No. 679,847. Patented Aug. 6, 1901.

L. IVES.

AUTOMATIC DOOR OPENING OR CLOSING DEVICE.

(Application filed Feb. 11, 1901.)

(No Model.)

Fig. 1.

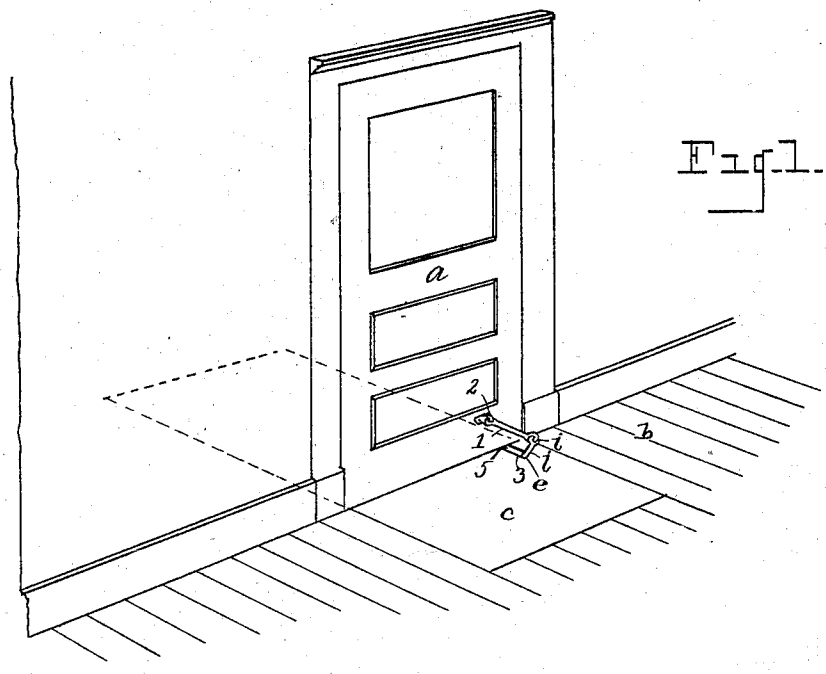


Fig. 2.

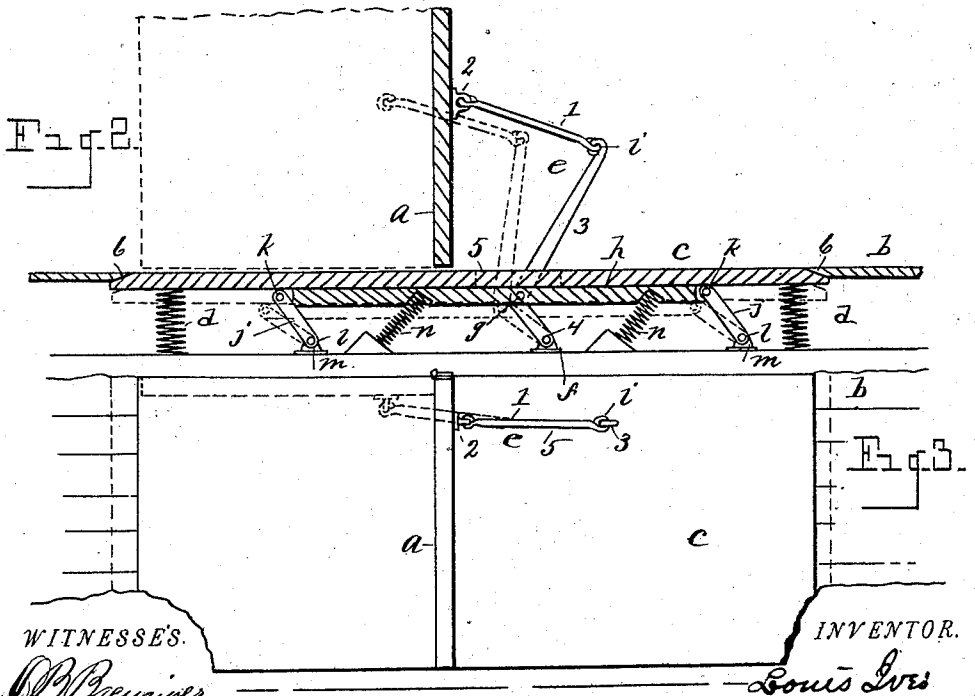


Fig. 3.

WITNESSES.

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AUTOMATIC DOOR OPENING OR CLOSING DEVICE.

SPECIFICATION forming part of Letters Patent No. 679,847, dated August 6, 1901.

Application filed February 11, 1901. Serial No. 46,757. (No model.)

To all whom it may concern:

Be it known that I, LOUIS IVES, a citizen of the United States, residing at Dearborn, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Automatic Door Opening or Closing Devices; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention has for its object an automatic door opening and closing device of simple, economical, and efficient construction, my improved device embodying a yielding platform so connected with the door that the depression of the platform by a person stepping thereupon will automatically open the door, and whereby when the weight of the person is relieved from the platform the door will be closed.

