

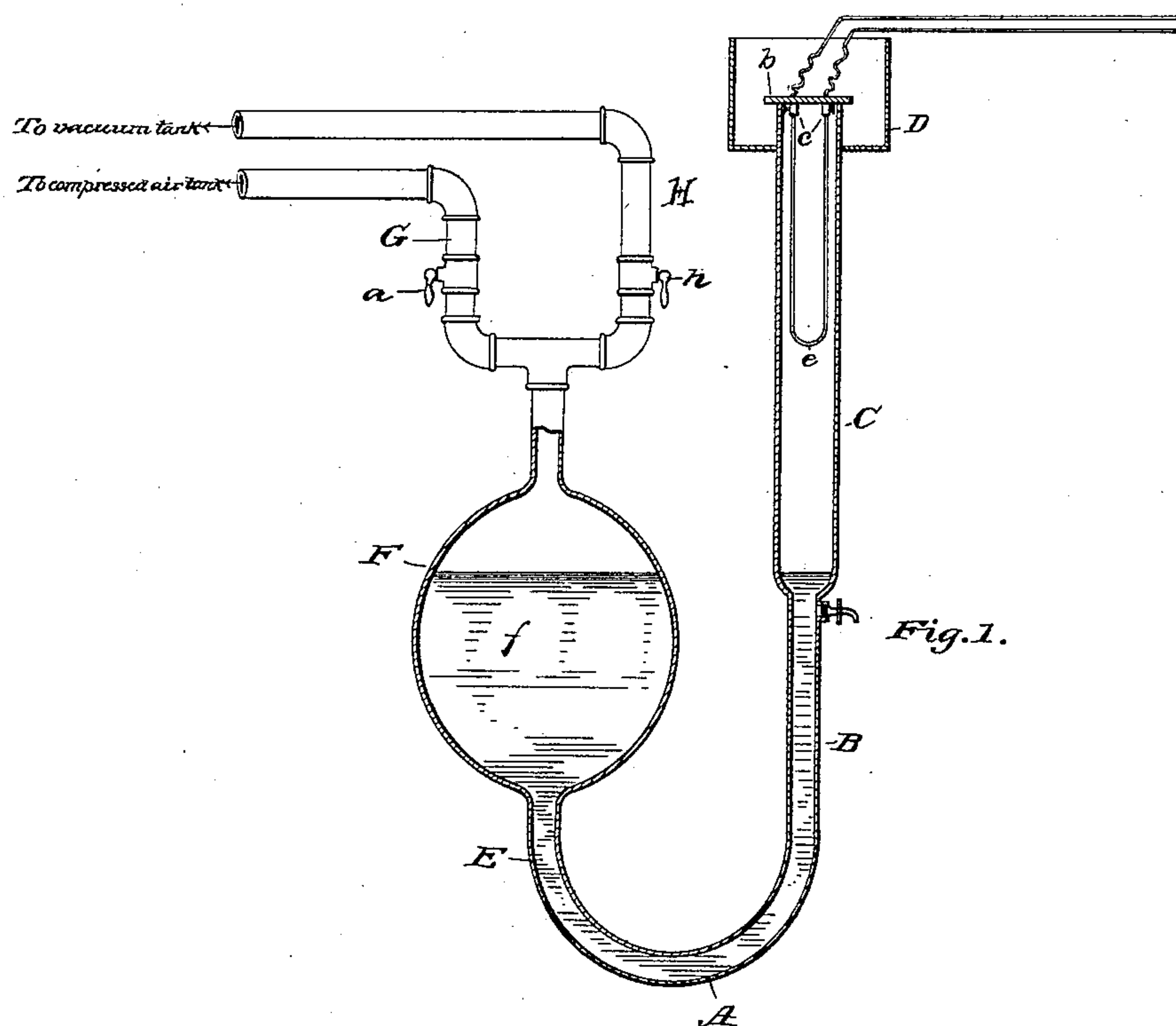
(No Model.)

J. BRADLEY.

TREATING FILAMENTS FOR INCANDESCENT ELECTRIC LAMPS.

No. 464,005.

Patented Dec. 1, 1891.



Witnesses:-

Ed. L. Lane

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UNITED STATES PATENT OFFICE.

JAMES BRADLEY, OF MASSILLON, OHIO.

