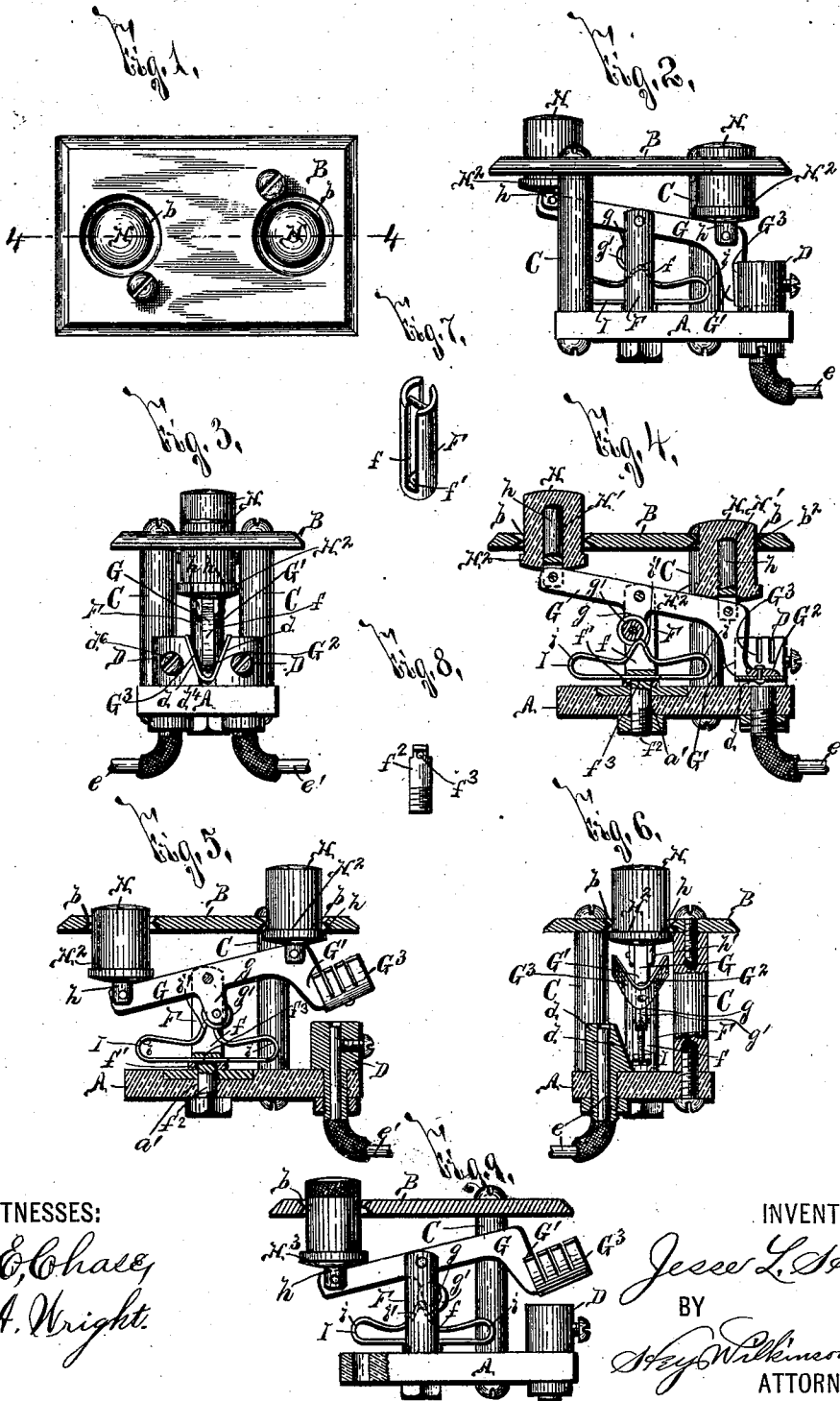


(No Model.)

J. L. HINDS.
ELECTRIC SWITCH.

No. 512,614.

Patented Jan. 9, 1894.



WITNESSES:

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JESSE L. HINDS, OF SYRACUSE, NEW YORK.

ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 512,614, dated January 9, 1894.

Application filed May 16, 1892. Serial No. 433,081. (No model.)

