K. D. SENIOR.

INDICATOR LOCK.

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1,066,664.

Patented July 8, 1913.

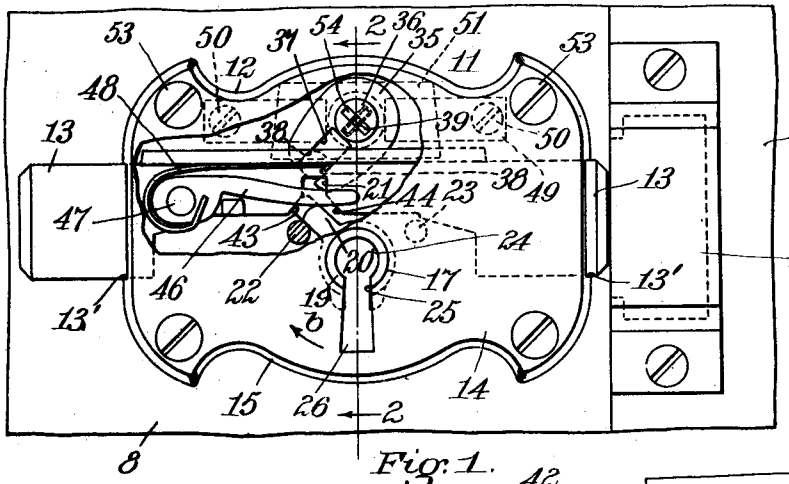


Fig. 1.

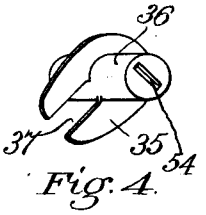


Fig. 4.

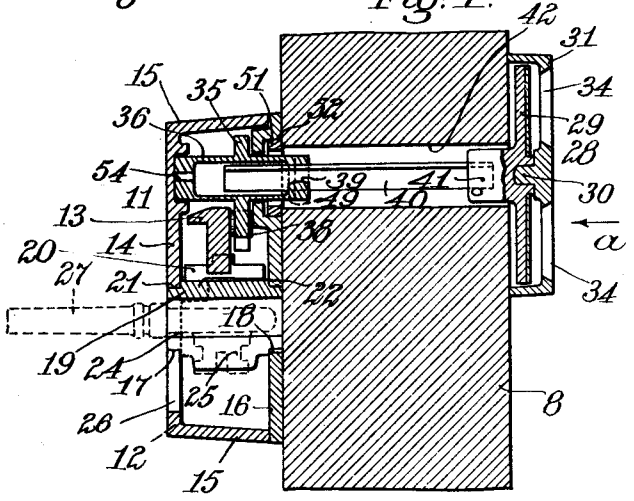


Fig. 2.

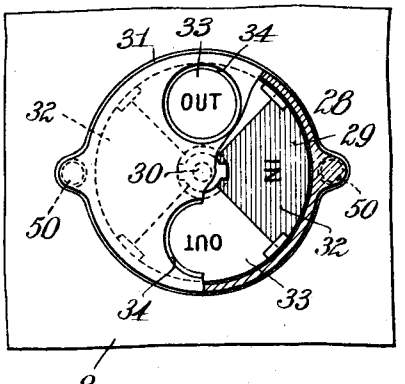


Fig. 3.

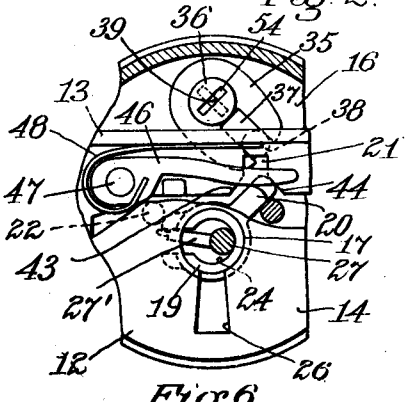


Fig. 6.

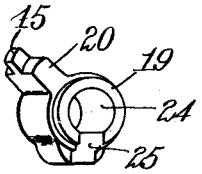


Fig. 5.

