

(No Model.)

J. CRIGGAL.

FILAMENT FOR INCANDESCENT ELECTRIC LAMPS.

No. 500,279.

Patented June 27, 1893.

FIG. 1.

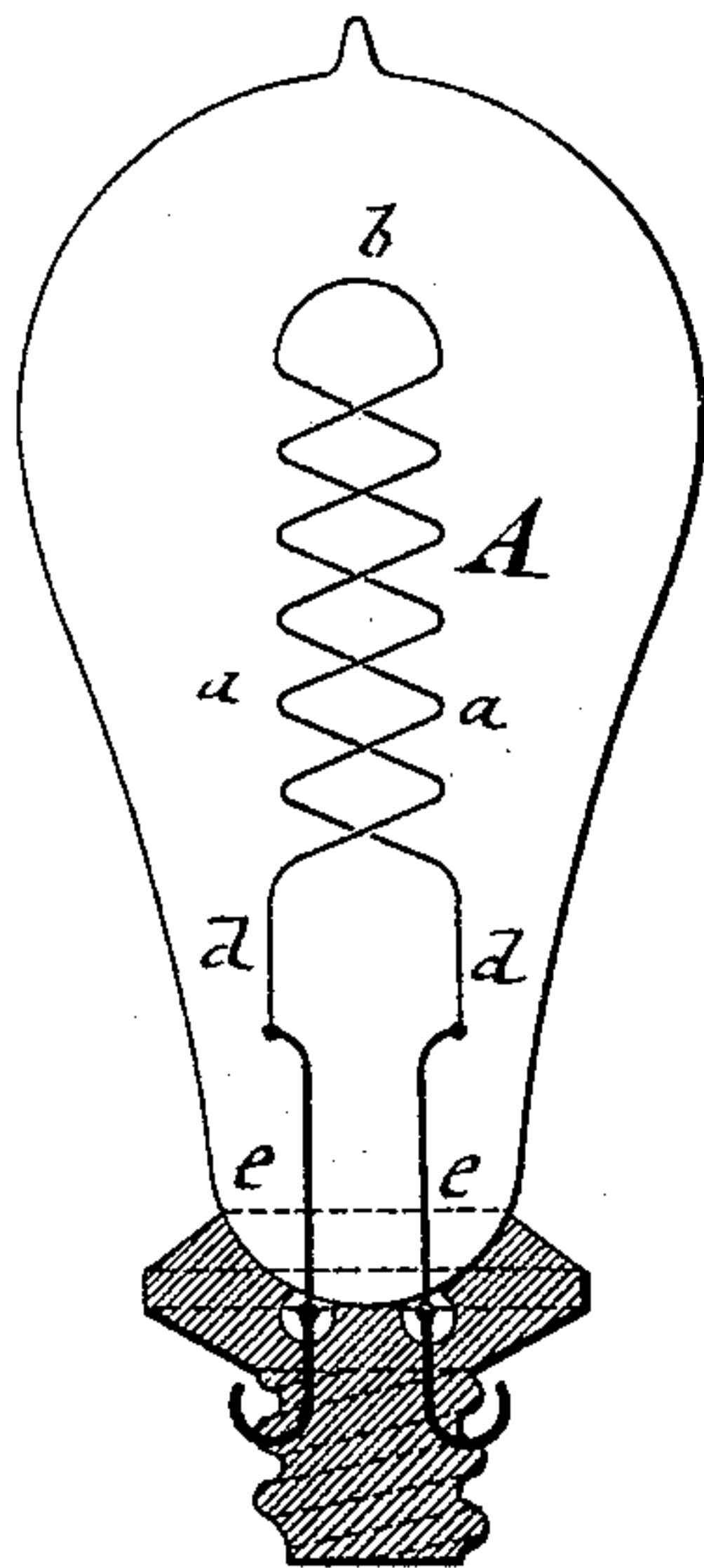


FIG. 3.

