

(No Model.)

H. W. BURNET.
MECHANICAL CUT-OUT.

No. 462,836.

Patented Nov. 10, 1891.

Fig. 1.

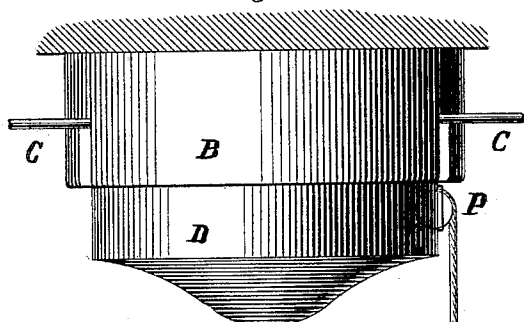


Fig. 2.

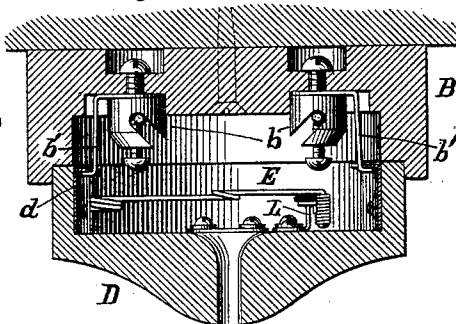


Fig. 3.

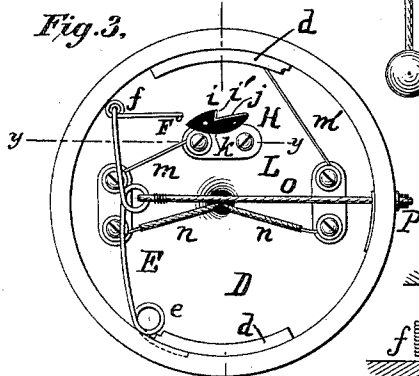


Fig. 4.

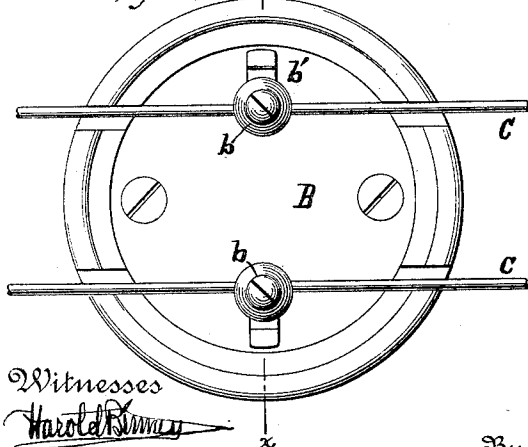


Fig. 5.

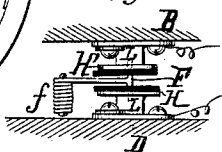


Fig. 6.

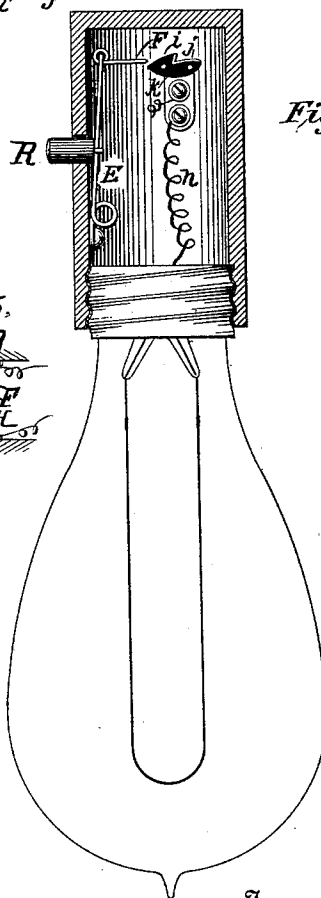


Fig. 7.



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UNITED STATES PATENT OFFICE.

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MECHANICAL CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 462,836, dated November 10, 1891.

Application filed April 7, 1891. Serial No. 388,011. (No model.)

To all whom it may concern:

Be it known that I, HARRY W. BURNET, a citizen of the United States, and a resident of East Orange, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Switches, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to switches for use in rosettes, lamp-sockets, line connections, and like contrivances; and has for its purpose the production of a rosette and switch for use in rosettes, lamp-sockets, and like contrivances of simple and economical construction, whereby the size, the cost, and the weight of the whole device are reduced, and the reliability and simplicity of operation greatly increased. To these ends it consists of the various parts constructed, arranged, and combined substantially in the manner hereinafter described, illustrated, and claimed.

