

No. 733,171.

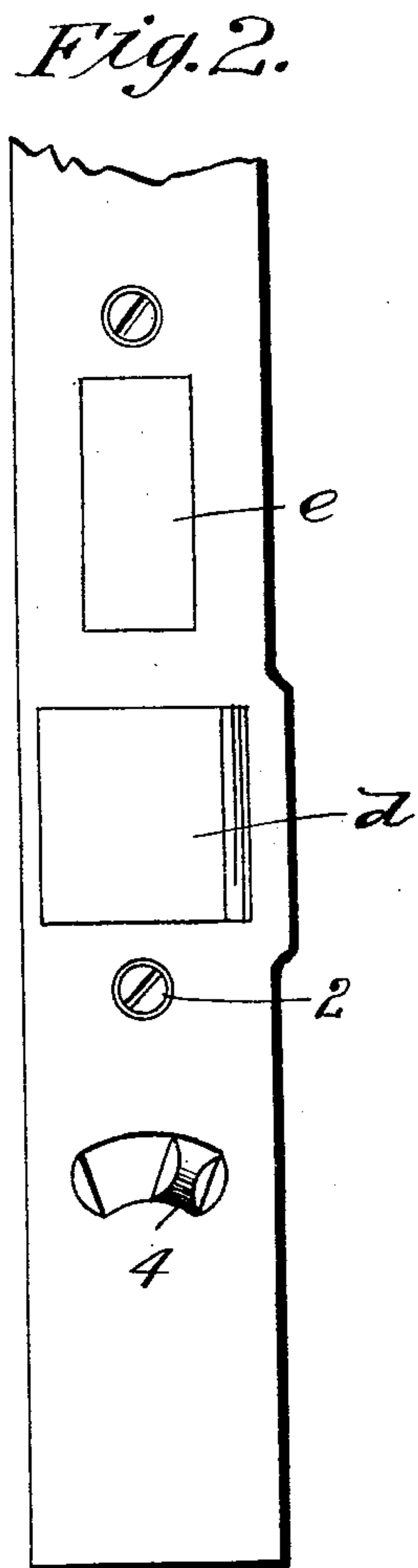
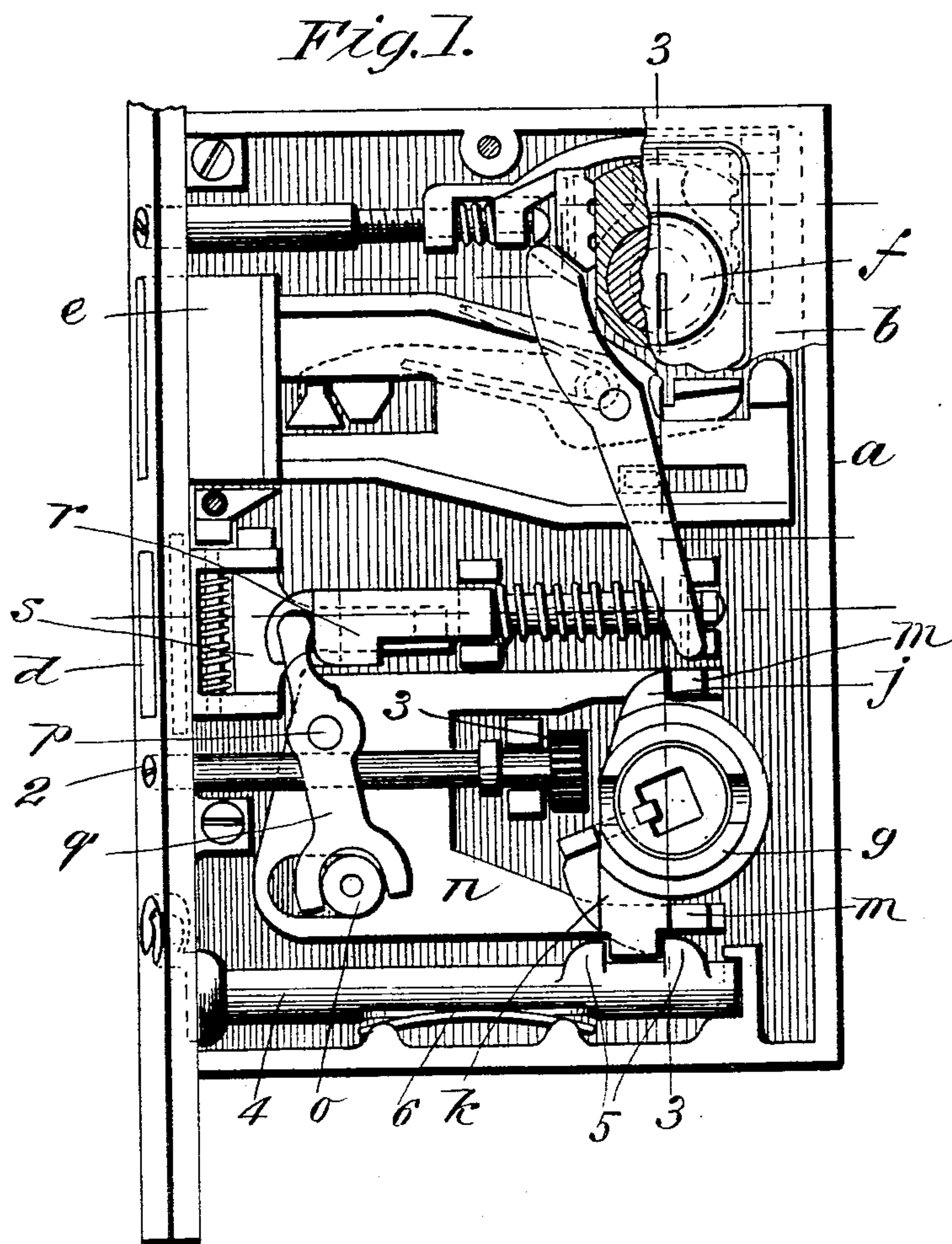
PATENTED JULY 7, 1903.