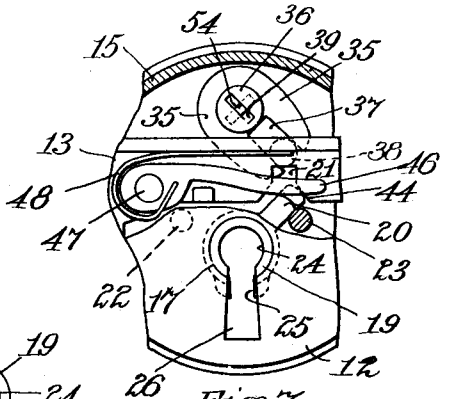


Fig. 7.

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UNITED STATES PATENT OFFICE.

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INDICATOR-LOCK.

1,066,664. Specification of Letters Patent. Patented July 8, 1913.

Application filed December 2, 1912. Serial No. 734,470.

To all whom it may concern:

Be it known that I, KAROP D. SENIOR, a subject of Mehmed V of Turkey, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Indicator-Locks, of which the following is a specification.

This invention relates to new and useful improvements in indicator locks particularly adapted for use on office doors, in hotels, staterooms and the like where it is desired to be informed as to whether the occupant of the room is present, this being especially valuable in hotels in order that the chambermaid in her rounds in the morning may, without trying the door, determine whether the occupant is in or out thus saving a great deal of time and eliminating the annoyance to the occupant of the room caused by the trying of said door.

The object of the invention is to provide a device having an indicator provided with differentiating characters such as the words "In" or "Out" or colors, one of which may indicate the presence of the occupant of a room while the other indicates the absence, said indicator being operatively connected with a lock whereby when said lock is actuated said indicator will also be actuated.

The object is further to provide a lock which is adapted to be attached to one side of a door and actuated from that side only while the indicator for said lock is visible from the opposite side of said door.

The object of the invention is still further to provide a device adapted to be adjusted whereby the same may be applied to either a right or left hand door.

The object is still further to provide a lock which may be actuated by various types of keys without alteration or adjustment.

The invention consists in the combination and arrangement of parts whereby the above objects and certain other objects hereinafter appearing are attained, as set forth in the following specification and particularly pointed out in the claims.

Referring to the drawings: Figure 1 illustrates a portion of a door casing and strike plate with a device embodying my invention shown in connection therewith, the same being adjusted for a right hand door. Fig. 2 is a section, partly in elevation taken on line 2, 2 of Fig. 1, as viewed in the direction of the arrows on said line. Fig. 3 is an elevation of the device as viewed from the outside of the door in the direction of the arrow "*a*," see Fig. 2, parts of said device being broken away to more clearly illustrate the same. Fig. 4 is a detail perspective view of a rocker arm adapted to actuate the indicator. Fig. 5 is a detail perspective view of the bolt actuator. Fig. 6 is a detail view of a portion of the lock illustrated in Fig. 1 with the actuating members in the positions which they would occupy when the door is locked, the key which is shown in section in said figure being locked therewithin, portions of said lock being broken away to save space in the drawings. Fig. 7 is a detail view similar to Fig. 6 with the actuating parts adjusted to be used in connection with a left hand door.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 8 is a portion of a door arranged to swing inwardly toward the right, 9 a portion of the door casing to which is attached a strike plate 10, and 11 is a lock comprising a casing 12 and a bolt 13 adapted to be reciprocated in guides 13' in said casing into and out of contact with said strike plate 10 to alternately protrude from opposite ends of said casing, said bolt 13 being double ended and projecting beyond said casing at opposite ends thereof, thus permitting the same to be used with either a right hand or a left hand swinging door.

The casing 12 preferably comprises a front plate 14 having side walls 15 extending entirely therearound and to which a back plate 16 is secured. Cylindrical holes 17 and 18 are provided in the front and back plates respectively of said casing, said holes being arranged in alinement with each other and into said holes is inserted a cylindrical member 19 provided with a lateral projection 20 which normally extends upwardly oblique to a vertical plane extending through the axis of said member 20, and into a recess 21 formed in the bolt 13. Said cylindrical member 19 and projection 20 constitute an actuator for said bolt by which said bolt may be reciprocated in said casing into and out of engagement with the strike plate 10, said recess 21 being deep enough to permit said projection to swing from its position illustrated in Fig. 1 in contact with a pin 22 to a position illustrated in Fig. 6 and in contact with a pin 23. Said pins 22 and 23 are

formed upon the front plate 12 of said casing, thus limiting the movements of said projection in opposite directions.

