

[54] **DOOR LATCH OPERATED SWITCH
UNIT**

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[51] Int. Cl.**H01r 33/30, H01h 27/00**

[58] Field of Search.....**200/51.06, 51.1, 61.62, 61.68**

[56] **References Cited**

UNITED STATES PATENTS

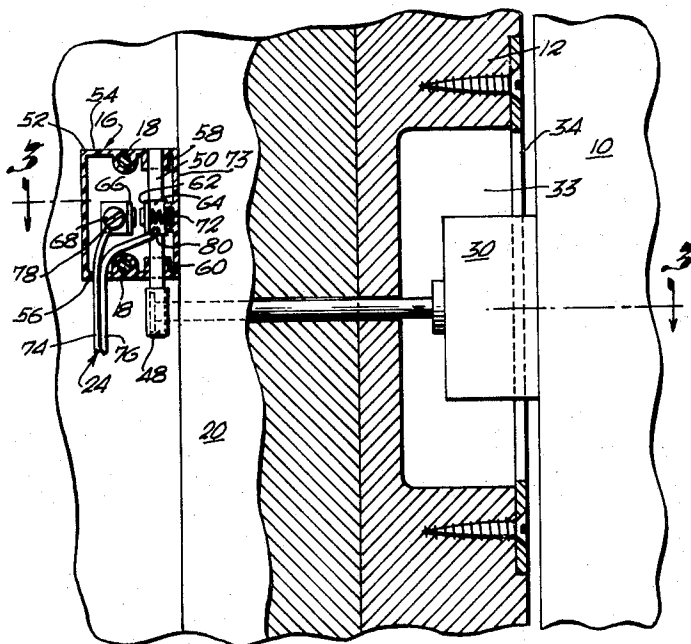
3,514,557 5/1970 Jette, Jr.**200/61.68 X**

Primary Examiner—J. R. Scott
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[57] **ABSTRACT**

A door latch operated switch for energizing an electrical appliance, such as a lamp, in response to opening and closing a door, the switch being enclosed in an insulated housing which is fixed to the inside of the wall, adjacent to and somewhat above the position of the door latch when the door is closed. Leads are provided from the switch to a male plug to be connected in a wall outlet and plunger and lever means are utilized to open the switch when the door is closed and the door latch striker is in engagement with the plunger within the conventional latch recess in the door jamb. The male plug is provided with three terminals and a manually operated current flow control switch whereby a lamp, for instance, may be energized only when the door is opened or directly from the house current in a conventional manner.

