

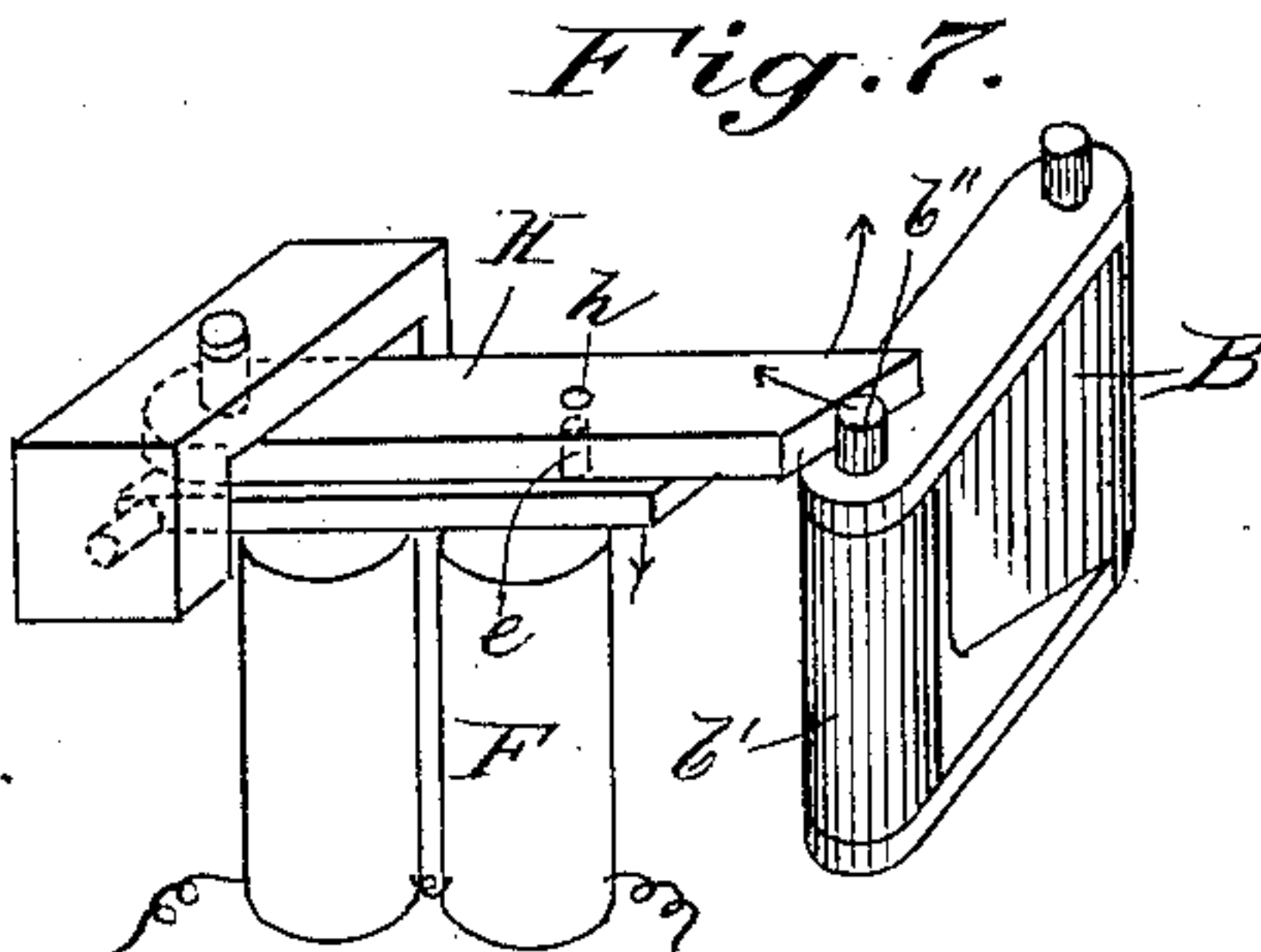
