

No. 711,528.

Patented Oct. 21, 1902.

F. A. RICHARDSON.

LOCK.

(Application filed Mar. 6, 1902.)

(No Model.)

Fig. 1.

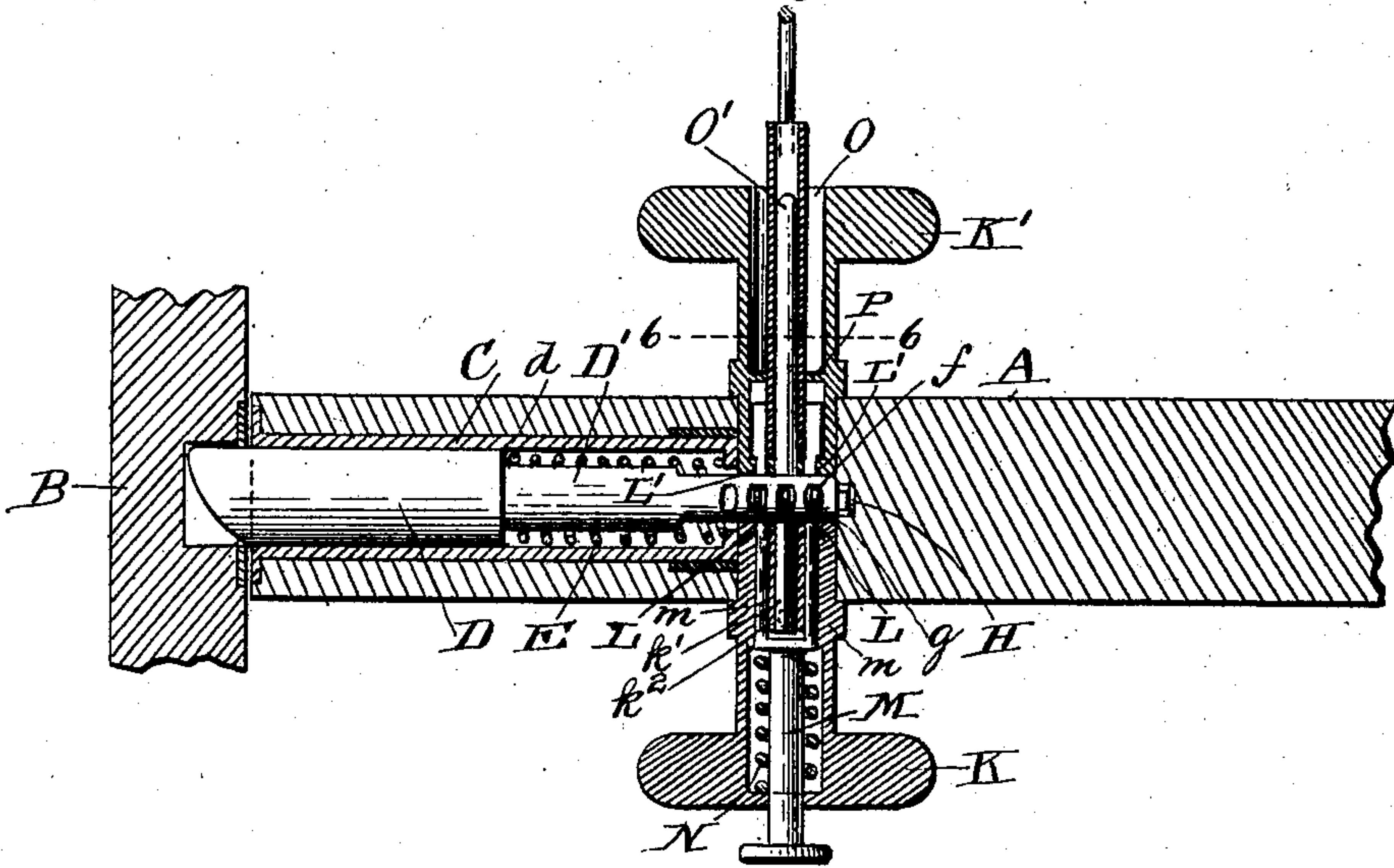


Fig. 2.

