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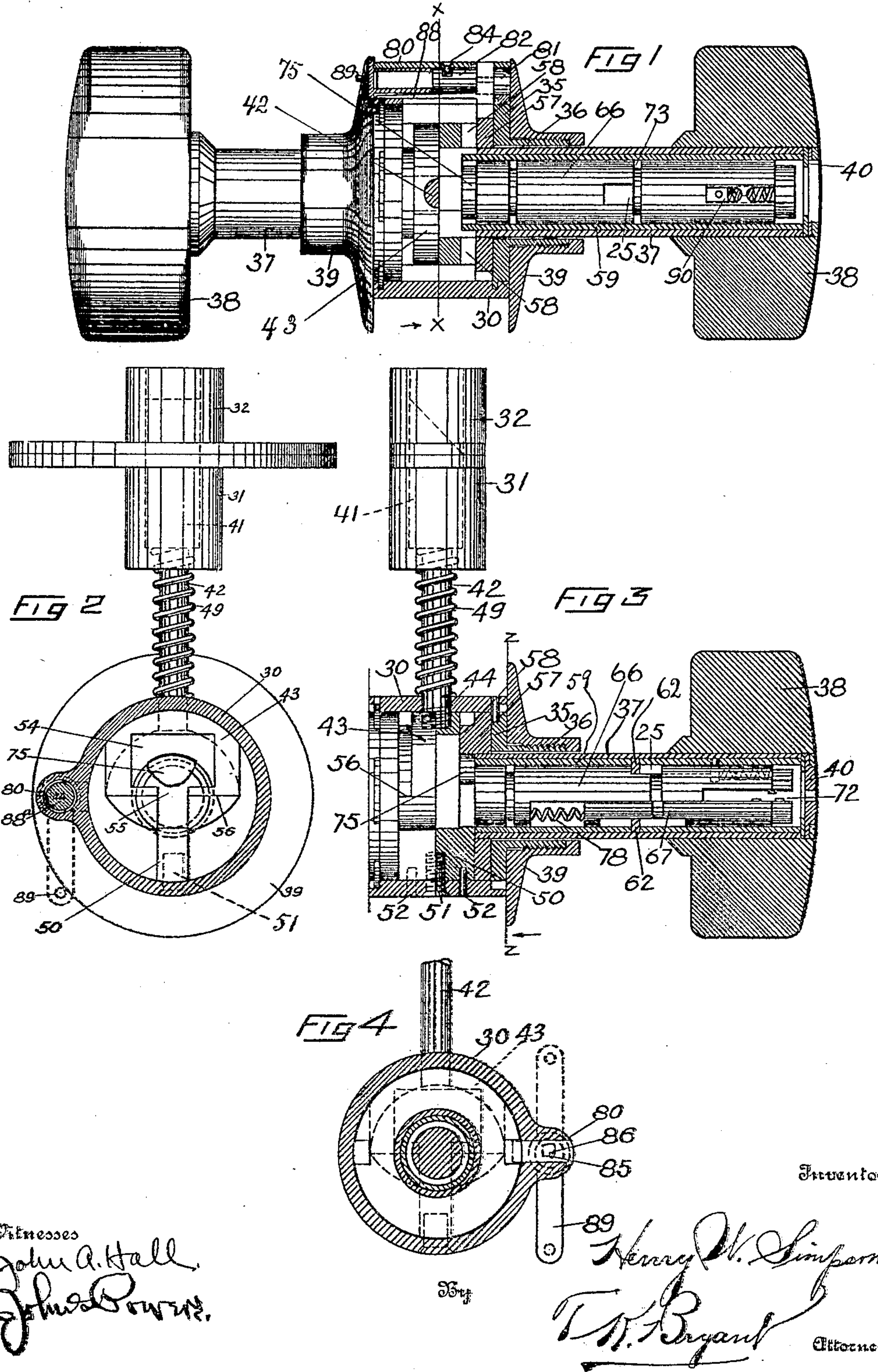
LOCK.

APPLICATION FILED SEPT. 24, 1907.

943,898.

Patented Dec. 21, 1909.