TREATING FILAMENTS FOR INCANDESCENT ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 464,005, dated December 1, 1891.

Application filed June 6, 1891. Serial No. 395,392. (No model.)

To all whom it may concern:

Be it known that I, JAMES BRADLEY, a subject of Great Britain, residing at Massillon, county of Stark, State of Ohio, have invented a new and useful Improvement in Apparatus for Treating Filaments for Incandescent Electric Lamps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to an improved apparatus for treating filaments for incandescent electric lamps, the object of which is to provide means by which a carbonized filament may be freed from loose or partly-detached particles of carbon and to treat the filament with hydrocarbon, from which a deposit is made thereon by an electric current.

With these ends in view my invention consists of certain features of construction and combination of parts, as will be hereinafter described, and pointed out in the claim.

Referring to the accompanying drawings, Figure 1 is a vertical sectional view illustrating my invention, which consists of a U-shaped tube or inverted siphon A, having at the upper end portion of one limb B an enlarged cylinder-chamber portion C, surrounded at its upper end with an outside overflow-cup or receptacle D and at its other end portion or limb E an enlarged chamber portion F, which may be spherical, as shown; or, if preferred, other forms may be substituted. To the upper end of the limb E is secured a pipe G, leading to an air compressor or chamber containing compressed air. In said pipe is provided a three-way cock *a*, by which communication may be opened at will between the bulb or chamber F and the source of supply of compressed air or with the chamber F and out into open space. To the upper end of the cylinder C is fitted and ground to an air-tight joint a disk or cap *b*, having tubular projections *c*, in which the wires *d* and the two ends of the filament *e* are secured in contact.

To prepare the apparatus for operation, the cap *b* is removed and a quantity of mercury *f* poured therein, which will rise in the bulb or chamber F, as shown, to a level of that shown in the cylinder C. A quantity of hydrocarbon is placed in the cylinder C, filling it to a point

near the lower end portion of the filament *e*. One of the wires *d* is connected with a suitable generator or other device adapted to charge the filament, the other with the earth or other suitable conductor, the mercury to form a fluid piston between the compressed air and the hydrocarbon in the cylinder C.

The operation is as follows: The cock *a* is turned to open communication with the compressed-air chamber, the pressure of which on the mercury in the chamber F will cause the mercury to flow down the tube E and up the tube B into the cylinder C, raising the hydrocarbon fluid up, immersing the filament *e*, and filling the cup D to point above the cup *b*, at which instant the cock *a* is turned to open communication from the chamber F with open space. Removing the air-pressure from the mercury, it will flow back to normal position, allowing the fluid hydrocarbon to drop to a point below the filament *e*, leaving the upper end portion filled with hydrocarbon gas, and the upper end of the cylinder sealed by the cap and liquid in the cup D. The electric current is now turned on and conducted by the wire *d* to and from the filament, by which filament is heated to incandescence. As a result the filament will receive a deposit of carbon from the hydrocarbon bath and the inert hydrocarbon gas by which it is surrounded. To facilitate the operation I have secured a second pipe H to the upper portion of the limb or tube E, connecting said part with an exhaust-chamber, in which pipe is placed a cock *h*, by which communication may be opened or closed between the exhaust-chamber and the mercury-chamber. By the use of this arrangement the mercury may be moved more quickly to draw the hydrocarbon down from filament. A small spigot *k* is provided at or near the lower end of the cylinder C, by which the hydrocarbon may be drawn out.

Having thus fully explained the nature and object of my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination, in an apparatus for treating carbonized filament, of tube A, having vertical portions E and B, the latter provided with a hydrocarbon-chamber C and an overflow-cup D, a cap *b*, adapted to hold the ends of the conductors *d* and filament *e* and to seal

the upper end of the chamber, the portion
E, having an enlarged portion F, adapted to
hold a quantity of fluid mercury, a pipe G to
connect said portion with a blower or com-
5 pressed-air chamber, and a fluid-mercury pis-
ton interjacent the hydrocarbon and the com-
pressed air, whereby the hydrocarbon may be
raised to cover the filament and be drawn

therefrom, substantially as described, and for
the purpose set forth. 10

In testimony whereof I have hereunto set
my hand this 25th day of May, A. D. 1891.

JAMES BRADLEY.

Witnesses:

W. K. MILLER,

CHAS. R. MILLER.