(No Model.) 2 Sheets—Sheet 1.

W. BRUCE.

FIRE ESCAPE.

No. 405,945. Patented June 25, 1889.

Fig. 1.

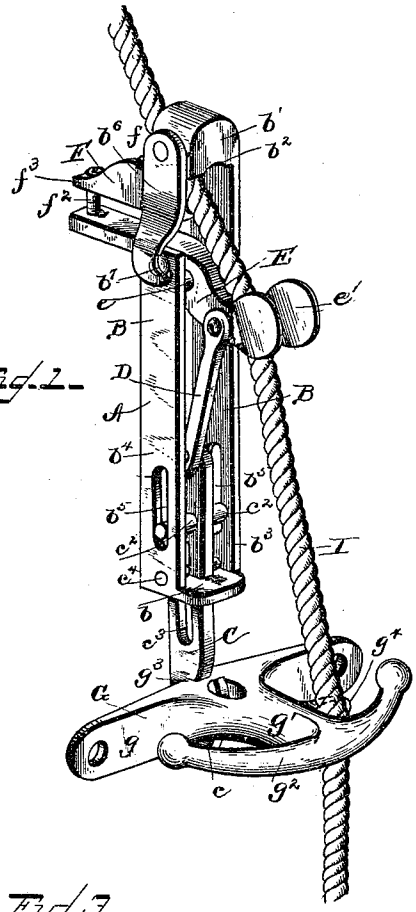


Fig. 2.

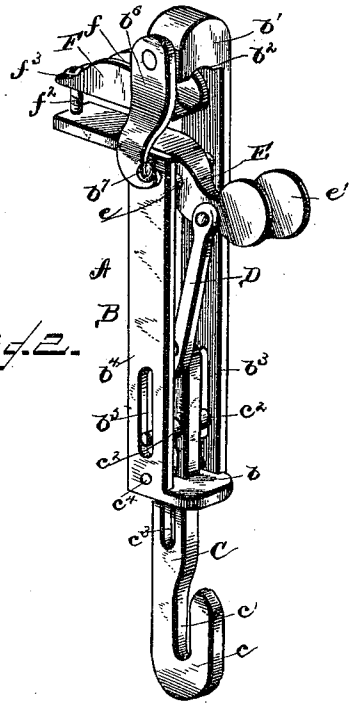


Fig. 3.

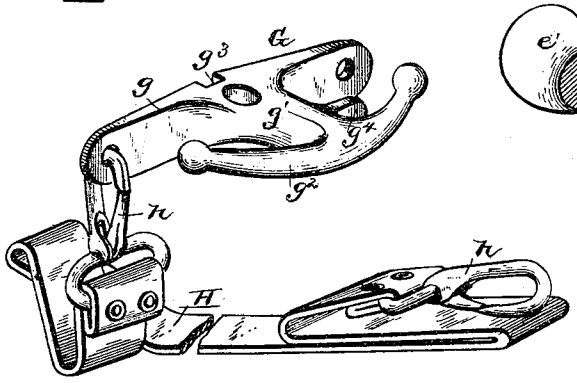
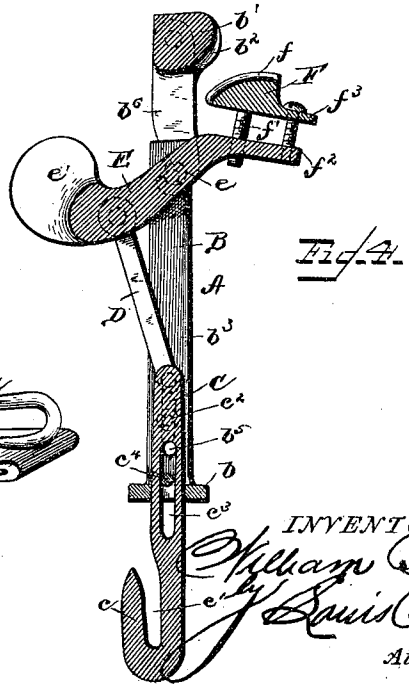


Fig. 4.



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Fig. 5.

