

Feb. 19, 1929.

1,702,483

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ELECTRIC SWITCH RECEPTACLE FOR DOOR LOCKS

Filed Dec. 2, 1927

Fig. 1.

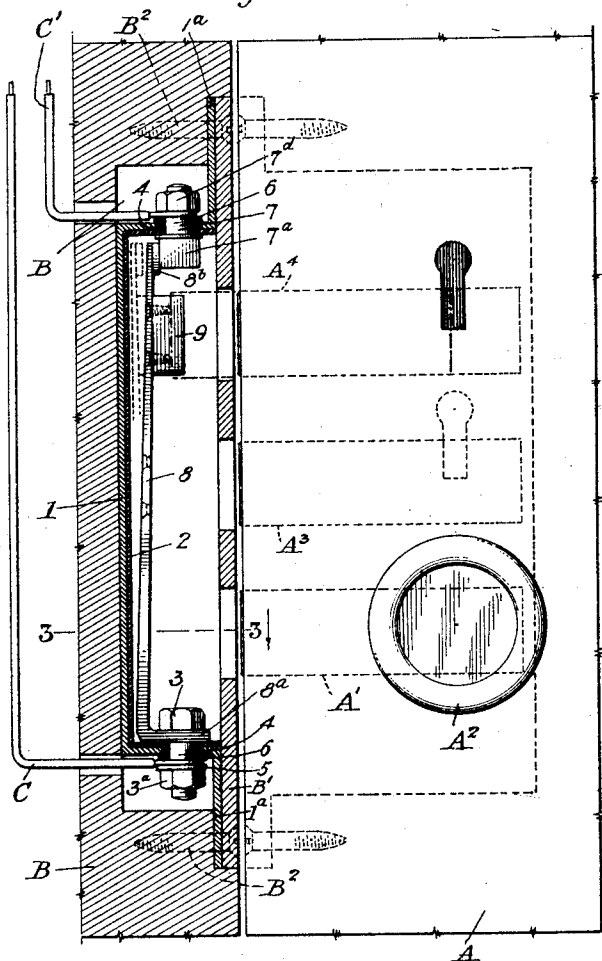


Fig. 2.

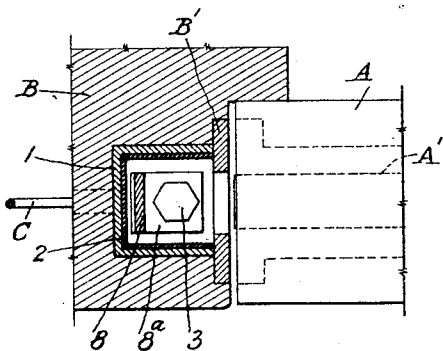
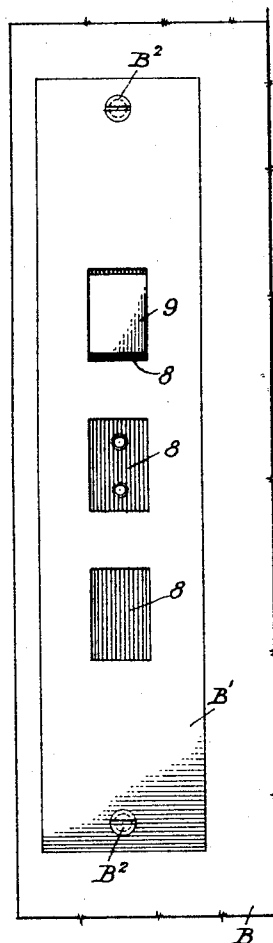


Fig. 3.

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ELECTRIC SWITCH RECEPTACLE FOR DOOR LOCKS.

Application filed December 2, 1927. Serial No. 237,213.

This invention is a novel improvement in electrical switch receptacles for door locks adapted to be attached behind the standard face plates of door locks, preferably of the type having separably operable "inside" and "outside" lock bolts, said receptacle having switch means therein for automatically opening or closing a gap in the electrical circuit for the lights or power and the like simultaneously with the unlocking or locking of the "outside" lock bolt by turning the door key from the outside of such room or building, the switch being unaffected when the door is locked or unlocked from the inside by turning the "inside" lock bolt.

A further object of the invention is to provide a novel and universal insulated receptacle, containing a circuit making and breaking device adapted to fit any standard face plate behind the door frame of a double lock-bolt door lock, whereby when the door is locked from the outside the electrical lamp or power circuit within the room circuit will be broken, and when the door is unlocked on the outside the circuit will be closed.

Another object of the invention is to provide an inexpensive, simple and efficient receptacle provided with simple electrical switch means therein having a minimum number of parts whereby the up-keep for replacement of worn parts will be reduced to a minimum.

I will explain the invention with reference to the accompanying drawing which illustrates one practical embodiment thereof to enable others to adopt and use the same; and will summarize in the claims the novel features of construction, and novel combinations of parts for which protection is desired.

In the drawings:

Figure 1 is a vertical section through the receptacle showing the adjacent parts of the door and also the door frame in section and showing the switch closed in full lines, and the switch open in dotted lines;

Fig. 2 is a front view of the door frame showing the face plate with its openings for the lock-bolts and latch;

Fig. 3 is a section on the line 3—3, Fig. 1.

As shown in the drawing, the door A is provided with the usual standard door lock having a latch A' operated by the door knob

A²; an "inside" lock-bolt A³ operated by a key (or handle) from the inside of the room or building; and an "outside" lock-bolt A⁴ operated by a key from the outside of the room, building, or the like, such double bolt locks being commonly used for hotel rooms, and in office buildings and the like.

On the door frame B is a standard face plate B' preferably flush with the face of the door frame, and held in place by means of countersunk screws B² or the like in the usual manner, the plate B having the usual openings therein for the latch A', the inside lock-bolt A³, and the outside lock-bolt A⁴, respectively.

