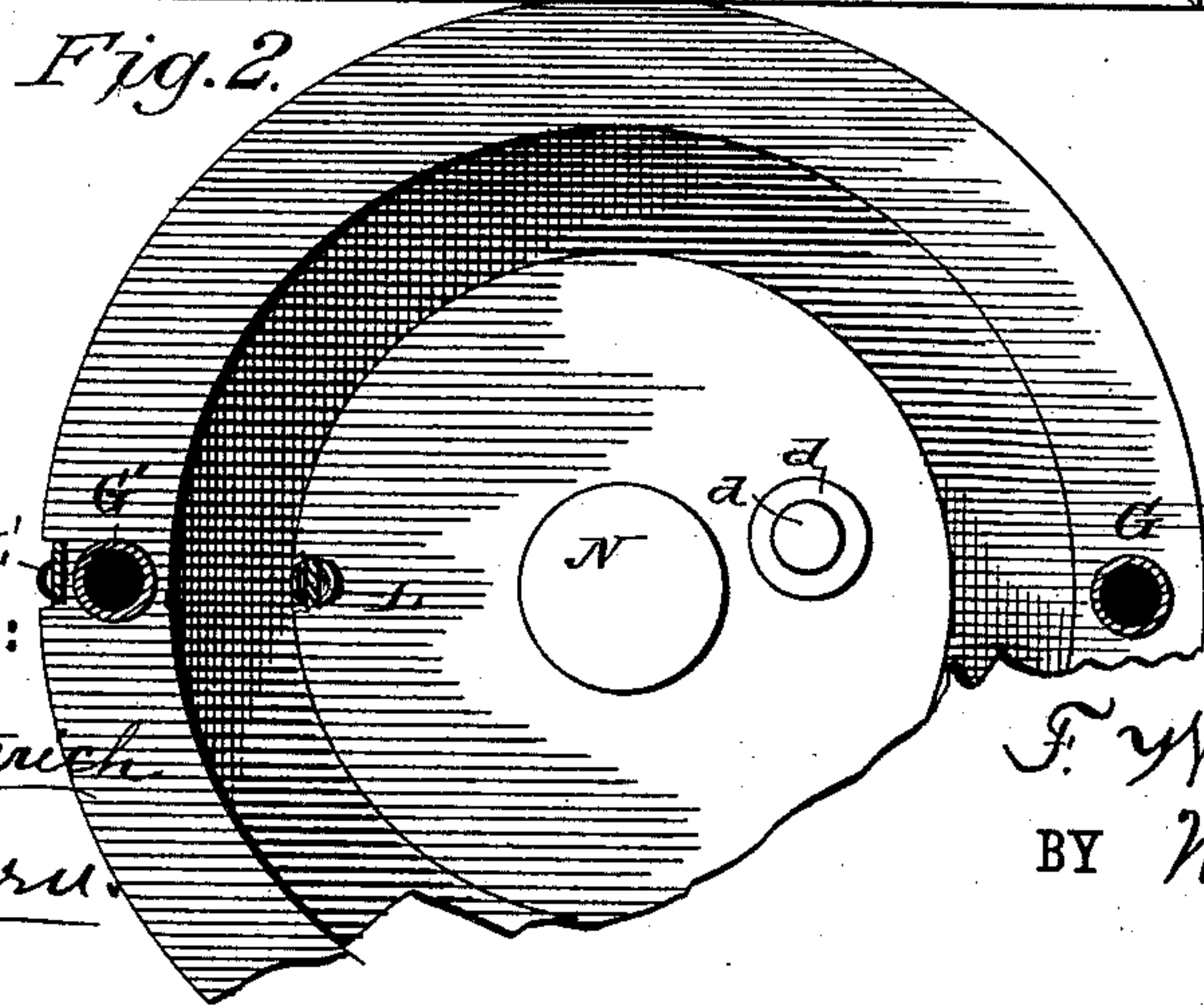
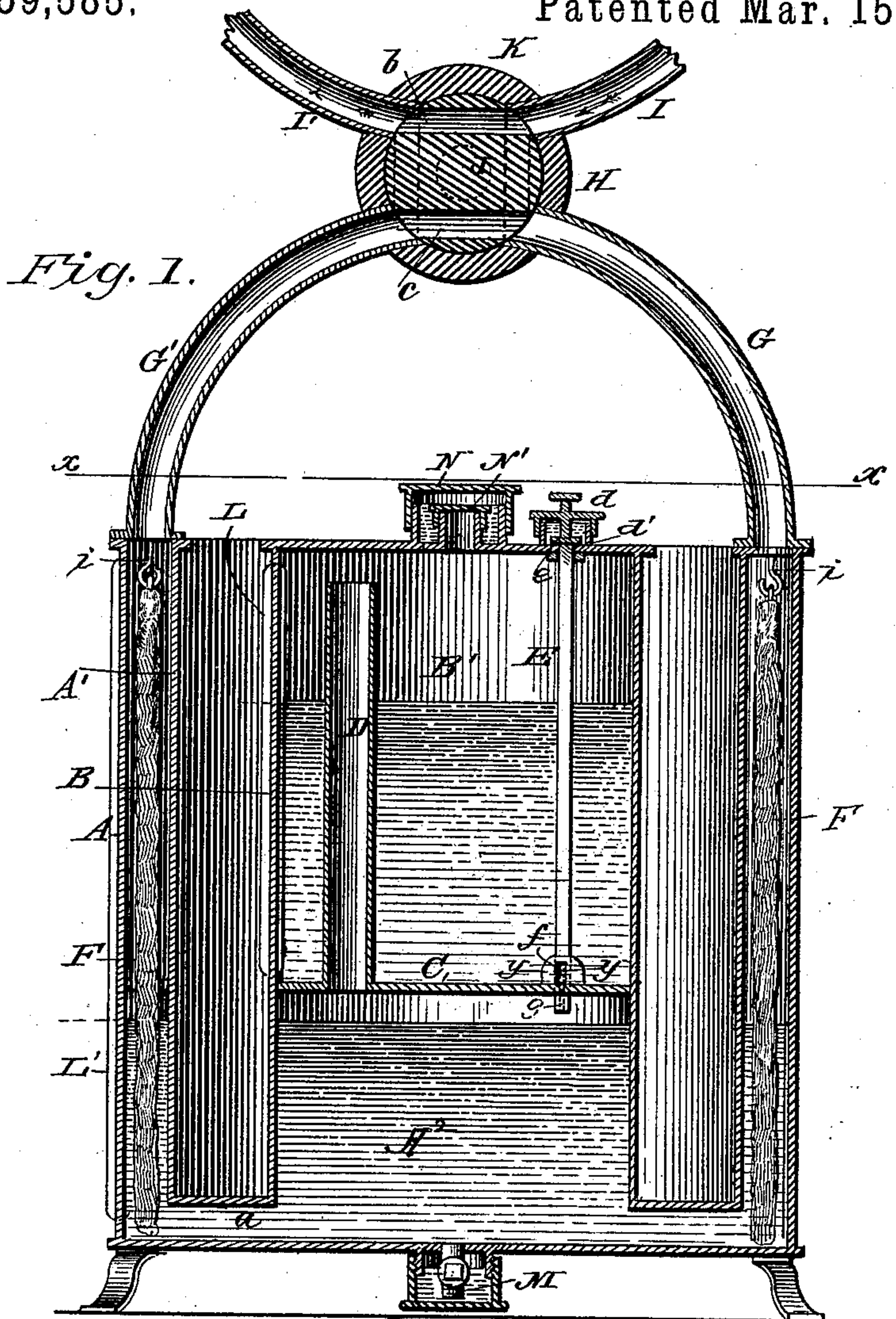


