No. 748,148. PATENTED DEC. 29, 1903.

M. H. BAKER.

CUT-OUT FOR ARC LAMPS.

APPLICATION FILED OCT. 30, 1902.

NO MODEL.

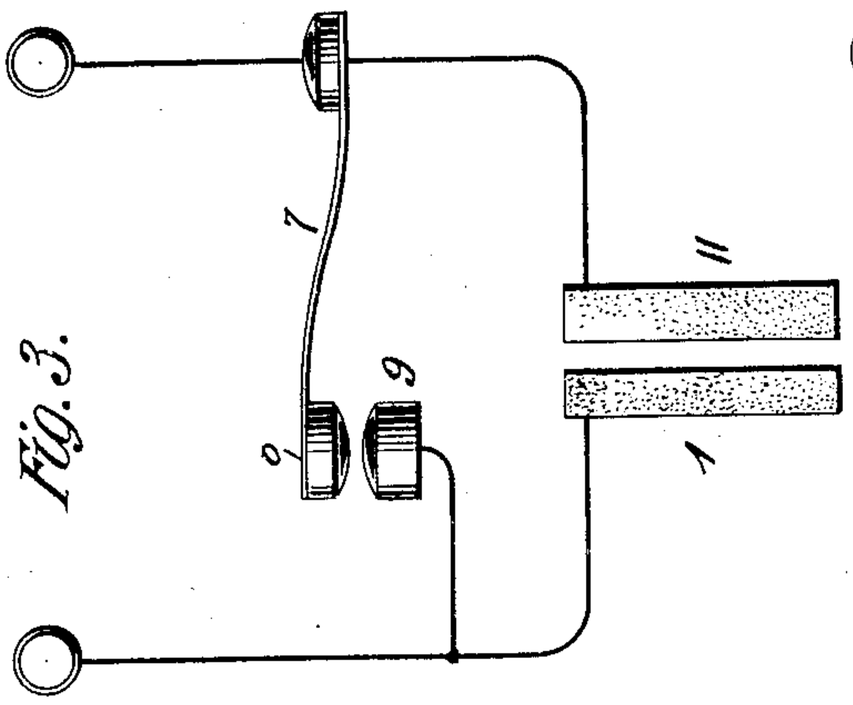

Fig. 3.

