

(No Model.)

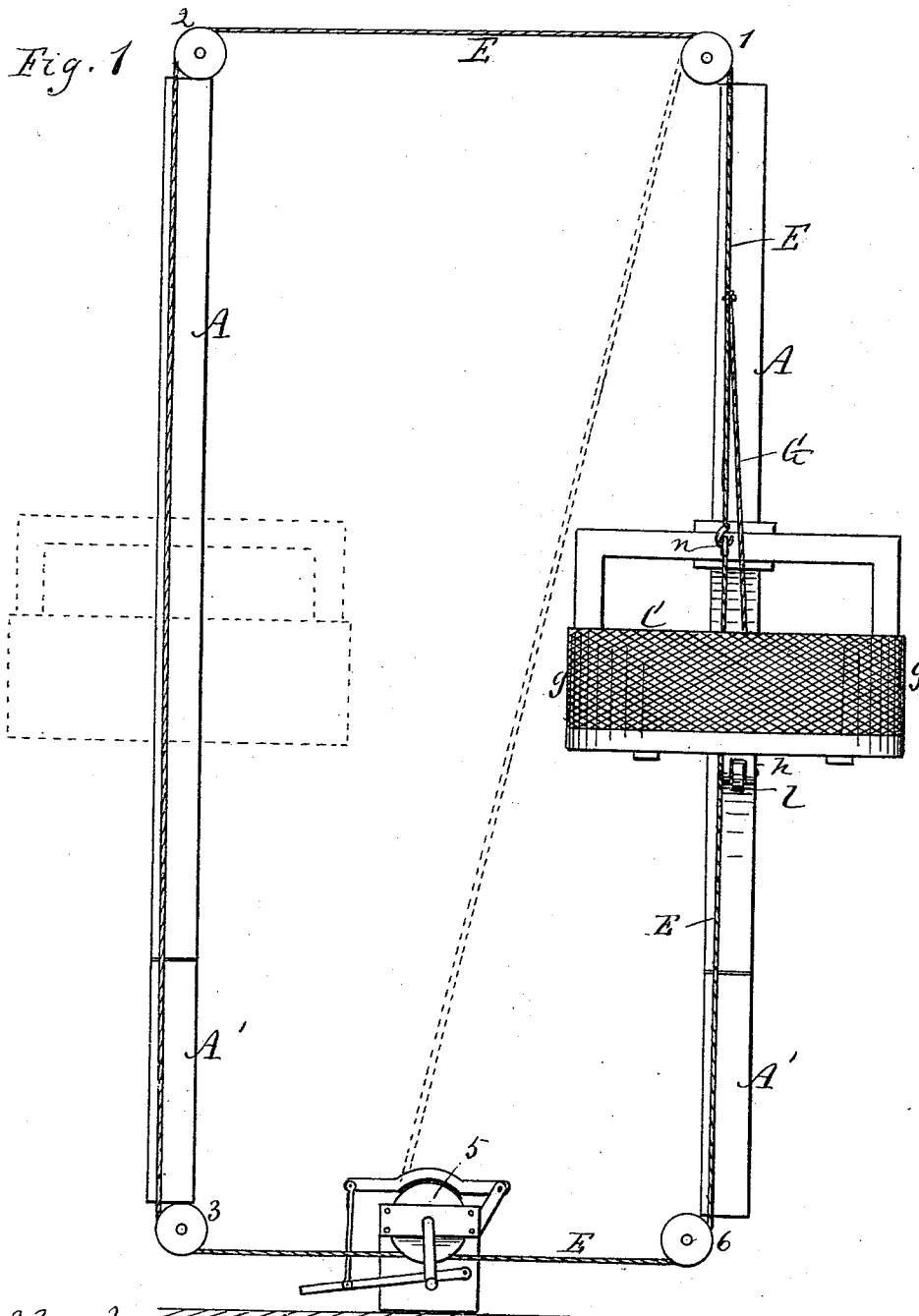
2 Sheets—Sheet 1.

