

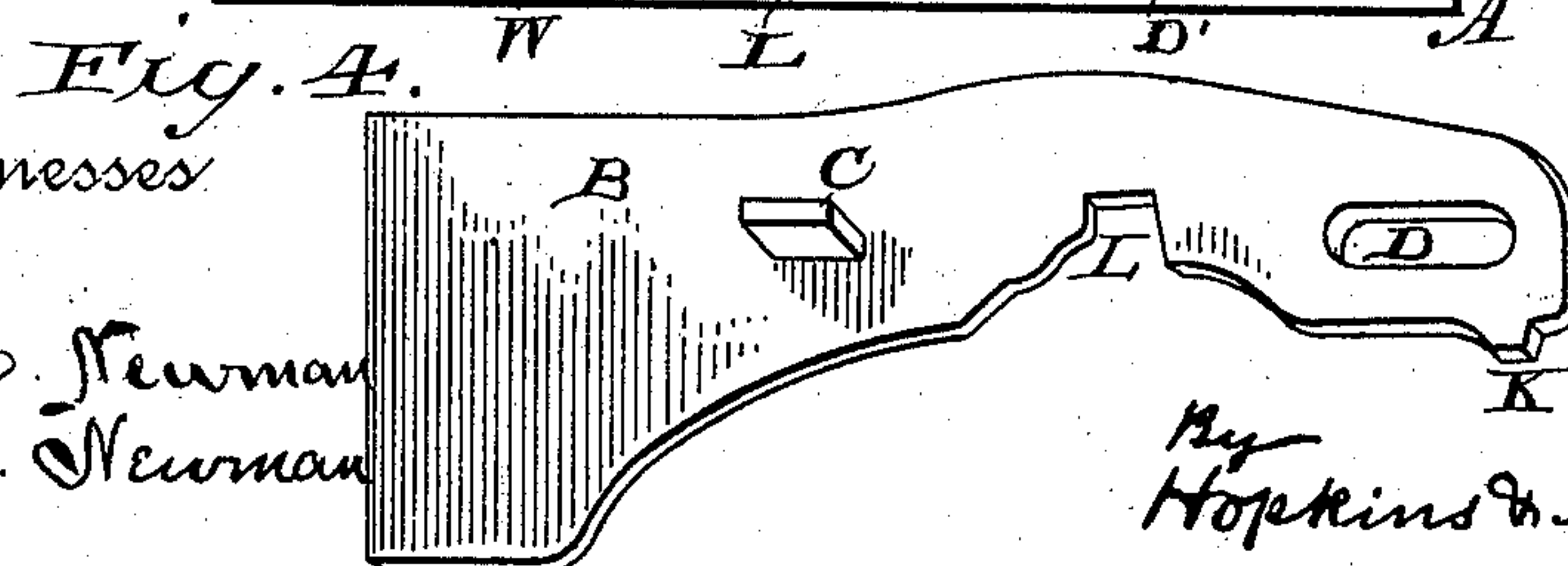
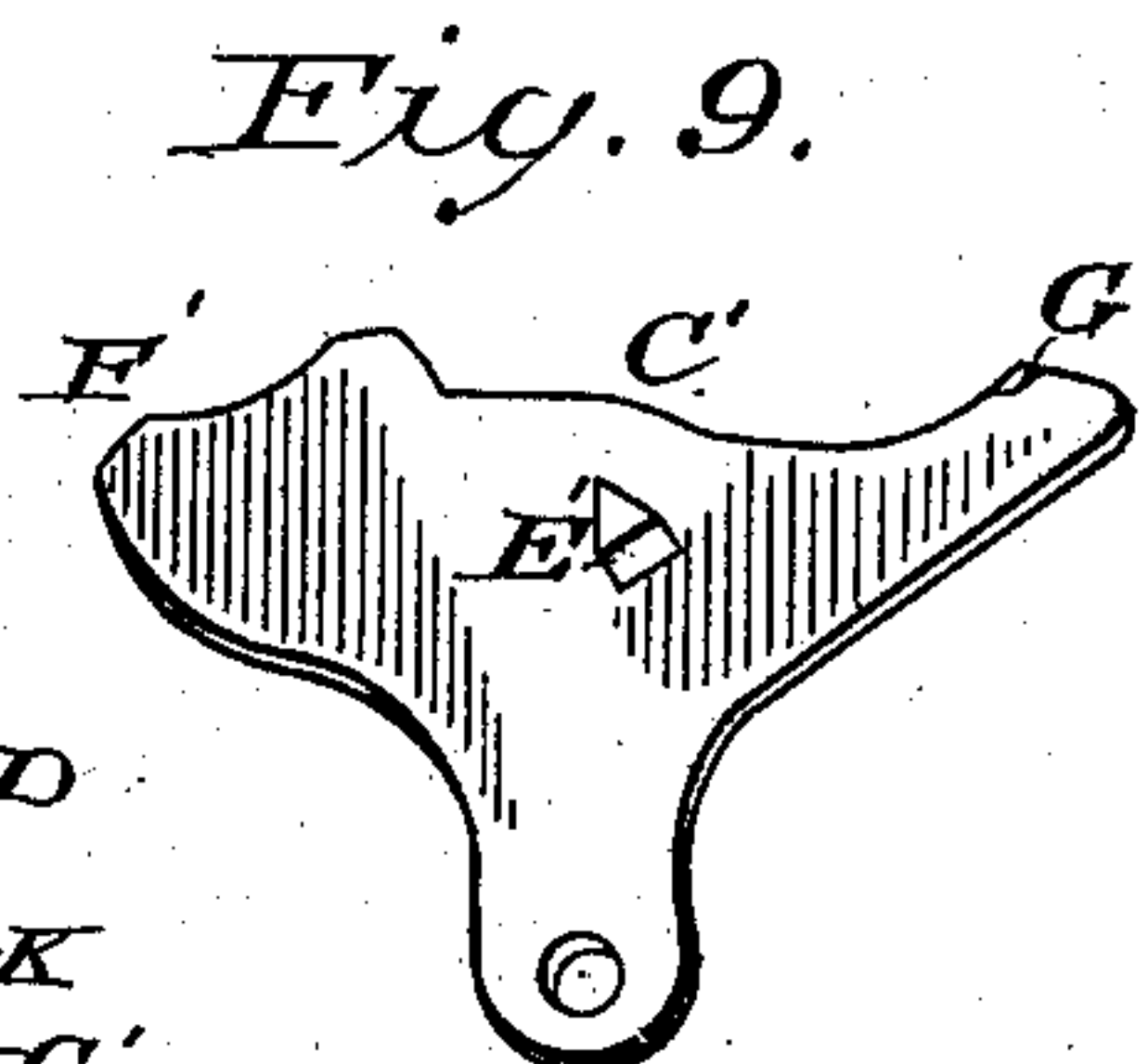
