

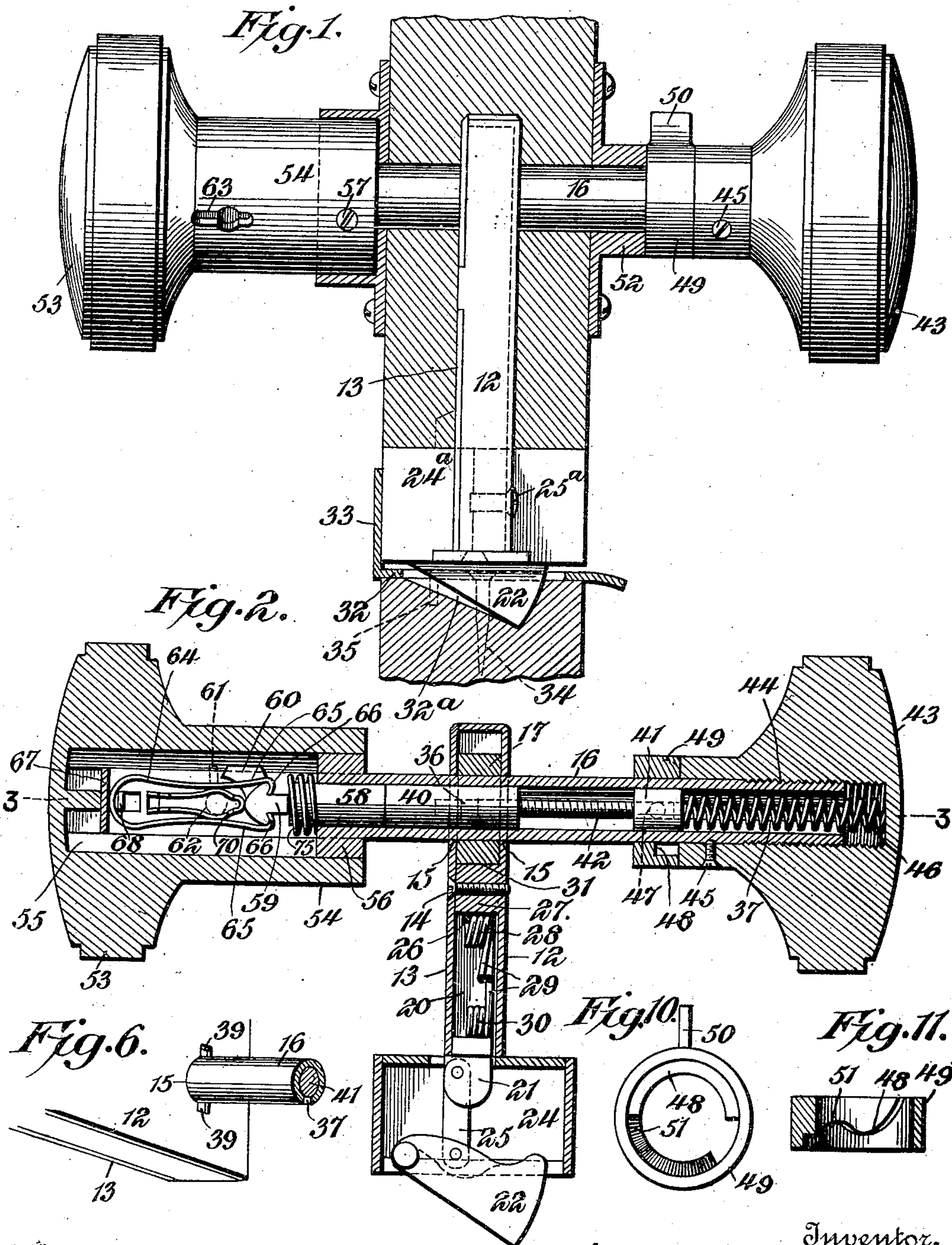
No. 841,209.

PATENTED JAN. 15, 1907.

W. B. WYKOFF.
LOCK.

APPLICATION FILED OCT. 6, 1905.