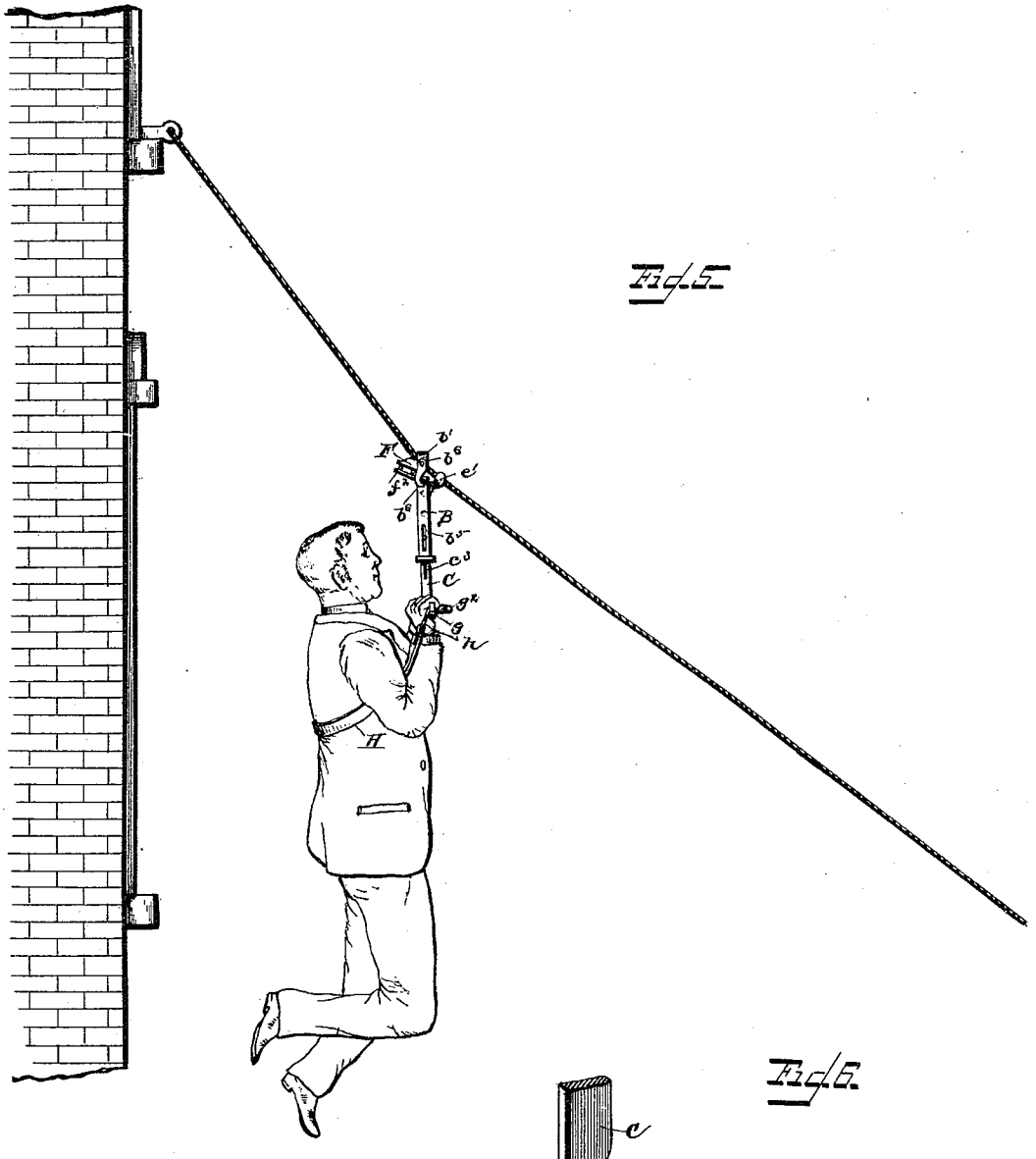
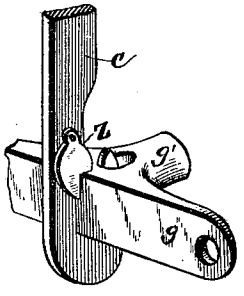


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM BRUCE, OF WELLSVILLE, NEW YORK.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 405,945, dated June 25, 1889.

Application filed February 23, 1889. Serial No. 300,869. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BRUCE, a citizen of the United States, and a resident of Wellsville, in the county of Allegany 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.

The invention relates to improvements in fire-escapes, the object being to provide a device of the kind which will be of simple and durable construction and of such dimensions as to be easily transported in an ordinary traveling sack or satchel, and which will be effective and certain in action; and it consists in the construction and novel combination of parts hereinafter described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

It should be premised that the device herein described is to be used in conjunction with the rope usually kept in hotel-rooms and provided with a hook on one end for attachment to any proper support within the room, the other end being thrown into the street when in use.

The device is made in separable parts for convenience in transportation.

In the accompanying drawings, Figure 1 represents a perspective view of the whole device with a portion of the rope in place therein. Fig. 2 represents a perspective view of the upper or longitudinal detachable part of the escape from the side on which the rope enters. Fig. 3 represents a similar view of the lower or transverse detachable part thereof with the supporting-strap attached. Fig. 4 represents a view of said longitudinal part from the side opposite the rope. Fig. 5 represents a side view of the device in action, the rope stretching at an angle from the window of a building; and Fig. 6 is a detail view of the lower part of the device.