2 SHEETS—SHEET 1.





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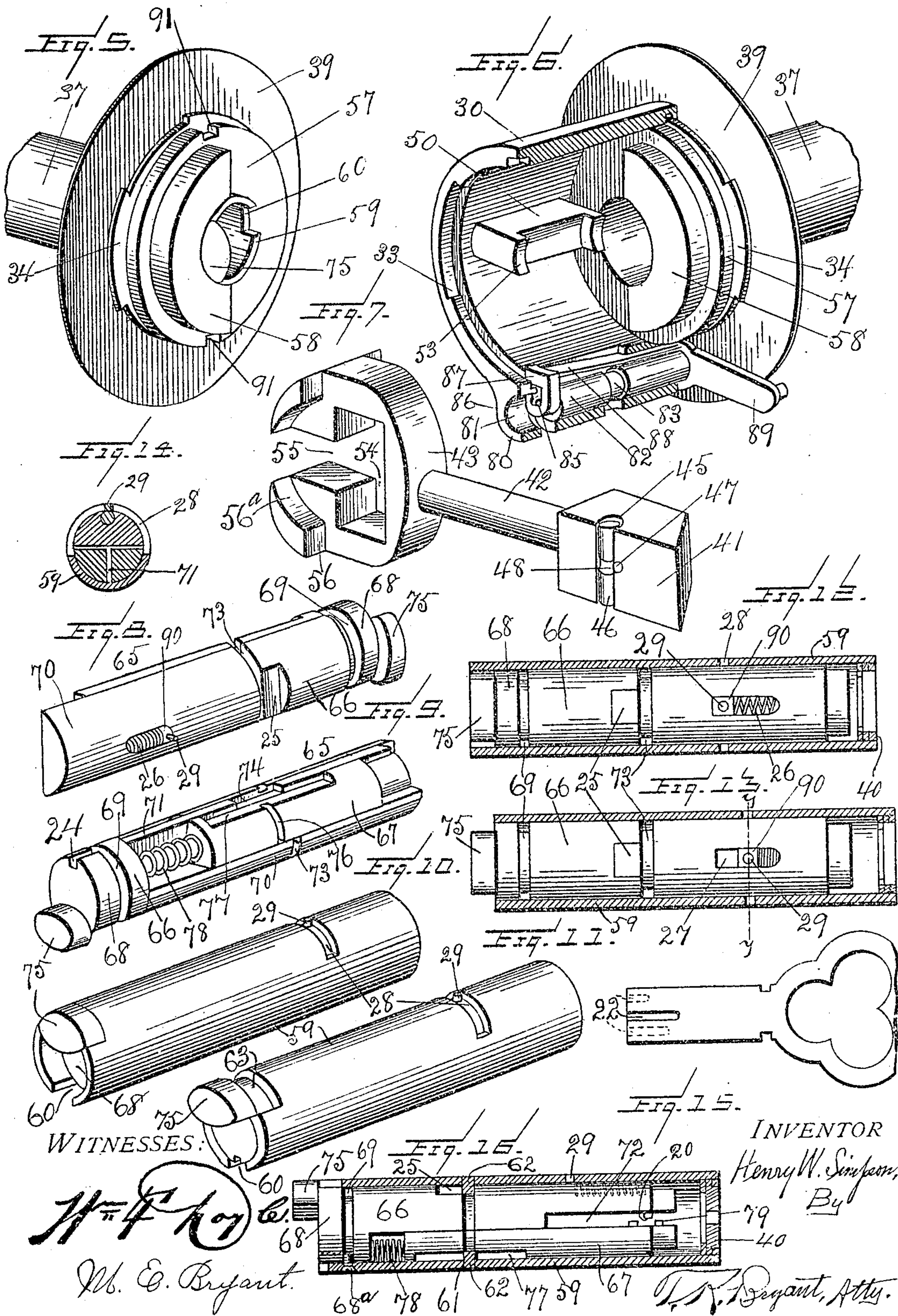
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# UNITED STATES PATENT OFFICE.

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## LOCK.

943,898.

Specification of Letters Patent.

Patented Dec. 21, 1909.

Application filed September 24, 1907. Serial No. 394,268.

*To all whom it may concern:*

Be it known that I, HENRY W. SIMPSON, a citizen of the United States, residing at Ithaca, in the county of Tompkins and State of New York, have invented certain new and useful Improvements in Locks, of which the following is a specification.

My invention relates to improvements in locks of the type generally known as "night latches", viz., a lock in which the normal position of the latch bolt is maintained in position within the latch keeper and which can always be operated by the knob on one side of the door (the inner side), the opposing knob being lockable to prevent operating the latch-bolt excepting by the use of a key, the mechanism operated by the key being so formed as to retract the bolt and thereby release the door from the locked condition.

The main object of the present invention is to provide a structure for this purpose in which the key escutcheon is located within the outer knob spindle, thereby eliminating the requirement of the use of any openings through the door excepting that formed to receive the knob spindles and the parts carried thereby, the parts located within said opening being protected by a rose located on each knob spindle.

A further object is to provide a structure in which independently operable knob spindles are employed, one of which is incapable of being locked against movement, the opposite spindle being provided with means, operative from the opposite side of the door, for positively locking the spindle against movement, each of the spindles having latch bolt operating means capable of moving said bolt in one direction, the latch bolt, however, being free to be moved independent of either spindle.

A further object is the provision of means for operating the latch-bolt by the use of a key, said means being normally out of the path of movement of the latch-bolt but being so arranged as to be carried into said path upon the use of the proper key, the projecting movement of the operating means being limited to a single point in the path of latch-bolt operating movement of the means, said means, in any other position being held in such position as to provide a movement in a rotative direction without

changing the relative planes of the latch-bolt and said means.

