

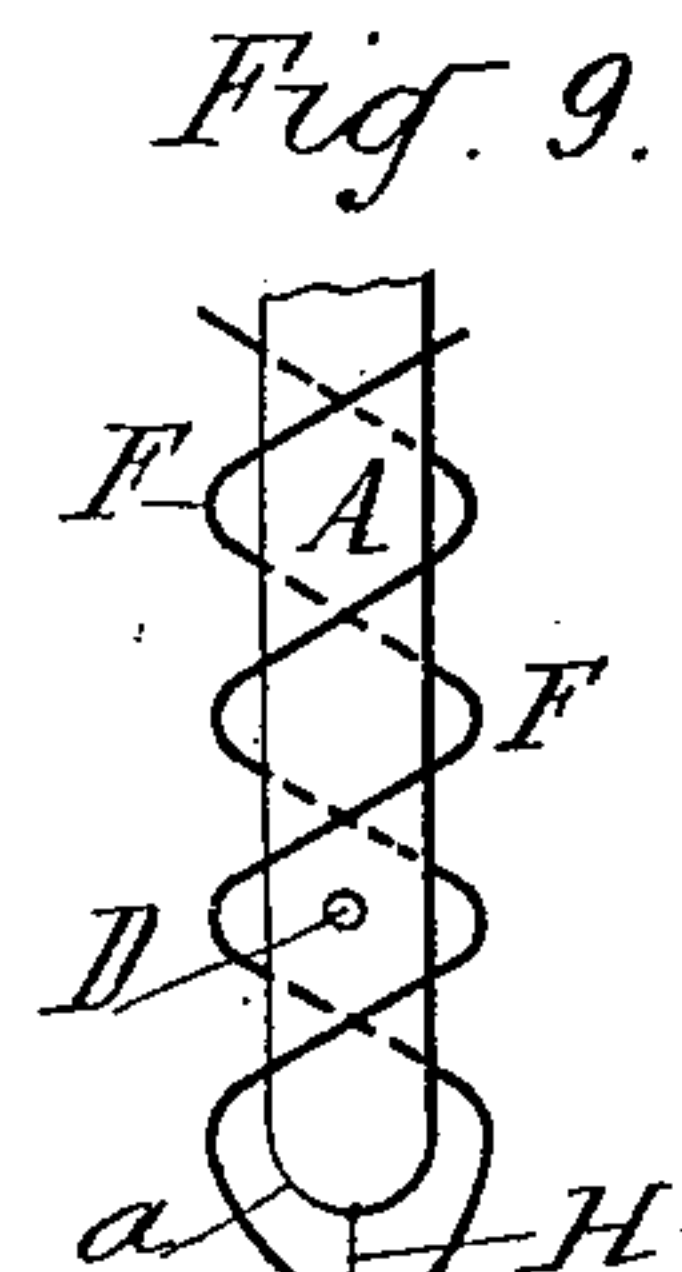
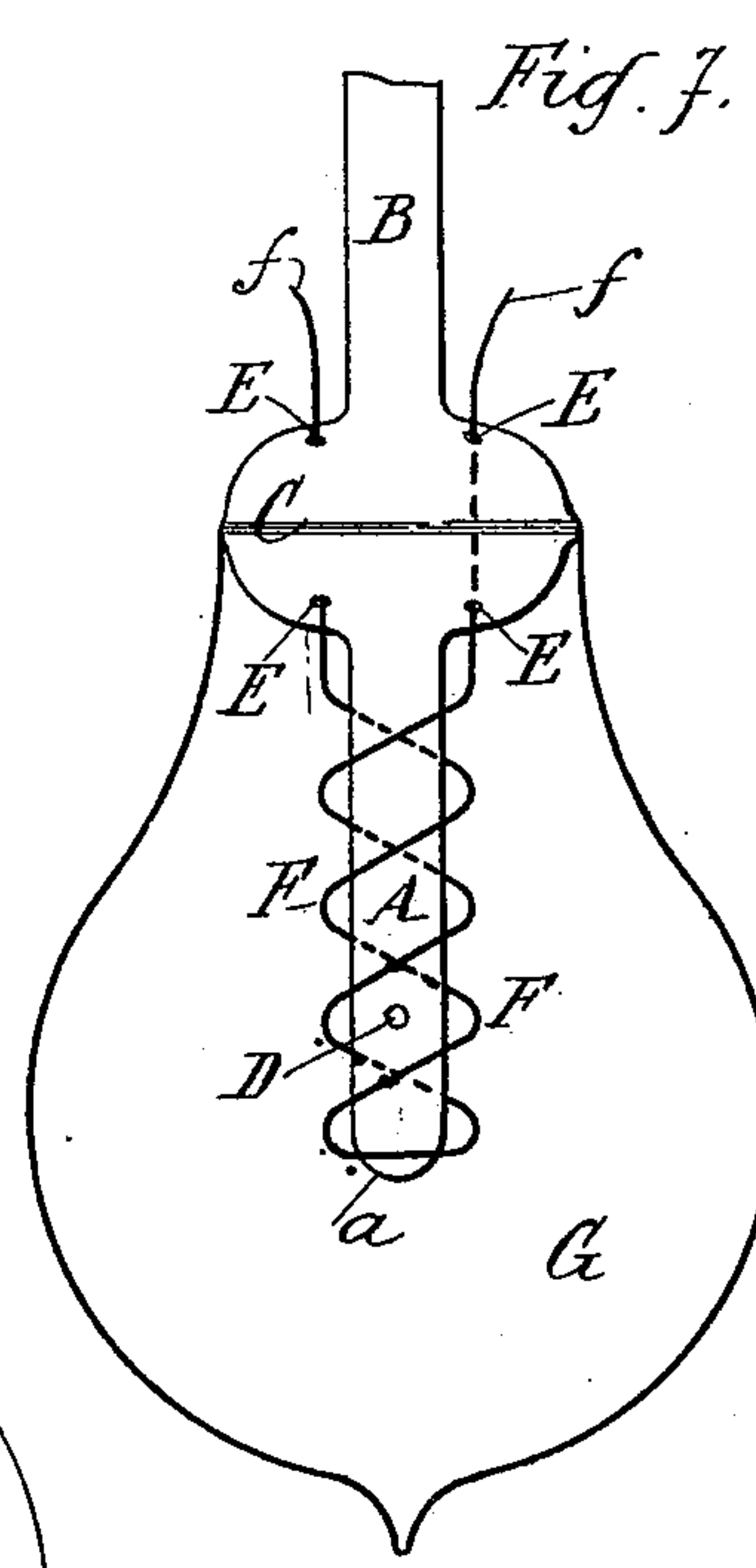
