No. 808,392. PATENTED DEC. 26, 1905.

W. W. LATHROP.

ELECTRIC SWITCH.

APPLICATION FILED AUG. 31, 1904.

Fig. 1.

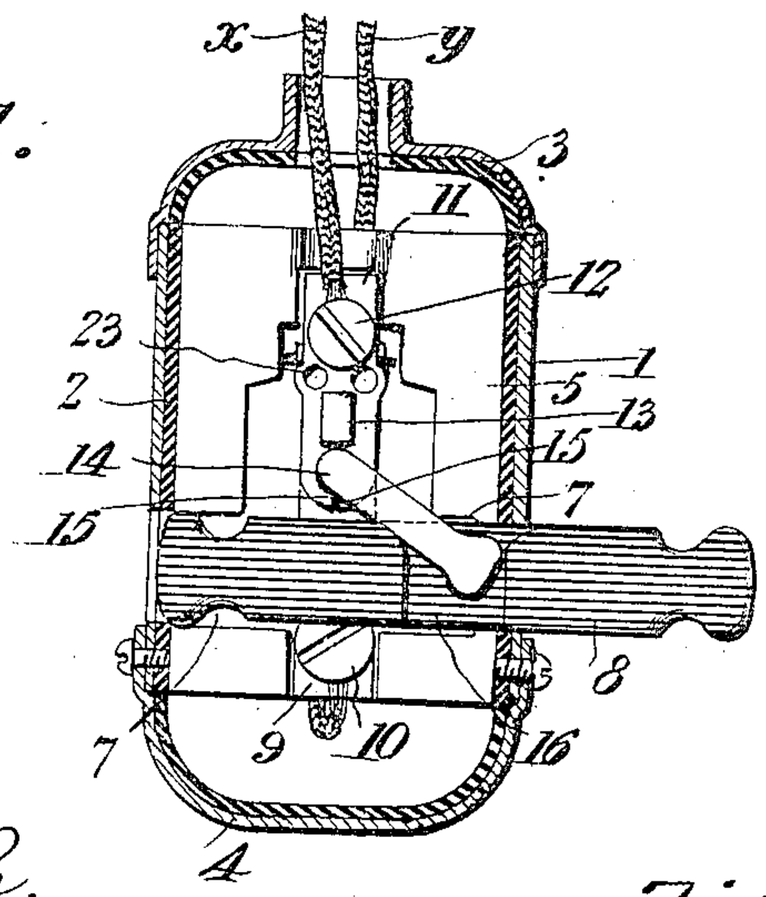


Fig. 2.

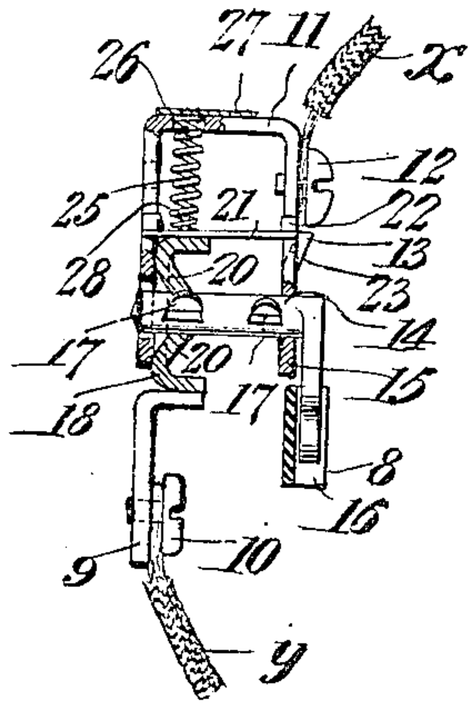


Fig. 3.

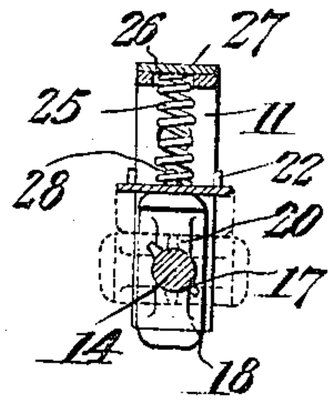
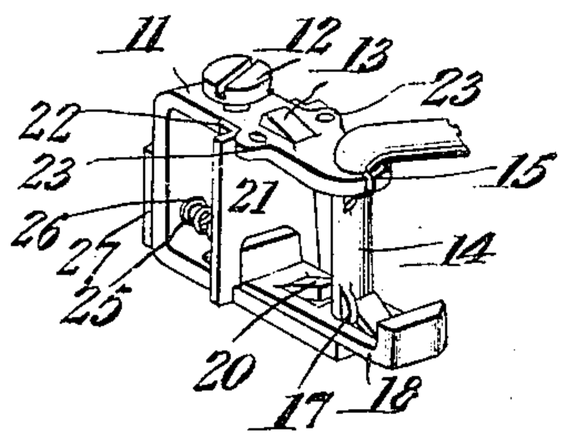


Fig. 4.



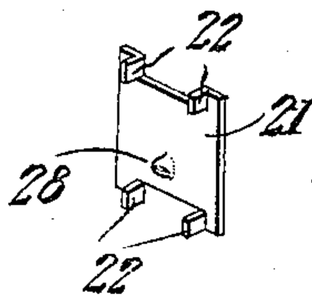


Fig. 5.

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UNITED STATES PATENT OFFICE.

WILLIAM WEBB LATHROP, OF BRIDGEPORT, CONNECTICUT.

ELECTRIC SWITCH.

No. 808,392. Specification of Letters Patent. Patented Dec. 26, 1905.

Application filed August 31, 1904. Serial No. 222,870.

