

(no model.)

W. L. VOELKER.

ELECTRIC LAMP.

No. 253,645.

Patented Feb. 14, 1882.

Fig. 1.

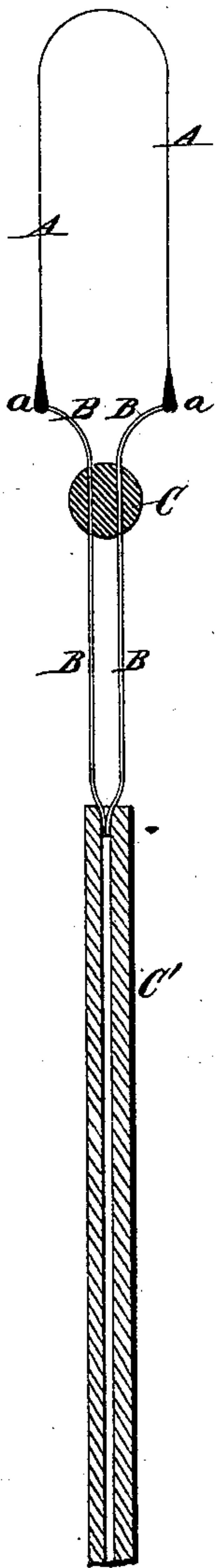


Fig. 3.

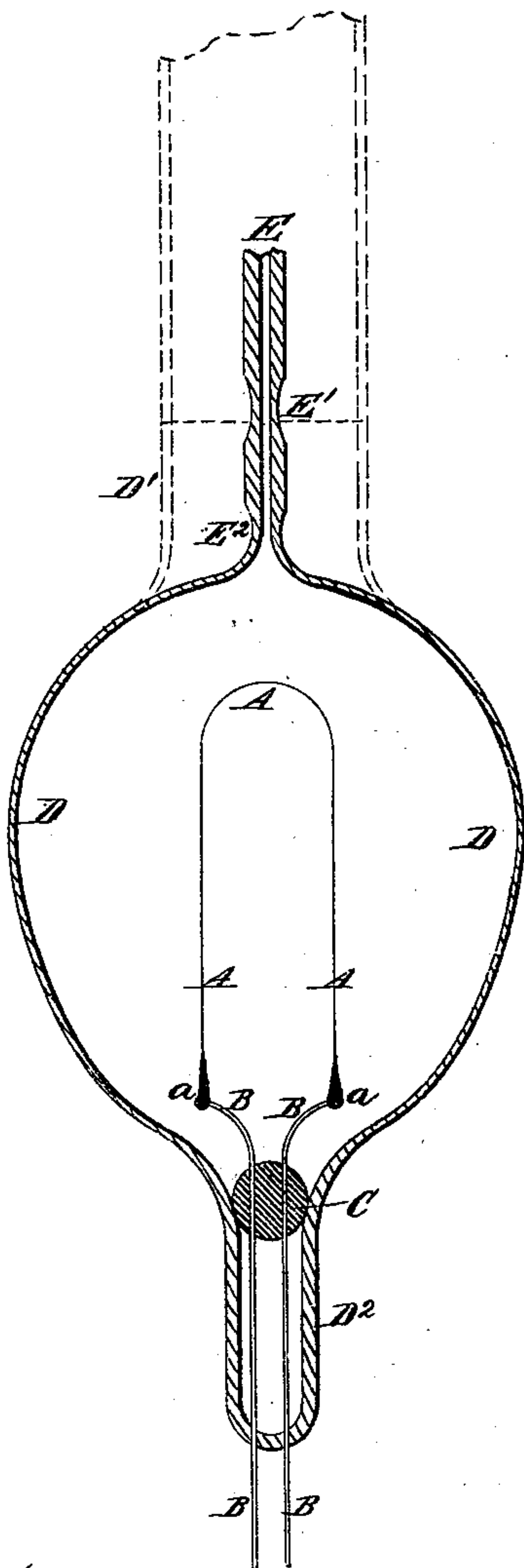


Fig. 2.