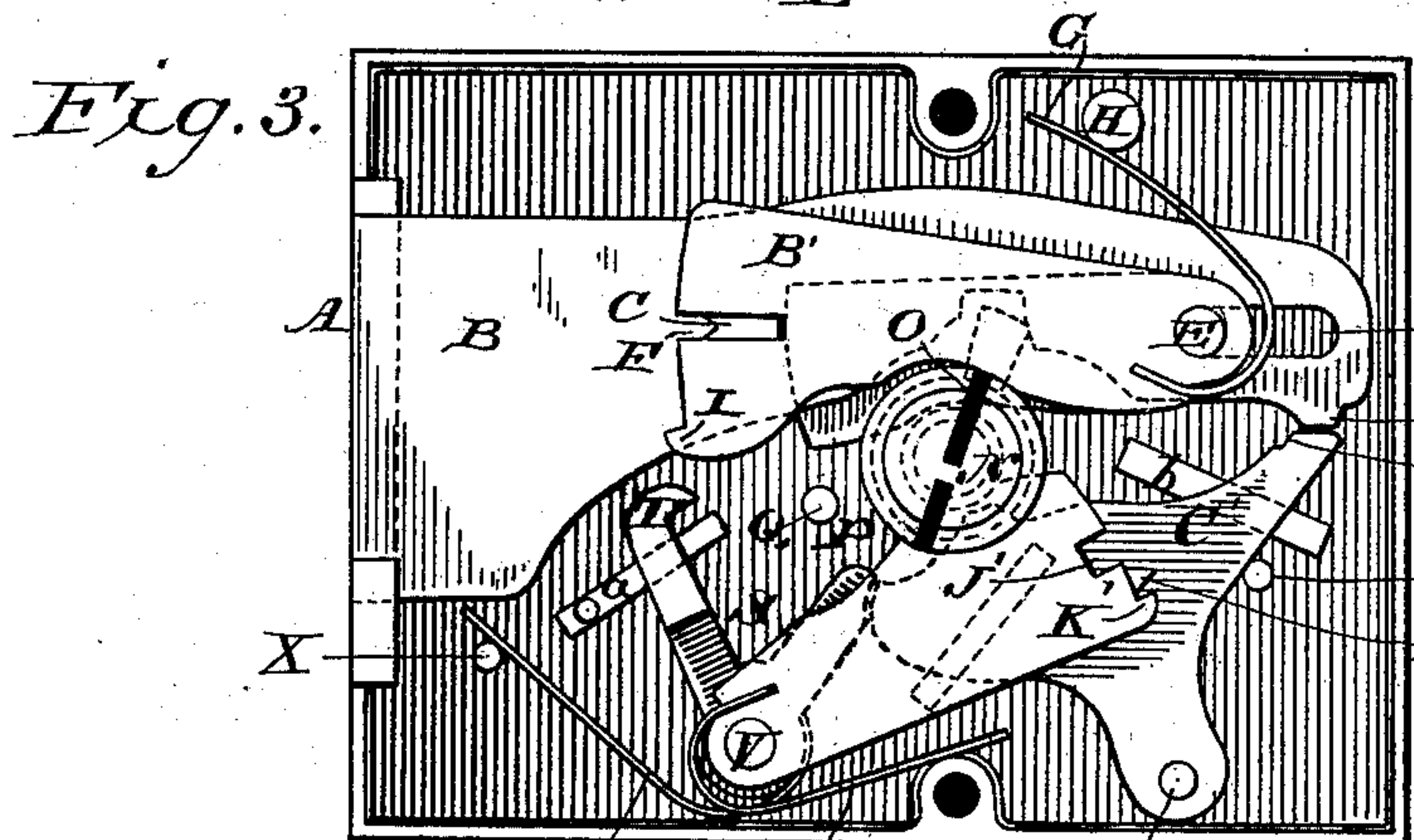
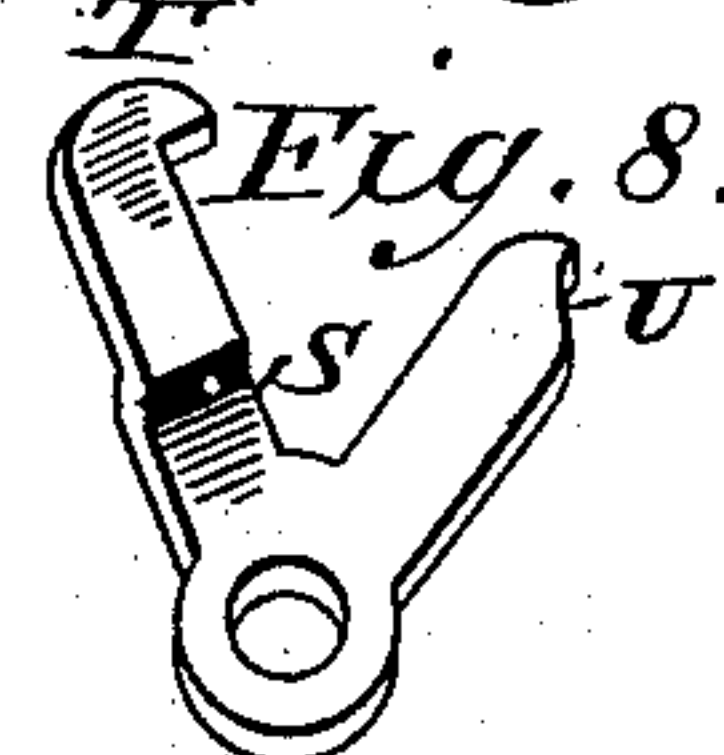
