S. C. CARR.

LOCK.

APPLICATION FILED DEC. 28, 1912.

1,143,610.

Patented June 22, 1915.

4 SHEETS—SHEET 1.

Fig. 1.

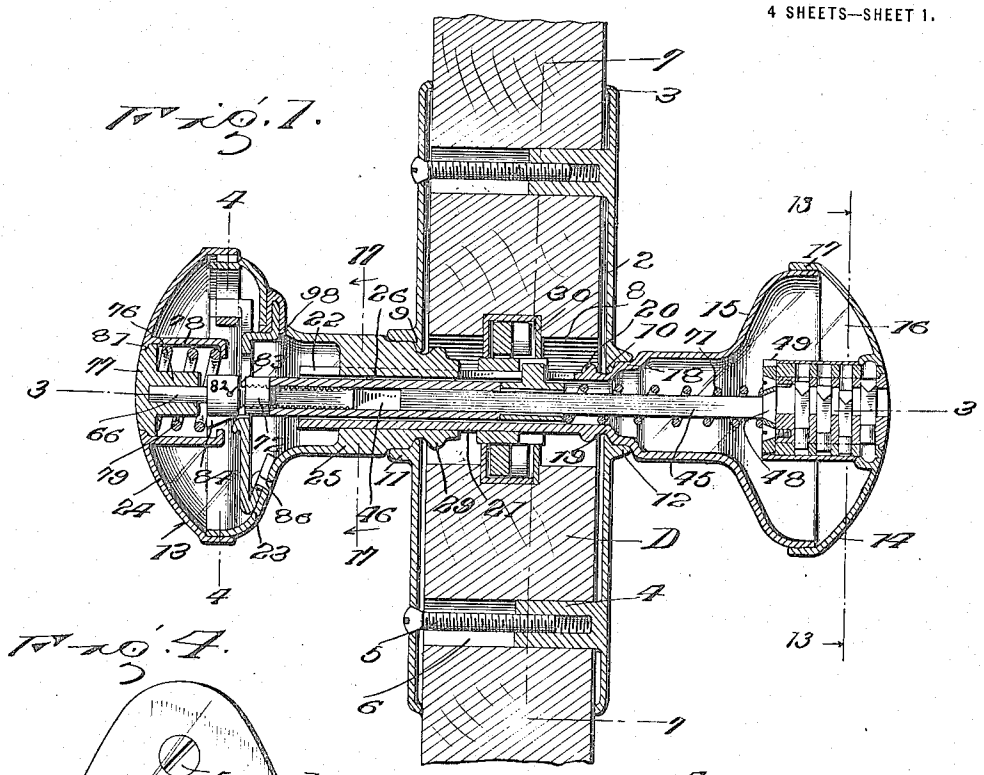


Fig. 4.

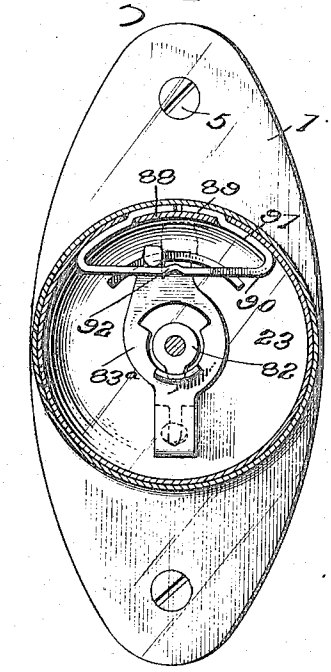
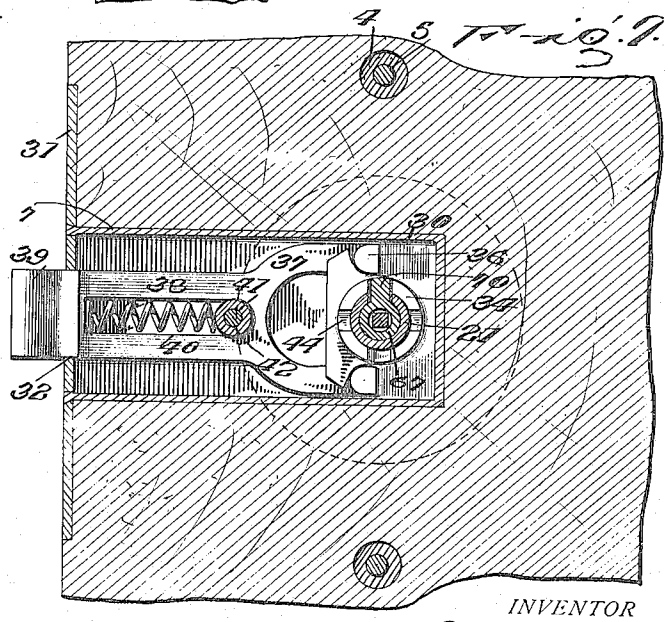


Fig. 2.



WITNESSES

INVENTOR

S. C. Carr

Attorneys.

S. C. CARR.

LOCK.

APPLICATION FILED DEC. 28, 1912.

1,143,610.

Patented June 22, 1915.

4 SHEETS—SHEET 2.

Fig. 2.

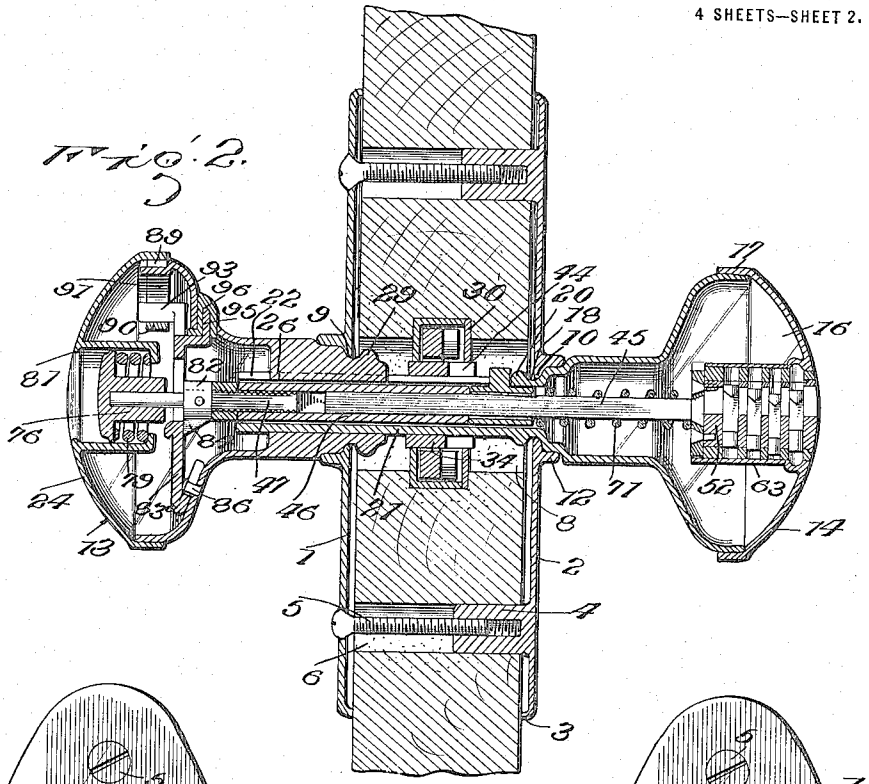


Fig. 6.

