No. 827,510. PATENTED JULY 31, 1906.

C. F. DAVY.

FIRE ESCAPE.

APPLICATION FILED AUG. 5, 1904.

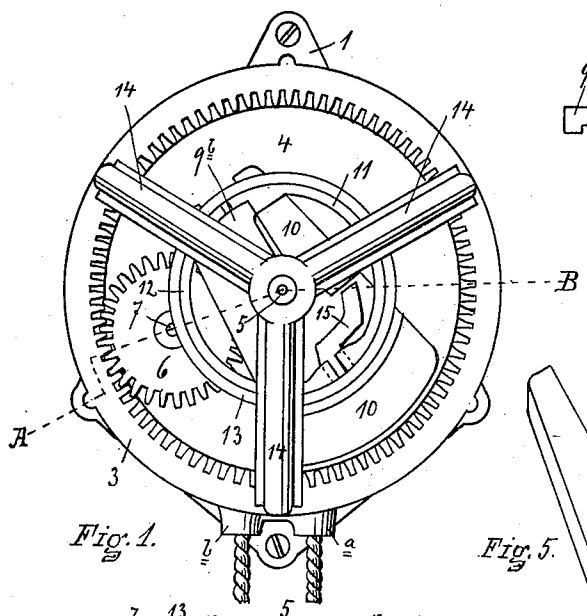

Fig. 1.

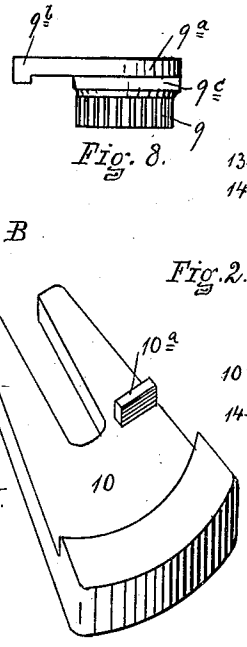

Fig. 5.

Fig. 8.

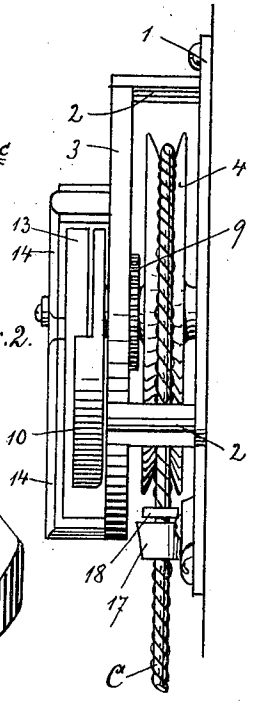

Fig. 2.

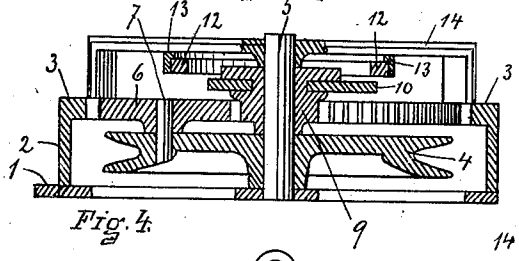

Fig. 4.

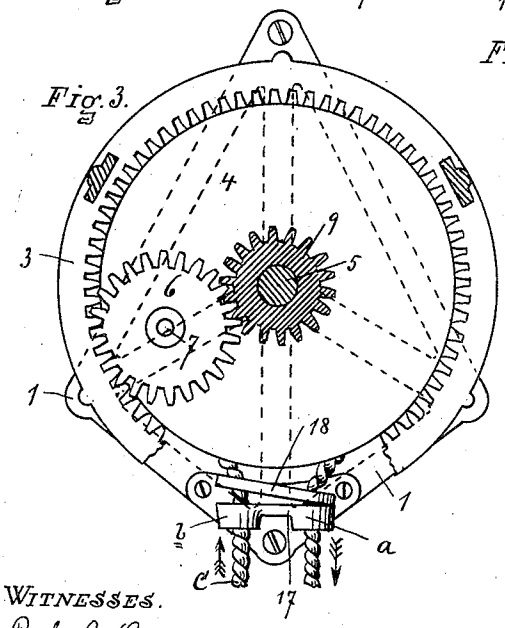

Fig. 3.

