

J. S. HULL.  
Vapor Burner.

No. 58,261.

Patented Sept. 25, 1866.

Fig: 1.

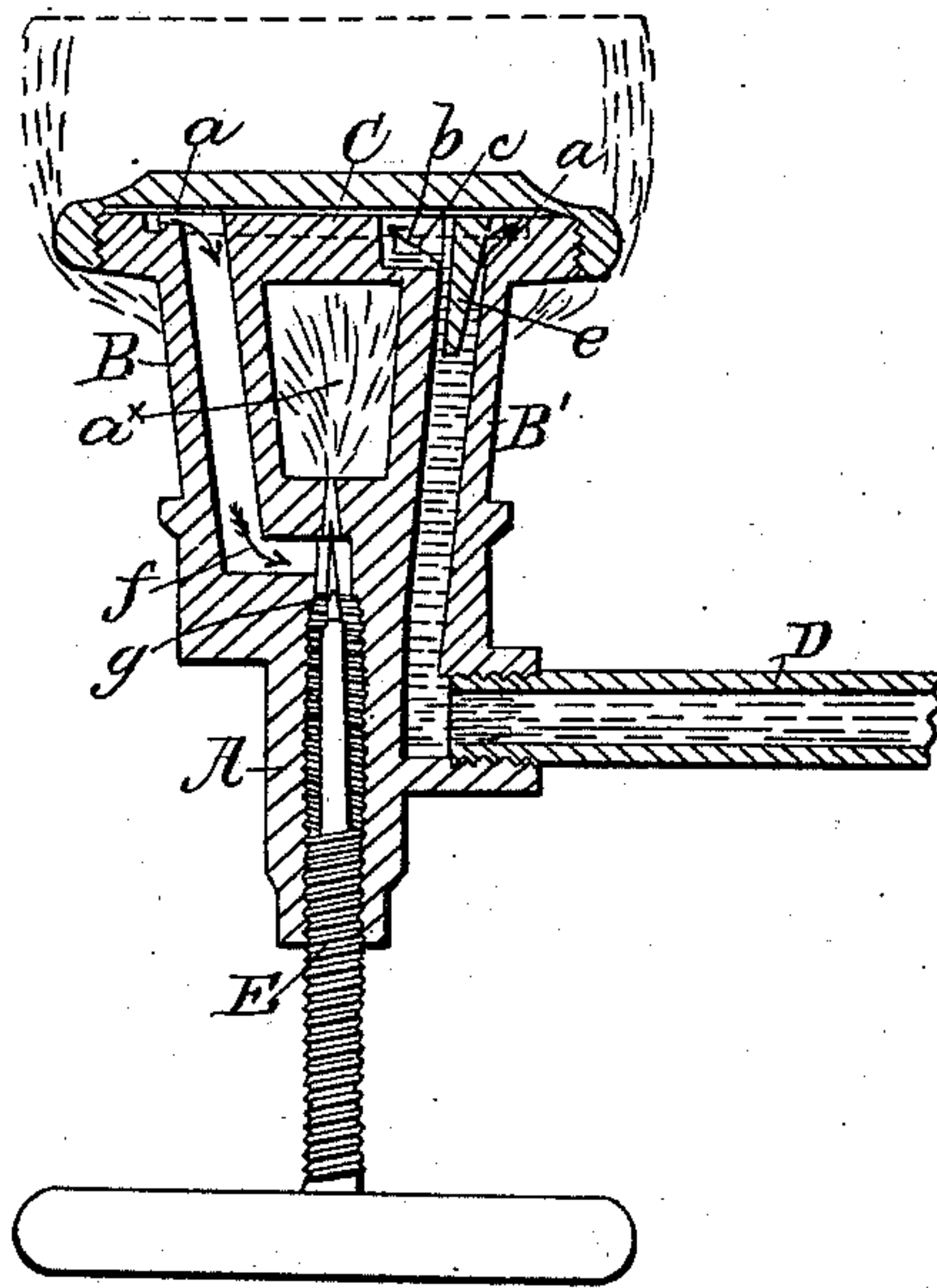
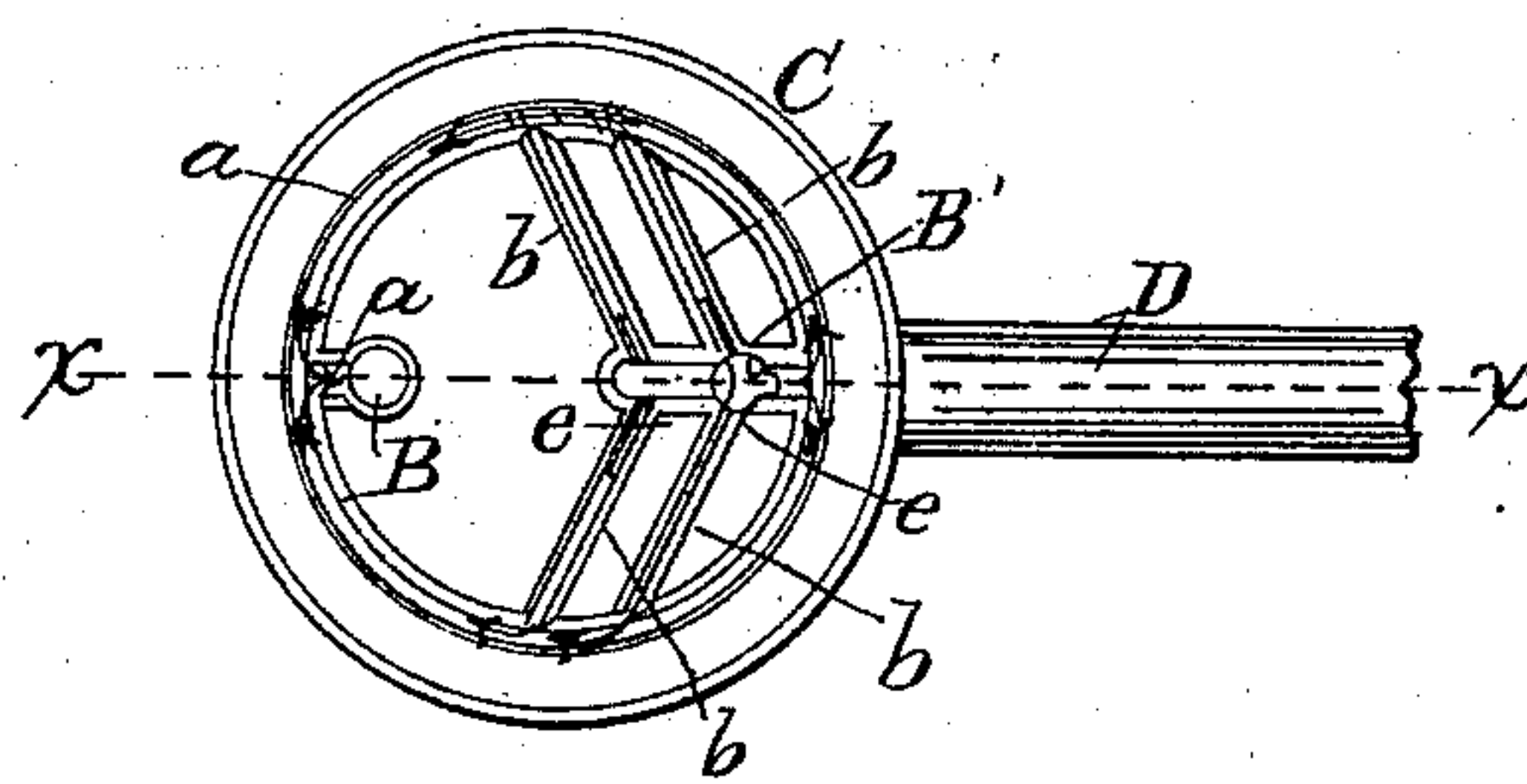


