

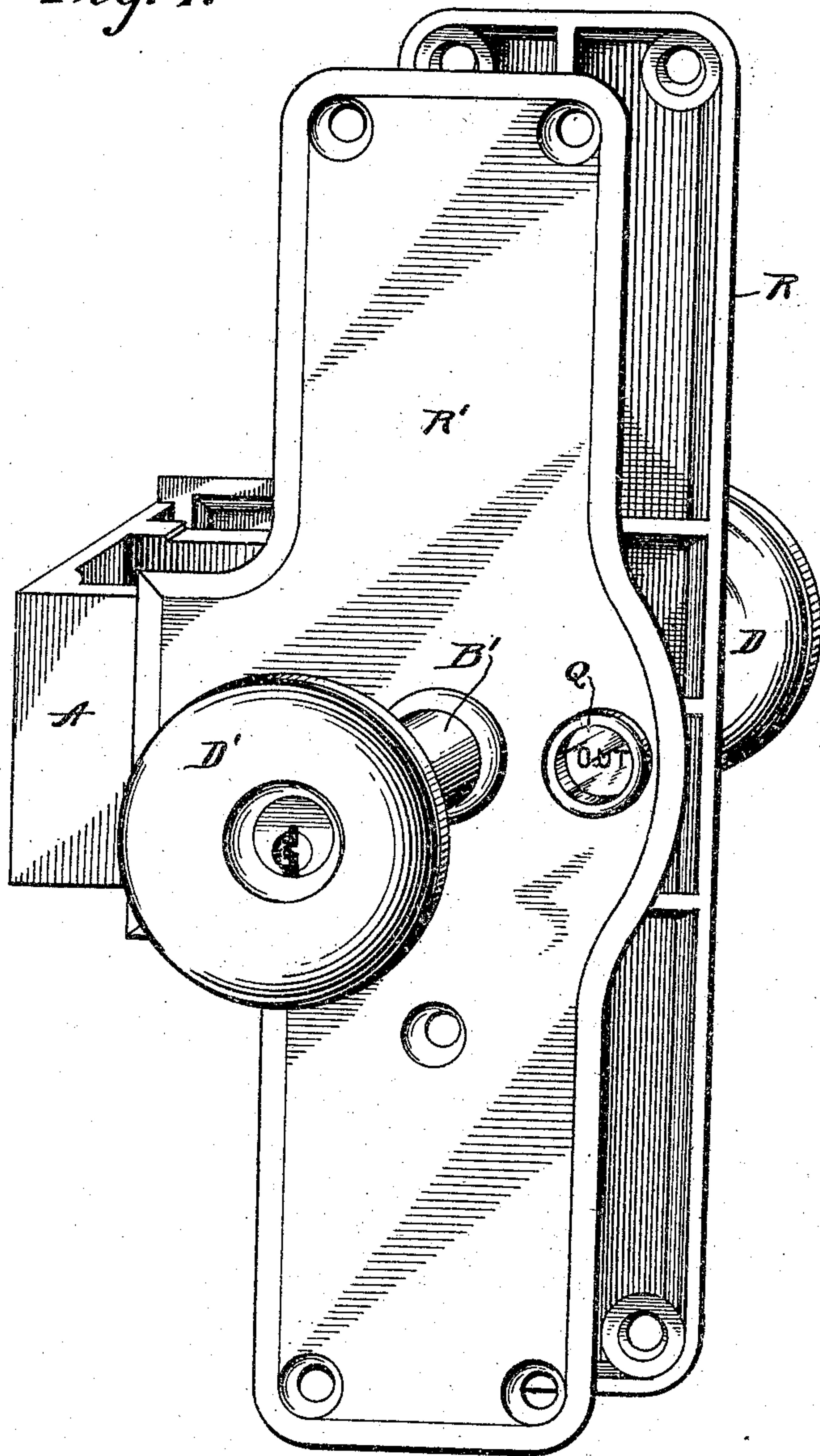
No. 785,228.

PATENTED MAR. 21, 1905.

B. PHELPS.  
LOCK AND LATCH.  
APPLICATION FILED APR. 29, 1904.

3 SHEETS—SHEET 1.

*Fig. 1.*



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3 SHEETS—SHEET 2.

Fig. 2.

