

(No Model.)

M. H. BRANIN.
INCANDESCENT LAMP.

No. 532,760.

Patented Jan. 22, 1895.

FIG. 1.

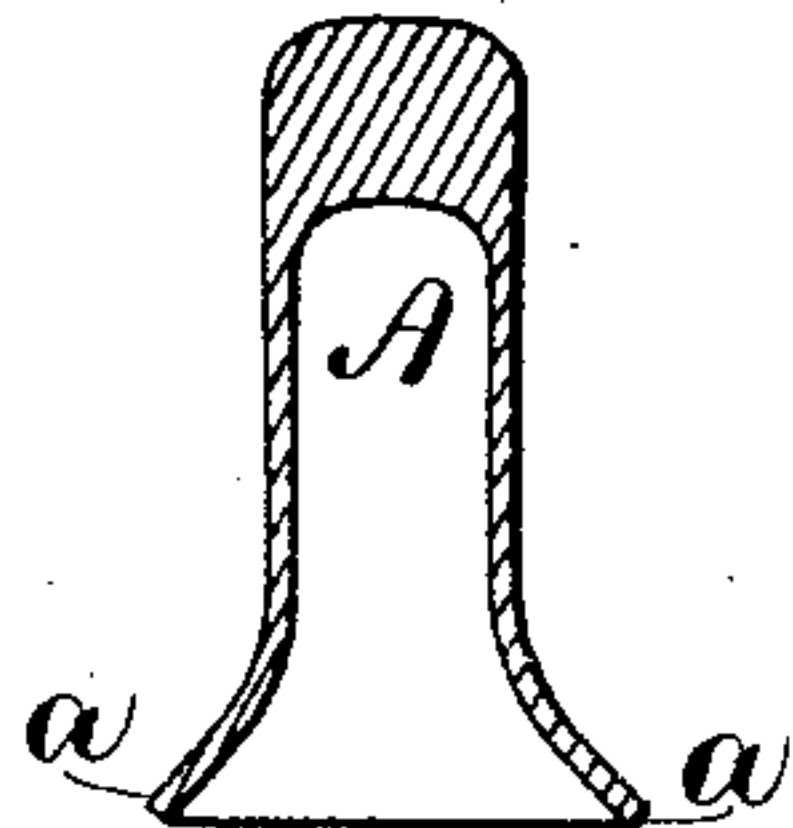


FIG. 2.

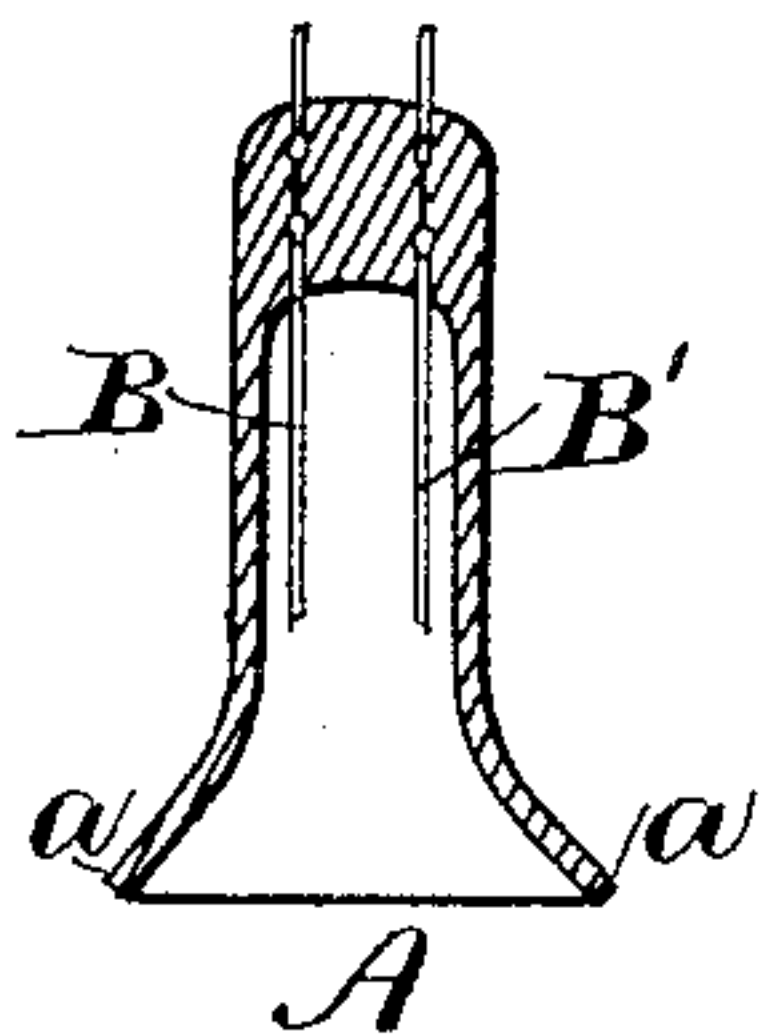


FIG. 3.

