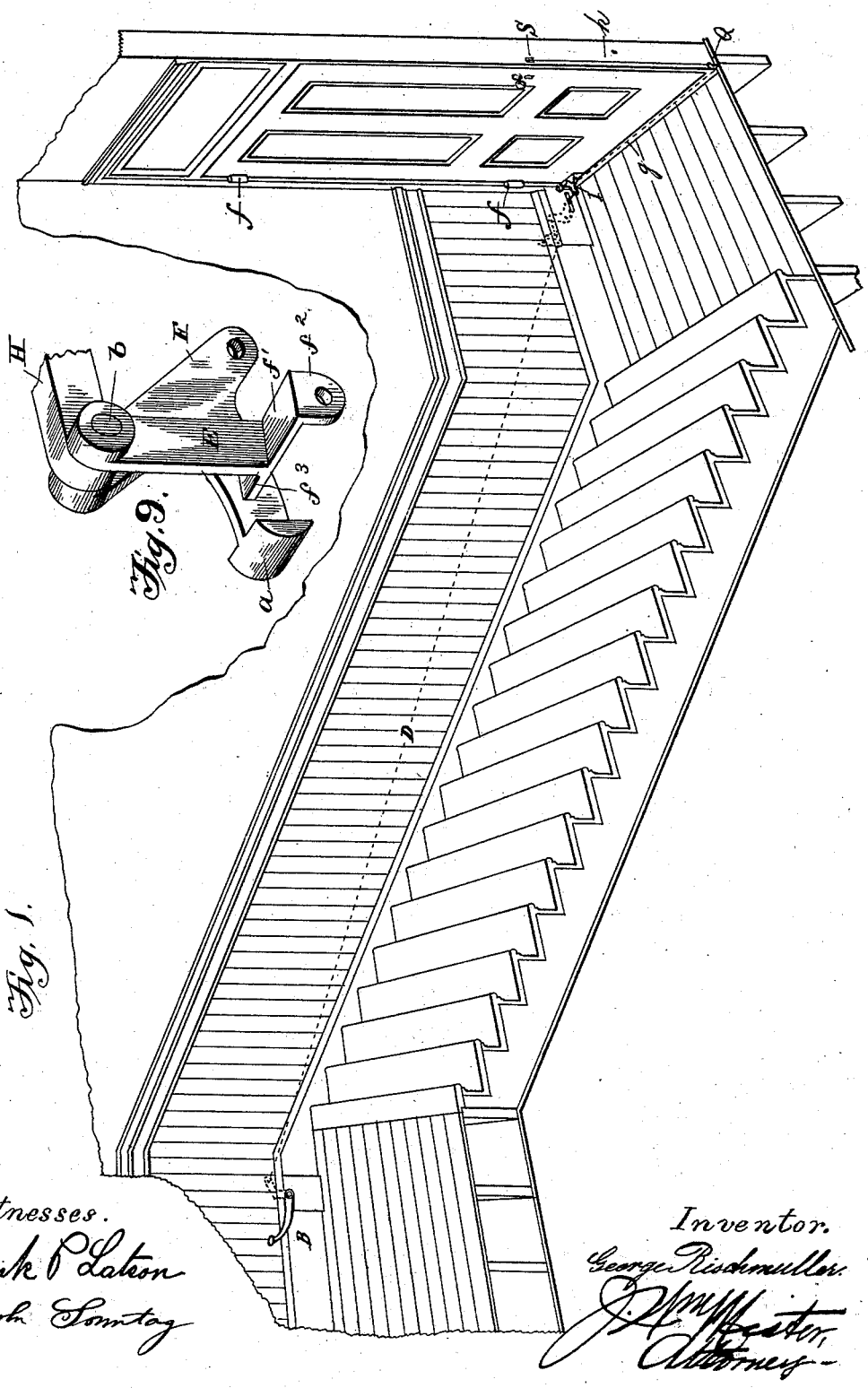
(No Model.)

2 Sheets—Sheet 1.

G. RISCHMULLER.

DOOR OPENER AND CLOSER.

