(No Model.) 2 Sheets—Sheet 1.

O. MONCUR.

CARBURETOR.

No. 528,377. Patented Oct. 30, 1894.

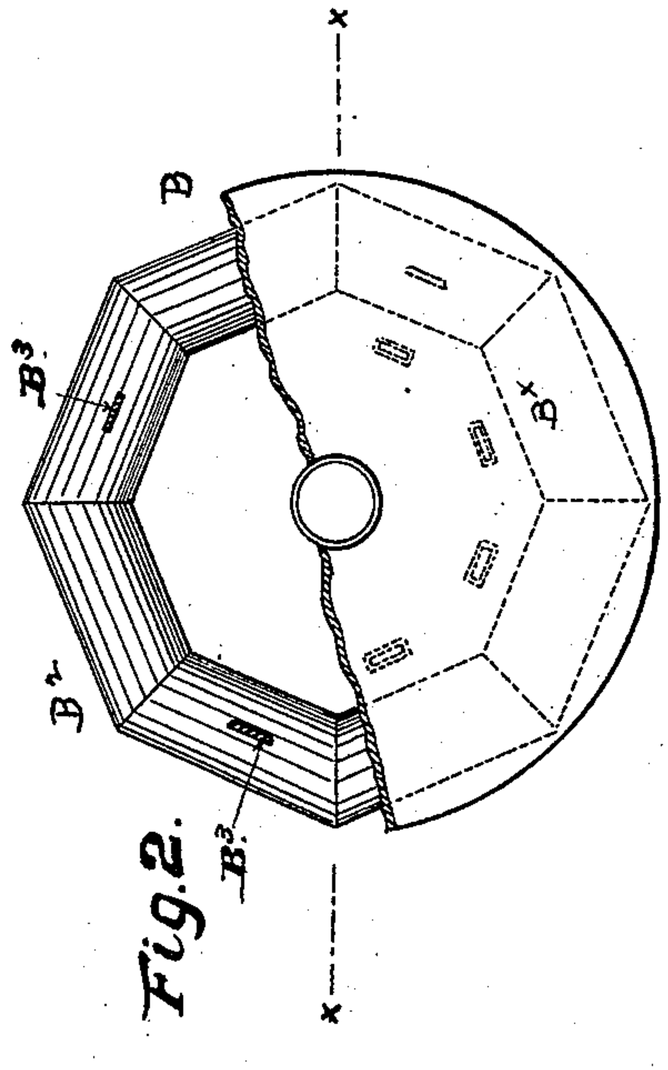

Fig. 2.

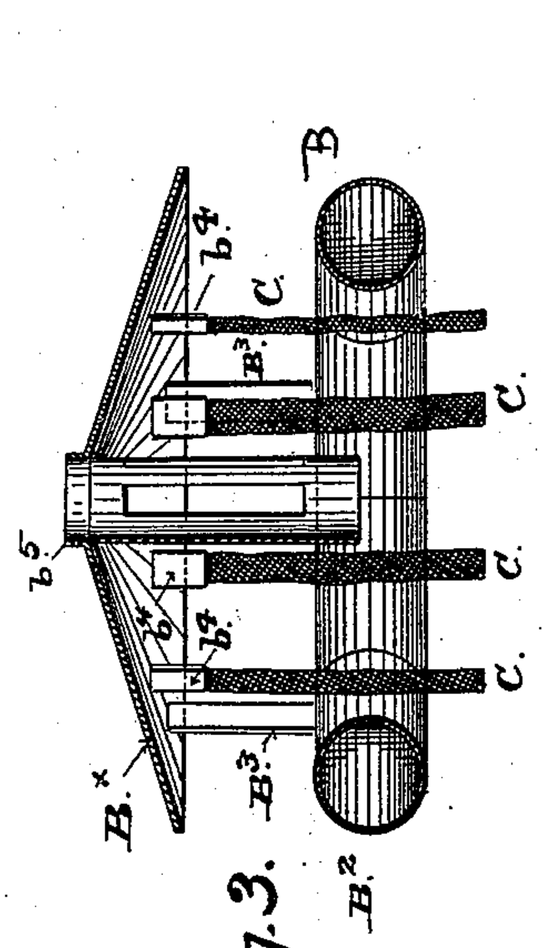

Fig. 3.