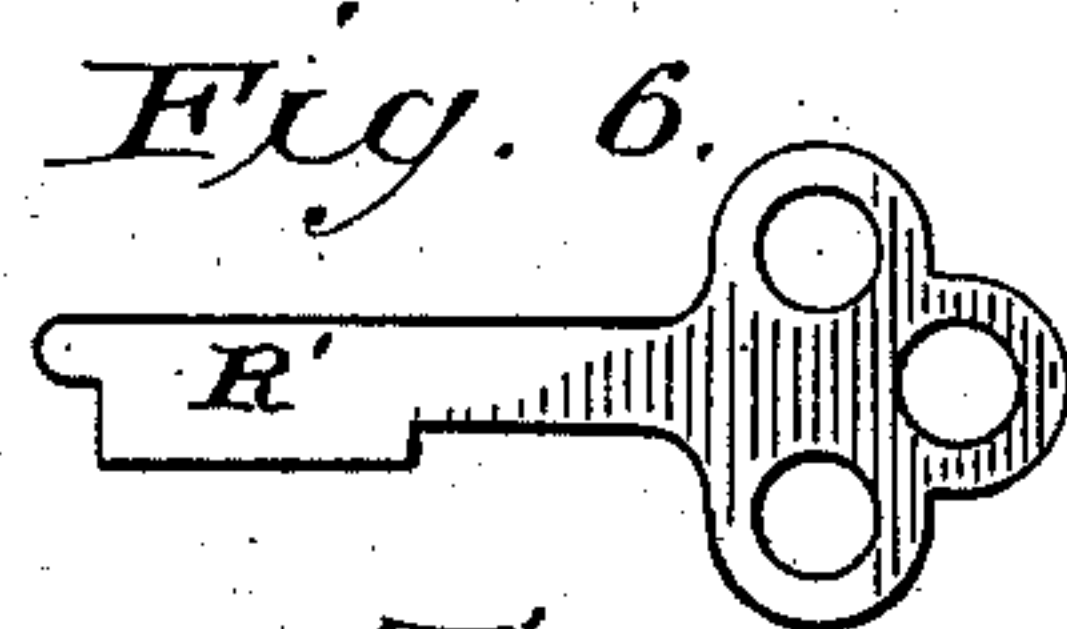
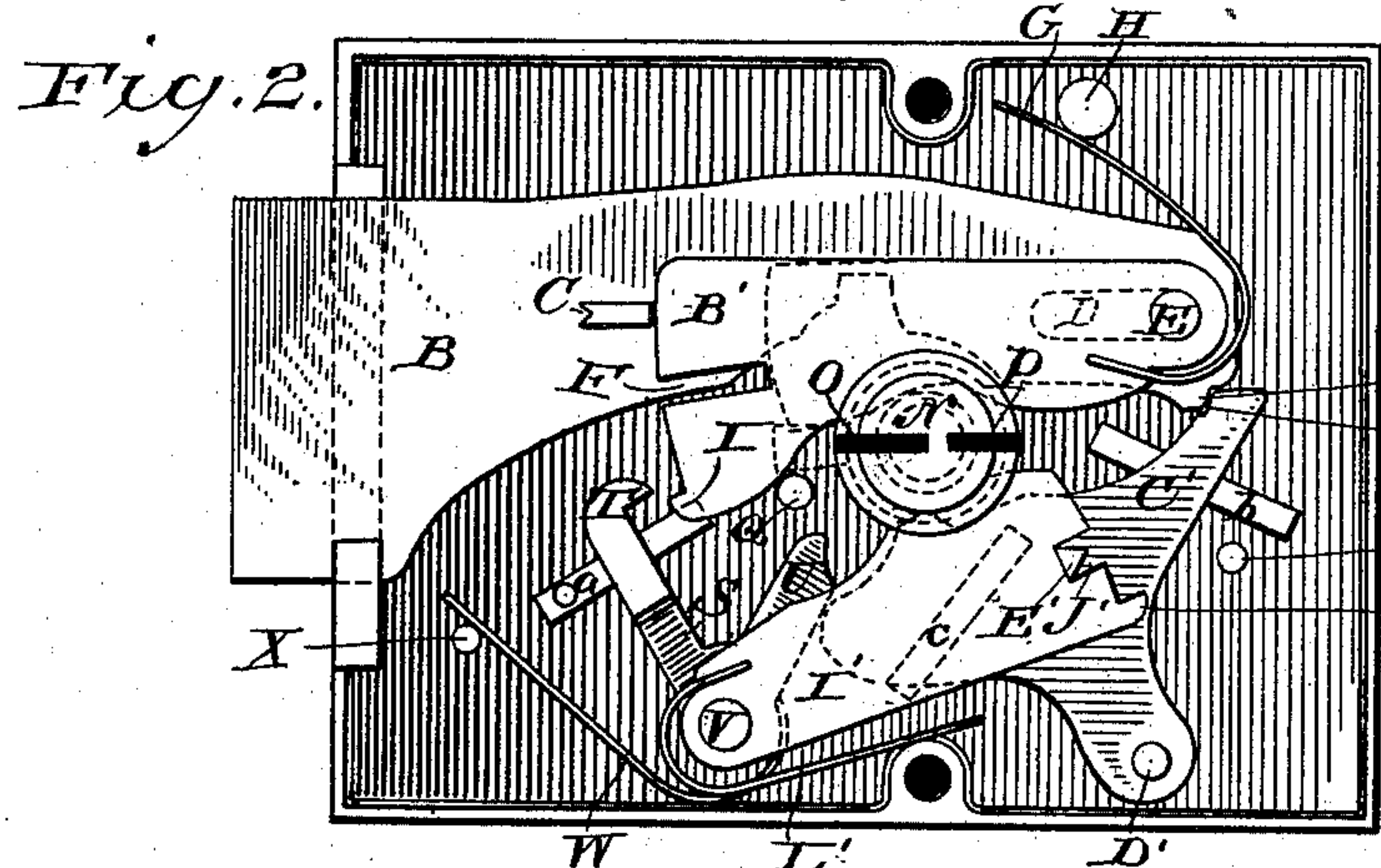