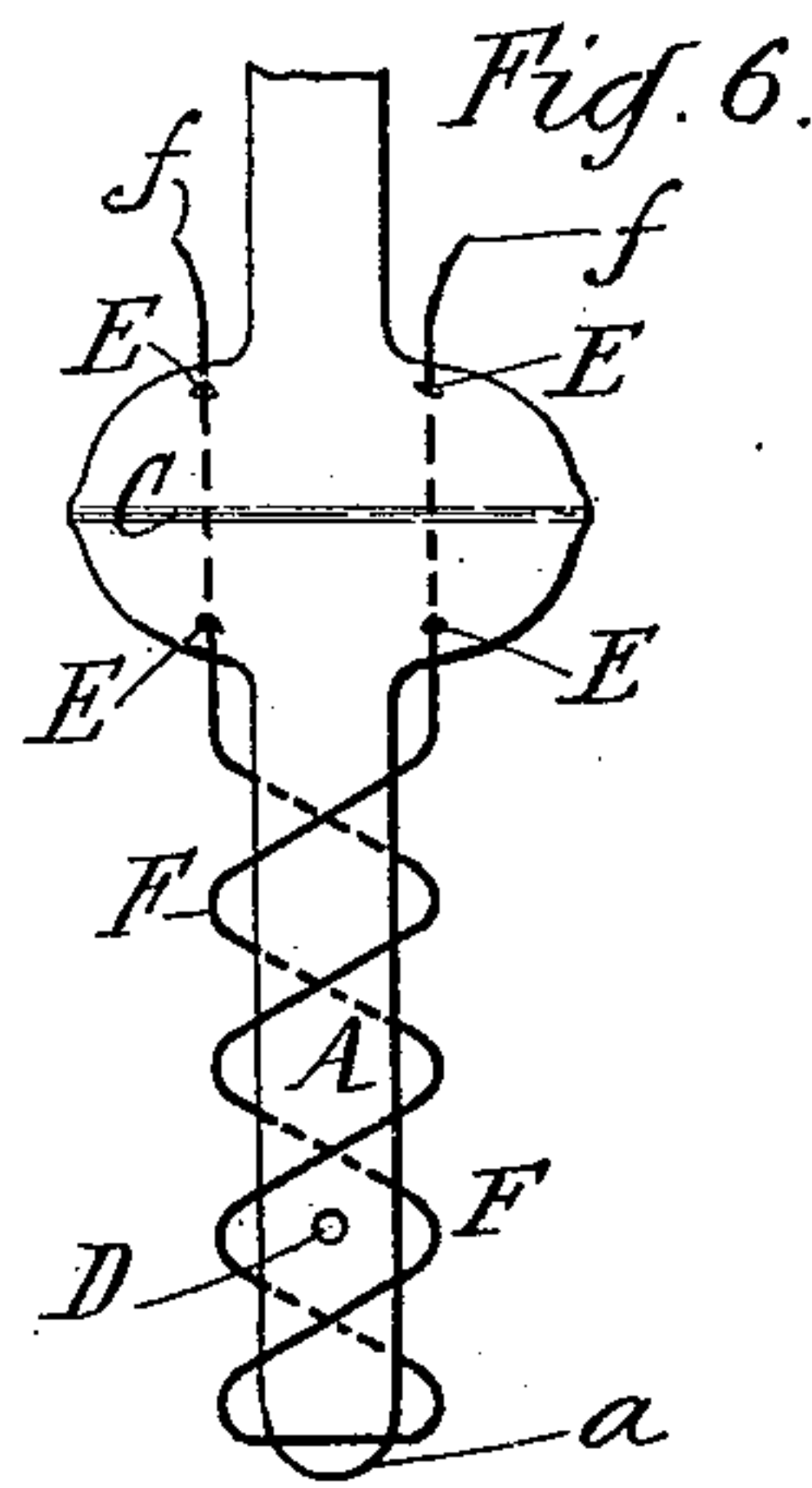