E. H. DIMOCK.  
LOCK AND LATCH.

APPLICATION FILED MAR. 25, 1901.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

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2 SHEETS—SHEET 2.

NO MODEL.

Fig. 3.

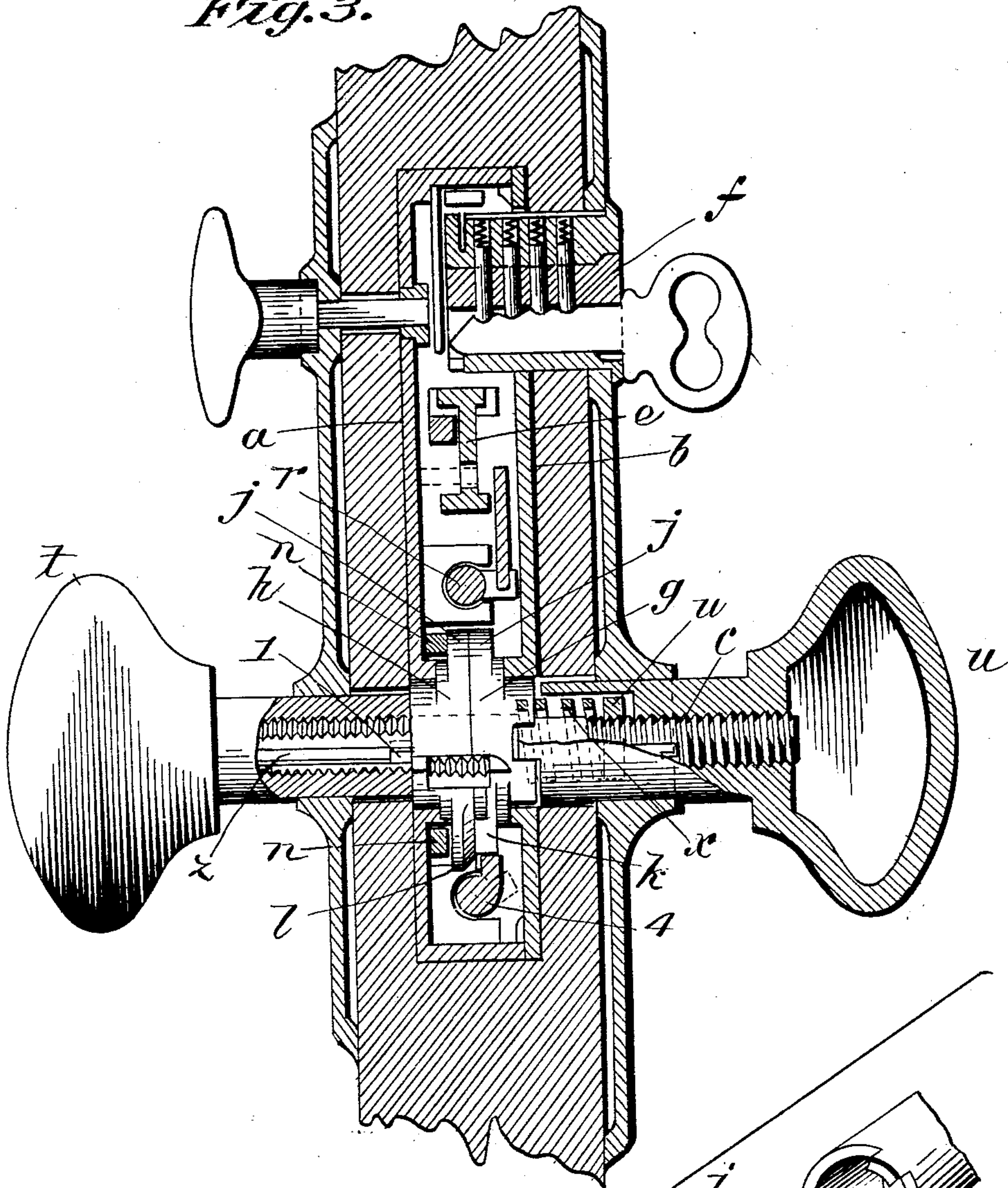
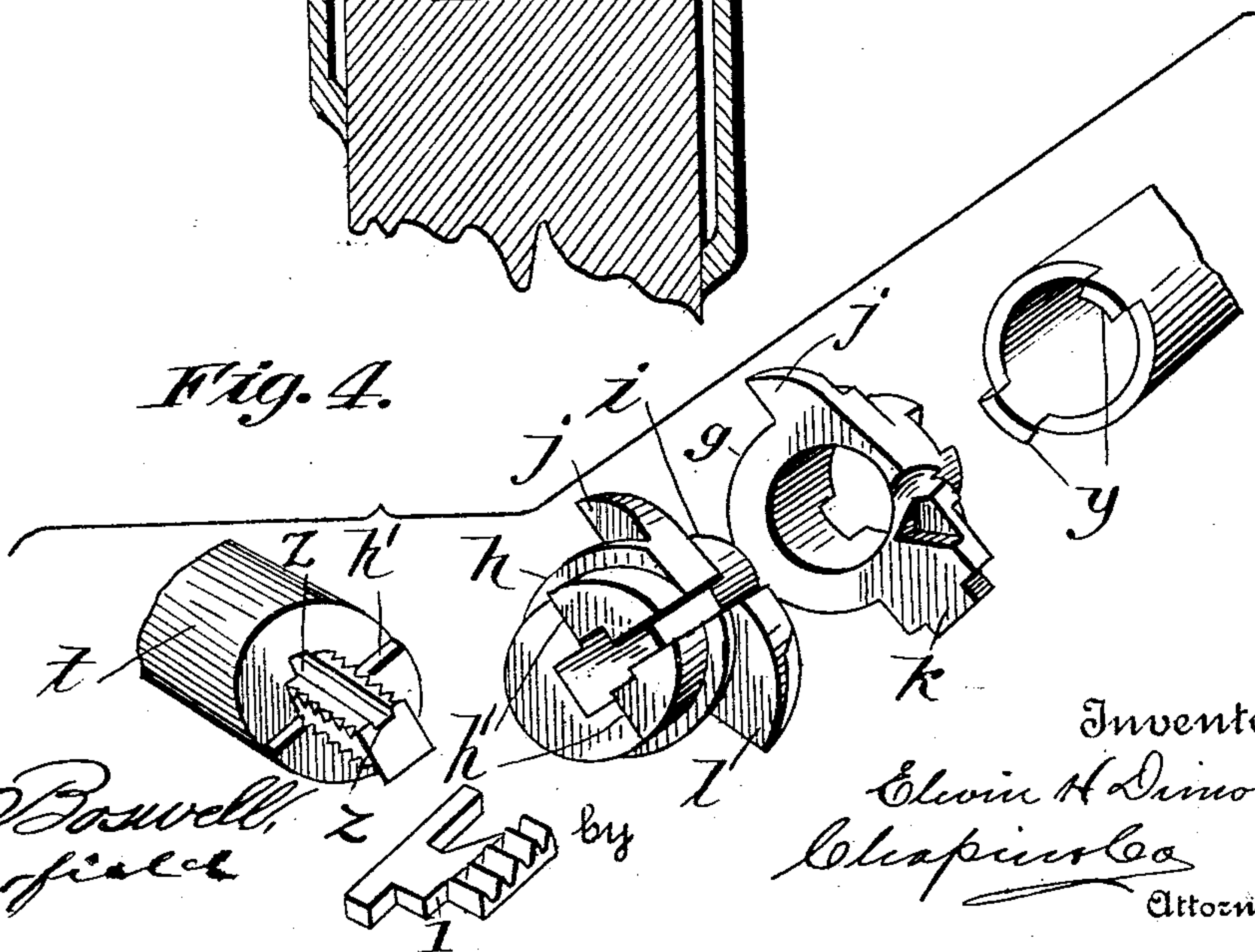