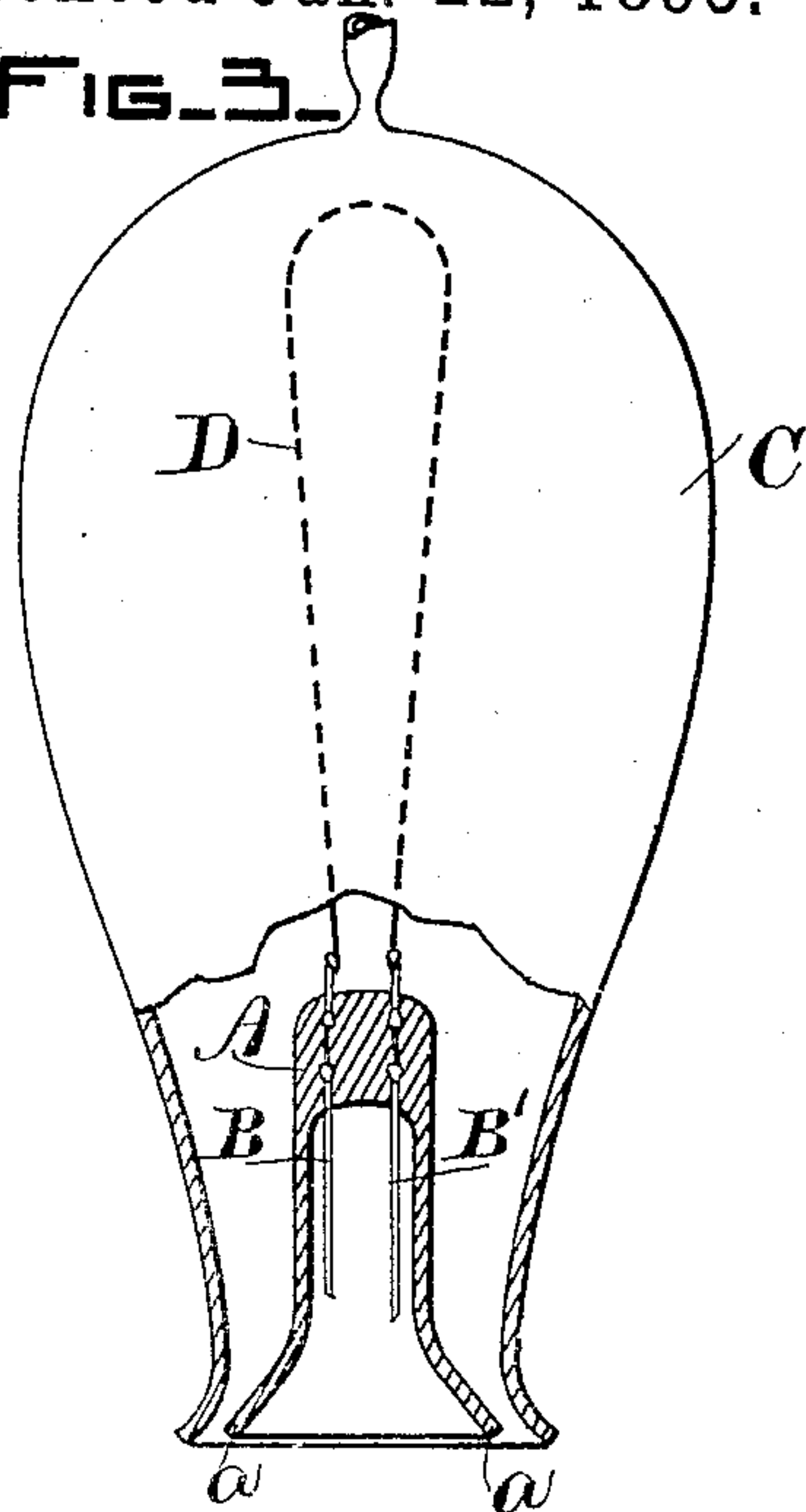


FIG. 4.

