(No Model.)

W. E. GOUCHER.

DOOR LOCK SWITCH FOR ELECTRIC LIGHTS.

No. 561,107. Patented June 2, 1896.

Fig. 1.

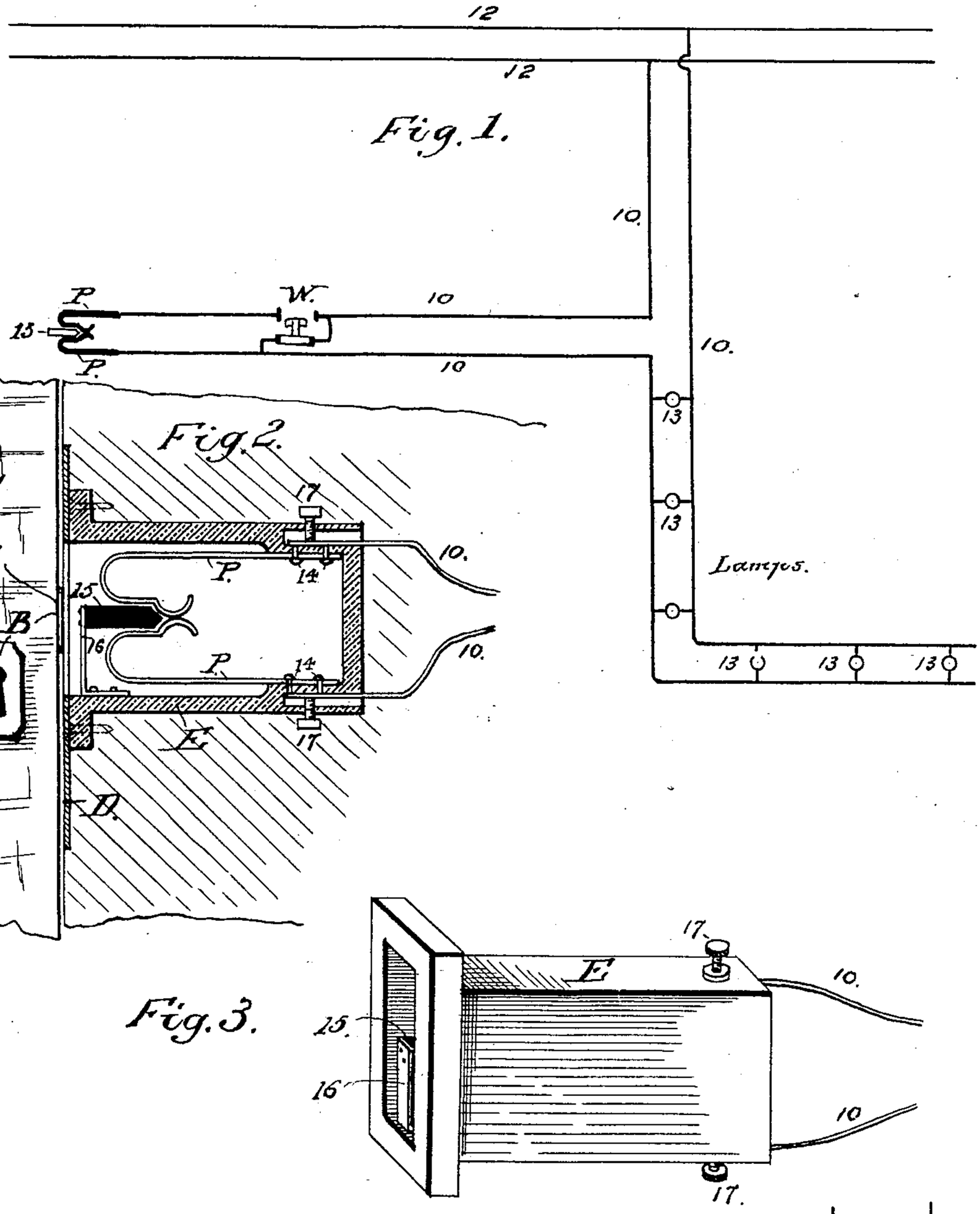
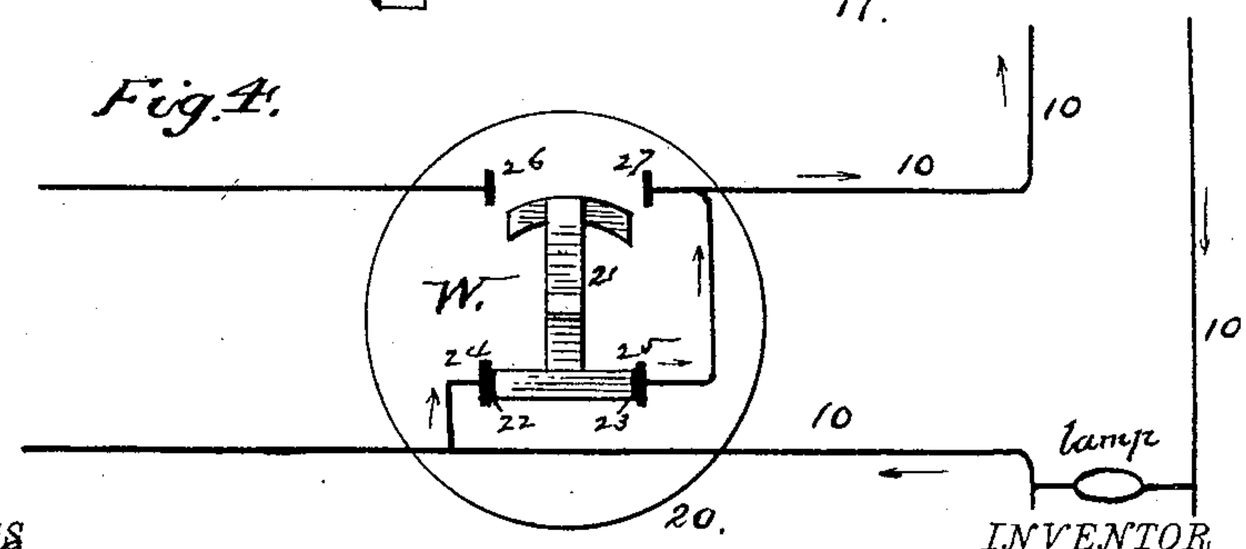


