(No Model.) 2 Sheets—Sheet 1.

J. THOMPSON.

ELECTRIC ARC LAMP.

No. 492,312. Patented Feb. 21, 1893.

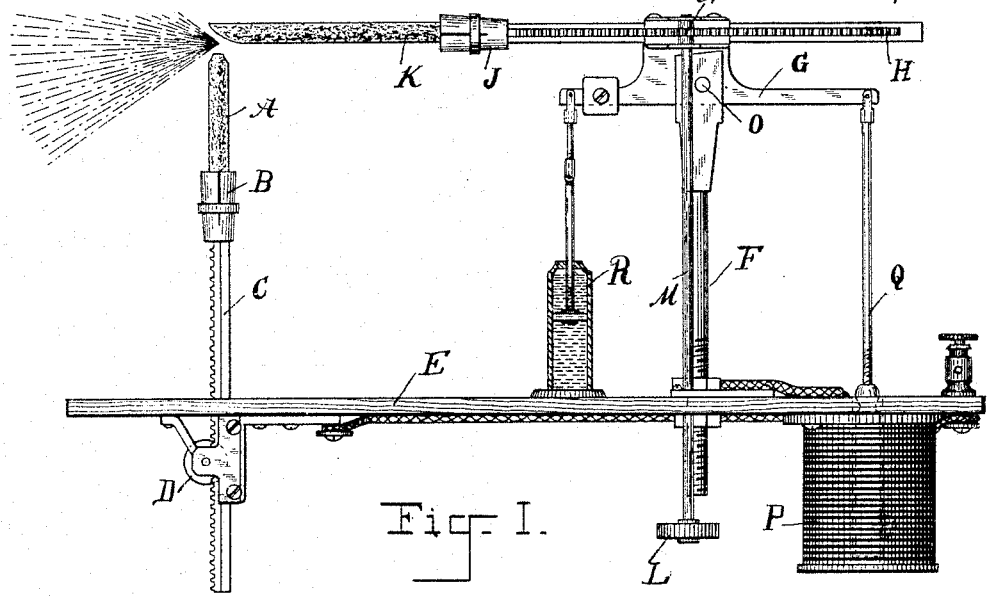

Fig. I.

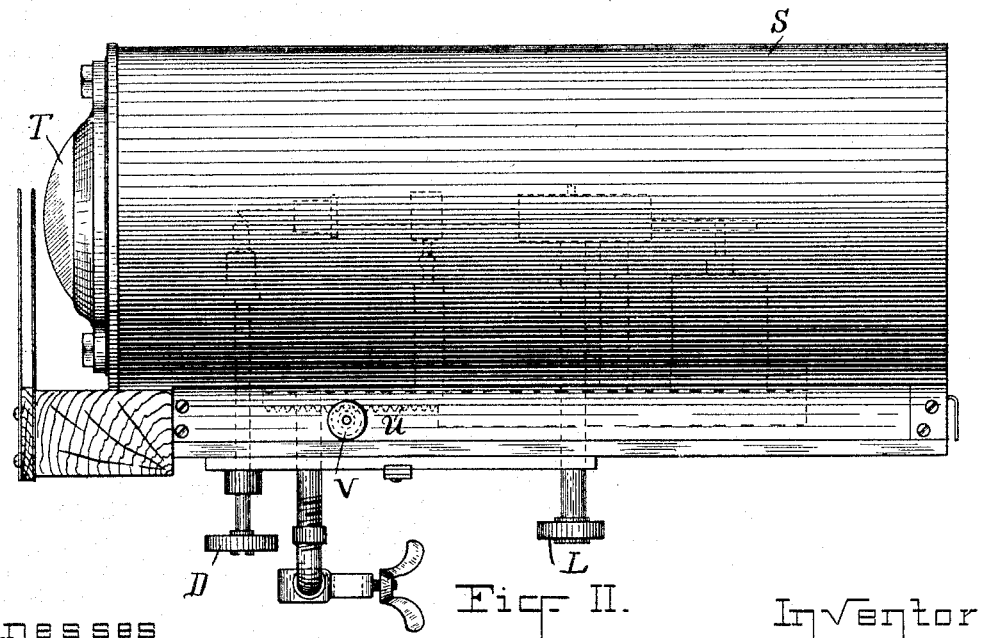

Fig. II.

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No Model.)

