

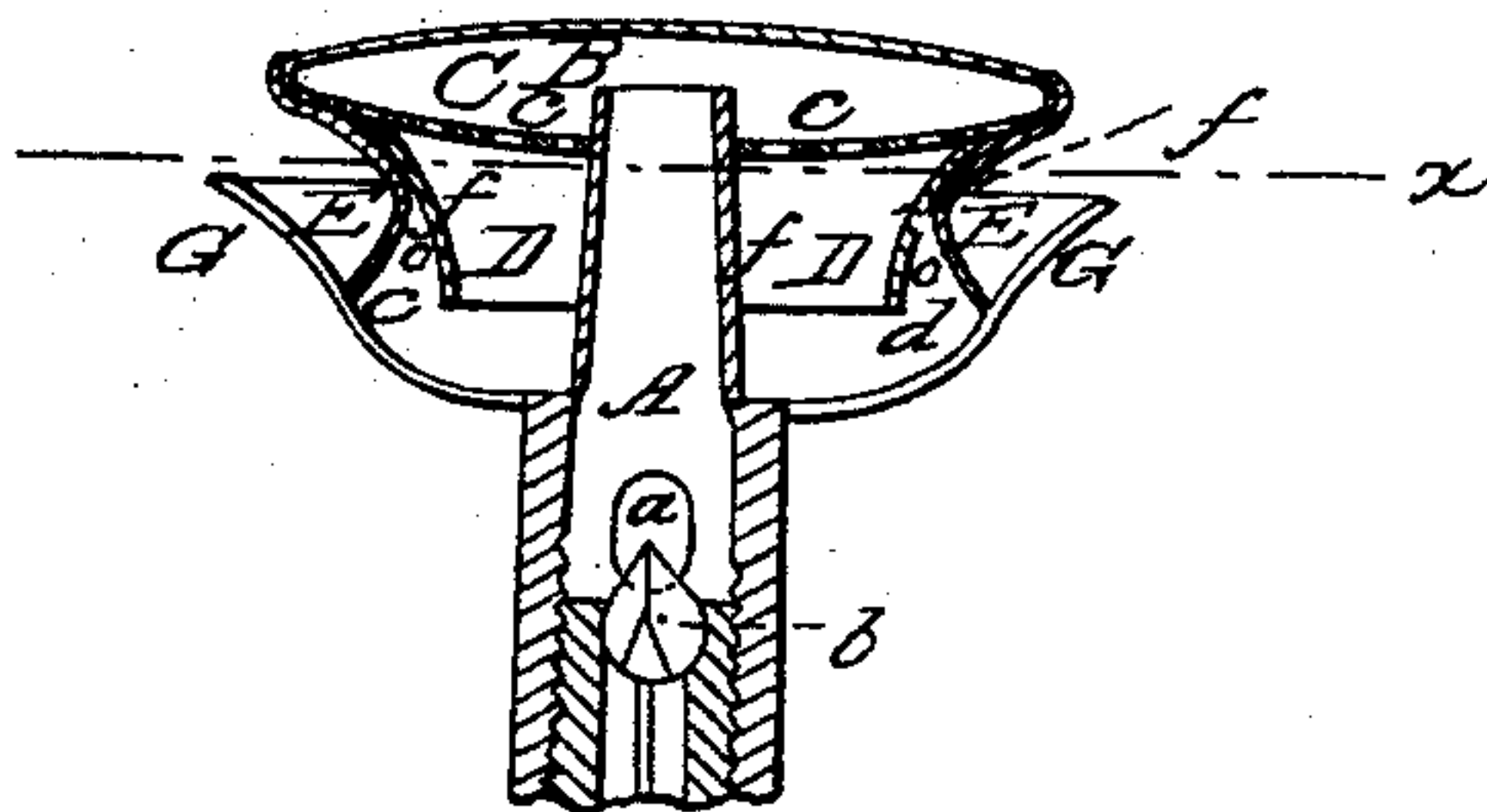
J. S. HULL.

Burner for Vapor Lamps.