A further object is to provide a positive knob-spindle locking means, said means being operated from the opposite side of the door to that on which the spindle to be locked is mounted.

Other objects, including the provision of specific means and structures for producing the results heretofore indicated, will be readily perceived and understood as the invention is hereinafter disclosed.

To these and other ends my invention consists in the improved construction and combination of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims.

In the drawings, in which similar reference characters indicate similar parts in each of the views,—Figure 1 is a view, partly in front elevation and partly in vertical section, showing my invention, the latch-bolt being omitted, with the exception of a section of its connecting rod. Fig. 2 is a sectional view taken on line  $x-x$  of Fig. 1, the latch-bolt carrier being shown in elevation. Fig. 3 is a view similar to Fig. 1 but taken on a line at right angles thereto. Fig. 4 is a sectional view taken on line  $z-z$  of Fig. 3. Fig. 5 is a detail perspective view of the operating mechanism carried by the knob spindle on the outer side of the door. Fig. 6 is a perspective sectional view of the lock casing, and a detail perspective view of the operating mechanism carried by the knob-spindle on the inner side of the door, the knob-spindle locking means for the outer knob spindle being shown in detail. Fig. 7 is a perspective view of the latch bolt and its carrier. Fig. 8 is a perspective view of the operating barrel. Fig. 9 is a similar view of the opposite side thereof. Fig. 10 is a perspective view of the barrel casing and the barrel therein in normal position. Fig. 11 is a similar view showing the barrel in projected position. Fig. 12 is a side elevation of the barrel and casing, the latter being shown in section, the parts being shown in normal or retracted position. Fig. 13 is a similar view, the parts being shown in projected position. Fig. 14 is a cross-sectional view taken on line  $y-y$  of Fig. 13. Fig. 15 is a detail view of a key



for operating the barrel. Fig. 16 is a side view of the barrel in a projected position, the casing being shown in section.

Referring to Figs. 1 to 6, 30 designates a cylindrical casing of a width slightly less than the thickness of the door, said casing being adapted to be mounted in an opening extending through the door, communicating with which is an opening leading to the edge of the door, the latter being suitably mortised to receive the mortised edge plate through which the latch bolt is adapted to operate, said plate being of any preferred form and not forming any particular part of the present invention. The door and its opening are not shown in the drawings, as it is believed unnecessary to particularly show these parts, the arrangement being obvious. 32 designates the edge plate or keeper located in the door jamb and having an opening to receive the end of the latch bolt when projected, said edge plate also being of any preferred form. The casing 30 is provided on its inner periphery adjacent its side edges with suitable bayonet slots 33, shown in Fig. 6 adapted to receive the lugs 34 formed on the flange 35 of a sleeve 36 loosely mounted on a tubular casing 37, the outer end of which is suitably secured in the door knob 38. If desired the sleeve 36 may be secured against a rotative movement to free the bayonet slot connection, by the passage of a screw or pin through the casing 30 and into the periphery of the flange 35, and is made with respect to one side, prior to the insertion of the casing within the opening in the door, the connection on the opposite side being made after the parts have been inserted in the door, the parts being pushed through the door a sufficient distance to permit this to be done. To properly position the casing 30 within the door, I provide the roses 39, each of said roses having a screw-threaded connection with one of the sleeves 36, the construction being such, that when the casing 30 and the sleeve 36 are mounted within the door, and the roses 39 are screwed up tightly against the faces of the door, relative movement of the casing 30, the sleeve 36, and the roses 39 will be prevented. The outside door knob is provided with a suitable rotatable key entering plate 40, through which the key is adapted to be inserted into the barrel and tumbler mechanism, presently described.

41 designates the latch bolt, having its outer face inclined, and having its inner end connected by a rod 42 with a latch bolt carrier 43, as best shown in Fig. 7. The carrier 43 is located within the casing 30, the rod 42 extending outwardly through an opening 44 in the casing 30, the bolt 41 extending into and being adapted to be projected out of the edge plate 31, the latch bolt having one

of its side faces provided with a recess 45 extending laterally, within which is mounted a roller 46, retained in position by a pin 47 engaging in a groove 48 formed in the roller 46, the construction being such that the outer surface of the roller projects beyond the plane of the side face of the latch bolt to provide an anti-friction bearing for said bolt. A spring 49 is interposed between the inner end of the latch bolt and the outer face of the casing 30, said spring tending to retain the latch bolt in a projected position. Owing to the relatively fixed position of the latch bolt within the edge plate 31, the passage of the rod 42 through the casing will prevent any rotative movement of the casing after the parts have been assembled and placed in the door.

