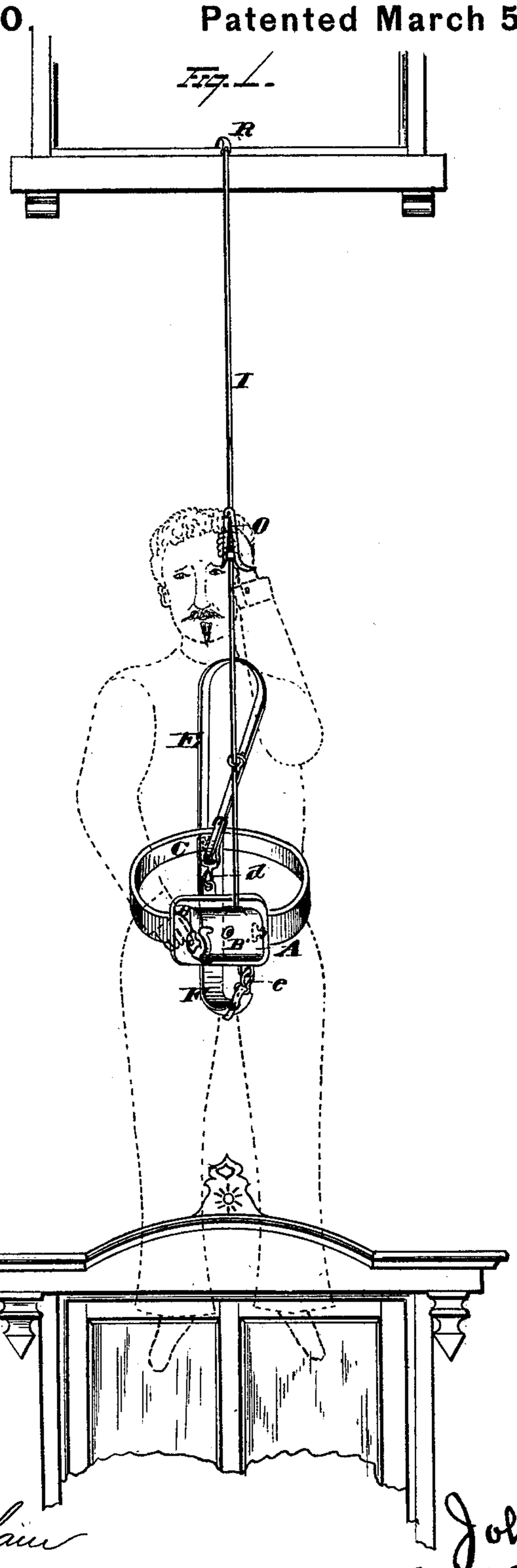
3 Sheets—Sheet 1.

# J. C. MOORE.

## Fire-Escape.

No. 200,870. Patented March 5, 1878.

Fig. 1.




WITNESSES:

Edw. F. Arthington

A. W. Bright

INVENTOR

John C. Moore,

By H. A. Seymour,

ATTORNEY

3 Sheets—Sheet 2.

# J. C. MOORE.

## Fire-Escape.

**No. 200,870.** **Patented March 5, 1878.**

Fig. 2.