(No Model.)

F. WEIL.  
CARBURETOR.

No. 359,585.

Patented Mar. 15, 1887.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

FERDINAND WEIL, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF, AND  
JOSEPH BERNHEIM, OF MENOMINEE, MICHIGAN.

## CARBURETOR.

SPECIFICATION forming part of Letters Patent No. 359,585, dated March 15, 1887.

Application filed October 1, 1886. Serial No. 215,069. (No model.)

*To all whom it may concern:*

Be it known that I, FERDINAND WEIL, of New York, in the county of New York and State of New York, have invented a new and  
5 useful Improvement in Carburetors, of which the following is a specification.

My invention relates to carburetors for carbureting ordinary illuminating-gas by commingling with it the rich vapors of liquid hydrocarbons for the purpose of increasing the  
10 illuminating power of such gas and effecting a saving in its use; and to this end it consists in the peculiar construction and arrangement of parts, which I will now proceed to describe  
15 with reference to the drawings, in which—

Figure 1 is a central vertical section. Fig. 2 is a plan view in horizontal section through line *x x*; and Fig. 3 is a detail showing a horizontal section of the reservoir-valve through  
20 line *y y*, Fig. 1.

A represents the outer, and A' the inner, wall of an annular carbureting-chamber. The inner wall descends nearly to the bottom of the tank and is connected at the bottom to a central chamber, B, leaving, however, at the bottom an open space at *a*, which secures open  
25 communication between the annular carbureting-chamber and the lower portion, A<sup>2</sup>, of the tank. The walls B of the central chamber rise to the level of the annular chamber and are covered over at the top, while a horizontal partition, C, separates the upper portion, B', of the central chamber from the lower portion, A<sup>2</sup>.

D is an equilibrium-pipe mounted upon the partition C, and preserving always an open communication between the air-space in the top of tank A<sup>2</sup> and the air-space in the top of reservoir-chamber B'. The lower chamber or  
40 tank, A<sup>2</sup>, is filled with the liquid hydrocarbon, and as fast as it is absorbed by the gas in the annular chamber more of the liquid hydrocarbon is supplied from the chamber B', which acts as a reservoir-chamber. In this transfer  
45 it will be seen that the volume of liquid transferred from the higher to the lower chamber is compensated for by an automatic transfer of air from the lower to the higher chamber. To permit the liquid contents of this reservoir  
50 to be transferred at will to the subjacent tank, a valve, E, whose stem rises to the top of the

carburetor, is operated from the outside to allow the contents of the reservoir-chamber B' to pass to the subjacent tank. The lower portion of this valve-stem is slotted or grooved  
55 longitudinally at *g*, and this portion rests in a seat, *f*, in the partition C, which has an opening in its side communicating with the reservoir, so that when the stem E is turned to a position that brings its groove in registration  
60 with the slot in the side of the seat *f* the liquid hydrocarbon can pass through said registering-channels from the reservoir above to the tank below, and when said stem is turned axially, so as to throw said channels out of  
65 registration, communication between the upper and lower chamber is closed.

