May 19, 1953 L. GUTMAN 2,638,770

HOTEL LOCK

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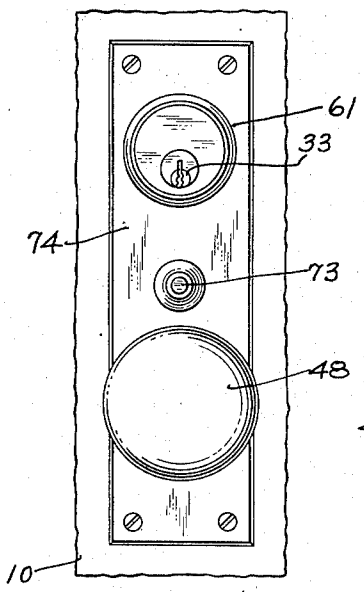


FIG. 1.

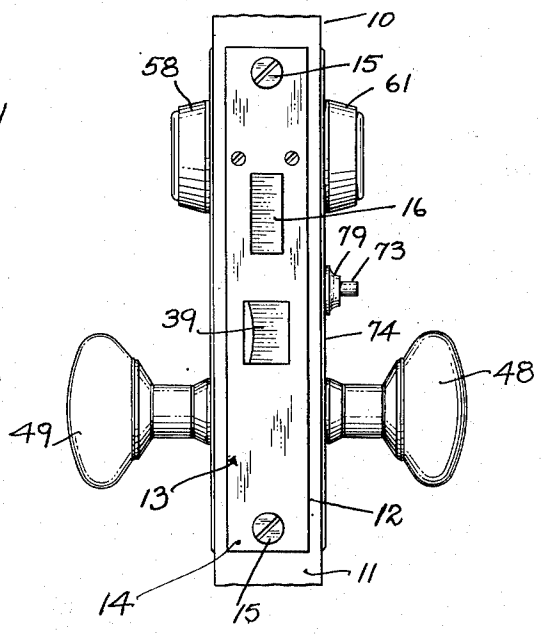


FIG. 2.

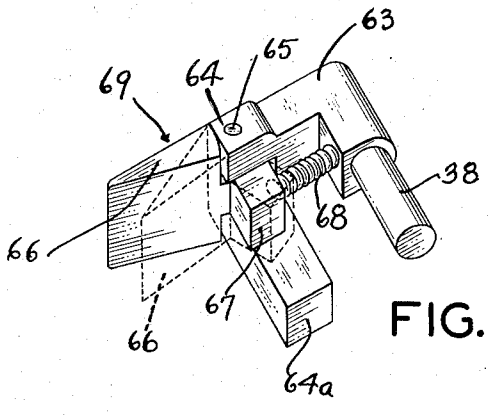


FIG. 10.

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HOTEL LOCK

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FIG.3.

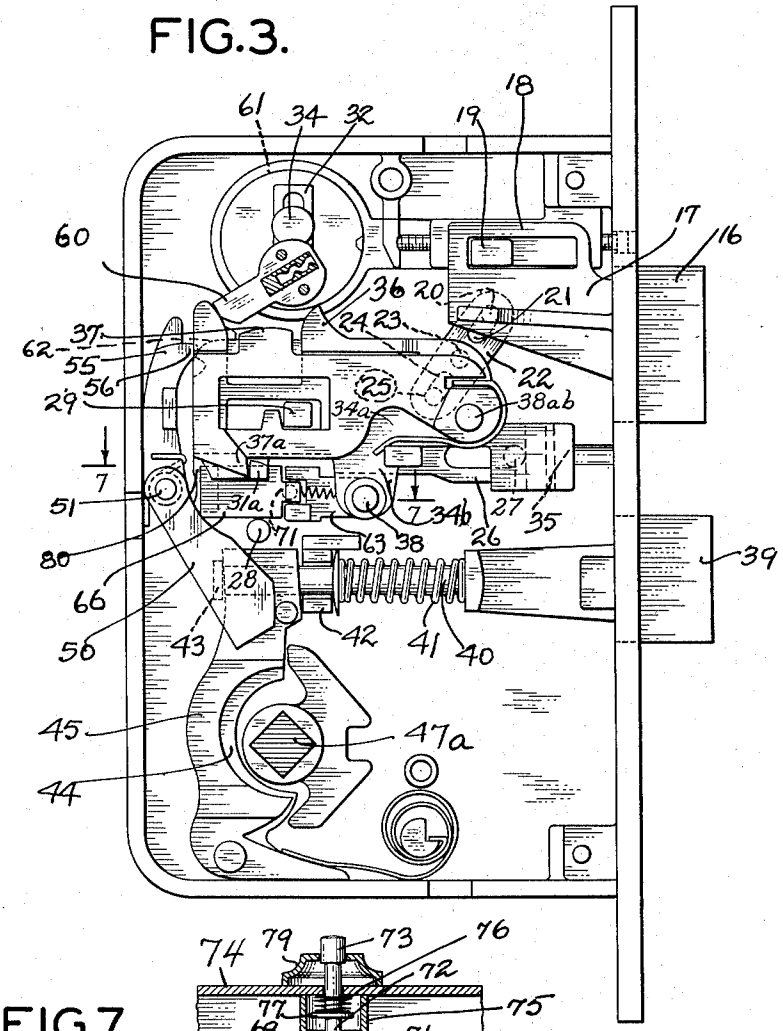
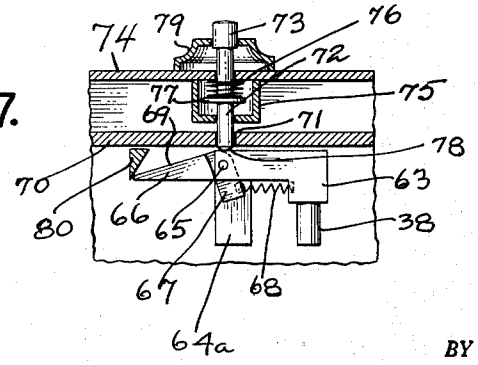


