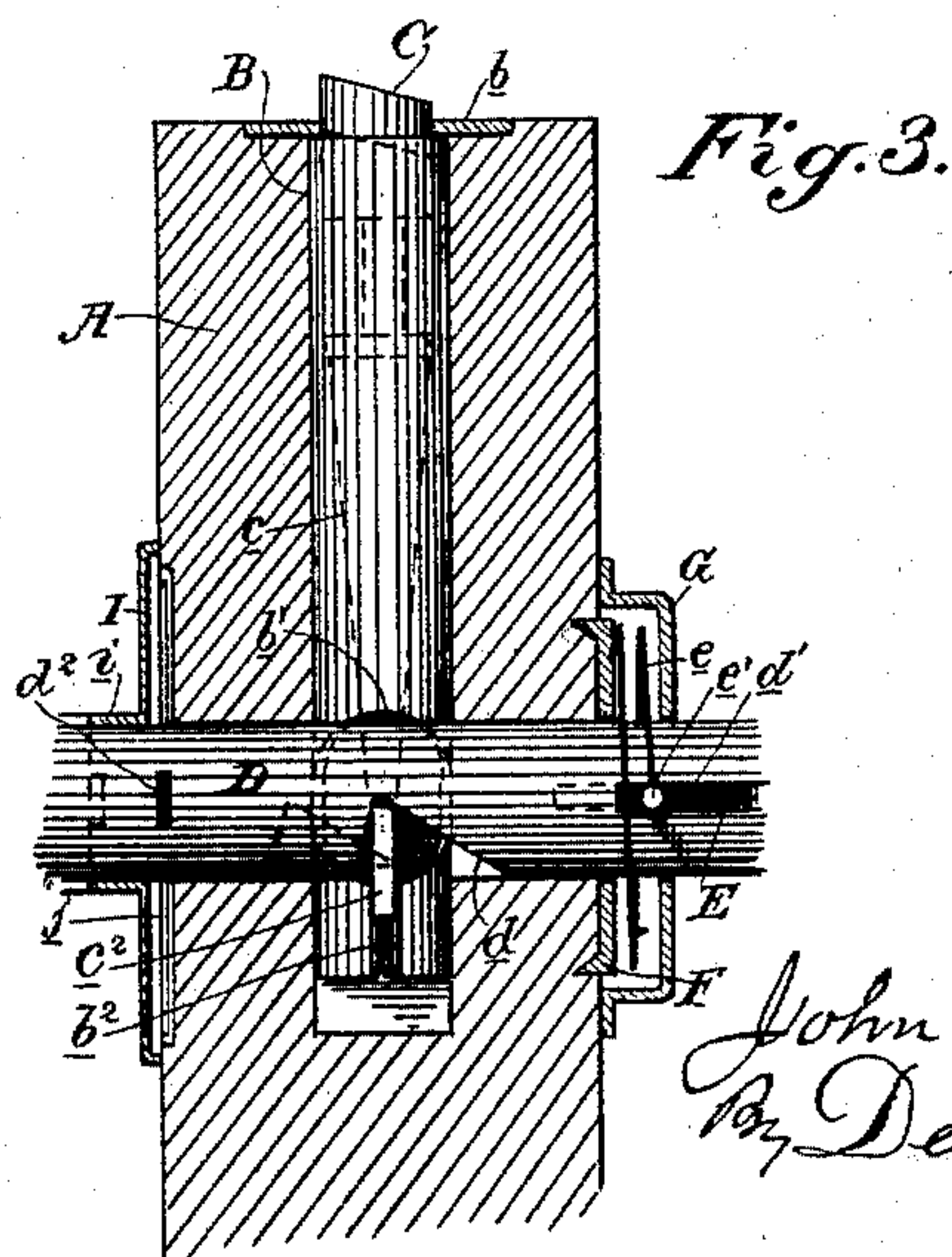