2 SHEETS—SHEET 1.



Witnesses
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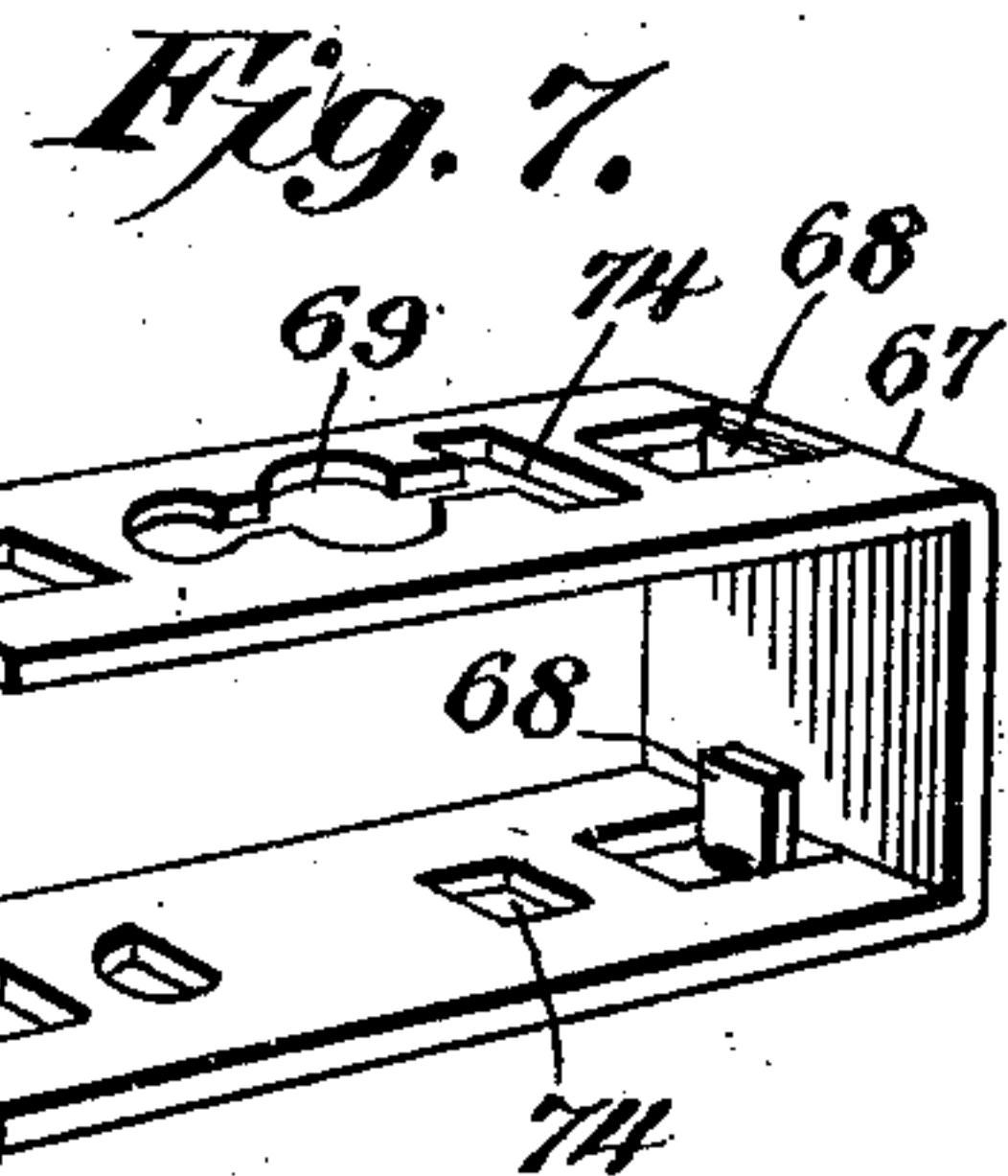
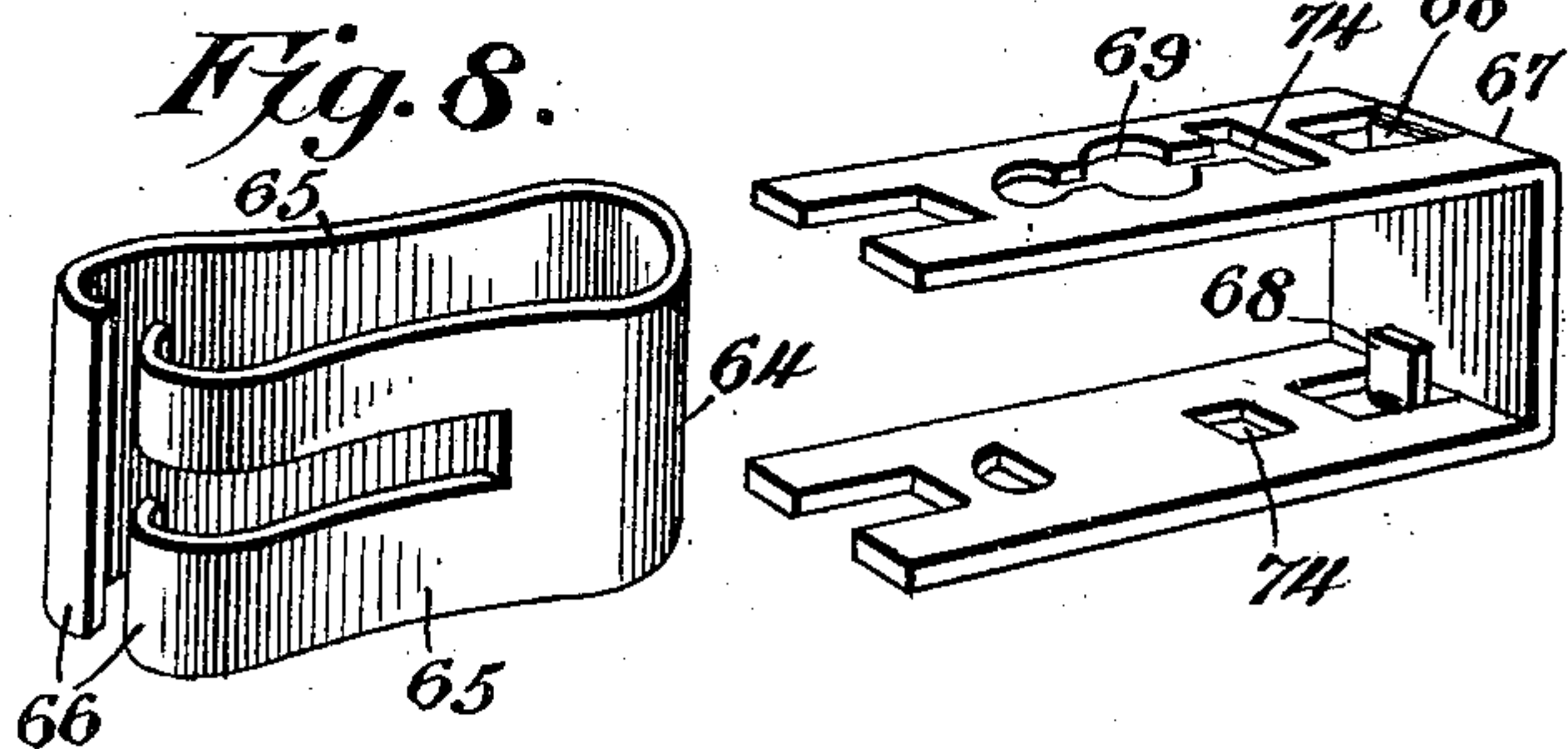
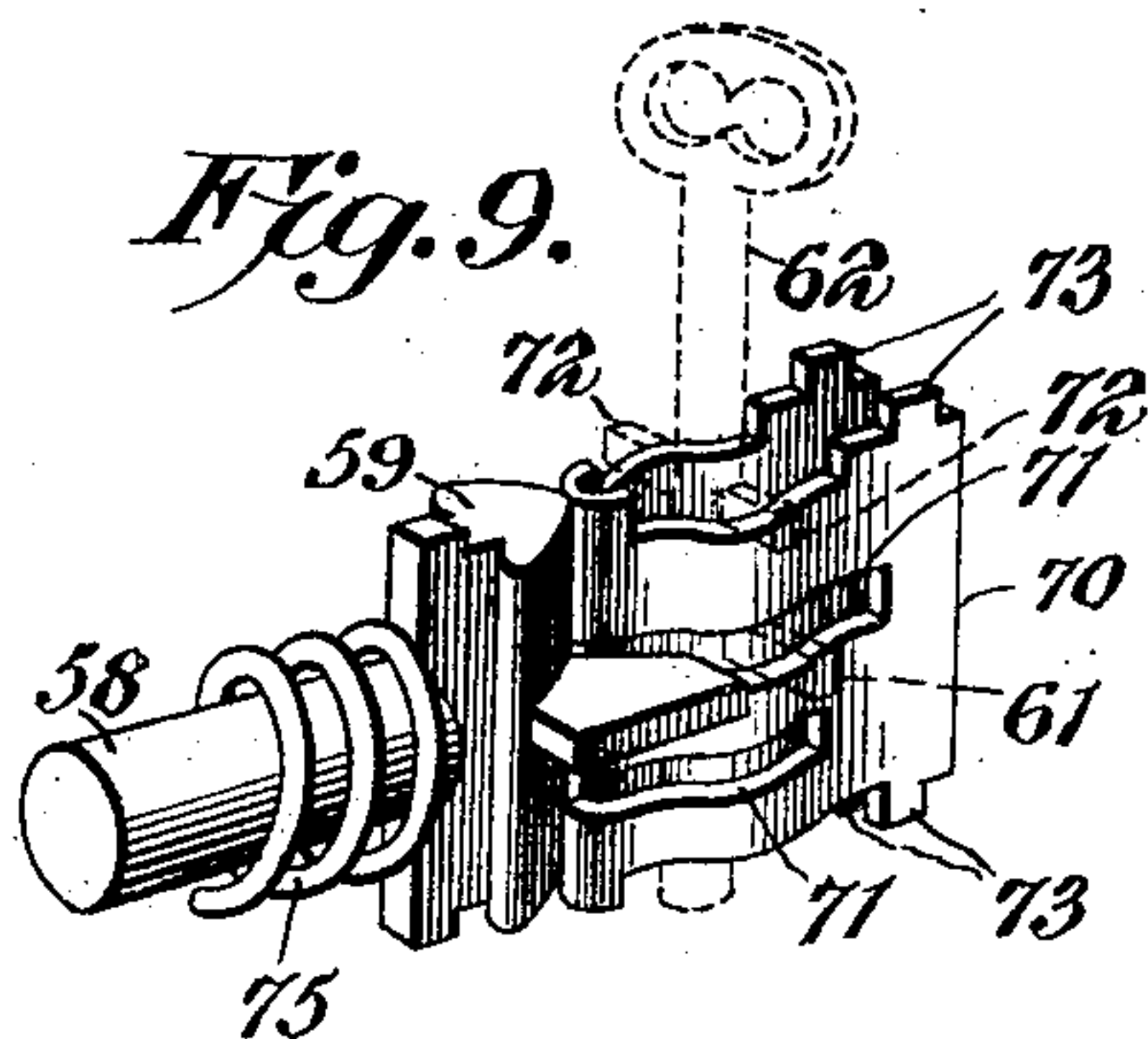