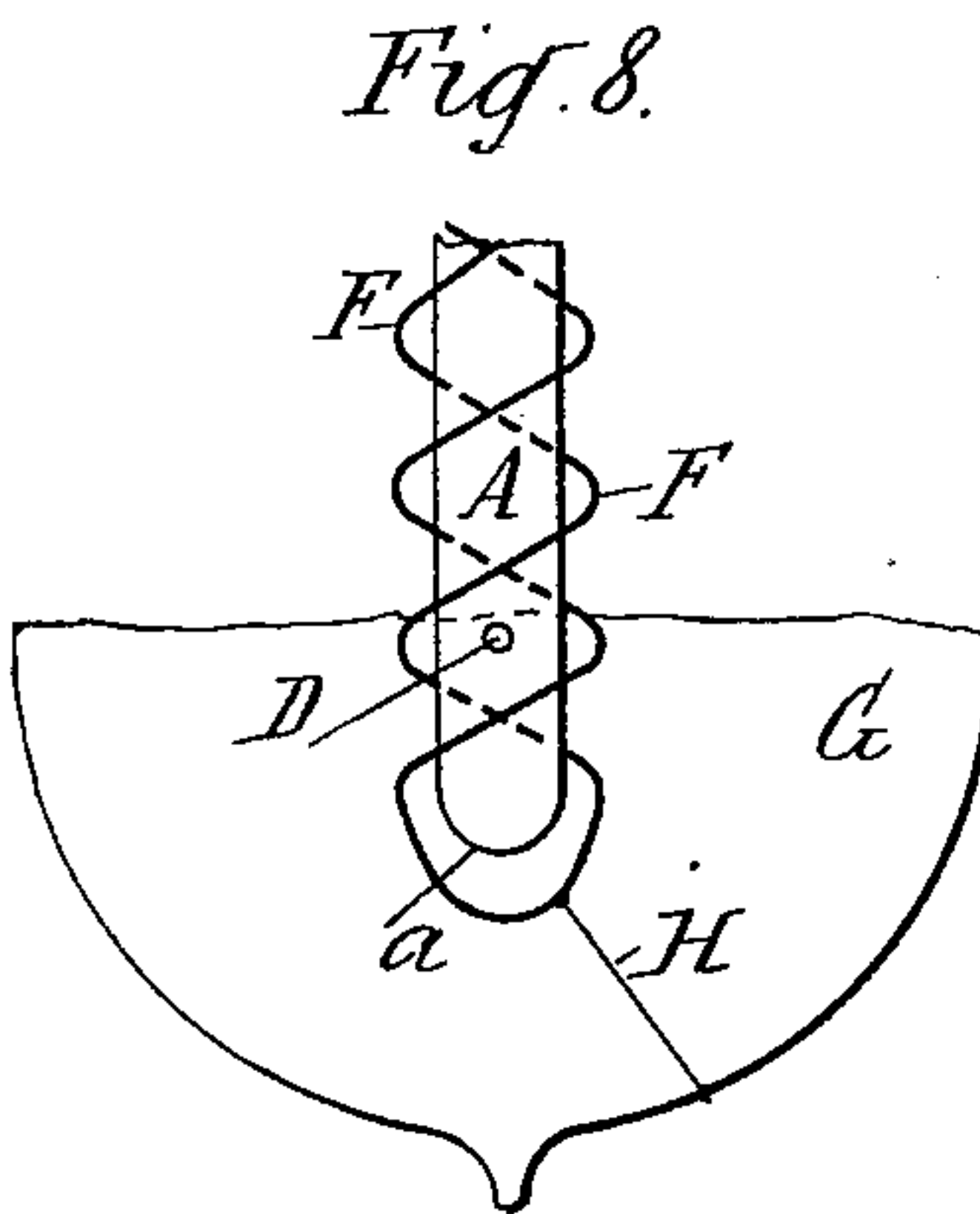
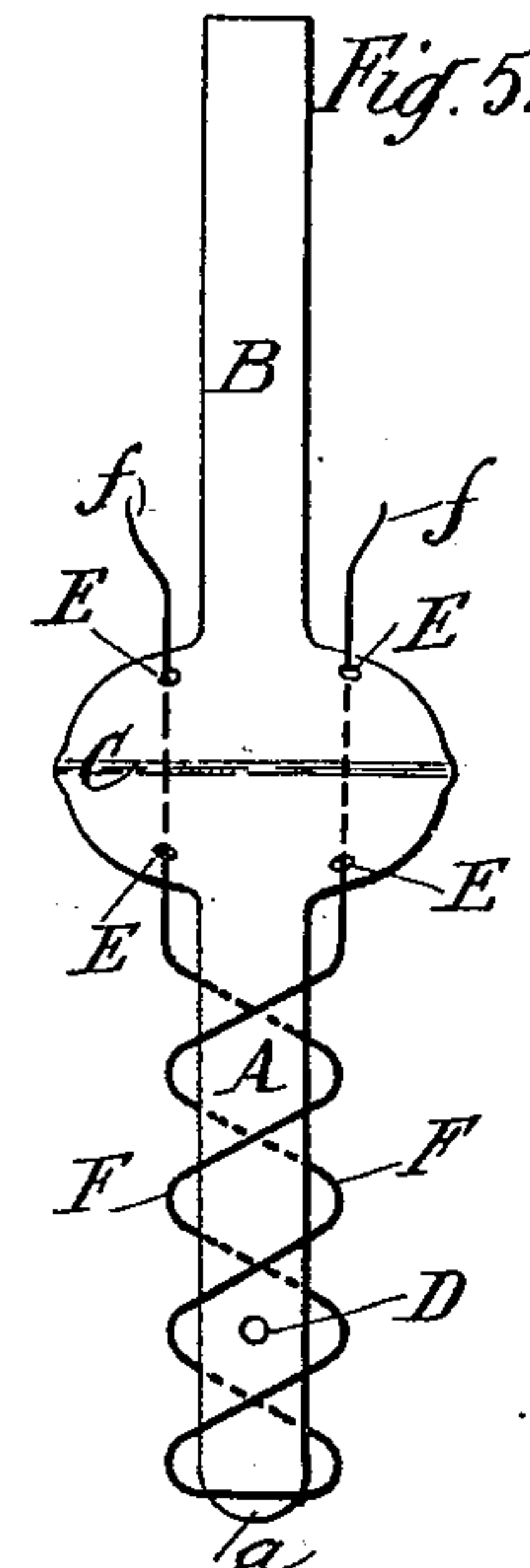
