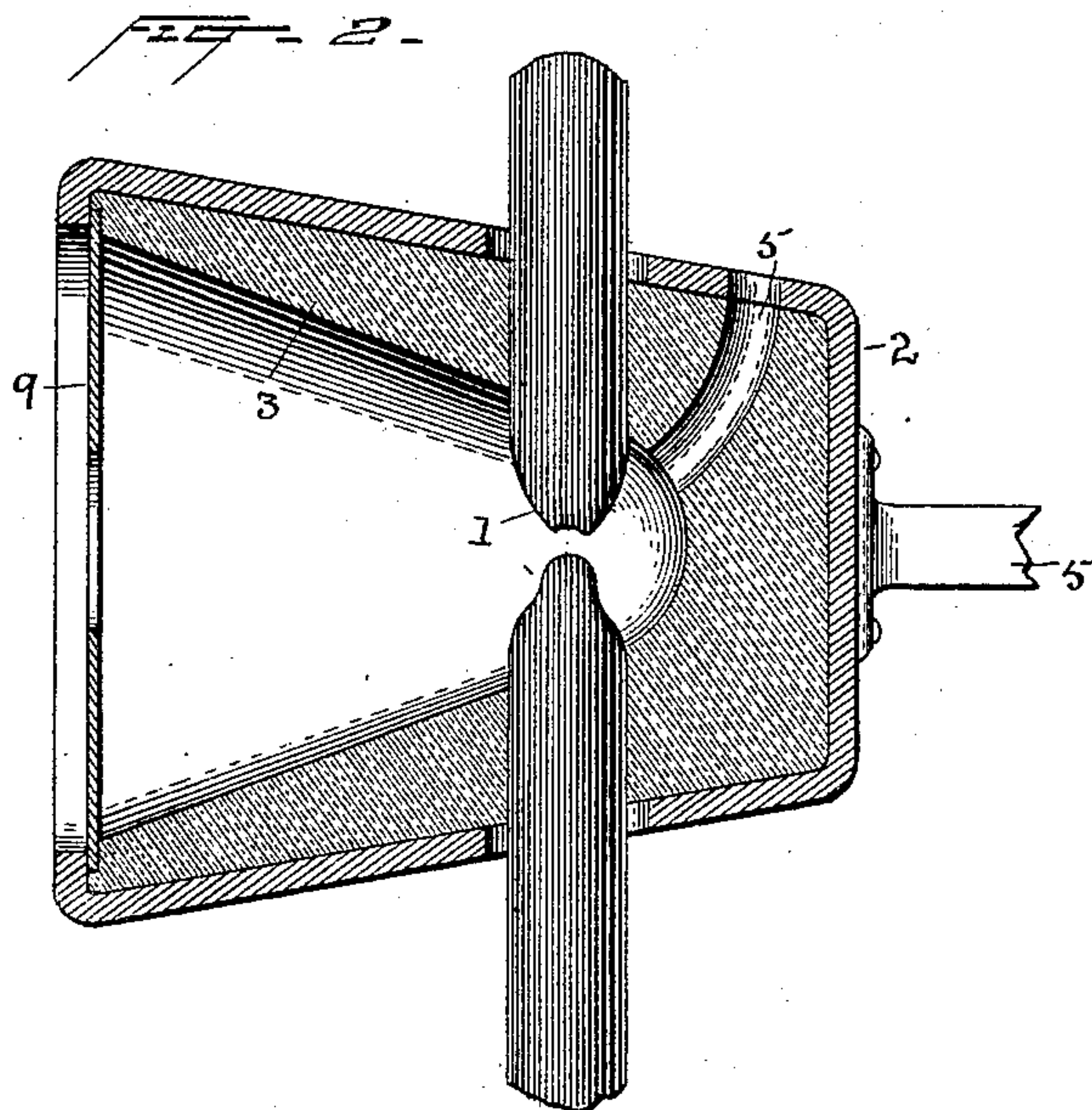