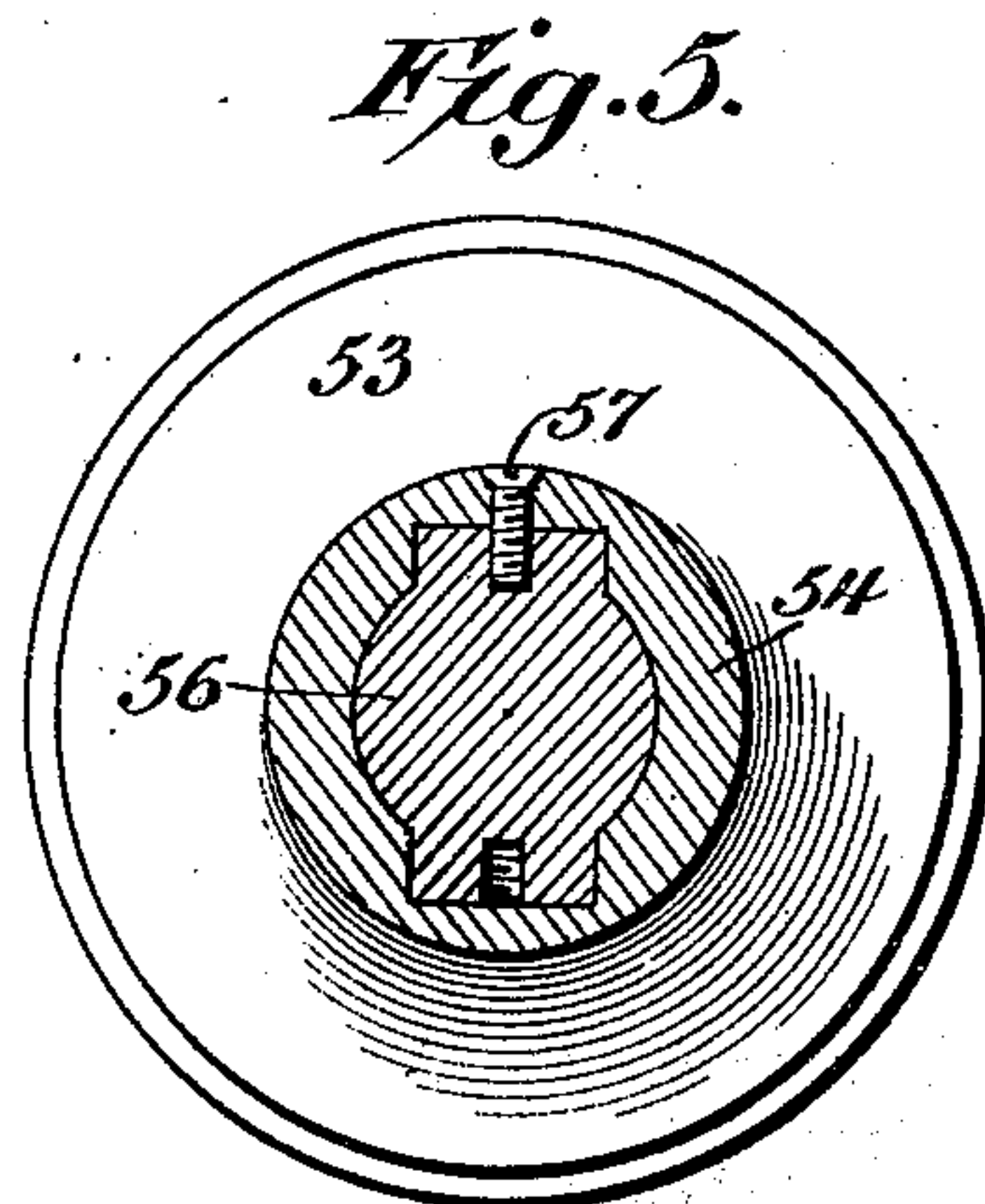
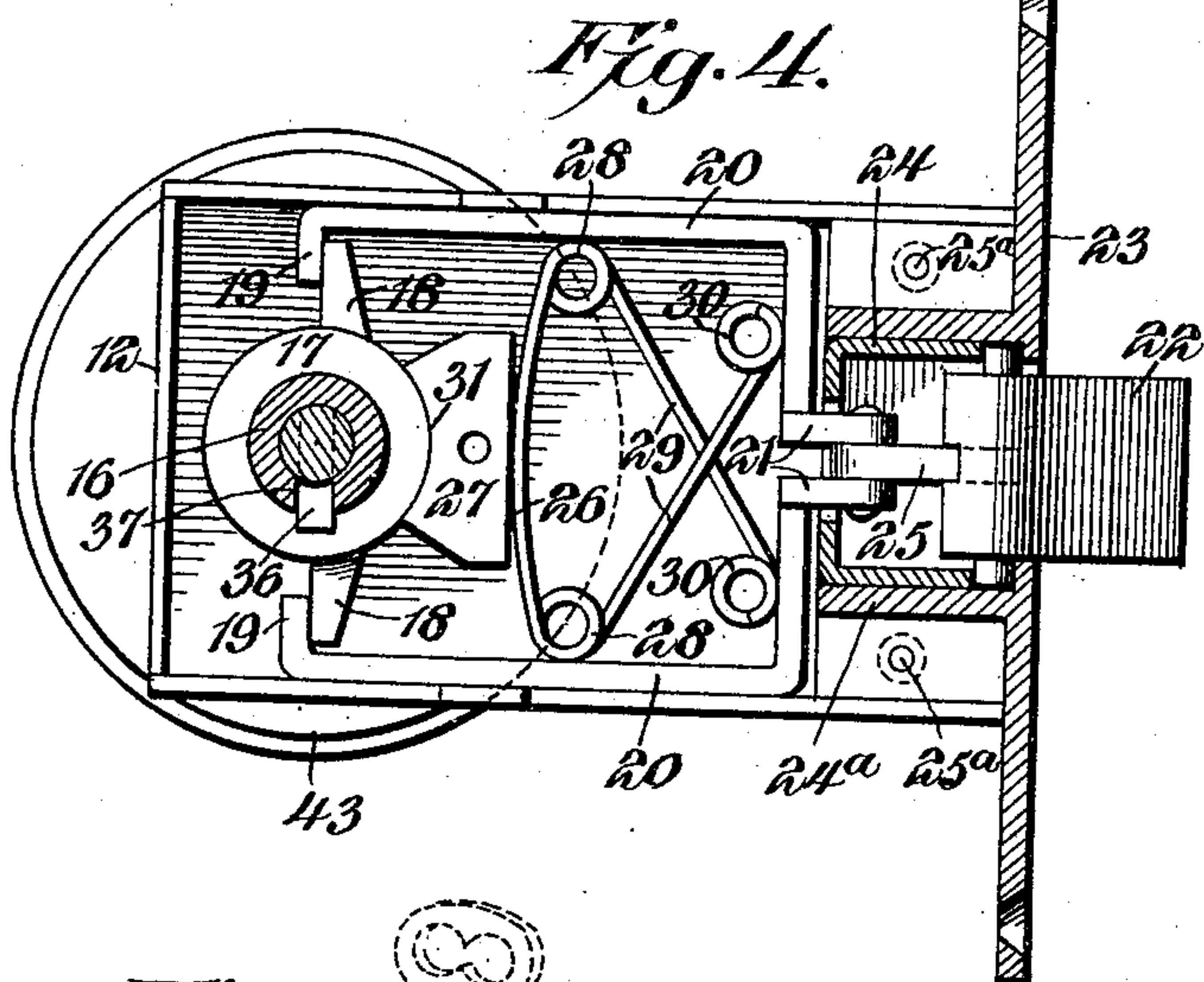
