

(Model.)

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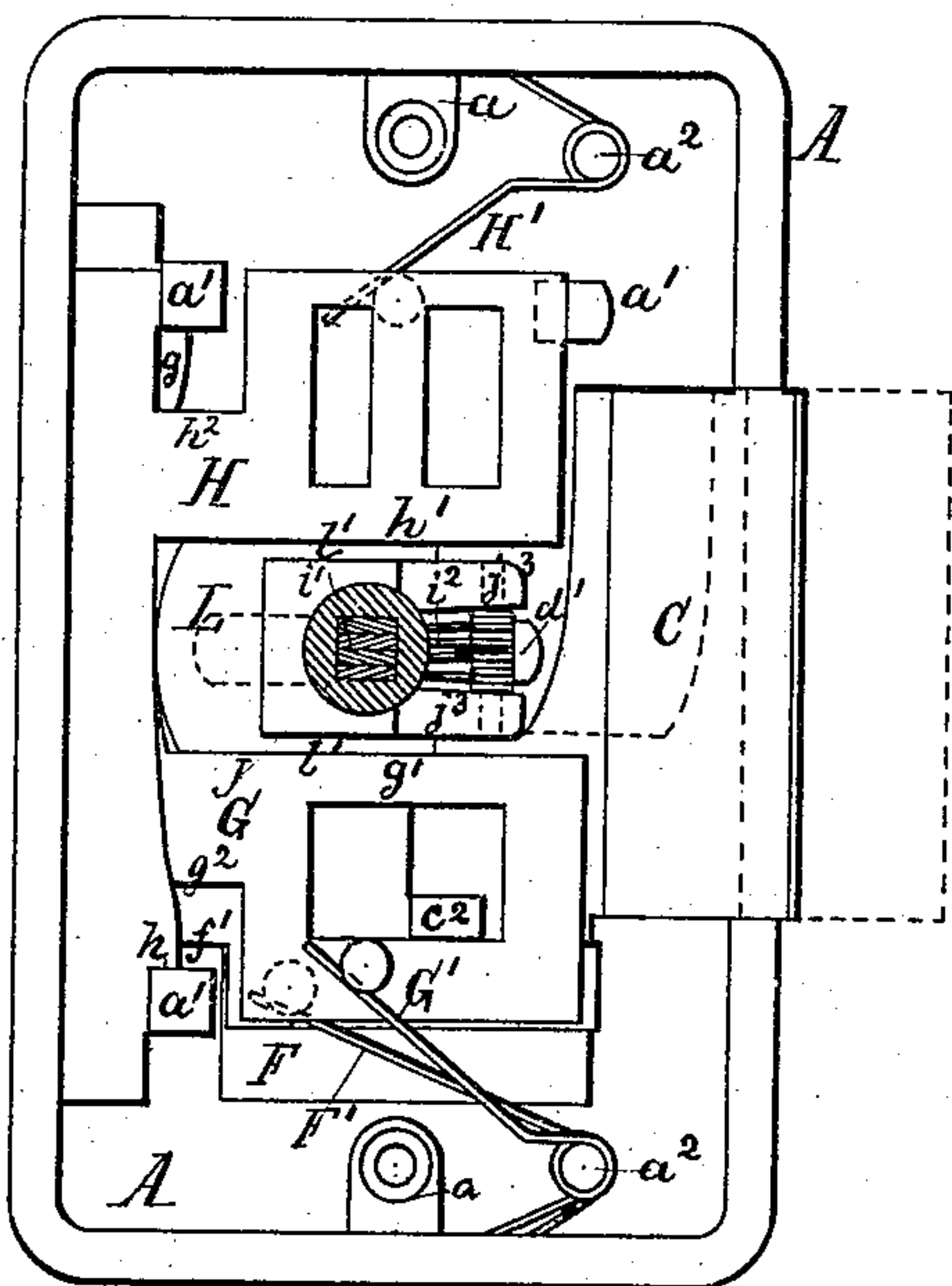
W. BOHANNAN.

DOOR LOCK.