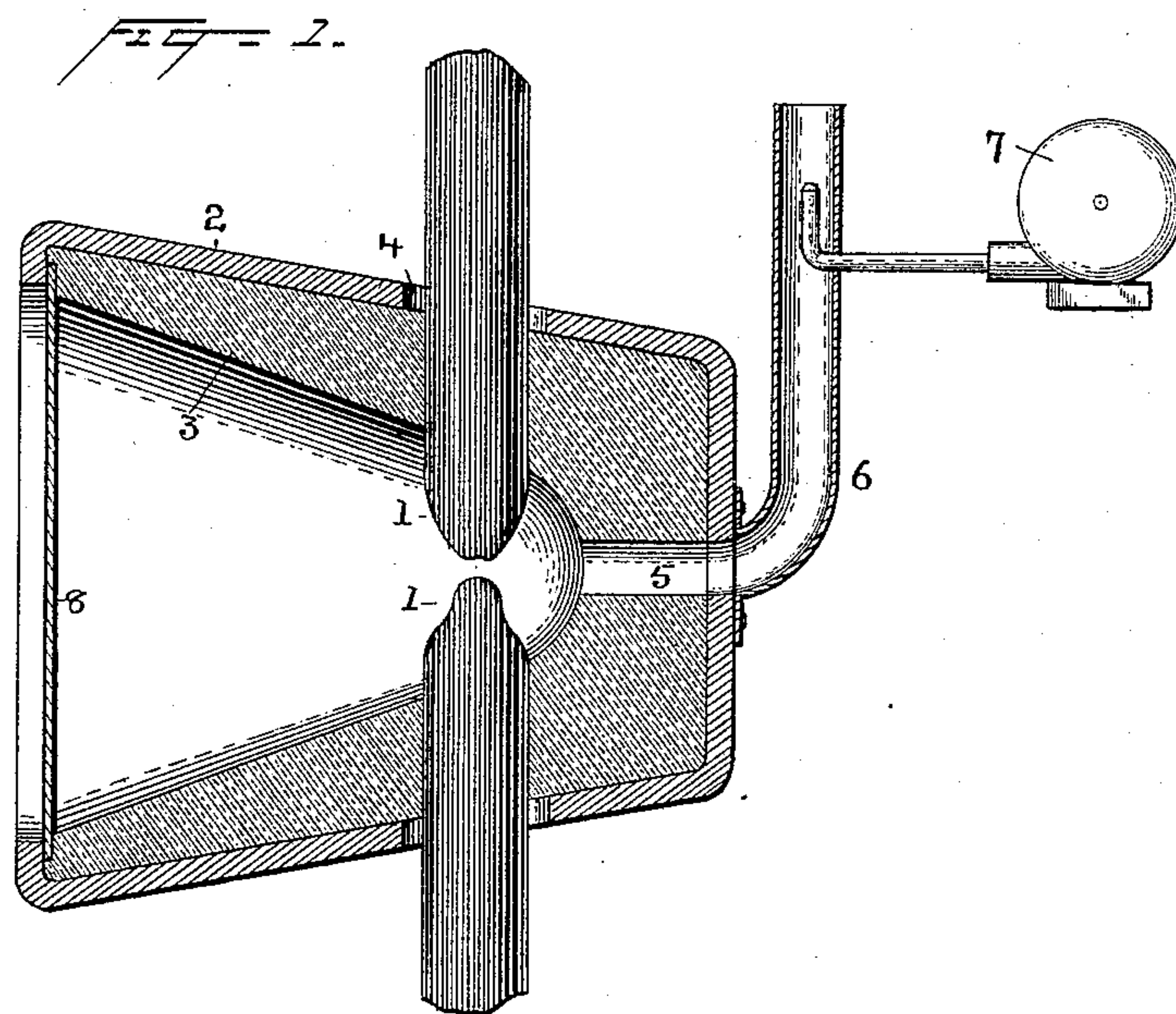