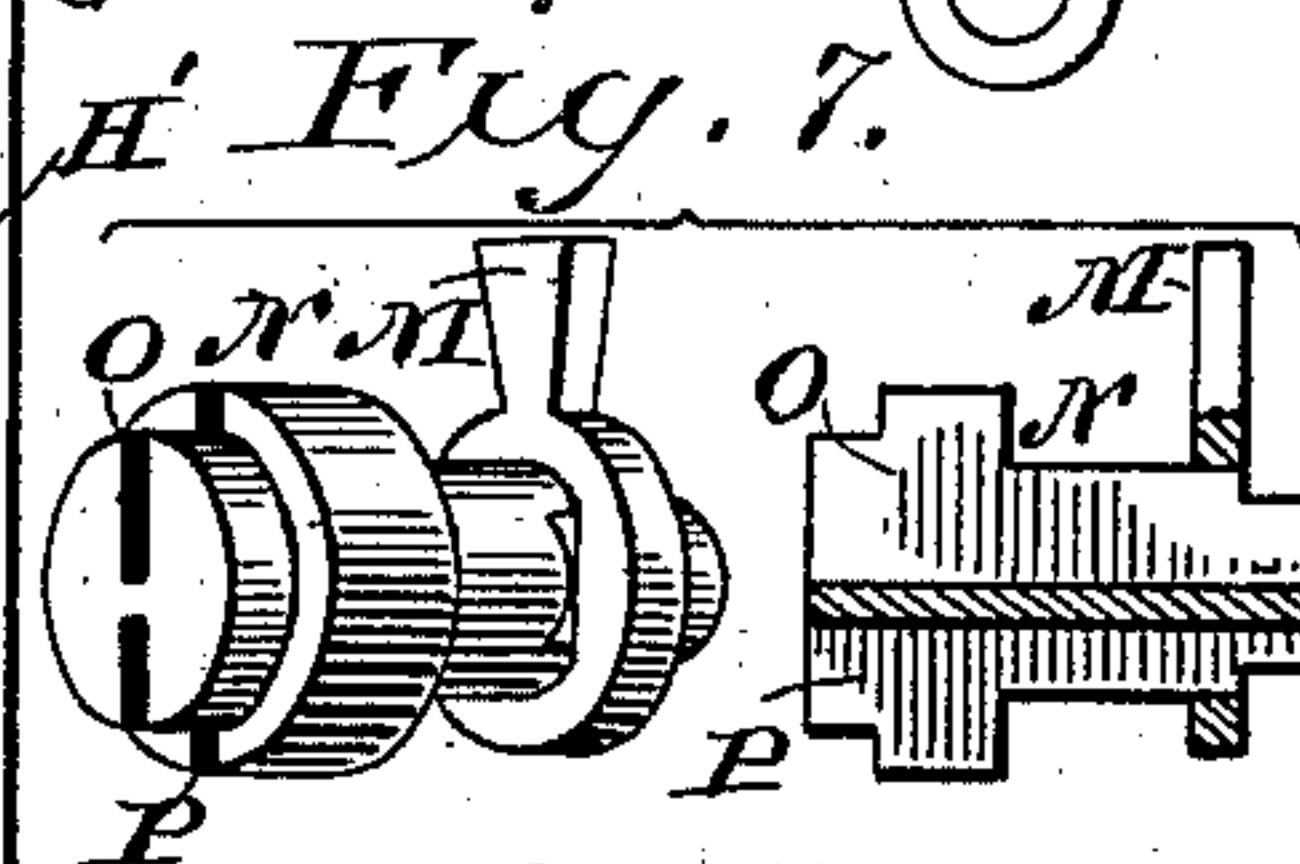
