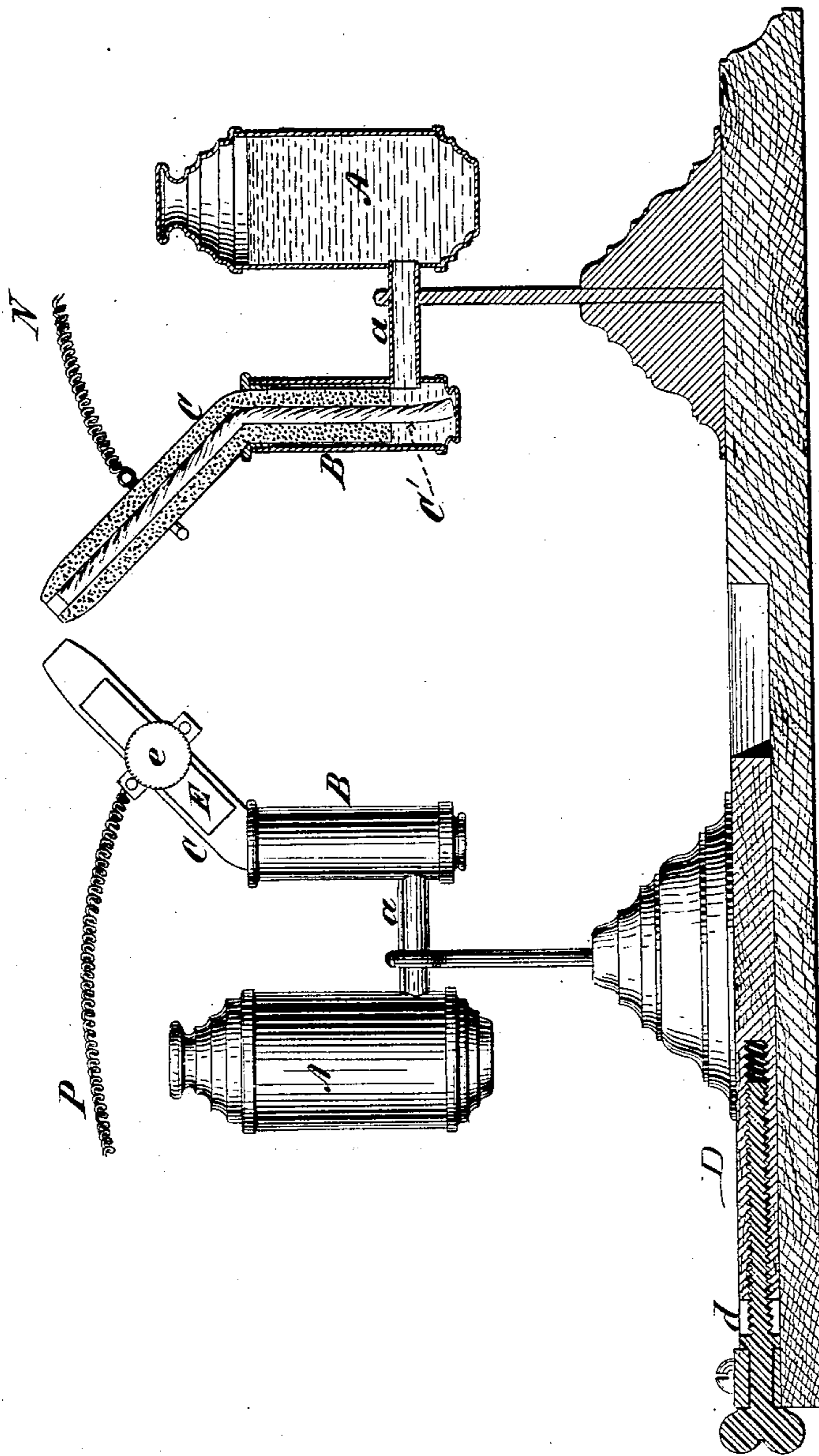


O. LUGO.
Electrodes for Electric Lights.

No. 207,754.

Patented Sept. 3, 1878.

Figure 1.



Witnesses:

Edw^d Payson

Geo. W. Miatt

Inventor:

Orazio Lugo
Per Edw. E. Quincy
Atty.

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Figure.3.

