H. W. SKINNER.

AUTOMATIC SUPERVISION OF SERVICE IN HOTELS AND THE LIKE.

APPLICATION FILED JULY 5, 1913.

1,131,278.

Patented Mar. 9, 1915.

2 SHEETS—SHEET 1.

Fig. 2.

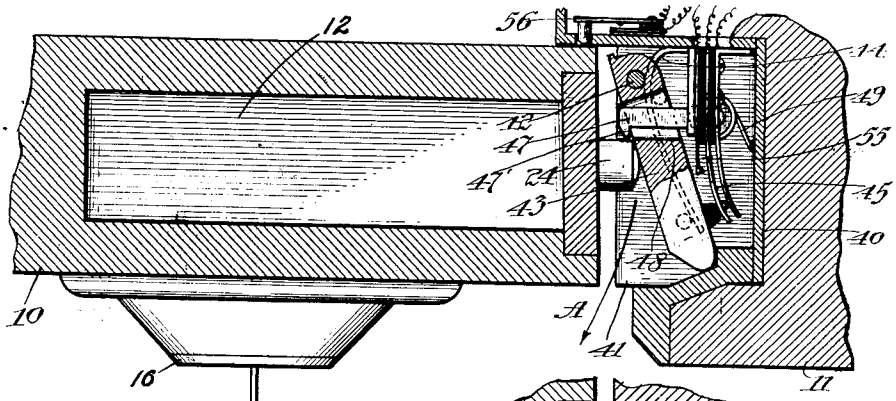
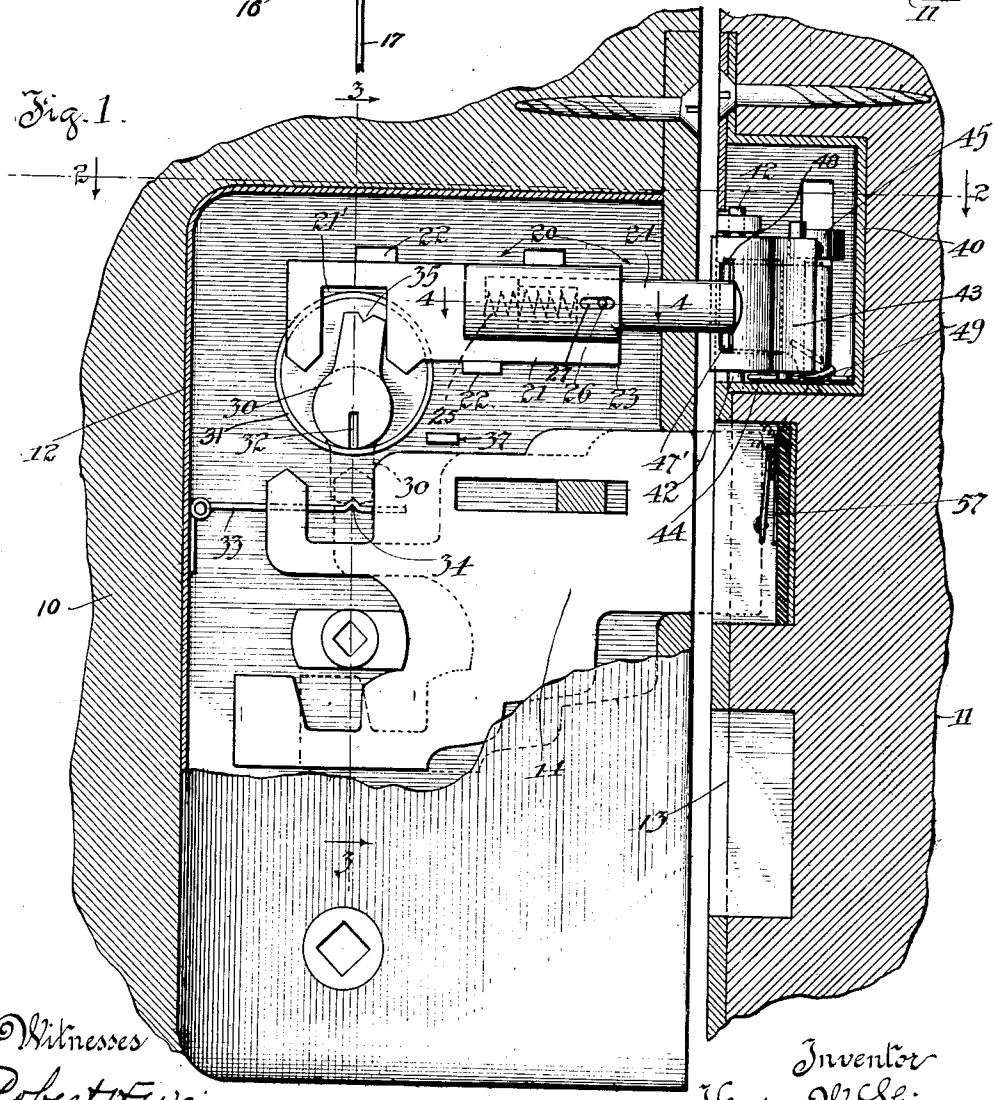


