No. 650,848. Patented June 5, 1900.

C. W. LITTLEFIELD.

FIRE ESCAPE.

(Application filed Nov. 1, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

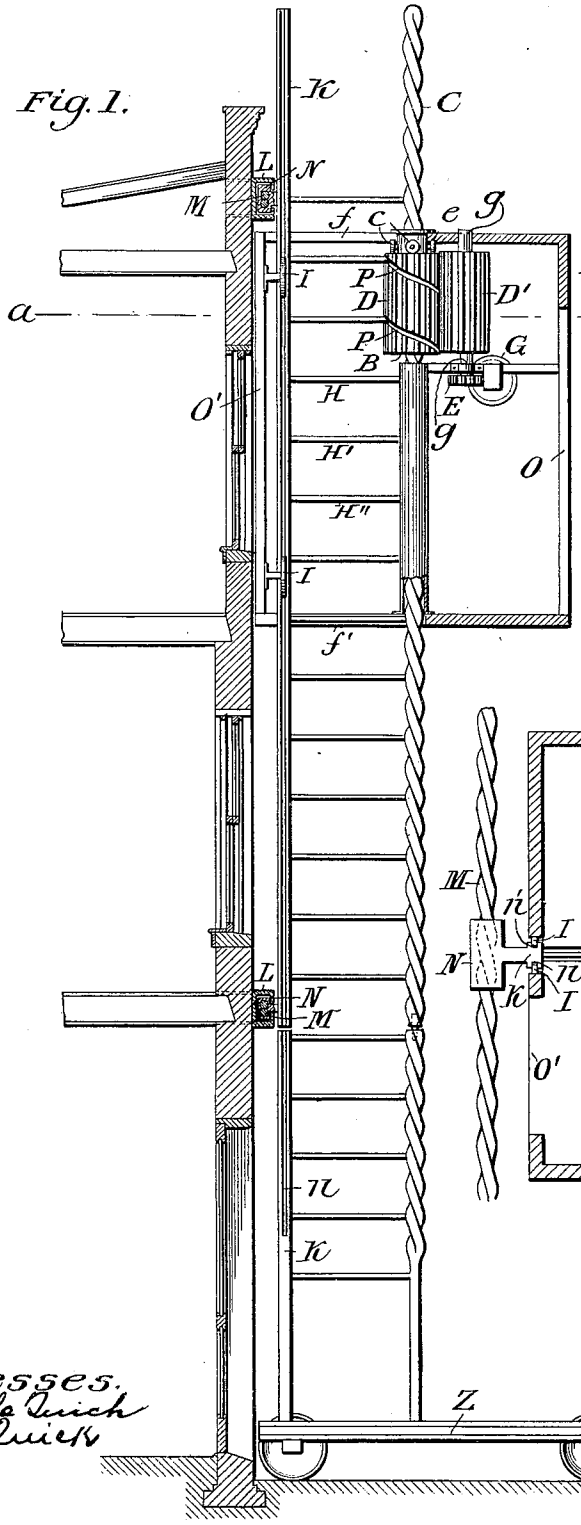


Fig. 4.

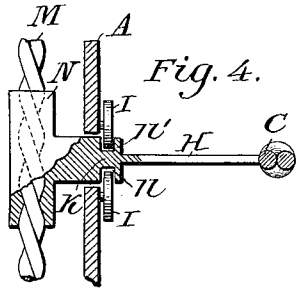
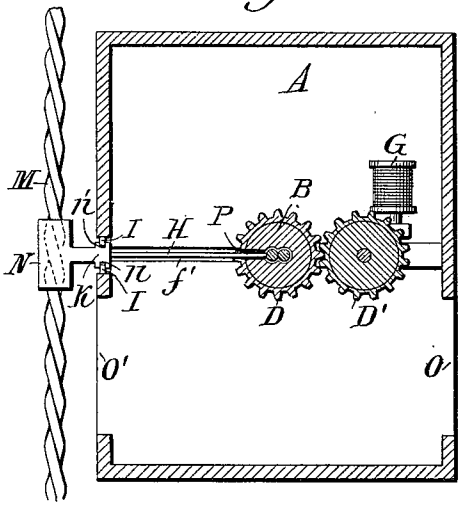


Fig. 3.



