

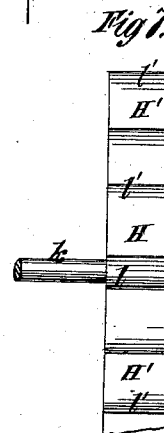
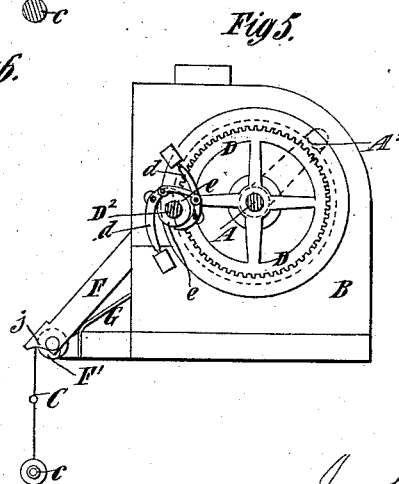
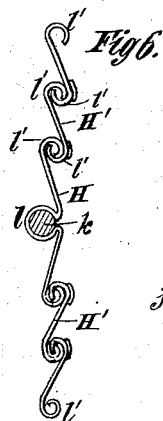
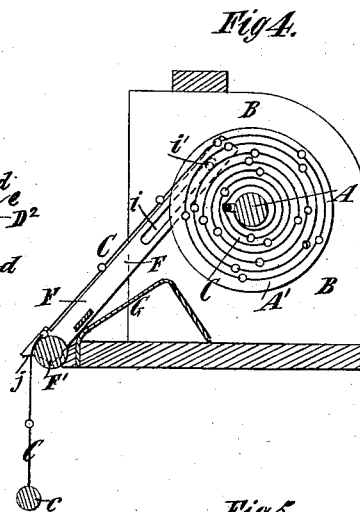
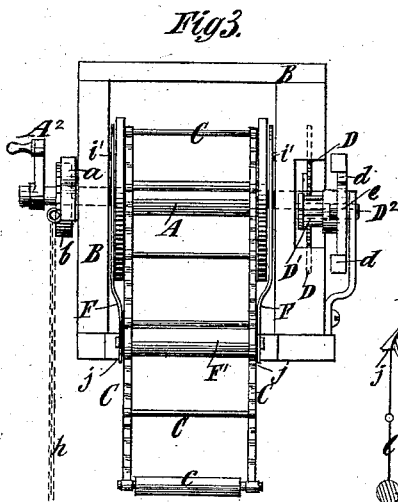
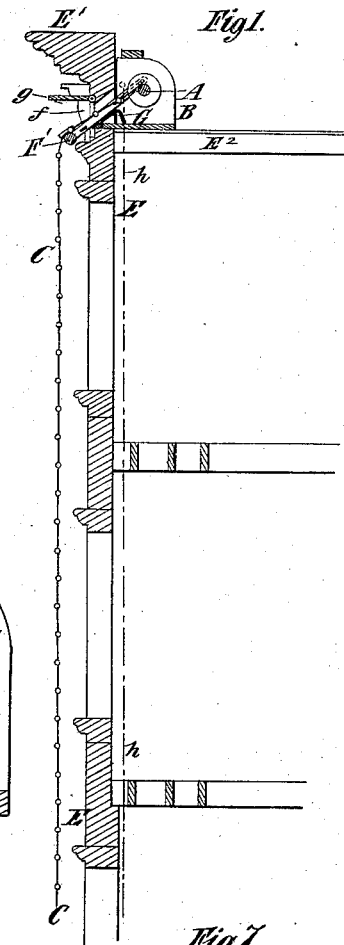
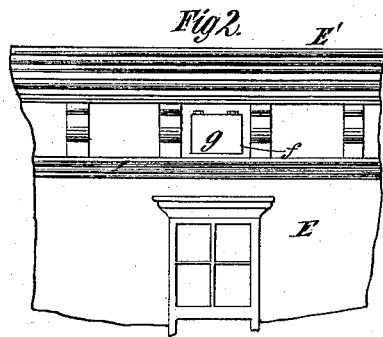
(No Model.)

