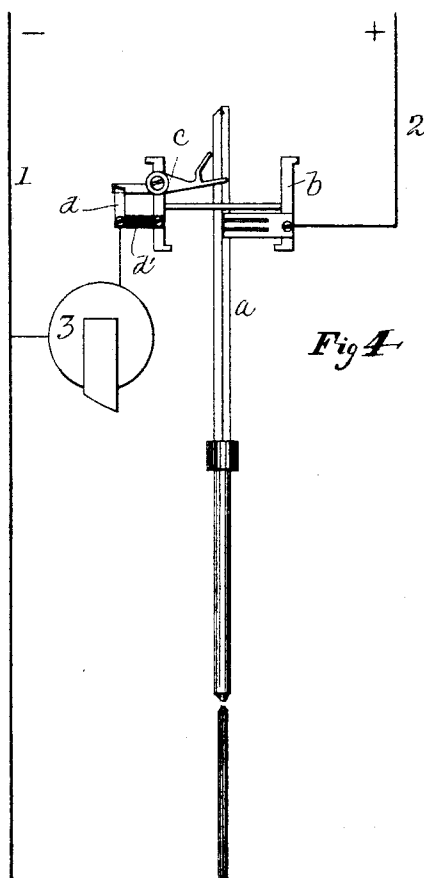
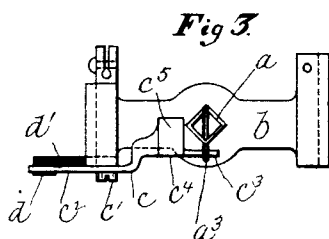
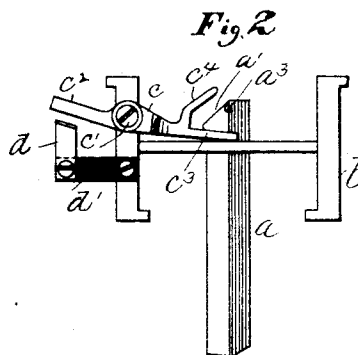
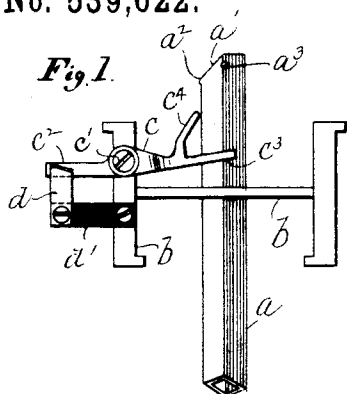


(No Model.)

P. KIRKEGAARD.
CUT-OUT FOR ARC LAMPS.

No. 539,622.

Patented May 21, 1895.



WITNESSES:

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PETER KIRKEGAARD, OF BROOKLYN, NEW YORK.

CUT-OUT FOR ARC LAMPS.

SPECIFICATION forming part of Letters Patent No. 539,622, dated May 21, 1895.

Application filed November 9, 1894. Serial No. 528,317. (No model.)

To all whom it may concern:

Be it known that I, PETER KIRKEGAARD, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Cut-Outs for Arc Lamps, of which the following is a full, clear, and exact description.

This invention relates to devices for cutting-out a portion of the electric circuit contained within a lamp which includes magnets or other devices offering material resistance to the flow of current.

The object of the invention is to provide a simple cut-out which will act positively and which will not be subject to sparking when the circuit is interrupted.

In the accompanying drawings, Figures 1 and 2 represent two side views of the cut-out, showing it in its closed and open positions respectively. Fig. 3 is a plan of the cut-out, and Fig. 4 is a diagram of the circuits of a lamp controlled by the cut-out.

