

(No Model.)

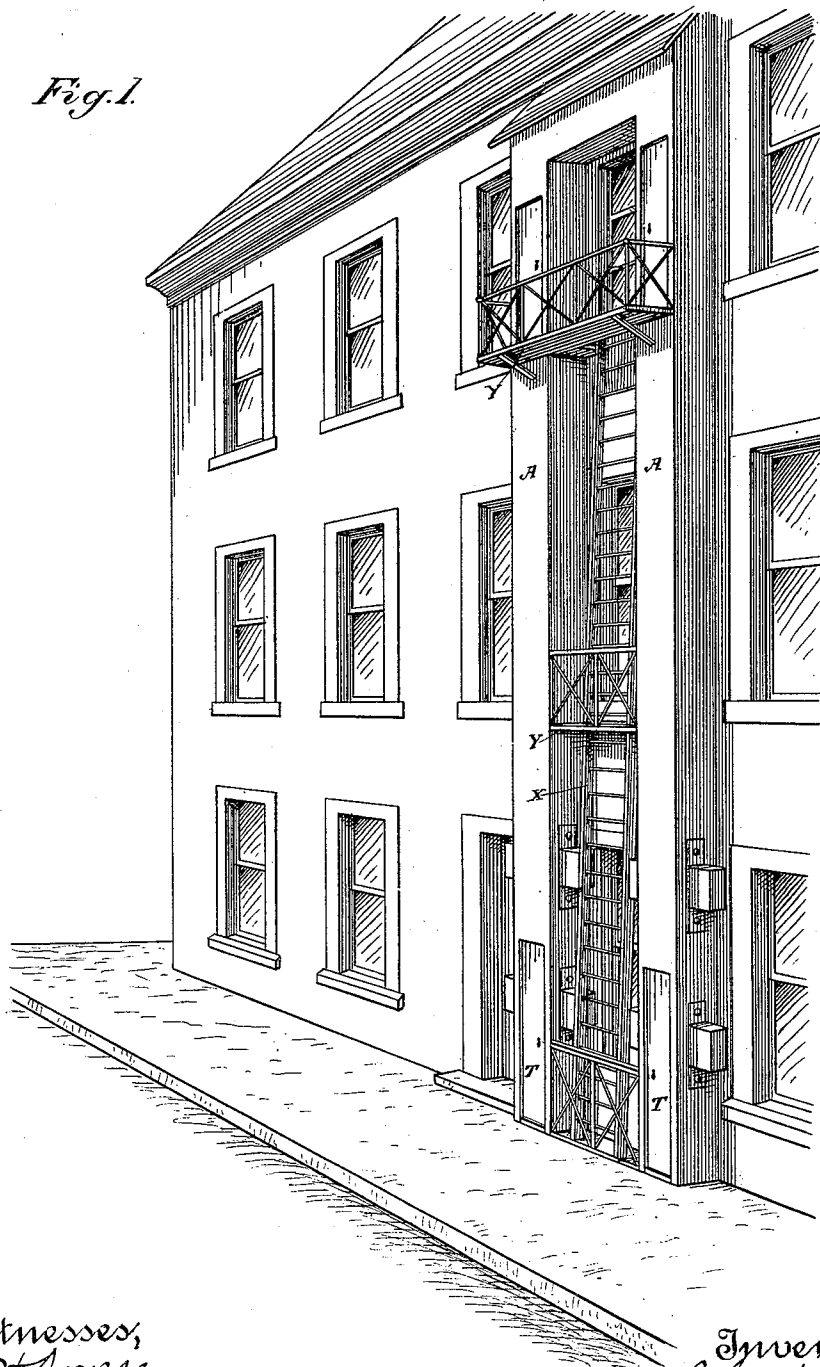
3 Sheets—Sheet I.

A. B. CRUICKSHANK.
FIRE ESCAPE.

No. 481,849.

Patented Aug. 30, 1892.

Fig. 1.



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(No Model.)