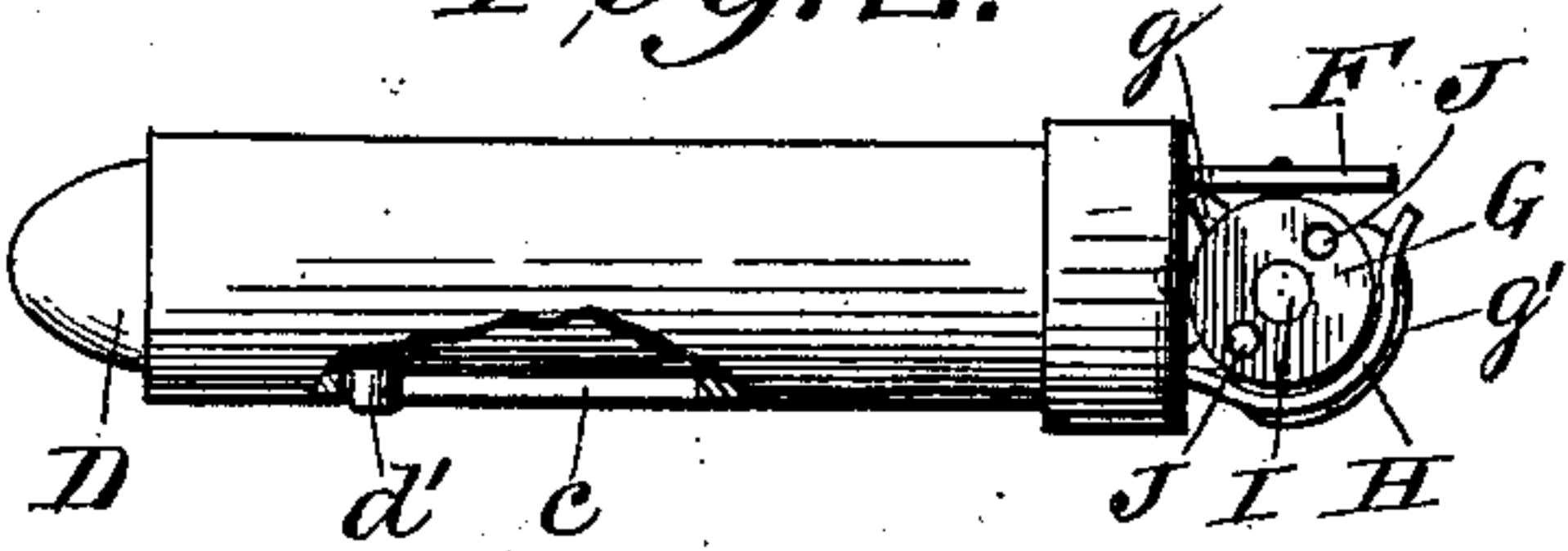


Fig. 3.



Fig. 4.

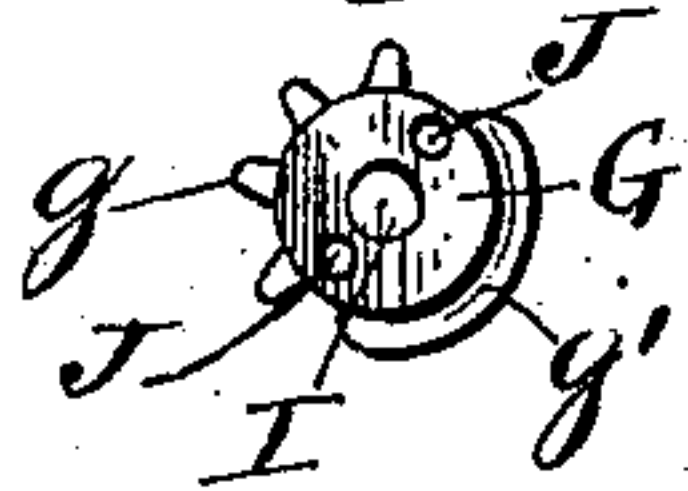


Fig. 5.

