



No. 689,809.

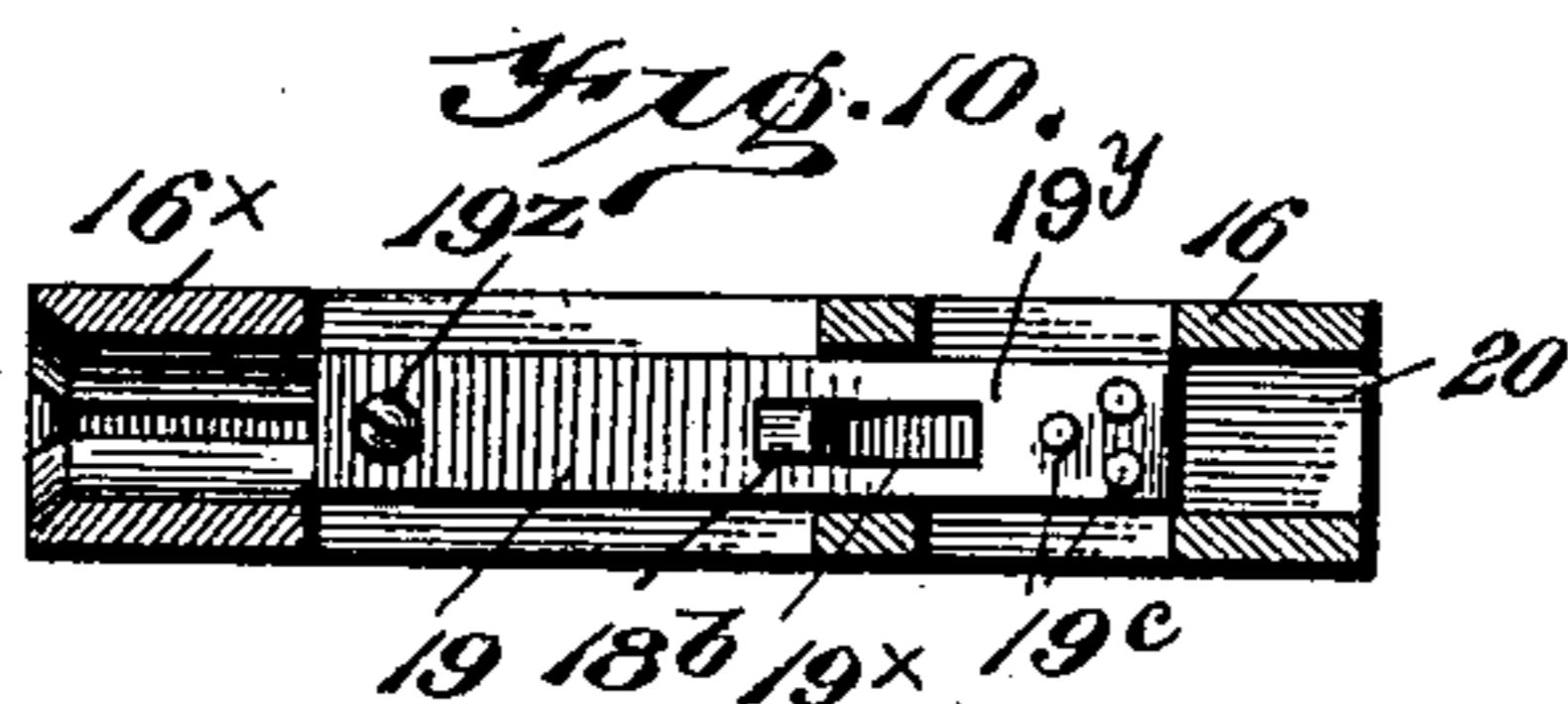