FIG.7.



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FIG. 4.

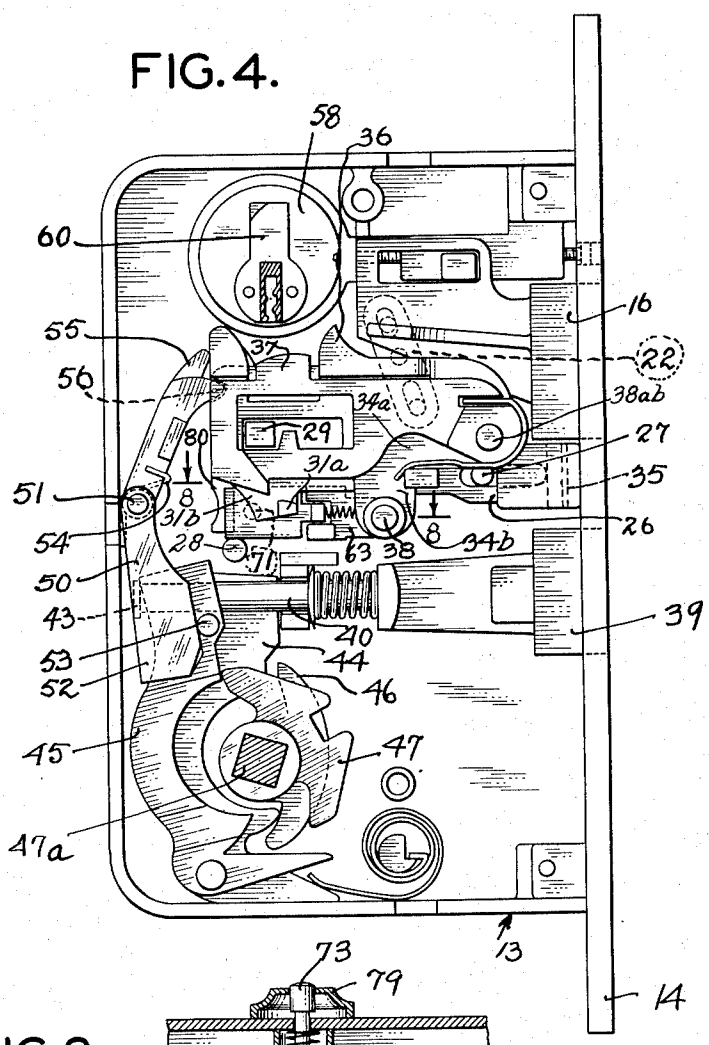
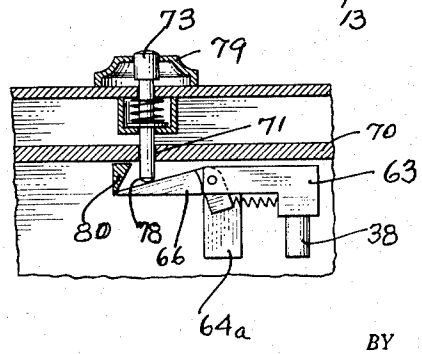


FIG. 8.



