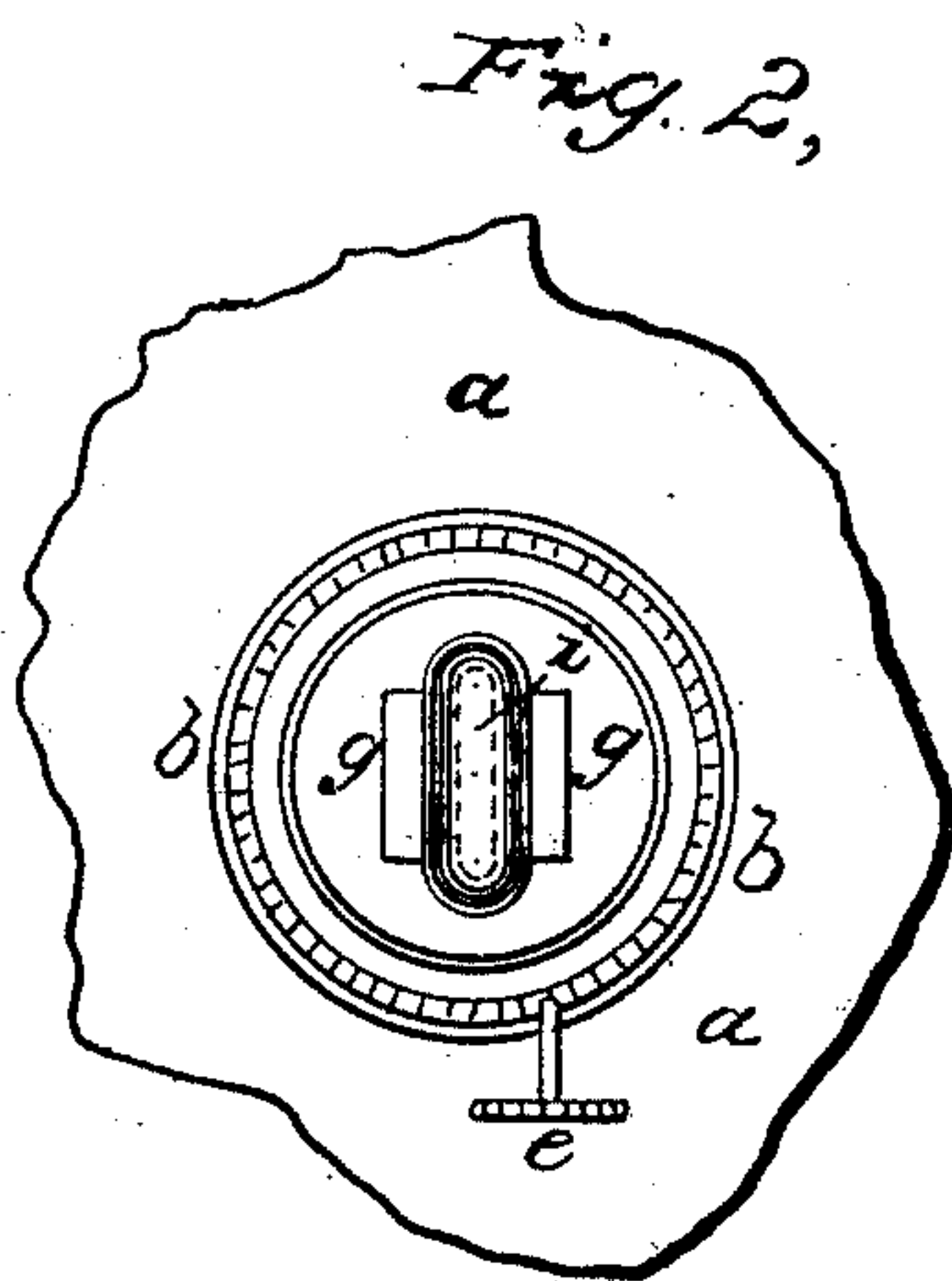
