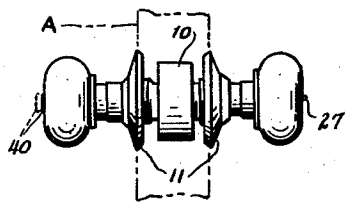
Aug. 9, 1960 M. H. ETSTEN 2,948,140

HOTEL FUNCTION LOCK

Filed Jan. 18, 1957

FIG.1



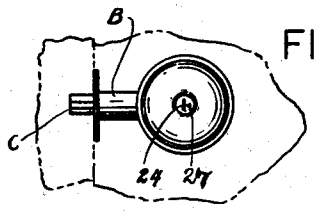


FIG.2

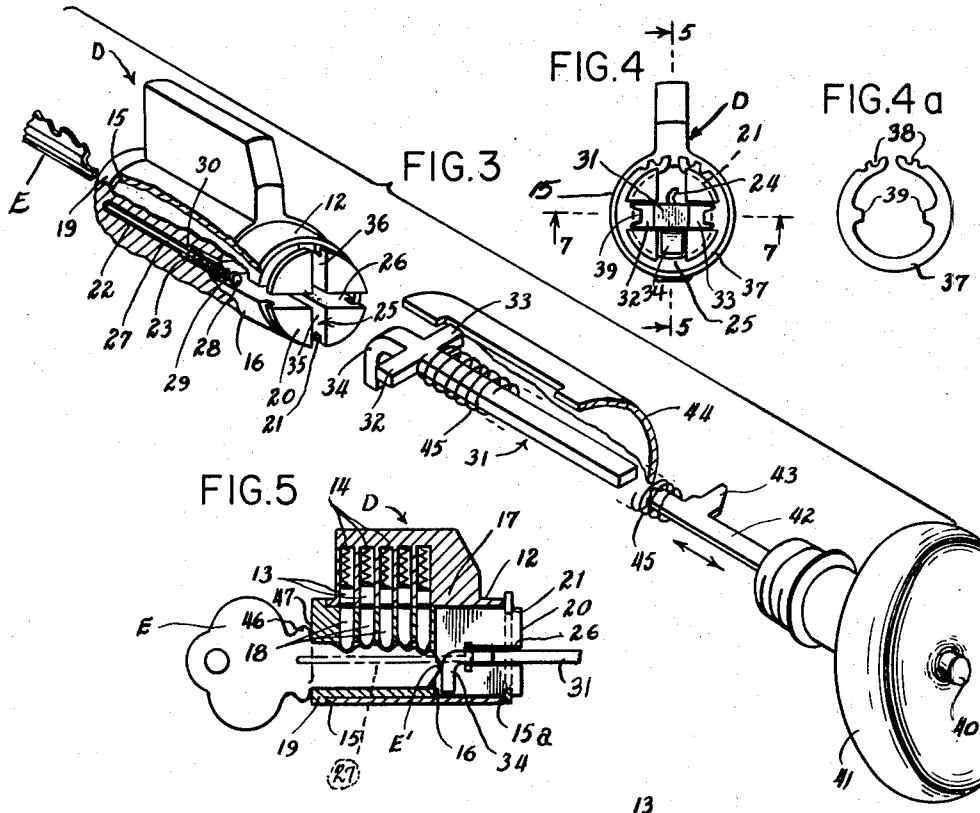


FIG.3

FIG.4

FIG.4a

FIG.5

FIG.6

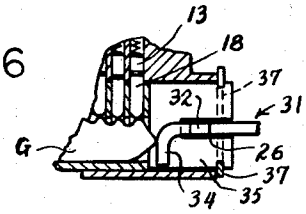


FIG.8

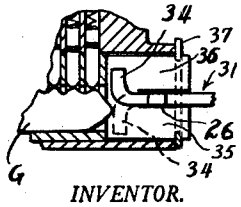
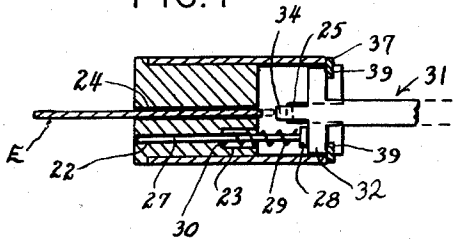


FIG.7



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HOTEL FUNCTION LOCK

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2 Claims. (Cl. 70—216)

This invention relates to a door lock of the type commonly known as a "hotel lock" because of its frequent use in doors of hotel and motel rooms which open onto hallways or public passageways. More particularly, this invention relates to a door lock which is normally operable from the outside by means of an ordinary guest key, but which may be rendered inoperable to a guest key by the depression of a push button or turn button on the inner knob, actuation of said push button or turn button additionally resulting in the extension on the outer knob of an indicator, serving as a signal that the room is occupied.

