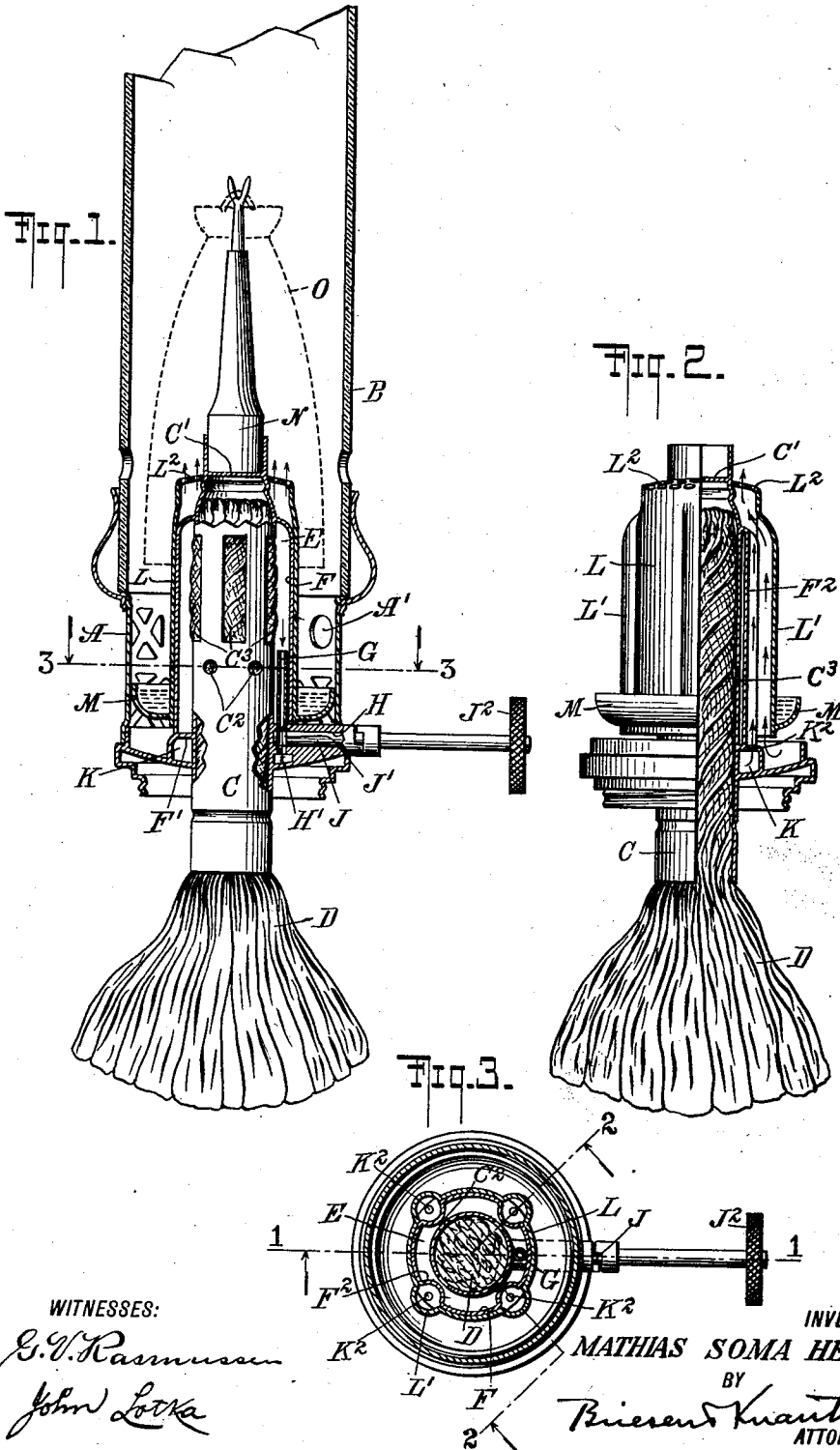


M. S. HERZOG.
VAPOR BURNER.

APPLICATION FILED MAY 18, 1908.

1,024,575.

Patented Apr. 30, 1912.



WITNESSES:

E. V. Rasmussen
John L. Loeke

INVENTOR

MATHIAS SOMA HERZOG

BY

Rieser & Kwanth
ATTORNEYS

UNITED STATES PATENT OFFICE.

MATHIAS SOMA HERZOG, OF NEW YORK, N. Y.

VAPOR-BURNER.

1,024,575.

Specification of Letters Patent.

Patented Apr. 30, 1912.

Application filed May 18, 1908. Serial No. 433,525.

To all whom it may concern:

Be it known that I, MATHIAS SOMA HERZOG, a subject of the King of Hungary, and a resident of the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Vapor-Burners, of which the following is a specification.

My invention relates to burners for vaporizable or volatile liquids, such as alcohol and has for its object to provide an efficient burner of this character in which provision is made for placing the vapors under pressure and then causing them to mix with air when desired to produce a very hot flame for bringing illuminating mantles to incandescence.

