

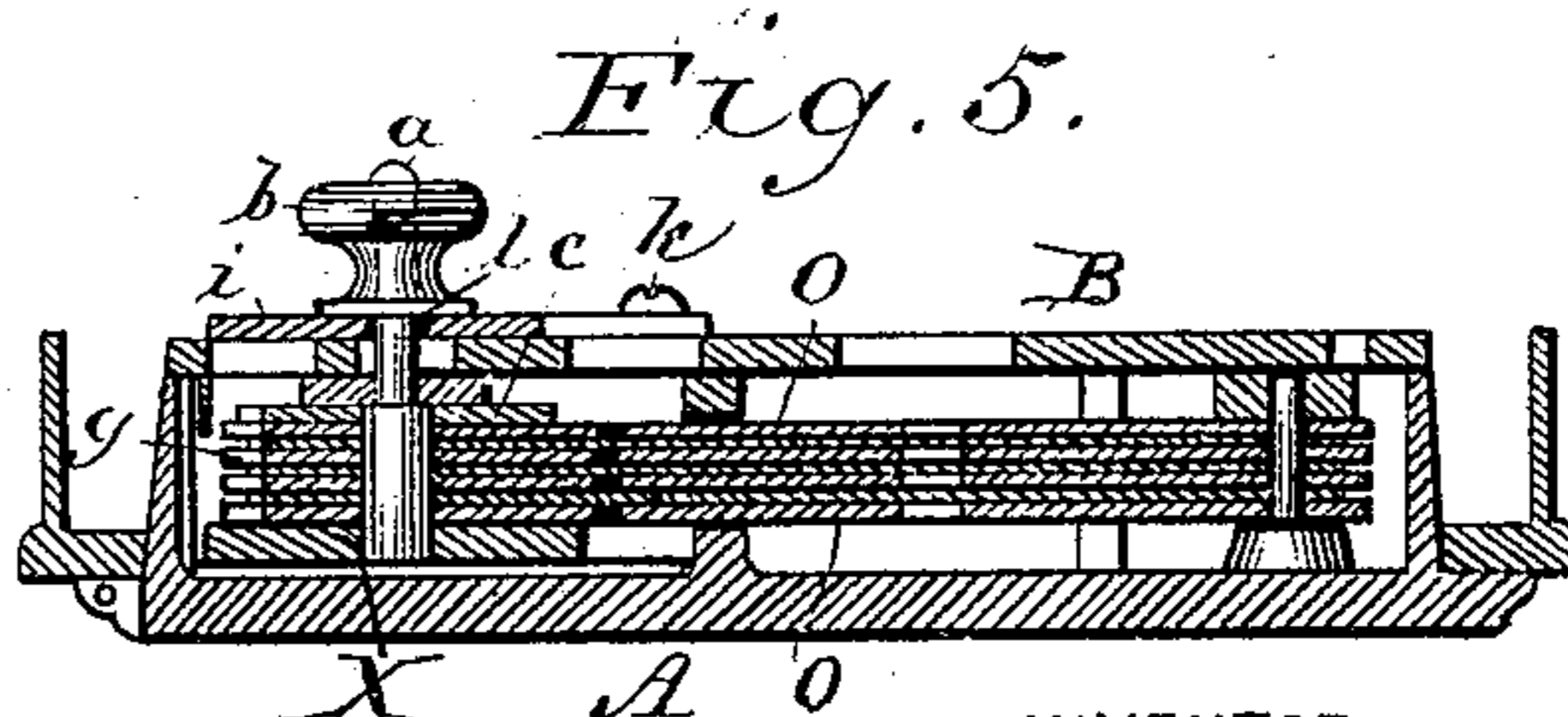
