

No. 626,918.

Patented June 13, 1899.

P. MEDARY.
ELECTRICAL SWITCH.
 (Application filed Sept. 2, 1898.)

(No Model.)

Fig. 1.

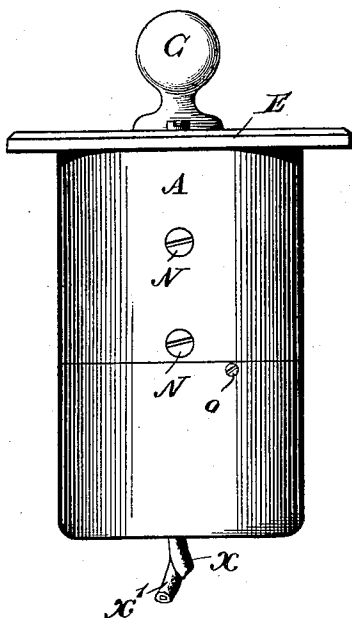


Fig. 2.

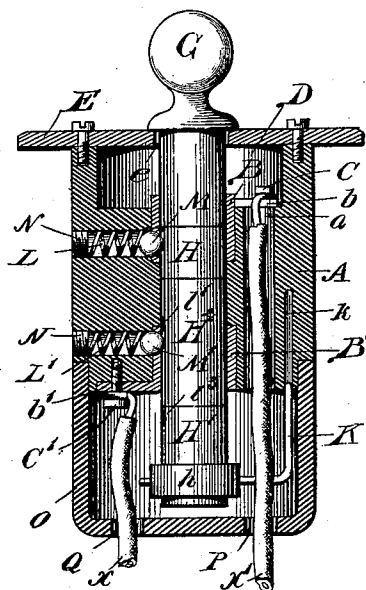


Fig. 4.

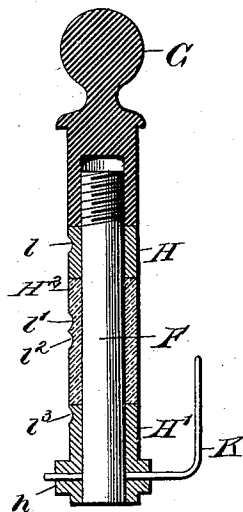
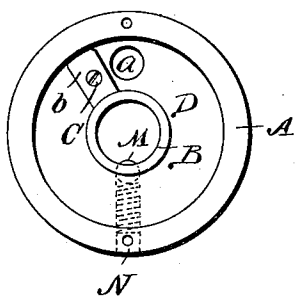


Fig. 3.



Witnesses
 C. Bradway.
 Chas. Z. Barker

Inventor
 Paul Medary.
 by R. S. Macie
 Attorney

UNITED STATES PATENT OFFICE.

PAUL MEDARY, OF CYNWYD, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO
VINCENT A. CLARKE, OF PHILADELPHIA, PENNSYLVANIA.

ELECTRICAL SWITCH.

SPECIFICATION forming part of Letters Patent No. 626,918, dated June 13, 1899.

Application filed September 2, 1898. Serial No. 690,132. (No model.)

To all whom it may concern:

Be it known that I, PAUL MEDARY, a citizen of the United States, residing at Cynwyd, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Electrical Switches; 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 improvements in electrical switches designed more particularly for use in connection with circuits for incandescent lights; and the invention is embodied in the construction and arrangement of parts hereinafter described, and defined in the claims.

It is a well-known fact that there are many defects found to exist in and objections to the well-known form of "push-button" for making or breaking a circuit, and the same may be said to be true with relation to the "turn-button" type of switch. In the former type a complicated mechanism and spring-actuated members are necessary, the complicated nature of the mechanism and use of the spring often resulting in the displacement of the parts as well as the wearing out or breaking of some of the connections. In the turn-button type it is sometimes found that persons not entirely familiar with the same will endeavor to turn on the light by turning the button in the wrong direction, and, further, that the necessity of turning the lights out by a continuous turning of the button or handle is quite perplexing to certain individuals who have originally been used to the turning on of gas, which requires a reverse movement to extinguish the light.

My invention is designed to overcome the difficulties and objections existing in the present-known devices, and it may be stated as consisting generally in a switch of that type wherein the making and breaking of a circuit are accomplished by a direct in-and-out pull of the movable member.

A further object of the invention is the production of a very simple switch which will embody the fewest possible number of mov-

ing parts, resulting in simplicity of construction and durability.

The objects of the invention are accomplished by a construction as illustrated in the accompanying drawings, wherein—

Figure 1 is an elevation of the improved switch. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a plan view with the cap-plate removed. Fig. 4 is a longitudinal section of the push-rod and its associated collars, showing the rod in elevation.

The construction shown in the drawings has by actual test been found to be eminently satisfactory. It is to be understood, however, that the invention is not necessarily limited to the exact construction shown, for it is evident that changes in arrangement, proportion, and details can be made without departing from the nature and principle of the invention.

A designates a supporting-block, of insulating material, formed with a central longitudinal bore having enlargements at its opposite ends, in which are inserted and secured in any convenient manner electrical terminals B B', conveniently of brass or other suitable material. These terminals are preferably of uniform length, and their interior diameter corresponds with the diameter of the bore of the block, thereby forming a continuous bore through the block and terminals, which is of uniform diameter throughout. Each terminal has an offset *b b'* conveniently arranged in opposite directions relative to each other and each provided with binding-posts or screws C C'. The upper portion of the block is chambered, as at D, in which the offset and binding-posts at the upper or outer end are located.

E designates a metallic cap-plate spanning the chambered end of the block and having a central opening *e*, through which the push or switch rod passes.