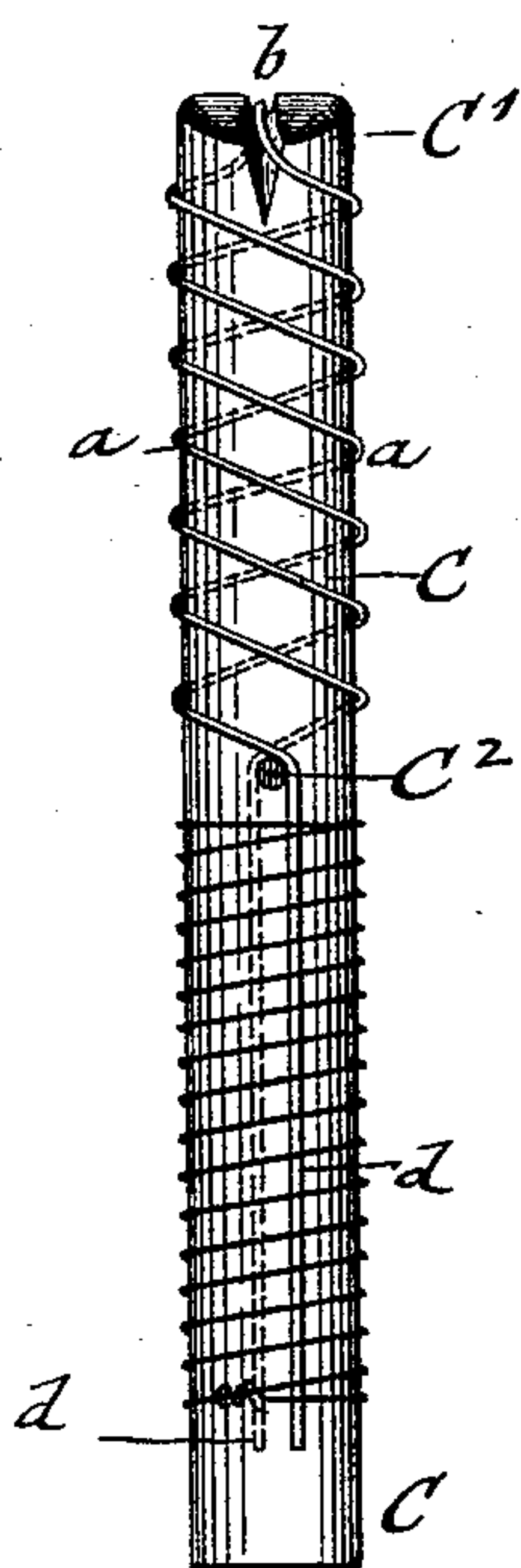


FIG. 2.

