

# J. Ivory, Fire Escape.

No. 112,714.

Patented Mar. 14, 1871.

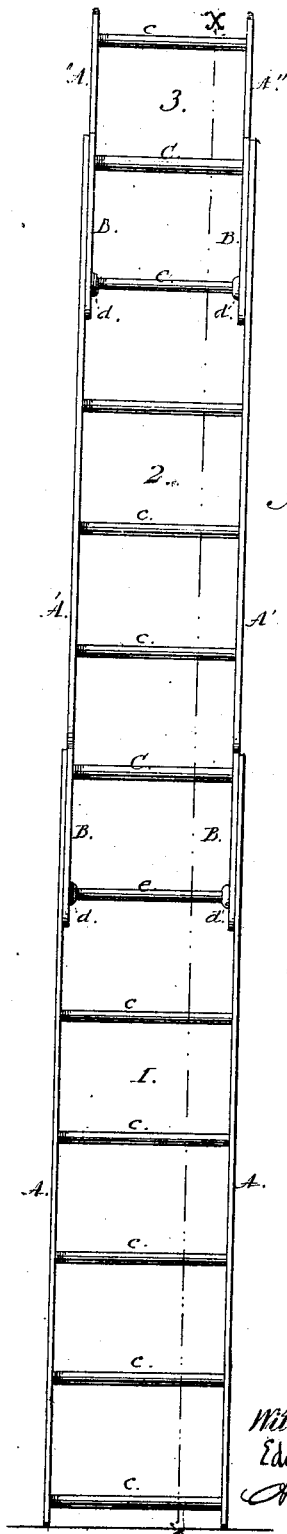


Fig. 1.

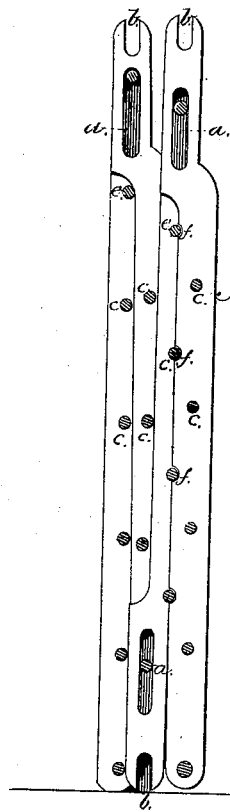


Fig. 2.

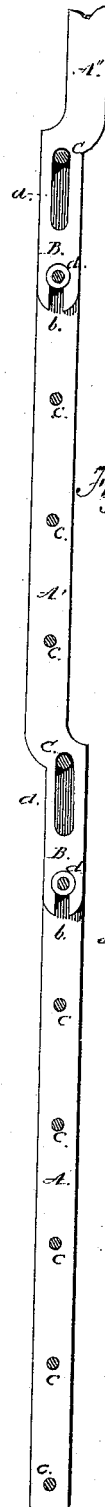


Fig. 3.

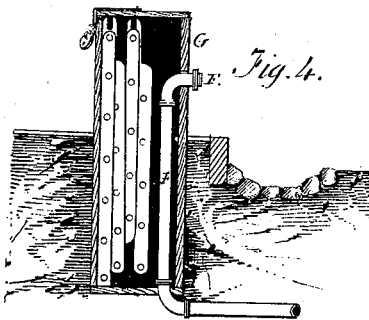


Fig. 4.

Witnesses:  
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# United States Patent Office.

JOHN IVORY, OF NEW YORK, N. Y.

Letters Patent No. 112,714, dated March 14, 1871.

## IMPROVEMENT IN FIRE-ESCAPES.

The Schedule referred to in these Letters Patent and making part of the same.

I, JOHN IVORY, of New York city, in the county of New York and State of New York, have invented certain Improvements in Portable-Ladders or Fire-Escapes, of which the following is a specification.

### *Nature and Objects of the Invention.*

My invention relates to an improvement in ladders, formed in short sections, connected together in such a manner and having the uprights of such a form as to admit of their sections being folded together, and rendered thereby portable and convenient in handling.

