

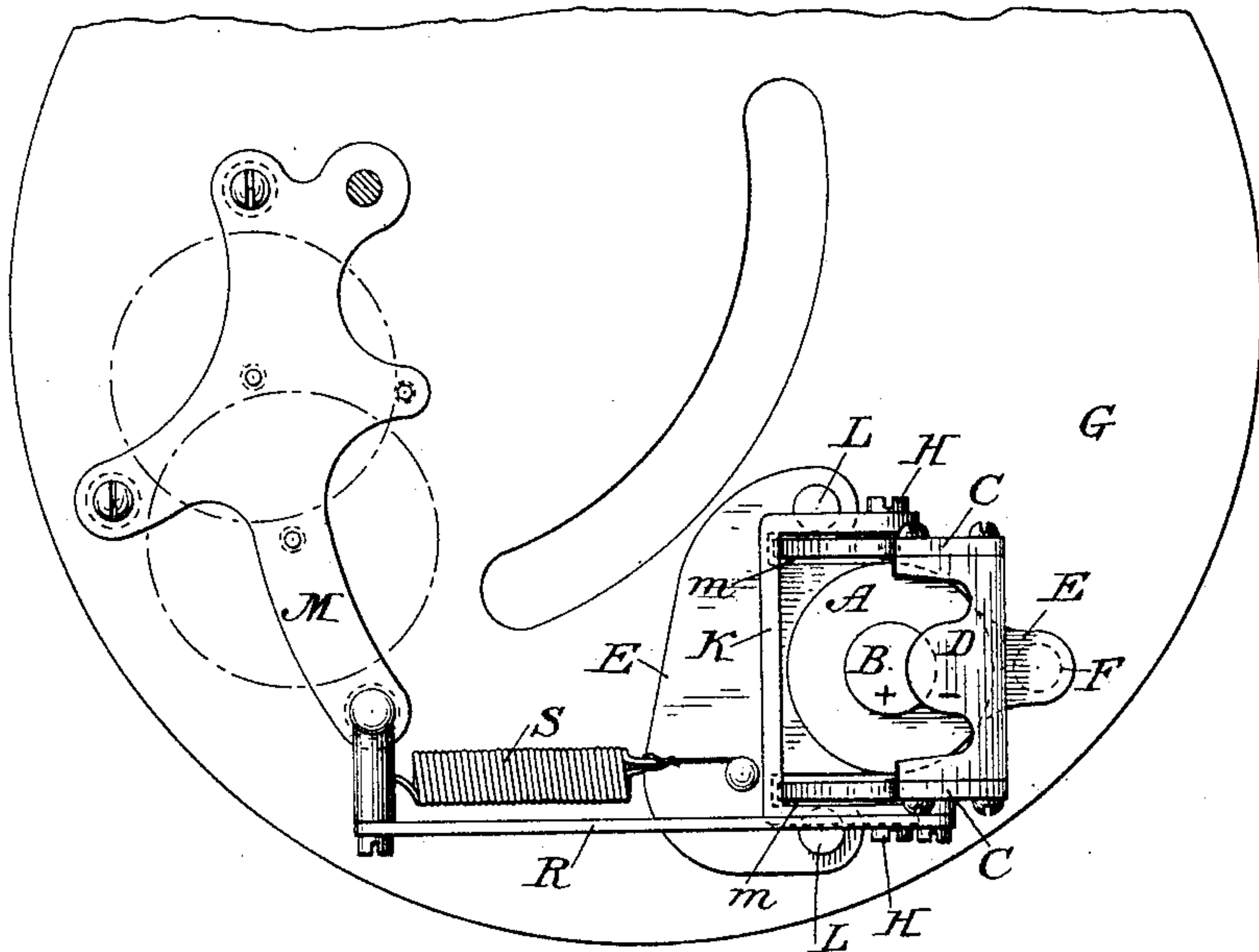
(No Model.)

