

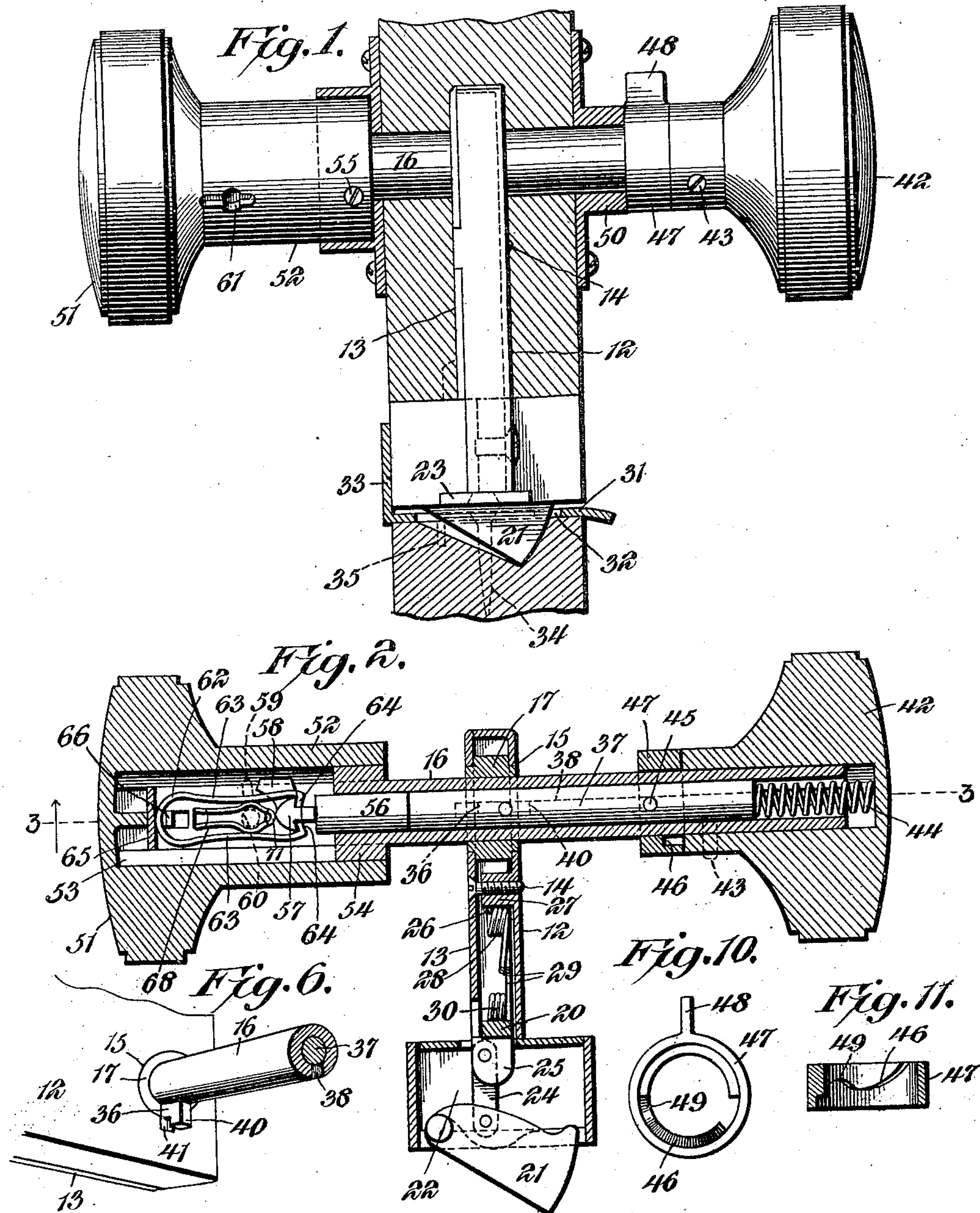
No. 841,208.

PATENTED JAN. 15, 1907.

W. B. WYKOFF.  
LOCK.

APPLICATION FILED MAR. 25, 1905.