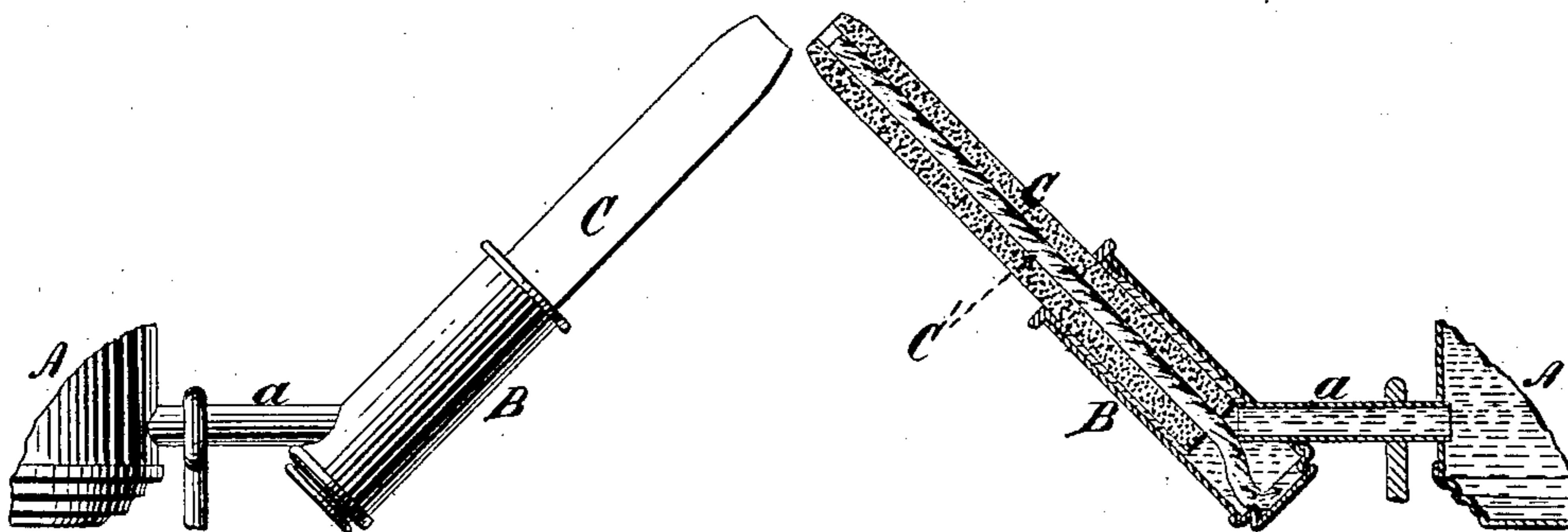
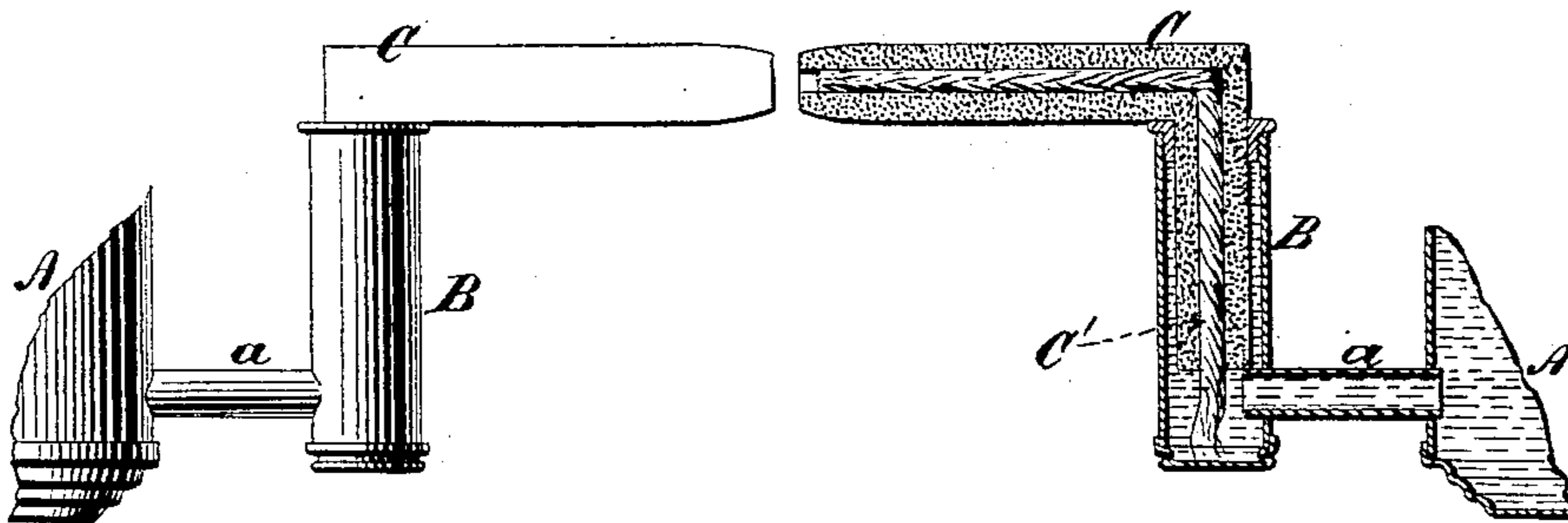


Figure.2.



