

W. A. GREENE.  
Fire-Escapes.

No. 199,199.

Patented Jan. 15, 1878.

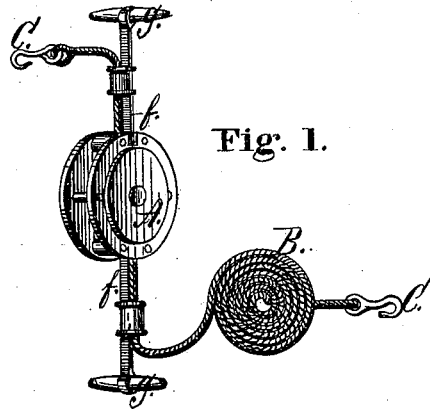


Fig. 1.

Fig. 2.

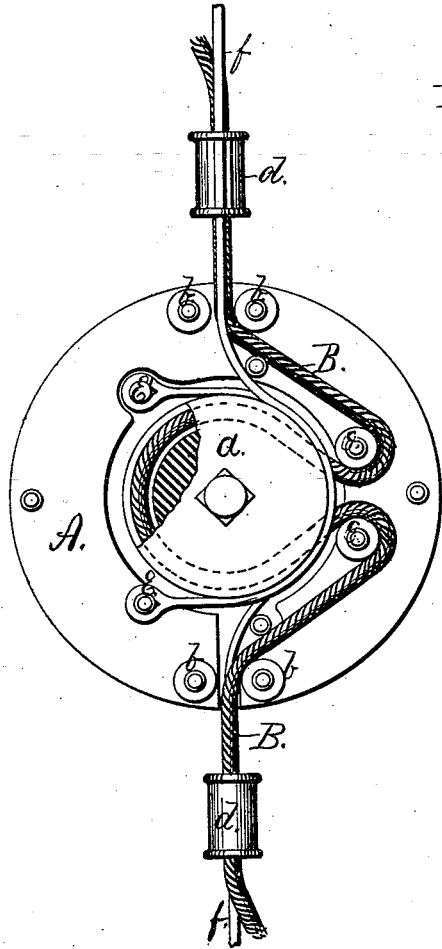


Fig. 3.

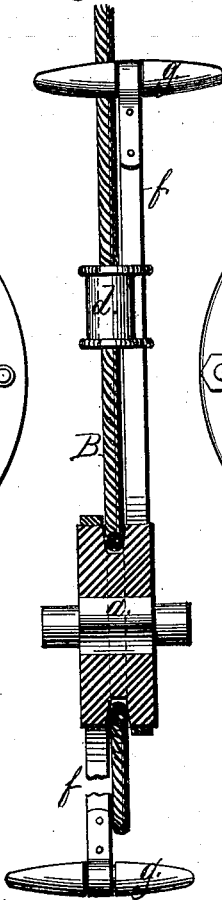
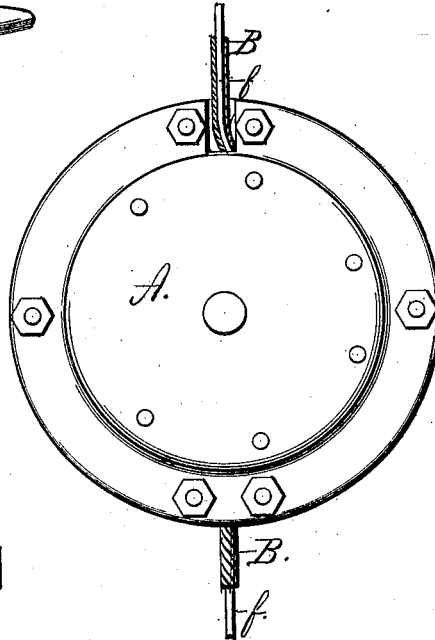


Fig. 4.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

WELCOME A. GREENE, OF LINCOLN, RHODE ISLAND.