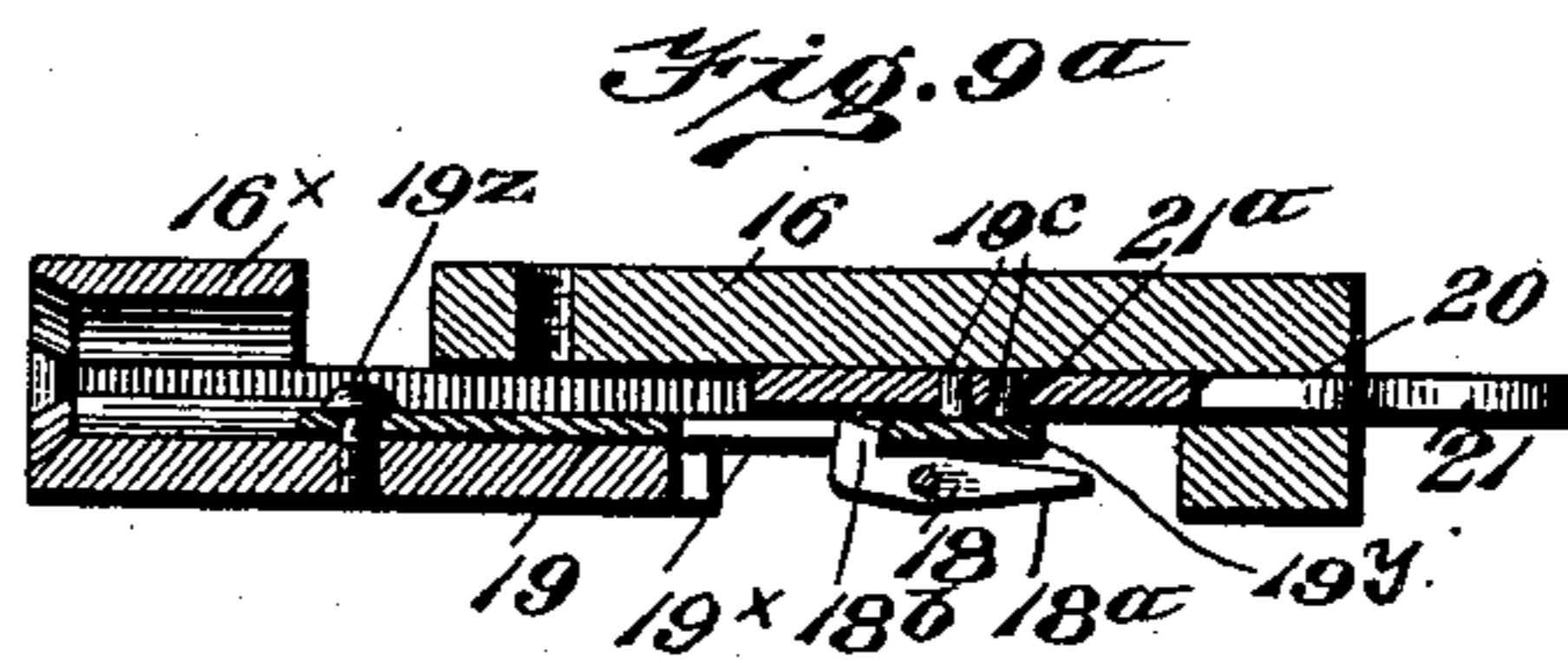
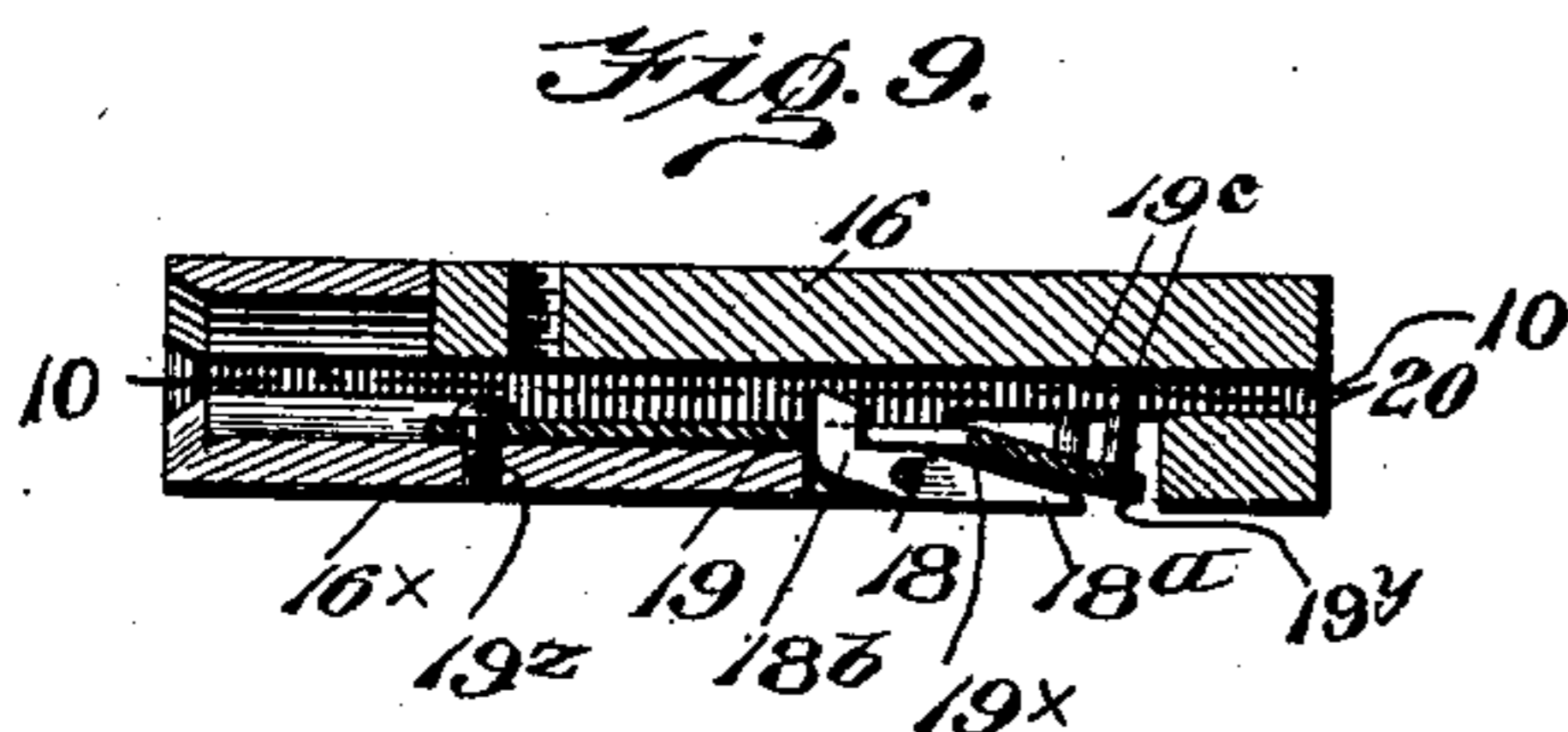