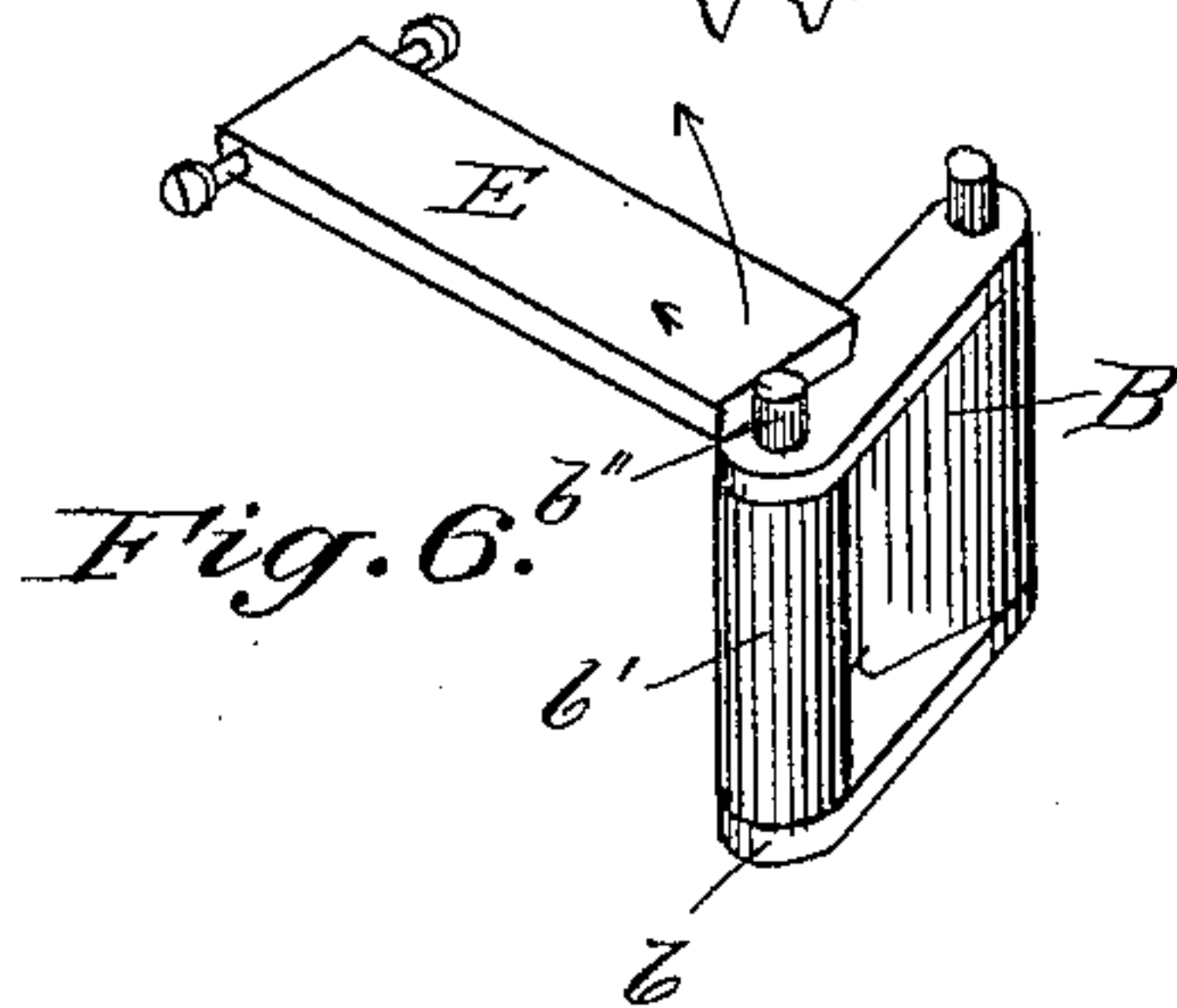
