

(No Model.)

2 Sheets—Sheet 1.

C. E. SCRIBNER.
ELECTRODE SHIELD FOR ARC LAMPS.

No. 497,898.

Patented May 23, 1893.

Fig. 1

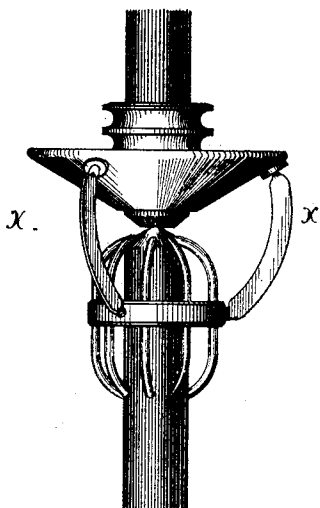


Fig. 2

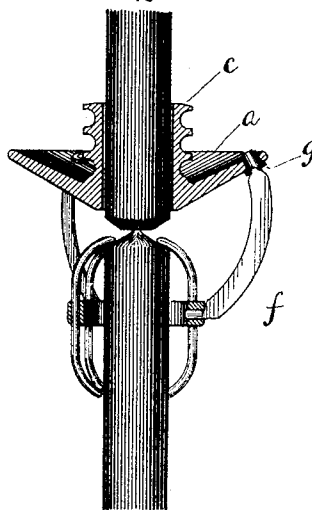


Fig. 3

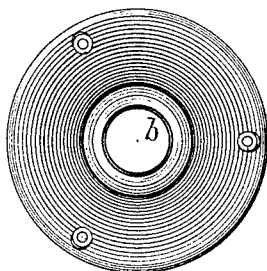
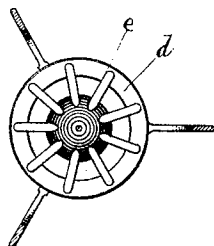


Fig. 4



Witnesses

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 5.

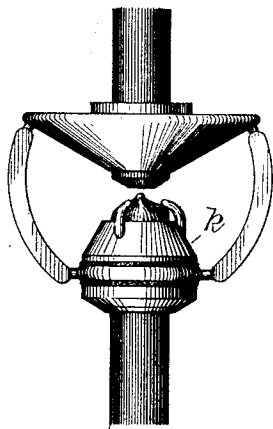


Fig. 6.

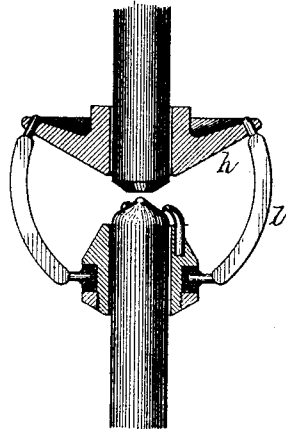


Fig. 7.

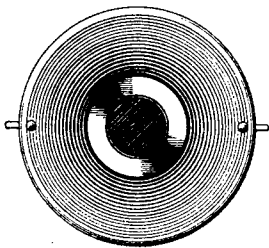
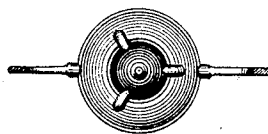


Fig. 8.



Witnesses

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By *Henry P. Norton* Atty

UNITED STATES PATENT OFFICE.

CHARLES E. SCRIBNER, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WESTERN ELECTRIC COMPANY, OF SAME PLACE.

ELECTRODE-SHIELD FOR ARC LAMPS.

SPECIFICATION forming part of Letters Patent No. 497,898, dated May 23, 1893.

Application filed November 3, 1890. Serial No. 370,138. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. SCRIBNER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Electrode-Shields for Arc Lamps, (Case No. 244,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

Heretofore in focusing lamps the carbons have been fed through openings slightly smaller than the carbon electrodes in order that the arc might be maintained in a uniform position with respect to the reflector. In this manner shields have been provided about the burning ends of the electrodes; such shields in the case of focusing lamps have been of marble and other material and maintained in a fixed position; incidentally such a shield would act as a heat radiator to protect the carbon points from drafts of air and would thus tend to prolong the life of the carbons. In Letters Patent No. 437,901, granted Charles W. Hazeltine, October 7, 1890, a shield is applied near the arc to prevent the rapid consumption of the carbons, this shield being fed as the opposed ends of the carbons wear away and automatically adjusted by the movement of the carbon rod from which the shield is suspended by regulating mechanism consisting of pulleys and cords. This regulating mechanism is intended to maintain the protective tip or shield in the same relative position with reference to the arc at all times, but it is evident that such a result can only be obtained approximately by the regulating mechanism illustrated and described in said Hazeltine patent. That is to say, the rate of descent of the shield depends directly upon the downward movement of the rod and not upon the descent of the arc.