In the drawings, Figure 1 is an outside elevation of one form of rosette containing my invention. Fig. 2 is a vertical central section through the same. Fig. 3 is a plan of the lower removable part of the rosette, showing the operation and details of my switch. Fig. 4 is an inverted plan view of the superior part of this form of rosette. Fig. 5 is a modified form of my switch whereby the passage of current through the conducting-springs of the switch is avoided. Fig. 6 is a sectional view of my switch as applied to a lamp-socket. Figs. 7 and 8 are detail views of two forms of the switch-contacts.

Like letters of reference refer to like parts.

The base B of my rosette, and by base it must be understood that I mean the superior or larger part of the rosette, although this part is uppermost when in position, is formed with binding-posts *b* for the main conductors C. To these binding-posts are fixed the projecting lips *b'*, which, when the two parts of the rosette are placed together, pass under and bear directly upon the inclined surfaces of conducting-flanges *d* on the lower removable part of the rosette. This connection is shown in Fig. 2. The lower part of the rosette is indicated by the letter D.

In Fig. 3 is shown the simplest form of my switch. The movable lever of the switch is

shown at E, connecting through the spring *e* with one of the flanges *d*. The free end of the switch-lever E bears the coiled spring *f*, one end of which projects at right angles to the switch-lever E and carries one of the switch-contacts F. These details are also shown in Figs. 2, 5, and 6. In case the switch-lever is arranged, as in Fig. 3, to carry the current, the contact F may be formed by turning down the free end of the projecting wire. If the switch is to be a double-break switch, the wire end should project in two directions, and in this case I form the contact F by a small rod soldered at its center to the free end of the spring *f*. This modification is shown in Fig. 5.

The fixed contact or contacts H are formed of a peculiar shape, as shown in Figs. 3 and 6. In the path of the moving contact is interposed the deflecting insulating-face *i*, which terminates abruptly at *i'*, where segment is cut away to form a second similarly-arranged face *j*, but this face *j* is of conducting material. This second face also terminates abruptly and gives place to the convex insulated rear surface *k*, which serves to deflect the path of the contact on its return movement. I prefer to make this segment-shaped part of a sheet of insulating material provided with and secured to a metal back piece, which overlaps and projects beyond the insulating-plate on its face *j* or *i'*, or both, and elsewhere does not extend to the edge of the insulating-plate, as in Fig. 7. The plate may be secured to its metal back by rivets, as shown in Figs. 3 and 6, and may be supported and secured in position in any suitable way, as by the metal standard L, shown in Figs. 2, 3, 5, and 6. The rear view, or view from the under side of the segment, when in position, is shown in Fig. 7. In Fig. 8 is shown a modified way of making this segment, in which a thicker segmental plate of insulating material is faced at *j* by a face-plate of conducting material. The conducting-face *j* of this fixed contact is connected by a fuse-wire *m* with one terminal of the lamp-conductors *n*. The other lamp-conductor is connected by fuse-wire *m'* with the remaining conducting flange-plate *d*. Of course it should be understood that these connections may be varied as wished. To the switch-lever E is attached

the operating device, which in my rosette is a cord O passing over a pulley P. When used with lamp-sockets, as shown in Fig. 6, I prefer to use a push-button R.

5 In Fig. 5 is shown the modification already referred to, in which the passage of the current through the springs of the switch is avoided. This is accomplished by making a duplicate segment and contact H' and placing it parallel with the first-named segment H. It may be supported in any desired manner, as by a standard similar to L, affixed to the superior part or base part B of my rosette. The contact F, which in this form, as already stated, is a cross-bar at the end of the spring *f*, now makes contact with both conducting-segments and allows the current to pass directly from one segment to the other. Segment H', it will of course be understood, may be connected into the circuit in the same manner as the conducting-lever E was in the form shown in Fig. 3.

