A. A. LAMBERT.

Reflector for Electric-Lights.

No. 210,543. Patented Dec. 3, 1878.

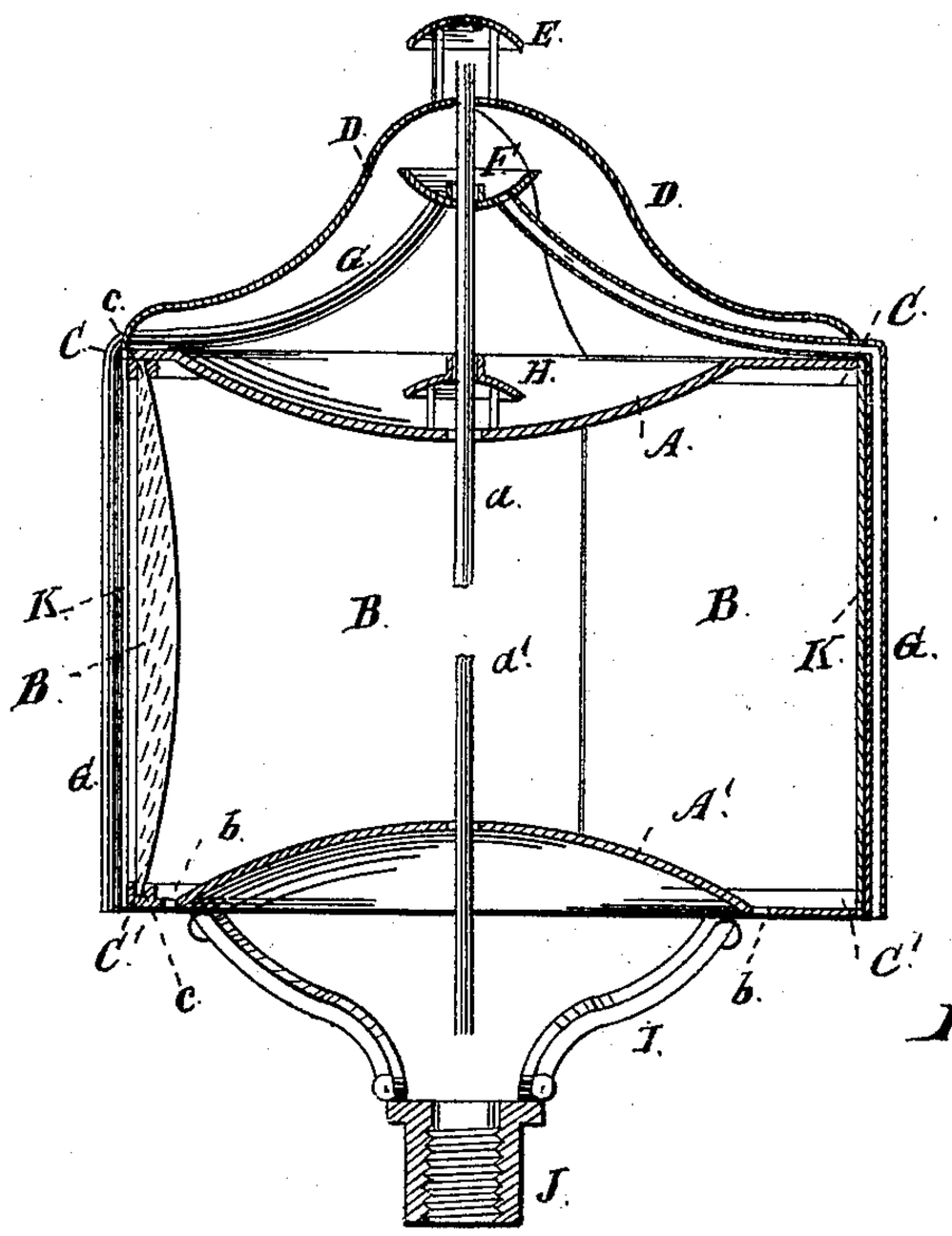

Fig. 1.