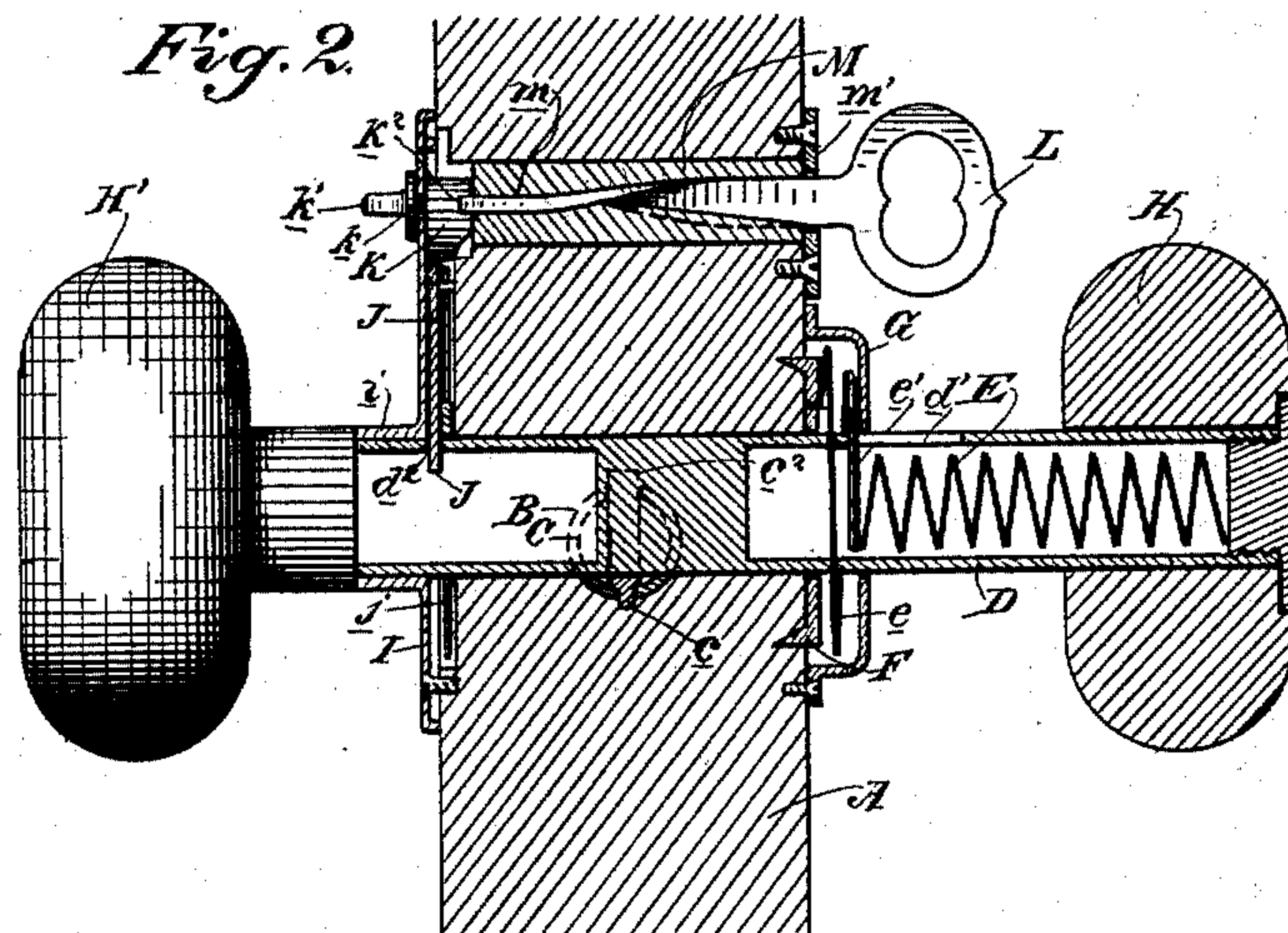