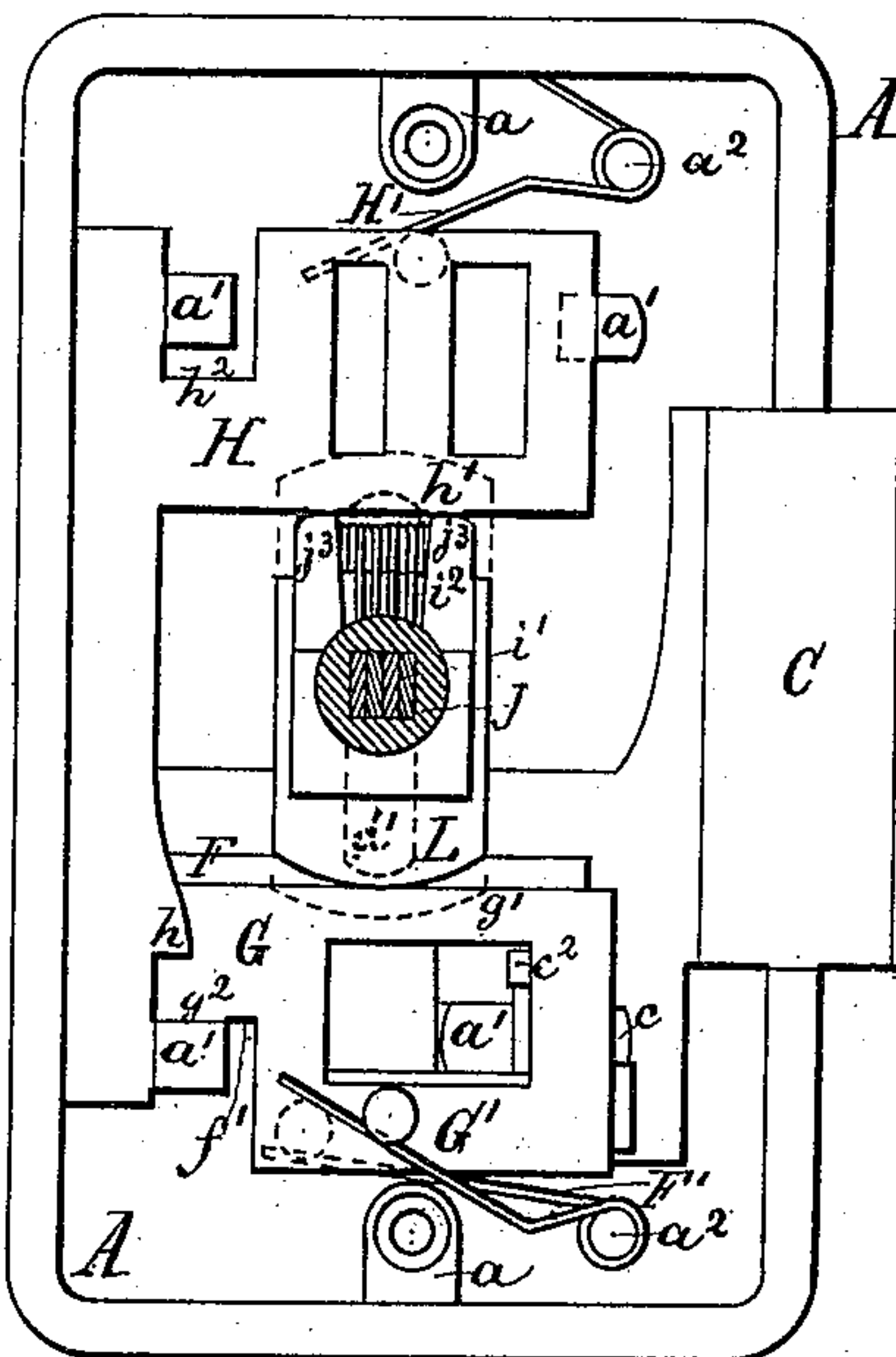
No. 337,044.

Patented Mar. 2, 1886.

