

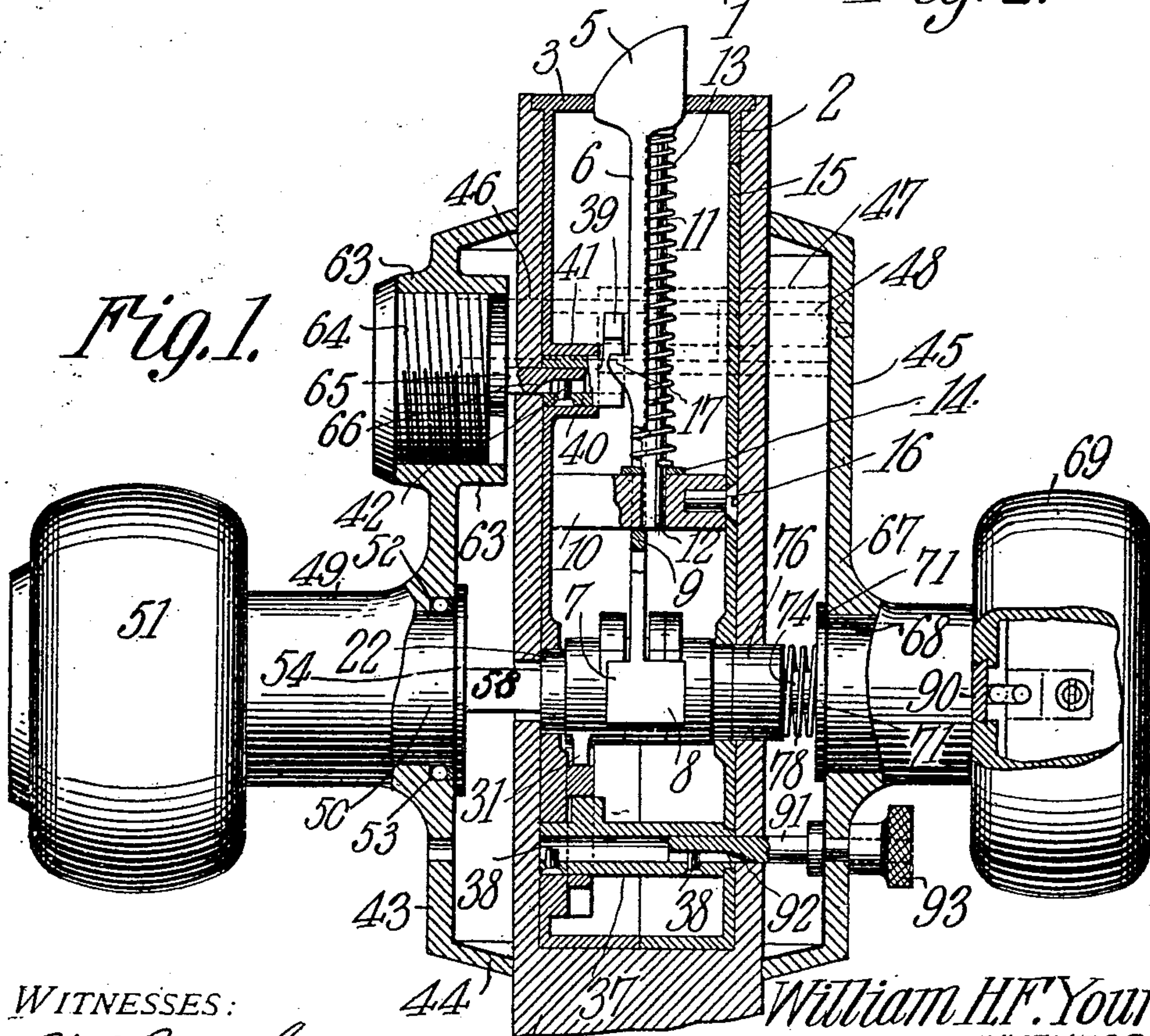