Secured within the casing 30 at a point diametrically opposite the opening 44 is an inwardly-extending lug 50, extending in a direction axially of said casing and held against movement relative to said casing by suitable means such as a screw 51 and interlocking pins 52. The lug 50 extends inwardly a suitable distance and has its inner face provided at its edges, with inwardly-extending flanges 53 adapted to be received within the barrel casings hereinafter described for the purpose of retaining the latter against a rotative movement within the knob spindle or tubular casing 37.

The carrier 43 is preferably formed as shown in detail in Fig. 7 being oval in general configuration in side elevation with the ends of the oval flattened. Said carrier adjacent its rear edge is provided with a rectangular opening 54 extending laterally through the carrier, the latter having its rear wall cut away as at 55 to form a passage way leading to the opening 54. If desired, however, the opening 54 may extend but partially through the carrier. Said carrier, when in position within the casing 30, has its rear spaced edges straddling the lug 50, the movement of said carrier causing the inner face of said lug to pass into the opening 54 to a greater or less extent depending upon the direction of movement of the carrier. The rear portion of the carrier is provided with laterally-extending flanges 56, presenting abutments which serve as cam surfaces to retract the latch bolt when the knobs are manipulated as hereinafter described. One of the flanges 56 of the carrier is also recessed, as at 56<sup>a</sup>, for a purpose hereinafter pointed out. Each of the knob spindles 37 has its inner end provided with an annular flange 57, said flange having its inner face provided with a semi-circular plate 58 forming abutments which, when the parts are assembled, are adapted to co-act with the abutments on the carrier 43 to retract the latch bolt.

It will be understood that the parts above



described, when assembled, will permit of the ordinary functions of a knob-operated latch bolt, the movement of either knob retracting the latch bolt by reason of the opposing surfaces of the abutments or cam surfaces of the knob spindle and the latch bolt carrier, and that when the knob is released, the spring 49 will automatically return the latch bolt and its carrier to its outer or projected position. In the present case, the latch bolt is not locked against a retracting movement, the device being in the form of a night-latch, in which only the outer door-knob is locked against a rotative movement, the inner knob being free to operate the latch bolt at any time. The locking of the outer knob is obtained by the following means: As shown best in Fig. 6, the casing 30 has its periphery provided with a laterally-extending projecting portion 80, preferably located at the top of the casing 30 (it being shown at the bottom in said figure for clearness), said projecting portion having an opening 81 extending longitudinally of the projection (laterally of the casing) in which opening is mounted a spindle 82 having a groove 83 intermediate its ends, said groove extending partially around the spindle and forming a passage-way within which the inner end of a screw 84 may ride, as shown in Fig. 1, said screw serving to prevent longitudinal movement of the spindle but permitting a rotative movement thereof within certain limits. One end of the spindle 82 is provided with a projecting pin 85 mounted eccentrically of the end surface of the spindle, said pin being adapted to be retained within an opening 86 of proper shape, formed in a reciprocating element 87 which forms the locking element, said element being mounted within the casing 30 and projection 80 and movable in a direction radially of the casing 30. Said element is spring-supported to normally retain it in its projected position, one form of mounting being shown in Fig. 6, wherein the spring 88 is shown as extending longitudinally of the projection 80 and having one end engaging with the element 87. The opposing end of the spindle is formed with a squared shank 88<sup>a</sup> to receive a complementary member of an operating lever 89, the latter, when in position on the inner side of the door being located between the rose 39 and the surface of the door, the rose being in two parts and one recessed to permit the pivotal movement of the spindle and its operating lever. The opening 86 is so formed that the pivotal movement of the spindle 82, carrying the pin 85 in a concentric path of movement, will ride along the upper surface of the opening without appreciably affecting the position of the element 87, the shape of the opening at this point practically corresponding with the path of movement of the pin 85.

After the pin has passed to a point beyond the vertical diameter of the end of the spindle, its further movement will be in a direction to permit the spring 88 to project the inner end of the element 87 within the plane of the inner periphery of the casing 30, this movement being continued until the element 87 has been projected its proper distance. Upon a return movement of the lever, the pin will retract the element 87 until the inner limit of movement, of the element is reached, whereupon the further movement of the pin will simply cause it to ride against the upper edge of the opening 86, this latter movement, being the equivalent of two opposing cam surfaces having concentric planes, substantially preventing any liability of the element 87 passing into the interior of the casing until the operating lever 89 is again moved.

As before stated, the element 87 is projected, by its spring, into the interior of the casing 30. To permit of its performing the locking function, the flange 57 is provided with two diametrically-opposed recesses 91, one of which is to be placed in active use, the two recesses being provided for the purpose of accommodating the necessary change in position of the parts when the lock is used either as a right or left hand latch. Said recess is in the plane of the projecting element 87, so that when said element is released by the movement of the pin 85, as above described, said element will pass within one of the recesses 91 and thereby effectually prevent rotation of the outer knob. And as the element 87 is spring supported in the direction of movement required to enter the recess 91, there is no liability of a breakage of parts should the knob spindle be out of its true position when the operating lever is manipulated, the face of the element simply riding on the periphery of the flange 57 until the proper relative positions are reached, whereupon the spring will project the element into the recess. By reason of the fact that the projecting end of the element 87 is formed with right-angles, the recesses 91 being correspondingly formed, there is no liability of the element being forced out of the recess by the use of excessive pressure in a rotative direction placed on the knob.

