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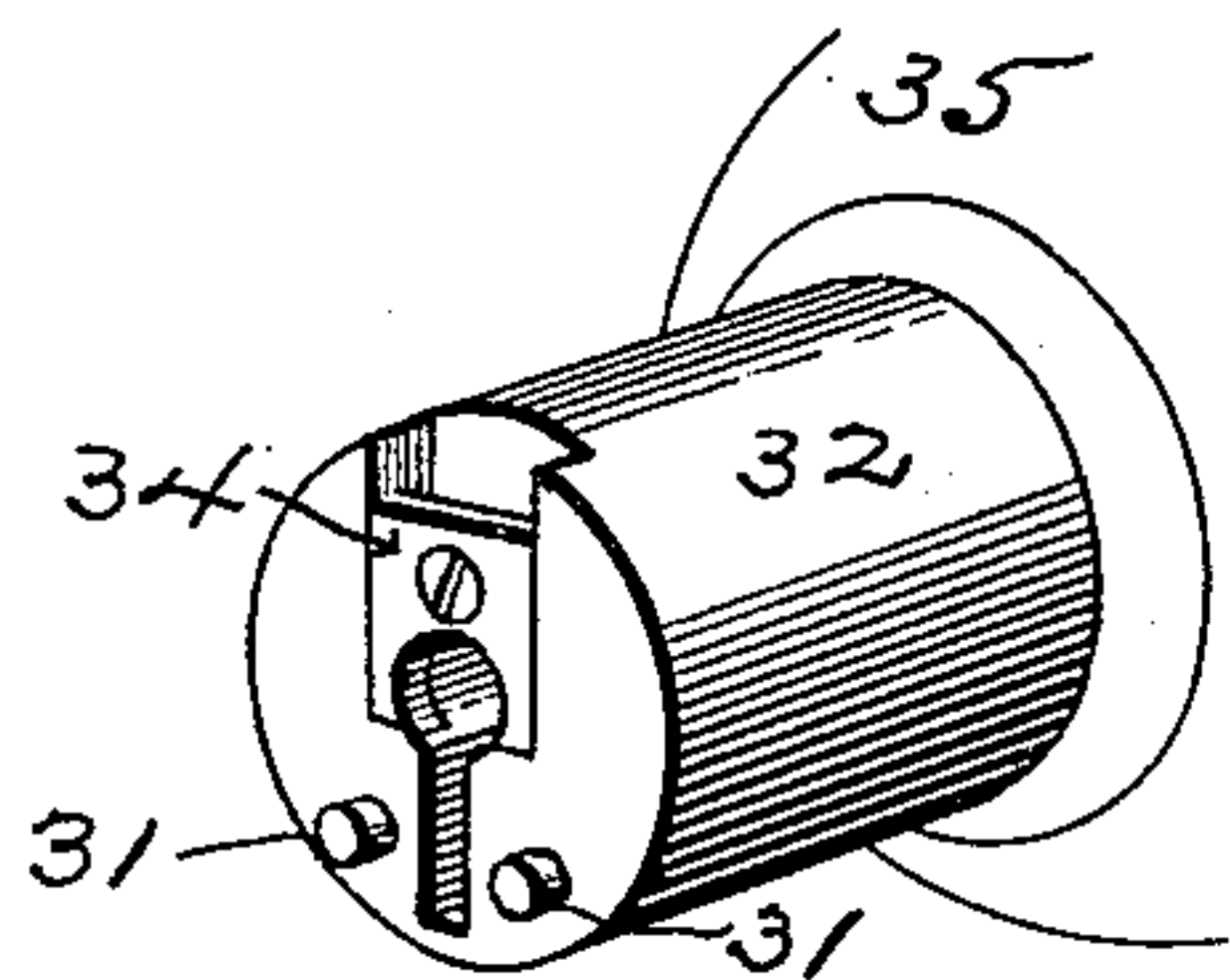
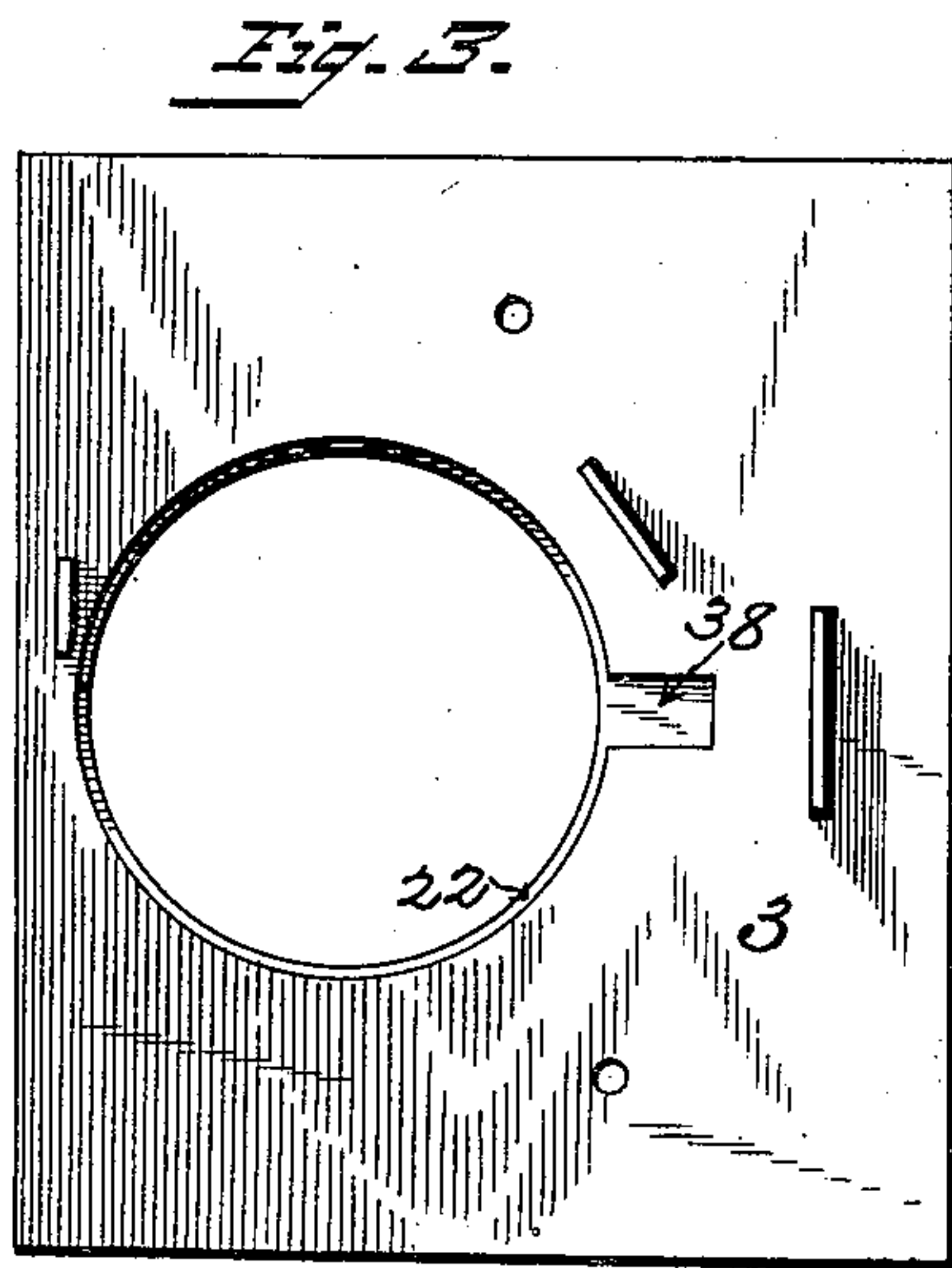