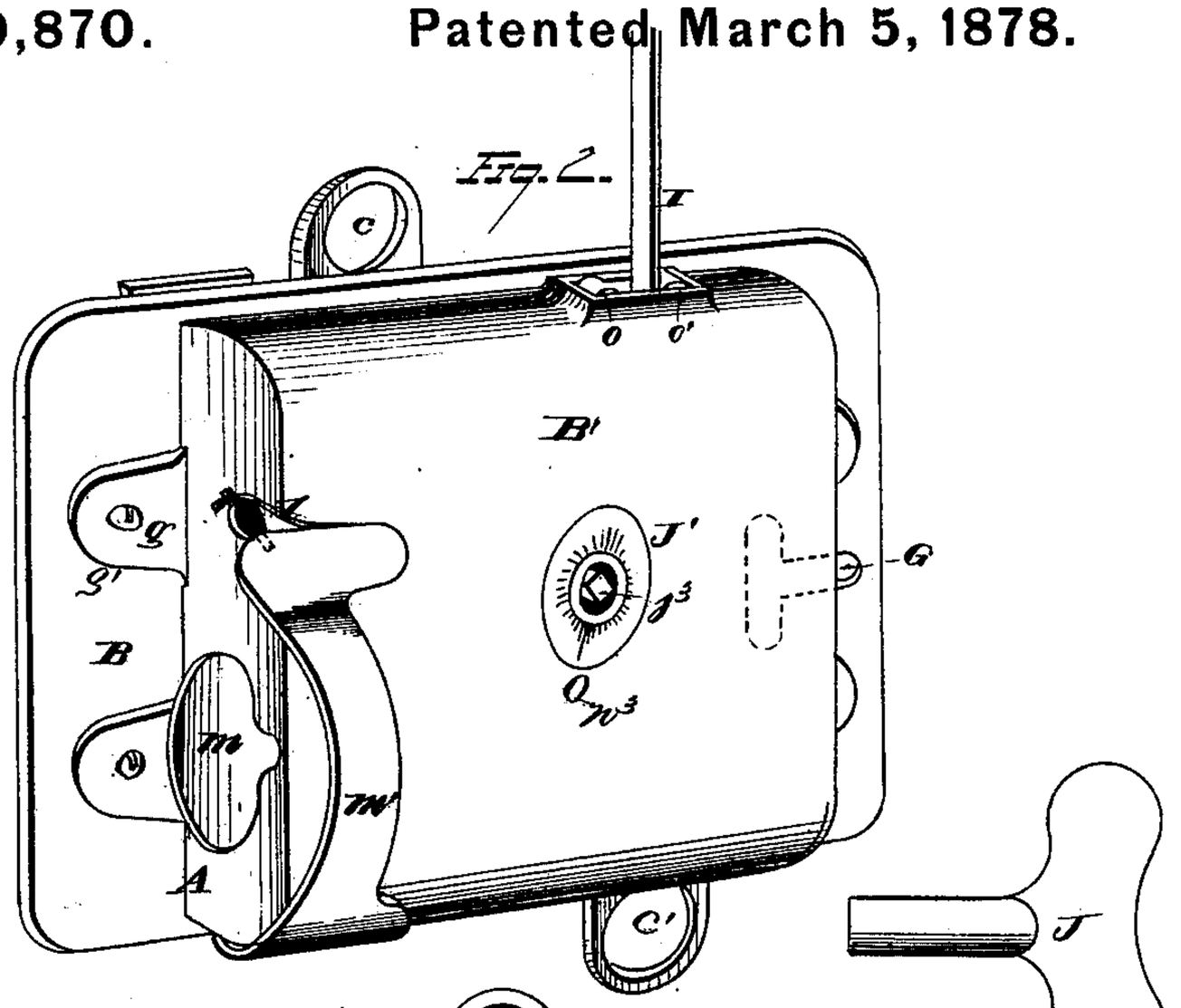



Fig. 3.

