

[3.] *George W. Bishop & Hugh H. Smith Fire Escape*
Plate 2 *2 Plates*

119,008.

Patented Sep. 19, 1871.

Fig 3

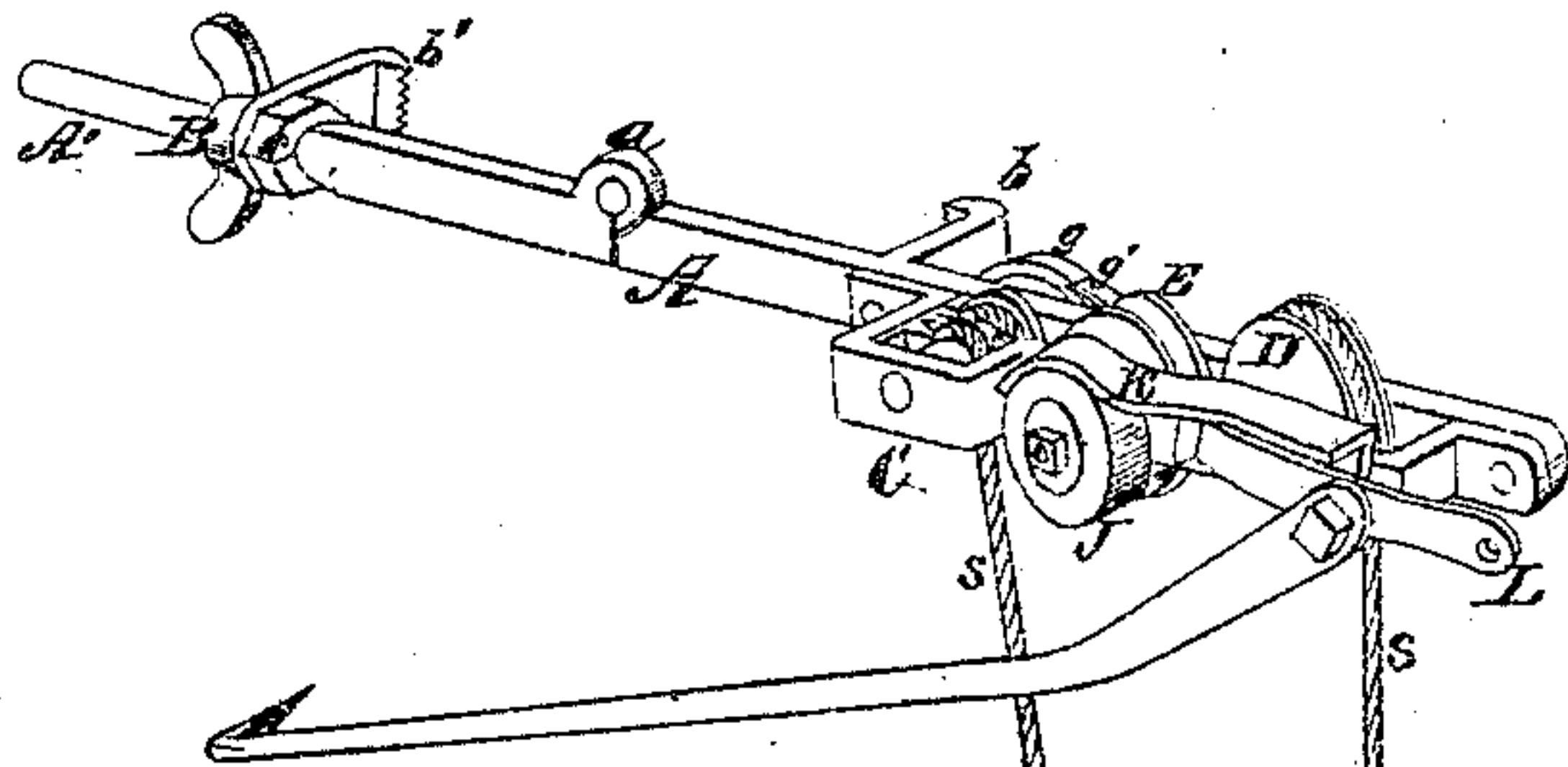
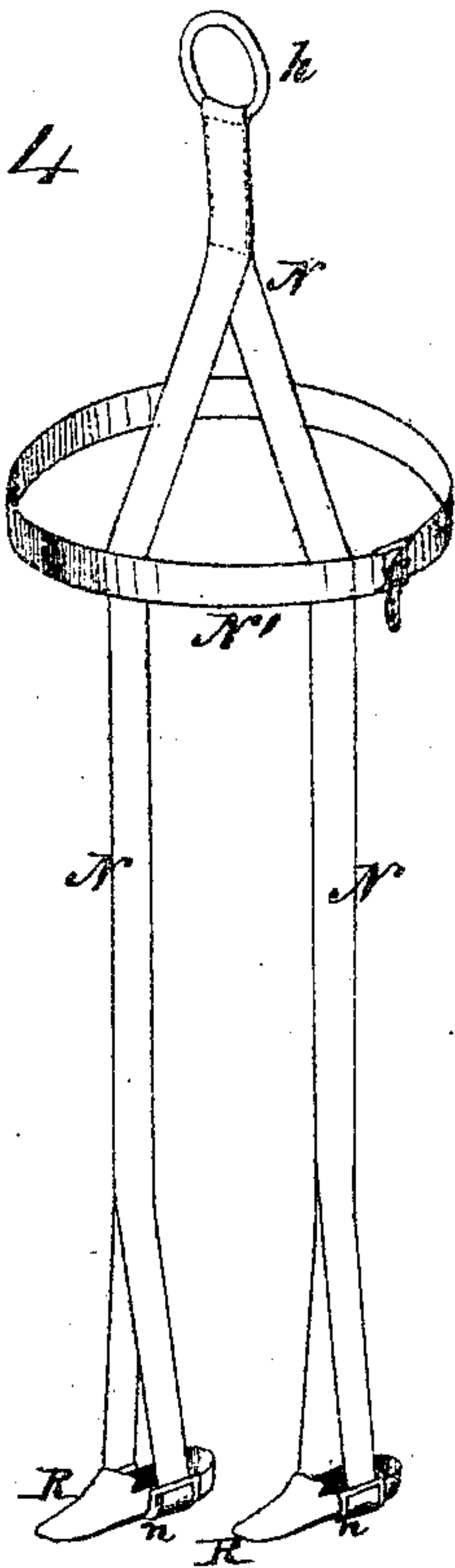


