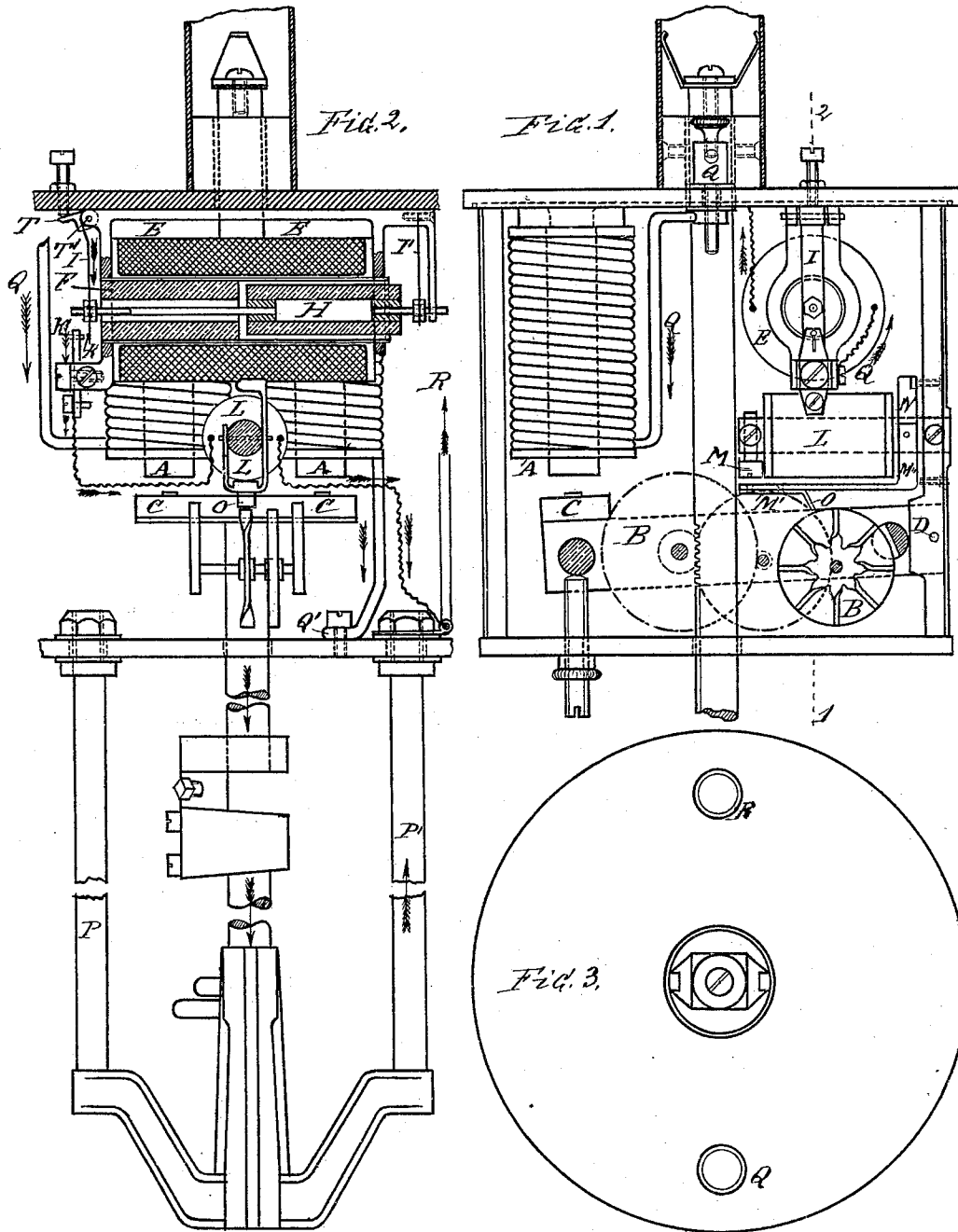


(No Model.)

A. DE PUYDT.
ELECTRIC ARC LAMP.

No. 488,329.

Patented Dec. 20, 1892.



Witnesses:
A. B. Dwyer
R. A. Hopper

Inventor: Albert de Puydt.
by G. Kistner,
Attorney

UNITED STATES PATENT OFFICE.

ALBERT DE PUYDT, OF LIEGE, BELGIUM.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 488,329, dated December 20, 1892.

Application filed February 17, 1892. Serial No. 421,906. (No model.) Patented in Belgium December 19, 1888, No. 84,349; December 14, 1889, No. 88,852, and February 3, 1890, No. 89,383, and in England October 21, 1890, No. 16,792.