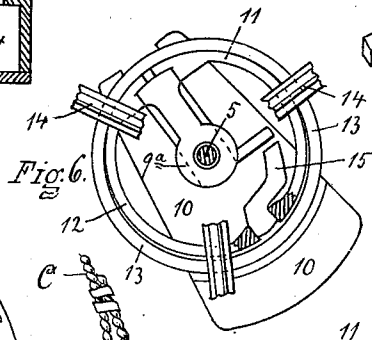

Fig. 6.

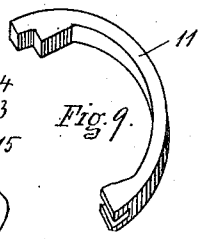

Fig. 9.

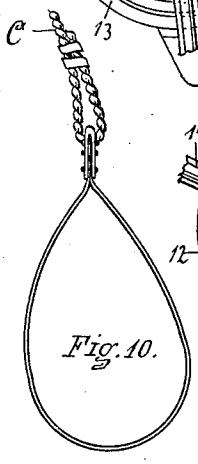

Fig. 10.

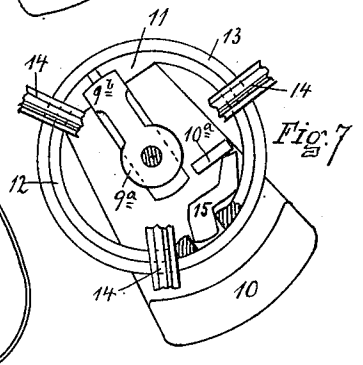

Fig. 7.

WITNESSES.

Rich. A. George

Emma S. Hesse.

INVENTOR

CHARLES F. DAVY

BY Robinson, Martin & Jones

ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES F. DAVY, OF MOHAWK, NEW YORK.

FIRE-ESCAPE.

No. 827,510. Specification of Letters Patent. Patented July 31, 1906.

Application filed August 5, 1904. Serial No. 219,589.

To all whom it may concern:

Be it known that I, CHARLES F. DAVY, of Mohawk, in the county of Herkimer and State of New York, 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 of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form part of this specification.

The object of my present invention is to provide a fire-escape of that class wherein the speed of the rope or cable is automatically regulated and which is provided with a return rope or cable whereby the device is always ready for rapid operation.

A further object of my invention is to provide a fire-escape device which is simple in construction and easily operated and not liable to get deranged or out of serviceable condition.

In the drawings, Figure 1 shows a face view of my fire-escape mechanism with the casing which may be employed in connection therewith removed. Fig. 2 is an edge view of the same. Fig. 3 shows details of the mechanism from the front or face with parts of the superimposed mechanism removed. Fig. 4 shows a section taken on line A B of Fig. 1. Fig. 5 shows in perspective a sliding weight employed in the construction. Figs. 6 and 7 show details of the regulating mechanism in two of the positions of the operating parts. Fig. 8 shows in side elevation a gear-pinion with crank-arm and other parts employed in the construction. Fig. 9 shows in perspective one of the brake-rings employed. Fig. 10 shows the end of the rope employed in the construction with a sling or loop attached thereto.