J. C. HORTON.

FIRE ESCAPE.

No. 264,834.

Patented Sept. 19, 1882.



Witnesses:

of
 Geo. Haynes
 Ed. Moran

Inventor

Inclosed
Jacob C. Horton
by his Attorneys
Brown & Brown

UNITED STATES PATENT OFFICE.

JACOB C. HORTON, OF NEW YORK, N. Y., ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF ONE-HALF TO SYLVESTER P. GILBERT, FRANCIS W. UPHAM, AND SUSAN R. KENDALL, ALL OF SAME PLACE.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 264,834, dated September 19, 1882.

Application filed April 28, 1882. (No model.)

To all whom it may concern:

Be it known that I, JACOB C. HORTON, of the city and county of New York, in the State of New York, have invented certain new and useful Improvements in Fire-Escapes, of which the following is a specification.

My invention relates to that class of fire-escapes in which a flexible ladder is wound up, when not in use, upon a windlass arranged behind the front of the wall of a building, and when desired for use is run or paid out through an opening in the wall or cornice of the building and down upon the exterior thereof by turning the windlass or allowing it to turn by the weight of the ladder.

My invention consists in various novel details in the construction of the parts of such fire-escapes, and in combinations of parts, hereinafter particularly described, whereby I enable the ladder to be more quickly and conveniently run or paid out in case of a fire.

The invention also consists in a novel construction of a flexible ladder for a fire-escape of the above-described kind.

In the accompanying drawings, Figure 1 represents a vertical section of the front wall of a building and a fire-escape of my improved construction combined therewith, the ladder thereof being paid out or extended, ready for use. Fig. 2 represents a front elevation of the upper part of the wall. Fig. 3 represents a front view of my improved fire-escape upon a larger scale. Fig. 4 represents a vertical section, and Fig. 5 is a side elevation, of the fire-escape. Fig. 6 represents a sectional view of my improved ladder, and Fig. 7 represents a front view of one side thereof.

Similar letters of reference designate corresponding parts in all the figures.

Referring, first, to the construction of the fire-escape itself, A designates a shaft, which is mounted in bearings in a frame or case, B, and which carries a reel or windlass, A', which may consist simply of flanges on the shaft.

C designates a ladder, which is attached at one end to the shaft A or to the windlass or reel A', and which is flexible or jointed, so that by turning the windlass or reel A' and shaft A by a crank, A², applied to the latter, the

ladder may be wound thereon. The construction of the ladder may be varied. When the windlass or reel A' has the ladder wound upon it, it may be held against turning by a stop, which may consist of a pawl, a, engaging with a ratchet-wheel, b, on the shaft A, as shown in Fig. 3; and when the ladder is to be used the pawl a is withdrawn, and the ladder will be allowed to pay out or run off the windlass or reel by its own weight.

To quicken the movement of the ladder C in first paying out, it may have a weight, c, attached to its outer end, as shown in Figs. 3 and 4, and as the paying out continues of course the weight of the paid-out portion accelerates the speed. If the weight of the ladder or analogous device is not sufficient, a weight and drum may be employed to aid it; or the windlass or reel A' may be turned by a hydraulic piston in a cylinder to which water is admitted, and which operates in a well-known manner, the cylinder being arranged within a building to which the fire-escape is applied.

In case the ladder should pay out too fast toward the last, I may apply a brake or governor to the windlass or reel A', in any well-known manner. I have here represented a gear-wheel, D, upon the shaft A, which engages with and rotates a pinion, D', upon a counter-shaft, D², as shown best in Figs. 3 and 5. The counter-shaft D² has attached to it weighted levers d, which are rotated rapidly with it, and if the speed increases beyond the desired limit the weighted levers d fly outward and their inner ends are pressed against a stationary hub or cylinder, e, whereby the rotation of the counter-shaft and the windlass or reel A' is checked.

