

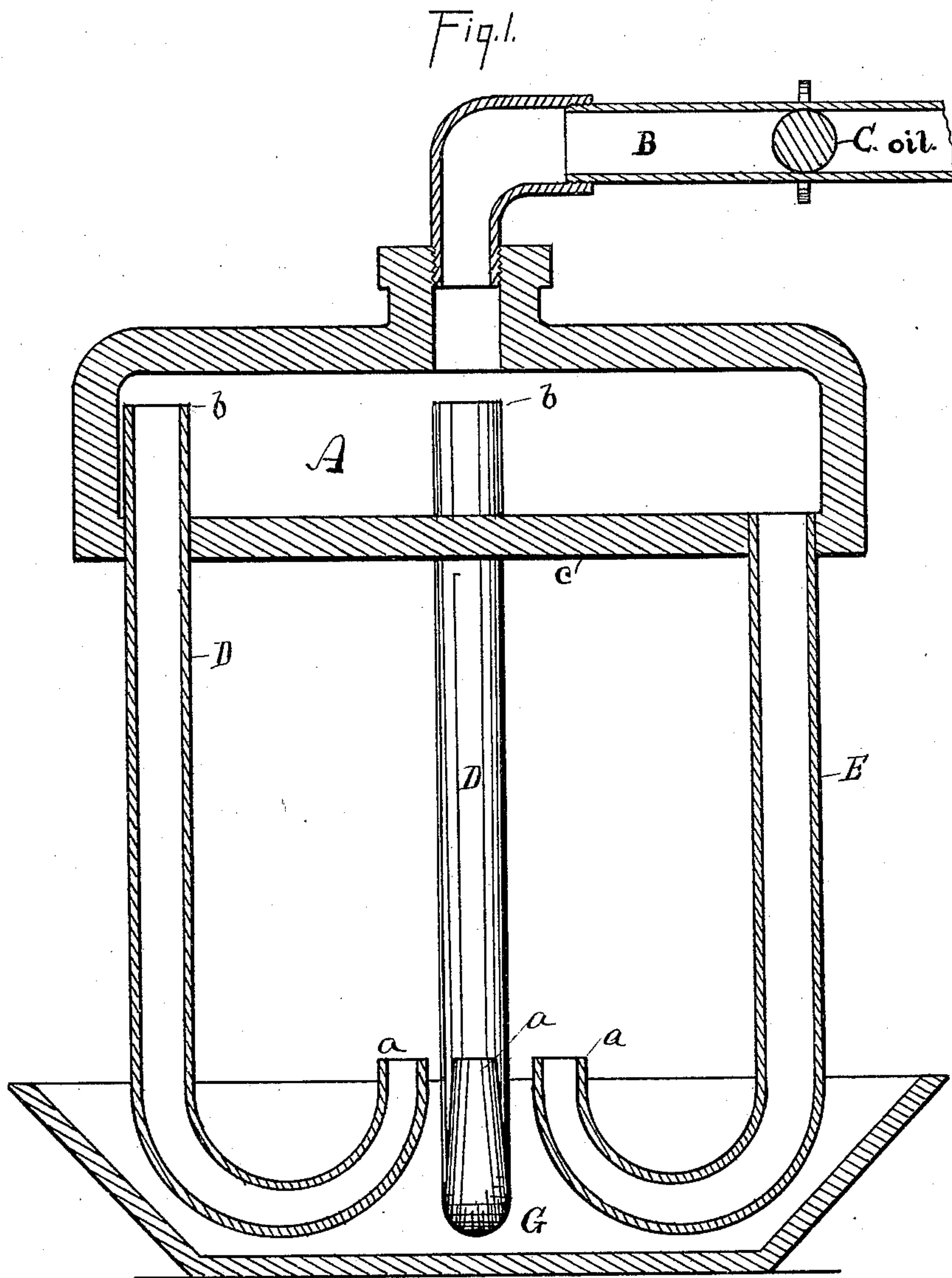
(No Model.)

2 Sheets—Sheet 1.

F. G. LILLY.  
PETROLEUM BURNER.

No. 408,245.

Patented Aug. 6, 1889.



Witnesses  
H. M. Bowlett  
A. M. Bright

Inventor,  
Francis G. Lilly,  
By his Attorney,  
J. S. Brown

(No Model.)

