No. 773,335. PATENTED OCT. 25, 1904.

T. H. MULCH & O. WIEDERHOLD.

LAMP.

APPLICATION FILED DEC. 23, 1897. RENEWED MAY 23, 1904.

NO MODEL.

Fig. 1.

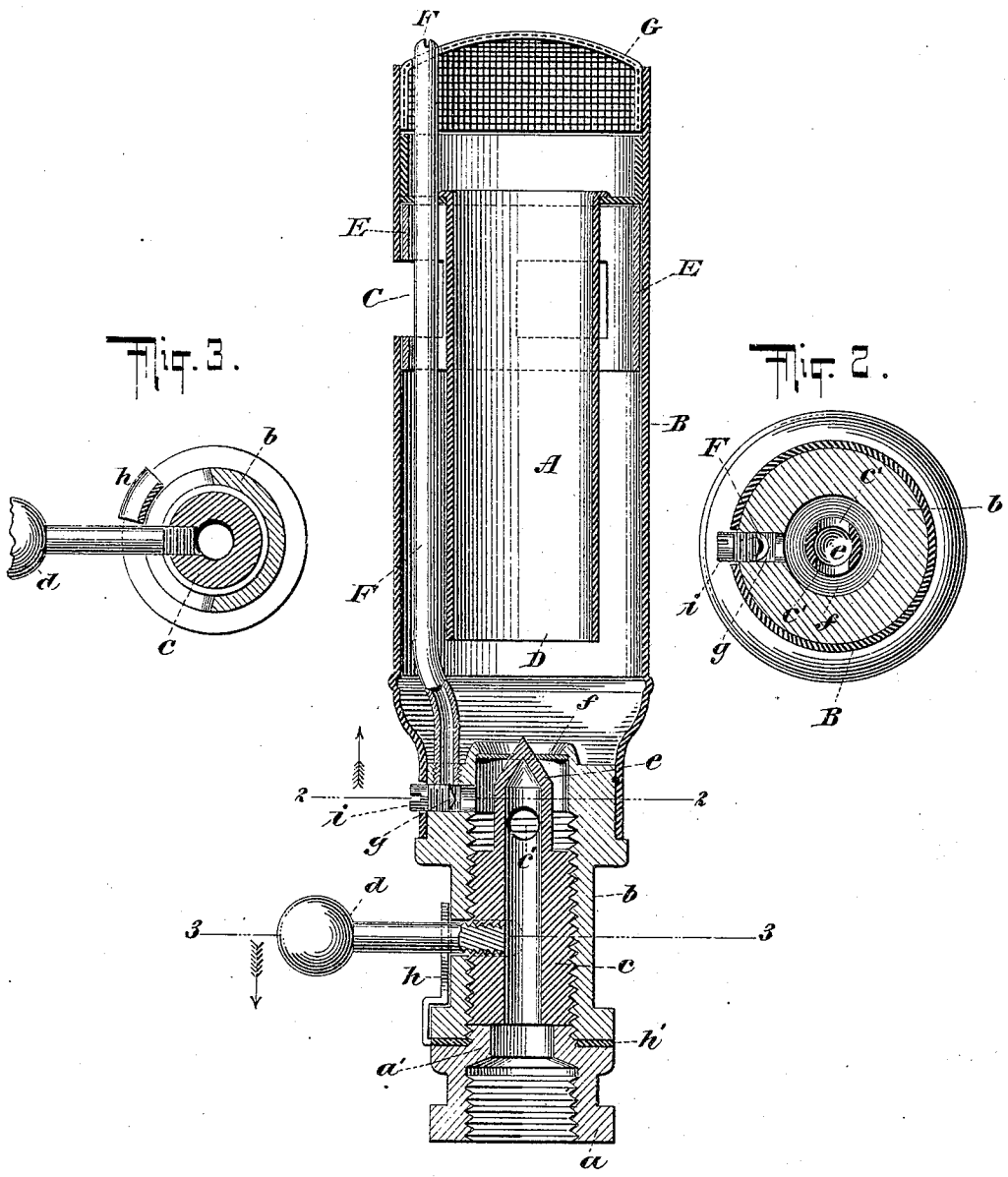
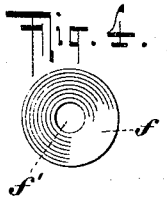


Fig. 3.

Fig. 2.

Fig. 4.



WITNESSES:

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No. 773,335. Patented October 25, 1904.

UNITED STATES PATENT OFFICE.

THEODORE H. MULCH, OF NEW YORK, N. Y., AND OSCAR WIEDERHOLD, OF SUMMIT, NEW JERSEY; SAID MULCH ASSIGNOR, BY MESNE ASSIGNMENTS, TO SAID WIEDERHOLD.

LAMP.

SPECIFICATION forming part of Letters Patent No. 773,335, dated October 25, 1904.

Application filed December 23, 1897. Renewed May 23, 1904. Serial No. 209,314. (No model.)

To all whom it may concern:

Be it known that we, THEODORE H. MULCH, residing in the city, county, and State of New York, and OSCAR WIEDERHOLD, residing at Summit, Union county, State of New Jersey, have invented certain new and useful Improvements in Lamps, of which the following is a specification.

