

No. 637,497.

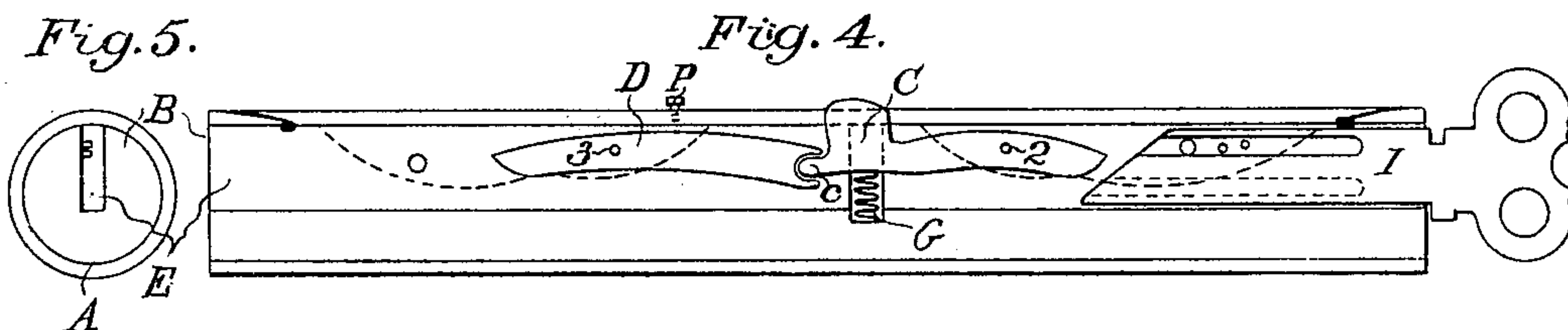