Fig. 4.



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# UNITED STATES PATENT OFFICE.

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## LOCK AND LATCH.

SPECIFICATION forming part of Letters Patent No. 733,171, dated July 7, 1903.

Application filed March 25, 1901. Serial No. 52,791. (No model.)

*To all whom it may concern:*

Be it known that I, ELWIN H. DIMOCK, a citizen of the United States of America, residing at Dorchester, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Locks and Latches, of which the following is a specification.

This invention relates to door-locks, the object thereof being the improvement in the construction of certain parts and operative groups of parts of a lock of this class.

The invention consists in certain improvements in the construction of knob-fastening devices and various novel combinations and constructions of parts incidental to the above-specified improvement, all of which will be fully described in the following specification and clearly summarized in the claims.

In the drawings forming part of this specification, Figure 1 is a side elevation of a lock with the side plate removed embodying my invention. Fig. 2 is a front edge elevation of Fig. 1. Fig. 3 is a vertical section on line 3 3, Fig. 1. Fig. 4 illustrates a group of parts representing in their separated relations portions of the shanks of both knobs, the knob-spindle and hubs thereon forming part of the lock.

Referring to the drawings, *a* represents an ordinary lock-case having one removable side *b*, within which case is the usual spindle *c*, latch-bolt *d*, dead-bolt *e*, and a locking mechanism *f*, operated by a key from the outside of the lock only and whereby the dead-bolt and its locking-lever are operated to permit the opening of the door.

While a complete lock mechanism is illustrated in this application, the latter is directed mainly, as stated above, to the knob attachment and to certain novel constructions incidental thereto. The remaining parts of the lock construction will form the subject of separate applications, but are illustrated and described herein in order that the subject-matter of the present application may be understood in its relation to the whole lock construction.

The spindle *c* has a squared central portion on which are located the hubs *g* and *h* side by side on the spindle, as shown in Fig. 3, the latter *h* only being in engagement with the spindle, the said hub *g* being fitted over

a short hub *i* (see Fig. 4) on the hub *h*. Each of said hubs *g* and *h* is provided with ears *j* and with the projections *k* on the hub *g* and *l* on the hub *h*, whose functions will be described later on; but one edge of each of said projections and the squared edge of the ears *j* are adapted to engage two upstanding portions *m* of a yoke-frame *n*, lying within the lock-case, said yoke-frame being suitably supported to slide transversely in said case, according as the turning of the spindle *c* may swing either the ears *j* or the projections *k l* against said portions *m* of the yoke-frame *n*.

An elongated slot is provided in the yoke-frame, through which a boss *o* projects, and at another point *p* on said yoke-frame the lever *q* is pivotally supported, one end of which bears against the shoulder of a spring-actuated bolt *r* and the other end of which is forked and straddles the boss *o*. The bolt *r* in turn engages the arm *s*, pivotally connected with the latch-bolt *d*, said bolt, arms *s*, and bolt *r* constituting the latch-bolt construction proper. By the turning of the knob it will be seen that the bolt *d* will be withdrawn.

