

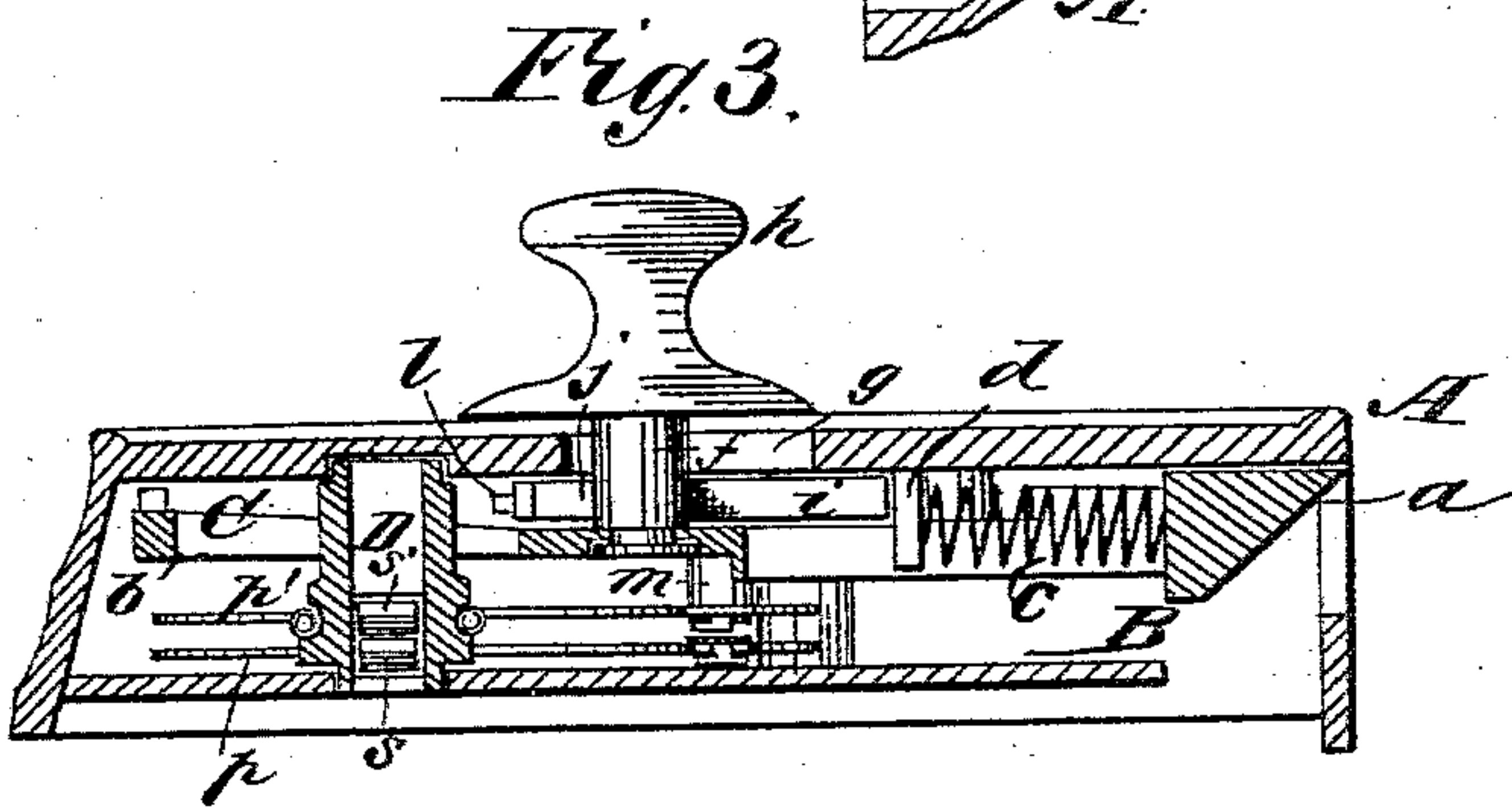