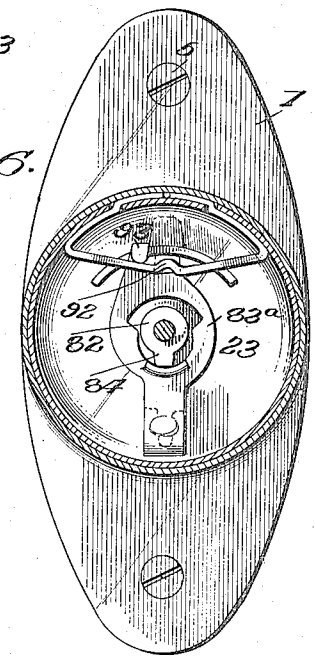
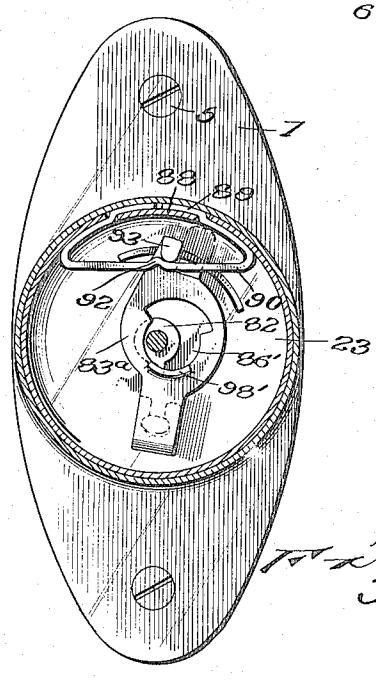


Fig. 5.



WITNESSES

Arthur Edgerton

INVENTOR

S. C. Carr

Attorneys.

S. C. CARR.

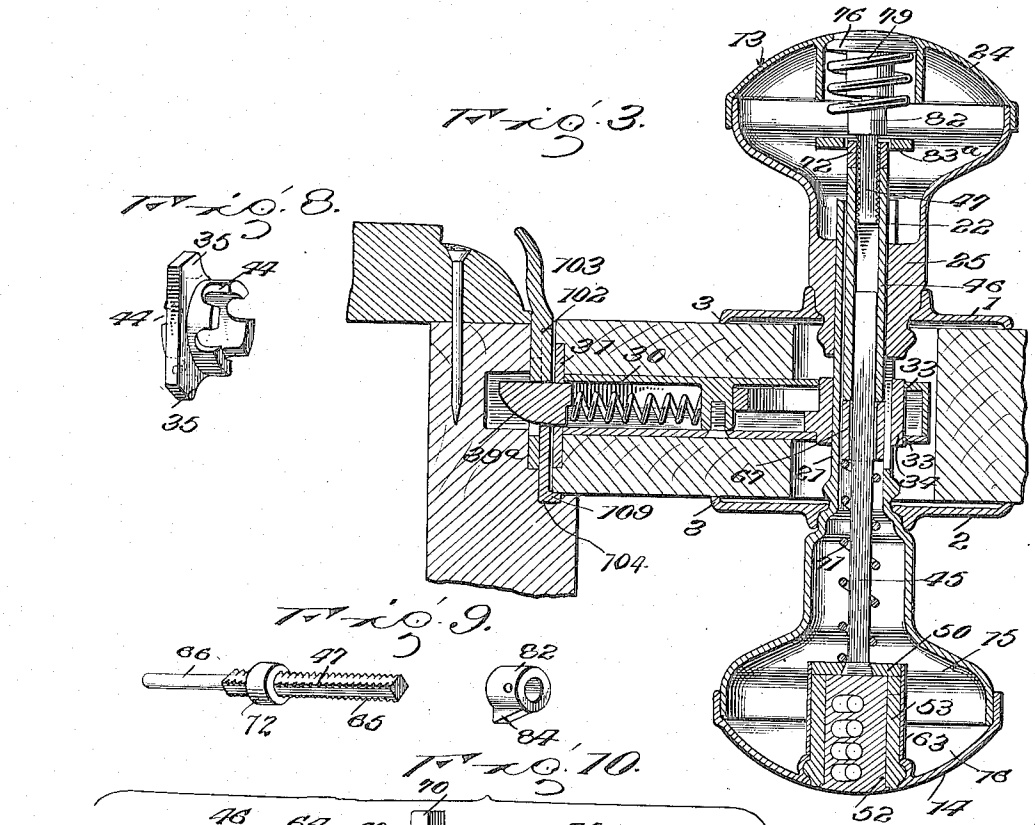
LOCK.

APPLICATION FILED DEC. 28, 1912.

1,143,610.

Patented June 22, 1915.

4 SHEETS—SHEET 3.



WITNESSES

INVENTOR

S. C. Carr

Attorneys.

S. C. CARR.

LOCK.

APPLICATION FILED DEC. 28, 1912.

1,143,610.

Patented June 22, 1915.

4 SHEETS—SHEET 4.

Fig. 13.

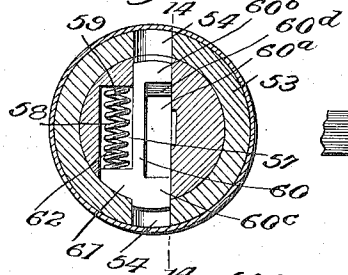
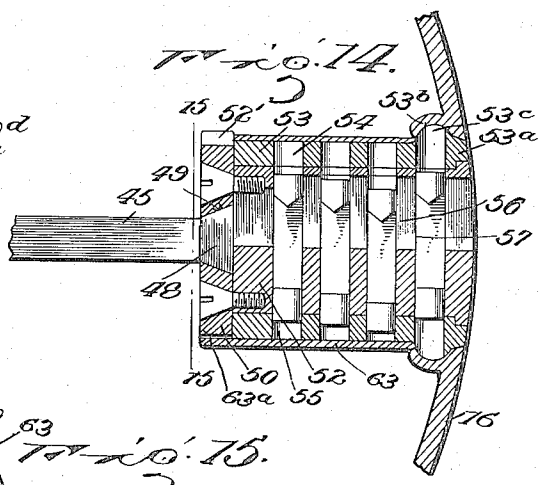


Fig. 14.



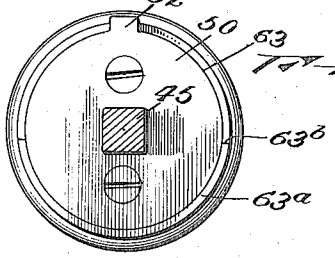
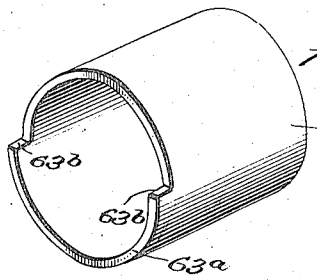


Fig. 15.

Fig. 16.