S. H. BILLS.

FIRE ESCAPE.

No. 278,858.

Patented June 5, 1883.



Attest.

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Inventor.

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per R. F. Osgood,
att'y.

(No Model.)

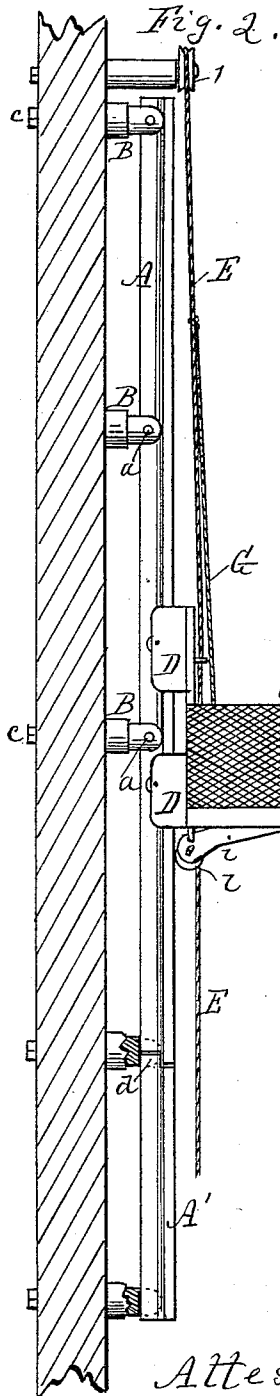
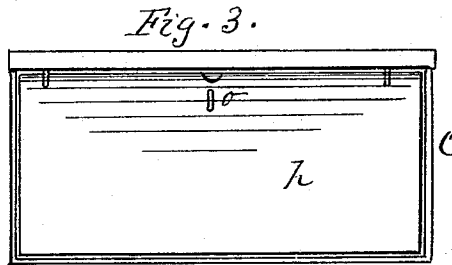
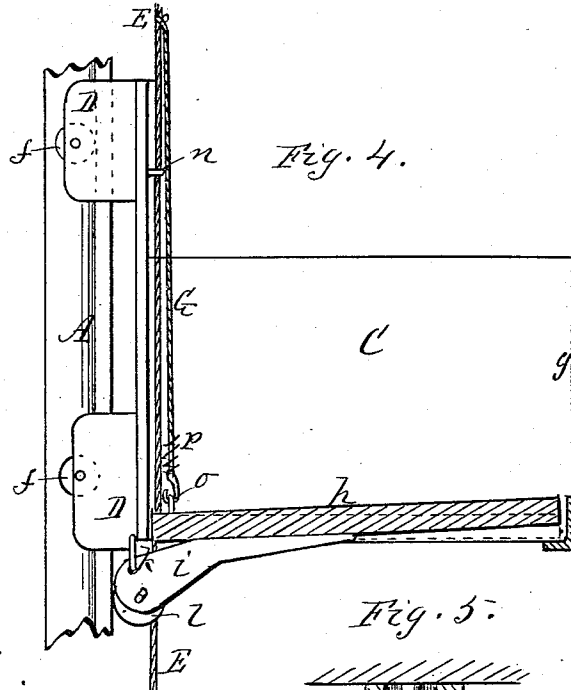
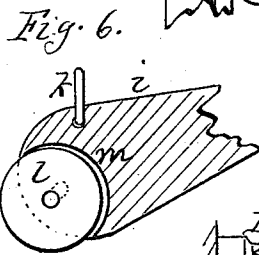
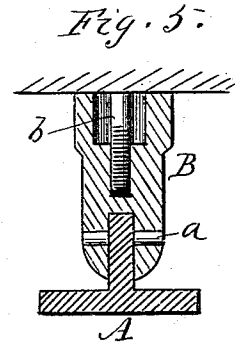
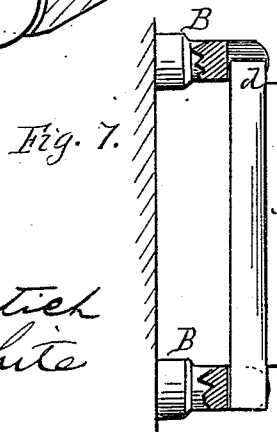
2 Sheets—Sheet 2.