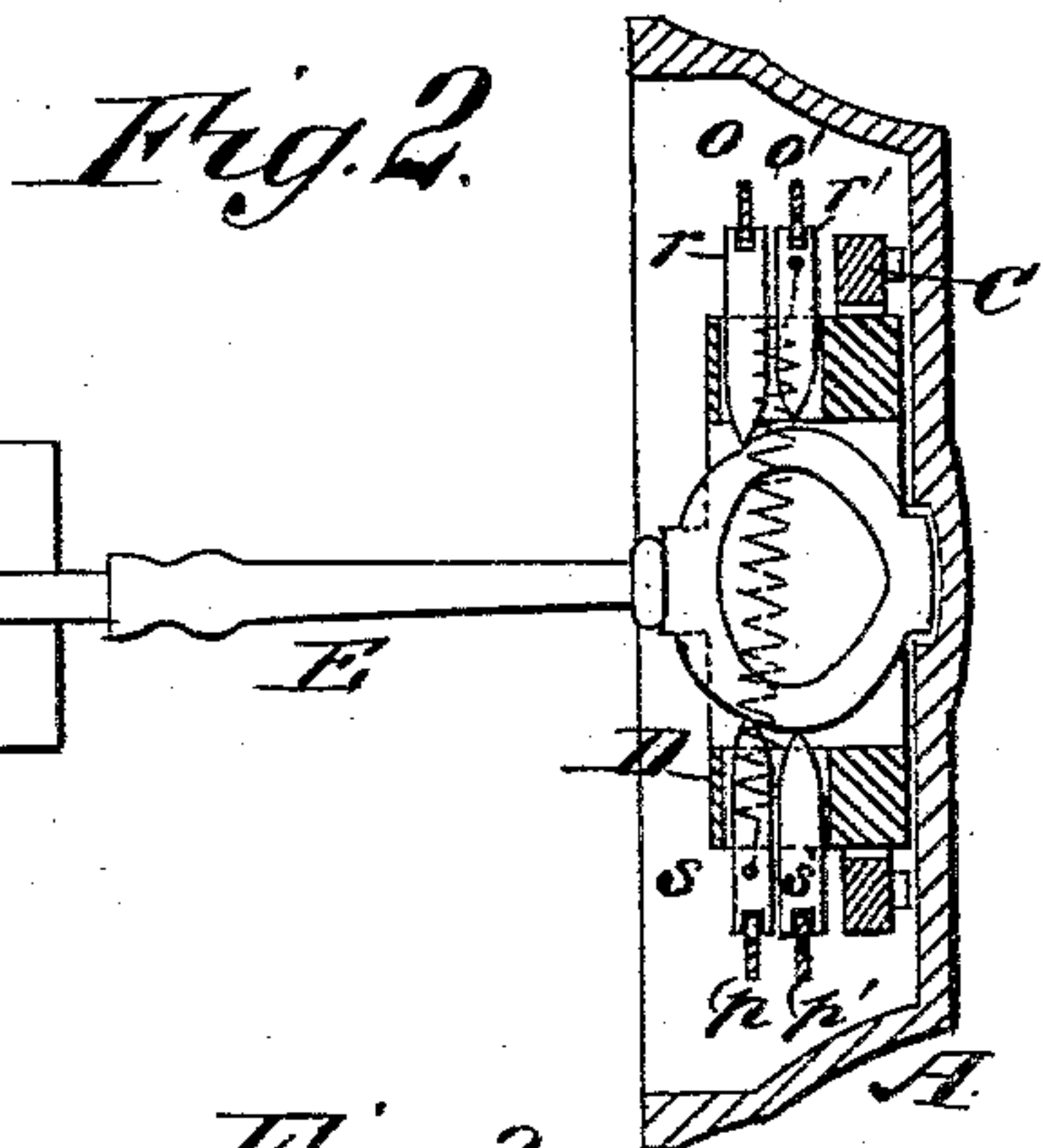