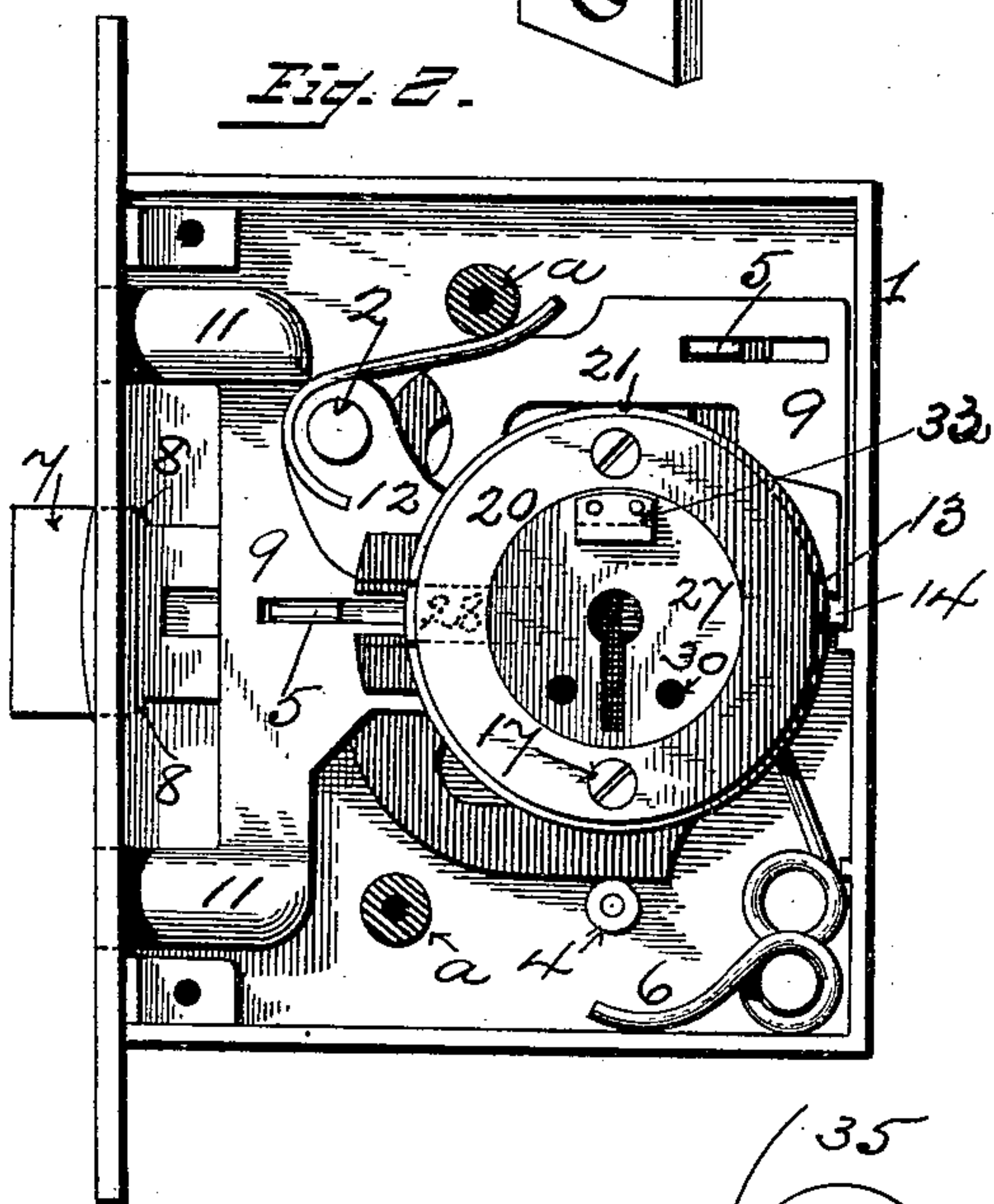
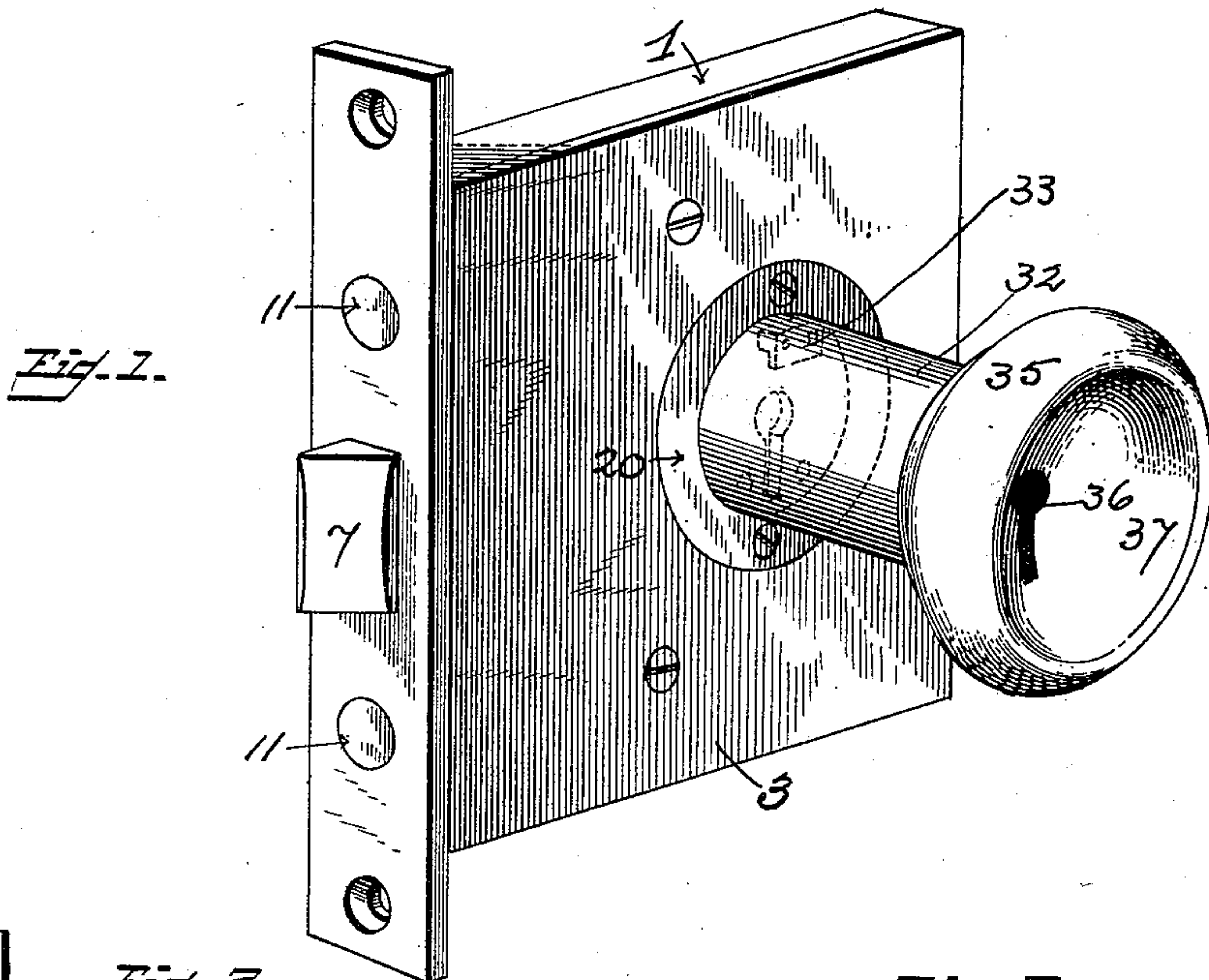
2 Sheets—Sheet 1.