To prevent the leakage of the hydrocarbon vapors at the joint which the valve-stem E makes with the top of the reservoir, a disk or  
70 collar, *e*, is formed on or attached to the stem, which fits closely down upon the top of the reservoir. A short vertical wall or flange, *d'*, is also formed on the top of the carburetor around the disk, and a cap, *d*, is rigidly connected to  
75 the stem E, and is made to fit over and around the wall or flange *d'*. The cup formed by this flange is then filled with some liquid which makes a perfectly tight joint.

In the walls of the reservoir B' is a glass  
80 gage, L, and a similar gage, L', is arranged in the wall of the tank A<sup>2</sup>, in order that the level of the liquid may be observed.

At the top of the annular carbureting-chamber is arranged a series of hooks, *i*; or in  
85 the place of the same a ring or grating may be used, upon which is suspended all around the annular chamber wicking F, which dips into the hydrocarbon below, and by taking up the same from capillary attraction gives a large  
90 superficial exposure for the absorption of the vapors by the gas.

From the top of the annular carbureting-chamber there are two branch pipes, G G', which rise from opposite sides of the chamber  
95 and communicate with a case, H, in which there are two other branch pipes, I I'. Within the case H is a plug-valve, J, having two channels, *b* and *c*, and a crank-handle, K, for turning it. I and I' are the gas-pipes, of which I  
100 connects with the pipe at the meter and I' with the distributing-pipes of the house.



When the plug J is turned, as shown, its channel-way *b* allows the gas to pass from pipe I to pipe I' without going through the carburetor. When, however, said plug is turned 5 to the position shown in dotted lines, channel-way *b* connects pipes I and G and channel-way *c* connects pipes I' and G', and the gas entering at I passes down through the annular carbureting-chamber and over the candle-wicking, and after absorbing a proportion of 10 the vapors passes out at G' and I', enriched as to its illuminating powers and increased in volume.

To fill the reservoir an inlet is provided in 15 its top, which consists of an inner thimble and cap, N', and an outer and larger one, N, the space between which is filled with a liquid to make a sealed joint to prevent the escape of the hydrocarbon vapors.

20 After the carburetor has been in use for some time there will be a residuum of the heavier products, which are drawn off from time to time through a drain-cock, M, which, to prevent leakage, is covered by an inclosing- 25 cap containing a liquid seal.

The chief merit of my invention, as thus described, is that the carbureting-chamber, by its special disposition, cannot be flooded by the accidental escape of oil from the reservoir, 30 which carbureting-chamber, if flooded, would put out the lights of the building. This avoidance of flooding is effected in my invention by the relative altitudes and positions of the reservoir-chamber B' and the annular wick-chamber, it being impossible for the contents of the 35 reservoir B' to rise to the top of the annular wick-chamber, and thus always insuring an open communication between the diametrical pipes G G'.

40 I do not claim, broadly, the four-way cock for passing the gas either through the carburetor or direct to the burners; but my special arrangement of the pipes in relation to the cock and the annular wick-chamber contributes to the advantages above referred to, and 45 makes a compact and easily-constructed device.

Having thus described my invention, what I claim as new is—

1. A carburetor having a central reservoir- 50 chamber, an annular absorbent-chamber surrounding the reservoir and rising, substantially as described, to the highest level of the reservoir, an air-pipe and valve for transferring from the reservoir to the absorbent- 55 chamber, and an inlet and outlet pipe for gas connecting with the absorbent-chamber above the level of the reservoir, substantially as shown and described.

2. In a carbureting apparatus, the combination of the vessel A, the walls A' B, extending from the top nearly to the bottom and forming an annular outer chamber and an inner reservoir-chamber, communicating with 60 each other at the bottom, the said inner chamber being provided with a horizontal partition, with valve and air-pipe for transferring the contents of the reservoir above to the space below, and the said annular chamber being 65 provided with an absorbent, substantially as shown and for the purpose described. 70

3. In a carbureting apparatus, the combination of the vessel A, the walls A' B, extending from the top nearly to the bottom and forming an annular outer chamber and an inner reservoir-chamber, communicating with 75 each other at the bottom, the said inner chamber being provided with a horizontal partition forming a reservoir above, with valve and air-pipe for transferring the contents to the space 80 below, the pipes G G', connecting diametrically with the opposite sides of the annular chamber, the casing H, with pipes I I', connecting with said pipes and located centrally above the carburetor, and the four-way cock 85 J, substantially as shown and described.

The above specification of my invention signed by me in the presence of two subscribing witnesses.

FERDINAND WEIL.

Witnesses:

EDWD. W. BYRN,  
 SOLON C. KEMON.