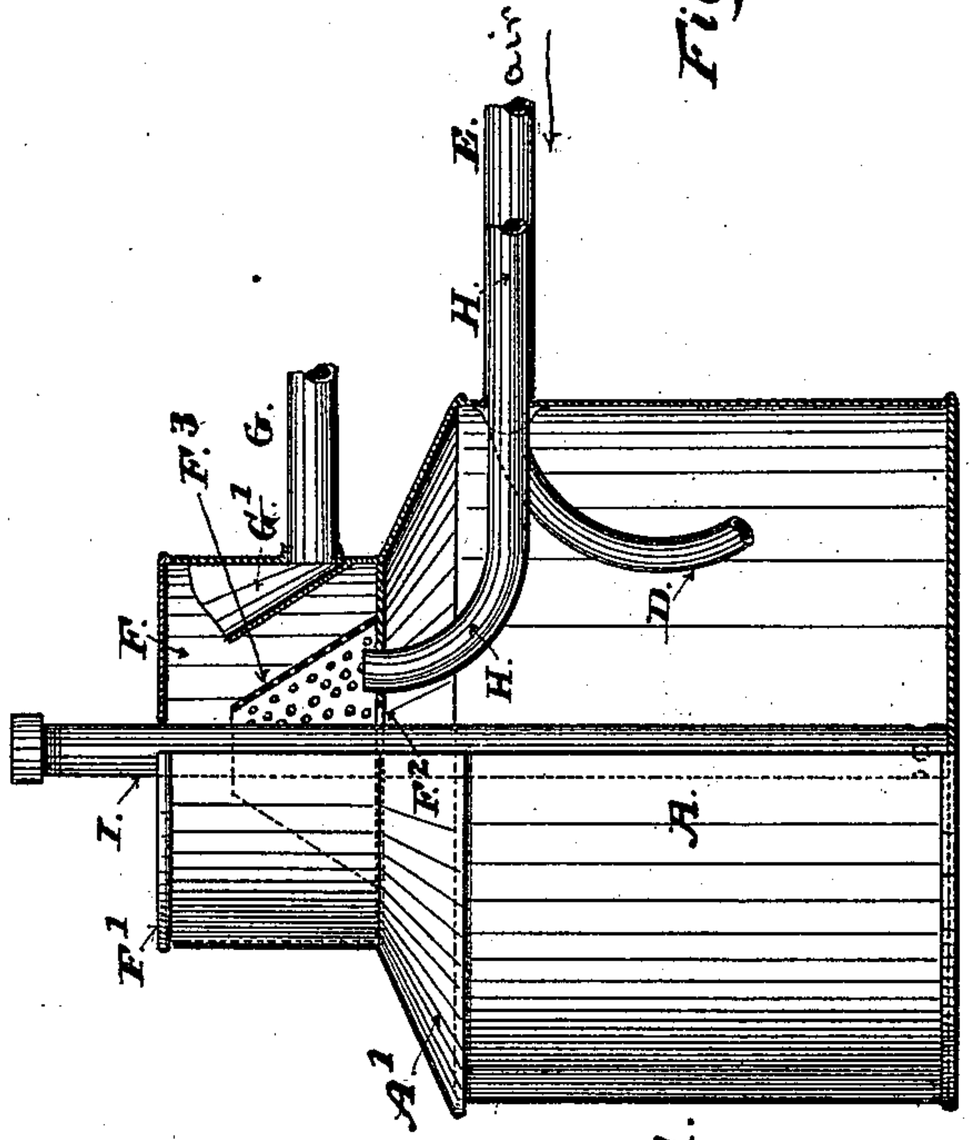

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

O. MONCUR.

CARBURETOR.