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FIG.5.

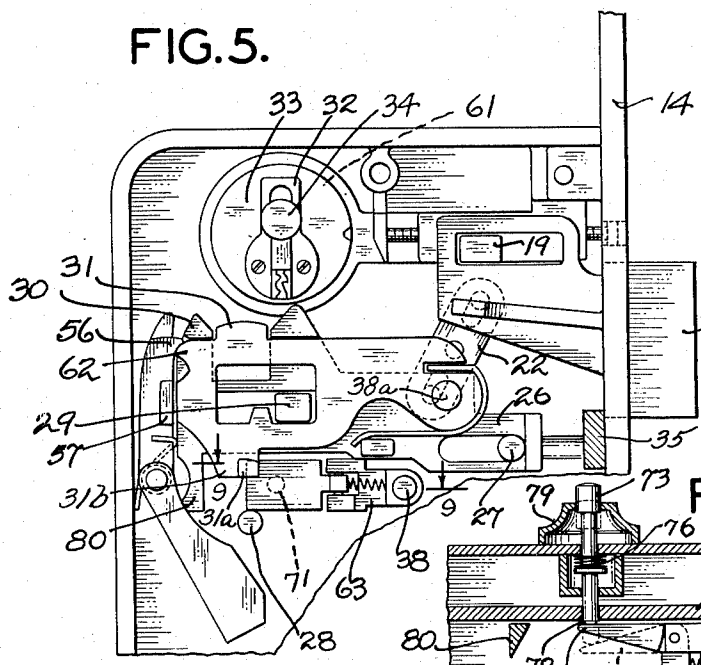


FIG.9.

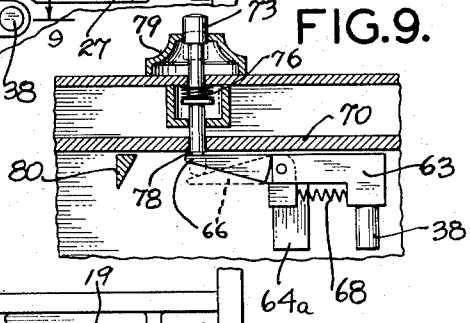
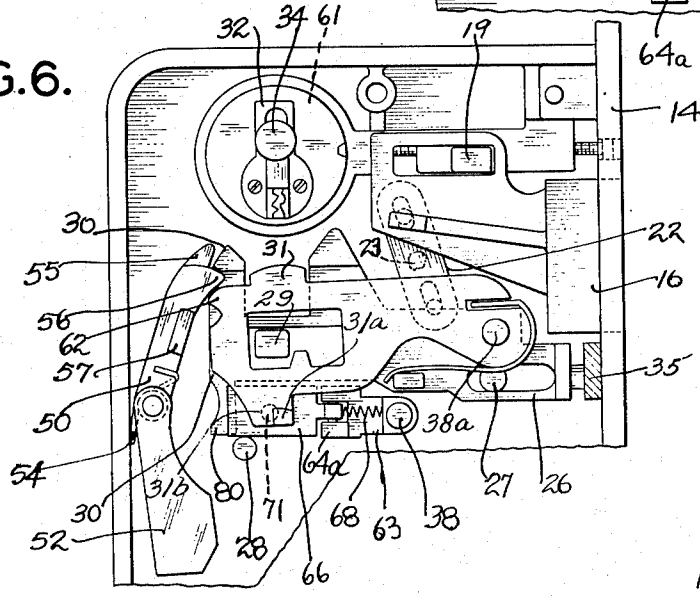


FIG.6.



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2,638,770

UNITED STATES PATENT OFFICE

2,638,770

HOTEL LOCK

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Application January 28, 1949, Serial No. 73,388

8 Claims. (Cl. 70—107)

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This invention relates to locks and more particularly to hotel locks.

My invention has for its object the provision of a hotel lock of the kind which includes a knob controlled latch bolt and a key controlled roll-back for a dead bolt including independent cylinder locks to each side of the face of the door for operating the dead bolt. My invention seeks to provide a hotel lock or the like having both outside and inside key control for a dead bolt of the lock and where used as a hotel lock, includes "panic proof" features whereby key control for the outside of the door will likewise throw an indicator to permit ready inspection of the condition of the dead bolt, to determine whether it has been thrown into closed position by the key of the occupant to the other side of the door or is unlocked, for purposes of entry for a variety of purposes.