From the above description it will be understood that the knob spindle on the outer side of the door may be locked against movement from a point on the inner side of the door without affecting the position or the operation of the inner knob spindle or the latch bolt. As it is necessary, however, that the door may be operated from the outer side, provision must be made either to unlock the outer knob spindle or to operate the latch-bolt independently of the knob spindle. The latter construction is that preferred.



erably used in connection with the invention, and the construction is so applied as to provide an operating mechanism actuated by a barrel and tumbler structure located in the outer door knob, no other opening being located in the door as a part of the lock herein described. And owing to the particular structure of barrel and tumbler mechanism described, practically innumerable key changes may be made, as will be readily understood.

To operate the latch bolt, by the use of a key, in a direction to retract said bolt, I make use of an operating element (in the form of a lug) 75 mounted on the end of a barrel having both a rotative and a longitudinal movement, the element, in its operative position, lying without the path of movement of the latch-bolt carrier, the insertion of a key and a longitudinal movement of the barrel, followed by rotative movement of the barrel while in its projected position, causing the element to withdraw the latch-bolt and permit of the opening of the door. After the door has been opened, the key is released from pressure, thereby permitting the lug 75 to be returned to its normal position by the return movement of the latch-bolt through its spring 49, and a spring hereinafter described, leaving the parts in normal position with the outer knob still locked but with the door open, ready to be again locked upon its being closed to a position where the latch-bolt can again enter its keeper.

The general construction of the barrel and tumbler mechanism preferably used in connection with my latch-bolt, is that contained in my application for Letters-Patent, filed Sept. 24, 1907, Serial Number 394,266, but owing to the special purposes required of such mechanism in connection with the work to be performed, certain modifications therein are made, and these are particularly pointed out herein in connection with a general description of such mechanism, a more detailed description of the latter being found in the application above indicated. It is to be noted, however, that in the present construction, the key and tumbler mechanism is located on but one side of the door (that corresponding with the outer knob-spindle).

59 designates the barrel casing in the form of a tube open at both ends, said casing having at one end a recess 60 to receive the flange 53, as best shown in Fig. 5, by which construction the barrel casing is held from rotative movement. Longitudinal movement of the casing within the knob spindle in a direction toward the outer end of the knob is prevented by the contact of the end of the casing with the key-entering plate 40, and in the opposite direction by the inner wall of the recess 60 engaging the outer face of

the flange 53. The casing is also provided with slits 61 extending crosswise of the casing on opposite sides thereof, said slits receiving bars 62, the slits being of sufficient depth to permit the inner face of the bars to project within the inner periphery of the casing, the slits being located at any predetermined point in the length of the casing; the outer surfaces of the bars 62 are rounded to conform to the outer periphery of the casing and are rigidly secured to the casing 59.

65 designates the barrel which consists of the tumbler-carrying member 66 and the tumblers 67. The member 66 is formed substantially as shown, being of a length approximating the length of the casing 59. One of its ends 68, which is opposite the key-inserting end, is circular in cross section and adapted to fit the interior of the casing, the relative sizes being such as to permit a relative movement of the member 66 and the casing. The end 68 is provided with a circumferential groove 69 spaced from and parallel with the surface of said end. A screw or pin 68<sup>a</sup> extends through the casing 59, the inner end of said pin extending into said groove 69. The member 66 is also provided with a longitudinally-extending bar 70, semi-circular in cross-section and having an area approximate half the area of a cross-section of the end 68, said bar being of a suitable length. Extending radially from the center of the flattened surface of the bar 70 is a plate 71 which extends longitudinally of the barrel and is of such length as to terminate approximately the free end of the bar 70, a kerf 72 being formed between the flattened surface of the bar and the inner edge of the plate, said kerf extending inwardly a suitable distance. The bar 70 is provided with a circumferentially-extending groove 73, at any predetermined point in its length, and the plate 71 is also provided with a recess 74, one end of which corresponds in position with the groove 73. The end 68 of the member 66 is provided with an operating element 75, in the form of a lug or projection having its outer face curved concentrically with the curvature of the end 68, as best illustrated in Fig. 2, the distance between the periphery of the end 68 and the preiphery of the lug 75 corresponding to the thickness of the wall of the casing 59. The tumblers 67, two of which are shown in the drawings, are formed substantially as shown, each having a general cross-sectional shape of a right-angle triangle, the outer side of which is rounded. The tumblers are adapted to be seated in the ways formed on each side of the plate 71, and the curvature of their outer faces corresponds to the curvature of the inner periphery of the casing, the tumblers practically completing the circular form of the