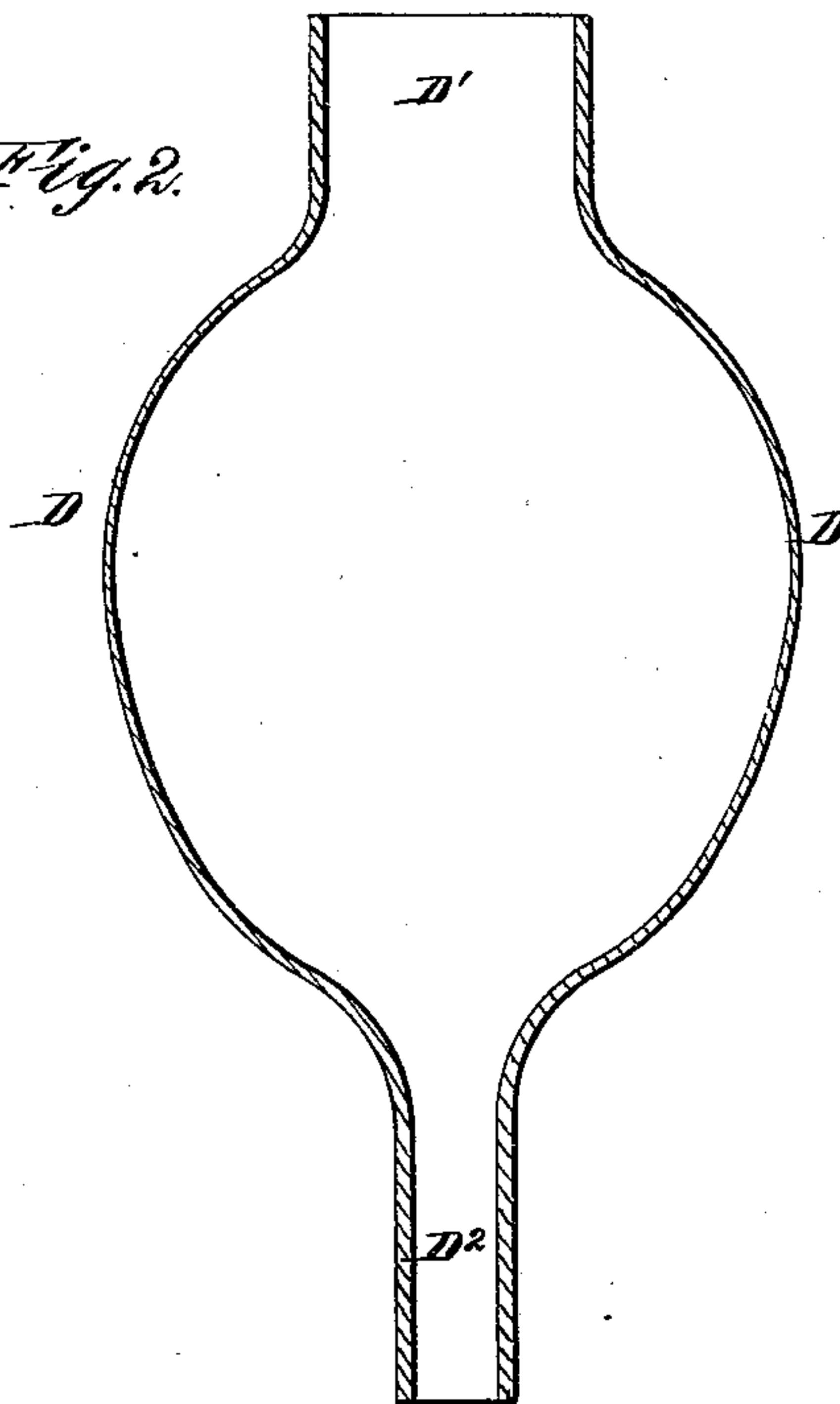
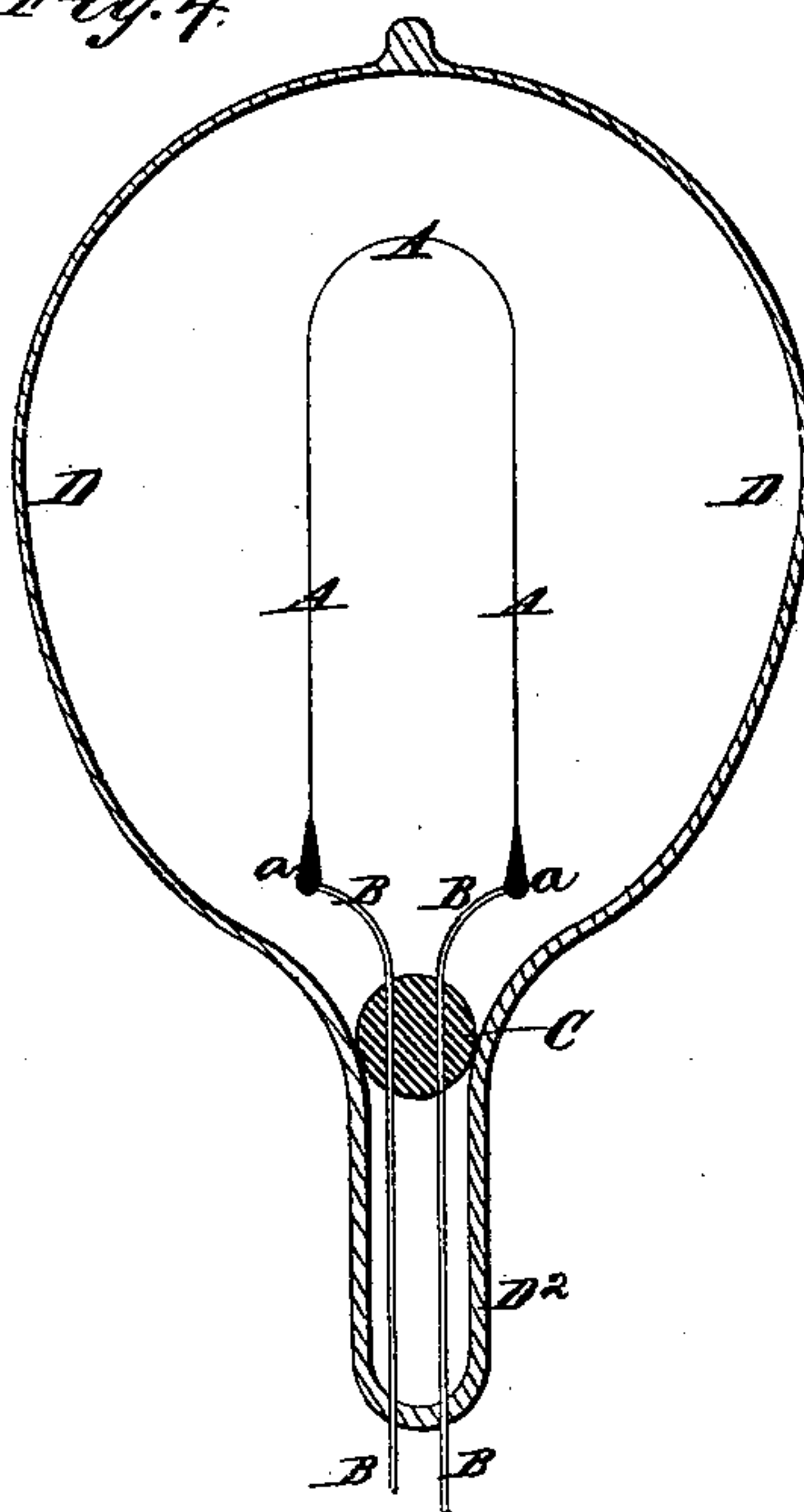