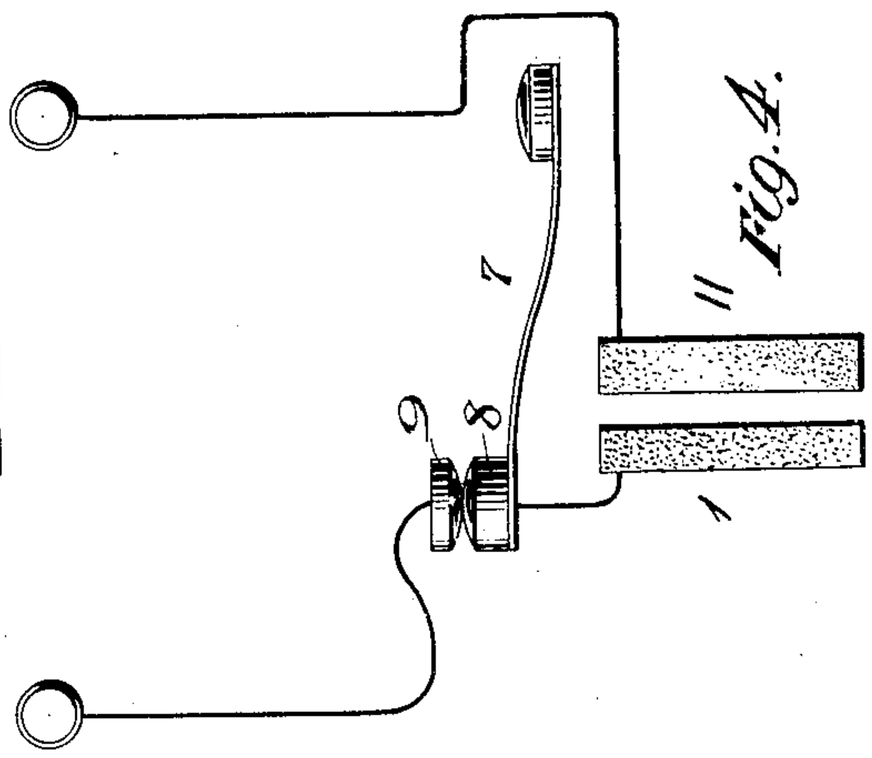

Fig. 4.

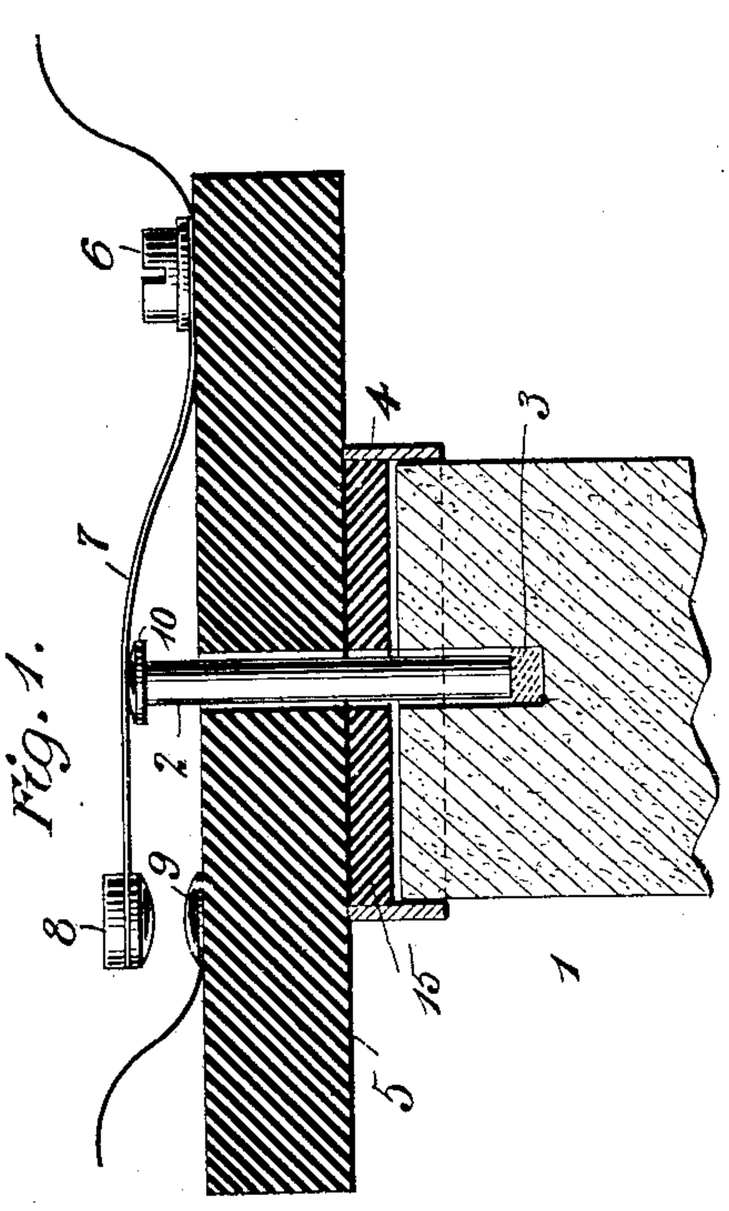

Fig. 1.