7 Claims, 4 Drawing Figures



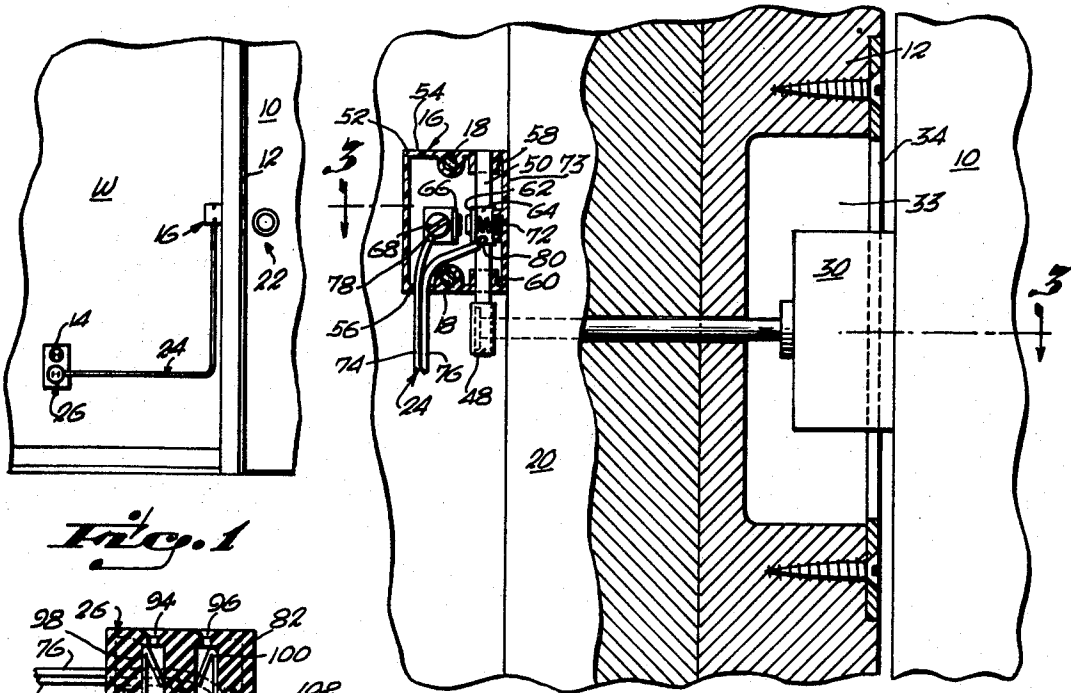


Fig. 1

Fig. 2

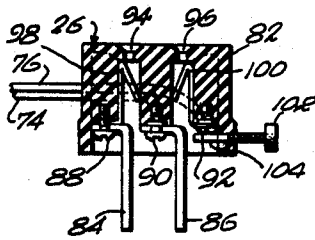


Fig. 4

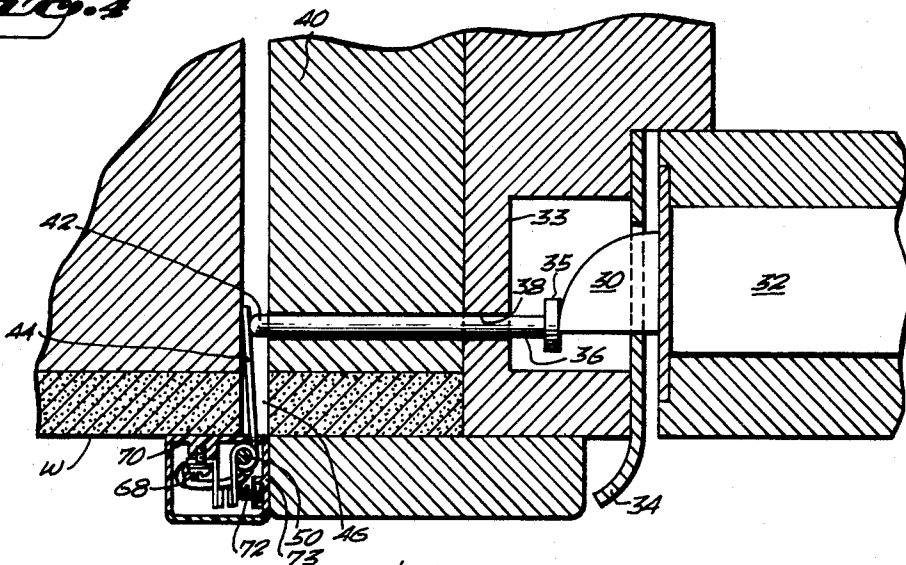


Fig. 3

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DOOR LATCH OPERATED SWITCH UNIT

STATE OF THE PRIOR ART

The present invention is an improvement of the "Three Terminal Electric Outlet With Switch Combined With A Door Latch Operated Switch Unit," U.S. Pat. No. 3,514,557, issued to E. Jette, Jr.

The above-mentioned patent provides a switch unit which is mounted in a second recess inwardly of the conventional latch recess in the door jamb, and provides a switch actuating arm, extending into the latch recess, for engagement by the striker, when the door is closed, to open the contacts, thereby interrupting the current flow through the switch.

While the above-described structure provides a very effective means for lighting a lamp when the door is opened or for energizing any other type of appliance such as a burglar alarm, it is objectionable because of the possibility of wind driven rain entering the recess through the opening between the edge of the door and the door jamb and causing a short circuit.

BACKGROUND OF THE PRESENT INVENTION

The present invention provides a switch unit which is mounted on the inside wall adjacent to and slightly above the latch location in the door to eliminate the possibility of wind driven rain being driven into the switch unit to cause a short circuit.