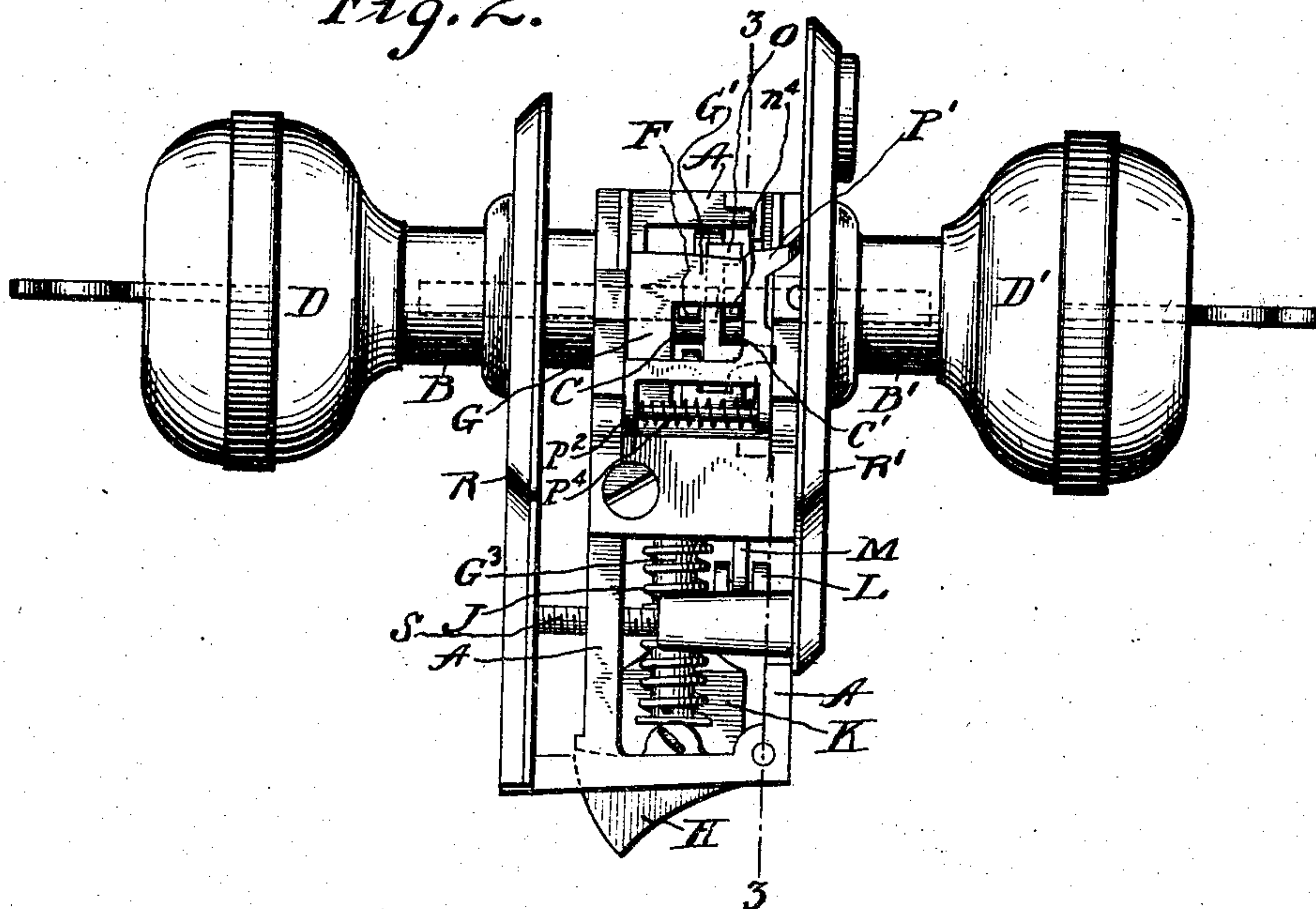
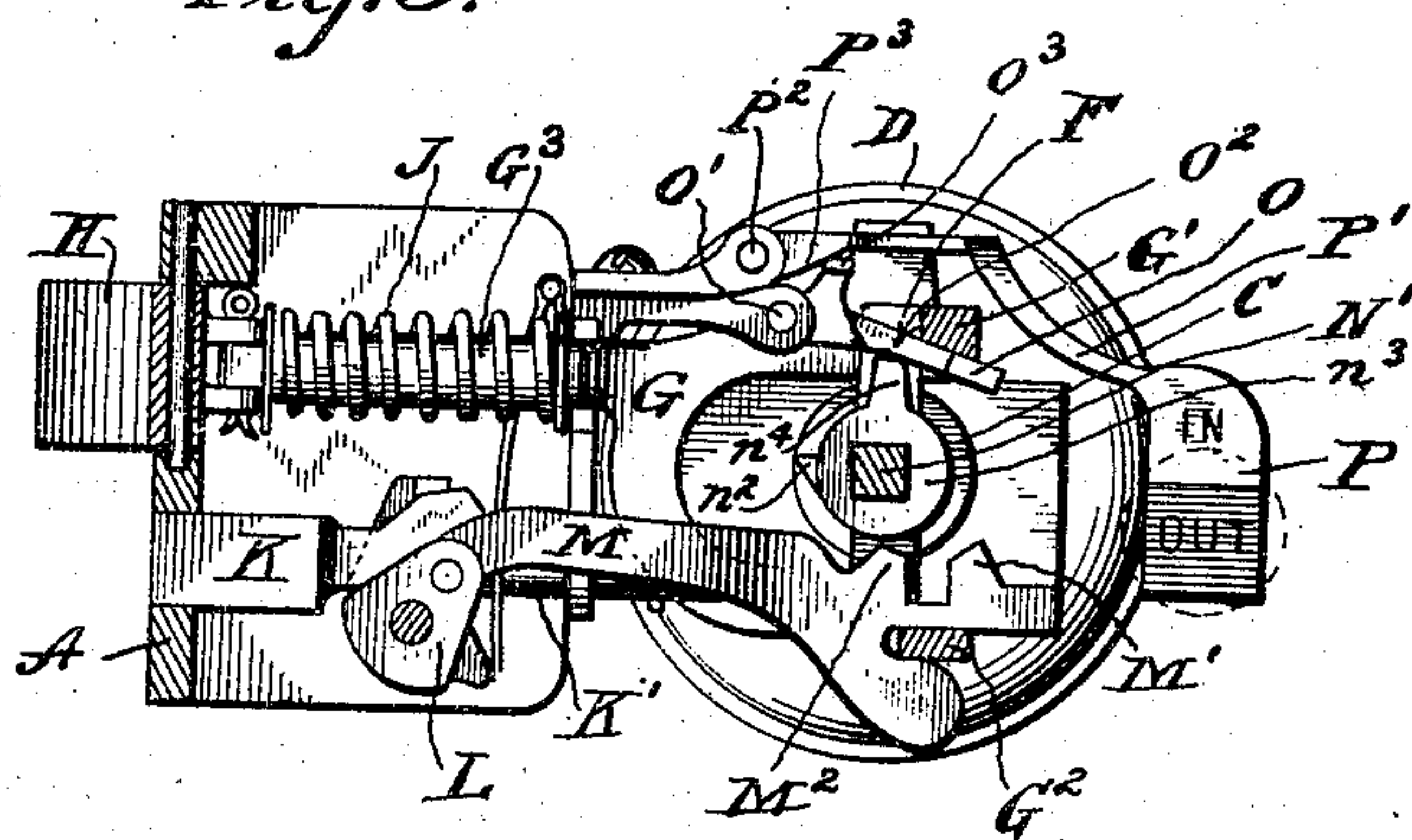


