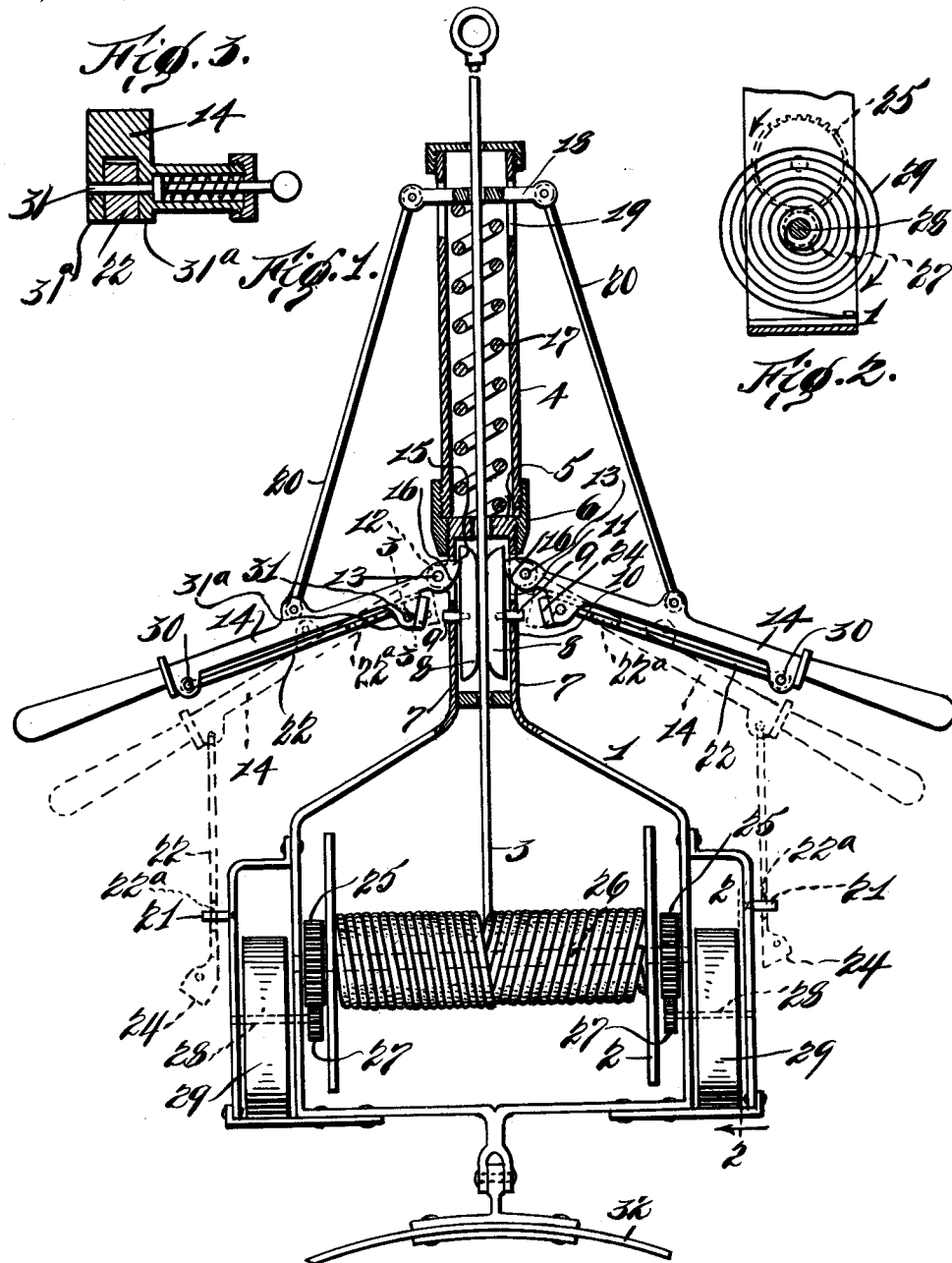


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FIRE ESCAPE.
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FIRE-ESCAPE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM BERGENROTH, a citizen of the United States of America, residing at Manhattan borough, city, county, and State of New York, have invented certain new and useful Improvements in Fire-Escapes, of which the following is a full, clear, and exact description.

This invention relates to an improvement in fire-escapes, the object being to provide a device by which a person or persons can escape from a burning building.

My improved device is arranged so that the person using it can control the rapidity of his or her own escape by a novel arrangement of clutches designed to grip the rope with which the device is equipped and which is secured at one end to the building, to the outer wall thereof, or at a point within a room adjacent a window.

My improved device is also equipped with a safety device by which means the operator can control his or her descent should the automatic clutch operating spring break or otherwise become defective.

Other features of improvement, such as a novel cable rewinding device, will also be hereinafter described.

I will now proceed to describe my invention in detail, the novel features of which I will point out in the appended claims, reference being had to the accompanying drawing, forming part hereof, wherein,—

Figure 1 is a front elevation of my improvement, partly in section; Fig. 2 is a sectional detail view, the section being taken on a line 2—2 in Fig. 1; and Fig. 3 is an enlarged sectional detail view of one of the clutch operating levers, the section being taken on line 3—3 Fig. 1.