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Fig. III

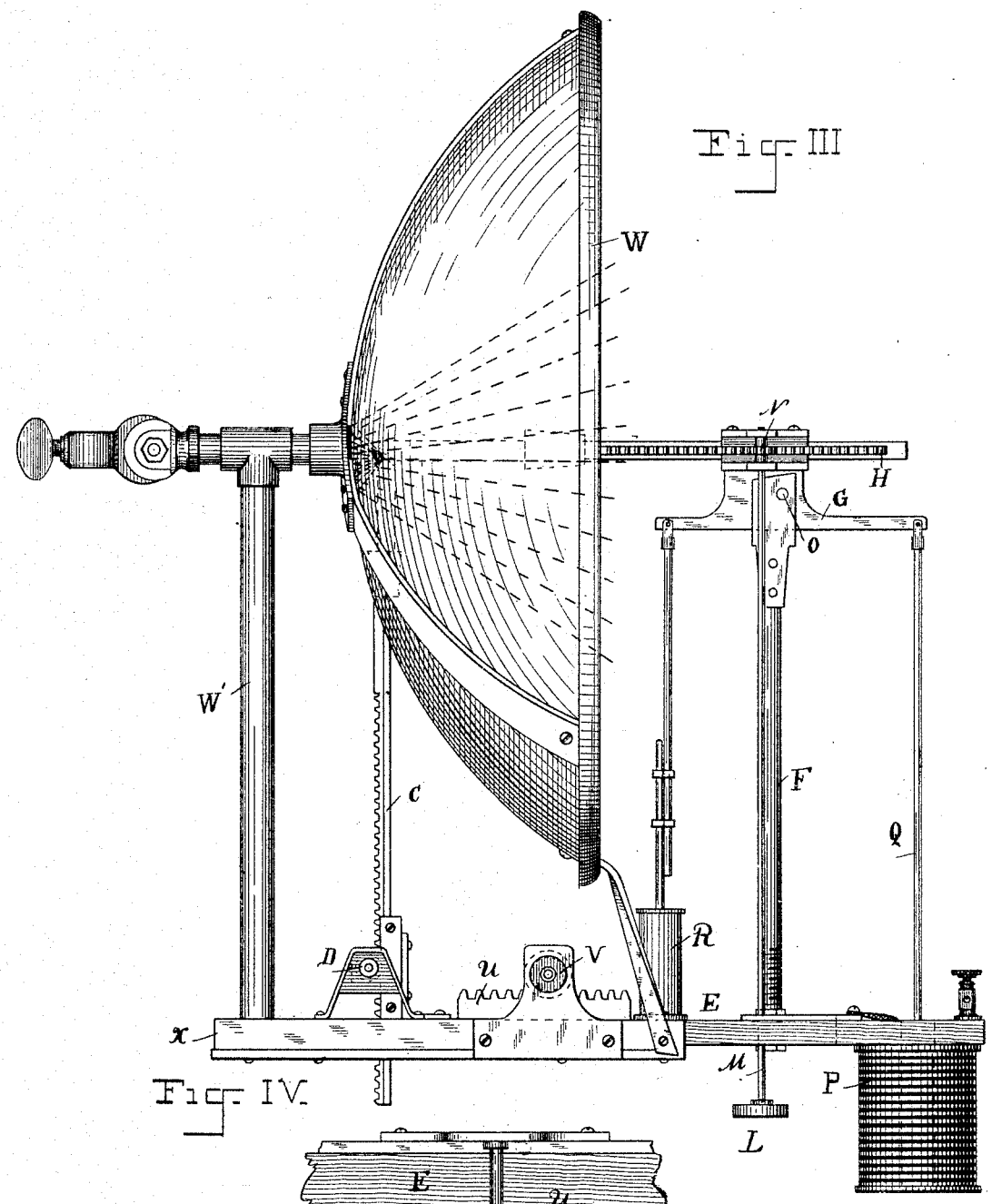
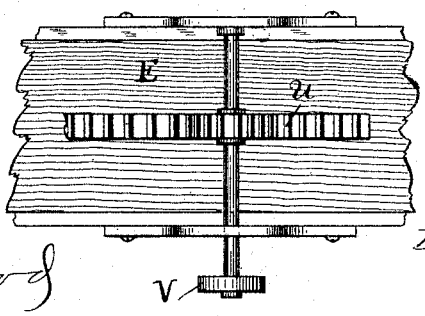


Fig. IV.



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UNITED STATES PATENT OFFICE.

JOHN THOMPSON, OF NEW YORK, N. Y.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 492,312, dated February 21, 1893.

Application filed May 17, 1892. Serial No. 433,323. (No model.)

To all whom it may concern:

Be it known that I, JOHN THOMPSON, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Arc Lamps, of which the following is a specification.

My invention is particularly adapted for employment in theaters where a uniform and powerful light of great concentration, density and clearness is required, and it can be utilized for the same reasons as a search light, for lighthouses, and also for photographic purposes, but it is more particularly available for use in theaters as a substitute for the ordinary calcium light.