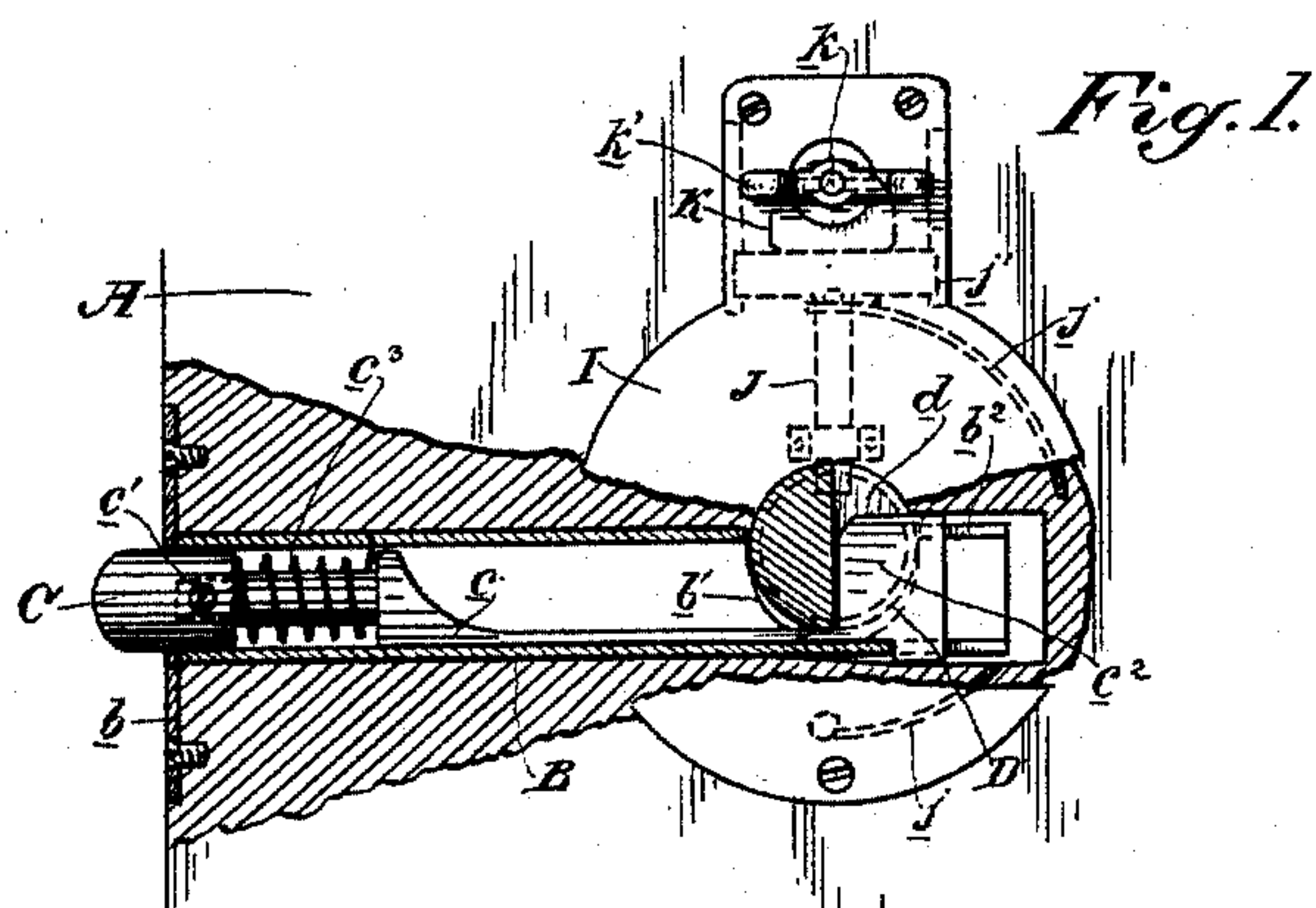


