

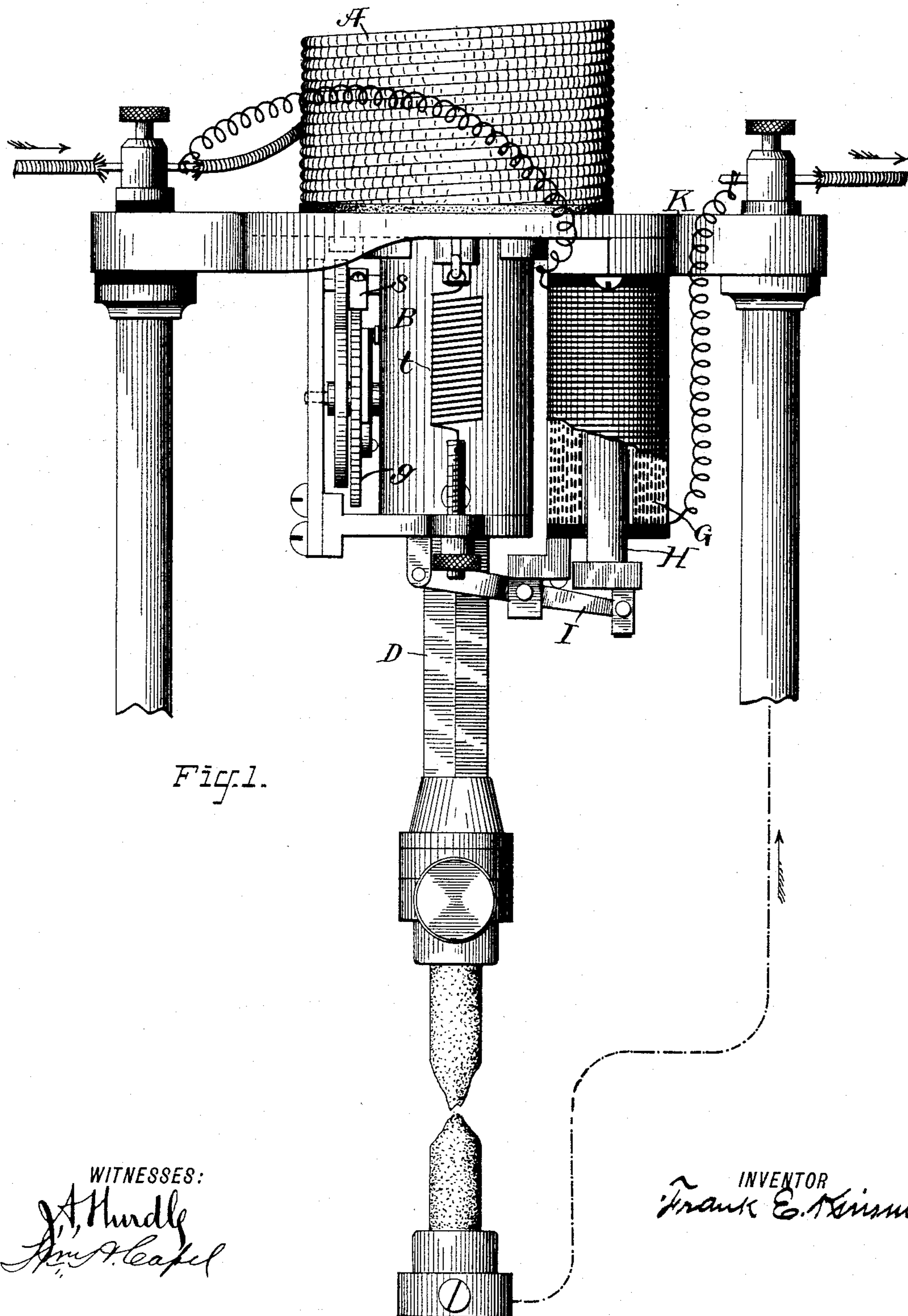
(No Model.)

2 Sheets—Sheet 1.

F. E. KINSMAN.
ELECTRIC ARC LAMP.

No. 411,287.

Patented Sept. 17, 1889.



(No Model.)

