(No Model.)

P. P. RIPLEY.

FIRE ESCAPE.

No. 279,814. Patented June 19, 1883.

Fig: 1.

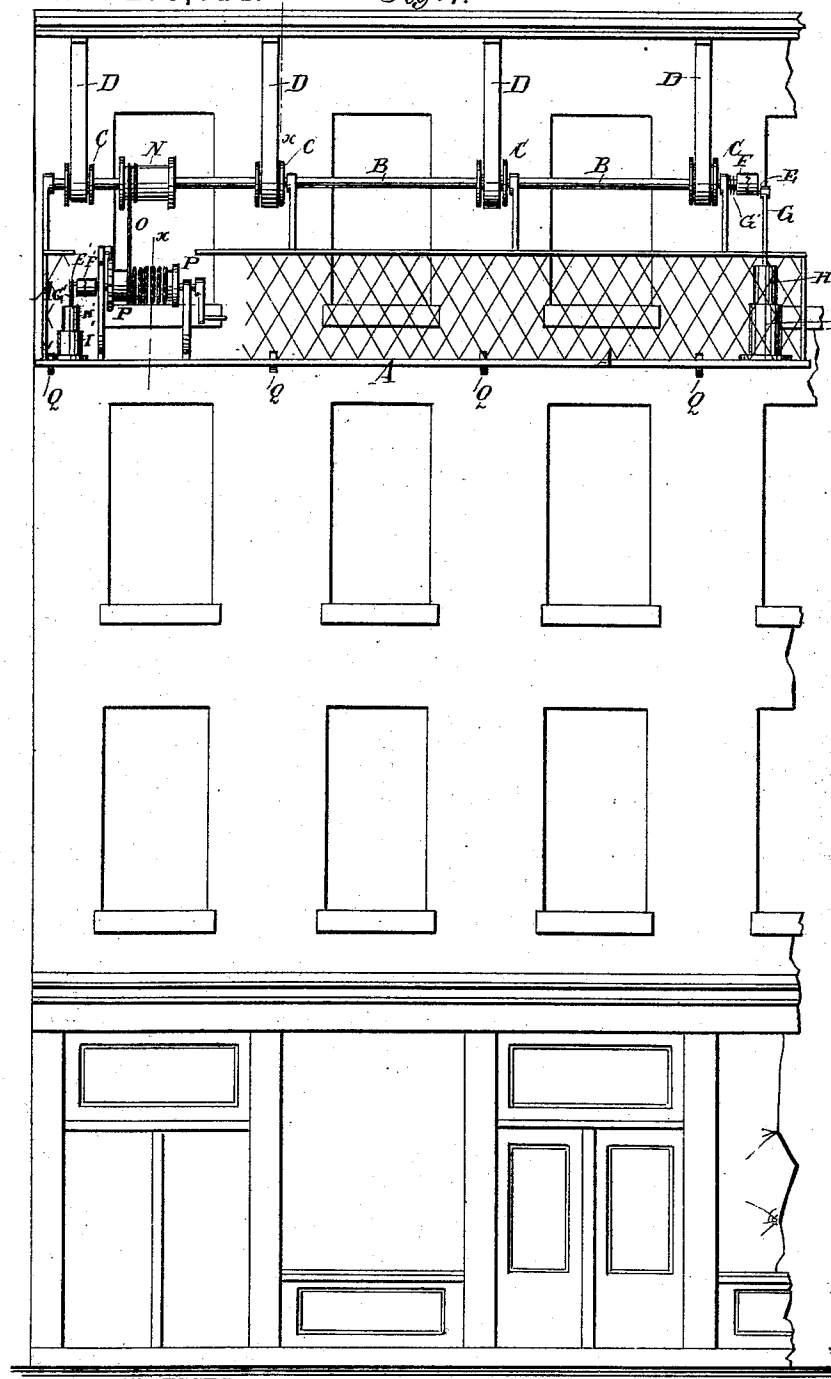


Fig: 2.

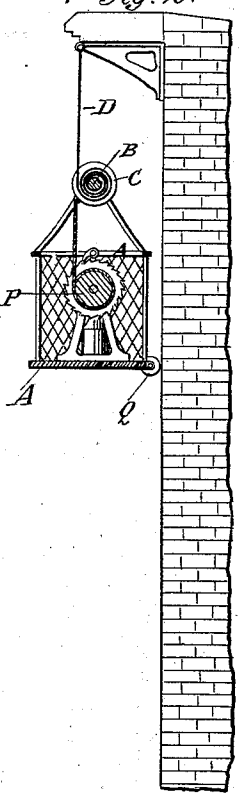
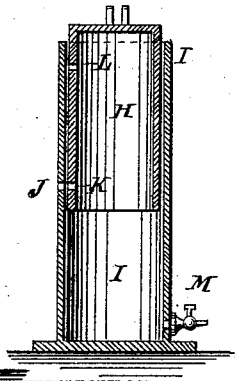


Fig: 3.



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UNITED STATES PATENT OFFICE.

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FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 279,814, dated June 19, 1883.

Application filed April 25, 1883. (No model.)

To all whom it may concern:

Be it known that I, PASCHAL P. RIPLEY, of West Randolph, in the county of Orange and State of Vermont, have invented certain new and useful Improvements in Fire-Escapes, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a front elevation of my improvement. Fig. 2 is a side elevation of the same, partly in section. Fig. 3 is a sectional elevation of the air-cylinder and piston.

The object of this invention is to facilitate the removal of people from burning buildings, and promote convenience, promptness, and security in such removals.