To all whom it may concern:

Be it known that I, JESSE L. HINDS, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Electric Switches, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to electric switches or circuit breakers, and has for its object the production of a simple and effective device of practical and economical construction; and to this end it consists, essentially, in a base plate provided with the terminals of an electric circuit and a projecting standard, a lever hinged to the standard and provided with an arm extending toward the base plate and carrying contact faces adapted to engage the terminals on the base plate, a face plate disposed in a plane substantially parallel to that of the base plate and formed with openings therethrough, push buttons having one extremity movable in the openings in the base plate and the other loosely mounted on supports hinged to the opposite ends of the lever, and a spring for engaging said lever and rocking the same on its pivot.

The invention furthermore consists in the detail construction and arrangement of the parts, all as hereinafter more particularly described and pointed out in the claims.

In describing this invention, reference is had to the accompanying drawings, forming a part of this specification, in which, like letters indicate corresponding parts in all the views.

Figures 1 and 2 are respectively top plan or face view, and side elevation of my improved switch. Fig. 3 is an end view of the parts as shown at Fig. 1. Fig. 4 is a longitudinal vertical sectional view, taken on line —4—4—, Fig. 1, the parts being shown as in their position assumed when the circuit is closed. Fig. 5 is a longitudinal sectional view similar to Fig. 4, with the exception that the parts are shown in their position assumed when the circuit is broken, and the push buttons and contact plate on the pivoted lever are shown in elevation. Fig. 6 is an end view, partly in section, of my switch, the parts being shown in the same position as at Fig. 5. Figs. 7 and 8 are respectively isometric per-

spectives of the detached standard on the base plate, and the screw for securing the standard in position, and Fig. 9 is a detached sectional view, partly in elevation, of a slightly modified form of my invention.

As usually constructed switches project from the wall of the room in which they are secured, and, even though formed of superior material and workmanship, they do not present an ornamental or pleasing appearance, and the finish of said wall is considerably deteriorated.

In my present invention the switch is mounted in a recess in its supporting wall, is concealed by a face plate, which may correspond in finish to that of the wall, and its parts are few and simple, and of such practical construction that the cost of the switch is but trifling and its operation certain, effective, and durable.

The base plate —A— is formed of porcelain or other suitable non-electric conducting material, and consists preferably of a flat plate.

The face plate —B— is disposed in a plane substantially parallel to that of the base plate —A—, and is preferably of greater length and width than the base plate for entirely covering the recess in which the parts of the switch, with the exception of the base plate and push buttons, presently described, are concealed.

At Fig. 1 I have shown the face plate in face view, and it will be readily apparent that the same may be suitably finished or ornamented to correspond with the finish of the wall to which it is secured, although I have here shown the same as having a plain outer face.

The base and face plates —A— and —B— are separated a suitable distance from each other by means of supports or bars —C—C— secured in position by screws, Figs. 1, 2, 3, and 6, having their heads engaged with the base and face plates and their shanks with the supports. This construction of base and face plates —A— and —B— and supports —C— produces a very strong and durable frame, the parts of which are economically manufactured and assembled.

—D—D— represent the terminals of an electric circuit, which are secured to the base plate —A—, and are composed of heads

projecting upwardly from the inner face of the base plate and provided on their adjacent sides with upwardly inclining engaging faces, and screw threaded shanks passed through the base plate —A— and held in position by nuts on the outer face of the base plate. The terminals —D—D— are formed with central chambers for receiving the ends of the wires —e—e'— and are provided with screws suitable for securing the wires in position.

Projecting upwardly from the base plate —A— is a standard —F— having its upper extremity split by a slot —f— extending from a point in proximity to its base through its extreme upper end. The base of the standard —F— rests upon a suitable washer and is provided with an opening —f'— through which is movable a screw —f²— having its head provided with a shoulder bearing upon a shoulder of the standard —F— and its shank passed through the opening —f'— and an opening in the base plate and provided with a suitable tightening nut for firmly securing the standard in position. It will be evident, however, that this standard may be otherwise constructed, as, for instance, it may be provided with an integral shank secured to the base, but the described construction is particularly simple, economical in manufacture, and durable and practical in use, and serves also as a simple means of securement for the spring —I— presently described.

The switch lever —G— is pivoted at its central portion by a suitable pivot to the upper end of the standard —F—, and is preferably mounted within the slot —f— and provided with a central substantially right angular arm —g— mounted in the slot —f— and extending toward the base plate. At one extremity of the lever —G— is a downwardly extending arm —G'— provided with a laterally extending foot —G²— movable in a vertical plane midway between the engaging faces —d—d— of the terminals —D—D—. Secured to this foot —G²— is the central portion of a contact plate —G³— preferably formed of spring material, its opposite extremities being free to yield and provided with longitudinal slots and with outer engaging faces adapted to make contact with the terminals —D—D— as the foot —G²— is rocked downwardly between the terminals.

