

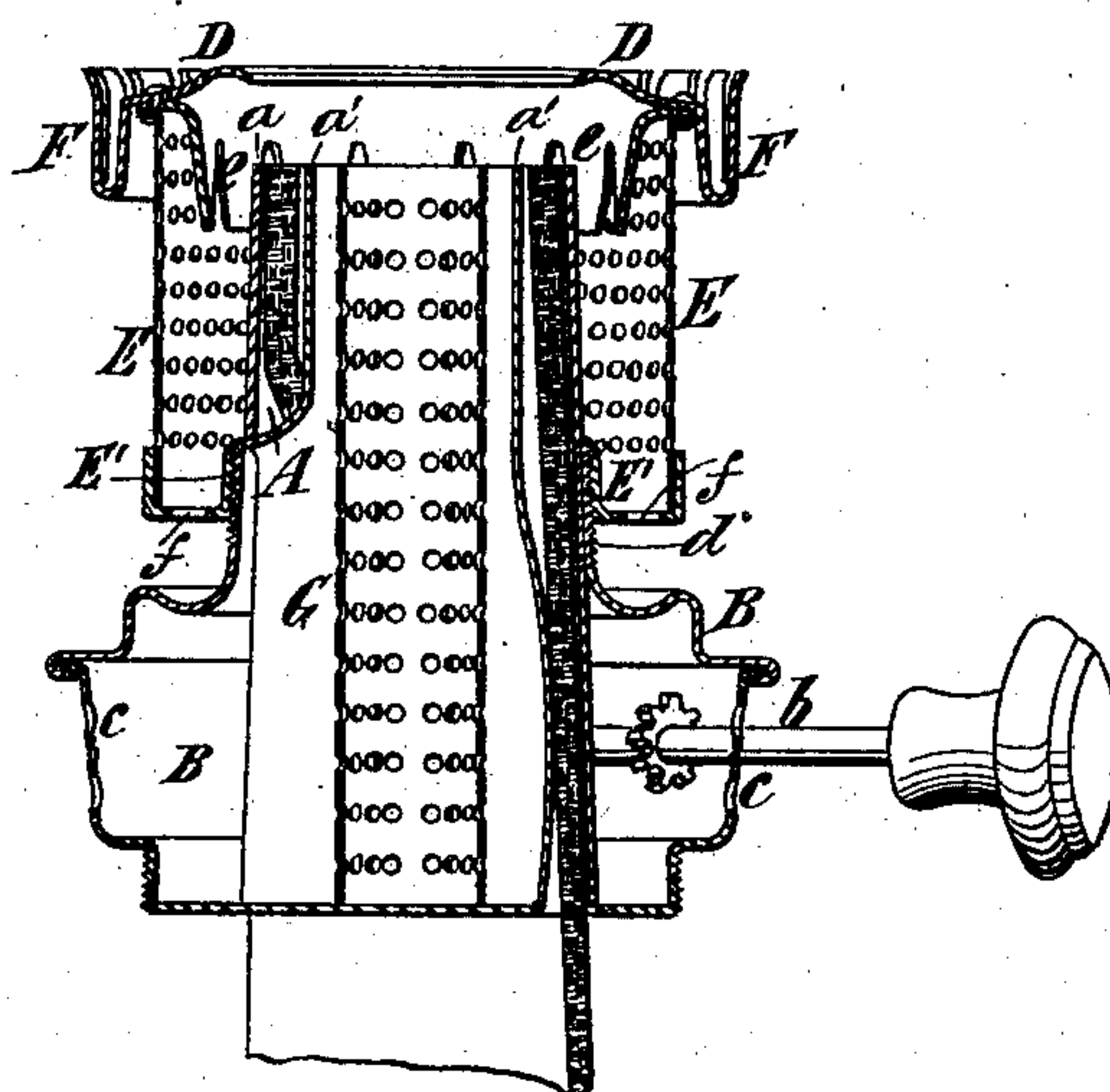
(No Model.)