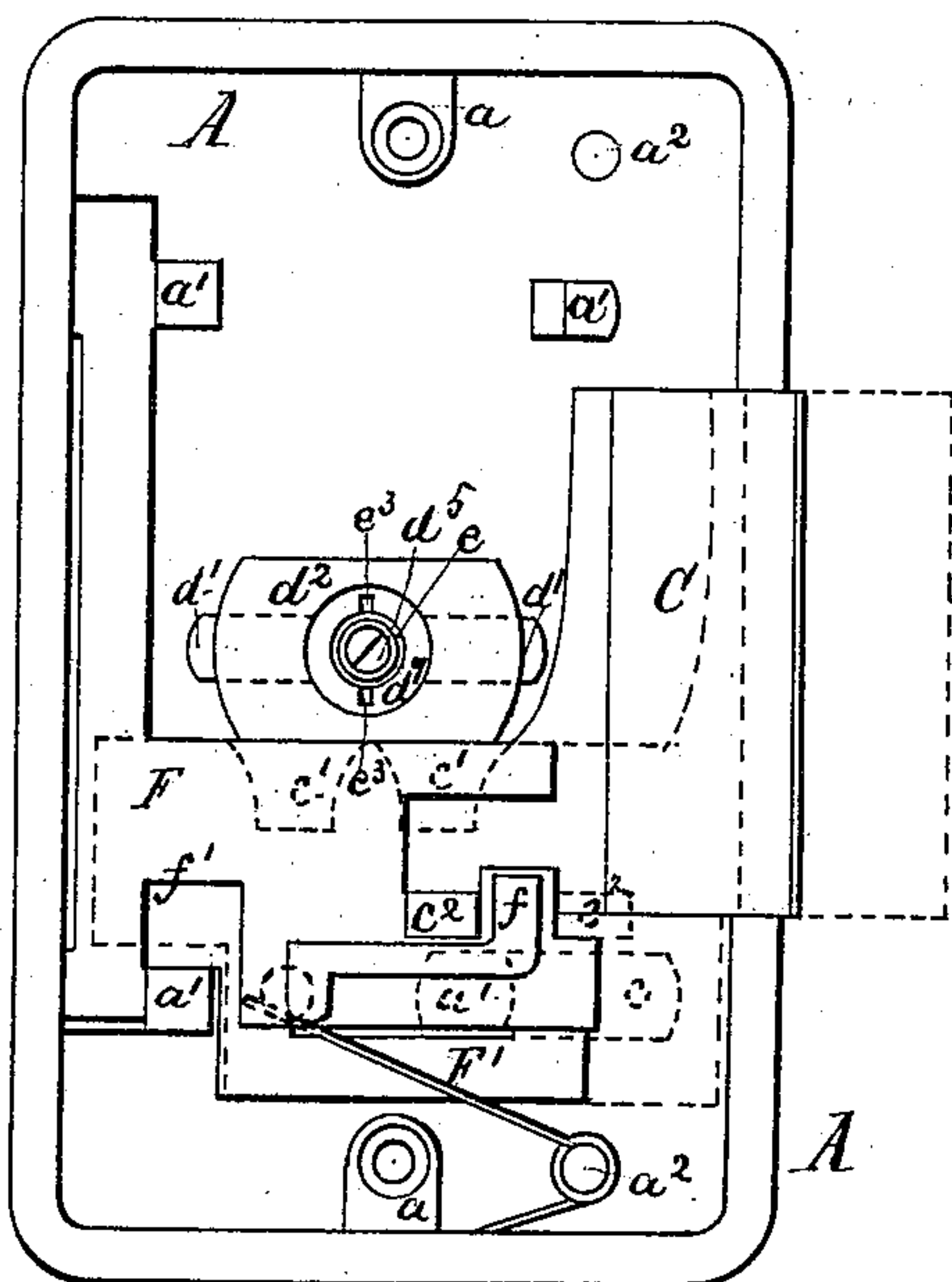
*Fig 1.*



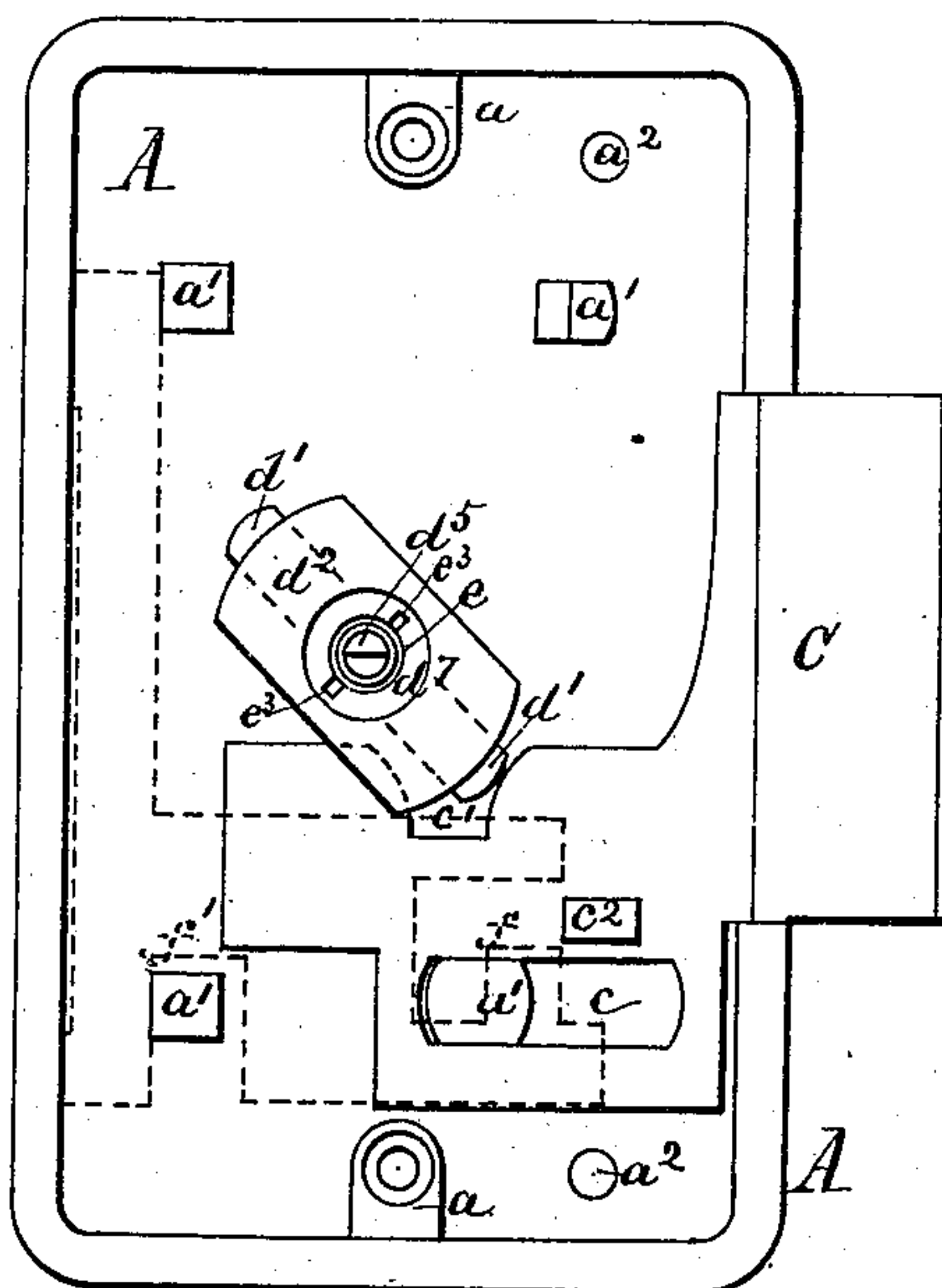
*Fig 2.*



*Fig 3.*



*Fig 4.*



*Witnesses:*

J. P. Theo. Lang.  
R. L. Fenwick

*Inventor:*

Hilse Bohannon  
 & Lin. Allg.  
 Nelson, Fennell & Lawrence

(Model.)