To all whom it may concern:

Be it known that I, WILLIAM WEBB LATHROP, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented a new and useful Electric Switch, of which the following is a specification.

This invention relates to electric switches, and has for its principal object to provide a switch of simple and economical construction and one wherein perfect contact of the terminals will be assured.

A further object of the invention is to provide a device of this character in which the various parts of the mechanism may be made from material bought in open market without the necessity of employing expensive dies or tools for the formation of blanks prior to the forming and other operations.

A still further object of the invention is to provide a switching device which may be used either as a pendent switch or as a wall-switch without change except in the arrangement of one of the end caps.

With these and other objects in view the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, and size or minor details of the construction may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a sectional elevation of an electric-switch construction in accordance with the invention. Fig. 2 is a longitudinal sectional view of the same, parts being shown in elevation, all of the porcelain support of the casing being omitted. Fig. 3 is a detail sectional view illustrating the two positions of the movable switch member. Fig. 4 is a detail perspective view of one of the terminals and the movable switch member. Fig. 5 is a similar view of the spring-pressed plate employed for assisting the movement of the switch member.

Similar characters of reference indicate corresponding parts throughout the several figures of the drawings.

The operative parts of the switch are inclosed in a suitable casing 1, generally cylindrical in form and having a lining 2 of vulcanized fiber or suitable insulating material. At one end of the casing is a cap 3, having an opening for the passage of the current-conducting wires *x y*, and the opposite end may be closed by a similar cap or by a plain cap 4, the latter being used when the device is employed as a pendent switch. Within the casing is a block 5, usually formed of porcelain and having a recess for the reception of metallic parts of the switch, and said block is further provided with a transverse groove 7 for the reception of a transversely-disposed finger-bar 8, which may be formed of rubber or similar material, said bar extending out through suitable openings in the casing in convenient position to be grasped and pushed or pulled in either direction for the purpose of operating the switch.

Within the recess in the block is secured a terminal 9 in the form of a small strip of brass or other metal, having one end bent up at a right angle to the base, and said base has an opening for the reception of a screw 10, to which one of the current-conducting wires is attached. The block further supports a U-shaped terminal 11, also formed of any suitable metal, and the upper portion of the strip has a threaded opening for the reception of a binding-screw 12, employed for securing the other current-conducting wire. At a point adjacent to the binding-screw 12 the metal is struck up to form a small lug 13, which will assist in holding the wire in place. In both the upper and lower portions of the terminal 11 are openings for the reception of a small spindle 14, the lower opening being formed by a simple punching operation, while the upper opening is formed by cutting away the metal in such manner as to form two arms 15, between which the upper end of the spindle is passed. The two arms are then clamped together in order to prevent the displacement of the spindle.

The spindle 14 is formed of a small rod, one portion of which is bent at a right angle to the body portion and constitutes an arm that fits within a suitable slot or recess 16, formed in the operating rod or bar 8. In the die-forming operation the metal of the spindle is spread outward to form two pairs of laterally-projecting wings 17, that will prevent longitudinal movement of said spindle. The lower or inner end of the spindle passes through an opening formed in a movable switch member 18, formed of an approximately U-shaped metallic strip, the end wings of which form the active contact-faces of the switch, and both of said wings have slightly-rounded shoulders or edges to facilitate movement

from one position to the other. The opposite walls of the spindle-receiving opening in the switch 18 are struck up to form a pair of approximately parallel shoulders 20, to be engaged by the wings 17 of the spindle, and when the latter is turned the wings will engage with these shoulders and shift the position of the switch member 18.

The terminal 11 serves as a guide and partly as a support for a small metallic plate 21, the upper and lower end portions of which are cut away for the reception of the upper and lower parallel arms of the terminal 11. To further assist in guiding the plate, the latter is provided with rearwardly-projecting ears 22, which engage against the sides of the parallel arms of the terminals 11 and serve at all times to hold the plate in proper position. The upper end of the plate is held from movement in the direction of the spindle by a pair of ears 23, projecting outward from the sides of the terminal 11, these being formed by displacing a small portion of the metal of which the terminal is formed during the forming operation. Between the plate 21 and the crossbar of the terminal 11 extends a small compression-spring 25, one end of which fits in an opening 26, formed in the terminal, and bears against a small plate 27, that closes the rearward end of the opening. The opposite end of the spring is held in place by a small nut or projection 28, formed in the plate 21 during the forming operation.

In using the switch the finger-bar is moved longitudinally, and said movement is transmitted through the spindle to the switch member 18, the latter being moved into or out of contact with the terminal 9, and thus making or breaking the circuit. To insure good electrical contact, the lower or inner spindle-guiding opening of the terminal 11 is somewhat elongated to permit freedom of movement of the switch member 18, while the movable spring-pressed plate 21, acting on the curved edge or shoulder of the switch, insures rapid movement of the latter and an abrupt breaking of the circuit.

Having thus described the invention, what is claimed is—

1. The combination in an electric switch, of a terminal comprising a substantially U-shaped strip, one end of which is cut away to form a slot for the reception of a spindle, and the spaced side members between which the slot is formed being bendable to form a bearing for said spindle and permit the ready insertion and removal of the same, the opposite end of the strip being provided with an elongated opening forming a loose bearing for said spindle, and a spindle arranged in the two bearing-openings, a loosely-mounted switch member, ears or wings carried by the spindle for engaging said switch member, and a second member with which said switch member engages.

2. In an electric switch, a casing having a pair of guiding-slots, an operating-bar extending therethrough and having a transverse slot extending from edge to edge thereof, a movable switch member, a spindle carrying said switch member, and a radial arm extending from the spindle, said arm having a rounded head engaging in said slot.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM WEBB LATHROP.

Witnesses:

H. F. NORCROSS,

I. F. LEWIS.