

No. 760,099.

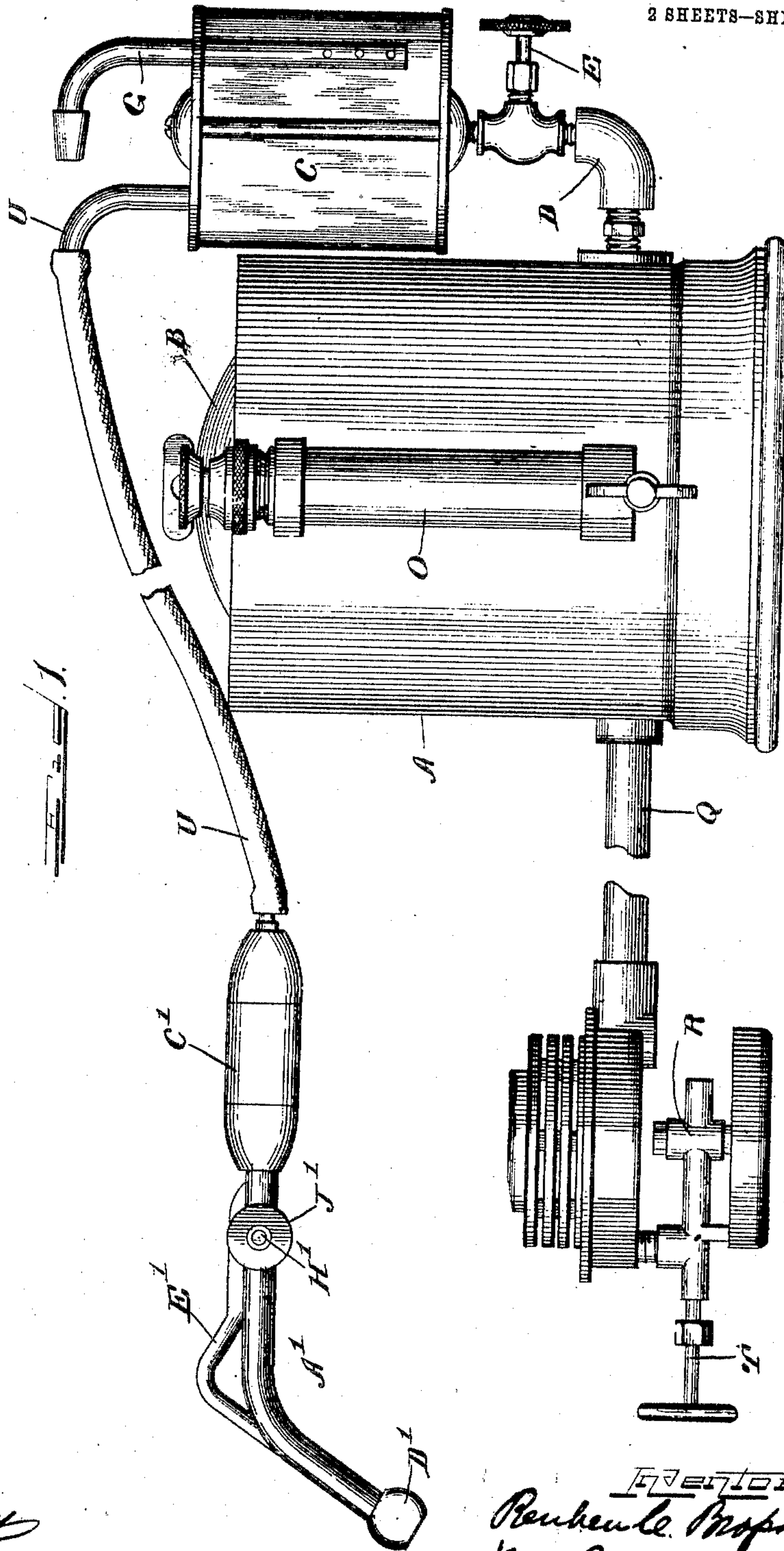
PATENTED MAY 17, 1904.

R. C. BROPHY.
COMBINED BLOWPIPE AND BURNER.

APPLICATION FILED MAY 8, 1901.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

Ira D. Perry
J. B. Weir

Benjamin C. Brophy
By Brown & Derby
ATTY.