barrel. Each tumbler is provided with a circumferentially-extending groove 76 and an extended recess 77. Each tumbler is normally retained in an outer position by means of a spring 78 interposed between the end of the tumbler and a wall of the end 68. One end of each tumbler has a surface exposed to the plane of the kerf 72, and said surface is provided with a projecting pin 79 which, together with a pin 20 located on the opposite face of the bar 66, provides the guides for the key wards and the tumbler-moving devices by means of which the parts are placed in position where rotative movement may be had. The key is provided with longitudinally-extending grooves 22, of such length as to provide a construction such that when the groove which receives the pin 20 has reached its limit of movement, the several tumblers will have been moved to a position where the grooves 76 will be in alinement with the groove 73, and thereby form a substantially complete groove around the periphery of the barrel. In view of the fact that the bars 62 are so located that, when the key has reached its movement to position the tumblers, they will lie within the plane of the groove 73 and grooves 76, it will be understood that in this position, movement of the barrel relatively to the casing 59 may be had.

The particular construction and arrangement of the barrel and tumbler so far described, and which pertains solely to the rotative movement of the barrel within the casing, is not herein specifically claimed, as such structure forms the subject-matter of the application for Letters Patent heretofore identified. Therefore, I do not herein further describe the particular construction of the parts, it being understood that the tumblers when unacted upon by the key are so located relatively to one of the bars 62, as to prevent the rotative movement of the barrel, but when acted upon, as above described, to carry the tumblers and barrel into position where the bars 62 may ride within the groove 76, which also changes the position of the other parts, as hereinafter described, such rotative movement may be had, the inwardly-projecting end of the pin 68<sup>a</sup> riding within the groove 69.

The normal position of the lug 75 is that wherein it lies within a recess 63 formed in the end of the barrel casing, in which position the knob can be rotated to operate the latch bolt in the manner heretofore described, the lug 75 presenting no obstruction to the passage of the carrier 43 in the direction to retract the latch bolt.

The longitudinal movement of the barrel within the barrel casing is made possible by the following additional arrangement of correlating parts: The end 68 of the barrel is provided with a groove 24 leading from

the groove 69 to the outer surface of said end, said groove being located diametrically opposite the lug 75, the pin 68<sup>a</sup> being so positioned in the barrel casing to lie within or parallel with the groove 24 when the barrel is in its normal position; also in providing a flat side 25 on the periphery of the bar 70 adjacent the groove 73, such flat side lying intermediate the grooves 69 and 73, said flat side being so positioned that when the lug 75 is in normal position, one of the bars 62 will be in contact therewith. It is to be understood that the plate 71 and the tumblers also have recesses or flat sides which will permit the opposing bar 62 to pass when the lug 75 is in its normal position. This construction prevents a rotative movement of the barrel when the lug 75 is in its normal position, but permits a longitudinal movement thereof in a direction to project said lug 75, this movement carrying the pin 68<sup>a</sup> into the groove 69 and the bars 62 into the plane of the grooves 73, 74, and 76, this movement being obtained by the insertion of the proper key which causes a movement of the tumblers the proper distance and then a movement of the barrel as an entirety to the proper position. When the parts have been so moved, rotative movement of the barrel may be obtained by simply turning the key. As the longitudinal movement of the barrel has carried the lug 75 into the opening or recess 54, a rotative movement of the barrel by the key will carry said lug into contact with the rear walls of the opening 54 and a continued movement in the same direction will move the carrier in a direction to retract the latch-bolt. As soon as the rotative movement has begun the barrel is locked against longitudinal movement by the pin 68<sup>a</sup> and the bars 62. While the key will readily move the barrel in a longitudinal direction to project the lug, the key is not so formed as to retract it after being projected, hence I have provided auxiliary mechanism for retracting the barrel, which mechanism I will now describe.

Mounted within a longitudinal recess 27 formed in the bar 70 adjacent its outer end, is a spring 26 and a follower block 90, the latter being located at the inner end of said recess. A circumferentially-extending kerf 28 is formed in the barrel casing at a point corresponding with the position of the follower block 90 when the barrel is in its normal position, and within said groove projects a radially-extending pin 29 carried by the follower-block 90, said pin being of sufficient length to project into the kerf 28 but not beyond the periphery of the barrel casing. When the barrel is in its normal position, the pin 29 will be located at a point substantially midway of the length of the kerf 28, if it is desired that the mechanism



