

(No Model.)

G. D. STREETER.
OIL BURNING APPARATUS.

No. 415,075.

Patented Nov. 12, 1889.

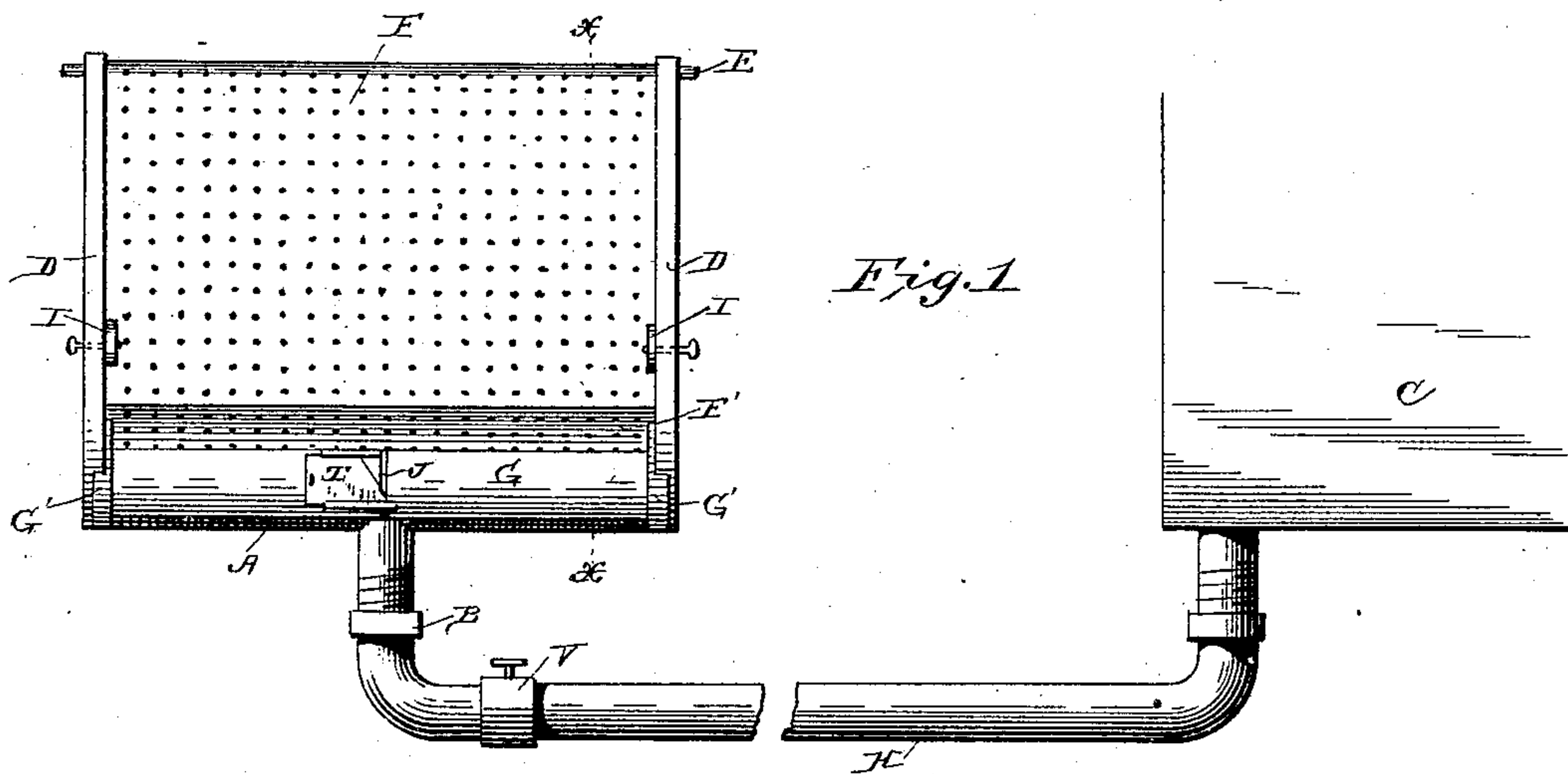


Fig. 2.