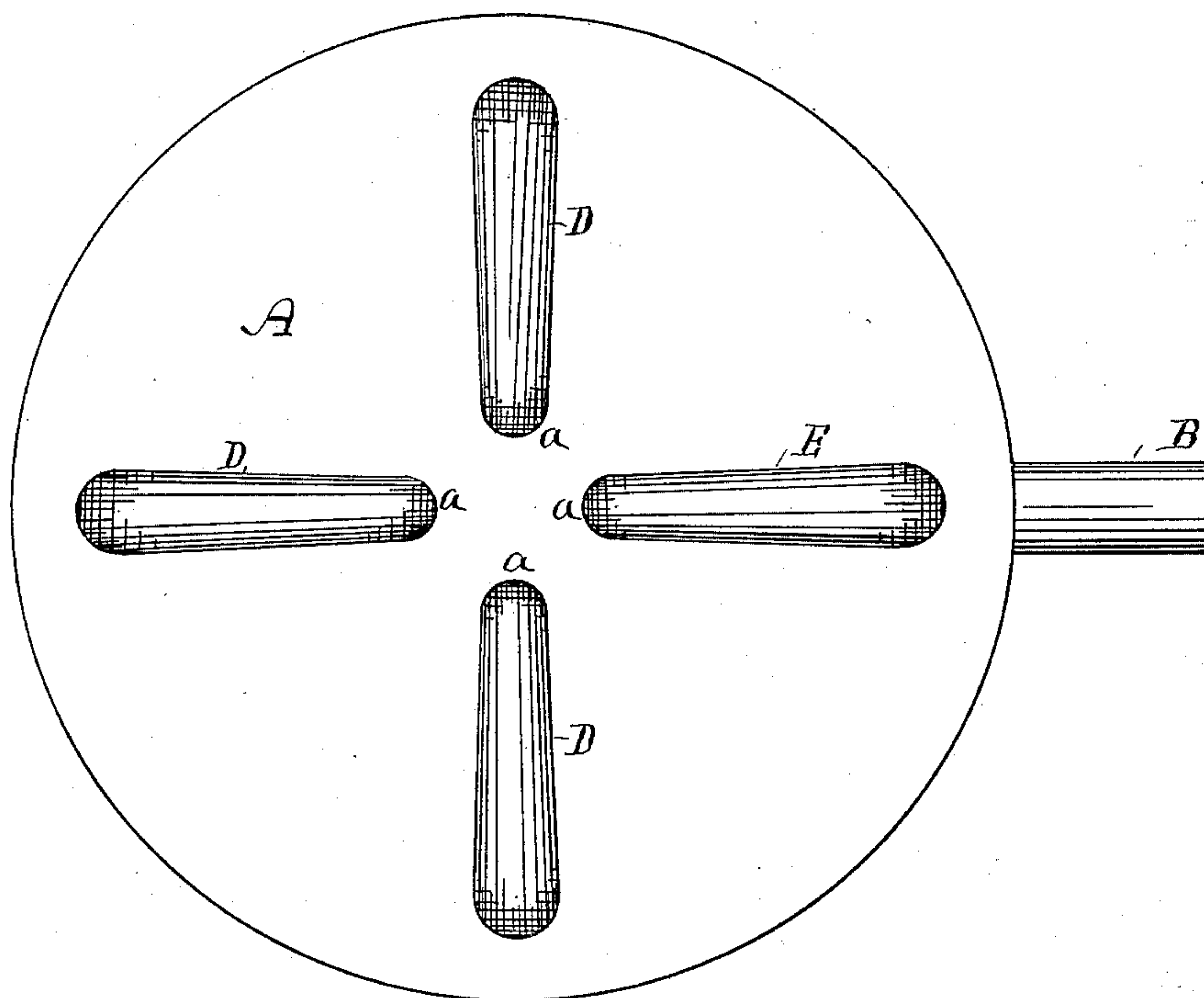
2 Sheets—Sheet 2.

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PETROLEUM BURNER.

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Fig. 2.



Witnesses

Maude M. Howlett  
A. M. Bright.

Inventor,

Francis G. Lilly,

By his Attorney.

J. S. Brown.



# UNITED STATES PATENT OFFICE.

FRANCIS G. LILLY, OF JAMESTOWN, NEW YORK.

## PETROLEUM-BURNER.

SPECIFICATION forming part of Letters Patent No. 408,245, dated August 6, 1889.

Application filed November 1, 1888. Serial No. 289,716. (No model.)

*To all whom it may concern:*

Be it known that I, FRANCIS G. LILLY, a citizen of the United States, residing in Jamestown, in the county of Chautauqua and State of New York, have invented an Improvement in Petroleum-Burners; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification.

My invention relates to retort-burners for petroleum and other hydrocarbon fluids, being particularly adapted to burning crude petroleum without clogging from the impurities of the fluid, and producing clear flames and complete combustion.

In the accompanying drawings, Figure 1 represents a central vertical section of a retort petroleum-burner constructed with my improvements; Fig. 2, a view of the under side of the same.

Like letters designate corresponding parts in both figures.

In the drawings, A represents the burner-retort; B, the feed-pipe through which the petroleum is introduced into the retort from the reservoir or source of supply, and C a valve by which the supply is cut off and let on, and by which the quantity supplied to the retort is regulated.

From the interior of the retort a number of burner-tubes D D extend downward to a suitable position beneath the retort and terminate, respectively, in ends *a a*, turned down around and then upward a little way toward the retort. The inner upper ends *bb* of these burner-tubes extend above the bottom *c* of the retort, so that, whatever the quantity of the petroleum fluid there may be in the retort at any time, it will not reach the tops of the tubes, and consequently will not interfere with the discharge of pure vapor down the tubes as fast as generated in the retort. All the burner-tubes but one are or may be thus constructed and arranged.

One burner-tube E does not project above the bottom of the retort, inside of the same, although the part below and outside of the retort is or may be of the same form and construction as the other burner-tubes, the construction of the lower outside parts of the burner-tubes forming no essential part of my invention. By thus making the inner upper end of this one burner-tube even with or below the inner surface of the retort-bottom any excess of the fluid in the retort may be discharged through the said burner-tube, and it may be readily seen by the discharge of fluid therefrom, if any, whether the petroleum is too rapidly admitted into the retort; but the special advantage of this burner-tube, with the end flush with the retort-bottom, arises from the discharge through the same of all residuum or impurities which may be formed or produced in the retort as fast as the same may collect there, so that the retort never becomes clogged nor its action interfered with by such impurities. This I have demonstrated by repeated trials and use of this burner; and thus a burner of exceedingly simple and cheap construction is produced, which is adapted to the burning of crude petroleum with complete freedom and regularity.

I claim as my invention—

In a petroleum-burner, a vaporizing-retort provided with outlet burner-tubes having their outlet-openings from the retort situated above the bottom of the retort, and one outlet burner-tube having its outlet-opening from the retort flush with or below the bottom of the retort, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

FRANCIS G. LILLY.

Witnesses:

FRANK A. PENNOCK,  
EDMUND DEARING.