

A. W. PORTER.

Apparatus for Carbureting Gas.

No. 144,863.

Patented Nov. 25, 1873.

FIG. 1

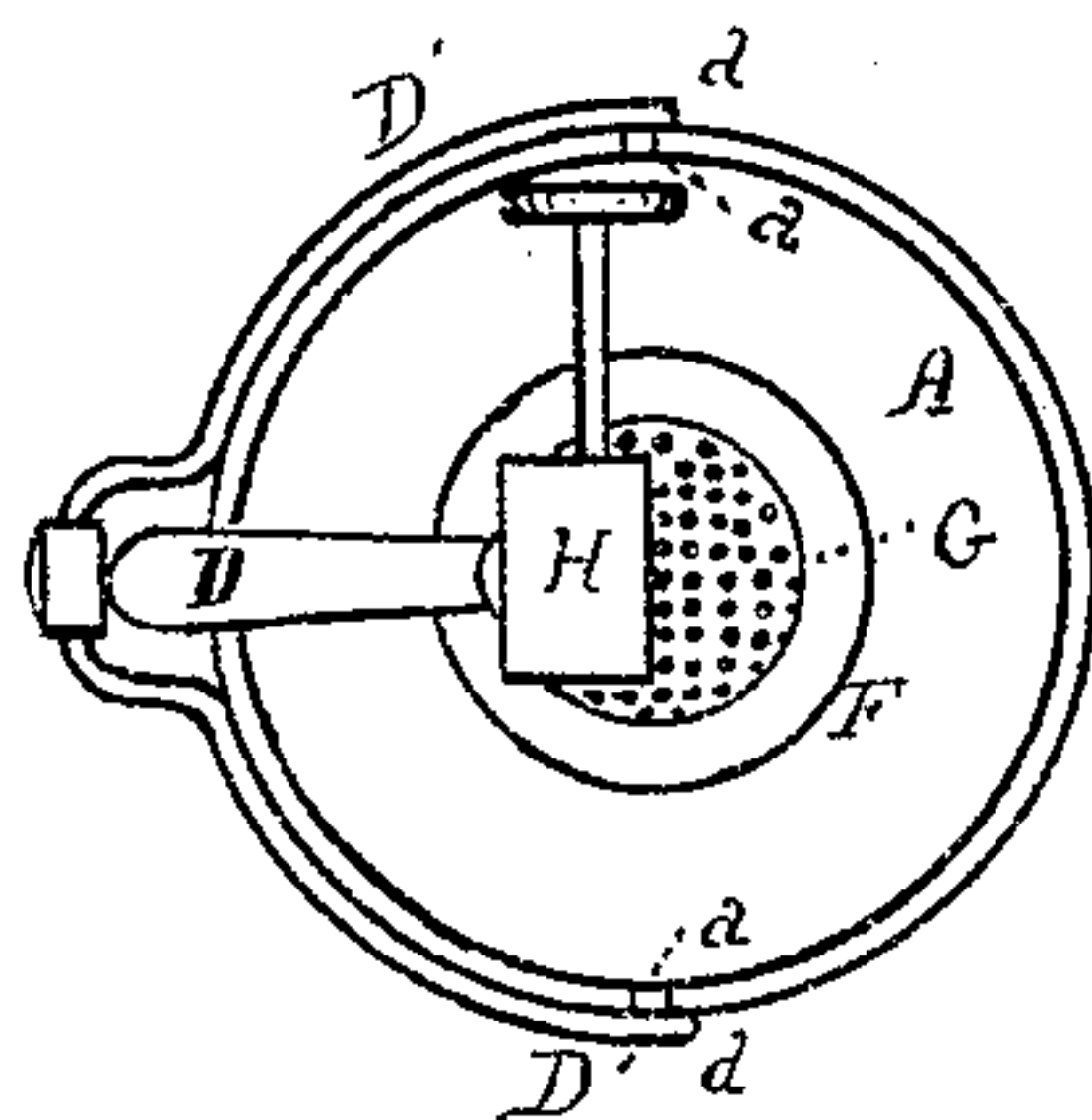