My invention consists of the construction, combination, and arrangement of devices hereinafter described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a view in perspective, illustrating features of my invention. Fig. 2 is a vertical longitudinal section through the platform, showing parts in elevation, a portion of the door being broken away. Fig. 3 is a plan view.

The desirability of an automatic door opening and closing device for doors in various locations—as the entrance-door to stores, doors of fire-engine houses, barns, &c.—will readily be understood.

In the drawings submitted herewith a door is represented at *a*.

b is the floor, and *c* a platform, which may be arranged flush with the floor or otherwise, as may be preferred. The platform *c* is constructed to have a yielding movement, and to this end may be supported upon springs, as indicated at *d*, so that the platform may be depressed by the weight thereupon, and when the weight is relieved therefrom the springs will restore the platform to normal position.

My invention contemplates, broadly, the provision of mechanism connected with the door whereby when the platform is depressed the door will be opened and whereby when the platform is restored to normal position the door will be closed.

As shown in the drawings, I employ a toggle-lever mechanism, (indicated at *e*,) one arm of which, as an arm 1, has a suitable jointed engagement with the door, as indicated at 2. The other arm of said lever, as the arm 3, is fulcrumed at its lower end, as indicated at 4, to a suitable support, (indicated at *f*,) the arm 3 also being pivoted, as indicated at *g*, between its ends to a longitudinally-movable support or underlying platform *h*, underneath and supporting the platform *c*. The arms 1 and 3 of the toggle-lever *e* have a jointed connection at their adjacent ends, as indicated at *i*. The supporting-platform *h* is engaged with rocking links or levers, (indicated at *j j*,) having a jointed engagement at their upper ends with the supporting-platform, as indicated at *k k*, their lower extremities having a jointed engagement, as indicated at *l l*, upon suitable supports *m m*. The links or levers *j j* are inclined, so that when the weight is upon the platform *c* said platform, with the underlying supporting-platform *h*, may be depressed, the supporting-platform also being movable longitudinally of the platform *c* to carry the toggle-lever mechanism forward to open the door. I prefer to locate beneath the supporting-platform *h* additional springs *n n* to aid in restoring the supporting-platform and the upper platform to normal position when weight is removed therefrom.

The platform *c* is provided with an elongated opening 5 for the oscillatory movement of the arm 3 of the toggle-lever mechanism. It will readily be seen that when weight is applied to the platform *c*, as by a person stepping thereupon, the platform will be depressed, thereby actuating the toggle-lever mechanism above described, to open the door, the supporting-platform *h* having a sliding movement underneath the platform *c* to carry the toggle-lever mechanism forward to force open the door. When, however, the weight is removed from the platform *c*, the springs will restore the platform to normal position, the toggle-lever mechanism at the same time drawing the door into closed position.

I prefer that the extremities of the platform *c* shall project underneath the adjacent extremities of the floor, as indicated at 6 6, so that the platform *c* will not rise above the floor when in normal position.

It will be perceived that the apparatus above described will not only open and close a door, but will hold the door in open position while the weight is applied to the platform and will hold the door in closed position when weight is removed from the platform. Instead of the springs underneath the platforms it will be understood that any analogous device, as cushions, may be employed to restore the platforms to normal position.

What I claim as my invention is—

1. The combination with a swinging door, of a yielding platform, a movable support beneath the platform, means connecting the movable support with the body of the door, whereby when the platform is depressed the door will be opened, and whereby when the platform is restored to normal position the door will be closed, said support having a forward-and-backward and vertical movement.

2. The combination with a swinging door, of a yielding platform, a movable support beneath the platform, rocking levers carrying said support, means to restore the platform to normal position, and means connecting the body of the door with the support whereby when the platform is depressed the door will be opened and held in open position while the platform is depressed, and whereby when the platform is restored to normal position the door will be closed and held in closed position.

3. The combination with a swinging door, of a yielding platform, rocking mechanism supporting said platform, and toggle-lever mechanism connected with the door and actuated by the movement of the platform, whereby when the platform is depressed the door will be opened, and whereby when the platform is restored to normal position the door will be closed.

4. The combination with a door, of a platform, a movable support beneath the platform, rocking mechanism carrying said support, toggle-lever mechanism connected with the door and with said support, whereby when the platform is depressed the door will be opened, and whereby when the platform is restored to normal position the door will be closed.

5. The combination with a door, of a yielding platform, a movable support underneath the platform, rocking levers connected with said support, means to restore the support and platform to normal position, and toggle-lever mechanism connected with the door and with the support whereby when the platform is depressed the door will be opened, and whereby when the platform is restored to normal position the door will be closed.

6. The combination with a door, of a yielding platform, a yielding support movable longitudinally of the platform, rocking mechanism carrying said support, means to restore the support and the platform to normal position, and mechanism connecting the support with the door, whereby when the platform is depressed the door will be opened, and whereby when the platform is restored to normal position the door will be closed.

In testimony whereof I sign this specification in the presence of two witnesses.

LOUIS IVES.

Witnesses:
N. S. WRIGHT,
M. HICKEY.