

(No Model.)

G. A. SEIB.
ELECTRIC DOOR OPENER.

No. 420,834.

Patented Feb. 4, 1890.

Fig. 2.

Fig. 1.

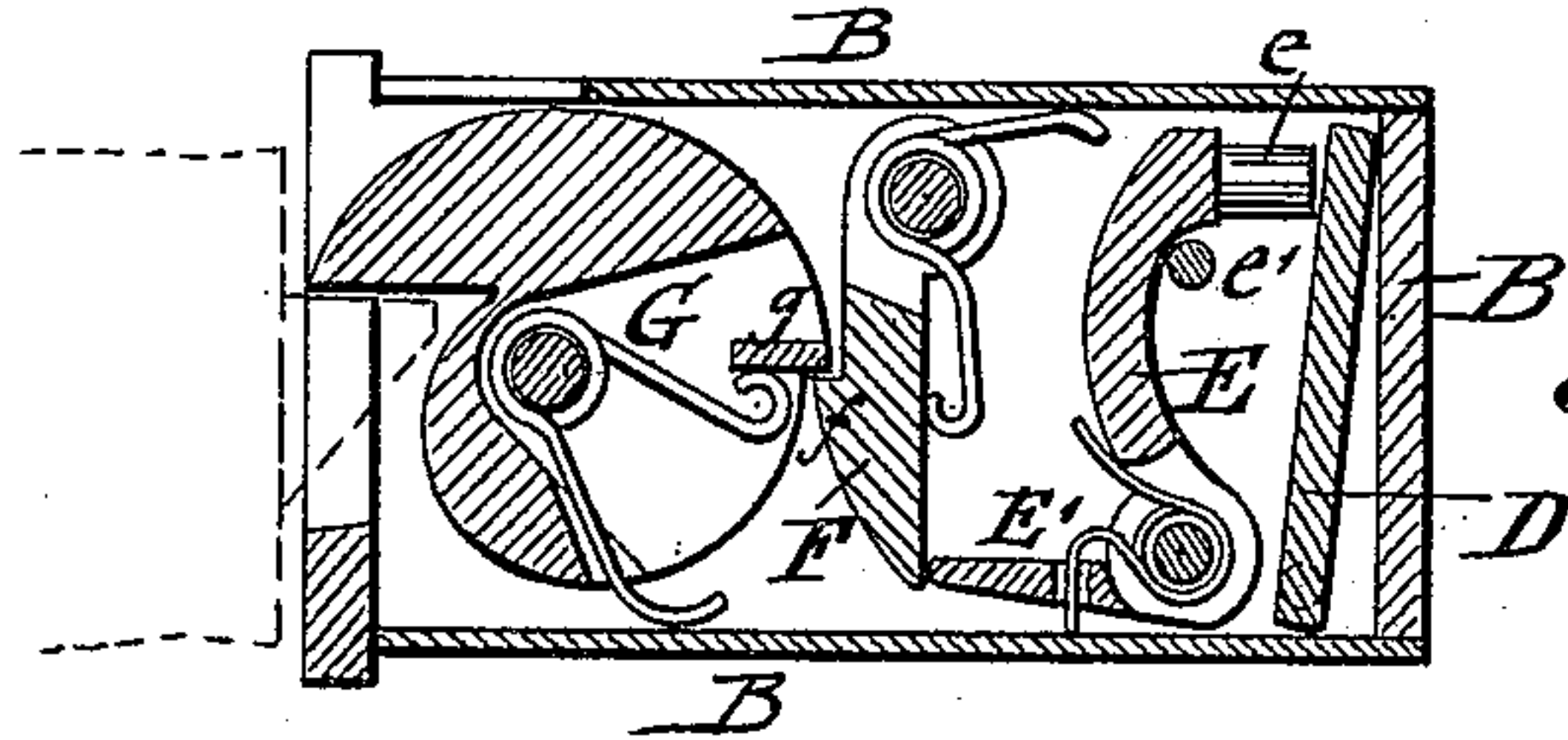
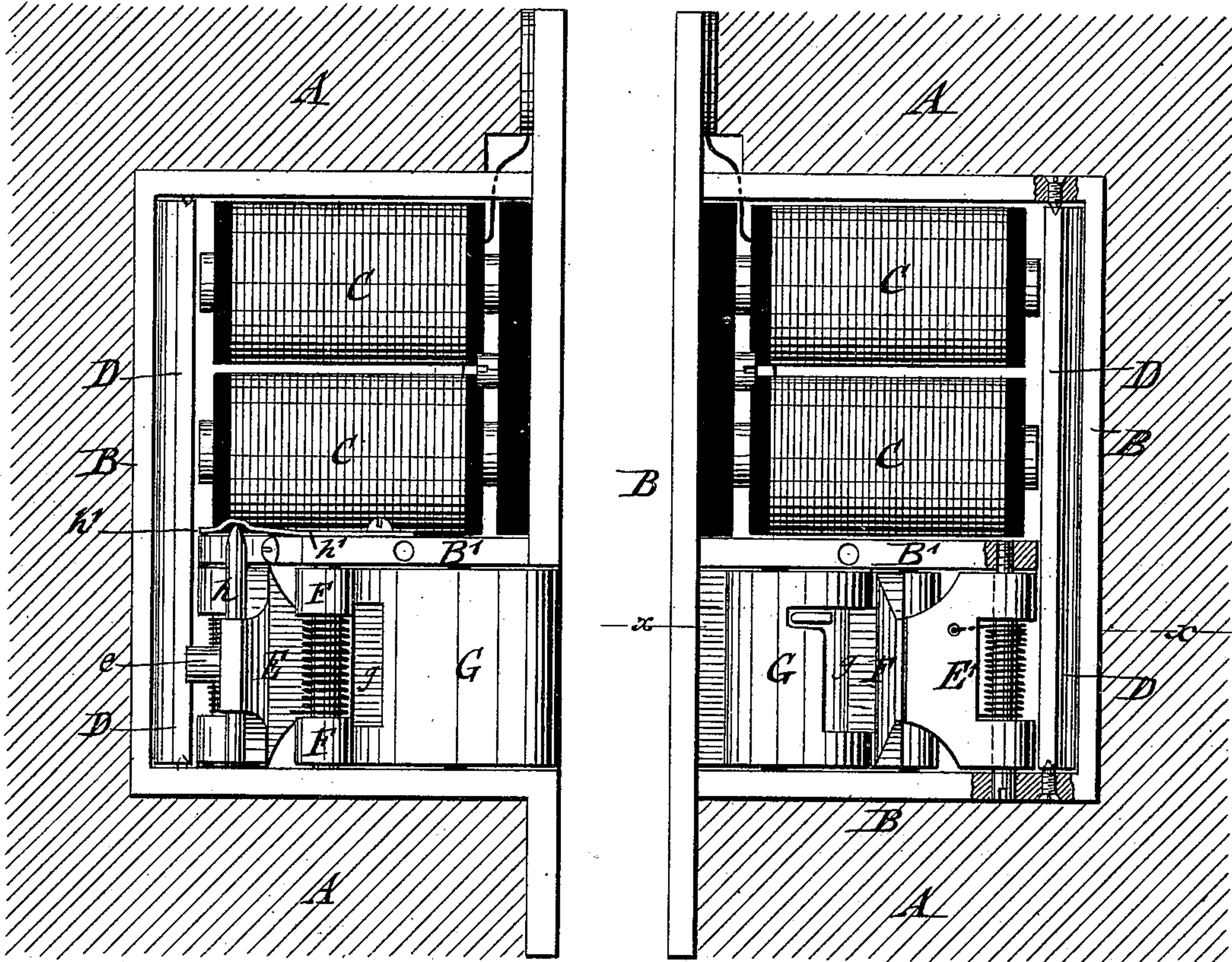