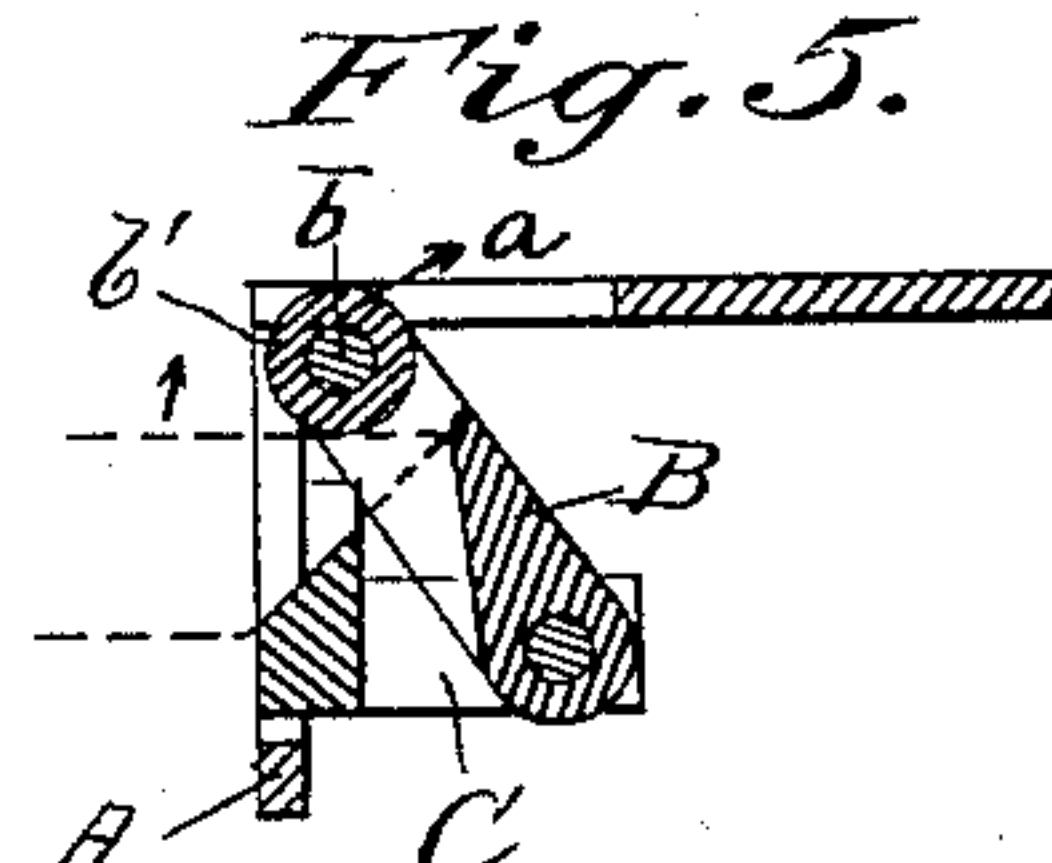
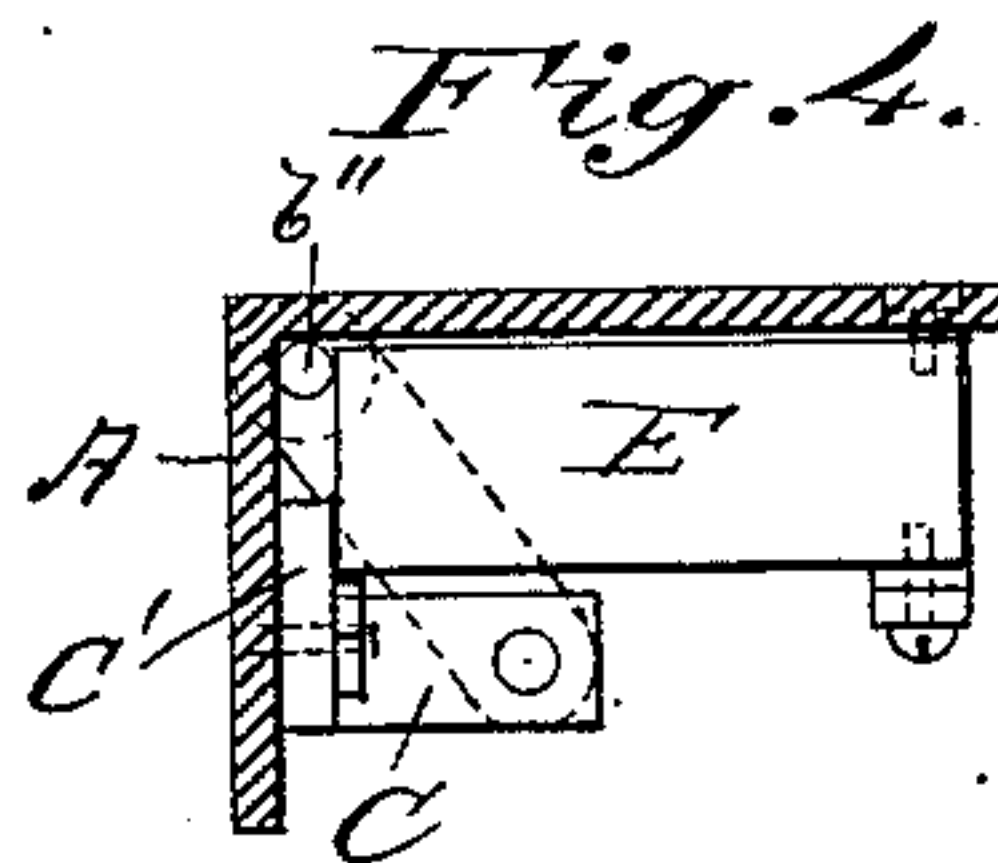