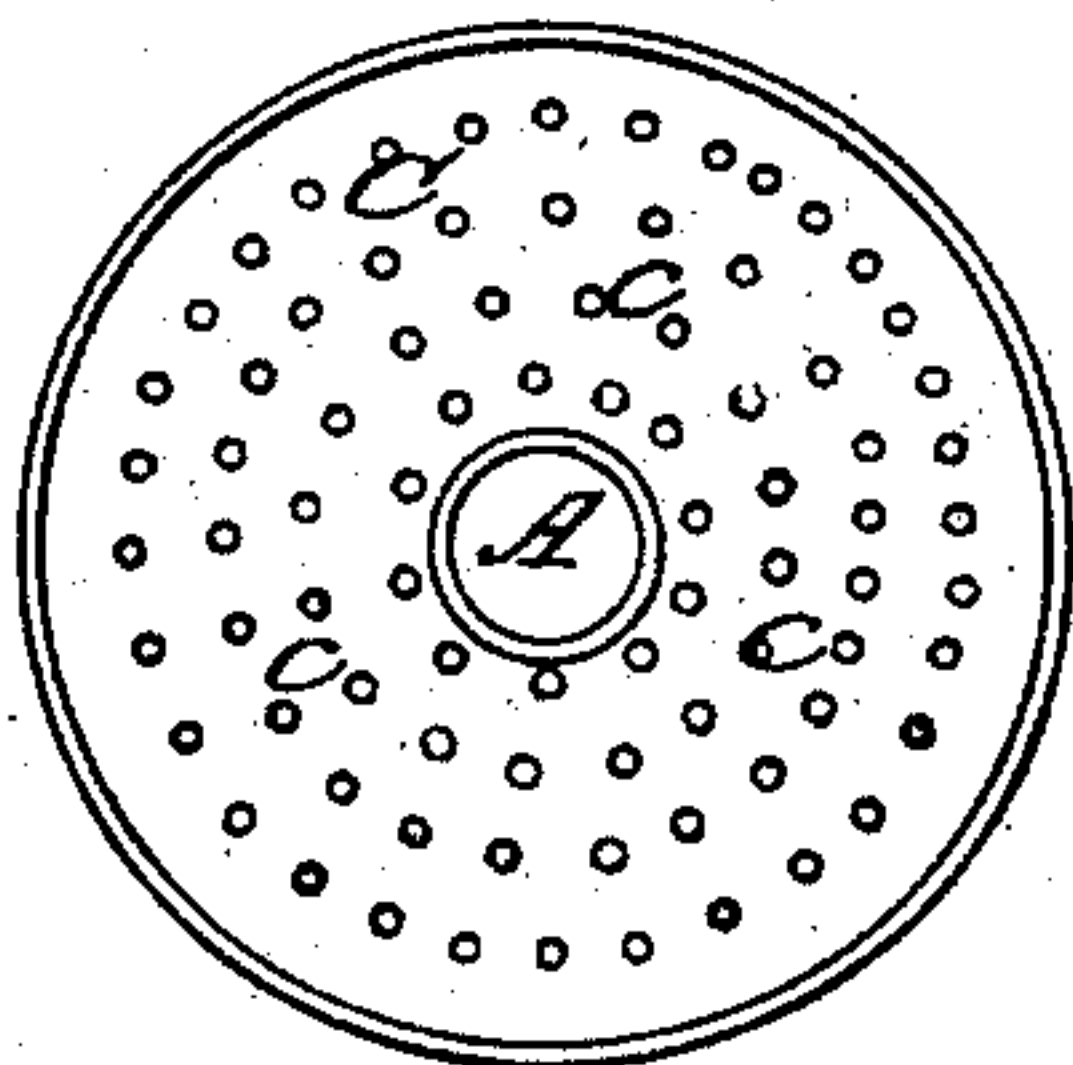
No. 41,434.

Patented Feb. 2, 1864.

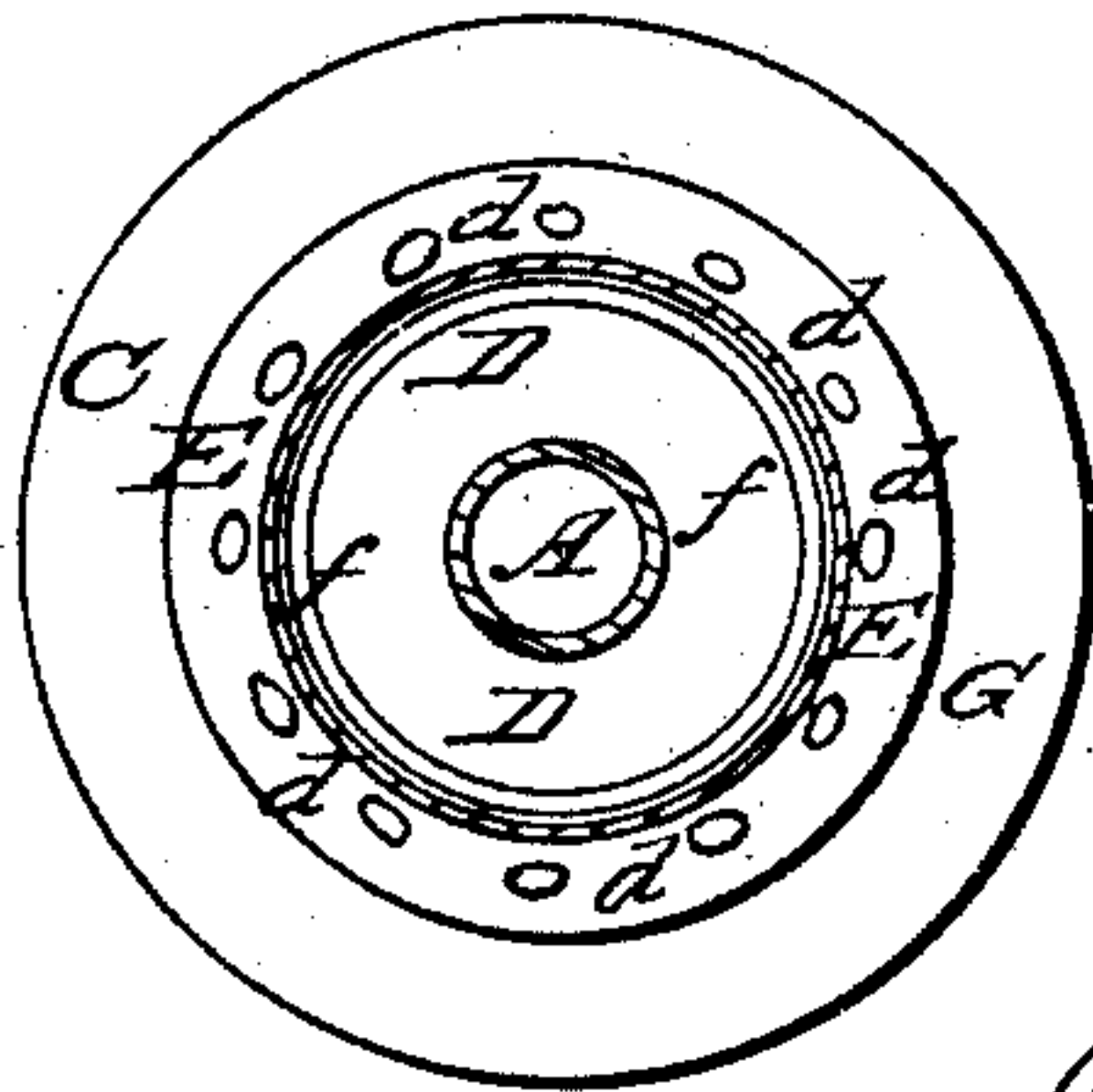
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Witnesses:*

