(No Model.) 2 Sheets—Sheet 1.

J. P. MAGNEY.

DOOR CLOSER AND CHECK.

No. 598,379. Patented Feb. 1, 1898.

Fig. 1

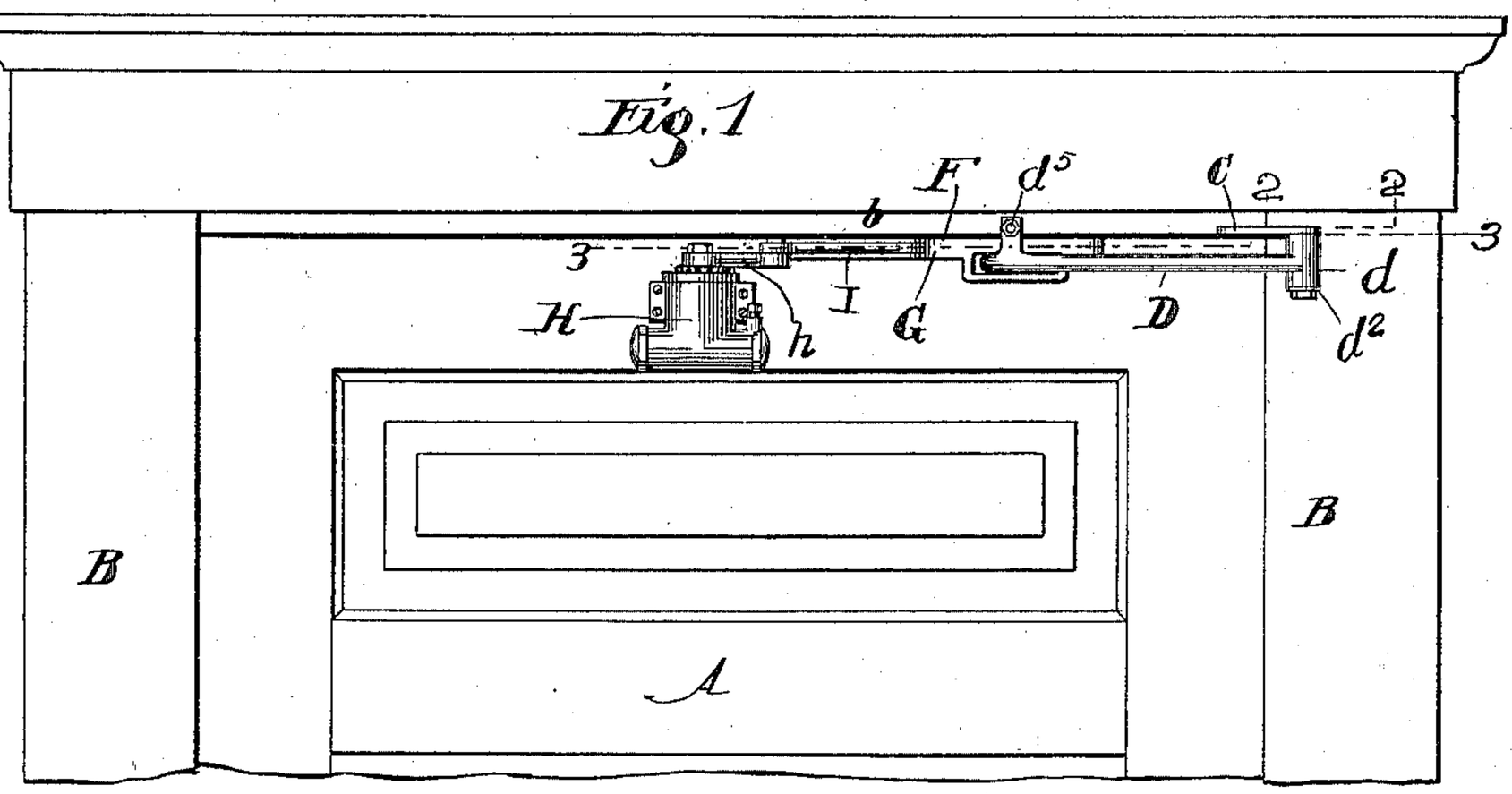
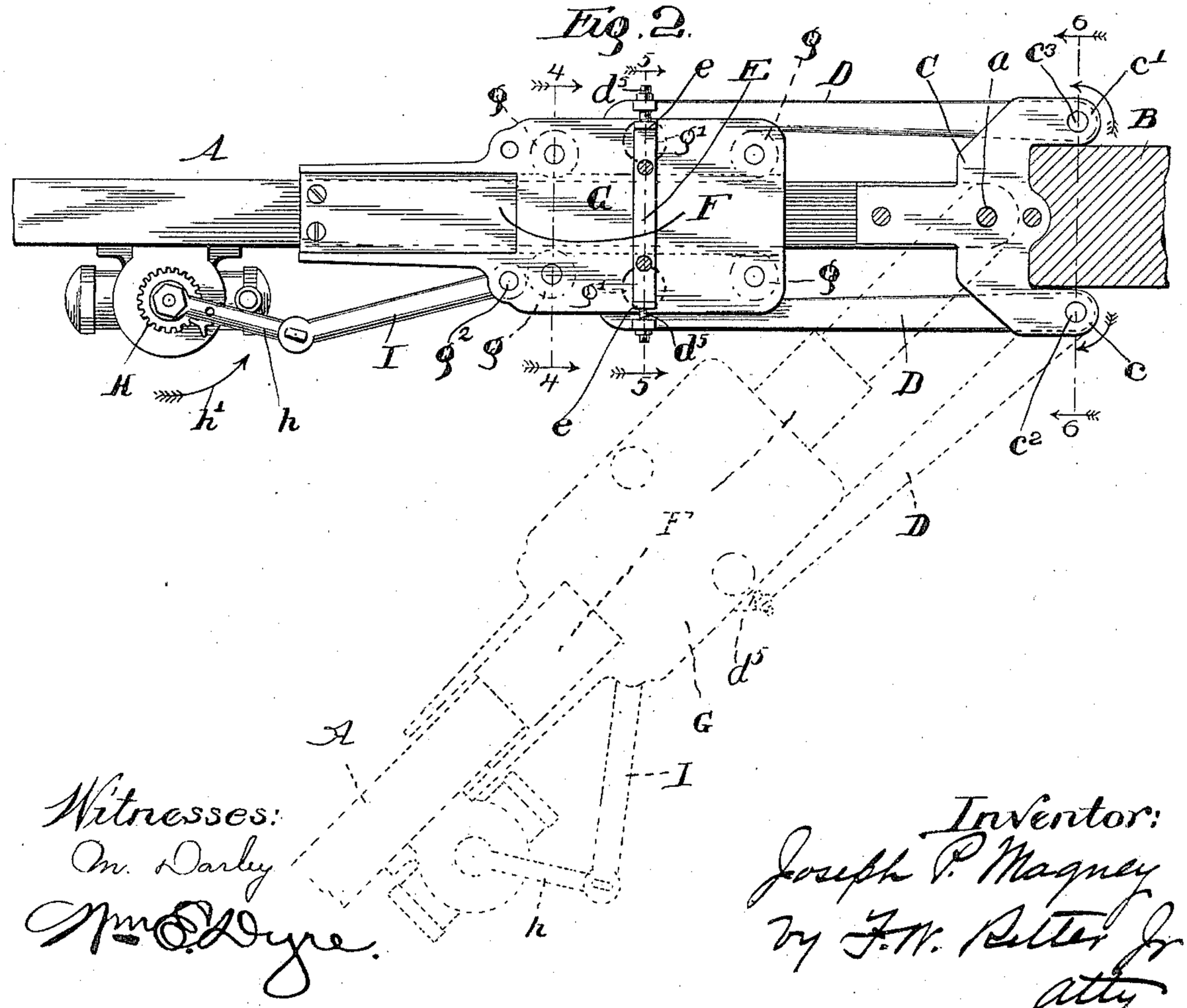


