

No. 636,169.

Patented Oct. 31, 1899.

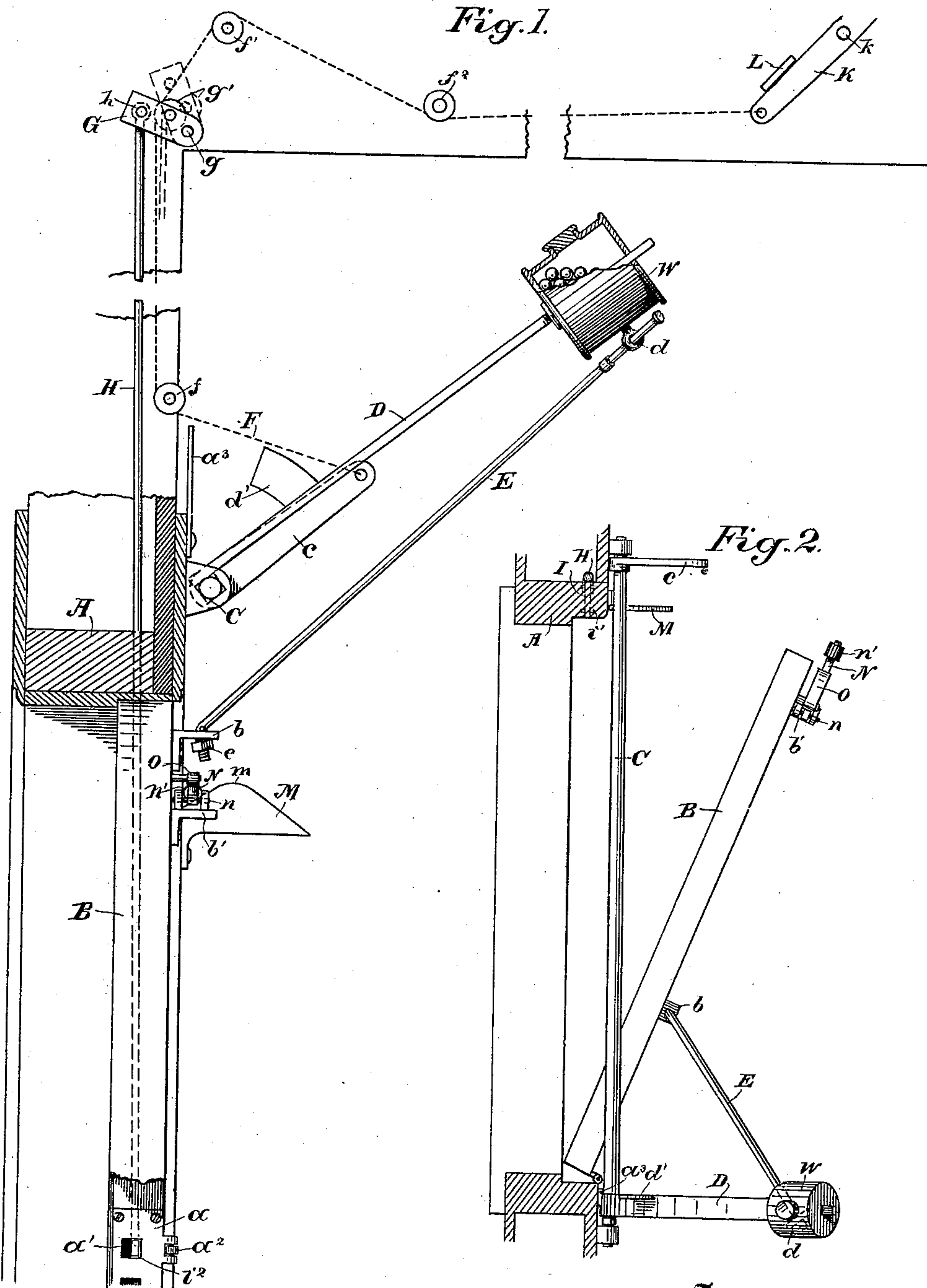
J. OHRING.

