

No. 633,357.

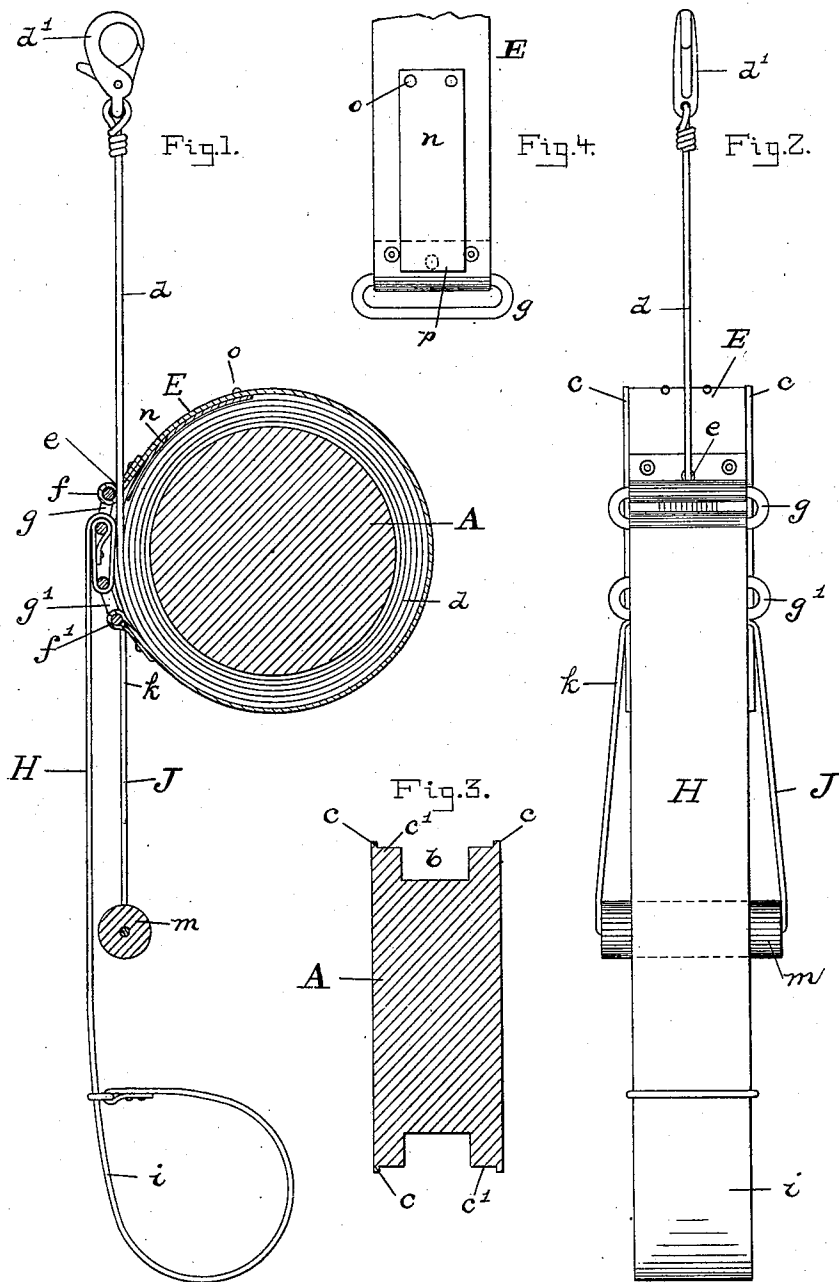
Patented Sept. 19, 1899.

J. P. CAULFIELD.

FIRE ESCAPE.

(Application filed July 14, 1899.)

(No Model.)



Witnesses:

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UNITED STATES PATENT OFFICE.

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FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 633,357, dated September 19, 1899.

Application filed July 14, 1899. Serial No. 723,764. (No model.)

To all whom it may concern:

Be it known that I, JAMES P. CAULFIELD, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Fire-Escapes, of which the following is a specification.

This invention relates to a portable fire-escape wherein a wire or cable is wound around an unmounted drum.

The invention consists in the novel combination and construction of parts, as hereinafter described and claimed.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section of my improved fire-escape. Fig. 2 is an edge elevation of same. Fig. 3 is a vertical diametrical section through the drum, and Fig. 4 is an end view of friction-band and spring.