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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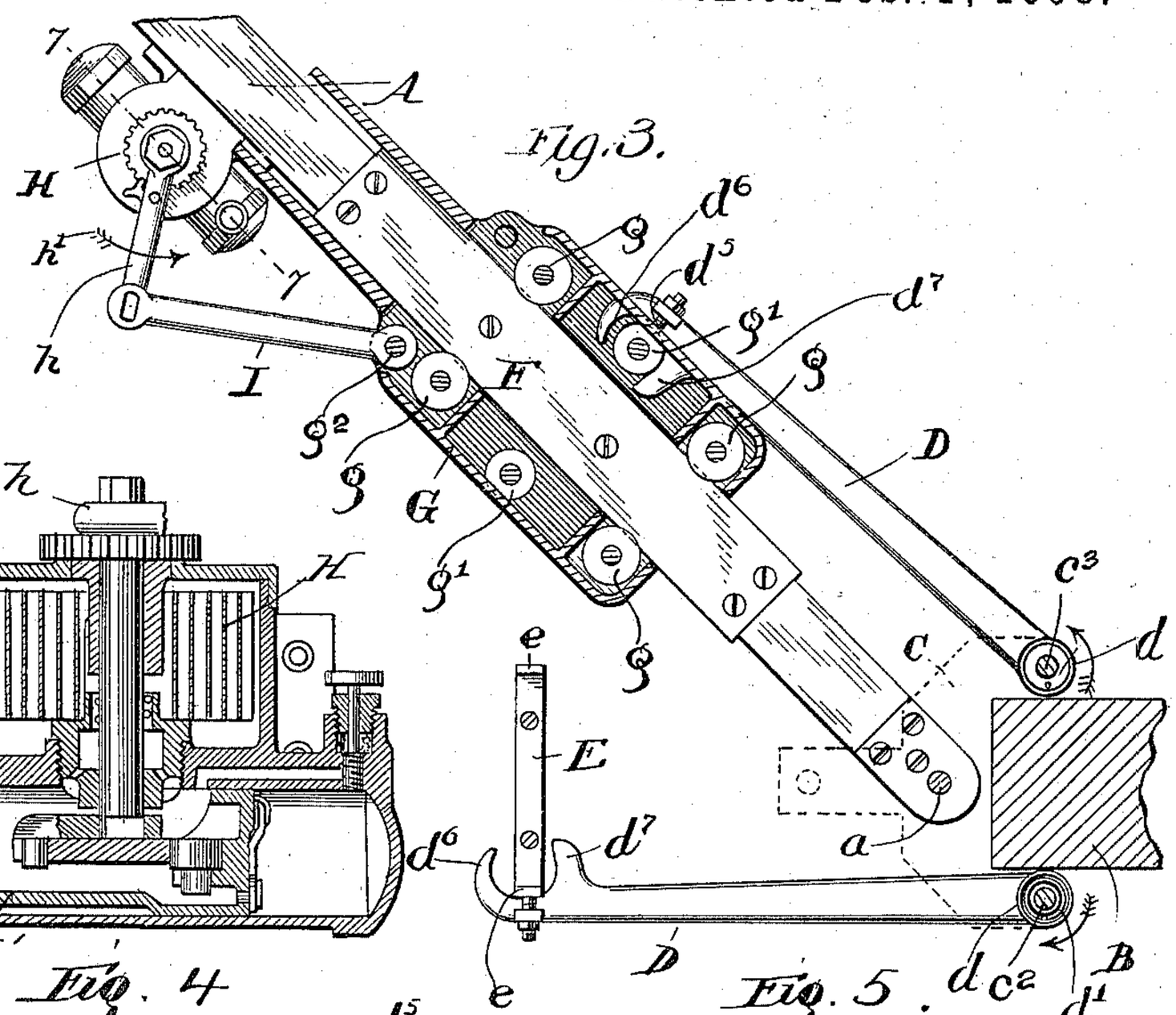


Fig. 3.