2 Sheets—Sheet 2.

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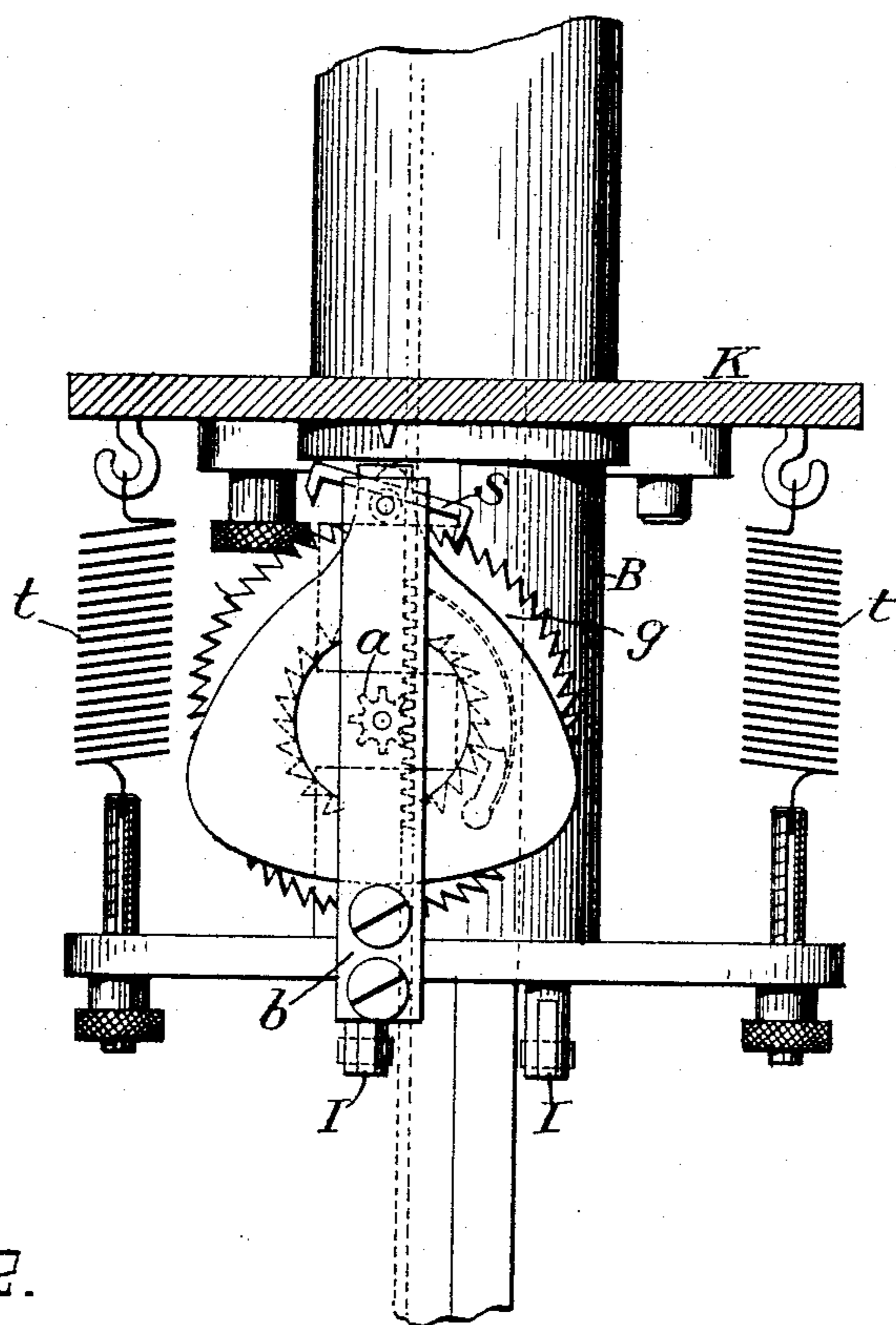


Fig. 2.

WITNESSES:

J. A. Hurdle
W. K. Capel

INVENTOR

Frank E. Kinsman

UNITED STATES PATENT OFFICE.

FRANK E. KINSMAN, OF NEW YORK, N. Y.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 411,287, dated September 17, 1889.

Application filed July 20, 1889. Serial No. 318,132. (No model.)