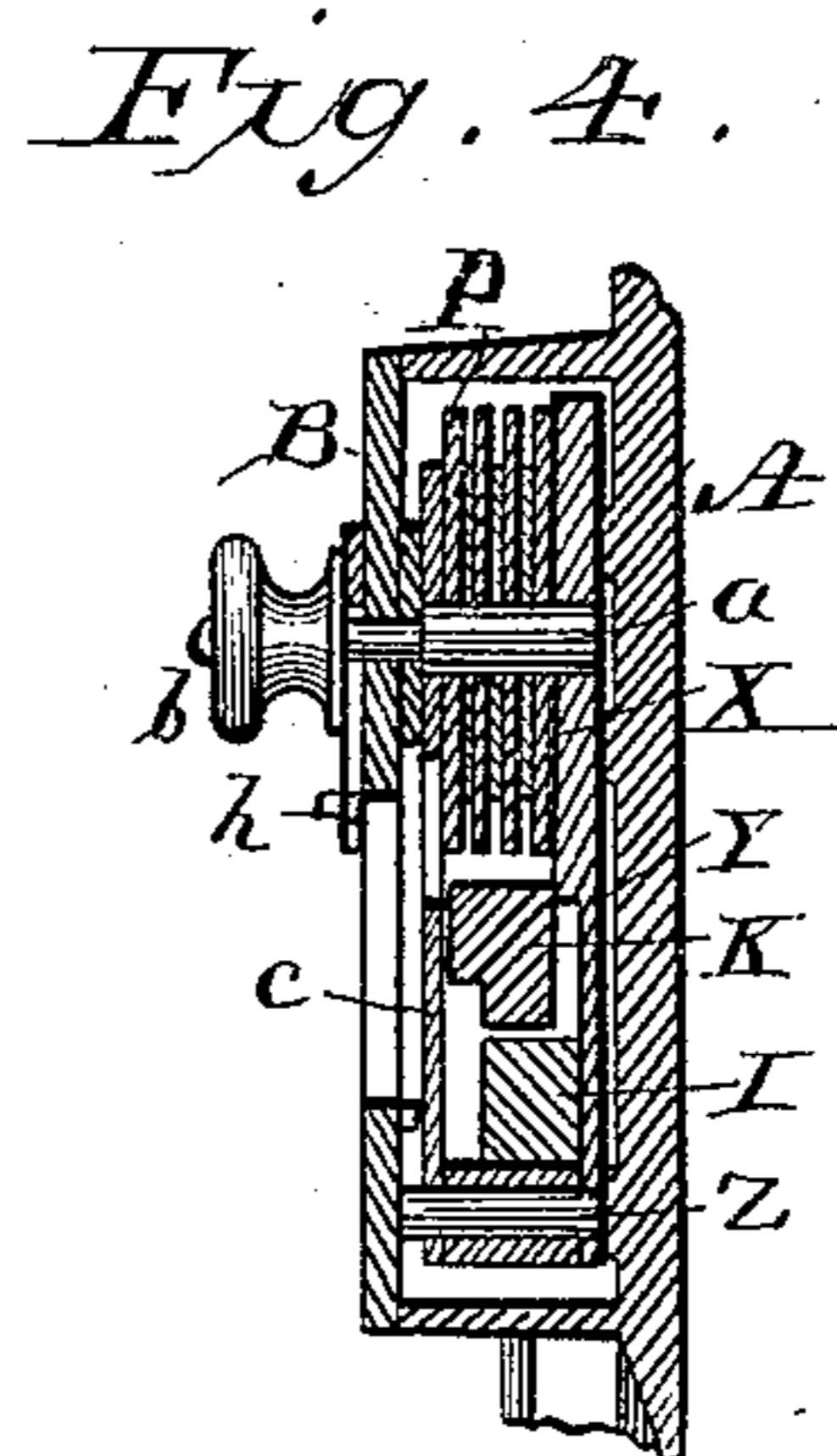