2 SHEETS—SHEET 1.



W. B. Wykoff, Inventor,

Witnesses

Howard W. Orr

B. H. Foster

By

E. J. Siggers

Attorney



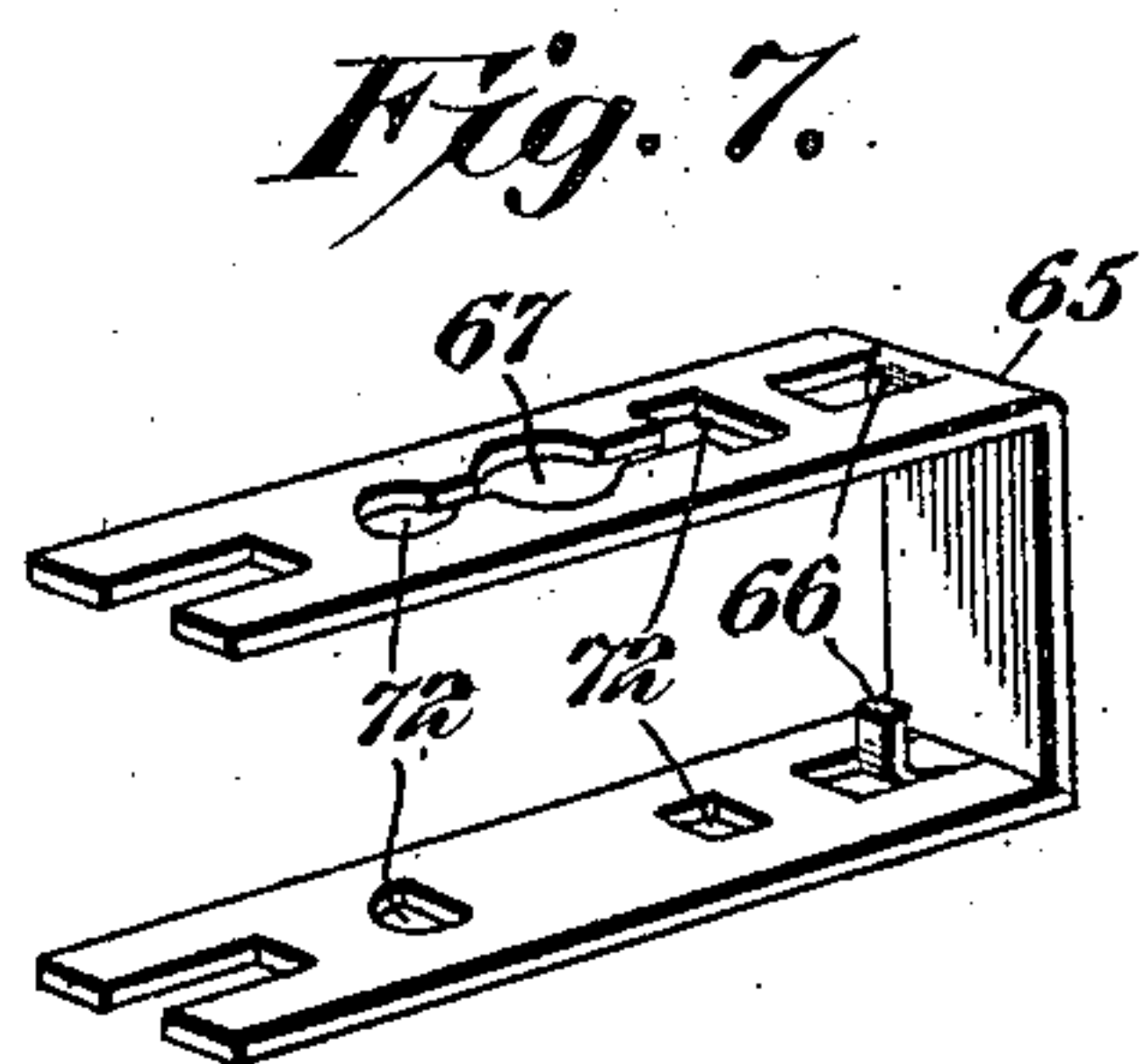
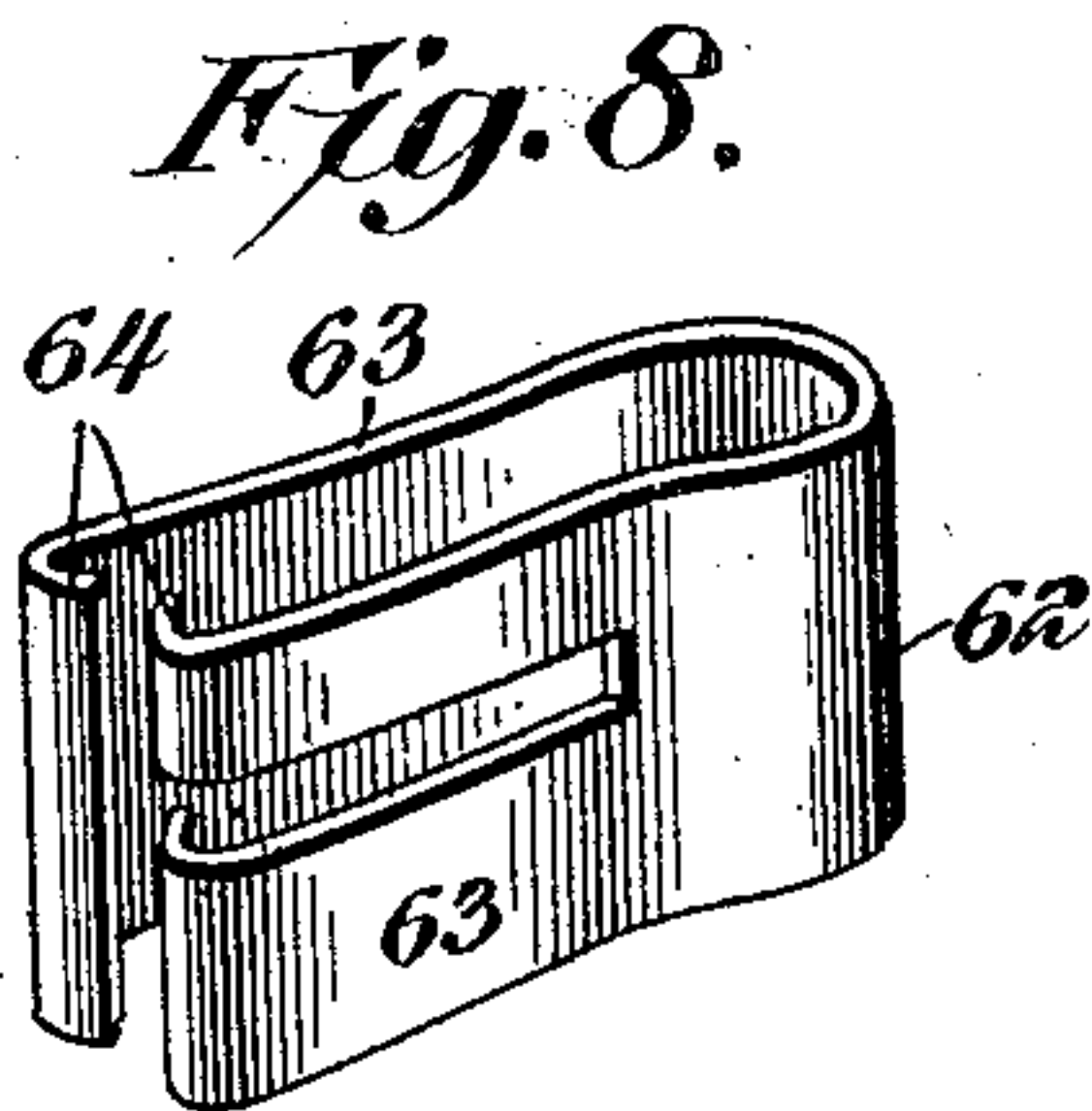
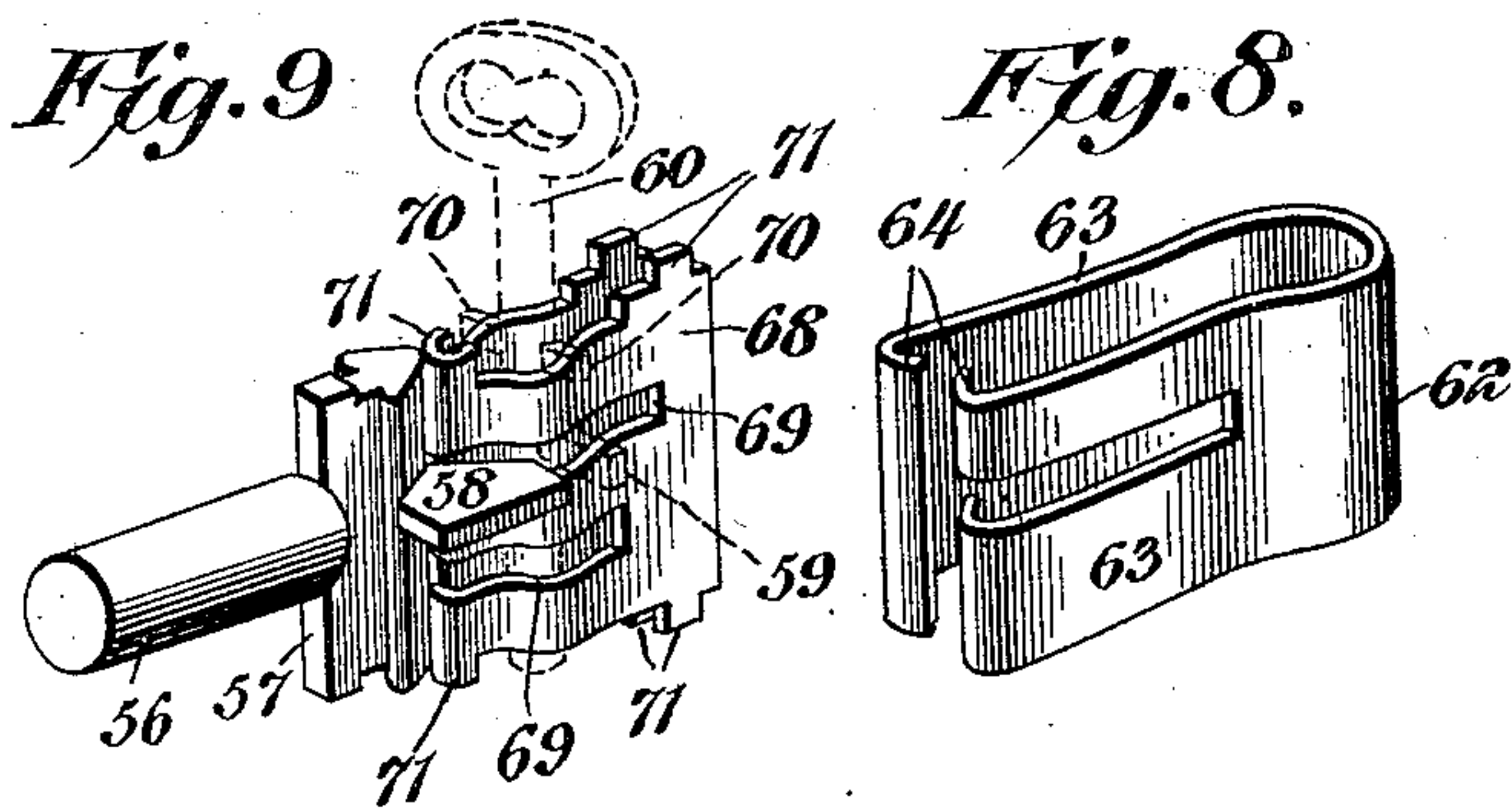
