(No Model.)

S. S. LEONARD.

ELECTRIC SWITCH.

No. 328,695. Patented Oct. 20, 1885.

Fig. 1.

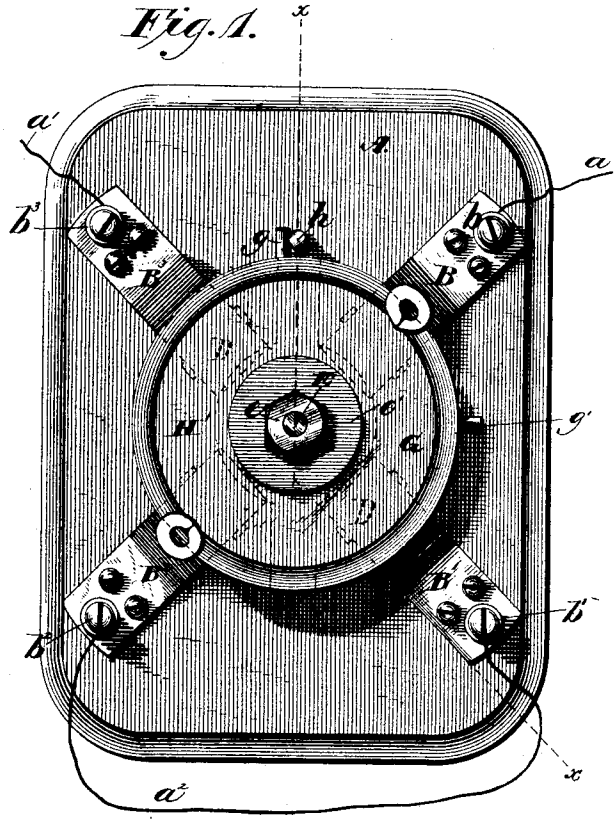


Fig. 2.

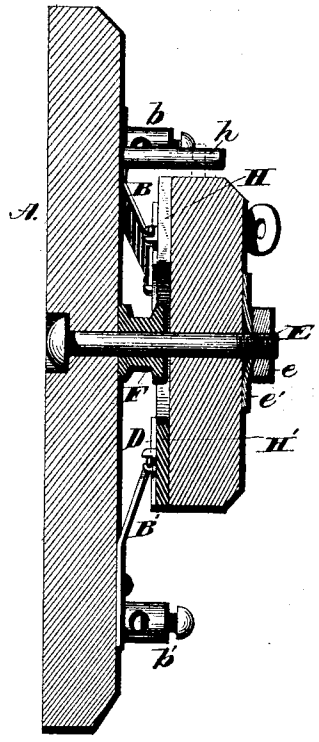


Fig. 3.

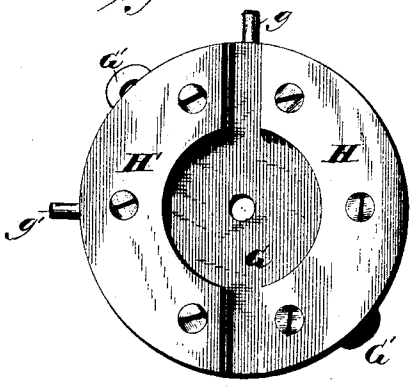
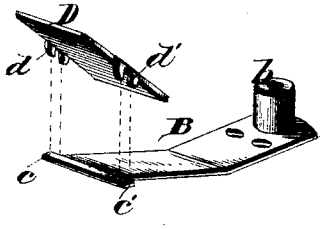


Fig. 4.



WITNESSES
F. L. Ouirand
Geo. H. Rundel

INVENTOR
Samuel S. Leonard
by A. L. Smith
Attorney

N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

SAMUEL S. LEONARD, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR OF ONE-HALF TO THE MINNESOTA BRUSH ELECTRIC COMPANY, OF SAME PLACE.

ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 328,695, dated October 20, 1885.

Application filed August 4, 1885. Serial No. 173,514. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL S. LEONARD, of Minneapolis, county of Hennepin, and State of Minnesota, have invented a new and useful Improvement in Electric Switches, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to that class of electric switches or cut-offs which enables an operator or attendant to switch any particular lamp or lamps out of the circuit without breaking said circuit or causing the lights remaining on the circuit to flash or go out; and it consists in the combination, in a switch, of a revolving head having suitable conducting-plates with elastic or yielding conductors upon which said head rests and moves, and with suitable stops arranged to stop the head always in line with the electric current; also in certain details of construction of the switch hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a plan view of my improved switch; Fig. 2, a section through the same, taken on the line *x x*, Fig. 1; Fig. 3, an inner face view of the revolving head, showing the conducting-plates thereon; and Fig. 4 a perspective view of one of the electric conducting-plates on which the rotating head rests, and of the pivotal head or contact-point of said plate.

