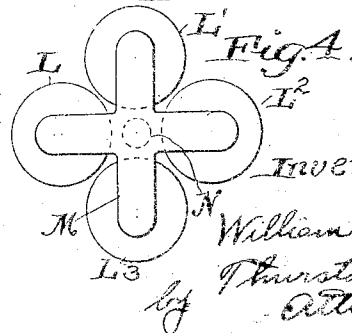
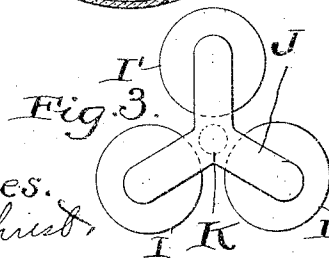
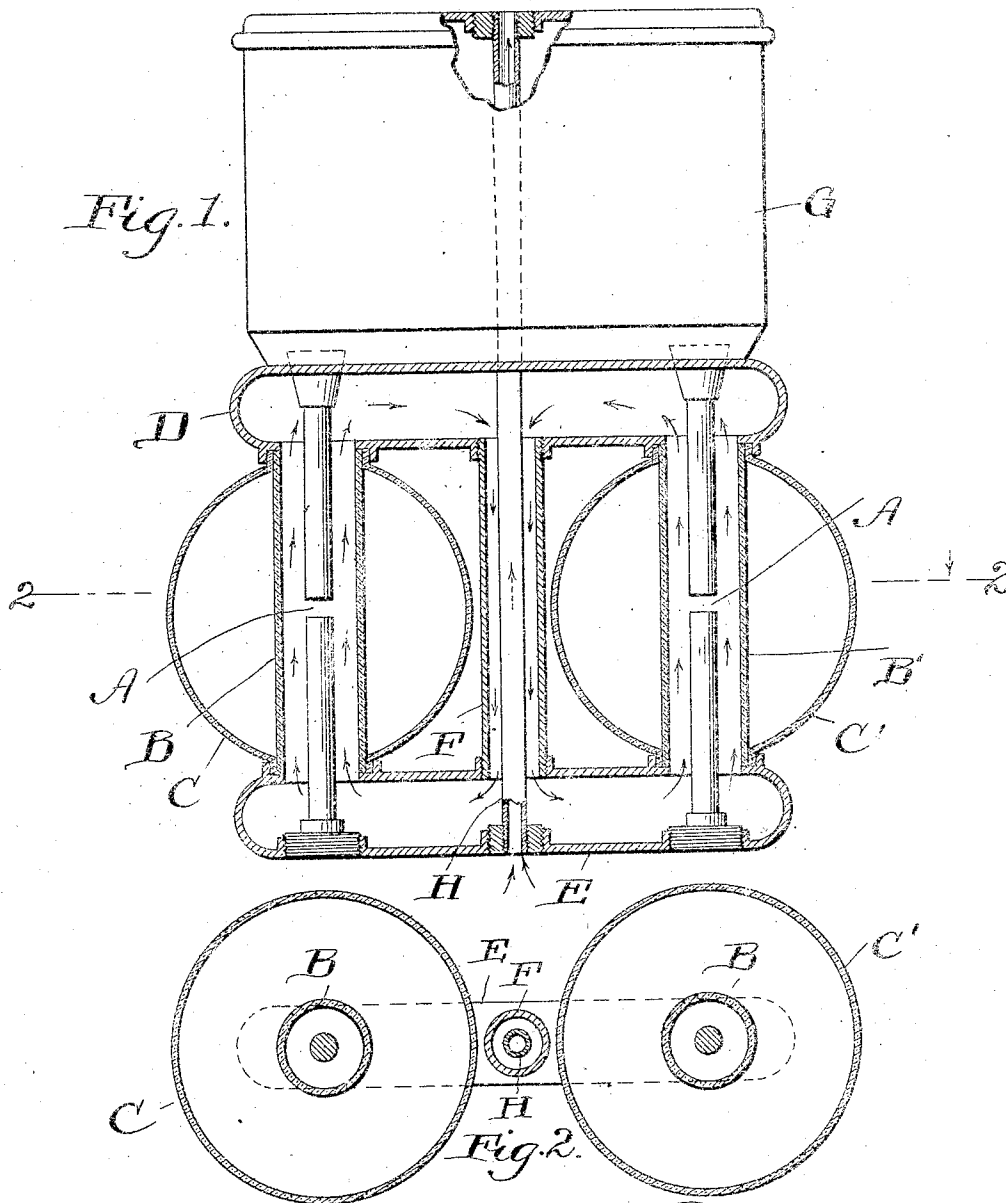