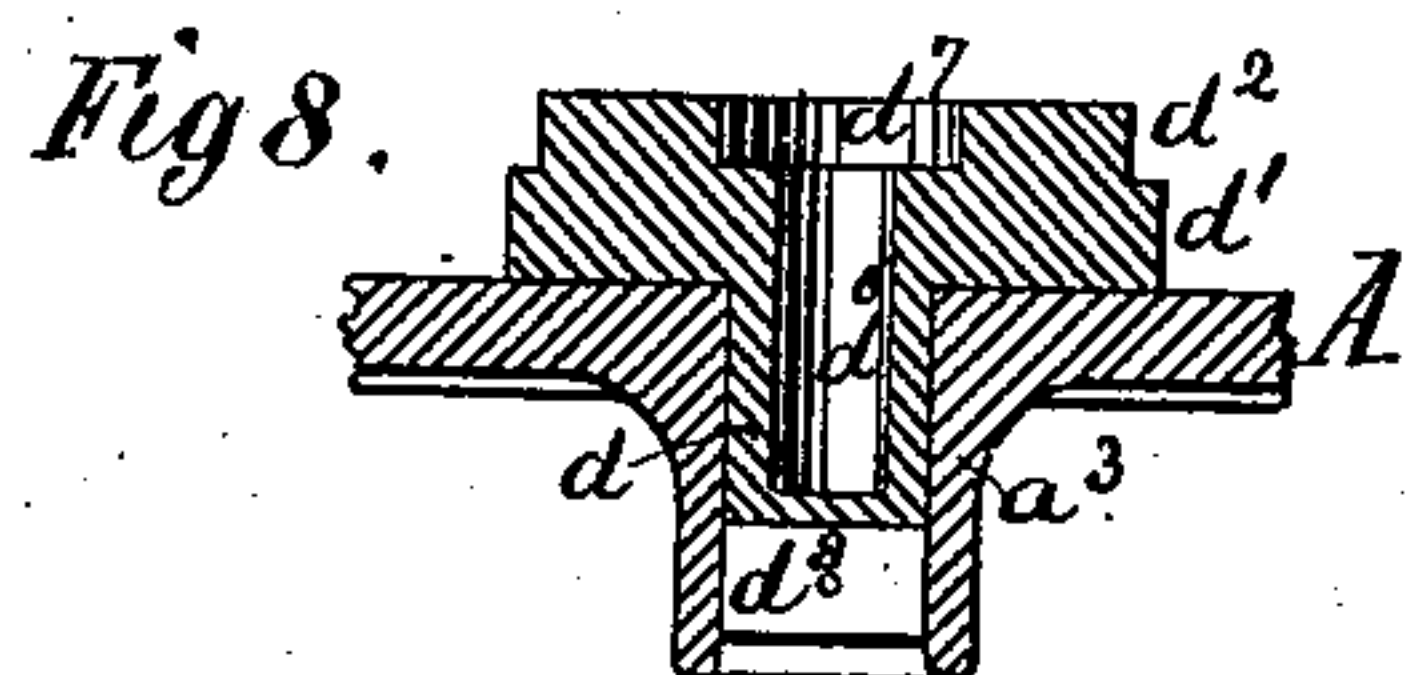