be such as to permit an unlocking movement of the barrel by a rotative movement of the key in either direction, or at one end of said kerf, if such unlocking movement is to be confined to a movement of the key in but one direction. And in such position of the parts, the follower-block will lie at the inner extreme of its movement. When the barrel is moved longitudinally, however, the follower-block will have a relatively opposing movement (due to the inability of the pin 29 to move longitudinally), thereby placing the block under the tension of the spring 26. The rotative movement of the barrel now takes place, during which movement the pin 29 rides within the kerf 28, retaining the follower block under tension. After the latch-bolt has been retracted and the door opened, a release of the key will permit the spring 49 to project the latch-bolt, which movement causes the lug 75 to be moved in a direction to return it to the plane of its normal position. When the barrel has reached such position, the spring 26 will operate to retract the barrel, thus carrying the lug to its normal or inoperative position, leaving the face of the barrel casing practically free of projections. It will be understood that the length of the kerf 28 is sufficient only to permit of the necessary rotative movement of the barrel to retract the latch-bolt, and it will be obvious that the contact of the pin 29 with the end of such kerf, will limit the rotative movement of the barrel in its casing.

While the advantages of the construction set forth are many I have herein shown and described one form of lock mechanism which will produce the results desired by me and heretofore indicated, it is to be understood that the specific structure shown and described does not comprise all of the structures which might be employed for this purpose. I do not, therefore, limit myself to the specific structures shown in detail, but claim the right to use any and all modifications thereof which may fall within the spirit and scope of the invention as disclosed in the claims hereto appended.

Having thus described my invention, what I claim as new is:

1. In a lock, a normally projected latch bolt, independent latch bolt operating members mounted on opposite sides of the door for retracting said latch bolt, the plane of the axis of said members intersecting the path of movement of the latch-bolt, said members being spaced apart to permit movement of the latch-bolt therebetween, means for locking one of said members against movement, and a key-operated member carried by the locked member for retracting the bolt.

2. In a lock, a normally projected latch bolt, independent operating members mount-

ed on opposite sides of the door for retracting said latch bolt, means for locking one of said members against movement, and a key-operated longitudinally-movable member carried by the locked member for retracting the bolt, the key-operated member being movable to retract the bolt when the member is at one extreme of its longitudinal movement, the movements of the lockable member and the key-operated member being independent of each other.

3. In a lock, a reciprocating latch-bolt normally retained in a projected position, and independent members for retracting the latch-bolt from one side of a door, said members being mounted one within the other, one of said members being positively held against any movement other than that imparted to it by a key, said member being normally out of bolt-retracting position and movable longitudinally to position it in retracting position.

4. In a lock, a reciprocating latch-bolt normally retained in a projected position, and independent members for retracting the latch-bolt from one side of a door, said members being mounted one within the other, one of said members being normally out of bolt-retracting position and movable longitudinally to position it in such retracting position, the movement of either member being independent of the movement of the other member.

5. In a lock, a reciprocating latch-bolt normally retained in a projected position, and independent members for retracting the latch-bolt from one side of a door, said members being mounted one within the other, one of said members being normally out of bolt-retracting position and movable longitudinally to position it in such retracting position, each of said members being lockable, the retracting movement of the members being pivotal, the pivotal movements being in either direction.

6. In a lock, a reciprocating latch-bolt normally retained in a projected position, and independent members for retracting the latch-bolt from one side of a door, said members being mounted one within the other, one of said members being normally out of bolt-retracting position and movable longitudinally to position it in such retracting position, the movement of either member being independent of the movement of the other member, each of said members being lockable.

7. In a lock, a reciprocating latch-bolt normally retained in a projected position, and independent members for retracting the latch-bolt from one side of a door, said members each being lockable against retracting movement and mounted one within the other, one of said members being normally out of bolt-retracting position and movable



longitudinally to position it in such retracting position; the movement of either member being independent of the movement of the other member, one of said members being normally in locked position, means operated from the opposite side of the door for locking the other member against movement, and a key for unlocking the normally-locked member.

8. In a lock, a reciprocating latch-bolt, normally retained in a projected position, and independent members for retracting the latch-bolt from one side of a door, said members being mounted one within the other, the movement of either member being independent of the movement of the other member, one of said members being normally in locked position and out of the path of the latch-bolt, and a key for moving said member into the path of the latch bolt and operating it in a manner to retract the latch bolt.

9. In a lock, a reciprocating latch-bolt normally retained in a projected position, and independent members for retracting the latch-bolt from one side of a door, said members being mounted one within the other, the movement of either member being independent of the movement of the other member, one of said members being normally in locked position and out of the path of the latch bolt, and a key for moving said member into the path of the latch bolt and operating it in a manner to retract the latch bolt, the other member being lockable and unlockable only from the opposite side of the door.

10. In a lock, a reciprocating latch-bolt normally retained in a projected position, and independent members for retracting the latch-bolt from one side of a door, said members being mounted one within the other, the movement of either member being independent of the movement of the other member, one of said members being normally in locked position and out of the path of the latch bolt, and a key for moving said member into the path of the latch bolt and operating it in a manner to retract the latch bolt, the other member being lockable and unlockable only from the opposite side of the door, the position and locked condition of the lockable member being unaffected by the movement of the key-operated member.

