No. 832,748. PATENTED OCT. 9, 1906.

H. R. SARGENT.

ELECTRIC SWITCH.

APPLICATION FILED APR. 12, 1902.

Fig. 1.

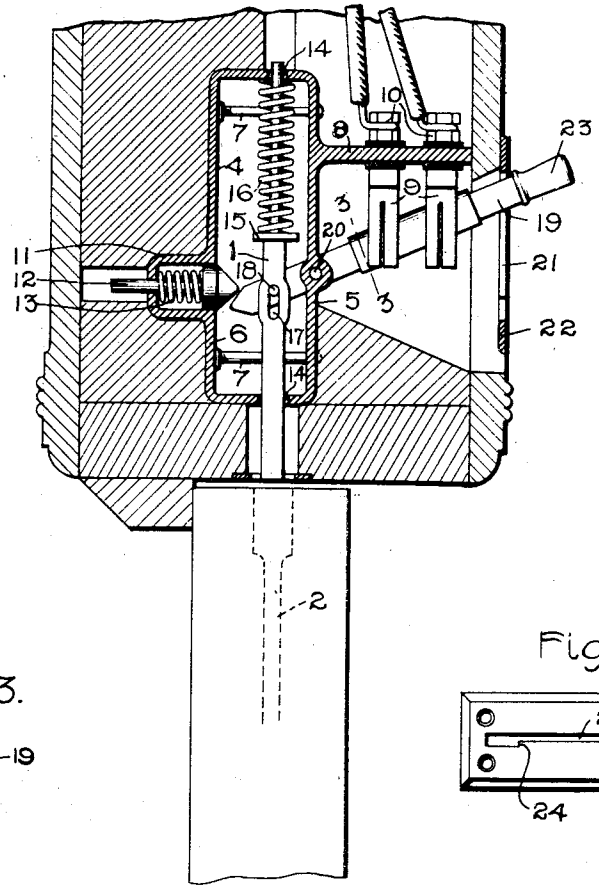

Fig. 3.

Fig. 2.

Witnesses.

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UNITED STATES PATENT OFFICE.

HOWARD R. SARGENT, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

ELECTRIC SWITCH.

No. 832,748. Specification of Letters Patent. Patented Oct. 9, 1906.

Application filed April 12, 1902. Serial No. 102,512.

To all whom it may concern:

Be it known that I, HOWARD R. SARGENT, a citizen of the United States, residing at Schenectady, county of Schnectady, State of New York, have invented certain new and useful Improvements in Electric Switches, of which the following is a specification.

My invention relates to plunger-actuated electric switches, and more particularly to switches which act automatically to throw current on the lights of a room at the instant the door thereto is opened or unlocked.

The object of my invention is to provide an improved construction of such switches which shall be thoroughly reliable and durable, which shall act with a snap, so that there may be no arcing at the contacts, and which also may be readily put into inoperative position, so that the current will not be thrown upon the lamps in the day-time or except when desired.

The invention will be more readily understood by reference to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a horizontal section through a door jamb and casing and the switch box or shell, showing the parts of one form of my invention in operative position. Fig. 2 is a plan view of the casing-plate, showing the shape of the slot in which the switch-lever moves; and Fig. 3 is a cross-section of the switch-lever on line 3 3 of Fig. 1.

As shown in the drawings, the switch is located in the casing at the knob side of the door, with the actuating-plunger 1 in line of the bolt of the lock, (shown in dotted lines at 2,) and in this position the plunger will never protrude outside the face of the jamb. The switch may, however, be located in the casing at the hinge side of the door, so that the movement of the door causes the movement of the plunger; but in this case it is necessary that the door be provided with a projection to engage the plunger, or else the plunger must protrude beyond the face of the jamb when the door is open.

The switch box or shell 4, which may be either square or circular in cross-section, is, for convenience in casting, made of two side parts 5 and 6 and held together by transverse screws 7. The front side 5 is provided with a shelf or bracket 8, which supports the contacts 9 and the binding-posts 10. The rear part 6 is provided with a chambered projection 11 for the reception of the snap-plunger 12 and its spring 13. The box or shell 4 is provided with apertures 14 at both ends, through which the actuating-plunger 1 slides freely. The actuating-plunger has its outer section preferably made square in cross-section and its inner section reduced and preferably made round, and at the shoulder formed between the two sections a washer 15 is provided, which serves as a seat or step for the end of the actuating-spring 16, surrounding the reduced section of the plunger and bearing at its opposite end against the end wall of switch box or shell 4.

The outer section of the actuating-plunger 1 is provided near its inner end with an elongated slot 17 for the reception of the connecting-pin 18, carried in the inner end of the switch-lever 19. The switch-lever 19 is pivoted in the front side of the box or shell 4 at 20 and has at its inner end two inclined surfaces which are adapted to be engaged by the corresponding inclined surfaces of the snap-plunger 12, the arrangement being such that the switch-blade is given a rapid movement in one direction or the other by the action of these respective inclined planes whenever the switch-blade has been moved far enough to carry its point past the point of the snap-plunger. When the bolt of the door-lock is thrown to lock the door, it engages the end of the actuating-plunger and moves it an amount equal to the length of the elongated slot 17 before its movement is communicated to the switch-lever 19. Further movement of the lock-bolt then moves the inner point of the switch-blade lever beyond the point of the snap-plunger 12, whereupon the snap-plunger acts to complete the movement of the switch-blade lever, which, on account of the loose connection at the elongated slot in the actuating-plunger, moves unopposed by the spring 16 at the inner end of the plunger. When the bolt is retracted to unlock the door, the spring 16 at the inner end of the actuating-plunger forces it outward and moves the switch-lever 19 until its inner point passes the point of the snap-plunger 12, whereupon the snap-plunger coöperates with the spring 16 to throw the switch-blade into contact, or if the actuating-plunger should be hindered in its further travel, as by the bolt not being thrown quickly enough, the snap-plunger

will, on account of the loose connection between plunger 1 and the switch-lever, complete the movement of the switch-lever 19. The switch-lever 19 is provided with an insulated contact strip or blade of phosphor-bronze or other suitable metal and is extended outward through a slot 21 in the casing-plate 22 and provided with a knob or handle 23. The slot in the plate 22 is made wider at one end, so as to form a shoulder 24 in one side thereof, which is designed to engage with an edge of the switch-lever 19 and hold it in inoperative position when it is moved by hand into contact therewith, as is done in the day-time or whenever it is desired to render the action of the switch non-automatic.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In an electric switch, the combination of a switch-lever pivoted intermediate its ends, a snap-plunger adapted to engage one end of said lever, and a spring-pressed plunger having a pin-and-slot connection with said lever.

2. The combination of a supporting-shell, stationary electrical contacts carried thereby, a switch-lever pivoted intermediate its ends upon said shell and having one end provided with two inclined surfaces, a snap-plunger having corresponding inclined surfaces and adapted to engage the end of said lever, and a spring-pressed actuating-plunger loosely connected to said switch-lever

In witness whereof I have hereunto set my hand this 10th day of April, 1902.

HOWARD R. SARGENT.

Witnesses:

BENJAMIN B. HULL,

HELEN ORFORD.