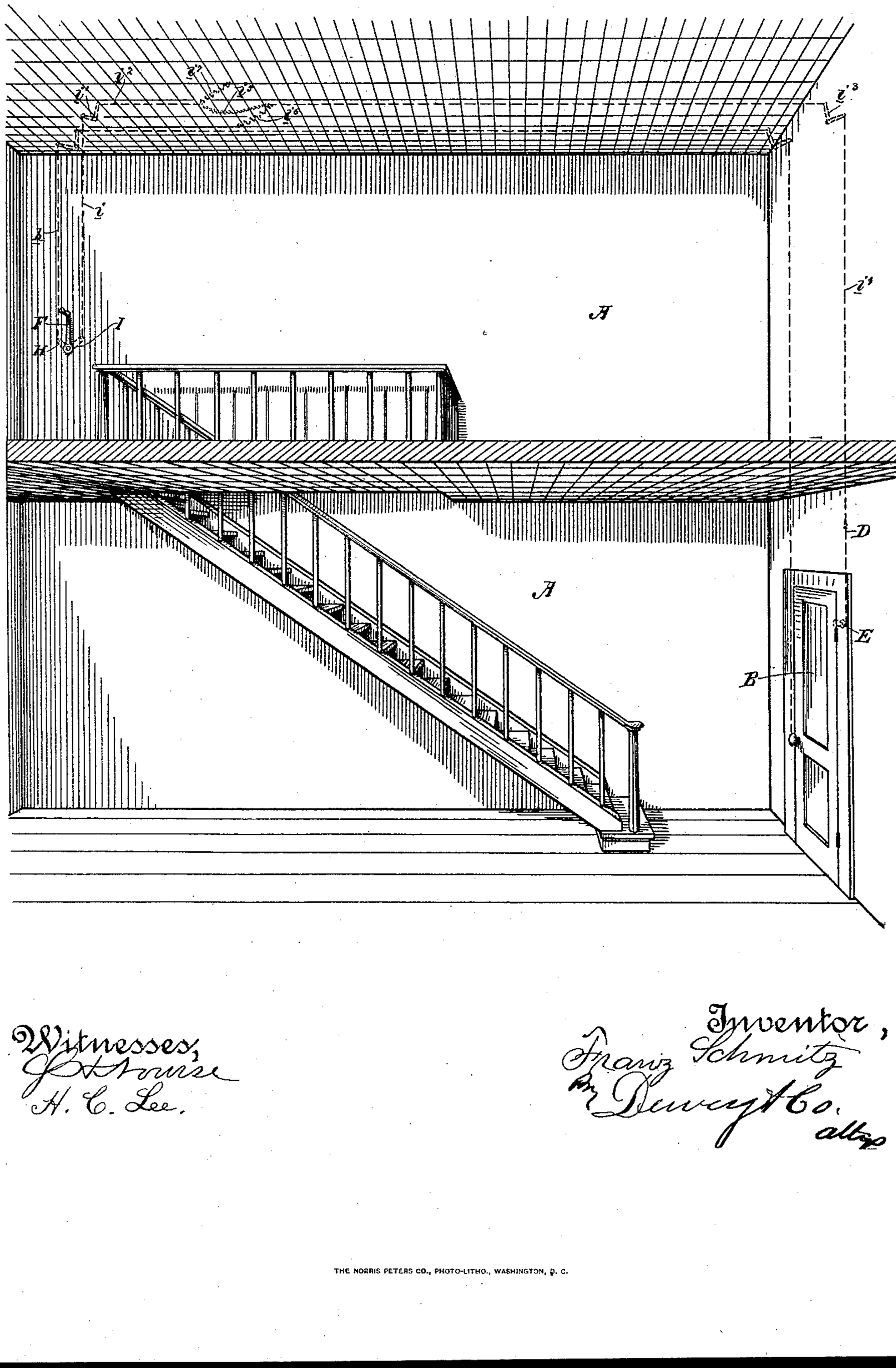
(No Model.) 3 Sheets—Sheet 1.

F. SCHMITZ.

DOOR MANIPULATOR.

No. 452,084. Patented May 12, 1891.

Fig. 1.



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By Dewey & Co.
Attys

(No Model.) 3 Sheets—Sheet 2.

F. SCHMITZ.

DOOR MANIPULATOR.

No. 452,084. Patented May 12, 1891.

Fig. 2.

