

(No Model.)

P. DIEHL.

ELECTRIC INCANDESCENT LAMP.

No. 272,125.

Patented Feb. 13, 1883.

fig. 1.

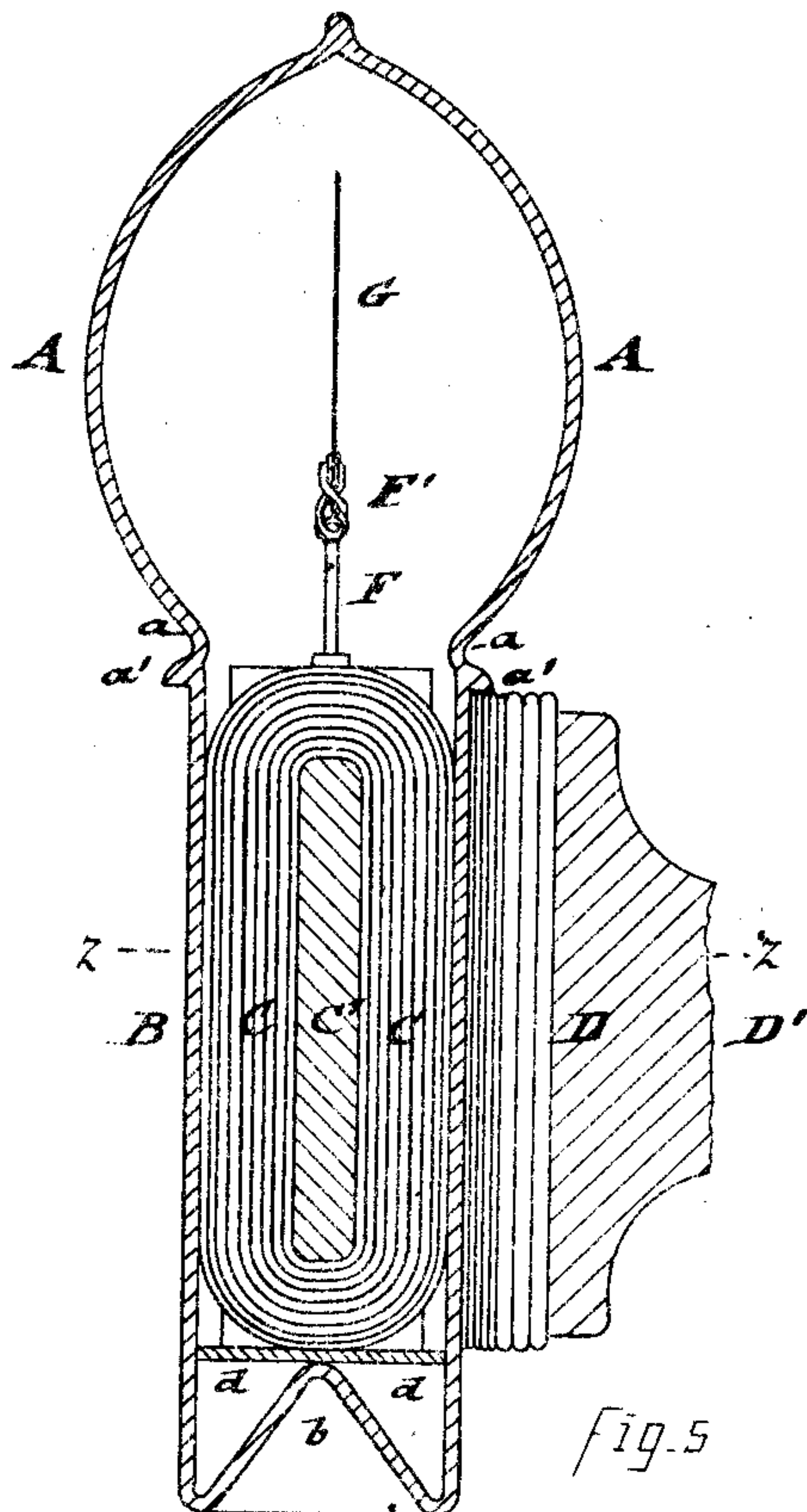


fig. 3.