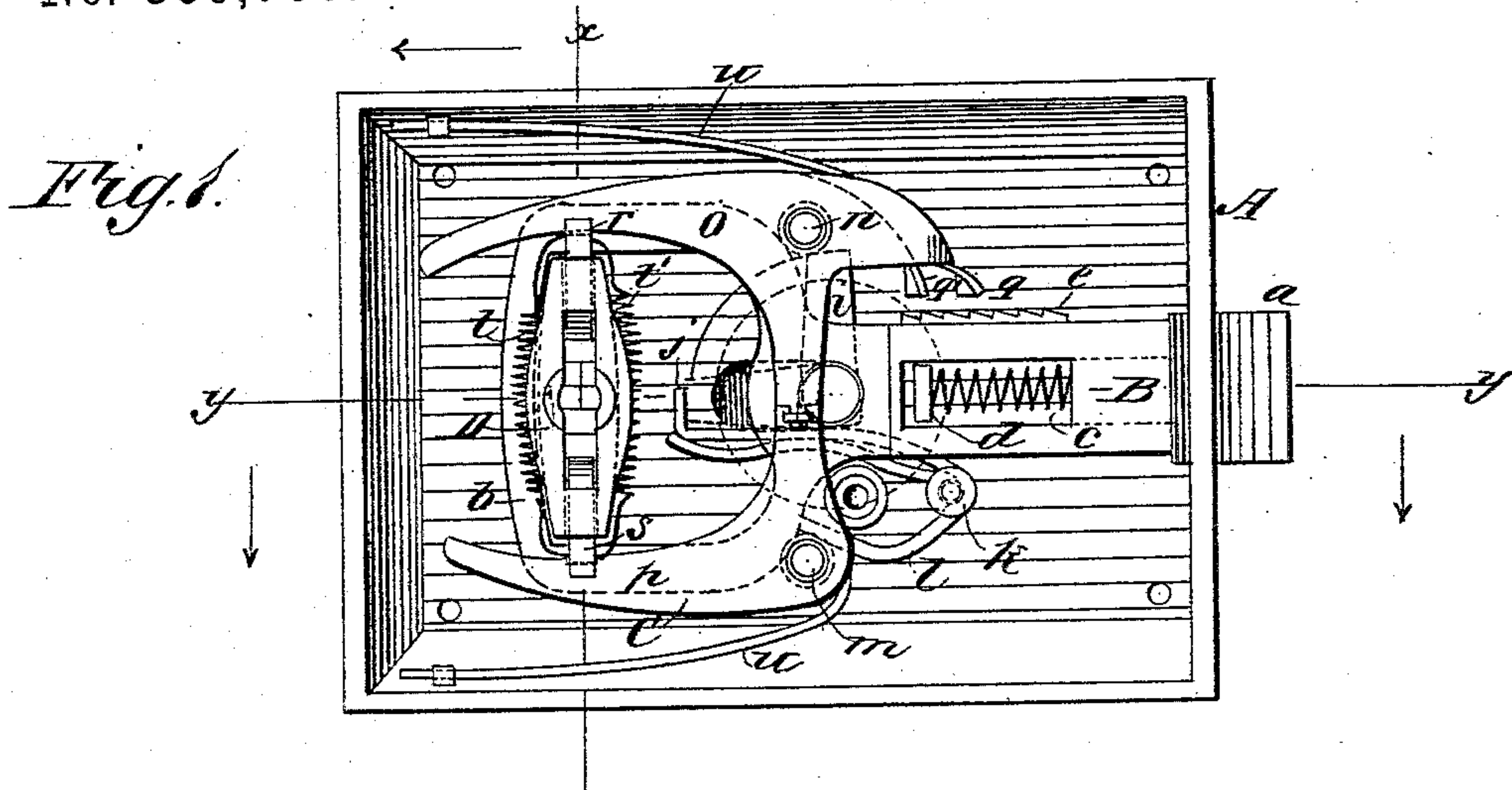
(Model.)

