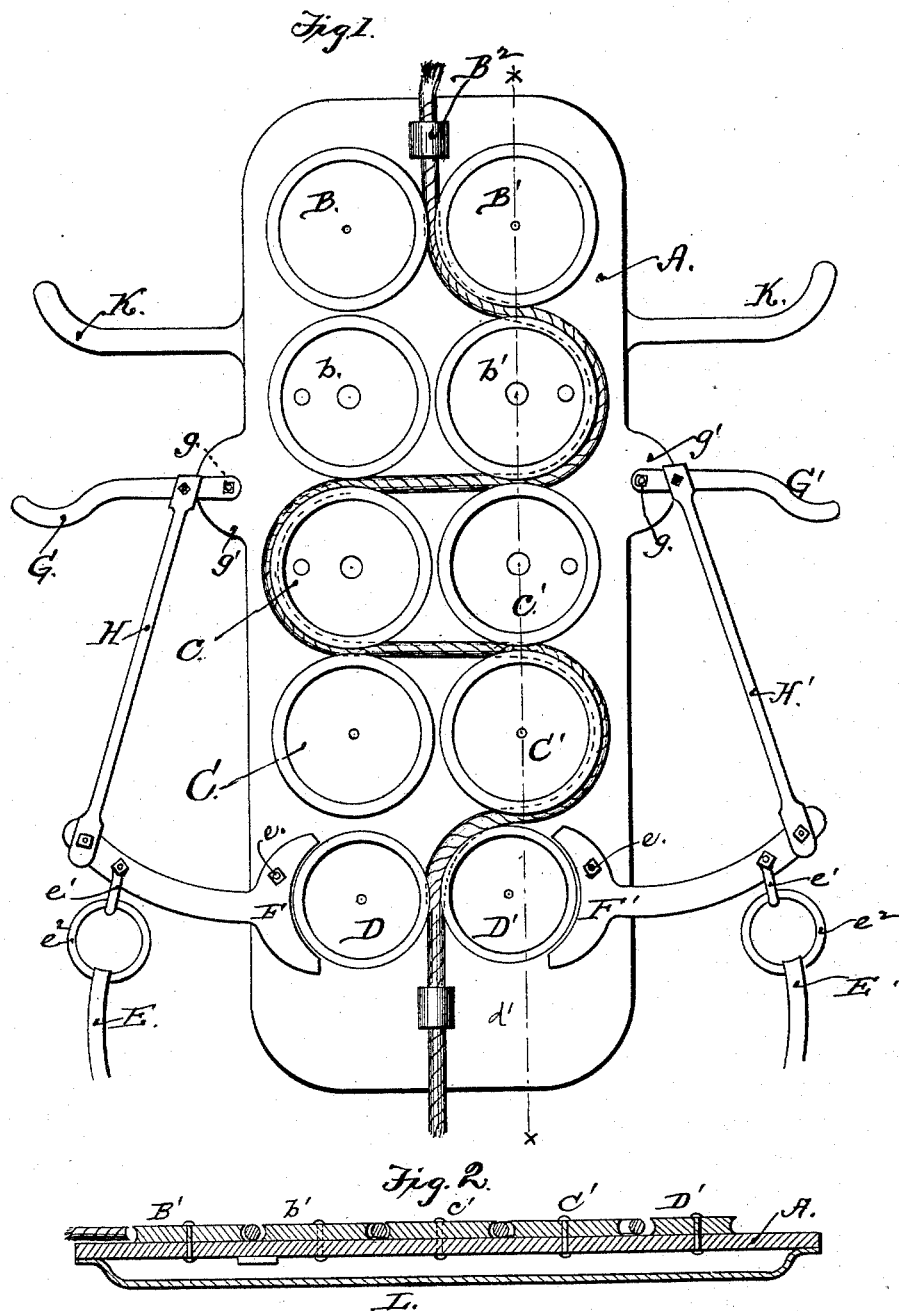


(No Model.)

H. S. BLISS.  
FIRE ESCAPE.

No. 456,532.

Patented July 21, 1891.



Witnesses:  
James R. Raymond  
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# UNITED STATES PATENT OFFICE.

HENRY S. BLISS, OF RAPID CITY, SOUTH DAKOTA, ASSIGNOR OF SEVENTEENTHS TO JACOB S. GANTZ, J. VAN BUSKIRK, L. L. DAVIS, FRED. M. GANTZ, JOHN P. McELROY, A. W. BANGS, LYMAN PARKHURST, AND JOHN R. BRENNAN, ALL OF SAME PLACE.

## FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 456,532, dated July 21, 1891.

Application filed June 2, 1890. Serial No. 353,911. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY S. BLISS, a citizen of the United States, and resident of Rapid City, in the county of Pennington and State of South Dakota, have invented new and useful Improvements in Fire-Escapes; and I do hereby declare the following to be a full, clear, and exact description of said invention, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates particularly to an improved friction fire-escape, in which the weight of the person operates the braking mechanism and prevents a rapid descent; and the object of my invention is to produce an apparatus of the character described that will always be under the control of the operator, one that can be operated by one or two hands, one that cannot drop on account of the operator's inability to work the same, and one that will protect the hands of the operator and parts of the device when passing over cornices, sills, or other obstructions.

With these objects in view my invention consists of a back plate to which a series of guiding-rollers are attached and between which the rope is passed, a pair of braking-levers, to which the supporting-strap is attached, brake-shoes carried on the ends of the brake-levers and adapted to bear upon the lower guiding-rollers, and the regulating-levers for releasing the brake-shoes.