It is desirable that the latch-bolt should be retracted without unduly moving the yoke-frame, and to this end the lever *q* is arranged to impart to said bolt a more rapid retracting movement than has the yoke-frame, and by virtue of the connection whereby this result is obtained the knob and spindle are given a firmer rotative movement.

By means of the peculiar connection of the knob with the spindle (to be described) the knob *t* on the inside of the door may be left free to operate the bolt *d*, while the knob *u* on the outside of the door may be locked. Each of these knobs is provided with a shank, as usual, and the ends of the spindle are screw-threaded to receive the knob.

The two hubs *g* and *h* (shown in Fig. 4) are slipped onto the spindle *c* and occupy the squared portion thereof, which lies within the lock-case, the hub *g*, as stated, having a bearing upon the short hub *i* of the hub *h*. On the spindle is a collar *w*, and between it and the end of the short hub *i* is a spring *x*, the shank of the knob *u* being counterbored to inclose said collar and a part of the spring and being also provided with projections *y*



on the end thereof, which engage similarly-shaped notches in the hub *g*.

It is seen that in view of this construction when the knobs *t* and *u* are screwed upon the spindle as soon as the knob *t* comes to a bearing a continued screwing up thereof will compress the spring *x*, and by this means it is possible to adjust the position of the knob *u*. When all the parts are in operative position, the projections *y* on the shank of the knob *u* will be in engagement with notches in the hub *g* and the screwing up of the knob *t* will effect the proper relative adjustment longitudinally of the parts on the spindle.

It will be observed by a glance at Fig. 4 of the drawings that the end of the shank of the knob *t* and the end of the hub *h* contiguous to it are each provided with a narrow ledge or shoulder *h'*, which is formed by making one half of the end of each part slightly higher than the other half. The height of the shoulder in the drawings is considerably exaggerated for the sake of clearness; but in practice it is only of such height as will permit one in screwing the parts together to detect by the sense of touch when the two ends lie with their respective shoulders parallel one with the other and in engagement. The height of these shoulders is such as will permit them to be forced by one another, if desired, to unscrew the knob, and preferably the shoulders should be slightly beveled to facilitate this movement. This feature of the construction is designed to bring the slots *z* in the shank of the knob *t* and spindle *c* into registration, to the end that their position may be exactly determined preparatory to sliding a key into the slot *z*, as described farther on, whereby the hub *h* is interlocked with the shank of the knob *t*, which is equivalent to securing the said hub directly to the spindle. Now from the fact that the hub *g* is disconnected from the spindle, but is connected with the knob *u*, and from the fact that the hub *h* is directly connected with the spindle it is obvious that with means for holding the hub *g* stationary the inner knob *t* may be turned at will without imparting any movement to the outer knob *u*; but the locking of the outer knob does not in any way affect the operation of the yoke-frame *n*, which can be still operated by the inner knob *t*.

Provision is made herein for preventing the removal of the knobs when the door is closed. The outer knob *u* is locked to the spindle by its engagement with the hub *g*, which is only partially rotatable on the spindle. To prevent the unscrewing of the knob *t* from its spindle, a slot *z* is provided in both the spindle and the shank of said knob in which a key or feather 1 may slide, which key when the knob *t* is being screwed up will lie entirely within a slot cut in the hubs *g* and *h*; but when the proper adjustment of the knob has been attained said key may by means of a spindle 2, having thereon a pinion 3, which

engages with the toothed portion of said key, be operated to move the latter endwise in said slot *z* and into interlocking position between the latter and the shank of the knob *t*. The spindle 2 being operable only from the face of the lock prevents said key from being tampered with by any manipulation of the knob or spindle when the door is closed.

It will be observed that normally the rack on the key 1 is not in mesh with the pinion 3. but that it must be brought into engagement with it before it can be operated by the pinion, and this may be done by the manipulation of the knob *t*.

