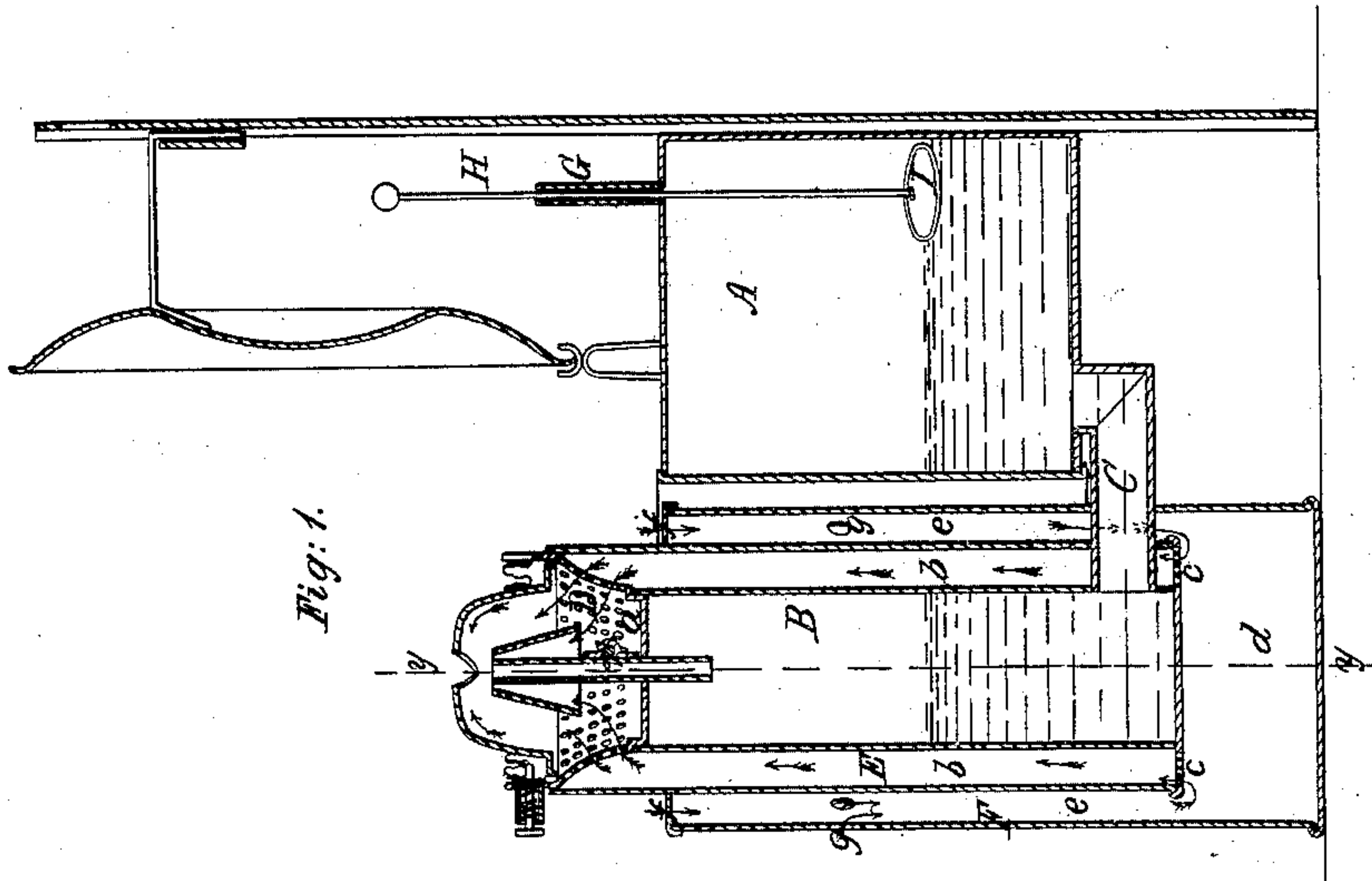