Referring to the drawings by letter, A designates the longitudinal or upper part of the device, from which the lower transverse part is detachable. The said longitudinal portion is composed of the rectangular frame B, the hooked bar C for attachment of the transverse part of the device, the brake for the rope, and the brake-actuating lever and link.

The frame B consists of the base-plate b, perforated centrally for the passage of the hooked bar, hereinafter described, the head-block b', forming part of the rope-brake, having its inner surface curved upward from front to rear and provided with the rope-groove b^2 in said surface, the side bars b^3 b^4, provided with the similar opposite longitudinal slots b^5, and the latch-bar b^6, pivoted to the side of the head-block at its upper end and having in the edge of its lower end a notch adapted to engage the pin b^7, that stands outward from the upper end of the side bar b^4, the said pin being preferably headed to prevent the latch-bar from swinging outward.

The hooked bar C is preferably rectangular in cross-section, and fits in and renders through the perforation in the base-plate b of the frame B. At the lower end of the hooked bar is the hook c, having the parallel-edged notch c' between its point and shank. The hooked bar is provided near its upper end with a transverse shaft c^2, having its ends reduced and formed into journals, which enter and travel in the slots b^5 of the side bars b^3 b^4 of the frame B.

c^3 is a longitudinal slot in the hooked bar below said shaft, which slot straddles a transverse bar c^4, secured at its ends to the side bars b^3 b^4, and thereby limits the travel of the hooked bar.

D is a link-rod with its lower end pivoted to the upper end of the hooked bar C and having its upper end pivoted to the double-armed lever E, that controls or actuates the rope-brake. The said lever has about centrally a transverse shaft e, journaled at its ends in the side bars b^3 b^4, near the upper end of the latter, the end of the front arm of the lever, or the arm adjoining the rope, being enlarged vertically and laterally and provided with a vertical rounded notch e' for the reception of the rope. The link-rod is pivoted to the lever E just to the inner side of said enlarged end. The opposite arm of the lever E is straight and has the brake-shoe attached to it.

F is the brake-shoe, consisting of a metal

block, the upper edge of which is curved downward from front to rear and is provided with the longitudinal rope-groove f, which stands below and opposite the groove b^2 of the head-block and forms the lower portion of the rope-brake. It will be observed from the above that the grooves b^2 and f are convex in opposite directions and will bite on the rope that passes between them only at their central portions, so that too much friction cannot be produced and the descent of the person attached be stopped or too much retarded.

f' is an adjusting-screw standing at right angles from the lower surface of the brake-shoe, near the front end thereof, and engaging in a threaded opening in the rear or outer arm of the lever E, and f^2 is a set-screw passing through an unthreaded opening in the heel-plate f^3 of the brake-shoe and engaging in a threaded opening in the rear arm of said lever near the end thereof. By means of the screw f' the brake-shoe F may be moved nearer to or farther from the head-block of the frame A to thereby accommodate ropes of different diameters, and by means of the screw f^2 the brake-shoe may be fixed in position when adjusted by the screw f'.

The transverse detachable part G of the device consists of the straight hand-bar g, the shank g', standing frontward centrally therefrom, and the double-armed guard-bar g^2 at the end of said shank, which guard-bar has its end curved inward toward those of the hand-bar. In the shank g', adjoining the hand-bar, is a vertical opening of proper size to receive the point of the hook c, and immediately in rear of said opening is the vertical septum g^3, that connects the opposite arms of the hand-bar and enters the notch c' of the hook c of the bar C and connects the longitudinal and transverse parts of the device together. The said parts can thus obviously be separated and placed side by side in a traveling bag or satchel, which might be inconvenient or impossible if the said parts are integral and at right angles to each other. Standing laterally from the shank g' is a projection g^4, which serves a purpose hereinafter explained.

H is a strap, which is in practice an armpit-belt, and which has secured to its ends the snap-hooks h, of ordinary construction, that engage in suitable openings in the ends of the arms of the hand-bar g. This strap is made of any suitable material; but some slightly-elastic material is preferable.