E designates the front wall of a building, and E' the cornice thereof, in which is an opening, f, closed by an outwardly-swinging door, g, so that when the door is shut the opening will not be readily visible.

The fire-escape is arranged adjacent to the opening f, and within or behind the front wall, E, or the plane of the outside thereof, as shown in Fig. 1, so that the ladder C may pay out through the said opening and down in front of the building.

The fire-escape may be located upon the roof or upper floor, E^2 , of the building, and I connect a cord or wire, h , to the pawl a and carry the said cord or wire to any desired part of the building—as, for instance, to a hotel-office, if the fire-escape is in a hotel—where it may be pulled by the clerk or any other person on whom such duty devolves. In case of fire, the cord or wire h is pulled, thereby withdrawing the pawl a from the ratchet-wheel b , and permitting the windlass or reel A' to be turned as the ladder C pays out. The ladder in paying out strikes the door g and opens it, in an obvious manner.

In order to carry the ladder C clear of the wall E , I may employ a movable carriage composed of two bars or sides, F , and a roller or bar, F' , extending between them. The bars F have a sliding connection with the frame B , which, in this example of my invention, is formed by providing the said bars with slots i , which receive pins or studs i' , fixed on the inside of the frame and constituting guides for said bars. The slots i give the carriage a limited range of movement, and the lower end of said carriage may be supported and slide on an incline, G . The ladder C is conducted over the roller or bar F' , as best shown in Fig. 4, and when the ladder is wound up the ends of the weight c , which form, in effect, projections on the ladder, bear against cavities or recesses j in the ends of the bars F and hold the roller-carriage inward, so that the door g may swing down and close the opening f . The very first movement of the ladder in paying out releases the roller-carriage, and it also runs or slides down and projects through the opening f , as shown in Fig. 1, so that the ladder which hangs from it will be clear of the wall E .

The ladder C may be of any suitable construction, provided that it is hinged or jointed so as to adapt it to be wound upon the windlass or reel A' . A very desirable construction for the ladder is, however, shown in Figs. 6 and 7. This ladder consists of two chains, between which extend rods or bars k , which form the rungs or rounds of the ladder. Each chain is composed of links H , which have eyes or sockets l formed in them for receiving the rods or bars k , and other shorter links, H' , between the links H . All the links H and H' have their ends l' made in the form of slotted cylinders, which are adapted to be slipped into

one another endwise, so as to interlock, as shown best in Fig. 6. After being so engaged or interlocked, the links may be prevented from moving sidewise relatively to one another by any suitable means—as, for instance, by forming a teat or projection on the cylindric end l' of one link and a circumferential groove or recess in the end of the adjacent and interlocking link. The joints formed by the interlocking cylindric ends l' of the links will readily turn and permit the ladder to be wound upon a windlass or reel comparatively small in diameter.

I am aware that fire-escapes have been before composed of a windlass arranged behind or within the exterior of the wall of a building and a ladder wound upon the windlass and adapted to pay or run out through an opening in the wall, closed by a door; and I do not therefore claim this broadly as of my invention.

I am also aware that such fire-escapes have had combined with them a sliding carriage adapted to run out through the opening in the wall, so that the ladder in its descent will clear the wall, and I do not claim this broadly as of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with the wall E of a building, provided with the opening f and the door g , hinged at its upper edge so as to close by gravity, of the windlass A' , placed behind the opening f , and the ladder C , wound upon said windlass and adapted to be paid out through said opening and to automatically open said door by pressure against it, substantially as described.

2. The combination of the windlass A' , the ladder C , the carriage F F' , having a pivotal and sliding connection at one end, with the frame of the fire-escape and the incline G for supporting the outer end of said carriage, substantially as described.

3. The fire-escape ladder composed of the links H , provided with eyes l , the rounds or rungs k , inserted into said eyes, and the links H' , both the links H and H' being formed with cylindric interlocked ends l' , substantially as herein described.

J. C. HORTON.

Witnesses:

FREDK. HAYNES,
ED. MORAN.