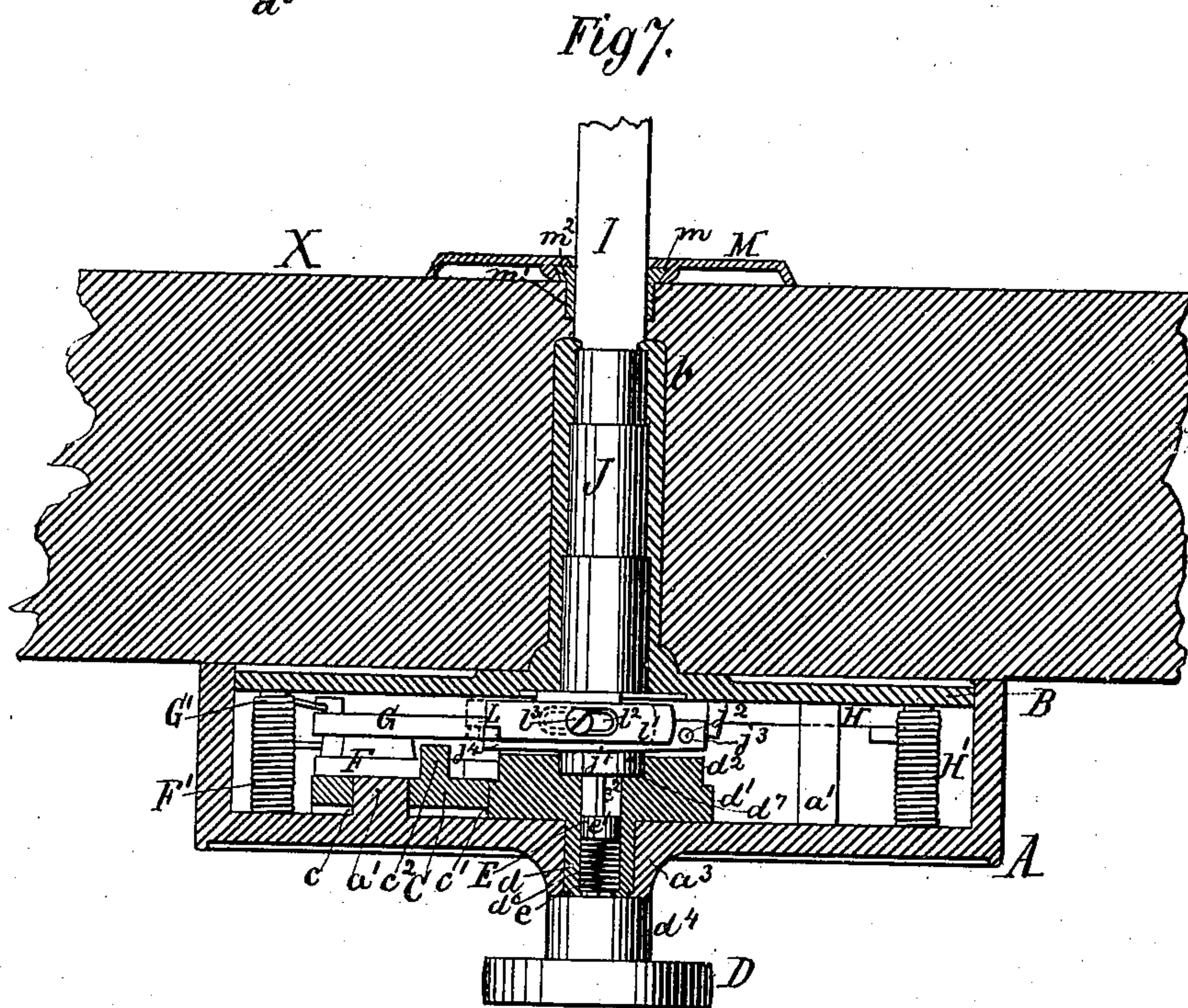
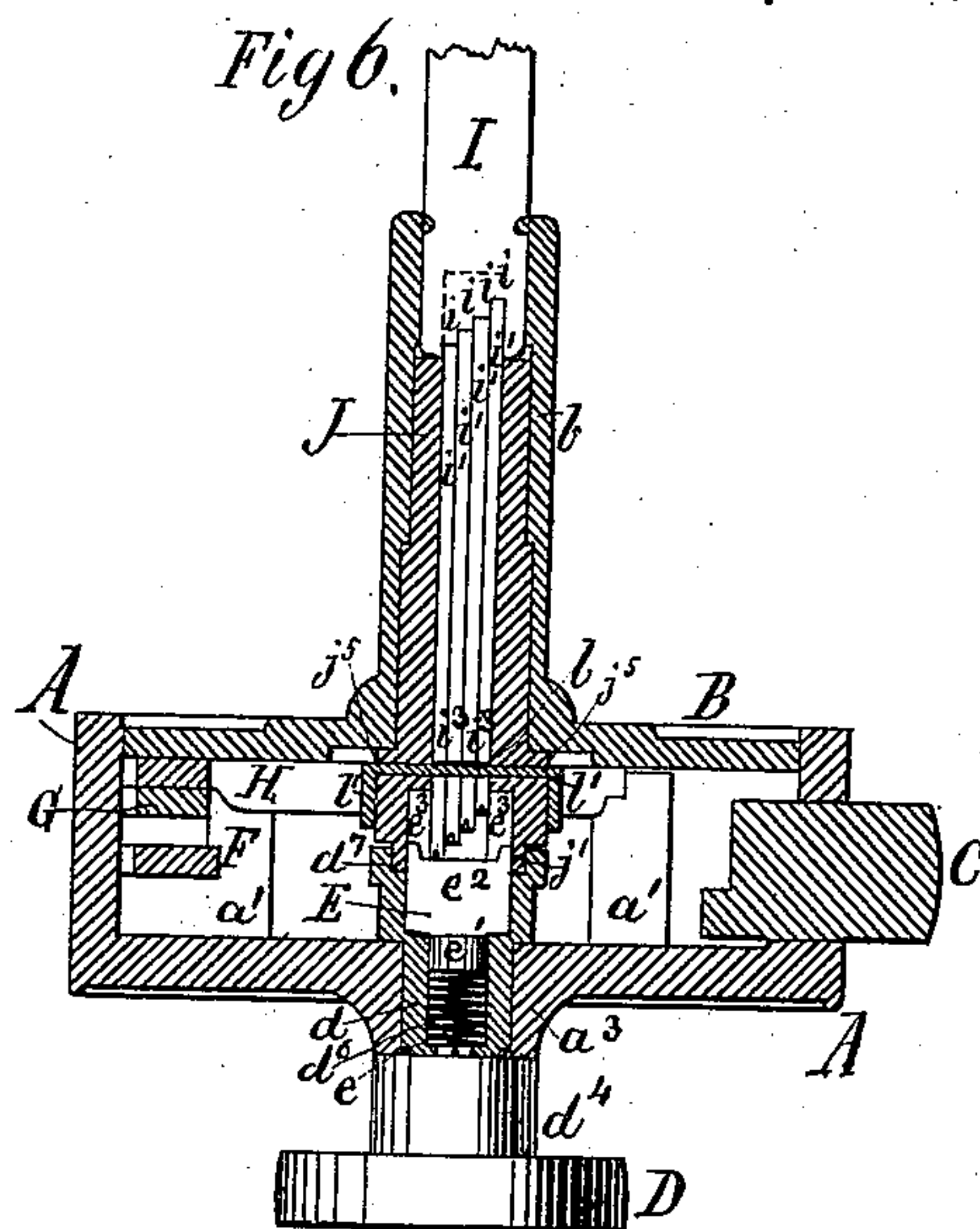