Fig. 7.

Fig. 4

Fig. 5.

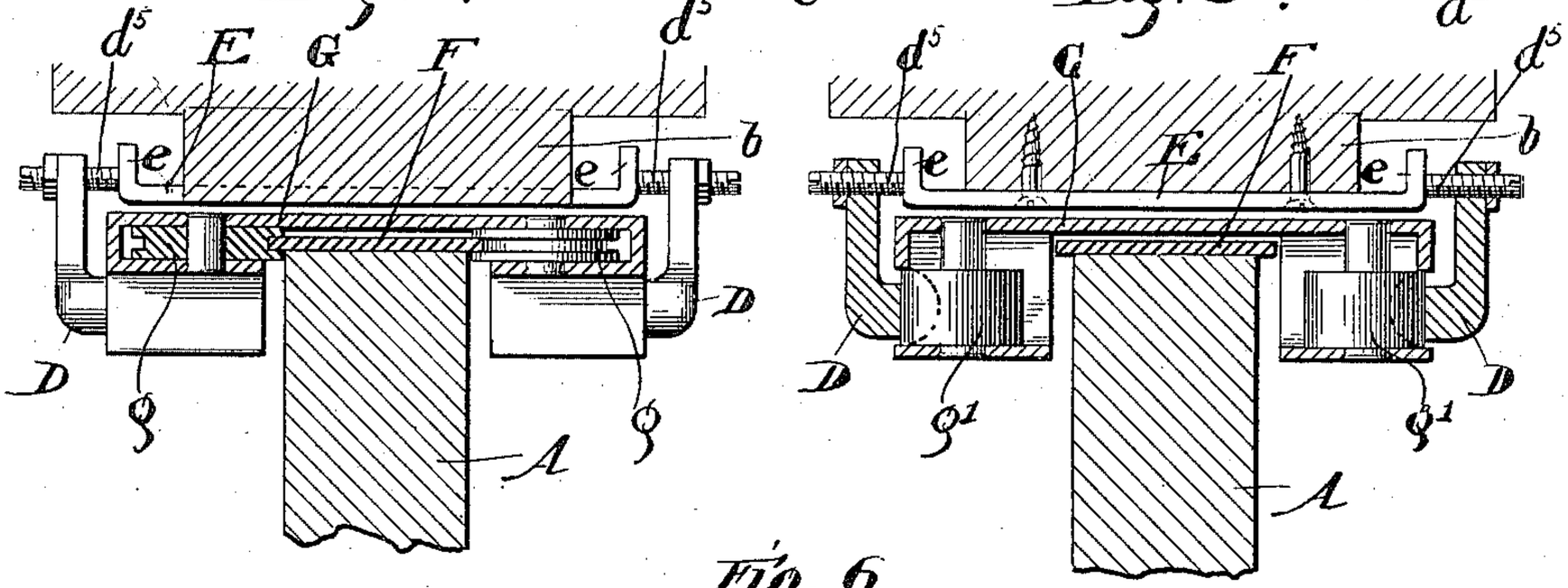
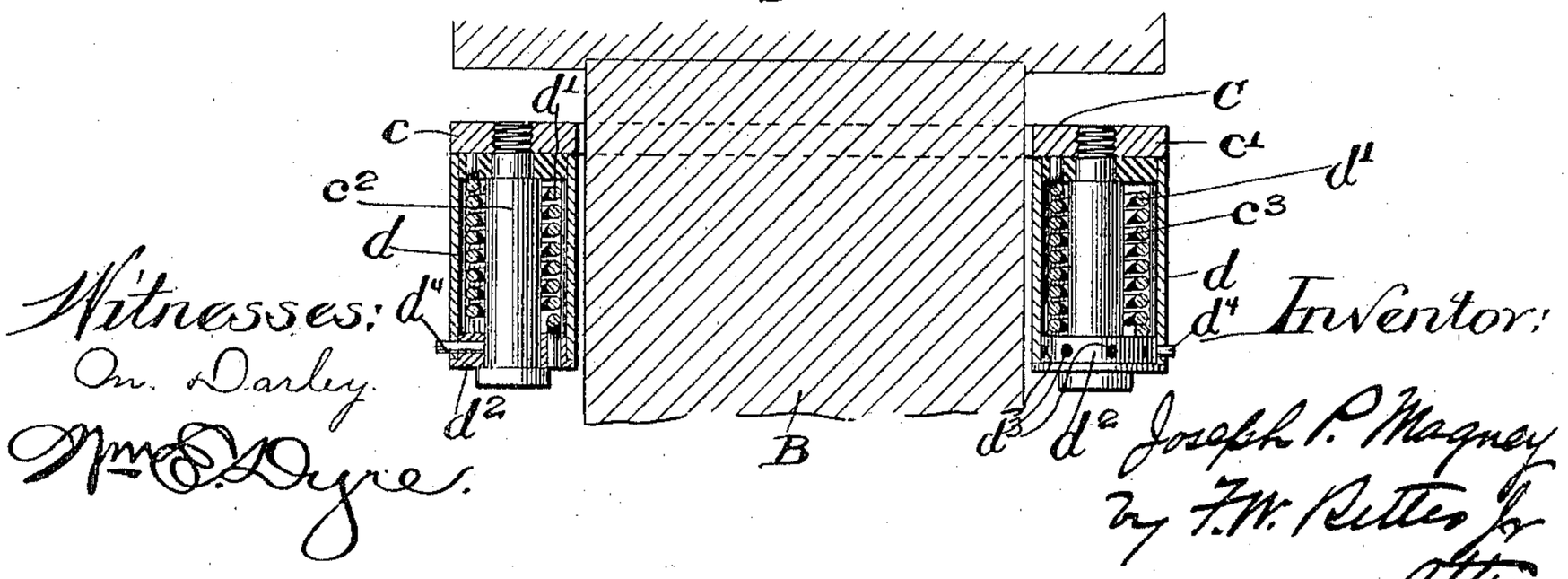


