F. M HARMAN.

Fire-Escape.

No. 168,015. Patented Sept. 21, 1875.

FIG. I.

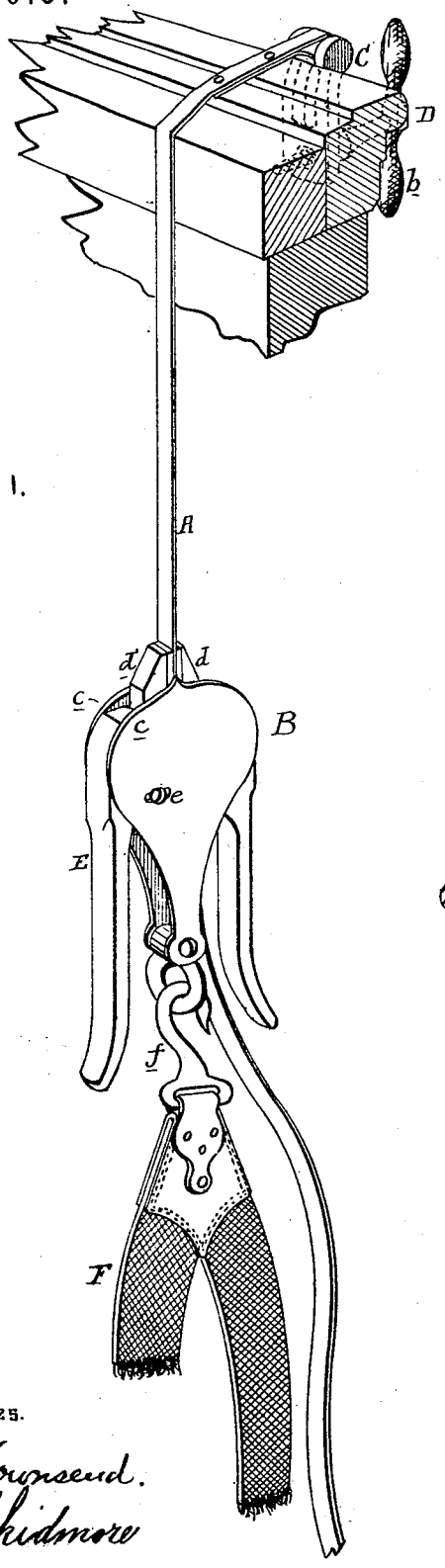


FIG. II.

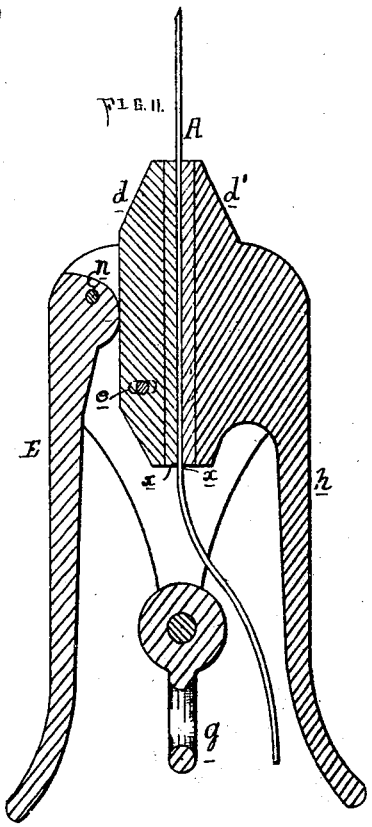
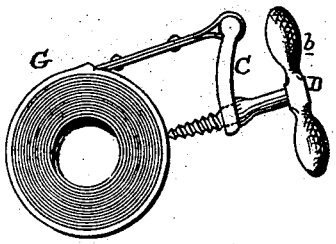


FIG. III.



WITNESSES.

F. B. Townsend.

J. L. Skidmore

INVENTOR.

Frank M. Harman

By his attys

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UNITED STATES PATENT OFFICE.

FRANK M. HARMAN, OF OTTUMWA, IOWA, ASSIGNOR TO HIMSELF AND JOHN SINCLAIR HARMAN, OF TECUMSEH, NEBRASKA.

IMPROVEMENT IN FIRE-ESCAPES.

Specification forming part of Letters Patent No. **168,015**, dated September 21, 1875; application filed July 24, 1875.