In general, it is an object of my invention to provide a lock for use by hotels for the room doors thereof in which key control of the dead bolt from the inside and the outside of the door is possible, and to permit inspection of any indicator on the outside of the door to determine whether a guest has thrown the dead bolt into locked position from the inside or, in the event of an emergency, such as a fire, to determine whether the bolt has been thrown by key manipulation from the inside or the outside.

Still more particularly, it is an object of my invention to provide, by simple and inexpensive alteration of existing lock construction, an indicator which will supply information by a protruding indicator through the outside face of the door on the escutcheon, whether the door is locked by the outside cylinder, in which event the indicator protrudes from the surface level of the escutcheon plate and responds to pressure, to give both a visual as well as a contact indication.

To attain these objects and such further objects as may appear herein, or be hereinafter pointed out, I make reference to the accompanying drawing forming a part hereof, in which—

Figure 1 is a fragmentary plan view of a lock escutcheon in accordance with my invention from the outside of the door;

Figure 2 is a fragmentary end view of the door;

Figure 3 is a magnified plan view and partial section of the lock casing with the cover plate removed to show the interior construction, with both latch bolt and dead bolt in the extended position;

Figure 4 is a view similar to Figure 3 with the inside roll back spindle operated to show retraction of the latch bolt and dead bolt;

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Figures 5 and 6 show successive positions of the tumbler mechanism and indicator, with the dead bolt in the extended and retracted position, respectively, with the inner key cylinder talon and tumbler removed with a fragment of an overlapping portion in section;

Figure 7 is a fragmentary section taken on the line 7—7 of Figure 3;

Figure 8 is a fragmentary section taken on the line 8—8 of Figure 4;

Figure 9 is a fragmentary section taken on the line 9—9 of Figure 5;

Figure 10 is a fragmentary perspective view of the indicator button mechanism.

Making reference to the drawing, I show a fragment of a door 10 which is provided at the edge 11 thereof with a morticed portion 12 supporting a lock casing 13 by the end plate 14, which holds the lock casing flush with the edge of the door by the usual screws 15. The lock in accordance with my invention has a dead bolt 16 projecting through the casing whose shank 17 is provided with a slide 18 over a guide lug 19. A pin 20 on the shank 17 engages a slot 21 of the lever 22 pivotally mounted on the stationary pin 23 of the casing. The lever 22 is slotted at 24 at its opposite end and engages the pin 25 on the retractor 26 which is slidably guided by the pins 27 and 28, as well as the lug 29.

The retractor 26 carries with it by means of the pin 28*a* (see Figure 5) the well known talon assembly 30 and tumbler 31 for dogging and undogging with respect to the lug 29, and such assembly is actuated by the roll back 32 mounted upon the key plug 33 of the outside cylinder lock 61. The upstanding lug 31*a* is extended from the face of the tumbler 31 on an offset arm 31*b* for purposes hereinbelow indicated. The roll back 32 secured to the key plug 33 is provided with a slidable lug 34 for emergency or master key operation using a longer key which extends beyond the key hole slot for the normal key in a manner now well understood. An inside key cylinder lock operated retractor 34*a* is provided with the talon 36 and the associated tumbler 37 which is pivoted on the pin 38*ab* mounted upon the inside key controlled retractory 34*a*. A tail portion 35 on the retractor 34*a* extends into the path of the retractor 26, to drag the latter for combined retraction movement upon inside key operation. A latch bolt 39 has its shank 40 spring projected by the spring 41 sleeved on the shank and bearing on one end

against the guide stops 42 and at the other end against the base of the bolt head. The end of the shank is provided with the usual retractor head 43 engaged by the retractor levers 44 and 45, respectively, for actuation by the cams 46 and 47, respectively. The usual square spindle keying apertures are provided in the hubs for independent operation by the usual split or sectional spindles 47a so that the cams 46 and 47 may be independently operated by the outside knob 48 and the inside knob 49, respectively.

A wishbone lever 50 is pivoted on the pin 51 and has its lower end 52 normally tilted toward the pin 53 on the retractor lever 45 by the spring 54 which biases the same in the aforesaid position. The free end 55 of the lever 50 has a camming finger 56 arranged to engage the outside tumbler 31 and includes a lug 57 to extend across the inside talon and tumbler assembly.