FIG. 3

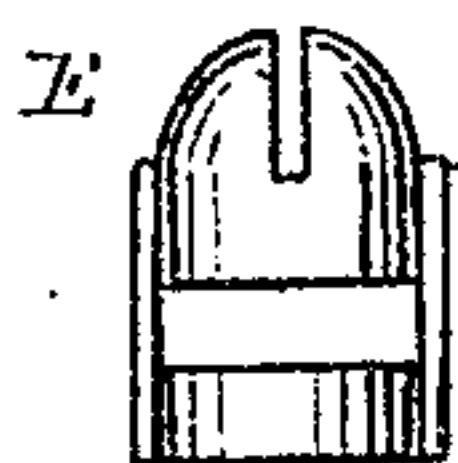


FIG. 4

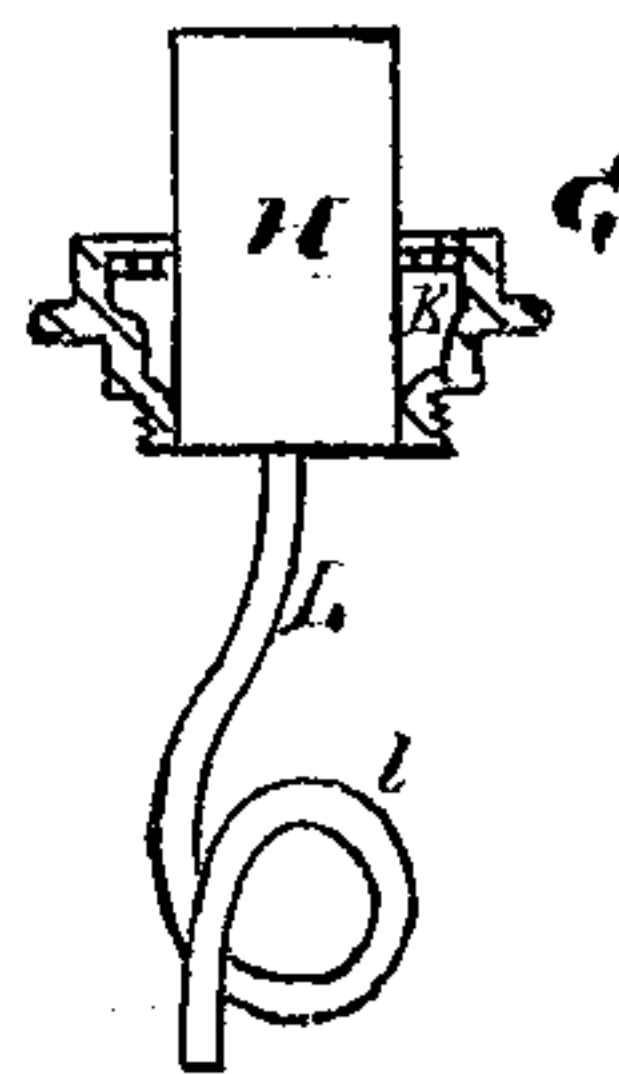
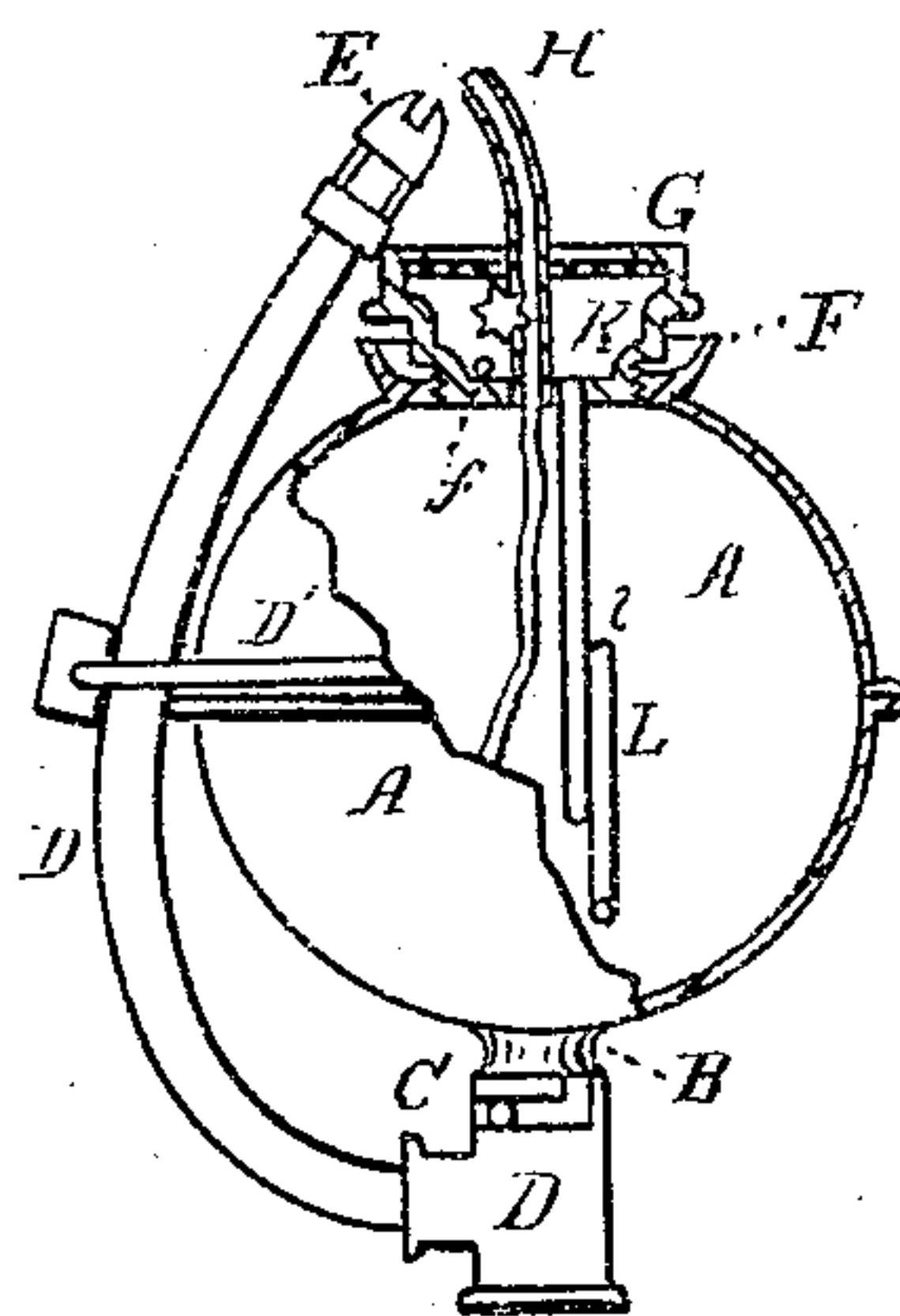


