(No Model.)

2 Sheets—Sheet 1.

A. B. WORTH.

ELECTRIC ARC LAMP.

No. 324,792. Patented Aug. 18, 1885.

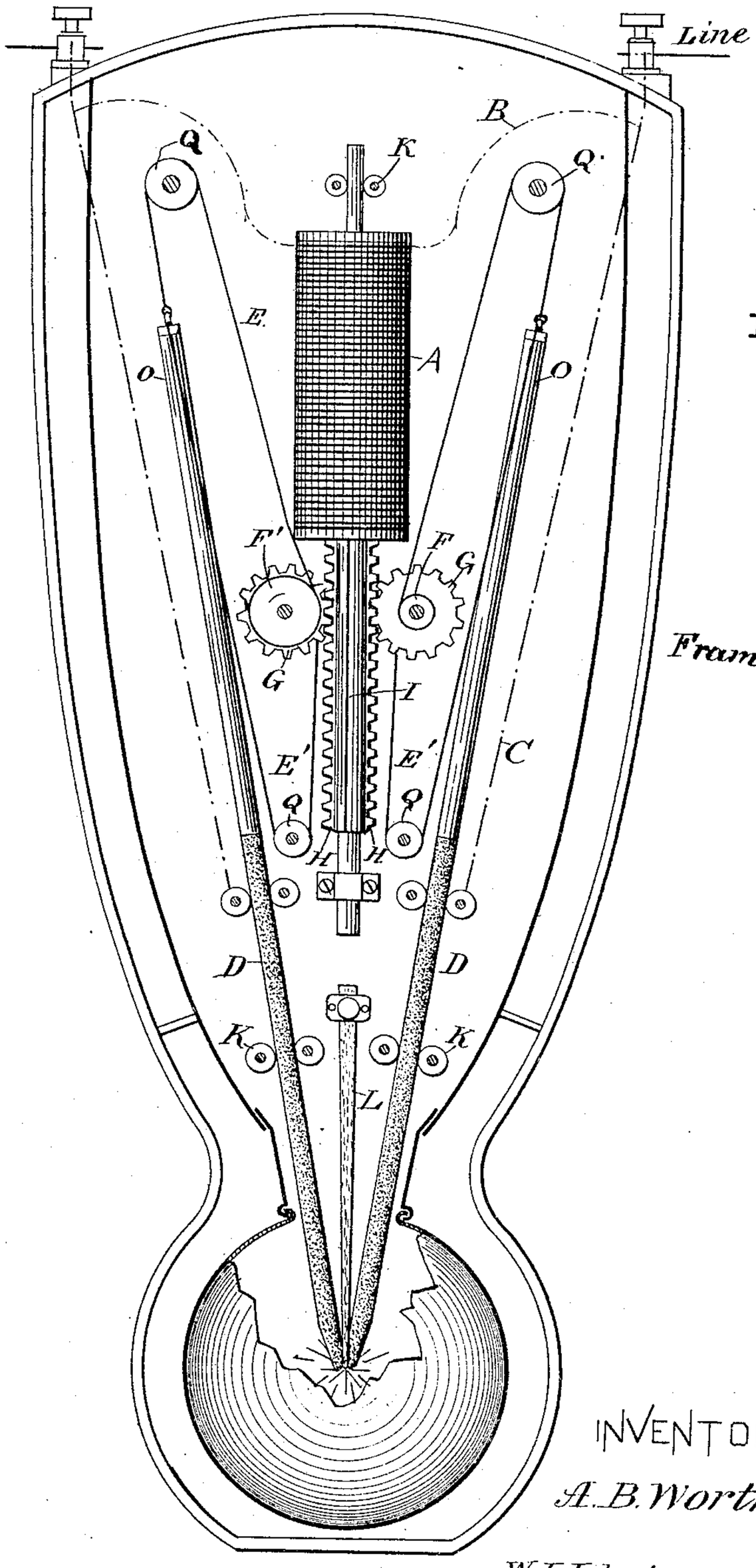


Fig. 1.

ATTEST:
J. A. Hurdle
E. V. Kenyon

INVENTOR:
A. B. Worth.

W. J. Johnston Atty.

By Asso. Atty Edward P. Thompson.

(No Model.)

2 Sheets—Sheet 2.

A. B. WORTH.

ELECTRIC ARC LAMP.

No. 324,792. Patented Aug. 18, 1885.

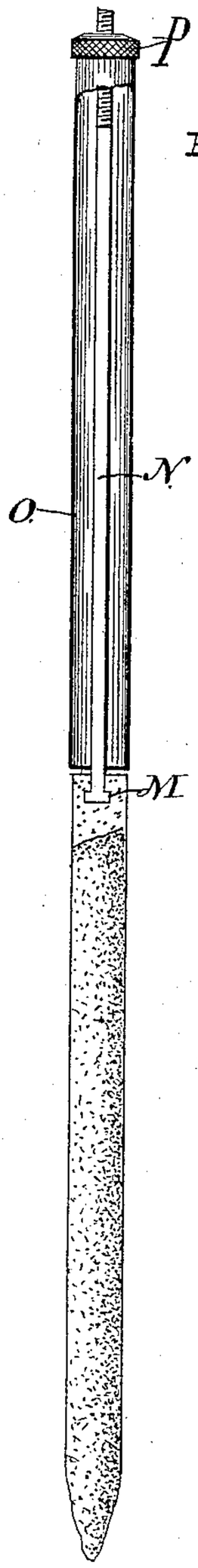


Fig. 2.