Fig. 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

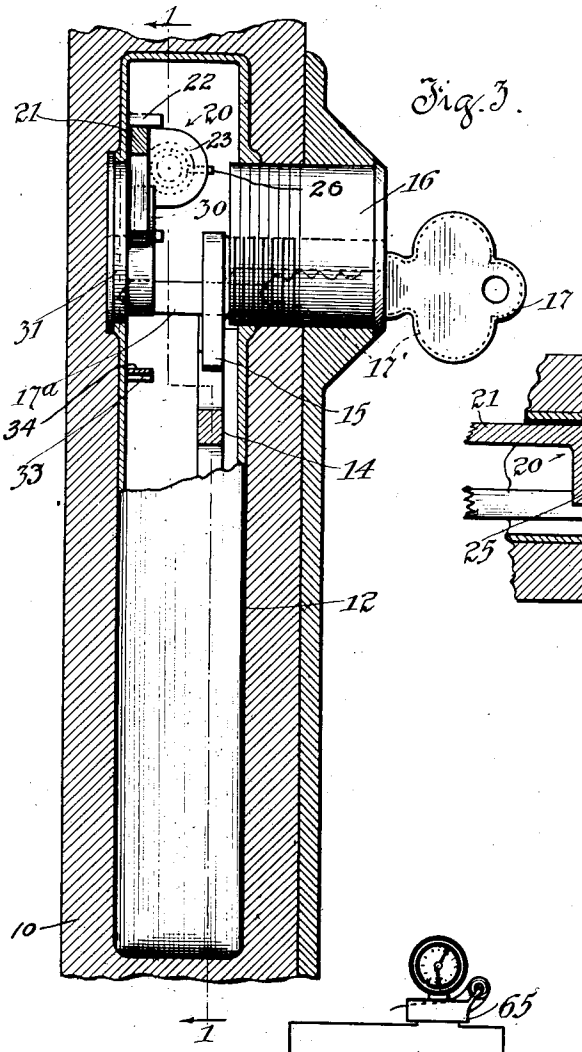


Fig. 4.

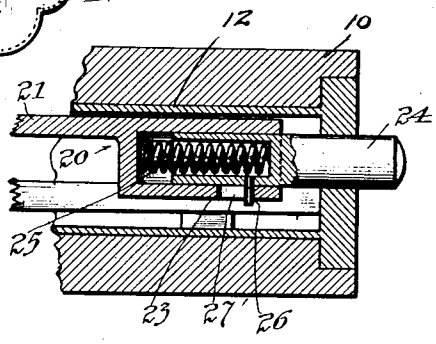
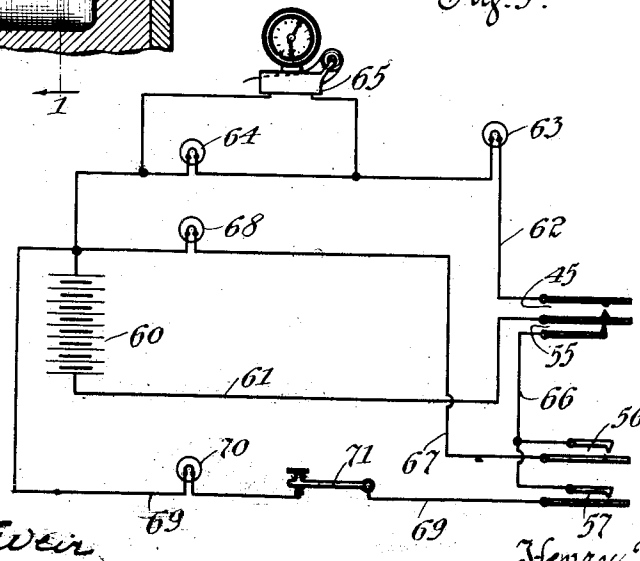


Fig. 5.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC SUPERVISION OF SERVICE IN HOTELS AND THE LIKE.

1,131,278. Specification of Letters Patent. Patented Mar. 9, 1915.

Application filed July 5, 1913. Serial No. 777,412.