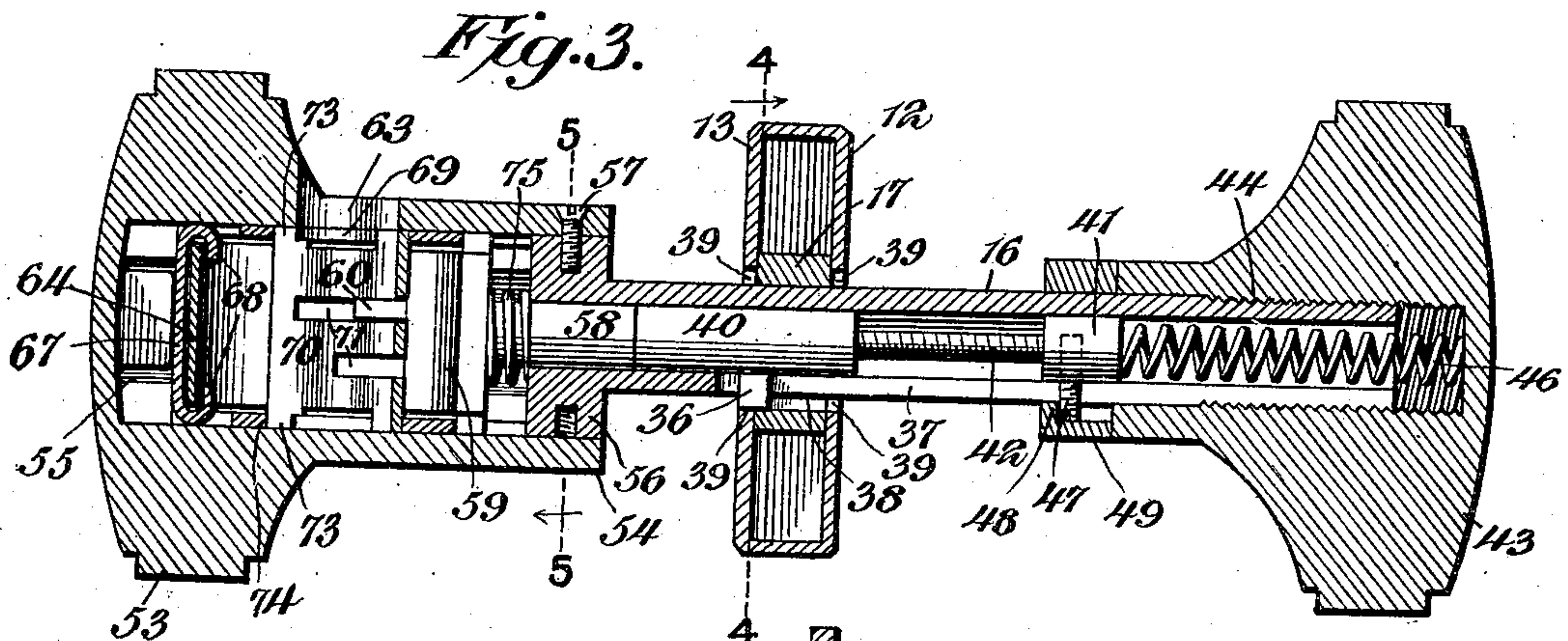
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