The operation of my switch is as follows: When it is desired to make contact and close the circuit, the lever E is moved toward the segment. The contact or contacts on the free end of the spring *f* will then be deflected by the successive faces *i j* on one side of the segment. When the contact has passed from the end of the face *i*, it snaps by the recoil of the spring *f* against the face *j*, which, as has already been shown, closes the circuit. If at this point the force actuating the lever E be removed, the recoil of the lever E due to the spring *e* will be prevented by the face *i'* of the segment, against which the contact F will catch. When it is desired to break this circuit, the lever E is drawn farther toward the segment till the contact F snaps free from the extreme end of the face *j* of the segment, and so breaks the connection. The rear face *k* serves merely as a guide for the return of the contacts F and lever E to their normal released position.

45 In the following claims, to avoid unnecessary prolixity, I use the term "segment" to designate the fixed contact and its insulating-guides, and the term is intended to be broad enough to cover any similar arrangement presenting successively to the moving contact an insulating-cam or guide-surface *i*, a conducting guide-surface or cam *j*, and an insulating-cam or guide-surface *k* for the returning movement of the contact without reference, unless expressly so limited, to the manner of arranging the said surfaces. It must also be understood that I do not limit the use of my switch to the combinations in which it is shown, excepting only in the claims in which its combination is expressly so set forth and limited.

65 Having now fully and clearly described one form of my invention and how the same may be formed, combined, arranged, and used, I claim as my own and desire to secure by Letters Patent of the United States, with only

the limitations hereinafter expressed or implied, the following:

1. In combination with the other operating parts of an electric switch, a switch-segment presenting successively in the path of the relatively-moving contact of the switch an insulating deflecting-face, a conducting deflecting-face and an insulating deflecting-face, a spring on the free end of the switch-lever or moving arm adapted to press the moving contact against the successive faces of the said segment, a retracting device for the actuating mechanism of the switch, and a surface or notch between the first and second of the said deflecting-faces on the said segment adapted to prevent a backward movement of the switch-contact from the second to the first of said faces, substantially as set forth.

2. In combination with the other operating parts of an electric switch, an operating-arm E, provided with one or more springs, a movable contact or contacts attached to said arm, one or more segments, each arranged in the normal path of the contact or contacts, and presenting successively to the forward movement of the contact an insulating deflecting-face *i* and a conducting deflecting-face *j*, and provided with an intermediate surface or notch *i'* between said faces adapted to prevent backward motion of the contact or contacts from face *j* to face *i*, and the said segment provided with an insulating deflecting-face *j* for the return motion of the contact or contacts, and means for operating the said arm E, and for making the electrical connections with the other parts of the circuit, substantially as set forth.

3. In combination in a switch, a contact and a segment relatively movable, the said segment consisting of an insulating-plate provided with the deflecting faces or edges *i* and *k*, and a conducting-plate *j*, secured to the said insulating-plate and projecting beyond a part of its periphery or edge and forming a deflecting-face thereat, the said conducting-plate forming the opposing contact for the first-named contact, substantially for the purposes set forth.

4. A rosette consisting of a base B, provided with binding-posts for the circuit-wires, a second part D, carrying the lamp-circuit terminals or like conductors, and provided with inclined flange-plates *d*, of conducting material connected with the end of the lamp or like conductors, and projecting conducting-lips *b'*, connected with the binding-posts on the base B, and projecting when the two parts B and D are in position under the inclined flange-plates *d*, a switch included in the connections within the rosette, having in combination with the other operating parts an operating-arm E, a retracting device therefor, a spring *f*, carried by the arm E and bearing a movable contact or contacts F, a segment arranged in the normal path of the contact or

contacts F, and presenting successively to the movements of the contact or contacts an insulating deflecting-face *i*, a conducting deflecting-face *j*, and an oppositely-deflecting insulating-face *j*, and provided with an intermediate surface or notch *i'* between the first and second named faces, and means for operating the said arm E, consisting of a cord *o* and a pulley P, substantially as set forth.

10 5. In combination in a switch, a contact, and a switch-segment, one of such parts being movable and spring-guided in a path intercepting the other, the said segment being pro-

vided with an insulating deflecting guide-face *i*, a second guide-face *j*, and an intermediate face *i'*, forming, with the face *j*, a re-entrant angle, one or both of the faces *j* and *i'* being faced with conducting material and forming a switch-contact face, substantially as and for the purposes set forth.

In testimony of the foregoing I have hereunto set my hand this 2d day of April, 1891.

HARRY W. BURNET.

Attest:

J. A. CHAMBLISS,

J. H. ROBINSON.