No. 626,919. Patented June 13, 1899.

# P. MEDARY.

## ELECTRICAL SWITCH.

(Application filed Nov. 30, 1898.)

(No Model.)

Fig. 1.

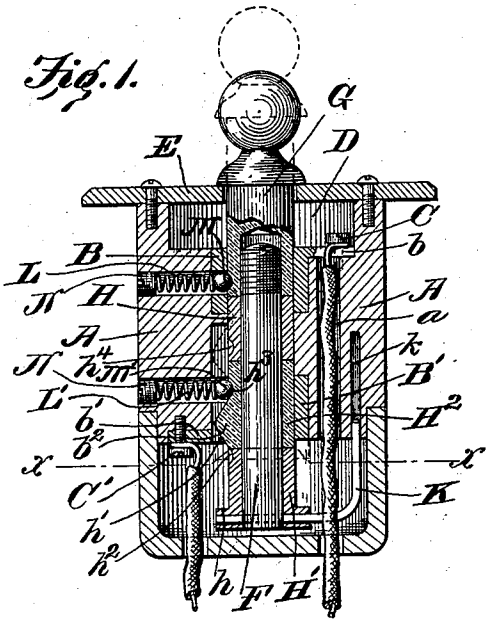



Fig. 2.

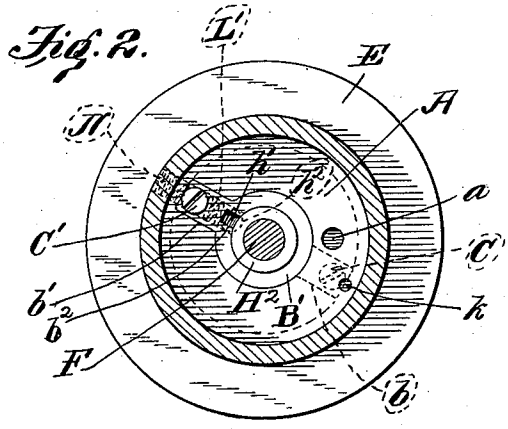
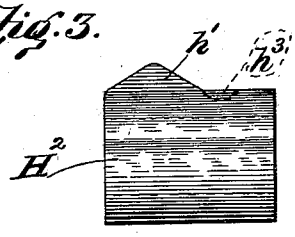



Fig. 3.




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# UNITED STATES PATENT OFFICE.

PAUL MEDARY, OF CYNWYD, PENNSYLVANIA.

## ELECTRICAL SWITCH.

SPECIFICATION forming part of Letters Patent No. 626,919, dated June 13, 1899.

Application filed November 30, 1898. Serial No. 697,904. (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 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 gas.

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 moving parts, resulting in simplicity of construction and durability.

In my pending application, Serial No. 690,132, I have shown a form and construction of switch which is designed to accomplish the objects above referred to, and the present invention may be stated as being an improvement on the special form of switch therein disclosed, as well as an improvement generally in that type of electrical switches which in making and breaking the circuit require to be pushed in and pulled out.

The invention consists more particularly in so constructing a sliding switch that a full movement of the movable member is assured after the same has been initially moved to a certain point, thereby insuring a complete making and breaking of the circuit.

In the accompanying drawings one form of the improvement is shown; but it is to be understood that the invention is not limited to such form, as changes can be made without departing from the nature and principle of the invention.

Figure 1 of the drawings represents the improvement in longitudinal section, parts being shown in elevation. Fig. 2 is a cross-section on line $x\,x$, Fig. 1. Fig. 3 is a detail longitudinal elevation of the rear insulated portion or sleeve.

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 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 G. H and H′ are metallic bushings arranged, respectively, on the opposite ends of the pin F, while $H^2$ 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 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 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 *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 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 type it is expedient that a full movement of the rod be had during each operation, and it is also desirable to have some resistance to the pull or push, so that the device will be held against accidental movement. With these objects in view I have provided the central insulating-sleeve $H^2$ with a ridge or spline *h*′, having sloping ends and a rounded crown. At the base of the ridge are the pockets $h^2$ $h^3$, the former being in the bushing H′, while the latter is in the insulated sleeve. The terminal B has formed therein a narrow recess $b^2$, which recess is continued into the block A, as shown. Within the recess the ridge or spline *h*′ works, the length of the recess being sufficient to permit the necessary longitudinal movement of the ridge as the rod is moved. The bushing H is also formed with a pocket $h^4$. The block A is formed with two lateral circular chambers, in which are placed coiled springs L L′, their inner ends resting against metallic balls M M′, which project part way through circular perforations formed in the terminals B B′. The chamber and aperture containing the ball M′ communicate with the recess $b^2$ and extend on opposite sides thereof, so that the ball normally rests in the path of the ridge *h*′, but, being of greater diameter than the thickness of the ridge, cannot escape into the recess. The spring-pressed balls serve to force the bushings into close contact with the terminals, and the ball M′, with its spring, serves to automatically move the rod in or out as soon as the ball is carried onto the inclined edges of the ridge. The springs may be adjusted by the screw-plugs N, fitted in the outer ends of the chambers. In operation as the push-rod is drawn out the ball M′ will ride up on the forward inclined edge of the ridge, compressing the spring. As it reaches the top of the ridge and rests against the rear incline edge of the ridge the spring, which is under abnormal compression, will force the ball against the inclined edge with sufficient force to move the rod out to its full extent, the ball forcibly engaging in the pocket of the bushing H′. The bushing H is at all times in contact with the terminal B, and as the bushing H′ is brought into contact with terminal B′ the circuit is formed, the balls and springs serving to insure a complete contact. The automatic movement is likewise effected when the rod is being forced in.

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

In a switch of the character described, the combination with an insulated block having oppositely-arranged terminals secured thereon, of a reciprocating push-rod having oppositely-arranged terminals and an insulated section, a substantially triangular projection carried by the rod and projecting into the block, and spring-pressed member in the block arranged to engage the projection during the movement of the rod, for the purposes described.

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

PAUL MEDARY.

Witnesses:
A. MORTON COOPER,
F. EARLE VON LEER.