

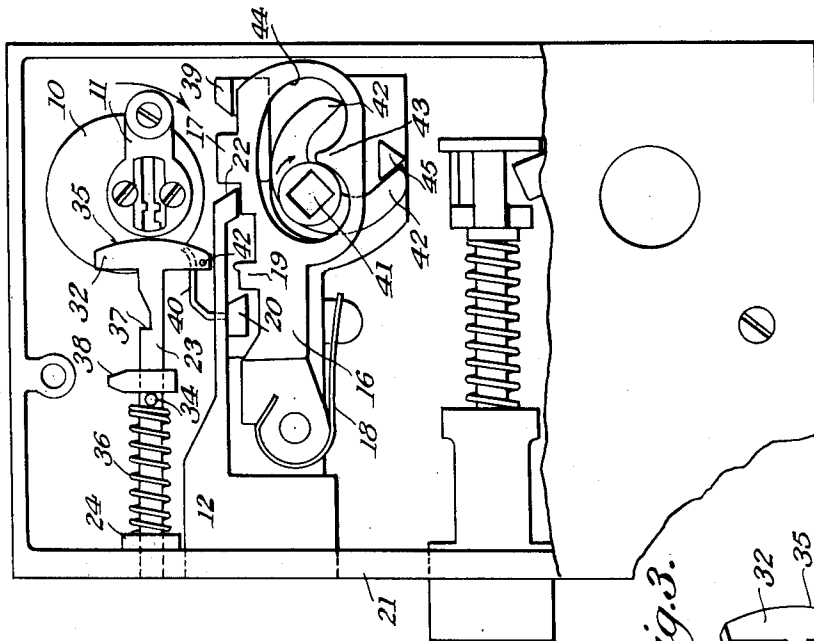
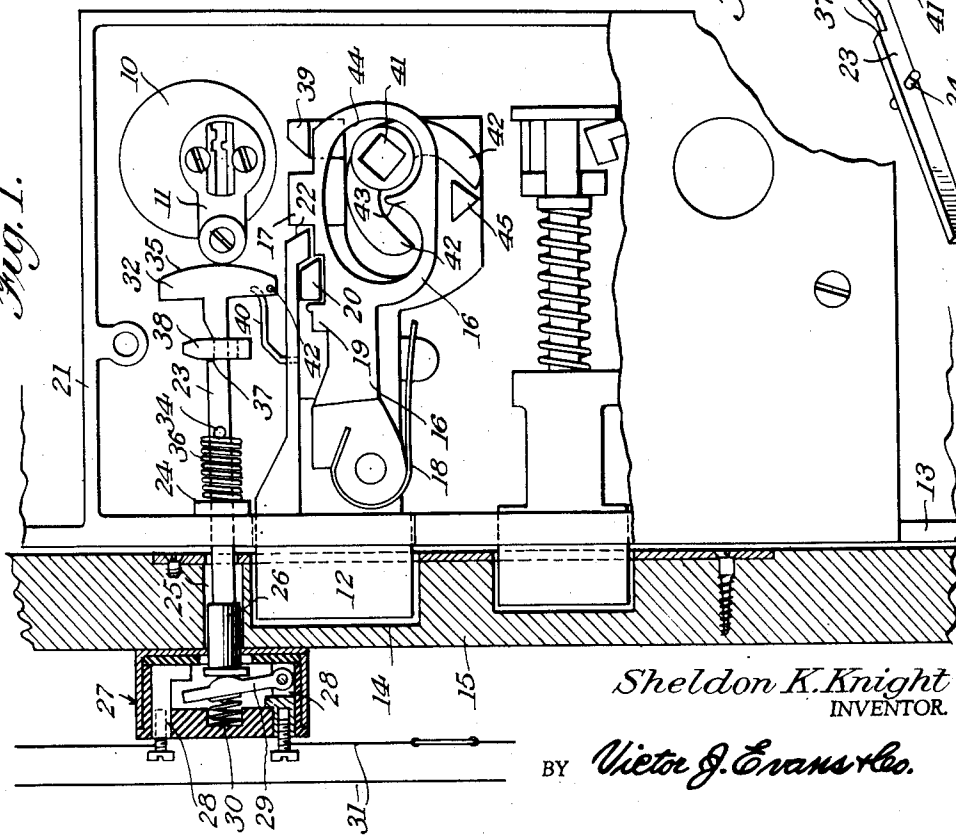
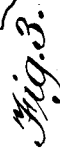
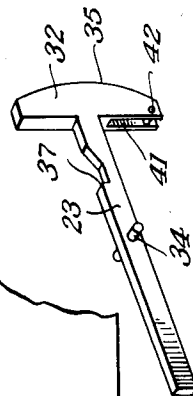
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DOOR LOCK SWITCH

