

(No Model.)

2 Sheets—Sheet 1.

T. L. KAY.
ELECTRIC ARC LAMP.

No. 309,392.

Patented Dec. 16, 1884.

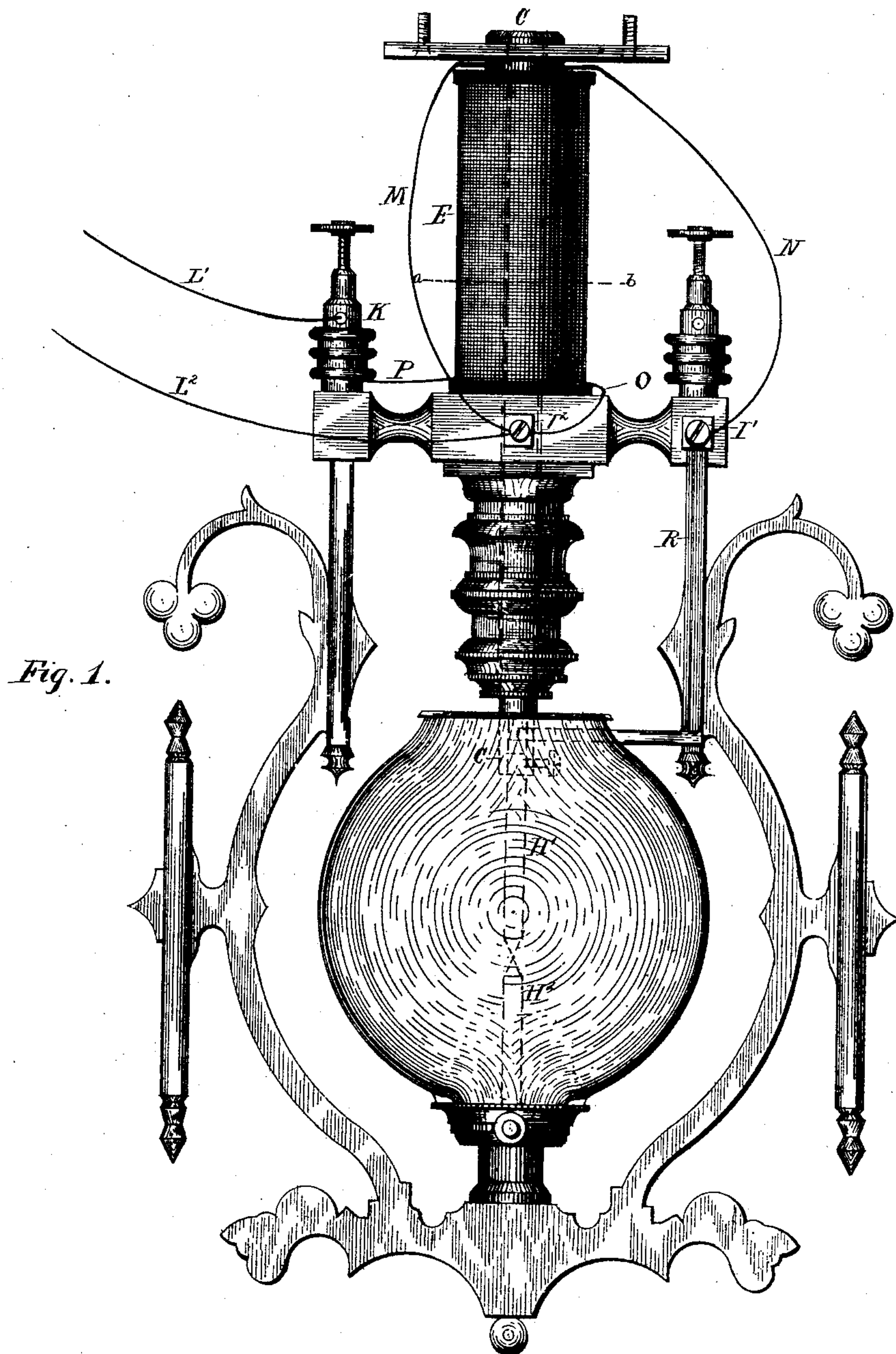


Fig. 1.