FIG. 2



WITNESSES

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IMPROVEMENT IN APPARATUS FOR CARBURETING GAS.

Specification forming part of Letters Patent No. **144,863**, dated November 25, 1873; application filed November 11, 1873.

To all whom it may concern:

Be it known that I, ALONZO W. PORTER, of the city, county, and State of New York, have invented a new and Improved Apparatus for Carbureting Gas, of which the following is a specification:

My invention relates to that class of machines for carbureting gas in which the gas is carbureted as it issues from the burner, or at the point of combustion, by means of an apparatus so constructed and arranged, in connection with a gas-jet, as to supply the carbureting material in proper quantities, immediately at the point of combustion, by means of a wick proceeding from a proper receptacle to a point in front of the burner, through a curved wick-tube, in such a manner that the flame from the gas-jet will play across said wick at right angles to the same, substantially in the manner hereinafter set forth. My invention consists in certain improvements in the receptacle or reservoir for the hydrocarbon fluid, by which said receptacle may be attached to the gas-fixture, so that it may be readily removed for cleaning, filling, &c. My invention further consists in certain improvements in said receptacle or reservoir, by means of which any surplus oil or hydrocarbon which may be carried to the outside of the receptacle by the capillary action of the wick, or which may find its way there during filling or otherwise, may be returned; and, still further, to a new and improved device for supplying air to the gas-jet at the point of combustion, and regulating the amount of the same, as will be more fully hereinafter set forth.

