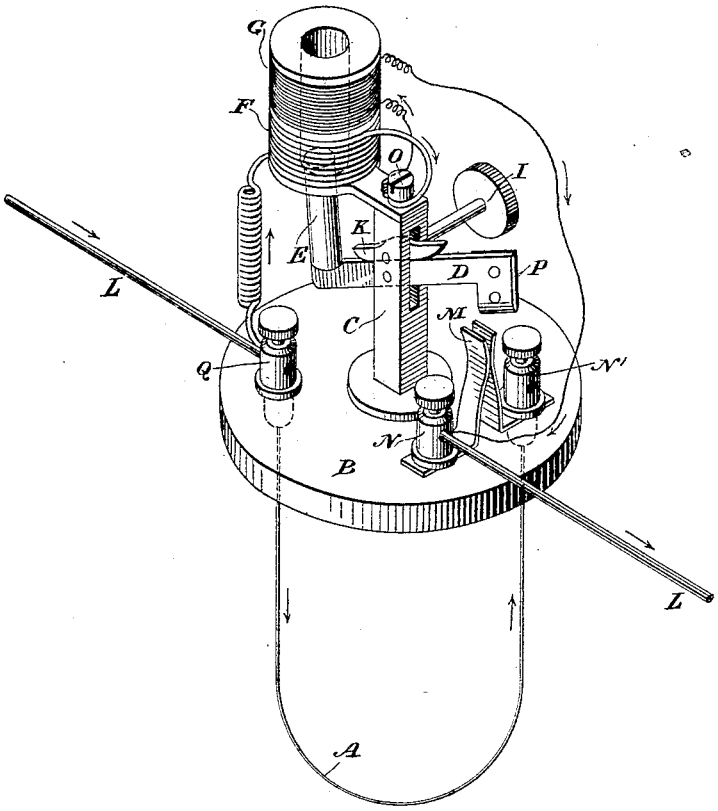
(No Model.)

H. C. McDILL.

CUT-OUT FOR ELECTRIC CIRCUITS.

No. 391,853. Patented Oct. 30, 1888.



Witnesses,
Geo. W. Breck
Carrie E. Ashley.

Inventor,
H. C. McDill,
By his Attorneys
Fowler & Fowler

UNITED STATES PATENT OFFICE.

HENRY C. McDILL, OF FORT WORTH, TEXAS.

CUT-OUT FOR ELECTRIC CIRCUITS.

SPECIFICATION forming part of Letters Patent No. 391,853, dated October 30, 1888.

Application filed September 9, 1887. Serial No. 249,248. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. McDILL, a citizen of the United States, residing at Fort Worth, in the county of Tarrant and State of Texas, have invented certain new and useful Improvements in Cut-Outs for Electric Circuits, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, forming part of this specification.

My invention relates more particularly to cut-outs for incandescent electric lamps; and it consists in certain novel features which will be described in detail, and then pointed out in the claims appended hereto.

The accompanying drawing shows an isometric projection of a cut-out embodying the principle of my invention.

A designates the filament of a lamp, and L L the leading-in wires, the direction of the current being illustrated by arrows.

Q may be the positive binding-post, and N the negative.

B is an insulating-base upon which the parts are mounted. Upon this base is arranged an upright, C, which carries a solenoid or magnet, F G, on a horizontal extension. This solenoid is wound with two coils, the one, F, of coarse wire, equal in resistance to the filament, and the other coil, G, made of fine wire, and has many turns and many times the resistance of the filament or coil F. One end of coil F is in electrical communication with binding-post Q, and the other end thereof joined to standard C, and one end of coil G by a screw, O. The other end of the coil G is attached to the binding-post N. The filament of the lamp is attached at one end to a binding-post, N′, between which and the binding-post N are contact-springs M, normally completing the circuit between the two.

To the upright C is swiveled a cross-arm or armature-lever, D, bearing the core E of the solenoid F G at one end. The other end is provided with an extension carrying an insulating-plate, P, on one side.

Mounted upon the upright C, and pivoted above the cross-arm D, so as to bear upon it, is a cam, K, having its pivot extended and affixed to a milled head, I, for manual operation.

Normally the parts are disposed as represented. The current flows from the positive binding-post Q over the filament to binding-post N′, *via* the spring-contacts M, to the negative binding-post N to line. A small portion of the current travels over the solenoid F G from binding-post Q to binding-post N, and forms a derived circuit to the filament with the coils F and G in series. The current passing by this route is not sufficient to energize the solenoid to the degree required to draw up the core. Should the filament fail from any cause, the current will be caused to traverse the path last mentioned, the solenoid will become strongly magnetized, the core drawn up, and the end of the cross-arm carrying the insulated plate upon one side inserted between the spring-contacts M. The current will then be through the coarse-wire coil F to standard C, cross arm D, *via* the spring-contact M, connected with the binding-post N to line, the fine-wire coil G being cut out. It will thus be seen that the coil F, having a resistance equal to the filament, is substituted for the filament, and the resistance of the circuit maintained constant, giving rise to no disturbance of potential.

If it is desired at any time to cut the filament out or to throw the current upon it when cut out, the cam K may be operated manually in either direction for this purpose by the milled head I.

It will be evident that the various devices and the arrangement I have described may be varied in many ways without departing from the spirit of my invention. I do not wish, therefore, to confine myself to the exact mechanism described; but

What I wish to claim and secure by Letters Patent of the United States is—

1. A cut-out for an incandescent lamp embodying, essentially, a magnet or solenoid in derivation from the filament, spring-contacts completing the circuit from the filament to the line on one side, and an armature-lever electrically connected with said magnet adapted to disrupt the circuit between said contacts and maintain the continuity of the circuit through itself.

2. The combination of the filament A, connected at one side to the line by the spring-contacts M, the coils F and G, of low and high

resistance, respectively, in series in a derived circuit from said filament, the former coil equal in resistance to said filament, an armature-lever in electrical connection with one terminal of coil F, carrying an insulating-plate at the place where adapted to pass between said terminals.

3. The combination of the filament A, connected at one side to the line by spring-contacts M, the coils F G, of low and high resistance, respectively, in series in a derived circuit from said filament, the former coil equal in resistance to said filament, standard C, carrying armature or cross-arm D, having insulating-plate P thereon, an electrical connection from the joined ends of said coils to said standard, a cam, K, pivoted upon the standard to act upon the cross-arm adapted for manual operation.

In testimony whereof I have hereunto set my hand and seal, this 17th day of August, 1887, in the presence of the two subscribing witnesses.

H. C. McDILL. [L. S.]

Witnesses:
A. D. ANSELL,
J. H. HILL.