

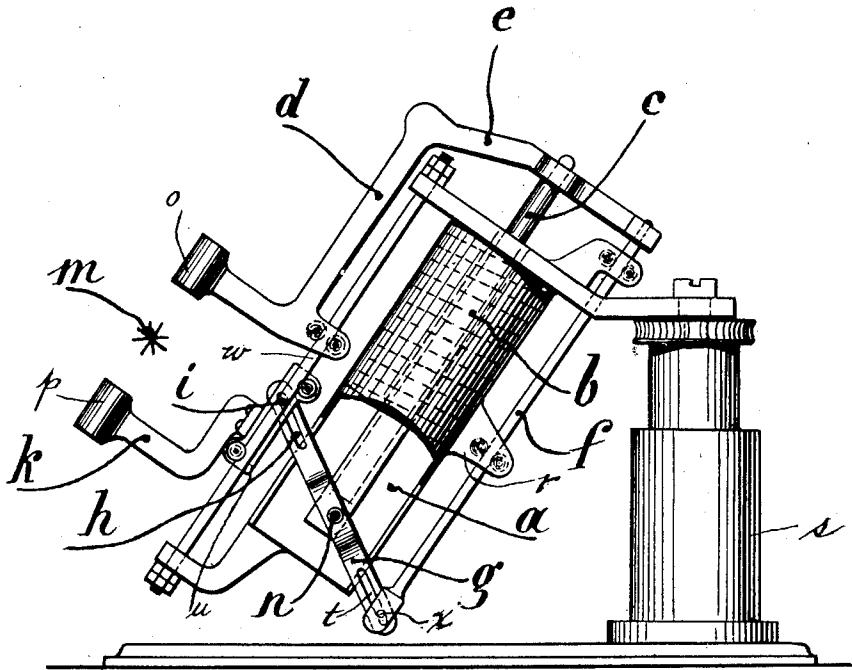
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ARC LAMP.

APPLICATION FILED AUG. 9, 1909.

1,059,451.

Patented Apr. 22, 1913.



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UNITED STATES PATENT OFFICE.

GUSTAV GEIGER, OF MUNICH, GERMANY.

ARC-LAMP.

1,059,451.

Specification of Letters Patent.

Patented Apr. 22, 1913.

Application filed August 9, 1909. Serial No. 512,031.

To all whom it may concern:

Be it known that I, GUSTAV GEIGER, a subject of the King of Bavaria, resident of Munich, Bavaria, Germany, have invented certain new and useful Improvements in Arc-Lamps, of which the following is a specification.

This invention relates to a series arc lamp with automatical regulation of the carbons and more particularly to automatic projector lamps.

This invention relates to a self regulating projector arc lamp, the construction of which is improved in such a manner that the focus is always maintained at the same point by means of a very simple mechanism. The armature of the solenoid in series acts directly upon the upper carbon-holder and it effects at the same time the movement of the lower carbon-holder by means of a lever connection.

The self regulating arc lamp is shown in the accompanying drawings in partial longitudinal section.

In the frame *a* fixed upon a support *s* the solenoid *b* is mounted in series. The armature *c* of the solenoid *b* directly operates the upper carbon-holder *d* which has at its upper end an arm *e* fixed upon the upper end of said armature *c*. The lower end of the carbon-holder *d* is guided in the well known manner upon the guide rod *n* by means of grooved rollers. The guide rod *w* forms part of the frame *a*. The carbon of the upper carbon-holder *d* (not shown in the drawings) is mounted in the sleeve *o*. The lower carbon is fixed in the sleeve *p* of the lower carbon holder *k*.

In the free end of the upper arm *e* of the upper carbon holder a rod *f* is fixed the other forkshaped end of which is guided by means of its pin *x* in the longitudinal slot *t* of a two armed lever *g* which is pivoted at *n* on the frame. Said lever *g* is curved at its middle so as to keep away from the solenoid *b*. The pusher rod *f* is guided in a shoulder *r* of the frame *a*. The other end of the lever *g* has a longitudinal slot *h* with which en-

gages a pin *i* of a slide *u* mounted upon the rod *w* and to which the lower carbon-holder *k* is fixed. The lower carbon-holder *k* therefore moves in unison with the upper carbon-holder *d* and the stability of the focus *m* is insured. The carbon-holders *d* and *k* oscillate like the equal arms of the beam of a balance.

The transmission of motion from the armature *c* which is lifted by the solenoid when current is being sent through the same, to the two carbon-holders *d* and *k* is very simple and the self regulating projector arc lamp is distinguished by a very steady light.

The automatic regulation of the carbons is effected as follows:—As long as no current is sent into the lamp the two carbons are in contact but as soon as current is sent into the lamp the carbon holders are moved away the one from the other owing to the upward motion of the armature *c*. This armature *c* lifts the upper carbon-holder by means of the supporting arm *e* and lowers at the same time the lower carbon-holder *k* through the intermediary of the rod *f* and of the lever *g*. The arc is produced. As soon as the resistance of the arc increases owing to the burning away of the carbons, the intensity of the current which flows through the solenoid is reduced and the attraction on the armature is decreased and the carbons are permitted to approach each other until the arc and current are again normal. As the transmission of the regulating motion is effected by means of levers which are rigidly connected with each other, the friction is greatly reduced so that the arc lamp burns with a constant flame even at the low voltage of only 4 amperes.

I claim:—

A self regulating projector arc lamp comprising in combination with the frame of the lamp, the solenoid in series, the armature of said solenoid, the upper carbon-holder mounted upon the upper end of said armature so that its upper arm extends to the rear of the frame, a pusher rod fixed to the free end of the upper carbon-holder means for

guiding said pusher rod parallel with the armature, a lever pivoted at its middle upon the frame and hinged with its rear end to the lower end of said pusher rod, and having a longitudinal slot in its other end, the
5 ing a longitudinal slot in its other end, the lower carbon-holder, a stud projecting from said carbon-holder and engaging with said longitudinal slot of the connecting lever,

substantially as described and shown and for the purpose set forth.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

GUSTAV GEIGER.

Witnesses:

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