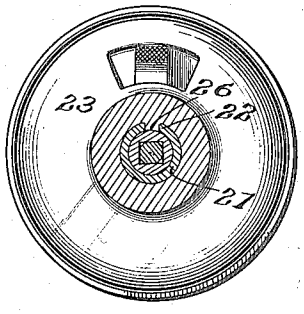


Fig. 17.

Witnesses

Inventor

S. C. Carr.

By

Attorneys.

UNITED STATES PATENT OFFICE.

SELBY C. CARR, OF MUSKOGEE, OKLAHOMA.

LOCK.

1,143,610. Specification of Letters Patent. Patented June 22, 1915.

Application filed December 28, 1912. Serial No. 739,136.

To all whom it may concern:

Be it known that I, SELBY C. CARR, a citizen of the United States, residing at Muskogee, in the county of Muskogee and State of Oklahoma, have invented certain new and useful Improvements in Locks, of which the following is a specification.

This invention relates to locks and has as one of its objects to provide a lock so constructed that it will be unnecessary to use a key in order to adjust the lock to secure the door to which it is applied.

Another object of the invention is to provide a lock which may be so adjusted that it can not be unlocked from without even by the use of a duplicate key.

The invention has a further object the provision of a lock possessing the characteristics above mentioned, which lock may, without disarranging any of its elements, be readily and quickly applied to a door of any thickness within reasonable limits, the adjustment of the lock to a door of given thickness being accomplished prior to the fitting of the lock to the door and without the necessity of repeated trial fittings and adjustments.

The invention also aims to provide a lock so constructed that it may be readily adjusted so that it may be unlocked from within or without, without the use of a key; so that it may be unlocked from within without the use of a key, and from without by the use of a key; and, so that it may be unlocked from within but cannot be unlocked from without even by the use of duplicate keys.

Another feature of the invention resides in a novel tumbler mechanism arranged for actuation by the use of a proper key and, upon actuation, to adjust the lock mechanism so that rotation of the outer knob will serve to unlock the door.

Still further the invention aims to provide, in a lock, a novel form of escutcheon-plate so constructed that the door to which the lock is applied will expand and contract without the plate becoming loosened and without the lock mechanism being in any way affected.

Still further the invention contemplates the provision of a lock having all of the characteristics above mentioned, which lock may without any considerable adjustment of parts be applied and attached to a door opening inwardly or outwardly.

For a full understanding of the invention reference is to be had to the following description and accompanying drawing, in which:—

Figure 1 is a vertical longitudinal sectional view through the lock, the parts thereof being adjusted to permit of the door being opened from within or without by the mere turning of either knob. Fig. 2 is a similar view illustrating the manner in which the parts are to be adjusted so as to prevent the door being opened from without except by the use of a proper key. Fig. 3 is a horizontal sectional view on the line 3—3 of Fig. 1. Fig. 4 is a vertical transverse sectional view on the line 4—4 of Fig. 1, the parts being illustrated in position to permit of the door being opened from without by the use of a key. Fig. 5 is a view similar to Fig. 4 but illustrating the parts so arranged as to prevent the lock being manipulated even by the use of a duplicate key. Fig. 6 is a view similar to Figs. 4 and 5 illustrating another position assumed by the parts. Fig. 7 is a vertical transverse sectional view on the line 7—7 of Fig. 1. Fig. 8 is a perspective view of the lock-rocker. Fig. 9 is a perspective view of a portion of the lock-spindle. Fig. 10 is a group perspective view illustrating other elements of the spindle. Fig. 11 is a group perspective view illustrating certain of the elements shown in Figs. 4, 5 and 6. Fig. 12 is a similar view illustrating the lock-strike. Fig. 13 is a vertical transverse sectional view on the line 13—13 of Fig. 1. Fig. 14 is a vertical longitudinal sectional view on the line 14—14 of Fig. 13. Fig. 15 is a vertical transverse sectional view on the line 15—15 of Fig. 14. Fig. 16 is a perspective view of a dust-guard shell which constitutes an element of the tumbler mechanism illustrated in Figs. 13, 14 and 15. Fig. 17 is a vertical transverse sectional view on the line 17—17 of Fig. 1 looking in the direction indicated by the arrows.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

In the drawings the inside escutcheon plate is indicated by the numeral 1 and the outside escutcheon plate by the numeral 2. By referring to Figs. 1, 2 and 3 of the drawings it will be observed that each of the plates is relatively thin and that each is

provided at its periphery with a relatively narrow flange 3, the edges of these flanges resting against the faces of the door against which the plates are secured. As before stated, the lock embodying the present invention is adapted for application to doors of various thicknesses and to this end means are provided for adjustably connecting the two escutcheon plates. The plate 2 is formed upon its inner side or face with two or more interiorly threaded sleeves 4, and screws 5 are fitted through openings in the plate 1 and are adjustably threaded into the said sleeves, the door which is indicated in the drawings by the reference character D being formed with openings 6 receiving the said sleeves 4 and screws 5. At this point it is to be noted that inasmuch as the edges of the flanges 3 bear against the opposite faces of the door D, the door may swell or contract without the plates becoming loosened. Furthermore, it will be noted that inasmuch as the sleeves 4 are formed upon the inner face of the escutcheon plate 2, the plate is without visible means of attachment to the door and consequently, cannot be readily removed by one endeavoring to disturb the lock-mechanism.

The door D is formed with a mortise 7 and with an opening 8 which extends therethrough and is in communication with the mortise. The escutcheon-plates 1 and 2 are formed respectively, with openings 9 and 10 which register with the opening 8 when the escutcheon plates are properly positioned upon the door. The outer faces of the escutcheon plates 1 and 2 are formed respectively with flanges 11 and 12 which surround the openings 9 and 10, although of greater diameter than the respective openings.

The inner and outer knobs of the door are indicated in general by the numerals 13 and 14, and the outer knob 14 consists of a section 15 and a cap-section 16 which has its peripheral portion overturned about the edge of the flared portion of the section 15 as indicated at 17. The said section 15 is reduced in diameter, as at 18, and is further reduced in diameter, as indicated at 19, and is formed upon its last mentioned reduced portion with a circumscribing rib 20. In reducing the section as at 19, a shoulder is formed which is spaced from the rib 20 and the material of the escutcheon plate 2 between the opening 10 and flange 12 is received between the said shoulder and the rib 20. The flange 12 projects into the reduced portion 19 of the knob section. At this point it will be seen that the knob is connected for turning movement with the escutcheon plate 2, but that it cannot be disconnected from the plate except by destroying either the plate or the knob. The knob is provided with a tubular shank 21 which is formed with a slot 22 and this shank is open at both ends, its inner end being in communication with the interior of the knob proper.

The inner knob 13 consists of a section 23 and a cap-section 24 assembled therewith in the same manner as the section 16 is fitted to the section 15 corresponding to the rib 20 upon the shank of the knob section 15 and the material of the escutcheon plate which lies between the opening 9 and flange 11 is received between the shoulder formed by reducing the shank 25 as at 27, and the rib 29, the flange 14 projecting into the reduced portion 28. At this point it will be observed that the shank of the outer knob slidably fits within the shank of the inner knob but that due to the engagement of the rib 26 in the slot 22 these knobs are at all times held for turning movement in unison; however, the escutcheon-plates 1 and 2 may be adjusted toward or from each other without disturbing this connection.