A represents the base-plate, which may be of any suitable non-conducting material, and B, B′, B^2, and B^3 are strips or plates of elastic conducting material bent into the angular form shown, and secured through their horizontal portions or arms to the bed-plate in any suitable manner, and provided thereon with binding-posts *b*, *b′*, b^2, and b^3, respectively. These bent plates B B′, &c., are arranged to converge toward a common center, and their inclined arms are by preference provided each at its inner end with spurs *c c′*, which form a pivot on which rests a plate, D, having pendent perforated or slotted ears *d d′*, which engage the spurs *c c′* and adapt the plate to rock thereon, said plate forming the pivotal head or end of the arm or plate to which it is applied.

The base-plate is perforated to receive or has secured to it a central pin or bolt, E, upon which is placed a spool, F, and above the spool and seated on the elastic upturned arms of the plates B B′, &c., or on the pivoted ends or heads D thereof, is the rotating switch-head G, held in place by means of an elastic cushion or washer, *e′*, and a nut, *e*, on the threaded end of the bolt or pin E, as shown. This head G is supported upon the inclined arms or plates B B′, &c., and the spool F prevents its being depressed sufficiently to overcome the elasticity of said arms, which, consequently, serve to hold the pivoted head or plates D thereon always up in snug contact with the adjacent face of the head G. The latter is provided on its inner or lower face with conducting-plates H and H′, made, by preference, to approximate each a semi-annular form, a space being left between the adjacent ends of the two parts thereof, as shown. The ends or heads D of the plates B are made of sufficient width to bridge such spaces when the latter are moved over them in the rotation of the head G.

The cushion or washer *e′* may be either of india-rubber or other suitable yielding or elastic material, or it may be made of spring metal, and concavo-convex in form, for giving it the desired elasticity, as preferred.

The head G is provided upon one side or edge in line, or thereabouts, with the space between the ends of plates H and H′ on one side, with a projecting pin or stop, *g*, and at about right angles thereto with a second pin, *g′*, either of which may be moved by rotating the head G into contact with a stop, *h*, secured in the base-plate A, and which, in connection with the pins or stops *g* and *g′*, serves to limit the movement of the head G to about a quarter of a revolution, more or less. The head G is provided with one or more handles, G′, by means of which it may be rotated.

Supposing the parts to be in position indicated in Fig. 1, (the conducting-plates H, H′, and D being shown in dotted lines,) and *a* to be the line-wire from the dynamo, the current will pass through the plate B to plate H on the revolving head, to conducting-plate B′ and lamp-circuit a^2, to plate B^2, to head-plate H′, to plate B^3, and to line-wire *a′*, the plates H

nd H′ being parallel, or substantially so, with the line of the electric current. Now, if the head is turned to a position at right angles to that shown in Fig. 1, as the opening or space between the ends of plates H and H′ thereon moves over intermediate arm or head D of plate B before the plate H passes off said arm the plate H′ is moved into contact therewith and short-circuits the line a a', preventing the cutting out or disturbance of other lights or lamp-circuits thereon, while by a further movement of the head until the stop g' is brought against the pin or stop h, the line will be through plates B, H′, and B^3 to a', cutting out the lamp-circuit a^2 and the light or lights thereon. Under this adjustment of the head, also, it will be seen that the line of the current will be parallel with the plate H of the head G, through which the current passes.

A switch will be employed, of course, for each lamp or series of lamps which it may be desirable to cut out without disturbing others on the main line or circuit.

The manner of supporting the revolving head on elastic conducting-plates and on pivoted heads or ends thereon by a yielding attachment, as described, serves to insure perfect contact at all times, and the movement of the head over the contact-points on said plates serves to keep the latter always in the best possible working condition.

The construction or form of the parts may of course vary from that shown and described, but the latter serves to fully illustrate my invention.

Having now described my invention, I claim as new—

1. An electric switch having plates secured to a revolving head, whereby the electric current may be conveyed through said plates to and from the lamp or lamps, said revolving head being seated upon pivoted heads or plates located between it and the base-plate.

2. In an electric switch having a revolving head, plates curved upward from the base-plate or main body of the switch, in combination with a pivoted head placed on the tops or ends of said curved plates and located between the said revolving head and base-plate, whereby a perfect contact may always be maintained with said revolving head.

3. In an electric switch, a revolving switch-head placed upon elastic conducting bearing-plates located between it and the base-plate and arranged to revolve and catch the current of one plate before it is released from the other.

4. The combination of a revolving head for an electric switch seated upon elastic plates and the spool or stop placed between the main frame and the revolving head to limit the space between said frame and head.

5. The revolving electric switch-head secured to its base by means of a post, in combination with an elastic washer or cushion adapted to permit the free movement of the head and yet always maintain a perfect contact of said head with the elastic conducting-plates.

6. The combination of the revolving electric switch-head, the stops arranged to stop said head with the conducting plate or plates thereon parallel with the line of the electric current, and the pivoted and yielding conductors upholding said head, substantially as described.

In testimony whereof I have hereunto set my hand this 29th day of July, A. D. 1885.

SAMUEL S. LEONARD.

Witnesses:
C. L. TRAVIS,
L. B. ELWOOD.