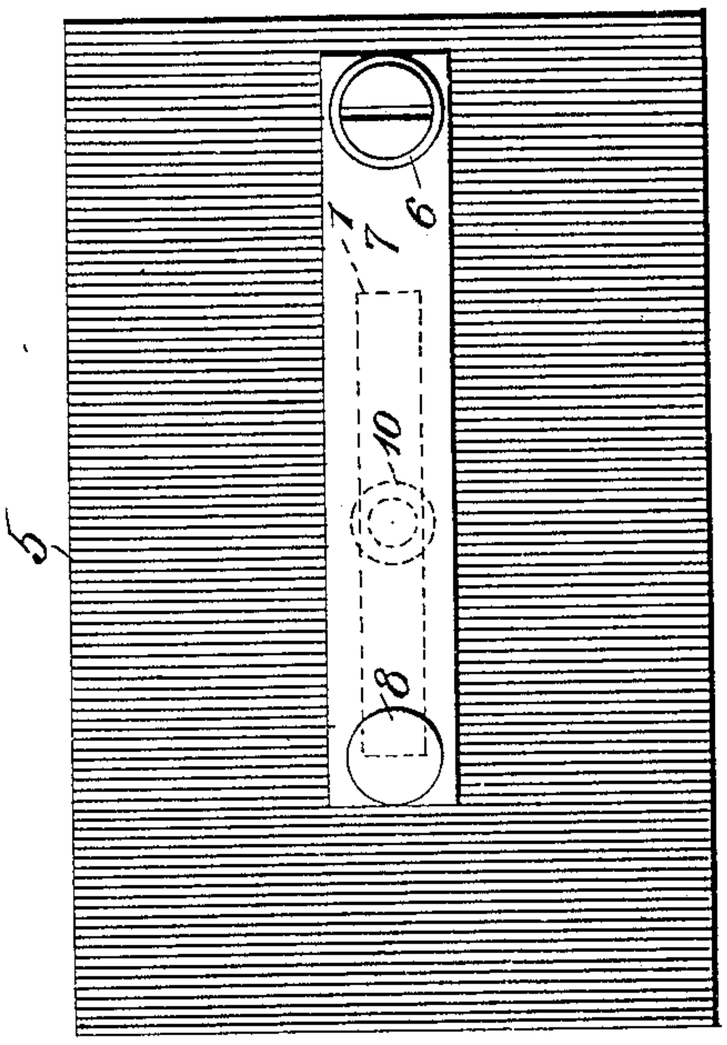

Fig. 2.

Witnesses
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No. 748,148. Patented December 29, 1903.

UNITED STATES PATENT OFFICE.

MALCOLM H. BAKER, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

CUT-OUT FOR ARC-LAMPS.

SPECIFICATION forming part of Letters Patent No. 748,148, dated December 29, 1903.

Application filed October 30, 1902. Serial No. 129,338. (No model.)

To all whom it may concern:

Be it known that I, MALCOLM H. BAKER, a citizen of the United States, and a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Cut-Outs for Arc-Lamps, of which the following is a specification.

My invention relates to improvements in cut-outs for arc-lamps and is applicable to lamps in which one of the electrodes is stationary and the other movable.

I have illustrated my invention in connection with a lamp having flat electrodes arranged side by side, one electrode being fixed and the other free to swing or turn toward the first-named electrode for the purpose of establishing the arc and being then adapted to swing back into a normal operative position. The means for swinging the electrode are not illustrated, as this kind of lamp is now well known in the art.

My cut-out is applied to the fixed electrode or operated in connection therewith, and its action results in the quick and absolute cutting out of the lamp when the electrode consumption has reached a certain predetermined point.

The action of the cut-out is not dependent upon any local magnetic action, and as regards electrical contact the cut-out is not affected by the vibrations of the lamp-frame.

The controlling element of the cut-out is here shown in the form of a pin inserted in an opening in one end of the fixed electrode, the pin serving to hold a spring contact-piece away from a fixed contact-piece so long as the electrodes are long enough to burn without danger to the lamp-frame or other lamp apparatus. The pin enters the electrode for a certain definite distance and bears against a stop of plaster-of-paris or other suitable substance set at the bottom of the described opening in the electrode.