Means operated from the face of the lock are provided for locking the hub *g* against rotation, and consequently also locking the outer knob *u*. These means consist of a rock-shaft 4, having an upturned end which projects through the face of the lock, as shown in Fig. 2, and travels in a curved slot therein. This rock-shaft extends under and in proximity to the projection *k* on the hub *g* and has thereon two bosses 5 so situated that when the shaft is rocked in one direction these bosses will engage the projection *k* of said hub and when thrown in the opposite direction will become disengaged from said projection. A portion of said rock-shaft is squared off on its under side, and a flat spring 6 applied thereto tends to hold said shaft in engagement with and out of engagement from said hub *g*. These hubs are so constructed that the yoke-frame *n* will be operated whether the hubs are turned to the right or to the left. This is common, however, to most lock constructions.

In the simpler form of lock construction, in which the spindle may be at all times operated by either knob, the knob *u* need not necessarily be screwed onto the spindle nor need the shank thereof be counterbored to receive the spring *x*, but the knob may be secured to the spindle in any desirable way and the spring *x* be located between the end of the shank and the hub.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination in a lock, of a spindle, a hub on the latter within the lock, a knob screwed on the spindle, interlocking means in the lock between the knob and hub operable only from a point in the face of the lock, substantially as described.

2. The combination in a lock, of a spindle, a hub on the latter within the lock, a knob secured on each end of the spindle, a spring between one knob-shank and said hub, and interlocking means within the lock between the other knob and the spindle, operated from a point outside of the lock, substantially as described.

3. The combination in a lock, of a spindle, a hub on the latter within the lock, a knob screwed to the spindle, interlocking means between said hub and said knob in the lock,



consisting of a sliding key adapted to engage both knob and hub, and means for operating said key from a point outside said lock, substantially as described.

5 4. The combination in a lock, of a spindle, a hub on the latter within the lock, a knob secured on each end of the spindle, a spring between one knob and said hub, and interlocking means within the lock between the other  
10 knob and the spindle consisting of a sliding key adapted to engage both hub and knob, and means for operating said key from a point outside the lock, substantially as described.

15 5. The combination in a lock, of a spindle, a hub on the latter within the lock, a knob screwed to the spindle, interlocking means between said hub and said knob in the lock consisting of a sliding key adapted to engage both knob and hub, and means for operating  
20 said key from a point outside said lock consisting of a spindle, a pinion thereon, a rack on said key for engagement with said pinion, and means for rotating the spindle from a point outside of the lock, substantially as described.  
25

6. In a lock of the class described, a case, a spindle having hub-engaging portions lying within said case and having threaded ends, two latch-operating members on said spindle,  
30 one of which is movable on the other around the spindle, said other member being rotatable with the spindle; a knob screwed onto one end of the latter and interlocking with said independently-movable member; another knob screwed on the opposite end of the  
35 spindle, a key, a slot in the spindle, and a slot in the shank of said last-named knob, and means extending through the face of the lock whereby the key may be moved endwise to effect the interlocking of said spindle and knob,  
40 substantially as described.

7. In a lock of the class described, a suitable case, a spindle having an angular portion lying within the case, a knob adapted to be screwed onto each end of the spindle, two  
45 latch-operating members within the case, one of which is rotatable with and the other around the spindle, and means for locking said other lock-operating member to the spindle consisting of a slot in the spindle and a  
50 slot in the shank of one of the knobs registering therewith, a key movable endwise in said slot from a point outside of the case, to prevent the unscrewing of said knob; a collar fixed on the spindle, a spring between said  
55 collar and one of said lock-operating members, whereby that member is yieldingly pressed against the shank of one of said knobs, substantially as described.

8. In a lock of the class described, a case, a  
60 spindle having threaded extremities, two latch-operating hubs on said spindle one of which is rotatable on the spindle and the other rotatable with the spindle; a knob adapted to be screwed up against said fixed hub, in-  
65 terlocking means between said hub and the shank of said knob, a collar fixed on the other end of the spindle, a spring between said collar and one of said hubs, a second knob screwed up against the movable hub and in-  
70 terlocking therewith, substantially as described.

9. In a lock or latch, the combination of a spindle, a knob thereon, a latch-operating hub on the spindle, and means operable only from  
75 the face of the lock for interlocking said knob and hub, for movement as one piece, substantially as described.

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Witnesses:

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