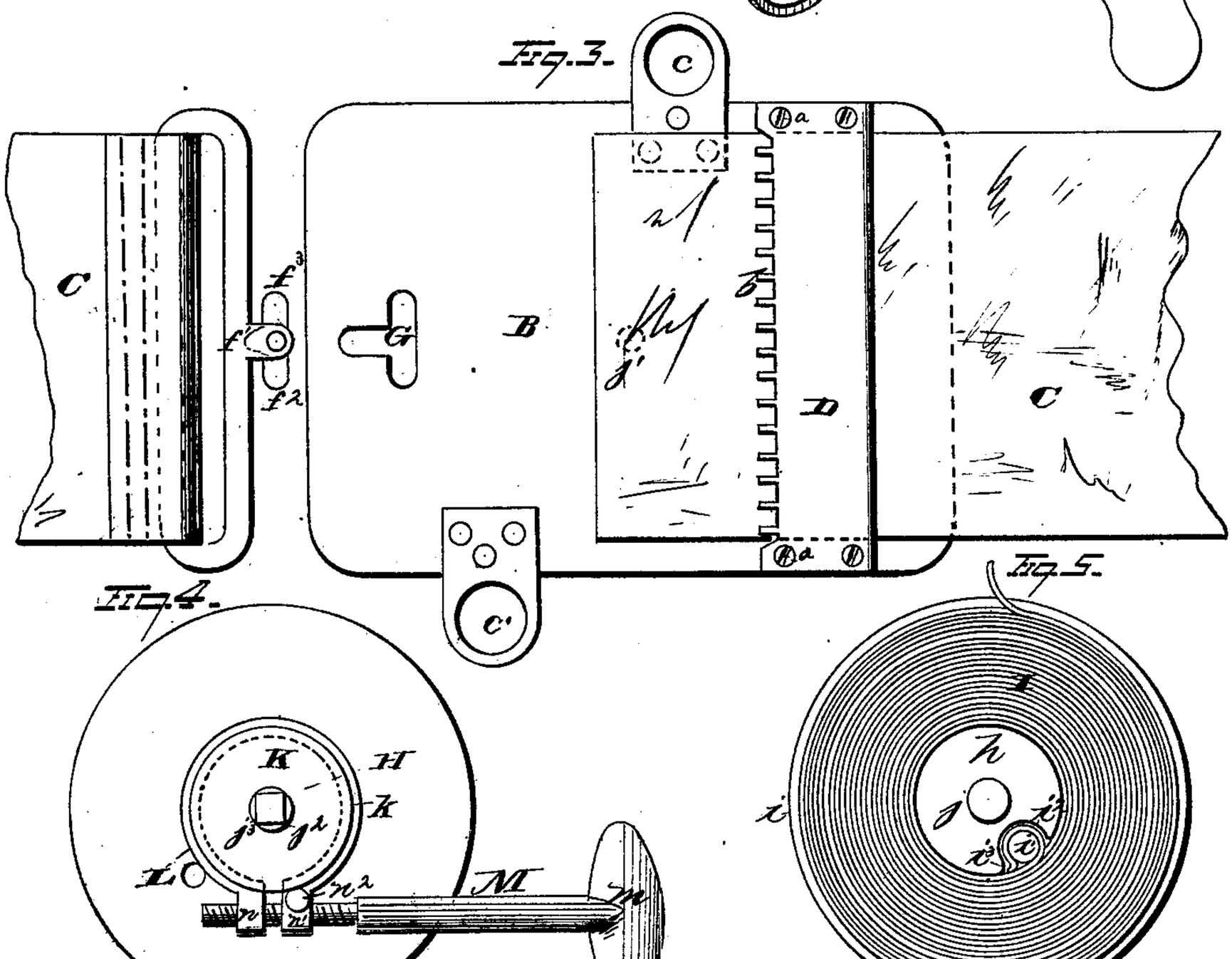



Fig. 4.




Fig. 5.




WITNESSES

Ed. L. Nottingham

A. T. Bright.

INVENTOR

John C. Moore.

By H. A. Seymour.

ATTORNEYS

3 Sheets—Sheet 3.

# J. C. MOORE.

## Fire-Escape.

No. 200,870. Patented March 5, 1878.

Fig. 6.