When the electrode burns too far away, so that any further burning would endanger the lamp, the weakening of the electrode resulting from such burning permits the pin, which is under pressure from the spring bearing the movable contact, to break through the stop, whereupon the spring-contact closes the circuit through the fixed contact, thus shunting out the lamp.

The purpose of the plaster-of-paris stop is solely to prevent the burning or fusing of the end of the cut-out rod at the moment when the said rod breaks through the weakened body of the electrode.

I have illustrated my invention in the accompanying drawings, in which—

Figure 1 is a sectional elevation, and Fig. 2 a plan, of my improved cut-out as arranged for series lampwork. Fig. 3 is a diagram of the electrical connection, and Fig. 4 is a diagram of the connections for my cut-out when operating in connection with mutiple lamps.

In the drawings, 1 is the fixed electrode of a lamp of this class, and 11 is the movable electrode. The fixed electrode and the movable electrode are both supported upon a suitable bed-plate 5, the holder for the fixed electrode being shown at 4.

At 2 is shown a rod or pin entering an opening in the base or rear end of the electrode 1 after passing through the bed-plate 5 and a supplementary plate 15, forming part of the holder 4. The inner end of the rod or pin 2 presses against a stop 3, composed of plaster-of-paris or some other good heat-resisting material, at the bottom of the opening. The source of pressure in this instance is a spring 7, made of flat metal and secured to the bed-plate 5 by a screw 6. The spring 7 carries at its free end a contact-button 8, which is adapted to bear against a fixed contact-piece 9, secured to the bed-plate 5, whenever the spring is released, as by an inward movement of the rod or pin 2. The latter may carry on its outer end an insulating-button 10, as shown.

When the electrodes burn away far enough to weaken the fixed electrode in the neighborhood of the inner end of the pin or rod 2, the material of the electrode will yield to the pressure of the spring 7, acting on the rod or pin 2, and the latter will be pushed inward and freed. The rod falls until restrained by

its head 10 coming into contact with the top of the plate 5. The spring 7 being now released travels downward until it brings the button 8 into contact with the piece 9, thereby cutting out the lamp, as clearly shown in Fig. 3.

When operating multiple lamps, the fixed contact-piece 9 is placed above the button 8 and the buttons are normally maintained in electrical contact instead of being normally separated from each other. When the rod 2 drops, the buttons 8 and 9 are separated, thus opening the lamp-circuit.

I claim as my invention—

1. A cut-out for arc-lamps, consisting of a pair of circuit-terminals, means operating to move one of the said terminals with respect to the other, a restraining device for the said operating means, such restraining device being supported upon one of the electrodes, and means depending upon the integrity of the said electrode for releasing the said restraining device when the electrode is burned away to a predetermined point.

2. A cut-out for electric-arc lamps consisting of a pair of circuit-terminals, means operating to move one of the said terminals with respect to the other, and a restraining device for the said operating means, such restraining device being seated in one of the lamp-electrodes and adapted to be released by the action of the operating means when the electrodes have burned away to a predetermined point.

3. In an arc-lamp, a pair of electrodes, one of which is fixed and the other movable, a rod or pin entering the fixed electrode and extending to a point at or near the limit of safe burning for the said electrode, a spring pressing upon the said pin and operatively connected with one terminal of a shunt-circuit for the lamp, and a second terminal having a fixed position with respect to said spring-operated terminal.

4. In an arc-lamp, a pair of electrodes, one of which is fixed and the other movable, a cut-out for the said electrodes, and a restraining device for the said cut-out, the said restraining device consisting of a pin extending into the fixed electrode to a point at or near the limit of safe burning therefor, the opening in the fixed electrode being partly filled with a good heat-resisting material against which the inner end of the said pin is pressed.

Signed at New York, in the county of New York and State of New York, this 27th day of October, A. D. 1902.

MALCOLM H. BAKER.

Witnesses:
WM. H. CAPEL,
GEORGE H. STOCKBRIDGE.