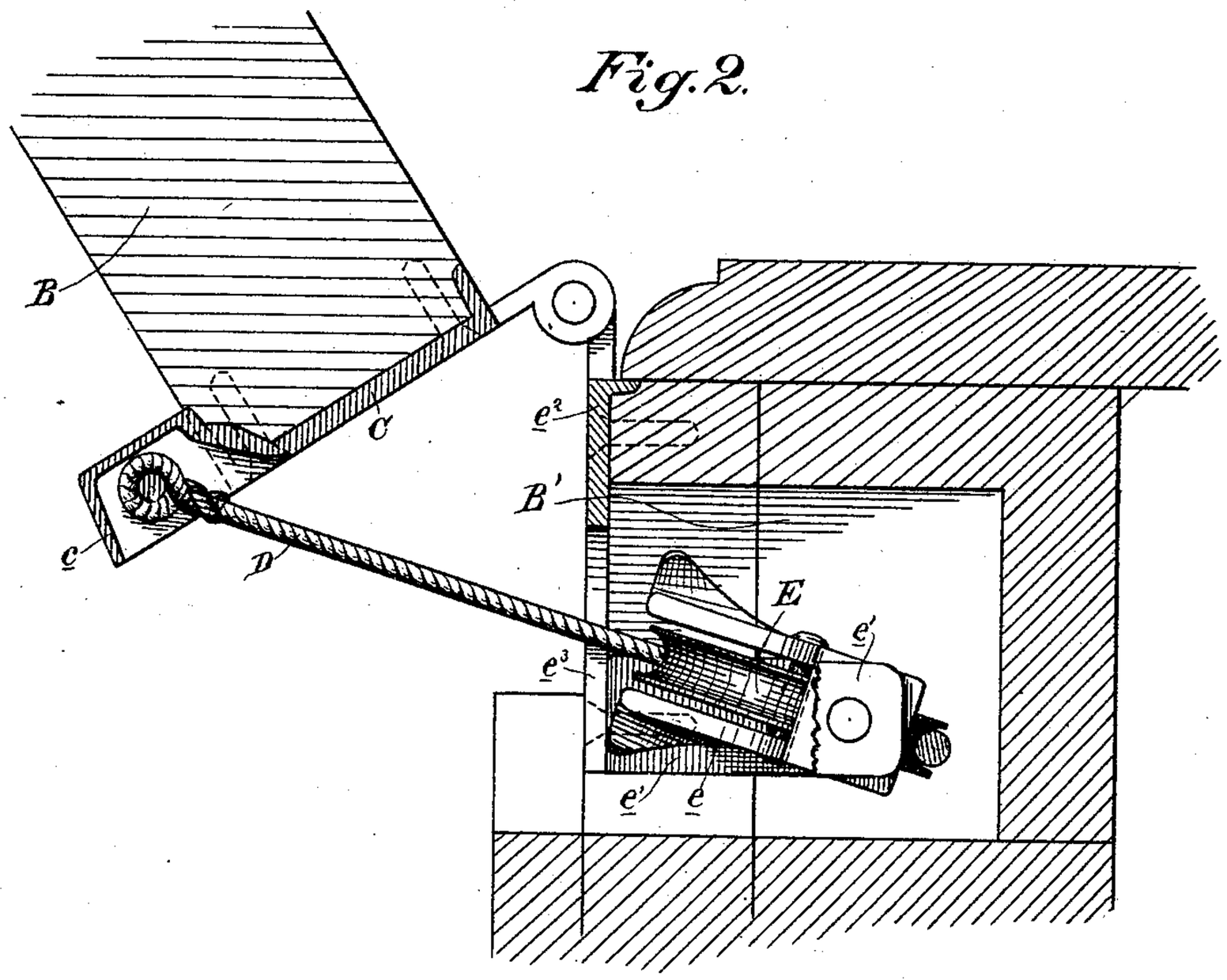


Fig. 3.