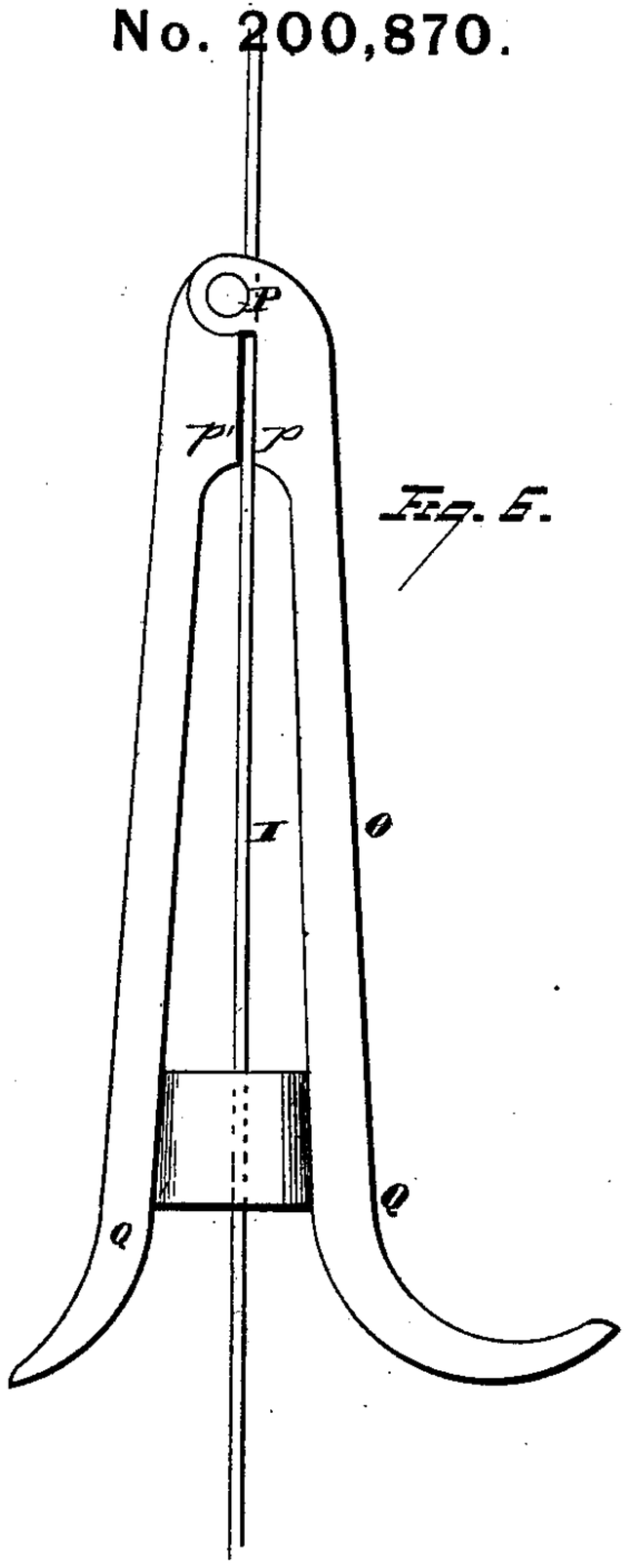



Fig. 7.