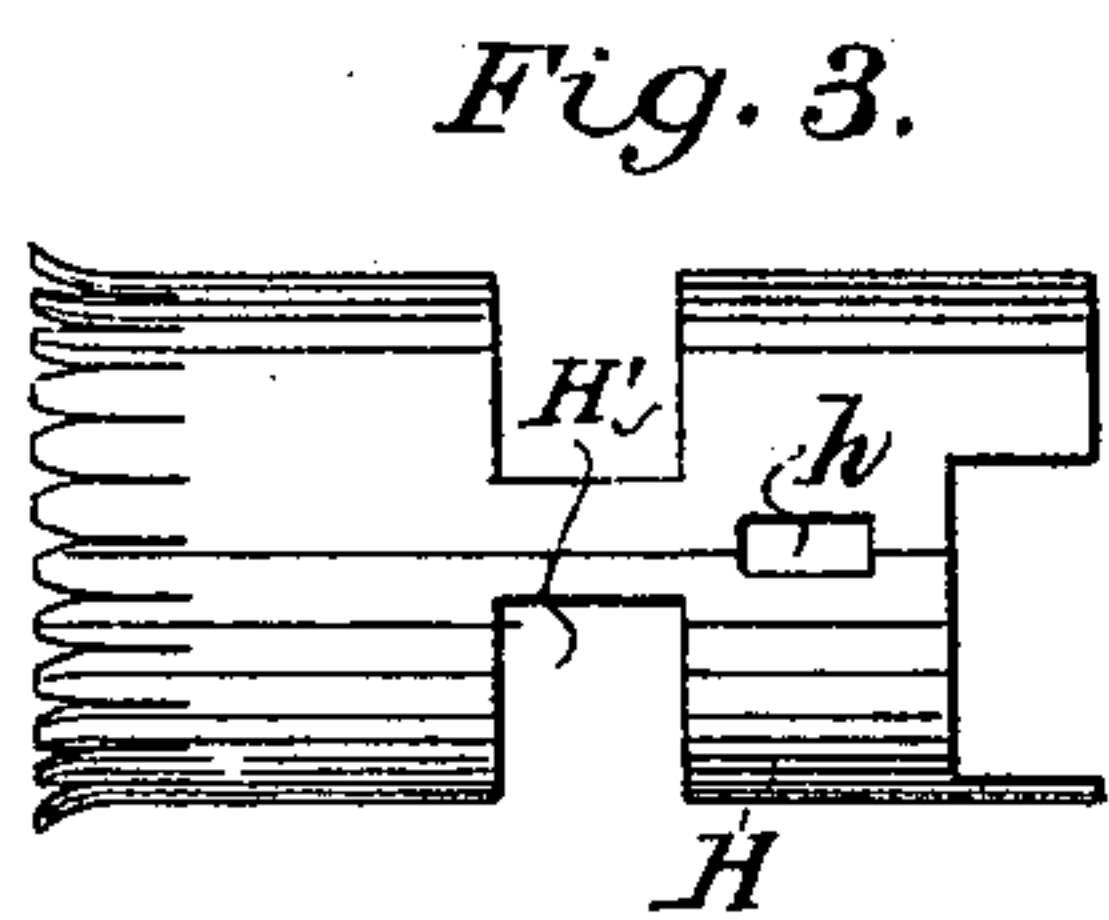
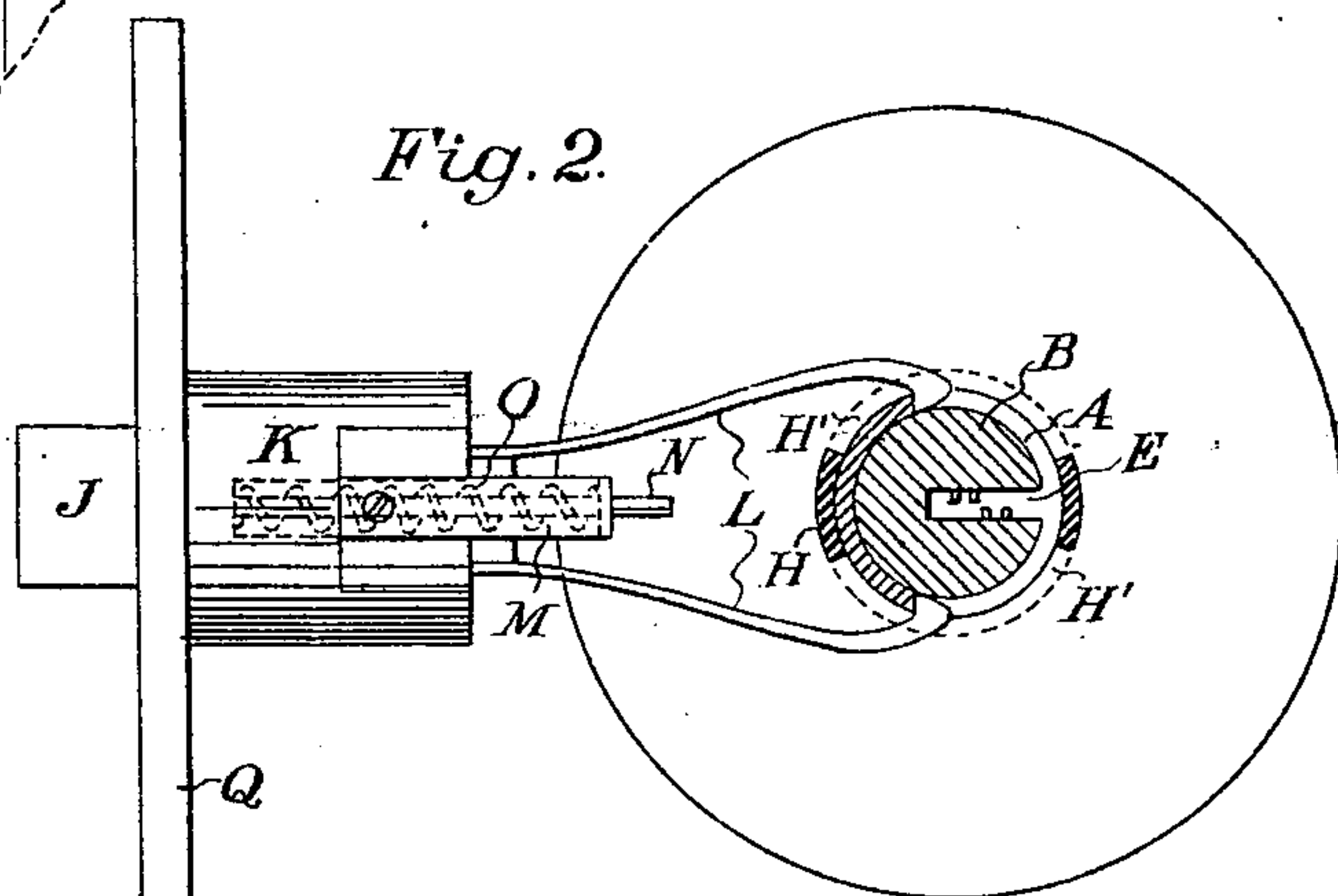