C. W. FOLSOM & A. B. DAVIS.

LOCK AND LATCH COMBINED.

No. 407,926.

Patented July 30, 1889.



Witnesses
Wm. H. Stearns
C. L. Gooch

Inventors
Charles W. Folsom and
Augustus B. Davis.
By their Attorney
Chas. J. Gooch

(Model.)

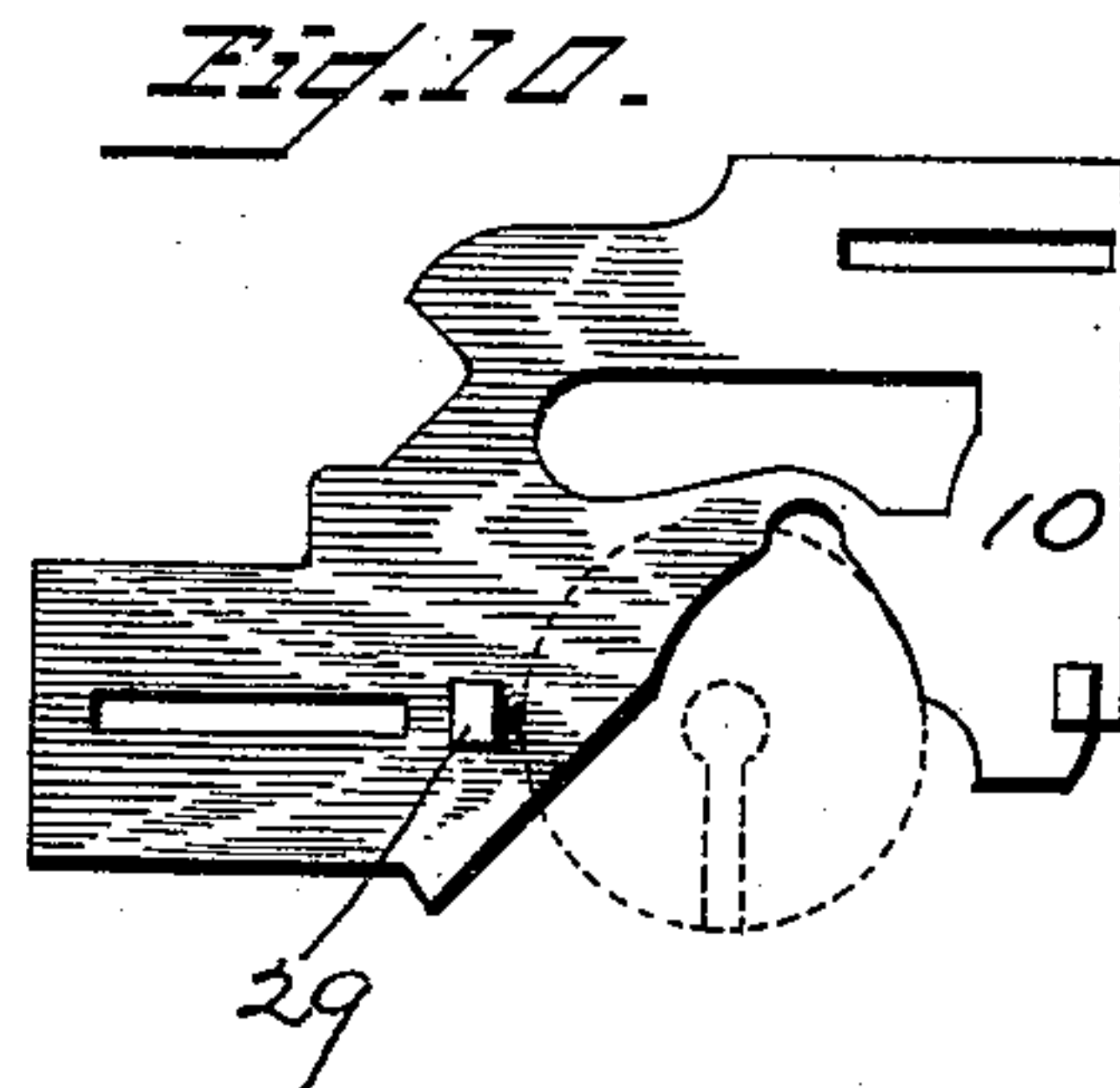
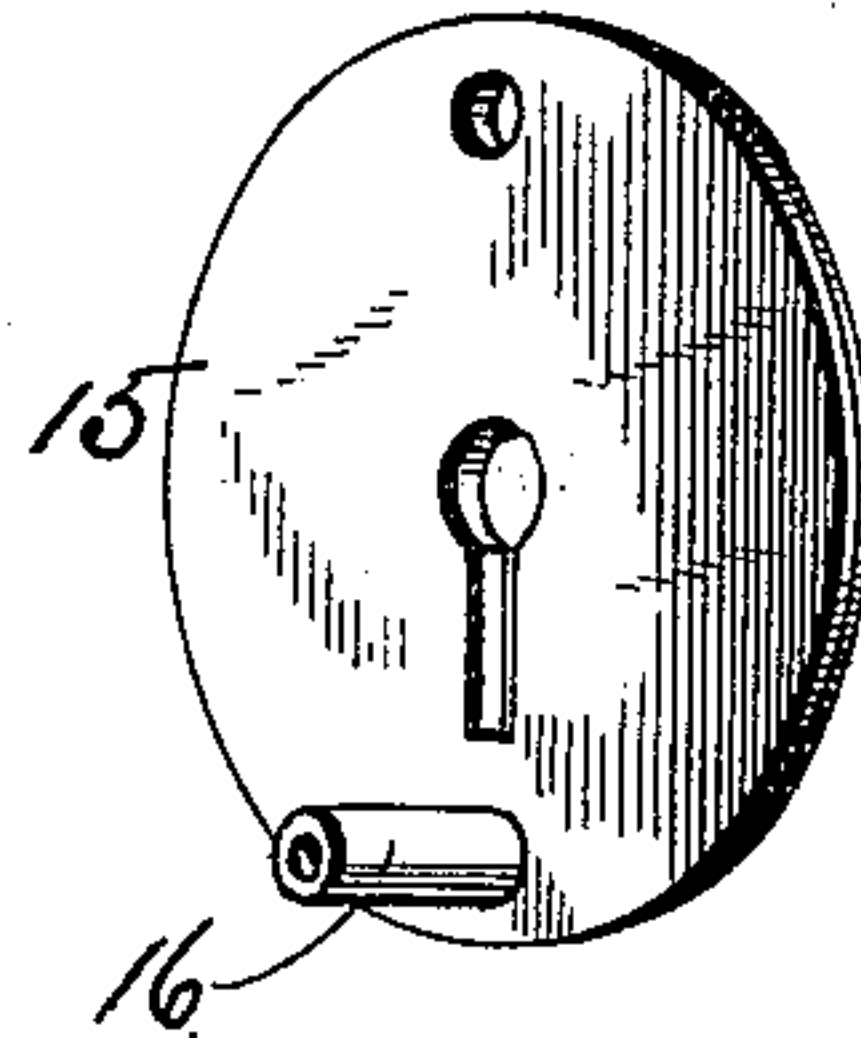
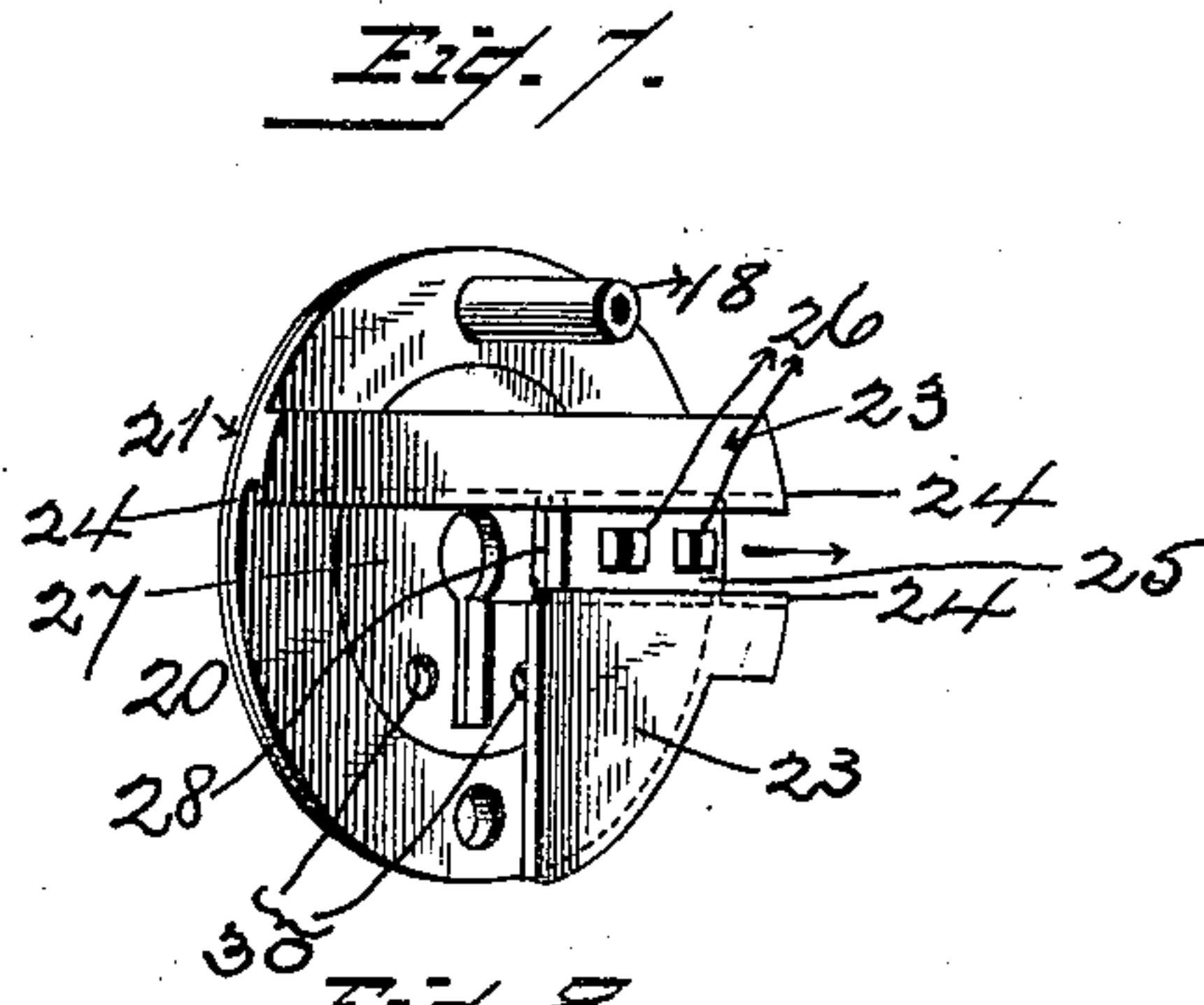