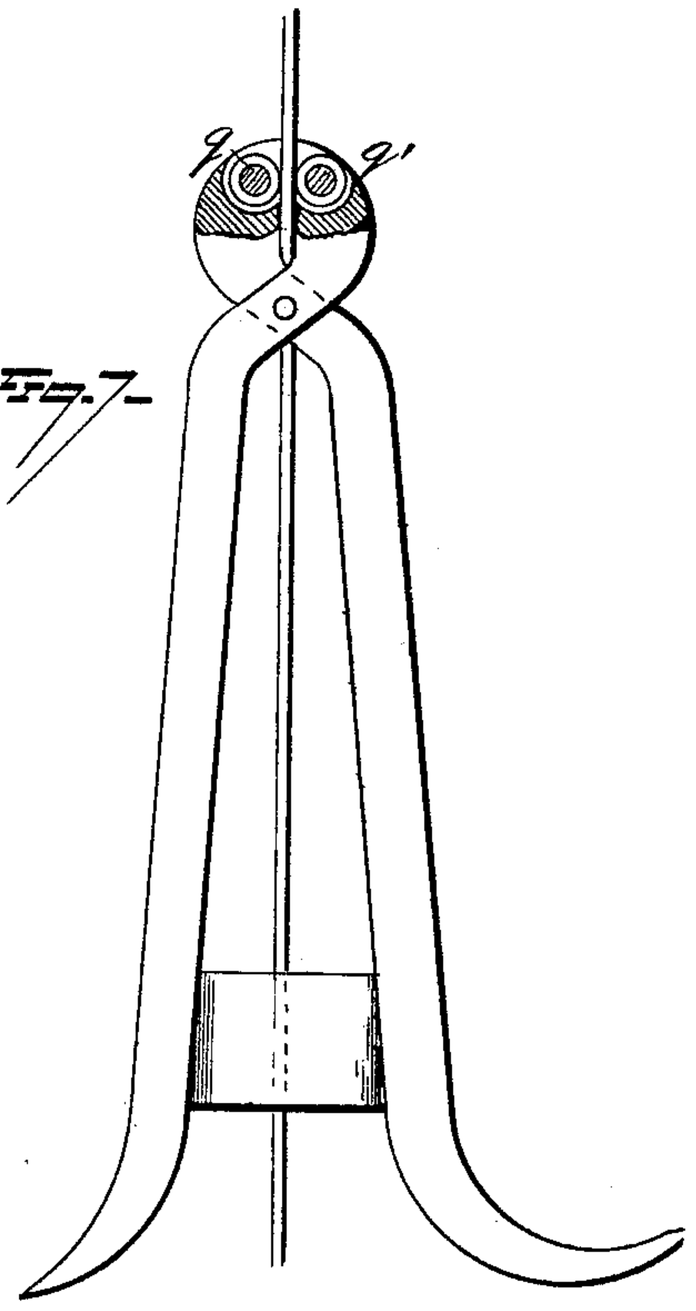
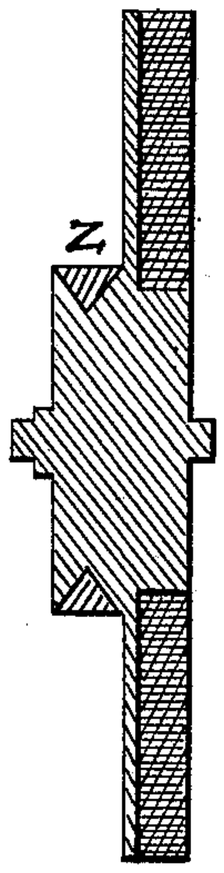



Fig. 8.




WITNESSES

Ed. L. Nottingham

A. W. Bright

INVENTOR

John C. Moore.

By H. A. Seymour

ATTORNEYS

# UNITED STATES PATENT OFFICE.

JOHN C. MOORE, OF LOWELL, MICHIGAN.

## IMPROVEMENT IN FIRE-ESCAPES.

Specification forming part of Letters Patent No. **200,870,** dated March 5, 1878; application filed July 17, 1877.

*To all whom it may concern:*

Be it known that I, JOHN C. MOORE, of Lowell, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Fire-Escapes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in portable fire-escapes; the object being to provide a fire-escape of such construction that it shall be of compact form, and adapted to be packed into small compass for stowage in a trunk or valise, and thus render the apparatus especially desirable for the use of travelers.

In the accompanying drawings, Figure 1 represents my improved fire-escape as attached to a person in the act of lowering himself from a burning building. Fig. 2 is an enlarged plan view of the belt-case, within which the metallic ribbon is stored. Fig. 3 is the under side of the belt-case, showing the method of securing the belt-case to the belt. Fig. 4 represents a top view of the drum, on which is wound the metallic ribbon, and the friction-brake, encircling a brake-wheel attached to one side of the drum. Fig. 5 shows the rear side of the drum, having a coil of metallic ribbon wound thereon. Fig. 6 shows a side elevation of a hand-regulating clamp. Figs. 7 and 8 are modifications.

A represents the belt-case, which is composed of the belt-plate B and cap or cover B′. The belt-plate B is secured to the waist-belt C in an adjustable manner by means of the cross-bar D, attached to the back of the plate by means of screws *a*, or in any other convenient manner.

It is evident that one end of the cross-bar D may be hinged to the plate B, while the free end may be firmly clamped thereto by screws *a*, clamp, or set-screw. One side of cross-bar D is provided with teeth *b*, which project in the direction of the plate B; and, if desired, the opposite side of the bar may likewise be provided with similarly-shaped teeth.

