

J. G. PETERSON.
DOOR SWITCH OPERATOR.
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966,702.

Patented Aug. 9, 1910.

Fig 1

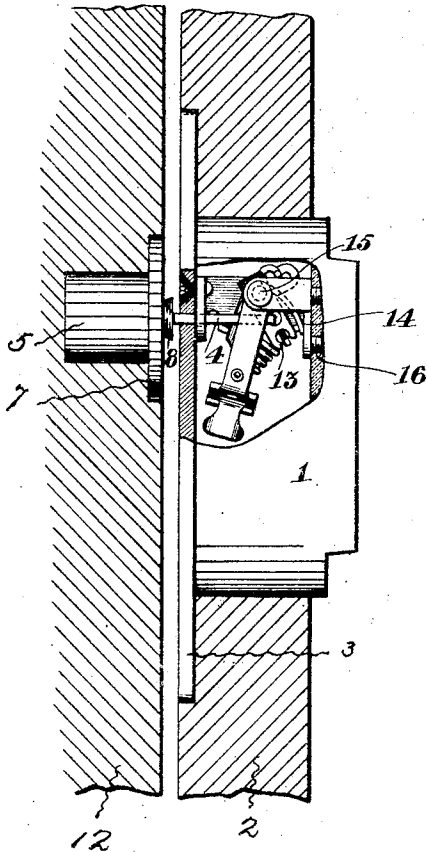


Fig. 2

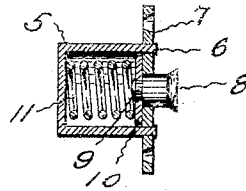


Fig. 3

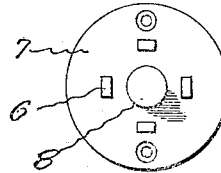
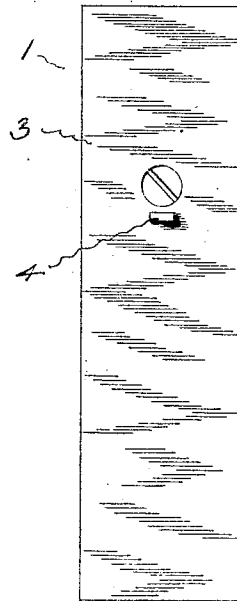


Fig 4



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UNITED STATES PATENT OFFICE.

JOHANN G. PETERSON, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE ARROW ELECTRIC COMPANY, OF HARTFORD, CONNECTICUT, A CORPORATION OF CONNECTICUT.

DOOR-SWITCH OPERATOR.

966,702.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHANN G. PETERSON, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented a new and useful Improvement in Door-Switch Operators, of which the following is a specification.

This invention relates to a device which is designed to be applied to a door and used in connection with a door-switch to insure the desired action of the switch. Such switches are located in door jambs and are automatically operated either to close circuits and light up dark rooms or closets when the doors are opened, and open the circuits and darken the rooms or closets when the doors are closed, or to close circuits and light up dark-rooms or toilets when the doors are closed, and open the circuits and extinguish the lights when the doors are opened. A door switch is ordinarily set into a casing-jamb in such manner that a push button projects outwardly therefrom into the path of the hanging-stile of a door. A spring is arranged in the switch to push the button outwardly and throw the movable poles or contacts of the switch into one position. The closing of the door is supposed to push the button inwardly against the spring sufficiently far to actuate the mechanism and cause the poles or movable contacts to be thrown into another position.

In order to effect a proper operation of the switch, the push button must be moved each time substantially the same distance, and of course it is objectionable to have the button large and to have it project any great distance beyond the jamb. Owing to the non-uniformity of the hanging of doors by carpenters, also the sagging of doors due to their weight or the settling of the building, and also owing to the shrinking and swelling of doors and the casings, under atmospheric changes, particularly if the doors are built of hard wood, or wood, which as is usually the case, is comparatively green when the doors are first hung, the spaces between the edges of the hanging-stiles of the doors and the faces of the casing-jambs vary very much. Sometimes the edge of the hanging-stile is close to the face of the jamb, and at other times there is quite a space between them. This variation of space is also

quite likely to occur from the way the hinge butts are constructed and set in the stile and jamb. As a result of the variation of the space between the stile and jamb, and frequently as the result of the setting of the switch, the action of the switch is irregular. If the switch is set so as to operate when the door is hung close, it will not operate when the door is from any cause not so close.