Referring to the reference letters and figures in a more particular description, 1 indicates the base-plate, by means of which the device can be readily secured to a wall or other suitable supporting-surface and which base-plate may be reduced in weight by forming it of bars, as shown more particularly in Fig. 3 of the drawings. The base-plate is of a general triangular form, as shown in this figure. Supported from the base-plate by posts 2 is an internal gear 3. The internal gear 3 is supported at a sufficient distance from the base-plate 1 to provide a suitable space for the reception of the groove, rope, or cable wheel 4, and the cable-wheel is mounted on a shaft 5, secured in the frame so as to rotate freely. Pivoted on the side of the cable-wheel 4 and engaging with the internal gear 3 is the cog planet-pinion 6. The pivot of the planet-pinion 6 is indicated by 7. The planet-pinion on the inner side engages with the gear-pinion 9, mounted on the shaft 5, to rotate freely thereon. The pinion 9 is formed integral with a head 9^a and an arm 9^b. The head 9^a has grooves 9^c in its side, which receive the forked end of the sliding weight 10, and supports the weight in a parallel plane to that of the internal gear 3. The arm 9^b engages with the contiguous ends of the semicircular brake-rings 11 12, which rings occupy a position within the friction-ring 13, supported in a fixed position concentric with the shaft 5 by cross or frame bars 14 14. Between the other meeting ends of the brake-rings 11 and 12 is introduced one end of the operating-lever 15, and the other end of the operating-lever is arranged to engage with a projection 10^a on the weight 10. The rope or cable C, which passes around the wheel 4 at the lower side of the device, passes through a pair of eyes *a b* in a bracket part 17 of the frame. These eyes *a* and *b* are comparatively close together as compared with the diameter of the wheel 4, and between the wheel and the bracket 17 there is introduced a link 18, through which both runs of the rope C pass after leaving the periphery of the wheel and in passing to the eyes *a* and *b*, respectively. This link 18 in a way may be said to float on the rope, depending in which way the rope is running. When the rope is moving in the direction indicated by the arrows in Fig. 3, the link 18 will assume substantially the position shown in Fig. 3. When the rope is running in the opposite direction, it will assume the reverse inclined position.

The rope C may be made a continuous band; but I prefer to provide it of sufficient length with a belt or harness at each end and a knot or enlargement at each end which will not pass through the eyes *a b*.

It will be noted that the mechanism is adapted to operate in either direction, and when weight is attached to one of the ropes the mechanism will operate to allow the wheel 4 to revolve and pay out the rope on the side to which the weight is attached, and the speed will be automatically regulated as follows: When the centrifugal force is suffi-

cient on the weight 10, it moves away from the center and the projection 10^a engages with the lever 15. The lever 15 acts as a pry to separate the ends of the semicircular brake-rings 11 and 12 and force them into stronger contact with the brake-ring 13. This tends to increase the friction, and of course the device is self-adjusting for the reason that the higher the speed with which the weight 10 is moved around the center the greater force it will exert on the brake-rings, and thereby increase the friction to the desired extent to prevent the too rapid revolution of the wheel 4 and the paying out of the rope. It makes but a trifle difference whether a comparatively heavy or light weight is attached to the rope, as the friction is applied more vigorously on account of the speed than on account of the increase or decrease of the weight.

The link 18 serves to close the rope around the wheel 4 in such manner that all danger of an undue amount of slipping is obviated and also serves to apply a certain amount of the friction to the rope at that point.

When a rope with two ends is employed, of course the mechanism will first be operated in one direction and then in the other direction, depending on which position the rope occupies. When a continuous band is employed, of course either one of the runs can be used as the descending rope.

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

1. The combination in a fire-escape of a wheel around which the rope passes, so as to form two runs, an automatic regulating mechanism to regulate the rotation of the wheel, the floating link 18 mounted on the two runs of rope as they leave the wheel, and means for maintaining the link in operative position, substantially as set forth.

2. The combination in a fire-escape of a frame, a wheel mounted in the frame to rotate two contiguously-arranged eyes on the frame through which the rope passes to and from the wheel respectively, and a floating link loosely mounted on the rope adjacent to and supported by said eyes, substantially as set forth.

In witness whereof I have affixed my signature, in presence of two witnesses, this 24th day of June, 1904.

CHARLES F. DAVY.

Witnesses:
JOSEPH R. HORIGAN,
E. S. HESSE.