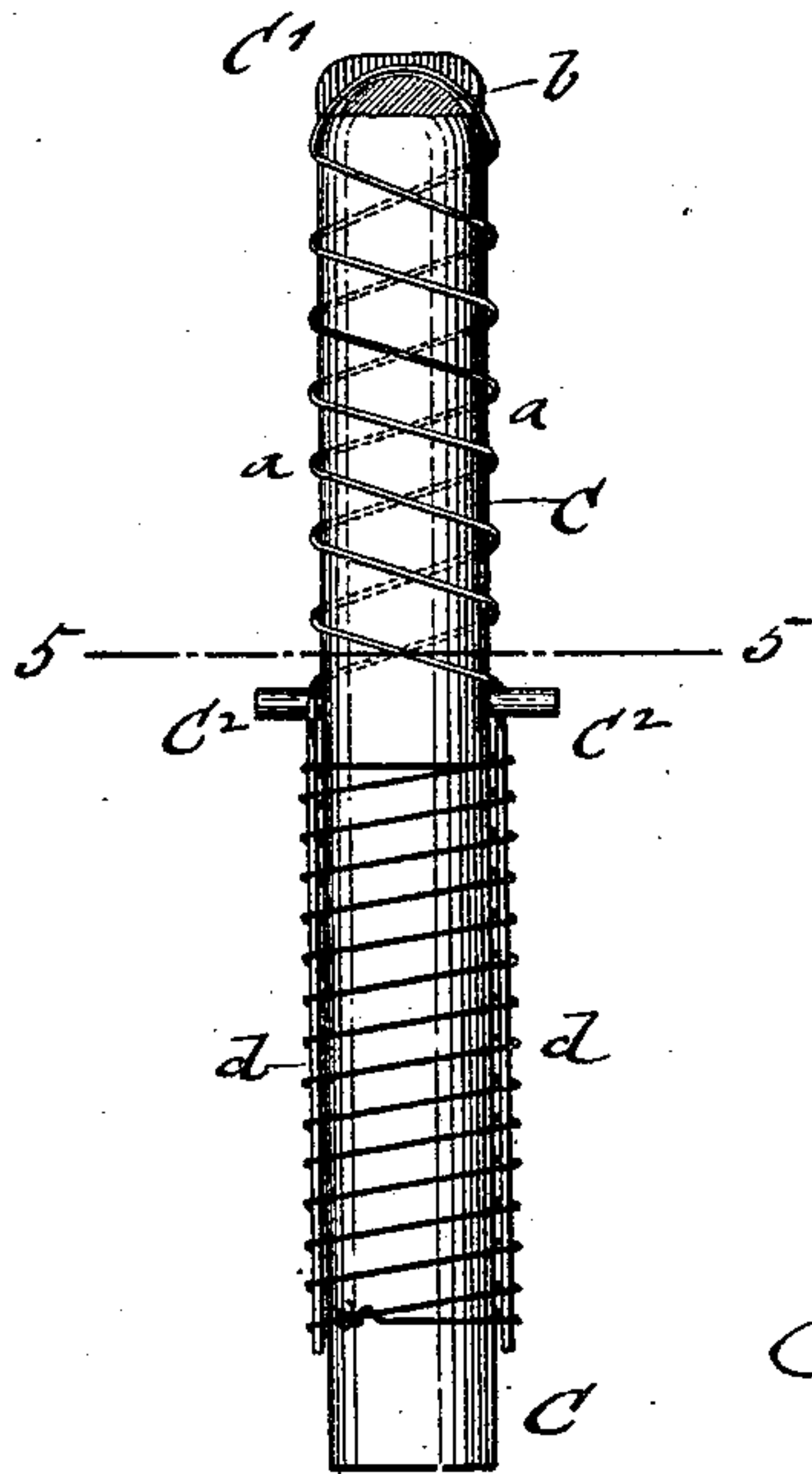


FIG. 4.

