

J. C. O'NEIL.
ELECTRIC SWITCH.

No. 485,558.

Patented Nov. 1, 1892.

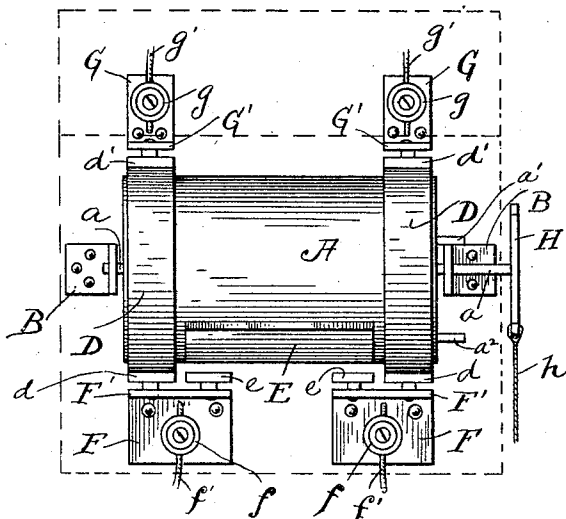


Fig. 1.

Fig. 2.

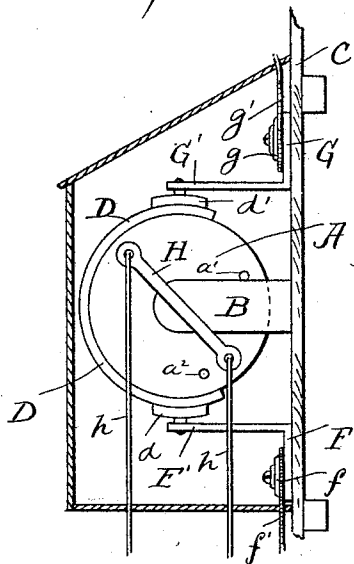
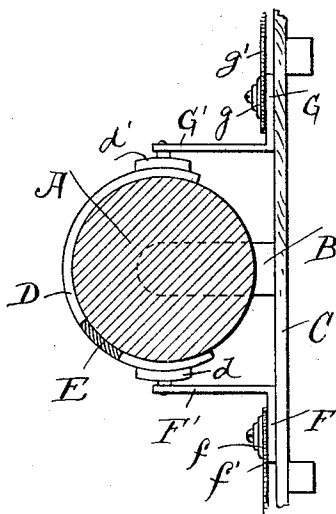


Fig. 3.



Witnesses:

E. Bryan Gilchrist.
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Fig. 4.

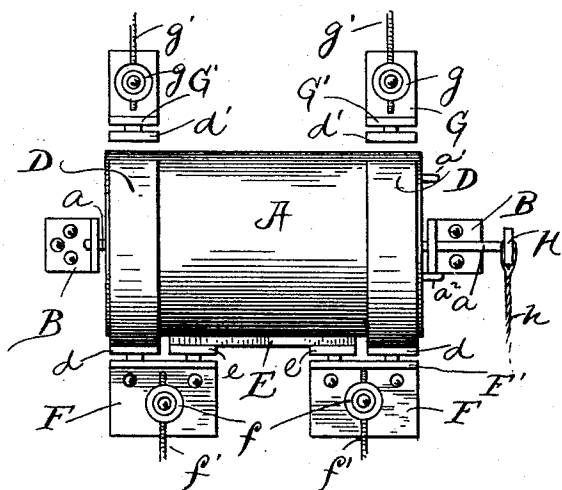


Fig. 5.

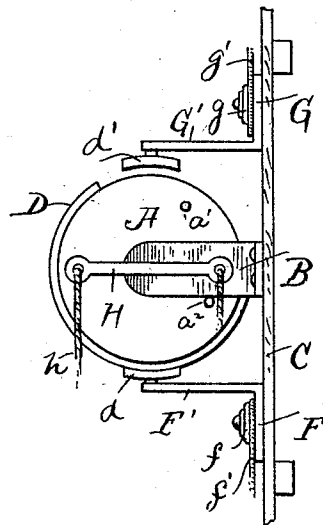


Fig. 6.