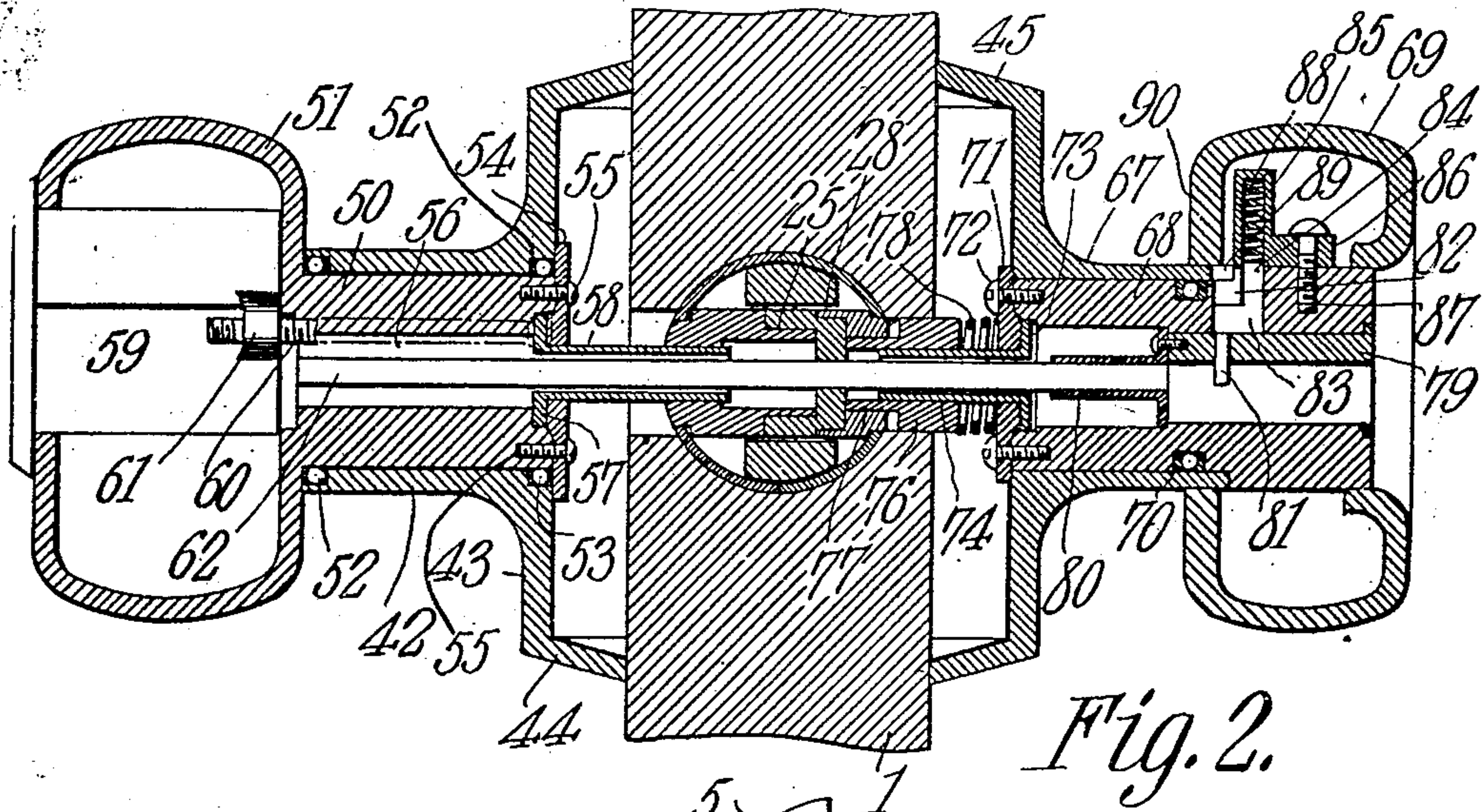
No. 864,819.