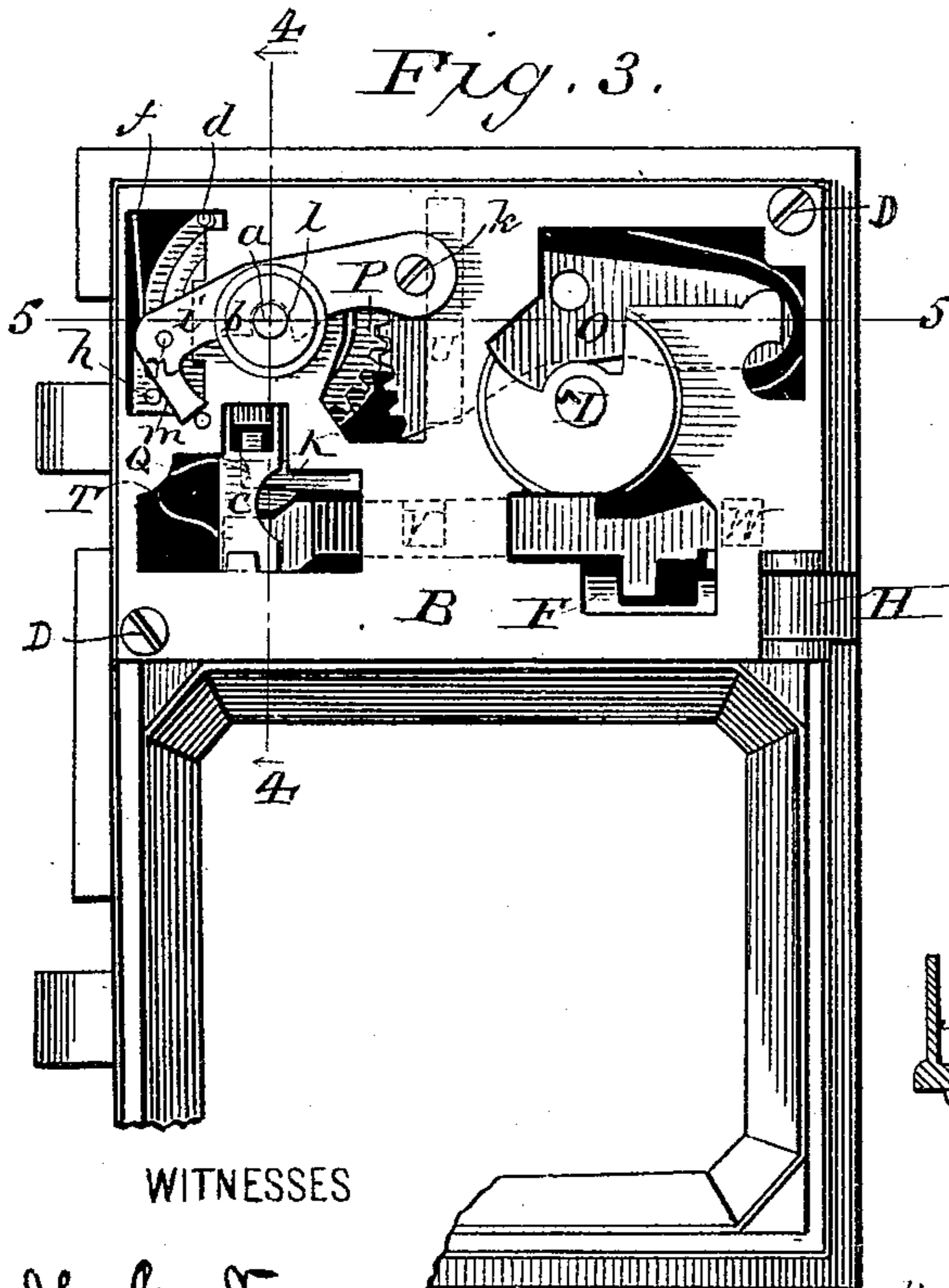