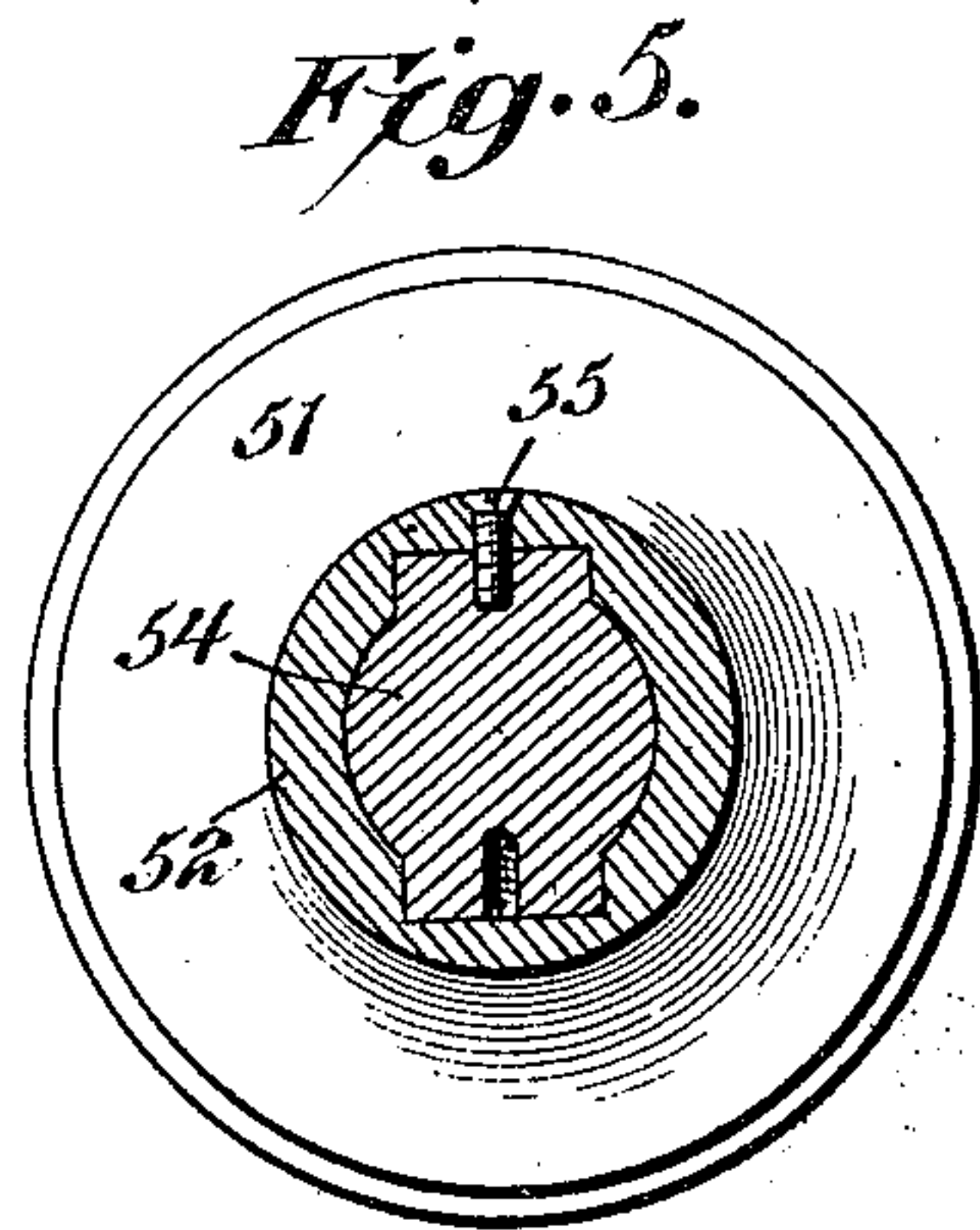
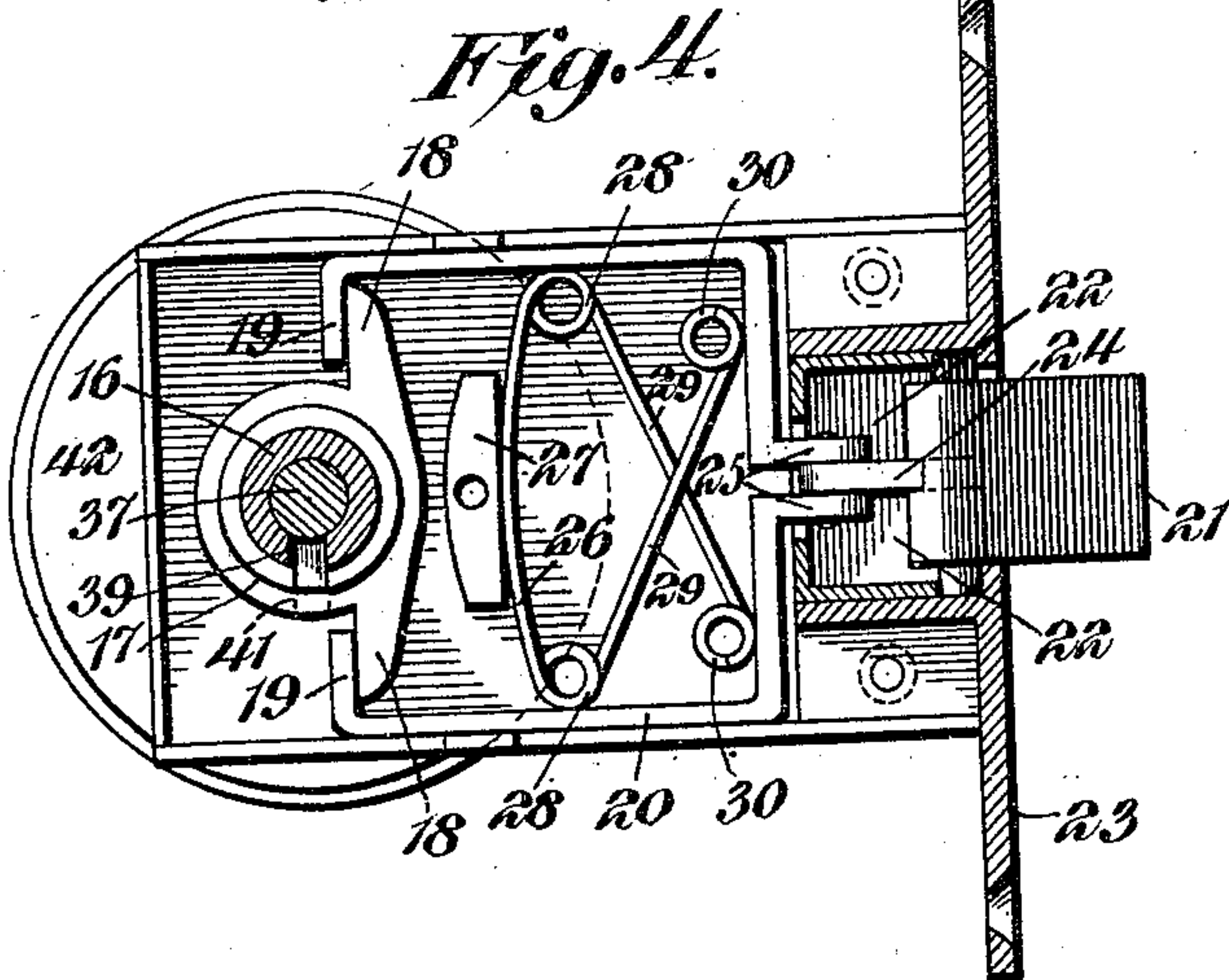
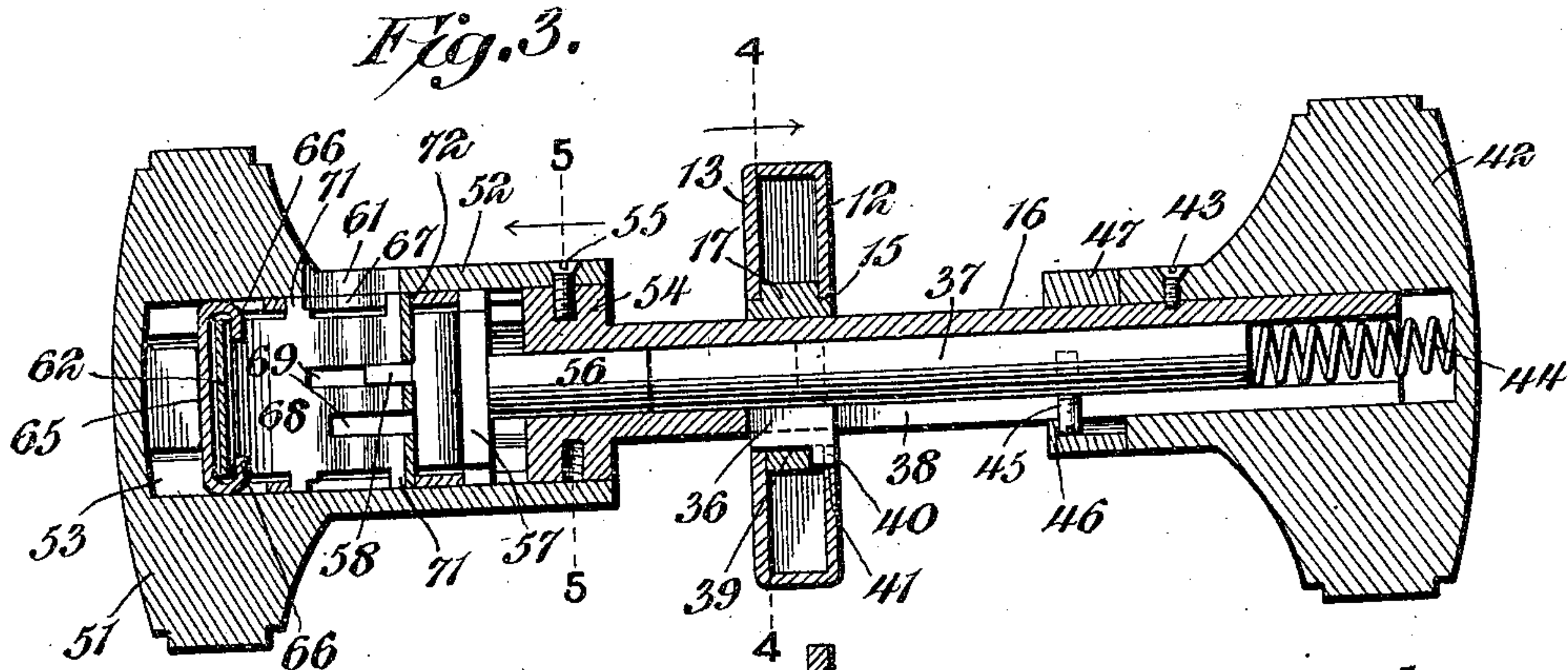
No. 841,208.