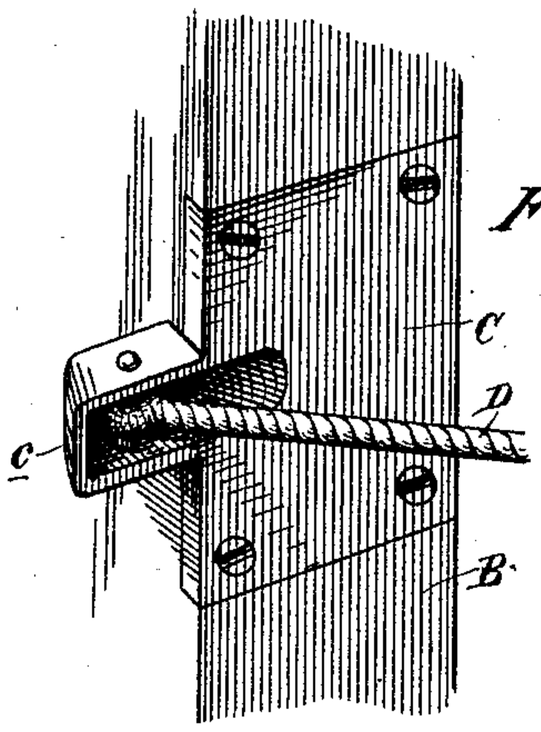
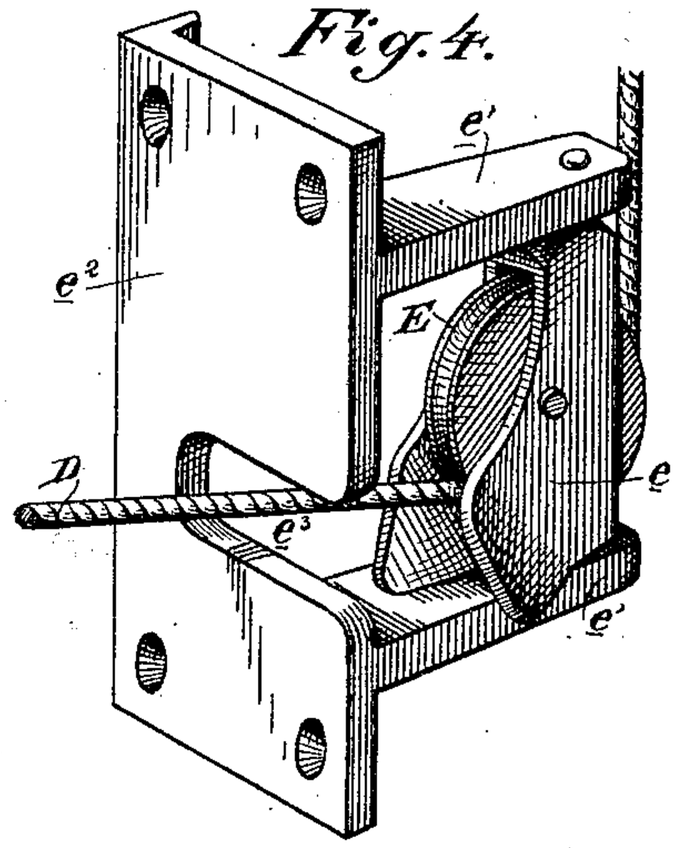


Fig. 4.



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(No Model.) 3 Sheets—Sheet 3.

F. SCHMITZ.

DOOR MANIPULATOR.

No. 452,084. Patented May 12, 1891.