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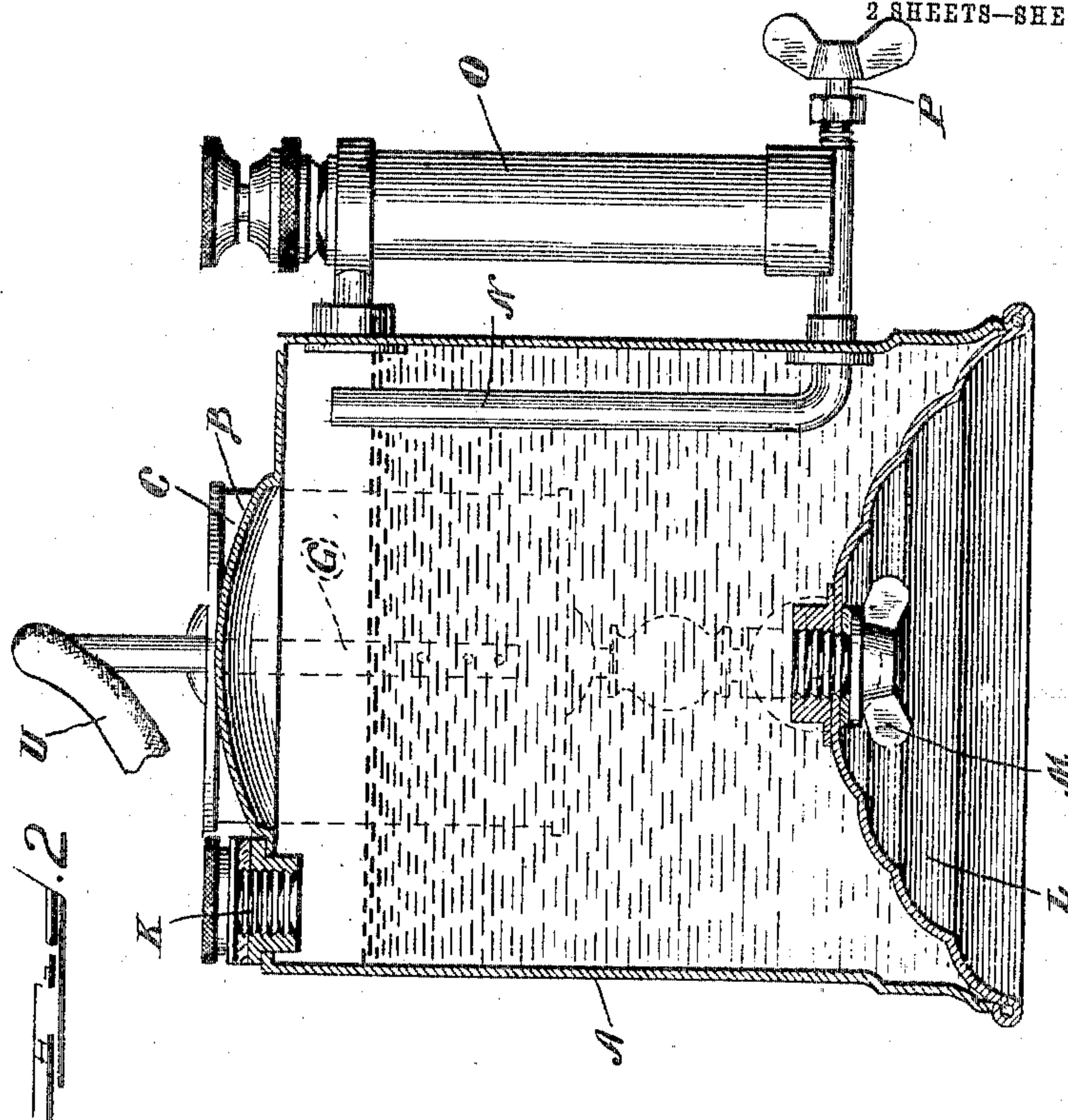
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Witnesses
John D. Perry
J. H. Weir

Inventor
Reuben C. Brophy
By *M. W. S. S. S.*
Attys

UNITED STATES PATENT OFFICE.

REUBEN C. BROPHY, OF HINSDALE, ILLINOIS.