W. H. F. YOUNG.
LOCK.

PATENTED SEPT. 3, 1907.

APPLIOATION FILED APR. 13, 1907.

2 SHEETS—SHEET 1.



WITNESSES:

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2 SHEETS—SHEET 2.

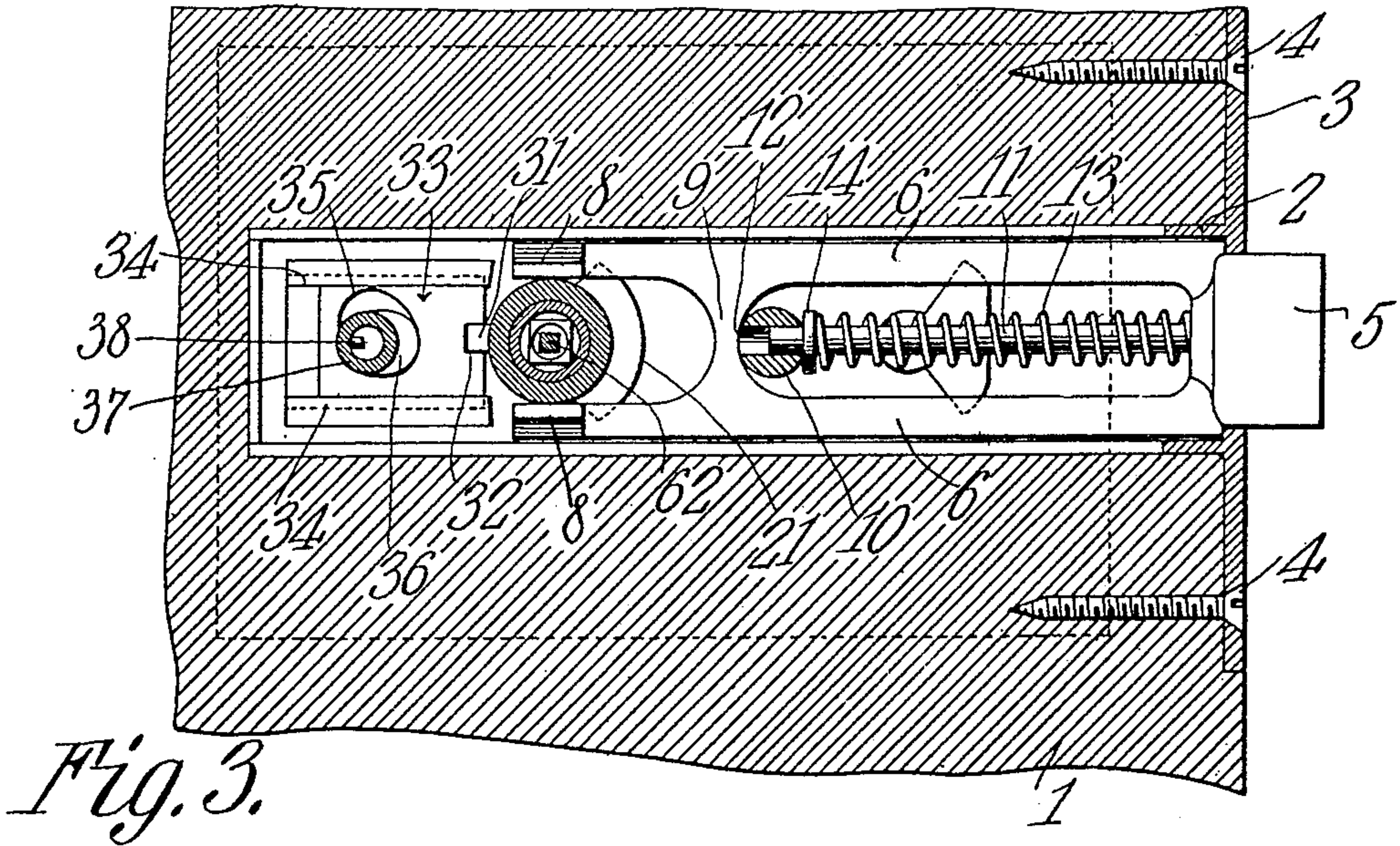


Fig. 3.

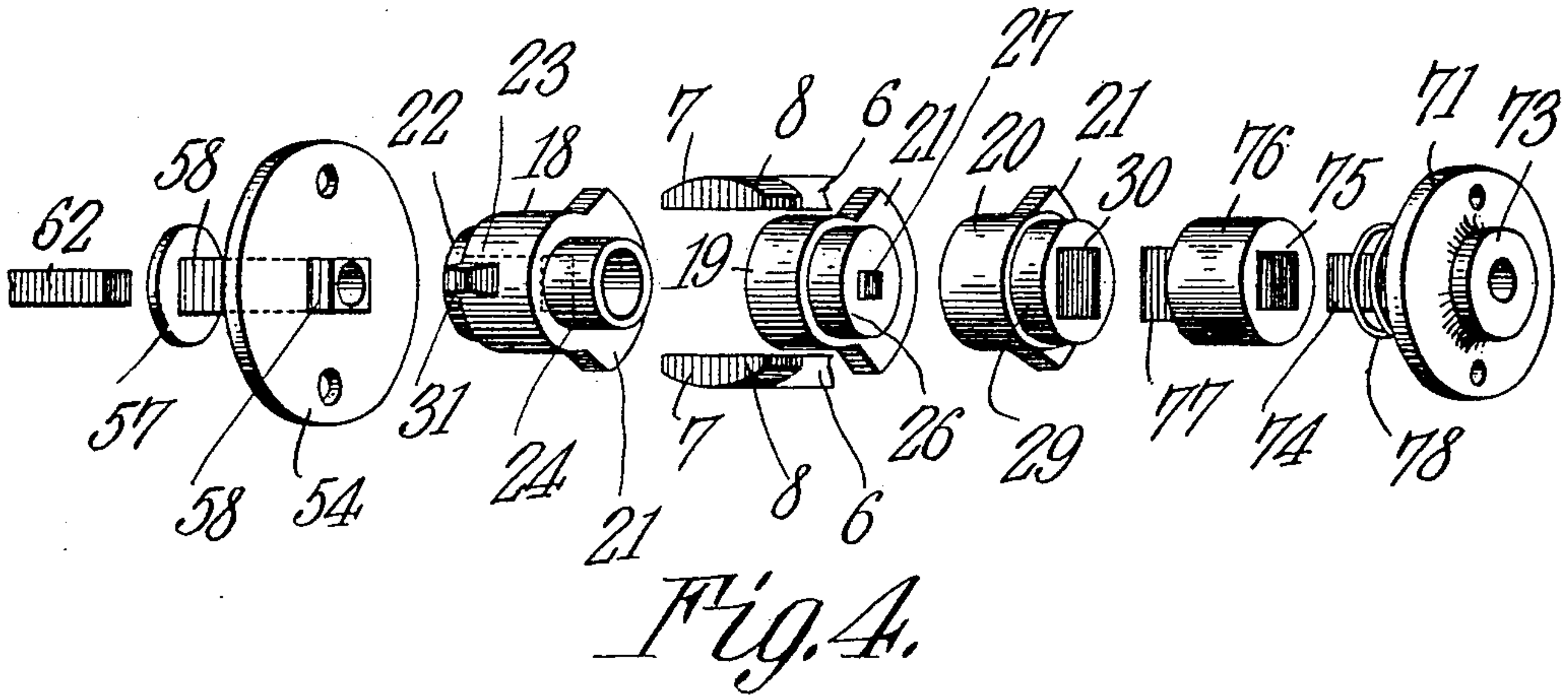


Fig. 4.