The casing for the bolt of the lock is indicated in general by the reference numeral 30 and is carried by an attaching plate 31 formed with the usual opening 32 for the passage of the head of the bolt. As shown in Figs. 1, 2 and 3 of the drawings, the casing 30 is formed in opposite side walls with openings 33 in which are mounted the ends of a rocker 34 which consists of a hub provided with oppositely extending shoulders 35 arranged to coöperate with lugs 36 at the ends of the arms of a yoke 37 located at one end of the latch-bolt. The lock and latch bolt is indicated in the drawings by the numeral 38 and the head thereof is indicated at 39 and has a rounded nose 39^a as distinguished from the nose of the ordinary latch-bolt head, which is flat. The shank of the bolt 38 is formed with a slot 40 in one end of which is normally engaged the usual tubular post 41 which is integral with one side-wall of the casing which receives the usual screw 42 which serves to hold the opposite side-wall of the casing in place. A spring 43 is arranged within the slot in the shank of the bolt and bears at one end against the post 41 and at its other end against the wall of the slot at that end opposite the end in which the post is normally seated. The spring 43 serves to normally hold the bolt with its head in locked position, but it will be understood that upon rotation of the rocker 34 in one direction or the other, the bolt will be retracted owing to the engagement of the shoulders 35 against the lugs 36, against the tension of the spring 43 so as to move its head into the casing and out of locked position. For a purpose to be presently explained, the rocker is formed in each end with a plurality of diametrically oppositely located notches 44 and the notches at one end of the rocker alternate with the notches at the other end, or more specifically speak-

ing, each notch at one end of the rocker is located at a point between two of the notches at the other end of the rocker, in a line extending longitudinally of the hub. It will be observed from inspection of the drawings that the tubular shank 21 of the outer knob fits rotatably within the said rocker.

The spindle of the lock is formed in three sections, one of which is indicated in general by the reference numeral 45, another by the numeral 46, and the third by the numeral 47. The spindle section 45 consists of a stem which is rectangular in cross-section and which is provided at one end with a pyramidal head 48. The head 48 is received within a correspondingly formed opening 49 and a disk 50 which is secured to the inner end of the barrel 52 of a key-operated tumbler mechanism which is designed for actuation to rotate the spindle section 45. For a purpose to be presently explained this disk 51 is provided upon its periphery with a radially projecting lug 52. The barrel is rotatably carried within a casing 53 which has one end fitted as at 53^a in an opening formed in the section 16 of the outer knob, the said section having a flange 53^b which is overturned about a circumscribing rib 53^c formed upon the casing 53. The casing 53 is formed with a number of openings 54 which extend in a series longitudinally of the casing, and at points diametrically opposite the openings 54 with openings 55. The barrel 52 has a key-slot 66 extending therethrough and intersected by a number of recesses 57 in which are fitted the tumbler pins in a manner which will now be described. Each of the recesses 57 is widened as at 58, whereby to afford a shoulder 59 located near one end thereof. Each of the tumbler pins is indicated by the numeral 60 and each has a laterally porjecting lug 61 against which bears one end of a spring 62 which is housed within the widened portion of the recess in which the respective tumbler pin is seated, the other end of the spring bearing against the shoulder 59, as clearly shown in Fig. 13 of the drawings. That side of each tumbler pin 60 opposite the side from which the lug 61 projects is recessed as at 60^a to form laterally projecting heads 60^b and 60^c located respectively at the upper and lower ends of the pin, the head 60^b being beveled upon its under side as indicated at 60^d, the head 60^c extending a greater distance outwardly than the circumferential radius of the under surface of the lug 61, this head projecting a greater or lesser distance into the recesses 54 of the casing 53.

By referring to Figs. 13 and 14 it will be observed that the heads 60^b of the latch-pins 60 have their upper ends normally located a greater or less distance inwardly of the circumferential surface of the barrel 52 and that the springs 58 normally hold the pins with the heads 60^c projecting into the openings 54 in the casing 53, the barrel 52 being in this manner held against rotation in the said casing, although it will be seen that upon the insertion of a proper key into the slot 56 the beveled under sides 60^d of the heads 60^b will be engaged by the key and the pins will be moved upwardly to such an extent as to bring the lower ends or heads 60^c flush with the circumferential surface of the barrel 52 and the barrel may then be rotated in the casing 53. A shell 63 is fitted upon the casing 53 and serves to exclude dust from the tumbler mechanism above described, and at its inner ends this shell is extended to form a flange 63^a, the ends of which form shoulders 63^b against which the lug 52′ upon the disk 50 is designed to engage when the barrel 52 is turned in one direction or the other, the rotative movement of the barrel being limited by reason of such engagement.

The section 46 of the spindle is in the nature of a sleeve which is formed throughout its length with a bore 64 which is of a contour to snugly receive the squared stem of the section 45, in the manner clearly shown in Figs. 1, 2, 3 and 10. The section 47 of the spindle is substantially rectangular in cross-section throughout the greater portion of its length, as clearly shown in Fig. 9 of the drawings, and throughout its said portion is threaded at its corners, as at 65. Throughout the remainder of its length the said section 47 is reduced in diameter, as at 66 and is circular in cross-section. Loosely fitted upon the spindle section 45 is a sleeve 67, the bore of this sleeve being circular and indicated at 68 and of a diameter to receive the said spindle section 45 for turning movement. The sleeve 67 is provided with a laterally projecting lug 70 which is designed to engage in one or another of the notches 44 in the rocker 34. By referring to Figs. 1 and 2 of the drawings it will be noted that the lug 70 projects through the slot 22 in the knob-shank 21 and that one end of the spindle section 46 bears against the said sleeve. A spring 71 is fitted upon the spindle section 45 and bears at one end against the disk 50 and at its other end against the said sleeve 67 so as to hold the sleeve in position against the spindle section 46. This spring serves also to normally hold the sleeve 67 in position with its lug 70 engaging in one or another of the notches 44 in the rocker and it will be understood that sliding movement of the spring section 46 upon the stem 45 against the tension of the spring 71 will serve to move the lug 70 out of engagement with the said notches 44. By reason of the fact

that the lug 70 projects through the slot 22 and engages in the notches 44, and due to the engagement of the rib 26 in the slot 22, rotation of either knob in either direction, when the lug 70 is engaged in any of the notches 44 will serve to retract the lock-bolt. It will be apparent, however, that when the lug is not in engagement in any of the notches 44 either knob may be rotated in either direction without in any way affecting the latch-bolt.

For a purpose to be presently explained a sleeve-nut 72 is threaded on the squared portion of the spindle section 47 and this sleeve nut constitutes an adjustable abutment for that end of the spindle section 46 opposite the end which is engaged by the sleeve 67.

The reduced end 66 of the spindle section 47 fits within the stem 76 of a push-button 77. This button 77 is mounted for sliding movement in a cylindrical stamped-in portion 78 of the cap-section 24 of the inner knob and is normally held in the position shown in Fig. 1 of the drawings by means of a spring 79 which bears at one end against the back of the button and at its other end against lugs 80 which are stamped-in at diametrically opposite points from the inner end of the portion 78. The cap-section 24 of the knob at the outer end of its portion 78 is stamped or otherwise formed with a rib 81 against which abuts the peripheral portion of the button 77. By so mounting the button, pressure inserted against it in the manner illustrated in Fig. 2 of the drawings will result in the section 47 being slid to the right in Fig. 1 of the drawings, correspondingly moving the section 46 and the sleeve 67 whereby to move the lug 70 out of engagement in the notches 44 in the rocker 34.