Fig 4



Witnesses
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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN FIRE-ESCAPES.

Specification forming part of Letters Patent No. 119,008, dated September 19, 1871.

To all whom it may concern:

Be it known that we, GEORGE W. BISHOP and HUGH H. SMITH, of the city and county of Baltimore and State of Maryland, have invented a new and Improved Fire-Escape; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1, Plate 1, is a top view of the escape. Fig. 2, Plate 1, is a view of one side of the escape. Fig. 3, Plate 2, is a perspective view of the escape, illustrating the manner of using it. Fig. 4, Plate 2, is a perspective view of the straps which are applied to the body of the person using the apparatus.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to portable fire-escapes which are adapted for being readily clamped to a window-frame, and which are provided with ropes passing over pulleys for allowing persons attached to the ropes to safely descend from any height. One of the objects of our invention is to combine with a clamp-bar, that forms a projecting bracket when clamped to a window-frame, an arrangement of pulleys around which the rope passes, one of which pulleys is provided with a pawl and ratchet, so that while a person can descend very slowly the rope can be drawn back very rapidly for other persons who may desire to descend. Another object is to combine a friction-wheel, a pressure-spring, and a relieving-lever with one of the rope pulleys for allowing a person to descend as rapidly as he may desire. Another object is to combine with the clamp-bar a pivoted spike-brace which will strengthen and support this bar when the apparatus is arranged for use.

To enable others skilled in the art to understand our invention, we will explain its construction and operation.