Fig. 3.

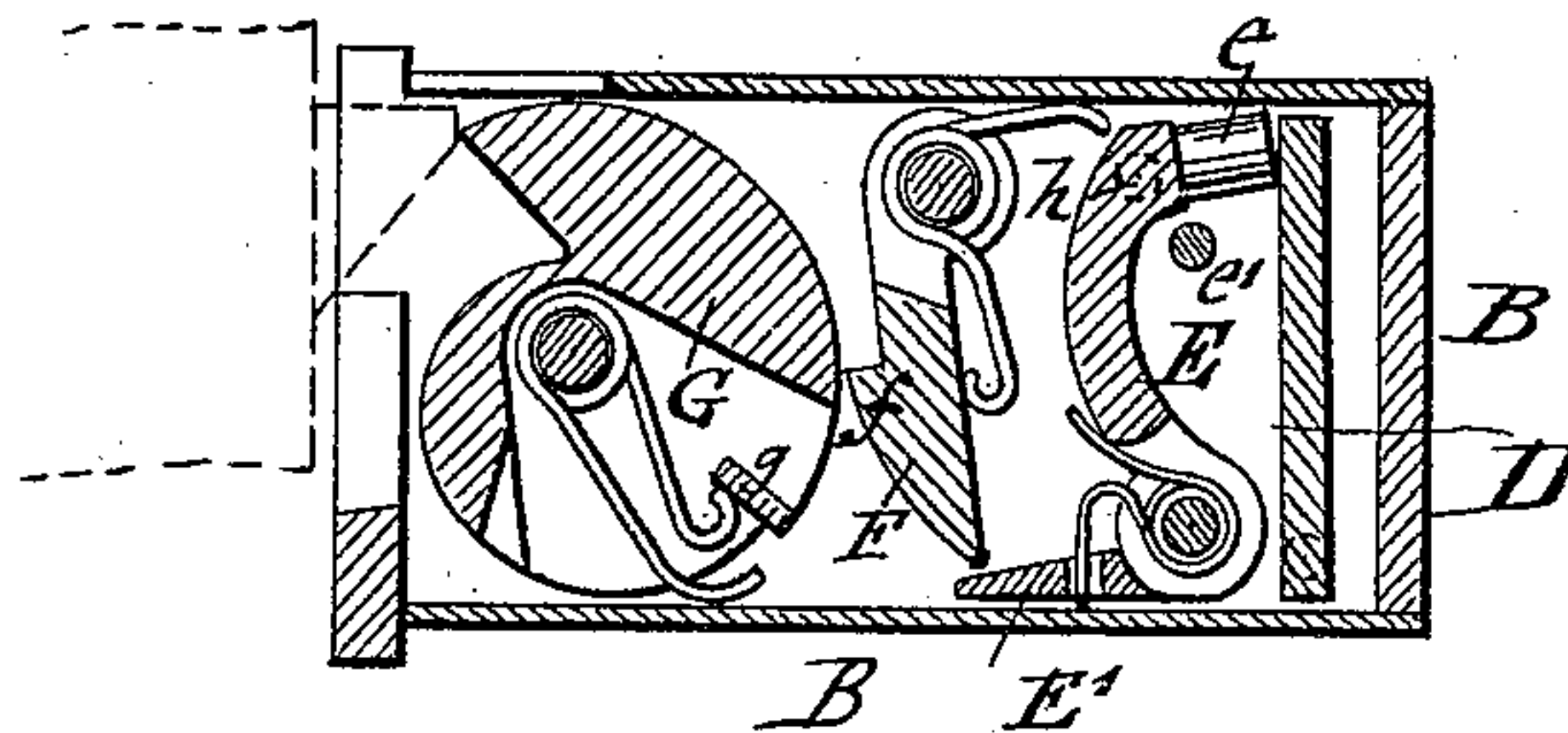


Fig. 4.

WITNESSES:

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INVENTOR

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UNITED STATES PATENT OFFICE.

GEORGE A. SEIB, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO OTTO STARKE, OF SAME PLACE.

ELECTRIC DOOR-OPENER.

SPECIFICATION forming part of Letters Patent No. 420,834, dated February 4, 1890.

Application filed August 1, 1889. Serial No. 319,436. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. SEIB, of the city, county, and State of New York, a citizen of the United States, have invented certain
5 new and useful Improvements in Electric Door-Openers, of which the following is a specification.

This invention relates to an electric door-opener of that class which is applied to the
10 main doors of apartment and tenement houses for the purpose of permitting the opening of the main door from any floor of the building; and the invention consists of an electric door-opener which is set in the usual manner into
15 a recess of the jamb of the main door and composed of a pivoted and spring-actuated latch, an intermediate pivoted and spring-actuated locking-lever which engages or releases a stop of said latch, and a fulcrumed
20 and spring-actuated elbow-lever that is acted upon by the armature of an electro-magnet, when said armature is attracted by the energizing of the magnet, the fulcrumed elbow-lever being moved by the armature out of the
25 path of the locking-lever, so that the latter releases the latch and permits the turning of the same, and thereby the opening of the main door by the action of an opening-spring acting on the same in the well-known manner.

30 In the accompanying drawings, Figures 1 and 2 represent side elevations, taken from opposite sides and partly in section, of my improved electric door-opener, in which the covering side plates of the casing are removed to show the interior construction of the door-opener; and Figs. 3 and 4 are horizontal sections of the same on line $x x$, Fig. 1, showing the door-opener, respectively, in
35 locked position before the electro-magnet is energized, and in a released position for permitting the opening of the door.

Similar letters of reference indicate corresponding parts.

45 In the drawings, A represents the jamb of the casing of a hall or other door of an apartment or tenement house or other building, and B the casing of an electric door-opener, which casing is set into a recess of said jamb A. In the casing B is arranged an electro-
50 magnet C, which is located in a normally-open electric circuit that is closed by push-