To all whom it may concern:

Be it known that I, ALBERT DE PUYDT, a subject of the King of Belgium, residing at Liege, in the Kingdom of Belgium, have invented certain new and useful Improvements in Regulating Devices for Electric-Arc Lamps, (for which I have obtained patents in the following countries, to wit: Belgium, No. 84,349, dated December 19, 1888; No. 88,852, dated December 14, 1889, and No. 89,383, dated February 3, 1890, and England No. 16,792, dated October 21, 1890;) 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.

I, ALBERT DE PUYDT, engineer of 253 Rue St. Gilles St. Liege, Belgium, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

In the drawings, Figure 1 is a side view of the regulating device for electric arc lamps. Fig. 2 is a section of Fig. 1 on the line 1, 2. Fig. 3 is a top view of the lamp.

In the regulating solenoid E, made of fine German silver wire, is adapted an iron tube F, while another tube H is suspended within the said solenoid by means of two flat springs I, I', the said tube H being movable in the axis of the solenoid. As the tube H moves it makes or breaks the contact between the two pieces K and K'. The piece K is always in electrical connection with the upper carbon. The support for the solenoid E is of non-magnetic metal.

A is an electro-magnet formed of thick wire through which circulates the main current.

B is a clockwork operated by the weight of the upper carbon holder and pivoting on an axis D when the electromagnet A actuates the armature C secured upon B.

The spring I is fastened to a movable piece T which can pivot on an axis T'; by means of a set-screw V, the tension of the spring I can be adjusted and thus more resistance can be opposed to the action of the current, thereby determining the length of the arc.

L is an electro-magnet formed of fine wire,

the magnetic circuit of which is only interrupted between M, M'; from time to time this magnet attracts the armature M' M'' which is movable on an axis N that is to say the armature is attracted when the carbons are too far apart and when owing to a strong current passing through the solenoid, the tube H is drawn sufficiently toward the left to cause the pieces K and K' to come to contact. Upon the armature M' M'' is fastened a stop O for the clockwork; the movement of this armature causes the clockwork to be put in and out of gear. One end of the electro-magnet L is connected to the lower carbon and the other end is connected to the piece K' above referred to.

Operation.—Let it be supposed that the carbons are in contact with each other at the time the current is thrown in the lamp, the electro-magnet A will be magnetized, and will attract the armature C which latter then causes the clockwork to oscillate upwardly. The upper carbon fastened to the rack rises, the rack-gearing with one of the tooth wheels of the clockwork. The separation of the carbons being thus produced, the arc will be formed between them. Suppose now the carbons having been consumed to a certain extent, the difference of potential between them will increase, so that the regulating solenoid E will receive the current which is gradually increasing; the tube H will move more and more to the left as it is attracted by the solenoid E and by the tube F. Finally at a given moment when the arc is sufficiently great, a contact between the platinum pieces K and K' will be established, whereby a derived current will be sent into the electro-magnet L. The electro-magnet L will now attract the armature M' M'' so as to start the clockwork; the carbons will then approach each other until the contact between K and K' has ceased owing to the less great difference of potential resulting from the approachment of both carbons. This action takes place, each time the arc has become sufficiently great. If the carbons are not in contact when the lamp is started, the clockwork, will have been first liberated as above mentioned, whereupon the carbons will have been brought

in contact with each other, and then the rest of the operations will take place as before mentioned.

5 The solenoid E is of fine German silver wire and not of brass wire, in order that the difference of temperature may have less influence upon the regulation of the arc.

10 The lower carbon holder can be movable; it is sufficient that it be guided by the two vertical columns P and P' and that it be suspended to a chain or cord passing around a pulley placed in the lamp, and fixed by its other end to the upper carbon holder; as the latter descends it would cause the lower carbon holder to rise.

15 The regulating solenoid E might be replaced by a closed electro-magnet having its armature completely outside or not, but the hereinbefore mentioned arrangement is preferable.

20 The clockwork might be replaced by a fly-

wheel or a cataract and the device for putting the clockwork in and out of gear might be replaced by a brake. Finally the solenoid E might produce two contacts similar to the one 25 described (K and K') the one at the left for causing the carbons to come together and the other for causing them to separate.

Having thus described my invention, what I desire to secure by Letters Patent, is:— 30

The combination in an arc light of a solenoid in a circuit about the carbons, carrying a stationary core and a movable core, the latter being suspended from two blade springs, and carrying contacts controlling the circuit 35 including the feed regulating magnet.

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

ALBERT DE PUYDT.

Witnesses:

J. GROSS,

JAMES R. DANFORTH.