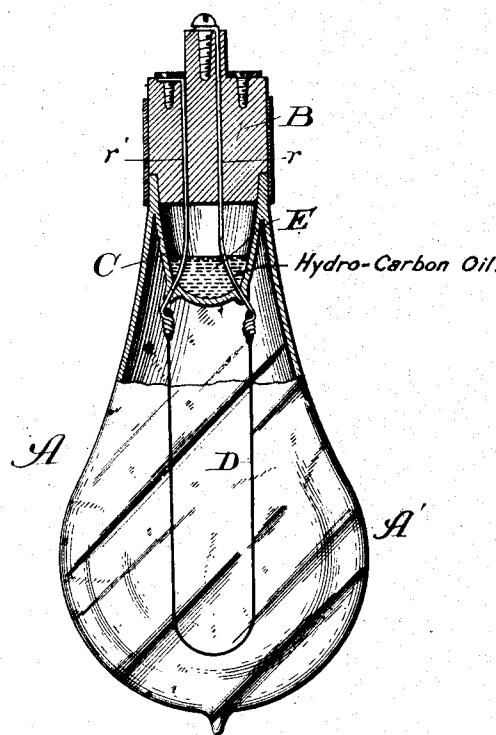


(No Model.)

S. B. COBB.  
ELECTRIC LAMP.

No. 419,829.

Patented Jan. 21, 1890.



Witnesses:

*Charles Gaylord.*  
*J. H. Dynenforth.*

Inventor:

*Sam B. Cobb,*  
*By Dynenforth Dynenforth*

# UNITED STATES PATENT OFFICE.

SAM B. COBB, OF CHICAGO, ILLINOIS.

## ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 419,829, dated January 21, 1890.

Application filed March 10, 1888. Serial No. 266,800. (No model.)

To all whom it may concern:

Be it known that I, SAM B. COBB, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have 5 invented a new and useful Improvement in Electric Lamps, of which the following is a specification.

My invention relates particularly to an improvement in incandescent electric lamps, 10 whereby the life of the substance rendered incandescent by the current to produce the light is greatly prolonged, either initially—that is, by the application of my improvement before the lamp has been used—or by the application thereof to lamps which have become "high tension" with use, or which are originally high tension, whereby they are restored to usefulness or rendered useful.

The life of an incandescent lamp of the general form at present in use, or length of time 20 during which the substance within the lamp which, by its reduction to an incandescent state, affords the light, and commonly referred to as the "carbon," though not necessarily composed of that material, performs its function, is supposed to be, as I understand, with the exercise of great care, and at the most, about fifteen hundred hours, though it is commonly warranted for only six hundred hours.

When the carbon has become impaired to an extent that the light it gives is insufficiently luminous, or to the extent of becoming severed, when, of course, by the consequent breaking of the circuit it gives no light, the lamp has to be thrown away, since it is impracticable to supply it with a fresh carbon.

It has been discovered that by introducing a supply of a suitable liquid into the lamp to surround the terminals within it near the connection therewith of the loop of platinum, carbon, or the like forming the carbon, burning out or impairment of the latter by becoming high tension is prevented for an indefinite length of time, and that if the liquid be applied to a lamp the carbon of which is already so impaired by use, though not severed, but still continuous, the properties thereof are thereby restored, and, as it were, rejuvenated, and it is rendered practically indestructible 50 in the same degree as that of a new lamp provided with my improvement.

To illustrate my invention I have selected a common form of incandescent electric lamp, which is shown in the accompanying drawing in sectional elevation.

55

A' is the glass bulb of an incandescent lamp A, (shown in the drawing as of the kind in which the bulb is practically exhausted of fluid contents;) B, the stopper, and C a concavity or glass chamber in the narrow end of the bulb, and through small apertures in which the wires r and r', for connection in the circuit and fitting closely in the apertures, extend, and to which, respectively, the ends of the platinum, carbon, or other suitable 60 thread D are fastened.

I introduce into the chamber C a liquid E which is non-conductive of electricity to an extent that it will not short-circuit the current and surrounds the terminals r and r' 70 within the chamber. My experiments have been principally confined to oleaginous liquids, and more especially to mineral oils, though, of course, any liquid which will produce the results, or either of them, above described is included as within the spirit of my invention. Of the oils I have used in my experiments paraffine-oil has been subjected to the longest tests, which have been so long as to satisfy me that my improvement renders 80 an incandescent lamp, as to the carbon portion thereof, practically indestructible by preventing its becoming-high tension.

The liquid introduced for my purpose may be in a quantity to fill the chamber C, though 85 I fill it only about one-third full, and though the quantity decreases, thus indicating that it is consumed, its decrease is hardly perceptible, so that I am led to presume that it would require several years to empty the chamber 90 C of an ordinary lamp one-third full of oil.

I do not pretend to account with absolute certainty for the effect produced by my improvement, though the theory is advanced and believed to be correct that as the liquid forms a seal it prevents the access of air to the interior of the bulb, which would account for the non-consumption of a fresh carbon, and that the liquid gains access to the carbon, (probably by capillary attraction,) and when the latter is impaired softens or anneals it, and thereby restores its quality of resistance 95

to the normal condition. Not being prepared, however, to vouch as a matter of certainty for any theory, I merely herein present the means and the result thereby attained as 5 constituting my invention.

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

1. An incandescent electric lamp comprising the usual bulb, carbon, and conducting-wires, and provided on the exterior of the bulb with a non-conducting liquid contained in a single chamber and surrounding both the wires.

15 2. In an incandescent electric lamp, the combination of the glass bulb A', a conductor  $r r'$ , extending into the bulb through apertures which fit closely around the conductor and having the carbon D in circuit, and a supply of liquid which acts upon the carbon, as described, contained in a single chamber and applied to the conductor outside the bulb over the said apertures, substantially as described.

20 3. In an incandescent electric lamp, the combination of a glass bulb, a conductor ex-

tending into the bulb through apertures which 25 fit closely around the conductor and having a carbon in circuit, and a single chamber containing a supply of oil which acts upon the carbon, as described, mounted upon the bulb surrounding the conducting-wires, substantially as described.

4. In an incandescent electric lamp, the combination of the bulb A', having a chamber C, provided with apertures leading into the bulb, a conductor  $r r'$ , extending into the 35 bulb through the said apertures which fit closely around the conductor and having a carbon D in circuit, and a supply in the chamber C of a liquid E inherently non-conductive of electricity to an extent that will not short-circuit the current, which forms a seal around the conductor at the said apertures and acts upon the carbon, substantially as described. 40

SAM B. COBB.

In presence of—

J. W. DYRENFORTH,  
CHAS. E. GAYLORD.