It will be apparent that due to the provision of the sleeve-nut 72 the several sections of the spindle may be adjusted with respect to each other so as to permit of the lock being mounted upon a door of any thickness within reasonable limits and for a purpose which will be presently pointed out a collar 82 is arranged upon the squared portion of the spindle section 47 at that end thereof adjacent the reduced portion 66 of the said spindle section, and a pin 83 is fitted through the said collar 82 and the said spindle section whereby to hold the collar in place. The collar is formed upon its under side with a lug 84 having a beveled under face 85, the forward end of this lug constituting a shoulder or abutment for engagement with a member of a detent device which will now be described.

In connection with the spindle consisting of the several sections above described, the invention contemplates the provision of a detent device for holding the spindle section 47 in such position that the lug 70 will be disengaged from the notches 44 and this device will now be specifically described. The detent mentioned above is in the nature of a plate 83^a having its lower end bent back upon itself at an angle as at 84^a and bifurcated as at 85^a. A rivet 86, or the like, is secured upon the interior surface of the section 23 of the inner knob and fits within the bifurcation 85^a in the manner illustrated in Figs. 1 and 2 of the drawings.

The plate 83^a is formed with an opening 86′, the lower portion of which is substantially circular and the upper portion is of segmental outline, as indicated at 87. A portion of the shell-section 23 is struck-in as at 88 and fitted between this portion and the corresponding portion 24 are the ends 89 of a leaf-spring 90, the end-portions of the spring being bent back at an angle toward each other as at 91 and secured in such position that the body portion of the spring will extend along a line which is a chord of the circle described between the portion 25 of the section 24. At a point midway between its ends the body portion 90 of the spring is struck-up so as to form an upstanding lug 92. At its upper end the plate 83^a is formed with a forwardly projecting tooth 93 which rests upon the upper surface of the body portion of the spring 90 and is designed to engage the said surface at one side or the other of the lug 92. The plate, beside the tooth 93 is bent to extend rearwardly at right angles to the plane of the body portion of the plate, as at 94, and thence to extend upwardly as at 95, this latter portion fitting within a finger-piece 96 having an arcuate base 97 which serves to close a slot 98 in which the finger-piece works, this slot being formed in the upper side of the section 23 of the inner knob in the manner illustrated in Fig. 1 of the drawings.

By referring to Figs. 4, 5 and 7, it will be observed that the lower or circular portion of the opening 86′ is arranged to conform to the cross-sectional contour of the collar 82 and that when the wedge-shaped lug 84 is uppermost this collar may pass through the opening, the lug passing through the upper or segmental portion of the opening. However, it will be observed by referring to Fig. 4 of the drawings that when the collar 82 is rotated to position with its lug facing downwardly, when the detent is in normal position, the forward end of the lug will rest against the rear face of the plate 83^a. It will further be observed from inspection of Fig. 5 that should the plate 83^a be swung to the right to assume the position illustrated in the said figure, the end of the collar 82 will abut against the rear face of the de-

tent plate and the spindle will be held against movement to assume the position shown in Fig. 2.

In order that the inclined face of the lug 84 may readily pass over the wall of the opening 86′, the face of the plate is formed with an arcuate rib 98′ which is convex in cross section and which extends along the lower side of the said opening.

The lock-strike employed in connection with the lock, above described, consists of a plate 99 which is formed near its upper and lower ends with slots 100 and this plate is formed between the slots 100 with a relatively wide slot 101 and at one side of this slot is thickened as at 102 and extended to form a tongue 103 which is curved laterally so as to permit of the ready movement of the lock-bolt into engagement with the strike. A plate 104 is disposed against the plate 99 and in one side is recessed as at 105, the upper and lower walls of the recess being beveled as at 106 and slidably receiving between them the thickened portion 102 of the plate 99. Screws 107 are fitted through openings 108 formed in the plate 104 and project through the slots 100 and are threaded into the door frame in the usual manner. It will be observed that the plate 104 is formed at one edge with a laterally projecting flange 109 which closes the space between the face of the plate and the edge-face of the door and this flange prevents the insertion of a knife, or the like, between the door and the strike for the purpose of shifting the lock-bolt to released position.

It will be readily understood that by adjusting the plate 104 upon the plate 99, the position of that wall of the opening of the strike, against which the lock-bolt engages, may be varied so that a snug engagement may be secured between these elements.

It will be understood by referring to Fig. 1 of the drawings that with the parts in the position shown in this figure a rotation of either knob in one direction or the other will result in the lock-bolt being retracted from locking engagement with the lock-strike and consequently the door may be opened from within or from without when the parts are so relatively positioned. Should it be desired to lock the door so that it could only be opened from without by the use of a proper key, the button 77 is pressed inwardly as indicated in Fig. 2 of the drawing and against the tension of the spring 79. This movement of the button will result in a corresponding movement of the collar 82 and as the wedge-shaped lug 84 upon this collar rides over the lower side of the wall of the opening 86′, the detent-plate 83ª will be moved downwardly against the tension of the spring 90 and the abrupt end of the said lug 84 will engage behind the detent-plate in the manner shown in Fig. 2 of the drawings. As soon as the button 77 is relieved of pressure, it will be automatically returned to the position shown in Fig. 2 of the drawings through the medium of the spring 79. The movement of the collar 82 and the section 47 of the lock spindle, above described, will result in a corresponding movement of the section 46 together with the sleeve 67 so that the lug 70 will be moved out of engagement in the notches in the rocker of the lock. With the parts thus positioned, either knob may be turned in either direction without in any way affecting the lock-bolt. It will be understood from inspection of the drawings that the three sections of the spindle are connected for rotation in unison so that should either of the sections be rotated, the others would be similarly moved. Consequently, should the proper key be inserted into the barrel 52 and should the key be turned so as to rotate the barrel, a similar movement will be imparted to the section 47 of the spindle and if this movement is continued until the abrupt end of the wedge-shaped lug 84 registers with the portion 87 of the opening in the detent 83ª, the spring 71 will act immediately to shift the section 47 in the direction of the inner knob and to approximately the position shown in Fig. 1 of the drawings. This movement of the spindle sections will result in an engagement of the lug 70 in one or another of the notches in the rocker of the lock, and rotation of the outer knob will then result in the retraction of the lock-bolt. It will be understood that with the parts arranged as above stated, the detent plate will maintain the position shown in Fig. 4 of the drawings.

