(No Model.)

P. O. JENKINS.

ELECTRIC LIGHT.

No. 260,029. Patented June 27, 1882.

Fig. 1.

Fig. 2.

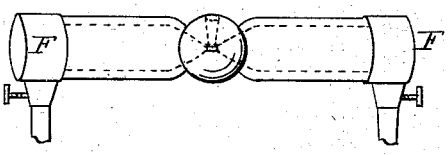


Fig. 3.

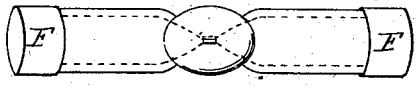


Fig. 4.

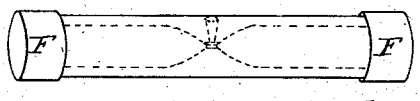


Fig. 5.

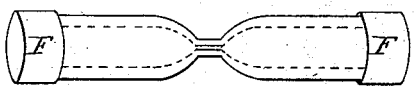
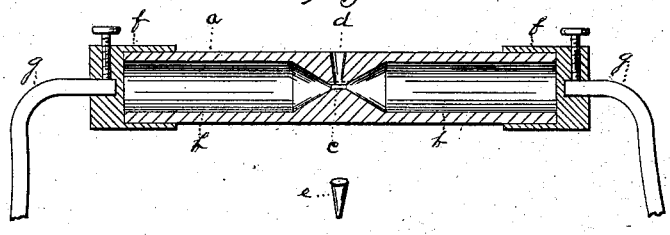


Fig. 6.



WITNESSES

F. M. Bumham.
Geo. Bacon

INVENTOR

Philip Oscar Jenkins

N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

PHILIP O. JENKINS, OF WASHINGTON, DISTRICT OF COLUMBIA.

ELECTRIC LIGHT.

SPECIFICATION forming part of Letters Patent No. 260,029, dated June 27, 1882.

Application filed September 28, 1881. (No model.)

To all whom it may concern:

Be it known that I, PHILIP OSCAR JENKINS, of the city of Washington, District of Columbia, have invented a new and useful Improvement in a Lamp for the Production of Electric Light by Incandescence, of which the following is a specification.

The object of my invention is not only to simplify the lamp device, but also to meet the universally-acknowledged want of volume and perfect steadiness in the light. I effect this by using a larger radiating-surface than has hitherto been used and by so perfectly excluding the air from the carbons that the fluctuations consequent on combustion are avoided.

In the construction of my lamp I use the carbon points of the size and form of those used in what is styled the "arc-light," and these I insert in a body of zirconia or other similar substance, which I so excavate from the outer ends or sides to a point near the center as to correspond with exactness to the size and form of the carbons inserted. This excavated body I make of spherical, spheroidal, sphero-cylindrical, cylindrical, or at pleasure of the form of the carbons within, and these I make of such thickness as may be required to be brought to a state of incandescence, as in such case a given extent of surface must correspond to a given amount or intensity of heat. The exact dimensions of said body therefore cannot be fixed for every case. The center of this carbon-surrounding body (the extent of which is the necessary space or interval between the carbon points for the "break" or "resistance") I perforate and introduce a small plumbago pencil or other carbon or similar conductor, which I make to touch by firm contact each carbon point, the object of which is to start the current when electrical connections are made with an electrical generator in action without having to bring the points together and separate them again. This pencil connecting the carbon points is of size sufficient merely to start the current, or, rather, to permit its passage, and answering to about the capacity of an atmospheric break of a somewhat reduced strain, or minus its full tension, so as to maintain, and yet not to impair, the value of the break. Thus I gain the full value of the break that would be required in an arc-light, and, as will be seen, without the wasting effect of combustion. The carbons inserted in the zirconia or other like body are made to fit in them on the principle of a ground-glass-stoppered bottle, and so perfect is the fit that in introducing them from the outer ends of the investing body the air is pressed to the center, in which I effect from without to the center of the investing body (communicating with the carbon points) a small opening of any desired form, in which, after introducing the carbons with the connecting-pencil of carbon or other like substance, I introduce a burning taper, and, while still burning I plug either with powdered zirconia or other refractory substance and pack or insert a wedge of the same material of solid form, which I make fit on the same principle named for fitting the carbons in their surrounding body. Thus I gain what is equivalent to an air-exhausted tube. The outer ends of the carbons I arm with closely-fitting metal caps, (or other hard and conducting substance may be used,) which serve to connect the wires conveying the electricity and prevent the ingress of air.

When this lamp is placed in contact or connection with a competent electrical generator the carbons, becoming intensely heated at their points, soon bring the surrounding body to a state of incandescence, and this investing body becomes the mediate source of a light that is uniform and continuous.

This device, virtually excluding all the air from the carbons, prevents their combustion and consequent wasting away; nor can they waste by volatilization, as they are closely surrounded by and in close contact with their firm surrounding body; nor can the vitiating effects of clouding the glass around the lamp, when used, be interposed, and as the zirconia forming the carbon-investing body is among the most refractory substances known, it can be depended on to resist the disintegration which might be expected from the intense heat it is subjected to.

This device may be used with or without a glass globe or tube, but preferably with one. The carbons used to bring their surrounding body to incandesence need not be more than about two inches in length, and can easily be removed and others inserted when necessary.

Figures 1, 2, 3, 4, and 5 show the different external forms that may be used. Fig. 6, show-

ing a sectional view, indicates the special structure of each type. Thus, *a* shows the body of the lamp; *b b*, the invested carbons with, at *c*, the small connecting-piece described. *d* shows the opening, as described, in the center and communicating with the carbon-point-connecting piece, which is made to allow the air which is pressed to the center, by inserting the air-tight-fitting carbons, to pass out, so that by the means already described the air is all virtually removed. *e* shows the wedge (when of solid material) which, being made also to fit air-tight, further prevents the ingress of air when pressed firmly in the small opening at *d*. *f f* show the metal or other material caps, the uses of which have been already named. *g g* show the ends of the wires connecting the lamp with an electrical generator.

What I claim as my invention, and for which I ask Letters Patent, is—

1. The combination of the inclosed carbon or other electrodes of like refractory and conducting capacity, their surrounding body of refractory non-conducting substance, the intermediate connecting-piece, which connects the two carbon points or electrodes, and the closely-fitting caps of conducting material placed in close contact with the carbons and carbon-investing body, whereby the ingress of air is prevented and electrical contact with the carbon ends is maintained.

2. The combination of the carbons and their inclosing-body, the former fitted air-tight within the latter and the latter provided with a small conical orifice, and the conical or wedge shaped plug adapted to fit said orifice so as to exclude the air from contact with the carbons, substantially as and for the purposes set forth.

PHILIP OSCAR JENKINS.

Witnesses:

GEO. F. GRAHAM,

S. ARCHER.