The lever —G— is rocked to open and break the circuit by means of push buttons —H— having their outer ends movable through openings —b—b— in the opposite extremities of the face plate —B— and their inner ends suitably connected to said lever.

As preferably constructed the push buttons —H— are formed of hard rubber or other non-electric conducting material, and are loosely mounted upon supports —h— hinged at their inner ends to the opposite extremities of the lever —G— and having their outer ends mounted in sockets —H'— in the push buttons. For facilitating manufacture, the push

buttons are loosely and removably mounted upon their supports —h—h—, thus obviating the expense of securing the same thereto, and, in order that they may be firmly held in operative position the push buttons are of sufficient length, so that when the parts of the switch are assembled, the upper end of the depressed button, as seen at Figs. 2, 4, and 5, projects above the lower or inner face of the faceplate —B—, and they are provided on their inner ends with stop shoulders —H²— H²— adapted to engage the inner face of the face plate —B—. As readily seen at Figs. 1, 4, 5, and 6 the openings —b— are formed with countersunk extremities for adding to the appearance of the switch and permitting a slight lateral movement of the push buttons as the switch lever —G— is rocked. It will be evident that, as thus described, the movement of the switch lever —G— is effected solely by the push buttons —H—H—, and that this movement would, in breaking and closing the circuit, be too slow to obviate fusing of the contact surfaces, and to prevent this result I provide a spring —I—, which is preferably of peculiar construction. This spring is best seen at Figs. 2, 4, and 5, and consists of a bar having its opposite extremities passed through an opening —f³— in the head of the screw —f²— for securing the standard —F— in position. The central portion of the spring is formed into the loops —i—i— extending laterally from the head of the screw —f²— and is provided with an upwardly extending central arm —i'— having a somewhat pointed or inverted-V-shaped arm adapted to bear against the engaging face of the downwardly extending arm —g— of the lever —G—. As preferably constructed this engaging face consists of an anti-friction roller —g'— journaled upon the extreme end of the arm —g—.

It will readily be understood that, when the lever —G— is in a horizontal position, the roller —g'— rests directly on the extreme end of the spring —I—, and the instant the lever is rocked in either direction the spring arm passes to either side of the roller —g'— and quickly forces said roller at either side of a perpendicular to the pivot point of the lever —G— thus rocking said lever and serving to break and close the circuit. This form of spring is very simple, is readily stamped to the desired form, is quickly assembled at the same time the standard —F— is secured to the base plate —A—, and is also capable of quick and efficient action.

At Fig. 9 I have shown a modified form of my invention in which but one push button is used for rocking the lever —G—. In this case, however, the push button is rigidly secured to its support —h—, and is of slightly greater length than the push buttons, previously illustrated, in order that its outer end may be engaged for pulling the same outwardly to rock the lever —G— into position to open the circuit.

In assembling my invention the terminals —D—D— are secured to the base plate, the standard —F—, and the spring —I— are then placed in position, the lever —G— is provided with the plate —G²—, the supports —h—h— are pivoted to the standard —F—, and the push buttons are then placed in position, and passed through the face plate, which is then firmly secured to the supports —C—.

The operation of my invention will be readily perceived from the foregoing description and upon reference to the drawings, and it will be particularly noted that, as previously stated, the same is simple, practical, effective, and economically constructed.

It is evident that the construction of the detail parts of my invention may be somewhat varied from that shown and described in the drawings; hence I do not herein limit myself to such exact detail construction.

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

1. In an electric switch, the combination of a base plate provided with a pair of terminals, a lever having contact faces adapted to engage said terminals, supports hinged to the lever, and push buttons removably mounted on said supports, substantially as and for the purpose described.

2. In an electric switch, the combination with the terminals of an electric circuit; of a lever carrying contact faces adapted to make contact with the terminals, supports hinged to the lever, a face plate having an opening therethrough, and push buttons having one end movable through the opening in the face plate and the other removably mounted on said supports, and provided with a stop shoulder adapted to encounter the inner face of the face plate, substantially as and for the purpose specified.

3. In an electric switch, the combination with the terminals of an electric circuit; of a lever carrying contact faces adapted to make contact with the terminals, a face plate having an opening therethrough, supports hinged to the lever, and push buttons having one end movable through the opening in the face plate and the other loosely and removably mounted on the supports and provided with a stop shoulder adapted to encounter the inner face of the stop plate, substantially as and for the purpose described.