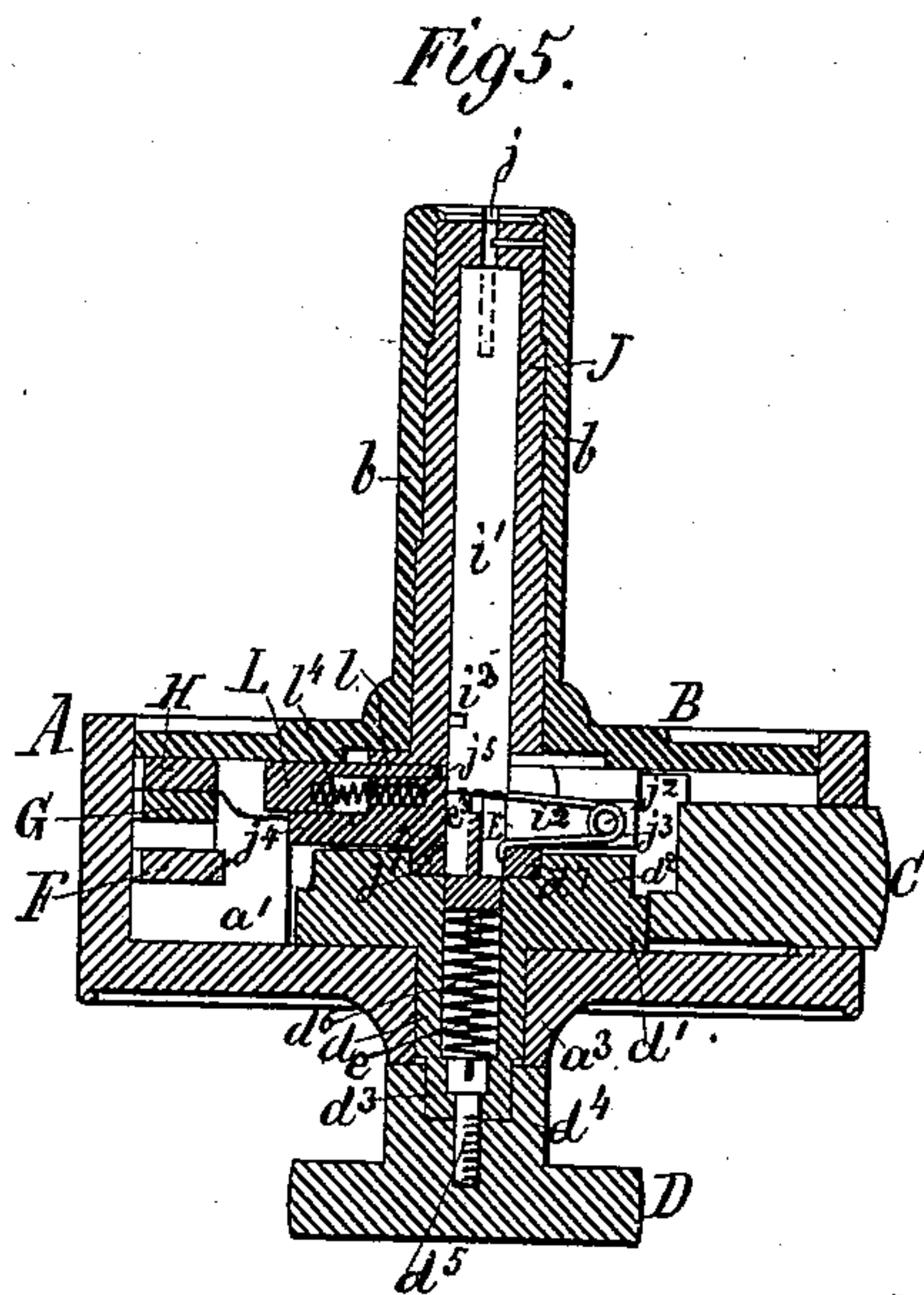
W. BOHANNAN.