The invention will be fully described hereinafter and the features of novelty pointed out in the appended claim.

Reference is to be had to the accompanying drawings in which—

Figure 1 is a sectional elevation of the lamp on line 1—1 of Fig. 3; Fig. 2 is partly an outside elevation and partly a vertical section on line 2—2 of Fig. 3 with portions of the burner omitted; and Fig. 3 is a horizontal section on line 3—3 of Fig. 1.

A indicates a suitable support for the chimney B and C is a wick-tube closed near the top by a partition C'. The alcohol or other volatile fluid contained in the font or receptacle (not shown) into which the lower end of the wick D dips, is carried by said wick to the upper portion of the tube C and when vaporized escapes through openings or slots such as C² C³ into a vapor chamber E formed between the wick-tube C and a second tube F surrounding said wick-tube at a distance. This vapor chamber is closed throughout, except where it communicates with the wick-tube through the openings C² C³ and at an outlet tube G, which extends upwardly from the bottom of the chamber E. Said bottom is formed partly by an annular partition F' and partly by the upper wall of a valve-casing H. The said upper wall has an opening in permanent communication with the outlet-tube G and another opening H' which may be brought into or out of communication with the said tube G by turning the valve J which is provided with a passage or way J'. The valve may be turned by means of the handle J² and in one position closes the outlet G, while in the other position of the valve the

vapor contained in the chamber E may escape through the tube G the channel J' and the opening H' into a pressure chamber K located below the partition F'. This chamber K surrounds the wick-tube C and has its inlet at H' while the vapor under pressure may escape from the chamber K through openings K², four of which are shown in the particular construction illustrated by the drawings.

I have represented the outer wall F of the vaporizing chamber E as made with four inwardly bent portions F² adjacent to the openings K², said portions forming grooves which, together with similar outwardly bent portions L' of a substantially cylindrical outer wall L form upwardly extending mixing tubes which, as shown in Fig. 2, communicate at the bottom with the outside air. The outer wall L extends upwardly beyond the wall F and is provided with a more or less horizontal perforated top portion L² surrounding the wick-tube C near its upper end. A small cup M surrounds the outer wall L at its lower portion and the alcohol or other fluid which may be contained in this cup for the purpose of starting the burner may be ignited by means of a match inserted through a suitable opening A'. The upper portion of the wick-tube C above the partition C' forms a socket to receive a post N made of copper, brass, or other material which is a good conductor of heat, this post serving the double purpose of supporting the incandescent mantle O and of conveying the heat of the burner to the wick-tube C, so that the alcohol or other fuel contained in the wick D may become vaporized and collected in the chamber E.

In starting the burner the cup M is filled with alcohol and with the valve J in the closed position the alcohol in said cup is lighted. The heat will cause the alcohol contained in the wick D to become vaporized and such vapor will be collected in the chamber E under pressure since it cannot escape. Upon then turning the valve J to the position shown in Fig. 1 the vapors will pass through the outlet G into the pressure chamber K and from there upwardly through the openings K² into the tubes formed by the portions F² L' of the walls F and L respectively. The jets of vapor being discharged under pressure will thoroughly mingle with the air drawn in

at the lower ends of said tubes and thus a number of mixed streams of air and vapor (four in the case illustrated) will rush upward into the annular space between the top of the wall F and the perforated wall L² and in this space the air and vapor will become further mixed so that a uniform mixture will be discharged through the apertured portion L². After the burner has been started the heat of the flame will be sufficient to keep the wick-tube at a temperature suitable for the vaporization of the alcohol since the post N will convey such heat downwardly.

My reason for employing a tube such as G instead of a simple perforation in the bottom of the vapor chamber E is that I desire to guard against any clogging up of the outlet of the vapor chamber by the condensation of alcohol vapors, which occurs when the lamp cools after being extinguished. It will be obvious that any alcohol condensed in the vapor chamber will collect on the top wall of the valve-casing H and on the partition F', but will not clog the outlet G.

I claim as my invention;

The combination of a vapor chamber, the

outer wall of which is formed with inwardly bent portions, a wall surrounding said outer wall and provided with outwardly bent portions in registry with said inwardly bent portions and forming therewith mixing tubes open at the bottom to receive air, said surrounding wall being further provided with a perforated portion at its top for the discharge of the mixture of vapor and air, a wick tube located concentrically of said vapor chamber and having openings in communication therewith, means for heating the volatile substance fed by the wick, a pressure chamber provided with outlets arranged to discharge jets of vapor into said mixing tubes, an outlet tube extending from a point above the bottom of the vapor chamber and arranged for connection with said pressure chamber and a valve controlling said connection.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

MATHIAS SOMA HERZOG.

Witnesses:

JOHN A. KEHLENBECK,

FRANK F. KIRKPATRICK.