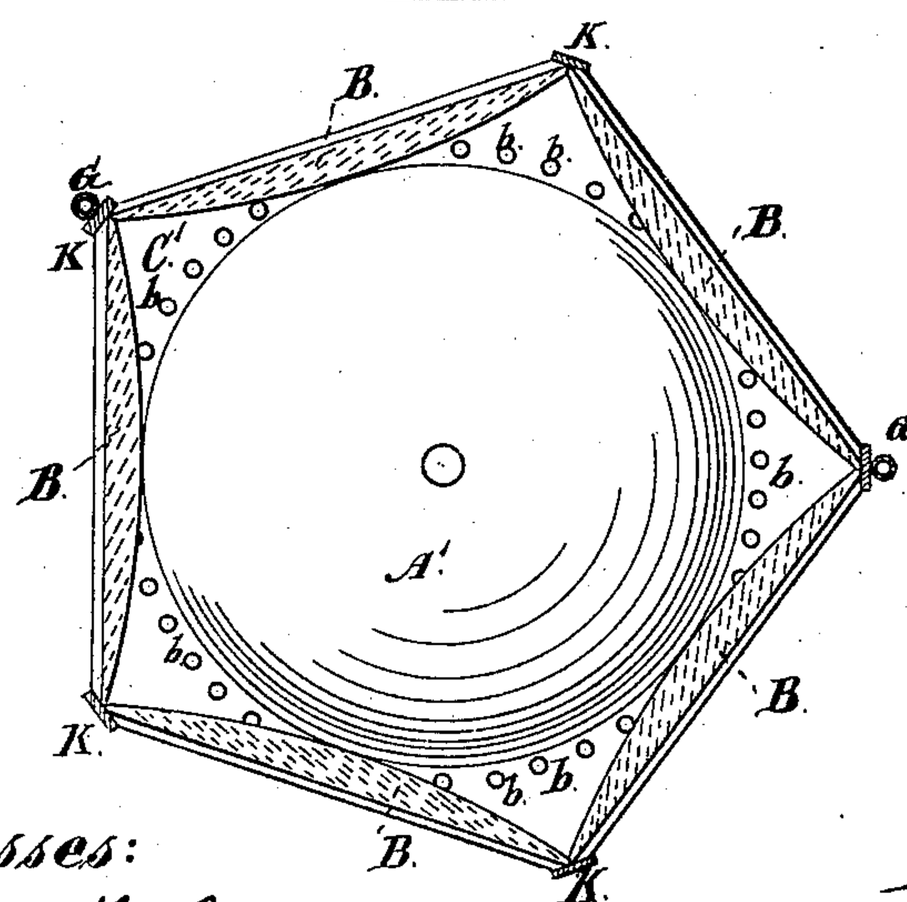

Fig. 2.

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UNITED STATES PATENT OFFICE.

ALOYSIUS A. LAMBERT, OF CHICAGO, ILLINOIS, ASSIGNOR TO MATHIAS BENNER AND JOHN P. BARRETT, OF SAME PLACE, ONE-THIRD TO EACH.

IMPROVEMENT IN REFLECTORS FOR ELECTRIC LIGHTS.

Specification forming part of Letters Patent No. **210,543,** dated December 3, 1878; application filed June 28, 1878.

To all whom it may concern:

Be it known that I, ALOYSIUS A. LAMBERT, of the city of Chicago, Cook county, State of Illinois, have invented new and useful Improvements in Electric Lights, of which the following is a full description, reference being had to the accompanying drawing, in which—

Figure 1 is a vertical section; Fig. 2, a horizontal section on line *x x* of Fig. 1, showing the construction of the lower reflector.

This invention relates more especially to that class of lights generated by passing an electric current between two cylinders or pieces of carbon located at the positive and negative ends of the circuit, in close proximity to each other, so that the circuit will not be complete without traversing the small space between the carbon points. Its objects are to diffuse and scatter the rays of light, so as to cover a more extended space than heretofore, and to throw the rays equally in all directions; and its nature consists in locating the carbon points midway between an upper and lower reflector, each having a reflecting-surface formed by a true parabolic curve, so as to form convex paraboloids, and so arranged as to reflect the rays of light through plane convex lenses located around the periphery of the reflectors; in providing a cap or cover having a drip cup and tube so arranged as to catch all the moisture and prevent it from coming in contact with the carbon points; and in providing the lower reflector-rim with a series of holes to supply the required amount of air to the light.