O. E. LUNDSTEDT.  
ELECTRO MAGNET.

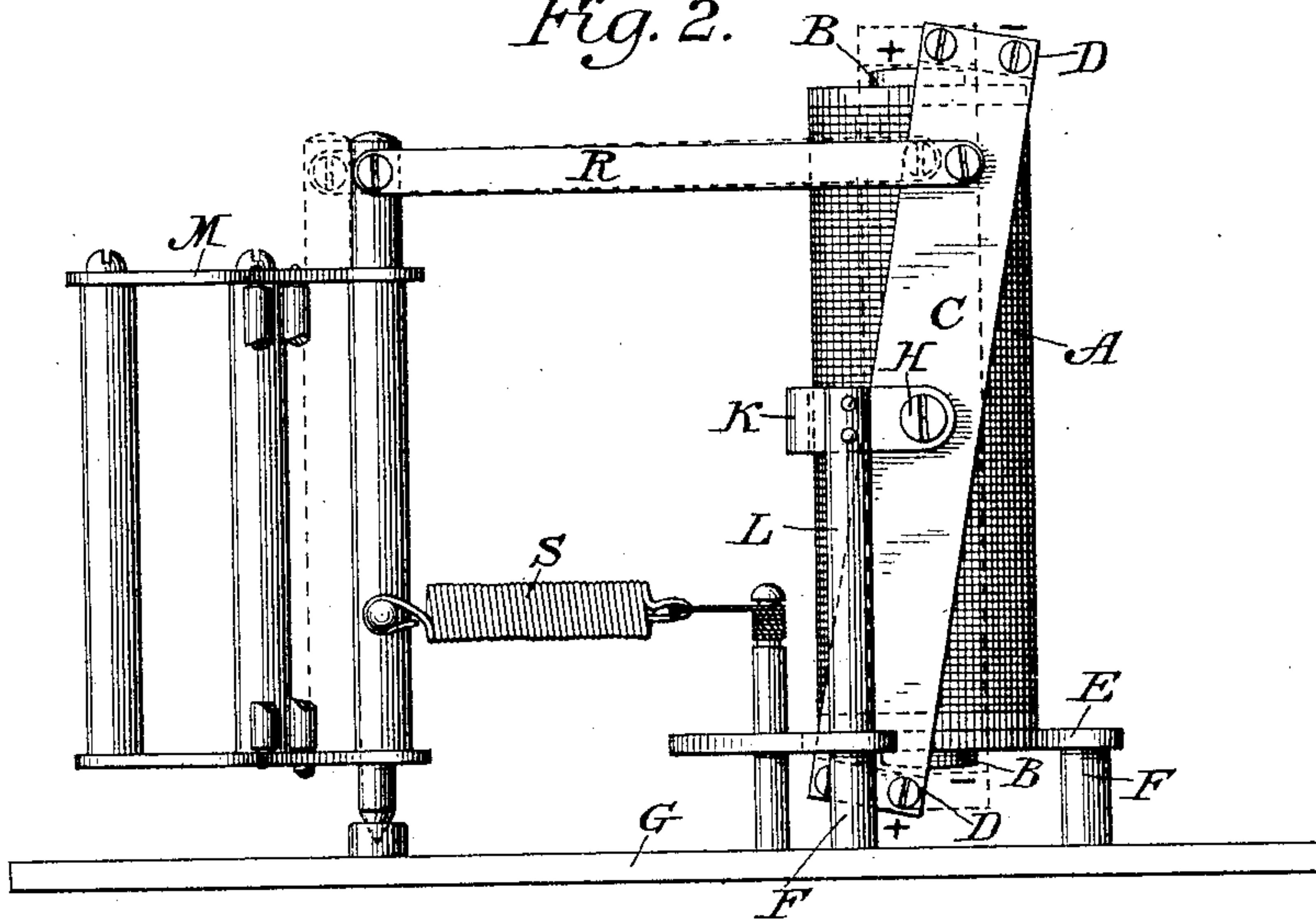
No. 464,198.

Patented Dec. 1, 1891.

*Fig. 1.*



*Fig. 2.*



*Attest:*  
*A. N. Jespersen*  
*& M. Station*

*Inventor:*  
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*By David A. Burr*  
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# UNITED STATES PATENT OFFICE.

OLOF EMIL LUNDSTEDT, OF BROOKLYN, NEW YORK, ASSIGNOR TO JOHN M. GLOVER, OF ST. LOUIS, MISSOURI.

## ELECTRO-MAGNET.

SPECIFICATION forming part of Letters Patent No. 464,198, dated December 1, 1891.

Application filed February 2, 1891. Serial No. 379,896. (No model.)

*To all whom it may concern:*

Be it known that I, OLOF EMIL LUNDSTEDT, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Electro-Magnets; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making  
10 a part of this specification.

My invention relates to an improved electro-magnetic movement applicable more especially to the controlling mechanism in an electric-arc lamp.