W. R. MOTT.  
ARC LAMP.  
APPLICATION FILED JULY 29, 1911.

1,036,884.

Patented Aug. 27, 1912.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

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## ARC-LAMP.

1,036,884.

Specification of Letters Patent. Patented Aug. 27, 1912.

Application filed July 29, 1911. Serial No. 641,239.

*To all whom it may concern:*

Be it known that I, WILLIAM ROY MOTT, a citizen of the United States, residing at Lakewood, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Arc-Lamps, of which the following is a full, clear, and exact description.

This invention relates to arc lamps of the flaming arc type which are operated under inclosed conditions to secure condensation of the gases outside of the arc inclosing globe and to prevent light dimming deposits on the globe. As these lamps are commonly constructed, they are provided with a closed circulation or condensing circuit which includes a central inner arc inclosing globe and two upright hollow arms which are located on opposite sides of the globe and are connected thereto at the top and bottom. These arms, located as they are on opposite sides of the arc, cast deep shadows when clear glass globes are employed, and these shadows can be avoided only by the use of frosted globes which reduce very materially the efficiency of light transmission.

The main object of the present invention is to increase the efficiency, desirability and field of use of lamps of the character stated; and particularly to provide an arrangement whereby the use of these outside down-draft hollow arms can be avoided so that clear globes can be employed without shadows and light obstruction.

The above and numerous other objects and advantages some of which will be referred to later, are accomplished by my invention which may be briefly summarized as consisting in certain novel combinations and arrangements of parts which will be described in the specification and set forth in the appended claims.

In the drawings, Figure 1 is a side elevation partly in section of a lamp constructed in accordance with one form of my invention; Fig. 2 is a transverse sectional view substantially along the line 2—2 of Fig. 1 looking in the direction indicated by the arrows; Figs. 3 and 4 are diagrammatic plan views illustrating the application of my invention to groups of three and four arcs respectively.

In carrying out my invention for the ac-

complishment of the objects which I have in view, I employ a plurality of arcs,—two or more, having a condensing inclosure wherein the down draft part or parts may be so arranged as to avoid all light obstruction. With the plurality of arcs, I prefer to employ a unitary condensing inclosure having a down draft flue for the condensation of the major portion of the gases, or the depositing of the finely divided particles carried by the gases, which flue may be common to the several arcs and may be arranged centrally between them.

In Figs. 1 and 2, is illustrated my idea wherein two arcs are employed, and in these figures A and A' represent respectively two sets of flaming arc electrodes which are inclosed within cylindrical globes B and B' which may, if desired, be inclosed in outer spherical globes C and C'. These inner globes B and B' constitute parts of the closed condensing circuit and may be termed the updraft parts, inasmuch as the gases flow upwardly through them. The condensing circuit also incloses the top portion or upper chamber D to which the upper ends of the globes are connected, and are in open communication, and the bottom portion E, or lower chamber to which the lower parts of the globes are connected and are in open communication. For the down draft or return flow of the gases, I prefer to employ a single central flue in the form of a tube F, which may be arranged midway between the arcs or in the center of the group. This tube F which is connected at its top to the upper part D of the condensing circuit and its bottom to the lower part E of the condensing circuit, constitutes a down draft arm which is common to the several arcs, and with the other parts of the condensing circuit previously described, forms a single or unitary condensing inclosure for all the arcs.

