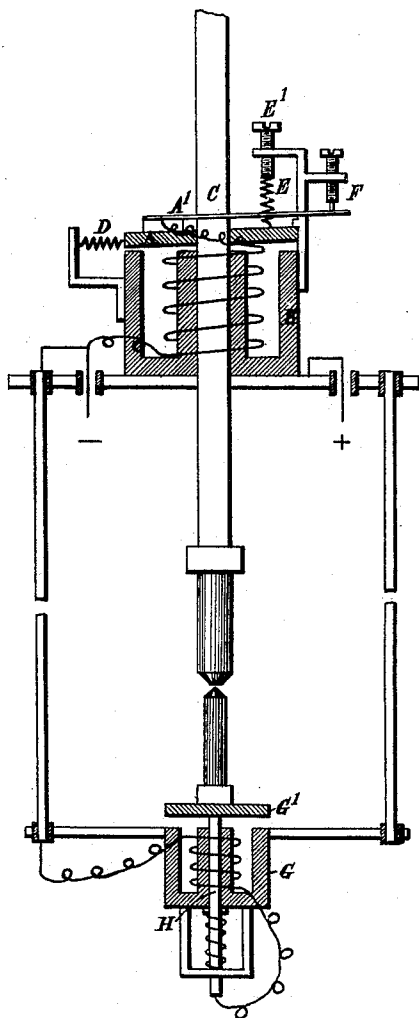


(No Model.)

H. WILBRANT.
ELECTRIC ARC LAMP.

No. 507,867.

Patented Oct. 31, 1893.



Witnesses;
G. H. Rea,
J. A. Saul.

Inventor;
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By James L. Norris.
Atty.

UNITED STATES PATENT OFFICE.

HENRI WILBRANT, OF BRUSSELS, BELGIUM, ASSIGNOR TO HENRY CHAPMAN
AND LOUIS STERNE, OF LONDON, ENGLAND.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 507,867, dated October 31, 1893.

Application filed July 6, 1893. Serial No. 479,713. (No model.) Patented in Belgium October 15, 1891, No. 96,663, and April 15, 1892, No. 98,978; in France April 1, 1892, No. 220,592; in England April 1, 1892, No. 6,364, and in Switzerland April 1, 1892, No. 4,964.

To all whom it may concern:

Be it known that I, HENRI WILBRANT, chief electrician of the town of Brussels, a subject of the King of the Belgians, and a resident of Brussels, Belgium, have invented certain new and useful Improvements in Electric-Arc Lamps, (for which I have obtained patents in Belgium, No. 96,663, dated October 15, 1891, and No. 98,978, dated April 15, 1892; in France, No. 220,592, dated April 1, 1892; in England, No. 6,364, dated April 1, 1892, and in Switzerland, No. 4,964, dated April 1, 1892,) of which the following is a specification, reference being had to the accompanying drawing.

My invention relates to electric arc lamps and has for its object to provide simple and reliable mechanism for regulating such lamps.

The chief feature of my said invention relates to the provision of an electro-magnet and an armature which latter acts directly upon the carbon holder without any intermediate mechanism for the purpose of regulating the feeding of the carbon as the latter is consumed. The lamp comprises also a lighting or arc-striking mechanism of a simple kind.

In the accompanying drawing I have shown a central vertical section of an arc lamp constructed according to my invention.

A is an armature of a tubular electro-magnet B, the core of which magnet is provided with a hole through its axis serving to guide the upper carbon holder C. The coil of this electro-magnet is included in a shunt on the arc. The armature A is in the form of a disk, and is perforated at its center with a hole corresponding to that in the electro-magnet and through which the upper carbon holder C also passes. A spring D acts upon the armature A and tends to draw the rod C toward the left thereby wedging the said rod and maintaining it immovable, in the hole in the armature. A spring E acts upon the armature so as to move it upward after it has been attracted by the electro-magnet. The tension of this spring is so regulated by means of a screw E' that the armature A is attracted by its electro-magnet when the burning of

the carbon necessitates the approach of the latter.

To the upper surface of the armature A a strip A' is fixed by means of a small insulating block. The said strip makes contact with a stop F, and both the strip and the stop are included in the circuit of the electro-magnet, in such a manner that any break of contact between the strip and the stop produces an interruption in the current through the electro-magnet.

The arc striking mechanism comprises a tubular electro-magnet G through the center of which the lower carbon holder H passes. This holder is firmly secured to the armature G' of the said electro-magnet as shown. The conductor which surrounds the arc-striking electro-magnet is in series with the arc.

My improved arc lamp is operated in the following manner:—If the carbons of the lamp are not in contact the whole current passes through the shunt electro-magnet B and the armature A is attracted. In this movement the armature carries with it the upper carbon holder C and causes it to descend through a distance equal to the space between the armature and the cores of the electro-magnet. The downward movement of the armature A which carries the strip A' however breaks the contact at F and the armature therefore moves upward again under the action of the spring E. This upward movement does not raise the rod C, owing to the weight of the said rod. The contact at F being re-established, a fresh downward movement of the armature insuring a corresponding farther descent of the carbon rod takes place, and this intermittent descent of the rod continues until the two carbons come in contact. When this occurs the shunt magnet A is practically short circuited and the whole current passes through the carbons and also through the electro-magnet G arranged at the lower part of the lamp, the armature of said electro-magnet is thereby attracted and descends thus separating the carbons and striking the arc. As the arc lengthens its resistance increases and more current

passes through the shunt magnet A causing the series of movements herein above described to recur till the carbons are brought to the proper distance apart.

- 5 It will be understood that it is not necessary that the electro-magnet A be of tubular form, nor for the armature to be in the form of a disk. Any armature may be used, provided it is formed with an aperture through
10 which the carbon holder passes and in which the said holder can be wedged as above set forth.

What I claim is—

- 15 In an electric arc lamp, the combination with the upper carbon holder, of an electro-magnet included in a shunt on the arc, an armature adapted to be attracted by said electro-magnet and having a hole for passage

of the upper carbon holder and through which it is directly connected with and adapted to control said carbon holder, regulating springs for controlling said armature, a strip connected with but insulated from the armature, and a stop with which said strip is adapted to make and break contact, said strip and stop being included in the circuit of the electro-magnet whereby any break of contact between them will interrupt the current through the electro-magnet, substantially as described.

In witness whereof I have hereunto set my hand this 12th day of June, 1893.

H. WILBRANT.

Witnesses:

F. DE PAUM,
L. MASSON.