No. 524,810. Patented Aug. 21, 1894.



Witnesses.
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(No Model.) 2 Sheets—Sheet 2.

G. RISCHMULLER.

DOOR OPENER AND CLOSER.

No. 524,810. Patented Aug. 21, 1894.

Fig 2

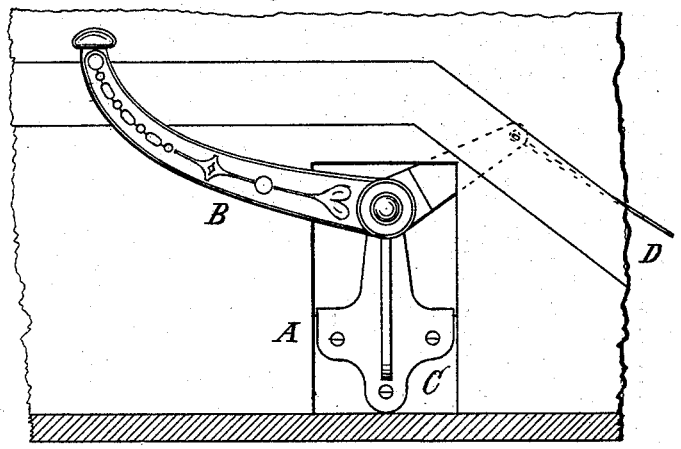


Fig 3

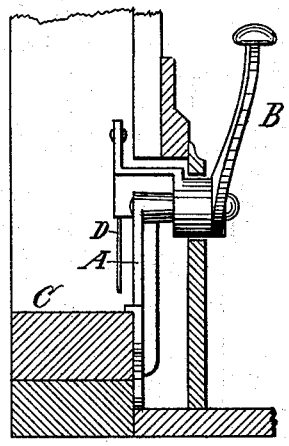


Fig 4

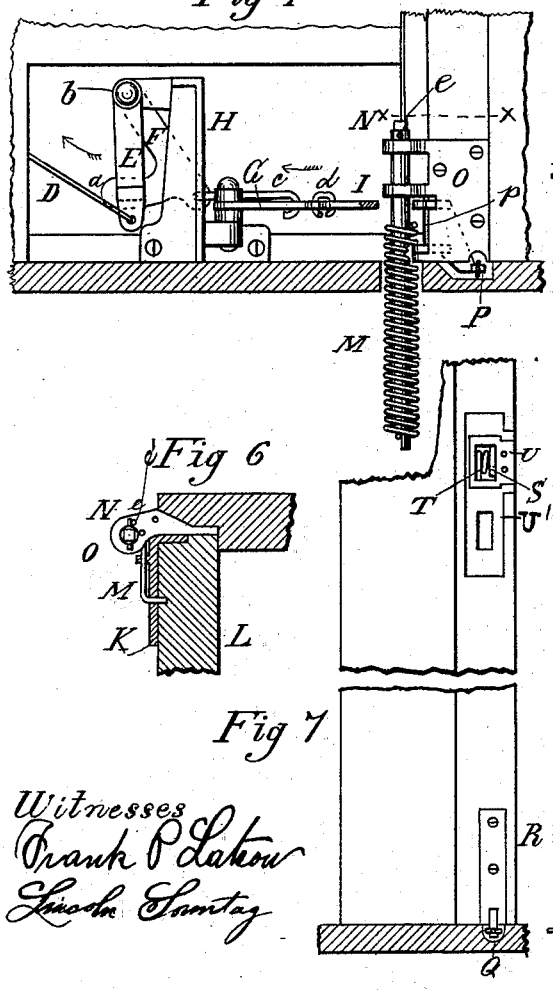


Fig 5

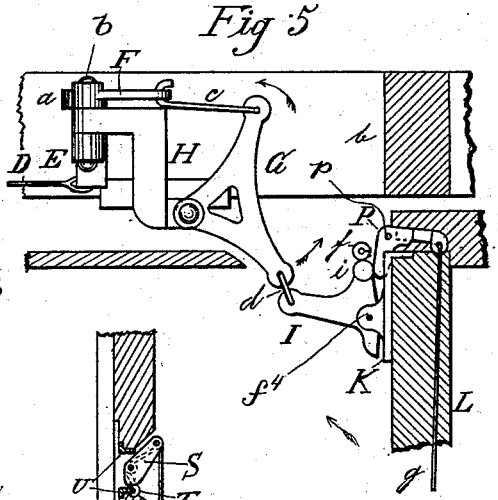


Fig 6

Fig 7

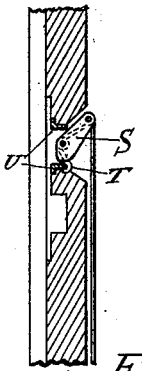
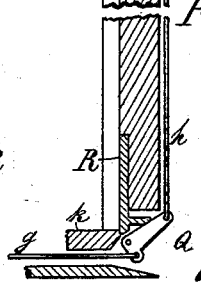


Fig 8



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE RISCHMULLER, OF SAN FRANCISCO, CALIFORNIA.

DOOR OPENER AND CLOSER.

SPECIFICATION forming part of Letters Patent No. 524,810, dated August 21, 1894.

Application filed May 29, 1891. Serial No. 394,568. (No model.)

To all whom it may concern:

Be it known that I, GEORGE RISCHMULLER, a citizen of the United States, residing at 934 B Capp street, in the city and county of San Francisco and State of California, have invented a new and useful Door Opener and Closer, of which the following is a specification.

My invention relates to improvements in door operating devices, and it has for its objects to operate with facility a first-story, or street door from an upper story; to make direct connection between the point of application of the power and the object or door operated upon; to prevent the slamming or sudden closing of the door from currents or drafts of air through the house; and to dispose or inclose properly the mechanism for operating the door; and to these ends the invention consists in the novel combination and arrangement of parts, substantially as hereinafter more fully disclosed and pointed out in the claims.

In the accompanying drawings—Figure 1 is a broken perspective view, with the nearer wall removed, of the stairway and street door of a dwelling or house, showing the application thereto of my invention or door operating device. Figs. 2 and 3 are enlarged side and end detail views of the foot-lever. Figs. 4 and 5 are similar views of the door actuating lever-mechanism. Fig. 6 is a horizontal section on the line x—x of Fig. 4. Figs. 7 and 8 are broken side and sectional elevations of the door-jamb, showing the latch disengaging dog, with its operating mechanism. Fig. 9 is an enlarged detail view of the door-actuating lever-mechanism.