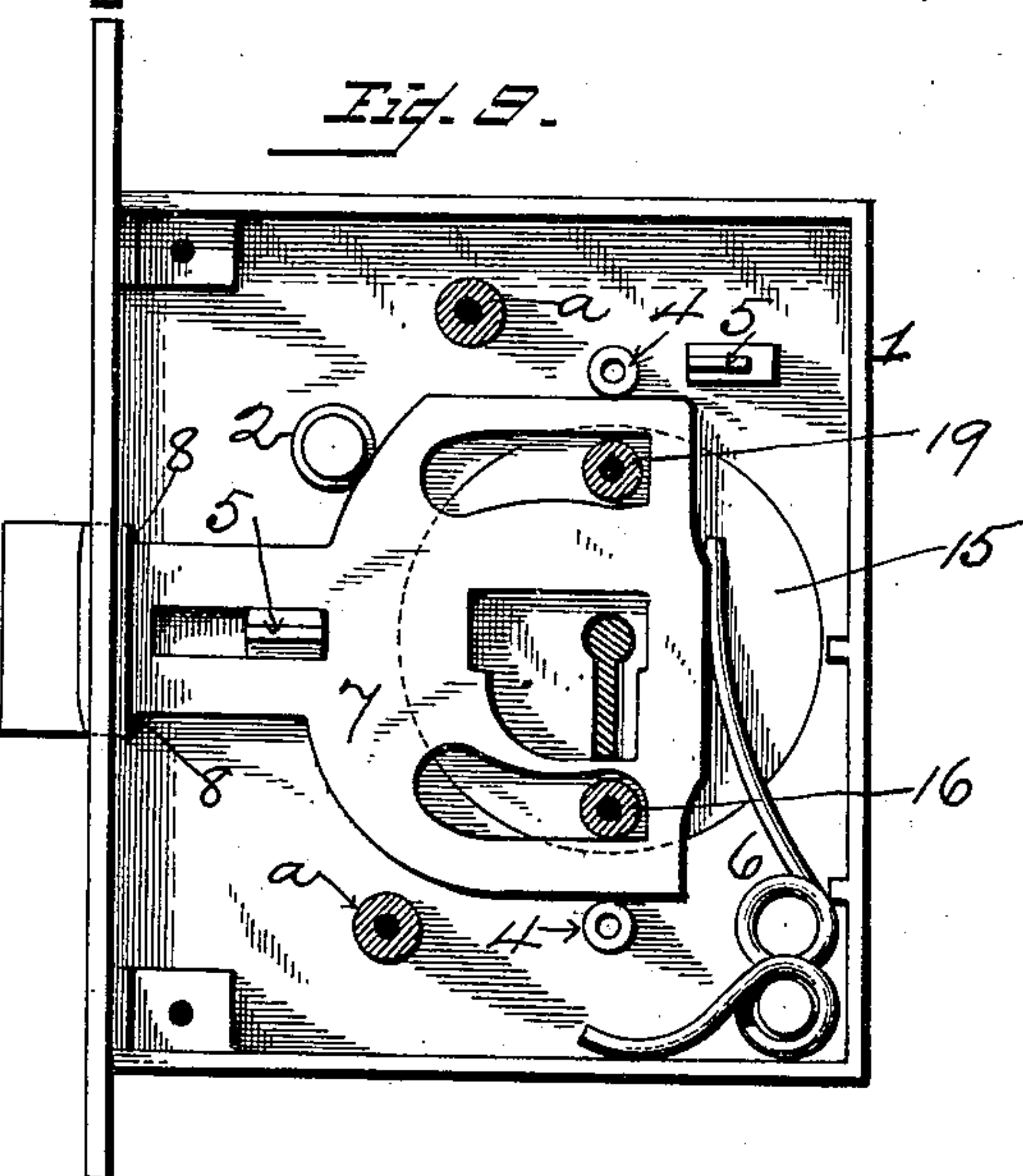
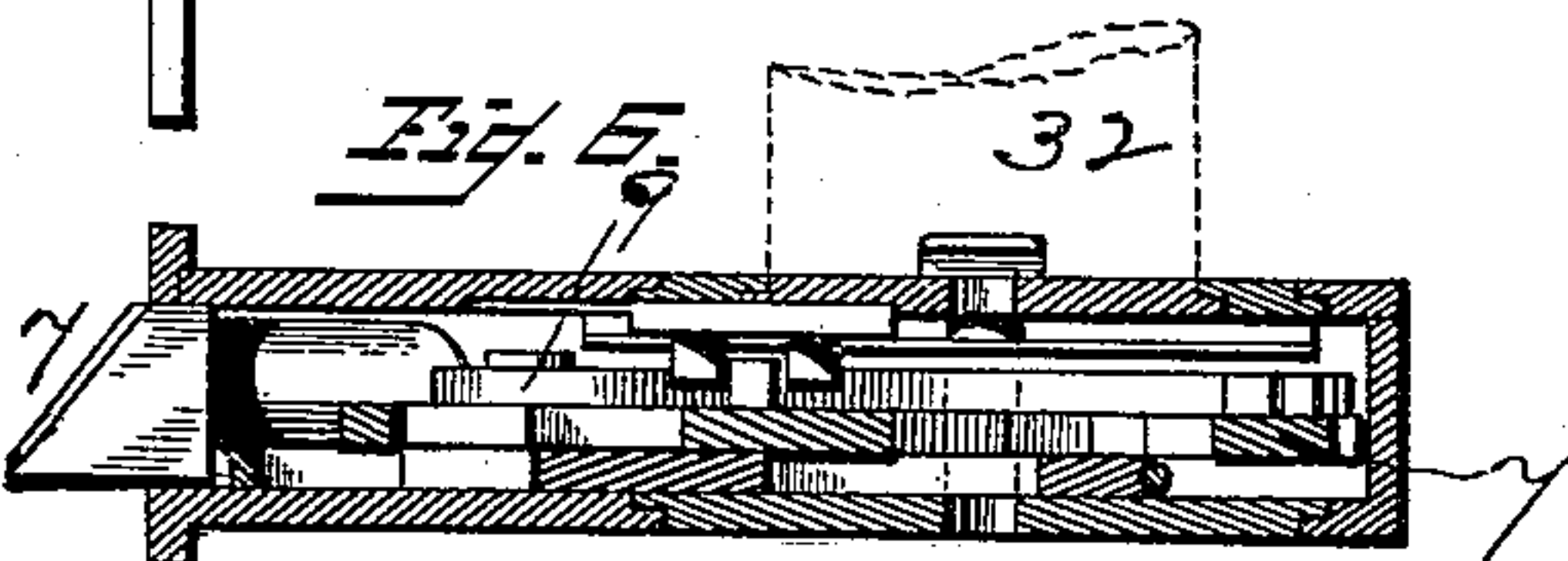
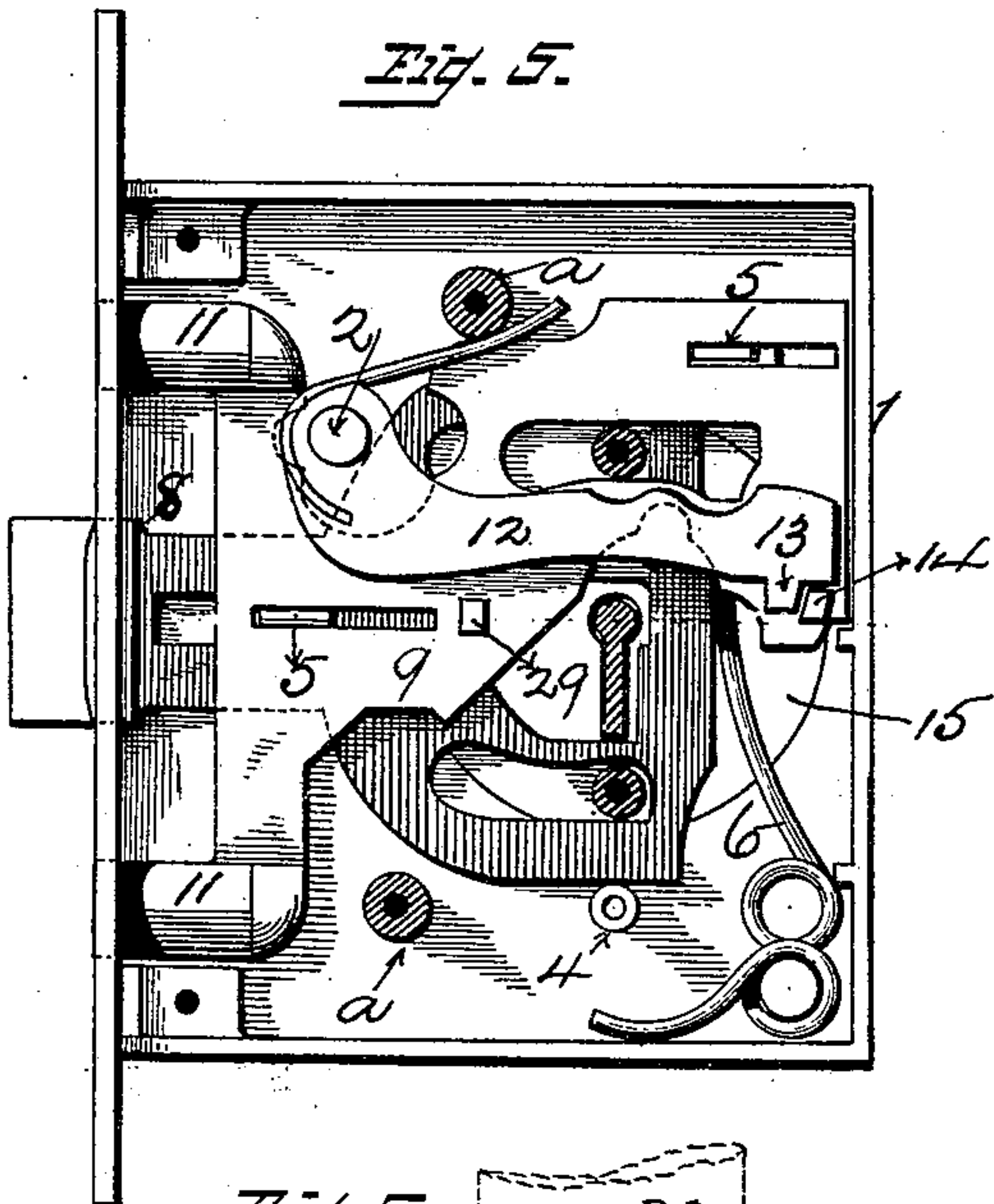
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UNITED STATES PATENT OFFICE.