Fig. 3.



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3 SHEETS—SHEET 3.

Fig. 4.

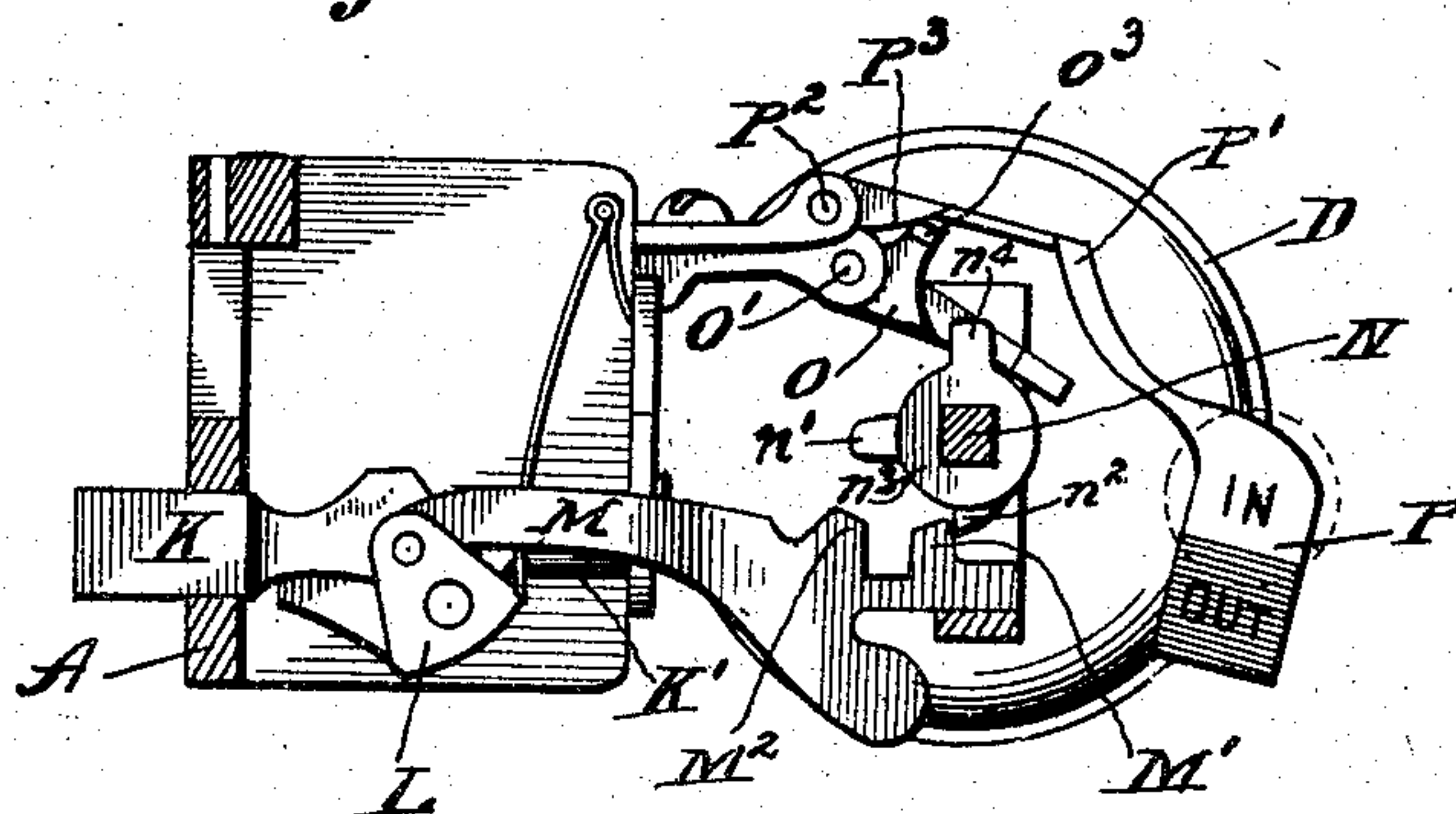


Fig. 5.

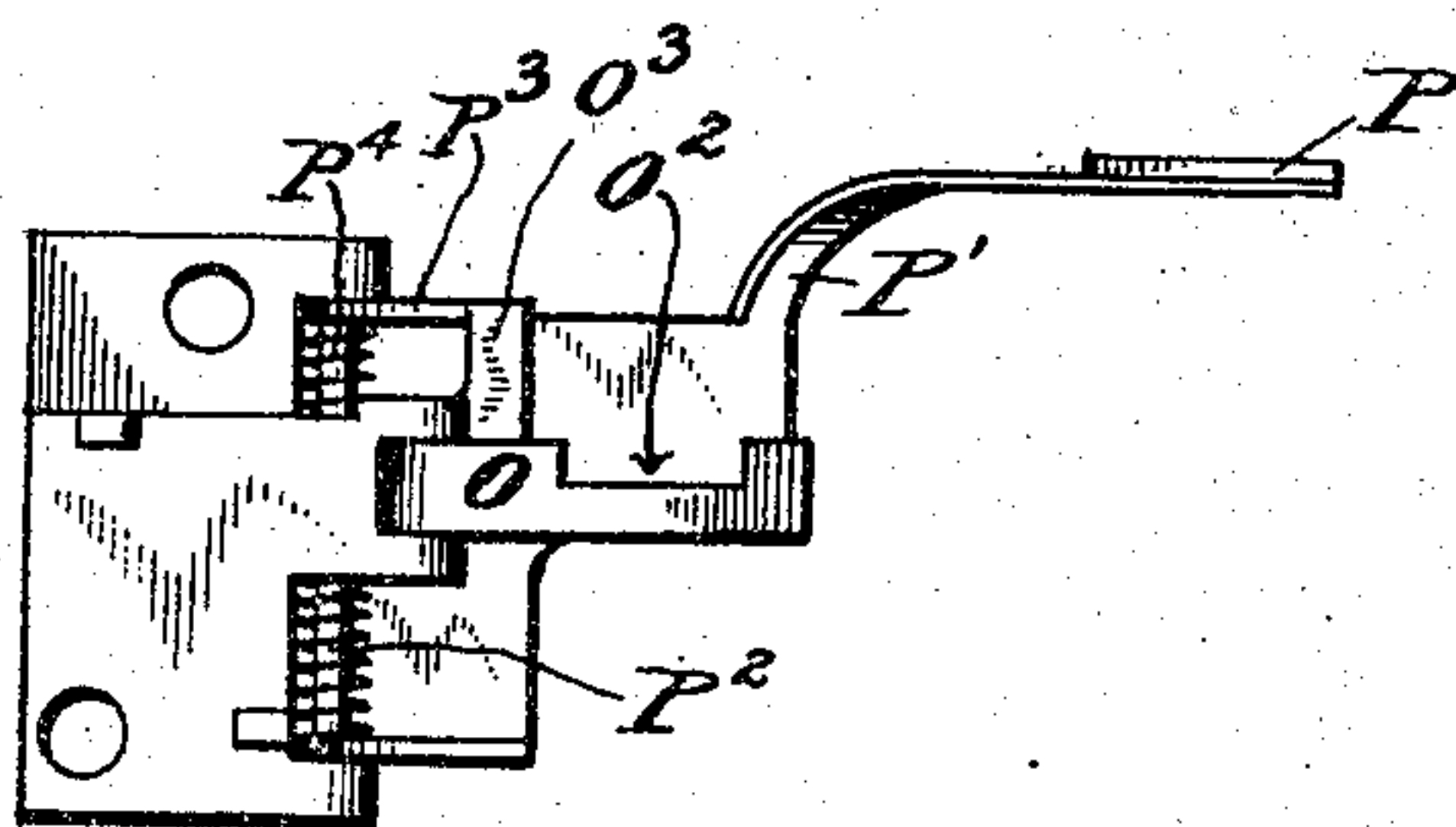


Fig. 7.