W. C. ADAM.

COMBINED LATCH AND LOCK.

No. 359,760.

Patented Mar. 22, 1887.



WITNESSES:

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to Sedgwick

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UNITED STATES PATENT OFFICE.

WILLIAM C. ADAM, OF BUFFALO, NEW YORK.

COMBINED LATCH AND LOCK.

SPECIFICATION forming part of Letters Patent No. 359,760, dated March 22, 1887.

Application filed August 14, 1886. Serial No. 210,924. (Model.)

To all whom it may concern:

Be it known that I, WILLIAM C. ADAM, of Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in a Combined Latch and Lock, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a side elevation of my device with the cover of the casing removed. Fig. 2 is a transverse section taken on line *xx* in Fig. 1, and Fig. 3 is a longitudinal section taken on line *yy* in Fig. 1.

Similar letters of reference indicate corresponding parts in the different figures of the drawings.

The object of my invention is to construct a locking-latch the bolt of which may be fastened in an opened or closed position from the inside of the door or left free to be operated by a key from the outside of the door to which the latch is applied; also, to provide an arrangement of tumblers which will render it difficult to pick the lock.

My invention consists in a spring-actuated latching-bolt provided with a cross-bar arranged to be operated by the key-nut, and in the combination therewith of locking-levers pivoted in the lock-casing and tumblers carried by the key-nut, the locking-levers being arranged to engage the tumblers at all times except when the key is inserted in the lock.

In the casing A is placed a latching-bolt, B, provided with the beveled outer end, *a*, and having upon its inner end a frame, C, carrying a cross-bar, *b*, which is arranged at right angles to the bolt B. The bolt B is mortised to receive a spiral spring, *c*, which abuts against a post, *d*, projecting from the lock-casing, and tends to press the beveled end of the bolt outward. The side of the bolt is provided with a ratchet-bar, *e*, and in the part of the bolt adjoining the frame C is journaled a stud, *f*, which projects through a slot, *g*, in the lock-casing and receives a knob, *h*. The stud *f* carries an arm, *i*, which is squared on three sides and receives the pressure of an arm, *j*, pivoted on the stud *k* and acted on by the spring *l*, wrapped around the stud *k* and abutting against the pivotal stud *m* of the levers *p* *p'*. When the arm *i* is turned at right angles

with the bolt, the bolt may slide freely. When the bolt is moved backward by the knob *h*, the arm *i* is turned forward behind the stud *d* and the bolt will be held in an unlocked position, and when the bolt is projected and the arm *i* is turned in the opposite direction, it engages the angled end of the arm *j* and prevents the bolt from being withdrawn by turning the key of the lock. The arm *i* is held in either of these three positions by the pressure of the arm *j* on the flattened surfaces thereof.

Upon the studs *mn*, projecting from the latch-casing at opposite sides of the bolt B, are placed two pairs of angled levers, *o o'*, *p p'*, the levers *o o'* being placed on the stud *n*, the levers *p p'* being placed on the stud *m*. The shorter arms of the levers *p p'* are forked to engage studs projecting from the shorter arms of the levers *o o'*, so that when the lever *o* is moved, the lever *p* will be moved in a similar manner, but in the opposite direction; and when the lever *o'* is moved the lever *p'* will be moved in a similar manner, but in an opposite direction. The levers *o o'* are provided with pawls *q q'*, which extend forward over the ratchet-bar *e* on the side of the bolt B. The longer arms of the levers *o o'*, *p p'* project approximately parallel with each other toward the rear end of the lock; and between the arms and the cross-bar *b* of the frame C and the body of the bolt B is journaled a key-nut, D, and the edges of the angled arms of the levers *o o'*, *p p'* are formed on a circular curve, with the center of the bearing of the key-nut as a center. The key-nut is provided with an oblong longitudinal mortise, and in mortises in opposite ends of the key-nut are inserted the tumblers *r r'*, *s s'*, which are pressed inward toward the center of the key-nut by spiral springs *t t'*, connected with the opposing pair of tumblers. The outer ends of the tumblers *r r'*, *s s'* are notched to receive the inner edges of the levers *o o'*, *p p'*, and the inner edges of the levers *p p'* are also notched to receive the tumblers *s s'*, so that when the tumblers and the levers are in their normal position the tumblers *s s'* will be received and retained by the notches in the levers *p p'*, so that the key-nut D cannot be turned until a key adapted to the lock is inserted in a mortise of the key-nut. The levers *o o'*, *p p'* are pressed into engagement with the