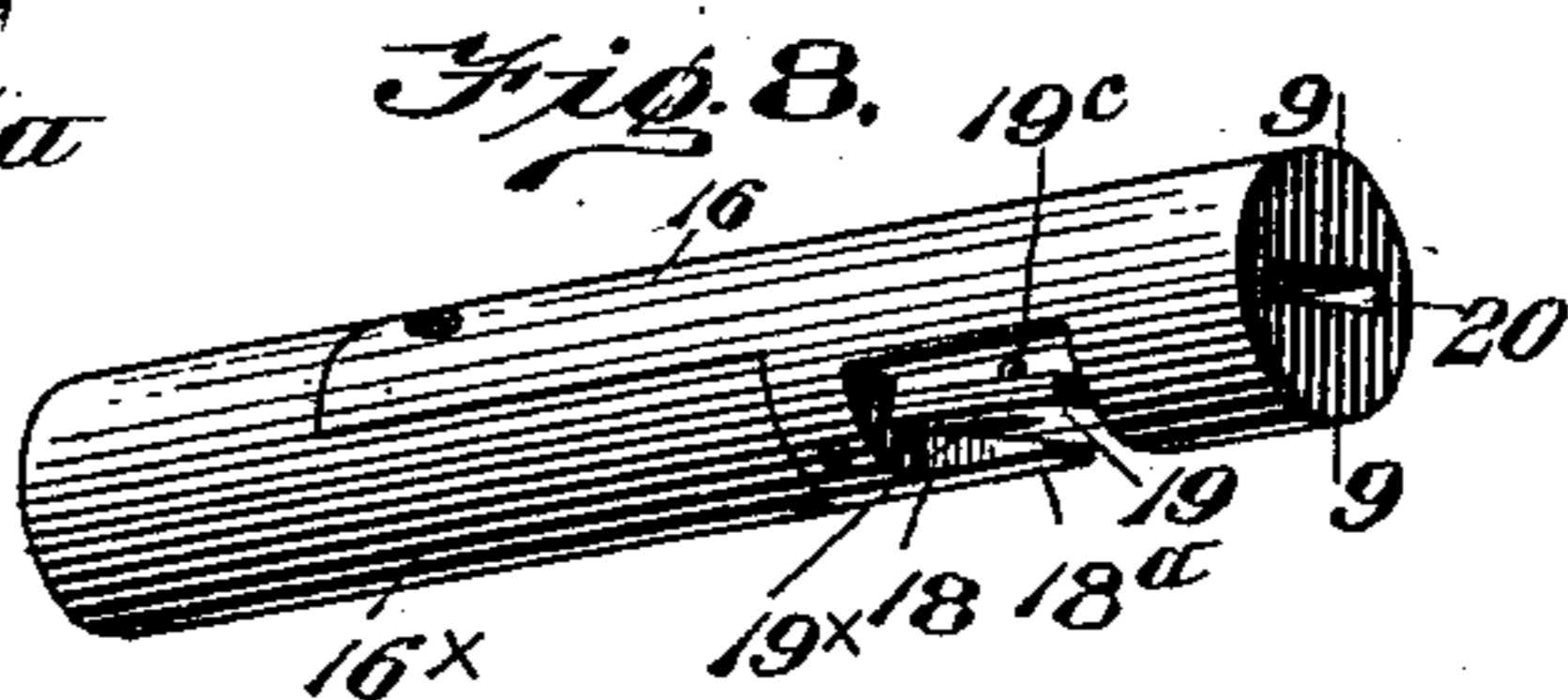
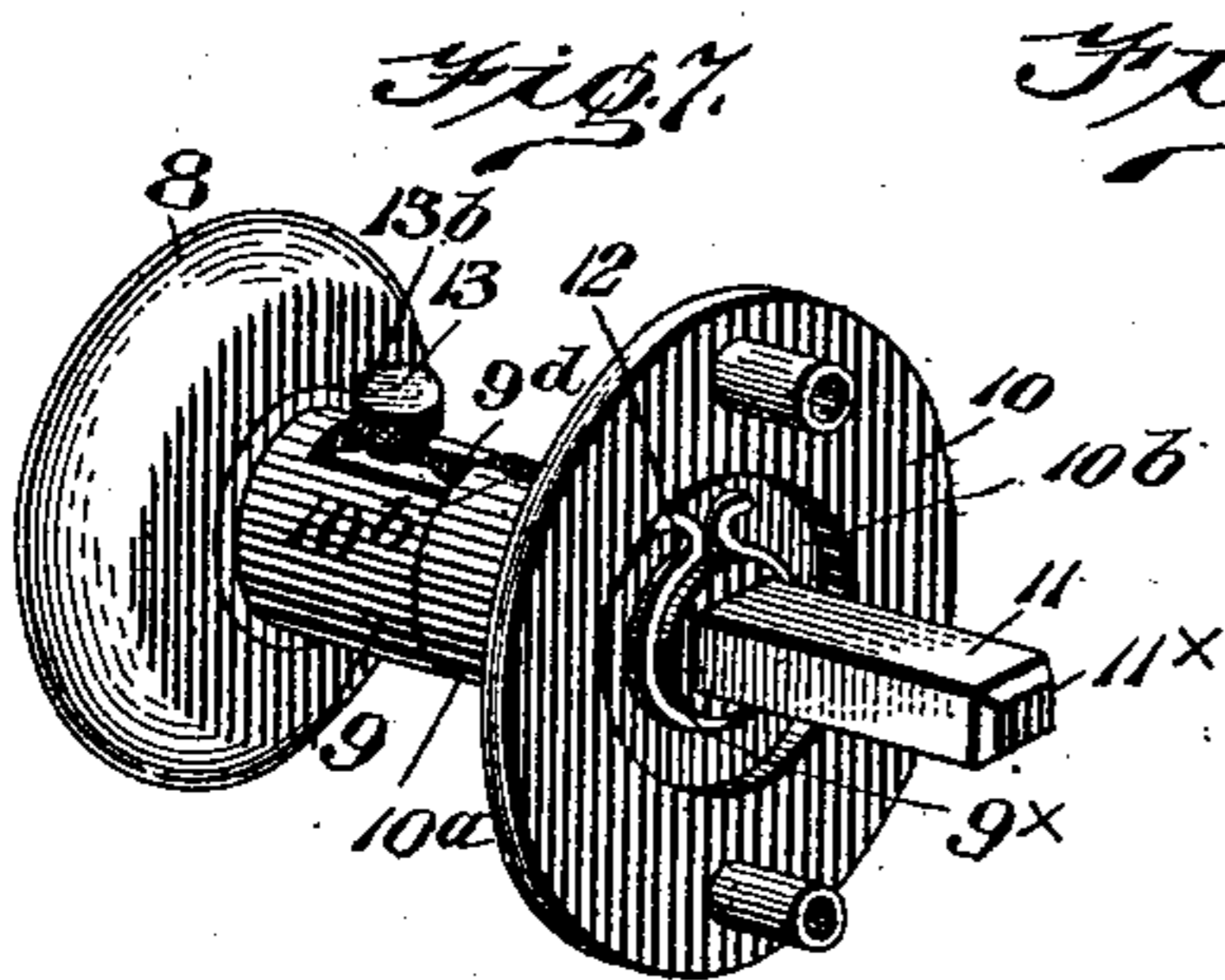