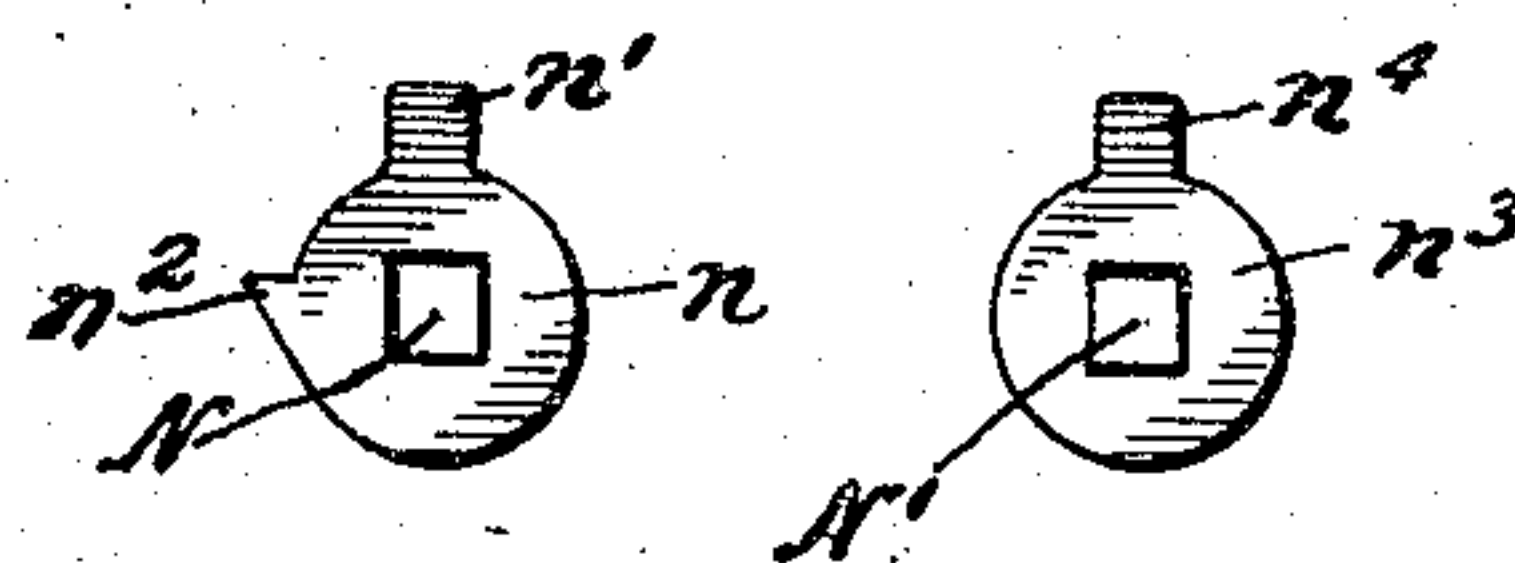
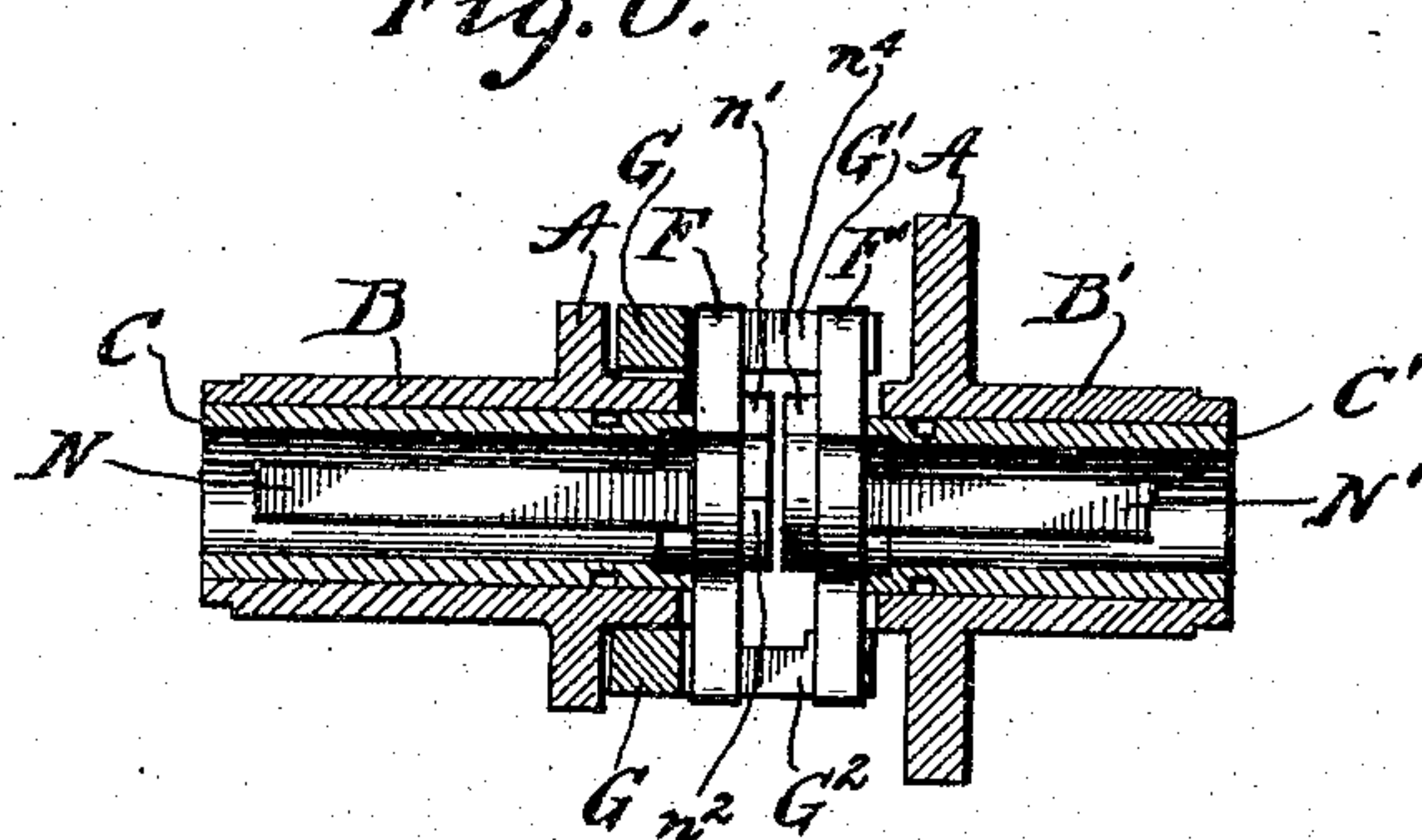