In the accompanying drawing, A represents a clamp-bar, which may be made of any desired length, with a flattened screw, A', on one of its ends, and which may be hinged at *a* to allow it to be folded into a smaller space. Two serrated sharpened jaws, *b b'*, are applied to the bar A, one of which, *b*, is formed on this bar, and the other is slipped on the screw-threaded portion A', between two nuts, B *c*. By means of these

nuts jaw *b'* can be adjusted and fixed at any required distance from the jaw *b* and the clamp-bar thus adapted for being secured to objects of different widths. On that side of the clamp-bar A opposite the side on which the clamp-jaws *b b'* are applied is a bearing-frame, C, which is permanently secured in place, and which receives between it and the bar A three pulleys, D E F. The two pulleys D and E are grooved. The pulley F is elongated and cylindrical. On the shaft of the pulley E, outside of the frame C, a friction-drum, J, is rigidly confined, which drum may be made of India rubber in whole or in part. Over this drum J lies the free curved end of a strong spring, K, which is rigidly secured at its opposite end to the frame C, so as to press with more or less force upon the periphery of the drum J. Beneath the pressure-spring *k* and pivoted to the frame C is a lever, L, one end of which has attached to it a pull-cord, P, by means of which a person in descending from an elevated point can regulate the pressure of the spring on the friction-drum and thus descend faster or slower, as may be desired. On one end of the shaft of the elongated pulley F a wheel, *g*, is keyed, having a ratchet-notch, *i*, made into its periphery adapted to receive a spring-pawl, *g'*, which will prevent the said pulley F from turning back, but allow it to turn freely in the opposite direction. The rope *s* is passed over the pulley E and twice around the pulley F, as shown in Fig. 1. To prevent the coils of rope on pulley F from rubbing against each other, separating-flanges *t t t* are secured to the inside of frame C in the space inclosing said pulley, as shown in Fig. 1. That portion of the rope which hangs from the pulley D has a snap-hook, T, attached to it for receiving a ring, *h*, shown in Figs. 3 and 4. The ring *h* is attached to the upper united ends of two suspenders, N N, which are firmly secured to a belt, N'. The suspenders have attached to their lower ends stirrups *n n*, on which sandals or slippers R R are secured. Fig. 3 shows the position of the straps, belt, and sandals when applied to a person. It will be seen that the weight of the person is supported by the sandals and straps, and that the belt N' is only used to attach the person to the straps.

To use the above-described fire-escape the clamp-bar A is secured to a window-frame by the clamping-jaws *b b*, so that both ends of the rope

s will hang out of the window. This clamp-bar is then braced by means of a hooked and spiked brace-bar, G, which is pivoted at *o* to the frame C, and which spiked end is driven into the window-frame below the clamp-bar. The harness shown in Figs. 3 and 4 is then applied to the person who desires to descend, and the ring *h* attached to the snap-hook T. The person then descends slowly to the ground, holding onto that portion of the rope *s* which hangs from the friction-pulley F, so as to steady himself and regulate the speed of his descent. If he desires to descend more rapidly than the friction of pulleys E and F on rope *s* will allow him to do he can pull on the cord P, shown in Fig. 2, and thus diminish the pressure of spring *k* on the friction-drum J, so as to allow pulley E to turn with more freedom. After one person reaches the ground he can rapidly return the harness again, for the descent of other persons, by drawing down that portion of the rope *s* which hangs from pulley F, during which operation this pulley will be allowed to turn freely and will offer very little resistance to the rope.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The clamping-bar and frame A C, made with an adjustable jaw, *b'*, and provided with a pulley, F, ratchet-wheel *g*, pawl *g'*, pulleys D E, and single rope *s s s*, all combined and operating substantially as and for the purpose described.

2. The friction-pulley J on shaft of pulley E, and pressure-spring K, and lever L, arranged as described, in combination with pulleys D E F, ratchet and pawl *g g'*, and single rope *s s s*, substantially in the manner and for the purpose described.

3. The spiked brace G, arranged and operating as described, in combination with the combined clamp-bar and frame A C, pulleys F E D, and single rope *s s s*, substantially in the manner set forth.

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