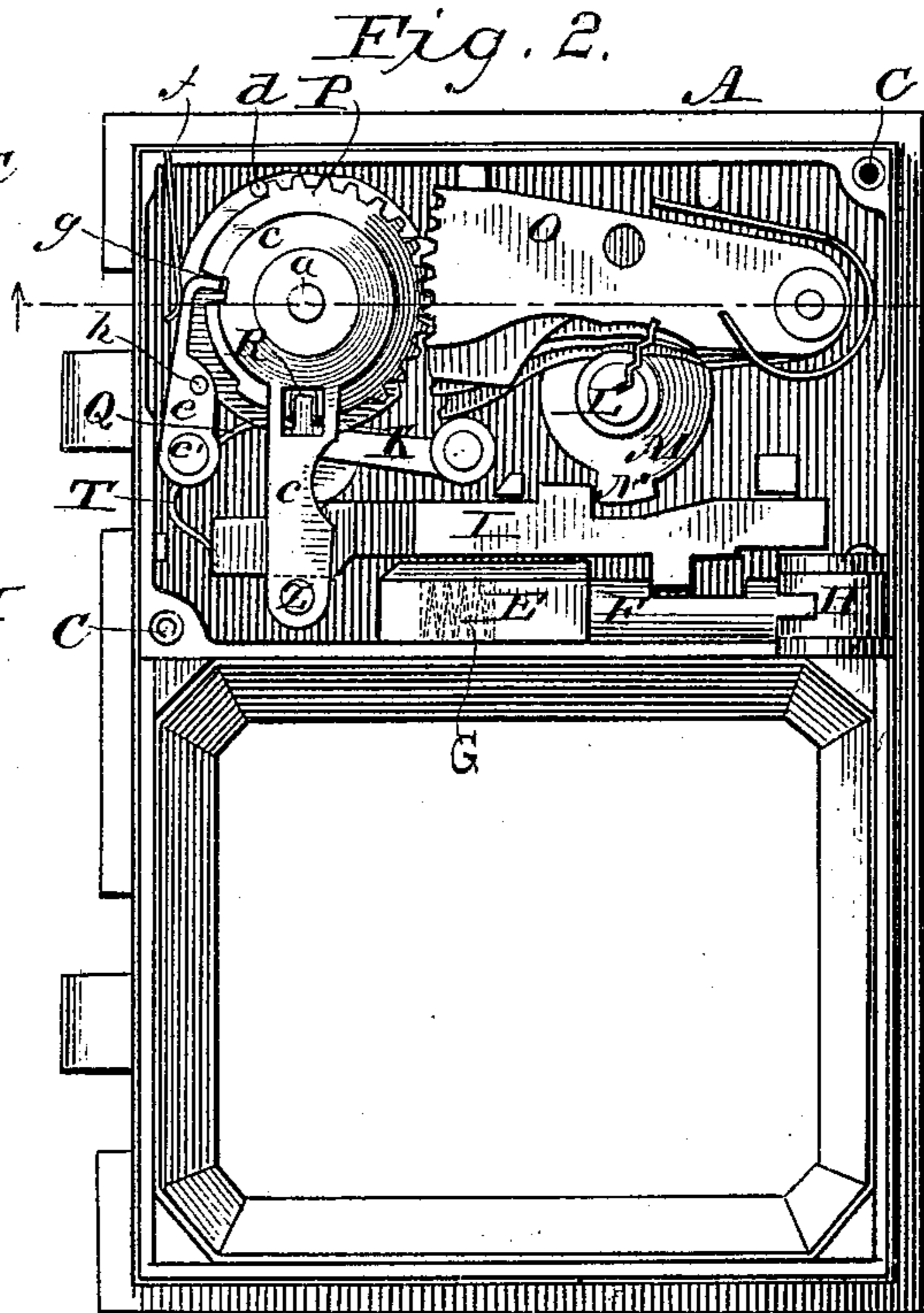