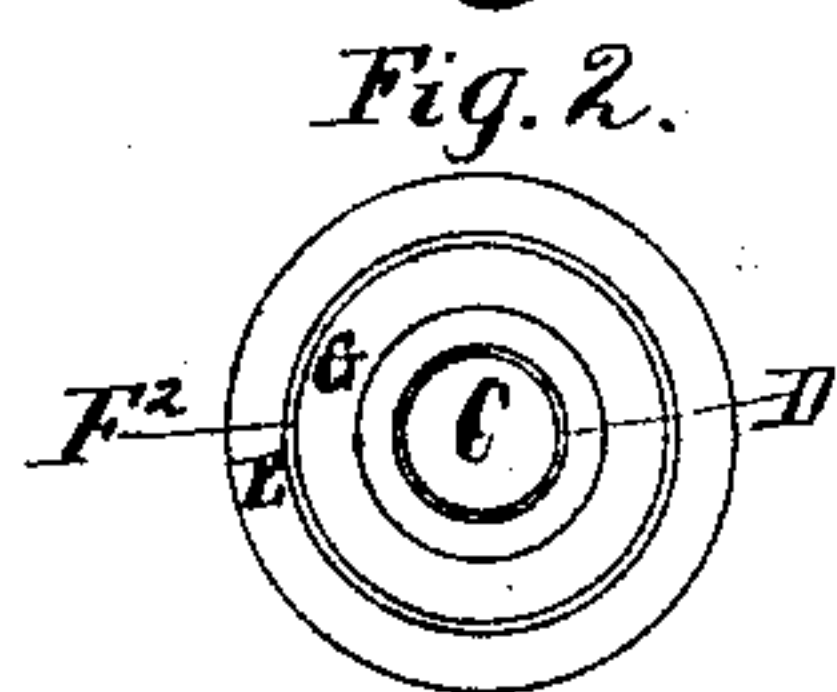


Fig. 2.

WITNESSES:

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INVENTOR

Thomas L. Kay

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Fig. 5

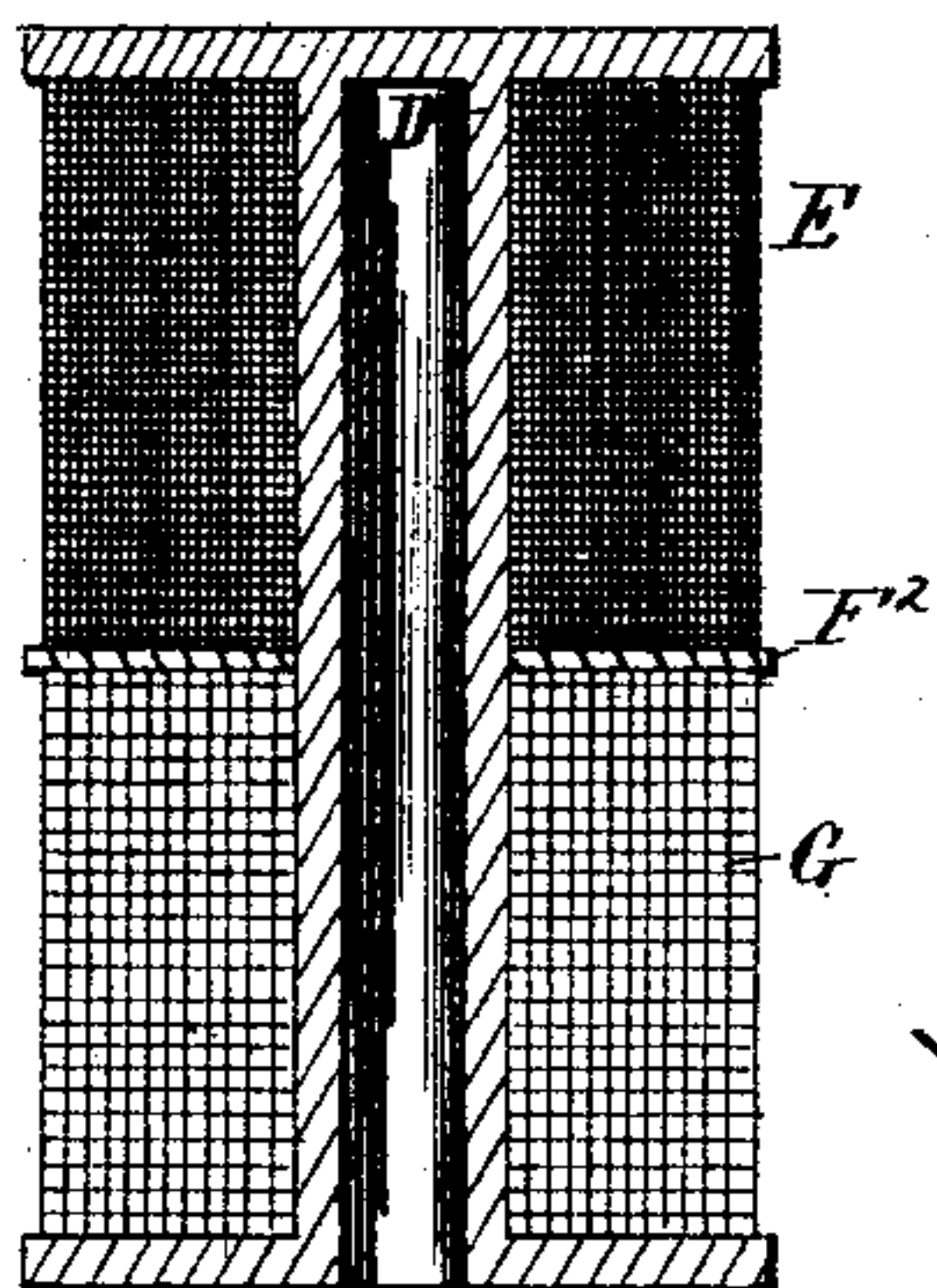


Fig. 3.