Fig. 6



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UNITED STATES PATENT OFFICE.

JOSEPH P. MAGNEY, OF CHICAGO, ILLINOIS, ASSIGNOR TO CHARLES F. QUINCY, OF SAME PLACE.

DOOR CLOSER AND CHECK.

SPECIFICATION forming part of Letters Patent No. 598,379, dated February 1, 1898.

Application filed June 14, 1897. Serial No. 640,717. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH P. MAGNEY, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Door Closers and Checks; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation of the top of a door and the adjacent casing having applied thereto a door closer and check embodying my invention, the same being shown in side elevation. Fig. 2 is a horizontal section, taken on the line 2 2, Fig. 1, showing in plan a door closer and check embodying my invention, the dotted lines indicating the position of the parts when the door is open. Fig. 3 is a horizontal section taken on the line 3 3, Fig. 1, the slide or sliding box being in section and the devices being shown in the position they occupy when the door is swung open in reverse direction to that shown by dotted lines, Fig. 2. Fig. 4 is a vertical sectional view, taken on the line 4 4, Fig. 2, looking in direction of the arrow, showing the slide or sliding box in transverse section, also the track-wheels thereof and the track-plate attached to the top of the door. Fig. 5 is a vertical section, taken on the line 5 5, Fig. 2, looking in the direction of the arrow, showing the slide or sliding box and track-plate in cross-section, the pivot-rollers or antifriction-rollers with which the swinging arms engage, and the check-plate which arrests the inward movement of the swinging arms. Fig. 6 is a vertical section, taken on the line 6 6, Fig. 2, showing the coiled springs which force the swinging arms toward the door. Fig. 7 is a vertical central section of the spring and check, taken on the line 7 7 of Fig. 3.

Like symbols refer to like parts wherever they occur.

My invention relates to certain improvements in that class of devices known as "door closers and checks," and has for its object the production of a simple and efficient mechanism adapted for application to and use with either single or double swing doors—that is to say, with doors which swing in either direction or in one direction only.