Fig. 6.



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# UNITED STATES PATENT OFFICE.

BYRON PHELPS, OF SEATTLE, WASHINGTON.

## LOCK AND LATCH.

SPECIFICATION forming part of Letters Patent No. 785,228, dated March 21, 1905.

Application filed April 29, 1904. Serial No. 205,445.

*To all whom it may concern:*

Be it known that I, BYRON PHELPS, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Locks and Latches, of which the following is a full, clear, and exact description.

My invention relates to locks and latches.

One object of my invention is to provide in a lock a locking device whereby the key on the inside of the door cannot be removed while the door is locked from the inside.

Another feature resides in the locking of the key-barrel of the outer knob when the door has been locked from within. An indicating mechanism is provided by which a person outside of the door will be notified when the room is occupied. The warning is effected by means of a signal visible from the outside of the door and set whenever a person enters the room and turns the key on the inside of the lock. The construction of the key-operable indicating mechanism is claimed in my application, Serial No. 236,930, filed December 15, 1904.

These features are of great benefit in case the lock is to be used on the doors of hotel-rooms. In such use the hotel attendants are advised if the room is occupied by the said signal, and hence need not annoy the occupant by any effort to unlock the door or try the latch. The occupant of the room is assured absolute privacy, it being impossible for any one on the outside to unlock the door when the same has been locked from the inside. The occupant of the room after he has locked the door cannot remove the key from the lock, and hence is sure to find it in its proper place when he desires to go out. Where it is possible for the occupant of a room to remove the key, he sometimes does so and carelessly places it in some part of the room and forgets its location. This results in annoyance and great danger in the case of the necessity for rapid exit, as in the case of fire.

While all of these features need not necessarily be combined in a single lock, since they are useful separately considered, they are nevertheless shown in this case as combined and

arranged in such a way as to have conjoint and dependent action.

In the accompanying drawings, Figure 1 is a perspective view of a lock constructed to embody my invention, showing the same detached from the door. Fig. 2 is a plan view. Fig. 3 is a view, partly in section, taken on the line 3 3, Fig. 2, and looking from right to left. Fig. 4 is a detail view of certain parts shown in Fig. 3 in side elevation, the same being shown in a different position from that indicated in said figure. Fig. 5 is a view of the under side of certain details detached. Fig. 6 is a vertical section of the knob-spindles and bearings therefor, showing the roll-backs and dogs in elevation. Fig. 7 is an end elevation of the dogs.