## IMPROVEMENT IN FIRE-ESCAPES.

Specification forming part of Letters Patent No. **199,199**, dated January 15, 1878; application filed July 2, 1877.

*To all whom it may concern:*

Be it known that I, WELCOME A. GREENE, of Lincoln, in the county of Providence and State of Rhode Island, have invented new and useful Improvements in Fire-Escapes; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to improvements in fire-escapes; and consists in a portable paying-out or lowering device provided with friction-brakes, arranged so that the descent is controlled by the friction-brake, and no labor or judgment is required to operate the device, as will be more fully set forth hereinafter.

Figure 1 is a perspective view of the device, the upper hook being ready to be attached, and the person or property to be attached before the same is lowered. Fig. 2 is an enlarged interior view of the lowering device. Fig. 3 is a vertical section through the center of the sheave, the rope handle and guide being shown in view. Fig. 4 is an outside view of the lowering device.

Similar letters of reference indicate corresponding parts.

In the drawings, A is a case, made either of wood or metal. B is a rope, of any kind, preferably incombustible. C C represent hooks, or other devices by which the ends of the rope can be readily secured. *a* is a sheave journaled in the case A, and provided with a groove. *b b* are guide-rollers, between which the rope enters the case. *c c* are guide-rollers, arranged to guide the rope onto and from the sheave *a*, so that the rope will pass as nearly as possible around the whole periphery of the sheave *a*. *d d* are two guide-sleeves, through which the rope passes on entering and leaving the case A. E E are two pins, to each of which a friction-strap, *f*, is secured, and passed partially around the flat edge of the sheave *a*, and through a groove in the case A, after leaving which it passes through the guide-sleeve *d*, and is secured to the handle *g*, which may consist of a handle, as shown, or of any other device by which persons or articles may be

readily secured to the end of the friction- straps.

The principle on which this lowering apparatus is operated consists in suspending the weight to be lowered from the friction-strap, so that the weight, while it pulls down the whole case, also acts frictionally on the periphery of the sheave around which the rope B passes; and as the groove in the sheave binds the rope so that it cannot slip, and the sheave must rotate, therefore, if the pins E and the outlet-groove for the friction-band are so located that the whole of the weight suspended cannot act on the sheave to stop its revolution, and as the material of which the brake-surface of the sheave, as also of the friction-band, is selected so as to give a known fraction of resistance for the power exerted, this lowering device can be arranged to lower weights within a considerable range for weight at practically a safe speed.

As there is no machinery and no devices that have to be operated, this lowering device is well adapted for a fire-escape. All that is required is to secure one end of the rope at any secure place. Now secure a chair, a bed-sheet, or blanket, or any other convenient and suitable thing to the strap *f* and handle or hook *g*—that is, to the one on the long and suspended end of the rope—and secure the person or property to be saved. The rope will pass around the sheave *a* at a speed depending on the weight suspended, and as the weight is suspended from the friction-strap, the velocity of the descent depends on the difference between the weight and the frictional resistance of the weight on the sheave *a*. After one descent is made the whole can be pulled up, the other end of the rope secured, and the weight, suspended from the other friction-strap, will again descend at a sufficiently slow velocity to prevent injury.

The apparatus is simple in construction, portable, always ready, and requires no adjustment and no presence of mind to regulate its operation. It may be used for lowering weights and suspending scaffolds, as the rope B may be secured to the sleeve *d*, which is secured to the friction-strap *f*; or the rope may be secured

in any other way, and the scaffold suspended or made to descend slowly at will.

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

1. The combination, with the rope B, of the sheave *a* and friction-strap *f*, arranged so that the weight is suspended from the friction-strap, and the rotation of the sheave retarded by the same, as and for the purpose described.

2. In a lowering apparatus, the combination, with the case A, rope B, sheave *a*, and guides *b b* and *c c*, of the friction-bands *f f* and guides *d d*, arranged and operating as and for the purpose described.

WELCOME A. GREENE.

Witnesses:

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