

J. F. OTTEN & J. KLUBER.  
 Apparatus for Carbureting Illuminating Gas.  
 No. 209,505. Patented Oct. 29, 1878.

Fig. 1

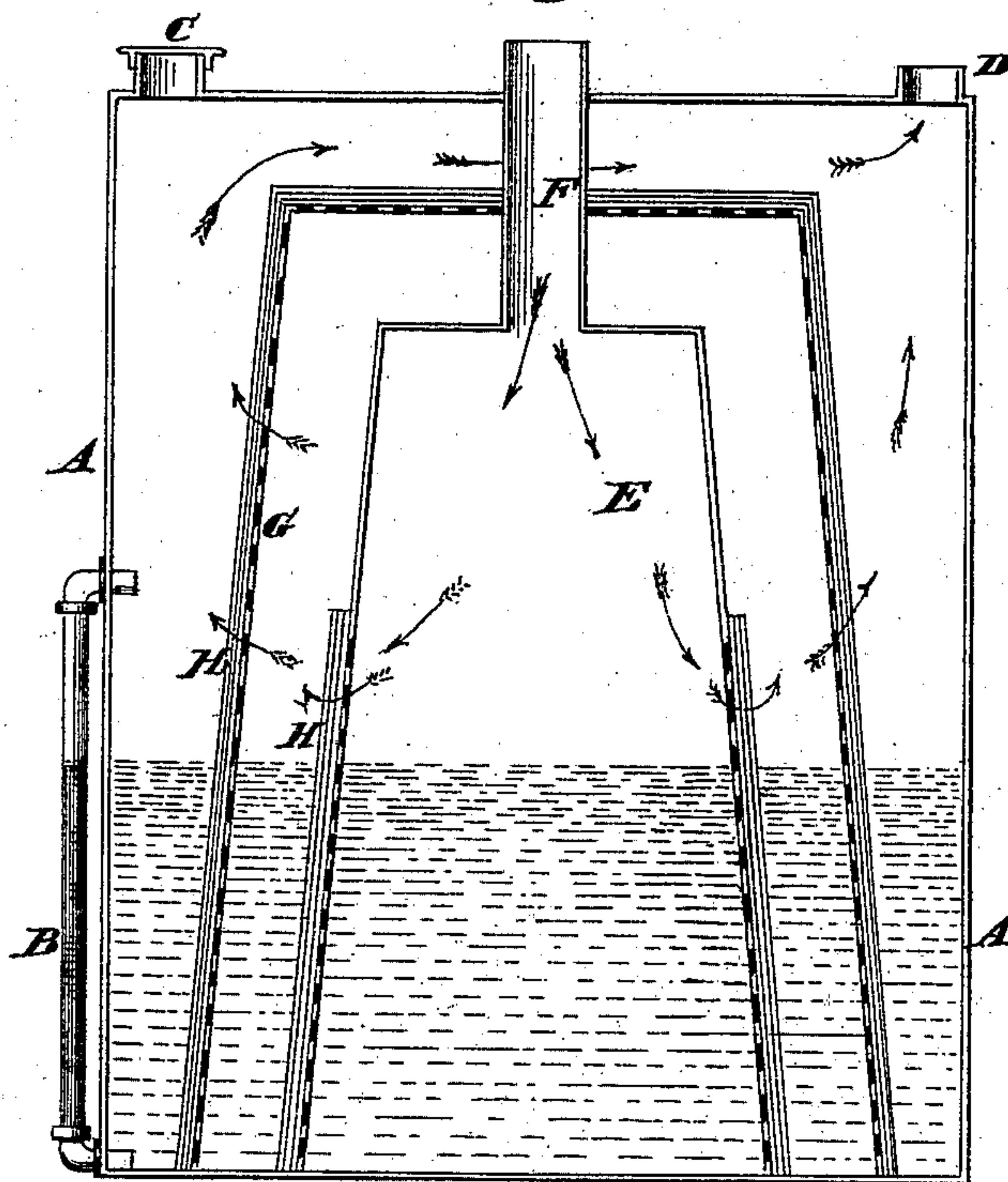


Fig. 2

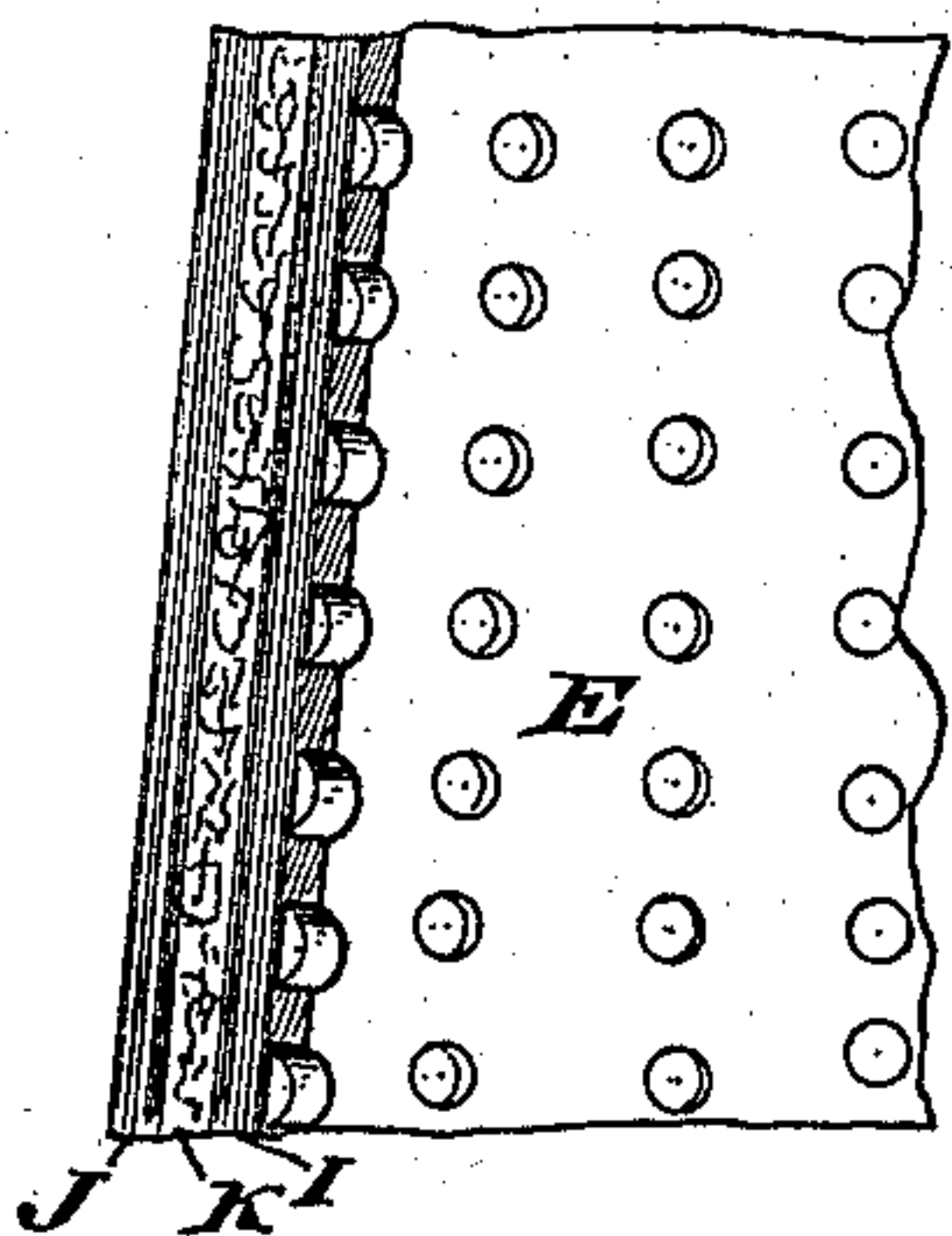
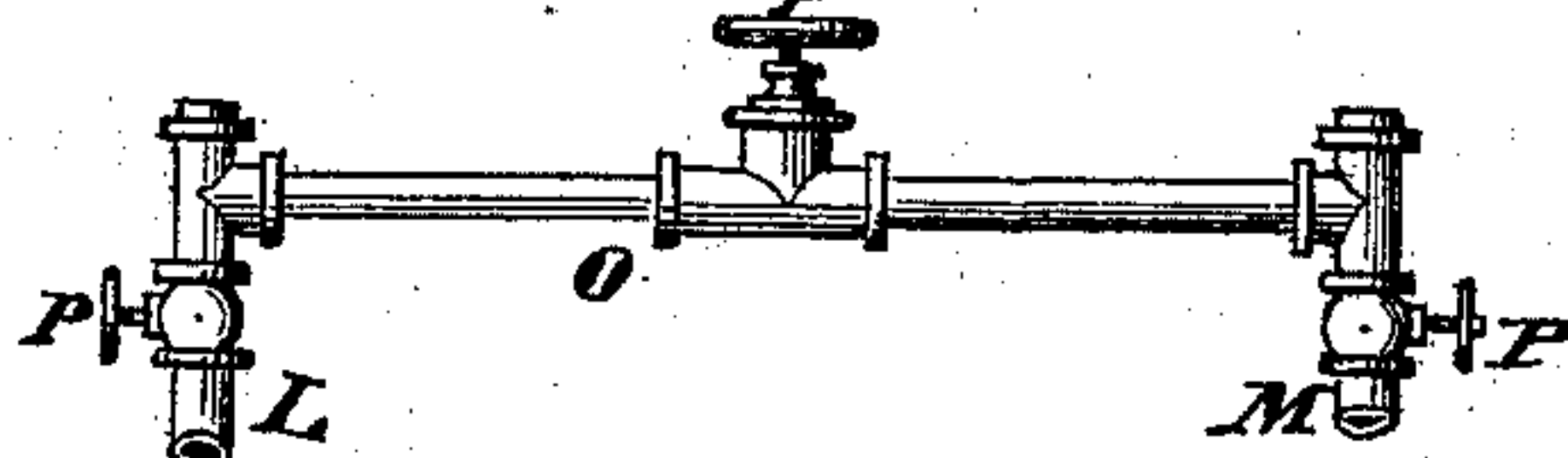