The mechanism just described, by key operation, through the outside key plug 33 and the roll back 32, moves the outside tumbler 31 which may be depressed to have the usual lug thereof clear the stop 29, and thereby withdraw the dead bolt 16 when there has been no inside key operation to project the bolt 16. The inside tumbler 37 may be actuated by the inside key controlled cylinder lock 58 having the usual key controlled plug (not shown) for rotation of the roll back 60.

Inside key operation will serve to depress the tumbler 37 and project the dead bolt into locking engagement. Reverse operation will serve to urge the tumbler 37 against the lug 31a to tilt both inside and outside tumblers and to cause the latch 37a to engage the lug 31a, to move both retractors in unison after passing and clearing the lug 29. Outside key operation through the cylinder lock 61 to operate the roll back 32 will project the dead bolt 16 in the position shown in Figure 5. Manipulation of the inside knob 49 through the spindle to move the cam 47 will tilt the lever 50 through the medium of the pin 53 acting on the end 52. The camming finger 56 engages the tumbler 31 at its tail 62, to depress the tumbler while engaging the talon 30 to push the talon assembly forwardly and retract the dead bolt 16.

The operation of the mechanism just described affords an emergency actuation of the dead bolt, should key operation from the exterior occur through the cylinder lock 61 with an occupant in the room. The occupant need merely turn the knob 49 to retract the latch bolt 39 and the dead bolt 16 in one operation.

The retractor 34a in accordance with my invention has mounted on the side branch 34b of the retractor, the cross pin 38, which serves to carry an indicator slide 63. The slide has a pair of branches 64, supporting a pin 65 on which is trunnioned the wedge-shaped lever 66 having an arm 67 extending angularly therefrom. One of the branches 64 has an extension 64a which extends adjacent the cover of the casing to prevent displacement. The arm 67 is spring biased by the spring 68 normally to direct the face 69 of the wedge-shaped lever 66 against the casing wall 70. An aperture 71 in the casing wall 70 receives the shank 72 of the indicator button 73 carried by the front face escutcheon 74. A spring casing 75 encloses the expansion spring 76 bearing and pushing against the collar 77, normally to urge the rounded nose 78 on the free end of shank 72 in the path of the wedge-shaped lever 66. An outside indicator rose 79 serves as a guide for the indicator button 73 previously described.

It will be observed that by the assembly just described, in the normal position of the lock mechanism as shown in Figure 4, with the latch bolt and dead bolt retracted, the indicator slide 63 is positioned with regard to the indicator shank 71 to position the wedge-shaped lever 66 in contact with the angularly faced tail 80 of the retractor 26. This partially tilted position permits the round nose 78 of the indicator shank to be depressed to the fullest position, as shown in Figure 8, and position the indicator button 73 substantially flush with the rose 79.

With the bolt thrown to the projected position by the outside key operation of the roll back 32 in operation of the tumbler 31, a position of the indicator wedge assembly as shown in Figures 5 and 9 will be achieved. The angularly faced tail 80 permits the wedge 66 to lie flush against the casing face 70 as shown in Figure 9. The spring tension 68 for this member being greater than that of the pusher spring 76, will serve to move the indicator button 73 to the position shown in Figure 9. In this position, pressure contact against the button 73 will show a resilient yield within limits indicated in Figure 9, a condition achieved when outside key operation alone has been effected to throw the dead bolt 16.

When key operation has been effected by the inside roll back 60, a condition shown in Figure 3, the indicator assembly will serve to position the portion 63 with the cross pin 65 or hinge point substantially in alignment with the nose 78, projecting the push button 73 outwardly, indicating that the door has been dead bolted, by the inside key, as in the position shown in Figure 7, but upon contact against the head 73, an immovable condition will be felt, since the push button cannot depress the slide 63 and the indicator wedge 66. This shows a condition achieved by inside key operation as by the actuation of the key in the cylinder plug for operation of the roll back 60.

It will thus be observed that a condition of indication may be secured by the mechanism described, as follows:

When the outside lock key is placed into operation to throw the dead bolt, the push button is depressible and the inside turnknob may withdraw the dead bolt. When the inside lock key is placed in operation to throw the dead bolt 16, the push button 73 is rigidly held in extended position, shown in Figure 7. The inside turnknob cannot withdraw the bolt but since the key is necessarily retained against withdrawal in its plug, the tumblers may be operated to withdraw the dead bolt and latch bolt simultaneously. When both the outside and inside keys have been operated to withdraw the dead bolt, the push button is flush with its escutcheon, as shown in Figure 8.