CHARLES W. FOLSOM AND AUGUSTUS B. DAVIS, OF WAKEFIELD, MASSACHUSETTS.

LOCK AND LATCH COMBINED.

SPECIFICATION forming part of Letters Patent No. 407,926, dated July 30, 1889.

Application filed February 21, 1889. Serial No. 300,764. (Model.)

To all whom it may concern:

Be it known that we, CHARLES W. FOLSOM and AUGUSTUS B. DAVIS, citizens of the United States, residing at Wakefield, in the county of Middlesex, in the State of Massachusetts, have invented certain new and useful Improvements in Locks; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements, as hereinafter set forth, in locks and latches of the character employed for securing the doors of buildings.

In the accompanying drawings, Figure 1 represents a perspective view of our improved lock, this view representing a combined lock and latch. Fig. 2 represents a front elevation with the face-plate removed and the operative parts in position. Fig. 3 represents an elevation of the inner face of the face-plate. Fig. 4 represents a perspective view of the knob-spindle. Fig. 5 represents a front elevation similar to Fig. 2, but with the turning disk to which the knob-spindle is connected removed. Fig. 6 represents a transverse section taken medially through the lock, with a portion of the knob-spindle shown in dotted lines. Fig. 7 represents in perspective the ring-disk and central disk, with lock-slide in position thereon. Fig. 8 represents in perspective the rotary disk on the side of the lock opposite to that of the ring-disk. Fig. 9 represents a front elevation showing the lock-case with the latch alone in position thereon. Fig. 10 represents a plan view of the lever or slide.