My invention consists, further, in providing the rear face of the back plate with guiding-strips, whereby obstructions may be passed; and it consists, further, in certain details of construction and general arrangement of parts, as will be hereinafter fully described, and specifically designated in the claims.

In the drawings forming a part of this specification, and in which like letters of reference indicate the same or corresponding parts, Figure 1 represents a front elevation of my improved device, and Fig. 2 a vertical section taken on the line *xx* of Fig. 1.

In carrying out my invention I employ a

metallic back or supporting plate A, the dimensions of which are determined by the weight it is intended to sustain. Upon the front side or face of this plate are pivoted a number of revolving rollers, around which the rope passes, and a number of rigid guiding-rollers or circular disks are also secured to the front face, which serve to increase the friction and also assist in keeping the rope in position. For convenience of description I shall designate the movable rollers by capital letters and the rigid ones by the small

Near the upper end of the plate A are pivoted the grooved rollers B B', the centers of which are in horizontal alignment, and said rollers are placed a sufficient distance apart to permit the rope R to pass between the grooved peripheries of the same. A guiding-eye B<sup>2</sup> is secured to the plate a short distance above the rollers B, the rope R passing through said eye before passing between the rollers. Beneath the movable rollers B B' are secured the rigid circular disks *b b'*, the centers of which are in horizontal alignment with each other and in vertical alignment with the adjacent movable rollers. The peripheries of the disks *b b'* are also grooved, and the rope R, after passing between the rollers B B', is passed around the roller or disk *b'*. A second pair of rigid disks *c c'* is secured beneath the disks *b b'*, and the rope passes around the disk *b'*, over the disk *c'*, and then around the disk *c*. A pair of rollers C C' are pivoted directly beneath the disks *c* and *c'*, both of which are grooved as the other rollers and adapted to guide the rope, said rope passing between the rollers C and C' and the disks *c c'*.

Beneath the rollers C and C' are pivoted the lower guiding braking-rollers D and D'. The rope, after passing between the rollers *c'* and C', is passed around the roller C' down between the rollers D and D' and out through the lower guiding-eye *d'*. The device as thus far described will produce a considerable friction upon the rope; but to produce a greater amount and render the device safer I

employ the braking-levers F F', which are pivoted near their inner ends, as at *e*, and at their inner ends are provided suitable brake-shoes, which are curved, as shown, and are adapted to bear upon the peripheries of the rollers D and D', respectively.

Clips *e'* are secured near the outer ends of each brake-lever, and in said clips are hooked the rings *e''*, to which the strap E, supporting the person, is attached. The weight of the person will therefore throw the brake-shoes forcibly against the rollers D and D' and prevent a rapid descent of the apparatus upon the rope, and if the weight be sufficient it will stop the device entirely, and to regulate the escape in its descent I have devised the regulating-levers G G', which are pivoted, as at *g*, to the lugs or ears *g'* integral with the back plate, and said levers G G' are connected near their inner ends to the extreme outer ends of the brake-levers F and F', respectively, by means of the link arms or rods H H'. Grip-handles K K' are rigidly secured to the back plate a short distance above the regulating-levers G G'.

The upper end of the rope is rigidly secured within the room or to the building from which the escape is to be used. The free end of the rope is passed through the upper eye between the movable and rigid rollers, as shown, and out through the lower guide-eye. The apparatus is now ready for use, and when it is desired to operate the same the strap S is placed around the body beneath the arms and the descent begun. The weight of the person will always operate to throw the brake-shoes upon the rollers D D' and prevent a rapid descent, so that should a person lose presence of mind one cannot make a rapid descent. When the descent is begun, the hand-levers are grasped by the fingers and the thumbs placed beneath the regulating-levers, and by slightly raising the said levers the brake-levers are raised and the shoes drawn away from the rollers D D' and the velocity of the descent increased accordingly. Should it be desired to stop the apparatus at any point it can be done by releasing the upward pressure upon the regulating-levers.

Guiding-strips L are secured to the rear face of the back plate, said strips being sprung or bent outwardly at or near their centers, as shown, the purpose of said strips being to protect the hands of the operator as the ap-

paratus passes by sills, cornices, or other obstructions. The strips are sprung outwardly or rearwardly at points adjacent to the hand-grips and regulating-levers, so that when they meet a sill or other projection they throw the device forward a sufficient distance to prevent the hands of the operator from being injured.

It is obvious that this device can be worked with one hand, and it is also clear that some of the rigid rollers might be omitted. When one descent is made, the apparatus can be drawn back and another descent made, and so on.

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

1. In a friction fire-escape, the combination, with a back plate, of a series of rollers pivoted thereto, brake-levers pivoted to said plate, shoes attached to said levers and bearing upon the lower rollers, and the strap attached to the brake-levers, substantially as and for the purpose specified.

2. In a friction fire-escape, the combination, with a back plate, of a series of guiding-disks, the brake-levers, brake-shoes, regulating-levers, link-rods, hand-grips, and the straps attached to the outer ends of the brake-levers, substantially as and for the purpose specified.

3. In a friction fire-escape, the combination, with a back plate, of the upper and lower guiding-eyes, the upper and lower revolving rollers, the intermediate rigid disks, the brake-levers, brake-shoes, link-rods, regulating-levers, hand-grips, and supporting-strap, all arranged and adapted to operate substantially as and for the purpose specified.

4. An improved fire-escape consisting of a back plate, the upper and lower guiding eyes, the upper and lower revolving rollers, the intermediate rigid disks, the brake-shoes, brake-levers, supporting-strap, link-arms, regulating-levers, hand-grips, and the protecting-strips attached to the rear face of the back plate, all substantially as and for the purpose specified.

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

HENRY S. BLISS. [L. S.]

Witnesses:

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