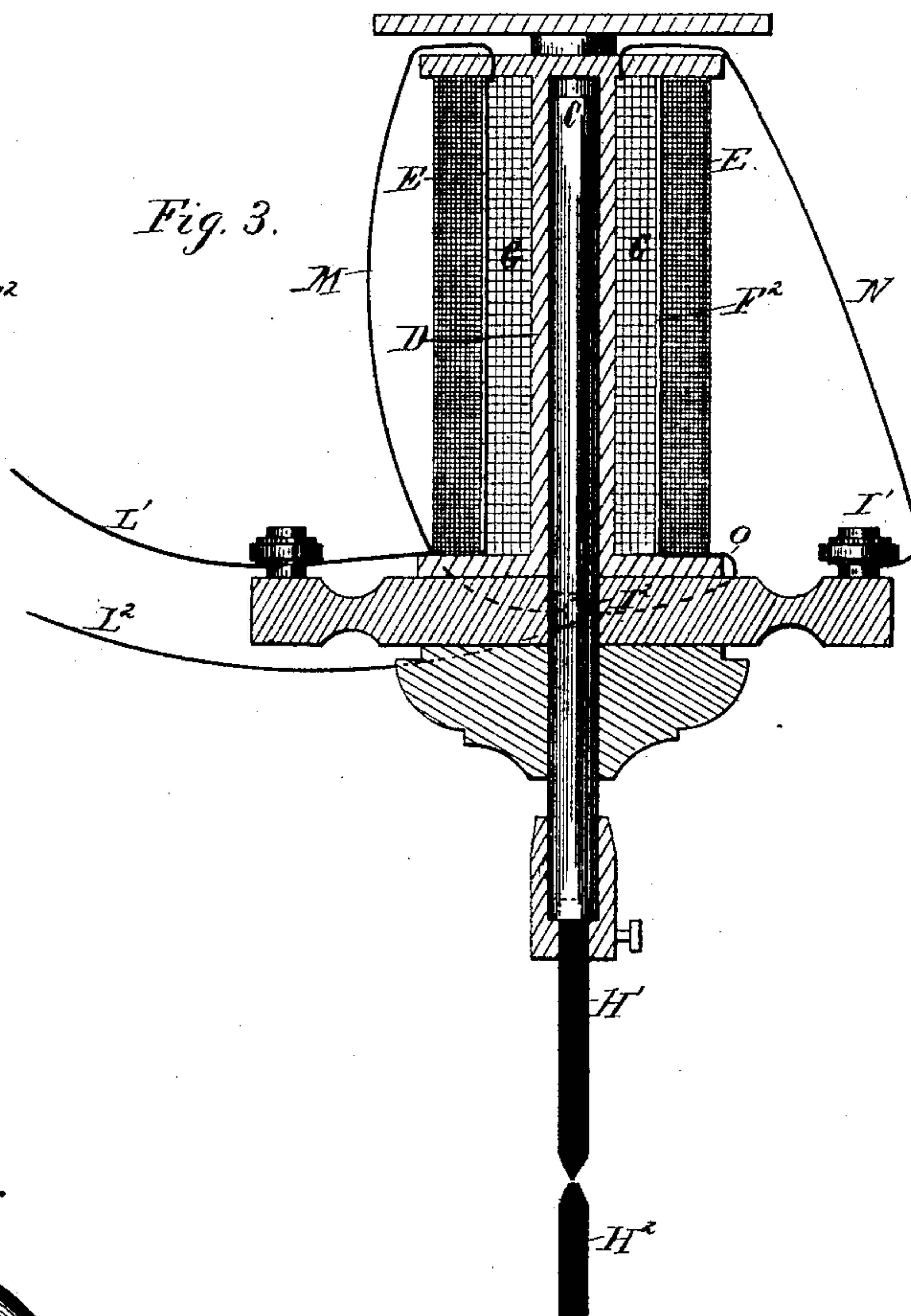
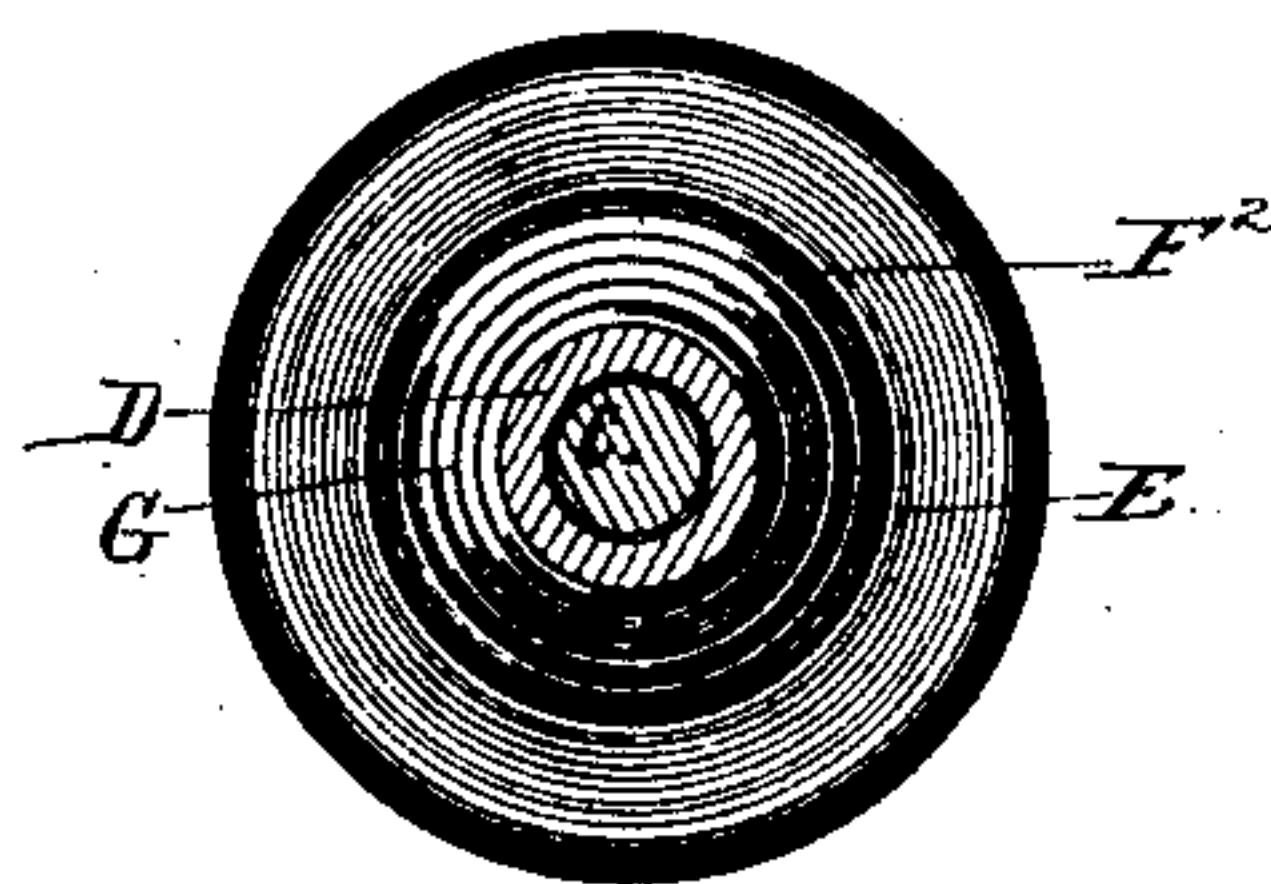


Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

THOMAS LANG KAY, OF HAMILTON, ONTARIO, CANADA.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 309,392, dated December 16, 1884.

Application filed December 16, 1881. (No model.)

To all whom it may concern:

Be it known that I, THOMAS LANG KAY, of the city of Hamilton, in the county of Wentworth, in the Province of Ontario and Dominion of Canada, machinist, have invented certain new and useful Improvements in Electric Lamps; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, in which—

Figure 1 is an elevation of the electric lamp, and Fig. 2 is a section on the line *a b* on the same. Fig. 3 is a section through a portion of Fig. 1. Fig. 4 is a transverse section similar to Fig. 2, but somewhat enlarged. Fig. 5 represents a modified construction of magnet.

The magnet is composed of a brass core, (or bush,) D, having flanges at each end. This core D is bored out, so as to allow the iron rod C to move up and down freely in it. Between the flanges, and around the core D, is coiled the coarse copper insulated wire G for the purpose of magnetizing and raising the carbon rod C in the core D, as hereinafter described, which raises the upper carbon, H', to the proper arc. Then over this coil of coarse wire G is wound a non-conductive wrapper, F², and around this is wound a coil, E, of fine insulated copper wire, which is wound around in the opposite direction to the coarse wire G. This demagnetizes the rod C, which is of the same length as the magnet, and allows it to fall down. The outside wire, M, from the coarse coil is connected to the binding-post I². The inside wire of the coarse coil is connected with a brush, R. This brush presses lightly on the rod C and conducts the current from the generator to the upper carbon, H'. The inside wire, O, of the fine coil E is connected to the binding-post I². The outside wire, P, of the coil E is connected with the binding-post K, one wire, L', from the generator being fastened to the binding-post K and the other wire, L², to the binder I², which charges the magnet and magnetizes the rod C, and thus raises the carbon H' to the proper arc or distance between the two carbon points H' and H²; but should the distance between these carbons be too great, the coarse-wire coil G would decrease in strength

(or magnetic force) in proportion as the strength of the fine coil E would increase, and thus the rod C would be drawn down to the proper arc or distance.

In the drawings the two coils of wire are wound one over the other; but the same effect could be produced by having the wire coils E and G separate—that is, to have the coarse coil above or below the fine one on the core D, as in Fig. 1, in which the coarse coil is below the fine coil. The carbons H' and H² are simply fixed in the rods C and held by set-screws.

In this lamp only one carbon burner is used, so that when it is burned out the lamp would have to be relighted upon renewing the carbon; but where a constant light is required an additional magnet or magnets could be used in the same lamp on the same principle as the one herein described, so that one carbon could be lighted while the burned-out one was being replaced.

The conducting-wires and their connections are shown merely to illustrate a simple construction and arrangement of the same adapted for use in a lamp in which the rod and magnet are constructed and arranged as specified. It will be understood that the main line passes through the arc, and that the fine-wire coil hereinbefore referred to is in a shunt.

I disclaim the combined coarse and fine wire magnet, excepting as directly acting in a vertical direction on the rod C, as set forth.

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

In an electric lamp, the combination, substantially as described, of the vertical iron carbon-holder C with the vertical tubular core or bush D, provided with the coiled coarse wire G, the insulating material F², covering the same, and the exterior fine insulated wire coil, E, said iron carbon-holder being loosely arranged within the tubular bushing, and being adapted to rise and fall therein by the action of the magnetizing and demagnetizing of the said wires, substantially as set forth.

THOMAS LANG KAY.

Witnesses:

ALEX. KAY,
JOHN H. YOUNG.