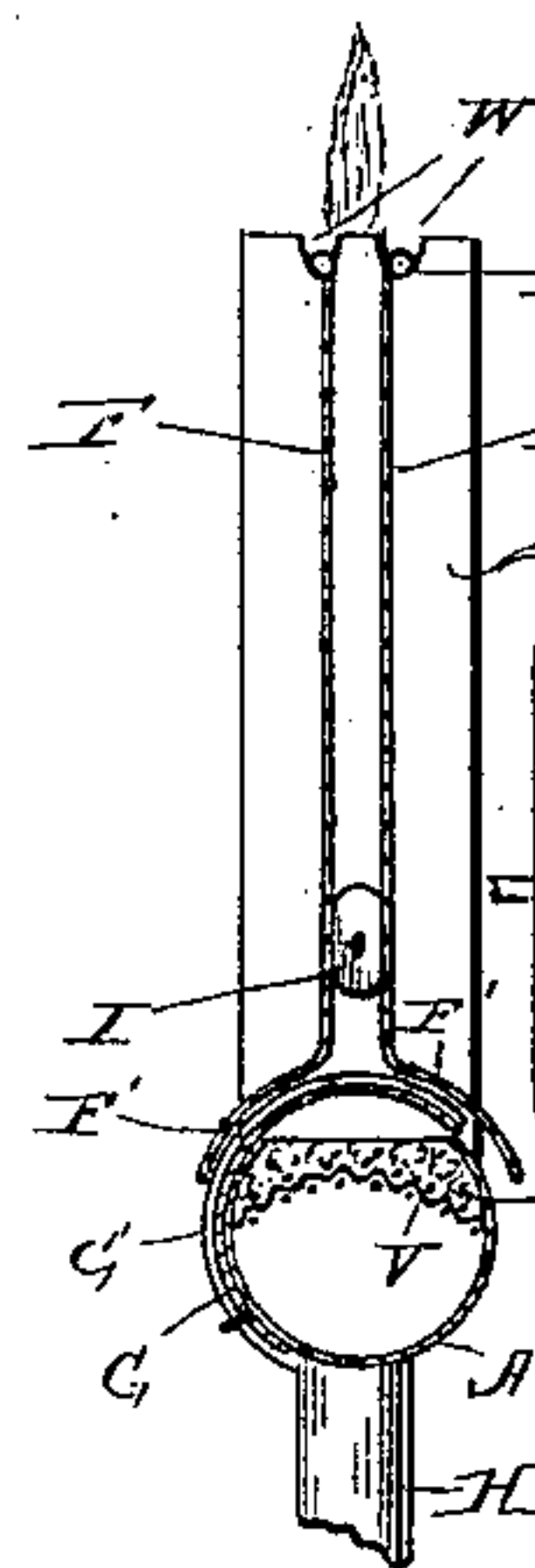
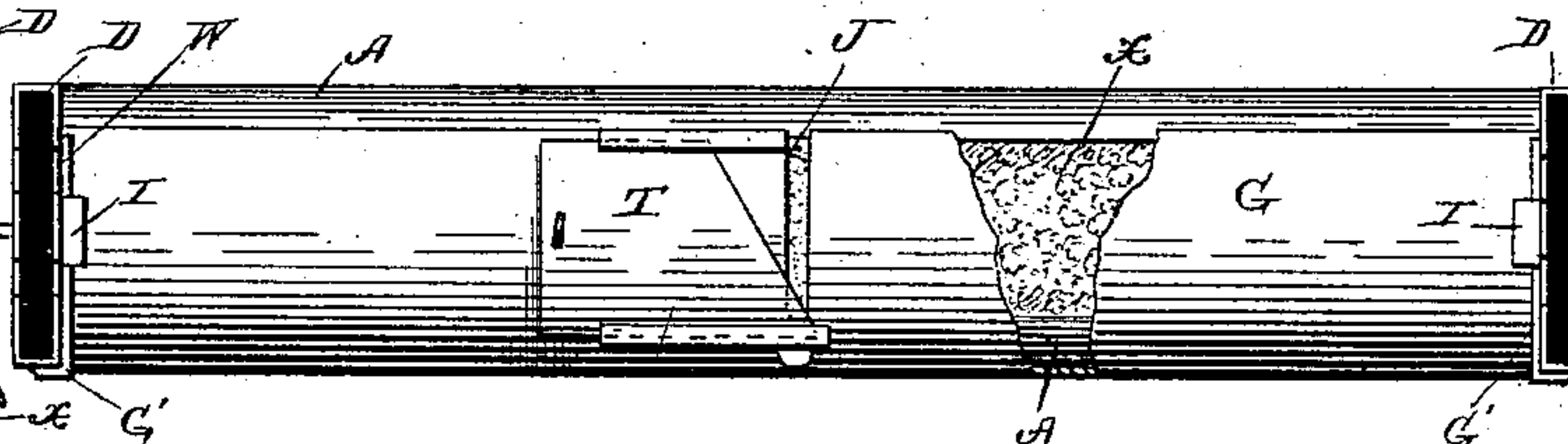


Fig. 3.



Witnesses

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GEORGE D. STREETER, OF WACO, TEXAS.

OIL-BURNING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 415,075, dated November 12, 1889.

Application filed July 16, 1889. Serial No. 317,715. (No model.)

To all whom it may concern:

Be it known that I, GEORGE D. STREETER, a resident of Waco, in the county of McLennan and State of Texas, have invented certain new and useful Improvements in Oil-Burning Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention is in oil-burners intended for heating purposes, the combustion being, as in Bunsen burners, so complete as to afford little or no light.

The apparatus involves constriction of the flame from a burner to arrest combustion and the admixture of air therewith as the gas rises while still heated through a laterally-perforated tube, at the top of which it is either ignited or conveyed away for subsequent consumption.