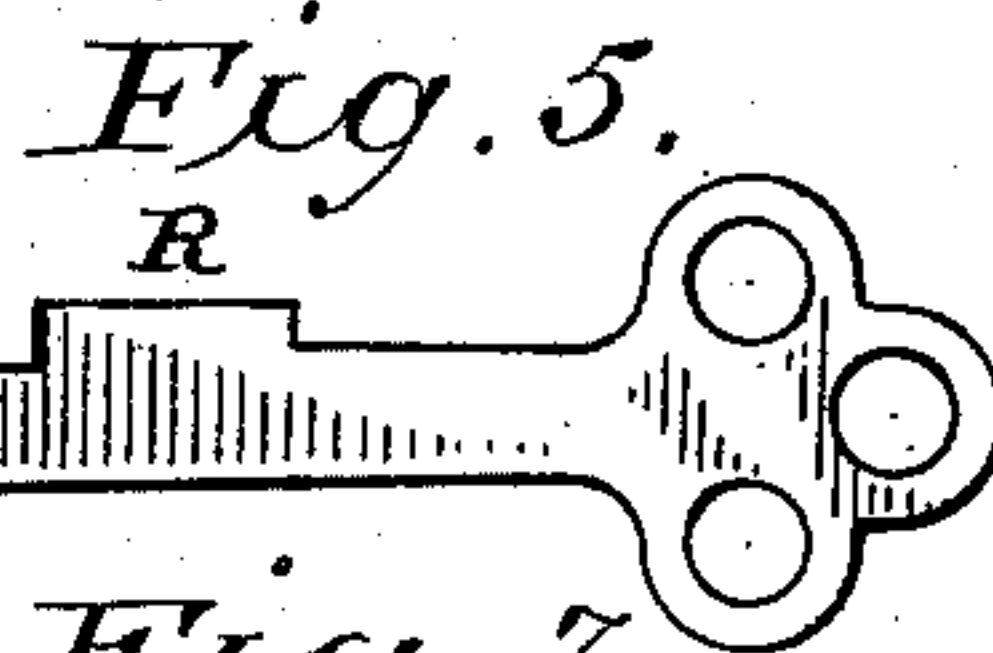
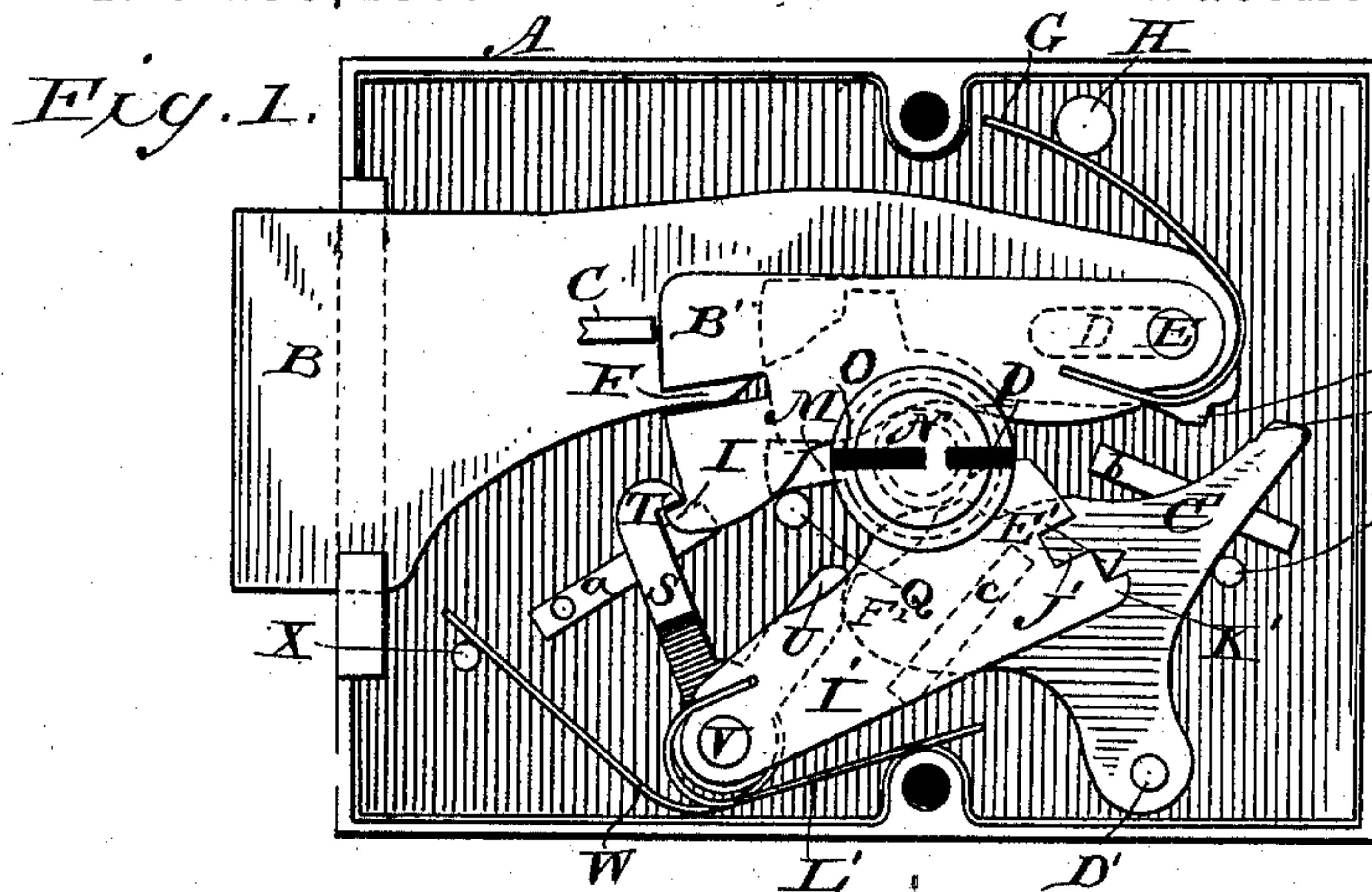
(Model.)