S. H. BILLS.

FIRE ESCAPE.

No. 278,858.

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UNITED STATES PATENT OFFICE.

SETH H. BILLS, OF MOUNT MORRIS, NEW YORK.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 278,858, dated June 5, 1883.

Application filed March 14, 1883. (No model.)

To all whom it may concern:

Be it known that I, SETH H. BILLS, of Mount Morris, Livingston county, New York, have invented a certain new and useful Improvement in Fire-Escapes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of my improved fire-escape. Fig. 2 is a side elevation of the same. Fig. 3 is a plan of the car. Fig. 4 is a vertical section of the same on an enlarged scale. Fig. 5 is a horizontal cross-section of the T-rail and one of its supporting-studs. Fig. 6 is a section of the eccentric or cam on the bottom of the car-platform. Fig. 7 is a view of the detachable section of the T-rail.

My improvement relates to fire-escapes in which one or more T-rails are secured in an upright position on the face of a building, and in which a car runs up and down on the rail and is operated by a hoisting-cable.

The invention consists in the construction and arrangement of parts hereinafter more definitely described and claimed.

In the drawings, A A show two T-rails, which are secured upright on the face of a building, being located between the vertical tiers of windows. The rails are of the flanged form shown in the cross-section, Fig. 5.

B B are studs by which the rails are attached. Each of these studs has a slot in the outer end, in which fits the rear flange of the rail, and the parts are pinned together by pins *a a*. The base of the stud is squared to fit the wall, and the stud is secured to the wall by a bolt, *b*, which has a screw-thread at one end which screws longitudinally into the stud, the other end passing through the wall, and having a nut, *c*, on the inner side. By this means the studs are readily attached and can be drawn up tight against the wall, making a firm and solid bearing. The base end of the stud is hollowed out for the purpose of attaining lightness. As many of these studs may be used as are found necessary to secure the requisite strength and stiffness of the rail, which it is designed to make a permanent fixture to the building. At the bottom of the rail is a removable section, A', which forms a continuation of the rail, and is used for a purpose pres-

ently described. The upper end of this section has a projection, *d*, of the rear flange, which halves with the lower end of the main part of the rail into the slot of one of the studs B, as shown in Fig. 7, by which means the removable section is kept in place and prevented from getting out of line, so that the car will run freely over the same. The lower end of the rear flange of the removable section may simply rest in the slot of the lower stud, B, or it may be secured by a cross-pin or other means.

C is the car which moves up and down on the rail. It has permanently attached to its back two slides, D D, which embrace the side flanges of the rail and move freely up and down without allowing the car to escape. Friction-rollers *f f*, attached to the slides, preferably are used, rolling on the back of the flanges; but they may be dispensed with, if desired. The car has an inclosure, *g*, to hold the load, and at its bottom it has a platform, *h*, pivoted at its inner or back edge to turn freely, but free at its outer edge to swing up and down.

i is an eccentric bearing fast to the bottom of the platform at its inner edge, and hinged to the stationary part of the car by hinges *k*. The end of this bearing next to the rail is rounded, as shown, so that as it strikes the rail it will slip easily and without breakage.

l is a friction-roller resting in the slotted end of the bearing, having pivots which pass out through slots in the sides of the bearing, so that the roller has a slight movement forward and back in its slot in the bearing. When thrown back the back side of the roller rests against the concave face *m* of the bearing, while the front side rests against the rail, thus producing friction on both sides and graduating the descent of the car, as will presently be described.