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UNITED STATES PATENT OFFICE.

WILLIAM H. F. YOUNG, OF MUNCIE, INDIANA.

LOCK.

No. 864,819.

Specification of Letters Patent.

Patented Sept. 3, 1907.

Application filed April 13, 1907. Serial No. 368,060.

To all whom it may concern:

Be it known that I, WILLIAM H. F. YOUNG, a citizen of the United States, residing at Muncie, in the county of Delaware and State of Indiana, have invented a new and useful Lock, of which the following is a specification:

This invention has reference to improvements in door locks, and its object is to produce a lock that may be locked or unlocked from one side, say the outside, of a door to which the lock is applied and which may also have the lock secured against operation by the insertion of a key in a suitable part of the lock on the inside of the door, while the door may still be unlocked by the use of another key applied to another lock on the outside of the door.

The improved lock is designed more particularly for use in hotels or other places where it is desirable to lock the door from either side and to render the lock safe from manipulation when the occupant of a room so desires, so that the room cannot be entered by the possessor of a key fitting the lock to which the key held by the occupant of the room is adapted but can only be entered by the possessor of another key fitting another lock on the door, controlling, however, the same lock-bolt.

Let it be supposed that the occupant of a room, that is, a guest at a hotel, is supplied with the usual pass-key and desires to leave the room for the day, but with the door locked. It is customary for one of the hotel employees to enter the room and put it in suitable order for the return of the guest. This may be done by a suitable master-key fitting the same lock that the guest uses his pass-key to manipulate. Now, let it be supposed that the guest returns to his room and occupies it for the night. Under these circumstances he may insert his pass-key in a suitable part of the lock on the inside of the door in such manner as to prevent manipulation of that part of the lock on the outside of the door to which his pass-key and the master-key carried by the hotel employees are adapted. Now, again, let it be supposed that the guest fails to leave his room or to unlock the door for an unusual length of time, so as to give rise to the impression that something untoward has happened to him. The conditions are reported to the superintendent of the hotel or other authorized person, who is the only possessor of a key fitting another lock on the outside of the door, which lock is so connected to the lock-bolt under the control of the pass-key lock as to be enabled to throw the bolt whether the pass-key lock be fixed against manipulation or not. By this means the room may be entered without damage to the door, but only by some authorized person who can be depended upon to not enter the room except under extraordinary circumstances.

My invention comprises a lock capable of performing the functions described, and in one embodiment there-

of the lock comprises a lock-bolt of suitable character within a suitable casing, preferably of cylindrical form for convenience of application to a door as a mortise lock, and on both sides of the door are applied escutcheons. The escutcheon on the outside of the door is provided with a knob-receiving sleeve in which is secured a suitable knob carrying a lock, say a cylinder lock, adapted for the use of a master-key. On the escutcheon on the inside of the door is another sleeve carrying a knob provided with a lock of special character so arranged as to coact with the spindle coming from the outside knob lock to hold said spindle against rotation by the lock in the outside knob when the key which will operate the lock in the outside knob is inserted in the structure carried by the inside knob. The construction is such that either knob will operate the sliding lock-bolt through suitable spindles and roll-backs, the two knobs acting independently upon the sliding lock-bolt. However, there is provided on the inside escutcheon the manipulating end of a suitable night-latch structure which will lock the outside knob against turning although the bolt may still be moved by the key.

In order to provide for the throwing of the sliding lock-bolt when the outside knob lock is secured against operation by the insertion of a pass-key in the special lock carried by the inside knob, the outside escutcheon is provided with another lock, preferably of the cylinder type but which may, if desired, be of the flat key type or any other type that may be found useful for the purpose. This last-named lock is so connected to the sliding lock-bolt that the latter may be thrown by the proper manipulation of the last-named lock independently of the knobs or knob locks, and, consequently, the door may be opened by means of the supplemental lock even when the outside knob lock is held against operation by the insertion of the pass-key in the special lock construction on the inside knob.