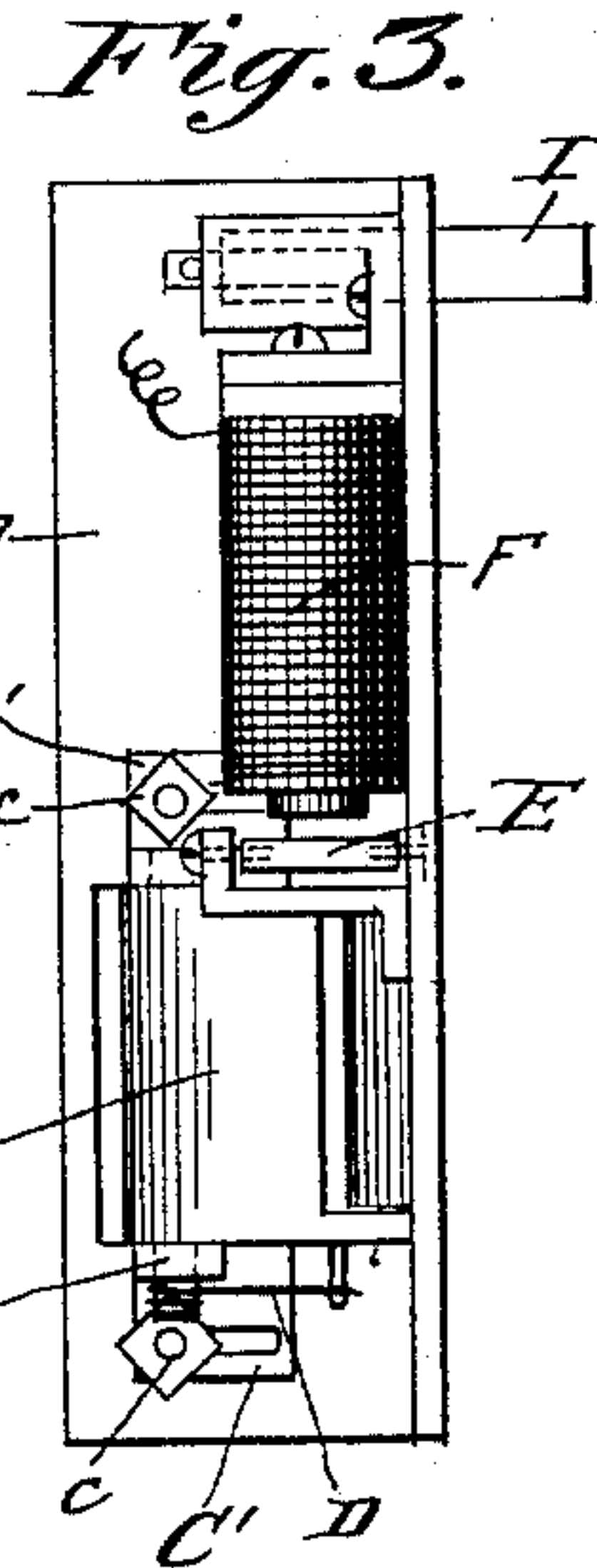
