F. WINTERS, Jr.

Electric-Lamp.

No. 223,790. Patented Jan. 20, 1880.

Fig. 1.

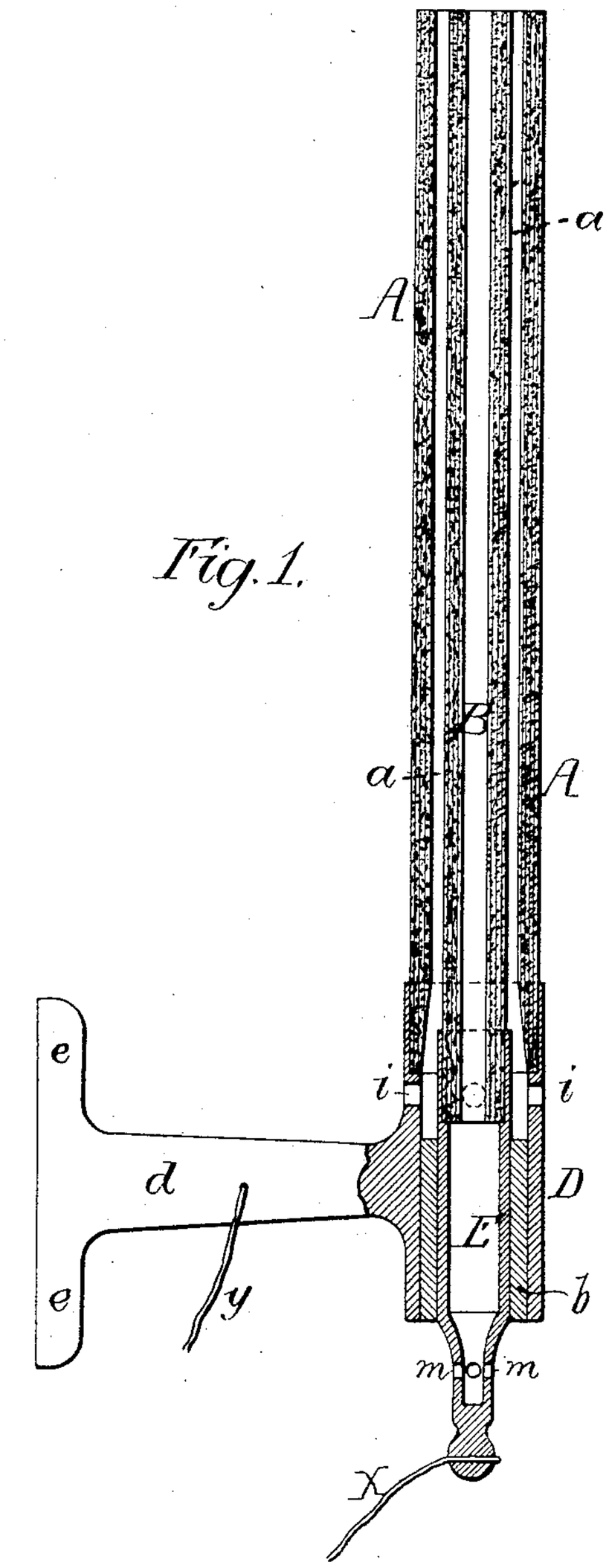
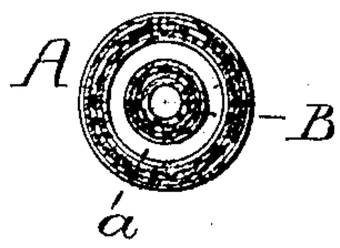



Fig. 2.




WITNESSES

Henry Howson Jr.

Harry Smith

INVENTOR.

Francis Winters Jr.

by his Attorneys

Howson and Sons

# UNITED STATES PATENT OFFICE.

FRANCIS WINTERS, JR., OF NEW YORK, N. Y.

## ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 223,790, dated January 20, 1880.

Application filed March 26, 1879.

*To all whom it may concern:*

Be it known that I, FRANCIS WINTERS, Jr., of New York city, have invented a new and useful Improvement in Electric Lamps, of which the following is a specification.

My invention relates to a certain improvement in that class of electric lamps in which a current of air is caused to circulate between the carbons, so as to insulate the same and maintain the electric arc at the top of the carbons, the object of my invention being to so construct and arrange the carbons and their holder that the current of air will be caused to pass between the carbons without the aid of any chimney or other outside means of inducing draft.

This object I attain in the manner which I will now proceed to describe, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section of a lamp constructed according to my invention, and Fig. 2 a sectional plan on the line 1 2.

A is the positive, and B the negative, carbon, both of which are in the present instance tubular, arranged concentrically one within the other, and of such relative diameter that an annular space, *a*, shall intervene between the two carbons.

D is the holder for the carbon A, and E the holder for the carbon B, these holders being likewise tubular, and being insulated from each other by an annular block, *b*, of glass, rubber, or other suitable material.

X is the negative, and *y* the positive, wire of a suitable battery or magneto-electric machine, the wire X being connected to the holder E, and the wire *y* being connected to an arm, *d*, which projects from the holder D, and has flanges *e e*, by which it may be secured to any suitable support.

In the holder D are formed a series of openings, *i*, through which air gains free access to the annular space *a* between the carbons A and B, the air being relied upon as the medium for insulating the carbons from each other, and for maintaining the electric arc in its proper position at the top of the carbons. The central opening of the inner or negative carbon, B, is also supplied with air through openings *m* in the lower portion of the holder E; but this is not essential, as said inner carbon may, if desired, consist of a solid rod instead of being tubular. The tubular carbon is preferred, however, as it affords a means of supplying air to the light at a point which could not be reached should the inner carbon be solid.

The proper proportions of the carbons in respect to each other will depend upon whether a continuous current or reversed currents are relied upon to maintain the light.

I do not desire to claim, broadly, insulating the carbons and maintaining the arc at the top of the same by means of a current of air passing between the carbons; but

I claim as my invention—

The combination of the inner carbon, B, the outer tubular carbon, A, and the holder D, all arranged substantially as set forth, so that an annular space, *a*, open to the air at the lower end, will intervene between the two carbons, all substantially as set forth.

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

FRANCIS WINTERS, JR.

Witnesses:

W. P. FOSTER,

M. B. HULL.