COMBINED BLOWPIPE AND BURNER.

SPECIFICATION forming part of Letters Patent No. 760,099, dated May 17, 1904.

Application filed May 8, 1901. Serial No. 59,200. (No model.)

To all whom it may concern:

Be it known that I, REUBEN C. BROPHY, a citizen of the United States, residing at Hinsdale, in the county of Dupage and State of Illinois, have invented a new and useful Combined Blowpipe and Burner, of which the following is a specification.

This invention relates to a combined blowpipe and burners.

The object of the invention is to provide a construction and arrangement of hydrocarbon-supply tank and blowpipe and burners which is of simple and economical construction and thoroughly efficient in operation.

The invention consists, substantially, in the construction, combination, location, and arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally pointed out in the appended claims.

Referring to the accompanying drawings, and to the various views and reference-signs appearing thereon, Figure 1 is a view in side elevation of an apparatus constructed in accordance with the principles of my invention. Fig. 2 is a vertical central section of the hydrocarbon-supply tank.

The same part is designated by the same reference-sign wherever it occurs throughout both views.

In the drawings, reference-sign A designates a tank or receptacle adapted to receive a supply of hydrocarbon oil. This tank is provided with a top or cover which is stamped out, as indicated at B. This stamped-out portion of the cover serves to strengthen said cover and also to prevent the tank from becoming completely filled with the hydrocarbon oil supplied thereto.

Reference-sign C designates an auxiliary chamber, preferably made of glass or other transparent material, so as to reveal to view the contents thereof. The auxiliary chamber C is arranged to communicate with the interior of tank A through a pipe D, said pipe communicating with tank A at a point adjacent to the base thereof, as clearly shown, and

arranged in said pipe D is a control-valve E. (See Fig. 1.) Hydrocarbon oil may be supplied to the tank A in any suitable or convenient manner—as, for instance, through an opening in the top thereof, which opening may be closed by a screw-plug K. A pipe N is arranged to extend into the tank A, with the delivery end thereof projecting above the top surface of the hydrocarbon oil contained in the tank or chamber A, said pipe N communicating with an air-pump O, a valve P being employed to control the supply of air from said pump into and through said pipe N. Arranged to extend into the auxiliary tank or chamber C and to a point adjacent to the bottom of such chamber is a pipe G, through which air may be delivered into said auxiliary chamber from any suitable or convenient source and in any desired manner. The bottom L of chamber or tank A is preferably concave or conical in shape and fluted, as clearly shown, in order to impart strength and rigidity thereto, the concave or apex of the cone-shaped bottom being presented inwardly, as clearly shown, and, if desired, an opening may be formed through this bottom adapted to receive a screw-plug M or other suitable device through which the tank A may be emptied or filled when desired. By forming the bottom L of concave or cone shape said bottom forms a funnel when the tank or receptacle A is inverted to facilitate the operation of supplying hydrocarbon oil to the chamber or tank. Moreover, it also serves to prevent the complete filling of the tank, as it is desirable that when the oil is supplied to such tank or chamber in sufficient quantity a space be left above the top surface of the oil when the receptacle or tank rests upon the bottom, as shown in Fig. 2, and it is into this space that the delivery end of pipe N extends.

Communicating with the interior of chamber or tank A at a convenient point below the surface of the oil contained therein is a pipe Q, which may deliver to a suitable Bunsen or other burner R, adapted to be utilized for any purpose for which such burner or heater

may be employed, and a needle-valve T may be arranged to control said burner. Of course, if desired, other heaters or burners may be supplied from the chamber or tank A.

5 Communicating through the top of the auxiliary chamber C is a pipe U, arranged to deliver to a blowpipe A'. Any specific, special, or suitable construction of blowpipe may be employed. I have shown a particular construction adapted for use in carrying
10 out my invention which is simple, economical, and efficient in operation and which comprises a handle C', through which pipe U delivers to the nozzle D'. The pipe U is tapped
15 by a branch pipe E', which pipe projects longitudinally through pipe U at its extremity and terminates at the nozzle D'. Interposed in the pipe U and at a point between the nozzle D' and the point at which pipe E' branches from
20 pipe U is a valve A', by which the vapor mixture supplied to the nozzle through pipe U may be regulated. This valve includes a thumb-nut or washer J', by which said valve may be actuated.