PATENTED JAN. 15, 1907.

W. B. WYKOFF.  
LOCK.

APPLICATION FILED MAR. 25, 1905.

2 SHEETS—SHEET 2.



W. B. Wykoff, Inventor,

Witnesses

Howard N. Art.

B. H. Foster.

By

E. G. Siggers.

Attorney



# UNITED STATES PATENT OFFICE.

WILLIAM B. WYKOFF, OF OMAHA, NEBRASKA.

## LOCK.

No. 841,208.

Specification of Letters Patent.

Patented Jan. 15, 1907.

Application filed March 25, 1905. Serial No. 252,034.

*To all whom it may concern:*

Be it known that I, WILLIAM B. WYKOFF, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented a new and useful Lock, of which the following is a specification.

This invention relates more particularly to locks for doors and the like wherein means are provided for preventing the actuation of the latch from the outside knob when the door is locked.

The principal object is to provide a novel structure of this character that is exceedingly compact, the parts being simple, so that they may be readily constructed and assembled, while permitting the lock to be disassembled if such action should prove desirable or necessary.

A further and important object is to provide a structure that is easily operable and can be securely locked, but is, however, capable of being readily released from the inside of the door or by a proper key inserted from the outside. At the same time the necessity for a keyhole in the door is entirely dispensed with.

The preferred form of construction is illustrated in the accompanying drawings, wherein—

Figure 1 is a sectional view through a portion of a door and associated jamb, showing the novel lock in plan view. Fig. 2 is a horizontal sectional view through the lock. Fig. 3 is a sectional view taken on the line 3-3 of Fig. 2. Fig. 4 is a sectional view on the line 4-4 of Fig. 3. Fig. 5 is a detail section on the line 5-5 of Fig. 3. Fig. 6 is a detail perspective view showing more clearly the means for locking the knob-stem against rotation. Fig. 7 is a detail perspective view of the casing for the key-actuated tumbler and key-ward. Fig. 8 is a detail perspective view of said tumbler. Fig. 9 is a detail perspective view of the key-ward and the key-actuated plunger. Fig. 10 is an end view of the spindle-actuating cam. Fig. 11 is a sectional view therethrough.