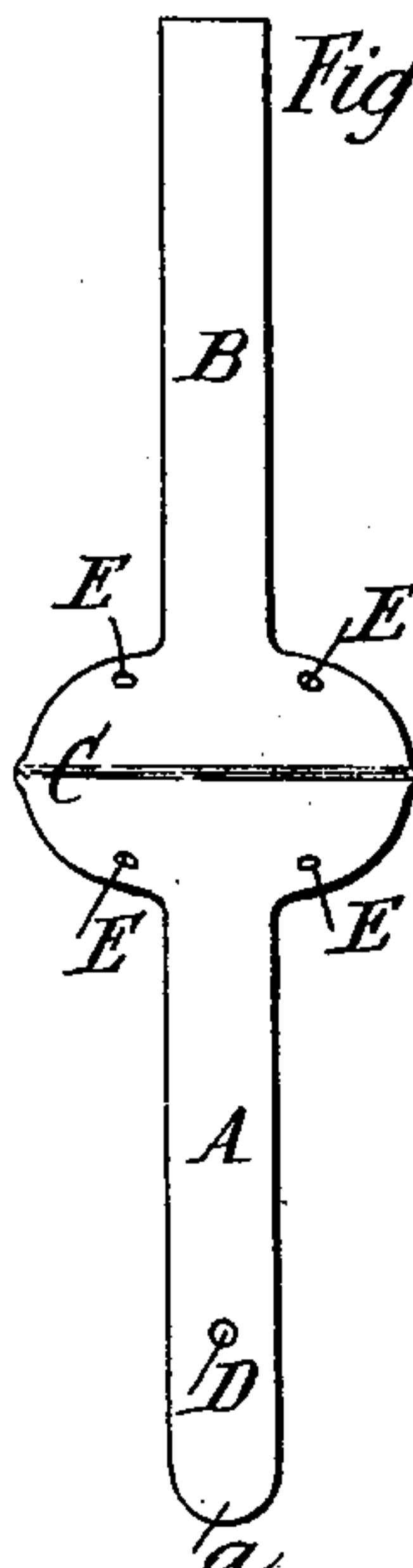
