

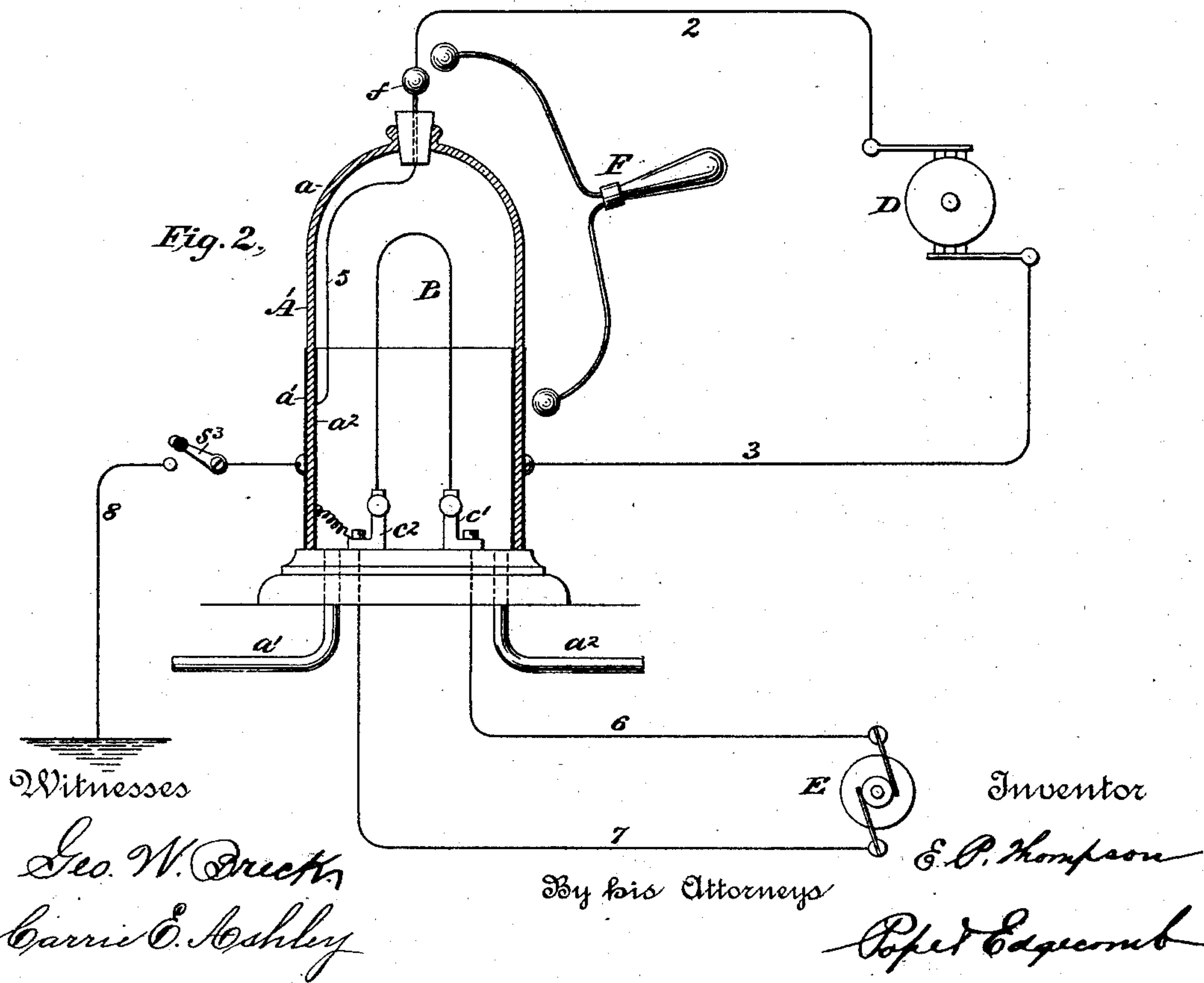
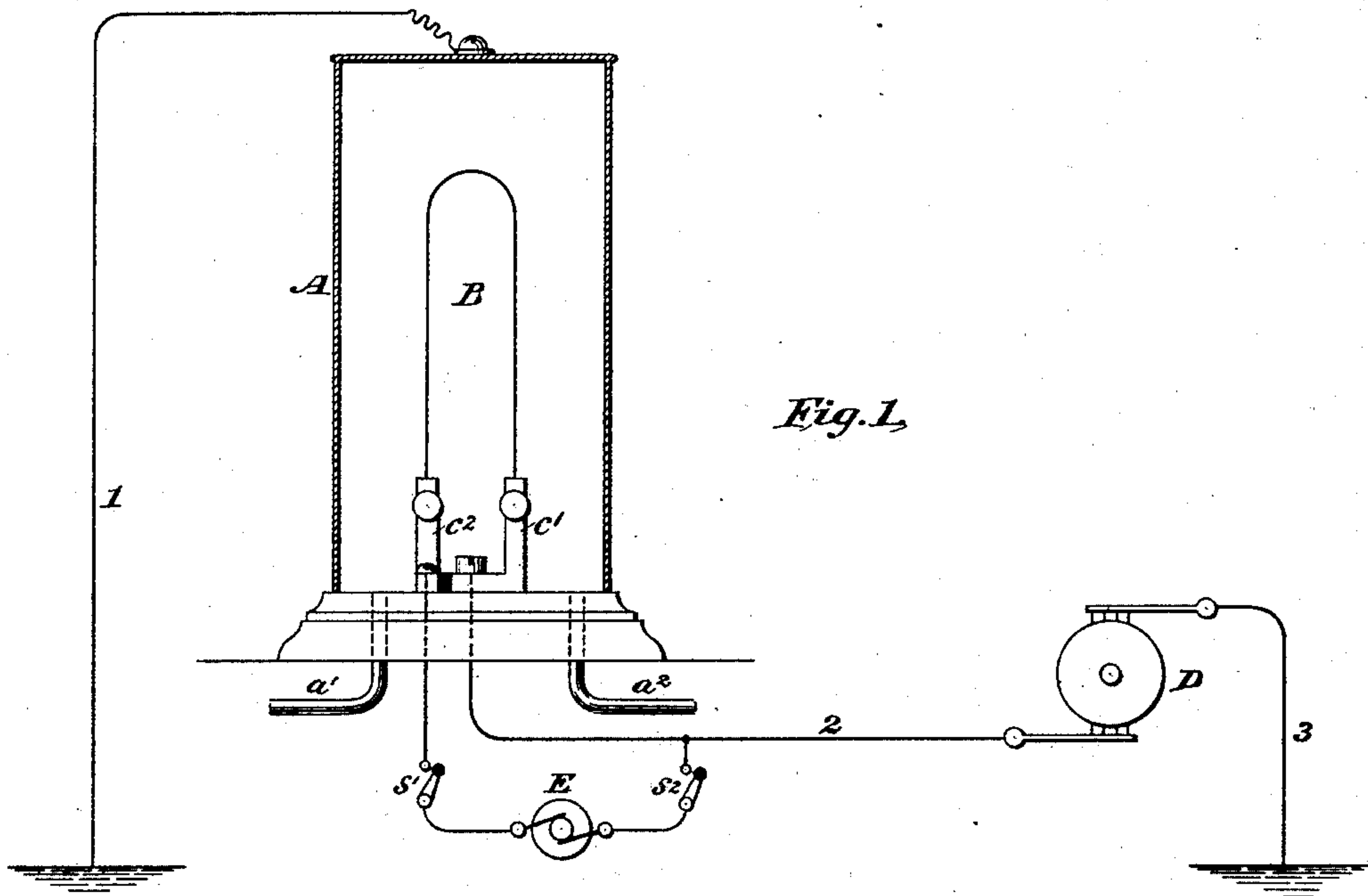
(No Model.)