4. In an electric switch, the combination with the terminals of an electric circuit; of a lever carrying contact faces adapted to make contact with the terminals, supports at the opposite extremities of said lever having their inner ends hinged thereto, a face plate having a pair of openings therethrough, and push buttons having one extremity movable through said openings and the other removably mounted on the outer ends of the supports, substantially as described.

5. In an electric switch, the combination of

a base plate having a projecting standard, terminals supported upon the base plate, a lever pivoted to the projecting standard and provided with a plate G³ having spring arms adapted to engage the terminals, supports hinged to the lever, and push buttons loosely mounted on said supports, substantially as and for the purpose set forth.

6. In an electric switch, the combination of a base plate having a projecting standard, terminals supported upon the base plate, a lever pivoted to the projecting standard and provided with faces adapted to engage the terminals, a face plate separated from the base plate and disposed in a plane substantially parallel therewith and provided with an opening, having a countersunk outer end and a push button having one end movable through the opening in the face plate and the other flexibly connected to said lever, substantially as specified.

7. In an electric switch, the combination with a base plate and the terminals of an electric circuit supported on the base plate; of a pivoted lever separated from the base plate and supported thereon and having an arm projecting toward said base plate, a foot extending laterally from the end of said arm adjacent to the base plate, a pair of contact faces carried by said foot, and a push button connected to the lever, substantially as set forth.

8. In an electric switch, the combination of a base plate, a pair of terminals or contact faces projecting upwardly from the base plate and formed with inclined engaging faces on their adjacent sides; of a pivoted lever, separated from the base plate and supported thereon and having an arm projecting toward said base plate inclined spring arms secured to said lever for making contact with said faces, and push buttons connected to the opposite extremities of said lever for rocking the same, substantially as described.

9. In an electric switch, the combination with a base plate, the terminals of an electric circuit supported on the base plate; of a pivoted lever separate from the base plate and supported thereon and carrying contact faces adapted to engage said terminals, said lever being provided with an arm extending toward the base plate and having a spring engaging face, a spring arm supported on the base plate and arranged opposite to said pivot and adapted to throw the spring engaging faces on opposite sides of a perpendicular to the pivot of the lever, and a push button connected to rock said lever, substantially as and for the purpose specified.

10. In an electric switch, the combination with a base plate, the terminals of an electric circuit supported on the base plate; of a pivoted lever separate from the base plate and supported thereon and carrying contact faces adapted to engage said terminals, said lever being provided with an arm extending toward the base plate, a roller journaled in the free

end of said arm, a spring arm adapted to engage the roller and rock said lever on opposite sides of a perpendicular to the pivot of the lever, and a push button connected to rock said lever, substantially as and for the purpose described.

11. In an electric switch, the combination with a base plate and the terminals of an electric circuit; of a pivoted lever carrying contact faces adapted to engage said terminals, a roller journaled on said lever at one side of its pivot, a spring having its base secured to the base plate and formed with end loops —i—i— and a central spring arm adapted to engage the roller and rock said lever on opposite sides of a perpendicular to the pivot of the lever, and a push button connected to rock said lever, substantially as specified.

12. In an electric switch, the combination with a base plate and the terminals of an electric switch; of a split standard rising from the base plate, a lever pivoted to the standard and formed with a downwardly projecting arm movable between the sections of the standard and provided with a roller, push buttons connected to the opposite extremities of said lever for rocking the same, and a spring having its base secured to the base plate provided with an upper spring bar having its central portion formed with an upwardly extending arm adapted to engage the roller, substantially as and for the purpose specified.

13. In an electric switch, the combination with a base plate provided with an opening therein, a pair of terminals supported on the base plate, a standard projecting from the

base plate and provided with a slot in its upper end, an opening in its lower end, a retaining screw having one end passed through the opening in the standard and provided with a shoulder engaged therewith and having its other end secured to the base plate, a lever mounted in said slot in the standard and provided with engaging faces for making contact with the terminals, supportshinged at one end to said lever, and push buttons loosely mounted on the other end of said supports, substantially as and for the purpose specified.

14. In an electric switch, the combination of a base plate provided with an opening therein, a pair of terminals supported on the base plate, a standard projecting from the base plate, a retaining screw having one end provided with a shoulder engaged with a standard and formed with an opening therein and having its other end secured to the base plate, a lever hinged to the standard and provided with engaging faces for making contact with said terminals, and a spring passed through the opening in said retaining screw and formed with an arm for rocking said lever, substantially as and for the purpose described.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 31st day of March, 1892.

JESSE L. HINDS.

Witnesses:

CLARK H. NORTON,
E. A. WEISBURG.