2 Sheets—Sheet 1.

W. H. TAYLOR.  
LOCK.

No. 406,487.

Patented July 9, 1889.



Witnesses

H. C. Newman  
E. S. Newman

Inventor

Harren H. Taylor

By H  
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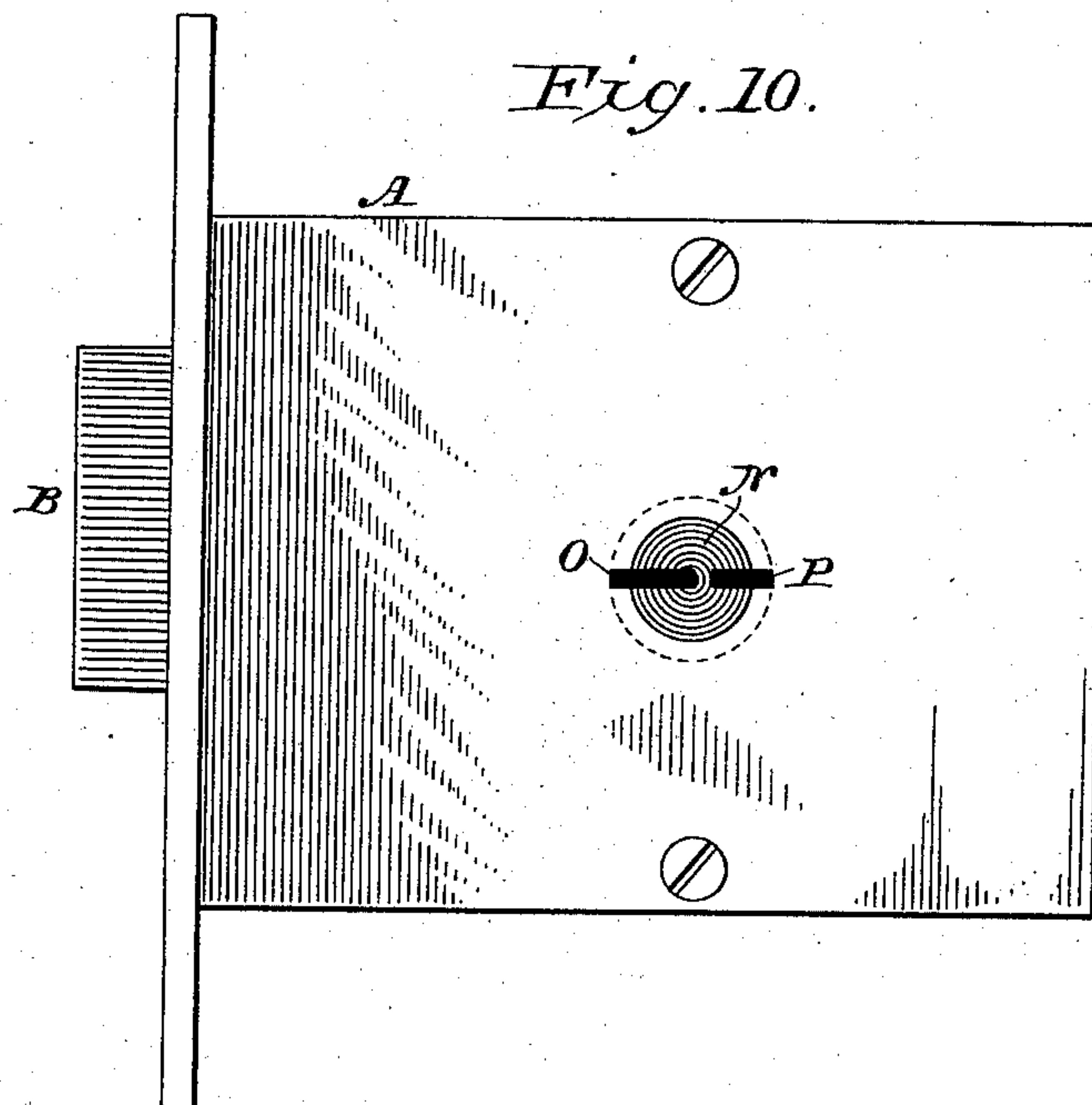
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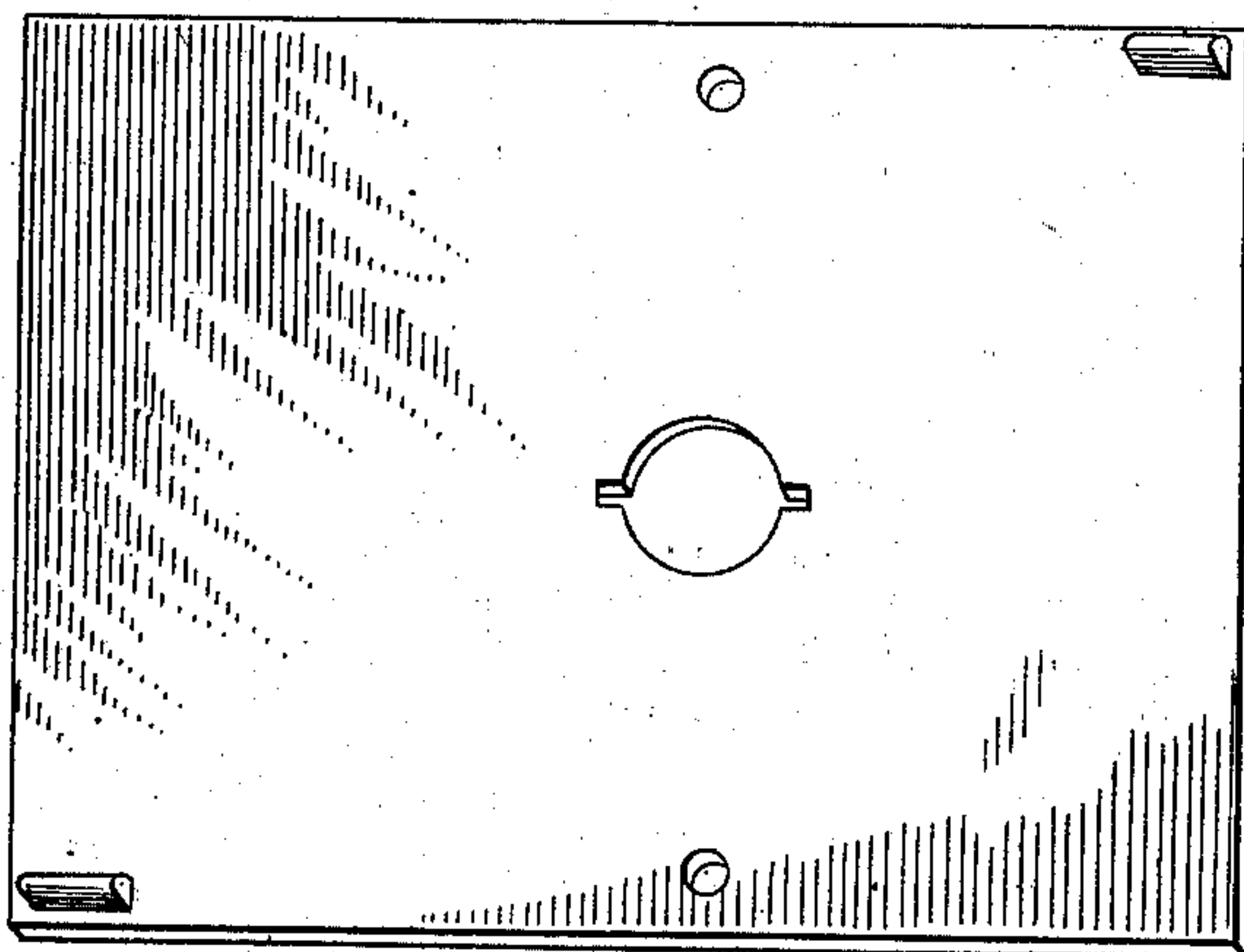
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*Fig. 11.*