Referring to the drawings by letter, A designates a drum, preferably of wood, without shaft or other central mount and provided with a circumferential central groove or recess *b* and at each edge with a circumferential flange *c*. A friction-surface *c'* is around the circumference of the drum between the two flanges. A rope or wire *d* of sufficient strength to support the weight of a person is wound around the drum and has position in the groove or recess *b*, and at the upper free end the said wire or rope carries a snap-hook *d'* or other equivalent device. The drum has no central shaft, but hangs from its rim or circumference, and the weight also is suspended from the rim or circumference of the drum, leaving the drum free to revolve. A friction-band *E* surrounds the circumference of the drum and has position between the two edge flanges *c*, and said band is in frictional contact with the friction-surface *c'* of the drum. A hole *e* in the friction-band permits the outer free end of the wire or rope *d* to pass upward as it unwinds. The friction-band *E* is provided at each end with an eye, one eye *f* being at one end and the other eye *f'* at the opposite end, and a link *g* is passed through the eye *f* and another link *g'* takes through the eye *f'*. A suspension-strap *H* has one end secured to the upper link *g* of the friction-band, and said strap is then passed downward and freely through

the lower link *g'*, then upward and again through the upper link *g* and outward and downward, and finally terminates in a loop or belt *i*, the purpose of which is to take around the body of a person. By this construction it will be seen that the drum has no central shaft or other mount and that any weight supported by the strap *H* will tend to draw the two links *g g'* and the two ends of the friction-band together more or less tightly around the drum and thereby operate as a brake to prevent the drum from revolving. It will also be seen that the heavier the weight attached to the loop *i* of the strap the greater is the frictional contact of the band *E* on the rim of the drum. By this construction of connecting the suspension-strap directly to the friction-band encircling the drum and causing the weight to tighten the band and act as the braking power it has been found that the friction-band *E* may be made to contact with the drum hard enough to cause the same to revolve slowly or even to entirely stop the revolution of the drum, and thus cause the load to hang suspended. In order, therefore, to relax or ease up on the friction contact of the band with the drum, I provide a hand-operated releasing device *J*, consisting of a wire bail *k*, one end of which is passed through the eye *f'* of the lower end of the friction-band. The other end hangs downward and carries a cylindric hand-pull *m*. To relax or ease up on the frictional contact of the band with the circumference of the drum, it is only necessary for the person escaping to pull gently on the handhold *m*, which action causes the friction-band to be slightly drawn away from the drum and thereby remove part of the brake action and permits the drum to slowly revolve and unwind the wire or rope *d* and lower the person with safety.

I have found it to be of great practical importance to this device to have the rope or wire *d* tightly wound on the drum. If the coils wind on the drum loosely, as they are almost sure to do when a wire is employed, the result will often be that a person's weight will so strain the wire as to force it in between the loosely-wound coils, where it will become wedged and refuse to unwind, and the device is rendered useless in an emergency. I have therefore provided a presser-spring *n*, con-

sisting of a thin steel plate, one end of which is secured by rivets *o* to the inner side of the friction-band *E*, so that the free end *p* of the spring will be adjacent the hole *e* in the friction-band, through which the wire *d* is drawn. 5 When turning the drum to wind up the wire, the free end *p* of the spring-plate presses the wire as it is drawn through the hole *e*, and this pressure insures that the wire will be 10 coiled tightly around the drum.

The operation of the device is simple and obvious.

Having thus described my invention, what I claim as new, and desire to secure by Letters 15 Patent, is—

1. In a fire-escape the combination of a drum provided with a central circumferential groove, *b*, and a friction-face, *c'*, at each side of the groove; a cord or wire wound around 20 the drum and by which the latter hangs; a friction-band, *E*, encircling the drum and having at each end a link; a suspension-strap, *H*, having one end attached to one link and passed freely through the other link and the 25 other end of said strap having a loop to take about a person so that the weight of the per-

son will draw the two links together and bind the strap around the drum; and a hand-pulling device, *J*, attached to the lower end of the friction-band and hanging downward to 30 relax the contact of the band with the drum, as set forth.

2. In a fire-escape the combination of a drum provided with a circumferential friction-face; a rope or wire wound around the 35 drum and by which the latter hangs; a friction-band encircling the drum and having a hole for the passage of a rope or wire and provided on its inner side with a plate-spring secured thereto by one end with the free end 40 adjacent the said hole and pressing the wire when winding up; and a suspension-strap for holding a person and connected with the two ends of the friction-band so as to bind it around the drum, as set forth. 45

In testimony whereof I affix my signature in the presence of two witnesses.

JAMES P. CAULFIELD.

Witnesses:

CHARLES B. MANN, Jr.,
CHARLES VIETSCH.