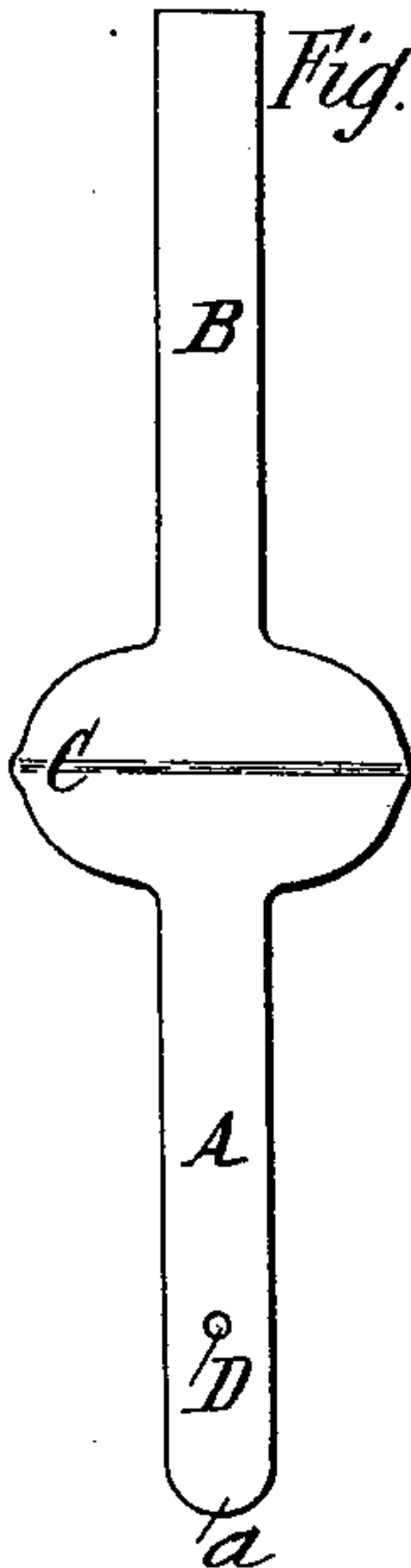
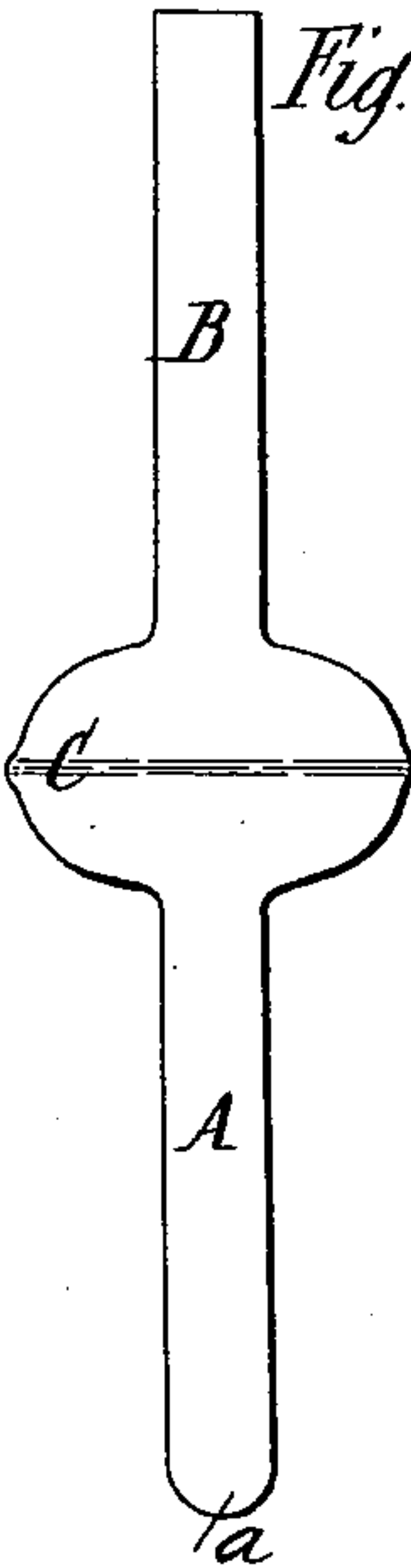
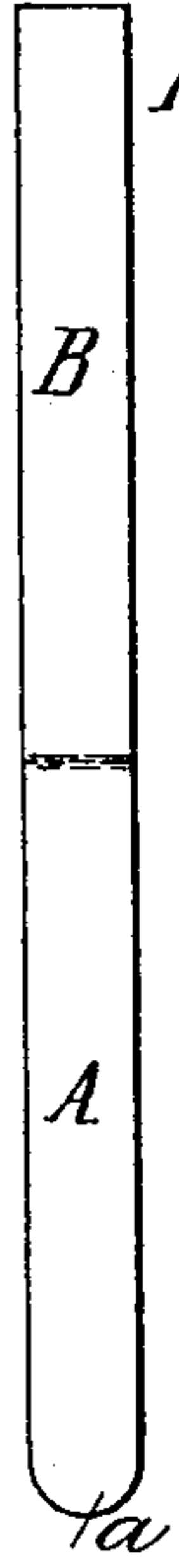
No. 631,221.