Fig. 3



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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN APPARATUS FOR CARBURETING ILLUMINATING-GAS.

Specification forming part of Letters Patent No. **209,505**, dated October 29, 1878; application filed August 14, 1878.

*To all whom it may concern:*

Be it known that we, JOHN F. OTTEN and JOSEPH KLUBER, both of Cincinnati, Hamilton county, and State of Ohio, have invented certain new and useful Improvements in Apparatus for Carbureting Illuminating-Gas; and we do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which our invention relates to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical section of the apparatus. Fig. 2 is an enlarged sectional view of the absorbent or fibrous covering through which the illuminating-gas is passed to charge it with the vapors of hydrocarbon oils; and Fig. 3 is a side elevation of the pipe attachment for the apparatus.

Similar letters refer to similar parts.

Our invention relates to that class of apparatus for carbureting illuminating-gas in which an absorbent material is employed to lift the hydrocarbon oils above the surface of the oil in the vessel, whereby it is more thoroughly exposed to the action of the illuminating-gas in passing through the apparatus; and it has for its object to improve the construction of such apparatus for the purpose of rendering it more simple and effective. To this end the invention consists in the special construction and combination of parts, as we will now proceed to describe.

The apparatus is designed for use by being interposed between the ordinary gas-meter and the burners, preferably adjoining the meter; and consists in a cylindrical sheet-metal case, A, of the requisite size, generally smaller than the meter, provided upon one side with a glass gage, B, by which the height of the gasoline in the case can be determined. The top of the case is provided with a screw-capped opening, C, through which gasoline is supplied to it, and with an opening, D, through which the carbureted gas is supplied to the pipes for consumption.

Within the center of the case is a cylindrical sheet-metal gas-receiver, E, made slightly tapering, and provided with a pipe, F, at its upper end, which extends upward through the

top of the case A, and is there connected with the pipe through which the coal-gas is received from the meter.

The receiver from its lower end to a point a short distance below its top, or above the working level of the gasoline, is made with fine perforations for the passage of the coal-gas.

G is a second sheet-metal case or diaphragm, placed within the case A, concentric with the receiver, so that a large annular space shall be left between them, and its top extends over the top of the receiver a short distance therefrom, but is provided with an opening for the passage of the inlet-pipe F.