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DOOR LOCK SWITCH

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4 Claims. (Cl. 200-54)

This invention relates to a door lock switch and has for an object to provide an electric switch combined with a door lock in such a manner that when the door is locked from the outside the electric current is cut off from the lights in a room, home, store, or any place where lights may be inadvertently left burning when there is no one present, while if the door be locked from the inside the electric circuit to the lights is not disturbed.

A further object is to provide apparatus of this character which will be formed of a few strong, simple and durable parts, which will be inexpensive to manufacture, and which will not easily get out of order.

With the above and other objects in view the invention consists of certain novel details of construction and combination of parts hereinafter fully described and claimed, it being understood that various modifications may be resorted to within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawing forming a part of this specification:

Figure 1 is a longitudinal section through a door lock, and the parts of the door and door frame adjacent thereto together with the switch and operating means therefor constructed in accordance with the invention, the lock being shown as locked by a key from the outside and the switch being shown in open circuit position.

Figure 2 is a view in elevation of the lock with the parts shown in unlocked position and showing the switch operating plunger in inoperative position.

Figure 3 is a detail perspective view of the head portion of the switch operating plunger.

Referring now to the drawing in which like characters of reference designate similar parts in the various views, 10 designates the barrel of a cylinder type door lock, the same having a rotatable arm 11 turned in the direction of the arrow head in Figure 2 when the key is operated from the outside to move the locking bolt 12 to projected position from the door 13 into the keeper 14 in the door frame 15.

The lock bolt, in the present embodiment, is provided with a pivoted arm 16 having a projection 17 in the path of the rotatable arm 11 and adapted to be struck by the arm to swing the pivoted arm 16 downward against the tension of its controlling spring 18 so that a stop lug 19 on the pivoted arm 16 clears an abutment 20 in the lock casing 21 to permit the lock bolt 12 to be

moved from the unlocked position shown in Figure 2, to the locked position shown in Figure 1 by the continued swinging movement of the rotatable arm 11 striking against a shoulder 22 on the lock bolt and bodily moving the lock bolt into locked position.

During further continued movement of the rotatable arm 11 when the door is being locked from the outside the switch mechanism will be opened as will now be described.

A switch operating plunger 23 is slidably mounted in a guide 24 carried by the lock casing 21 and is adapted to be projected from the casing into an opening 25 formed in the door where it operates the push button 26 of a conventional switch 27 having fixed contacts 28 and a pivoted bridging contact arm 29 carried by one of the fixed contacts and adapted to engage the other. A spring 30 back of the contact arm normally holds the contact arm normally holds the contact arm in circuit closing position to maintain the electric circuit 31 for the lights to be controlled, closed at the switch. The push button 26 when moved by the plunger moves the contact arm 29 to open circuit position to open the light circuit 31 at the switch when the door is locked from the outside.

The plunger 26 is provided with a transverse head 32, and is also provided with an abutment pin 34. During final stages of movement of the rotary arm 11 the arm will ride off the shoulder 22 and onto an arcuate surface 35 on the plunger head 32 and move the plunger head in a rectilinear direction to correspondingly move the switch operating plunger 23 and open the switch 27.

A helical spring 36 is sleeved on the plunger between the guide 24 and the abutment pin 34. The spring is compressed when the plunger is moved to open the switch so that when the door is unlocked from the outside by a person entering the room the spring will expand and cause the plunger head to move back to initial position to withdraw the plunger from against the push button 26 and permit the spring 30 of the switch to close the switch so that the lights in the room may be operated by the conventional room switch after the person enters the room.