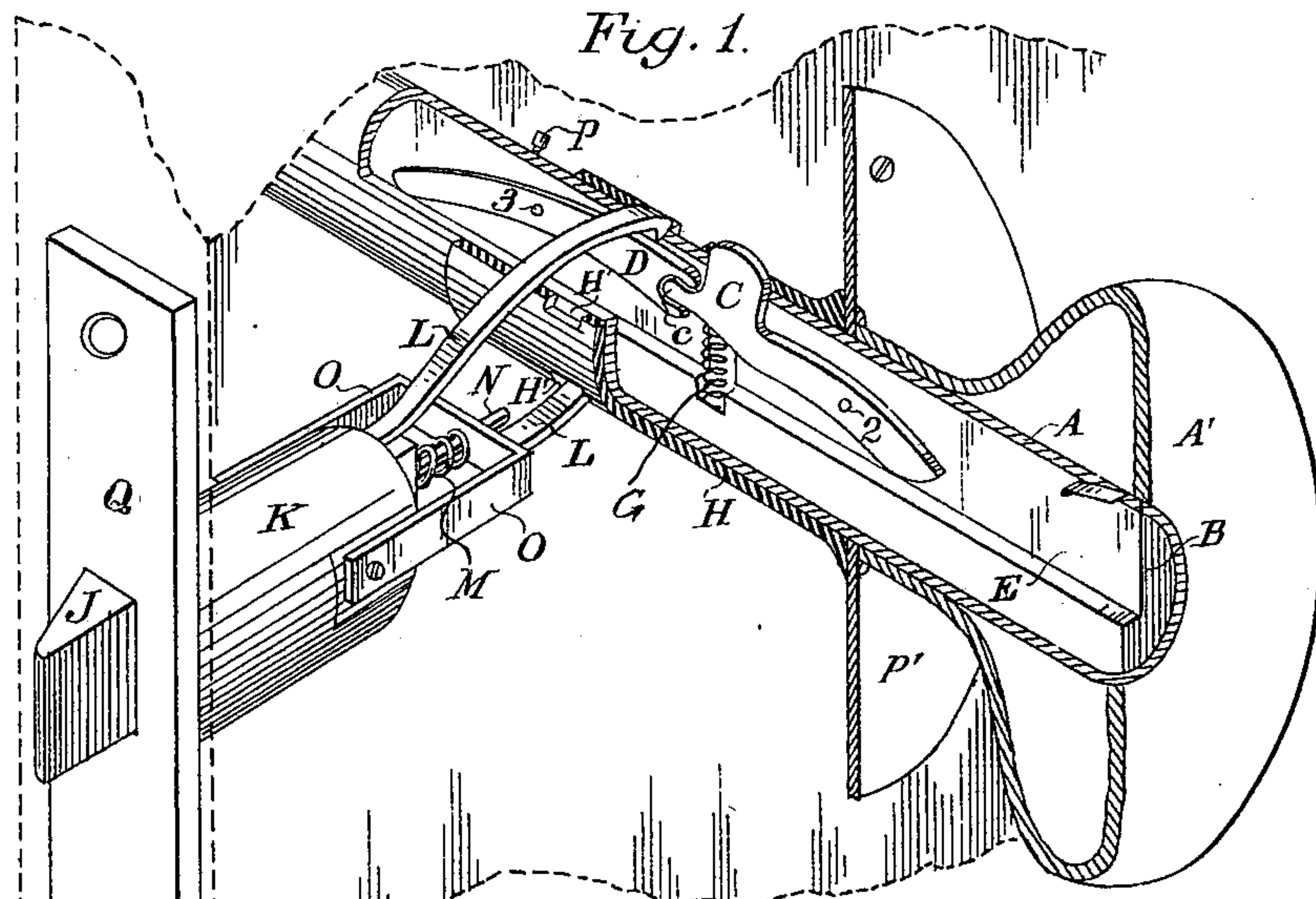
Patented Nov. 21, 1899.