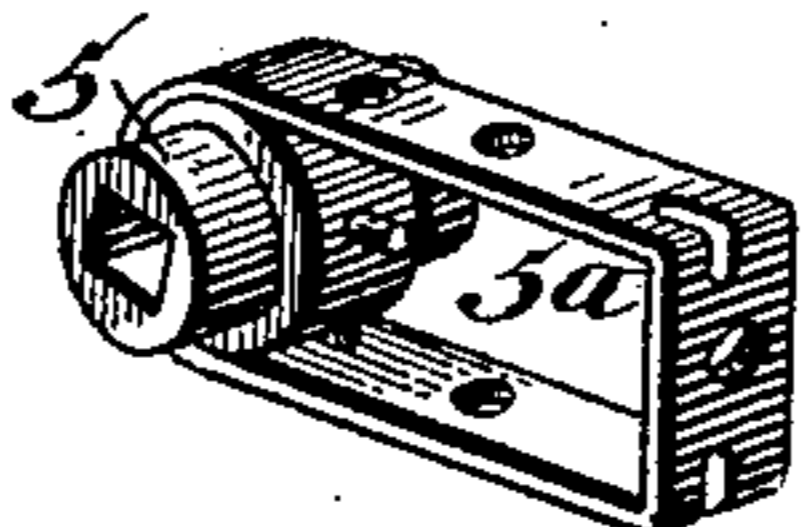
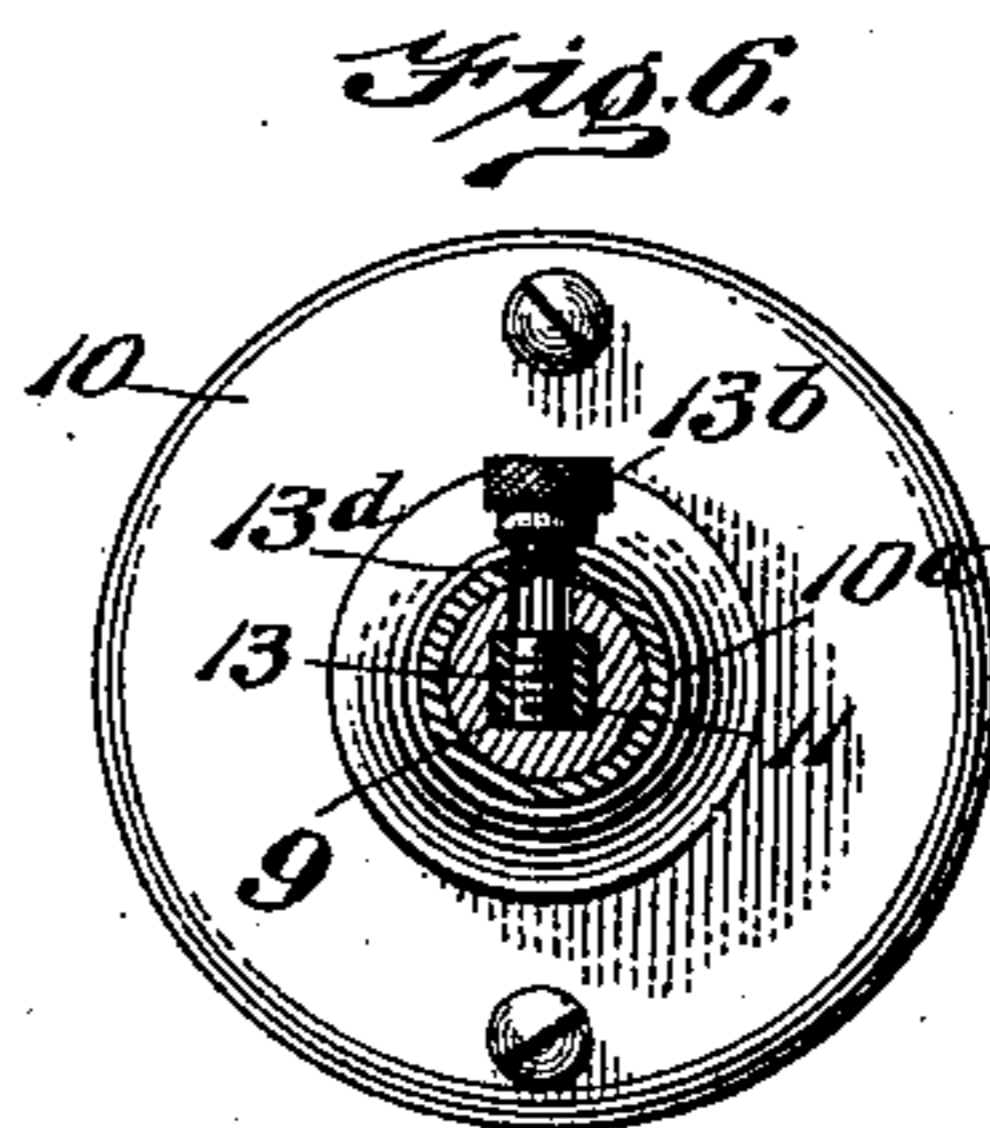
