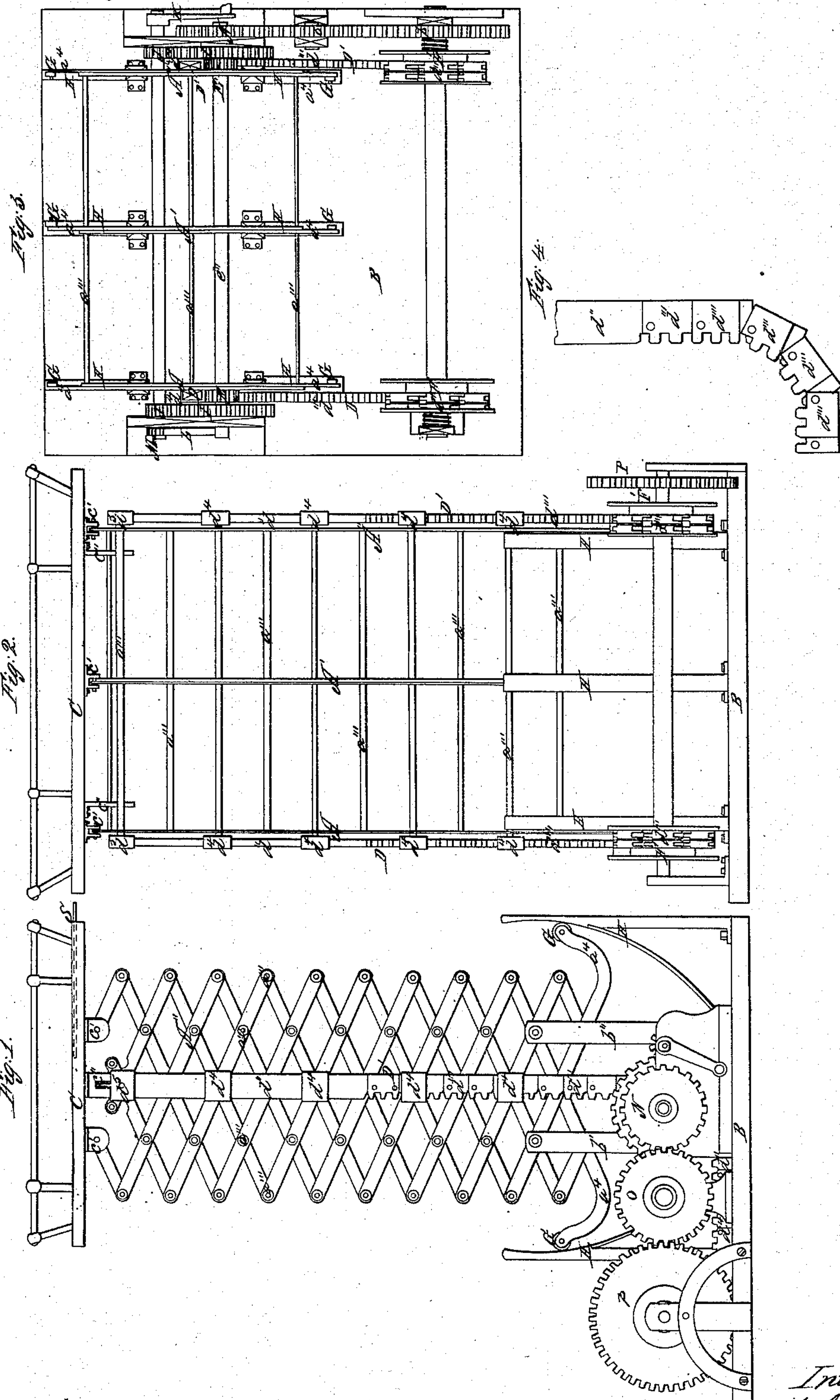


*Wagner & Schmid.*

*Fire Escape.*

*Nº 66,058.*

*Patented Jan. 25, 1867.*



*Witnesses:*  
*Benj Morrison*  
*Mr. A. Morrison*

*Inventors:*  
*John Wagner*  
*John Schmid*



# United States Patent Office.

JOHN WAGNER AND JOHN SCHMID, OF PHILADELPHIA, PENNSYLVANIA.

*Letters Patent No. 66,058, dated June 25, 1867.*

## IMPROVED FIRE-ESCAPE.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that we, JOHN WAGNER and JOHN SCHMID, of the city of Philadelphia, in the State of Pennsylvania, have invented a new and useful Improvement in the Lattice Elevator and Fire-Escape; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is an end elevation of the said improved machine.

Figure 2, a side elevation.

Figure 3, a plane view of the base and gearing; and

Figure 4, an enlarged sectional side view of the jointed rack of the same—

Like letters of reference indicating the same parts when in the different figures.

Our invention relates to that class of elevators and fire-escapes which consist of two or more vertical parallel series of jointed lattice-work, resting on a base and supporting a platform above, so that the latter can be raised and lowered in front of a building or elsewhere, and consists in the construction and application of a peculiar jointed rack in combination with operating pinions and take-up cylinders, arranged to operate the lattice, substantially as hereinafter described; and our invention also consists in the peculiar arrangement and combination, with the series of the lattice-work, of friction-wheels and supporting bearings, as hereinafter described, for the purpose of more substantially supporting the said lattice frames in their elevated positions.