Witnesses.
Rachel G. Quick
Will H. Quick

Inventor.
Charles W. Littlefield

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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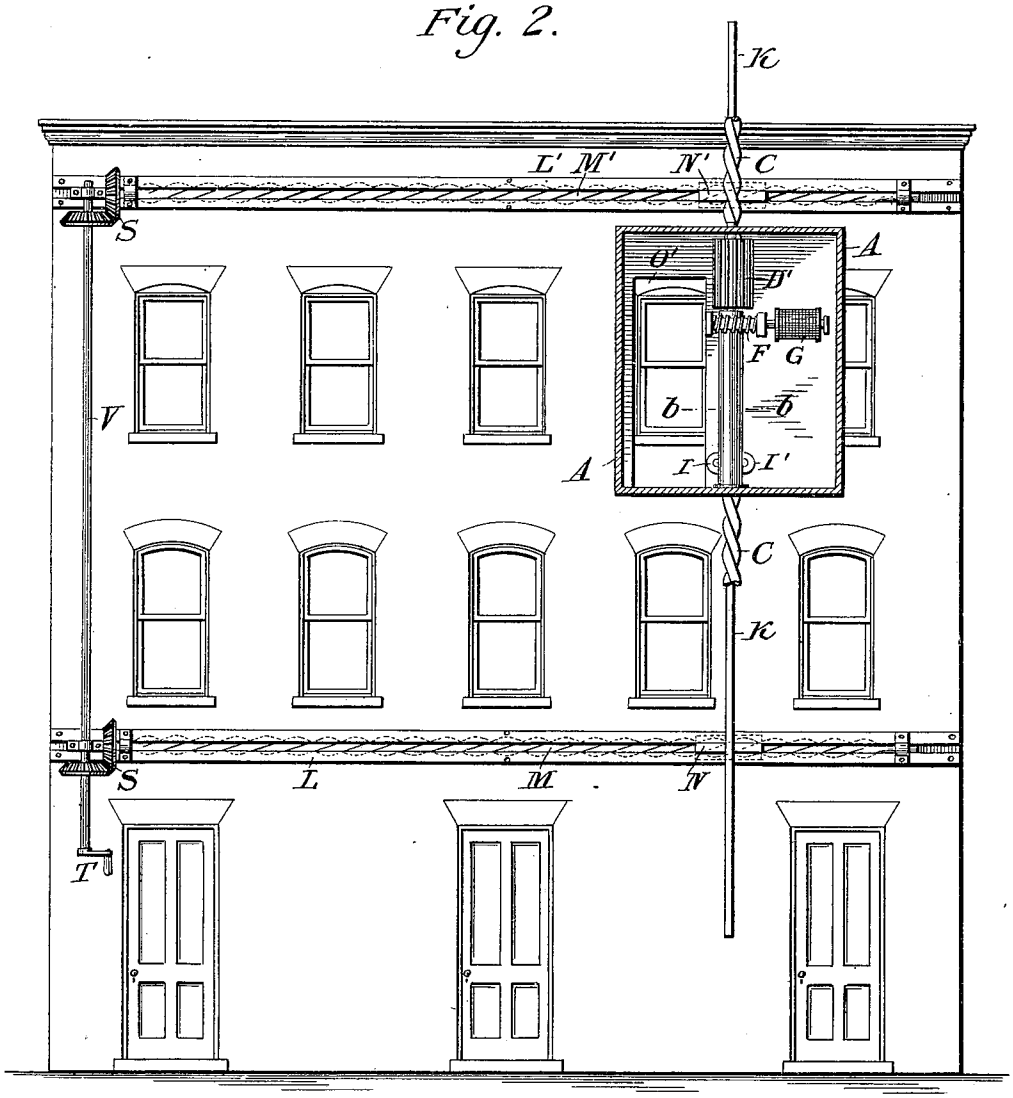
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(No Model.) 2 Sheets—Sheet 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

CHARLES W. LITTLEFIELD, OF ALEXANDRIA, INDIANA.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 650,848, dated June 5, 1900.

Application filed November 1, 1899. Serial No. 735,551. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. LITTLEFIELD, a citizen of the United States, residing at Alexandria, Madison county, Indiana, have invented Improvements in Fire-Escapes, of which the following is a specification.

