D. D. DOUDS.

Fire-Escape.

No. 218,241. Patented Aug. 5, 1879.

Fig. 1.

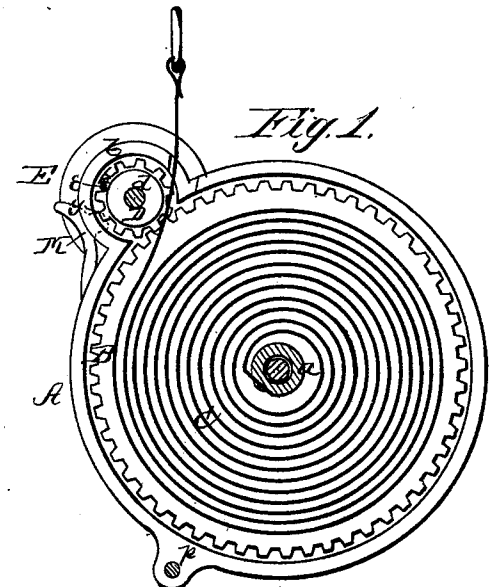


Fig. 3.

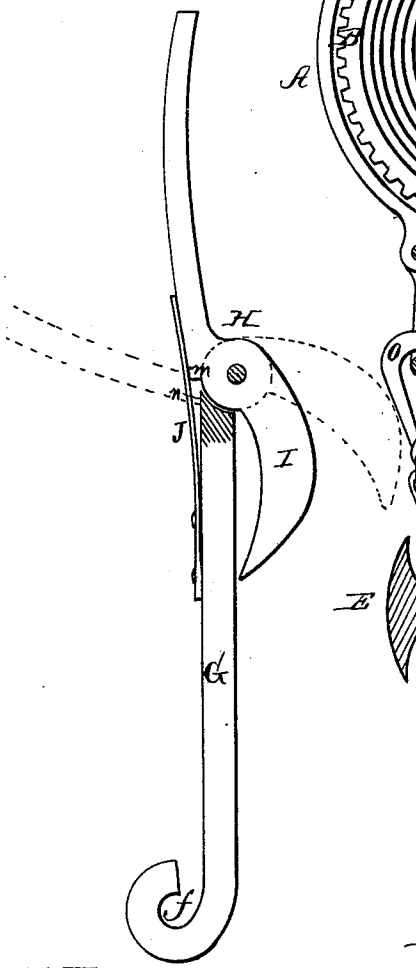


Fig. 2.

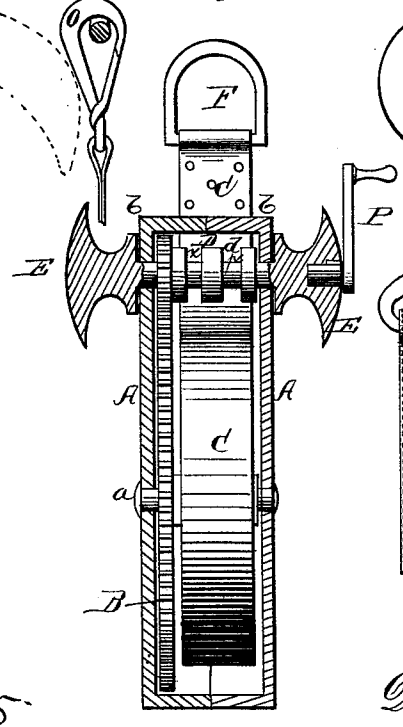
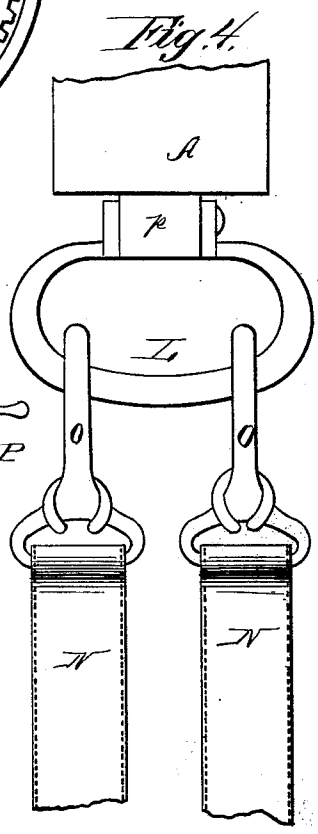


Fig. 4.



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UNITED STATES PATENT OFFICE.

DAVID D. DOUDS, OF NEW CASTLE, PENNSYLVANIA.

IMPROVEMENT IN FIRE-ESCAPES.

Specification forming part of Letters Patent No. **218,241**, dated August 5, 1879; application filed May 29, 1879.

To all whom it may concern:

Be it known that I, DAVID D. DOUDS, of New Castle, in the county of Lawrence and State of Pennsylvania, have invented certain new and useful Improvements in Fire-Escapes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which forms part of this specification.