To all whom it may concern:

Be it known that I, HENRY W. SKINNER, a citizen of the United States, residing at Maywood, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Automatic Supervision of Service in Hotels and the like, of which the following is a specification.

My invention relates to means for automatic supervision of service in hotels and the like, and has for its general object to provide means for automatically effecting a signal-display indicating the presence in any supervised room of any attendant who is provided with the usual service key for entering such room.

In general it is customary to provide for the attendants in hotels, and the like, service keys by which they may enter any room under their control, and in the embodiment of my invention I provide, in connection with the usual door lock, suitable appliances adapted to be controlled by an appropriate form of service key (but preferably not by the guest key) whereby a signal may be set upon the unlocking of the door with the service key and may remain set until the door, properly closed, is again locked by the service key, so that the signal display is continuous from the moment the attendant unlocks the door until it is again locked by the attendant.

In the drawings wherein I have illustrated an embodiment of my invention Figure 1 is a side view partly in section showing portions of a well-known type of door lock equipped with accessories for the embodiment of my invention; Fig. 2 is a transverse section on line 2—2 of Fig. 1 with parts broken away; Fig. 3 is a vertical section on line 3—3 of Fig. 1; Fig. 4 is a detail section on line 4—4 of Fig. 1 and Fig. 5 is a diagram of suitable circuit connection for the electrical signal devices.

In the drawings 10 indicates in general a fragment of an outwardly opening door and 11 a fragment of the door frame or jamb, these two being equipped with coöperating lock-mechanism and the bolt-receiving striker-plate. The lock casing 12 may be equipped with any usual or suitable locking instrumentalities, herein shown as including the latch-bolt 13, and lock-bolt 14. The lock bolt shown is adapted for key operation as through the intermediary of a rotatable arm 15 which is associated with the lock barrel 16 projecting through to the outside of the door and arranged in any suitable fashion so that the turning of the key 17′ (shown in dotted lines) in the barrel may rotate the arm 15.

The devices thus far described constitute parts of a well known commercial type of door locks and are supplemented by latch handles, "dead lock" parts, emergency-key receiving parts, and the like, not shown, because not pertinent to my present invention. It will be understood that my invention is not limited to this particular type of lock, and the parts referred to typify simply a suitable key operated means whereby the locking bolt may be advanced or retracted.

In a suitable part of the lock casing 12, so as to be beyond the range of operation of the ordinary key or guest key 17′, and to be within the effective range of operation of a specially constructed service key 17, I provide key operated signal-controlling bolt means, involving a service bolt 20, arranged to be projected beyond the edge of the door whenever the locking bolt 14 is retracted by means of a service key 17. In the specific construction shown the bolt structure 20 comprises a slide-body 21, reciprocable in guides 22 projecting from the face of the lock casing opposite the barrel 16, said body having a tubular enlargement 23 in which is seated the bolt stem 24 normally pressed outwardly by a spring 25 to the extent of play allowed by pin 26, carried by the stem, in a slot 27 of the enlargement 23. The spring 25 is preferably relatively stiff and is intended to give to the bolt some degree of longitudinal yieldability so that its functional coöperation with parts carried by the door jamb may not be affected by slight changes in the disposition of the parts due to wood shrinkage and the like.

A specific operating means for the service-bolt 20, as shown, consists of an arm 30 disposed for engagement by the service key 17 and independent of the lock-bolt operating arm 15 as far as rotation is concerned,—that is to say, so that rotation of arm 15 for the ordinary locking bolt does not necessarily rotate the arm 30. Arm 30 in the construction shown is mounted for rotation on a plate 31 carried by the casing wall, the arm 30 being provided with a key receiving orifice 32 which, when the arm

is in its normal position illustrated in dotted lines in Fig. 1, alines with the key receiving orifice of the lock operating arm 15, the arm 30 preferably being normally maintained in dotted line position, against accidental partial rotation, by a casing-carried retaining spring 33 having a nose 34 engaging a notch 35 in the end of arm 30.

The service keys 17 necessary to operate the service-bolt arm 30 will of course, be constructed to operate the lock, and also to provide an extension, as 17^a, to span the space between the ordinary lock operating arm 15 and the arm 30, although with different forms of lock the constructions of the keys may be varied to suit. Arm 30 of course coöperates with suitable equipment on the slide body 21, such as the edges of a recess 21′, to throw the service bolt out or in as the key 17 is turned to unlock or lock, respectively, the lock bolt 14, and I prefer that a projection 37, extending from the appropriate casing wall, be interposed in the path of movement of the arm 30 so that it may not be completely rotated. Thus when an attendant unlocks the door, the key cannot be withdrawn until the lock-bolt has been shot out again.