After the belt has been adjusted to the desired length, cross-bar D is placed upon the belt and firmly secured to the back of the belt-plate, and as the teeth *b* are forced through the belt the latter is securely retained against displacement. Rings or flat metallic eye-pieces *c c′* are attached to the upper and lower edges of the belt-plate, to allow of the attachment of the upper and lower supporting-straps E F, which are furnished with snap-hooks *d e*, whereby the attachment of the several parts can be effected in the shortest passible time. To the free end of the waist-belt is secured an oblong metallic loop, having a stud, *f*, riveted thereto. Stud *f* is formed with a T-shaped head, thereby affording three projections, $f^1$, $f^2$, and $f^3$; and as the same is made to engage with the T-shaped slot or opening G in the belt-plate, the ends of the belt are securely locked together. The cover B′ is fastened to the belt-plate by means of screws *g*, passing through perforated clips *g′*, the latter being attached to the cap or cover.

Within the cap B′ is placed a winding-drum, H, which consists of the arbor *h*, upon which is wound the metallic ribbon I. Against the face of arbor *h*, adjacent to cap B′, is rigidly secured a disk, *i*, which serves, in connection with the belt-plate, to cause the several successive coils of the metallic ribbon to be evenly wound upon the arbor.

To the face of disk *i*, adjacent to plate B, is secured a pin, $i^1$, which enters a slot, $i^2$, formed in the periphery of arbor *h*, the slot being sufficiently larger than the pin to constitute sufficient space to allow of the attachment of the loop $i^3$ on the inner end of the metallic ribbon. This latter construction obviates any sharp bends in the ribbon, and insures a perfect circle, upon which the ribbon may be coiled.

One journal, *j*, of the drum fits into the bearing $j^1$ in the belt-plate, while the other journal or shaft, $j^2$, is supported in the center of the cap or cover. The extreme end of shaft $j^2$ is squared, as at $j^3$, to allow of the attachment of a winding-key, J.

A raised bushing, J′, is secured to the outer surface of the cover to protect the winding end of the drum-shaft.

K represents a brake-wheel, and may be cast solid with the winding-drum, or be made

separate and secured to the outer surface of disk *i*, in any suitable manner. This brake-wheel is provided with an outer flange, *k*, to prevent the disengagement of the friction-clutch L, which surrounds the same.

M is a regulating-screw, the hand-piece *m* of which extends outside the cap or cover, and is protected from injury by means of the shield *m'*. The inner and threaded end of regulating-screw M engages with the ends *n* $n^1$ of friction-clutch L, the end *n* of said clutch being held in a fixed position by means of a stud or pin, $n^2$, which latter enters an opening, $n^3$, in the cap or cover, and hence, as the regulating-screw is turned in one direction, it operates to force the movable end of the friction-clutch toward the fixed end, and draw the body of the clutch firmly in contact with the brake-wheel; and hence it is evident that any desired amount of resistance may be applied to the drum, on which the metallic ribbon is coiled, by means of the regulating-screw M.

Instead of constructing the brake-wheel and friction-clutch with flat engaging-faces, their surfaces may be increased by forming the same V-shaped, as represented at Z in Fig. 8, and thus correspondingly increasing the frictional contact without increasing the thickness or weight of the parts.

In order that the winding-key may be attached to the belt-case, and hence be at hand when needed for use, the stem of the key is inserted in an opening formed in one end of the cap, and the cross-piece secured by means of a wire, *l*, or spring-clamp attached to said cap.

In the upper edge of the cap are journaled two anti-friction rollers, *o o'*, between which passes the metallic ribbon I. These rollers serve to prevent the undue binding or wearing of the ribbon against the cap, and cause the ribbon to readily pay out from the case at any angle at which the latter may be placed.