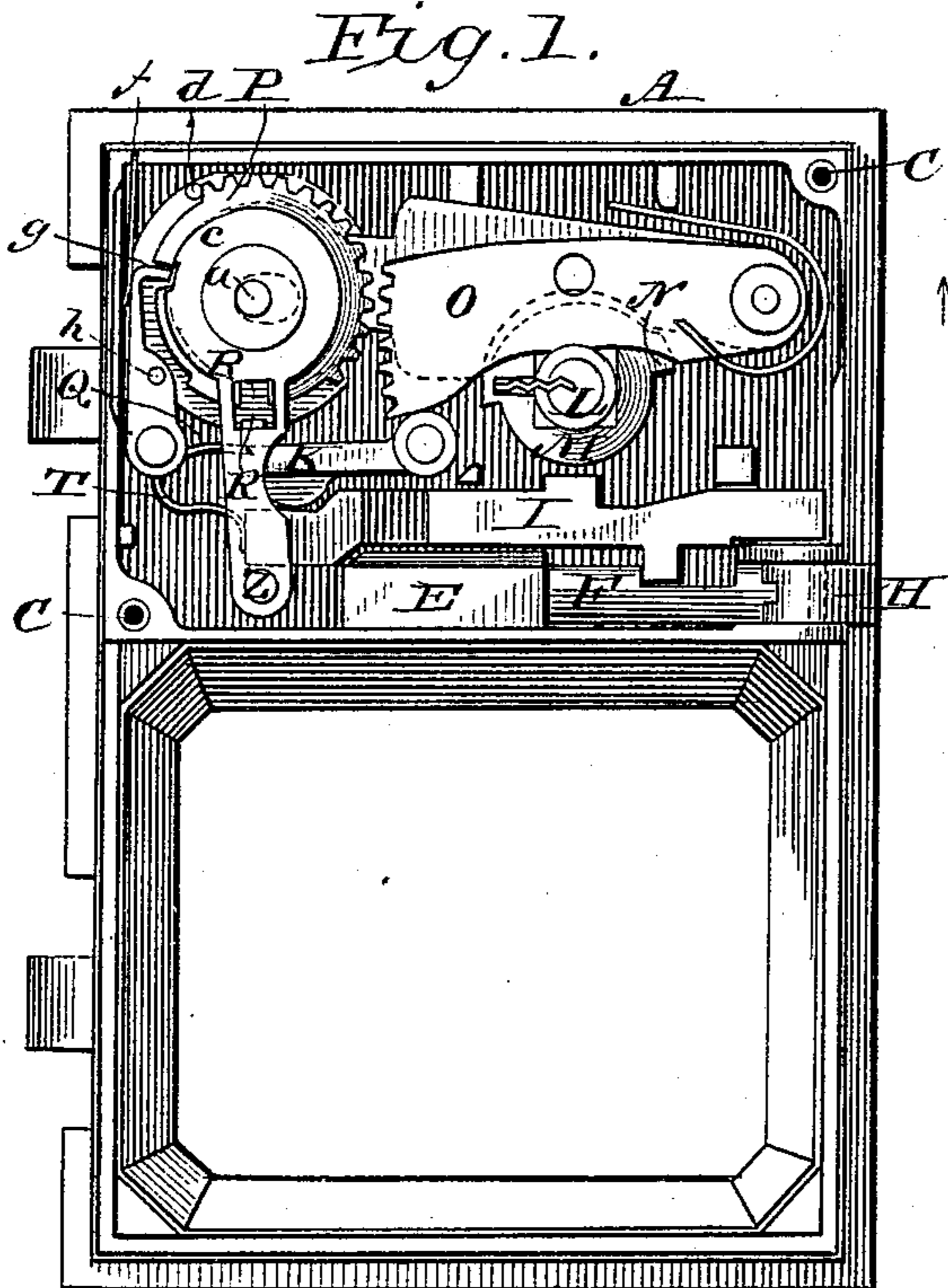
(Model.)