The foregoing is a general statement of the invention, but it will be understood that the present invention also includes many details of construction which have thus far not been enumerated, but these various details of the invention will be fully understood from the following description taken in connection with the accompanying drawings forming a part of this specification, in which drawings,

Figure 1 is a section taken longitudinally through the lock casing inserted in a door and through the escutcheons on each side of the door, with parts shown in elevation and other parts broken away; Fig. 2 is a vertical section taken through the axial plane of the knobs, with some parts shown in elevation; Fig. 3 is a vertical section taken longitudinally through the casing carrying the sliding lock-bolt, with some parts shown in elevation; and Fig. 4 is a displayed perspective of the roll-backs and operating knob spindles therefor, and

also showing a portion of that part of the sliding lock-bolt with which the roll-backs cooperate.

Referring to the drawings, there is shown a portion 1 of an ordinary door in one edge of which has been 5 formed a suitable mortise for the reception of a cylinder lock casing 2, which latter is provided with the usual face-plate 3 by means of which it may be secured to the door by screws 4, all in the ordinary manner. The face-plate of the casing is provided with the usual 10 rectangular opening for the passage of the head 5 of a sliding lock-bolt, and extending backward from this head 5 are two spaced side members 6—6 terminating at the rear ends in lugs 7—8 projecting laterally on each side of each member 6. These members 6 are joined 15 at a point near their rear ends by an integral connecting part 9 which, engaging a stud 10 extending diametrically across the casing 2 at an appropriate point therein, acts as a stop for the lock or latch-bolt so that the head 5 will project over the face-plate 3 only to a certain 20 predetermined extent. Centrally between the two side members 6—6 the lock or latch-bolt is provided with a central, longitudinal stem 11, the rear end of which enters a perforation 12 passing through the stud 10. Surrounding the stem 11 is a helical spring 13, one 25 end of which bears against the head 5 and the other against the stud 10 through an interposed washer 14. This spring, as will be understood, tends to throw the head of the bolt out through the face-plate 3 to the required extent, but yields to permit the head 5 to be 30 moved into the casing when the door is closed so that the head may snap back into the keeper provided in the door jamb. The casing 2 is provided with a removable cap-plate 15 so that the interior may be readily accessible, and this cap-plate is held in place by a screw 35 16 entering a suitably threaded nut formed in the corresponding end of the stud 10.

About midway between the head 5 of the latch-bolt and the joining member 9 the side members 6 have each on one face a lug 17, the purpose of which will hereinafter appear. 40

Seated in the casing is a nested series of three cylindrical roll-backs 18, 19 and 20, each provided with a suitable wing 21. The roll-back 18 is provided with a hub 22 which is cylindrical on its outer surface to fit in 45 a cylindrical hole in the casing 2. The interior bore of this particular portion of the roll-back 18 is non-cylindrical and preferably is made square. This squared portion of the bore of the roll-back 18 is indicated in dotted lines at 23 in Fig. 4. The other end of the roll-back 18 is also formed into a cylindrical hub 24, which 50 hub is seated in a corresponding cylindrical portion 25 of the roll-back 19, which latter is provided on the side remote from that adjacent to the roll-back 18 with a cylindrical hub 26 having a small, square or other non-circular shaped, bore 27. The cylindrical portion 26 55 of the roll-back 19 is seated in the cylindrical portion 28 of the bore of the roll-back 20, and this latter roll-back is provided with a hub 29 formed with a non-circular and preferably square bore 30. The hub 29 of the roll-back 20 is seated in a circular opening formed in the 60 cover 15 of the casing 2. The wing 21 of the roll-back 18 is so located as to engage either one of the lugs 7 formed on the corresponding end of the latch-bolt, while the two wings 21 of the two roll-backs 19 and 20 65 are adjacent to each other and so located as to engage

either one of the lugs 8 on the corresponding end of the latch-bolt.

It will be seen that unless otherwise held each roll-back, when rotated, is capable of throwing the latch-bolt, but controlling means for each one of these roll-backs is provided, as will hereinafter appear. 70

The roll-back 18 has a lug 31 formed on it on the side opposite the wing 21 and this lug is in the path of a recess 32 formed in a plate 33 arranged to slide to and 75 from the roll-back in undercut guideways 34 formed on or carried by the casing 2, as best shown in Fig. 3. This sliding plate 33 is formed with a cam slot 35 in which is seated a cam 36 on a hollow stem 37 seated at its ends in suitable journal bearings formed in the casing 2 and cover 15. The hollow stem 37 has studs 38 80 entering its bore near each end for a purpose which will hereinafter appear, it being only necessary at the present time to state that when this stem 37 is rotated in one direction the cam 36 moving in the cam slot 35 will cause the plate 33 to move toward the roll-back 18 so 85 that the recess 32 will receive the lug 31, and when this stem 37 is rotated in the other direction the cam 36 will cause the plate 33 to move away from the roll-back and thus disengage the lug 31 from the recess 32. The purpose of this plate is to lock the roll-back 18 90 against movement or to release the same, as the case may be.