DOOR OPENING AND CLOSING DEVICE.

(Application filed Aug. 4, 1899.)

(No Model.)

2 Sheets—Sheet 1.



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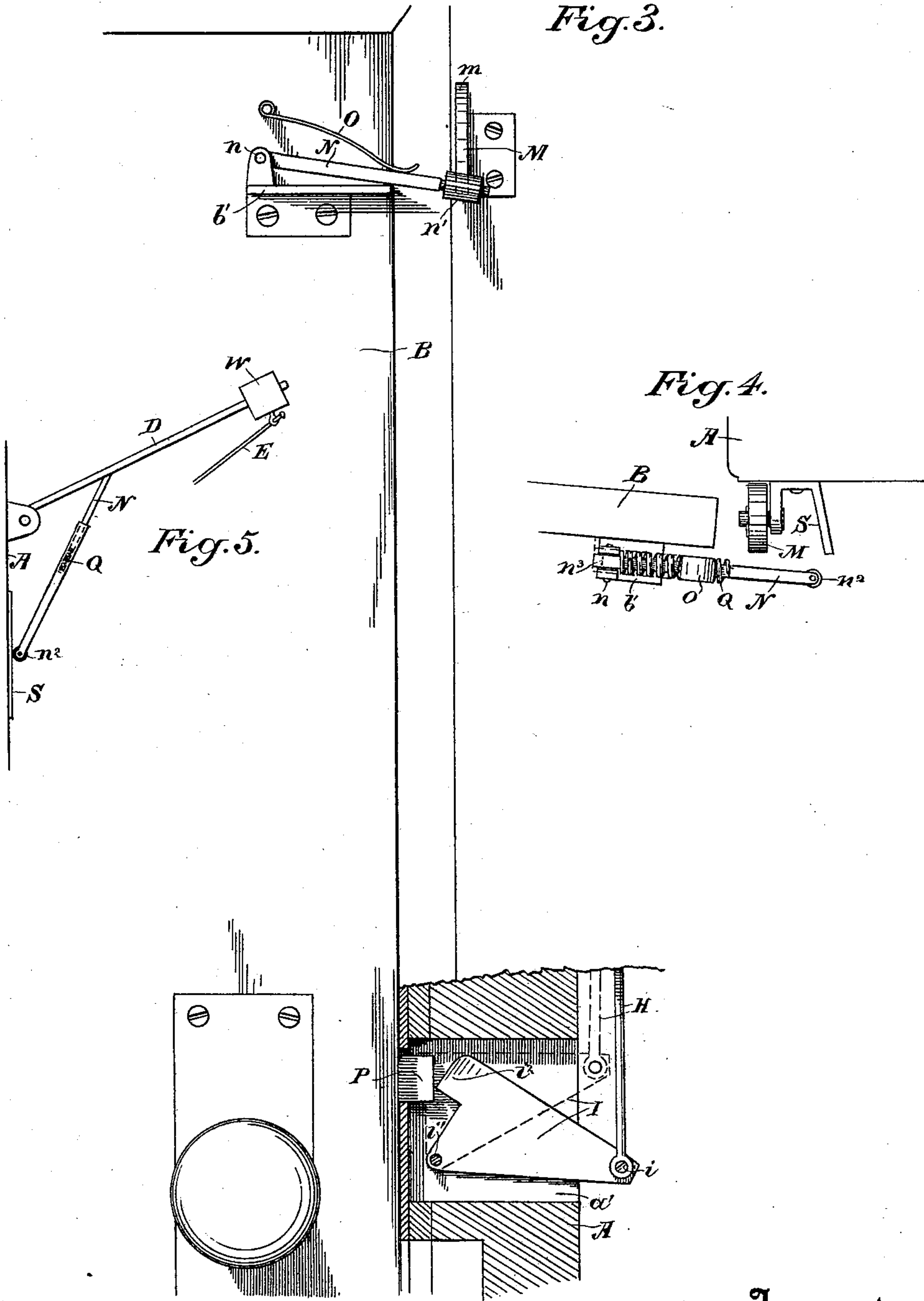
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

JOHN OHRING, OF SAN FRANCISCO, CALIFORNIA.