Our invention relates to lamps, especially to that class of lamps wherein air and gas or analogous mixtures are employed. Our invention, however, is not limited to any type of lamp, being directed mainly to improving Bunsen burners wherein gas mixtures are employed, whereby gas at high pressures may be employed for illumination and other purposes.

The invention will be understood by referring to the accompanying drawings, in which—Figure 1 is a transverse longitudinal section, on a very large scale, of a burner embodying our invention. Fig. 2 is a section on line 2 2 of Fig. 1. Fig. 3 is a section on line 3 3 of Fig. 1, and Fig. 4 represents the regular plate.

We will describe our invention with relation to a Bunsen lamp, but do not desire to be limited thereto.

Our invention is designed to enable the influx of gas or vapor to the burning-point of the burner to be efficiently regulated. By thus efficiently regulating the influx of gas or vapor we are enabled to employ our burner for a great variety of uses and to burn therein gases which hitherto could not be successfully burned. For instance, we have found that our burner is adapted for use with water-gas. It has heretofore been attempted to burn gas at high pressures and to regulate the influx thereof to the burner; but such efforts have hitherto been unsuccessful for the reason that long restricted passages have been used, which reduce pressure to such a degree that it is impossible to obtain a perfect Bunsen flame, it being understood that in order to have a perfect Bunsen flame it is necessary that the gas should rush out with considerable velocity and not meet any obstruction between the gas-outlet and the burning-point, especially in what is known as "self-lighter" pilot-burners. Instead of employing a long restricted passage, as heretofore, we regulate the flow of gas to the burning-point by means of as short and direct a passage as is possible.

The burner shown in the drawings is constructed as follows: *a* is a nipple, which is surmounted by a sleeve *b*, screw-threaded internally and slotted, as will appear from an inspection of Figs. 1 and 3. An exteriorly-screw-threaded hollow plug *c* is located within the sleeve *b* and engaging the screw-threads thereof screws up and down therein, the adjustment being effected by turning the handle *d*, which is fixed to the hollow plug and projects through the slot in the side of the chamber *b*. The hollow plug *c* is provided at or near its upper end with a tapered portion *e*, which tapered portion passes through a thin plate *f* and obstructs the opening therein. It will be understood that the gas passes to the burner through the hollow plug *c*, out through the aperture *c'* therein, and into an expansion-chamber *g*, formed in the sleeve *b*, the plate *f* constituting the top wall thereof. It will be obvious that by inserting the tapered portion or obstruction *e* more or less into the aperture in the plate *f* a greater or less amount of gas will be allowed to flow to the Bunsen burner. The hole *f'* in the plate *f* should be bounded by a thin edge, being preferably, as shown in the drawings, of the same thickness throughout the plate. In practice we employ a plate of, say, less than ten one-thousandths of an inch in thickness and spin it into place in the sleeve *b*. This plate being thin, the passage formed between it and the obstruction is a very short one, so that the gas will not be obliged to traverse a long restricted opening and by this means is delivered to the burner at the proper pressure instead of having its pressure greatly reduced, as heretofore. By employing the opening with a thin edge it will be obvious that the flow of gas can be very efficiently regulated without reducing the gas-pressure. This regulation,

as before explained, is effected by turning the handle d to adjust the obstruction in the apertured plate, thereby forming between obstruction and plate an annular gas-inlet way. After the burner has once been adjusted the subsequent proper extent of opening of the aperture f by the plug or obstruction e may be very nicely determined by bringing the stop h into position to limit the movements of the handle d'. This stop h consists in part of an annular plate h', which surrounds the screw-threaded end a' of the nipple a and is clamped between the nipple a and the sleeve b, so that by slightly unscrewing the sleeve b the plate h' may be released and turned to bring the stop h into the desired position and the sleeve b thereupon screwed down to clamp the plate h', and thereby hold it in the desired position. The remaining parts of the burner need no description of their functions and operations. We will, however, state that a mixing chamber or tube A is suspended within an enveloping casing B, preferably in one piece, which is apertured at C remote from the receiving end D of the mixing-tube and provided with an air-shutter E. F is a pilot-burner regulated in the usual manner by a regulating-screw i. The pilot-burner extends up outside the mixing-chamber and terminates within the periphery of the tube B, preferably passing through the gage.

What we claim, and desire to secure by Letters Patent, is—

In a burner for utilizing gas at high pressures the combination with a mixing-chamber of an apertured gas-inlet plate in proximity to the said mixing-chamber and adapted to deliver gas thereto, the said plate having a thin edge bounding the said aperture and a plug entering the said aperture to form therewith an annular gas-inlet way and means for adjusting the said plug with respect to the plate to vary the size of the annular gas-inlet way, whereby the gas rushes through the aperture into the mixing-chamber in an unrestricted manner by which a powerful suction is created in the mixing-chamber and a more intimate and rapidly-flowing mixture is produced, and a by-pass extending from below the apertured plate upward outside of the mixing-chamber to the burning-point of the burner whereby the said mixing-chamber will be unobstructed.

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OSCAR WIEDERHOLD.

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