Patented Aug. 15, 1899.

E. C. DE MARÇAY.
INCANDESCENT LAMP.

(Application filed Sept. 13, 1898.)

(No Model.)



WITNESSES
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UNITED STATES PATENT OFFICE.

EDMOND CHARLES DE MARÇAY, OF PARIS, FRANCE.

INCANDESCENT LAMP.

SPECIFICATION forming part of Letters Patent No. 631,221, dated August 15, 1899.

Application filed September 13, 1898. Serial No. 690,873. (No model.)

To all whom it may concern:

Be it known that I, EDMOND CHARLES DE MARÇAY, electrician, of 28 Avenue de l'Opéra, Paris, in the French Republic, have invented certain new and useful Improvements in Incandescent Lamps, of which the following is a full, clear, and exact specification.

This invention relates to improvements in electrical incandescent lamps which are provided with a reflector-surface integral with the bulb or some portion of this latter.

Hitherto reflectors forming an integral part of the lamp either exteriorly or interiorly have been made in various ways. I shall not consider exterior reflectors, and as regards interior reflectors these, whatever be the nature of the material of which they are formed, metal, porcelain, &c., or any other substance manipulated or treated so as to form a reflector-surface, possess the inconvenience of becoming considerably heated by reason of the radiation of the filament and give rise to a reserve or store of heat, which leads to the breaking or bursting of the lamp if the vacuum therein is not perfect and in every case lessens the duration of its life and its illuminating power. The manner in which I construct my improved lamps with interior reflectors avoids these inconveniences, and I will now describe the series of operations necessary to construct a lamp according to my invention.

Figures 1 to 7 of the accompanying drawings show the different stages of manufacture. Figs. 8 and 9 show two arrangements for avoiding oscillation of the filament.

I take a tube A, of crystal, porcelain, or any other suitable material the interior surface of which is treated in such a manner as to form an apparently reflecting-surface at the outside, and I close this tube at one of its ends *a*, and at the other end I unite it to another crystal tube B, the whole thus forming a single tube, Fig. 1. This tube is subjected to the action of the blowpipe-flame and blown out or inflated, so as to form an enlarged portion C at the junction of the two tubes, Fig. 2. Afterward I form by the aid of a blowpipe a hole or opening D in the wall of the tube A, Fig. 3, and then four openings

E E in the wall or substance of the swelled portion C, Fig. 4, and in and through these openings E E, I insert the two platinum wires *ff*, to which is fixed the filament F, either in spiral shape, as shown on Fig. 5, in which case it is wound around the tube A, or in any other shape, and the platinum wires *ff* are secured to the glass in the ordinary manner, and the whole is introduced into a bulb G, intended to form the casing of the lamp, Fig. 6. The enlarged portion C is united to the neck of the bulb, and then after having formed the usual vacuum within this latter in the ordinary manner the lamp is closed or sealed and the portion of the tube B which projects outwardly is removed. By reason of the opening D communication is always established between the interior of the tube and the interior of the bulb, thereby insuring the same degree of rarefaction in both at all times. The lamp is then ready to be used after having been mounted in a socket and the platinum wires connected to the contacts as usually effected.

Whether the filament be spirally arranged or of other form its points of connection to the leading-in wires *ff* should be placed symmetrically about the base of the tube A, so that it shall be well balanced for the sake of durability. To avoid movements of the filament of too great extent, I may maintain it in position by the help of a small platinum wire H, fixed either to the wall of the bulb, Fig. 8, or to the reflector-tube, Fig. 9.

Having thus described my invention in incandescent lamps having an interior reflector and the succession of manufacturing operations for constructing lamps according to my invention, I wish to say that I reserve the right of making modifications without departing from its principle. I therefore do not limit myself to the particular shape of the bulb or of the reflector-tube or the filament or to the nature of the reflector-tube. I could place in a single lamp several reflector-tubes and several filaments. Finally, the progress of the operations set out has been made only to enable my invention to be understood, and I do not limit myself strictly to the details of manufacture.

What I claim as my invention, and desire to secure by Letters Patent, is—

5 An incandescent electric lamp having a vacuum-bulb and a hollow reflector-tube inside the bulb with open communication between the interior of the tube and the interior of the bulb, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDMOND CHARLES DE MARÇAY.

Witnesses:

LEON FRAMKIN,

EDWARD P. MACLEAN.