To this end my invention, generally stated, consists in the combination, with a door and its casing, of a door closer and check mounted on the door, a sliding device also mounted on the door and operatively connected with said door closer and check, and a pivotally-mounted spring-pressed lever, the free end thereof in operative connection with said slide, whereby the door when released is automatically moved toward and arrested in its closed position.

There are other minor features of invention involving particular combinations or special features of construction, all as will hereinafter more fully appear.

I will now proceed to describe my invention more fully, so that others skilled in the art to which it appertains may apply the same.

In the drawings, A represents a door, and B the casing surrounding the same. The door is hinged in the casing by means of two pins at the top and bottom of the right-hand edge, one of them being shown at *a* in Fig. 2. Upon the under side of the upper cross-piece *b* of the casing, at the upper right-hand corner of the door, is a horizontal plate C, secured to the casing and extending upon the opposite sides thereof to form ears *c c'* back of the axis upon which the door swings. From each of these ears pins or studs c^2 c^3 extend downward, and each is covered by a sleeve or barrel *d*, from which projects a swinging arm D parallel with the door and toward the free edge thereof. Within each barrel is a coiled spring *d'*, secured at the upper end to the plate C and at the lower end to a collar d^2, said collar loose upon the pin and adjustably connected to the barrel by means of a pin d^4, inserted in one of a series of holes d^3 in the collar. The tension of each of these springs is such as to crowd its respective arm toward the door, and two stops *e e'* are provided upon a plate E, attached to the portion *b* of the casing, to limit the swing of the arms D. Each one of these arms has a screw d^5, arranged in position to strike the stop and adjustable

in the arm, by means of which the extreme position of said arm toward the door may be adjusted.

Upon the upper edge of the door is secured a track-plate F, extending slightly on both sides thereof, and a slide-box or housing G is arranged above this plate and adapted to move back and forth thereupon. To reduce the friction of such movement, four rollers or wheels *g* are journaled in the casing upon vertical pivots and engage the edges of the plate F by means of horizontal grooves in their peripheries. The track-plate F is set down into the stop of the door sufficiently so that the top of the housing G is flush with the top of said door, and the middle portion of the left-hand or leading end of the housis cut away to allow the same to move toward the free edge of the door, as seen in Figs. 2 and 3. Upon each side of the door and within the slide-box or housing G is mounted a roller *g'*, (see Figs. 3 and 5,) and each one of the arms D has inwardly-projecting fingers d^6 d^7, forming a notch or socket between them to receive one of the rollers *g'*. The extreme ends of these fingers approach each other slightly to guard against any danger of the roller forcing itself from the socket. Upon the side of the door adjacent to the slide-box or housing G is mounted an ordinary door-spring H and check H', having a working arm *h*, crowded in the direction of the arrow *h'* by means of a suitable spring H and having a checking device H' to limit the rapidity of its movement in that direction. To the end of this operating-arm is pivoted one end of a link I, the other end of which is pivoted to the slide-box or housing G by means of a pin g^2.

The door-spring H may be applied to either side of the door, as may be desirable, as it will be noticed that provision is made for the pivot-pin g^2 upon both sides.

A minor or subordinate function of the spring-controlled arms D D is to impart from either direction an initial closing impulse to the door, accordingly as one or the other of the respective springs *d'* is under tension or compression; but the primary and most important function of said spring-controlled arms D D is to maintain operative contact with the slide-box during the opening and closing movement of the door and until the active arm D (whichever it may be) is arrested in its inward movement by the stop *e*, (or *e'*,) at which time it becomes necessary that one or the other of the arms D D should release the slide-box G, (and door A,) according to the direction in which the door is next to be opened. In the opening of the door in either direction one or the other of the arms D D, being maintained in contact with the slide G, has for its function, operating through said slide, to compress the door-spring H and check mechanism H', which is mounted on the door, the arms D D being alternately active, according to the direction in which the door is opened.

