

I. LADOFF.
 APPARATUS FOR PRODUCING THE ARC LIGHT.
 APPLICATION FILED JUNE 17, 1908.

1,019,901.

Patented Mar. 12, 1912.

Fig. 1.

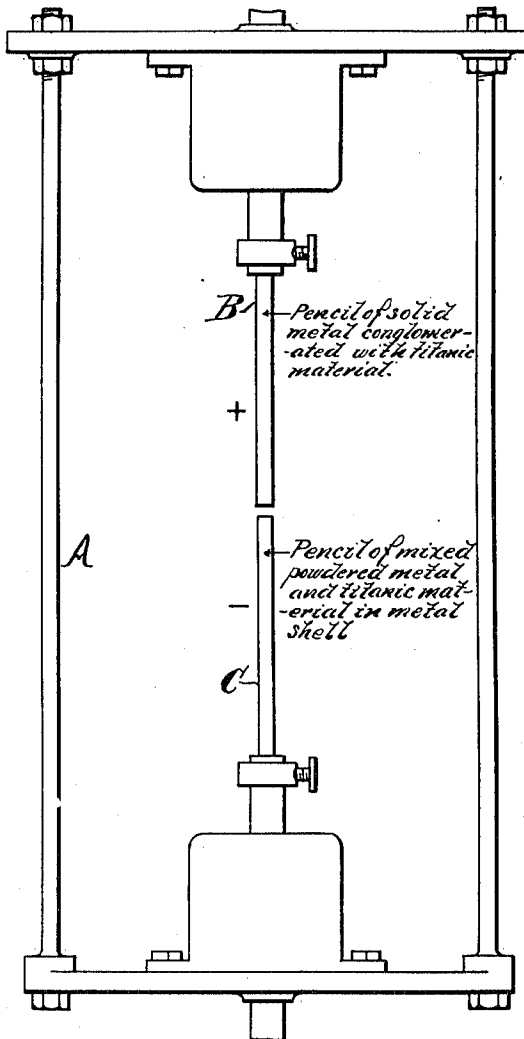


Fig. 2.



Fig. 3.

Witnesses:
 C. A. Jarvis
 H. H. Measures.

Inventor:
 Isador Ladoff
 by Walter S. Arnold,
 his Attorney.

UNITED STATES PATENT OFFICE.

ISADOR LADOFF, OF CLEVELAND, OHIO, ASSIGNOR OF THIRTY ONE-HUNDREDTHS TO
PHILIP C. PECK, OF NEW YORK, N. Y.

APPARATUS FOR PRODUCING THE ARC-LIGHT.

1,019,901.

Specification of Letters Patent.

Patented Mar. 12, 1912.

Application filed June 17, 1908. Serial No. 438,886.

To all whom it may concern:

Be it known that I, ISADOR LADOFF, a citizen of the United States, and a resident of the city of Cleveland, county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Apparatus for Producing the Arc-Light, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation of the apparatus generally; Fig. 2 a central longitudinal section of lower pencil C of Fig. 1 on enlarged scale; and Fig. 3 transverse section on line 3—3 of Fig. 2.

The object of my present invention is to increase candle-power, life, steadiness of arc, facility in starting, and economy of electrical energy in arc lighting by means of electrodes consisting essentially of metal and titanic material. I attain these objects by means of the novel arrangement in combination of such well-known electrodes as hereinafter described. I thus use for producing the arc a positive upper pencil or electrode consisting throughout essentially of a single solid continuously coherent mass of metal, preferably iron, containing therein homogeneously conglomerated or disseminated particles of titanic material and I combine said upper positive with a negative lower electrode composed essentially of an incoherent aggregation of powdered iron having therewith homogeneously conglomerated titanic material, preferably titanium oxid, and contained in an attenuated metal shell composed preferably of iron. Such solid upper positive electrode may be produced as per Letters Patent No. 840,634, granted to me January 8, 1907, or as per Letters Patent No. 896,397, granted to me August 18, 1908, or as per my pending application for Letters Patent, Serial No. 213,065, filed June 18, 1904, original application Serial No. 183,528, filed December 2, 1903.

My lower negative electrode may be produced by mixing powdered oxid of iron as for instance magnetite with powdered titanium oxid adding a suitable binder as for instance water, molding into bodies of convenient form and size, and subjecting the latter to such temperature, say 1800° C. in the presence of carbon, or other reducing agent, as to insure reduction of all the iron oxid to iron in elemental form. The resulting

product is then reduced, as by grinding, to powdered form, and the resulting powder is packed into an iron tube or shell of desired proportions say .006 of an inch thick to constitute the said lower, or negative pencil. I have found it advantageous that said upper pencil of my said novel combination should be of somewhat larger diameter than the lower—the best results being obtained from said upper having a diameter of $\frac{5}{8}$ of an inch combined with said lower of $\frac{1}{2}$ inch diameter. It will be observed that notwithstanding the said upper and lower are of substantially similar chemical composition, their respective mechanical characteristics and structures are widely different, and that the resulting candle power, steadiness of arc, facility in starting, longevity, economy of electrical energy, and other advantageous features incident to the use of said combination in circuit, surpass materially those derivable from the combination in the lamp of either two solid pencils, or of two powdered pencils, both of either of the aforesaid compositions and structures.

It will be understood that I do not, in this application, seek to cover either the aforesaid solid or powdered pencils as a separate article, the essential feature of my present improvement consisting in my aforesaid novel combination of a solid upper of the specific type described with a substantially powdered lower likewise of the type described whereby I am enabled to attain the improved results in the art of arc lighting previously referred to.

Referring to the drawings, A indicates an arc lamp of usual form and provided with the usual feed devices. B the said pencil consisting essentially of a unitary mass of metal, preferably iron, containing homogeneously conglomerated therewith titanic material, preferably oxid of titanium. C the said pencil composed essentially of metal, preferably iron, in powdered form mixed with powdered titanic material, preferably oxid of titanium and contained in a metal, preferably iron, shell D.

What I claim as new and desire to secure by Letters Patent is the following, viz:—

1. In an apparatus for producing the arc light the combination of a positive upper electrode consisting throughout of a single, solid, continuously coherent mass of metal containing therein homogeneously disseminated

nated particles of titanic material, and a negative lower electrode composed essentially of an incoherent aggregation of powdered iron having therewith homogeneously conglomerated titanic material and contained in an attenuated metal shell.

2. In an apparatus for producing the arc light the combination of a positive upper electrode consisting throughout of a single solid continuously coherent mass of iron containing therein homogeneously disseminated particles of titanium oxid, and a negative lower electrode composed essentially of an incoherent aggregation of powdered iron having therewith homogeneously conglomerated titanium oxid and contained in an attenuated metal shell.

3. In an apparatus for producing the arc

light the combination of a positive upper pencil consisting throughout of a single, solid, continuously coherent mass of metal containing therein homogeneously disseminated particles of titanic material; and a negative lower pencil composed essentially of an incoherent aggregation of powdered iron having therewith homogeneously conglomerated titanic material and contained in an attenuated metal shell, the diameter of said positive upper pencil being greater than the diameter of said lower negative pencil.

ISADOR LADOFF.

Witnesses:

C. A. Hoskins,
A. L. Hoving.