Adjacent to that portion of the latch-bolt carrying the lugs 17 there is another roll-back 39 in operative relation to said lugs 17, and this roll-back is provided 95 with a hollow hub or stem 40 journaled in a hollow stud or projection 41 formed on the interior of the casing 2. The hollow hub 40 is provided with an inwardly-projecting stud 42, the purpose of which will hereinafter appear. 100

Referring, now, to that portion of the lock which is located on the outside of the door, it will be seen that there is there an escutcheon 43 of general rectangular shape and raised somewhat away from the face of the door by suitable sides and ends 44. The escutcheon 43 105 is connected to another similar escutcheon 45 on the opposite or inner side of the door by means of posts 46 on the escutcheon 43 telescoping into similar hollow posts 47 on the escutcheon 45, and screws 48 passing through the escutcheon 45 and the hollow posts thereon 110 enter suitable nuts tapped in the ends of the posts 46 and so clamp the two escutcheons firmly to the corresponding sides of the door. As will be understood, the telescoping posts 46 and 47 permit the adaptation of the escutcheons to doors of different thicknesses. 115

Referring now again to the escutcheon 43, it will be seen that there is formed thereon a sleeve 49 which receives the knob shank 50 of a knob 51. The sleeve 49 is recessed near its outer end for the reception of a ball-race 52 and the escutcheon is recessed around the bore 120 extending through the sleeve 49 and the corresponding part of the escutcheon for the reception of another ball-race 53. These two ball-races provide anti-friction bearings for the knob shank 50, and this knob shank is held in the sleeve 49 by means of a plate 54 secured to 125 the inner end of the knob shank by screws 55 and overlapping the corresponding portions of the inner face of the escutcheon 43.

The knob shank has a central bore 56 and is recessed at its inner end to receive the head 57 of a hollow spin- 13

dle 58 having a square exterior to enter and fit the square bore 23 of the roll-back 18. The head 57 of this spindle 58 is secured against the knob shank 50 by the plate 54. In the hollow knob 51 is seated a lock 59 which in the present instance is of the pin-tumbler type and is designed to be operated by a master-key as well as by an individual key. This particular type of lock is secured in the knob 51 by means of screws 60 passing through the knob shank 50 and entering lugs 61 on the casing of the lock 59. It is because of the use of a lock of the particular type mentioned, namely, of the master-key, pin-tumbler type, that the ball-races 52 and 53 are seated in the sleeve 49 instead of in the knob shank 50 so that space is provided for the passage of the screws 60 through the knob shank 50 without interfering with the ball-races and without unduly increasing the size of the knob shank.

Secured to the key-operated parts of the lock 59 is a square spindle 62 of such size as to pass freely through the hollow spindle 58 but arranged to fit the small, square bore 27 of the roll-back 19, and this spindle 62 is of sufficient length to extend through and beyond the escutcheon 45, as will hereinafter appear. It will be understood, of course, that the long, square rod 62 may be otherwise shaped to engage the roll-back 19 and other parts to be hereinafter referred to.

The escutcheon 43 is provided with a suitable opening flanked on either side by annular flanges 63 and suitably threaded to receive a lock 64 of the pin-tumbler type having a spindle 65 entering the hub 40 of the roll-back 39, and this spindle is provided with a slot 66 to receive the stud 42 carried by the hub 40. This lock 64 is designed to operate the latch-bolt to withdraw the head 5, through the roll-back 39 and entirely independent of the roll-backs 18, 19 and 20, whether the latter be locked against operation or not. While this lock 64 is shown as a pin-tumbler lock, it may be of any other desired type but should be so designed as to be inoperative to any key which will operate the lock 59.

Referring, now, to the escutcheon 45 on the inside of the door, this escutcheon is likewise provided with a sleeve 67 arranged to receive the shank 68 of a knob 69. This shank may be made separate from the knob body 69 and the latter may be secured to the shank in any suitable manner, either permanently or removably, as desired. The knob-shank 68 is recessed for the reception of a ball-race 70 engaging the inner face of the sleeve 67. In this case the ball-race is of necessity made of two pieces so as to be applied to the shank 68, but the ball-races 52 and 53 engaging the shank 50 of the knob 51 may be made in one piece if so desired. The knob shank 68 is secured to the sleeve 67 by a plate 71 fast to the inner end of the knob shank by screws 72 and extending over the immediately surrounding portion of the inner face of the escutcheon 45, as indicated. This plate 71 also serves to confine the head 73 of a hollow, square, knob spindle 74 in a suitable recess in the corresponding end of the knob shank 68. The spindle 74 enters the square bore 75 of a cylindrical block 76 having a square hub 77 seated in the square bore 30 of the roll-back 20, and a spring 78 between the plate 71 and the block 76 serves to hold the latter against the roll-back 20. The block 76 serves as a connecting member between the roll-back 20 and the knob spindle 74 so that the latter need not be excessively

long, and it likewise adapts the lock to doors of different thicknesses. This block 76 also enables the lock casing 2 to be inserted in a cylindrical mortise in a door since the roll-backs 18, 19 and 20 do not extend beyond the outer edge of the casing 2 and the block 76 simply serves as an extension of the roll-back 20.