To all whom it may concern:

Be it known that I, FRANK E. KINSMAN, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Electric-Arc Lamps, of which the following is a specification.

My invention relates to a particular organization of regulating-magnets and feed-controlling mechanism in an electric-arc lamp.

The object of my invention is to secure effectiveness, simplicity, and compactness, to which ends my invention consists in the particular organization hereinafter described in connection with the accompanying drawings and specifically claimed.

In the accompanying drawings I have shown in Figure 1, in elevation, an organization of magnets and feed-controlling mechanism embodying my invention. Fig. 2 is a side elevation of the feed-controlling mechanism as connected to the carbon-carrier.

A indicates a coil or solenoid of coarse wire included in the main electric circuit from any suitable source and properly mounted on a frame or support K, as indicated.

B is a movable core for such coil, which core depends from the coil, as shown, so as to be lifted by the action of the currents circulating in the coil A.

D indicates the usual carbon-holder or rod for an electric-arc lamp, which rod extends axially through the core B, as indicated, and is engaged by a clutch or other feed-controlling mechanism of any desired description. Supported directly by said core is a carbon-lifting and feed-controlling mechanism of any desired character, properly organized to cause the carbon to be lifted when the core rises and carries such mechanism with it, and to sustain the parts in normal position while the carbons are burning, but to permit the carbon to feed when the core is depressed below the normal position which it holds while the arc is of normal length. A type of mechanism of this character is herein illustrated, and consists simply of a pinion *a*, mounted in a frame *b*, carried by the core B, and connected through a ratchet with an escapement-wheel *g*, the vibratory retarding-escapement

of which, also carried by the core, is indicated at *s*. An upward extension from such vibratory escapement, or the spindle thereof, is adapted to engage with or be disengaged from a stud on a fixed part of the frame-work of the lamp. In this organization when the core is lifted the escapement is engaged and prevented from vibrating, so that the carbon cannot descend, but when the core is depressed the escapement is released and the carbon-rod may then feed downward slowly. Springs *t*, connected to extensions from the lower part of the core, serve to assist in sustaining the weight of said core and connected parts.

G indicates a derived-circuit magnet-coil, which is of fine wire, as is usual in the art, and is included in a branch or derived circuit, as shown, between the main connecting-posts of the lamp, so as to be in derivation to the arc and main-circuit coil. The solenoid or coil G is preferably supported on the under side of the frame or plate K, and has its core H depending or extending from the lower end of the coil, so that the action of the coil will be to lift the core.

I is a suitably-pivoted link which connects the core H with the core B, so that as the core H is raised by the action of the coil G the core B, with the connected clamp or clutch, will be lowered to cause the clutch to release the carbon-carrier, so that the carbon may be fed downward.

The lamp operates in the following manner: When no current is on the circuit, the carbons are in contact and the core B is lowered to its fullest extent. When the current is turned on, the core B rises, thus separating the carbons to form the arc. As the arc lengthens, the derived-circuit coil G increases in power until, finally, it pulls upward on its core to such an extent that the core B is depressed, thus causing the upper carbon to feed downward.

It will be seen that in this organization the derived-circuit coil, instead of operating upon the core B for the main-circuit coil, acts upon a separate core, while at the same time the organization is extremely simple and compact.

I am aware that it is old to employ in an

electric-arc lamp a main-circuit coil and a derived-circuit coil for producing a feed of the carbon; and I am also aware that it has heretofore been proposed to make the cores
5 of such coils movable and to connect them with the clutch or regulating mechanism. I do not, therefore, claim these devices or construction, but limit myself to the special organization as herein described and claimed.

10 What I claim as my invention is—

The combination, substantially as described, of a main-circuit coil, a depending movable core therefor, a carbon-holder passing axially through such core, a carbon-lifting and feed-
15 controlling mechanism sustained by the core

and engaging with the carbon-carrier, a derived-circuit magnet-coil, a depending core therefor, and a pivoted link connecting the same with the main-circuit core, so as to depress the same for the purpose of releasing
20 the feed mechanism when the derived-circuit magnet-core is raised by its coil.

Signed at New York city, in the county of New York and State of New York, this 13th day of July, A. D. 1889.

FRANK E. KINSMAN.

Witnesses:

WM. H. CAPEL,
HUGO KOELKER.