To all whom it may concern:

Be it known that I, FRANK MASSIE HARMAN, of Ottumwa, Wapello county, Iowa, have invented an Improved Fire-Escape, of which the following is a specification:

The object of my invention is a cheap, compact, and portable fire-escape, capable of being manipulated to regulate at will the speed at which the person using it may descend from a building; and this I attain by the devices shown in the accompanying drawing, in which—

Figure 1 is a perspective view, showing the apparatus in position ready for use; Fig. 2, a sectional view, showing the slide and clamp; and Fig. 3, an external view of the suspension band and fastening, illustrating the manner in which the band is packed when not in use.

The apparatus consists of a metallic band or ribbon, A, and a slide, B, the former having at one end a plate, C, with a slot or opening through which to pass a screw, D, provided with a handle, *b*, to facilitate its manipulation. The slide B consists of two parallel plates, *c c*, between which are two jaws, *d d'*, the jaw *d* being stationary, and the jaw *d'* hung to a pin, *e*, passing through slots *i* in the plates *c*. The faces *x x* of the jaws are flat and parallel to each other, and of the same width as the ribbon, and against the outer end of the jaw *d'* bears the cam-like end of a lever or arm, E, hung eccentrically to a pin, *n*, and corresponding in shape to an arm or handle, *h*, connected to or forming part of the jaw *d*. At the lower end of the slide is an ear, *g*, for receiving the hook *f* of a belt, F.

When the apparatus is not in use the band is passed through a slot in an annular case, G, within which the band is coiled and confined, as shown in Fig. 3, the outer end of the band and the plate C, with its fastening-screw, being outside of the case.

To use the apparatus for escaping from a building, the screw D is passed through the opening in the plate C, and its threaded end inserted in the wooden sill, frame, or casing of the window or other fixed object, or the end of the band is otherwise firmly fastened. The band is then passed between the jaws of the slide B, which is brought to a position as near the window as possible, the belt F is hooked to the slide, and the operator passes the belt around his body below the arms, or otherwise secures it to his person, meanwhile grasping both the arms E *h* with one hand, so as to bring such pressure upon the jaws as will securely bind the band between them and prevent any movement of the slide on the band. In order to descend, the pressure upon the lever E is moderated until the friction between the jaws and the band is overcome by the weight of the operator, when the latter will descend with the slide, supported by the band, at a speed regulated at pleasure by varying pressure applied to the lever E, any excessive pressure upon which will immediately clamp the slide to band and arrest the downward movement.

It will be seen that the regulation of the movement may be effected with one hand, leaving the other free.

The main feature of the invention consists in the use of the metallic ribbon or band which, while possessing the strength of a bulky rope, may be confined in such a limited space that it is practicable to carry the entire apparatus in the pocket or in a small satchel, which would be impossible if a rope or wire was employed, the case G serving to retain the band in its compact form, without interfering with its instant removal in case of emergency.

The jaws may be curved, if needful, and both may be movable, in which case another lever, E, or a screw or other suitable device for operating the jaw *d* will be substituted for the handle *h*; and I have found it advantageous to make the bearing-faces of the jaws of brass or other soft metal, which insures a better hold upon the band. In place of the plates *c c*, the jaws may be secured within a case made in any suitable manner.

It is important that the movable jaw or jaws shall be brought to bear with an equal pressure upon the band throughout their en-

tire length. The plates *c c*, or the casing holding the jaws, should, therefore, be slotted to permit a slight play of the pin *e*.

I am aware that a slide with clamping jaws has been used with a rope in fire-escapes, and that reels and flat metal bands have been employed, and I therefore do not claim broadly the use of a sliding clamp or a flat band in fire-escapes.

Without confining myself to the precise construction and arrangements of the parts described,

I claim—

1. A fire-escape consisting of a flat metallic band, A, and a slide provided with jaws *d d'*, having flat parallel faces between which the band is passed, and to which the slide may be clamped, all substantially as and for the purpose described.

2. The combination of the band A, free at its inner end, and an annular case, G, open at the sides and adapted to receive and retain the band when coiled, and to permit the lateral withdrawal thereof, all as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK M. HARMAN.

Witnesses:

M. O. PINNEY,

JOHN V. WINGATE.