I have endeavored to illustrate my invention clearly without any attempt to show details of the actual construction which is or may be employed.

The internal operating mechanism of the lamp, including the clutch, feed, automatic cut-outs, etc., may be arranged within a single hood or casing G, but whether there is a single hood G for all the arcs, or a separate

one for each arc is entirely immaterial to the present invention.

To enhance the condensation of gases in the down draft tube F, I may employ some means for increasing the cooling effect. This is secured in the present case by means of an inner tube H, which is arranged centrally within the down draft tube F and is open at both ends so that there may be an upward flow of cooling air currents throughout the time that the lamp is in use.

In Fig. 3 is illustrated the adaptation of my invention to three arcs which are shown conventionally at I, I' and I<sup>2</sup>. The inner globes of these arcs are connected to a top portion of the condensing circuit indicated at J, and consisting in this case of three radial arms united at the center to which the down draft arm shown at K by dotted lines is connected. It will be understood that the bottom portions of the inner globes and of the down draft tube K will be connected to a similar lower portion or chamber of the condensing circuit.

In Fig. 4, four lamps are shown conventionally at L, L', L<sup>2</sup> and L<sup>3</sup>. The top of the condensing circuit, as here shown, consists of four arms M connected at the center to which the down draft tube N is connected.

The objects of Figs. 3 and 4 are to illustrate the fact that the same idea disclosed in Fig. 1 may be embodied in an arrangement having any number of arcs and provided with a unitary condensing inclosure including a down draft portion which is arranged between or centrally of all the arcs.

The most important advantage claimed in connection with the arrangement shown in the drawings is the much improved light distribution and elimination of shadows. Inasmuch as there are no light obstructing arms along the outer sides of any of the arcs, and as in all instances at least one arc is always directly visible in a horizontal circuit about the lamp, clear glass globes may be employed, thus obtaining an improved light distribution and much better efficiency in light transmission through the globes.

While I have shown only several slightly different embodiments of my invention, I do not wish to be confined to any particular form, construction, or arrangement, except as I am limited by the terms of the claims.

Having thus described my invention, what I claim is:—

1. In a lamp unit, electrodes for a plurality of arcs closely arranged in a group, and a condensing inclosure comprising globes inclosing the several arcs, and a down draft flue common to all the arcs and located in the group in communication at the top and bottom with the arc inclosing globes thereof.

2. In a lamp unit, electrodes for a plurality of arcs, and a condensing inclosure for the circulation of gases comprising arc inclosing globes for the up draft of gases, and a down draft flue in communication with the globes and arranged between the arcs.

3. In a lamp unit, electrodes for a plurality of arcs closely arranged in a group, a condensing inclosure for the circulation of gases comprising arc inclosing globes through which the gases pass upwardly, and a down draft flue common to two or more arcs and connected at its top and bottom to the globes thereof, said flue being arranged between the arcs.

4. In a lamp unit, electrodes for a plurality of arcs, a condensing inclosure for the several arcs including arc inclosing globes for the updraft of gases, and a down draft flue in communication at its top and bottom with the globes and arranged centrally between the arcs.

5. In a lamp unit, electrodes for a plurality of arcs arranged in a group, a unitary gas condensing inclosure comprising arc inclosing globes, an upper chamber connected to the upper ends of the globes, a lower chamber connected to the lower ends of the globes, and a down draft flue for the downward passage of gases from all of the arcs connected to said upper and lower chambers centrally thereof.

6. In a lamp unit, electrodes for a plurality of arcs, a condensing inclosure for the circulation of gases comprising arc inclosing globes for the up-draft of the gases, a down-draft flue connected to the globes, and means for cooling the gases passing through said flue.

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.

WILLIAM ROY MOTT.

Witnesses:

H. R. SULLIVAN,  
A. F. KWIS.