The knob shank 68 is extended through to the face of the knob 69 and is there provided with the revolving barrel portion 79 of a pin-tumbler lock, which barrel portion is constructed to receive the key adapted to the lock 59. The other or inner end of the barrel 79 carries a hollow, square extension or spindle 80 into which extends the square spindle or rod 62 coming from the lock 59. By this it will be seen that the lock 59 and barrel 79 are connected for synchronous movement and that one cannot be moved without moving the other. Also, if the barrel 79 be locked against movement, the lock 59 is likewise locked against movement.

The barrel 79 carries a single pin-tumbler 81 projecting radially through the same. In line with this pin-tumbler 81 the knob shank 68 is provided with a radial slot 82 in which travels a block 83 having to one side of its center a pin extension 84 radial to the knob shank, and entering a socket 85 on a bracket 86 fast on the exterior of the knob shank 68 within the knob body 69, and this bracket is held to the knob shank by a screw 87. The block 83 is constrained to be seated against the barrel 79 by means of a spring 88 within the socket 85. When the knob 69 and its shank 68 are in the normal position the slot 82 is in line with another slot 89 formed in the sleeve 67 which extends into the interior of the knob 69 until it abuts against a radially enlarged portion of the shank 68.

Now, let it be supposed that the pass-key adapted to operate the lock 59 is inserted in the barrel 79. It operates upon the pin 81 after the manner of an ordinary pin-tumbler lock key and causes the pin 81 to move radially outward. This will force the block 83 also radially outward against the action of the spring 88 until the body of the block 83 has entered the slot 89 in the sleeve 67. The result of this is that the knob 69 is now locked to the sleeve 67, and this being a fixture on the door the knob can therefore not be turned. The barrel 79 is also locked by the pin 81 entering the slot 82 and the result is that the barrel 79 being locked to the knob spindle 68 and the latter and the knob 69 being locked to the fixed sleeve 67, the outer knob 51 and its lock 59 are also securely locked through the spindle or rod 62 so that neither the knob 51 nor the key-operated portion of the lock 59 can be turned to operate the latch-bolt through the roll-backs.

In order that the knob 69 may be secured on or removed from the knob shank 68 the said knob 69, when made in one piece, may be provided with a removable section 90 which will permit the passage of the bracket 86.

The escutcheon 45 carries a spindle 91 in line with the hollow stem 37 and entering said stem sufficiently to engage one of the lugs 38, the said spindle 91 being provided with a longitudinal slot 92 for this purpose. This spindle is suitably mounted for rotation on a longitudinal axis in the escutcheon 45 and outside the same is provided with a milled head 93 or other suitable device by which the spindle may be rotated to cause the rotation of the stem 37.

Assuming that a lock structure such as has been described is applied to a room door, such, for instance, as the door of a room in a hotel, then a guest provided with a pass-key adapted to the lock 59 may occupy the room, and under ordinary circumstances can lock the door against unauthorized intrusion by a suitable manipulation of the night-latch under the control of the milled head 93. This will lock the roll-back 18 which is under the direct control of the knob 51 and under the control of this knob only, but a person having a key which will manipulate the lock 59 is enabled to throw the latch-bolt by turning the lock 59 by the key since this lock controls the roll-back 19 and this roll-back is independently rotatable with respect to the roll-backs 18 or 20. Let it be supposed, however, that the guest wishes to leave the room and to lock it against intrusion by unauthorized persons. In such case the guest may leave the night-latch on and simply close the door. Now the room cannot be entered by any one not possessing a proper key because the outside knob 51 is locked by the night-latch. However, the authorized hotel employee charged with the proper maintenance of the rooms is supplied with a master-key which will operate the lock 59, and, consequently, such person may enter the room during the absence of the guest and put it in such order as desired. When the guest returns he may unlock the door with his pass-key by inserting it in the lock 59, and on entering the room and closing the door he may desire to be free from intrusion by even the authorized hotel employee. Under these circumstances he inserts his pass-key in the cylinder 79 and through the intermediary of the pin-tumbler 81 the lock block 83 is moved into the slot 89 in the sleeve 67. Thus the inner knob and knob shank are locked to the sleeve 67 and the outer knob and its lock are held against manipulation either through the knob or by means of a suitable key, by the connecting shank or rod 62. Even an authorized hotel employee cannot now enter the room and the guest is therefore free from intrusion. If, however, it should transpire that the guest remained in his room long beyond the usual time for leaving it, in fact, for so long a time as to make it appear that something unusual had happened to the guest, the room may be entered by some one authorized person who is the custodian of the key which will manipulate the lock 64. This lock, as has been before explained, will throw the latch-bolt to withdraw it into the casing 2 irrespective of the condition of the parts controlling the roll-backs 18, 19 and 20. Thus access may be had to the guest's room under such extraordinary conditions as the custodian of the key operating the lock 64 may deem sufficient reason for such unusual intrusion.