Fig. 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM L. VOELKER, OF MORTON, PENNSYLVANIA.

ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 253,645, dated February 14, 1882.

Application filed June 24, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM L. VOELKER, of Morton, in the county of Delaware and State of Pennsylvania, have invented certain
5 new and useful Improvements in Electric Lamps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings and the letters marked thereon.

10 My improved electric lamp belongs to that class commonly known as "incandescent," and has for its object the production of a device simple and easy to construct, wherein the parts are few in number, and are of such form
15 and character as to be easily handled and placed in position for uniting in order to complete the lamp.

Hitherto in manufacturing lamps of this description great difficulty has been experienced
20 by the artisan in constructing the parts in such manner as to prevent fracture of the delicate filament of carbon employed, or other parts of the lamp while manipulating the same, a large number being destroyed before completion, thereby rendering the cost of the lamp
25 too great for practical purposes; but by my method of construction these obstacles are overcome, and the lamp may be produced at a greatly-reduced cost; and my invention involves certain novel and useful combinations
30 or arrangements of parts and peculiarities of construction and operation, all of which will be hereinafter first fully described, and then pointed out in the claims.

35 In the drawings, Figure 1 is a view of the filament of carbon and its connections. Fig. 2 is a view of the glass bulb forming the walls of the lamp as first formed. Fig. 3 shows the position of the various parts and the method
40 of manipulation, and Fig. 4 shows the completed lamp.

Like letters of reference, wherever they occur, indicate corresponding parts in all the figures.

45 A is a filament of carbon, formed in the usual manner. B are platinum connections between said carbon and the exterior of the lamp. In uniting the carbon and platinum I first electroplate the ends of the carbon, and
50 then by means of hard or silver solder easily secure them together, as indicated at *a*. From

the facility with which this operation may be performed its advantages over other methods will be apparent at once.