I. W. SHALER.  
BURNER.

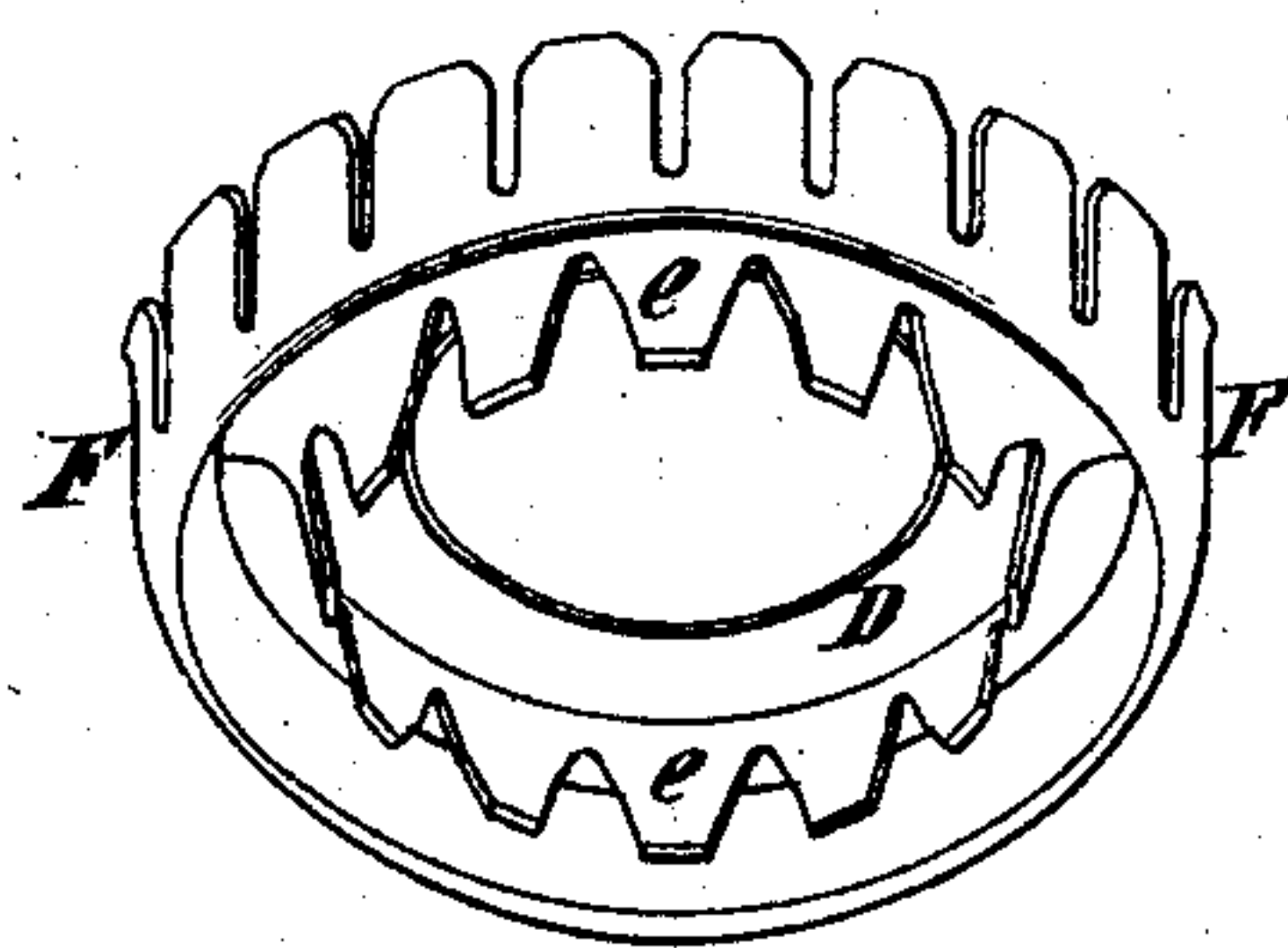
No. 294,409.

Patented Mar. 4, 1884.

*Fig1.*



*Fig 2.*



*Witnesses:*

JAMES K. BOWEN.  
Chandler Hall

*Inventor:*

Frank Thaler,  
by his attorney,  
Edwin S. Brown,

# UNITED STATES PATENT OFFICE.

IRA W. SHALER, OF BROOKLYN, NEW YORK.

## BURNER.

SPECIFICATION forming part of Letters Patent No. 294,409, dated March 4, 1884.

Application filed July 2, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, IRA W. SHALER, of Brooklyn, in Kings county, and the State of New York, have invented a certain new and useful Improvement in Burners, of which the following is a specification.

The object of my improvement is to make a burner produce a better combustion, and hence a more desirable flame.

The improvement will first be fully described, and then will be pointed out in the claims.

In the accompanying drawings, Figure 1 is a central vertical section of a lamp-burner embodying my improvement, and Fig. 2 is a perspective view of the deflector thereof.

Similar letters of reference designate corresponding parts in both figures.