In carrying my invention into effect, I have constructed a lamp which is adapted to employ a current of from forty to fifty volts and from seven to eleven ampères which as will be seen is a low tension current and the lamp as I preferably construct it is adapted to throw its entire light in a single column or beam without the intervention, necessarily, of lenses or reflectors although in some cases I may employ such additions for certain specific purposes.

My invention consists in arranging the two carbons of an arc lamp at right angles to each other one being placed in a horizontal and the other in a vertical position and each is adapted to be fed toward the other and in the direction of a common point by suitable mechanism as will be described.

Referring to the accompanying drawings which form a part of this specification:—Figure I represents a side elevation of my improved lamp certain parts being shown in section as will be explained. Fig. II shows the lamp suitably incased and provided with a lens. Fig. III shows my improved lamp in connection with a reflector. Fig. IV is a detail view.

In Fig. I, I illustrate the principal features of my invention. In this figure, A represents the lower carbon mounted and retained in a suitable socket B, the said socket being attached to the upper end of a vertically moving rack C under the control of a pinion and thumb screw D. The lower carbon can, by the means described, be raised or lowered as may be desired by the operator.

E is a frame carrying a standard F supporting a cross lever G. This cross lever carries a rack H which is arranged to move horizontally as regards the frame of the lamp and is provided at its outer end with a socket J in which is affixed the upper carbon K of the lamp. This upper carbon with its supporting rack H are arranged at right angles to the lower carbon A and are adapted to move backward and forward to the lower carbon as will be explained.

As will be seen by referring to Fig. I, the carbons are arranged at right angles to each other. This position of the carbons will cause the light radiating from the arc to be thrown forward and in fact by actual experiment over ninety-five per cent. of the light is thrown in the forward directions indicated by dotted lines in Fig. I. The positive carbon is presented centrally toward the limited area over which the light is to be transmitted, and the end of said positive carbon is unobstructed by the overlapping of the negative carbon or by anything in the direction toward the area of transmission of the light.

As above stated, the vertical movement of the lower carbon A is controlled by the thumb screw D. I also provide a thumb screw L upon the end of rod M which through the medium of pinion wheel N and rack H is adapted to move the upper carbon K backward and forward relatively to the vertical line of the lower carbon. The rack H carrying the carbon K has a sliding movement on the lever G; the latter is pivoted to the standard F by pin O; the said upper carbon will by reason of this arrangement be adapted to vary its horizontal position relative to the height of the upper end of the lower carbon and this is effected automatically by the helix P and plunger Q the latter being affixed to the outer end of the lever G and the electrical current being fed through the coil P in the ordinary manner.

At R I show a cushioning device or dashpot to prevent the jerking movement of the part of the automatic mechanism.

It will be seen from the above that I have designed an arc lamp which is adapted to be used for the purposes I have specified and which will produce a satisfactory beam of light of great intensity and clearness without

the necessity of having a lens or reflector. If however a lens is required for certain stage effects, I simply incase the mechanism above described in a cylinder S as shown in Fig. II. At the end of the cylinder I provide a lens T and at U, V respectively a rack upon the casing and a pinion upon the frame whereby a relative backward and forward movement can be obtained between the lamp and the lens.

In Fig. III I show again the lamp applied to a reflector. In this case the reflector W is mounted on a standard W′ extending upwardly from a bed plate X. Similar mechanism for adjusting the parts of the lamp relative to each other and the lens and the lamp relative to each other is shown in Fig. IV.

I do not limit myself to a right angle arrangement between the two carbons of the lamp but may vary the angle from forty-five to sixty-five degrees and this can be done without disestablishing the arc or rendering the lamp inoperative.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In an arc lamp, a carbon holder and means for moving it longitudinally, combined with another carbon holder and its supporting rod or rack, a lever carrying said rod or rack and means for moving said carbon holder substantially parallel to said lever to feed the carbon forward, as specified.

2. In an arc lamp, a carbon holder and means for moving it longitudinally, combined with another carbon holder and its supporting rod or rack, said carbon holders extending at an angle to each other, a lever carrying said rod or rack and adapted to move the latter laterally, means for moving the carbon holder longitudinally, and a regulator connected with said lever for moving the latter to regulate the arc, substantially as specified.

3. In an arc lamp a carbon holder and means for moving it longitudinally, combined with another carbon holder, its supporting rod or rack and means for moving the latter to feed a carbon, a lever extending substantially horizontal, said rod or rack being supported by and guided on said lever, a support and pivot for said lever, and a regulator for actuating said lever to move the carbon holder laterally to regulate the arc, substantially as described.

JOHN THOMPSON.

Witnesses:
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