This invention is equally well adapted to the construction of either a latch alone, capable of being readily locked in shot position, in which case, by reason of the devices to be presently described for locking said latch, the device constitutes a combined lock and latch, or of a combined lock and latch in the general understanding of such term—that is, where in addition to the ordinary latch one or more bolts are employed. The construction of the knob-spindle and its connecting-disk renders the same readily applicable, with capability of speedy and secure adjustment in

position to any lock. The construction and arrangement of the knob-spindle, connecting-disk, and rotary locking-disk are such as to render them readily applicable to locks differing in construction to ours, and whereby, with the single application of a lug to the bolt or latch plate, such bolt or latch can be readily and effectually locked or unlocked by the proper parties.

Referring to the drawings, 1 represents the lock-case, which is of suitable construction and configuration.

2 represents the front post or lug, upon which the bolt-locking tumbler has pivotal bearing and against which the bolt impinges when in its outer or forward position, said post serving as a stop, as is well understood.

3 represents the removable face-plate, and *a a* represent posts for supporting the same. These posts are interiorly screw-threaded to receive suitable plate-connecting screws.

4 4 represent circular posts or lugs, across and between which the side edges of the latch freely slide. The posts *a* are similarly of round exterior to permit of the bolt, when a bolt is employed, freely sliding across the same in its reciprocal movement.

5 represents lugs projecting from the lock-case, which lugs engage suitable slots in the latch and bolt and act as guides thereto in their reciprocal movements.

6 represents a spring suitably secured in position within the case and adapted to bear against the latch to hold the same in projected position.

The latch 7 has a shoulder 8 rearwardly of its head, against which the rear portion 9 of the bolt (to be presently described) is projected outwardly when it is desired to lock said latch from inward movement. When a lock constructed according to our invention is unprovided with a bolt or bolts, a lever or slide, as 10, having suitable slots to engage the guide posts or lugs in the case, is employed for locking the latch in projected position. Such lever or slide 10 is in such case reciprocated inwardly or outwardly by the key engaging with a suitably-shaped recessed or cut-away edge of said lever in the same manner as the rear portion 9 of the bolt is reciprocated when a bolt or bolts is or are employed. In the draw-

ings we have represented the part 9 as provided with a pair of bolts 11. We do not confine ourselves to any specific number thereof, nor to the number of levers or tumblers for operating either the latch when such alone is employed or the latch and bolt or bolts when both are employed in the construction of our improved lock, the number of tumblers and the size, shape, and number of the key-engaging notches therein being readily regulated at will and varied as desired without departing from our invention, according as it may be desired to employ keys having wards of differing construction.

12 represents a pivoted spring-tumbler for locking either the bolt or the slide engaging the latch, as the case may be, in projected position. This tumbler has bearing at one end upon one of the posts on the lock-case, and at its other end, by means of a lug or shoulder 13, engages a lug 14 on the bolt or latch-locking lever 9 or 10.

15 represents a disk having bearing in and adapted to rotate in a circular orifice in one face of the lock-case. This disk is provided with a suitable key-hole, and has an inwardly-projecting interiorly screw-threaded stud or post 16, with which a screw 17, passed through a rotatable disk in the other face of the lock-case and to be presently described, engages a similar stud or post 18, projecting inwardly from said other disk resting upon the disk 15, and being connected thereto by a screw 19, passed through the disk 15, as clearly shown in the drawings, whereby the pair of rotary disks is secured in position within the lock-case, and also connected together to rotate in unison.

20 represents the rotary disk referred to in the preceding paragraph. This disk 20 is in the form of a ring having a circumferential flange or grooved edge 21 to adapt it to fit, with capability of free rotation therein, in a flanged or grooved opening 22 in the removable lock-plate 3. On the rear or inner face of this disk 20 is a pair of strips or plates 23, said strips or plates extending beyond the outer circumference of the disk 20, and having flanged guideways 24 formed thereon to receive a slide 25, having on its inner face a pair of lugs 26 26. The strips 23 extend a suitable distance across the inner face of the ring-disk 20 and across or partly across an inner disk 27 within the center of the ring-disk 20, and having rotatable bearing therein. Said central disk 27 is provided with a key-hole, and also on its inner face with a groove or recess 28, within which a portion of the slide 25 slides when it is desired to lock said central disk 27 from rotation, as will be presently explained.

29 represents a lug on the bolt or on the lever or slide for locking the latch, as the case may be. When the parts are in position, this lug 29 rests between the lugs 26 on the slide 25, and as the bolt or latch mechanism of the lock is reciprocated to throw the locking de-

vices out into locked position the forward movement of the bolt will carry the slide 25 to its outermost position, and thereby draw it out of the groove or recess 28 in the central disk 27 and permit of said disk 27 being rotated, while upon said bolt being retracted said slide 25 is thereby drawn inward within its receiving-groove 28, across the outer circumference of the central disk 27, and across the inner circumference of the ring-disk 20, thereby holding said central disk 27 from rotation.

30 30-represent transverse-holes formed in the central disk, with which pins 31 on the inner end of the knob-spindle 32 engage to secure at the proper time the rotation of said disk 27 on the turning of the knob.

33 represents a hooked lug or projection on the outer face of the central disk 27, with which a hook-plate 34, secured to the inner end of the knob-spindle, engage to connect said knob-spindle 32 and central disk 27 together.

35 represents the knob, which has a dish-shaped or recessed outer face 37, to serve as a guide to the key-hole 36 formed therein. The key-hole slot extends longitudinally through the knob-spindles on each side of the lock, by which arrangement entire safeguard is afforded against the insertion within the lock-case of nippers or other lock-picking devices, as the distance between the point of insertion of such lock-picks and the mechanism within the lock-case is too great in this construction to permit of their use.

The lock mechanism and disks having been secured in their appropriate positions, as above described and as illustrated in the drawings, and the lock placed in position within or on the door, the knob-spindle is hooked into engagement with the lug 33 on the disk 27, and the pins 31 placed in engagement with the holes 30 in said disk, and a rose then secured in position to cover the connection between the knob-spindle and its connected disk, thereby effectually securing the knob and knob-spindle from removal.

38 represents a groove or recess formed in the inner face of the removable lock-plate 3 to receive that portion of the slide 25 projected beyond the exterior circumference of the disk 20 when the mechanism is locked, and thereby hold said disk 20 from rotation.

The construction and operation of our improved lock are simple and very effective. The fewest possible number of parts requisite to secure an effective lock incapable of being tampered with or picked are employed. There are no complicated arrangements or details of construction susceptible of getting out of order under ordinary or even rough usage. The several parts can be readily and cheaply constructed and placed in position, and ready means are afforded by our construction whereby the same can be employed either as a latch alone capable of being locked at will or as a latch capable of being employed with a bolt-

ing arrangement for the time being idle, and with facilities for locking both the latch and the bolt or bolts when desired.