The case G is perforated throughout its sides and top, and is covered with an absorbing-covering, H. The receiver is also inclosed by a similar covering extending as high as the perforations, as shown in Fig. 1.

The absorbing-covering is composed of an inner tubular cotton fabric, I, woven, braided, or knitted, an exterior cotton tube, J, of the same quality, and a tube, K, composed of wool interposed between the two cotton tubes. The absorbing material on the top of the perforated case G is made in the same manner, and may be either flat disks or formed with the tubes themselves in the process of manufacture. By this construction a very thick absorbing-covering is produced, which will take up a large quantity of the gasoline by capillary attraction, thereby enabling the coal-gas to be charged with gasoline to the fullest extent, or with all it can hold.

The difficulty heretofore experienced in carbureting illuminating-gas with hydrocarbon vapors has been to enrich the gas sufficiently, and various methods have been employed for the purpose, such as passing the gas over a number of absorbing curtains or blankets, and by arranging a thick cotton absorbent within the apparatus in different ways; but the first of these methods is objectionable, because it necessitates the use of a large apparatus to receive the absorbents, and is therefore expensive, and the second is practically inoperative, because the thick cotton becomes so matted together when saturated with gasoline that the coal-gas cannot pass through it. By our invention these difficulties and objections are



overcome, as we produce a very thick absorbent, which will hold a large quantity of gasoline, and yet permit the gas to pass freely. This is due to the interposed woolen tube, which is very porous and separates the two cotton tubes, so that they cannot become matted together.

The capillary attraction is greater in the closely woven or knitted cotton tubes than in the more open woolen tube; but the latter receives a large portion of its supply from the cotton, and the whole covering is therefore thoroughly saturated with the oil.

In operating the apparatus, the case is filled with gasoline to about the height shown in Fig. 1, and the gas let into the receiver through the inlet-pipe. After it has accumulated in the top of the receiver, it passes through the perforated sides thereof and through the covering H, where it receives its first charge of gasoline. It thence passes in the direction of the arrow through the second case or diaphragm, where it receives the final charge, and is then passed off through the outlet D to the pipes connected with the burners. By this treatment a gas is produced of superior illuminating power, because it is completely instead of being only partly charged with the gasoline.

If desired, the pipe-connection shown in Fig. 3 may be used with the apparatus. This connection is composed of two vertical pipes, L M, which are attached to the case A at the openings C D, and with a horizontal pipe, O, connecting the two vertical pipes. Each of these pipes is provided with a cock, P, and the pipe L connects with the pipes of the burners and the pipe M with the meter.

By shutting the cock in the horizontal pipe and opening those in the vertical pipes, the gas from the meter is passed through the carbureter; but when for any reason it is desirable to cut out the carbureter, the cocks in the vertical pipes are closed and the cock in the horizontal pipe opened. The gas will then pass

from the meter to the burner-pipes directly through the horizontal pipe O, without entering the carbureter.

When the pipe-connection is used the case A must be provided with a suitable opening for the supply of oil other than the opening C, as will be readily understood, or the opening C may be left and the pipe connected at another point.

Having thus described our invention, what we claim is—

1. The apparatus for carbureting illuminating-gas, consisting of the combination of case A, having a suitable inlet and outlet, the central gas-receiver E F, perforated a portion of its height, the perforated concentric case G, and the compound cotton and woolen absorbent H, applied to the receiver and case G, substantially as described, for the purpose specified.

2. The absorbent coverings H, consisting of two knitted, woven, or braided cotton tubes, I-J, with a woolen tube, K, interposed between them, in combination with the gas-receiver and perforated case G, substantially as described, for the purpose specified.

3. The absorbent coverings H, consisting of two knitted, woven, or braided cotton tubes, I J, with a woolen tube, K, interposed between them, in combination with the gas-receiver, substantially as described, for the purpose specified.

4. The absorbent coverings H, consisting of two knitted, woven, or braided cotton tubes, I J, with a woolen tube, K, interposed between them, in combination with the perforated case G, substantially as described, for the purpose specified.

In testimony of which invention we hereunto set our hands.

JOHN F. OTTEN.  
JOSEPH KLUBER.

Witnesses:

JOHN E. JONES,  
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