tumblers by flat springs *u*, secured to the levers and pressing against the walls of the lock-casing.

To increase the security of my improved latch, I have provided a key, *E*, having at one end nibs resembling those of an ordinary key, which will enter the lock, but will be unable to move the tumblers so as to permit of unlocking, and provided at the opposite end with a bow, which will enter the lock and will move the tumblers so as to permit of unlocking by turning the key. The key is made in this form for the purpose of deceiving persons who are unauthorized to use it, the object being to convey the idea that the end of the key provided with nibs is to be employed for operating the lock, while it is impossible to operate the lock except with the end of the key provided with the bow. When a key of this kind is lost, if the finder is disposed to attempt to use it he will use the end of the key provided with nibs, and will be unlikely to try the opposite end.

By inserting the key in the key-nut, as shown in Fig. 2, the tumblers *r r'* are pushed outward, and by engagement with the levers *o o'* move the said levers, and through the connection of the said levers *o o'* with the levers *p p'*, said levers *p p'* will be moved through a greater distance, owing to the difference in length of the shorter arms of the two systems of levers, the short arms of the levers *o o'* being longer than the short arms of the levers *p p'*, to insure the required increase of motion to carry the longer arms of the levers *p p'* away from the tumblers *s s'*, thus permitting the key-nut to be turned, and by its engagement with the bar *b* to withdraw the bolt *B* and release the door. When the key-nut *D* is returned to its normal position and the key withdrawn, the movable parts of the lock will return to their original position.

Should a key be inserted in the key-nut *D* which will not move the tumblers sufficiently to release the levers, the key-nut cannot be turned, and should a key having too great

width be inserted in the nut the levers *o o'* will be moved so far as to bring the pawls *q q'* into engagement with the ratchet-bar *e*, thus locking the bolt *B*, so that it cannot be withdrawn even though the key-nut be released.

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

1. In a combined latch and lock, the combination of the spring-actuated bolt *B*, carrying the bar *b*, the key-nut *D*, provided with one or more spring-actuated tumblers, *r s*, one or more spring-actuated levers, *o*, the fixed pivot *n* for said levers, and one or more spring-actuated levers, *p*, the fixed pivot *m* for said levers, the levers *o* and *p* being pivotally connected, substantially as shown and described.

2. In a combined latch and lock, the combination of the spring actuated bolt *B*, provided with the cross-bar *b* and ratchet-bar *e*, the spring-actuated levers *o o'*, provided with pawls *q q'*, adapted to engage the ratchet-bar, the notched levers *p p'*, said levers being pivoted in the latch-case and pivotally connected with each other, and the key-nut *D*, journaled in the latch-casing and provided with the spring-actuated tumblers *r r' s s'*, substantially as shown and described.

3. In a combined latch and lock, the combination of the casing *A*, provided with the stud *d*, the bolt *B*, the stud *f*, journaled in the bolt *B* and carrying the arm *i*, having flattened surfaces, and the spring-actuated right-angled arm *j*, bearing against said flattened surfaces, substantially as shown and described.

4. The key *E*, having opposite ends adapted to enter the lock and having its bowed end fitted for moving the tumblers of the lock for unlocking, substantially as shown and described.

WILLIAM C. ADAM.

Witnesses:

CHAPIN W. JONES,
P. C. MARTIN.