In installations of the aforementioned type, an emergency key is provided, which key is adapted to operate the lock from the outside, notwithstanding depression of the push button or turn button.

Still more particularly, this invention relates to a key operated, or more specifically, an improved pin tumbler assembly for a door lock of the type described.

Known to me are lock assemblies of the indicator type in which a pin tumbler assembly is provided on its inner end with threaded capping elements, bolts, inserts and like expedients for rotatably securing the pin tumbler assembly within the pin tumbler casing and for preventing endwise removal in an inward direction of the latch operating means.

While such expedients have been found to operate satisfactorily, their use has increased the cost of manufacture of the lock assembly, due to the complexity of the parts used and to the additional time required in assembling such complex parts.

Accordingly, it is an object of my invention to provide a pin tumbler assembly for a door lock of the type described which is inexpensive to fabricate and which is capable of being rapidly assembled.

A further object of my invention is to provide a pin tumbler assembly for a lock of the type described wherein a simple adjustment of the tumbler assembly will alter the lock to remove the obstacles to normal guest key operation, notwithstanding the actuation by an occupant of the turn button or push button, actuation serving in such case merely as a signal that the room is occupied.

Still a further object of my invention is to provide a pin tumbler assembly for a multi-purpose door lock as above described, in which the operation of shifting to de-actuate the key blocking feature may be accomplished by a simple rearrangement of the parts already present.

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

Figure 1 is a plan view of a mounted door lock, with the door in phantom;

Figure 2 is a face view of the door lock from the outside, with the door and jamb depicted in phantom;

Figure 3 is a magnified, partially fragmentary, perspective view of the operating elements of the door lock prior to assembly;

Figure 4 is a face view of the pin tumbler assembly from the inner end;

Figure 4A is a face view of the locking washer;

Figure 5 is a section taken on the line 5—5 of Figure 4, with the dogging mechanism extended and with an emergency key in lock operating position;

Figure 6 is a fragmentary section taken on the line similar to Figure 5, with the dogging mechanism extended, showing a guest key inserted in the tumbler mechanism;

Figure 7 is a section taken on the line 7—7 of Figure 4, showing the pin tumbler assembly in guest key operable position;

Figure 8 is a section similar to Figure 5, showing the actuator bar reversed through an angle of 180°.

Referring to the drawings in detail, a retractor housing **10** is mounted in a cylindrical mortise hold in the door A, by the sandwiching pressure of the attached escutcheons **11** on the portions surrounding the mortise hold. The retractor mechanism is operatively connected to the door latch assembly B, which engages the strike plate C on the door jamb in a well known manner.

The pin tumbler assembly D has a tumbler casing **12** which is provided in a known manner with a plurality of spring biased driver pins **13**, which ride in the cylinders **14**. The casing **12** is provided with a central cylindrical boring, and is formed at its outer and inner ends with annular shoulders **15**, **15***a*, respectively.

The plug **16** is provided in a known manner with a cylindrical body portion **17** within which the bottom or driver pins **18** are free to ride. The plug **16** has at its outer end a raised annular shoulder **19**, and adjacent its inner end **20** is formed with an annular recess **21**. An axially aligned bore **22** is formed through the plug **16**, widening at its inner end **23** into a boring of greater diameter. An axially aligned key slot **24** is formed through the plug **16**, said key slot **24** merging at the inner end of the plug **16** with the bar receiver slot **25**. Cross slot **26** lies normal to the bar receiver slot **25** in the inner end of the plug **16**, said cross slot **26** merging with the inner boring **23**.

An indicator pin **27**, having an extended head **28**, is inserted within the coil spring **29**. The pin **27** is slidably inserted through the boring **23** and into a narrower boring **22**, with the spring **29** acting to bias the head **28** outwardly against the shoulder **30** which forms a seat for the spring.

The plug **16** is positioned within the tubular orifice of the tumbler casing **12**, with the plug shoulder **19** abutting the annular casing shoulder **15**.

The actuator bar **31**, having side brancehs **32**, **33** and a lead branch **34**, is inserted into the plug **16** with the side branches **32**, **33** lying in the slot **26**, and the lead branch **34** positioned in the lower section **35** of the slot **25**. It should be mentioned, in passing, that the inversion of the bar **31** and the insertion of the lead branch **34** in the upper section **36** of the slot **25** brings about certain calculated changes in operation in the lock mechanism, which will be fully described hereafter.

With the bar **31** positioned with the lead branch in the lower section of the slot **25**, the resilient locking washer **37** may be seated in the annular recess **21** on the plug **16**. To facilitate this operation, the washer **37** has adjacent its split end portions, ears **38**, **38** which are engageable by a spreading tool (not shown). When properly seated within the annular recess **21**, the tabs **39**, **39**, extending radially inwardly from the washer **37**, overlie the cross slot **26**, locking the actuating bar **31** against endwise removal in an inward direction from the plug **16**. The said washer **37** abuts the shoulder **15***a* of the tumbler casing **12**, thereby rotatively locking

the plug **16** against endwise removal from the casing in an outward direction.