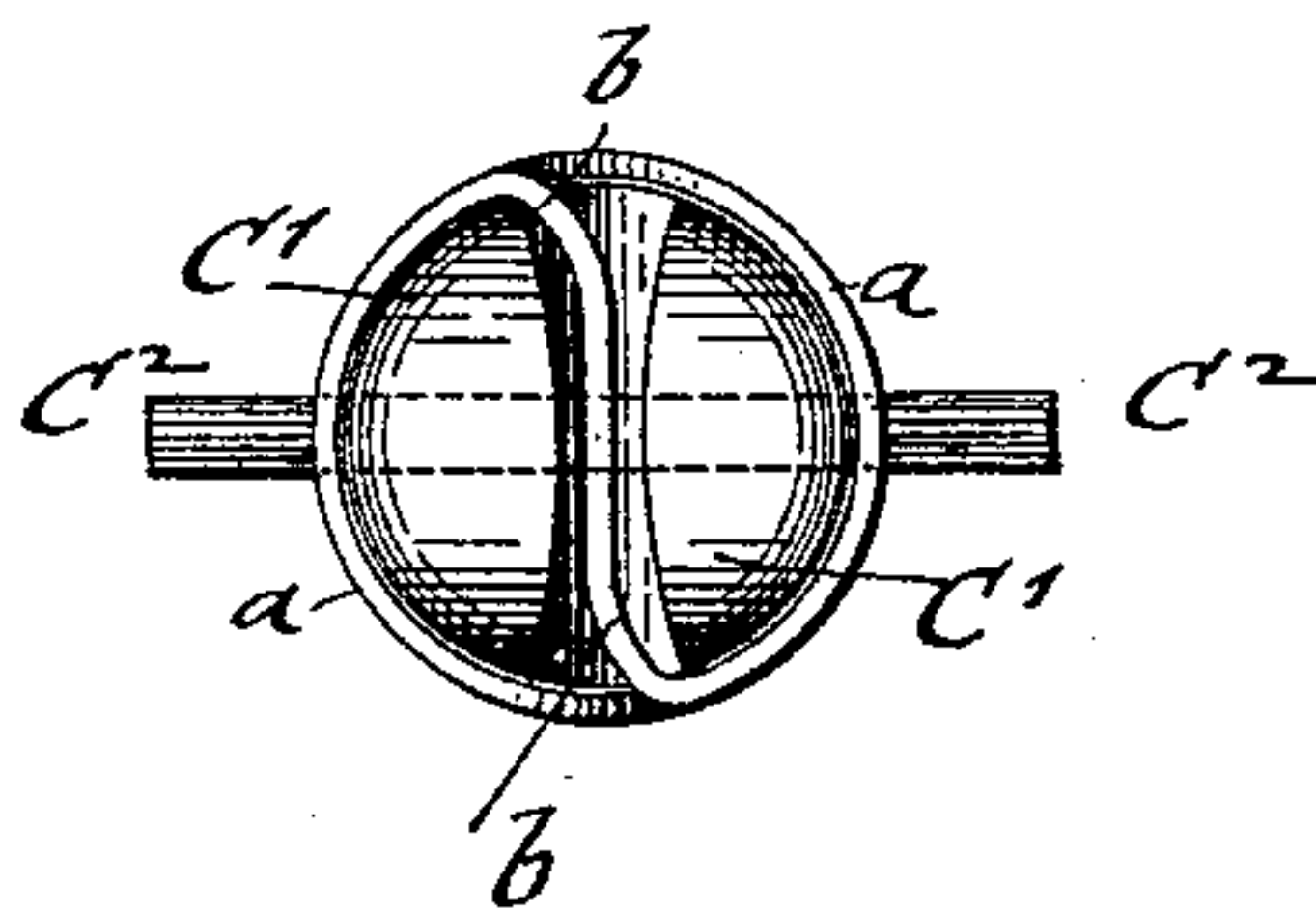
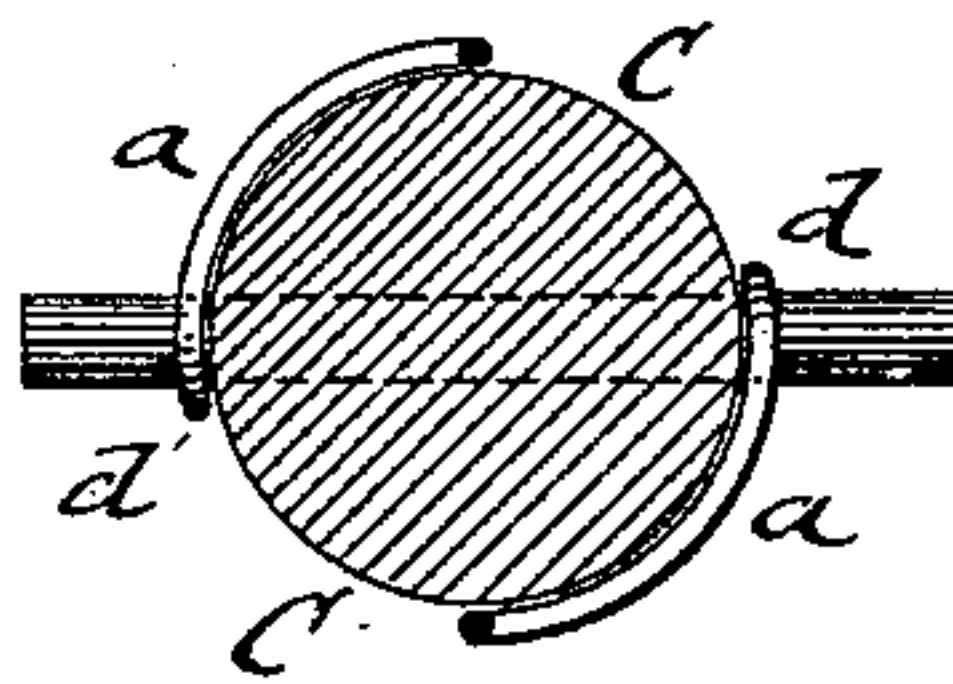


FIG. 5.