The block A is conveniently of cylindrical formation, although any formation desirable may be employed, and the same is formed with an eccentrically-arranged longitudinal channel *a*, conveniently located adjacent to the offset *b* of the terminal B, for purposes presently to be stated.

The pushing or switch rod is of the following formations: F designates a metallic pin or stem having a threaded upper or outer end, on which is placed an insulated handpiece
 5 G. H and H' are metallic bushings arranged, respectively, on the opposite ends of the pin F, while H² is an insulated bushing or sleeve, conveniently of porcelain, interposed between the metallic bushings. The bushings and insulated sleeve are held on the pin F in any
 10 convenient manner, conveniently by the end of the handpiece and the pin K, passing through the transverse opening in the inner end of the bushing H' and stem F. This pin
 15 K is bent outwardly parallel with the stem and is adapted to enter the pocket k formed in the block, and thereby serves to prevent the rotation of the push-rod. To limit the outward movement of the push-rod, I conveniently form an enlargement or shoulder
 20 h on the inner end of the bushing H'. This shoulder is designed to come in contact with the terminal B' when the push-rod is drawn out to its full extent. The inward movement
 25 of the push-rod is limited by a shoulder formed on the handpiece, as shown, the same engaging the cap-plate. In switches of this nature it is expedient and desirable to have some means of indicating that the rod has
 30 been moved to the proper point, and it is also necessary that a close contact between the metallic surfaces should be had when the circuit is formed. To provide for this, I have formed, conveniently, pockets in the metallic
 35 bushings and in the insulated sleeve. The pockets in the sleeve are arranged in close proximity to each other, and the distance from the pocket l to the pocket l² is the same as the distance from the pocket l' to the
 40 pocket l³.

The block A is formed with two transverse chambers, in which are placed coil-springs L and L', the inner ends resting against the metallic balls M and M', which project partly
 45 through circular perforations formed in the terminals B and B', the diameter of these perforations being less than the diameter of the balls, whereby the balls are prevented from being pushed through the openings in case the
 50 push-rod is removed.

To retain the springs in their position in the chamber and vary the tension thereof, the insulated screw-plugs N are threaded in the outer ends of the spring-containing chambers.
 55 bers.

The terminal B is of a length somewhat greater than the length of the metallic bushing H, while the terminal B' is substantially the length of the metallic bushing H', and the bushings are so located on the rod or stem that the bushing H will at all times be in contact or located within the terminal B, while the bushing H' is at all times out of contact with the terminal B' until the push-rod is
 60 drawn out, thereby drawing the bushing H' into the hollow terminal B'. This movement of the push-rod carries the bushing H into

the upper portion of the terminal B, thereby forming or completing the circuit through the metal stem.

The spring-pressed balls, it will be noticed, at all times press against the bushings and insulated collar and are so located relative to each other that when the push-rod is forced in one of the balls will be located in the pocket in the bushing H, while the other will be located in the pocket l² of the sleeve, and when the rod is pulled out the balls will occupy the pockets l' and l³. As the balls are forced into the pockets there is an audible and perceptible click and a marked increased resistance, indicating that the rod has been adjusted to the proper point. This, as has been stated, is very desirable in this class of switches.

The constant pressure of the spring on the balls is sufficient to at all times force the bushings and sleeve into close contact with the terminals, thereby taking up any wear which may occur after long use.

O designates a cap fitted on the inner end of the block conveniently by screws o. This cap has two openings P and Q, through which wires X X' pass. The former is attached to the binding-post of the terminal B', while the latter is carried up through the channel a and is attached to the binding-post of the terminal B. It will be noticed that the rotation of the switch-rod is prevented in a manner, as above stated, thereby holding the pockets in their proper position relative to the balls. This is also useful, inasmuch as it serves to indicate that the switch is not a "turn-switch," thus avoiding confusion.

It is thought that from the above description the operation of the switch will be readily understood. I would have it understood that I do not limit myself to the pocket construction described and shown, as obviously other arrangements as grooves or projections could be employed.

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

1. In an electrical switch of the character described, the combination with an insulating-block having fixed terminals spaced apart and secured thereto, and a longitudinal bore of a reciprocating switch-rod having metal sections spaced apart and an interposed insulating-section, a chamber formed at the outer end of the block, a longitudinal channel formed in the block and conductors, one of which passes through said channel and is connected with the outer terminal, the other of which is connected with the inner terminal, substantially as described.

2. In a switch of the character described, the combination with an insulating-block, of hollow terminals secured at the opposite ends of the block, conductors connected respectively with the terminals, a reciprocating push-rod passing through the block and terminals and having on its opposite end metal

lie bushings and an interposed insulating-sleeve, and yielding means carried by the block independent of the push-rod for forcing the push-rod firmly against the terminals, substantially as described.

3. In a switch of the character described, the combination with an insulating-block, of a reciprocating push-rod located therein, having metallic contact-surfaces and insulating-section interposed between same, each formed with depressions, spring-pressed members secured in the block arranged to engage in said depressions and terminals carried by the block with which the insulating and metallic sections of the push-rod engage, substantially as described.

4. In an electrical switch, the combination with an insulating-block having terminals thereon, of a push-rod passing through the block and having metallic surfaces thereon one of which is in constant engagement with one terminal while the other is arranged to

engage the other terminal only when the rod is moved outward, spring-pressed holding devices engaging depressions in the metallic surfaces, and means on the rod for preventing rotation of the same, substantially as described.

5. In an electrical switch, the combination with an insulating-block having hollow terminals at the opposite ends, of a reciprocating push-rod passing through the block and terminals having metallic bushings thereon and an interposed insulating-sleeve each formed with pockets in their outer faces, and spring-pressed balls secured in the terminals and arranged to engage in the pockets.

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

PAUL MEDARY.

Witnesses:

CHATTIN BRADWAY,
L. S. BACON.