The principal object of my invention is to provide a safe, cheap, and practicable apparatus for carbureting, whereby the heavy as well as the light grades of hydrocarbons may be used, and mixtures of hydrocarbons of varying grades may be entirely consumed, and no loss from condensation or the failure of the heavier portions to be vaporized will result. This has been attempted heretofore by means similar to my present invention; but such attempts have failed, owing to faults which are entirely overcome in my apparatus.

In the common class of carbureters, the hydrocarbon is taken up in the form of vapor by the gas, and then conveyed to the point of

combustion. In this way only the lighter portions can be utilized, leaving the heavier portions in the carbureter unconsumed, and leaving the gas, after carbureting, subject to be impoverished by condensation.

It is evident that in my apparatus all portions of the hydrocarbon—the heavy as well as the light—will be consumed, as the said hydrocarbon is carried bodily to the point of combustion, and there commingled and consumed along with the gas.

In the drawing, Figure 1 represents a view of my apparatus, looking down upon the top; Fig. 2, an elevation, part in section; Fig. 3, a view of the air-supplying apparatus detached from the burner, full size; and Fig. 4, a sectional view of the screw-cap, showing the drip tube or trap.

A represents a spherical reservoir or receptacle, having at its bottom a stud or projection, B, which fits into and is locked in a socket, C, formed at the angle of the tube D, which is secured to the gas-fixture in place of the ordinary burner. The stud B is so arranged in relation to the socket C that it may be readily attached and detached from the same, being secured by any convenient locking device. I prefer, however, and have shown, an ordinary bayonet-lock as the most convenient. The tube D is made to conform, as nearly as possible, to the outward configuration of the reservoir A, in order to give the apparatus the necessary beauty and finished appearance; and it terminates in an ordinary gas-burner at a point above the receptacle A. Secured to said tube D, about midway between its ends, is a hinged or pivoted yoke, D', the ends of which embrace the reservoir A, and are provided with hooks *d d*, which fit over lugs *a a* on the outside of the reservoir A, and serve to hold the same firmly in place, at the same time allowing it to be readily removed when desired. To the burner I secure an "over-cap," E, which is adjustable over the same, and consists of a thimble, slotted in the end, and somewhat larger than the burner, so as to leave a space between its interior and the outside of the burner. Its object is to supply and mingle with the gas escaping from the burner a quantity of air to increase the combustion. The air is drawn in between said over-cap and the

burner by the force of the current of gas as it passes out through the slot in its end. At the top of the receptacle A an opening for filling is provided, leaving a flange, F, around its edge, for a purpose hereinafter described. This opening is provided with a screw-cap, G, carrying a wick-tube, H, curved, as shown, in the direction of the burner E, to such an extent that the flame from said burner will play across its upper end at or about a right angle to the same. Said tube is provided with a ratchet for adjusting the wick. The lower part of the screw-cap G forms a well, K, from which descends a tube, L, into the receptacle A. Said tube is coiled or curved, as shown at *l*, forming a trap in same, which cuts off the connection between the interior of the receptacle A and the external atmosphere. The object of said well and tube is to retain any oil carried over by the wick to the receptacle, and prevent it from finding its way down the outside of the same, and defacing or soiling the same and wasting the oil. The flange F forms a small annular chamber around the mouth of the receptacle, which communicates with the well K by means of an aperture, *f*, or its equivalent, and serves to collect and return any

overflow of the liquid that may be occasioned by filling and replacing the cap, or by working up through the screw-cap G. The wick-tube is supplied with a flat felt wick, in preference to the ordinary cotton wicking, and the tube D is covered with some non-conducting material, such as wood, paper-pulp, &c., to prevent heating the reservoir.

What I claim is—

1. The combination of the socket attachment and lock with the hinged or pivoted yoke for securing the receptacle to its place, substantially as and for the purpose set forth.

2. The well K in the lower part of the screw-cap, in combination with the trap-tube, substantially as and for the purpose set forth.

3. The flange around the mouth of the reservoir, in combination with the well and trap-tube, as herein described.

4. The over-cap, adjustable over the end of the burner, for the purpose of supplying air to the flame, substantially as herein set forth.

A. W. PORTER.

Witnesses:

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