S. C. SALISBURY.

Hydrocarbon-Burner.

No. 216,898. Patented June 24, 1879.

Fig. 1.

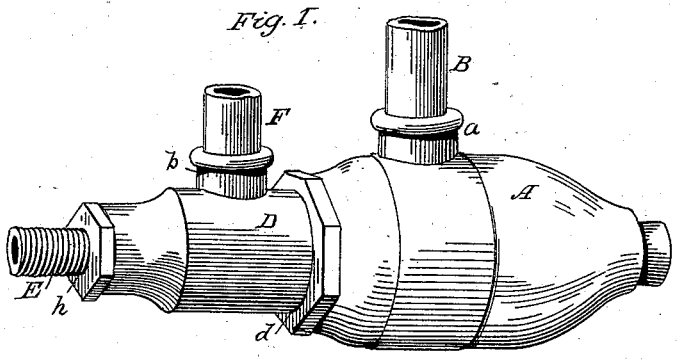



Fig. 2.

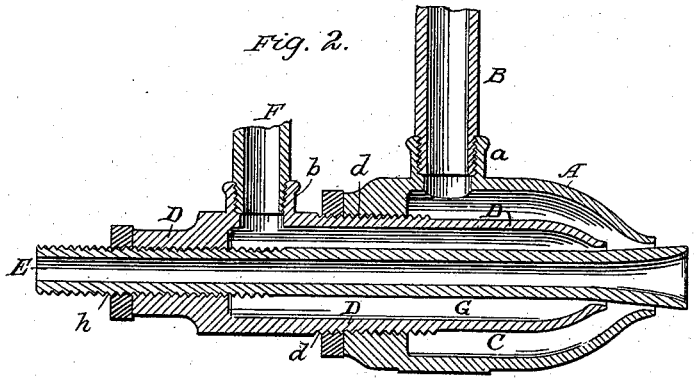
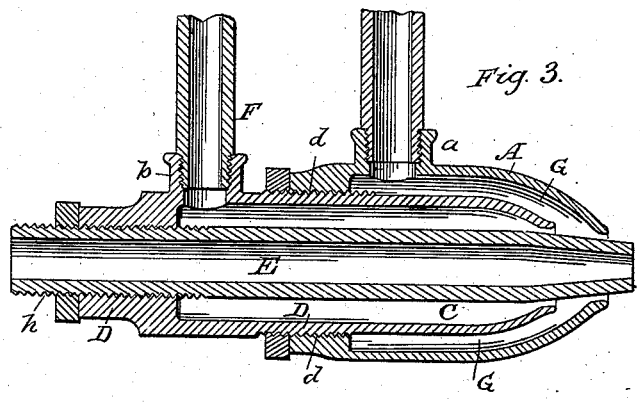



Fig. 3.




Attest:

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Vinton Coombs

Inventor:

Silas C. Salisbury

# UNITED STATES PATENT OFFICE.

SILAS C. SALISBURY, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENT, TO AMERICAN LIQUID FUEL COMPANY, OF SAME PLACE.

## IMPROVEMENT IN HYDROCARBON-BURNERS.

Specification forming part of Letters Patent No. **216,898**, dated June 24, 1879; application filed January 18, 1879.

*To all whom it may concern:*

Be it known that I, SILAS C. SALISBURY, of the city, county, and State of New York, have invented new and useful Improvements in Burners for Injecting Fluid Hydrocarbon into Furnaces as a Fuel; and that the following is a full, clear, and exact description of the same.

This invention relates to a style of burner for the purpose indicated, for which I filed an application for Letters Patent November 12, 1878, wherein the steam and hydrocarbon vapors are discharged through an annular jet-opening, and air to support combustion is admitted as a central jet or core for said jet of inflammable vapor. In that burner the steam and hydrocarbon are mixed in the steam-chamber.

The improvement herein described consists in a burner having separate internal chambers annular to each other for the reception of steam and fluid hydrocarbon, respectively, and also annular to a central hollow air-duct or spindle, which is provided with a conical head, whereby the annular discharge-openings from said chamber may be simultaneously and equally enlarged or contracted.

This invention differs from other inventions of mine in these particulars: First, the adjustment from time to time necessary may be secured by moving the central stem in or out, to vary the escape-orifice; and, second, in the simultaneous adjustment, by the movement of said stem, of the ports of both hydrocarbon and steam chamber. In my former invention above mentioned neither of these operations could be attained.

That others may fully understand my invention, I will particularly describe it, having reference to the accompanying drawings, wherein—

Figure 1 is a perspective view of my burner. Fig. 2 is a longitudinal section of the same. Fig. 3 is a modification.

A is the outer shell, provided with a neck, *a*, to receive a feed-pipe, B, whereby fluid hydrocarbon is discharged into the annular chamber C within said shell. The tube D is inserted within said shell A, and connected thereto, preferably, by a screw-thread, *d*, whereby they may be relatively adjusted in a longitudinal direction. A lateral neck, *b*, receives a feed-pipe, F, whereby steam is discharged into the chamber G, formed by the tube C.

The hollow central spindle, E, is inserted within the tube C, and connected therewith at its rear end by a screw-thread, *h*, so that it may at pleasure be advanced or retracted therein.

The forward or free ends of the shells A and C are curved inward, and terminate upon a corresponding conical plane, to which the front end of the spindle conforms, as shown in Figs. 2 and 3, so that by a longitudinal movement of said spindle the annular discharge-openings between said shells and spindle will be uniformly enlarged or contracted.

If it is desired to impart to the issuing jet a flaring or expanding figure, the free ends of said shells will curve outward, and the spindle E will be enlarged at the end. If, on the contrary, such a jet is not desired, then the figures will be contracted, as in Fig. 3.

I claim—

The shells A and C, relatively adjustable one within the other, and having their free ends terminating upon the same conical plane, as set forth, combined with a hollow central and adjustable spindle, E, having its free end formed also upon the same conical plane, whereby its longitudinal adjustment will uniformly enlarge or contract the annular discharge-openings from the chambers C and G, as set forth.

SILAS C. SALISBURY.

Witnesses:

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G. J. PARTINGTON.