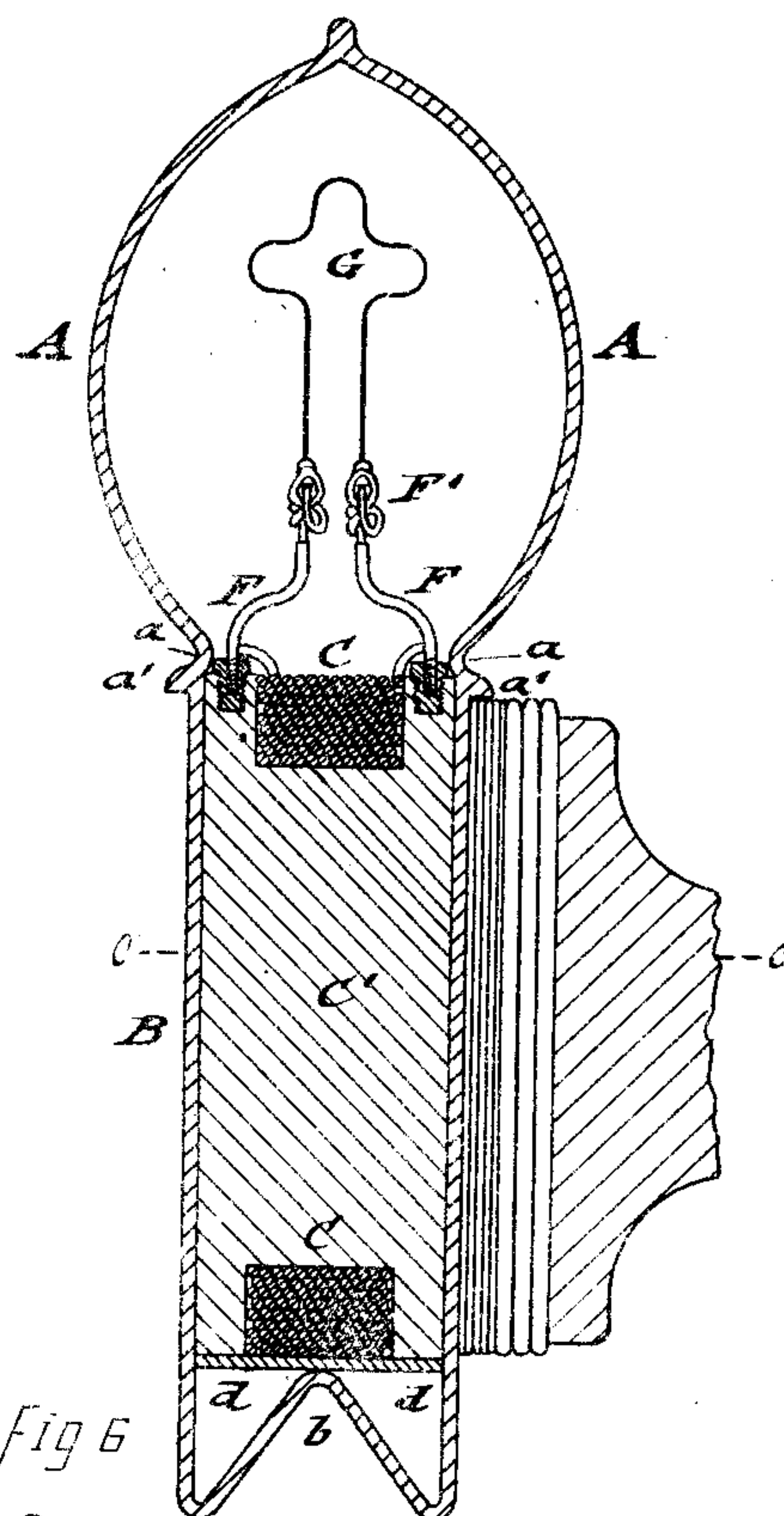


fig. 5.

fig. 6.

fig. 2.