My invention relates to improvements in fire-escapes operated by electricity; and the objects of my improvements are to provide a comprehensive, safe, and rapid means of access to and escape from the upper stories of buildings by means of a self or surface controlled car adapted to be raised or lowered or moved horizontally in either direction by means of certain constructions and combinations hereinafter described and specified. I attain these objects by the mechanism illustrated in the drawings filed herewith, in which—

Figure 1 is a side elevation with a side of the receptacle or car cut away to show the interior mechanism. Fig. 2 is a front elevation showing the attachment of the fire-escape to the building and the mechanism used in the lateral manipulation thereof. Fig. 3 is a section of the car upon the line *a a*, Fig. 1. Fig. 4 is a cross-section of the guiding and supporting grooved track, showing its connections.

The car A, adapted for the conveyance of persons to or from the exits in the walls of elevated structures and provided with the openings O O′ for ingress and egress, derives its perpendicular movement from the relation which its motive mechanism sustains to the cable-screw C, which is composed of two metallic strands or threads of uniform twist, which act as inclined planes upon which the car travels through the motive agency of the axial bearing B of the rotating drum D. Through B and D extends the spiral slot P, whose interior boundaries unite and strengthen their parallel edges. Through P are successively passed the braces H H′ H″, extending from the track K to and supporting the cable-screw C. These supports, forming a movable ladder, in the absence of the car provide a means of access to or escape from any opening in the wall of a building by means of the laterally-controlling machinery hereinafter described. The drum D is meshed with the drum D′, attached to which is the pinion E, geared with the worm F on the shaft of the electric motor G, whose operation is controlled either from within or without the car and its motive agent supplied either from a storage battery or other source of electromotive force.

The car A is connected with the guiding grooved movable single-railed track K by means of the wheels I I I I, operating in pairs at the top and bottom of the car and so attached thereto as to be in contact with the opposite grooves *n n′* in the track K, thereby securing the car and its appendages. The track K is attached to the blocks N N′, which are adapted to travel within the conforming grooves of the horizontal tracks L L′, bolted at supporting intervals to the building. By means of the horizontal rotating cable-screws M M′, duplicated at effective distances and operated by the bevel-gearing S S′ upon the shaft V by the crank T or other power device, lateral movement in a desired direction is imparted to the track K through conforming screw-bearings in the blocks N N′.

The drum D bears against the top of the car A through the rollers *c c c*, rotating on bearings attached to the top of the drum D, traveling in the groove *e*, through which is cut the slot *f* for the transmission of the supports H H′ H″. The drum D′ is journaled with the car and held in position by the shaft-bearings *g g*. The drums D and D′ are held in operating contact and, with the other mechanism described, are held in place by suitable attachments. The slot *f′* is cut in the bottom of the car for the passage of the supports H H′ H″.

The car, with its elevating and controlling apparatus, may be permanently adjusted to any building. As a preferred mode of use the car, with a section of its track and cable, is mounted upon a truck Z, by which it may be conveyed from a fire-station to a building provided with the complementary parts of the fire-escape, with which efficient operating connection may be quickly effected by means of bolt-and-socket engagement.

What I claim as my invention is—

1. In a fire-escape the combination of the tracks attached to the building, the blocks movable in said tracks, the rotatable screws engaging said blocks to move them horizontally, means extending near to the ground for rotating said screws, a vertical track sup-

ported by said blocks, a car, wheels on said car engaging said vertical track, a vertical series of horizontal braces connected with said vertical track, a vertical screw rigidly connected with said braces, a drum on the car engaging said vertical screw and spirally slotted to allow it to pass said braces in its vertical movement, an electric motor on the car, and gearing between said motor and said drum substantially as described.

2. The combination of the vertical cable-screw, the vertical series of horizontal braces therefor, a car and a rotatable drum on said car engaging said cable-screw, said drum being spirally slotted to permit it to pass said braces substantially as described.

3. The combination, with a car, of a vertical guide and a vertical screw, and means on said car for engaging the screw to move the car vertically, and a truck, the main portions of said guide and screw being connected with a building, and a lower section of said guide and of said screw being separable from said main portions and carried by said truck substantially as described.

4. The combination, with a car, of a vertical screw and means on the car engaging said screw to move the car vertically, and a vertical series of horizontal braces for said screw, said series of braces forming a ladder substantially as described.

5. The combination with a laterally-movable perpendicular rail, of the blocks to which said rail is attached, the rotating horizontal cable-screws passing through conforming apertures in said blocks, gearing for the rotation of said screws and the fixed horizontal traversable tracks confining said blocks substantially as described.

CHARLES W. LITTLEFIELD.

Witnesses:
GEORGE H. MANLOVE,
WILL H. QUICK.