With the outside key operation to project the dead bolt, as shown in Figure 5, an unoccupied condition of the room is shown, and, in addition, "feel" or touching contact of the button 73 shows that it is depressible, as shown in Figure 9.

By the mechanism described, hazardous conditions are avoided by the supervision in maintenance of the hotel. An occupant who may be locked in by outside key operation is quickly detected by anyone servicing the room, such as a chambermaid, watchman or fireman.

When the dead bolt has been completely withdrawn, as shown in Figure 8, inspection as well as "feel" by the flush condition of the indicator button determines that the door is unlocked so that if the occupant may have left the door unlocked, if found to be so by the watchman, during normal inspection tours of the corridors, he may lock the door, to throw the dead bolt without first testing the door lock by opening the door.

When the key has been used to throw the dead bolt from the inside, as more clearly indicated in Figures 3 and 7, indication of the condition of the bolt is determinable visually as well as by touch.

It will thus be observed that I have provided a lock assembly which responds to emergency manipulation to avoid the hazards incident to locking an occupant in a room, as well as to permit quick determination of the condition of the lock mechanism from the outside.

Having thus described by invention and illustrated its use, what I claim as new and desire to secure by Letters Patent, is

1. In a lock having a dead bolt, a latch bolt and independent outside and inside key operable tumbler controlled retractors for the dead bolt, each retractor carrying a talon and a tumbler, roll backs and cams for the latch bolt, each operable by a swivel sectioned spindle for independent operation of the latch bolt cams to provide independent knob operation from the outside and inside faces of the door, the combination therewith of a wishbone lever connected to be actuated by the inside cam for the latch bolt and having a camming finger portion extended to tiltably engage the tumbler for the outside dead bolt retractor, simultaneously to withdraw the latch bolt and dead bolt by inside knob operation by the movement transmitted to the latch bolt and dead bolt retractors, respectively.

2. In a lock in accordance with claim 1 wherein said wishbone lever is spring retracted.

3. In a lock for a door having a casing mounting dead bolt mechanism and inside and outside retractors, each having a talon and tumbler therefor, each of said tumblers being independently operable by individual key controlled roll backs to slide said retractors, said casing being accessible to the front face of the door through a boring therethrough and an indicator push button having a spring biased shank member slidable through said casing, said indicator having one end exposed on the face of the door and the other end having a nose projectible to lie within the casing, an indicator operating slide in said casing carried by the inside retractor, said slide having a spring biased lever in the path of movement of the nose of said indicator, said outside retractor having a cammed element adapted to engage said spring biased lever to deflect the same when the inside retractor is in the retracted position.

4. In a lock in accordance with claim 3 wherein said spring biased lever has an extension branch portion to limit the depressible positions of the indicator member upon movement of the tractor carrying the lever.

5. In a lock in accordance with claim 3 wherein the spring biased lever is carried by a hinge pin on the slide positionable with respect of the boring of the casing to block the movement of the shank thereof extending into the casing.

6. In a lock in accordance with claim 3 wherein said spring biased lever is carried on a hinge pin on the slide coupled with the inside retractor and the lever has an extension branch yieldably to block the movement of the shank of said push button indicator to limit the depressible positions of the push button indicator variably.

7. In a lock in accordance with claim 3 wherein the spring biased lever has an elbow portion movable by the slide in the path of the shank of the push button indicator positively to block the movement of the shank of said indicator upon actuation of the inside retractor to the dead bolt projecting position.

8. In a lock for a door having a casing mounting a dead bolt mechanism and inside and outside retractors, each having a talon and a tumbler therefor, each of said tumblers being independently operable by an independently controllable roll back separately to slide each of said retractors, said casing being accessible to the front face of the door through a boring therethrough for use with a push button indicator adapted to slide therein by the use of a spring biased shank member adapted to slide through the boring of said casing, thereby providing a push button exposed on the face of the door, and the other end having a nose projectible to lie within the casing, the combination having an indicator operating slide in said casing carried by the inside retractor, said slide having a spring biased lever adapted to be movable in the path of the nose of said indicator, said outside retractor having a cammed element adapted to engage said spring biased lever to deflect the same when the inside retractor is in the dead bolt retracted position.

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