Fig: 2.



Witnesses.

*J. W. Lorington*  
*Wm. Green*

Inventor.

*John S. Hull*  
*Per Mumf Co*  
*Attys*

# UNITED STATES PATENT OFFICE

JOHN S. HULL, OF CINCINNATI, OHIO.

## IMPROVEMENT IN BURNERS FOR VAPOR-LAMPS.

Specification forming part of Letters Patent No. 58,261, dated September 25, 1866.

*To all whom it may concern:*

Be it known that I, JOHN S. HULL, of Cincinnati, Hamilton county, State of Ohio, have invented a new and Improved Burner for Vapor-Lamps; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical central section of my invention, taken in the line *x x*, Fig. 2; Fig. 2, a plan or top view of the same, with the top of the cap removed.

Similar letters of reference indicate like parts.

This invention relates to a new and improved burner of that class which are designed for vaporizing the burning material and conducting the vapor or supplying the flame with the same. The present invention relates to a modification in the construction of this class of burners whereby the oil or other burning material used will be spread or distributed over the flame, so as to be more rapidly vaporized than hitherto and insure an abundant supply of vapor to the flame.

A represents a tube, which is connected at its upper part with the tubes B B', slightly inclined from a vertical position so as to diverge from each other sufficiently to allow requisite space for a flame or jet, *a*<sup>x</sup>, between them. (See Fig. 1.) These two tubes B B' are surmounted by a circular cap, C, which is a gas-generating chamber, being composed of an annular recess, *a*, a short distance from the edge of the cap and communicating, by means of grooves or channels *b b*, (two, more or less,) with a groove, *c*, which communicates with the upper end of the tube B'. This annular recess *a* also communicates, by means of a groove, *d*, with the upper end of the tube B.

In the upper end of the tube B' there is inserted what I term a "spreader," *e*, the same consisting of a plug grooved or fluted longitudinally, as shown in Fig. 2, so as to split or divide the burning-fluid as it passes through the upper part of the tube B', and cause it to flow evenly from the groove *c* into the channels *b b* and recess *a*, as indicated by the arrows in Fig. 2.

The oil, benzine, or other material used

passes from a suitable fountain through a pipe, D, into the lower end of the tube B', and up through said tube B' into the grooves, channels, and recess in the cap, and, by being thus spread over the flame *a*<sup>x</sup>, is volatilized quickly, the vapor passing down the tube B and through a passage, *f*, which communicates with the upper part of the interior of the tube A, as shown clearly in Fig. 1.

The upper part of the interior of the tube A is of conical form, its orifice being quite small, so that a conical or needle-point valve, *g*, may work in it, said valve being at the upper end of a screw, E, which is fitted in an internal screw-thread in the tube A. (Shown in Fig. 1.)

It will at once be seen that the supply of vapor to the flame is regulated by adjusting the valve *g*, and that the cap C serves not only as a gas-generating chamber, but also as a spreader for the flame, the latter being deflected or spread out underneath the cap and projecting upward all around the edge of the same, as shown in red in Fig. 1.

The ordinary burners of this class have a single groove or passage through the cap, and the burning fluid or material, not being spread over the flame, is not volatilized sufficiently to feed the flame properly, and an inferior flame is the result.

The annular recess *a* in the cap C is an important feature of the invention, as it brings the burning material quite close to the flame, and a large surface of the former is exposed to the heat as the flame extends upward all around the edge of the cap, as previously alluded to.

I would remark that, in first lighting the burner, the cap C may be heated by applying an alcohol-lamp to it, or by allowing a quantity of the burning material, if sufficiently volatile, to escape through the orifice of tube A, in order that it may be ignited and vaporize the material in the cap. I would further remark that the burning material may be fed into the cap C by static pressure—air compressed by means of a pump, or in any suitable way.

I do not claim, broadly, the cap C placed over the jet or flame of a vapor-burner in order to vaporize the burning material, for that is an old and well-known device; but



I do claim as new and desire to secure by Letters Patent—

1. The forming of the cap C internally with an annular recess and with channels and grooves, in the manner substantially as herein shown and described, in order to spread the burning material or cause a large volume of the same to be exposed to the flame, for the purpose specified.

2. The fluted or corrugated plug e, in com-

bination with annular, serpentine, or circuitous passages in the cap C, substantially as and for the purpose set forth.

The above specification of my invention signed by me this 16th day of January, 1866.

JOHN S. HULL.

Witnesses:

M. M. LIVINGSTON,  
JOHN H. HALL.