My novel receptacle containing the circuit making and breaking means comprises a casing 1 of sheet metal, wrought iron, steel, fibre, or other suitable material, said casing being adapted to take the place of the ordinary striker or keeper, and being open at the side adjacent the face plate B'; and having flanges 1^a at its ends adapted to bear against the inner face of face plate B', the screws B² for securing the face plate B' to the door frame B, also passing through perforations in said flanges 1^a whereby the receptacle will be retained within a recess B³ of the door frame B behind the face plate B' but may be readily accessible upon removing the screws B² and the face plate. The interior of casing 1, if made of metal, is preferably lined with sheet insulating material 2 fitted to the entire inner surface thereof.

Extending through one end of the casing 1 is a contact bolt 3 of conducting material which passes through perforations in the casing 1 and insulation 2, and also through a bushing 4 of insulating material to insulate bolt 3 from the casing 1. The head of bolt 3 is preferably disposed within the casing, and an electrical conductor C is engaged with the outer end of bolt 3 between a lock washer 5, and an insulating washer 6 lying adjacent the casing 1, lock washer 5 being engaged by a nut 3^a.

At the opposite end of the casing 1 is similarly mounted a bolt 7, in axial alignment with bolt 3, said bolt 7 also extending through the casing 1, and insulation 2, and having its enlarged head 7^a disposed within the casing for the purpose hereinafter set forth. Bolt 7 also passes through an insulating bushing 4 and its outer end is engaged with a con-

ductor C' interposed between an insulating washer 6 and the nut 7^a, similarly to the connection of conductor C with bolt 3.

Within the casing 1 is a spring tongue 8 of conducting material which extends substantially the full length of casing 1 opposite the opening in the face plate B' for the "outside" lock-bolt A⁴ of the door. Spring tongue 8 has a perforated flange 8^a at one end adapted to be placed under the head of bolt 3 and to make electrical contact therewith. The outer free end of tongue 8 carries a contact plate 8^b of conducting material adapted to normally engage the side of the enlarged head 7^a of bolt 7 at the opposite end of the casing, said contact plate 8^b being yieldably held in engagement with bolt head 7^a by the resiliency of spring tongue 8, to establish an electrical circuit between bolts 3 and 7, insulated from the casing 1.

On tongue 8 directly opposite the opening in face plate B' for the "outside" lock-bolt A⁴, is screwed or otherwise removably or adjustably fastened a block 9 of insulating material and of such thickness that when the "outside" lock-bolt A⁴ is projected into locked position the bolt will enter its respective opening in the face plate B' and will engage the block 9 on tongue 8, moving said tongue inwardly to break the contact between the plate 8^b and bolt 7^a, as shown in dotted lines in Fig. 1, whereby the electrical circuit between conductors C and C' will be automatically broken when the "outside" lock-bolt A⁴ is in locked position, the resiliency of tongue 8 again restoring plate 8^b into contact with bolt 7^a to complete the electrical circuit between contactors C and C' when the "outside" lock-bolt A⁴ is retracted into unlocked position.

Conductors C and C' may form part of the electrical circuit for the lights, power, etc., of a room or building.

The casing 1 will fit the standard face plate of any two-bolt lock; the insulating block 9 can easily be adjusted to any position on the tongue 8 to conform with the opening in the particular face plate for the "outside" lock bolt; obviously the receptacle can be reversed with respect to the face plate, or the bolts 3 and 7 interchanged in order to reverse tongue 8, in case the lock should be reversed with the lock bolts A³ and A⁴ disposed below the knob A² instead of above as shown in Fig. 1. My receptacle is therefore universal and adaptable to any standard face plate or door lock. Obviously the invention is capable of use with single bolt locks, but in such case the electrical circuit would be broken every time the door was locked from either the inside or outside of the room or building.

My invention may be used with either single or multiple wire or phase circuits, for direct or alternating currents.

I do not limit my invention to the exact form shown in the drawing, for obviously changes may be made therein within the scope of the claims.

I claim:

1. In combination with a door lock having inside and outside lock bolts, and having a face plate adapted to be mounted on the door frame and provided with openings therein to receive said lock bolts when projected; a receptacle adapted to be mounted in the door frame behind the face plate, the side of the receptacle adjacent the face plate being open; an insulating lining fitting the interior of the receptacle; aligned contact bolts extending through opposite ends of the receptacle and insulated therefrom, and adapted to be connected in an electrical circuit; a spring tongue of conducting material within the receptacle secured by one of said bolts and extending opposite the opening in the face plate for the outside lock bolt, the outer free end of said tongue normally contacting with the other bolt by the resiliency of the tongue; and an adjustable block of insulating material on said tongue intermediate its ends adapted to contact with the end of the outside lock bolt when projected through the face plate.

2. In combination with a door lock having inside and outside lock bolts, and having a face plate adapted to be mounted on the door frame and provided with openings therein to receive the ends of said bolts when projected; a receptacle adapted to be mounted in a recess in the door frame behind the face plate, said receptacle being open on its side adjacent the face plate; a lining of insulating material fitted within the interior of the receptacle; aligned contact bolts extending through opposite ends of the receptacle and insulated therefrom and adapted to form part of an electrical circuit; a spring tongue of conducting material within the receptacle having a perforated flange at one end secured by one of said bolts and extending opposite the opening in the face plate for the outside lock-bolt, the outer free end of said tongue being normally urged by the resiliency of the tongue towards the other bolt; a contact piece on the outer end of said tongue for normally contacting with the other bolt; and a block of insulating material adjustably mounted on said tongue intermediate its ends and adapted to contact with the end of the outside lock bolt when projected through the face plate.

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