Fig. 3.

Fig. 4.



WITNESSES

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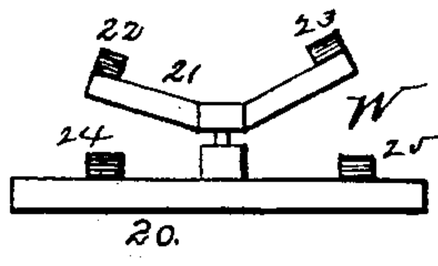
Fig. 5.



INVENTOR

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DOOR-LOCK SWITCH FOR ELECTRIC LIGHTS.

SPECIFICATION forming part of Letters Patent No. 561,107, dated June 2, 1896.

Application filed January 2, 1896. Serial No. 574,006. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM EM. GOUCHER, a citizen of the United States, residing at Jamestown, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Door-Lock Switches for Electric Lights; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to that class of devices for electric-lighting purposes in which a switch is employed and actuated by the shooting of the bolt of the lock so as to break the circuit and extinguish the lights when the door is locked, the circuit being established when the door is unlocked and the lights again caused to burn; and my invention consists of the parts and the construction and combination of parts, which I shall hereinafter fully describe, and specifically point out in the claims.

In the accompanying drawings, Figure 1 is a diagrammatic figure showing the main-line wires, the branch wires, and the switch and cluster of lights introduced into the circuit. Fig. 2 is a sectional view of the door-lock switch, showing its component parts and portions of the door and its casing. Fig. 3 is a perspective view of the switch detached. Figs. 4 and 5 are details of a three-way switch, to be referred to.

Referring now to the drawings for a more detailed explanation of my invention, A represents a door having a lock B of any suitable form, provided with a common form of shooting bolt C. The door-casing has the usual keeper D, and within this preferably is located my improved switch. This switch consists of a box or casing E, preferably of non-conducting material, closed on all sides except the front, which is left open to receive the bolt of the lock and to expose the switch-piece, which is to be located in the path of the bolt and operated by the latter. The rear or inner portion of the box or case is provided with openings to receive the ends of the branch wires 10, which latter are suitably connected to and supplied with an electric current from the main-line wires 12 of the usual street system of electric lighting. In the circuit of the wires 10 are any desired number or clusters of incandescent electric lights 13, and in said circuit the switch is placed so as to control these lights. Inside of the box or case E, and on opposite sides thereof, and secured at one end to the inner portion of the same by screws or pins 14, are two spring-plates P, which extend forward from their points of attachment to near the front or open end of the box and are thence bent toward each other and returned upon themselves for a short distance to provide an open channel for the switch-piece 15, and have their extremities curved in opposite directions and held normally in contact with each other by the resiliency of the plates.

The switch-piece 15 is of non-conducting material and is of wedge shape at its inner extremity. To its outer end is secured one end of a spring arm or standard 16, the opposite end of which is secured to the wall of the box or case. The inner end of the case is provided with openings or recesses into which the ends of the wires 10 are passed, so that they rest upon the metal screws or pins 14, which secure the spring contact-plates in position, and binding-screws 17 are fixed in this end of the box or case to properly secure the ends of said wires.