In the drawings, A A′ represent the convex reflectors; B, the plano-convex lenses; C C′, the supporting rings or rims; D, the cover or top; E, the water-shed; F, the drip-cup; G, the drip-tubes; H, the protecting tube and cap; I, the supporting-standards; J, the screw-socket; K, the tie-rods; *a a′*, the carbon points; *b*, the air-holes in the lower reflector; *c*, the flanges for securing the lenses in place.

The reflectors A A′ are, by preference, made of glass, silvered on the inside, and their reflecting-surfaces are formed so as to have a true paraboloid curvature, and are located so as to present their convex faces to the light, and at the required distance apart, which distance will vary with the intensity of the light. These reflectors are secured to the rings or supports C C′, in any suitable manner, so as to allow for expansion and contraction; and the rim of the lower reflector is to be provided with a series of holes, *b*, for the passage of air from the outside to the carbon points, and for cooling the side lenses. Suitable passages or openings are provided at the center of the reflectors for the carbon points *a a′*, which points are of the usual construction, and are connected with the electric circuit in any of the well-known manners, and such construction is therefore neither shown nor described.

The lenses B are made of glass which has a high diffusing and a refracting power, and are plano-convex, and are secured between the rings or rims C C′ by means of flanges *c*, or in any other suitable manner, so as to bring their plane surfaces on the outside, as shown in Figs. 1 and 2. These lenses are so located around the periphery of the parabolical reflectors, and with reference thereto, as to receive nearly every ray of light reflected and diffuse it, so that no light is lost.

The supports or rings C C′ may be cast, or otherwise formed, so as to have a suitable rim for the attachment of the parabolic reflectors and the plano-convex lenses in their required positions, and may be secured together by tie-rods K, which rods pass up at the ends of the lenses, as shown, and are secured to the rims or rings outside of the lenses by means of a nut, screws, or by other suitable means.

The cover D may be made of metal or other suitable material, and may be of the form shown or any other suitable form, and may be secured to the upper ring or rim, C, in any well-known manner. On top of this cover D is a water-shed, E, connected with the cover by means of a tube, and so constructed as to prevent the rain, &c., from driving into the cover in large quantities; and inside of the cover, below the water-shed, is located a drip-cup, F, so arranged and constructed as to catch any moisture which may enter, and conduct it, by means of the drip-tubes G, outside and down the supporting-rods K; and in order to prevent any moisture from coming in contact with the carbon points, the opening therefor in the reflector

A is protected by a tube or flange, H, having a covering, to deflect the moisture away from the carbon point to prevent injury thereto.

The reflectors, as shown, are supported upon standards I, provided at the bottom with a screw-threaded socket, J, by means of which the device can be secured to a post or other suitable support, the upper ends of the standards being suitably secured to the rim or ring C'.

In the construction shown five plano-convex lenses are used; but the number will be varied according to the size of the device, a greater number being used for a large size than for a small, and the size of the lenses must be in exact proportion to the size of the reflectors, in order to diffuse all of the rays of light.

The device can be applied to any purpose for which it may be desired, and can be used either in the open air or inside of a building; and though designed for use with electric lights, it can be used with other lights for diffusing the rays in every direction, and very greatly increase the power and brilliancy of the light.

In use, the rays of light either pass directly from the carbon points through the lenses, or are reflected from the paraboloid reflectors, so that all the rays pass through the lenses, and are deflected through the atmosphere, and those rays which, by their vertical, downward, and inclined direction, would be lost, are by this arrangement changed in their direction and made to intensify the light.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of an upper and lower convex paraboloid reflector with surrounding plano-convex lenses, for completing the diffusion of the light, substantially as described.

2. In combination with the reflectors A A' and lenses B, the cover D, provided with devices for preventing moisture from entering and coming in contact with the carbon points, substantially as and for the purpose specified.

3. The cover or cap D, provided with the drip-cup F and drip-tubes G, in combination with the ring or rim C, for preventing the entrance of moisture to the carbon points, substantially as specified.

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