E. P. THOMPSON.

PROCESS OF TREATING FILAMENTS FOR INCANDESCENT ELECTRIC LAMPS.

No. 371,001.

Patented Oct. 4, 1887.



Witnesses

Geo. W. Drecty
Carrie C. Ashley

By his Attorneys

Inventor

E. P. Thompson

Robert Edgcomb

UNITED STATES PATENT OFFICE.

EDWARD P. THOMPSON, OF ELIZABETH, NEW JERSEY.

PROCESS OF TREATING FILAMENTS FOR INCANDESCENT ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 371,001, dated October 4, 1887.

Application filed February 4, 1887. Serial No. 226,527. (No model.)

To all whom it may concern:

Be it known that I, EDWARD P. THOMPSON, a citizen of the United States, residing in Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in the Process of Treating Filaments for Incandescent Electric Lamps, of which the following is a specification.

The invention relates to the method of preparing filaments for incandescent electric lamps.

The object of the invention is to so treat the filament before it is inserted in the lamp that it shall be free from all the loose and partially-detached particles of carbon, and therefore be less liable to throw off carbon during the life of the lamp, and thus blacken the globe containing it.

The invention consists, in general terms, in alternately causing the static electrical discharge to take place between the filament and an electrode connected with a suitable source of static electricity and treating the filament with hydrocarbon, from which a deposit is made thereon.