In the drawing 1 indicates a frame or hanger provided at its lower end with a reel 2 carrying a rope or cable 3 which passes through a casing 4 connected to the frame 1 at the upper end thereof. The upper end of said frame carries a head 5 which is threaded into a union 6, which union connects the casing 4 and frame 1. The rope 3 passes through the head 5 as shown. Between the side members 7 of the frame 1, and adjacent the head 5, I place (in this instance) two shoes or clutches 8 having pins 9 passing loosely through openings 10 in the said frame members 7. The frame members 7 are also provided with slots 11 and adjacent said slots with lugs 12 which sup-

port the pivots 13 of (in this instance) two levers 14. The levers 14 carry toes 15 bearing against the shoes 8, one surface 16 of said toes constituting a cam to jam or force the shoes 8 against the rope 3.

To automatically actuate the arms 14 to force the shoes 8 against the rope, I employ a spring 17 which at its lower end bears against the head 5 of the frame 1. The upper end of said spring bears against a slidable cross-head 18 which passes through slots 19 in the casing 4. The head 18 is connected by links 20 to the levers 14. In the position shown in Fig. 1, the spring 17 is holding the levers 14 upwardly, thereby forcing the shoes 8 against the rope 3. To release the shoes 8, the handles 14 will be pulled downwardly to the dotted position, and the pivotal latches 22 carried thereby caused to engage the pins 21 on the frame 1, whereby the said levers are held in their downward or released position. To engage the pins 21 each latch 22 is provided with an eye 22^a. To prevent the frame from descending too rapidly, should the spring 17 break, I provide means whereby the shoes can be actuated to grip the rope manually or by the use of the device.

To carry out this feature of the invention, I provide each shoe 8 with the pin 9 passing loosely through the side members 7 of the frame 1, said pins being alined with lugs 24, one on each latch 22 of the levers 14. Should the spring 17 break, the levers 14 would be pulled downwardly until the lugs 24 strike the pins 9; a further downward pull of the levers will force the shoes against the rope 3, thereby gripping the same.

A further feature of the invention consists of a device to rewind the rope upon the reel 2 after a descent. The device herein illustrated consists of a gear 25 carried by the shaft 26 of the reel 2, said gear having in mesh therewith a pinion 27 carried by a shaft 28 which also carries a coil spring 29 (see also Fig. 2.) While the frame is descending the spring 29 will be wound up, and when the frame is detached from the body, the spring will rotate the reel 2, thereby causing it to travel upwardly upon the rope, which movement will rewind the rope upon the reel.

As shown in Fig. 1 the lever latches 22 are pivotally secured at one end to the levers 14 at 30, spring actuated pins 31 being em-

ployed to hold the said latches, at the other end, in alinement with said levers, as shown in Fig. 1. The pins 31 pass through the lugs 24, on the latches 22 and brackets 31^a on the levers 14 (see Fig. 3).

For attachment to the body, the frame 1 is provided with an adjustable belt 32 which can be secured in any desirable manner to the body.

10 To use the device, the rope 3 is secured, at its upper end, to a suitable support within or on the outside of the building. The strap 32 is then passed around the body and secured, the levers 14 having in the meantime
15 been released from the holding pins 21 and caused to force the shoes inwardly by the spring 17. To descend, the user will pull the levers 14 slightly downward to release the shoes, or take a slight pressure off the
20 rope. The device will now descend as gradually as the user wishes. Should the spring 17 break the levers 14 would be pulled downward, as described, to force the shoes 8 inwardly. While the frame is descending, the rope 3 will unwind and the
25 spring 29 will wind up. When the strap 32 is taken from the body the spring 29 will react and rewind the rope 3.

Having now described my invention, what
30 I claim and desire to secure by Letters Patent is:

1. In a fire escape, a frame, a rope, clutches carried by the frame and engaging said rope, means to actuate the clutches consisting of
35 a plurality of levers pivotally secured to said frame, pivotal latches carried by said levers to engage the frame and hold said levers out of contact with said clutches, pins carried by the clutches passing through said
40 frame, lugs carried by said latches adapted to aline with said pins, and means to support said latches in parallelism with said levers to cause the lugs carried thereby to aline with the pins on said clutches.

45 2. In a fire-escape, a frame, a rope,

clutches carried by the frame and engaging said rope, means to actuate the clutches consisting of a plurality of levers pivotally secured to said frame, a spring to swing said levers upwardly and force the inner ends
50 thereof against said clutches, pins carried by said clutches, and means carried by the levers arranged to contact with said pins and force said clutches against the rope, when said levers are swung downwardly. 55

3. In a fire-escape, a frame, a rope, clutches to engage the rope, a vertically movable cross-head, means operable by the cross-head to actuate the clutches, a spring to
60 force said cross-head upwardly to cause the clutches to engage the rope, and means to draw said cross-head downwardly and put said spring under an increased tension and to also disengage the clutches from the rope. 65

4. In a fire-escape, a frame, a rope, clutches to engage the rope, a vertically movable cross-head, means operable by the cross-head to actuate the clutches, a spring surrounding the rope to force said cross-head
70 upwardly to cause the clutches to engage the rope, and means to draw said cross-head downwardly and put said spring under an increased tension and to also disengage the clutches from the rope. 75

5. In a fire-escape, a frame, a rope, clutches to engage the rope, a vertically movable cross-head, levers to actuate said clutches, links connecting the levers and the cross-head, a casing supporting said cross-head, and a spring within the casing bearing
80 against said cross-head and tending to force it upwardly to cause said levers to actuate the clutches, said levers being manually operable to release said clutches.

Signed at New York city, N. Y., this
10th day of December, 1914. 85

WILLIAM BERGENROTH.

Witnesses:

MAURICE BLOCK,

EDWARD A. JARVIS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."