Fig. 5

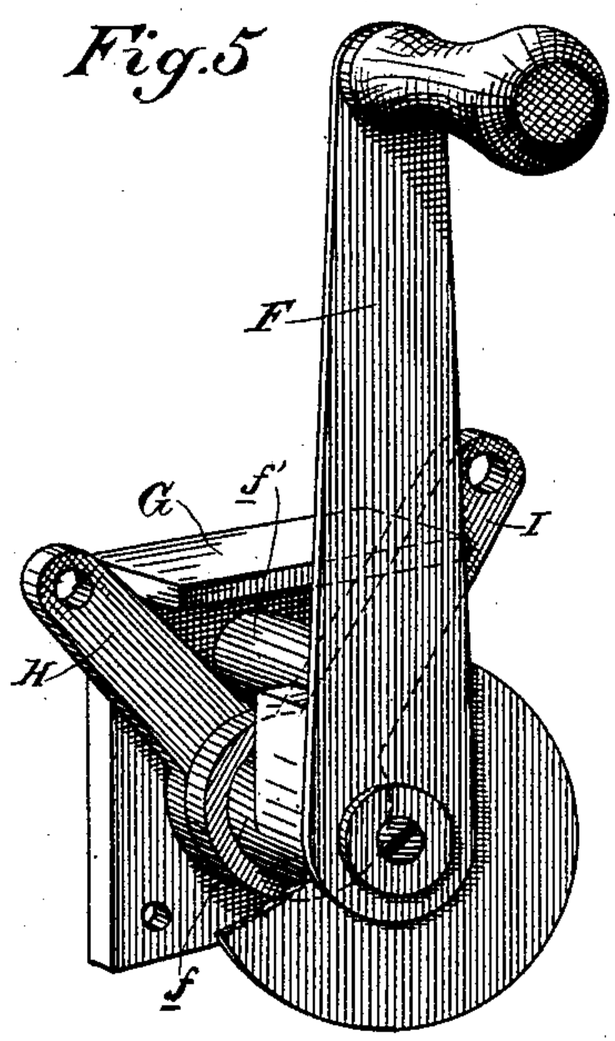
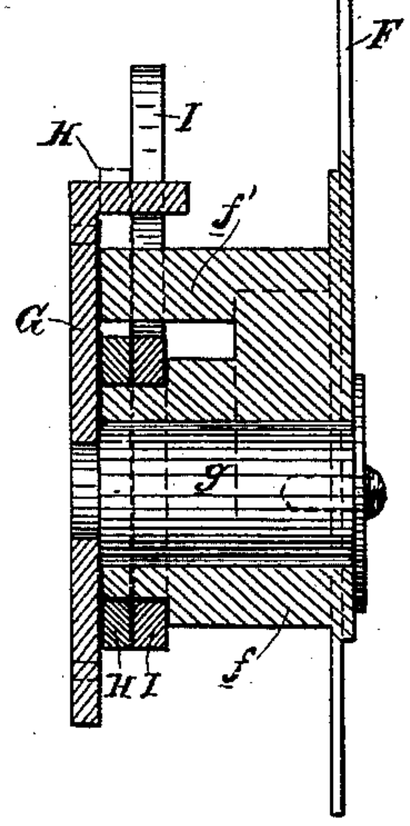


Fig. 6.



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UNITED STATES PATENT OFFICE.

FRANZ SCHMITZ, OF SAN FRANCISCO, CALIFORNIA.

DOOR-MANIPULATOR.

SPECIFICATION forming part of Letters Patent No. 452,084, dated May 12, 1891.

Application filed October 8, 1890. Serial No. 367,438. (No model.)

To all whom it may concern:

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

My invention relates to that class of devices to be applied to doors, the object of which is to permit of their being opened and closed from a distance.

My invention consists in the novel closing mechanism and in the novel lever device by which both the closing and any suitable opening mechanism are operated, all of which will be hereinafter fully described, and specifically pointed out in the claims.

The object of my invention is to provide a simple, effective, and readily-applicable means for manipulating doors.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a view of the interior of a building, showing the general location of parts. Fig. 2 is a horizontal section of door and casing, showing the closing device. Fig. 3 is a perspective view of plate C. Fig. 4 is a perspective view of the guide-pulley and its mountings. Fig. 5 is a perspective view of lever F and connections. Fig. 6 is a section of same.

A represents the interior of a building, showing an upper and a lower apartment, in the latter of which is the door B. Firmly secured to the inner edge of the door is a plate C, which is provided on one side with a lug *c*, in which is attached the pulling cable or cord D. This lug extends from the side of the plate a sufficient distance to provide for suitable leverage in the pulling of the cable or cord D.

In the jamb of the door-casing B′ is made a mortise, in which is let the swinging guide-pulley E, said pulley being journaled in a vertical frame *e*, the upper and lower ends of which are pivoted in the inwardly-extending arms *e′*, which project from a face-plate e^2, secured to the outside of the jamb of the casing and having an opening e^3 made in it for the direct passage of the cable or cord D to the directing-pulley E. It will be seen that this construction enables the pulley to turn to any angle to accommodate the different directions of the cord or cable, according to the degree to which the door B is opened. There will therefore be no cramping or binding of this cable, but it will change its direction as the door opens and closes, the pulley swinging on its vertical pivotal center to accommodate its changes.

The parts thus far described constitute the closing mechanism of the door, and are preferably located at a point just above the upper hinge of the door, and it will be seen that by pulling on said cord or cable the door will be pulled to a closed position.

At any suitable point within the building, here shown for the sake of illustration in the upper apartment, is located the lever F, by which the door is both opened and closed.