A plunger rod, providing an enlarged head on its outer end, is slidably received through a horizontal bore which extends inwardly through the back wall of the latch recess. The inner end of the plunger rod contacts a rocker arm which controls a movable switch arm of the switch unit and causes said movable arm to break contact with the opposing pole when the door is closed and the striker is in the latch recess in contact with the enlarged head.

The rocker arm is preferably fixed to a pivot pin, below the switch unit, and the pivot pin extends upwardly therethrough and carries the movable contact arm within the switch unit box in a position to be moved by spring forces into contact with the opposing pole when the striker is withdrawn from contact with the enlarged head of the plunger rod.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a fragmentary elevational view of a door, door jamb, wall and wall plug provided with the instant invention;

FIG. 2 is an enlarged view of the door latch portion of FIG. 1 with portion being sectioned to better illustrate the invention;

FIG. 3 is a sectional view taken along the plane indicated by the line 3—3 in FIG. 2; and

FIG. 4 is a cross sectional view of a three terminal plug unit which includes leads to the switch unit.

DETAILED DESCRIPTION OF THE DRAWINGS

Referring to the drawings, wherein like reference characters designate like or corresponding parts throughout the different views and referring particularly to FIG. 1, a door is indicated generally at 10 in closed relation to a jamb 12 of a door frame. A double wall electrical outlet is illustrated at 14 and the normally closed switch unit 16 is fixed as by screws 18 to

the wall W along the inner edge of the trim strip 20, adjacent to and slightly above the door latch and knob assembly, indicated generally at 22. The switch unit 16 is electrically connected by the conductor 24 to a terminal unit 26 which is illustrated plugged into the wall outlet 14.

With reference to FIGS. 2 and 3, the striker 30 is urged by spring means in the barrel 32 into penetrating relation within the latch recess 33 in the jamb 12 when the door is closed as illustrated. A striker plate 34 is fixed relative to the recess 33 in the usual manner. The striker 30 is then in engagement with an enlarged head 35 of a plunger rod 36 which is slidably engaged in a horizontal bore 38, extending inwardly through the jamb 12 and a framing member 40.

As best illustrated in FIG. 3, the inner end 42 of the plunger rod 36 is in abutting engagement with a rocker arm 44 within a bore or recess 46, inwardly of the framing member 40. The rocker arm 44 extends outwardly, generally at a right angle to the rod 36, and terminates at a point of attachment 48 to a pivot pin 50, inwardly of the wall W and below the switch unit 16.

Referring to FIG. 2, the pivot pin 50 extends upwardly through an insulating box 52 of the switch unit 16 and is rotatably journaled in the upper and lower walls 54 and 56 thereof as at 58 and 60. A movable contact arm 62 is fixed to the pivot pin as at 64 within the box 52 and an opposing contact arm 66 is fixed as by the screw 68 to the back wall 70 of the box 52.

A suitable compression spring 72 is provided between the movable contact arm 62 and the side wall 73 to urge said movable contact arm 62 into engagement with the fixed contact arm 66 when the inwardly directed forces of the striker 30 are removed from the plunger rod 36 as occurs every time the door is opened. Therefore, each time the door is opened, compression spring 72 closes the contacts 62 and 66, pivots the pin 64 to cause relative movement of the rocker arm 44 to move the plunger rod 36 outwardly. Each time the door is closed the striker contacts the head 35 of the rod 36 and the spring forces exerted on the conventional striker 30 overcome the forces of spring 72 and reverse the movements above described to open the contacts 62 and 66.

One end of each insulated wire 74 and 76, comprising the conductor 24, is respectively fixed at 78 and 80 to the fixed and movable contacts 66 and 62 and the other ends of the insulated wires 74 and 76 are connected to the terminal plug unit 26 as illustrated in FIG. 4. The terminal unit includes an insulating body 82 providing a pair of prongs 84 and 86 for reception in the wall outlet 14.

Each of the prongs 84 and 86 is electrically connected to the body at terminals 88 and 90 and a third terminal 92 is also provided in the body 82. The one end of wire 74, as illustrated, is connected to the terminal 90 of prong 86 and the one end of wire 76 is connected to the terminal 92. The terminal 88 of prong 84 is not connected to either of the conductors 84 or 86 of the door latch switch unit 16.