Should it be desired to so arrange the lock that it cannot be opened from without by the use of a duplicate key, and should the parts be in the position shown in Fig. 1 of the drawings the push-button is pressed inwardly resulting in a corresponding movement of the collar 82 until the lug 84 has passed over the lower side of the wall of the opening in the detent-plate 83ª and this plate has been returned to normal position, or in other words, the position shown in Fig. 2 of the drawings, in which position the abrupt forward face of the lug will rest against the respective side of the said detent-plate. The finger-piece is then swung to the right so as to move the detent-plate to approximately the position shown in Fig. 5, in which position the end of the collar 82 will rest in engagement with the rear side of the plate at all positions in the rotative movement of the said section of the spindle so that even should a proper or duplicate key be inserted into the barrel 52 and should the barrel be rotated, the spindle section 47 would at no point in its rotative movement assume a position which would permit it to be moved

through the opening 86′ in the detent-plate through the action of the spring 71. To restore the lock to its normal condition, however, it is only necessary to slide the finger-piece 96 to the left from its position shown in Fig. 5 so that it will assume the position shown in Fig. 4, after which downward pressure on the finger-piece as in Fig. 6 will release the spindle sections 46 and 47 for forward sliding movement to seat the lug 70 in the notches in the rocker.

From the foregoing description of the invention it will be seen that there is provided a lock, the parts of which may be readily and quickly adjusted so as to permit of the door to which the lock is applied being opened from within or without; so as to permit of the door being opened from without by a person using a proper key; and, so as to prevent an unauthorized person, provided with a duplicate key, from opening the door from without.

It will be understood, as before stated, that the lock embodying the present invention is applicable to doors of various thicknesses and that the screws 5 of the extension bolts are to be threaded onto the sleeves 4 a greater or less distance depending upon the thickness of the door. In adapting the lock for application to doors of different thicknesses, it will of course be necessary to adjust the sleeve-nut or collar 72 upon the spindle section 46, but aside from this no other adjustment of the lock mechanism is required. In adjusting the lock for application to a door of a given thickness, the sleeve nut 72 is threaded along the spindle section 47 for a distance equal to a part of the thickness of the door, after which, the lock can be applied without further adjustment. If desired, a fixed point may be marked upon the said spindle section and a scale designed indicating inches and fractions of inches, and in accordance with which scale, and predetermined point 72 the sleeve-nut may be adjusted after a measurement of the door to determine its exact thickness.

Having thus described the invention what is claimed as new is:—

1. In lock mechanism, a lock and latch bolt, a shiftable spindle, means arranged when the spindle is in one shifted position and rotated, to retract the bolt and when the spindle is in another shifted position to be out of operative relation to the bolt, means for shifting the spindle, and means for holding the spindle in its last mentioned shifted position in all positions of rotation of the spindle, the said means being movable into and out of position to release the spindle for movement to its first mentioned shifted position when the spindle is rotated to a predetermined position.

2. In lock mechanism, a lock and latch bolt, a shiftable spindle, means arranged when the spindle is in one shifted position and rotated, to retract the bolt and when the spindle is in another position to be out of operative relation to the bolt, means for shifting the spindle, and means for holding the spindle in its last mentioned shifted position, the said means being arranged when in one position to release the spindle for movement to its first mentioned shifted position when the spindle is rotated to a predetermined position, and being arranged when in another position to hold the spindle against such movement at all points in its rotative movement.

3. In lock-mechanism, a lock and latch bolt, a shiftable spindle, means arranged when the spindle is in one shifted position and rotated to retract the bolt and when the spindle is in another shifted position to be out of operative relation to the bolt, means yieldably holding the spindle in its first mentioned position and arranged to shift the spindle to such position when released from its second mentioned shifted position, means for moving the spindle to its second mentioned shifted position, and means arranged to hold the spindle in the first mentioned position, said means being arranged, when in a predetermined relation to the spindle to release the latter at a point in its rotative movement, and arranged when in another position to restrain the spindle against movement to its first mentioned position at all points in its rotative movement.

4. In lock mechanism, a lock and latch bolt, a shiftable spindle, means arranged when the spindle is in one shifted position and rotated to retract the lock-bolt and when the spindle is in another shifted position to be out of operative relation to the bolt, means yieldably holding the spindle in its first mentioned position and arranged to shift the spindle to such position, means for moving the spindle to its second mentioned shifted position, means arranged to hold the spindle in the last mentioned position, said means being arranged, when in a predetermined relation to the spindle to release the latter at a point in its rotative movement, and arranged when in another position to restrain the spindle against movement to its first mentioned position at all points in its rotative movement, and key-operated means for rotating the spindle.

5. In lock-mechanism, a lock and latch bolt, a shiftable spindle, means arranged when the spindle is in one shifted position and rotated to retract the bolt and when the spindle is in another shifted position to be out of coöperative relation to the bolt, a knob arranged at each end of the spindle, key-operated means carried by one of the knobs for rotating the spindle, and means carried by the other knob for holding the spindle in its second mentioned shifted posi-

tion in all positions of rotation of the spindle and movable to position to release the spindle for movement to its first mentioned shifted position.

6. In lock-mechanism, a lock and latch bolt, a shiftable spindle, means arranged when the spindle is in one shifted position and rotated, to retract the bolt and when the spindle is in another shifted position to be out of coöperative relation to the bolt, a knob arranged at each end of the spindle, key-operated means carried by the other knob for holding the spindle in its second mentioned shifted position in all positions of rotation of the spindle and movable to position to release the spindle for movement to its first mentioned shifted position, and a spring tending to move the spindle to its first mentioned shifted position and hold the same in such position.

7. In lock-mechanism, a lock and latch bolt, a shiftable spindle, means arranged when the spindle is in one shifted position and rotated to retract the bolt and when the spindle is in another shifted position to be out of operative relation to the bolt, means tending to move and hold the spindle in its first mentioned shifted position, and a detent arranged when in one position with relation to the spindle to hold the spindle in its second mentioned shifted position and operable to release the spindle.

8. In lock-mechanism, a lock and latch bolt, a shiftable spindle, means arranged when the spindle is in one shifted position and rotated, to retract the bolt and when the spindle is in another shifted position to be out of operative relation to the bolt, means tending to move and hold the spindle in its first mentioned shifted position, and a detent arranged when in one position with relation to the spindle to hold the spindle in its second mentioned shifted position and operable to release the spindle, the detent being arranged when in the first mentioned position to automatically release the spindle when the spindle is rotated to a predetermined point in its rotative movement, the detent being further arranged, when moved to another position to restrain the spindle against such movement at all points in its rotative movement.

9. In lock-mechanism, a lock and latch bolt, a rotatable and shiftable spindle, means arranged when the spindle is in one of its shifted positions and rotated, to retract the bolt and when the spindle is in another shifted position to be out of operative relation to the bolt, means tending to shift the spindle and yieldably hold it in its first mentioned shifted position, a knob arranged at one end of the spindle, means carried by the knob operable to shift the spindle from its first to its second mentioned shifted positions, a detent mounted for sliding and swinging movement upon the knob and arranged when in one position with relation to the spindle to hold the latter in its second mentioned shifted position and arranged when slid to another position to release the spindle for movement to its first mentioned shifted position and further arranged when moved to another position to restrain the spindle against movement to its first mentioned shifted position at all points in its rotative movement.