This burner is of the kind known as an "Argand burner." It has an annular wick-tube, A, consisting of an outer wall, *a*, and an inner wall, *a'*, preferably made of sheet metal. This wick-tube is designed to be used with a flat wick; hence, while it is of annular form throughout a large part of its length from the tip or upper end downward, yet at the bottom it is of V shape. The wick is inserted at the bottom, and as it ascends toward the tip it is bent into circular form. Near the bottom the wick-tube is provided with wick-adjusting mechanism *b*, which may be of the usual or any suitable form. The body B of the burner comprises a perforated air-distributor or draft-plate, *c*, through which air passes to the space inclosed by the inner wall of the wick-tube.

D designates a deflector consisting of an annular piece of metal supported above the tip of the wick-tube, and having a flange or petticoat, *e*, extending downwardly from it. The annular part of this deflector preferably extends slightly upward toward the inner edge, so as to be of conoidal form. As shown, its inner circumference is slightly larger than the outer wall of the wick-tube. The flange or petticoat *e* is scalloped at the lower edge, or, in other words, has notches in its lower edge. The lower end of the flange or petticoat extends below the tip of the wick-tube. A flange or petticoat having openings or holes in positions corresponding to the notches of the flange or petticoat shown, and having a continuous lower edge, may be used, if preferable.

As here shown, the deflector is supported on a perforated sheet-metal cylinder, E. At the lower end this cylinder has an internally-screw-threaded collar, E', studded with perforations *f*. A chimney-gallery, F, is attached to the outer edge of the annular part of the deflector, and, as here shown, extends down outside the cylinder E. It will be observed that there are perforations in the cylinder E opposite to and around the tip of the burner-tube. The chimney used with the burner may be of various shapes, although I prefer to use a chimney which is contracted in size above the wick-tube. I find, however, that I can use with my burner a chimney which is much shorter. The collar E' of the cylinder E screws upon a screw-threaded boss, *d*, extending from the body B of the burner around the outer wall of the wick-tube. The collar can be raised or lowered by turning it around, for the purpose of adjusting the deflector relatively to the wick-tube. Air passes through the air-distributor or draft-plate *c* to the space inclosed by the inner wall of the wick-tube, and air passes through the cylinder E and the perforations *f* of the collar E' to the outer side of the wick-tube. Much of the air which enters the cylinder E passes through the petticoat of the deflector D before reaching the flame. By passing through the notches or openings of the petticoat, the air is broken up into many currents. These currents, impinging against the flame, cause it to assume a fluted form and produce a very effective combustion. The adjustability of the deflector enables me to regulate the size of the flame. The top of the deflector causes all air reaching it to impinge upon the flame under uniform conditions, and renders the flame symmetrical in form. There may be a perforated tube, G, fitted into the inner wall of the wick-tube. Such a perforated tube will divide into small jets much of the air which passes through the inner wall of the wick-tube to the flame, and thereby facilitates its combination with the flame. I may embody the same principles of deflector in a flat-wick burner. The central opening will then conform, approximately, to the shape of the tip of the wick-tube.

Instead of connecting the deflector to a burner, I may connect it to a chimney or other analogous device which is used with a burner.



Although this improvement is especially intended for burners in which kerosene-oil is used, it may be embodied in a burner in which any other oil or fluid or even gas is used. In  
5 all cases the opening in the deflector is to conform to the tip of the wick-tube or other burner-tube.

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

10 1. The combination, with a burner, of a deflector having a central opening conforming in shape to the tip of the burner-tube, and a flange or petticoat extending downwardly therefrom, and provided with notches or open-  
15 ings, substantially as specified.

2. The combination, with a burner, of a deflector having a central opening conforming in shape to the tip of the burner-tube, and a flange or petticoat extending therefrom down-  
20 wardly and toward the burner-tube, and provided with notches or openings, substantially as specified.

3. The combination, with a burner, of a deflector having a central opening conforming in shape to the shape of the tip of the burner- 25 tube, a flange or petticoat extending downwardly therefrom, and provided with notches or openings, and a cylinder or shell which the deflector surmounts, and which is perforated around the tip of the burner-tube, substan- 30 tially as specified.

4. The combination, with a burner, of a vertically-adjustable deflector having a central opening conforming in shape to the tip of the burner-tube, and a flange or petticoat extend- 35 ing downwardly therefrom, and provided with notches or openings, substantially as specified.

IRA W. SHALER.

Witnesses:

T. J. KEANE,  
A. L. BROWN.