2 Sheets—Sheet 1.

W. H. TAYLOR.  
LOCK.

No. 405,131.

Patented June 11, 1889.



WITNESSES  
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O. S. Newman.

INVENTOR  
Warren H. Taylor,  
By his Attorneys  
Marcus Hopkins  
Joseph L. Atkins

(Model.)

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Fig. 6

Fig. 7.

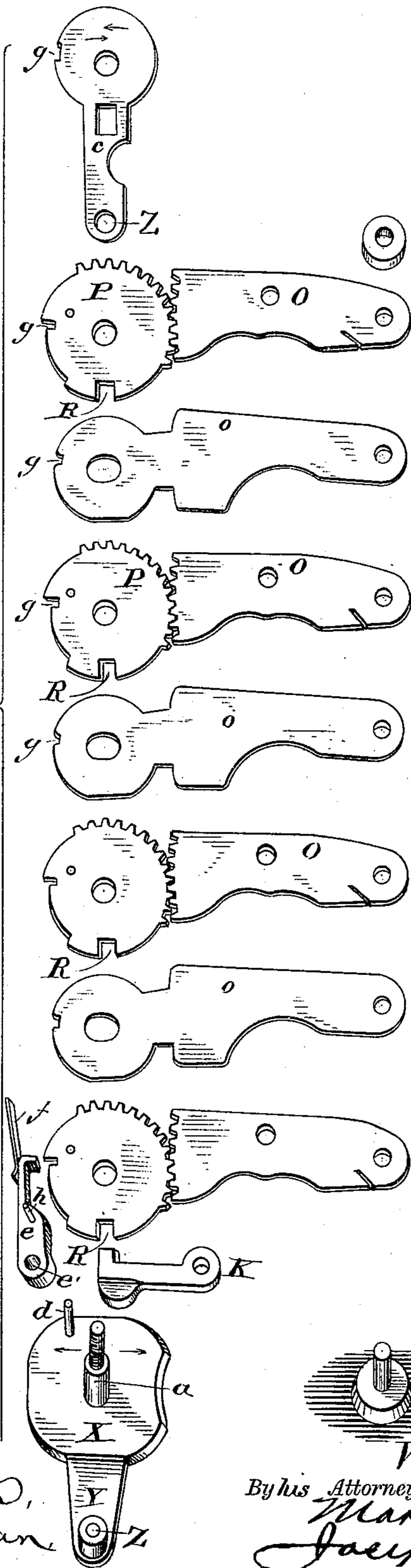
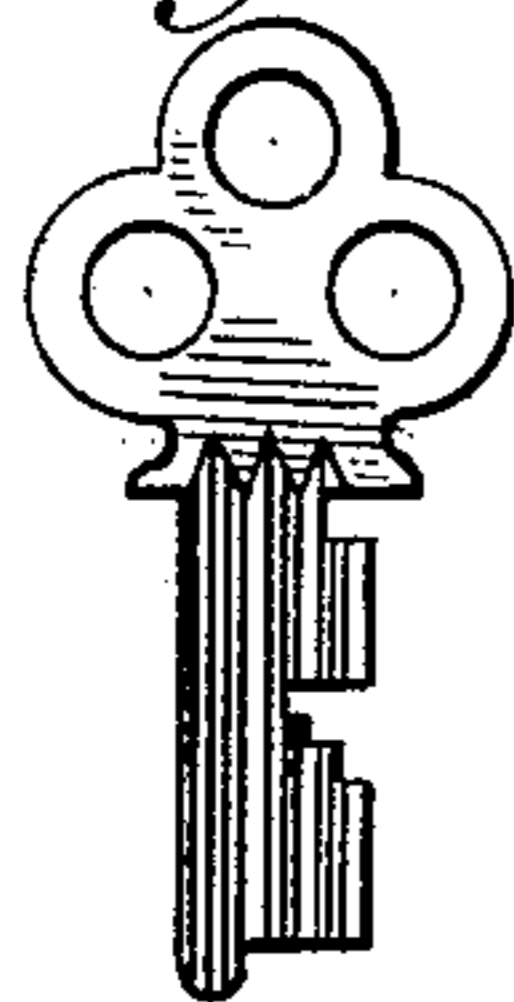


Fig. 8.



