T. J. RENSING.

ELECTRIC ARC LAMP.

APPLICATION FILED AUG. 14, 1908.

947,979. Patented Feb. 1, 1910.

Fig. 1.

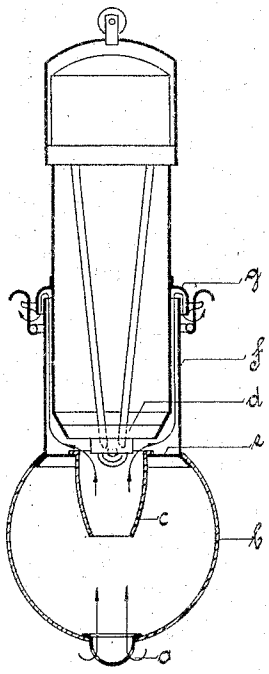
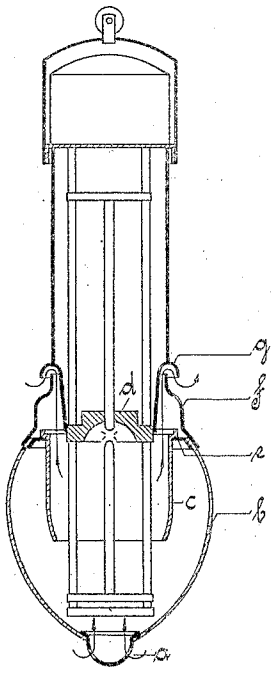


Fig. 2.



Witnesses.

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THEODOR JOSEPH RENSING, OF LEIPZIG, GERMANY, ASSIGNOR TO KÖRTING & MATHIESEN AKTIENGESELLSCHAFT, OF LEUTZSCH, NEAR LEIPZIG, GERMANY.

ELECTRIC-ARC LAMP.

947,979. Specification of Letters Patent. Patented Feb. 1, 1910.

Application filed August 14, 1908. Serial No. 448,558.

To all whom it may concern:

Be it known that I, THEODOR JOSEPH RENSING, a subject of the German Emperor, residing at Leipzig, Germany, have invented new and useful Improvements Relating to Electric-Arc Lamps, of which the following is a specification.

This invention relates to arc lamps which are provided with an economizer and the invention is particularly applicable to lamps in which one or both electrodes is or are mineralized.

In arc lamps of this type it has been found that the vapors emitted at the arc are liable to deposit upon the inside of the globe. This is due to the action of the economizer, for the vapors beneath it in place of passing directly upward move laterally against the comparatively cold globe and then move downward, eddies being formed when the cooled vapors are met by the current of cold air which rises upward in the center of the globe toward the arc. A deposit on the globe takes place especially when the arc is first struck and the globe is cold.

According to my invention I combine in an electric arc lamp with an economizer an outer globe provided with a passage situated at the lower portion thereof for the inlet of air from the outside of the lamp, an inner globe open top and bottom whose upper portion is at about the level of the arc-forming portion of the electrodes and which communicates with the outside of the lamp, the outer globe being closed except for the air inlet and the opening formed by the inner globe. It will be seen that with this construction there will be not only enough current of air through the inner globe, thus preventing vapors from the arc entering the outer globe, but there will be an undisturbed body of air between the inner and outer globe which prevents the cooling of the inner globe and also prevents any deposit forming on the walls of the inner globe.

In the accompanying drawings Figure 1 shows the invention applied to a lamp provided with a pair of converging electrodes and Fig. 2 to a lamp provided with an upper and lower electrode.

In the drawings *a* is an ash plate through which air can pass, *b* is the outer globe, *c* the inner globe, *d* is the economizer, *e* is the plate which carries the inner globe and closes the top of the outer globe, *f* is a cylinder forming a passage for the vapors and air, which pass out of the lamp through the openings *g g*.

Air passing in at the bottom of the globe *b* eddies therein and becomes heated by contact with its wall; the warm air mixed with a portion of the incoming cold air, then rushes through the inner globe *c* and out through the openings *g* bearing with it the vapors.

Under ordinary circumstances after the arc is formed any vapors which might pass downward toward the bottom of the globe *c* will be met by a current of air traveling upward at some velocity, since the inner globe is very quickly heated by the arc and is protected against cooling by the body of air separating the two globes.

What I claim is:—

1. In an electric arc lamp, the combination with an economizer, of an outer globe provided with a passage situated at the lower portion of the globe and leading to the outside of the lamp for the inlet of air, an inner globe open top and bottom communicating with the outside of the lamp for the discharge of air therefrom and extending below the arc-forming portion of the electrodes, the outer globe being closed except for the air inlet and the opening formed by the inner globe.

2. In an electric arc lamp, the combination with an economizer, of an outer globe closed at the top and provided with a passage situated at the lower portion of the globe for the inlet of air from the outside of the lamp, an inner globe open top and bottom whose upper portion is at about the level of the arc-forming portion of the electrodes and which communicates with the outside of the lamp, the outer globe being closed except for the air inlet and the opening formed by the inner globe.

3. In an electric arc lamp, the combination with an economizer, of an outer globe closed at the top and provided at the bottom with a passage for the inlet of air from the outside of the lamp, an inner globe open top and bottom whose upper portion is at about the level of the arc-forming portion of the electrodes and which communicates with the outside of the lamp through its upper end, the inner and outer globes thus forming between them at the upper portion of the outer globe a chamber open at the

bottom but otherwise closed containing an undisturbed body of air that prevents the cooling of the inner globe and so prevents any deposit forming on the walls of the inner globe while the air entering the bottom of the outer globe passes directly through the inner globe and prevents deposits from falling through said inner globe and coming in contact with the walls of the outer globe.

THEODOR JOSEPH RENSING.

Witnesses:
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