The bolt, latch, and tumbler, with their engaging-springs heretofore described, having been placed in their appropriate positions within the lock-case, in the manner heretofore indicated, the slide 24 is slid within the flanged guideways 23, carried by the ring-disk 20, so as to extend across the meeting edges of said disk and of the central disk 27. In this condition the combined disks 20 and 27 are placed in position within the lock-case, with the post 18 passing through slots in the respective rear portions of the lock mechanism to the opposite side of the case, and with the lugs 26 on the slide 25 in engagement with the lug 29 on the latch-locking lever, and with the ring-disk 20 resting upon the stud or post 16. Screws are then passed, respectively, through said ring-disk 20 into the post 16 and through the hole in the disk 15 into the post 18 on the ring-disk 20, whereby the respective disks are secured in position, and the whole of the lock mechanism is by them held in place within the lock-case. The removable lock-plate 3 is then secured in position to cover the mechanism in the lock-case. The lock is then placed in position within or on the door. The knob and knob-spindle are then hooked into engagement with the central disk 27 and a suitable rose applied, whereupon the lock is in readiness for use.

The mode of operation of our improved lock is as follows: The respective parts of the device having been secured in position, in the manner before stated, upon the knob 35, and its spindle 32 being rotated in either direction, such rotary motion will, through the medium of the connecting devices, as pins 31 and lugs 33 and 34, connecting the knob-spindle and the disks 20 and 27, be transmitted to said disks, which are at this time connected together by the slide 25. Inasmuch as the rotary disk 20 on one side of the lock-case and the rotary disk 15 on the other side thereof are connected together by the posts or studs 16 18, it will be apparent that the rotation of one of said disks results in the rotation in unison therewith of the other disk. As said disks rotate, they carry round with them the studs or posts 16 18, which, bearing against the latch, operate to slide said latch rearwardly and thereby retract the same. During such rotary movement the slide 25, connecting the disks 20 and 27, is carried thereby and freely slides across and over the latch-locking lever or bolt without binding against the lug 14 thereon. When it is desired to lock the latch in projected position, the key is inserted through the knob and knob-spindle to and within the lock-case and turned therein to project the front end of either the bolt or of the latch-locking slide, as the case may be, against the latch-shoulder 8. As this latch-locking slide moves forward, the lug 14 thereon draws forward the slide 25 to a posi-

tion beyond the exterior circumference of the central disk 27 and out of the groove or recess 28 therein, thereby placing said disk 27 in a condition to freely revolve independently of the surrounding ring-disk 20. As the slide 25 is slid forward, its outer end passes within the groove 38 in the plate 3 and within the outwardly-projecting portion of the guideways 23 and across the outer circumference of the disk 20, thereby holding said disk 20 from rotation upon the knob-spindle being turned. Inasmuch as the knob-spindle is connected to said central disk 27, it will be at once apparent that in this locked position of the lock mechanism the knob-spindles will be free to rotate without affecting any part of the lock mechanism, as the rotation of either knob-spindle and knob will then result simply in the rotation of the disk 27. This is an important advantage, for the reason that where, in ordinary locks, when the latch or bolt mechanism is in locked position, a person seeking to open the lock or to ascertain whether or not it is locked will grasp the knob and exert considerable force in endeavoring to turn it round, thereby frequently straining, jarring, and injuring the lock mechanism, by our arrangement the knob-spindles can be freely rotated without producing any effect whatever upon any portion of the lock mechanism, such construction and arrangement causing all the energy exerted by any one trying to force the lock open by the turning of the knob to be taken up by and spent on simply rotating the knob-spindles.

What we claim is—

1. A lock having a latch, a latch-locking slide, rotatable disks having bearing within the front and rear plates of the lock-case and connected together by transverse connections having bearing against the latch, so as to retract the latch upon the disks being rotated, and a slide supported in position in guideways upon one of said disks and adapted to engage the latch-locking slide and hold the same in projected position.

2. A lock having a latch, a slide having guide-bearing upon and adapted to reciprocate upon the latch, disks having rotary bearing within the respective face-plates of the lock-case, posts or pins connecting said disks to adapt them to rotate in unison, said posts having bearing against the latch to secure the retraction thereof upon the disks being rotated, a disk having independent rotary bearing centrally within one of said disks, a slide having bearing within guideways on said central disk and the disk surrounding the same, said slide and latch-locking slide having lugs on their respective faces to engage the one with the other, and a knob-spindle adapted to engage the central disk, substantially as and for the purposes set forth.

3. In a lock, the combination, with suitable latch and bolt or latch-locking mechanism, of a central disk adapted to rotate independently of the locking mechanism, a slide connected

with the latch-locking mechanism and with said central disk and adapted to be slid into or out of engagement with said central disk and hold the same from rotation while the latch is unlocked and permit of the independent rotation thereof when the latch is locked, and a knob-spindle connected with said central disk, whereby said spindle may be freely rotated when the lock mechanism is locked without interfering with or straining the lock mechanism.

4. In a lock, the combination, with the latch and locking mechanism, of a pair of rotary disks having bearing, respectively, in the opposite faces of the lock-case and connected together to rotate in unison and thereby secure the retraction of the latch mechanism, a disk having independent rotary bearing centrally within one of said disks, guideways on or in the inner face of said central disk and the disk adjacent thereto, a slide adapted to slide within said guideways, suitable devices, as lugs, connecting said slide and the latch-locking mechanism, a hook on the outer face of said central disk and a hole or holes extending transversely through said disk, and a knob-spindle having a hook and pins on its inner end to engage the hook and holes in said cen-

tral disk to connect said disk and spindle and secure the knob-spindle together and the free rotation of said spindle when the lock is locked, substantially as set forth. 30

5. In a lock, a pair of rotary disks having bearing within the lock-case and connected together to rotate in unison and to secure the retraction of the latch, a central disk carried by one of said disks, a slide connected with said central disk and the disk adjacent thereto and adapted to engage the lock mechanism and reciprocate therewith and thus alternately lock and unlock said central disk, and a knob-spindle adapted to engage said central disk and having a keyway longitudinally therethrough and a concaved knob, substantially as and for the purposes set forth. 40 45

In testimony whereof we, the said CHARLES W. FOLSOM and AUGUSTUS B. DAVIS, have hereunto set our hands and seals, in the presence of two witnesses, this 13th day of February, 1889.

CHARLES W. FOLSOM. [L. S.]
AUGUSTUS B. DAVIS. [L. S.]

Witnesses:

JOHN H. APPLETON,
ARTHUR F. BREED.