In Fig. 3 I have shown the arms 15 and 30 as quite widely separated, but in practical lock construction the intervening space may be occupied by the mechanism for a "dead-latch" and appropriate equipment for its opening by an emergency key (not shown), these being customary features of hotel door lock construction, which is not necessary here to go into in detail, as their presence or absence has no bearing on the present invention.

As far as the parts described are concerned it will be manifest that the door bolt 14 may be operated by a short guest key 17′ at will without operation of the service bolt 20 but every time the door lock 14 is thrown back by the use of a service key 17, the arm 30 is operated to throw forward the service bolt 20, projecting the bolt stem 24 through the edge plate of the lock.

All of the complemental instrumentalities for an electric signaling system are preferably carried by the door jamb. A housing 40 is let into the door jamb opposite the bolt 20, said housing having one lateral wall so constructed as to leave a clearance space 41 through which the service-bolt-stem 24, when projected, may escape during the swinging of the door on its hinges as indicated by an arrow. Suitable portions of the housing structure afford bearings for the vertical pivot pin 42 of a switch-lever 43, constituting one embodiment of a movable signal-setting part, and normally pressed by a spring 44 to a forward position substantially alining with the front of the housing 40. The lever 43 is movable by the end of the projected service bolt stem 24 to a rearward position as indicated in Fig. 2, and a suitable electric switch 45 is controlled by the lever 43 so that when the lever is pressed rearwardly the switch is closed. Coöperating with the switch lever 43 and with a part carried by the door, preferably the bolt stem 24,—is a latch member 47 controlled as to its latching and unlatching movements by the movements of the door carried part. Specifically switch lever 43 has an opening 48 therein through which extends the latch member 47 having its head 47′ in such position that it may engage and hold lever 43 only when the latter is in rearmost position, said latch member 47 being held toward latching position by a spring 49 and having its head arranged in the path in which the bolt stem 24 moves with the swinging of the door to closed position.

From a consideration of Fig. 2 it will appear that, assuming the door 10 to stand closed, and locked, projection of the service bolt stem 24 due to unlocking of the door by a service key 17 will move the switch lever 43 to switch closing position, as shown in the drawing, but the end of the bolt stem 24 will prevent the latch 47 from engaging said lever 43. Retraction of the bolt stem 24, preventing the movement of the latch member 47 until after the lever 43 has passed beyond its range of operation will permit the opening of the switch 45. If, however, while the latch bolt is projected the door is swung to open position, movement of the bolt stem 24 on the line indicated by arrow A in Fig. 2 will manifestly permit the spring pressed latch member 47, following the lateral movement of the service bolt, to engage lever 43 to hold it in switch closing position. Now it will be apparent that, for signaling purposes, unlocking of the lock bolt 14 by a service key 17 closes the signaling switch 45, which remains closed thereafter until released by a reversal of these actions, that is to say release of the latch is effected only by closing the door with the bolt stem 24 still projected, (thereby to move to releasing position the latching member 47,) and the latch stem 24 thereafter being withdrawn upon the locking of the door by the service key 17. In this way the signal switch 45 remains set or closed from the moment the attendant's service key unlocks the door until, having left the room, the attendant again locks the door with the service key. Manifestly the switch 45 may be used to control any suitable electric-annunciator circuit, and in the drawings for purposes of full disclosure I have illustrated a complete wiring system embodying my invention. For most complete supervision I prefer to supplement the switch 45, closed by the operation of switch lever 43, with another switch, 55, (one spring of which

may be a spring also of switch 45) which stands closed when the latch lever 43 is in normal position and is opened by the rearward movement of latch lever. Also I prefer to employ a switch 56 (shown in diagrammatic form in Fig. 2) which is opened whenever the door 10 is closed, and closes when the door opens; and in connection with the door lock I preferably employ another switch 57 closed when the lock bolt 14 is projected.

60 indicates a battery having connection by wire 61 to the common limb of switches 45 and 55 and return connection 62 from switch 45 through annunciators, such as lamps 63 and 64, which may respectively be located at or adjacent to the door to be supervised and at the desk of the supervisor in charge of the hotel service, said lamp 64 being paralleled, if desired, by connection to a suitable registering device 65 for recording the time and duration of the energization of said circuit. Manifestly whenever the switch 45 is closed incident to the service of an attendant in a room, the signals 63 and 64 indicate the fact and the register 65 records it.