WITNESSES:

Charles Sebraeder.
Charles Bles

INVENTOR

John Criggall
BY
L. H. R. R. R.
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN CRIGGAL, OF NEWARK, NEW JERSEY.

FILAMENT FOR INCANDESCENT ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 500,279, dated June 27, 1893.

Application filed October 31, 1891. Serial No. 410,451. (No model.)

To all whom it may concern:

Be it known that I, JOHN CRIGGAL, a subject of the Queen of Great Britain, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in the Manufacture of Filaments for Incandescent Electric Lamps, of which the following is a specification.

This invention relates to the manufacture of filaments for incandescent electric lamps, by which such a shape is imparted to said filaments that a more effective light is emitted by the same; and the invention consists of a filament for incandescent electric lamps, which is composed of two independent spirals or coils that are wound in the same direction upon the same cylindrical surface, said coils being arranged to lie between each other, and connected at their upper ends by a transverse portion, while their lower ends are provided with straight parallel extensions.

In the accompanying drawings, Figure 1 represents a side-elevation, partly in section, of an incandescent electric lamp with my improved filament. Fig. 2 is a side-elevation of the core, partly in section, showing the method of winding the filament on the same for carbonization. Fig. 3 is another side-view of the core and filament. Fig. 4 is a top-view of the core, and Fig. 5 is a horizontal section of the same on line 5 5, Fig. 2, the last four figures being drawn on a larger scale.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents my improved filament for incandescent electric lamps. This filament is composed of two spirals *a a* which are connected at their upper ends by a straight or semi-circular portion *b* and attached by their straight lower ends *d d* in the usual manner to the leading-in platinum wires *e* that are again connected to the conducting wires arranged in the base of the bulb of the lamp. The spirals *a a* of the filament A are formed by winding the filament before carbonization on a carbon-core C of cylindrical shape, said core C being preferably provided with a rounded-off and diametrical groove *d* and *c'*. The lower part of the core C is provided with a diametrical aperture into which a cross-pin C² of carbon is

placed. The uncarbonized filament is applied to the core C by placing its middle portion into the grooved end C' of the core, and then winding the end portions in the same direction around the core so as to form two spirals as shown clearly in Figs. 2 and 3. The ends of the uncarbonized filament are conducted in longitudinal direction at opposite sides of the core C around the cross-pin C² and are tied firmly to the lower part of the core below the cross-pin C². The filament is then placed, with the core, into a suitable mold, and carbonized in the usual manner. After carbonization, the filament is carefully removed from the core, which can be readily accomplished by taking hold of the cross-pin and of the upper part of the filament, and slipping the latter off the core. A filament of the shape described is of greater length within a given space, and therefore specially adapted to lamps of high voltage. It serves to concentrate the light and radiate it in all directions, whereby a more powerful and effective light is obtained as compared to the different shapes of filaments heretofore in use.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A filament for incandescent electric lamps, composed of two independent spirals, which are wound in the same direction upon the same cylindrical surface, so that the independent coils lie between each other, and of a transverse portion connecting the upper ends of the spirals, substantially as set forth.

2. A filament for incandescent electric lamps, composed of two independent spirals, which are wound in the same direction upon the same cylindrical surface, so that the independent coils lie between each other, a transverse connecting portion at the upper ends of said spirals and straight parallel portions at the lower ends of the same, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JOHN CRIGGAL.

Witnesses:

PAUL GOEPEL,
CHARLES SCHROEDER.