DOOR OPENING AND CLOSING DEVICE.

SPECIFICATION forming part of Letters Patent No. 636,169, dated October 31, 1899.

Application filed August 4, 1899. Serial No. 726,079. (No model.)

To all whom it may concern:

Be it known that I, JOHN OHRING, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Door Opening and Closing Devices; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a device which is designed for opening and closing doors which may be located at distant or inconvenient points, such as the street-doors which open onto a stairway leading to flats or rooms at some distance from the door.

It consists of a mechanism by which the door may be unlatched, opened, and closed and connections leading from said mechanism to the head of the stairs or to other distant point from which the door is to be operated.

It also comprises details of construction, which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a general view showing the top of the door-casing in section and part of the door and the actuating mechanism connected therewith. Fig. 2 is a plan of the device and partial transverse section of the door-posts. Fig. 3 is an elevation of the latching device, also showing a means for retracting the main latch, so that the door may be opened. Figs. 4 and 5 are details of temporary latching devices.

The object of this invention is to enable a person residing at the top of one or more flights of stairs to readily open and close the street-door without going down to it.

A is the door-casing, B the door, hinged to swing in the usual manner, and P is a latch by which the door is secured when closed. This latch is ordinarily moved by a knob; but in my invention it is operated by a lever I, fulcrumed, as shown at i' , and having a projection i^2 , which is adapted to engage the end of the latch-bolt P and push it back.

H is a rod extending upwardly within the door-casing, and its lower end is connected at i with the rear end of the latch-actuating lever I, this lever being fulcrumed in a chamber formed in the casing A, with the lug i^2 in such relation with the latch P that it will en-

gage it. It will only be necessary to pull upon the rod H and turn the lever about its fulcrum to force the latch back until it is disengaged from the strike-plate through which it passes.

The rod H extends upwardly, as shown in Fig. 1, and has its upper end connected at h with a short lever G, fulcrumed at g at a point in the space above the door.

C is a shaft extending across the upper part of the door-casing, as shown, having a lever c fixed to one end and a rod D fixed to the other end. This rod and lever extend upwardly from the shaft, and upon the outer end of the lever D is fixed a weight W. This weight may either consist of a case adapted to contain shot or other heavy material by which it can be varied or it may be formed of separate disks like scale-weights or in any other like manner, the object being to adjust it to the size and weight of the door and the work to be done. On the lower part of this weight is an eye or guide d , through which a rod E passes. The lower end of this rod passes through a bracket b on the upper part of the door B and is removably secured by a nut e or other suitable means. The bracket b is preferably fixed to the door at approximately one-third of the distance from the hinge side to the outer or swinging edge, as is plainly shown in Fig. 2, so that when the weight is free to press upon the outer end of the lever D it acts through the rod E to push the door and close it. A cord or chain F is connected with the end of the lever c , passing thence around guide-pulleys $f' g' f'^2$, which direct it to the point where it is connected with the lower end of a lever K, fulcrumed at k . This lever is situated within reach of the person by whom the door is to be opened, and by turning this lever around its fulcrum it pulls upon the cord F, which, passing over the pulley g' , fulcrumed upon the lever G, acts first to pull this lever upwardly into the position shown in dotted lines in Fig. 1. This acts through the rod H to move the latch-operating lever I and forces the latch back along the door to be opened. Further movement of the lever and cord after the door is unlatched pulls upon the lever c , and turning the shaft C it acts through the lever D to raise the weight W, and pulling upon the arm E it opens the

door. As soon as the lever K is released the weight W acts through the rod E and pushes the door to its closed position, where it may again latch.