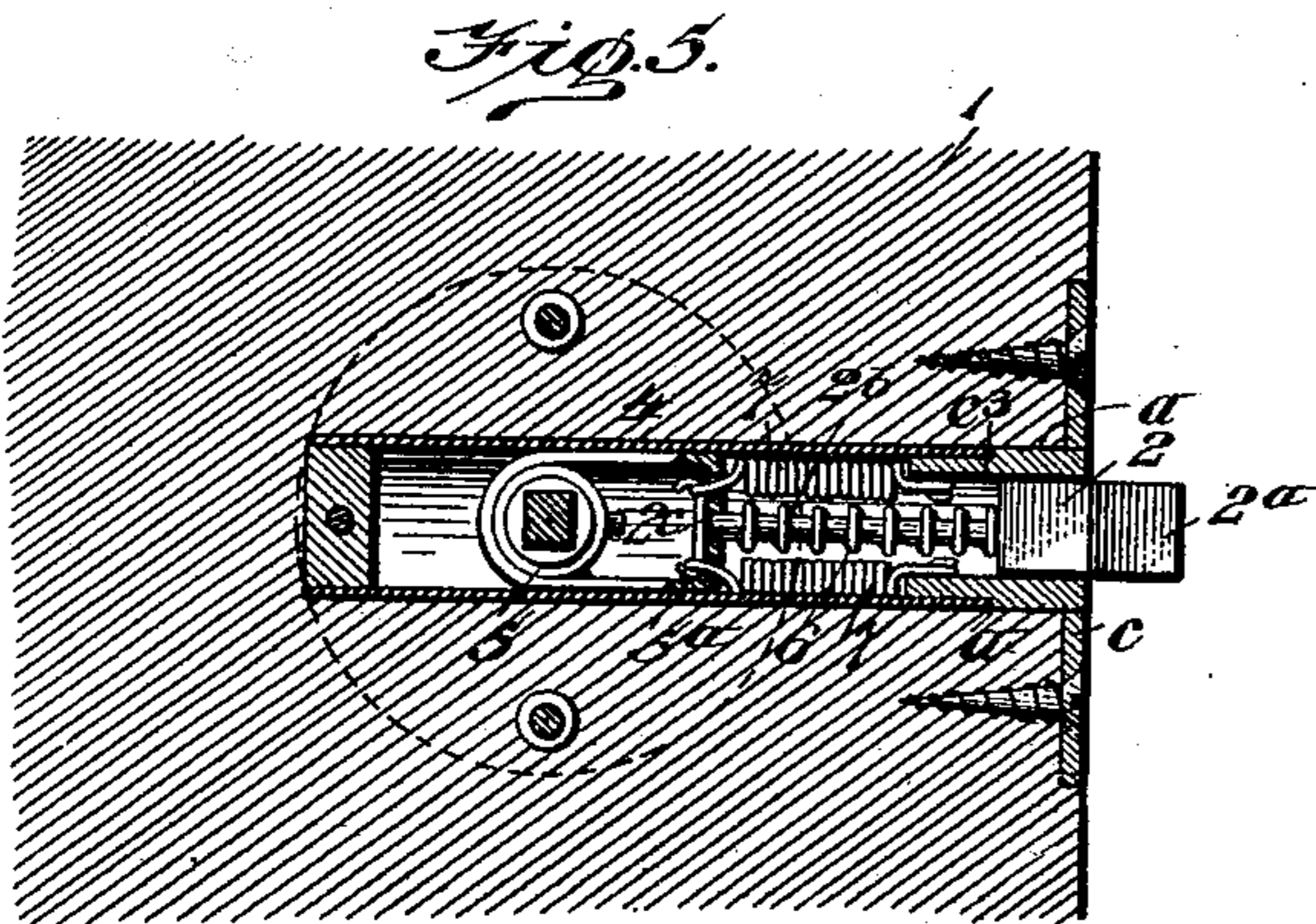
Patented Dec. 24, 1901.

