and tackle, whereby safety from destruction by fire is insured.

The nature of the invention will fully appear from the following description and claims appended thereto.

In the accompanying drawings, which form a part of this specification, Figure 1 is a side view of the wagon and bridges in their retracted or collapsed state, as they are when carried from place to place. Fig. 2 is a similar view with the bridges extended and the apparatus in working order. Fig. 3 is a front view of the upper portion of Fig. 1 broken off. Fig. 4 is a section on *x x* of Fig. 1. Fig. 5 is a front, and Fig. 6 a side, view of the hook used in raising and lowering the bridges. Fig. 7 is a front, and Fig. 8 a side, view of the derrick-ladder used in the same operation. Fig. 9 is a top or plan view of the car detached.

Like letters of reference made use of in the several figures indicate like parts.

In the said drawing, A represents the wagon, the bed of which is a flat rectangular platform mounted on wheels, the front pair being fitted to swivel upon a circle or fifth-wheel, while the rear pair are provided with a segment plate and pinion, with a hand-wheel above for guiding the machine around sharp turns and corners. Upon the wagon-bed at each side, toward the rear, are hinged, by the hinges *b*, the struts B, provided with the pivoted brace-pawls B^1, which engage ratchets B^2 toward the front, serving to hold said struts elevated at any desired angle. A drum and crank or windlass, B^3, receives a rope, b^2, which passes at each side over a pulley, b^3, and is attached to the edge of a roller, b^1. These parts are shown folded down at Fig. 1, and raised into working posture at Fig. 2. Their function is to elevate the bridges while they are collapsed, as shown at Fig. 1, and sustain them at the desired angle while they are being extended. The bridges C C^1 C^2 C^3, several in number, are placed one within the other, as shown in cross-section at Fig. 4, the lower and shorter one, C, being hinged to the wagon-bed at D, and resting, when all are collapsed and lowered, upon the rest D′ near the rear end of the wagon. The several sections C C^1 C^2 C^3 are made successively a little longer, so that the ends of each succeeding inner section shall project a little to allow for the spring-catches *d*, and for eyelets on the under side, through which a cable may be threaded, if desired. Each section is furnished at both sides with a brace-arch, E, to strengthen it, and the innermost section (being the uppermost when extended) is furnished at the top with a hook, F, at each side to hook into a window or over the parapet of a roof. The whole of these bridges or sections, in every part, are made of metal, as they may be exposed to the flames. The body of each section, and the lattice or frame work, are made of boiler-iron, the arch-braces of plate or angle iron and rods. The hooks and pulleys are also of iron.

The first operation in elevating the apparatus after the wagon is backed up against the curb is to raise and lock the struts B; then, by means of the windlass B^3, the entire body of sections is raised on the roller b^1, until the proper angle, pointing to the roof or window to be entered, is attained. The ratchet upon the windlass holds all in this position. The derrick-ladder G (shown at Figs. 7 and 8) is then planted in the position shown in dotted lines at Fig. 2, and a fireman ascends, carrying a cable from the windlass G^1, which he reeves over the pulley *g*, and bringing it down below the ladder attaches the hook G^2. (Shown detached at Figs. 5 and 6.) This hook is placed under the innermost section, C^3, which, by the action of the windlass G^1, is made to slide up within its next adjacent section until it is fully extended, and the spring-catch *d* engages it, and holds it from sliding back. The hook G^2 is then released, and brought down, and attached to the base of the next section, C^2,

which is hoisted in the same manner, and so on until all are extended or the desired height attained.

In the drawing, at Fig. 2, there is shown one section, C^3, fully extended, and the next section only partly raised, as the desired height has thus been attained. When the proper height is reached the hooks F are dashed through the window by their weight, and the windlass G^1 is slackened, allowing the last-raised section to slide back until the said hooks F rest firmly upon the sill. The derrick-ladder G is then removed from the wagon, and the iron car H is placed upon the lower section, and connected to the wire-rope H^1, which passes up over the pulley *h* at the top of the upper section, and down to the windlass H^2, by means of which said car may be hoisted, sliding along upon the bed of the sections to the top, and lowered, as desired. The bottom of this car is pierced with a hole, *i*, through which the hose may be passed to be held by a fireman within the car. If desired, the back of this car, where it comes in contact with the sections, may be furnished with friction-rollers to ease its ascent and descent.

This car, riding, as it does, steadily up and down the bridges, guarded from sliding off at either side by the sides of the sections and the arched braces, forms a safe and easy descent for frightened women and children, who might not have nerve enough to attempt the descent of a ladder from a dizzy height, or be willing to trust themselves to a swinging basket lowered by a rope. The wire-rope guys J J serve to steady and guide the apparatus when the same is being elevated, being manned by the firemen below.

When the apparatus is to be lowered, the derrick-ladder is again resorted to, and the extended bridges are raised until the hooks F can clear the sill, when the entire apparatus may be swung upward and outward by means of the guys. The bridges may then be lowered one after the other in exactly the reverse order of their extension.

Every part of the apparatus above the wagon is made of iron, and is, therefore, safe from destruction by fire, to which it might be peculiarly liable if wood were employed instead of iron.

The derrick-ladder G is provided with a roller, *g'*, to ease the passage of the sections as they are raised. Said roller rests upon the section that is being raised, as shown at Fig. 2 in dotted lines.

Having thus described my invention, that which I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the struts B, brace-pawls B^1, ratchets B^2, windlass B^3, roller b^1, pulleys b^3, and rope b^2, substantially as specified.

2. The combination of the wagon A, hinged extensible sections, hinged struts B B^1 B^2, windlass G^1 H^2 B^3, rope H^1, and car H, substantially as specified.

3. The removable derrick-ladder G, provided with the pulley *g* and roller *g'*, in combination with the extensible sections, substantially as specified.

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