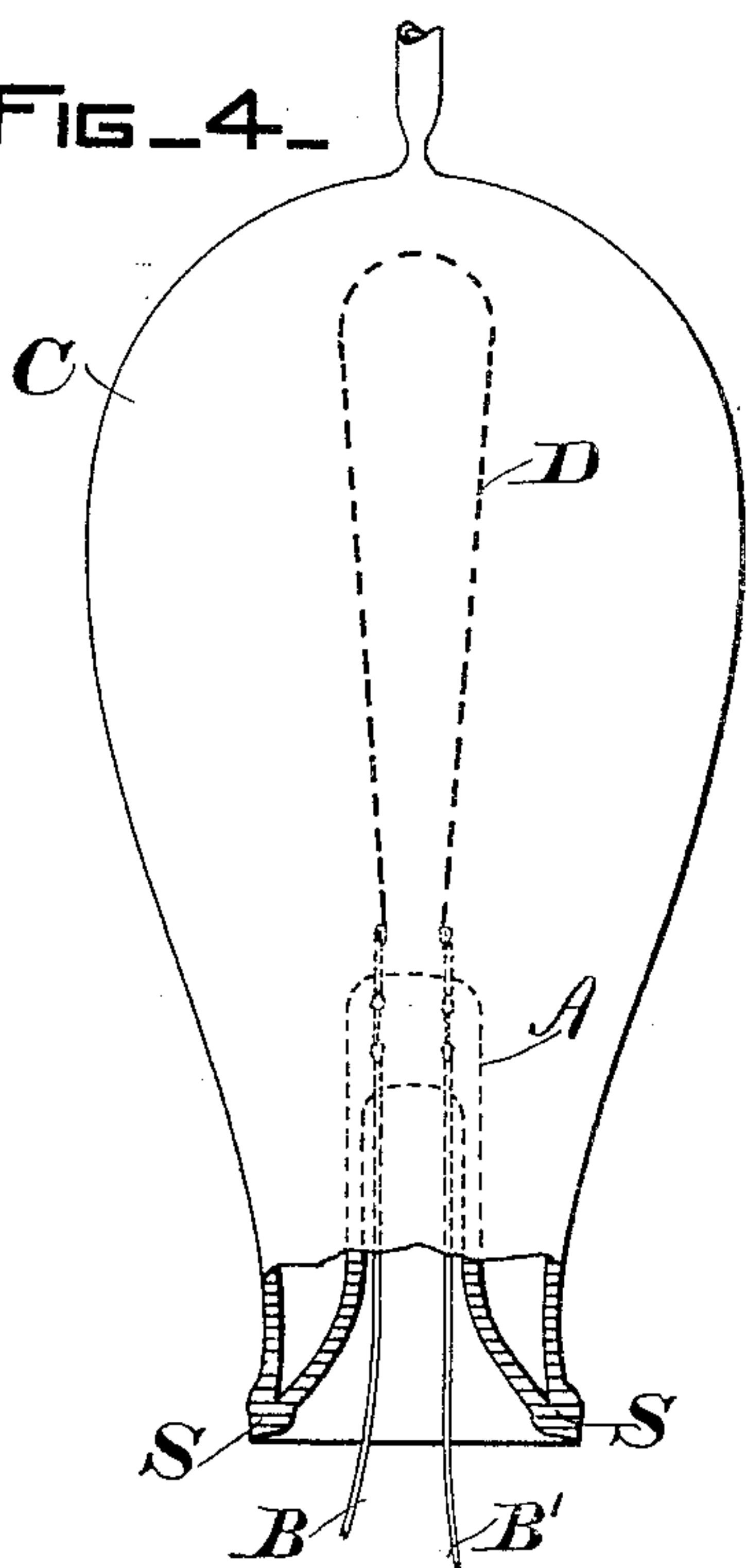
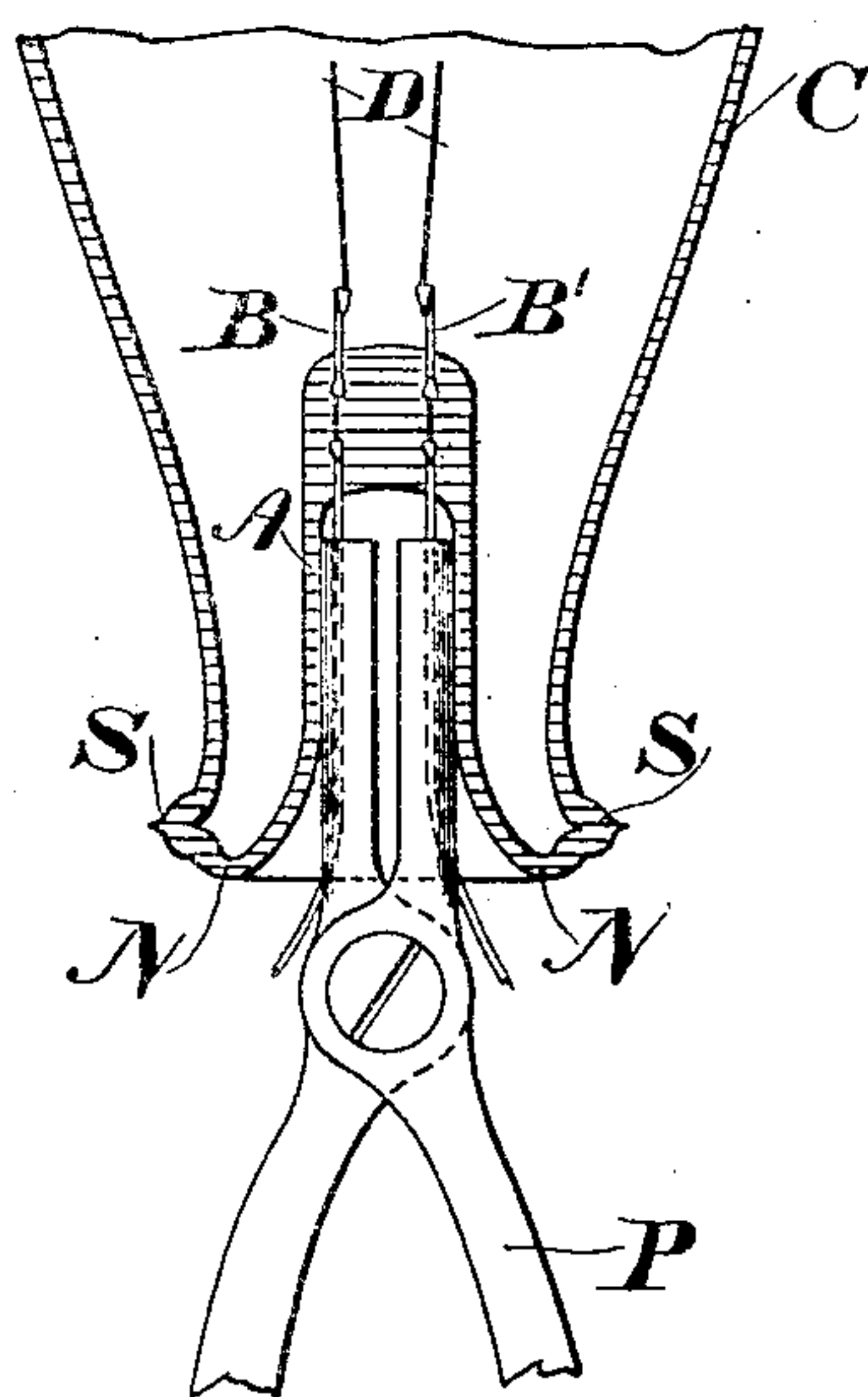