WILLIAM B. WYKOFF, OF OMAHA, NEBRASKA.

LOCK.

No. 841,209.

Specification of Letters Patent.

Patented Jan. 15, 1907.

Application filed October 6, 1905. Serial No. 281,665.

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 knob when the door is locked. In one respect it is an improvement on the structure disclosed in a copending application, Serial No. 252,034, filed March 25, 1905.

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 dismembered, 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 a door or by a proper key inserted from the outside, at the same time the necessity for a keyhole in the door being entirely dispensed with.

Another and also important object is to provide an adjustable structure wherein the knobs and lock-actuating means can be readily adjusted to doors of different thicknesses, said structure being, furthermore, readily reversible, so that it may be employed with equal facility on either right or left hand doors, thus materially widening the range of applicability of each lock.

An embodiment of the invention, which is at present considered the preferable one, is illustrated in the accompanying drawings, wherein—

Figure 1 is a sectional view through a portion of a door and associated jamb, showing the knob-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 cas-

ing 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 present embodiment of the invention 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, in which is journaled a tubular knob-stem 16, passing through the casing and extending on opposite sides of the same. Loosely fitted on the stem between the casing-walls is a collar 17, which is provided with radial and substantially diametrically opposite cranks in the form of arms 18, that are located within the casing. These arms have their outer ends operating against the intumed terminals 19 of a yoke comprising sections 20, each of said sections having at its rear end one of the intumed terminals 19, the front portions of the sections being intumed and having forwardly-extending ears 21. A latch 22, pivoted, as shown, in a recess in the front portion of the casing, normally projects through the face-plate 23 of said casing and is held in place by a removable boxing 24, fitted in the recess and having its corners cut away to receive the pintles of the latch. The face-plate is carried by a front section 24^a, secured to the casing-body by screws 25^a. A link 25, pivoted at one end to the latch, has its other end pivoted to and between the ears 21 of the yoke.

For the purpose of yieldingly holding the latch 22 in projecting relation and urging it to such relation after its actuation by the knob a spring 26 is employed, preferably formed of a single piece of wire, the central portion of said spring bearing against the front side of an abutment-lug 27, carried by the fixed wall of the casing. This spring has intermediate portions coiled, as shown at 28, and has crossed terminal arms 29, that bear against the inwardly-extending portions of the yoke, the ends being coiled, as shown at 30, to provide rounded bearing-surfaces. The abutment-lug 27 is provided in its rear side

with a curved seat 31, that receives the adjacent portion of the collar 17, as clearly illustrated in Fig. 4.

From the above it will be seen that when the crank-arms 18 are rotated in either direction the yoke will be moved rearwardly, thereby retracting the latch and 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 32, secured to the adjacent door-jamb and having a latch-receiving opening 32^a 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 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 collar 17, carrying the arms, are always held against relative rotation by means of a key or feather 36, carried by one end portion of a locking-spindle slidably mounted in the tubular stem 16, passing through a slot 37 in said stem and engaging in a keyway 38 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, furthermore, constitutes a locking device or dog which is of course rotatable with the knob-stem and is slidable with the locking-spindle. This feather is movable into and out of interlocking engagement with the adjacent stationary side wall of the casing, which side wall is provided with seats 39, formed on diametrically opposite sides of the opening 15, one of the seats being so arranged that it will receive the feather when the stem is located in one of its positions; the other seat being likewise arranged to receive the feather when the structure is reversed to be placed in an oppositely-swinging door. It will thus be seen that as long as the feather 36 is out of the seat 39 the knob-stem can be partially rotated and the latch can also be operated. On the other hand, when said feather is in the seat the knob-stem is locked against rotation, and as said feather is still in the slot 38 of the collar the latch will also be positively locked against movement.