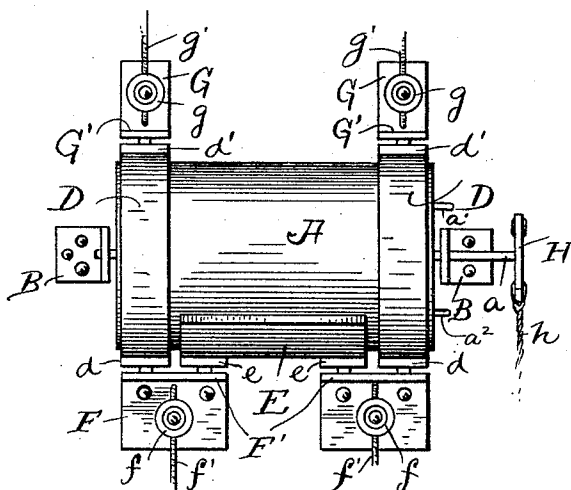
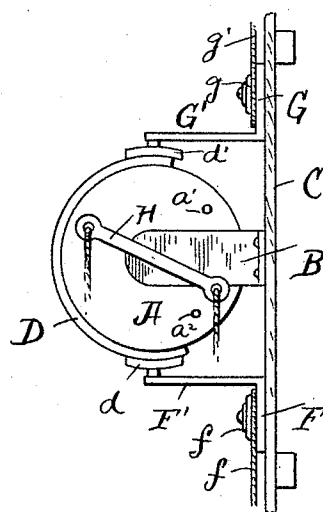


Fig. 7.



Witnesses,

E. Byron Gilchrist.
[Signature]

Inventor,

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UNITED STATES PATENT OFFICE.

JAMES C. O'NEIL, OF CLEVELAND, OHIO.

ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 485,558, dated November 1, 1892.

Application filed October 14, 1891. Serial No. 408,703. (No model.)

To all whom it may concern:

Be it known that I, JAMES C. O'NEIL, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Electric 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 pertains to make and use the same.

My invention relates to improvements in electric switches more especially adapted for use in connection with arc electric lighting, whereby a house-circuit—as, for instance, the wires in a building with the lamp or series of lamps located in the line thereof—can be disconnected from the main circuit. The devices of this character heretofore devised were objectionable in that by disconnecting and connecting the house and main circuits the main circuit was momentarily broken, resulting in sparks or arcs between the points of contact, and the latter were soon burned out and had to be repaired or renewed, rendering such devices quite expensive and unsafe. I have therefore devised a switch a preferable construction of which is illustrated in the accompanying drawings, wherein—

Figures 1, 2, and 3 show, respectively, a front elevation, a side elevation, and a side elevation in central vertical section, showing the switch in position connecting a house-circuit with the main circuit. Figs. 4 and 5 show, respectively, a front and side elevation exhibiting the position of parts with the house-circuit disconnected from the main circuit. Figs. 6 and 7 show, respectively, a front and a side elevation exhibiting an intermediate position of parts hereinafter more fully described.

A represents a cylinder of non-conducting or insulating material, cylinder A being trunnioned or gudgeoned, as at *a*, in suitable brackets or arms B, projecting forwardly from and secured to a suitable support—such, for instance, as the back of casing C, in which the switch apparatus is inclosed, casing C being shown in dotted lines in Fig. 1 and in section in Fig. 2.

Cylinder A has mounted, or near either end, on the periphery thereof, a metallic strip D, extending part way around the cylinder, and

between strips D, as shown more clearly in Fig. 1, cylinder A has mounted thereon a metallic strip E, the latter being arranged longitudinally with the cylinder and preferably parallel with the axis thereof, but not making contact with strips D D aforesaid, strips E D D being preferably secured to the cylinder by means of screws.