F. P. KEENAN.  
LOCK.

(Application filed Apr. 23, 1901.)

(No Model.)

2 Sheets—Sheet 2.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

FRANK P. KEENAN, OF PORTLAND, OREGON.

## LOCK.

**SPECIFICATION** forming part of Letters Patent No. 689,809, dated December 24, 1901.

Application filed April 23, 1901. Serial No. 57,097. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK P. KEENAN, residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Locks, of which the following is a specification.

My invention relates to improvements in that class of door-locks including a cylinder-lock with a keyway in the knob for adjusting the spindle and connecting the knob with the spindle; and it comprehends in its general construction an outside knob normally held to turn free of the spindle and adapted to cooperate with the latch-bolt spindle and key-operated devices for locking the said outside knob with the said latch-bolt spindle.

My invention also seeks to provide an unlocking means of the character stated having a novel arrangement of latch-bolt-operating spindle carrying an inside knob, fixedly held thereon, adapted to cooperate with the outside knob, normally held to turn free of the spindle and relatively so combined with the spindle whereby the spindle can be shifted from the inside to engage with the outside knob to permit the spindle and the latch-bolt controlled thereby being operated by the outside knob, means being also included whereby the spindle and both knobs connected thereto can be held from rotation.

My invention, furthermore, embodies a novel combination of a cylinder bolt-locking latch and a spindle for operating it, means for adjusting the spindle and knobs cooperating therewith, and a bolt-carrying cylinder applicable for a right or a left hand door, all being so arranged that the locking mechanism can be the more readily attached to the door than is ordinarily done and the cutting out or mortising of the door materially reduced.

In its subordinate features my invention consists in certain details of construction and peculiar combination of parts, all of which will hereinafter be fully described, and specifically pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved lock mechanism applied to a portion of a door. Fig. 2 is a longitudinal section of my improved lock, taken practically on the line 2 2 of Fig. 1, the spindle being shown in

position to operate the latch-bolt by movement of the inside knob only. Fig. 3 is a similar view, the spindle being shown in position to move the latch-bolt by movement of the inside knob and to be engaged by the key-manipulated devices in the outside knob. Fig. 3<sup>a</sup> is a longitudinal section, the spindle having the same adjustment as in Fig. 3, the key-operated devices being shown shifted to engage the spindle for turning it by key action. Fig. 4 is a longitudinal section showing the spindle adjusted to connect both the inside and outside knobs and hold both knobs locked from turning. Fig. 4<sup>a</sup> is a longitudinal section showing the spindle adjusted to connect both knobs to turn therewith. Fig. 5 is a transverse section on line 5 5 of Fig. 2. Fig. 5<sup>a</sup> is a detail view of the tumbler. Fig. 6 is a sectional view on the line 6 6 of Fig. 4. Fig. 7 is a perspective view of the spindle and the inside knob devices. Fig. 8 is a perspective view of the tubular spindle-engaging member held in the outside knob-spindle. Figs. 9 and 9<sup>a</sup> are cross-sections taken on the line 9 9 of Fig. 8, showing, respectively, the normal condition of the several parts and their position when the key is inserted. Fig. 10 is a horizontal section of the tubular spindle, the parts thereof being in the position shown in Fig. 9.

Referring now to the accompanying drawings, in which like reference characters indicate like parts in all the figures, 1 designates a portion of a door, having an edge bore *a*, bisected by the transverse bore *b*, the bore *a* having the latch-bolt cylinder held therein by the cap-plate *c* or by making the barrel or cylinder slightly tapering in the usual manner, the bore *b* being provided for the knob-spindle.

The bolt 2 may be of any approved spring-thrust kind. In the drawings I have shown the latch-bolt 2 formed with the usual beveled edge 2<sup>a</sup>, and said bolt is held to slide in a housing *c*<sup>3</sup>, detachably fitted in the cylinder 4, and the bolt 2 has an inwardly-extending shank 2<sup>b</sup>, that projects through and slides in the member 5<sup>a</sup> of the tumbler, the end of the shank having a stop-flange 2<sup>c</sup>, and a spring 6 is fitted on the shank 2<sup>b</sup> to normally force the latch-bolt to its outermost position. The tumbler 5 is held to its normal position by the

member 5<sup>a</sup> and springs 7 7, as clearly shown in Fig. 5.