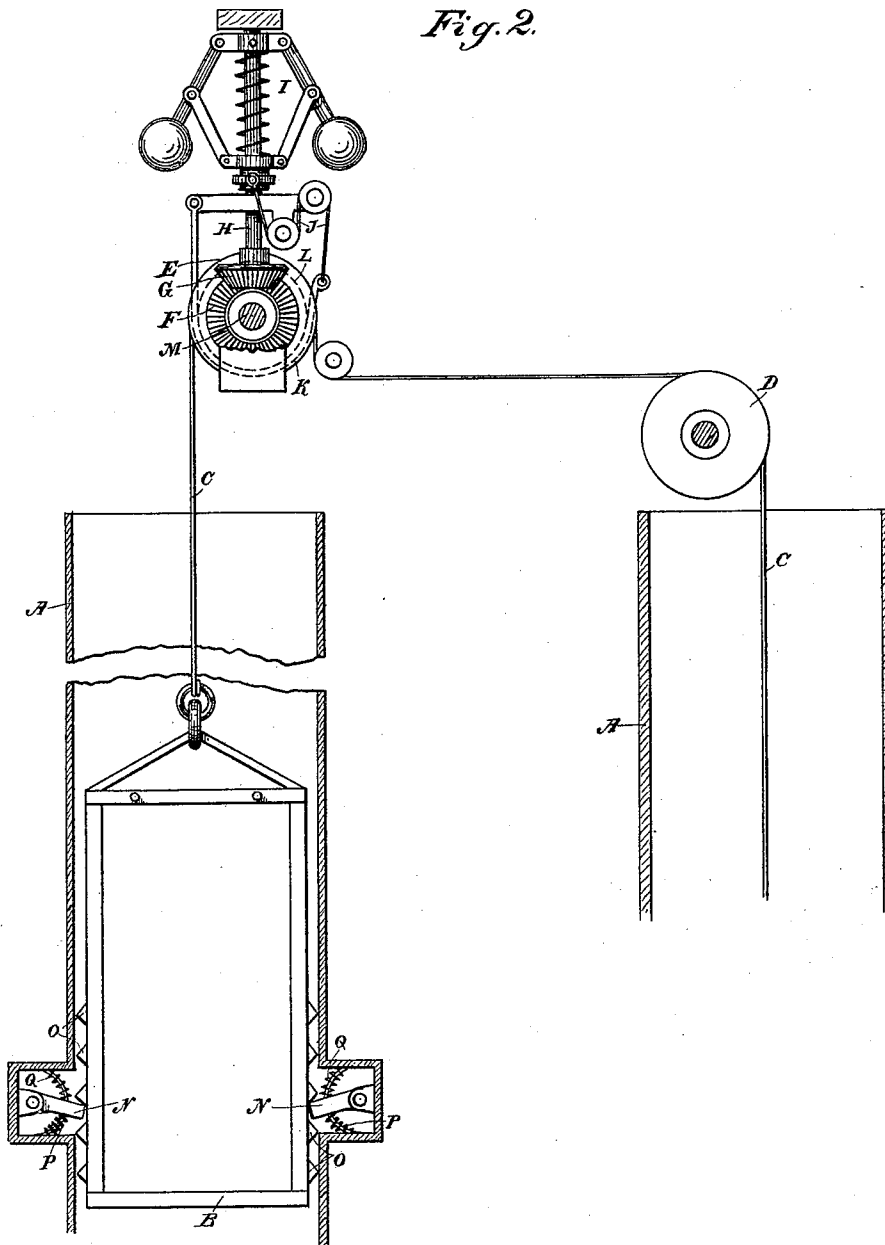
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FIRE ESCAPE.

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Patented Aug. 30, 1892.

Fig. 2.



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(No Model.)

3 Sheets—Sheet 3.

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Fig. 3.