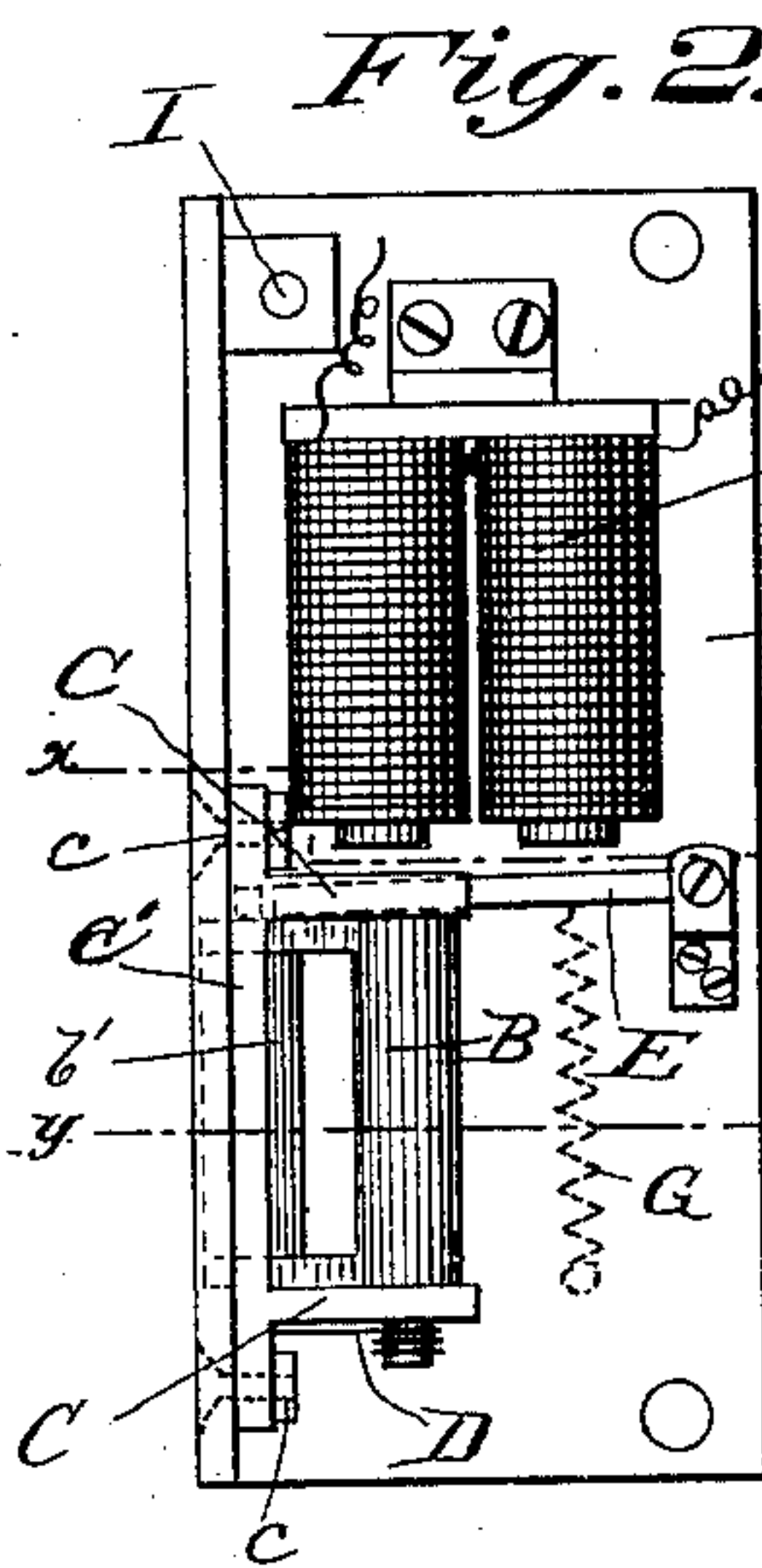