The switch 55, (one limb of which is connected to wire 61,) may have series connection 66 to switch 56 and thence by wire 67 back to the return side of the battery through an annunciator, such as a lamp 68, so that whenever the door is open, without the switch 55 being opened, the lamp 68 is caused to glow. Obviously the opening of the door by an authorized attendant through the use of a service key results in the opening of switch 55 before switch 56 closes, so that no annunciation of service is given by lamp 68 but the opening of the door by a guest, or by anyone not using a service key, results in the annunciation of the fact. The switch 57 closed by the locking of the door may be connected with wire 66 and also to the return side of the battery through wire 69 including a test lamp 70 and a test key 71 at which said return wire 69 is normally opened. The testing equipment is preferably located at the desk of the supervisor so that to ascertain whether or not the door is properly locked at any time he has but to close the test key 71, the lamp 70 then glowing if the door is locked.

While I have herein described in some detail a particular embodiment of my invention for purposes of full disclosure it will be apparent to those skilled in the art that many changes might be made in the embodiment thereof without departure from the spirit of my invention and within the scope of the appended claims.

Having described my invention, what I claim is:

1. The combination with a door having a lock, of signal initiating means comprising a part movable in response to locking and unlocking of the door, and a latch for said part controlled by the bodily movements of the door.

2. In a device of the character described, the combination with a door, its frame, and a door lock, of a service bolt operating oppositely to the door lock, a signal initiating part movable to operative position by projection of said bolt, and a latch therefor controlled by the swinging movements of the door.

3. In a device of the character described, the combination with the door, frame, and door lock, of a service bolt operable oppositely to the lock-bolt, for projection when the door is unlocked, a lever carried by the frame and movable to one position by the projection of the bolt, and a latch for holding said lever in the position to which it is so moved, controlled by the door movements, said latch being disabled while the door is closed, and made operative by the movement of said latch accompanying the opening of the door.

4. Signaling means of the character described, comprising, in combination with a door, its lock, and a frame; a key operated service bolt arranged to be projected when the locking bolt is withdrawn, a coöperating lever carried by the door frame and movable to acting position by the projection of the service bolt, and a latch for holding said lever in active position, disabled by the service bolt while the latter is in the position which it occupies while the door is closed, and arranged to latch said lever when the service bolt is swung out of engagement with the latch by the swinging movement of the door.

5. Means of the character described, comprising a service bolt operable for projection from the door when the lock is unlocked, a movable part on the door frame, movable by the projection of the bolt, a switch controlled by said movable part, a latch for locking said movable part in switch closing position, said latch movable to latching or unlatching position in harmony with the swinging movements of the service bolt when the latter swings with the door.

6. Door lock signaling means, comprising the combination with a door lock, a service key, and a service bolt operable by said service key for projection as the locking bolt is retracted; of a housing on the frame into and out of which the service bolt may move, arranged to permit the transverse passage of the projected service bolt during the opening and closing of the door, a signal setting part movable by the projection of the service bolt when the door is closed to set a signal, a latch for maintaining said part in signal setting position, movable to latching or unlatching position

by the transverse movement of the projected bolt.

7. Signaling initiating means of the character described, comprising the combination with a door, its lock and frame, of a service bolt arranged for projection when the door lock is retracted, and vice versa, a spring pressed lever 43 in the path of projection of said bolt, and the coöperating latch 47 in the path of swinging movement of the projected bolt, substantially as described.

8. In a service signaling system for hotels and the like, the combination with an electrical annunciator, means of current supply therefor and a switch controlling said annunciator, of a door lock part, movable to close said switch when the door is unlocked, and means to latch said switch in closed position when the door is swung open.

9. In a service signal system for hotels and the like, the combination with a door, its lock, and frame, of a service bolt associated with the lock, a switch operating lever, movable to one position upon the service-bolt operation accompanying unlocking of the door, means for latching the switch lever in said position upon opening of the door, a switch closed by the said movement of said lever, a switch opened by said movement of said lever, a switch closable by the opening of the door, connected in series with the last said switch, a circuit for said series connected switches, an annunciator therein, a circuit for the first mentioned switch, and an annunciator therein.

10. In a signaling system, the combination with a door and its key operated lock, of annunciator means, key controlled means for initiating the operation of said annunciator means upon unlocking the door and permitting said operation upon locking of the door, and latch means for maintaining the operation of the said annunciator means, said latch means controlled by bodily movements of the door for movement to active position by the opening, and to inactive position by the closing of the door.

11. In a signaling system of the character described, the combination with a door, and a key operated lock, of electro-responsive signal means including a switch, key controlled means for closing and opening said switch as the door is unlocked and locked, and means controlled by bodily movement of the door for preventing switch movement when the door is otherwise unclosed.

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

HENRY W. SKINNER.

In the presence of—
LORETTA A. GIBBON,
MARY F. ALLEN.