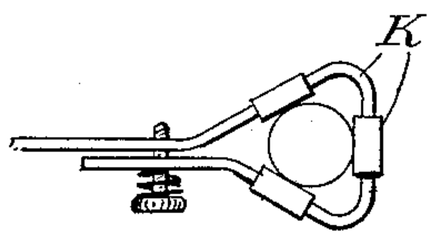


Fig. 5.

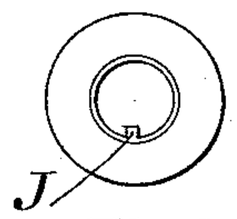


Fig. 6.

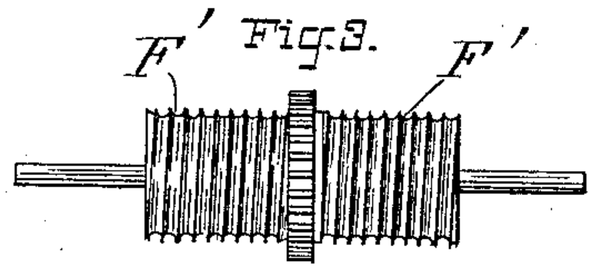
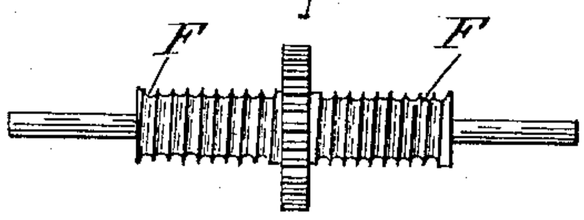


Fig. 3.

Fig. 4.



ATTEST:

J. A. Hurdle

E. Mezanes

INVENTOR:

A. B. Worth.

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By Asso. Atty Edward P. Thompson.

UNITED STATES PATENT OFFICE.

ALBERT B. WORTH, OF BROOKLYN, NEW YORK.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 324,792, dated August 18, 1885.

Application filed May 18, 1885. (No model.)

To all whom it may concern:

Be it known that I, ALBERT B. WORTH, a citizen of the United States, and a resident of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Electric-Arc Lamps, of which the following is a specification.

My invention relates to electric-arc lamps provided with a refractory material between the electrodes.

Its object is to provide such lamps with mechanism adapted to be simple in construction and effective in operation.

To this end the invention consists in improved details of construction fully described by reference to the accompanying drawings.

Figure 1 is a general view of the mechanism. Fig. 2 shows an electrode and its holder. Figs. 3, 4, 5, and 6 show enlarged and different views of parts not clearly shown in the general view.

A is an electro-magnet in a shunt circuit, B, to the main circuit C.

D are the electrodes suspended each end by two cords, E and E′, which are both connected to the drums F and F′, the latter being twice as large as the former, because one carbon consumes about twice as rapidly as the other. The cords, as shown, are passed over pulleys Q. The drums are provided with pinions G which gear into ratchets H upon the core of the shunt-magnet, the latter being provided with the groove I, fitting upon the projection J (see Fig. 6) upon the inside of said magnet for the purpose of preventing rotation of the core. The rollers or guides K are mounted upon a stiff wire bent and clamped at its ends, as shown in Fig. 5. They serve to retain the carbon electrodes in the proper relative positions.

L is a piece of refractory material supported so that it is located between the ends of the carbon electrodes. Each carbon electrode contains at one end a groove, M, into which fits and is soldered a metal rod, N, passing through a tube, O, the said rod being the connecting-piece between the said tube and carbon electrode when the cap P is screwed upon it against the said tube, as shown.

The operation is simply that the electrodes, being in contact at first, burn away until there is an arc, when the magnetism increases in the shunt-magnet and pulls upward the combined core and ratchets. The cords thereby unwind from the drums and the electrodes feed downward and toward each other until they are completely consumed.

I am aware that electric-arc lamps have heretofore been constructed embodying the principle of two electrodes falling continually upon the end of a rod of refractory material entirely by the force of gravitation, but in such lamps there are what I consider objections and what I claim to be able to overcome in my present invention.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An arc-lamp comprising the combination of guides consisting of rollers, arranged, as shown, upon the three sides of a triangle formed by bending a wire into the shape of a triangle, electrodes passing through said guides and provided each with a dovetail groove at one end, with a metal rod soldered into said groove, with a tube through which passes said metal rod, and with a nut fitting upon said metal rod outside of said tube, and means for operating said electrodes in said guides in the manner substantially as described in the annexed specification and as shown in the drawings, and for the purposes indicated.

2. In an electric-arc lamp, the combination of a solenoid in a shunt about the arc, a core to said solenoid provided with a rack upon each side of said core, pinions gearing into said racks, a drum upon each side of and integral with each of said pinions, cords wound upon said drums and passed over pulleys, electrodes supported by said cords, each provided with a dovetail groove at one end, with a metal rod soldered into said groove and with a nut fitting upon said metal rod outside of said tube, guides for said electrodes, consisting of rollers mounted upon a wire bent into the shape of a triangle, and a rod of refractory material between the electrodes at the locus of the arc, substantially as set forth.

3. In an electric-arc lamp, guides for the electrodes, consisting of rollers or pulleys arranged upon the three sides of a triangle formed by bending a wire into the shape of a triangle, the ends of the wire being adjustably

connected to each other, as shown in the accompanying drawings and heretofore described.

4. In an electric-arc lamp, the combination of the carbon electrode, provided with a dovetail groove at one end, a metal rod soldered into said groove, a tube through which passes the said metal rod, and a nut fitting upon said metal rod outside of said tube, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 11th day of May, 1885.

ALBERT B. WORTH.

Witnesses:
EDWARD P. THOMPSON,
JONATHAN MARSHALL.