Referring to the drawings, A A' A'' are three series of the jointed lattice frames; B, the supporting base; C, the platform; D D', the jointed racks; E E', the operating pinions of the racks; F F', the take-up cylinders of the same; G G, the friction-wheels; and H H, the supporting bearings therefor. Each of the three series of the lattice frames A consists of two layers of numerous long, thin, stiff plates of iron pivoted together, the plates of each layer crossing those of the other in parallel lines, as represented in fig. 1. The three series A A' A'' are connected together parallel with each other by means of horizontal tie-rods,  $a'''$ , which serve also as the middle and the two end pivots of the lattice plates. (See figs. 2 and 3.) The lower end of each lattice frame A is pivoted to and supported upon two slotted posts  $b' b''$ , (see fig. 1,) and the two lowest plates  $a^4$  (see fig. 1) are elongated outward and bent upward so as to form arms,  $a^4$ , which carry the friction-wheels G, so that the latter will roll up and down against the curved bearing posts H, and thus together afford more stability to the lattice frames when elevated. The platform C is supported in a horizontal position on the upper ends of the lattice frames A by means of slotted studs  $c'$ , to which the inner ends of the two highest plates of each lattice frame A are respectively pivoted. The middle tie-rod at the upper ends of the lattice frames A slide up and down in two slotted steadying posts  $c'' c'''$  fixed to the under side of the platform C, and thus affords additional stability to the horizontal position of the platform as the lattice plates rise and fall in the operation of the machine. The jointed racks D D' each consists of a straight, rigid bar,  $d''$ , and a series of like short rectangular flat plates,  $d'''$ , of iron, toothed on one edge and connected together by knife-joints, (see fig. 4,) so that the toothed and jointed part of the bar can be wound edgewise around its respective take-up cylinder F, and also, when aligned with the rigid part  $d''$ , form with it a straight bar, which will enter and slip along through the sockets or boxes  $d^4$ , which are fixed along in the middle of the width of each of the two outside lattice frames A A''. The upper end of each of the jointed bars D D' is fixed permanently in the upper socket or box  $d^5$  of its frame, (see figs. 1 and 2,) so that when the bars D are forced upward through their respective sockets or boxes  $d^4$  they will necessarily lift the sockets  $d^5 d^6$  and consequently cause the expansion or elongation upward of all the lattice frames A A' A''. The raising and lowering of the jointed bars are effected by means of the two pinions E E' on the shaft  $e''$ , which gear into the respective teeth of D and D', the said pinions being operated by the spur-wheels I I on their shaft and the pinions J J connected with a crank-handle, K, and the whole retained firmly at any height by means of a pawl, L, and ratchet-wheel, M. (See fig. 3.) On one end of the shaft  $e''$  there is a spur-wheel, N, which gears with the spur-wheel O, and the latter with the spur-wheel P, and on the shaft of the latter wheel P the two take-up cylinders F F' are fixed, and also connected with the lower ends of the two respective jointed bars D D', the said cylinders and gear-wheels being calculated in size so as to take up and give off the jointed bars D, as the pinions E may require in operating the machine. The cylinders F F' are permitted to slide longitudinally on their shaft so as to keep in line with



the jointed bars D during the taking up or the unwinding of the said bars or jointed racks D D'. The teeth of the said racks D may, of course, be made in either of their two edges. The whole machine is intended to be fixed on a truck or carriage, so that it can be readily drawn from place to place, or in case of a building on fire to be run close up to the walls and operated either for the purpose of elevating firemen with hose or for gaining access to the upper windows and rescuing the inmates or valuables and lowering them speedily and safely to the ground. On the platform there is a sliding-plate, s, for bridging to a window when necessary.

A machine of this description can be produced entirely of iron for four or five hundred dollars, which will be easily transportable, and capable of elevating its platform, with the weight of three or four men upon it, to the height of forty feet in a few minutes, with perfect safety, and with but little exertion applied to the hand-crank. For painters, and other artisans requiring light, portable scaffolds, it can be produced at much less cost and will afford greater facility than the ladders or other portable supporting devices heretofore used.

Having thus fully described our improvement in the lattice elevator and fire-escape, what we claim as new therein of our invention, and desire to secure by Letters Patent, is confined to the following, viz:

1. We claim, in elevators and fire-escapes, the lattice frames, in combination with the jointed racks D D', the operating pinions E E', and the take-up cylinders F F', the same being arranged to operate together, substantially as described, for the purpose of elevating and giving stiffness and steadiness to the lattice frames when in use.

2. We also claim, in combination with the lattice frames A of an elevator and fire-escape, the friction-wheels G and the bearing posts H, arranged to operate together substantially as described, for the purpose of giving additional stability to the lattice frames when elongated, as described.

JOHN WAGNER,  
JOHN SCHMID.

Witnesses:

BENJ. MORISON,  
WM. H. MORISON.