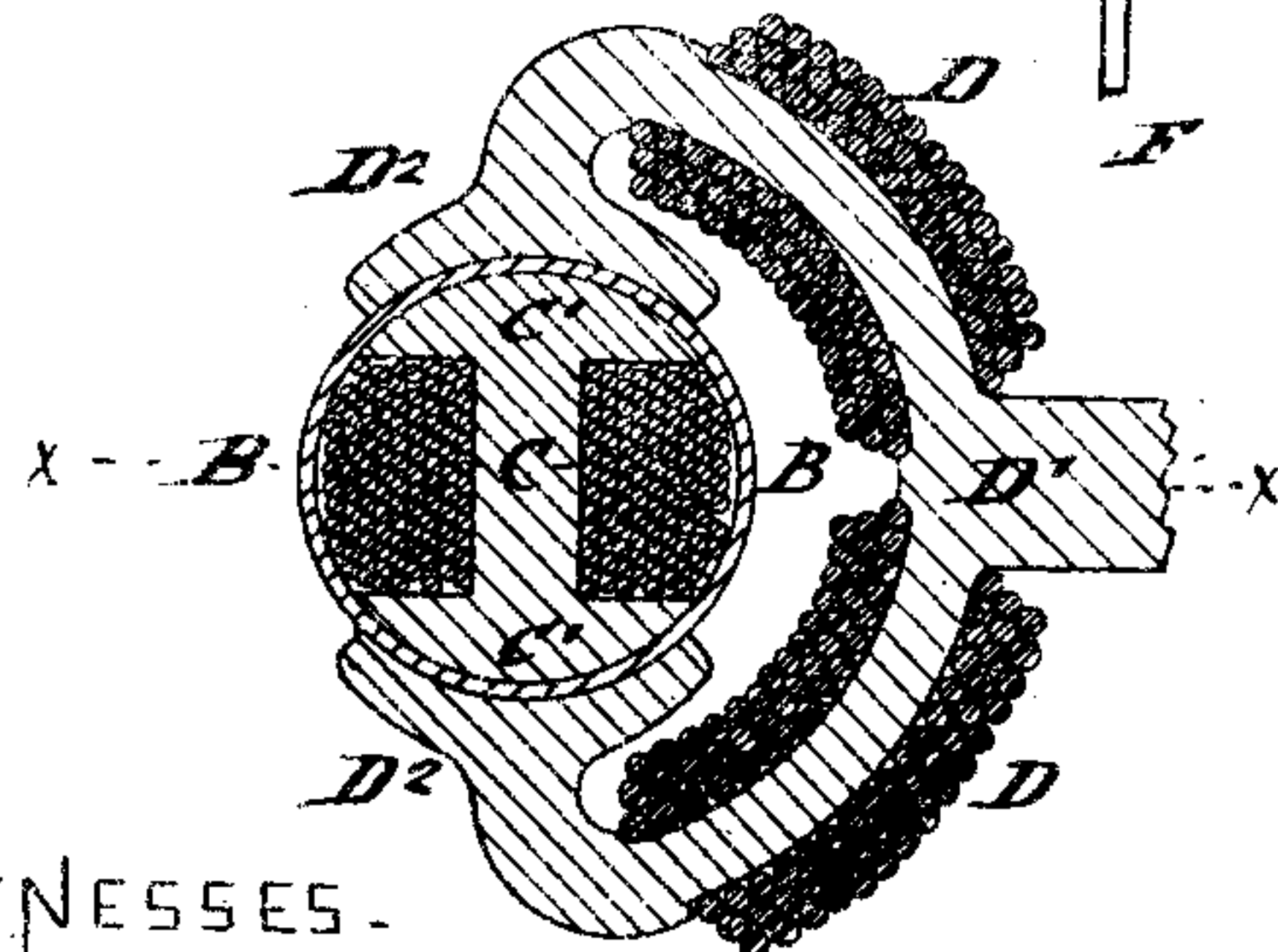
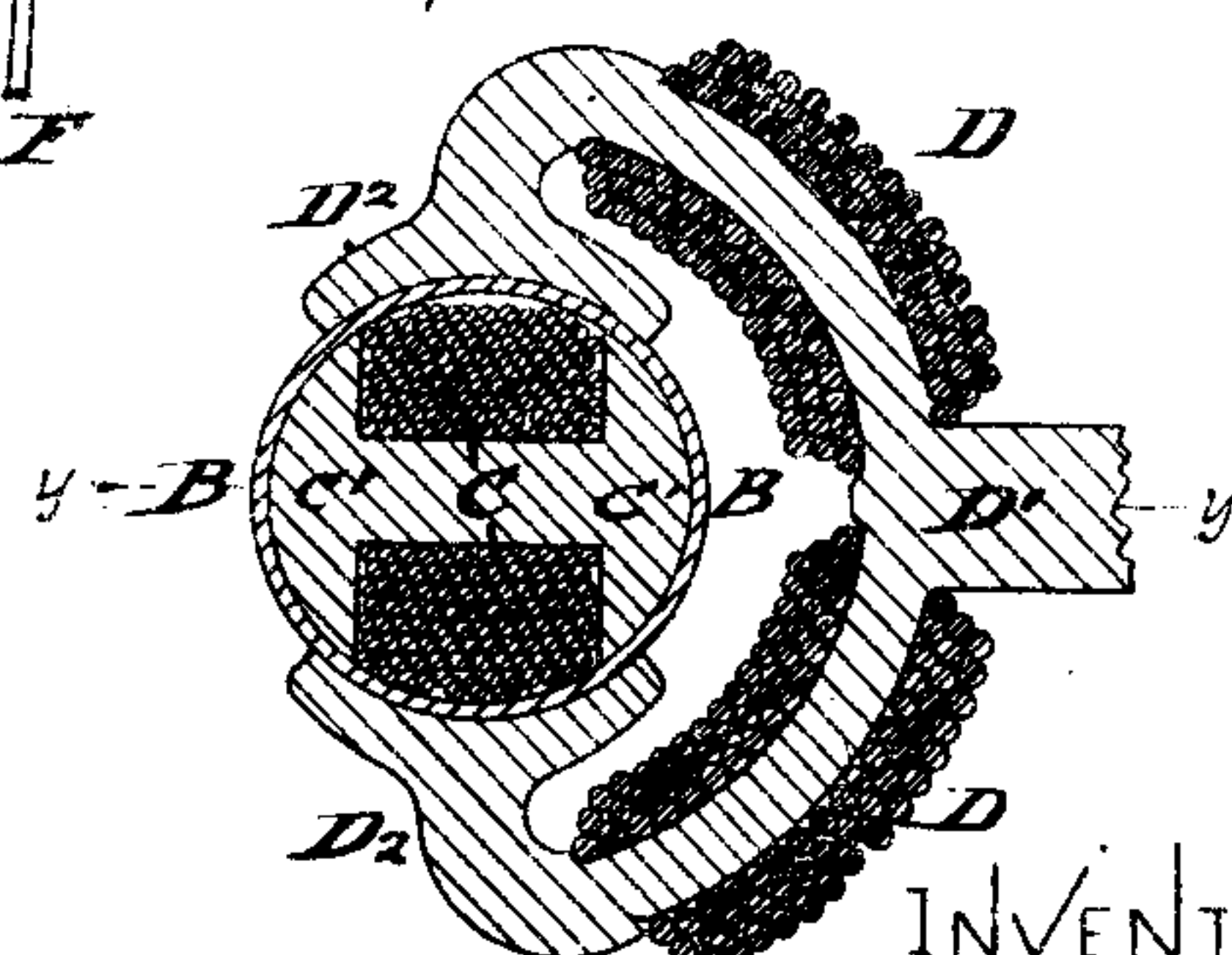