The spindle above mentioned is extensible and comprises relatively adjustable sections 40 and 41, the section 40 carrying a shank 42, on which the section 41 is threaded, so that it may be moved toward and from the section 40. The section 40 carries the feather 36, and associated with the section 41 is mechanism for longitudinally moving the spindle, and thereby carrying the feather into and out of the seat 39. This mechanism is as follows: An inner knob 43 is adjustably

threaded, as shown at 44, on the inner end of the knob-stem and is held in adjusted position by a screw 45. A coiled spring 46, 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 feather 36 into its seat 39. The section 41 is, however, provided with an outstanding pin 47, that is arranged to be operated upon by the interior cam-track 48 of a thimble 49, rotatably mounted in the stem 16 and longitudinally movable along the same, said thimble having a thumb-piece 50. The cam-track 48 is provided with an inset portion 51, and the thimble bears against a boss 52, secured to the side of the door and surrounding the stem. Consequently it will be apparent that when the pin 47 is at one end of the cam-track 48 the locking-spindle will be in its outermost position, so that the feather 36 will be in its seat and the latch itself 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.

An outer knob 53 is provided with an extension 54, constituting, in effect, the continuation of the knob-stem and having a recess 55 that receives an angular head 56 of said stem, the head being secured in place by a screw 57. A plunger portion or section 58 is slidably mounted in the outer end of the knob-stem 16, its inner end abutting against the outer end of the spindle-section 40, its outer end being located in the recess 55 and having a cross-head 59 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 lug 60, adapted to be engaged by the bead 61 of a key 62, which key is illustrated in dotted lines in Fig. 9, said key being inserted through a keyhole 63, formed in the side of the extension 54 between the knob 53 and the casing.

The movement of the plunger 58 is ordinarily prevented by a tumbler 64, preferably formed of looped sheet metal, having side arms 65 that normally embrace the arrow-head 59, said arms having terminal hooks 66 that engage behind said head. The tumbler 64 is located in a keeper or casing 67, having intumed lugs 68 that engage in the body portion of said tumbler and prevent the detachment thereof. The casing or keeper 67 is substantially U-shaped and has a key-receiving opening 69 aligned with the keyhole 63. A ward 70 is also employed and is preferably formed of sheet metal, said ward being located within the tumbler and having suitable slots 71 to permit the passage of the key-bit 61 and also of suitable lugs 72 on the key. The ward is provided at its opposite side edges with projections 73, that are received in sockets 74 in the casing or keeper 67.

Thus the ward and the tumbler are held in proper relation with respect to each other, and the whole is located in the recess 55 of the knob 53 and its extension 54, as will be clear by reference to Figs. 2 and 3.

A coiled spring 75, located on the plunger 58 and bearing against the head 56 and the head 59, serves to urge said plunger longitudinally outward or to a position to permit the hooks 66 of the tumbler to engage behind the head. Thus when the locking-spindle is in its outermost position and the feather is in its seat, so that the knob-stem is held against rotation, the plunger 58 will be abutted against the outer end of the spindle and will be locked against inward movement by the tumbler 64, as shown in Figs. 2 and 3. When, however, the proper key is introduced through the keyhole 63 and is turned, the tumbler-arms 65 will be spread apart, so as to disengage from the head 59, and at the same time the bit of the key will engage the lug 60, thereby forcing said plunger inwardly and as a result moving the locking-spindle back against the tension of the spring 46 and carrying the feather out of engagement with the casing. The knob-stem being thereby released can be turned and the latch withdrawn, so that the door may be opened. As soon as the key is removed, however, the springs 46 and 75 react 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 49 is turned until the pin 47 is in the seat 51, whereupon the locking-dog will be held disengaged from the casing, the knob-stem is free to be rotated, and the door can be latched or unlatched at will by operating either knob.

To lock the door, it is only necessary to turn the thimble so as to permit the spring 46 to force the spindle outwardly and the feather into its seat. When the parts are so arranged, any one on the inside of a door can unlock the spindle by turning the thimble, and on the outside it is only necessary to insert a key and operate it in the manner above described. Thus a simple and 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 simple, so that they may be easily and cheaply manufactured, can be assembled with expedition, and, furthermore, should it become desirable or necessary to dismember the lock this may also be readily accomplished. It will also be observed that the lock is readily applicable to doors of different thicknesses, for the inner knob can be adjusted toward or from the outer one, thus forming extensible latch-operating means,

and the thimble 47 can be correspondingly adjusted by merely removing the locking-spindle from the stem and adjusting the section 41 toward or from the section 40, thereby providing locking mechanism that is also extensible. The mechanism is also equally applicable to right or left hand doors, for it only becomes necessary to reverse the parts, including the collar 17, the seats 39 still permitting proper engagement of the feather with the casing in either position.