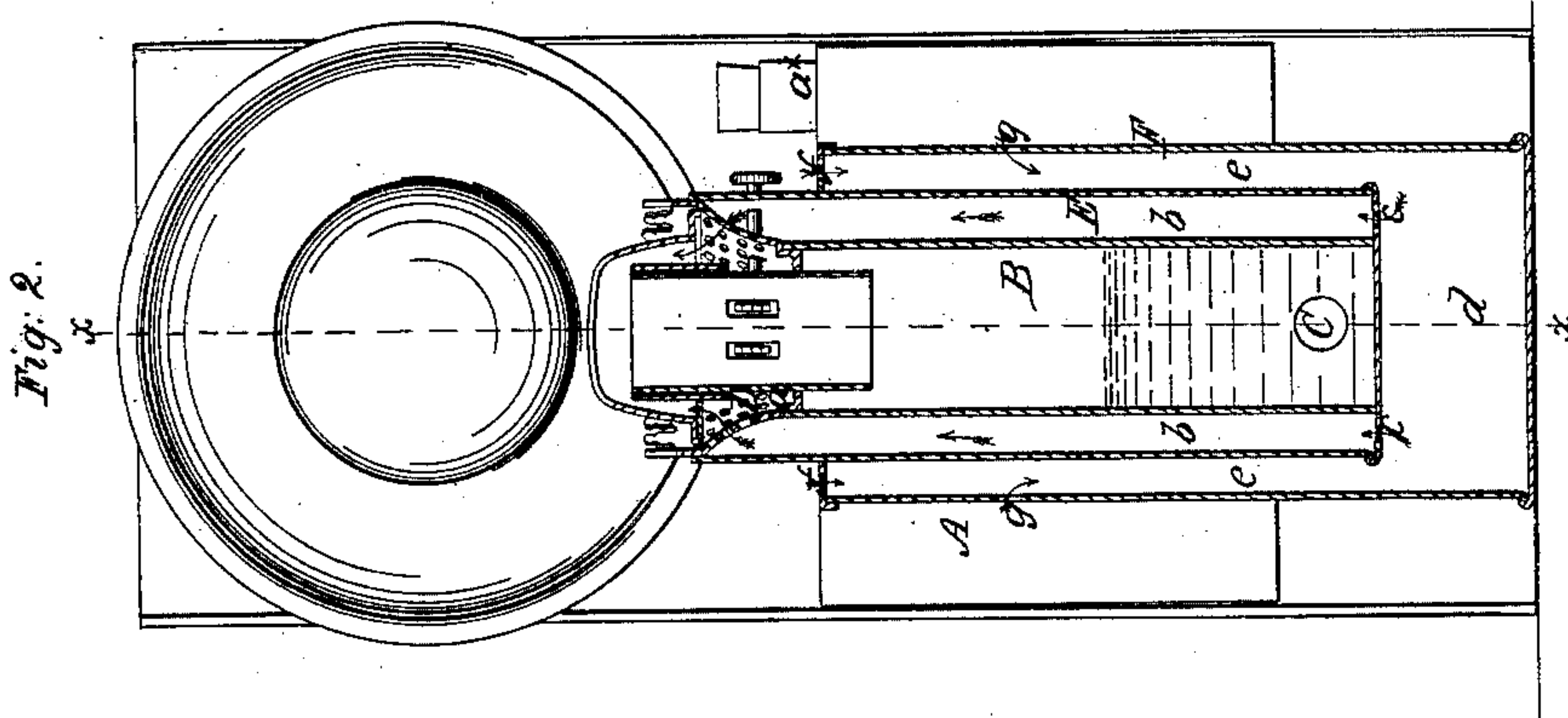