My invention relates to fire-escapes; and it consists in a circular casing having interior cogged wheel, to the shaft of which one end of a metal strap is permanently attached. This strap is wound around the shaft and passes out through a slot in the top of the casing, the cog-wheel being rotated by means of a pinion on a shaft at the top of the casing, said shaft having at each end a knob to regulate the speed of the descent. On the same shaft is a roller for guiding the direction of the exit of the strap. The end of the strap is provided with a peculiarly-shaped hook, and the casing is provided with a handle at a point ninety degrees distant from the point where the metal strap emerges, all as hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

The casing of my fire-escape is composed of two skeleton disks, A A, provided around the circumference with inwardly-projecting flanges of suitable width, and within this casing is placed a cog-wheel, B, which lies close to one side, and is secured to a shaft, *a*, said shaft having its bearings in the centers of the disks A. At the top of the casing are formed projections *b b*, which constitute a smaller casing, through which passes a shaft, *d*, said shaft having upon each end a suitable knob, E. On the shaft *d* is secured a pinion, *e*, which meshes with the cog-wheel B for rotating the same and winding up a metal strap, C, having one end secured permanently to the shaft *a*. The pinion also serves as a brake, as will be hereinafter described.

The strap C is made of cold-pressed brass or other suitable metal, and passes out at the top of the case through a slot therein, and a roller, D, placed loosely on the shaft *d*, holds or guides the same in proper direction.

To reduce the weight, the roller D is made with a series of deep circumferential grooves, *x*, as shown.

In the outer end of the strap C is fastened a ring, F, in which is attached the device for fastening the fire-escape to the window-sill. This fastening device consists of a metal bar, G, with a loop or hook, *f*, at one end to attach to the ring F. The other end of the bar G is forked, and in the same is pivoted a lever, H, the lower end of which is formed with a hook, I. On top of the bar are fastened one or more springs, J, which bear on the lever H and hold the same extended, so that the hook I will lie against the under side of the bar. The lever is, near the pivot-point, formed with a shoulder, *m*, which, when the lever is raised, bears against the bar G at *n*.

The two parts of the casing are provided with projecting lugs *p p* at a point about ninety degrees distant from the exit-opening for the strap C, and to these lugs is pivoted a handle, L.

M represents a pawl, pivoted to the side of the casing, and engaging with a notch, *y*, in one of the knobs E. N is a leather or other flexible strap or band, provided at each end with a snap-hook, O, to be fastened in the handle L.

The operation is as follows: The lever H is raised, which throws the hook I downward and admits of the same being caught on the inside of a window-sill, the bar G lying on the sill, and, the strap C being pulled out a short distance, the fire-escape is let out of the window, the weight thereof holding the hook I in place, and the pawl M preventing the strap C from unwinding. The person that wishes to descend passes one leg through the strap N, so as to sit on said strap, and, taking hold of the knobs E, is ready to descend. By now throwing off the pawl M the fire-escape will descend by the unwinding of the strap C, the speed of the descent being regulated by the knobs E. These knobs are intended to turn in the operator's hands, and very little pressure on them will cause the machine to stop by the pinion *e* working in the cog-wheel B.

The weight of the operator being on the handle, and this handle being at the point described, it will be seen that the strain on the metal strap C is in a direct line and against the guide-roller D without any sudden bend or turn of said strap.

When the operator has reached the ground and stepped out of the strap N, by lifting the casing the weight is relieved from the fastening device, and the spring J moves the lever and bar inward, so as to release the hook I from the window-sill, and the whole falls down and can be carried away.

In one of the knobs E is made a suitable opening for the insertion of a crank-key, P, by means of which the strap C may be quickly wound up again.

The entire device is simple, cheap, and durable, and has nothing that is liable to get out of order. It can be carried in a valise or trunk without taking up much room.

My arrangement of gearing admits of very rapid descent, (which is very important in this class of devices,) and in this respect is preferable to other forms—as, for instance, a worm and worm-wheel and the like, which call for a less exertion of physical strength, but operate much slower.

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

1. The shaft *d*, provided with pinion *e* and knobs E E, adapted to be controlled by the friction of the hand, in combination with cog-wheel B and metal strap C, all constructed and arranged to operate substantially as and for the purposes set forth.

2. In a fire-escape having a metal strap wound around a shaft, the arrangement of the suspending ring or handle at an angle of about ninety degrees from the point where the strap emerges from the casing, substantially as herein set forth.

3. In combination with a fire-escape, the fastening device consisting of the bar G, lever H, formed with the hook I and shoulder *m*, and the spring J, substantially as and for the purposes herein set forth.

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

DAVID D. DOUDS.

Witnesses:
W. C. McARTHUR,
H. A. HALL.