FIG. 5.



WITNESSES

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INVENTOR

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UNITED STATES PATENT OFFICE.

MARK H. BRANIN, OF LYNN, ASSIGNOR TO THE GENERAL ELECTRIC COMPANY, OF BOSTON, MASSACHUSETTS.

INCANDESCENT LAMP.

SPECIFICATION forming part of Letters Patent No. 532,760, dated January 22, 1895.

Application filed April 10, 1893. Serial No. 469,691. (No model.)

To all whom it may concern:

Be it known that I, MARK H. BRANIN, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have made certain new and useful Improvements in Incandescent Lamps and the Manufacture Thereof, of which the following is a specification.

My invention relates to incandescent lamps and their manufacture and particularly to the sealing-in of the wires which convey current to the carbon filament of the lamp, commonly called the "leading-in" or "lead-wires" of the lamp; and has for its object to produce an economical form of such seal and one which shall form a secure anchorage for the lamp neck in the collar of the lamp.

One method of forming such a seal which has been commonly practiced has been to provide a tube into the end of which the wires were sealed. This tube was then inserted into the lamp bulb and the neck of the bulb was sealed into the middle of the tube, one end of the tube thus forming a handle by which it was held in place during the process of sealing, any excess of the tube being cut off after the seal was completed. This method is wasteful, as it involves using more of the tube than is necessary to form the seal.