buttons arranged in the different stories of the building, as customary in electric door-openers. An armature D is pivoted to the top and bottom plates of the casing B, and
55 attracted by the poles of the electro-magnet when the circuit is closed for the purpose of opening the main hall-door. The armature D is extended below the electro-magnet into the lower part of the casing of the door-opener, 60 and serves, when attracted by the electro-magnet, to engage a pin e on a spring-actuated elbow-lever E, which is fulcrumed to the bottom plate of the casing B and to an intermediate partition-plate B' of the same, as shown 65 in Fig. 1. The elbow-lever E is pressed, when in normal position, by the tension of the spring against a stop-pin e' . When the elbow-lever is in this position—that is, before it is acted upon by the armature D of the electro-magnet—the 70 shorter arm E' of the elbow-lever E abuts against the outer end of a pivoted and spring-actuated locking-lever F, that is interposed between the elbow-lever E and a pivoted and spring-actuated latch G. The arm E' of the 75 elbow-lever E is located in the path of the outer end of the locking-lever F, and serves thereby as a stop for rigidly holding it in position, as shown in Fig. 3. The locking-lever F is provided with a projecting shoulder f , 80 which engages a projecting shoulder g at the inner circumference of the pivoted and spring-actuated latch G. The latch G projects into a recess in the end and side wall of the casing B and into the path of the spring- 85 bolt and the lock of the main hall-door, as indicated in dotted lines in Figs. 3 and 4. When the latch G is held in locked position by the intermediate lever F, the spring-bolt of the hall-door cannot pass the latch, and the door 90 is consequently retained in locked position. When, however, the circuit is closed by pressing on any one of the push-buttons in one of the different floors of the building, the electro-magnet is energized and the armature D 95 attracted. The armature D pushes the fulcrumed elbow-lever E back, so that its arm E' is moved out of the path of the locking-lever F. The door-actuating spring, with which hall-doors are usually provided, tends to press 100 the door from the position shown in dotted lines in Fig. 4 to the position shown in dotted

lines in Fig. 3. By the action of the spring-bolt of the door on the latch G said latch is turned on its axis, and the beveled shoulder *g* of the latch G, acting on the beveled shoulder *f* of the lever F, presses said lever F into the position shown in Fig. 4, and the latch G is turned to such an extent that its projecting portion is out of the way of the spring-bolt of the door. The latch G returns immediately again into its normal position by the action of its spring, also the locking-lever F, which latter re-engages the shoulder of the latch, while the elbow-lever E is returned into its normal position by the action of its spring as soon as the armature is dropped by the electro-magnet. The arm *E'* of the elbow-lever E is thereby moved into the path of the locking-lever F and holds the same in locked position. In this position all the parts of the door-opener are again in their normal positions and ready for the next action of the electro-magnet, while when the door is closed the spring-bolt of the hall-door lock passes with its inclined face over the projecting part of the latch G and beyond the same into normal position, as shown in Fig. 3.

The casing of the door-opener, as well as the jamb of the door-casing, is recessed so as to provide a path for the spring-bolt of the hall-door.

The longer arm of the elbow-lever E is provided with an upwardly-extending pin *h*, the beveled end of which is engaged by the bent end of a tension-spring *h'*, said spring serving to exert a certain friction on the elbow-lever E for retaining it in normal position. The friction of the spring *h'* is overcome by the armature D when the same is attracted by the electro-magnet. This arrangement is necessary for preventing the accidental opening of the door-opener when slamming or otherwise subjecting the main hall-door to sudden shocks or concussions.

My improved door-opener works in a reliable and effective manner, is of a comparatively simple construction, and adapted for the main hall-doors of apartment-houses, tenement-houses, and other buildings.

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

1. The combination of an electro-magnet, an

armature operated by the same, a fulcrumed and spring-actuated elbow-lever abutting against said armature, an intermediate pivoted and spring-actuated locking-lever, the outer end of which is engaged by the shorter arm of the elbow-lever, said lever being provided with a stop-shoulder, and a pivoted and spring-actuated latch, also provided with a stop-shoulder that is engaged by the stop-shoulder of the intermediate locking-lever, said latch having a projecting portion for engaging or releasing the spring-bolt of the door to be opened, substantially as set forth.

2. The combination of an inclosing-casing set into a recess of the jamb of the main-door casing, an electro-magnet in the same, an armature pivoted to said casing and extended below said magnet, a fulcrumed and spring-actuated elbow-lever having a projection abutting against said armature, a stop-pin for arresting the elbow-lever, an intermediate pivoted and spring-actuated locking-lever, the outer end of which is located in the path of the shorter arm of the elbow-lever, said lever being provided with a stop-shoulder, and a pivoted and spring-actuated latch provided with a projecting portion extending into a recess of the end wall of the casing and with a stop-shoulder that is engaged or released by the stop-shoulder of the locking-lever when the latter is locked or released by the elbow-lever, substantially as set forth.

3. The combination of an electro-magnet, an armature operated by the same, a fulcrumed and spring-actuated elbow-lever actuated by said armature, an intermediate locking-lever having a stop-shoulder, and a pivoted and spring-actuated latch having a shoulder for engaging the stop-shoulder of the locking-lever, the elbow-lever being provided with a pin, the end of which is engaged by a tension-spring for preventing the accidental opening of the door-opener, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

GEORGE A. SEIB.

Witnesses:

E. BERGMANN,

C. B. FITZWILSON.