O is a hand-clamping device, and is constructed with two jaws, *p p'*, hinged to each other at P. Each jaw is constructed with a suitable handle, Q, the lower ends of which are outwardly flared to afford a firm hold for the hand. Handles Q are kept apart by means of a flat ring of spring metal, which is riveted or otherwise secured to the inner surfaces of the handles. The spring is not in line with the metallic ribbon, and hence the latter may be moved freely without coming in contact with the same, unless the handles are forced slightly out of a vertical position, when the spring then serves as a guide to keep the hand-clamping device in position for use.

When the handles are left free, and are in their normal position, the ribbon I passes through the clamping-jaws with little or no resistance; but when power is applied to said handles, and they are forced toward each other as by a firm grasp of the hand, the frictional contact between the jaws and ribbon may be easily regulated, as desired.

Instead of forming the jaws *p p'* with rigid engaging-surfaces, rollers *q q'* may be journaled therein, as shown in Fig. 7.

The extreme outer end of the ribbon I is provided with a hook, R, by means of which one end of the ribbon may be firmly secured to the window-sill or other fixed body about the room of a dwelling.

The operation of the device is as follows: In case of a fire, the waist-belt is quickly secured to the body, while one supporting-strap passes from the back of the waist-belt down between the legs, and the snap-hook is attached to the ring attached to the lower side of the belt-case. This lower supporting-strap prevents the waist-belt from slipping on the body, as in such case the operator would be unable to regulate the device, and serious injuries might, and doubtless would, result should no provision be made for securing the waist-belt in position.

The upper supporting-belt passes over the shoulders, the free end of the belt being attached to a ring secured to the upper side of the belt-case. This belt is provided with a ring, S, through which passes the metallic ribbon I, and hence serves to hold the body in an upright position.

Now, while it is evident that a metallic ribbon is specially adapted for the purposes in view, on account of its flexibility, strength, and adaptability to be coiled in small compass, yet one serious objection to the use of a thin ribbon of metal arises from the fact that it cannot be grasped by the hand without seriously injuring the party descending by aid of the same; and hence, in ordinary fire-escapes, a metallic ribbon is not well adapted for use.

From the foregoing description, it will be observed that by the aid of my improved fire-escape there is no necessity of touching the ribbon. After the hook R has been attached to some fixed object in the room, the person provided with my improved device launches himself outside the building, and commences his descent, during which time one hand is engaged in adjusting the regulating-screw that governs the friction-clutch, while the other hand grasps the hand-clamp and serves to steady the body; and, also, should the friction-clutch become disengaged or inoperative from any cause, the rapidity of descent may then be easily regulated by the varying of the pressure on the hand-clamp.

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

1. The casing of a fire-escape constructed with a belt-plate that is adapted to be adjustably secured to a waist-belt, substantially as set forth.

2. The combination, with the waist-belt, of the belt-plate of the casing, and a removable cross-bar provided with teeth that engage with the belt, substantially as set forth.

3. A portable fire-escape consisting, essentially, of a metallic ribbon, one end of which

is coiled upon a winding-drum, the casing of which is secured to a waist-belt, and a hand-clamp engaging with the metallic ribbon above the winding-drum, and disconnected from either the belt or winding-drum, whereby said clamp may be adjusted independently of the winding-drum, substantially as described.

4. The casing of a fire-escape constructed with a belt-plate provided with rings on its upper and lower edges, which serve for the attachment of the supporting-straps, substantially as set forth.

5. The combination, with the supporting-straps, each provided with snap-hooks, of the belt-plate of the casing, having rings secured to its upper and lower edges, substantially as set forth.

6. The cap formed with a shield to protect the end of the regulating-screw, substantially as set forth.

7. The combination, with the metallic ribbon and its casing, of a waist-belt and upper and lower supporting-belts, substantially as set forth.

8. A hand-clamp consisting of two jaws, of outwardly-curved handles, and a circular spring interposed between the handles, substantially as set forth.

9. The combination, with the metallic ribbon and its casing, the latter secured to a waist-belt, of the upper supporting-belt, provided with a ring for engagement with the ribbon, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 13th day of July, 1877.

JOHN C. MOORE.

Witnesses:

JAMES H. WEEKS,

ORSON H. LOOK.