8 designates the inside knob, to which is fixedly connected the hollow hub 9, the outer end of which is reduced to receive the hub 10<sup>a</sup> of the escutcheon-plate 10, in which the hub 9 is held to turn freely. The hub 9 has a non-circular bore to receive the adjustable shank or spindle 11, and the plate 10 has a counterbore 10<sup>b</sup> on its inner face to permit of a proper application of the spring-clamp 12, that fits an annular groove 9<sup>x</sup> in the end of the hub 9 to hold the same from pulling away from the plate 10. The hub 9 has a series of connected apertures 9<sup>c</sup>, 9<sup>d</sup>, and 9<sup>e</sup> for the insertion of the adjusting-screw 13, and the hub 10<sup>a</sup> has an aperture 10<sup>c</sup> in line with the aperture 9<sup>e</sup> in the hub 9, the reason for which will hereinafter be explained. The spindle 11 has a number of threaded sockets 11<sup>a</sup> to provide for a proper connection thereof (on doors of different thickness) with the inside knob and also provide for a proper longitudinal adjustment of the spindle relative to the two knobs. The adjusting-screw 13 has a reduced shank 13<sup>a</sup> and a milled head 13<sup>b</sup>.

14 designates the outside knob, which has a central bore in which is fixedly held a cylindrical casing 15, in which is detachably held the key-receiving barrel 16, held locked to turn with the casing by the screw 16<sup>a</sup>. (See Fig. 2.) The knob-casing 15, with the barrel 16, is held to turn freely within the hub 17<sup>a</sup> of the escutcheon-plate 17, and the said casing 15 is held from pulling out when adjusted to an operative position by the spring 18<sup>x</sup> engaging the groove 15<sup>x</sup> and the counter-bore 17<sup>x</sup> of the plate 17, as shown. The barrel 16, the peculiar construction of which is best shown in Fig. 8, comprises a fixedly-held portion and an inner slidably-held member, the inner end of which is made with a non-circular bore of a diameter to move onto and connect with the end 11<sup>x</sup> of the spindle 11. The sliding member 16<sup>x</sup> of the barrel has an outwardly-projecting spring-plate 19, made fast thereto by the screw 19<sup>z</sup>, the tension of said plate being such as to project its free end 19<sup>y</sup> down, as shown in Fig. 9, and the said plate 19 has a slot 19<sup>x</sup>, into which the toe end 18<sup>b</sup> of the latch 18, pivotally mounted on the stationary end of the barrel 16, projects. The outer end of the plate 19 extends into a recessed part of the member 16, and its spring-pressure is such as to normally press down on the heel 18<sup>a</sup> of the latch, and thereby move its locking-toe 18<sup>b</sup> up through the slot 19<sup>x</sup> in the plate 19 to hold said plate from moving inward toward the knob-spindle, and the said toe, as will clearly be seen by reference to Fig. 3, lies in the plane of the key-slot 20 in the barrel, and the normal position of the outer end of plate 19 is in a plane below said key-slot, as shown, and said end has arbitrarily-arranged studs 19<sup>c</sup>, the purpose of which will presently appear.

The manner in which my improved lock is operated is best explained as follows: When the parts are in the position shown in Fig. 2, the outside knob is held to turn freely without affecting the spindle 11 or the inside knob, the said spindle in the said figure being shown adjusted to be operated by the inside knob only. When it is desired to set the lock so it can be key-operated from the outside, the spindle 11 is shifted by means of the adjusting-screw 13 to the position shown in Fig. 3, and when in such position the outside knob is still left to rotate freely and the spindle held to be turned by the inside knob, the outer end of the said spindle being, however, sufficiently projected to be engaged by the key-controlled devices in the outside knob, which devices when shifted inwardly by the insertion of the key connect with the spindle, as shown in Fig. 3<sup>a</sup>, and permits the lock being operated from the outside, which is done by key operation only. To hold both the inside and outside knobs from turning and the latch-bolt from movement, the spindle 11 is shoved into the position shown in Fig. 4, and in this adjustment the screw 13 is made to engage the aperture 10<sup>c</sup> in the fixedly-held hub-plate 10<sup>a</sup>, which holds the spindle and the knobs from turning. To connect both the inside and outside knobs so they will move together, the spindle 10 is shifted to the position shown in Fig. 4<sup>a</sup>, which permits of the latch-bolt being manipulated by either knob in the usual manner. In operating the lock with the key it should be stated that as the key is pushed inward it will engage the toe 18<sup>b</sup> of the latch 18 and move the said toe down out of engagement with the plate 19, and as the toe 18<sup>b</sup> is thus pushed down the heel part 18<sup>a</sup> of the latch presses up against the corresponding end of the plate 19, exerts a quick movement of the same, and causes the studs 19<sup>c</sup> to enter correspondingly-arranged holes 21<sup>a</sup> in the key 21, and thereby interlock the key with the plate 19. This having been done, further movement inward on the key will serve to force the sliding section of the barrel out until it fits over the opposing end of the spindle 11, with which it is then locked, as clearly shown in Fig. 3<sup>a</sup>, and when thus adjusted a turn of the key will rotate the barrel, the spindle 11, and the latch-bolt, and at the same time turn both the knobs, it being understood that the correlation of the plate 19, latch 18, and the keyway is such that when the pressure on the latch 18, exerted by the key, is removed the spring of plate 19 will force the studs 19<sup>c</sup> out of engagement with the key and permit the withdrawal of the said key and at the same time throw up the toe of latch 18 to hold the sliding member of the barrel back to its normal position—that is, released from the spindle 11. The plate 19 and the key do not disconnect until after the sliding barrel-section has been drawn back.