11. In a lock, a normally-projected latch-bolt, a carrier therefor, independent members mounted on opposite sides of the door for moving said carrier in a direction to retract the bolt, one of said members being lockable against movement, and an independent key-operated member movable into the path of said carrier for retracting said bolt when the lockable member has been locked.

12. In a lock, a normally-projected latch-bolt, a carrier therefor, and independent

members for retracting said bolt, one of said members lying within the path of the carrier, the other member normally lying without the path of the carrier but movable thereinto.

13. In a lock, a normally-projected latch-bolt, a carrier therefor, independent members for retracting said bolt, one of said members lying within the path of the carrier, the other member normally lying without the path of the carrier, and a key for moving said member into the path of the carrier and moving it in such position to retract the bolt.

14. In a lock, a normally-projected latch-bolt, a carrier therefor, independent members for retracting said bolt, one of said members lying within the path of the carrier, means for locking said member against movement, the other member normally lying without the path of the carrier but movable thereinto, and a key for moving said latter member in its projected position to retract the bolt.

15. In a lock, a normally-projected latch-bolt, a carrier therefor, independent members for retracting said bolt, one of said members lying within the path of the carrier, means for locking said member against movement, the other member normally lying without the path of the carrier but movable thereinto, and a key for moving said latter member in its projected position to retract the bolt, said latter member being automatically retracted to normal position upon the projecting movement of the latch-bolt.

16. In a lock, a casing, a latch-bolt extending into said casing, a latch-bolt operating spindle mounted on one side of a door, said spindle having its inner end extending within said casing and having said inner end enlarged radially, said enlarged portion having a peripheral notch and having its inner face formed to retract the latch-bolt, and a locking member for said spindle, said member being permanently carried by the casing and having an element projectable into said notch to lock the spindle against movement, said member being operable solely from the opposing side of the door, the locking of the spindle normally preventing movement of the latch-bolt, and means supported by the spindle for retracting the latch-bolt without affecting the position of the projected element.

17. A latch-bolt retracting mechanism for locks comprising a casing, a barrel and tumbler mounted within said casing, said barrel being normally seated within the casing, and means for preventing a rotary movement of the barrel relatively to the casing while in its normal position, said means permitting an axial movement of the barrel to project a portion thereof longitudinally beyond the end of the casing, the barrel be-



ing rotatable when in such projected position.

18. A latch-bolt retracting mechanism for the purpose indicated, comprising a casing, a barrel and tumbler mounted within said casing, said barrel being normally seated within the casing, and means for preventing a rotary movement of the barrel relatively to the casing while in its normal position, said means permitting an axial movement of the barrel to project a portion thereof longitudinally beyond the end of the casing, said axial movement being permitted when the barrel is in a predetermined position relative to the casing, the barrel being rotatable in either direction when in its projected position.

19. A latch-bolt retracting mechanism comprising a casing, a barrel and tumbler mounted within said casing, said barrel being normally seated within the casing, and means for preventing a rotary movement of the barrel relatively to the casing while in its normal position, said means permitting an axial movement of the barrel to project a portion thereof longitudinally beyond the end of the casing, said axial movement being permitted when the barrel is in a predetermined position relative to the casing, the barrel being rotatable in either direction when in its projected position, a key for projecting and rotating said barrel, and independent means for returning the barrel to its normal position.

20. A latch-bolt retracting mechanism comprising a casing, a barrel and tumbler mounted within said casing, said barrel being normally seated within the casing, and means for preventing a rotary movement of the barrel relatively to the casing while in its normal position, said means permitting an axial movement of the barrel to project a portion thereof longitudinally beyond the end of the casing, said axial movement be-

ing permitted when the barrel is in a predetermined position relative to the casing, the barrel being rotatable in either direction when in its projected position, a key for projecting and rotating said barrel, and a spring for returning the barrel to its normal position.

21. A selective key-operated lock actuator consisting of a set of elements arranged adjacent to one another, one of said elements being adapted to operate the locking member of a lock, and a casing in which said elements are longitudinally and laterally movable, said casing and elements having cooperating projections and grooves, and the grooves consisting of connected longitudinal and transverse portions, in each of which longitudinal portions one of said projections is normally contained, whereby said elements are prevented from lateral movement until all the corresponding projections and transverse grooves are brought into registry.

22. A selective key-operated lock actuator consisting of a set of bars, and a casing in which said bars are contained with provision for longitudinal and rotary movement, one of said bars being constructed to operate the locking member of a lock, said casing and bars having cooperating grooves and projections, the grooves consisting of intersecting longitudinal and transverse portions, and one of said projections being in each longitudinal groove portion, whereby the bars are permitted to move freely longitudinally but are prevented from rotating till each projection is adjacent to its respective transverse groove portion.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY W. SIMPSON.

Witnesses:

HOWARD COBB,  
GERTRUDE C. GRIFFIN.