25 The operation of my invention is as follows: Hydrocarbon oil—such, for instance, as gasoline—is supplied in sufficient quantity to the chamber or tank A either by removing the screw-plug K and pouring such oil into
30 such chamber or tank or else by inverting the tank or chamber and removing screw-plug M from the bottom thereof, or said tank may be filled in any other suitable or convenient manner. When the oil has thus been supplied to
35 said chamber, a space being left above the top surface of the oil, as clearly shown in Fig. 2, air is forced by pump O through pipe N into this space above the top surface of the oil, thus letting an air-pressure in such space,
40 which pressure operates to give a head or pressure to the oil, thereby forcing a supply of the oil through pipe Q to the burner R, the needle-valve T regulating such supply. As the air-pressure above the top surface of
45 the oil in the chamber decreases by drawing off the oil from said compartment for running or starting the burner or other heating device such pressure may be restored by manipulating the hand-pump O. The air-pressure
50 contained in the tank or chamber A and within the space above the top surface of the oil also serves to force the oil from the chamber or tank A into the auxiliary chamber or tank C. When said auxiliary chamber or tank is filled
55 to the required point, the supply of oil thereto from tank or receptacle A may be cut off by manipulating the valve E. The auxiliary chamber or tank being of glass or other transparent material, the quantity of oil thus supplied
60 thereto from the chamber or tank A may be readily observed, thus making it easy to maintain the desired quantity of oil therein. Air is now supplied to the auxiliary tank or re-

ceptacle C through pipe G in any suitable or convenient manner from a bellows, pump, or
65 other suitable device, (not shown,) the pipe G delivering the air into the body of the oil and is thoroughly carbureted from the oil contained therein and forms a mixture of oil, vapor, and air, which vapor is thus supplied
70 to the blowpipe A'. The mixture thus supplied through pipe U divides, part passing through pipe U to nozzle D', the amount of which may be regulated by the valve H'. The other part passes through the branch E' and
75 is delivered from nozzle D', thereby securing a most efficient blowpipe effect.

From the foregoing description it will be seen that I provide an exceedingly simple apparatus embodying an oil-burner which may
80 be constantly in operation and which may be regulated at will and I also provide a vapor device, such as the blowpipe A', which also may be in operation and use separately or at the same time as the burner, thus producing a
85 most efficient apparatus which is specially adapted for dental work.

It is obvious that many variations and changes in the details of construction and arrangement would readily occur to persons
90 skilled in the art and still fall within the spirit and scope of my invention. I do not desire, therefore, to be limited or restricted to the exact and specific details of construction shown and described; but,

95 Having now set forth the object and nature of my invention and a construction embodying the principles thereof, what I claim as new and useful and of my own invention, and desire to secure by Letters Patent of the
100 United States, is—

1. In a hydrocarbon-blowpipe, the combination of a main tank or reservoir, an air-pump rigidly connected thereto, a supplemental fluid-reservoir of smaller capacity and
105 having a transparent material embodied in its construction, rigidly connected to the first-named tank or reservoir, a valve for controlling the height of fluid in the auxiliary reservoir, and connections with the latter whereby
110 a current of air may be carbureted, substantially as and for the purpose set forth.

2. In a device of the class described, the combination of a fluid-supply tank or reservoir having an air-pump rigidly connected
115 thereto, with carbureter and blowpipe devices, the said reservoir having an interiorly convex and exteriorly concave portion provided with a filling-aperture, whereby an air-space inside the reservoir is insured, and a funnel for
120 the purpose of refilling is provided, substantially as and for the purpose set forth.

3. In a device of the class described, the combination of a fluid-supply tank or reservoir having an air-pump rigidly connected
125 thereto, with carbureter and blowpipe devices,

the said reservoir having an interiorly convex and exteriorly concave portion provided with a filling-aperture, normally below the level of the fluid in the reservoir, whereby an air-
5 space inside the reservoir is insured, and a funnel for the purpose of refilling is provided, substantially as and for the purpose set forth.

In witness whereof I have hereunto set my hand, this 6th day of May, 1901, in the presence of the subscribing witnesses.

REUBEN C. BROPHY.

Witnesses:

CHAS. H. SEEM,
S. E. DARBY.