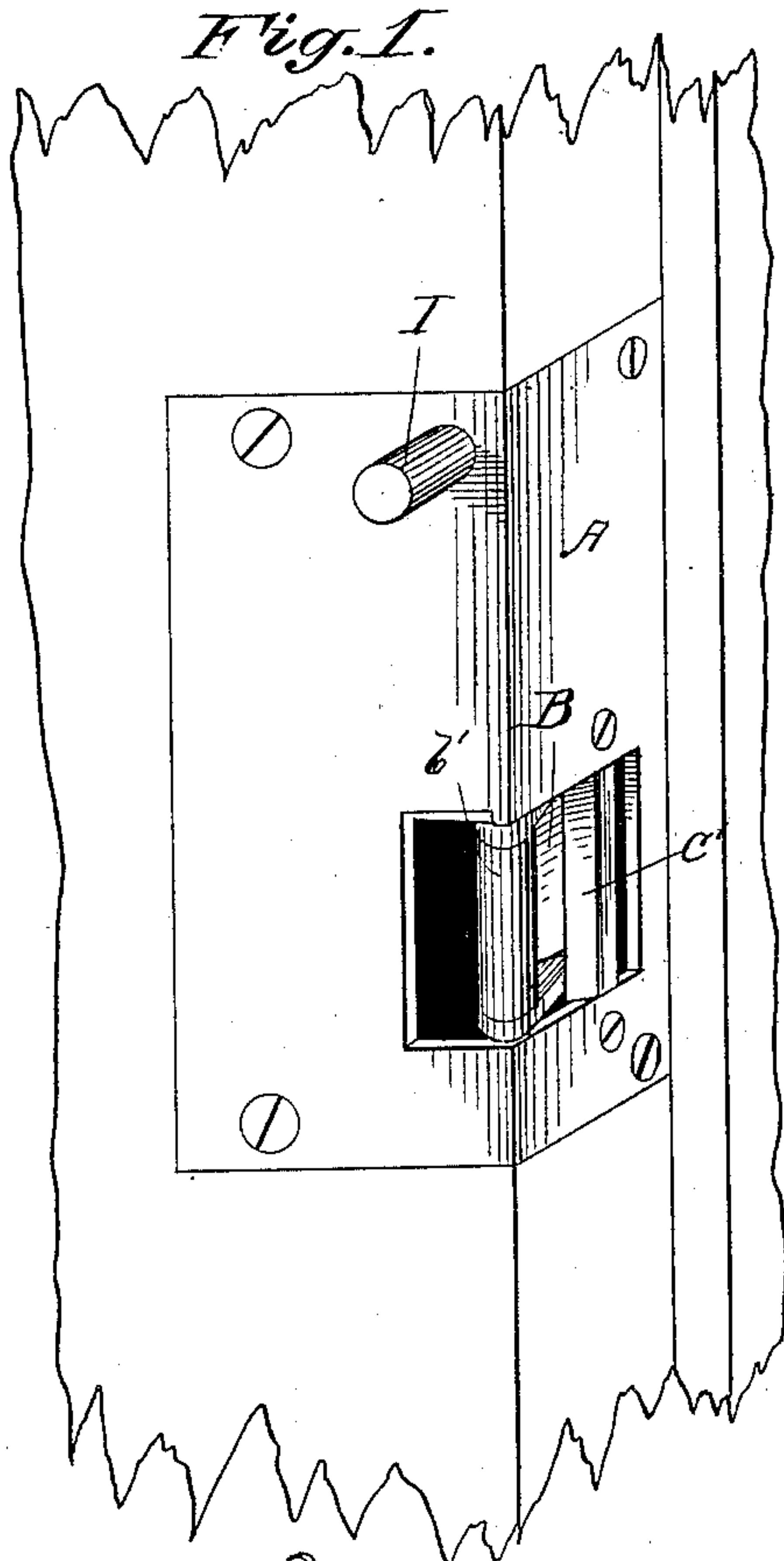
(No Model.)

