(No Model.)

T. A. EDISON.

APPARATUS FOR TREATING CARBONS FOR ELECTRIC LAMPS.

No. 248,437. Patented Oct. 18, 1881.

Fig. 1.

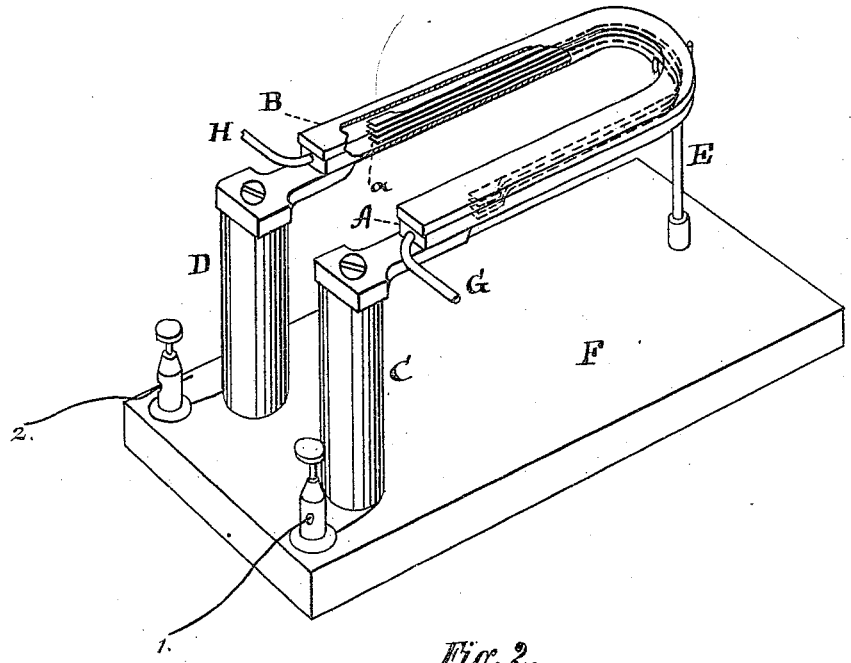


Fig. 2.

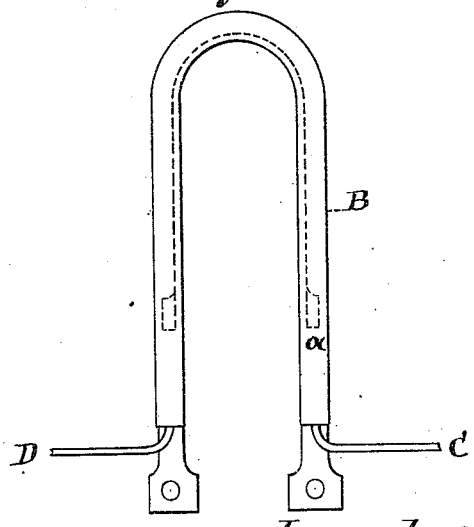
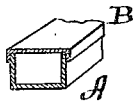


Fig. 3.



Witnesses:

Chas Raettig.

S. D. Morris

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T. A. Edison.

per

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR TREATING CARBONS FOR ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 248,437, dated October 18, 1881.

Application filed January 11, 1881. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of Menlo Park, in the county of Middlesex and State of New Jersey, have invented a new and useful Improvement in the Manufacture of Carbons for Electric Lamps; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

In a system of lighting by electrical incandescence it is necessary that all the incandescing conductors of a series should be as nearly as possible of the same resistance. These incandescing conductors are made from strips of paper or other suitable substance, which are cut into the proper shape and carbonized in such a manner that they will retain their shape. After they are finished it is found sometimes that they vary in resistance, and it is therefore necessary to reduce the resistance of some, in order that they may all be alike. The larger the carbon or the greater its mass the lower its resistance, and consequently the way to reduce the resistance is to increase either the size of the carbons or their mass, or both. To do this I first test the resistance of various carbons when cold and find those in which it is lowest. The others must be reduced to nearly the same point. This is done by heating them while they are exposed to a carbon compound in a gaseous state, which will be decomposed by the heat and will deposit other carbon on the carbon filaments until their size or mass is increased and their resistance diminished to the proper point.

A convenient apparatus for this purpose is shown in the accompanying drawings, Figure 1 being a perspective view thereof; Fig. 2, a plan or top view; and Fig. 3 an end view of the mold or flask in which the carbons are placed.

A is a flask or vessel made of nickel, platina, or carbon, (the last being deemed preferable, because it can be made of paper and carbonized into the proper shape,) having a tightly-fitting cover, B, a portion of which in the drawings is broken away to afford a view of the carbons *a*. The mold is supported on pillars C D E, which rest on a suitable base, F.

G H are pipes, through one of which vapor is admitted to the carbons *a* and is removed through the other. The carbons being placed in the flask, as shown, an electric current is passed through the wires 1 2, the pillars C D and the flask A, heating the flask, and consequently the carbons, to a very high temperature. The carbon vapor is then allowed to enter the pipe, and, circulating around through the flask, deposits carbon on the heated filaments until their resistance becomes sufficiently reduced.

The time necessary for the operation may be determined by experiment, carbons originally of high resistance requiring a longer time than those of greater conductivity. Afterward the cover is taken off and the carbons removed, when the flask may be used again for other carbons.

It is not essential that the gas should be passed through the flask, as shown, by means of pipes; but instead, crystals of naphthaline or other carbon compound of similar nature may be placed in the flask, and when it is heated they will vaporize and deposit their carbon upon the filaments; or the cover B may be dispensed with and the flask placed in a receptacle filled with the vapor, the carbon of which will be deposited upon the filaments when they are heated.

What I claim is—

1. A flask or vessel adapted to contain carbon for treatment, as described, and provided with circuit-connections, whereby it may be heated to incandescence by an electric current, substantially as set forth.

2. A vessel or flask adapted to contain carbons for treatment, as described, provided with means for passing therethrough a stream of vapor, and circuit-connections, whereby it may be heated to incandescence by an electric current, substantially as set forth.

This specification signed and witnessed this 21st day of December, 1880.

THOS. A. EDISON.

Witnesses:
H. W. SEELY,
ERNEST BERGGREN.