10. In lock-mechanism, a lock and latch bolt, a rotatable and shiftable spindle, means arranged when the spindle is in one of its shifted positions and rotated to retract the bolt, and when the spindle is in another shifted position to be out of operative relation to the bolt, means tending to shift the spindle and yieldably hold it in its first mentioned shifted position, a knob arranged at one end of the spindle, means carried by the knob operable to shift the spindle from its first to its second mentioned shifted positions, a detent mounted for sliding and swinging movement upon the knob and arranged when in one position with relation to the spindle to hold the latter in its second mentioned shifted position and arranged when slid to another position to release the spindle for movement to its first mentioned shifted position and further arranged when swung to another position to restrain the spindle against movement to its first mentioned shifted position at all points in its rotative movement, and means for moving the detent to its first mentioned position subsequent to its being slid to its second mentioned position.

11. In lock-mechanism, a lock and latch bolt, a rotatable and shiftable spindle, means arranged when the spindle is in one of its shifted positions and rotated to retract the bolt and when the spindle is in another shifted position to be out of operative relation to the bolt, means tending to shift the spindle and yieldably hold it in its first mentioned shifted position, a knob arranged at one end of the spindle, means carried by the knob operable to shift the spindle from its first to its second mentioned shifted positions, a detent mounted for sliding and swinging movement upon the knob and arranged when in one position with relation to the spindle to hold the latter in its second mentioned shifted position and arranged when slid to another position to release the spindle for movement to its first mentioned shifted positions and further arranged when moved to another position to restrain the spindle against movement to its first mentioned shifted position at all points in its rotative movement, and means for holding the detent in each of its said positions.

12. In lock-mechanism, a lock and latch bolt, a rotatable and shiftable spindle, means

arranged when the spindle is in one of its shifted positions and rotated, to retract the bolt, and when the spindle is in another shifted position to be out of operative relation to the bolt, means tending to shift the spindle and yieldably hold it in its first mentioned shifted position, a knob arranged at one end of the spindle, means carried by the knob operable to shift the spindle from its first to its second mentioned shifted positions, a detent mounted for sliding and swinging movement upon the knob and arranged when in one position with relation to the spindle to hold the latter in its second mentioned shifted position and further arranged when swung to another position to restrain the spindle against movement to its first mentioned shifted position at all points in its rotative movement, means for holding the detent in each of its said positions, and key-operated means for rotating the spindle arranged to move the spindle to position to disengage it from the detent when the detent is in its first mentioned position.

13. In lock mechanism, escutcheon plates adjustably connected, a knob having a shank rotatably assembled with each of the escutcheon plates, means for connecting the knobs for rotation in unison, a lock and latch bolt, a spindle, key-operated means connected with the spindle arranged when the spindle is in one shifted position and rotated, to retract the bolt and arranged when the spindle is in another shifted position to be out of operative relation to the bolt, and means carried by the other knob for shifting the spindle, the spindle consisting of relatively adjustable sections connected for rotation in unison.

14. In lock-mechanism, a lock and latch bolt, a shiftable spindle, means arranged while the spindle is in one shifted position and rotated to retract the bolt and when the spindle is in another shifted position to be out of operative relation to the bolt, an abutment carried by the spindle, means yieldably holding the spindle in its first mentioned shifted position, a movable detent arranged when in one position to engage with the abutment and hold the spindle in its last mentioned shifted position, and means yieldably holding the detent in this position.

15. In lock-mechanism, a lock and latch bolt, a knob spindle including a rotatable section and a section rotatable therewith and slidable thereon, means carried by the first mentioned section for coöperating with the bolt to retract the latter when the said section of the spindle is rotated and the shiftable section is in one of its shifted positions, the shiftable section of the spindle being adjustable as to length.

16. In lock mechanism, a lock and latch bolt, a knob spindle including a rotatable section and a section rotatable therewith and slidable thereon, means carried by the first mentioned section for coöperation with the bolt to retract the latter when the said section of the spindle is rotated and the shiftable section is in one of its shifted positions, the shiftable section of the spindle being adjustable to vary the distance between the knobs.

17. In lock-mechanism of the class described, a lock and latch bolt, a rotatable and shiftable spindle, means arranged when the spindle is in one of its shifted positions, and rotated, to retract the bolt and when the spindle is in another shifted position to be out of operative relation to the bolt, means tending to shift the spindle and yieldably tending to hold it in its first mentioned shifted position, a knob arranged at one end of the spindle, means carried by the knob operable to shift the spindle from its first to its second mentioned shifted positions, a detent mounted for sliding movement upon the knob and arranged when in one position with relation to the spindle to hold the latter in its second mentioned shifted position and arranged when slid to another position to release the spindle for movement to its first mentioned shifted position, and means yieldably holding the detent against movement to its second mentioned position.

18. In lock-mechanism of the class described, a lock and latch bolt, a rotatable and shiftable spindle, means arranged, when the spindle is in one of its shifted positions, and rotated, to retract the bolt and when the spindle is in another shifted position to be out of operative relation to the bolt, means tending to shift the spindle and yieldably tending to hold it in its first mentioned shifted position, a knob arranged at one end of the spindle, means carried by the knob operable to shift the spindle from its first to its second mentioned shifted positions, a detent mounted for sliding movement upon the knob and arranged when in one position with relation to the spindle to hold the latter in its second mentioned shifted position and arranged when slid to another position to release the spindle for movement to its first mentioned shifted position, and means yieldably holding the detent against movement to its second mentioned position, the detent being further arranged and swung to another position to restrain the spindle against movement to its first mentioned shifted position at all points in its rotative movement.

19. In lock-mechanism of the class described, a lock and latch bolt, a rotatable and shiftable spindle, means arranged, when the spindle is in one of its shifted positions, and rotated, to retract the bolt and when the spindle is in another shifted position to be out of operative relation to the bolt, means tending to shift the spindle and yieldably

tending to hold it in its first mentioned shifted position, a knob arranged at one end of the spindle, means carried by the knob operable to shift the spindle from its first to its second mentioned shifted positions, a detent mounted for sliding movement upon the knob and arranged when in one position with relation to the spindle to hold the latter in its second mentioned shifted position and arranged when slid to another position to release the spindle for movement to its first mentioned shifted position, and a spring carried by the knob and yieldably supporting the detent in its first mentioned position.

20. In lock-mechanism, a lock and latch bolt, a rotatable and shiftable spindle, means arranged, when the spindle is in one of its shifted positions and rotated, to retract the bolt and when the spindle is in another shifted position to be out of operative relation to the bolt, means tending to shift the spindle and yieldably hold it in its first mentioned shifted position, a knob arranged at one end of the spindle, means carried by the knob operable to shift the spindle from its first to its second mentioned shifted positions, an abutment carried by the spindle, a detent including a plate mounted for sliding movement within the knob and having an aperture arranged for the passage therethrough of the abutment-carrying portion of the spindle when the spindle is in one position of its rotative movement, the detent being arranged when in one position with relation to the spindle to hold the latter in its second mentioned shifted position and arranged when slid to another position to release the spindle for movement to its first mentioned shifted position, the detent plate being further arranged for swinging movement and when swung to one position to restrain the spindle against movement to its first mentioned shifted position at all points in its rotative movement.