The lock shown in the accompanying drawings is constructed as to its main operative features in a manner very similar to that shown in my former patent, No. 722,620, and therefore as to such parts as are common to the two locks need not be described at unnecessary length.

A is a frame such as made the subject-matter of my former patent, No. 631,432, which frame supports the various parts of the lock mechanism. B B' are journals carried thereby for supporting the knobs.

C C' are the knob-spindles, carrying, respectively, the knobs D D'.

D is the inside knob.

D' is the outside knob.

Each knob carries a cylinder-lock, preferably of the pin-tumbler type.

F is a roll-back carried by the spindle C. F' is another roll-back carried by the spindle C'.

G is a yoke having arms G' G<sup>2</sup> and a shank G<sup>3</sup> connected to the latch-bolt H.

J is a spring on shank G<sup>3</sup>, arranged to normally force the latch-bolt H outwardly, thus keeping the arms G' G<sup>2</sup> of the yoke bearing normally against both ends of the roll-backs F F', by means of which a normal position is given to the knobs D D'. When either knob is rotated, it is obvious that motion is transmitted through its roll-back to the yoke G and latch H.

K is a locking-bolt having a shank K'. The



locking-bolt is suitably connected with a rocking member L, which is journaled in the frame A in such a manner that when said member is rocked from the position shown in Fig. 3 to the position shown in Fig. 4 the bolt K will be advanced, and vice versa. The preferred form of connection between the rocking member L and the bolt K may be found more fully shown and described in detail in my former patent, No. 722,620.

M is a reach-rod, one end of which is attached to the rocking member L, while the other end has projections M' M<sup>2</sup>.

N N' are key-controlled spindles or rods, which pass freely through the knob-spindles C C' and roll-backs F F', respectively. One end of the key-spindle N is engaged by the key-barrel (not shown) of a pin-tumbler lock located within the knob D. Hence when the said key-barrel is rotated the said spindle N will be rotated. The key-spindle N' is engaged by the key mechanism in the outer knob D' in such manner that when said key mechanism is operated the said spindle N' will be rotated. At the inner end of the key-spindle N is a plate  $n$ , carrying two dogs  $n'$   $n^2$ . The spindle N' also has at its inner end a plate  $n^3$ , carrying a single dog  $n^4$ . These dogs when all of the parts are located in their normal positions and the locking-bolt K is retracted, register with each other or stand side by side, the dog  $n^2$  standing to the left of the center as viewed in Fig. 3. The projection M<sup>2</sup> stands directly opposite the dogs  $n'$   $n^4$ . When one or the other of the key-spindles N N' is rotated clockwise, as viewed in Fig. 3, its dog  $n'$  or  $n^4$ , as the case may be, will engage with the projection M<sup>2</sup> and throw the bolt K from the unlocked to the locked position.

If the door is to be locked from the outside, the operator would introduce a key into the lock in the knob D' and rotate the spindle N', which in turn would move the dog  $n^4$  to a position to engage the shoulder M<sup>2</sup> on reach-rod M, thus advancing said reach-rod and throwing the bolt. When the reach-rod reaches its forward position, the dog  $n^4$  will clear the same and may be revolved until it completes the circle, whereupon the key can be withdrawn from the outer knob. To unlock the door from the outer side, the operation is reversed.

If a person enters the room and desires to lock the door from the inside, the key is introduced into the lock in the knob D, the spindle N is then rotated, and the dog  $n'$  engages with the shoulder M<sup>2</sup>, throwing out the bolt K. This movement brings the shoulder or projection M' into the position shown in Fig. 4, in which the same stands in the path of movement of the second dog  $n^2$  on the spindle N and checks the further rotation, stopping the key before it can be turned to a position where it can be removed from the

lock. The result is the operator must leave the key in the lock after he has locked himself in, in which position the key will remain until he unlocks the door, whereupon by restoring the parts to their original position (shown in Fig. 3) he may withdraw his key. The advantages of this means for preventing the withdrawal of the key when the door has been locked from the inside have been pointed out.

The means for locking the dog  $n^4$ , and hence the outside key, against rotation when the door has been locked from the inside comprises a latch-tongue O, pivoted at O' to a stationary part of the frame. The tongue O has a notch O<sup>2</sup> in its side, which notch when the dogs are arranged as shown in Fig. 3 is located over the dog  $n^4$ . The solid portion of the tongue O adjacent to the notch is supported upon the dog  $n'$ . When the door is locked from the inside, the turning of the key will remove the dog  $n'$  from under the tongue O, which will then move to the position shown in Fig. 4, in which the dog  $n^4$  will stand in the aforesaid notch and cannot be turned to any substantial degree. By this means the occupant of the room is secure against any intrusion.