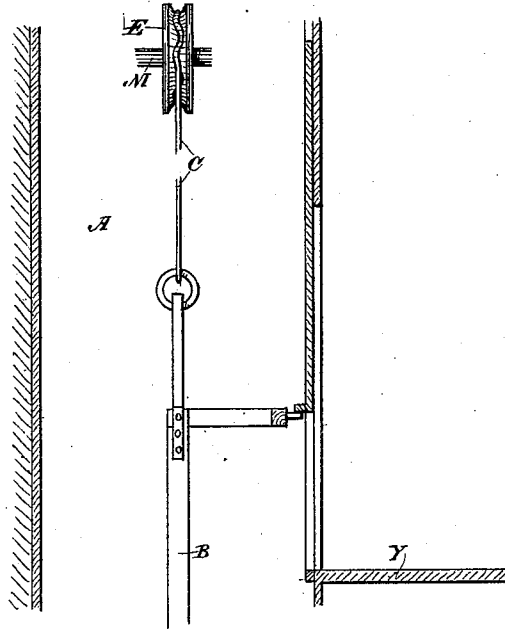
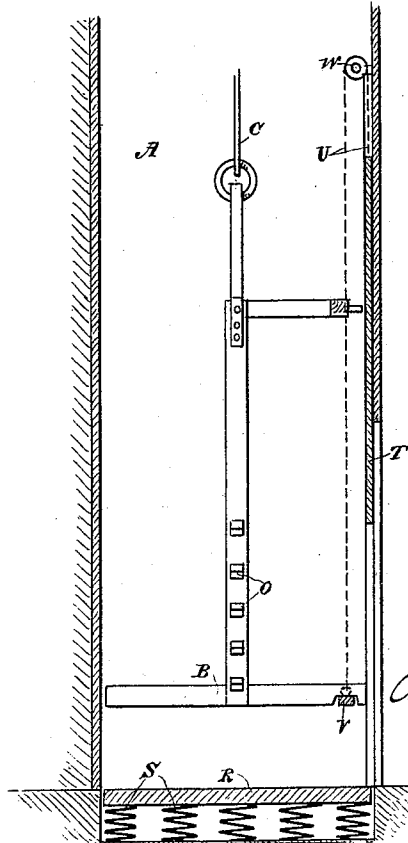


Fig. 4.



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UNITED STATES PATENT OFFICE.

ARTHUR B. CRUICKSHANK, OF SAN FRANCISCO, CALIFORNIA.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 481,849, dated August 30, 1892.

Application filed June 15, 1891. Serial No. 396,370. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR B. CRUICKSHANK, a citizen of England, residing in the city and county of San Francisco, State of California, have invented an Improvement in Fire-Escapes; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a device which I call a "fire-escape."

My invention consists in certain details of construction, all of which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a general perspective view of my apparatus. Fig. 2 is a vertical cross-section of the shafts, showing the brake device. Figs. 3 and 4 are vertical cross-sections taken at right angles to Fig. 2, showing the means for operating the top and bottom doors, respectively.

A A are two shafts adapted to receive cages or platforms B, which travel freely within them. These shafts may be arranged either within the building or exterior to the wall of the building, or they may be set upon the edge of the sidewalk in the line of the lamp-posts and out of the way of ordinary traffic. In the latter case these shafts will be connected with the different stories of the building by a horizontal platform, so that they may be easily reached from any part of the building. When any intermediate platform is reached between the top and bottom, the person must pass down by ladders. The cages can only run continuously from top to bottom of the shafts. These shafts are preferably made of non-conducting material or fire-proof and are protected against exterior heat when built within or near the building, so that the interior of the shafts will not be greatly affected, although some intermediate portion between the top and bottom may be exposed to the fire.

The cages or platforms B may be of any suitable construction and are suspended by a rope or chain C.

For purposes of safety it is preferable that a wire rope or chain be employed which cannot be destroyed by heat. This rope passes over the direction-pulleys D and E, one of which is located above each of the shafts,

and a cage being suspended from the end of each of the ropes it will then be manifest that when one of the cages is going down the other will be drawn up.