(No Model.)

R. S. DOBBIE.  
ELECTRIC ARC LAMP.

No. 475,544.

Patented May 24, 1892.



Witnesses  
Morris A. Clark  
M. F. Clarke

Inventor  
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# UNITED STATES PATENT OFFICE.

ROBERT S. DOBBIE, OF BROOKLYN, ASSIGNOR TO THE EDISON GENERAL  
ELECTRIC COMPANY, OF NEW YORK, N. Y.

## ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 475,544, dated May 24, 1892.

Application filed June 11, 1891. Serial No. 395,869. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT S. DOBBIE, a citizen of the United States, residing at Brooklyn, county of Kings, and State of New York, have invented a certain new and useful Improvement in Reflectors or Intensifiers for Arc Lights, of which the following is a specification.

The present invention relates to means for increasing the intensity and economy of arc lights by localizing the heat at the arc and for preventing obstruction of the light by the gases produced at the arc; and the invention consists in the means hereinafter described for accomplishing the objects named.

In the accompanying drawings, illustrating the device, Figure 1 is a central section of one form thereof, and Fig. 2 a like view of a modified form.

1 1 are portions of two arc-light carbons. The feeding mechanism is not shown, since any suitable mechanism for this purpose may be employed, it only being necessary that the arc should be maintained at the focus of the reflector or intensifier.

2 is a cast-iron or other metal casing, and within it is a hollow insulating body or lining of fire-clay, porcelain, or other suitable material capable of resisting a considerable degree of heat, and which serves to localize the heat around the ends of the carbons. Through the casing and through the porcelain or other body are openings 4 for the carbons, the openings in the casing being larger than the openings in the porcelain, so that the carbons cannot come in contact with the metal casing to form a short circuit. It is preferable to make the openings in the insulating-body as small as possible and still allow the carbons to move easily, in order to prevent the escape of the highly-heated products of combustion through a space surrounding the carbons, since if the gases are allowed to escape in this manner it is found that they injure the carbons.

To provide for the escape of the gases formed by combustion at the arc for the purpose of preventing injury to the carbons, as just described, and to prevent accumulation of gases in the space in front of the arc, thereby largely obstructing the passage of light-rays, I form a passage 5 through the body of the device

at the rear of the arc. The term "gases" is used to include vapors of substances decomposed by the arc. In Fig. 1 I have shown a pipe or chimney 6 connected with this passage and a fan or blower 7 for creating suction to draw out the gases. The chimney may of itself be sufficient without the blower. Any other draft-inducing device which will serve to draw or force the gases from the space in front of the arc may be substituted for the device specifically mentioned. In said figure is shown a plate 8, of glass, mica, or other transparent material, for more completely inclosing the arc. When glass is employed, it is essential that it be placed at a considerable distance from the arc to prevent the heat of the arc melting down the glass. The means for withdrawing the gases are especially useful in connection with an entirely-inclosed arc, such as that shown in Fig. 1; but said means are also useful when the front inclosing plate is omitted entirely or when an opaque ring 9, such as shown in Fig. 2, is employed. This ring serves to cut off undesirable rays, and is used in stereopticon work, in search-lights, &c. The ring also serves to partially inclose the space in front of the arc and to prevent an unnecessarily large amount of air being drawn into the arc at the same time that the gases are diverted to the escape-passage. By thus excluding the air to some extent the carbons are protected.

It is well known that the intensity of the arc is largely increased by means of the refractory inclosing body, and I have found that when such a device is used the gases before referred to collect in the space in front of the arc and very largely reduce its intensity, so that the advantage gained by the localization of the heat at the arc is largely neutralized by said gases; but by providing means for drawing them to the rear of the arc and allowing them to escape in this way the effect mentioned is overcome. The loss in heat, owing to the removal of the gases, is more than counterbalanced by the advantage of such removal.

What I claim is—

1. The combination, with the electrodes of an arc lamp, of an inclosing device around the arc for conserving the heat and intensify-



ing the light thereof, the body having an escape-passage and a draft-inducing device for diverting gases through said passage from the space in front of the arc, substantially as described.

2. The combination, with the electrodes of an arc lamp, of a refractory inclosing device around the arc for conserving the heat and intensifying the light thereof, but having a suitable opening or transparent side for the passage of light, there being a gas-passage in addition to the light-opening, and means for inducing a draft, whereby gases are diverted from the space around the arc, substantially as described.

3. The combination, with the electrodes of an arc lamp, of an inclosing device around the arc and adapted to direct the light-rays

in the desired direction, the body having an escape - passage for the gases and vapors formed by the arc, and means for creating a draft through said passage for diverting said gases and vapors from the space in front of the arc, substantially as described.

4. The combination of an electric-arc lamp, a refractory heat-retaining device surrounding the arc, an opaque shield partly closing the open end of said device, and means for drawing the gases from the space between the arc and shield, substantially as described.

This specification signed and witnessed this 8th day of June, 1891.

ROBERT S. DOBBIE.

Witnesses:

W. S. KELLEY,  
EUGENE COURAN.