5 The strike-plate a has preferably a roller a^2 pivoted in that part which the latch P of the door strikes, so that there will be little or no resistance to the door's being properly closed and latched.

10 In some cases it is desirable to close the door and hold it in place without absolutely locking it. For this purpose I have shown a latch M, fixed to the door-casing, and an arm N, fulcrumed at n to the door and having
15 upon its outer end a roller n' , which will engage and roll over the latch M when the door closes. A spring O, fixed to the door, presses upon the lever-arm N, and thus forces it down after it has passed over the elevated or
20 convex portion of the latch M, so that it drops into the lower space behind, and thus serves to hold the door against opening by ordinary pressure; but any person desirous of opening the door can do so by pushing it hard enough
25 to overcome the pressure of this spring O, which normally keeps the roller n' engaged with the latch M. This latching device may be made in various ways. Fig. 4 shows a means in which an inclined bracket or projec-
30 tion S stands in line with the movable spring-pressed arm N, which has a roller n^2 journaled in its outer end, so that when the door B closes this roller will contact with the bracket S and will be pressed backwardly against the
35 tension of a coiled spring which surrounds its inner end, and at the same time the arm N will pass over the latch M, which in Fig. 4 is shown as a roller journaled upon one part of the bracket S. The same action takes
40 place when the lever-arm N extends into a socket carrying the roller n^2 at the outer end and an interior spring Q, against which the arm N presses. When the lever D is moved in one direction, the roller at the end of the
45 arm N moves over the surface of the fixed plate, as shown in Fig. 5, and when moved in the opposite direction it moves back over the surface, exerting a pressure which causes it to engage and hold with relation to the
50 bracket S. Various other devices designed for this purpose may be used without materially altering the character of this part of my invention, the essential feature of which is to provide a simple automatically-latching
55 device which will hold the door in closed position, but will allow it to be easily moved when necessary.

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

1. A door-opening device consisting of a

journaled shaft, a weighted lever fixed upon said shaft, a cord connected with the shaft and with a lever to which it is led over direc-
tion-pulleys, and a pressure-rod connecting 65 with the weighted lever and acting to close the door when the weight is free to act, and to open the door when the weight is raised.

2. A door-opening device consisting of a rotary shaft, a weighted lever fixed upon said 70 shaft, connections between said lever and the door whereby the weight normally acts to close the door, a cord-and-lever connection with the rotary shaft, direction-pulleys over which the cord passes to the operating-point, 75 and a lever with which the cord connects at that point, by the movement of which the weight is drawn up and the door is pulled open.

3. In a door-opening device, a fulcrum- 80 shaft, a weighted lever projecting therefrom, connections between the weight and the door whereby the latter is normally closed by the action of the weight, a lever-and-cord con-
nection and intermediate direction-pulleys 85 by which the weight is raised to relieve and open the door, and an unlatching device operating in unison therewith.

4. In a door-opening device, a latch-actu-
ating lever, a rod extending upwardly there- 90 from, a short lever with the outer end of which said rod connects, a weighted lever, connections between the outer end of said lever and the door whereby the raising of the lever will pull the door open and the drop- 95 ping of it allows the door to be closed by the gravitation of the weight, and a cord operatively connected with the weighted or an equivalent lever, guide-pulleys over which said cord passes to the operating-lever, one of 100 said pulleys being fulcrumed upon a short lever to which the latch-actuating rod is connected whereby the first pull upon the cord moves said lever, disengages the latch, and a further movement acts to pull the door open. 105

5. In a door opening and closing device, the unlatching lever and rod, a weighted lever and connections by which the door is moved about its hinges, a cord and interme-
diate connections whereby the latch is with- 110 drawn and the door is opened and a supplemental latching device including a member fixed to the door-casing and a second member carried by the door, said device acting automatically when the door has been closed 115 to retain it in closed position.

In witness whereof I have hereunto set my hand.

JOHN OHRING.

Witnesses:

S. H. NOURSE,
GEO. H. STRONG.