(No Model.)

J. E. ARMSTRONG.
LATCH AND LOCK COMBINED.

No. 483,318.

Patented Sept. 27, 1892.



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UNITED STATES PATENT OFFICE.

JOHN E. ARMSTRONG, OF SANTA CRUZ, CALIFORNIA.

LATCH AND LOCK COMBINED.

SPECIFICATION forming part of Letters Patent No. 483,318, dated September 27, 1892.

Application filed April 29, 1892. Serial No. 431,214. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. ARMSTRONG, a citizen of the United States, residing at Santa Cruz, Santa Cruz county, State of California, have invented an Improvement in Door-Locks; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to door-locks; and it consists in the constructions and combinations of devices which I shall hereinafter fully describe and claim.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a vertical section in the line of the bolt-sheath. Fig. 2 is a vertical section in the line of the knob-spindle. Fig. 3 is a horizontal section of the door, exposing the knob-spindle and bolt-sheath in plan.

A is the door. In this is made from its edge a hole, in which is seated the sheath B for the reciprocating latch-bolt C, said sheath being held in place by the escutcheon of screw-plate b. The latch-bolt C has an outer beveled end to enable it to operate properly against the striking-plate on the door-jamb. The bolt has a stem or shank c, which, though it may be made integral with said bolt, is preferably a separate piece, as shown, and held to it by a set-screw c'. This connection will permit the bolt by being turned on the shank and again secured to present its beveled end in opposite directions and to be used on either right or left without affecting its operating mechanism. The sheath B near its inner end is recessed at b' and slotted backwardly at b². The shank c of the latch-bolt has a contact-lug c² exposed in the recess b' of the sheath and guided in its movement at all times by the slot b². The latch-bolt is held normally projected by means of a spring c³ within the sheath. Through the door is made a hole at right angles to the hole in which the sheath B is seated. In this hole is fitted the knob-spindle D, adapted to have both a rotary and a longitudinal movement therein. This spindle crosses the sheath B at right angles and lies in its recess b'. Its side is provided with a notch, forming an inclined plane or cam d, which bears against the front of the contact-lug c² of the latch-bolt. Now it will be seen that if the knob-spindle

be rotated in either direction its inclined plane, bearing with either its top or bottom edges against lug c², will force said lug back and withdraw the latch-bolt; also, if the spindle be moved in the direction of its length its inclined plane moving past lug c² will force said lug back and withdraw the latch-bolt. The spindle is controlled in both these movements by a suitable spring or springs. I have here shown a single spring to control both movements. This spring E is a spiral one, its main portion being fitted within the hollow end of the spindle and bearing at one end against an end abutment of said spindle. At the other end the spring turns outwardly and forms the coil portion e, the extremity of which is secured to a rose-plate F on the door. Where the coil e emerges from the spindle, it is strengthened or stiffened by a contact-post e', which abuts against the rose-plate F and plays in an elongated slot d' on the spindle. The main body of the spring within the spindle will by its compression, due to the contact of post e' with the rose-plate, control the longitudinal movement of the spindle, while the outer or coil portion e will control its rotary movement. This coil portion, which is on the outer side of the door, is concealed by a suitable rosette G. A knob H is suitably secured on the outer end of the spindle.

To lock the spindle to prevent it from either rotating or being moved lengthwise, I make in it a notch or groove d². Fitted over the inner end of the spindle and screwed to the inner side of the door is a rose-plate I, having on its inner surface a sliding catch J, controlled by a spring j. The normal position of this catch is elevated; but when depressed it engages the notch or groove d² of the spindle D and holds it. The catch is forced and held down by a cam K, which bears on a cross-head j' of said catch. The cam is on a rock-shaft or pin k, operated from the inside of the door by a turn-button k'. It is operated from the outside of the door by means of a key L, the inner end of which is adapted to fit in a groove k² in the cam. This groove is reached by the key only by passing through a peculiar keyway. This keyway consists of a passage or slot m made in a rotary piece M, seated in a hole in the door and held in place by a screw-plate m' on the outside of the door. This key-

way is made on a spiral or twist, and the key is correspondingly curved or twisted. The difference in the pitch and the number of turns of this twist makes the necessary difference in the keys of different locks. The notch or groove d^2 in the spindle, which receives catch J, is concealed by a short flange i , extending from the rose-plate I and encircling the spindle. A suitable knob H' is fitted to the inner end of the spindle.