A variety of means may be employed for rotating the member 19, such for instance, as a thumb nut secured thereon, but not shown in the drawings. The preferred method, however, is to provide a cylindrical hole 24 which constitutes an eye and a slot 25 extending from said cylindrical hole 24 downwardly and alining with a slot 26 formed in the front wall 12 of said casing, said eye 24 and slots 25 and 26 being substantially large in order to permit keys of various sizes to be inserted thereinto, the pins of said keys extending into the cylindrical hole 24, while the webs thereof engage the sides of the slot 25 and when said key is rotated said member 19 will thereby be rotated.

In common practice it is preferable that the lock 11 be applied to the inside of the door while the usual door lock may be used in connection therewith, but with the keyhole thereof exposed only on the outside of the door thus when the occupant of the room enters the same after having unlocked the door from the outside he must remove the key therefrom in order to be able to bolt or lock his door from the inside which he does by placing said key 27 in the keyhole formed by the hole 24 and slots 25 and 26 and upon turning said key in the direction of the arrow "*b*" Fig. 1, the bolt 13 will be shot into contact with the strike plate 10 and the door locked. By this operation said key will be locked by the web 27' thereof engaging the margin of the cylindrical hole 17, see Fig. 6, and in order to remove said key from said slot said bolt must be returned to its normal or unlocked position. Arranged in connection with said lock, preferably upon the opposite side of said door is an indicator 28 consisting of a disk 29 which is journaled to rotate upon a pin 30 supported upon the interior of a casing 31 surrounding said disk 29 and is secured to the opposite faces of said door 8 from that upon which said lock is secured. The indicator 28 is provided with suitable differentiating characters preferably the words "In" and "Out" in connection with sections of red and white celluloid 32 and 33 respectively which occupy positions diametrically opposite each other upon the face of said disk, said red and white sections alternating with each other and adapted to be alternately presented at the openings 34 formed in the outer face of the casing 31.

The disk 29 is operatively connected to the bolt 13 whereby when said bolt is reciprocated to lock and unlock said door said indicator will be moved to show red or white in connection with the words "In" or "Out" or said words may be used without said colors and vice versa, said means including a rocker arm 35 having a cylindrical body portion 36 journaled at one end in the front plate 14 of the casing 12, while the opposite end of said cylindrical body portion is journaled in the back plate 16 of said casing.

A radially disposed slot 37 is provided in the rocker arm 35 the edges of which are adapted to be engaged by a pin 38 formed upon the bolt 13, thus as said bolt is reciprocated through the guides 13' said rocker arm 35 will be rocked thereby.

The body portion 36 of the rocker arm 35 has at one end thereof a slot 39 and into said slot a key 40 is adapted to fit, said key being connected at its opposite end to a hub 41 formed upon the disk 29. Said key 40 extends laterally of the door 8 through a hole 42 extending therethrough thus connecting said indicator with said rocker arm.

To prevent the movement or accidental displacement of the bolt 13 when the key is in or removed from the keyhole, the bolt 13 is provided with oppositely inclined surfaces 43 and 44 which are preferably located at the bottom of the recess 21 and in such position on said bolt that when the projection 20 of the cylindrical member 19 is in contact with the recess 21, the outer free end 45 of said arm will engage the inclined face 43 and when said bolt is shot to the opposite extreme position, as illustrated in Fig. 6, said projection 20 will engage the inclined surface 44 and at such an angle that said bolt will be prevented from being pushed toward said projection. To further insure the locking of said bolt in its extreme positions a tumbler 46 is provided which is pivoted at 47 upon the bolt 13, the free end of which is yieldingly held in contact with said projection 20 by a spring 48.