I am aware that blocks of carbon have been
55 united to conducting-bars in an electric lamp by means of solder, said blocks being adapted and arranged to hold a short rod of carbon therebetween by pressure. My lamp is of entirely different construction. The incandescing
60 filament of carbon is united directly to the conducting or supporting wires within the lamp, said wires being sealed into the glass at the bottom of the tube through which they pass. By this means I obtain a continuous
65 circuit uninterrupted by bad joints, and there is no danger of the formation of minute arcs at the extremities of the carbon filament.

C is a small ball, of glass or other non-conducting material, of such nature as to with-
70 stand a considerable degree of heat before melting. This ball is compressed around the wires by means of heat in such a manner as to separate them the necessary distance from each other and hold them in a secure position.
75 In preparing the platinum connections I make them considerably longer than will be required in the completed lamp, and secure to their lower extremities a rod, C', of glass or other
80 suitable material, and of suitable length. By use of rod C' the carbon and its connections may be freely handled while adjusting.

Fig. 2 shows a bulb of glass, D, as prepared for the reception of the interior parts of the lamp and the connections with the exterior.
85 Said bulb is surmounted by a short section of large tubing, D', of such diameter as to permit the free passage therethrough of the carbon when formed in the desired shape.

D² is a small glass tube forming the base of
90 the lamp. It is of such size as to permit the passage of the rod C' and the platinum connections. In placing the parts in position, rod C' is passed down through the bulb from the top through tube D²; then by grasping said
95 rod the carbon may be easily drawn down to its position in the bulb, the ball C resting in the neck of the lamp, as shown. From its position upon the connections below the carbon, ball C will be found of great service in locating
100 the same in the exact position required. Tube D² is now sealed around the wires and

rod C' removed. When the carbon is secured in place, as above described, to tube D' is united a short section of corresponding size, as indicated in Fig. 3 by the dotted lines, and the bulb is drawn together at top in the usual manner and a short piece of capillary tube, E, affixed thereto. The air is then exhausted from the bulb through tube E by means of the air-pump, and tube E is closed at E'. Upon being removed from the pump said tube is again closed at E² and the remainder drawn off.

Fig. 4 shows the completed lamp. It may be supported at bottom in any desired manner by a screw-threaded collar secured to tube D², or, instead of being screw-threaded, the collar may be made smooth and arranged to fit into a socket in the support.

I am aware that electric lamps have been constructed having two long tubes leading downward from the bulb, said tubes being affixed thereto after the insertion of a flat base for supporting the filament of carbon, the conductors extending downward therefrom into mercury contained in said tubes. In practice it will be found that as no means are provided for holding the supporting-base in place, and as the conductors simply hang in the mercury, the interior parts of the lamp easily become displaced and the filament of carbon broken. Lamps have also been constructed with a glass support for the conductors extending upward a short distance within the bulb. The mass of glass is so great that it quickly destroys the lamp by reason of the undue expansion under heat. Again, the support is so slight as to allow the carbon to be easily become displaced and broken. These difficulties are overcome in my improved construction, as the carbon and its support pass into the bulb at the top, and the ball of refractory material finds a seat prepared for its reception in the neck of the bulb, and the two conductors, extending downward side by side and being securely sealed into the glass

at bottom, hold the support and carbon firmly in position, rendering displacement impossible.

From the above description it will be seen that my improved method of constructing incandescent lamps is calculated to greatly reduce the cost thereof, as there is very little danger of breaking the same while manipulating in the course of manufacture, and the completed device admirably answers the various uses and purposes for which it is intended.

Having now fully described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. In an electric lamp of the character herein specified, the incandescing filament of carbon A, plated at its extremities and united by means of solder to the extremities of platinum conducting-supports B, extending to the exterior of the lamp and held in place by a spherical mass of non-conducting material, C, seated in the neck of the globe, said conductors B and incandescing filament A forming a continuous unbroken conductor, substantially as shown and described.

2. In an incandescent electric lamp of the character herein specified, the combination, with the transparent bulb and neck formed in one piece, of a spherical mass of non-conducting material seated in the neck, the two conducting-supports for the carbon filament secured in said mass and passing downward side by side a slight distance apart from each other through the neck of the bulb, said neck being sealed around the conductors at its lower extremity, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

WILLIAM L. VOELKER.

Witnesses:

F. W. HANAFORD,
A. M. PIERCE.