In the drawings, Figure 1 is a side elevation of the apparatus, one-half of the separable perforated tube being removed. Fig. 2 is a section on the line xx , Fig. 1. Fig. 3 is a top view of the burner or generator, both side walls of the perforated tube being removed.

In the drawings, A is a horizontal cylindrical tube open at the top or upper side and containing as a wick asbestos or the like. It communicates by means of a pipe H, provided with a valve V, with any suitable oil-reservoir C, preferably not higher than the tube A. At each end of the tube A rises a rigid standard D, of a width equal to the diameter of the tube, and which has in its top open bearings W, Fig. 2. In these bearings rest the gudgeons E, projecting from the upper edges of two perforated plates F, closely fitting the space between the standards D and extending parallel to each other to a point just above the tube A, where they bend outward to form two opposite wings F' nearly concentric with the tube A and terminating upon opposite sides thereof. The bearings fix the separation of the plates at the top, and the same distance is secured at a lower point by lugs I upon the standards and between the plates.

The tube A may be entirely filled with asbestos; but I prefer to use a wire-netting diaphragm V near the upper side of the tube

and to fill only the part above this with asbestos X. The opening or slot along the top of the tube A is very much wider than the space between the plates F, so that the flame, when the oil rising through the asbestos is lighted, is normally much wider than the space into which it must pass, and hence combustion ceases in the space between the plates and the heated gas rises to the top of the tube, where it may be again ignited, or may be collected and conveyed away. In passing up through the tube it has been thoroughly mixed with air drawn in through the perforations in the tube, and consequently when lighted it burns with an almost colorless but intensely-hot flame, and without smoke or smell. As the gudgeons E rest in open bearings, either side of the tube—that is, either plate F—may be lifted out of place at will, and either may be swung outward, as on a hinge, for gaining access to the tube A or its attachments for lighting or other purposes.

For conveniently extinguishing the broad flame along the upper side of the tube A, (and in consequence the flame at the top of the perforated tube,) a curved tube cover or slide G is provided. This slides circumferentially around the tube A in guides G' and opens or closes the tube according to its position. To avoid the necessity for relighting frequently, the slide G is provided with a small transverse slot J, so that at one point the asbestos is exposed even when the slide G is closed. There will then remain after the body of the broad flame has been extinguished a narrow transverse flame rising through the slot, and from this the flame quickly spreads over the whole when the slide is again opened, or, in other words, the apparatus is self-lighting; but if complete extinguishment be at any time desired it may be secured by advancing over the slot a second slide T, mounted upon the first. This second slide also serves to vary the size of the small flame without extinguishment, since it may be advanced to any degree.

I employ the generator of the apparatus in oil-stoves otherwise of ordinary construction to replace the common burner, and also use a series of them in the fire-box of ordinary coal-burning and wood-burning stoves, which

are thus at a trifling expense converted into oil-burners without injuring their capacity for the service originally intended.

By placing over the upper end of the perforated tube a hood, as indicated in dotted lines in Fig. 1, the escaping gas may be conveyed to a storage-receptacle or may be conveyed to other points for immediate consumption, the apparatus in such case being a peculiar form of gas-retort using oil.

It may be observed that the perfection of the combustion in large measure obviates the necessity for a flue to carry away products of combustion, and that it also materially increases the effective heat obtained.

To obtain the fullest possible benefit from the use of the apparatus I have found it advisable to secure entire extinguishment of the primary flame, even when the gas is to be consumed at the top of the perforated tube; but if there be narrowing of the space sufficient to materially retard without wholly preventing combustion therein good results are still obtained.

What I claim is—

1. The combination, with an oil-burner, of a perforated tube placed slightly above the burner to receive the flame therefrom, said tube being materially smaller than the normal flame passing into it, whereby combustion is wholly or partially arrested and air is mixed with the resulting gas to form a more perfectly-combustible product.

2. The combination, with an oil-burner, of an open tube placed slightly above the burner to receive the flame therefrom, said tube be-

ing materially smaller than the normal flame and provided with wings extending outward and downward about the flame to insure the entrance of the latter within the tube.

3. The combination, with an oil-burner, of an open tube placed slightly above it to receive the flame therefrom, said tube being laterally perforated and provided with hinged outwardly-swinging sides, substantially as and for the purpose set forth.

4. The combination, with the slotted burner-tube and the oil-supply pipe, of the wire diaphragm within the tube and the asbestos wick resting upon said diaphragm, substantially as set forth.

5. The combination, with the burner-tube and the supply-pipe, of the slide G, adapted to close the slot in the tube, substantially as set forth.

6. The combination, with the burner-tube, of the extinguishing-slide G, having the slot J, adapted to leave a relighting-flame when the slide is closed, substantially as set forth.

7. The combination, with the burner-tube, of the extinguishing-slide G, having the slot J, adapted to leave a relighting-flame, and the second slide mounted upon the first for wholly or partially obstructing said slot, substantially as and for the purpose set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

GEORGE D. STREETER.

Witnesses:

GEO. P. MANN,
B. C. GARLAND.