With the pin tumbler thus assembled, the side branch **32** of the actuator bar **31** abuts the extended head **28** of the indicator pin **27** and is biased outwardly, thereby to abut the ears **39** of the washer **37**. It will be readily recognized that outward movement of the actuator bar will bias the indicator pin axially outwardly against the pressure of the spring **29**. When the side branch **32** has projected the indicator pin **27**, the head branch **34** of the actuator bar **31** lies abutting the inner end of the key slot **24**. With the head branch **34** in such inward position, operation of the pin tumbler assembly with a normal guest key G is impossible by reason of the fact that full insertion of the guest key to pin tumbler aligning position is blocked by the said head branch **34**. This action of the branch **34** is shown in Figure 6.

The inward or outward position of the actuator bar **31** is controlled by the depression of the push button **40** located on the inner knob **41**. Depression of the push button **40** extends the dogging arm **42**, which dogging arm, is retained by the engagement of the latch lug **43** with known retaining means (not shown) formed on the spindle **44**. The push button **40** is, upon actuation of the latch assembly B, returned to its normal, extended position by the biasing action of the spring **45**, said actuation operating additionally to release the bar **31** to the inner, non-key blocking position and to retract the indicator pin **27**.

The normal operation of the locking assembly is as follows:

The latch B may be retracted, irrespective of the position of the push button **40**, by rotation of the inner knob **41**. Likewise, when the push button is in extended position (see Figure 5) the latch mechanism may be withdrawn by actuation with a guest key from the outside. When the push button **40** is depressed, however, the normal guest key G may not be fully inserted to key actuating position as previously described (see Figure 6) and the latch may not be retracted from the outside. In such case, the door may be actuated on the outside only through the use of an emergency key E, said key having its leading tip E' modified and shortened (see Figure 5). The shortened tip E' mentioned allows the seating of the key bits **46** against the shoulders **47**, **47** which surround the key slot **24**, thus permitting emergency key operation from the outside, notwithstanding the blocking position of the push button **40** and the forward extension of the branch **34**.

The arrangement of the slot **36** readily permits handling of the branch in accordance with the swing of the door. Also, in certain circumstances, such as dual occupancy of a single room, it is often convenient to dispense with the guest key rejecting feature aforementioned, and for this purpose I have provided a means in my tumbler assembly whereby said tumbler may be simply converted and the lock installation rendered operable from the outside through the use of a single key, notwithstanding the blocking position which the push button **40** has effected.

In order to so convert the tumbler assembly to serve the latter purpose, it is merely necessary to remove the

washer **37** and invert the branches of the actuating bar **31** so that the head branch **34** is turned through 180° and occupies the upper slot **36** rather than the lower slot **35**. When the actuating bar **31** is thus inverted, depression of the push button **40** serves only to extend the indicator pin **27** and the inverted head branch no longer lies in blocking position (see Figure 8) the door thus being operable by the extended guest key G, as well as by the emergency key E.

The above described pin tumbler assembly, in addition to being a highly efficient and versatile construction, will be found to be inexpensive to manufacture and easy to assemble.

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

1. In a cylindrical lock mechanism having inner and outer knob members, said inner knob member including dogging means manually shiftable to disable said mechanism from normal latch operation from the outside, a tumbler assembly mounted in said outer knob member comprising a tumbler casing and a plug mounted for rotation in said casing, a keyway in said plug, an indicator slidably mounted within said plug, the inner end of said plug being formed to define a plurality of slots, one of said slots exposing the inner end of said keyway and another of said slots exposing the inner end of said indicator, an actuator bar slidably mountable in said plug in two positions with respect thereto, branch members on said actuator bar spaced to register, respectively, with said indicator slot and said keyway slot in one said mounted position of said bar to said plug, one of said branch members lying out of registry with said keyway in said other mounted position of said bar to said plug.

2. In a cylindrical lock mechanism having inner and outer knob members, said inner knob member including dogging means manually shiftable to disable said mechanism from normal latch operation from the outside, a tumbler assembly mounted in said outer knob member comprising a tumbler casing and a plug mounted for rotation in said casing, a keyway in said plug, an indicator slidably mounted within said plug, the inner end of said plug being formed to define intersecting slots, one of said slots exposing said keyway and another of said slots exposing said indicator, an actuator bar including a pair of side branch members and a central branch member, said branch members being slidably mountable in said plug in a plurality of positions with respect thereto, one of said side branch members being adapted to register with said indicator in all mounted positions of said bar in said plug, said central branch member being arranged to register with said keyway in at least one but not all mounted positions of said bar in said plug.

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