The construction and combination of the devices being substantially such as hereinbefore pointed out, they will operate as follows: Supposing the door to be opened to the right, as illustrated in Fig. 3 of the drawings, the arm D on the side toward which the door moves will engage the slide-box G and cause the slide-box to travel toward the door-spring H, thus putting the door-spring H under tension, whereupon on the release of the door the reaction of the door-spring H, acting on slide-box G and through it on the arm D, will move the door toward its closed position, and when said position is reached the stop *e* will arrest the further movement of arm D and throw it out of engagement with slide-box G or out of action. If the door swings past its closed position or if it is opened to the left, as indicated in dotted lines, Fig. 2, the arm D upon that side of the door will engage the slide-box G and be brought into action, whereupon a like operation of the devices (slide-box G, door-spring H, &c.) will take place, as hereinbefore noted. When the door is being closed, if there should be a draft or any pressure on the door acting faster than the checking mechanism will permit the roller *g'* will be forced against the forward end of the notch in the free end of arm D and will be prevented from escaping by the inwardly-projecting finger d^6, thus enabling the arm D to retard the movement of the door toward the closed position.

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

1. The combination with a door and its casing, of a door closer and check mounted on the door, a sliding device also on the door and operatively connected with said door closer and check, and a pivotally-mounted spring-pressed lever or arm having its free end in operative connection with the slide, substantially as and for the purposes specified.

2. The combination with a door and its casing, of a sliding device arranged on the edge of the door, a spring-pressed arm or lever pivotally supported from the casing at one side and back of the door-pivot said arm operatively connected with the slide, and a door closer and check mounted on the door and operatively connected with the sliding device, substantially as and for the purposes specified.

3. The combination with a door and its casing, of a sliding device mounted on the door, a door check and closer also mounted on the door and operatively connected with the slide, and a pair of spring-pressed arms or levers pivotally mounted on opposite sides of the casing and arranged to alternately engage the sliding device, substantially as and for the purposes specified.

4. The combination with a door and its cas-

ing, of a slide movably mounted on the door, a door closer and check also mounted on the door and operatively connected with the said slide, a pair of side pivots supported from the casing on opposite sides and back of the door-pivot, spring-pressed arms or levers mounted on the said pivots and arranged to operatively engage the said slide, substantially as and for the purposes specified.

5. The combination with a door and its casing, of a slide mounted on the door, a door closer and check also mounted on the door and operatively connected with the slide, a spring-pressed arm or lever having its free end in operative engagement with the slide, and a stop on the casing to limit the inward movement of the spring-pressed arm or lever, substantially as and for the purposes specified.

6. The combination with a door and its casing, of a slide movably mounted on the door, a door closer and check also mounted on the door and operatively connected with the slide, a pair of spring-pressed arms or levers pivotally supported from the opposite sides of the casing back of the door-pivot and arranged to alternately engage the slide, and stops on the casing to limit the inward movement of the spring-pressed levers or arms, substantially as and for the purposes specified.

7. The combination with a door and its casing, of a track-plate secured to the edge of the door, a slide or box mounted on the door said slide having track-rollers and an antifriction-roller, a door closer and check mounted on the door and operatively connected with said slide, and a spring-pressed arm or lever pivotally mounted on the casing and having at its free end a notch or socket which receives the antifriction-roller on the slide or box, substantially as and for the purposes specified.

8. The combination with a door and its casing, of a track-plate let into the upper edge of the door, a slide mounted on the track-plate said slide cut away or slotted at one end to clear the door in its movement, a door closer and check also mounted on the door and operatively connected with the slide, and a spring-pressed arm pivotally mounted on the casing and having its free end in operative connection with the slide, substantially as and for the purposes specified.

9. In a door-closer, the combination with a spring-pressed slide adapted to traverse the upper edge of a door, of two spring-pressed pivoted arms arranged to alternately engage the opposite sides of the slide and resist the travel thereof; substantially as and for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 12th day of June, 1897.

JOSEPH P. MAGNEY.

Witnesses:

J. CONDIT SMITH,

A. T. CALAS.