Witnesses

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# UNITED STATES PATENT OFFICE.

WARREN H. TAYLOR, OF STAMFORD, CONNECTICUT, ASSIGNOR TO THE YALE  
& TOWNE MANUFACTURING COMPANY, OF SAME PLACE.

## LOCK.

SPECIFICATION forming part of Letters Patent No. 406,487, dated July 9, 1889.

Application filed February 18, 1889. Serial No. 300,306. (Model.)

*To all whom it may concern:*

Be it known that I, WARREN H. TAYLOR, of Stamford, in the county of Fairfield and State of Connecticut, have invented certain new  
5 and useful Improvements in Locks, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to locks which require the use of two keys to unlock them, commonly  
10 known as "guarded locks." Such locks are used in safety-deposit vaults or elsewhere where it is desirable that the custodian of the place shall have control of the boxes therein, so as to prevent improper tampering with the  
15 locks, but where he himself shall not be able to gain admission to the contents of the box.

Locks provided with two keys have heretofore been used for the purpose described. One of these keys, which fits all of the locks  
20 in any one place, and which is called the "guard-key," is intrusted to the custodian of the boxes. This must first be inserted into the lock and operated before the other key will operate to retract the bolt; but after the  
25 guard-key has been inserted and operated to release the guard mechanism the unlocking and locking of the lock by the other key is an easy matter.

Heretofore guard-locks of this description  
30 have been constructed on the principle of the bolt being dogged by the guard-key mechanism, as well as by the tumbler mechanism operated by the bolt-operating key. This method of construction is objectionable, because the  
35 dogging-tumblers are placed under or over the locking-tumblers, which either make the lock too thick or else diminish its security by rendering it impossible, in the requisite thickness, to get in a sufficient number of tumblers. In my invention the guard-key mechanism is made altogether distinct from the  
40 bolt-actuating and dogging mechanism. It is placed in a different position in the case, and is operated by a key which does not operate  
45 upon the bolt-actuating mechanism in any degree. I am thus able by distributing the mechanism through the lock to make it of a required thickness and yet use any desired

number of tumblers, so that picking can be rendered very difficult.

In the accompanying drawings, Figure 1 is a plan view of my improved lock with the cap-plate removed, showing the bolt in the locked position, and the guard mechanism also in the locked position. Fig. 2 is a similar view showing the guard mechanism in the unlocked position. Fig. 3 is a similar view showing the bolt in the unlocked position and the guard mechanism in the position it occupies when the main key has performed the function of retracting the bolt. Fig. 4 is a view of the bolt detached. Fig. 5 is a view of the main key. Fig. 6 is a view of the guard-key. Fig. 7 is a group showing a perspective view of the key-hub detached and  
65 a vertical central section of the same through the plane of the key-slots. Fig. 8 is a perspective view of the bell-crank detached. Fig. 9 is a perspective view of the pivoted fence-lever detached. Fig. 10 is a plan view  
70 of the lock with the cap-plate in place. Fig. 11 is a perspective view of the cap-plate detached.