O. H. BURDEN & S. LOVATT.

LOCK.

(Application filed Apr. 6, 1899.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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LOCK.

SPECIFICATION forming part of Letters Patent No. 637,497, dated November 21, 1899.

Application filed April 6, 1899. Serial No. 711,973. (No model.)

To all whom it may concern:

Be it known that we, OSCAR HERBERT BURDEN and SAMUEL LOVATT, citizens of Canada, residing at Pilot Bay, county of Kootenay, British Columbia, Canada, have invented an Improvement in Locks; and we hereby declare the following to be a full, clear, and exact description of the same.

Our invention relates to improvements in locks which are applicable to doors, trunks, drawers, and any parts which it is desired to lock and make secure.

It consists, essentially, of fixed and rotary concentric cylinders, to one of the latter of which the door-knobs are secured, and a tumbler or tumblers by which the rotary cylinders are normally engaged with and locked to the stationary cylinder to prevent movement except by the application of a proper key. Connected with the rotary cylinders is a reciprocating spring-pressed latch movable in a cylindrical casing at right angles with the operating-shafts.

The invention also comprises details of construction, which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a perspective view of our device. Fig. 2 is a geometrical view corresponding to Fig. 1. Fig. 3 is a longitudinal elevation of the cylinder H. Figs. 4 and 5 are views of the cylinder B.

H is a cylinder corrugated, as shown, and fixed transversely in the door or like part to which the lock is applied. Within this cylinder is turnably fitted a cylinder A, to the opposite ends of which are fixed the knobs A'. Within this cylinder and turnable with it is a solid cylinder B, which is slotted or channeled, as shown at E. Within this channel is fitted the tumbler C, which is pivoted, as shown at 2, and has a spring G seated in a hole or mortise in the cylinder B below it. The action of this spring is to normally force the tumbler C upward, and a slot or opening is made in the cylinder A and a coincident slot *h* in the fixed cylinder H, so that when they are in line the spring acts to force the tumbler through these openings and cause it to engage with the fixed cylinder H, which prevents the knob from being turned.

The tumbler C has a projection or spur *c*, and this engages with a corresponding concavity formed in the end of a pivoted bar or tumbler D, which is fulcrumed, as shown at 3.

The outer ends of the tumblers C and D are curved upwardly, as shown, and when the key I is introduced into the slot or channel from the end of the shaft B its point engages with either one or the other of these ends, lifting them and depressing the locking part of the tumbler C by compressing the spring G. When the tumbler C has thus been retracted into the cylinder B, the cylinder A is freely turnable by means of either of the knobs A'.

The interior of the slot in the cylinder B is formed with studs or projections in any desired relation, and the key I is correspondingly grooved to fit these studs or projections, and as each key and lock will have a different arrangement of these studs and channels it will be seen that only the key that belongs to the particular lock can be used to open it.

K is a cylinder fixed at right angles with the knob-shank A, extending toward the edge of the door or other point through which the lock-bolt J projects, having the usual plate Q, fixed in the edge of the door or like part, through which the bolt is slidable.

The bolt is normally pressed forward by means of a spring M, surrounding a slidable pin N, which extends rearwardly from the bolt and is guided within a yoke O or similar attachment to the cylinder K. The opposite ends of the spring press against the bolt and against the yoke O, so as to normally force the bolt outwardly and cause it to engage with the strike-plate or other catch, which completes the lock.

From the rear end of the bolt J extend the spring-arms L L, and they pass outside of the cylindrical knob-shank A and have inturned points, as shown, which engage with grooves or notches in the cylinder A.

The stationary cylinder H is slotted, as shown at H', and the springs L are in line with these slots, so that they are free to engage with the turnable shank A. A stop pin, screw, or lug P is fixed upon the cylinder A and movable in the groove or channel in the cylinder H. When this stop pin or lug strikes

the end of the channel in either direction, it limits the distance to which the knob-shank can be turned.