It will of course be understood that 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 said wards and tumblers, for a plurality of different types 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 casing having an abutment-lug therein, of a latch movably associated with the casing, a knob-stem journaled in the casing, a collar carried by the stem and having a bearing against one side of the lug, said collar having outstanding crank-arms that project on opposite sides of the lug in substantially the same plane therewith, means connected to the latch and engaged by the arms for operating said latch on the movement of the arms, and a spring for projecting the latch, said spring bearing against the opposite side of the lug.

2. In a lock, the combination with a casing, of a tubular knob-stem rotatably mounted therein, 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 having a seat in one side, a tumbler having a portion normally located in the seat for holding the plunger portion against movement, said tumbler being movable laterally out of the seat to permit the movement of the plunger portion, and a spring engaging the plunger portion for moving the same to a position to allow the tumbler to engage in the seat.

3. In a lock, the combination with a casing, of a tubular knob-stem rotatably mounted therein, a latch operated from the stem, key-operated locking mechanism including

a locking-spindle slidably mounted in the stem, a plunger portion associated with the spindle and having a head, a looped tumbler having side arms provided with hooks that
5 embrace the head and are spread apart by a key inserted therebetween, and a coiled spring located on the plunger, said spring bearing against the head and stem and urging the head to a position to be engaged by
10 the tumbler-arms.

4. In a lock, the combination with a casing having an opening and recessed seats at opposite sides of the opening, of a knob-stem journaled on the opening, a collar
15 loosely and reversibly fitted on the stem within the casing, a latch mounted in the casing and operated by the collar, a feather slidably mounted in the stem and collar, said feather being movable into one of the seats when the
20 collar is in one position and into the other seat when said collar is reversed, and operating means disposed exteriorly of the casing and having a connection with the feather for moving the same.

5. In a lock, the combination with a latch, of a knob-stem for operating the same, knobs relatively movable toward and from each other on the stem, means for holding the knobs in fixed relation, a lock for the latch,
30 and operating means for the lock including an actuating device adjustable along the stem toward and from said lock.

6. In a lock, the combination with a latch, of a tubular knob-stem for operating the
35 same, an extensible locking-spindle located in the stem, one end portion of said spindle having a locking device, and an actuating device adjustable along the stem and associated with the other end portion of the spindle.
40

7. In a lock, the combination with a latch, of a tubular knob-stem for operating the same, an extensible locking-spindle located in the stem and comprising adjustably-connected sections, a locking device connected
45 to one of the sections, and an operating device connected to the other section and adjustable along the stem.

8. In a lock, the combination with a stationary member, of a tubular knob-stem, a latch operated from the stem, a spindle slidably longitudinally within the stem and comprising, adjustably-connected sections that are movable toward and from each other, a
50 locking-feather carried by one of the sections and movable into and out of interlocking engagement with the stationary member, and an actuating-thimble journaled on the stem

and movably connected to the other section, said thimble being adjustable longitudinally
60 along the stem with the section.

9. In a lock, the combination with a latch, of a tubular knob-stem for operating the same, a longitudinally-slidable locking-spindle disposed within the stem and comprising
65 sections, a threaded shank connecting the sections, a locking-feather carried by one section and projecting through the stem, an outstanding pin carried by the other section and projecting from the stem, locking means
70 engaged by the feather, and an actuating-thimble rotatably mounted on the stem and longitudinally adjustable along the same, said thimble having a movable engagement with the pin.
75

10. In a lock, the combination with a casing, of a latch movably mounted in the front portion of the same, an abutment-lug located within the casing, a spring interposed between the latch and abutment and bearing
80 against the latter, a tubular knob-stem extending through the casing, a collar mounted on the stem and having a bearing in the abutment, said collar having operative connections with the latch, knobs carried by the
85 ends of the stem, one of said knobs being adjustable toward and from the other, a locking-spindle slidably mounted within the stem, said spindle comprising sections and a threaded shank adjustably connecting the
90 same, key-actuated mechanism located within the fixed knob for moving the spindle, a thimble rotatably mounted at the inner end of the adjustable knob, said thimble being adjustable with the knob and having a movable
95 connection with one of the sections of the spindle, and a feather carried by the other section and having a slidable engagement with the collar, said feather being movable into and out of interlocking engagement
100 with the casing.

11. In a lock, the combination with a latch, of a tubular knob-stem for operating the latch, knobs carried by the stem and adjustable toward and from each other, and
105 locking means including a locking-spindle comprising connected sections slidably mounted within the stem and adjustable toward and from each other.

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

WILLIAM B. WYKOFF.

Witnesses:

I. SAUNDERS,
JAMES MACKIN.