fig. 4.



WITNESSES.

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ELECTRIC INCANDESCENT LAMP.

SPECIFICATION forming part of Letters Patent No. 272,125, dated February 13, 1883.

Application filed August 28, 1882. (No model.)

To all whom it may concern:

Be it known that I, PHILIP DIEHL, of Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Electric Incandescent Lamps, of which the following is a specification.

This invention relates to certain improvements in incandescent electric lamps for which Letters Patent have been granted to me heretofore, numbered 255,497, and dated March 28, 1882, so that the lamp can be readily lighted or extinguished without a special switching device, and the light increased or decreased with great facility; and the invention consists of an electric lamp composed of a hermetically-sealed glass globe having a cylindrical extension or shank made integral therewith, of a light-giving part supported at the interior of the globe and placed in circuit with an induction coil at the interior of the shank, said coil being wound longitudinally around an I-shaped Siemens armature and placed in inductive relation to the enlarged pole-pieces of an exterior electro-magnet, which pole-pieces form the socket or holder of the lamp. The lamp is axially or vertically adjustable between the pole-pieces of the exterior electro-magnet. The lamp is provided with a contracted portion and an exterior collar at the point of connection between globe and shank, the former and an inwardly-projecting conical bottom of the shank serving to support the interior induction-coil, while the latter serves as a stop for the lamp.

