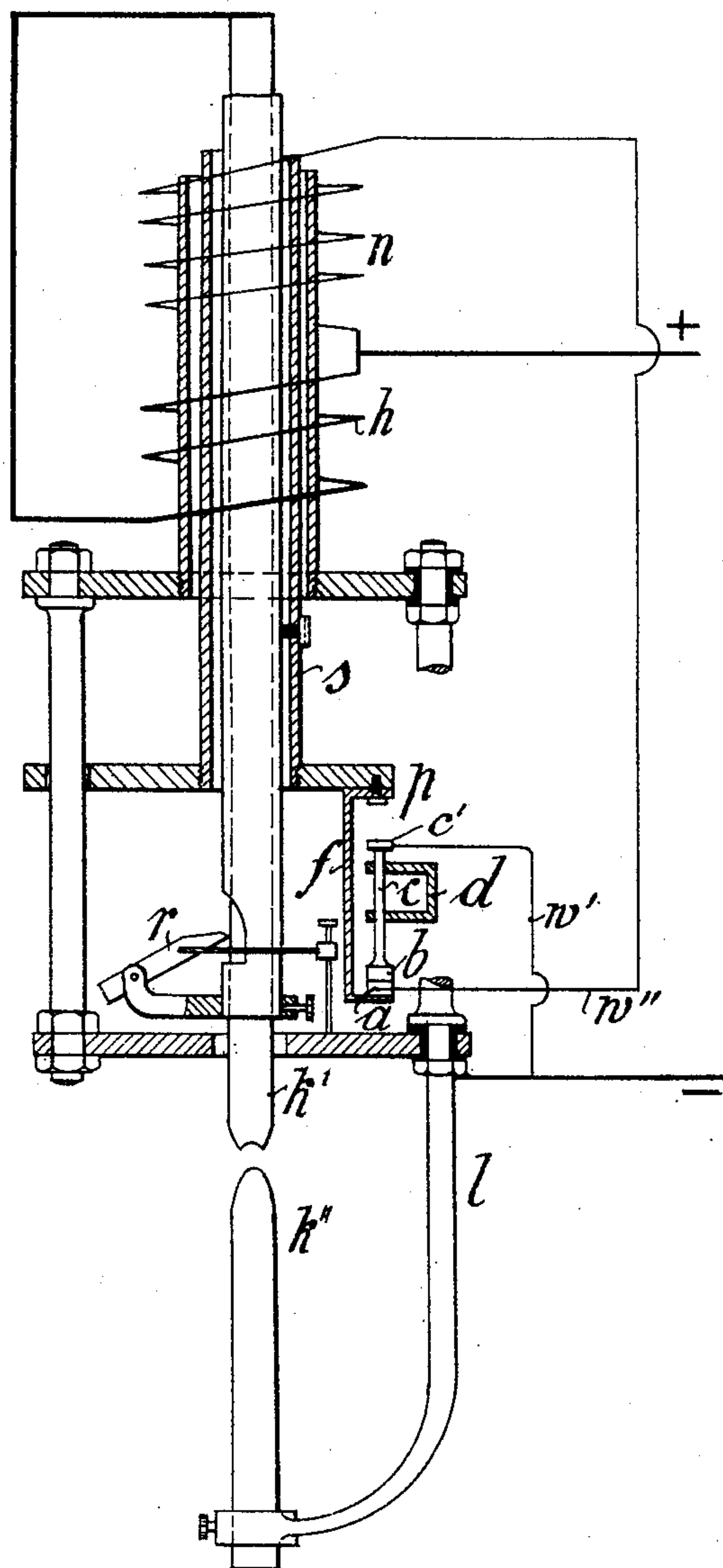


No. 787,043.

PATENTED APR. 11, 1905.

B. JACKISCH.  
ELECTRIC ARC LAMP.  
APPLICATION FILED SEPT. 23, 1904.



Witnesses:  
J. D. Mogg Pool  
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# UNITED STATES PATENT OFFICE.