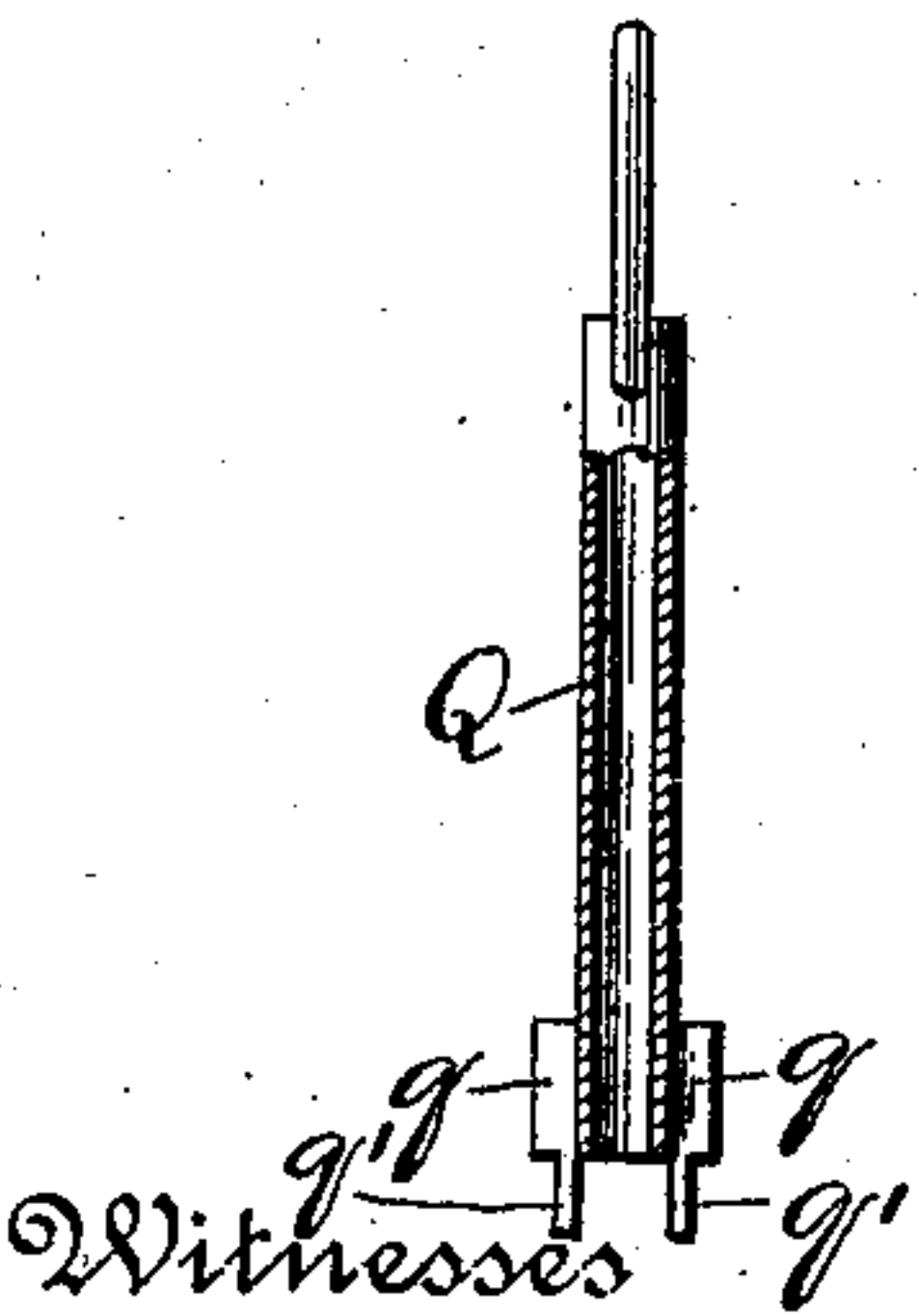


Fig. 6.