Witnesses:

Edw. J. Payson

Geo. W. Mott

Inventor:

Orazio Lugo
Per Edw. E. Lundy
Atty.

UNITED STATES PATENT OFFICE.

ORAZIO LUGO, OF FLUSHING, NEW YORK.

IMPROVEMENT IN ELECTRODES FOR ELECTRIC LIGHTS.

Specification forming part of Letters Patent No. **207,754**, dated September 3, 1878; application filed August 28, 1878.

CASE A.

To all whom it may concern:

Be it known that I, ORAZIO LUGO, of Flushing, Long Island, New York, have invented certain Improvements in Electrodes for the Production of Electric Light, of which the following is a specification:

My invention consists, primarily, in retarding the consumption of electrodes employed in the production of electric light by making such electrodes of a porous material, and supplying them by capillary action with a combustible fluid, which is burned in the electric arc, and which, by its evaporation, tends to cool the electrodes and prevent their rapid destruction.

My invention consists, secondly, in the employment, in this connection, of a hydrocarbon oil, which not only answers the purpose of cooling the electrodes by its evaporation, but affords a deposit of carbon upon the electrodes, which also has the effect of retarding their consumption.

In the accompanying drawings of an apparatus embodying my invention, Figure 1 represents two hydrocarbon-reservoirs, each provided with a distributing-chamber, open at the top for allowing the insertion in the chamber of the lower end of an electrode made of carbon or spongy platinum or some other porous substance suitable for employment in the production of electric light. Fig. 2 represents an electrode bent to a right angle. Fig. 3 represents a modification of my apparatus, which consists in substituting for the vertical distributing-chambers shown in Fig. 1 inclined chambers suitable for allowing the use of straight electrodes.

In Fig. 1 one half of the apparatus is shown in elevation and the other half in central vertical section.

Each of the reservoirs A is connected by means of a tube, *a*, with a distributing-chamber, B, in which the lower end of one of the electrodes C is inserted.

My electrodes, which are of any suitable porous material, are preferably made tubular, for the purpose of containing a wick, C', of fibrous material. When the distributing-chambers are vertical the electrodes are made with a bend, so that their outer ends may be brought into proper proximity.

The electrodes may either be bent at a right angle, as shown in Fig. 3, or at less than a right angle, as shown in Fig. 1.

The reservoirs are mounted on suitable standards, and one or both of them may be placed on a movable platform or platforms, provided with adjusting-screws, by means of which the relative positions of the electrodes, and hence the length of the electric arc, may be accurately and conveniently regulated. One of these platforms, D, is shown in Fig. 1, with the screw-leader *d*, by which it is moved.

My electrodes, when supplied with a hydrocarbon, waste very slowly; but it will of course be understood that the adjusting screw or screws may be operated to feed the electrodes together automatically by means of apparatus similar to that now employed for giving the feed to the electrodes used in the production of electric light. As such apparatus is well known and in common use, I do not deem it necessary to give any detailed description of it.

I preferably inclose my electrodes, if made of carbon, in a copper shell. When not so inclosed I clamp upon them a small strip of copper, E, by means of the screw-clamps *e*. The clamps are metallic, and are respectively connected, by means of the wires P and N, with the opposite poles of a battery or dynamo-electric machine.

In operation, the reservoirs A are filled with a hydrocarbon oil, which enters, by means of the connecting-pipes *a*, the distributing-chambers, and is thence conveyed, by capillary action, to the points of the electrodes, where it is evaporated and ignited. The evaporation of the hydrocarbon tends to prevent the excessive heating of the electrodes and to retard their consumption. Another effect of this employment of a hydrocarbon is that a deposit of carbon is made upon the points of the electrodes, which also tends to retard their destruction, and, finally, the ignition of the hydrocarbon increases the illuminating power of the arc.

I do not herein claim, broadly, a tubular electrode, first, because I have made tubular electrodes the subject of another application of even date herewith; and, secondly, because, in the present case, a porous electrode which

is not tubular will answer, measurably, the desired purpose.

I claim as my invention—

1. The herein-described mode of retarding the destruction of electrodes employed in the production of electric light, which consists in making such electrodes of a porous material and supplying them by capillary action with a combustible fluid capable of being evaporated from their points or surfaces and ignited in the electric arc.

2. Electrodes of any porous material suit-

able for employment in the production of electric light, in combination with a reservoir or reservoirs containing a hydrocarbon oil, substantially as and for the purposes set forth.

3. The tubular electrodes C, containing the fibrous wicks *b*, in combination with the distributing-chambers B, substantially as and for the purpose set forth.

ORAZIO LUGO.

Witnesses:

ROBERT H. POLLOCK,
EDWD. PAYSON.