In the accompanying drawings, Figures 1 and 3 represent vertical longitudinal sections of my improved incandescent electric lamp, taken respectively on lines *xx* and *yy*, Figs. 2 and 4. Figs. 2 and 4 are horizontal sections of the same on line *zz* and *cc*, Figs. 1 and 3, showing the interior induction-coil turned axially in different relative position to the pole-pieces of the exterior electro-magnet. Figs. 5 and 6 are details of the spring-clamp for attaching the light-giving carbon filament to the conductors at the interior of the globe.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents a hermetically-sealed glass globe, which is made

of suitable size and shape, and which is provided at the lower part with an extension or shank, B, which is made preferably of cylindrical shape and integral with the globe. At the point of connection of the globe A and shank B is arranged a slightly-contracted portion, *a*, and an exterior collar, *a'*, while the bottom *b* of the shank B is of conical shape and made to project inwardly. The contraction *a* and the bottom *b* serve to hold in position an induction-coil, C, which is arranged at the interior of the shank B, while the collar serves as a stop or rest for the lamp on its exterior support. An insulating-plate, *d*, is interposed between the lower end of the induction-coil C and the inwardly-projecting bottom *b* of the shank. The interior induction-coil, C, is made in the nature of a Siemens armature, with a core, C', of I-shaped cross-section and a coil of fine wire, that is wound longitudinally over the ends of the core, so as to fill up the intermediate space formed by the side recesses of the I-shaped core. The coil is so wound as to form with the core a cylinder that is in close contact with the interior of the glass shank B.

The carbon filament or other light-giving part G is held between the terminal wires F F of the induction-coil C, so as to be in the same circuit therewith, said light-giving part being made of any desired shape or material.

The wire conductors F F are provided with spring-clamps F', (shown in Figs. 5 and 6,) and are furthermore applied to sockets of insulating material secured into the iron core of the induction-coil C, as shown in Fig. 3. The shank B of the lamp is supported between enlarged pole-pieces D² of the branched core D' of an exterior electro-magnet, D, said pole-pieces being arranged diametrically opposite to each other, as shown in Figs. 3 and 4, so as to form a socket or holder for the shank of the lamp. The metallic core of the exterior electro-magnet is applied by means of a bracket-piece to the wall or other point of support. The shank B is extended below the pole-pieces D², so as to be taken hold of at the lower end and readily turned around its axis, so as to bring the interior induction-coil either into the magnetic field of the pole-pieces D² or intermediately between

the same, as shown in Figs. 2 and 4, respectively. In the former case the core of the induction-coil is exposed to the entire induction of the pole-pieces of the exterior electro-magnet, so that the light-giving part G is heated to incandescence by the current induced in the interior coil, C, while in the other case the light is extinguished as the core of the induction-coil C is brought into the neutral points of the magnetic field between the pole-pieces D², so that consequently no induction can take place. If it be desired to increase or decrease the light, the shank is vertically shifted in the pole-pieces, whereby a greater or smaller portion of the induction-coil is exposed to the inducing action of the primary electro-magnet. In this manner, without a separate switching device or other equivalent appliances, the lamp may be thrown into action or extinguished or its light-giving power regulated; or the lamp may be entirely removed and replaced from the supporting pole-pieces.

The interior of the globe and shank is evacuated in the usual manner, so as to secure the longer duration of the light-giving part therein, which latter may be of any suitable material and construction.

The induction-currents by which the light is produced in this lamp are obtained by the magnetic action of the pole-pieces of the exterior electro-magnet upon the interior induction-coil. The pole-pieces of the exterior magnet are excited either by alternating currents, which are passed through the coils of the exterior magnet, or by a current of uniform direction, but of alternately increasing or decreasing strength. In both cases, whether by the change of polarity of the pole-pieces or by the variations in strength of the magnetic field between the pole-pieces, electric currents are induced in the interior coil of

the lamp, which follow each other in rapid succession, so as to keep up a steady light.

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

1. In an incandescent electric lamp, the combination of a globe containing the light-giving part, a cylindrical shank made integral therewith, an interior coil arranged in the shank and placed in circuit with the light-giving part, and an exterior electro-magnet arranged in inductive relation to the interior coil, and provided with enlarged pole-pieces that form a socket or holder for the lamp, substantially as specified.

2. In an incandescent lamp, the combination of a globe containing the light-giving part, a cylindrical shank made integral therewith, an interior coil arranged in the shank and placed in circuit with the light-giving part, and an exterior electro-magnet arranged in inductive relation to the interior, and provided with enlarged pole-pieces, between which the lamp may be vertically or axially adjusted, so as to regulate the light or extinguish the same, substantially as set forth.

3. In an incandescent lamp, a globe containing the light-giving part and having an extension or shank made integral therewith, said lamp having a contraction at the point of connection with the shank and the shank an inwardly-projecting bottom, so as to retain the interior coil in position in the shank, 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.

PHILIP DIEHL.

Witnesses:

PAUL GOEPEL,
CARL KARP.