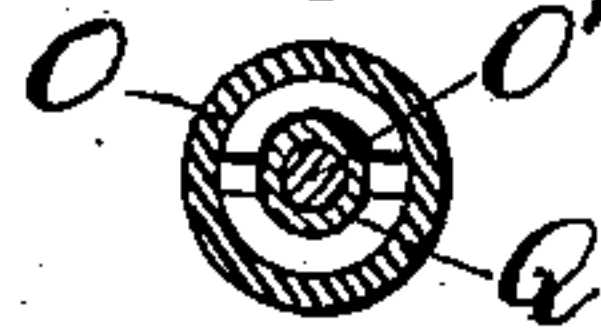
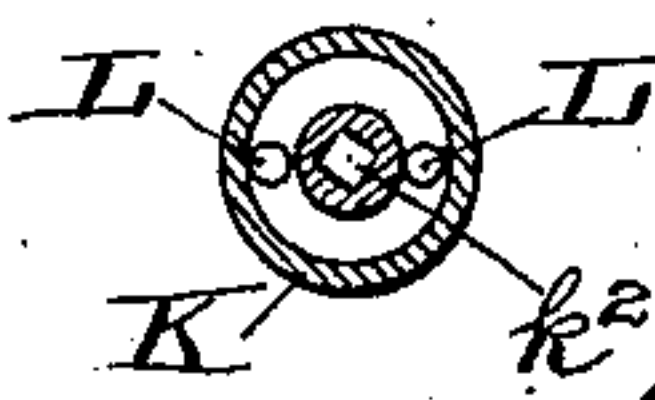


Fig. 7.



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UNITED STATES PATENT OFFICE.

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LOCK.

SPECIFICATION forming part of Letters Patent No. 711,528, dated October 21, 1902.

Application filed March 6, 1902. Serial No. 96,963. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS ALBERT RICHARDSON, a citizen of the United States, residing at Milnor, in the county of Sargent and State of North Dakota, have invented certain new and useful Improvements in Locks, of which the following is a specification.

My invention relates to locks, and more particularly to that kind of locks generally known as "night-latches," and has for one of its objects to combine a knob-turned latch with a key-actuated lock, and thus avoid the necessity of providing two latching means.

Another object of my invention is to reduce to a minimum the necessary working parts of a lock having a keyhole in the knob and by cheapening the cost of manufacture of this style of lock make it a commercial possibility as well as a practical mechanism. It will also be readily understood that by thus combining the locking means with the ordinary knob-latch the unsightly keyholes now commonly used may be abolished and also the cost of providing doors with several locks.

Additional advantages of my invention will more fully appear in the following description and by reference to the drawings, in which—

Figure 1 is a horizontal longitudinal section of my invention applied to a door; Fig. 2, a side view with the knobs removed; Fig. 3, a detail view of the sliding bolt; Fig. 4, a detail view of the segmental gear-wheel for actuating the sliding bolt; Fig. 5, a detail view of the key used for the night-latch; Fig. 6, a cross-section of the keyhole-knob on the line 6 6 of Fig. 1, and Fig. 7 a cross-section of the inside knob.

Referring to the drawings, in which similar reference characters indicate corresponding parts throughout the several views, A represents the door to which the latch is applied, and B the door-jamb.

My lock consists of the following parts.

C represents a cylindrical casing containing a sliding bolt D, which is held normally in a locking position by means of a coil-spring E, interposed between a shoulder d on the bolt D and the end of the casing C, the bolt being reduced, as shown at D' , to receive the coil-spring. The casing C is slotted, as shown

at c , to receive a stud d' on the bolt D to limit its forward movement.

F represents an extension on the bolt D, which has cut therein holes f to serve as a rack in which the teeth g of a segmental gear-wheel G fit. The gear-wheel G is held in place by means of a flange g' on its edge opposite the teeth g , which fits into a slotted piece of spring metal H, secured to the end of the casing C and bent to fit partly around the gear-wheel G. The gear-wheel G has a central hole I and one or more holes J, arranged around the central hole, which are for the purposes hereinafter described.