2 Sheets—Sheet 2.

DOOR LOCK.

No. 337,044.

Patented Mar. 2, 1886.



Witnesses:  
J. P. Theo. Lang  
R. L. Fenwick

1  
Inventor:  
Helmut Behnke  
by his atty  
Mason, Fennell & Lawrence



# UNITED STATES PATENT OFFICE.

WILSON BOHANNAN, OF BROOKLYN, NEW YORK.

## DOOR-LOCK.

SPECIFICATION forming part of Letters Patent No. 337,044, dated March 2, 1886.

Application filed January 4, 1886. Serial No. 187,537. (M. del.)

*To all whom it may concern:*

Be it known that I, WILSON BOHANNAN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Door-Locks; and I do hereby 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 ap-

10 pertains to make and use the same.

My invention consists in certain novel constructions and combinations of parts in a lock, as will be hereinafter described, and pointed out in the claims, whereby a knob or key mechanism and a tumbler mechanism independent of each other can be coupled or uncoupled by the act of inserting or withdrawing the key without moving the knob out of its normal position, and whereby, also, the tumbler mechanism is instantly moved into its normal position by a spring when the lock is either fully locked or unlocked.

In the accompanying drawings, Figure 1 is an elevation of my lock, showing in full lines the bolt drawn in and by dotted lines moved out, the cover, with the key-guard being taken off, and the tumbler-housing and tumblers being shown in section. Fig. 2 is a similar view of the lock with the bolt moved half-way out, and showing the changed positions of the movable parts of the lock. Fig. 3 is a view of the lock without the tumbler mechanism, the bolt being shown by full lines drawn in and by dotted lines partly out. Fig. 4 is a view of the lock-case, knob-levers, and bolt, the bolt being moved out its full distance. Fig. 5 is a central cross-section of Fig. 1. Fig. 6 is a central cross-section of Fig. 2. Fig. 7 is a central longitudinal section of the whole lock, the key-guard, and a portion of a door; and Fig. 8 is a central section of a modified construction of the inner portion of the lock, wherein a key-latch is substituted for the knob.

45 In the drawings, A represents the case of a lock, B the cover, and C a bolt. The case A is provided with ordinary ledges, *a*, to which the cover is fastened with guide-posts *a'*, for holding the sliding parts, and with spring-posts *a''*, for holding the springs of the lock. At the center of the case A a boss, *a'''*, is pro-

vided, into which the shank *d* of the united bolt-lever *d'* and releasing-lever *d''* is fitted. The end *d'''* of the shank *d* is of ordinary square shape, and is fitted into the shank *d'* of the knob D, to which it is fastened by means of a screw-bolt, *d''*. The head of this screw-bolt is at the bottom of a central hole, *d'''*, in the shank *d'* of the united bolt and release-lever, in which hole a spring, *e*, is inserted, which bears against a coupling, E, hereinafter described. An ordinary bolt, C, with a guide-slot, *e*, fitting over one of the guide-posts *a'*, is operated by the bolt-lever *d'* of the knob mechanism engaging a notch, *e'*, of suitable shape therein. The bolt C is also provided with a suitable lug, *e''*, which is successively moved on one or the other side of a check, *f*, forming a portion of the release-slide F next to the bolt. This release-slide moves transversely with respect to the bolt between two of the guide-posts *a'* and one of the side walls of the lock-case A, and is by means of a step, *f'*, prevented from sliding farther from its normal position than the releasing-lever *d''* can move it. A spring, F', on one of the posts *a''* pushes the slide F toward one of the straight sides of the releasing-lever *d''*, and in this position the check *f* prevents the lug *e''* from passing it. The position illustrated in Fig. 3 shows the lug *e''* (and the bolt C) held by the slide F alone, the bolt being in the lock. When, however, the bolt C is moved out, as shown in dotted lines in said figure, the end of the guide-slot *e* rests against the respective guide-post *a'*, and thus prevents any further outward movement of the bolt, while the check *f* of the slide F prevents the bolt from being moved into the lock. This position is indicated in Fig. 3 by dotted lines and letters. Next to the slide F are two other slides, G H, which are parts of the tumbler mechanism, and are only operated when the tumbler-key I is used at the outer side of the door. This key I is provided with suitable steps, *i*, and is inserted into a slot, *j*, in a central tubular projection, *b*, of the cap or inner cover-plate, B, of the lock, which projection contains a cylindrical barrel, J, snugly fitted therein. The inner end, *j'*, of said barrel is cylindrical, and is fitted into a suitable recess, *d''*, in the face of the releasing-lever *d''*, whereby it is held in line with