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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. 405,131, dated June 11, 1889.

Application filed December 10, 1888. Serial No. 293,093. (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  
5 new and useful Improvements in Changeable Combination Key Locks, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to that class of locks  
10 in which the combinations can be set or changed only by the use of the lock-keys. Heretofore in such locks the tumblers, which are each necessarily made in two parts, have to be separated in the ordinary use of the  
15 locks, as appears, for example, in United States Patent No. 370,183. The consequence is that wear takes place, which finally results in the relations of the parts of the tumblers being disturbed so that they will not register  
20 perfectly, and will not accomplish the objects for which they are designed. This difficulty is not incident to my lock, for the reason that in its ordinary use the parts of the tumblers do not separate, but always work altogether  
25 in engagement with one another, except when separated to change the combination, which only seldom occurs.

My invention consists in the organization of parts hereinafter described, and succinctly  
30 stated in my appended claims.

In order to illustrate my invention, I exhibit in the drawings an entire lock containing, of course, many parts that are old, but necessary to be shown in order to exhibit the structure  
35 and operation of my improvements and their proper relations to ordinary lock mechanism when applied to use.

In the drawings, Figure 1 is a view of my improved lock, showing the tumblers separated and the cap-plate removed applied to a post-office lock-box door. Fig. 2 is a similar  
40 view showing the tumblers engaged. Fig. 3 is a view of the lock with the cap-plate in place. Fig. 4 is a section on the line 4 4 of Fig. 3. Fig. 5 is a section on the line 5 5 of Fig. 3. Fig. 6 is a view of a group of parts divided into thirteen divisions, showing the parts in perspective. Figs. 7 and 8 are views  
45 of two different keys suitable for my lock.

50 A indicates a lock-case, and B a cap-plate.

The case is provided with corner lugs C C to receive the cap-plate-fastening screws D D. The case is also provided with a block E for containing the sliding bolt-rod F and its spring G, the rod being pivoted to the piv-  
55 oted latch-bolt H, as shown.

I indicates a cam-slide for the purpose of operating the fence K, and for communicating its motion to the bolt-rod F and latch-bolt H.

L indicates the key-hub, and M the cam  
60 engaging with the cam-slide I by means of a lug N.

O indicates pivoted spur-gear spring-tumblers of ordinary construction, adapted to be turned on their pivots by the operation of  
65 the key.

P indicates the circular parts of the tumblers, which are provided with spur-gearing, as usual in this class of tumblers, composed each of two different parts geared together.  
70

Q indicates a spring operating upon the fence, tending to keep it out of engagement with the gatings R in the circular parts of the tumblers.

T indicates another spring pressing upon  
75 the end of the cam-slide I, and tending to force it into the unlocked position. The cap-plate of the lock is provided with lugs U V W, for the purpose of bearing upon the internal movable parts of the lock and holding  
80 them in place.

All the parts of the lock thus far mentioned are of usual construction, and need not be further described.

Coming now to the peculiar parts of the  
85 lock that constitute my improvements, it will be observed that the circular parts of the tumblers are mounted upon a movable seat X, having an arm Y, by which it is pivoted to the case at Z. From the center of this seat  
90 projects a pivot-post *a*, which forms the axis of the circular parts of the tumblers and projects through the cap-plate, and is screw-threaded to receive a thumb-nut *b*.

*c* indicates a covering-arm, which is pivoted  
95 at Z. This covering-arm, with the seat X and pivot-post *a*, forms an oscillating frame, which may be moved from side to side by means of the thumb-nut *b*. Such oscillation engages or disengages the teeth of the two parts of  
100

the tumblers for changing the combination upon which the lock operates whenever desired.