The object of this invention is to provide a very simple device which can be easily inserted into the hanging stile of the door so as to cooperate with the switch in such manner that the switch-actuating push button will always be forced in far enough to operate the switch when the door is closed, notwithstanding the amount of space between the edge of the hanging-stile and the face of the jamb, and regardless of the exact location of the switch.

This invention consists of a cooperating switch actuator comprising a socket and plate that are adapted to be set into the door stile opposite the switch push button, and a yielding button or block that is forced outwardly from the plate by a spring which is stiffer than the switch operating spring, which button projects in such manner that it will always engage the switch push button and force it in the necessary distance to operate the switch whenever the door is closed, regardless of the distance between the face plate of the switch, which is set in the jamb, and the face plate of the operating device which is set into the hanging stile.

Figure 1 of the accompanying drawings shows a small section of a jamb provided with a door switch and a small section of the hanging stile of a door provided with a cooperating switch actuating device which embodies this invention a portion of the switch casing being broken away to expose the interior. Fig. 2 shows a central section of the switch operating device. Fig. 3 shows a face view of the switch operating device. Fig. 4 shows a face view of the switch.

The switch 1, which is illustrated as set into the door jamb 2, with its face plate 3 flush with the meeting surface of the jamb, is of the type shown and described in United States Patent No. 935,226, granted September 28, 1909. In such a switch, as is commonly known, the push button 4 is connected with a rocker arm 13 and is forced outwardly by a spring 14 in the switch when the

door is opened, and is forced inwardly by the door when the door is closed, in order to open and close the circuit in the desired manner. This spring is coiled about the arbor 15 and has one end engaging the rocker and the other end engaging the supporting frame 16.

The operating device has a socket 5, which is preferably cylindrical. The socket shown is formed of metal and has lugs 6 projecting from its edges at the open end. The plate 7 is preferably made circular with perforations for receiving the lugs at the open end of the socket. The plate is also provided with perforations for the passage of the fastening screws. Extending through a central opening in the plate is a block or button 8, the outer face of which is preferably of considerable extent so that it will always make contact with the push button 4 of the switch when the door is closed. The stem 9 of the operating block or button 8 is secured to a washer 10 that is normally thrust outwardly by a rather stiff spring 11 that is located in the socket. This spring 11 is considerably stiffer than the spring 14 in the switch. In assembling these parts the operating button is thrust through the face plate and the washer secured to the stem of the button. After the spring has been located in the socket, the plate is put upon the open end of the socket with the lugs projecting through the perforations in the plate. The lugs are then headed over so as to secure the parts together. In order to set this operating device, it is only necessary to bore a round hole for the plate and then bore a round hole for the socket in the edge of the hanging stile 12 opposite the push button of the switch that has been set in the jamb.

As the stiff spring thrusts the operating button outwardly from the edge of the hanging stile, and as the face of the operating button is somewhat extended, it will always

engage the switch push button whenever the door is closed, regardless of the exact location of the switch in the jamb, and the operating device in the hanging stile, or the amount of space between the hanging stile and the jamb, which as stated varies according to the hanging of the door, the location of the butts, the sagging of the door, or the shrinking and swelling of the material making up the door and door casing. When the door is opened, the switch operates as usual. When the door is closed, the projecting button of the operating device engages the switch button and as its spring 11 is stiffer than the spring 14 it operates the switch, and then the operating button yields an amount depending upon the relative position of the door stile and casing jamb under the existing conditions.

The invention claimed is:

The combination of an electric switch having a single projecting actuating button and a spring normally forcing said button outwardly, said switch being adapted to be installed in a fixed wall, and an operating device that is adapted to be located in a door which is hinged to said wall, the said operating device having a socket, a face plate attached thereto, a button movable through the face plate and projecting outwardly therefrom, and a spring located within the socket and arranged to normally force the operating device push button outwardly, said last mentioned spring being stiffer than the first mentioned spring, whereby the said operating push button is adapted to engage and force in the said switch actuating button when said buttons are engaged as the fixed and movable parts are brought together.

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