G is a plate which is adapted to be secured to a stud within the wall. From this plate extends outwardly into the apartment a shaft *g*, on which the hub *f* of the lever F is journaled. This hub has extending inwardly from its upper portion a contact-arm *f′*. Around the inner end of the hub *f* is fitted freely the end of a lever-arm H, and also the end of a second lever-arm I. These extend in opposite directions, and the contact-arm *f′* of the lever-hub *f* plays between them, whereby when the lever is moved in one direction the lever-arm H is moved to one side by the arm *f′*, and when moved in the other direction the the lever-arm I is moved to one side by said arm *f′*. Now from one of these arms—say, for example, the arm I—extends a wire *i*, which connects at its upper end with a bell-crank *i′*, from which a second wire i^2 extends to and connects with the bell-crank i^3, and thence another wire i^4 extends down to and is suitably connected with the cord or cable D of the closing device. It will be understood, of course, that these connections between the lever F and the cable or cord D may be varied in number and direction to suit the requirements of each case. Now by turning the lever F so as to move the lever-arm I the cord or cable D will be pulled upon so as to close the door. With the lever-arm H is connected a wire *h*, which forms one of several suitable

and common connections between said lever-arm and any suitable door-opening device, which I have not deemed necessary herein to show, as my invention does not extend to such a device; but I may use any of the well-known and ordinary forms of mechanism for releasing the latch, whereby the door is released. It is sufficient herein to show merely a portion of the connection *h*, in order to clearly illustrate and describe my lever F, by which both the opening and closing devices may be operated. It will be seen, therefore, that the single lever F, by its movement in one direction or the other, opens or closes the door. Now as the door-closing connections (represented by the cord or cable D) and the several wires have to be extended and contracted on account of the separation of the edge of the door from its casing in opening and its approach thereto in closing, I must provide means for accommodating this movement. I have accordingly shown in the wire i^2 a short length of chain i^5, which provides for the necessary amount of slack, and which, when the door is closed, hangs down in a slackened condition. A spring i^6, secured to the wire at one end of the chain takes up the slack in the connections between that point and the door, as the door closes, and an oppositely-operating spring i^7, connected with the wire at the other end of the chain, so pulls upon the connections between that point and the lever-arm I as to return said arm and hold it in position to be operated upon by the lever F.

In the operation of closing the door the entire slack of the chain i^5 (which is small) is taken up, so that the connections act rigidly to pull the door to.

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

1. In a door-manipulator, the combination of a cord or cable secured to the inner edge of the door, a plate secured to the jamb of the door-casing, having inwardly-extending arms and provided with an opening for the direct passage of the cord or cable, a vertically-pivoted frame carried by the inner ends of said arms, a guide-pulley mounted in and between said frame for directing the cord or cable, and means for pulling on said cord or cable to close the door, substantially as herein described.

2. In a door-manipulator, the combination of a plate secured to the inner edge of the door, a cord or cable secured to said plate, a plate secured to the jamb of the door-casing and having inwardly-extending arms, a vertically-pivoted frame carried by the inner ends of said arms, a guide-pulley mounted in said frame for directing the cord or cable, and means for pulling on said cord or cable to close the door, substantially as herein described.

3. In a door-manipulator, the combination of the plate C, secured to the inner edge of the door and having a lug extending from one side, the cord or cable D, secured to said lug, the plate e^2, secured to the jamb of the door-casing and having inwardly-extending arms, the vertically-pivoted frame in said arms, the guide-pulley mounted in said frame for directing the cord or cable, and means for pulling on said cord or cable to close the door, substantially as herein described.

4. In a door-manipulator, and in combination with a cord or cable secured to the door, the means for pulling in said cord or cable to close the door, consisting of the plate G, secured to the wall and having an outwardly-extending shaft, a lever F on said shaft, having a hub provided with an outwardly-extending contact-arm, and the lever-arms H and I on the inner end of the hub, substantially as herein described.

5. In a door-manipulator, the combination of the cord or cable secured to the inner edge of the door for closing it, the lever F, having a contact-arm, the swinging lever-arm I, operated thereby, suitable wire connections between said lever-arm and the cord or cable, the chain let into one of said wire-connections, and the oppositely-acting springs secured to said wire at each end of the chain, substantially as herein described.

In witness whereof I have hereunto set my hand.

FRANZ SCHMITZ.

Witnesses:
WM. F. BOOTH,
S. H. NOURSE.