(No Model.)

W. HEISTER.

FOLDING LADDER OR FIRE ESCAPE.

No. 453,929. Patented June 9, 1891.

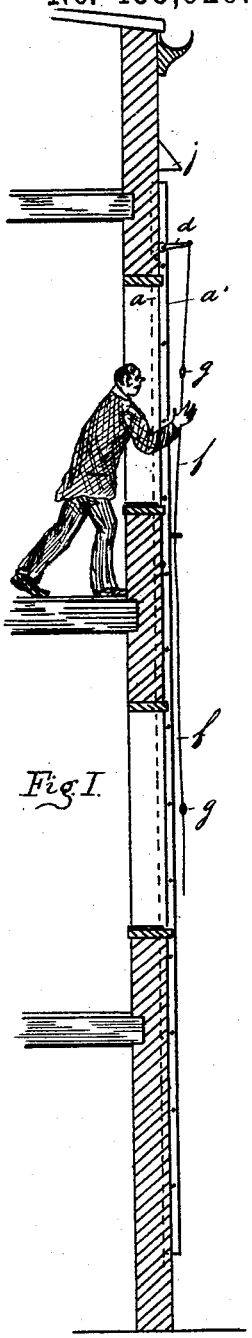

Fig. I.

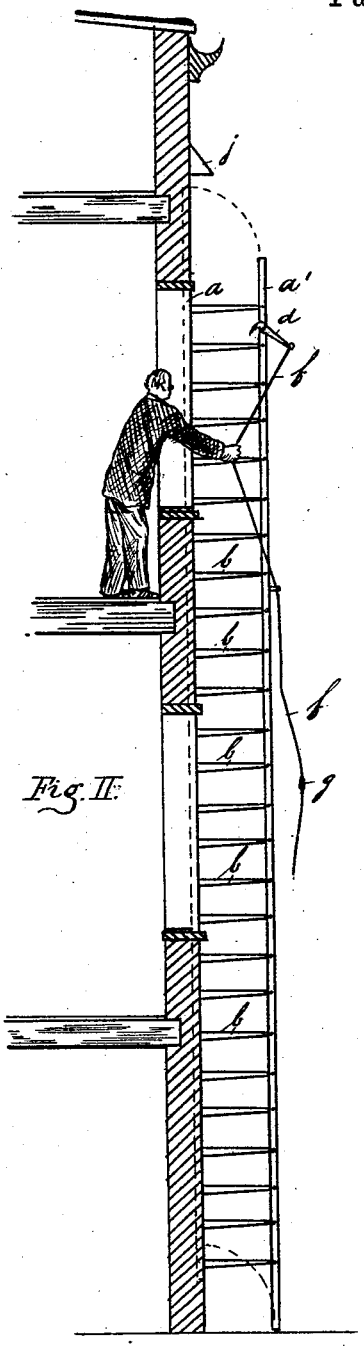

Fig. II.

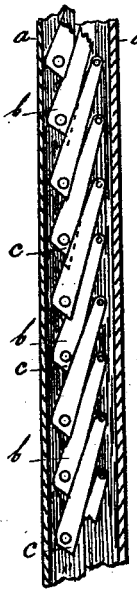

Fig. III.

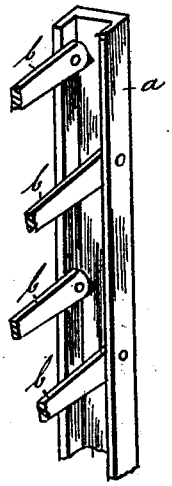

Fig. V.

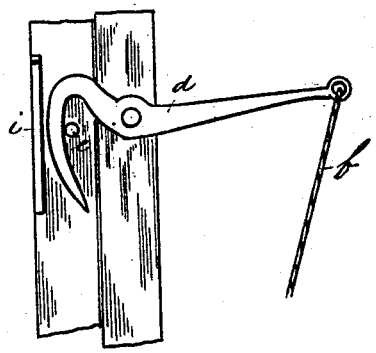

Fig. IV.

WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM HEISTER, OF BELLEVUE, KENTUCKY.

FOLDING LADDER OR FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 453,929, dated June 9, 1891.

Application filed January 26, 1891. Serial No. 379,116. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HEISTER, of Bellevue, in the county of Campbell and State of Kentucky, have invented a new and useful Improvement in Folding Ladders or Fire-Escapes, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure I is a side elevation of my improved folding ladder or fire-escape in closed form; Fig. II, the same in operative position; Fig. III, a longitudinal sectional view showing the position of the rungs when the ladder is folded; Fig. IV, the cam-hook which locks the rails together when the ladder is not in use, and Fig. V a perspective view showing the relative position of the rungs in the side rails.

My invention relates to improvements in folding ladders; and its object is to provide a simple, cheap, and durable device which may be permanently attached to buildings and render efficient service as a fire-escape and firemen's ladder. When not in use, it may be easily and compactly folded and occupy but little space. It may also be made of light material, and being portable will be found especially convenient and useful for general purposes.

Referring to the accompanying drawings, *a a'* designate the side rails. When designed for a fire-escape, these may be made of U-shaped iron bars. When it is desired to apply this device to a building during the process of construction, the inner bar *a* may be conveniently inserted and made flush with the surface of the wall. Otherwise it may be secured to the building by bolts or other suitable fastenings. Arranged in either way, the folded ladder forms only a slight projection on a wall, and is not unsightly or otherwise objectionable. The rungs *b* are made of flat bars tapering in form, as shown in the drawings, their inner ends being wider, forming on their lower edges square angles or shoulders *c*, which when the ladder is unfolded engage the inner surface of the adjoining side rail, thereby checking the descent of the movable outer rail when released from its fastening and stopping the movement as soon as the rungs reach the proper horizontal position. Both ends of the rungs are pivoted to the inner sides of the flanges of the side rails, alternating in position from one flange to the other throughout the series. By this arrangement when the ladder is folded the rungs overlap each other laterally and the side rails may be brought into close contact, thereby protecting the interior of the device against damage from exposure to rain or dust. It will be understood that if the rungs were arranged one directly above the other the width of the ladder would be restricted, for the reason that if so disposed any increase in their length would increase the distance between them, so that in a ladder two feet in width the rungs would be necessarily more than two feet apart, thus rendering the ladder comparatively useless.

When the ladder is folded, the movable rail is secured by a hook *d*, which engages a stud *e* in the stationary rail. The hook is released by a wire rope or cord *f*, provided with handles *g*, which may be easily reached from the windows of the different stories of the building. When the hook is disengaged from the stud, its curved extremity *h* bears against a flange *i* and operates as a cam by forcing the movable rail outwardly until its gravity is free to act and brings it instantly into open position.

The top of the ladder is protected by a hood *j* to exclude rain or other extraneous matter which might clog the free action of the pivots. The peculiar advantages of this invention will be obvious. Being disposed at right angles to the building, it may, if desired, be inclined outwardly and extended from the upper story, so as to pass the cornice and enable firemen to carry their hose-pipe to the roof. The lower end may be extended to the ground or within easy reach thereof without disadvantage. When closed, it cannot be injured or used as a means to reach the upper stories of a building, and cannot be unfolded except by occupants in the second story or those above it.

What I claim as new—

A folding ladder or fire-escape consisting of U-shaped rails, tapering rungs pivoted to the inner sides of the respective flanges of the side rails, alternating in position from one flange to the other, said rungs provided at one end with angles or shoulders adapted to

sustain the movable side rail when the ladder is unfolded, and a hook adapted to lock the side rails when the ladder is folded, said hook having a cam-shaped extremity adapted to separate the rails when the hook is disengaged, substantially as herein described.

In testimony that I claim the foregoing I have hereunto set my hand, this 9th day of January, 1891, in the presence of two witnesses.

WILLIAM HEISTER.

Witnesses:
R. S. MILLAR,
L. M. ADAMS.