The object of my invention,

Is to furnish to cities a simple and compact portable fire-escape, which may be extended to any desired length, to be used at short notice, or folded up and put away in the same box which incases the hydrant on the sidewalk of a city.

### *Description of Accompanying Drawing.*

Figure 1 is a front elevation.

Figure 2 is a longitudinal section on line *xx*.

Figure 3 is a longitudinal section of ladder folded up.

Figure 4 is a vertical-section, showing the ladder folded in the box.

### *General Description.*

The sections or joints are numbered 1 2 3, commencing at the bottom or foot of the ladder.

A A' A" are the uprights or sides of the ladder, formed of wrought metal, sufficiently thick to give the required strength, and at the same time thin enough to avoid unnecessary weight.

These uprights, in the sections 2 and 3, have shanks B at their lower ends, forming offsets from the right lines of the uprights, as seen in drawing, to allow the several sections to lie closely together when folded.

Notches may be formed in the uprights, if necessary, to receive the rounds of the ladder, as seen at *f*, in fig. 3.

In the shanks B are formed slots, *a*, to receive the upper rounds C, and to allow a free and unobstructed movement of the rounds within them.

The rounds C have on either side an enlargement or shoulder, *d*, at a distance from the uprights just equal to their thickness, so that when the ladder is extended and ready for use the several sections are prevented from moving laterally, and the structure thereby gains in strength and firmness.

At the ends of the shanks B are formed notches, *b*, to straddle or clutch the rounds *c*, and to serve, together with the slots *a*, to form a perfect joint, to keep the sections from folding while the extended ladder is being used.

The rounds C are to be of metal, either solid or hollow, to give them strength to bear the weight and strain they may be subjected to while in actual service.

The other rounds, *c* and *e*, may be of wood or other suitable material.

Section 1 of the ladder is constructed with the greatest width between the uprights, to give a broad footing to the structure, as well as to allow the uprights of Section 2 to fit snugly within those of sec. 1.

Section 3 is narrower than sec. 2, to allow it to fit snugly within its uprights, and so on with each upper section.

The uprights of all the sections are parallel.

I construct my ladder or fire-escape in sections of about six feet each, so that when they are all folded together they may be contained in the same box with a hydrant on the sidewalk, without forming much of an obstruction to pedestrians.

I show in fig. 4 the application of the ladder to its case or box with the hydrant or fire-plug; said box is three feet high above the sidewalk, and about the same distance under ground.

The convenience and advantage that such an arrangement would give to a city in case of a fire is very apparent, as, at a very short notice, the box might be unlocked and the ladder taken out, adjusted, and used to the salvation of human life, as well as valuables, that might otherwise be destroyed before the fire-department could arrive on the spot.

I use in my ladder the slot and clutch, which I am perfectly aware is not new, as combined with the uprights of extension-ladders and the rounds of the same; but it will be observed that I use these features in combination with the shank B, by means of which I am enabled to fold my ladder into a very small space.

Two persons may unfold my ladder by seizing the extreme upper and lower rounds and drawing in opposite directions, until the lower ends of the slots come in contact with the upper rounds of the sections; the joints or sections are then pressed separately together, until their clutches grasp the rounds *c*, and the rounds C come in contact with the upper bearings of the slots.

The ladder may be raised bodily, in the usual manner, against the house, when it is to be used, without having to be secured in its joints by hooks, loops, sockets, &c., as is the case with folding or portable ladders now in use.

If only a part of the ladder is needed, the lower section or sections may be drawn out, forming, with the rest, an obtuse angle, and stretched upon the ground, to form a steady base to the part being used.

I claim—

The shanks or offsets B B of the lower ends of the upper sections of the ladder, having slots *a a* and notches *b b* in them, in combination with the rounds C and *c*, as described, and for the purpose set forth.

JOHN IVORY.

Witnesses:

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A. MOORE.