The object of my invention is to hold the shield in a definite position with respect to the arc without reference to the movement of the carbon rod. This I accomplish by mounting the shield upon the upper end of the lower carbon in such manner that the disintegration of the lower carbon will gradually remove the support from the shield, thus permitting the shield to descend by gravity as the lower carbon is burned away. In this manner the shield

is maintained in a definite position with respect to the arc and the liability of the arc to burn up into the shield to be obscured thereby, or to take a position at a considerable distance below the shield is avoided.

My invention will be readily understood by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of the opposing ends of a pair of carbons provided with my shield supported upon the upper end of the lower carbon. Fig. 2 is a sectional view thereof. Fig. 3 is a plan view of the shield. Fig. 4 is a plan view of the lower carbon with the shield support mounted thereon as seen from line $x-x$ of Fig. 1. Figs. 5, 6, 7 and 8 show similar views of a modification of my device.

The shield a is preferably in the form of an inverted pyramid provided with a central opening b so that the end of the upper carbon may be freely inserted therethrough. This opening is preferably extended by a sleeve c to give a sufficient bearing upon the carbon and act as a radiating medium for the portion thereof which is heated by the arc. The support for the shield may consist of a ring d with points e provided therein and bent inwardly so as to rest upon and be supported by the substance of the lower carbon. I have used copper points e , though I have found points of iridium preferable since iridium is highly refractory. The points e may be of any suitable substance which will be durable under the required conditions.

I preferably provide three arms f extending upwardly from the ring d to serve as bearing supports for the shield and I preferably provide insulated bushings g in the shield corresponding to the upper ends of the arms f so that the bearing between the shield a and the support may be insulated. It will be noted that these sockets g simply rest upon the upper ends of the arms f so that the shield may be raised if desired from the support.

In Figs. 5, 6, 7 and 8 the support is made in the form of a sleeve to completely surround the upper end of the lower carbon. I do not consider such a shield for the lower carbon essential, though it is evident it might be applied if under any conditions it should be found desirable. My experiments indicate

that an open cap composed of wires as shown in Figs. 1, 2 and 4 is preferable. The insulating sockets *g* may be dispensed with and in lieu thereof the arms may be insulated from the cap by a ring of asbestos or otherwise as shown in Figs. 5 and 6.

The upper shield *h* is provided simply with holes or plain sockets for the arms *i* which project upwardly from the insulating ring of the lower shield or cap *k*.

My invention admits of various modifications as to details of construction and I therefore do not limit myself to the forms of the devices shown.

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

1. The combination with the electrodes of an arc lamp placed end to end, of a shield surrounding the lower portion of the upper carbon, said shield being supported by a device suspended upon the lower carbon, whereby the shield is caused to follow the arc as the arc is lowered by the consumption of the carbons, substantially as and for the purpose specified.

2. A cap surrounding the upper end of the lower carbon and provided with hooks bent inwardly to rest upon the substance of the burning end thereof, in combination with arms

extending upwardly and a shield through which the lower end of the upper carbon slightly projects resting upon said arms, whereby as the substance of the end of the lower carbon is burned away the shield will be lowered by gravity, substantially as and for the purpose specified.

3. A cap formed of wires *e* bent inwardly, a ring *d* holding said wires in position and arms *f* extending upwardly from said ring, in combination with the shield *a* supported upon said arms and adapted to follow the same as the cap is lowered, the shield and cap being insulated, substantially as and for the purpose specified.

4. The combination with the carbon electrodes of an electric arc lamp, of a cap held suspended from the burning substance of the upper end of the lower carbon, and a cone shaped shield loosely surrounding the lower portion of the upper carbon, said shield being sustained by the cap and insulated therefrom, substantially as and for the purpose specified.

In witness whereof I hereunto subscribe my name this 30th day of October, A. D. 1890.

CHARLES E. SCRIBNER.

Witnesses:

GEORGE P. BARTON,
ELLA EDLER.