To facilitate the proper registering of the indicator 28 with the rocker arm 35 a plate 49 is provided through which screws 50 extend to the opposite face of said door and into screw-threaded engagement with the casing 31, said plate 49 having a rectangular projection 51 adapted to engage a correspondingly shaped recess 52 in the back plate 16 of the casing 12 thus eliminating all possibility of said indicator being out of register with the openings 34.

The general operation of the device hereinbefore specifically described is as follows: Assuming the device to be adapted to a right hand door, as in Fig. 1, a key is placed within the keyhole comprising the cylindrical hole 24, slots 25 and 26, as illustrated in dotted lines Fig. 2, and turned in the direction of the arrow "*b*", thus rocking the actuator 19 from the position illustrated in Fig. 1 to that illustrated in Fig. 6 and in so doing the projection 20 engages the face 43 and an edge of the slot 21 elevating the end of the tumbler 46, thus reciprocating the bolt 13 until the right hand end thereof

engages a strike plate 10, the movement of said bolt being limited by the engagement of the projection 20 with the pin 23, see Fig. 6, and with the key locked within the eye 24 by the margin of the cylindrical hole 17 in the front plate 14. As said bolt 13 moves toward the right, Fig. 1, the pin 38 engages the arm 35 rocking the same, which through the key 40, rocks the disk 29 from the position illustrated in Fig. 3 to a position in which the word "Out" or the white section of celluloid on the face of said disk will be moved out of sight while the word "In" and the red section of celluloid 32 will be brought into view to register with the opening 34, thus any one passing the door upon which said indicator is arranged may readily see without trying the door that the occupant of the room is within.

When it is desired to adapt the device herein shown to a left hand door the casing is removed from the door by removing the screws 53, and the back plate 16 from said casing, whereby access may be obtained to the interior of said casing and the cylindrical member 19 reversed so that the lateral projection 20 will extend to the right of the vertical plane passing through the axis of said member and the center of the slot 25. Furthermore the rocker arm 35 is removed and reversed, said rocker arm 35 being provided at the opposite end of the cylindrical body portion 36 from that at which the slot 39 is located, with a similar slot 54 which is arranged substantially at right angles to the slot 39, thus when said rocker arm is replaced within the casing 12 the indicator will be rotated $\frac{1}{4}$ of a rotation or an amount equivalent to the movement of the rocker arm from the position illustrated in Fig. 1 to that illustrated in Fig. 7, whereupon said differentiating characters will correspond to the movement of the bolt 13 in its adjusted relation relatively to the casing 12.

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

1. A device of the class described having, in combination, a double ended bolt, an actuator for said bolt, a pin on said bolt, a rotatable disk, differentiating characters on said disk, and means to operatively connect said disk with said bolt, said means including a reversible rocker member provided with an arm adapted to be engaged and rocked by said pin.

2. A device of the class described having, in combination, a double ended bolt, an actuator for said bolt, a disk, differentiating characters on said disk, and means to operatively connect said disk with said bolt, said means including a reversible rocker arm adapted to be engaged and rocked by said bolt, said rocker arm having slots in opposite faces thereof arranged substantially at right angles to each other and a key connected at one end with said disk, the other end thereof adapted to fit one or the other of said slots.

3. A device of the class described having, in combination, a casing, a bolt adapted to be reciprocated to protrude alternately at opposite sides of said casing, means to reciprocate said bolt, an indicator adapted to indicate the position of one of the ends of said bolt relatively to said casing, a rocker arm mounted to rock in said casing, said rocker arm having slots in opposite faces thereof arranged substantially at right angles to each other, a key connected at one end with said indicator, the other end of said key adapted to engage one of said slots, and means on said bolt adapted to engage and rock said rocker arm during the reciprocations of said bolt, said rocker arm adapted to be reversed to permit the engagement of said key with one or the other of said slots whereby said indicator may be arranged to indicate the position of either end of said bolt relatively to said casing.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

KAROP D. SENIOR.

Witnesses:
SYDNEY E. TAFT,
LEONARD A. POWELL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."