The pulley E is a frictional or grip pulley of any suitable or convenient construction which will grip the rope or chain, so that the movement of the latter will impart a positive motion to the pulley. Upon one side of this pulley is a beveled gear-wheel F, which imparts motion to a second beveled gear G, fixed upon a vertical shaft H. Upon the upper end of this shaft is fixed a governor I, which may be of any suitable or convenient form, and when this governor is rotated by the power derived from the pulley E and the gears G F it will act through the connecting-rope J upon the band or other brake K. This brake in the present case is shown as acting directly upon a drum L, which is mounted upon the shaft M of the pulley E, and it will be manifest that as the speed of the cage increases moving downward through the shaft the movement of the governor will also increase the pressure upon the brake.

I have here described and shown an ordinary form of governor; but it will be manifest that any of the well-known or suitable forms may be applied to this apparatus.

At intervals in the side of the elevator-shafts I have shown arms N, fulcrumed so as to project inwardly, and their inner ends are in line with the sides of the cage. These vertical side bars are made with corrugations O or of any other suitable form so as to engage the inwardly-projecting ends of the bars N. Beneath each of these bars is a heavy spring P, and it will be manifest that as the cage is moved downward the serrated edges O of the guides will strike the ends of the bars N and force them downward upon the springs P, thus producing a certain amount of resistance, which will tend to prevent the cage attaining too great a speed in its downward movement, this device acting in conjunction with the governor. Above each of these bars N are the lighter springs Q, acting in opposition to the springs P, and these resist the recoil or rebound of the arms N and tend to hold them in an approximately-central position ready to receive a cage whenever it passes. These devices may be arranged at

frequent intervals along the shaft and be made more or less continuous, their principal object being to gradually diminish the speed of the cages as they approach their destinations.

At the bottom of each shaft I have shown a floor R, which is adapted to receive the cage when it reaches the bottom. This floor is movable vertically and rests upon strong elastic springs S, which will be compressed when the bottom of the cage strikes the floor R, and will thus greatly relieve any shock which might occur from its stopping suddenly when it reached the bottom.

There are doors at the bottom of each of the shafts. These doors are large enough to allow the egress of persons who may pass down upon each of the cages. They slide upon vertical guides and are connected by ropes or cords U with transverse bars V. These bars hang within the shafts in such position that when either cage comes down pins projecting from it will strike the bar, and as it arrives at the bottom of the shaft it will, acting through the rope U, which passes over a pulley at W, raise the door, and thus provide a means for egress from the shaft. These doors may be provided with any suitable lock or catch (not here shown) which will retain them locked, so that no access can be had to the interior of the shaft while the cages are up; but the downward passage of any cage will disengage this locking mechanism, and thus allow the cage to automatically open the door. Suitably-arranged doors are fitted to these shafts at the upper landing, and in this manner passengers may reach either of the cages and pass down

from the upper floors of the building. The upper doors are raised by a bar upon the top of each cage, which engages pins upon the doors and opens them when the cages arrive at the top. The doors close by gravitation when the cages begin to move downward.

These shafts are sufficiently far apart in practice to admit the introduction of a ladder X, which is so arranged that it may be used by firemen or others wishing to ascend or descend, and for this purpose I have shown floors of gratings Y arranged between the shafts and convenient of access from any of the floors of the building. These ladders may be continued to floors above that at which the upper ends of the shafts stop, and if within the building they may be protected by fire-proof coverings or inclosures.

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

A fire-escape consisting of the parallel vertical shafts, cages moving therein and connected with the single rope passing over guide-pulleys, an automatically-operating governor and brake, and supplemental checks whereby the speed of the downwardly-moving cage is regulated and checked, and the elastic or spring platform at the bottom, upon which the cage is received, substantially as herein described.

In witness whereof I have hereunto set my hand.

ARTHUR B. CRUICKSHANK.

Witnesses:

S. H. NOURSE,

H. F. ASCHECK.