Similar reference-numerals designate corresponding parts in all the figures of the drawings.

In the embodiment illustrated a casing 12 is employed, having a removable side wall 13, held in place by a suitable screw 14. The opposite side walls of the casing are provided with openings 15, through which is passed a

tubular knob-stem 16, and on the same is located a crank member, which includes a collar 17, that is journaled in the openings 15 and constitutes the bearing for the stem. This collar, as shown in Fig. 4, is provided with oppositely-extending crank-arms 18, that are located within the casing and bear against the inturned terminals 19 of a yoke 20, slidably fitted within the casing. A latch 21, pivoted, as shown, in a boxing 22 in a recess in the casing, normally projects through the face-plate 23 of the casing, and to the latch is pivoted a link 24, said link being also pivoted to and between ears 25, carried by the front end of the yoke. The boxing constitutes a holder for the latch and also acts as a stop to limit its inward movement.

For the purpose of yieldingly holding the latch 21 in projecting relation a spring 26 is employed, preferably formed of a single piece of wire, the central portion of said spring bearing against an abutment-lug 27, located within the casing. This spring has intermediate portions, coiled as shown at 28, and has crossed terminal portions 29, that bear against the cross-bar of the yoke, the ends being coiled, as shown at 30, so as to provide rounded bearing-surfaces. It will thus be seen that if the crank-arms 18 are rotated in either direction the yoke will be moved rearwardly, thereby retracting the latch or drawing the same into the casing, and when said crank-arms are released the spring will act to force the latch outwardly. Associated with this latch is a plate 31, secured to the adjacent door-jamb and having a latch-receiving opening 32 therein. The outer portion of this plate is offset, as shown at 33, in order to provide a guard-lip that will thus be located over the joint in front of the latch when the door is in closed position, as clearly illustrated in Fig. 1. The plate is held in place by suitable fasteners, such as 34, and retaining-lugs 35, that are embedded in the jamb.

The knob-stem 16 and the collar 17, carrying the crank-arms, are always held against relative rotation by means of a key or feather 36, carried by a locking-spindle 37, slidably mounted in the tubular stem 16, passing through a slot 38 in said stem and engaging in a keyway 39 in the collar. Thus when the stem 16 is rotated the collar 17 must of necessity rotate therewith, and consequently the cranks 18 will be actuated to operate the latch. The feather 36, constituting the connection between the said members, is, fur-



thermore, provided with an extension forming a dog 40, which is, of course, rotatable with the knob-stem and is slidable with the locking-spindle. Thus this dog 40 is movable into and out of interlocking engagement with the adjacent stationary side wall of the casing, which side wall is provided with a seat 41, receiving the same, as illustrated more particularly in Figs. 3 and 6. It will thus be seen that as long as the dog 40 is out of the seat 41 the knob-stem can be partially rotated and the latch thus operated. On the other hand, when said dog 40 is in its seat 41 the knob-stem, and therefore the latch, are locked against movement. It is to be noted that the feather 36 is always in the slot 38 and keyway 39 whether the dog 40 is in or out of the socket 41 of the casing. The result is that the stem 16 and collar 17 are always interlocked, the keyway and slot are alined, and there is no danger of the two getting out of alinement, so as to make the lock inoperative.

For the purpose of moving the locking-spindle 37, and consequently the dog 40, the following mechanism is employed: An inner knob 42 is secured to the knob-stem 16 by means of a screw, as 43, and a coiled spring 44, located in this knob and bearing against the adjacent end of the locking-spindle, urges said spindle outwardly or in a direction to carry the locking-dog 40 into its seat 41. This spindle is, however, provided with an outstanding pin 45, that is arranged to operate upon the interior cam-track 46 of a thimble 47, rotatably mounted on the stem 16 and having a thumb-piece 48. The cam-track 46 is provided with an inset portion 49, and the thimble bears against a boss 50, secured to the side of the door and surrounding the stem. Consequently it will be seen that when the pin 45 is at the end of the cam-track 46 (shown in Fig. 11) the locking-spindle 37 will be in its outermost position, so that the dog 40 will be in its seat 41 and the latch thus locked. By turning the thimble, however, the locking-spindle is moved inwardly against the tension of the spring, so that the locking-dog is carried out of its seat and the latch can be operated by turning the knob.

The outer knob 51 is provided with an extension 52, constituting, in effect, a portion or section of the knob-stem, and having a recess 53, that receives an angular head 54 of said stem, the head being secured in place by a screw 55. The extension and stem thus form tubular means connecting the knobs and rotatable in the casing. A plunger portion or section 56 is slidably mounted in the outer end of the knob-stem 16, its inner end abutting against the outer end of the spindle 37, its outer end being located in the recess 53 and having a cross-head 57, substantially the shape of an arrow-head in cross-section, as illustrated in Fig. 2. Projecting from one

side of the cross-head is a key-engaged portion or lug 58, adapted to be engaged by the bit 59 of a key 60, which key is illustrated in dotted lines in Fig. 9, said key being inserted through a keyhole 61, located in the side of the extension 52 between the knob 51 and the casing.