Mounted on the inner side of the back of casing C, at one side of cylinder A—in the present instance the lower side—are mounted metallic plates F, secured, also, preferably, by means of screws, plates F having each a forwardly-projecting member F', and members F' being each provided at or near the forward end with a pair of contact-shoes *d e*, shoes *ee* being adapted to make contact with strip E and shoes *d d* being adapted to maintain contact with the respective strips D D. Plates F are each provided with a binding-post *f*, to which binding-posts wires *f' f'* of the main circuit are attached.

At the opposite or top side of cylinder A the back of casing C has attached metallic plates G, the latter having each a forwardly-projecting member G', the latter being provided at or near the forward end with a contact-shoe *d'*, adapted to engage the adjacent metallic strip D on cylinder A. Plates G are each provided with a binding-post *g*, to which binding-posts are connected wires *g' g'* of the house-circuit.

As hereinbefore stated, my device is more especially adapted for use in a house or building in connection with the system of arc electric lighting, where in case of fire, repairs, and for other reasons it is of great importance to be able to disconnect from the main circuit the house-circuit that supplies the lamp or lamps in such house or building, and devices of this character are therefore usually located over the entrance to such house or building or other convenient place near the ground floor. One of the trunnions of cylinder A extends outside casing C, terminating in a lever H, preferably a tilting lever, as shown, the lever being operated by means of cords *h h*, attached to either end of the lever and extending to within convenient reach from the floor below; or, if desired, cords *h h* may be dispensed with and lever H oper-

ated by means of a rod or pole held in the hand of the operator. Cylinder A is provided with positive stops $a' a^2$, adapted to engage the adjacent forwardly-projecting bracket or arm B and limit the revolution of the cylinder in the one direction or the other, as it is desired to disconnect or connect the house and main circuits.

In Figs. 1, 2, and 3 metallic strips D D of the cylinder, with stop a' abutting bracket B, are in contact with contact-shoes $d' d'$ of plates G G, metallic strips D D always maintaining contact with contact-shoes $d d$; but metallic strip E is out of contact with contact-shoes $e e$. Consequently the house-circuit is connected with the main circuit. If it is now desired to disconnect the house-circuit, cylinder A is revolved by manipulating lever H in the direction to cause stop a^2 to abut the adjacent bracket or arm B, as shown in Figs. 4 and 5, in which position of parts strip E will be in contact with contact-shoes $e e$ of plates F F, which latter, as aforesaid, are always in contact with strips D D, and strips D D will be out of contact with contact-shoes $d' d'$ of plates G G. Consequently the house-circuit will be disconnected from the main circuit; but it will be observed by reference to Figs. 6 and 7 that strip E will have made contact with contact-shoes $e e$ of plates F F before strips D D have broken contact with contact-shoes $d' d'$ of plates G G, and similarly in again connecting the house-circuit with the main circuit strips D D will have made contact with contact-shoes $d' d'$ of plates G G before strip E has broken contact with

contact-shoes $e e$. Therefore there is never a break in the main circuit, and hence no opportunity for the formation between contact-points of arcs or sparks that have made such havoc with and have rendered the switches heretofore devised so exceedingly expensive and unsafe.

What I claim is—

In an electrical switch, the combination, with a non-conducting cylinder, of a metallic strip on the periphery of said cylinder at or near each end thereof, a metallic strip on the periphery of the cylinder intermediate of its ends and electrically separated from the strips at the ends of the cylinder, brackets arranged at one side of the cylinder and carrying contact-plates adapted to engage the end metallic strips, brackets at the other side of the cylinder, and two contact-plates carried by each of said last-mentioned brackets, one contact-plate of each bracket being adapted to engage one of the end strips and the other contact-plate of each bracket being adapted to engage the intermediate strip, whereby when the cylinder is oscillated all of said strips will be electrically connected by one set of contact-plates before the other set engages or disengages any of said strips, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 2d day of October, 1891.

JAMES C. O'NEIL.

Witnesses:

C. H. DORER,
WARD HOOVER.