The operation of the door-lock is as follows: Approaching from without, the person who wishes to enter, finding the door locked, inserts his key. It passes through the keyway and engages the grooved end of cam K, which had been turned, so as to press and hold down the catch J. Turning the cam, he relieves the catch J, which rises under the power of the spring j , and thus is removed from the notch or groove d^2 in the knob-spindle. He can now either turn the knob or push it. Either way will retract the latch-bolt, as heretofore described. Having opened the door, entered, and closed it behind him, he wishes to lock it. This he does by turning the button k' , which turns the cam and forces the catch J down to its engagement. When he wishes to go out, he turns the button again to relieve the catch, and he can thereupon either turn the inside knob or pull on it to withdraw the latch-bolt.

In applying the lock it will be seen that, instead of the usual mortise, there need be made only a small hole inwardly from the edge of the door to receive the sheath B.

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

1. In a door-lock, the combination of the sheath B to be let into the edge of the door, said sheath having a recess and slotted guide on its inner end, the reciprocating latch-bolt mounted in said sheath and having a contact-lug playing in the recess and guide thereof, and the axially-turnable and longitudinally-movable knob spindle crossing the recess of the sheath and having an inclined plane engaging the lug of the latch-bolt, whereby the bolt is retracted on either movement of the spindle, substantially as herein described.

2. In a door-lock, the combination of the movable knob-spindle for operating the latch-bolt, said spindle having a notch or groove, the spring-controlled catch adapted to engage the notch or groove to lock the spindle, the turnable cam for operating the catch, said cam having a groove to receive the key and the turnable piece with its spiral or twisted keyway or passage, substantially as herein described.

3. In a door-lock, the combination of the movable knob-spindle for operating the latch-bolt, said spindle having a notch or groove,

the spring-controlled catch adapted to engage the notch or groove to lock the spindle, the turnable cam for operating the catch, said cam having a groove to receive the key, the turnable piece with its spiral or twisted keyway or passage, and the turn-button on the other side to operate said cam, substantially as herein described.

4. A door-lock comprising a reciprocating latch-bolt provided with a contact-lug, an axially-turnable and longitudinally-movable knob-spindle having an inclined plane engaging the contact-lug of the latch-bolt to retract the latter upon either movement of the spindle, and a locking device engaging the knob-spindle to hold it from moving, consisting of the spring-controlled catch engaging a notch or groove in the lock-spindle and a turnable cam to operate said catch, substantially as herein described.

5. A door-lock comprising a reciprocating latch-bolt provided with a contact-lug, an axially-turnable and longitudinally-movable knob-spindle having an inclined plane engaging the contact-lug of the latch-bolt to retract the latter upon either movement of the spindle, and a locking device engaging the knob-spindle to hold it from moving, consisting of the spring-controlled catch engaging a notch or groove in the lock-spindle, a turnable cam to operate said catch, said cam having a groove to receive a key, and the turnable piece with its spiral or twisted keyway or passage, substantially as herein described.

6. A door-lock comprising a reciprocating latch-bolt provided with a contact-lug, an axially-turnable and longitudinally-movable knob-spindle having an inclined plane engaging the contact-lug of the latch-bolt to retract the latter upon either movement of the spindle, and a locking device engaging the knob-spindle to hold it from moving, consisting of the spring-controlled catch engaging a notch or groove in the lock-spindle, a turnable cam to operate said catch, said cam having a groove to receive a key, the turnable piece with its spiral or twisted keyway or passage, and the turn-button on the opposite side to operate said cam, substantially as herein described.

7. In a door-lock, the reciprocating latch-bolt having the beveled outer end, in combination with the separate shank or stem, on which said bolt is fitted and is adapted to turn, whereby it may be reversed, and the set-screw for holding it in position, substantially as herein described.

In witness whereof I have hereunto set my hand.

JOHN E. ARMSTRONG.

Witnesses:

I. L. BLAISDELL,
N. S. FROST.