In the embodiment of my invention, I employ a foot-lever B fulcrumed upon a pivot-stud of a bracket A, screwed or secured to a support C let into the wall at the head of the stair-case, leading from the ground or first floor to the next upper floor. The foot-lever B has connected to it a stout wire D extending down between the stair-case and the wall, as indicated in dotted lines, thus incasing it and taking it out of view.

E is a lever or pivoted pendent bar, having the lower end of the wire D connected to it and hung or pivoted upon a pivot b bearing in the upper arm of a bracket H, screwed or secured to a suitable support, also arranged between the wall and the stair-case out of sight. This lever E has at its lower end a cross piece f' provided at one end with a pendent, apertured stud f^2 to the lower end of which the wire D is immediately connected, the opposite end f^3 of said cross-piece f' performing a function presently seen.

F is a right angled lever hung or pivoted upon the same pivot b as the lever E and having its rear lower end, provided with a lateral stud a, designed to be engaged by the end f^3 of the lever E above referred to for a purpose made apparent farther on. The opposite or forward lower end of the bell-crank lever F is linked, as at c, to one end of a horizontal bell-crank G, pivoted or hung upon a pivot-stud of the bracket H, the opposite free end of the bell-crank G being linked, as at d, to the rear end of a right angled lever I, suitably pivoted to the door, it may be between cheek-pieces f^4 of a bearing-plate K, secured to the street-door near its hinged edge, at the lower corner. The free inner end of the lever I has a cylindric portion or foot i adapted to engage one arm of a right-angled lever P, hung upon a pintle or pivot p supported upon the vertical plate O secured or screwed to the hinged post of the door-frame.