the same. A central longitudinal square hole in the barrel J contains a number of flat tumblers,  $i'$ , corresponding in thickness and number with the steps  $i$  of the key I. The outer ends of these tumblers are pushed against the outer termination of the square hole in the barrel J by means of springs  $i''$ , bearing against the inner ends of said tumblers. The springs  $i''$  are hung to a transverse pin,  $j''$ , between two parallel arms,  $j'''$ , forming a portion of the barrel J, and they are steadied by resting with their straightened ends upon the cylindrical end portion,  $j'$ , of the barrel. Diametrically opposite the arms  $j'''$  a flat head,  $j^4$ , is provided on the barrel J, upon which head a slide, L, is fitted, which is moved upon the same toward and from the barrel. The slide L is fitted to three sides of the head  $j^4$ , and a thinned end portion,  $l$ , of it fits into a suitable transverse slot,  $j^5$ , of the barrel, (see Fig. 5,) which slot is continued a suitable distance into the above-mentioned square hole of the barrel. The tumblers  $i'$  are, opposite said slot, each provided with a notch,  $i^3$ , the distances of which notches from the ends of the tumblers are just reversed with respect to the depth of the steps  $i$  of the key I, so that when the tumblers are moved out of their normal positions by the operation of the said key the notches  $i^3$  stand in a straight line and opposite the slot  $j^5$ , thus permitting the portion  $l$  of the slide L to enter the same, as seen in section in Fig. 6. One of the side portions,  $l'$ , of the slide L is provided with a slot,  $l''$ , and a screw or pin,  $l^3$ , placed into said slot and fastened to the side of the head  $j^4$ , serves to terminate the stroke of the slide, and to prevent it from being pushed away from the head  $j^4$  by a spring,  $l^4$ , which is suitably hung between the slide L and head  $j^4$ , as shown in Fig. 5.

The slides G and H are suitably fitted between the guide posts  $a'$ , and provided with steps  $g$  and  $h$ , respectively, which prevent them from being moved out of their normal positions by their tension-springs  $G'$  and  $H'$ . Both slides have transverse extensions  $g'$   $h'$ , bearing against the side portions,  $l'$ , of the slide L, and inner steps,  $g^2$   $h^2$ , opposite their guide-posts  $a'$ , whereby the outward stroke of the slides is properly limited. By means of this limitation the slide L, when revolved with the barrel J by the key I, is prevented from passing either one of the extensions  $g'$   $h'$  unless the portion  $l$  of it can enter the straightened row of notches  $i^3$  of the tumblers, and thus shorten its radial range.

The dotted lines in Fig. 2 represent imaginary outlines of the slide L in two opposite directions, when the portion  $l$  has not entered the notches  $i^3$ , and thus is demonstrated the impossibility of such movement of the barrel under those circumstances, while the full lines show the operation of one of the slides G un-

der the normal working conditions above described.

While the tumblers  $i'$  are moved by the key I, they move the coupling E toward the releasing-lever  $d^2$ . This coupling E consists of a cylindrical body,  $e'$ , and a winged extension,  $e^2$ . The body  $e'$  is loosely fitted into the hole  $d^6$  of the united bolt and releasing-lever, and is pushed by the spring  $e$  therein toward the tumblers  $i'$ , so that the extension  $e^2$  is always in contact with them. The extension  $e^2$  is of greater width than the diameter of the square hole in the barrel and the hole  $d^6$ , and they are therefore provided with longitudinal guide-slots  $e^3$ , which stand in line and allow said extension  $e^2$  to be moved from the barrel to the lever  $d^2$ , and vice versa.

When the tumblers are in their normal positions, the spring  $e$  holds the extension  $e^2$  out of range of the releasing-lever  $d^2$ ; but when the tumblers are operated by the key I the extension  $e^2$  is moved partly into the lever  $d^2$ , while its remaining portion is in the barrel J, and thus the tumbler mechanism and the knob mechanism are coupled, and the operator of the key is enabled to open or close the lock from the outside of the door.

I have shown in Fig. 7 a key-guard to be used when the thickness of a door, X, exceeds the ordinary length of the projection  $b$ , as furnished by the trade. This guard consists of a suitable plate, M, having an inner annular recess,  $m$ , into which is inserted a key-sheath,  $m'$ , having a transverse conical head,  $m^2$ , loosely fitted into the recess  $m$  of the plate M. The plate M is fastened in line with the barrel J to the outside of the door, and covers the round hole in the door, while it presents a neat appearance to the eye.

In Fig. 8 I have shown a substitute for the knob, which consists in a slotted termination,  $d^7$ , of the shank  $d$ , into which the key I is inserted in order to turn the shank  $d$  and open or close the lock from the inside of the door.

What I claim is—

1. The combination, with a knob or key locking mechanism and a tumbler mechanism independent of each other, of a sliding coupling, E, operated by a spring,  $e$ , and the tumblers of the tumbler mechanism, substantially as and for the purpose described.

2. The combination of the slide L, spring  $l^4$ , barrel J, having transverse slot  $j^5$ , tumblers  $i'$ , having notches  $i^3$ , key I, having steps  $i$ , spring-slides G H, having extensions  $g'$  and  $h'$ , and steps  $g^2$   $h^2$ , and lock-posts  $a'$ , substantially as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

WILSON BOHANNAN.

Witnesses:

WILSON T. BOHANNAN,  
HARRY L. RAYMOND.