A. LÜNGEN.

ELECTRIC DOOR OPENER.

No. 353,263.

Patented Nov. 23, 1886.



Attest:
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UNITED STATES PATENT OFFICE.

ADAM LÜNGEN, OF NEW YORK, N. Y.

ELECTRIC DOOR-OPENER.

SPECIFICATION forming part of Letters Patent No. 353,263, dated November 23, 1886.

Application filed January 26, 1886. Serial No. 189,778. (No model.)

To all whom it may concern:

Be it known that I, ADAM LÜNGEN, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented a certain new and useful Improvement in Electric Door-Openers, of which the following is a specification.

My invention relates to an electric door-opener, and is used to permit the opening or unlatching of the door by the use of an electric current controlled by push-contacts located at convenient points within the building. It is adapted for use more especially in flats or apartment-houses to permit the occupants of any floor or suite of apartments to open the main entrance of the building to admit persons who may wish to enter without traversing the building to open the door by hand. It belongs to that class of door-openers wherein the face-plate or nosing upon the door-frame, and into which the bolt or latch of the door-lock enters to secure the door, is made movable, so that when released the bolt of the lock will push it aside and allow the door to open, and wherein an iron plate is made to serve as a locking-piece to retain or lock the movable nosing in position, which iron plate may be removed from its locking position by means of an electro-magnet included in a circuit passing through push-contacts located in various parts of the building. Heretofore objection has been made to this class of door-openers for the reason that, owing to the small amount of power developed by an electro-magnet, the working parts have necessarily been made very light or the locking of the plate was very easily displaced.

The object of my invention is to so mount the movable nosing as that when it is released the pressure of the lock-bolt will throw it back, and to so place the locking-plate as that it may be easily released by the small power furnished by the electro-magnet.

In the accompanying drawings, Figure 1 is a perspective view of my device in position upon a door-frame. Fig. 2 is a rear view of the device detached. Fig. 3 is a side view of the same. Figs. 4 and 5 are transverse sections, looking down on lines *xx* and *yy* of Fig. 2. Fig. 6 is a detached view in perspective of the movable nosing and its locking-plate, and Fig. 7 shows a modification of the lock-plate.

A is a plate or frame piece to take the place of the ordinary nosing upon the door-frame, and preferably bent at right angles, as shown, to cover the angle of said door-frame. The plate A is cut away at *a*, to permit the free movement of the bolt or latch of the door-lock as the door opens or closes.

A rectangular yoke or frame, B, is pivoted upon the rear side of the plate A immediately behind the opening *a* therein, so that its outer or swinging end, *b*, will have free movement to and from the plate A, and so that the cross-bar at the end *b* will serve, when in its forward position, as a nosing or abutment against which the lock-bolt will bear to keep the door shut, but which, when swung backward, will release said bolt and allow the door to open. The construction of this yoke is better shown in Figs. 5, 6, and 7. I preferably place a friction roller, *b'*, upon the cross-bar at the front end, *b*, of the yoke.