The body 82 includes a pair of sockets 94 and 96 for the reception of the male prongs of a conventional household appliance, a lamp for example. The sockets 94 and 96 are provided with respective electric conductive leaf springs 98 and 100, one end of each being

connected to the respective terminals 88 and 92. When the prongs of the electric plug of a lamp, for example, are inserted in the sockets 94 and 96 when the terminal unit 26 is in the wall outlet 14, house current will flow through the prong 86, conductor 74 through the contact arms 66 and 62 of the switch unit 16, if the door is open, back through conductor 76 to terminal 92, through leaf spring conductor 100, to light the lamp, if the lamp switch is on, and back through leaf spring conductor 98, terminal 88 and prong 84. Therefore, each time the door is closed the circuit is broken and the lamp will automatically light every time the door is opened.

With further reference to FIG. 4, an auxiliary switch 102 is provided which is provided with an inner electric conductive portion 104 for selectively spanning the terminals 90 and 92. When the switch 102 is moved inwardly along the terminal 92 into contact with the prong 86 it short circuits those terminals and renders the door latch switch unit 16 ineffective, thereby constituting an on-off switch for the unit 16. When the terminals 90 and 92 are short circuited a lamp, for instance, connected to the wall outlet 14 through the terminal unit 26 can be used in a conventional manner until the auxiliary switch 102 is moved out of contact with prong 86.

It is thus seen that the instant invention provides a safe, effective and inexpensive way to provide light on entry into a home and for rendering the switch unit 16 ineffective for turning the light off after entry by operating the auxiliary switch 102 before closing the door.

While the preset invention has been generally described relative to the lighting of a lamp on entry into a home, it is obvious that other appliances can be energized in the same manner if desired and another particular application of the invention is to provide an effective means of energizing a burglar alarm.

While a preferred form of the instant invention has been illustrated and described, it will be obvious to those skilled in the art that various changes and modifications can be made therein without departing from the true spirit of the invention as defined in the appended claims.

What is claimed is:

1. A striker actuated electric switch device for use in energizing an electrical appliance, having a male plug, in response to actuating a door relative to a door jamb, said switch device comprising,

A. a switching unit for mounting on the inside of a wall adjacent to the door striker and the striker recess in the door jamb, said switching unit including,

1. an insulating housing providing an internal cavity,
2. a pivot means rotatably journaled in said housing,

3. a fixed switch member in said cavity,

4. a movable switch member fixed to said pivot means for movement, relative to said fixed switch member, between a switch open position and a switch closed position,

5. compression means normally urging said movable switch member to a switch closed position;

B. a plunger rod, slidably engaged in a horizontal bore, extending inwardly through the inner wall of the striker recess, and having,

1. an outer end extending into the striker recess for engagement by the striker when the door is closed, and

2. an inner end disposed in a recess opening through the inside of the wall;

C. a rocker arm having,

1. an outer end fixed to said pivot means,

2. an inner end extending into the wall recess for abutting engagement by said plunger rod inner end whereby said movable switch member is moved to a switch open position by engagement of the striker with said slidable plunger rod outer end when the door is closed and to a switch closed position by said compression means when the door is opened;

D. an electric terminal unit providing,

1. male prongs for engagement in a wall electric outlet,

2. receptacle means for receiving the plug of the appliance;

E. conductor means connecting between said electric terminal unit and said fixed and movable switch members.

2. The device as set forth in claim 1 in which said electric terminal unit includes circuit means and an auxiliary switch to selectively activate said switching unit or permit the appliance to be used in a conventional manner.

3. The device as set forth in claim 1 in which said compression means comprises a compression spring disposed between said movable switch member and a wall of said housing.

4. The device as set forth in claim 1 in which said pivot means comprises an elongated pin extending vertically through said cavity and being journaled in the upper and lower walls of said housing.

5. The device as set forth in claim 4 in which said elongated pin includes a portion extending outwardly below the lower wall of said housing and said rocker arm is fixed to said portion.

6. The device as set forth in claim 1 in which one of said switch members comprises a resilient switch arm normally in engagement with the other of said switch members.

7. The device as set forth in claim 1 in which said plunger rod outer end is provided with an enlarged head for engagement by the striker.

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