The operation of the lock is as follows: In its normal position the tumbler C is forced up by the spring G and engages with the coincident slot *h* in the stationary tube or cylinder H, and this prevents the knobs from being turned. In this position the bolt J is shot or engaged with the strike-plate or other holding device and the door or other part remains locked. When the key I is introduced into the slot or channel in the end of the cylinder B, its point, acting against the end of either the tumbler C or D, moves them about their fulcrum-points 2 and 3 and depresses the tumbler C until it is retracted within the cylinder B and is disengaged from the cylinder H. In this condition the knobs are freely turnable and the action of the knob-shank through either of the spring-arms L, according to which way the knob is turned, will retract the bolt J within the cylinder K, compressing the spring M for that purpose, and the door may then be opened. Upon releasing the knob the spring M will return the bolt J to its normal position, and whenever the key is withdrawn from the cylinder B the tumbler C will be released and the spring will act to force it upwardly and again lock the parts in position.

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

1. In a lock, the combination with a spring-pressed slidable bolt, of a hollow knob-shank extending through the door and connections between the bolt and the knob-shank, whereby the turning of the latter will retract the bolt, a cylinder interior to and extending parallel with the knob-shank and having a longitudinally-extending groove or channel and spring-pressed tumblers fitted therein, and a second stationary cylinder or guide exterior to and extending parallel with the knob-shank and having slots coinciding with slots in the said shank, and through which the tumblers are forced by the spring to lock the knob-shank to the exterior cylinder.

2. In a lock, the combination with a spring-pressed bolt and a cylinder or guide in which it is slidably mounted, concentric inner, outer and intermediate cylinders disposed at right angles to the bolt, said outer cylinder being stationary and said inner and intermediate cylinders being turnable together and the inner cylinder having a longitudinally-extending groove or channel, spring-pressed tumblers in said groove or channel and having lugs adapted to pass through slots in the

turnable intermediate and fixed outer cylinders whereby the said cylinders are locked together, and connections from the inner end of the bolt to the intermediate cylinder whereby the bolt is retracted by the axial movement of the intermediate cylinder.

3. In a lock, a spring-pressed slidable bolt, a fixed cylinder or casing within which it reciprocates, a hollow cylindrical knob-shank, transverse to the line of movement of the bolt, a fixed exterior cylinder within which it is turnable, slots made in the knob-shank and fixed cylinder which are adapted to coincide when the bolt is shot to lock the door, a cylinder interior to and turnable with the knob-shank having a slot extending therethrough, tumblers fulcrumed in said slot and normally pressed upwardly by a spring, a lug or projection from the tumbler adapted to enter the slots in the knob-shank and fixed exterior cylinder to prevent the turning of the knob-shank, and connections between the bolt and the knob-shank whereby the bolt is retracted by the turning of the knob.

4. A lock consisting of a spring-pressed slidable bolt, a fixed casing within which it is movable, a hollow cylindrical knob-shank, turnable within a fixed exterior cylinder or casing transverse to the line of travel of the bolt, circumferential slots made in the fixed outer cylinder exposing the cylindrical knob-shank, spring-arms extending from the bolt upon each side and engaging the knob-shank above and below through the slots in the fixed cylinder whereby the turning of the knob in either direction will retract the bolt, a cylinder interior to the knob-shank having a slot made longitudinally from end to end with inwardly-projecting pins or lugs, a key having corresponding grooves or channels adapted to be introduced into said slots, a tumbler consisting of jointed sections pivoted within the slot in the inner cylinder having a lug projecting outwardly, and a spring by which it is normally forced in that direction, slots made through the knob-shank and exterior fixed cylinder with which the tumbler engages when they are coincident, said tumbler having the outer ends so formed as to be engaged by the key when introduced whereby the tumbler is moved about its pivots and retracted so as to allow the knobs to be turned and the bolt to be withdrawn.

In witness whereof we have hereunto set our hands.

OSCAR HERBERT BURDEN.
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Witnesses:

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A. F. MCKINNON.