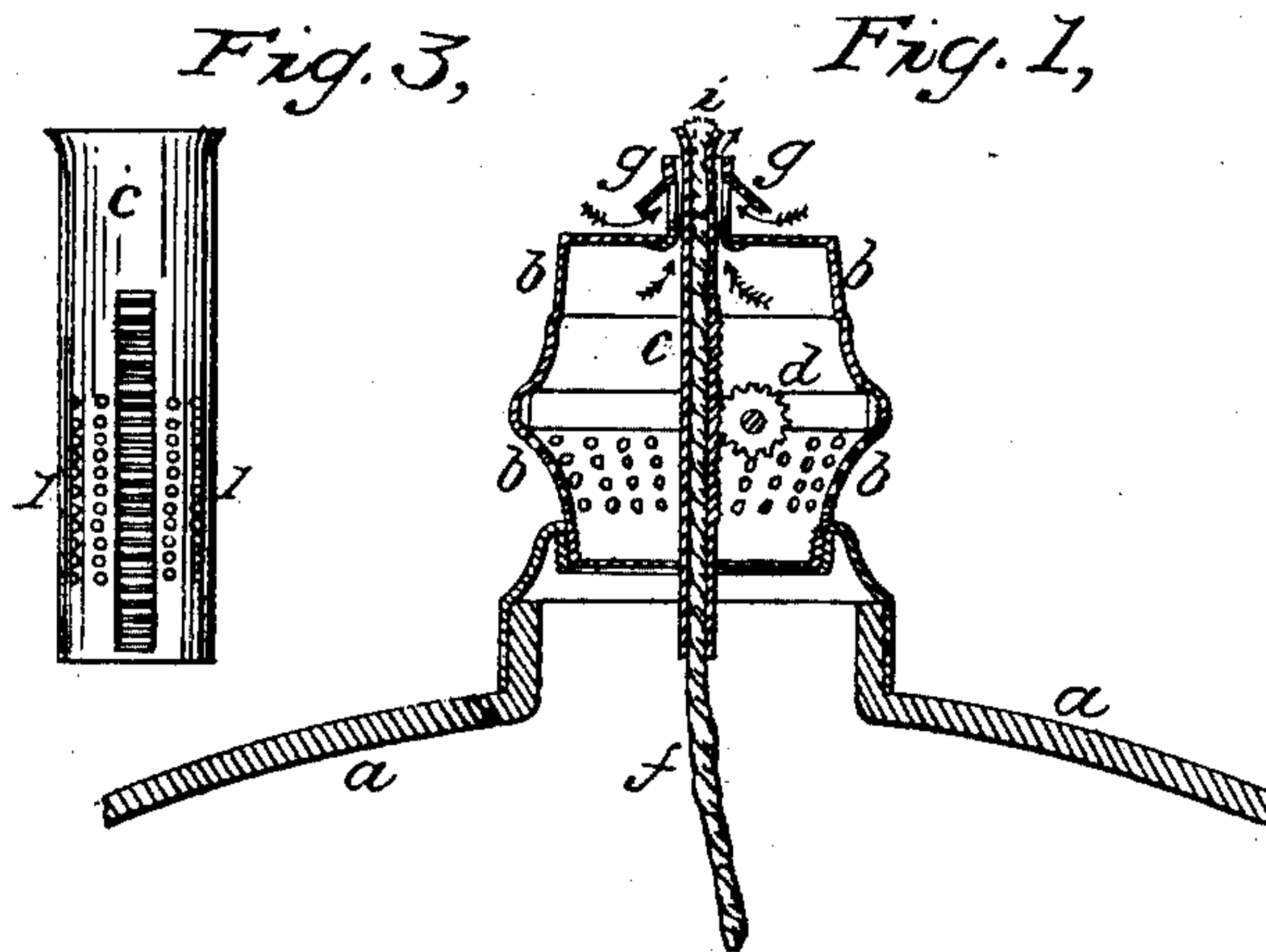