It will be understood that when the night-latch is in operative position the outer knob only is held against manipulation. The inner knob may then be freely rotated and through the roll-back 20 will operate the latch-bolt, while the lock 59 may be made to operate the latch-bolt through the roll-back 19. The night-latch locks only the roll-back 18 which is under the control of the outside knob 51.

In the foregoing description I have assumed that the lock mechanism is applied to the room doors of a hotel, but it will be understood that the lock mechanism may be applied to other doors, and under some circum-

stances it may be desirable to have the lock 64 on the other side of the door from that shown, and the night-latch may also be carried by the escutcheon 43 instead of by the escutcheon 45. And, as before intimated, the lock 64 may be replaced by a lock with wards so constructed that a flat key of suitable shape may be used instead of the pin-tumbler type of key. Also, instead of using square spindles, I may use round spindles and provide them with through pins engaging suitable recesses in the roll-backs.

I claim:—

1. A lock structure comprising a sliding lock or latch-bolt, a knob and connections for operating said latch-bolt, a lock carried by said knob for operating the latch-bolt independent of the movement of the knob, another knob for operating the latch-bolt independent of the first-named knob, and means carried by the last-named knob for fastening the lock in the first-named knob against movement. 70
2. A lock structure comprising a suitable lock or latch-bolt, a manipulating knob therefor, a key-operated lock carried by said knob and controlling the latch-bolt independent of the knob, another knob controlling the latch-bolt independent of the first-named knob or the lock carried thereby, and means carried by the second-named knob adapted to be operated by the key of the first-named knob for securing the latch-bolt-actuating part of said lock against operation. 75
3. A lock structure comprising a suitable latch-bolt, a key-operated lock on one side of the latch-bolt for controlling the same, and means on the other side of the latch bolt responsive to the lock key for securing the latch-actuating part of said lock against operation. 80
4. A lock structure comprising a suitable sliding latch-bolt, a knob, a roll-back under the control of said knob for engaging and operating the latch-bolt, a key-lock carried by said knob, another knob, another roll-back in operative relation to the latch-bolt, connections between said last-named knob and second-named roll-back, a lock member in the last-named knob constructed to couple the lock member to a fixed portion of the lock structure, connections between the lock member in the first-named knob and the lock member in the last-named knob, a third roll-back in operative relation to the latch-bolt and controlled by the last-named connection between the two locks, and means for locking one of the roll-backs under the control of one of the knobs against movement. 85
5. A lock structure comprising a suitable latch-bolt, two independently movable knobs in independent operative relation to the latch-bolt, a key-operated lock in one of the knobs for operating the latch-bolt independent of either of the knobs, another lock in the other knob for securing the first-named lock against manipulation, means for locking the knob containing the first-named lock against movement, and a supplemental key-operated lock controlling the latch-bolt independently of the knobs or locks carried thereby. 90
6. In a lock structure, a suitable latch-bolt, a knob for operating the same, a lock carried by said knob, also in operative relation to the latch-bolt, another knob for operating the latch-bolt, a lock member in said last-named knob connected to and movable with the lock in the first-named knob, and a tumbler in the second knob for locking the same to a fixed portion of the lock and operated by the same key used for operating the first-named lock. 95
7. In a lock structure, a suitable latch-bolt, a key-lock controlling the same, and another lock connected to the first-named lock and having a lock member movable to locking position on the insertion in the lock of the same key used to actuate the first-named lock. 100
8. In a lock structure, a suitable latch-bolt, a pin-tumbler lock for controlling the same, another lock connected to the first-named lock and provided with a pin-tumbler controllable by the same key adapted to the first-named lock, and a lock member movable by said pin-tumbler into operative relation to a fixed portion of the lock structure. 105
9. In a lock structure, a latch-bolt, a lock for controlling the same, another lock for securing the latch-bolt-actuat- 110

ing part of the first-named lock against operation, and a third lock for controlling the latch-bolt independently of the other two locks.

10. A lock structure comprising a suitable latch-bolt, a
5 key-operated lock on one side of the latch-bolt for controlling the same, means on the other side of the latch-bolt for securing the latch-actuating part of the lock against operation, and another key-operated lock acting on the latch-bolt independent of the first-named lock.
- 10 11. In a lock structure, a sliding latch-bolt, a series of roll-backs in operative relation to said latch-bolt, a knob and connections therefrom to one of the roll-backs, another knob and connections therefrom to another one of the roll-backs, a key-operated lock carried by the first-named knob, connections from said lock to the third roll-back and to the other knob, a lock member carried by the
15 second knob and responsive to the operating key of the

lock carried by the other knob, means operated by the lock member in the second knob for coupling said lock member to a fixed portion of the lock structure, connections between the two locks for coupling the same together, means in the lock structure for locking one of the knob-operating roll-backs against movement, and another lock carried by the lock structure at a point removed from the knobs and engaging and operating the latch-bolt independent of the
20 knobs or locks carried thereby.

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

WILLIAM H. F. YOUNG.

Witnesses:

WM. R. DODGE,
G. H. HANNA.