*d* is a stop secured to the seat *X* and serving to stay the circular parts of the tumblers in such position that the gatings will all be opposite each other, so that the fence can enter them. The circular parts of the tumblers can never turn to the left beyond the point where the first tooth of the series upon each tumbler strikes the stop.

*e* is a stop, pivoted at *e'* and provided with a spring *f*, tending to engage it in the notches *g* of the circular parts of the tumblers and hold their gatings in alignment and in position for the fence to enter them. This stop is provided with a stud *h*, which projects up through the cap-plate.

*i* indicates a catch, pivoted at *k* upon the outer surface of the cap-plate, and provided with a **U**-shaped recess, which forms a hook at *l*, that hooks around the pivot-post *a* and holds the two parts of the tumblers in engagement by their spur-gears. The end of this catch is inclined at *m*, and is so adjusted as to bear with a wedging or cam action against the stud *h*, and press the stop *e* back against the force of its spring, so that it will not engage with the notches *g* of the tumblers.

*n* is a stud or thumb-piece for moving the catch *i* on its pivot. The thumb-nut *b*, besides its function as a handle to move the oscillating frame, is employed ordinarily to bear against the catch *i* when it is in position to fasten the parts of the tumblers together and hold it there.

Thus I provide an improved lock in which the combination can only be changed by the use of one of the lock-keys, and in which the parts of the tumblers are fastened together and do not separate in the ordinary use of the lock, but are capable of being readily separated whenever it is desired to change the combination, and then after it is changed of being fastened together again for permanent use.

The operation of my improvements, for the purpose of changing the combination upon which the lock operates, is as follows: Suppose the key to be in the lock and the lock in the unlocked position, and it is desired to change the combination so as to use a new key. The first thing to do is to unscrew the thumb-nut *b*. Then swing the pivoted catch *i* back out of engagement with the pivot-post *a* and the stud *h*. This will cause the spring-stop *e* to engage in the notches of the circular parts of the tumblers and prevent their

turning out of place. Then press upon the thumb-nut and swing the oscillating frame to one side, so that the gears of the tumblers will be disconnected. Next withdraw the old key, and the pivoted parts of the tumblers will then swing, by the force of their springs, until they all bear against a suitable stop—in this instance the key-hub. The new key can then be inserted in the key-slot and turned to the unlocked position, when it will set the tumblers to suit its bittings. The oscillating frame can now be pushed back again and the spur-gearing of the parts of the tumblers properly engaged and fastened together by means of the catch *i* and thumb-nut *b*. The lock is now ready for operation by the new key, and no other key will fit it.

In case the key which fits the combination to which the lock is set is lost, the operation is the same, except that after the pivoted catch *i* is swung back out of engagement with the pivot-post *a* and the stud *h* the circular parts of the tumblers must be pushed around until the spring-stop *e* engages in their notches. Of course it is immaterial to the principle of my invention by what sort of movement the parts of the tumblers are separated; but I have shown an oscillating movement of the circular parts of the tumblers, which is generally preferable on account of meeting with less frictional resistance.

What I claim to be new is—

1. In a combination-lock adapted to have its combinations changed by the use of a key, the combination of the tumblers in two separable parts, the movable frame carrying the circular parts of the tumblers, and the catch *i*, engaging with the pivot-post *a* to fasten the said parts of the tumblers together, substantially as set forth.

2. The combination of the movable frame, with its pivot-post *a* extending through the cap-plate of the lock, the catch *i*, and the thumb-nut *b*, serving as a handle and as a fastener for the said catch, substantially as set forth.

3. The combination of the movable frame, the circular parts of the tumblers carried thereby and the other parts of the tumblers pivoted to the case, the catch *i*, and the pivoted spring-stop *e*, provided with the stud *h*, substantially as set forth.

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

WARREN H. TAYLOR.

Witnesses:

SCHUYLER MERRITT,

HOWARD L. UNDERHILL.