BRUNO JACKISCH, OF CHARLOTTENBURG, GERMANY, ASSIGNOR TO THE FIRM OF ALLGEMEINE BELEUCHTUNGS UND HEIZ INDUSTRIE ACTIEN GESELLSCHAFT, OF BERLIN, GERMANY.

## ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 787,043, dated April 11, 1905.

Application filed September 23, 1904. Serial No. 225,629.

*To all whom it may concern:*

Be it known that I, BRUNO JACKISCH, a subject of the King of Prussia, Emperor of Germany, residing at Charlottenburg, Germany, have invented certain new and useful Improvements in Regulating Mechanism for Arc-Lamps; 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 appertains to make and use the same.

In differential arc-lamps and arc-lamps controlled by means of shunt-coils alone the shunt-coils remain in circuit when the arc is ruptured unless the entire lamp has been cut out of circuit. This involves the danger of short-circuits, more particularly in those cases in which the rupture of the arc is due to the burning away of one of the carbons.

The object of the present invention is to provide means for automatically cutting the shunt-coil out of circuit when the main circuit is broken—that is to say, when the arc is ruptured.

One form of the invention is diagrammatically illustrated in the annexed drawing in connection with a differential arc-lamp. Its application to shunt-controlled lamps will be obvious from the following description.

In the drawing, the series coil is indicated by *h* and the shunt-coil by *n*. These two coils act on the solenoid-core *s*, which is adapted to operate the clutch *r*. The latter releases the upper carbon *k'* when the gap has become too large and the current in the series coil has fallen below a certain value.

According to the present invention the shunt-circuit is not joined up with the main circuit in a permanent manner, but includes contacts *a* and *b*, which are only closed while the lamp is working. For this purpose the contact *a* is rigidly connected with the solenoid-core, for instance, by means of the rod *f* and the plate *p*. The rod *f*, which carries the contact-stud *a* and is adapted to move with the solenoid-core, is of an exactly predetermined length. The contact-stud *b* is fixed to the short

rod *c*, which is adapted to move in the insulated guide *d* and to take part, to a certain extent, in the movements of the rod *f*. If, however, the rod *f* descends below a certain limit, a knob or stud *c'* at the upper end of the rod *c* abuts against the upper surface of the guide *d* and stops the downward movement of the rod *c*, so that a gap of a certain width is produced between the contacts *a* and *b*. By this means the shunt-circuit is broken, the rod *c* being connected by the wire *w'* with the negative terminal of the lamp, and the contact *a* being connected with the shunt-coil by means of the wire *w''*. While the lamp is working normally, the shunt-circuit is closed, whereas if from any cause the arc-circuit is broken, so that the solenoid-core completely descends, the shunt-circuit is broken by the interruption of contact at *a b*. It is obvious that the wire *w''* can be connected to the rod *c* instead of to the contact *a*, the latter being in that case connected with the wire *w'*; but since the entire upper part of the arc-lamp is positively electric the reversal of polarity obtained by the method of connection shown in the diagram is preferred, since it causes the spark produced by the breaking of contact at *a b* to be reduced to a minimum, owing to the opposite nature of the currents induced by the collapsing of the magnetic fields of the coils.

Having described my invention, I claim—

1. In an electric-arc lamp, the combination, with a slidable upper-carbon holder, and a contact-piece secured thereto; of a guide, a bar slidable in the said guide and provided with a stop which limits its downward movement, a contact-piece carried by the said bar and normally resting on the aforesaid contact-piece, and a shunt-coil connected in circuit with the said contact-pieces so that the shunt-circuit is broken when the carbon-holder descends to a prearranged point.

2. In an electric-arc lamp, the combination, with a slidable upper-carbon holder, and a contact-piece secured thereto; of a guide, a bar slidable in the said guide and provided

with a stop which limits its downward movement, a contact-piece carried by the said bar and normally resting on the aforesaid contact-piece, and a shunt-coil connected in circuit  
5 with the said contact-pieces so that the shunt-circuit is broken when the carbon-holder descends to a prearranged point, and the polarity of the said contact-pieces being arranged in

the reverse direction from that of the current producing the arc.

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

BRUNO JACKISCH.

Witnesses:

HENRY HASPER,  
WOLDEMAR HAUPT.