The securing of the rope at its lower end when the person is to slide on an angle is done by three, four, or more persons on the street, who, grasping the rope, run it back to an angle sufficient to protect it from the flames that might be belching from the windows below that from which it extends. The rope being first secured by means of its hook or other device to a proper support, is thrown to the street and grasped by three or more persons, who run it out to an angle, the strap h is passed by the escaping person around his body, below his armpits, and by means of the snap-hooks secured to the openings in the ends of the hand-bar. Then lifting the latch-bar b^6 he places the head of the device on the rope through the aperture made by lifting the said latch-bar, and replacing the latch-bar he swings off on the rope. His weight causes the brake-shoe, by means of the link bar and lever, to bite or bind upon the rope, and on account of the ensuing friction the rapidity of his descent is retarded, and he easily and safely slides to the ground. When sliding down the rope vertically, with no attachment nor person touching the rope at its lower end, the rope being dropped vertically to the ground or sidewalk, the body-strap is secured as in the other case, and lifting the latch as before, the rope is placed between the head of the device and the brake-shoe and the latch replaced. Then passing the rope over the notch e', it is also passed between the hand-bar and its projecting guard on the side, where is placed and inside of the small shoulder, preventing the rope from rubbing against itself, then around the shank, first passing between the hand-bar and guard on the opposite side, and again through the first opening but outside of the small shoulder, thus forming a complete turn or hitch around the projecting shank. Then grasping the rope with one or both hands a foot or less below the device, the person escaping lowers himself out of the window at a speed voluntary and easily quickened or retarded by a greater or less pressure of the hand on the rope. He can push himself away from any projections on the face of the building in the way of his descent with one hand while grasping the rope and controlling the speed of the same with the other and land himself easily and safely on the ground. When the rope stands at an angle, as described, held by persons in the street, the weight of the person causes the angle of the device to become more and more obtuse as he descends, and consequently his descent will become less rapid as he approaches the ground, so that he will reach the latter without jar or injury.

In order to prevent the lower detachable part of the device from becoming accidentally disengaged, a turn-button Z may be employed, as illustrated in the detail view, Fig. 6, which, it will be seen, by bearing with its lower shouldered end against the cross-bar g will effectually lock the same in place, yet in such a manner that by turning the button to one side the two parts may be separated or disengaged from each other in a moment of time.

From the foregoing description, taken in connection with the drawings, it will be seen that this device is exceedingly simple in its construction and operation; that it is strong and durable in construction, and that by sepa-

rating the parts it can be carried conveniently in a traveling bag or satchel and put together ready for use in a moment of time.

Having thus described my invention, I claim—

1. In a fire-escape, the combination of the frame having the head-block grooved in its lower side and forming the top of a rope-brake, the brake-shoe grooved in its upper side and attached to the rear arm of a double-armed lever pivoted to and between the side bars of the main frame, the link-rod pivoted at its upper end to the front arm of said lever, and the hooked bar pivoted to the lower end of the link-rod, sliding longitudinally in the frame and adapted to be attached to a proper support for a person's body, substantially as specified.

2. In a fire-escape, the combination of the longitudinal frame having the head-block forming the upper part of a rope-brake, the latch-bar pivoted to the head-block and notched on its edge near its lower end to engage a pin on the shorter side bar of the said frame, the double-armed lever pivoted to and between the side bars of the frame and operated by means substantially as described, and the brake-shoe connected to the rear arm of said lever and forming the lower part of the rope-brake, as specified.

3. In a fire-escape, the combination, with the frame B, having the perforated base-plate, the side bars b^3 b^4, and the head-block b', provided with the rope-groove b^2, and the pivoted latch-bar b^6, of the bar C, having the hook on its lower end for the attachment of a support, with its journals sliding in the slots b^5 of the frame B and provided with the slot c^3, straddling the bar c^4 of the frame B, the link-rod D, the double-armed lever E, pivoted in the frame B and having the end of its front arm enlarged and provided with the notch e', the adjustable brake-shoe F, provided with the rope-groove f, and the screws f' f^2, by means of which the brake-shoe is adjusted and set on the rear arm of the said lever E, substantially as specified.

4. In a fire-escape, the combination, with the upper longitudinal section comprising the rope-brake, the brake-operating lever and link, and the sliding bar C, having the hook c on its lower end, of the lower transverse section provided with the hand-bar having the septum to engage the hook c between its arms, and the strap engaged by snap-hooks at its end to openings in the ends of the hand-bar, substantially as specified.

5. The herein-described fire-escape composed of the upper longitudinal section comprising the frame, the rope-brake, the link and lever, and the bar C, having the hook c on its lower end, the lower transverse section comprising the hand-bar g, the shank g', the curved bar g^2, projection g^4, and the septum g^3, and the strap H, provided at its ends with snap-hooks h to engage openings in the ends of the hand-bar, substantially as specified.

6. In a fire-escape, the combination of the upper longitudinal section comprising the rope-brake, the brake-operating lever and link, and the sliding bar having a hook on its lower end, the turn-button Z, and the lower detachable transverse section provided with the hand-bar having the septum adapted to engage the hook below the turn-button and provided with a detachable strap, substantially as specified.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

WILLIAM BRUCE.

Witnesses:

JOSEPH BERNARD KING,

CASSAR RODNEY ADAMS.