P is an indicating member, which may have thereon suitable characters, such as the words "In" or "Out," or different-colored parts to indicate to the outsider whether the door is locked on the inside. The indicating member P is shown in Figs. 1 and 3 in a position to indicate to an outsider that the room is not occupied, or, at least, that the door is not locked from within. This indication is effected by causing that part of the indicator which bears the word "Out" to register with the window Q, Fig. 1. When the door is locked from within, the indicator P shifts to the position indicated in Fig. 4, in which that portion of the indicator bearing the word "In" registers with the window Q. As above suggested, it is not necessary that words be employed, but that different colors on the indicator might serve the same purpose.

The indicator P is preferably constructed as follows: P' is the shank of the indicator, which is pivoted at P<sup>2</sup> to a stationary part of the frame. At a suitable point on the shank P' is an incline P<sup>3</sup>. Upon the member O is an offset shoulder O<sup>3</sup>. This offset shoulder O<sup>3</sup> supports the indicator P by bearing under the incline P<sup>3</sup>. When the indicating member P is elevated to the position shown in Fig. 3, the support O<sup>3</sup> is correspondingly elevated, and hence holds the indicator in the position shown in Fig. 3, in which an outsider is advised that the door is not locked from the inside. When an occupant enters the room and locks the door, the member O descends in the manner previously described. The support O<sup>3</sup> descends, and the indicator P is shifted from the position shown in Fig. 3 to



the position shown in Fig. 4. I preferably provide a suitable spring (for example, a coiled spring)  $P^1$ , which normally causes the shank  $P'$  of the indicator to press against the support  $O^3$ , in turn causing the free end of the tongue  $O$  to press toward the dogs  $n' n^4$ . The presence of the spring insures the certain action of the indicator, particularly if the lock is inverted.

10 The usual escutcheon-plates  $R R'$  may be employed. In the particular form of lock herein illustrated the escutcheon-plate  $R'$  is secured rigidly to the frame  $A$ , which frame extends across the front edge of the door and  
15 overlies the forward edge of the escutcheon-plate  $R$ . The plate  $R$  may be adjusted to and fro, being slidably mounted on the tubular support  $B$ .

A lock of the particular type herein shown  
20 is applied to a door by merely sawing a notch in the stile thereof of a width and depth corresponding to the width and depth of the lock-frame. When this is done, the lock is pushed into place, and the escutcheon-plates  $R R'$  are  
25 drawn together by a screw  $S$ .

The window  $Q$  is obviously in the outside escutcheon-plate. The lock may be used as a right-hand or a left-hand lock by simply inverting the same. For this reason it will be  
30 preferable to employ indicating-colors in place of words upon the indicating member  $P$ . In practice I have employed a dark green, which is comparatively invisible through the window  $Q$ , to indicate that the room is unoccupied,  
35 and a yellow, which is very conspicuous through the window  $Q$ , to indicate that the room is occupied.

If any one occupying a room wishes to indicate on the outside that he is in and yet does  
40 not desire to lock the door, he may do so, introducing the key in the indoor-knob and giving it a sufficient turn to remove the dog  $n'$  from under the tongue  $O$ , yet not sufficient to

throw the bolt. By so doing the indicator  $P$  is moved to the desired position.

45

What I claim is—

1. In a lock, a bolt, two independent rotatable bolt-actuating devices accessible from opposite sides of the door, a key-passage leading thereto at the outer and at the inner  
50 sides of the lock and means for holding one of said bolt-actuating devices against rotation when the bolt has been advanced by the rotation of the other bolt-operating device.

2. In a lock, a bolt, two independently-rotatable bolt-actuating devices, a key-passage  
55 at the outer and inner sides of the lock, means for holding the outer bolt-actuating device against rotation when the bolt has been advanced by the rotation of the inside bolt-oper-  
60 ating device.

3. In a lock, a bolt, a bolt-actuating device accessible from the inside of the door and operative by means of a key, and means coöperating therewith to prevent the removal of the  
65 key when the bolt is advanced.

4. In a lock, a bolt, bolt-actuating devices operable from both sides of the lock by means of a key and means coöperating therewith to prevent the removal of a key introduced at  
70 the inner side of the lock and rotated to throw the bolt said means being in operation only when the bolt is advanced.

5. In a lock, a bolt, a bolt-actuating device accessible from both sides of the door and operative by means of a key and means coöperating therewith to prevent the removal of the  
75 key inserted from the inside of the door when said bolt is advanced.

Signed at New Britain, in the county of  
80 Hartford, State of Connecticut, this 27th day of April, 1904.

BYRON PHELPS.

Witnesses:

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L. M. BRAMAN.