From the construction and arrangement of parts described it will be seen that as long as the door is unlocked and its bolt retracted the switch-piece will be held out of contact with the spring-plates, and the latter will be in contact to establish a circuit and cause the lights throughout the apartment or house to illuminate the same.

When the door is locked, the bolt is shot forward and, striking the butt-end of the insulated switch-piece 15, drives the switch-piece inward, its wedge-shaped end being forced between and separating the contacting ends of the spring-plates, thereby breaking the circuit and extinguishing the lights.

When the door is unlocked, the switch-piece is simultaneously withdrawn by its spring-arm from between the meeting ends of the spring-plates, thereby permitting these plates to come together and complete a circuit through the wires, switch, and lights.

Although the circuit is complete from the main circuit, yet there will be in practice a

main switch for this main circuit, so that during the daytime no electric current may pass over the wires to the lights. Consequently no light will be emitted until this switch is operated. There will also, preferably, be a switch W let into the house-circuit, so that the lamps may be controlled independent of the locking and unlocking of the door. This is merely a part of the wiring of the house or room and forms no part of the present invention.

By means of this invention there will be a great saving in the amount of current consumed, which is important where a meter is used, as when the occupant leaves the room or house and locks the door the lights will be extinguished, and when he returns and unlocks the door the circuit is at once again established and the lamps lighted, so that when he enters the room or house it will be found fully lighted.

I am aware that it is not broadly new in a door-lock switch to employ a switching-piece pivoted in the keeper and having one end located between the conducting-wires and held normally out of contact therewith, and having the other end adapted to be operated by the door-bolt to close the circuit, and such arrangement I therefore do not broadly claim as my invention. My specific construction has many advantages over such prior forms, and among them may be noted the following: It is much more simple, easier to construct, and more cheaply manufactured. In the arrangement of my contact-springs there is a more extended bearing-surface, and the movement of the switch-piece back and forth keeps the contact-surfaces of the springs bright and clean. My flat springs are superior to coiled springs, as the latter soon weaken and lose their power. If this occurs, the switch-piece used will not come rigidly in engagement with the contacts, thereby producing the liability to sparking and burning out of contacts. In my invention the springs are of such length that they admit of using heavy material and still retain their elasticity. In my case it is by the direct action of the bolt that the contacts are separated and not by the intermediate action of a spring or springs.

My devices are condensed and secured in a small box or case. Consequently there will be less cutting of woodwork in putting the invention in position.

My invention also operates as a single-pole switch, enabling me to use a minimum of wires, and it contains no pivots or bearings to work loose, and there is no necessity for an extra bolt on the door.

The three-way switch W, which is let into the circuit to control the lights independently of the switch-piece 15, is clearly shown in Figs. 4 and 5, and it includes a base 20 and a rocking-arm 21, provided with contacts 22 23, adapted to engage with contacts 24 25 and 26 27 on the base. By turning the switch-handle (not shown) the rocking-arm is caused to move from the position shown in Fig. 4, with the contacts 22 23 between the contacts 24 25, into a second position to bring the contacts 22 23 between the other contacts 26 27, so as to complete the circuit through the switch-piece 15 and its adjuncts.

The arrows show the course of the current when the door-switch is out of the circuit and the lights independently controlled.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a door-lock switch for electric lights, the combination, of a box or case to be secured in the door-frame and having one end open in line with the lock-bolt, spring-plates secured at one end within the box or case and thence extending forward and returned upon themselves, with their extremities normally in contact, an insulated switch-piece lying in the path of the lock-bolt and having its inner end beveled and adapted to be forced lineally between the contacting ends of the springs when the bolt is projected on locking the door, a spring arm or standard carrying the switch-piece, connections between the switch devices and main-line wires and lights in the circuit to be controlled by the movement of the door-bolt.

2. In a door-lock switch for electric lights, the combination, of a box or case of insulated material adapted to be secured in the door-casing opposite the lock, having its outer end open and its inner end adapted to receive the circuit-wires, spring-plates arranged on opposite inner sides of the box or case and thence extended forward and returned upon themselves and having their extremities curved in opposite directions, and brought normally together, wires leading to the inner end of the box or case and held in contact with the screws or pins which secure the springs, a spring arm or standard at the open end of the box or case, a switch-piece of insulated material secured to and projecting at right angles from the upper end of the spring-arm, having its inner end beveled and adapted to be forced between and to separate the contacts by the lock-bolt striking its butt-end, when the bolt is shot forward, and incandescent lights in the circuit, to be extinguished and lighted by the operation of the bolt and switch-piece.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM EM. GOUCHER.

Witnesses:

WILLIS O. BENEDICT,

CHAS. W. HERRICK.