Another method has been to use a straight tube of a proper length to form the filament-support, the whole being placed inside of a lamp bulb, the neck of which was then contracted and the filament-support drawn into the contraction, when the whole was sealed together.

The method of sealing which I adopt is essentially different from those heretofore practiced in the art, and is illustrated in the drawings hereunto annexed and forming part of this specification, which show an embodiment of the method forming the subject of my invention, like letters referring to like parts throughout; and in which—

Figure 1 is a longitudinal section of the filament-support I prefer to employ. Fig. 2 is a similar section of the filament-support with the lead-wires sealed into place. Fig. 3 is an elevation of the lamp bulb with the fila-

ment-support in place and ready to be sealed in. Fig. 4 is a similar elevation after the seal is made, and Fig. 5 is a section showing the final operation of forming the seal.

Referring by letter, A is a small piece of tubing which is prepared with a flange, *a*, at one end, the flange being preferably coned at an angle with the axis of approximately 70°. The leading-in wires B B' are then sealed into the unflanged end of this tube by well known methods.

The filament-support thus prepared and having the filament D attached thereto is inserted into the lamp bulb C after the bulb has been cut, melted or broken off to the proper length. The neck of the bulb is then melted down around the flange, which retains its shape (being protected from the direct heat by the bulb surrounding it), and the seal S, S, Figs. 4 and 5, is made. It will be observed that the junction of the glass of the bulb and stem or filament-support is at such an angle that it is not necessary to blow inside the bulb, which is needful in almost all other kinds of seal with which I am acquainted, the whole being finished when the seal is completed. At this point in the operation the appearance of the seal is as shown in Fig. 4; but as this would not afford a close and safe anchorage in the plaster of paris or other sealing cement used to affix the lamp-bulb to the collar it is desirable to draw out the filament support slightly while the glass at and near the seal is still in a plastic condition from the heat, thus throwing the ridge formed by the seal S upon the outside of the neck of the bulb, and at the same time locating the filament centrally in the lamp bulb thus forming a curved or undercut anchorage for the bulb in the lamp collar. This operation is illustrated by Fig. 5, where P is a pair of pliers suitably formed to engage within the tube or filament support A, preferably at or near the end where the wires are sealed into it. After such engagement the whole of the tube is drawn outward toward the base of the lamp, thus curving over at N, N, the hot glass, and bringing the projection S upon the outside of the neck as heretofore described, making the

interior of the bulb of approximately smooth surface and eliminating all danger of cracking.

By the method thus described I form a seal which is practically cylindrical, and bring
5 the burr upon the outside of the neck, forming a safe anchorage for the bulb and avoiding any abrupt bend in the shape of the inside of the bulb; and I have been enabled to produce incandescent lamps economically
10 while preserving these advantages.

Having thus described my invention, what I claim, and wish to protect by Letters Patent of the United States, is—

1. The method of sealing in the lead-wires
15 of an incandescent electric lamp, which consists in forming a filament-support with a flanged end, sealing the wires into the unflanged end thereof, sealing the flange to the lamp-base, and drawing the filament-support
20 toward the base of the lamp; thus bringing the seal between the filament-support and the neck of the bulb upon the outside of the neck, and forming an anchorage for the bulb in the lamp-collar.

25 2. The method of sealing in the lead-wires of an incandescent electric lamp, which consists in flanging a piece of tubing, sealing the wires into the unflanged end thereof, sealing

the flange to the neck of the lamp-bulb, and drawing the tube toward the lamp-base. 30

3. As an article of manufacture, an incandescent electric lamp having a filament support consisting of a flanged tube, as A, and having lead wires, as B, B' sealed into the unflanged end of the tube A, and a flange as α
35 sealed to the neck of the bulb at S, S, the seal being drawn out upon the outside of the neck of the lamp bulb, leaving a smooth, continuous surface on the inside of the lamp, and forming a curved or undercut anchorage for
40 the bulb in the lamp collar, as herein described and set out.

4. As a new article of manufacture, an incandescent electric lamp having the end of its neck formed with an outwardly projecting
45 flange, and provided with a filament support having an outwardly projecting flanged end sealed to the outer edge of the neck flange of the lamp and forming therewith a flanged anchorage for the lamp collar. 50

In witness whereof I have hereunto set my hand this 8th day of April, 1893.

MARK H. BRANIN.

Witnesses:

JOHN W. GIBBONEY,
BENJAMIN B. HULL.