From the foregoing description, taken in

connection with the accompanying drawings, it is thought the ease with which the several parts can be adjusted and the advantages of construction will be readily apparent and need not be further set out.

While I prefer to arrange the several parts of the mechanism as illustrated in the accompanying drawings and described, the said parts may be modified and details varied without departing from the scope of the appended claims.

The escutcheon-plates 17 and 10 may be secured to the door in any approved manner. I prefer, however, to form the escutcheon-plate 17 with inwardly-projecting hubs 17<sup>z</sup>, having threaded sockets, and the escutcheon-plate 10 with apertured hubs 10<sup>x</sup>, and to have the said hub seat in apertures *x* in the door, as clearly shown in Figs. 2, 3, and 4, by reference to which it will be seen that when thus arranged the two escutcheon-plates can be firmly held by the screws 10<sup>y</sup>.

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

1. In a lock as described, the combination with the inside and outside knobs, and the latch-bolt; of the spindle cooperating with the latch-bolt, said spindle being held to turn with the inside knob, but having longitudinal adjustment, a key-operated spindle-engaging member carried by the outside knob, and locking devices for holding the spindle from longitudinal movement when it is positioned to engage with both the inside and outside knobs, as set forth.

2. In a lock as described, the combination with the spring-retained latch-bolt, the inside knob and a single longitudinally-adjustable spindle, held to turn with the inside knob; of the outside knob, normally disengaged from the spindle, a barrel rotatable with the knob, a spindle-engaging device forming a part of the barrel and longitudinally adjustable, and a key-controlled means for shifting said spindle-engaging device to engage and release the turning spindle, for the purposes described.

3. In a lock as described, the combination with the inside knob, the spindle and the latch-bolt; of the outside knob, and a key-operated means, carried by the outside knob, normally out of engagement with the spindle, said key-operated means including a slidable spindle-engaging socket, a latch for holding it from sliding, and a keyway, for guiding the key into engagement with the latch and slidable socket, whereby on insertion of a key, the latch will be tripped and the sliding socket freed to slide outward by key-pressure, as set forth.

4. In a lock of the character described, the combination with the latch-bolt, the spindle

11 and the inside knob; of the outside knob, the barrel 16, rotatable therewith, said barrel having a slidable spindle-engaging member, having a key-engaging member, and a latch mounted on the stationary part of the barrel for holding the slidable spindle-engaging member from movement, said latch being arranged to be tripped by the insertion of the key, all being arranged substantially as shown and for the purposes described.

5. The combination with the inside knob, the spindle 11, and the latch-bolt, arranged substantially as shown; of the outside knob, the key-slotted barrel held to turn therewith, said barrel having a slidable spindle-engaging member, a latch pivotally mounted on the stationary barrel portion, a spring-actuated key-interlocking member carried by the slidable barrel-section, said member cooperating with the latch, whereby to move it (the latch) in the plane of the keyway, said latch being arranged, when key-engaged, to move the key-interlocking member into a locked engagement with the key, for the purposes described.

6. In a lock of the character described, the combination with the knob 8, having a hub 9, provided with a series of connected apertures 9<sup>c</sup>, 9<sup>d</sup> and 9<sup>e</sup>, the plate 10, having a hub 10<sup>a</sup>, provided with a slotway 10<sup>c</sup>, adapted to register with the aperture 9<sup>e</sup>, the adjusting-screw 13, and the spindle 11, having apertures to receive the screw 13, all being arranged substantially as shown and for the purposes described.

7. A lock of the character described, comprising a latch-bolt, and a spindle shiftable longitudinally in the inside knob and through the tumbler of said bolt; of an inside knob adapted to be fixedly held upon the spindle, an outside knob freely rotatable, key-operated devices in the hub of the outer knob, adapted to engage with the inner end of the spindle, said outside knob having a keyway, substantially as shown and described.

8. The combination in a lock as described, with the outside knob; of a barrel held in the knob-hub, said barrel including a reciprocating member 16<sup>x</sup>, having a spindle-engaging socket, a keyway in the fixedly-held barrel-section, a latch carried in said fixedly-held section, having a toe and a heel part, the spring-plate 19, connected to the sliding barrel-section, having a slot to receive the toe of the latch, and having projections 19<sup>c</sup>, and the key 21, having apertures 21<sup>a</sup>, all being arranged substantially as shown and for the purposes described.

FRANK P. KEENAN.

Witnesses:

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