The movement of the plunger 56 is ordinarily prevented by a tumbler 62, preferably formed of looped sheet metal and having side arms 63, that normally embrace the arrow-head 57, said side arms having terminal hooks 64, that engage behind said head. The tumbler 62 is located in a casing 65, having intumed lugs 66, that engage in the body portion of said tumbler and prevent the detachment thereof. The casing or keeper 65 is substantially U-shaped and has a key-receiving opening 67 alined with the keyhole 61. A ward 68 is also employed and is preferably formed of looped sheet metal, said ward being located within the tumbler and having suitable slots 69 to permit the passage of the key-bit 59 and also of suitable lugs 70 on the key. This ward is provided at its opposite side edges with projections 71, that are received in sockets 72 in the casing 65. Thus the ward and the tumbler are held in proper relation with respect to each other, and the whole is located in the recess 53 of the knob 51 and its extension 52, as will be seen by reference to Figs. 2 and 3.

From the above it will be seen that when the locking-spindle 37 is in its outermost position and the locking-dog 40 in its seat, so that the knob-stem is held against rotation, the plunger 56 will be abutted against the outer end of the spindle and will be locked against inward movement by the tumbler 62, as shown in Fig. 2. When, however, the proper key is introduced through the keyhole 61 and is turned, the tumbler-arms will be spread apart, so as to disengage from the head 57, and at the same time the bit of the key will engage the lug 58 of the plunger, thereby forcing said plunger inwardly and as a result pressing the locking-spindle back against the tension of the spring and carrying the locking-dog out of engagement with the casing. The knob-stem being thus released can be turned and the latch withdrawn, so that the door may be opened. As soon as the key is removed the spring reacts to return the parts to locked condition.

It is believed that the operation of the structure can be readily understood. If it is desired to permit the actuation of the latch by the knobs, either from the inside or outside, the thimble 47 is turned until the pin 45 is in the seat 49, whereupon the locking-dog 40 will be disengaged from the casing, the knob-stem is free to be rotated, and the door can be latched or unlatched at will. To lock the door, it is only necessary to turn the thimble so as to permit the spring 44 to force



the spindle outwardly and the locking-dog into its seat. On the inside of the door any one can unlock the spindle by turning the thimble; but on the outside it is necessary to insert a key in the manner above described. Thus a simple but entirely efficient lock is provided which is exceedingly compact and of a shape that will permit its ready insertion into a door with very little cutting of the same. Moreover, the parts are very simple, so that they may be easily and cheaply manufactured and can be assembled with ease and expedition, and, furthermore, should it become desirable or necessary to dismember the lock this may also be readily accomplished. Numberless different keys may be employed by simply changing the wards and tumblers, thereby providing different combinations. Moreover, in this arrangement the only change necessitated is in the wards and tumblers, for they can be inserted into the same knob structure.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. In a lock, the combination with a latch, of a knob having a stem provided with a slot, a crank member mounted on the stem and having operative connections with the latch, said crank member having a keyway, a device movably mounted in the stem and having a feather that slidably engages in the slot of the stem and the keyway of the crank member to hold said crank and stem against relative rotation, a casing having a socket to receive a portion of the feather and normally aligned therewith, and means for moving the said device and thereby the feather to carry the latter into and out of the socket, said feather at all times remaining in the slot of the stem and keyway of the crank member and maintaining them in alinement.

2. In a lock, the combination with a latch, of a rotatable knob having a stem provided with a slot, a collar surrounding the stem and having an interior keyway extending from end to end thereof and aligned with the slot of the stem, a device movably mounted on the stem and having a feather slidably engaging in the slot of the stem and the keyway of the collar to hold the same against relative rotation, a casing having a socket to receive a portion of the feather and normally aligned with the same, means for moving the said device and thereby the feather to carry the

latter into and out of the socket, said feather remaining at all times in the slot of the stem and keyway of the collar and maintaining them in alinement, an arm carried by the collar, and connections between the knob and latch.

3. In a lock, the combination with a latch, of a rotatable knob having a stem, provided with a slot, a crank member mounted on the stem and having operative connections with the latch, said crank member having a keyway, a device movably mounted on the stem and having a feather slidably engaged in the slot of the stem and the keyway of the crank member to hold the same against relative rotation, said feather having an outstanding dog that is movable therewith, a casing having a socket to receive the said outstanding dog, and means for moving the said device and thereby the feather to carry the dog outside of the casing and into and out of the socket thereof.

4. In a lock, the combination with a casing having an opening and a seat located at one side of the opening, of a continuous tubular stem extending through the opening in the casing and having knobs on its ends, said stem being provided with a longitudinal slot, a collar located on the stem within the casing and having a crank, a latch actuated by said crank, a locking-spindle slidably mounted in the stem, a feather carried by the spindle, passing through the slot of the stem, and slidably interlocking with the collar throughout the extent of the sliding movement of the spindle said feather having an extension-dog that projects beyond the feather and is movable into and out of the seat of said casing, and means for effecting the longitudinal movement of the spindle.

5. In a lock, the combination with a casing, of a latch movable therein, a tubular knob-stem rotatably journaled in the casing, inner and outer knobs secured to the ends of the stem, a collar mounted on the stem within the casing and having oppositely-extending cranks, means operated by said cranks for actuating the latch, a locking-spindle located within the stem and slidably mounted therein, said spindle having a feather that extends through the stem and slidably engages the collar, a dog extension carried by the feather and movable into and out of interlocking engagement with the casing, a spring bearing against the spindle for urging the dog into said interlocking engagement, a cam device journaled on the stem contiguous to the inner knob for effecting the longitudinal movement of the spindle against the action of the spring, and key-actuated mechanism located in the outer knob and abutting against the spindle for also moving said spindle against the action of the spring.

6. In a lock, the combination with a casing, of knobs located on opposite sides of the



casing, tubular means connecting the knobs and rotatable in the casing, key-operated locking mechanism having laterally and longitudinally movable elements located in the tubular means between one of the knobs and the casing, said means having in one side a keyhole adapted to receive a key for operating said elements, and a device movably mounted on the tubular means between the other knob and the casing and cooperating with the locking mechanism to move the same.