The invention consists in a fire-escape constructed with a carriage carrying a rotary shaft having wound around it straps attached at their ends to the wall of the building, and provided with a crank, a hollow piston, and an air-cylinder for retarding the descent of the carriage, and also provided with a drum and rope for again raising the carriage. The carriage is provided with a windlass for operating the hoisting-rope and raising the carriage. With the shaft of the windlass is connected a crank, connecting-rod, piston, and air-cylinder, so that the descent of the carriage can be controlled by resistance applied to the hoisting-rope, as will be hereinafter fully described.

A represents a cage or carriage, which may be made of such a length and width as the size of the building and the number of people occupying the said building may require. The carriage A may extend the length of the building, or may be of such a length as to cover the space of one or two windows, as may be desired, and can be made of any suitable material.

To supports attached to the carriage A is journaled a shaft, B, to which are attached one or more pulleys or drums, C, as the length of the said carriage may require. To the drums C are attached, and around them are wound, straps, ropes, or chains D, the outer ends of which are secured to the upper part of the wall of the building, or to supports attached to the said wall.

Upon one end of the shaft B is placed a short crank, E, which is connected with the said shaft B by a spring-clutch, F, a ratchet-wheel, and pawl, or other suitable means, so arranged that the said shaft, when turned in the direction to unwind the straps D and lower the carriage, will carry the said crank with it; but when the said shaft is turned in the direction to wind up the straps D the crank E will stand still.

To the crank E is pivoted the upper end of a connecting-rod, G, the lower end of which is hinged to a piston, H. The piston H is made hollow, is open at its lower end, and works up and down in an open-topped cylinder, I, as the crank E and shaft B are revolved by the descent of the carriage A. In the middle part of the side of the cylinder I is formed a small opening, J, and in the side of the hollow piston H are formed two small openings, K L, in such positions that the opening K will be opposite the opening J when the piston H is at the upper end of its movement, as shown in Fig. 3, and the opening L will be opposite the opening J when the piston H is at the lower end of its movement. With this construction, as the crank E and shaft B are revolved by the descent of the carriage A, the piston H will be moved up and down within the cylinder I. As the piston H moves downward the air within the piston H and cylinder I will be compressed in the lower part of the said cylinder until the opening L comes opposite the opening J and allows the compressed air to escape. As the piston H moves upward a vacuum is formed in the interior of the cylinder I and piston H until the opening K comes opposite the opening J and allows the air to enter, so that the descent of the carriage A will be retarded. With this construction, should the weight of the carriage and its load be insufficient to force the piston to the ends of its stroke, the descent of the carriage A will be stopped. To guard against this an air-cock, M, is inserted in an opening in the lower part of the side of the cylinder, so that more or less air can be admitted to the lower part of the cylinder to adjust the resistance offered to the piston H to

the weight of the carriage and its load. The air-cock M also allows the operator to regulate the rapidity of descent by adjusting the resistance offered to the movements of the piston H.

To the shaft B is attached a drum, N, to which is secured the end of a rope, O, which, by the revolution of the shaft B, caused by the descent of the carriage A, is wound around the drum N in the opposite direction from that in which the straps D are wound, so that when the carriage A has descended to the ground it can be again raised by drawing upon the rope O.

If desired, the lower end of the rope O can be attached to the shaft of a windlass, P, mounted upon the carriage A, so that the said carriage can be raised by a person upon the carriage A by turning the crank of the said windlass.

A cylinder, I′, piston H′, connecting-rod G′, crank E′, and clutch F′ can be connected with the shaft of the windlass P, to be used instead of corresponding mechanism connected with the shaft B, or in connection with the said mechanism, for additional security.

The carriage A, when raised, can be covered and protected by a storm-roof attached to the building, and the inner or rear side of the carriage can be provided with small wheels or rollers Q to roll against the wall of the building to lessen the friction and allow the said carriage to readily pass projecting obstructions.

This improvement can be used, if desired, as an elevator to raise and lower people, merchandise, furniture, and other articles.

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

1. A fire-escape constructed substantially as herein shown and described, and consisting of a carriage carrying a rotary shaft having wound around it straps attached at their ends to the wall of the building, and provided with a crank, a hollow piston, and an air-cylinder, and also provided with a drum and rope, as set forth.

2. In a fire-escape, the combination, with the carriage A, of the rotary shaft B, suspension-straps D, the crank E, the piston-rod G, the hollow piston H, having openings K L, and the air-cylinder I, having opening J and air-cock M, substantially as herein shown and described, whereby the carriage will be lowered by the weight of itself and load, and the rapidity of descent can be controlled, as set forth.

3. In a fire-escape, the combination, with the carriage A, the rotary shaft B, and suspension-straps D, of the drum N and rope O, substantially as herein shown and described, whereby the rope will be wound up by the descent of the carriage, and the carriage can be raised by unwinding the rope, as set forth.

4. In a fire-escape, the combination, with the carriage A, the rotary shaft B, the suspension-straps D, the drum N, and the rope O, of the windlass P, substantially as herein shown and described, whereby the carriage can be raised by a person upon it, as set forth.

5. In a fire-escape, the combination, with the hoisting-rope O and the shaft of the windlass P, of the crank E′, the connecting-rod G′, the piston H′, and the air-cylinder I′, substantially as herein shown and described, whereby the descent of the carriage can be controlled by resistance applied to the hoisting-rope, as set forth.

PASCHAL P. RIPLEY.

Witnesses:
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