D. E. HALL.
Coal Oil Lamp.

No. 37,197.

Patented Dec. 16, 1862.



WITNESSES:

Samuel W. Sewell
Thos. Geo. Harder

INVENTOR:

David E. Hall

UNITED STATES PATENT OFFICE.

DAVID E. HALL, OF BROOKLYN, NEW YORK, ASSIGNOR TO HIMSELF, VAS-
CONCELLOS HOUGHTON, WM. A. NICHOLS, AND THEO. C. SEARS.

IMPROVEMENT IN COAL-OIL LAMPS.

Specification forming part of Letters Patent No. 37,197, dated December 16, 1862.

To all whom it may concern:

Be it known that I, DAVID E. HALL, of Brooklyn, in the county of Kings and State of New York, have invented, made, and applied to use a certain new and useful Improvement in Lamps for Burning Coal-Oil, &c.; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, making part of this specification, wherein—

Fig. 1 is a vertical section of my improved burner. Fig. 2 is a plan of the same, and Fig. 3 is an elevation of the wick-tube.

Similar marks of reference denote the same parts.

The nature of my said invention consists of a porous mineral wick-tip combined with a stationary wick of fibrous material. I also make use of a movable wick-tube combined with deflectors surrounding said wick-tube, and directing the air upon the flame.

In the drawings, *a* represents a portion of a reservoir containing the material to be burned. *b* is the shell of the burner, made, as usual, to screw into the socket affixed to the reservoir *a*. *c* is the wick-tube, guided by and fitted to slide vertically in the shell *b*, and *d* is the ratchet-wheel turned by the button-head *e*, and said wheel *d* acts upon rack-teeth formed in or affixed to the side of the wick-tube. *f* is the wick, which may be held in place by projections or hook-shaped points within the wick-tube. By perforating the wick-tubes with holes, as at 1 1, Fig. 3, the burrs on the inner side of said holes will sustain the wick, and also allow a slight circulation of air in the wick-tube, to aid in the vaporization of the coal-oil or other material being consumed. The wick-tube is raised or lowered by the said ratchet-wheel *d*, so that its upper end is slightly below the short deflecting-tube *g* that passes the air through openings 2 in the sides and from the interior of the shell *b* to the base of the flame. The wick *f* receives at its upper end the porous mineral tip *i*, that receives the oil to be consumed and imparts it to the flame. This porous mineral tip is not destroyed by

the action of the heat, and hence will last for a considerable time without replenishing, and said tip is to be made of the shape required for the burner, in the following manner: I take sulphate of lime, a solution of borax, alum, and phosphate of ammonia, and mix them thoroughly together, using warm water to facilitate the thorough mixing, after which it should be dried in an oven, and then pulverized, and is ready for use in making the mineral wick-tip. I take a proper quantity of said pulverized material and moisten it with a weak solution of silicate of soda or soluble glass, until it attains the consistency of paste or putty, and amianthus partially ground is mixed in with the mass, and then the same is spread upon a table or formed into sheets of the desired size, and a layer of amianthus, in threads, placed thereon, and then the sheet or strip is folded upon itself and pressed to the required thickness for the mineral tip and may then be cut off and formed up into the required size and shape of mineral wick-tip. This mineral tip, when used with petroleum, slightly effervesces when first employed.

Clay or any other suitable mineral substance may be employed with the amianthus or similar mineral substance to inclose the same and form the mineral tips, which tips are not injured by the heat, and serve as a protection to the wick, which, by its capillary attraction, draws the material being burned to the mineral tip.

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

1. The fibrous mineral tip *i*, prepared substantially as specified, in combination with the wick *f*, of fibrous material, as set forth.

2. The adjustable wick-tube *d*, in combination with the deflecting-tube *g*, for the purposes and as specified.

In witness whereof I have hereunto set my signature this 15th day of September, 1862.

DAVID E. HALL.

Witnesses:

LEMUEL W. SERRELL,
THOS. GEO. HAROLD.