7. In a lock, the combination with a casing, of a tubular knob-stem having a knob at one end and a keyhole between the knob and casing, a latch actuated from the stem-key-actuated locking mechanism including a locking-spindle slidably mounted in the stem, a plunger portion associated with the spindle and slidable longitudinally of the same to move said spindle in a corresponding direction, and key-actuated tumbler mechanism located in the stem and movable transversely thereof for controlling the movement of the plunger.

8. In a lock, the combination with a casing, of a tubular knob-stem rotatably mounted therein, a latch actuated from the stem, a key-actuated locking mechanism including a locking-spindle slidably mounted in the stem, a plunger portion associated with the spindle and having a seat in one side, and a tumbler having a portion normally located in the seat for holding the plunger portion against movement, said tumbler being movable laterally of the stem out of the seat to permit the movement of the plunger portion.

9. In a lock, the combination with a casing, of a tubular knob-stem rotatably mounted therein, a latch operated from the stem, a key-operated locking mechanism including a locking-spindle slidably mounted in the stem, a plunger portion associated with the spindle and having a head, and a looped tumbler having side arms provided with hooks that embrace the head and are spread apart by a key inserted therebetween.

10. In a lock, the combination with a tubular knob-stem, of a latch actuated therefrom, a locking-spindle slidably mounted in the stem, a plunger also slidably mounted in the stem and abutted against the spindle, a spring for urging the spindle toward the plunger, a head carried by the plunger, a looped tumbler having side arms that embrace the head and are spread apart by a key inserted therebetween, and means also located in the knob-stem and engaged with the spindle for moving the same against the action of the spring.

11. In a lock, the combination with a tubular knob-stem, of a latch operated therefrom, a locking-spindle slidably mounted in the stem, a plunger associated with the spindle, spaced tumbler-arms engaging the plun-

ger for normally holding the same against movement, said arms being actuated by a key introduced therebetween, and a key-ward located between the arms.

12. In a lock, the combination with a tubular knob-stem, of a latch operated therefrom, a locking-spindle slidably mounted in the stem, a plunger slidably mounted in the stem and abutted against the spindle, a head carried by the plunger, a looped tumbler having spaced arms that embrace the head for holding the same and the tumbler against movement, and a looped ward located between the arms of the tumbler and having slots to permit the rotation of the key.

13. In a lock, the combination with a tubular knob-stem, of a latch actuated therefrom, a locking-spindle slidably mounted in the stem, a plunger associated with the spindle and also having a sliding movement in the stem, an offset key-engaged lug carried by the plunger, tumblers associated with the plunger for normally holding the same against movement, and a ward arranged between the tumblers.

14. In a lock, the combination with a tubular knob-stem, of a latch actuated therefrom, a locking-spindle slidably mounted within the stem, a spring for urging the spindle in one direction within the stem, a cam having an engagement with the spindle for moving the same against the action of the spring, a plunger abutted against one end of the spindle and having a key-engaged portion, a head carried by the plunger, and key-actuated tumblers embracing the head.

15. In a lock, the combination with a casing, of a latch movably mounted therein, a tubular knob-stem journaled in the casing, means for operating the latch from the stem, knobs carried by the stem, a locking-spindle slidably mounted in the stem and having a locking-dog movable into and out of engagement with the casing, a spring located in one of the knobs and bearing against the spindle for urging the dog into engagement with the casing, a cam journaled on the stem, a projection carried by the spindle and engaged by the cam, said cam moving the spindle against the action of the spring, a plunger slidably mounted in the stem and abutting against the spindle, a head carried by the plunger, a looped tumbler having hooked arms that embrace the head, and a looped key-ward located in the tumbler and having key-lug-receiving slots.

16. In a lock, the combination with a casing, of a tubular knob-stem slidably mounted therein, a latch operated from the stem, a key-operated locking mechanism including a locking-spindle slidably mounted in the stem, a plunger portion associated with the spindle and having a seat in one side, and a tumbler including a laterally-movable side arm provided with a hook that engages in



the seat and is moved out of the same by a key engaging the tumbler.

17. In a lock, the combination with a knob-stem, of oppositely-extending crank-arms operated by the stem, a yoke comprising sections, each of which has an inturned terminal coöperating with one of the crank-arms, the other ends of said sections comprising outturned ears, a pivotally-mounted latch, and a link pivoted to the latch, said link being located between and having a pivotal connection with the ears, constituting the connection between the sections of the yoke.

18. In a lock, the combination with a casing, of a knob-stem journaled therein, a crank operated by the stem, a latch, a yoke operated by the crank and having a connection with the latch, and a spring comprising a wire having coiled intermediate portions and crossed terminals that engage the spaced portions of the yoke, said terminal portions

having the portions rounded that bear against the yoke.

19. In a lock, the combination with a casing, of a knob-stem journaled therein, oppositely-extending crank-arms carried by the stem, a yoke having inturned terminals located in the path of movement of the crank-arms, a latch pivoted to the casing, a pivotal connection between the latch and yoke, and a spring arranged within the casing and within the yoke, said spring having separate crossed terminals, both of which engage the yoke to urge the same and the latch outwardly.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM B. WYKOFF.

Witnesses:

A. C. BUSK,  
C. H. LANE.

It is hereby certified that in Letters Patent No. 841,208, granted January 15, 1907, upon the application of William B. Wykoff, of Omaha,,Nebraska, for an improvement in "Locks," an error appears in the printed specification requiring correction, as follows: In line 16, page 4. the hyphen between the words "stem" and "key" should be stricken out and a comma inserted instead; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 5th day of February, A. D., 1907.

[SEAL.]

F. I. ALLEN,  
*Commissioner of Patents.*