E is the main cord or cable by which the car is operated. It is attached to the car at *n*. Thence it passes up over pulley 1 at the top of the rail. Thence it passes across and around pulley 2 at the top of the second rail. Thence it passes downward around pulley 3 at the bottom of the second rail. Thence it passes crosswise, is coiled two or three times around the driving-windlass 5, and thence passes under and around pulley 6 at the bottom of the first

rail. Thence it extends upward to the place of beginning, and is attached to the car at *n*. By turning the windlass 5 in one direction or the other it will be seen that the car will be raised or lowered through the action of the cable before described. The windlass has a crank by which it is turned, and it also has a brake by which pressure may be applied to stop the car at any point.

10 *G* is a branch cord or bight attached to the main cable some distance above the car, thence extending down and attaching to the swinging platform *h* at *o*, a little distance in advance of the pivots on which the platform turns.

15 *p* is a spring between the branch and the platform, forming a part of the branch. It will be seen that when the cable is under strain moving upward, drawing the car with it, the branch *G* will also be under strain, and will raise the outer end of the platform *h* in the inclined position shown in full lines, Fig. 4, consequently drawing back the bearing *i* and easing the roller *l*, so that the car will move up easily; but when weight is applied on the platform *h* it will be depressed, as shown in dotted lines, 25 the bearing *i* will be moved up toward the rail, and the roller *l* will be clamped on both faces, one against the rail and the other against the concave *m*, thereby producing a double friction which resists the descent of the car and causes it to move down very gradually. The amount of friction produced is in proportion to the weight applied, so that the descent is always gradual. This descent can be further controlled, when desired, by the brake on 35 the windlass.

The apparatus as above described, having double rails *A A*, is designed to allow the car to be shifted from one rail to the other. In 40 such case the removable sections *A' A'* are removed at the bottom, the cable is detached from the car, the car is moved down till it frees from the rail, it is removed through the opening, is shifted to the other rail, inserted through the opening, is connected to the cable on that side, the removable sections are again applied in place, and the apparatus is ready for operation again. By placing rails between 45 each double tier of windows the car can be readily shifted to any part of the building, thus dispensing with a multiplicity of cars and windlasses.

The above describes the invention as used

with two or more rails. It is equally adapted to use with a single rail only. In such case 55 the cable passes from pulley 1 to the windlass 5, as indicated by the dotted line in Fig. 1.

This apparatus is not only adapted to use as a fire-escape, but may also be used for elevating and lowering loads of any kind. Firemen 60 can be raised from the bottom to any desired height, carrying their nozzles, hose, and other appliances with them for extinguishing fire or for saving life.

If desired, two cars may be used at once, one 65 going up as the other comes down, as shown in Fig. 1. If desired, also, flat rails may be used instead of *T*-rails, the rails having means by which they may be attached to the studs, as described. 70

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

1. In a fire-escape, the rail *A*, attached to the building by studs *B B*, and provided at its bottom with a removable section, *A'*, as shown 75 and described, and for the purpose specified.

2. In a fire-escape, the combination, with the rail *A* and stud *B*, of the bolt *b*, provided with a screw-thread which screws into the base of 80 the stud, the opposite end passing through the wall of the building, and provided with a nut on its inner end, as herein shown and described.

3. In a fire-escape, the combination, with the rail *A*, of the removable section *A'* at its lower 85 end, forming a continuation of the rail, said section having a projection, *d*, at its upper end, which halves with the lower end of the rail, as herein shown and described.

4. In a fire-escape consisting of a rail with a 90 car moving up and down thereon by a cable, the combination, with the rail, of the hinged platform *h* in the bottom of the car, arranged to move up and down at the outer end, the bearing *i*, attached to the swinging platform, 95 the friction-roller *l* in the end of the bearing, and the branch cord *G*, connecting the hinged platform with the main cable above, as shown and described, and for the purpose specified.

In witness whereof I have hereunto signed 100 my name in the presence of two subscribing witnesses.

SETH H. BILLS.

Witnesses:

C. L. BINGHAM,
L. C. BINGHAM.