The lever P has connected to it, at one end, a wire g, passing between the carpet-strip and floor and connecting with an angle-lever Q, pivoted in a plate R, secured to the door-jamb, near the floor.

S, is a dog, hung or pivoted upon a pintle or cross-rod, in the opening of a frame-like casting or plate U, secured flush with the catch or socket plate U' fastened to, and flush with, the door-jamb, said dog being connected, at its upper end by means of a wire h, with the upper end of the angle-lever Q. The pintle or cross-rod of the dog S, also affords a support for a coiled spring T, one end of which catches or bears upon one edge of the opening of the plate U, while the other end bears upon the outer or upper end of the dog S, to retain the latter normally in the position shown in Fig. 8, with its inner or acting end retracted, said end of the dog being directly opposite the point of reception for the door latch.

M is a spring carried by and fastened at

one end to the lower end of a rod N, suitably supported in an apertured arm of the plate O, the upper end of said rod being squared and let into an aperture of said plate and having passed through it a pin *e*, adapted to engage any one of two or more studs *e'* upon the plate O, to permit, by the application of a wrench to said squared end of the rod N, the regulating of the tension of the spring M, as may be required. The rod N is in alignment with the door hinges *f*, one end of the spring M being connected to the plate K fastened to the door and the other end of said spring being connected to the lower flattened end of said rod.

In operation it will be seen that by applying pressure through the foot to the foot-lever B the wire D will be drawn upon, pulling the lever E rearward, and causing the end f^3 of its cross piece *f'* to engage the lateral stud *a* of the lever F, in turn similarly moving the latter, and moving, through the link *c* and bell-crank G, the lever I. The lever I will thus force inward one arm of the lever P causing through the wire *g* the actuation of the lever Q, pulling through the wire *h*, the outer end of the dog S downward, causing the inward movement of the lower end of said dog which, by its engagement with the door-latch, disengages the latter from the socket or catch of the door-jamb. The continued application of pressure to the foot-lever B brings the end *i* of the lever I into engagement with the plate K of the door, and thus results finally in opening the door. The action of the spring M, adapted to automatically close the door and keep it closed, being the reverse of the action of the foot-lever upon the door in opening the latter, it is therefore apparent that, by holding the foot upon said lever, the door can be held open at any required angle, and by gradually removing the pressure of the foot from said lever, the door is prevented from slamming. It will also be observed that, by having the levers E and F separate or independent of each other, the opening of the door directly by hand will not interfere with and be liable to cause the bending of the wire D, as would otherwise be likely to occur.

I claim and desire to secure by Letters Patent—

1. In a door operating device, the combination of a foot-lever, a lever or pivoted pendent bar having a cross-piece at its free end, a right-angled lever having one arm provided with a lateral stud engaged by one end of said cross-piece, means for connecting said foot-lever and said cross-piece, a bell-crank connected to said right angled lever, a lever hung upon the door and connected to said bell-crank, an angle-lever hung upon the door-jamb and engaged by the lever hung upon the door, and a dog adapted to engage the door-latch and operated by said angle-lever, substantially as set forth.

2. In a door operating device, the combination of a foot-lever, a pendent pivoted bar having at its free end a cross-piece, means for connecting said foot-lever and said cross-piece, a right-angled lever having a lateral stud engaged by one end of said cross-piece, a bell-crank connected to said right-angled lever, a lever hung upon the door and connected to said bell-crank, an angle-lever hung upon the door-jamb and engaged by the lever hung upon the door, the spring-actuated dog hung in a plate upon the door-jamb and adapted to engage the door-latch, and a lever hung at the bottom edge of the door-jamb and having connection with the lever hung upon the door-jamb and with said dog, substantially as specified.

GEORGE RISCHMULLER.

Witnesses:
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LINCOLN SONNTAG.