Referring to the drawings by letter, *a* represents a carbon carrying rod in an arc lamp. It may be prismatic or round in cross section and its upper end will be beveled off as indicated at *a'*, the lower end of the bevel terminating in a short projecting lip *a²*. A pin *a³* will also be located at the upper end of the rod. This will project at right angles. Adjacent to the rod *a* and mounted upon a suitable portion of the frame *b* of the lamp, will be placed a lever *c* pivoted between its extremities upon a stud *c'* and formed at one end into a blade *c²* and at the other into a fork, the two branches of which are represented by *c³* and *c⁴* respectively. The branch *c³* will extend across the rod *a* in such a position as to be in the path of movement of pin *a²*. The branch *c⁴* will have an extension *c⁵* at right angles to the lever and also standing across the rod *a*. Adjacent to the blade *c²* will be located a spring metallic clip *d* fixed to a block of insulating material.

In the diagram Fig. 4, one of the main conductors, 1, is shown leading directly to the lower carbon electrode, while the other, 2, leads to the frame of the lamp and thence to the upper carbon carrying rod and electrode.

The shunt circuit which contains the regulating electro-magnet 3 connects at one end with the main wire 1 and at the other end to the spring clip *d*. Thence it leads through the blade *c²* of the cut-out lever and to the frame of the lamp at the pivot of the lever. The shunt circuit therefore does not include the two branches *c³* and *c⁴* of the cut-out lever.

When the lamp is put in operation with fresh carbons, the upper carbon rod is elevated to its highest point and the pin *a³* is far above the branch *c³* of the cut-out lever. When the upper carbon has been almost entirely consumed and the rod consequently lowered, the pin *a³* strikes the branch *c³* of the cut-out lever, and by the weight of the rod gradually carries the forked end of the lever downward and lifts the blade out of contact with the spring clip. While the pin is against the branch *c³* the branch *c⁴* is above the end of the rod and consequently would not be intercepted by the rod when the forked end of the lever swings downward. As soon as the blade is released from the clip the extra weight at the forked end of the lever will cause the latter to drop into the position shown in Fig. 2, thus breaking the shunt circuit and cutting out the resistance contained therein. When the rod is again lifted, the beveled end *a'* comes in contact with the projection *c⁵* of the lever and swings the lever upward, thus carrying the blade into contact with the clip and as the rod passes on upward, projection *c⁵* passes over the lip *a²* and is left standing in the position indicated in Fig. 1 out of contact with the rod, where it is held by the frictional grip of the clip. In this position the rod may be moved up and down at will without disturbing the cut-out.

In the operation of this cut-out it will be observed that no sparking will take place between the end of the lever and the rod, because these points are not in the circuit, and injurious sparking is prevented between the blade and the clip by the quick break which is made when the lever has been released. It is obvious that a spring might be used in addition to, or as a substitute for, the extra weight at the forked end of the lever.

One of the merits of this device is the fact

that the cut-out, when closed, is absolutely locked in that position and cannot be opened by jars or other causes.

Having thus described my invention, I claim—

1. The combination of a carbon carrying rod, and a cut-out lever pivoted adjacent thereto, two projections on the lever acted upon alternately by the rod to open and close the cut-out, substantially as described.

2. The combination of a carbon carrying rod, and a cut-out lever pivoted adjacent thereto, two projections on the lever acted upon alternately by the rod to open and close the cut-out, said projections standing substantially at right angles to each other and across the rod, and a pin or lug at the extremity of the rod arranged to strike one of said projections to swing the lever on its pivot, substantially as described.

3. The combination of a carbon rod, and a cut-out lever pivoted adjacent thereto, the

rod standing in the path of movement of the lever, thereby preventing its movement, and a pin or projection at the extremity of the rod adapted to engage with the lever and swing it when the rod has moved out of the path of the lever, substantially as described.

4. The combination of a carbon carrying rod having at its extremity an overhanging lip, in combination with a pivoted cut-out lever having a projection standing adjacent to the carbon carrying rod and adapted to be struck by the end thereof and thus caused to swing on its pivot, the end of the lever dragging over the said lip, whereby when the end of the rod is past the lever the latter will be left out of contact with the rod.

In testimony whereof I subscribe my signature in presence of two witnesses.

PETER KIRKEGAARD.

Witnesses:

WM. A. ROSENBAUM,
FRANK S. OBER.