The invention will be described in connection with the accompanying drawings, in which—

Figure 1 illustrates an apparatus adapted to carry out the invention, and Fig. 2 illustrates a modified form.

Referring to the figures, A represents a suitable metallic inclosing cup or chamber, in which is placed a filament, B, which is to be treated. This filament is supported upon suitable clamps, c' c^2 , electrically connected with the respective arms of the filament. The chamber A is designed to be first filled with an inert gas by means of a tube, a' . The metal of the chamber is connected with the earth by a conductor, 1. One pole of a suitable generator or other device adapted to charge the filament, as shown at D, is connected by a conductor, 2, with the clamps supporting the filament. The other pole is connected with the earth or a conductor, 1, by a conductor, 3. By operating the device D the filament and the inclosing-case will receive electrical charges of opposite character, and when a suitable difference of potential is obtained a discharge will take place across the intervening space. This will

throw off the loose particles of carbon upon the filament. After the filament is thus treated the inert gas may be drawn off by the tube a^2 , and a hydrocarbon gas caused to enter the chamber through the tube a' . The filament will thus receive a deposit of the hydrocarbon.

It is designed that the filament shall be heated to incandescence, and even to the point of rupture, by an electric current while it is surrounded by the atmosphere of hydrocarbon, and for this purpose a generator, E, may have its opposite poles connected through switches s' and s^2 with the conductor 2 and the conductor 4, respectively. This latter conductor leads to the clamp c^2 , which is insulated from the clamp c' . In this manner a current of electricity may be sent through the filament while it is being treated. The filament may, if it is desired, be heated by such a current at the same time that the static discharge is taking place, and the current applied may be such as to heat the filament to the point of rupture. By means of this treatment the greatest possible amount of the loose carbon will be thrown off. After the filament has been thus subjected to a bath of hydrocarbon the first step in the process is again repeated, and the two steps may be alternately repeated as many times as required until a filament of great density and firmness is built up.

In Fig. 2 the static discharge is caused to take place from the filament and a plate surrounding the same. This is accomplished by placing the filament in a Bell jar, A' , constructed after the manner of a Leyden jar—that is to say, consisting of a glass shell provided with an outer coating, a' , of metal foil or other conducting material, and a similar inner coating, a^2 . This latter coating is electrically connected in any suitable manner with one of the clamps, c^2 , supporting the filament B. This is also connected by a conductor, 5, with a contact-ball, f , outside the jar. This latter point is connected by the conductor 2 with one pole of the generator D, the other pole of which is connected by a conductor, 3, with the outer coating, a' . By operating the generator D the plates a' and a^2 will receive opposite charges of electricity, and by means of a discharging device, F, of well-known construction, the jar may be discharged, causing

the loose particles of carbon to be thrown off from the filament, as before. The jar is provided with inlet and exhaust tubes a' and a'' , whereby it may be treated in gases, as before.

5 The respective clamps c' and c'' , supporting the filament, are connected by conductors 6 and 7 with the opposite poles of a generator, E, for applying a current to the filament. The general process of treatment is the same as described in connection with Fig. 1. A conductor, 8, provided with a switch, s^3 , connects the outer coating, a' , with the earth, for the purpose of rendering it possible to induce a greater charge upon the inner coating, a'' , after

10 a manner well understood.

I claim as my invention—

1. The hereinbefore-described process of treating electric-light filaments, which consists in throwing off loose particles of carbon by

20 electrostatic discharges and alternately subjecting the filament to a hydrocarbon bath, substantially as described.

2. In a process of preparing filaments for incandescent electric lamps, the hereinbefore-described method of removing the loose particles, which consists in causing a static electrical discharge to take place from the filament

25 before it is inserted in the lamp.

3. In a process of preparing filaments for incandescent electric lamps, the hereinbefore-described method of removing the loose parti-

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cles, which consists in causing a static electrical discharge to take place from the filament before it is inserted in the lamp and alternately subjecting it to hydrocarbon baths.

4. An apparatus for treating carbonized filaments, consisting of a static electrical generator having one pole connected with the filament and the other pole connected with a conducting-surface surrounding the same, and an air-tight inclosing-jar for the filament.

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5. The hereinbefore-described process of treating filaments for incandescent electric lamps, which consists in heating the filament to its point of rupture and simultaneously causing a static electrical discharge to take place from the filament, substantially as described.

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6. The hereinbefore-described process of preparing filaments for incandescent electric lamps, which consists in heating the filaments and in causing a static electrical discharge to take place from the filament while incandescent.

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In testimony whereof I have hereunto subscribed my name this 21st day of January, A. D. 1887.

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EDWARD P. THOMPSON.

Witnesses:

DANL. W. EDGECOMB.
CHARLES A. TERRY.