*J. C. Howells*

*M. C. Smith*

*Inventor:*

*John S. Hull,*

*by his atty.*

*J. S. Brown.*

# UNITED STATES PATENT OFFICE.

JOHN S. HULL, OF CINCINNATI, OHIO.

## IMPROVED BURNER FOR VAPOR LAMPS.

Specification forming part of Letters Patent No. 41,434, dated February 2, 1864.

*To all whom it may concern:*

Be it known that I, JOHN S. HULL, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and improved burner for that class of lamps in which the oil is vaporized before reaching the burner; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1, is a central vertical section of the improved burner; Fig. 2, a plan of the perforated concave plate detached; Fig. 3, a horizontal section looking downward in a plane indicated by the line *x x*, Fig. 1.

Like letters designate corresponding parts in all of the figures.

Let A represent the central tube which receives the vapor, produced below, and admitted therein through a suitable valve, *b*. Atmospheric air is introduced into the tube through suitable openings, *a*, in the sides thereof, and mingled with the gases of the vaporized oil. The mingled gases and air first enter from the said tube into a chamber, B, of considerable breadth, substantially as represented, and entirely close at the top and sides. The bottom C of this chamber is preferably concave on its upper side, and it is provided with numbers of small perforations *c c*, as shown in Fig. 2. Through these perforations the gases and air pass down into another chamber, D, below, and are by this passage more thoroughly mixed, as well as the flow thereof rendered more regular and moderate. This transmission of the mixed gases and air from a chamber, B, through a perforated plate or partition, C, constitutes the first feature of my improvement.

From the chamber D the mixed gases and air pass out through jet apertures *d d* into the open air, producing when lighted a set of flame-jets encircling the burner; but before passing out through these apertures they are required to pass down around the lower edge of an annular "apron" or screen, *f*, reaching at least lower than the jet apertures *d d*. This prevents the direct flow of the gases out

through the said apertures and lengthens the passage thereof through the burner, so as still further to regulate their outward flow, and, together with the chamber B and perforated plate C, to heat and rarefy them before being subjected to combustion. This apron also serves finally to direct the flow outward through the apertures *d d*, and nearly the same direction as required for the flames to assume outside of the burner. This device is the second feature of my improvement.

The peripheral plate E, surrounding the chamber D, and through which the jet apertures *d d* are formed, is of considerably less diameter at these apertures than is the chamber B above, and the flame-jets pass outward and upward around the said chamber.

In order to prevent the flame jets from "spinning" out horizontally in improper forms and to furnish additional heat—conducting surface for transmitting heat to the vaporizer below—I add a "flange-plate," G, extending outward and upward around the jet apertures *d d*, substantially as represented in relation thereto. The jets pass out between this flange-plate and the chamber B. The flange-plate forms the third feature of my present invention.

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

The perforated plate C, forming the bottom of a chamber, B, which first receives the mingled gases and air, and transmitting the same to another chamber, D, below, substantially as and for the purposes herein specified.

2. The apron or screen *f*, arranged and operating substantially as and for the purposes herein set forth.

3. The flange-plate G, constructed and operating substantially in the manner and for the purposes specified.

The above specification signed by me this 7th day of November, 1863.

JOHN S. HULL.

Witnesses:

JOHN H. HALL,  
STEPHEN COLES.