The plunger is provided with a notch 37 which is engaged back of a stationary guide 38 when the door is locked from the outside by the rotatable arm 11 swinging the plunger head upwardly by upward pressure thereon as the arm rides up the arcuate surface 35 of the plunger head. The guide holds the plunger in position to hold the contact arm 29 in open circuit position until the

door is unlocked from the outside. At such time the rotatable arm 11 will swing downward and strike the projection 17 to depress the pivoted arm 16 and disengage the stop lug 19 from in front of the abutment 20. During further movement the rotatable arm strikes against a projection 39 on the lock bolt 12 and bodily retracts the bolt from the keeper 14. Thereupon a spring finger 40, carried by the lock bolt passes into a slot 41 formed in the plunger head 32 and contacts with a transversely disposed pin 42 in the slot to pull the plunger downward and release the notch 37 from the guide 38 and permit the spring 36 to expand and move the plunger to initial position, at the same time permitting the switch spring 30 to move the contact arm 29 to circuit closing position so that the lights may be operated by the conventional room switch.

The lock bolt 12 may be locked by the thumb control 41 from inside the room without disturbing the closed circuit position of the switch after the door has been unlocked from the outside and the person enters the room. This is accomplished by the spring finger 40 loosely fitting in the slot 41 in the plunger head, out of engagement with the pin 42 when the door is unlocked so that it rides in a rectilinear direction out of the slot 41 when the lock bolt is locked without disturbing the plunger head or arm. The same is true when the finger moves into the slot 41 when the lock bolt is retracted by the thumb control.

The thumb control comprises a pair of horns 42 which selectively engage a projection 43 on the wall of an oval opening 44 formed in the lock bolt. When the thumb control 41 is rotated in the direction of the arrow head shown in Figure 2 one of the horns will engage the projection 43 and slide the lock bolt to the locked position shown in Figure 1. Said horn will engage a stop 45 on the lock casing 21 at its limit of movement. When the thumb control is rotated in the opposite direction the other horn will engage the projection 43 and retract the lock bolt from the position shown in Figure 1 to the position shown in Figure 2. It is to be understood that during such rotary movement the thumb control is slid in a rectilinear direction in either case, to pass over the projection 43 and rock the pivoted arm 16 downward to disengage the stop lug 19 from the abutment 20 to permit operation of the lock bolt as just described.

Since the operation of the parts has been described as the description of the parts progressed it is thought the invention will be fully understood without further explanation.

What is claimed is:

1. In a door lock switch for room circuits, the combination of a bolt, a lock barrel having an arm rotated by a key inserted from outside a

room to lock and unlock the bolt, a spring pressed plunger having a transverse head provided with an arcuate surface engaged by said arm subsequent to the locking of the bolt to move the plunger pivotally and endwise, a normally closed push button switch for controlling a room circuit moved to open circuit position by endwise movement of the plunger, detent means engaging the plunger upon pivotal movement of the plunger for releasably holding the switch open, and means carried by the bolt engaging the plunger head to move the plunger pivotally and release the detent means subsequent to unlocking of the bolt to permit the switch to return to normal closed position.

2. The structure as of claim 1 and in which said detent means comprises a notch in the plunger and a stationary guide engaged in said notch by pivotal movement of the plunger under urge of said rotating lock arm.

3. The structure as of claim 1 and in which the last named means comprises a finger having a portion extending along the bolt and spaced from the bolt adapted to enter a recess in the plunger head, and a transversely disposed pin in the recess engaged by said finger to rock the plunger and move the notch out of engagement with the guide when the bolt is unlocked by the rotating arm.

4. In a door lock switch for room circuits the combination of a bolt, a lock barrel having an arm rotated by a key inserted from outside a room to lock and unlock the bolt, a thumb control means for locking and unlocking the bolt independently of the arm from outside the room, a spring pressed plunger having a transverse head provided with an arcuate surface engaged by said arm subsequent to the locking of the bolt to move the plunger endwise and pivotally, a normally closed push button switch for controlling a room circuit moved to open circuit position by endwise movement of the plunger, a notch in the plunger, a stationary guide engaged in said notch by pivotal movement of the plunger under urge of the rotating lock arm, a finger carried by the bolt extending along the bolt and spaced from the bolt adapted to enter a recess in the pivoted head, and a transversely disposed pin in the recess engaged by said finger to rock the plunger and move the notch out of engagement with the stationary guide when the bolt is unlocked by the rotating arm to permit the switch to return to normal closed position, said finger entering the recess without engaging the pin when the thumb control means is used to open and close the bolt from inside the room and not effecting the released position of the push rod so that the switch may remain closed.

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