The yoke B is pivoted to the rear of the plate A, and at a short distance therefrom, so that the pressure of the lock-bolt will not be in a direct line from its pivoted bearings, but diagonal thereto, and this diagonal pressure of the bolt will tend to swing the yoke back to release the bolt. The pivotal bearings *CC* of the yoke B are attached to the face-plate A, preferably by means of a slotted plate, *C'*, and screws and taps *c*, so that the yoke may be adjusted back and forth over the face-plate to accommodate it to the lock-bolt.

A spring, D, is attached to one of the arms C, and made to bear upon the yoke B or a pin projecting therefrom to keep the yoke in its forward position. To the rear of the swinging yoke B, and in line with a pin, *b''*, projecting, preferably, from the upper side of the yoke, is pivoted a plate of soft iron, E, so that it will swing in a plane at right angles to the movement of the yoke, as shown by arrows in Fig. 6, and this plate is made to serve as an armature for an electro-magnet, F, mounted upon the frame A, with its axis in the line of movement of the plate E.

The pivoted armature-plate E is so pivoted and of such a length as that when the yoke B is in its forward position the plate E will drop behind the projecting pin *b''* on the yoke, and prevent a backward movement of the latter. If, however, the armature-plate E be raised

from behind the pin *b* by the action of the magnet *F*, the yoke will be released and allowed to swing backward.

The coils of the electro-magnet are connected in circuit through an electric battery with the electrodes of push-contacts placed at desirable points through the building, so that a pressure upon any one of the push-buttons will close the circuit and cause the magnet *F* to act and release the yoke *B*.

Ordinarily, the weight of the armature *E* will serve to return it to its locking position when released by the magnet; but to insure its proper action I may add a downwardly-acting spring, *G*, as shown by dotted lines in Fig. 2.

In lieu of making the armature serve directly to lock the yoke, as described, I may construct the device as shown in Fig. 7, wherein the projecting pin *b''* on the yoke *B* is held forward by a pivoted bar, *H*, swinging in the same plane as the yoke and presenting a beveled end to the pin *b''*, the locking of this bar *H* being accomplished by a pin, *e*, projecting from the armature-plate *E* and into an opening, *h*, in the bar. Where this arrangement is used, the electro-magnet is placed immediately in the rear of the swinging yoke to make the device more compact.

To insure the opening of the door when the lock-bolt is released, I mount upon or through the frame *A* an outwardly-projecting spring-actuated bolt, *I*, against which the door or a projecting arm thereon may bear when the door is closed in such a manner as that when the door is released the said spring-bolt will cause it to open with enough force to release the bolt from the yoke *B*. This feature, however, is not new, and, moreover, any other spring device which will cause a pressure in the door, tending to open it, will operate equally well with my door-opener.

What I claim as my invention is—

1. In an electric door-opener, the combination, with a lock bolt or latch of a door, of a nosing or striking plate pivoted to the door-frame in the path of said bolt or latch, and having a friction-roller upon the striking-surface, and means for releasing said striking-plate through the agency of an electro-magnet, all substantially as and for the purpose set forth.

2. In an electric door-opener, a movable nosing pivoted to the door-jamb, held in position to form a detent for the lock-bolt of the door by a lever or levers controlled by an electro-magnet, and a friction-roller mounted upon said movable nosing to form its striking-surface, all as and for the purpose set forth.

3. In an electric door-opener, the combination, with the bolt or latch of the door, of a face-plate, *A*, secured to the door-jamb, a swinging yoke, *B*, to form a striking-surface, a locking armature-plate, *E*, and an electro-magnet, *F*, the latter connected in an electric circuit controlled by push-contacts, substantially as and for the purpose set forth.

4. In an electric door-opener, the face-plate *A*, with spring-actuated yoke *B*, pivoted to the same by adjusted arms *CC*, and provided with a friction-roller, *b'*, a locking-lever, *E*, and an electro-magnet, *F*, all combined substantially as and for the purpose set forth.

Signed at New York, in the county of New York and State of New York, this 31st day of October, A. D. 1885.

ADAM LÜNGEN.

Witnesses:

JACOB FELBEL,
ANDREW W. STEIGER.