L. J. WORDEN & A. LEACH.

Lamp.

No. 32,918.

Patented July 23, 1861.



Witnesses:

Mr. Lunde
R. S. Spencer

Inventors:

L. J. Morden
A. Leach

UNITED STATES PATENT OFFICE.

L. J. WORDEN AND A. LEACH, OF UTICA, NEW YORK, ASSIGNORS TO THEMSELVES AND D. S. HEFFRON, OF SAME PLACE.

IMPROVEMENT IN LAMPS.

Specification forming part of Letters Patent No. 32,918, dated July 23, 1861.

To all whom it may concern:

Be it known that we, L. J. WORDEN and A. LEACH, both of Utica, in the county of Oneida and State of New York, have invented a new and Improved Lamp for Burning Coal-Oils; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a vertical central section of our invention, taken in the line *x x*, Fig. 2. Fig. 2 is a vertical section of the same, taken in the line *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts in the two figures.

The object of this invention is to obtain a lamp for burning coal-oil in railroad-cars and other places where lamps are subjected to a jolting or vibratory movement. To obviate this difficulty, we supply the flame with air by means of a circuitous draft-passage arranged vertically, and in such a manner as to avoid any external lateral supply of air to the flame.

To enable those skilled in the art to fully understand and construct our invention, we will proceed to describe it.

A represents the reservoir or fountain of the lamp, which may be constructed in any proper way, and B represents a vertical tube, which adjoins the fountain A, and communicates with it by a tube, C, at its lower end.

On the top of the tube B there is secured a lamp-top, D, which may be of any of the known or approved forms employed for burning coal-oil. The tube B is encompassed by tube, E, which is concentric with B, and is sufficiently larger in diameter to inclose the lower part or cup, *a*, of the lamp-top D, as shown clearly in both figures. The tube E extends down as low as tube B, and the bottom of the space *b* between said tubes may be of wire-cloth or perforated metal, as shown at *c*. The tube E is inclosed by a still larger tube, F, which extends down below the tubes B E, so as to leave a chamber, *d*, of considerable dimensions, as shown clearly in both figures. The space *e* between the tubes E and F is about equal in width to space *b* between the tubes B E. The tube F need not extend quite as high as tube E, and the space *e* is covered

at its upper end by a perforated plate or wire-cloth, *f*.

From the above description it will be seen that the flame is not supplied with air by a direct lateral draft, the air being admitted to the flame by passing down the space *e* between the tubes E F into chamber *d*, and thence up through space *b* between the tubes B E and through the perforations in cap *a* of the lamp-top. This arrangement admits of a very regular supply of air to the flame during a vibratory movement of the lamp, and the lamp burns with a steady flame without smoking or flickering—a result which cannot be obtained by the ordinary direct lateral or side supply of air, where the cap *a* is in direct contact with the external air.

The chamber *d* is an essential feature of the invention, as it serves as a sort of reservoir to equalize the draft or supply of air to the flame. The outer tube, F, near its upper part, is perforated with holes *g*, which facilitate the induction of air into space *e* and have a tendency to equalize the draft.

The reservoir or body A of the lamp has a vertical tube, G, attached to its upper surface. This tube may be of any suitable height to serve as a guide for a rod, H, the lower end of which has a float, I, attached to it. This float I may be of cork or any suitable substance that will float on the surface of the oil. The tube G is somewhat larger in diameter than the rod H, so that air may escape through the tube.

In filling the reservoir or fountain A, which is done by pouring oil from a filler or can through the ordinary opening, *a**, the rod H will rise and indicate the height of the oil in the fountain, and the attendant, therefore, need not overflow the lamp-reservoir, and the escape of air through the tube G admits the oil, readily passing into the reservoir from the filler or can.

The rod H may be graduated, if desired, and any suitable index may be attached to the lamp-reservoir in such relation with the rod H to indicate when the rod and oil in the fountain are at the proper height.

The lamp-top D is provided with the usual glass chimney.

We are aware that many contrivances have

previously been employed to preserve flames from lateral and unequal currents of air, and do not therefore desire to be understood as claiming novelty in this part of our invention, except to the extent of the peculiar combination and arrangement of parts which we have described.

We do not claim, broadly, the admitting of air to the flame through a tube or passage below the lamp-top; but

We do claim as new, and desire to secure by Letters Patent—

The combination of the concentric annular passages *e* and *b*, air-chamber *d*, and perforated shell D, all constructed and arranged as herein shown and described, and operating to protect the flame from lateral currents of air and equalize the draft, as explained.

L. J. WORDEN.
A. LEACH.

Witnesses:

C. W. COWTAN,
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