K represents the inside knob, and K' the knob on the outside, of the door. The knob K' has a reduced cylindrical extension which fits in the hole I in the segmental gear G and an extension k' thereof that is preferably made rectangular in cross-section and fits into a rectangular hole K^2 in the knob K and held in place by a screw or other suitable means. The ends of the knob portions K and K' next to the segmental gear G have holes L and L' cut therein to register at times with the holes J in said gear-wheel G. The inside knob K has a bolt M therein, actuated by means of the spring N and formed at the end with pins m , adapted to protrude through the holes L and fit into the holes J when the knobs are turned so that the holes J, L, and L' register. When it is desired to prevent the knobs K and K' from operating the sliding bolt D, the bolt M is pulled outwardly until the ends of the pins m are inside the casing of the knob, and the bolt M is then given a twist, so as to allow the pins to rest against the inside of the knob. It will be readily seen that when the pins m are in the holes J either knob will operate the bolt; but when the pins m are withdrawn inside the knob, as above described, neither knob will operate the bolt.

In order that the lock may operate as a night-latch, I provide the outside knob K' with a cylindrical bore O, having a round stem O' in the center thereof, and near the base of the bore a flange P, having cut-out portions to permit the passage of ears q on a key Q. The ends of the ears q have pins q' to fit into the holes L' in the end of the knob K' and the holes J in the gear-wheel G when

the knobs are turned so that the holes J and L' register. The bolt D can then be withdrawn and the door opened.

I have shown my lock formed with two round holes J, L, and L' diametrically disposed; but it will be readily understood that the shape and number of holes and their respective positions may be varied in order to prevent duplication of locks, also the length of ears q and the consequent distance between the flange P and the end of the knob K', and the size of the stem O' may be varied for the same purpose, so that the number of locks might be multiplied indefinitely without duplication.

Having thus described my invention, what I claim is—

1. In a lock, a sliding bolt, a rack secured thereto, a segmental gear-wheel meshing with said rack, a flange on the periphery of said wheel opposite the teeth forming the segmental gear, a strip of spring metal partly surrounding said gear-wheel and having a slot to receive said flange, and means to actuate said gear-wheel, substantially as shown and described.

2. In a lock, a sliding bolt, a rack secured thereto, a segmental gear-wheel meshing with said rack and having a central aperture, knobs journaled in said aperture, said gear-wheel and knobs having holes therein adapted to register at times, a spring-actuated bolt and pins in one knob, and a key to fit into the other knob adapted to fit into said registered holes, substantially as shown and described.

3. In a lock, a sliding bolt, a rack secured

thereto, a segmental gear-wheel meshing with said rack and having a central aperture and holes arranged between said aperture and the periphery of said gear-wheel, knobs journaled in said aperture having holes to register with the holes in said gear-wheel, a spring-actuated bolt in one knob having pins to protrude through the holes therein and enter the holes in the gear-wheel, a key to fit into the other knob, and pins on the end thereof to project through the holes in said knob and enter the holes in said gear-wheel, substantially as shown and described.

4. In a lock, a sliding bolt, a rack secured thereto, a segmental gear-wheel meshing with said rack and having a central aperture and holes arranged between said aperture and the periphery of said gear-wheel, knobs journaled in said aperture and having holes to register with the holes in said gear-wheel, a spring-actuated bolt in one knob having pins to protrude through the holes therein and enter the holes in the gear-wheel, the other knob formed with a cylindrical bore, a flange intermediate the ends of said bore and having cut-out portions, a key having ears to pass through said cut-out portions, and pins on said ears to protrude through the holes in said knob and enter the holes in said gear-wheel, substantially as shown and described.

In testimony whereof I hereto affix my signature in the presence of two witnesses.

FRANCIS ALBERT RICHARDSON.

Witnesses:

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