21. In lock-mechanism, a lock and latch bolt, a rotatable and shiftable spindle, means arranged when the spindle is in one of its shifted positions and rotated, to retract the bolt and when the spindle is in another shifted position to be out of operative relation to the bolt, means tending to shift the spindle and yieldably hold it in its first mentioned shifted position, a knob arranged at one end of the spindle, means carried by the knob operable to shift the spindle from its first to its second mentioned shifted positions, an abutment carried by the spindle, a detent including a plate mounted for sliding movement within the knob and having an aperture arranged for the passage therethrough of the abutment-carrying portion of the spindle when the spindle is in one position of its rotative movement, the detent being arranged when in one position with relation to the spindle to hold the latter in its second mentioned shifted position and arranged when slid to another position to release the spindle for movement to its first mentioned shifted position, the detent plate being further arranged for swinging movement and when swung to one position to restrain the spindle against movement to its first mentioned shifted position at all points in its rotative movement, and a spring yieldably supporting the detent plate in its first mentioned position.

22. In lock-mechanism, a lock and latch bolt, a rotatable and shiftable spindle, means arranged when the spindle is in one of its shifted positions and rotated, to retract the bolt and when the spindle is in another shifted position to be out of operative relation to the bolt, means tending to shift the spindle and yieldably hold it in its first mentioned shifted position, a knob arranged at one end of the spindle, means carried by the knob operable to shift the spindle from its first to its second mentioned shifted positions, an abutment carried by the spindle, a detent including a plate mounted for sliding movement within the knob and having an aperture arranged for the passage therethrough of the abutment-carrying portion of the spindle when the spindle is in one position of its rotative movement, the detent being arranged when in one position with relation to the spindle to hold the latter in its second mentioned shifted position and arranged when slid to another position to release the spindle for movement to its first mentioned shifted position, the detent plate being further arranged for swinging movement and when swung to one position to restrain the spindle against movement to its first mentioned shifted position at all points in its rotative movement, a spring yieldably supporting the detent plate in its first mentioned position, and means arranged to hold the detent in either position of its swinging movement.

23. In lock-mechanism, a lock and latch bolt, a rotatable and shiftable spindle, means arranged when the spindle is in one of its shifted positions and rotated, to retract the bolt and when the spindle is in another shifted position to be out of operative relation to the bolt, means tending to shift the spindle and yieldably hold it in its first mentioned shifted position, a knob arranged at one end of the spindle, means carried by the knob operable to shift the spindle from its first to its second mentioned shifted positions, an abutment carried by the spindle, a detent including a plate mounted for sliding movement within the knob and having an aperture arranged for the passage therethrough of the abutment carrying portion of the spindle when the spindle is in one position of its rotative movement, the detent being arranged when

in one position with relation to the spindle to hold the latter in its second mentioned shifted position and arranged when slid to another position to release the spindle for movement to its first mentioned shifted position, the detent being further arranged for swinging movement and when swung to one position to restrain the spindle against movement to its first mentioned shifted position at all points in its rotative movement, a spring yieldably supporting the detent plate in its first mentioned position, and means carried by the spring to hold the detent in either position of its swinging movement.

24. In lock mechanism, a lock and latch bolt, a shiftable spindle, inner and outer knobs connected for rotative movement with the spindle, key-operated means carried by one of the knobs for rotating the spindle, the other knob having an opening and a socket projecting inwardly of the knob and surrounding the opening, the socket at its end adjacent the opening being provided with a bead, a push button slidably fitted within the socket and having a head provided with a peripheral bead engaging the first mentioned bead whereby to limit the outward movement of the push button, the said push button engaging the spindle and arranged to shift the same when pressed, a spring arranged within the socket and bearing against the head of the push button and normally holding the same at the outer end of the socket, and means arranged when the spindle is in one shifted position to coöperate with the bolt to retract the same and when in another shifted position to be out of operative relation to the bolt.

25. In lock-mechanism, a lock and latch bolt, a rotatable and shiftable spindle, means arranged when the spindle is in one of its shifted positions and rotated to retract the bolt and when the spindle is in another shifted position to be out of operative relation to the bolt, means tending to shift the spindle and yieldably hold it in its first mentioned shifted position, a knob arranged at one end of the spindle, means carried by the knob operable to shift the spindle from its first to its second mentioned shifted position, a detent housed within the knob and including a plate having a bifurcated upturned end, a headed stud upon the inner surface of the knob fitting within the bifurcation and slidably and pivotally supporting the said detent plate, the detent plate being arranged when in one position with relation to the spindle to hold the latter in its second mentioned position and arranged when slid to another position to release the spindle for movement to its first mentioned shifted position and further arranged when moved to another position to restrain the spindle against movement to its first mentioned shifted position at all points in its rotative movement.

26. In lock mechanism, a lock and latch bolt, a rotatable and shiftable spindle, means arranged when the spindle is in one of its shifted positions and rotated to retract the bolt and when the spindle is in another shifted position to be out of operative relation to the bolt, means tending to shift the spindle and yieldably hold it in its first mentioned shifted position, a knob arranged at one end of the spindle, means carried by the knob operable to shift the spindle from its first to its second mentioned shifted position, a detent housed within the knob and including a plate having a bifurcated upturned end, a headed stud upon the inner surface of the knob fitting within the bifurcation and slidably and pivotally supporting the said detent plate, the detent plate being arranged when in one position with relation to the spindle to hold the latter in its second mentioned position and arranged when slid to another position to release the spindle for movement to its first mentioned shifted position and further arranged when moved to another position to restrain the spindle against movement to its first mentioned shifted position at all points in its rotative movement, a leaf-spring extending transversely within the knob and struck up to form a lug and a tooth carried by the detent-plate and projecting from one face thereof and engaging the said leaf-spring whereby to yieldably support the said detent plate, the engagement of the tooth with the spring at opposite sides of the lug serving to hold the said detent at the limits of its swinging movement.

27. In lock mechanism, a lock and latch bolt, a rotatable and shiftable spindle, means arranged when the spindle is in one of its shifted positions and rotated to retract the bolt and when the spindle is in another position to be out of operative relation to the bolt, means tending to shift the spindle and yieldably hold it in its first mentioned shifted position, a knob arranged at one end of the spindle, means carried by the knob operable to shift the spindle from its first to its second mentioned shifted positions, a stud projecting from the inner side of the knob, a detent-plate having an upbent bifurcated lower end slidably and pivotally engaging the stud, the detent-plate having an opening through which the spindle extends, a member upon the spindle having an abrupt shoulder arranged to engage against one face of the plate, and an inclined face arranged to coöperate with the wall of the opening, the knob having an arcuate slot, a finger-piece fitted for sliding movement in the slot and having an arcuate base-plate and a socket, the detent plate having a finger projecting into said socket, the

arcuate base-plate closing the said slot, and means yieldably supporting the detent plate against downward movement and arranged to hold the plate in the limits of its swinging movement.

28. In lock mechanism, a casing, a lock bolt mounted in the casing, the opposite walls of the casing having openings, a rocker having a hub rotatably seating at its ends in the said openings and formed in each end with a notch, the rocker being constructed to coöperate with the bolt to actuate the same when rocked, and a spindle fitted through the hub of the rocker and having a shiftable portion provided with a lug engageable in the notch in one end of the said hub.

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

SELBY C. CARR. [L. S.]

Witnesses:
ROBERT W. KROTZER,
EMMETT M. CARR.