In the drawings I have illustrated a lock provided with only one complete tumbler for  
75 the main bolt (another incomplete tumbler being shown) and one tumbler for the guard mechanism; but in practice several tumblers would usually be employed, being duplicates of each other except with respect to key-bearings and gatings. I have also shown mere  
80 skeleton keys; but in practice the keys would of course be bitted unevenly, as usual. The principle of my invention is however thoroughly illustrated in the simple example  
85 shown, and in practice the usual variations of key-bittings and of tumbler forms, which are never uniform, but are purposely made different in each different lock, will be adopted.

Referring to the letters upon the drawings, A indicates a lock-case of usual construction; B, a bolt provided with a fence C and a guide-slot D.

E is a guide-pin secured to the case A and  
95 passing through the slot D. Upon the pin E,



above the bolt B, is pivoted a tumbler B', of well-known construction. This tumbler is provided with a gating F and spring G, which latter bears upon the stud H, secured to the case.

I indicates a projection upon the gated end of the tumbler.

K indicates a projection upon the rear end of the bolt B, and L a recess within the bolt, for the operation of the wing M of the key-hub N, which is provided with the two slits O and P to receive each of the two keys, respectively.

Q is a pin projecting from the case, against which the wing M impinges to limit the motion of the key-hub in one direction.

So far I have described the bolt-actuating mechanism, which without the guard mechanism could be operated by the main key R in the usual manner.

I will now proceed to describe parts of the guard mechanism and point out its relation to the bolt-actuating mechanism.

S is a bell-crank, provided at one end with the detent T and at the other with a bearing U, and pivoted upon the pin V, projecting from the case. This bell-crank is provided with a spring W, which has its bearing upon a pin X, projecting from the case. This spring tends to keep the detent at all times in contact with the gated end of the tumbler B'.

a indicates a bearing for the bell-crank, which, however, is not indispensable.

C' indicates a fence-lever pivoted upon the pin D', projecting from the case and carrying the fence E'. Upon the end F' it has a bearing which operates against the bearing U of the bell-crank S.

G' is a bearing, against which the projection K impinges when the bolt is being retracted.

H' is a pin secured to the case, which limits the rotary motion of the fence-lever C'. b c are bearings for the pivoted fence-lever.

I' is a flat tumbler provided at one end with a gating J' and a projection K', and pivoted at the other end to the pin V. This tumbler is provided with a spring L', which bears against the case and tends to force the tumbler toward the key-hub of the lock.

In order to explain the operation of my invention, I will assume that the bolt is in the locked position, as shown in Fig. 1, from which it will appear that the tumbler B' is caught by the detent T of the bell-crank and firmly held, so that the bolt cannot be retracted by the operation of the key R until the tumbler B' has been released. If, now, the guard-key R' be inserted in the key-slot P and the hub rotated to the right, the bit of the key will come in contact with the tumbler I' and will push it aside until the gating J' comes opposite the fence E'. Continuing to rotate the key the said fence enters the said gating and the fence-lever C' begins to press upon the bearing U of the bell-crank S and finally moves the detent T out of engagement with

the tumbler B', as shown in Fig. 2, when the further rotation of the key-hub is prevented by the wing M coming in contact with the lock-bolt. The key may then be reversely rotated and withdrawn and the key R may be inserted in the key-slot O. Upon rotating the key R to the right, there being no further opposition to the displacement of the tumbler B', it assumes the position in which the fence C may enter its gating and the bolt be slipped back. As soon as the bolt begins to move backward the projection K upon it begins to actuate the fence-lever C' and to withdraw the fence E' out of the gating J'. At the same time the bell-crank S assumes the position which it held before it was pushed aside by the fence-lever C', and when the fence E' has passed clear of the gating the tumbler I' dogs the fence-lever C', as shown in Fig. 3. The lock will remain in this position until the bolt has been again cast, when the tumbler B' will be caught by the detent T and held until released, as before. The bolt is cast by rotating the key R to the left back to its original position of insertion, when it can be withdrawn, and all the parts will then stand in the position shown in Fig. 1.

From the foregoing it will appear that after the guard mechanism has been released by the guard-key the main key can be used to unlock and lock it, but that it cannot be again used without the reinsertion and operation of the guard-key. By this means I not only secure a perfect guard-lock, but also one which can be constructed so as to combine great security with lightness and compactness of structure, which are necessary in the situations where locks of said description are usually applicable.

I do not confine myself to the exact form and relations of parts described, as they may be in some respects changed without departing from the substance of my invention. For example, any of the well-known forms of wards might be used in place of tumbler mechanism.

I claim as my invention—

1. In a lock, a rotary key-hub provided with two key-holes and two keys, each adapted to act separately through its own hole on its own set of tumblers, substantially as described.

2. In a lock, the combination of a rotary key-hub provided with two key-holes and two keys, and a separate set of tumblers for each key, substantially as described.

3. In a lock, the combination, with the bolt, of one set of tumblers which dogs the bolt, and another set of tumblers and a detent or holder which holds the first set, substantially as described.

4. In a lock, the combination, with the bolt and the main tumbler mechanism, of a movable dog or detent which holds the main tumbler mechanism, a lever for operating said detent, and an independent key for operating the said lever, substantially as described.

5. In a lock, the combination, with the bolt,



of a set of main tumblers, a set of supplementary tumblers, and dogging mechanism between said main and supplementary tumblers, whereby the bolt is held until the supplementary tumblers are set by their proper key and the dogging mechanism is moved by the rotation of said key, substantially as described.

6. The combination, with the key-hub and keys, of the bolt and its tumblers and fence,

a separate guard-tumbler, the pivoted fence-lever and fence thereon, and the bell-crank or detent, substantially as described.

In testimony of all which I have hereunto subscribed my name.

WARREN H. TAYLOR.

Witnesses:

SCHUYLER MERRITT,  
GEO. E. WHITE.