15 It consists, chiefly, in the combination, with an electro-magnet comprising a straight core and an encircling coil, of a double armature consisting of soft-iron plates fixed upon the opposite ends of parallel bars embracing the magnet between them, so as to constitute an encircling frame, and pivoted midway their  
20 length in a plane coincident with the axis of the magnet, so that said armature-plates may severally swing in opposite directions over the ends or poles of the core, substantially as is  
25 hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a top view of an electro-magnet having my invention applied thereto, the magnet being connected with the regulating mechanism of a double-disk arc-lamp, shown but in part; and  
30 Fig. 2 is a side elevation of the same.

A represents a simple electro-magnet whose coil encircles a straight core-piece B of soft  
35 iron.

The magnet is secured vertically upon a supporting-plate E, mounted upon pillars F F on the base-plate G of an arc lamp, said supporting-plate being formed with parallel slots *m*  
40 *m* (see Fig. 1) therein, which are tangential with the periphery of the base of the magnet.

Parallel iron bars C C, of a length exceeding that of the magnet A, are fitted to embrace the magnet between them, their lower ends  
45 extending through the slots *m m* of the supporting-plate. These bars are mounted to swing upon pins H H, placed in a line passing diametrically through the axis of the magnet at about midway its length, and are connected at each end by armature-plates D D,  
50

of soft iron, which, when the bars C C are swung into a vertical position, will extend transversely over the two ends of the magnet in proximity to its poles. The pivot-pins H H are fixed in a bracket formed of a bent or  
55 curved plate K, partially embracing the magnet and supported upon two posts or standards L L on the base-plate G.

The attraction of the magnet A upon its armature will operate to swing the lateral bars C C into their vertical position, and this action of the magnet is rendered the more powerful and effective by reason of the fact that the polarity of each of the connected armature-plates D D will be opposed to that of the  
60 corresponding end of the magnet, so that the armature opposite the positive pole will be negative, and vice versa.

It is evident that instead of using two bars C and C for connecting the armature-plates  
65 they may be connected by a single centrally-pivoted bar of iron, the use of the double bars being preferred in order to obtain a closed system around the magnet and consequently much stronger magnetism in the end plates,  
70 as well as to secure a wider pivotal bearing for the closed armature.

The movement of the swinging frame or closed armature, consisting of the lateral pivotal iron bars C C and the soft-iron plates D  
75 D at the ends thereof, may be utilized for various purposes. In the drawings, one of the bars C is shown as connected near its upper end by a coupling-link R with the free end of a vertically-pivoted frame M, normally carried toward the magnet by means of a spring  
80 S. This frame M is adapted to carry the regulating mechanism in an electric-arc lamp, such as is described in my pending application for Letters Patent, Serial No. 371,783,  
85 and which need not herein be more particularly described. The contraction of the spring S operates to swing the armature-plates D D off of the magnet, as shown in positive lines,  
90 Fig. 2. When, however, the magnet is excited, it will, by its attraction upon said plates, draw the bars C C into their vertical position, (see dotted lines, Fig. 2,) and their movement will operate to swing the frame M away from the magnet against the stress of the spring S,  
95 100



which will then come into play to return the armature to its normal position of rest so soon as the magnet becomes inert.

I claim as my invention—

5 1. The combination, with an electro-magnet, of an encircling frame of soft iron centrally pivoted to allow the end plates of the frame to swing in unison from opposite directions over the poles of the magnet, substantially in the manner and for the purpose  
10 herein set forth.

2. The combination, with a slotted base-plate, of an electro-magnet having a straight core mounted upon said base-plate, an iron  
15 bar centrally pivoted to swing alongside of the magnet parallel with its core and to extend beyond its ends, armature-plates of soft iron attached to the ends of the bar to be carried thereby each from an opposite direction  
20 over the ends of the core, and a bracket supporting the pivotal bearing for the swinging

bar, all substantially in the manner and for the purpose herein set forth.

3. The combination, with an electro-magnet, of the parallel swinging bar centrally piv- 25  
oted in line with the axis of the magnet, the armature-plates at each end of said bar, connected thereby to swing over opposite poles of the magnet, a movable device coupled to  
30 the swinging bar to be actuated by its movement when the magnet is excited, and a spring operating to retract the armature when the magnet is inert, substantially in the manner and for the purpose herein set forth.

In testimony whereof I have signed my 35  
name to this specification in the presence of two subscribing witnesses.

OLOF EMIL LUNDSTEDT.

Witnesses:

A. N. JESBERA,  
E. M. WATSON.