No. 528,377. Patented Oct. 30, 1894.

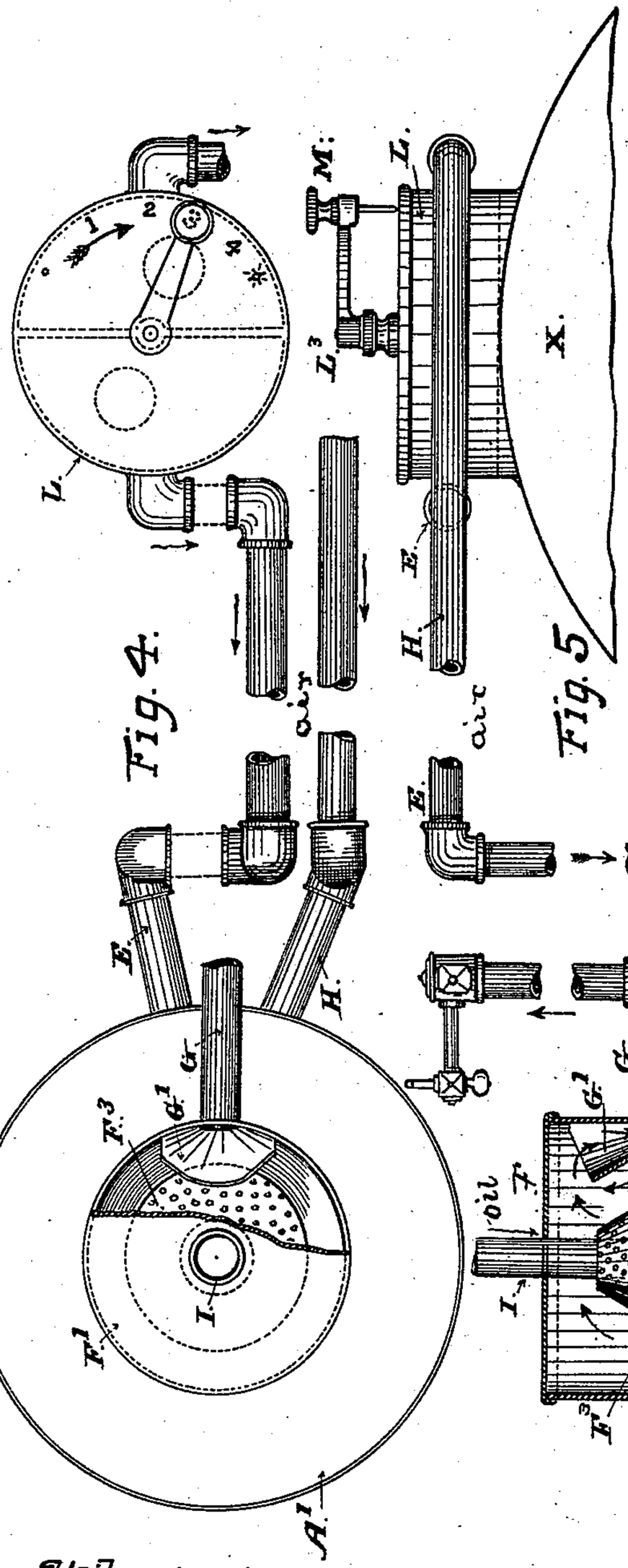

Fig. 4. Fig. 5

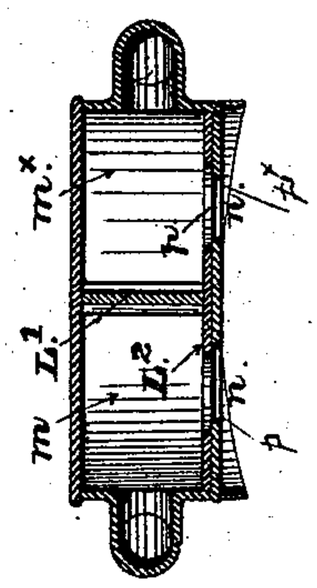

Fig. 6.

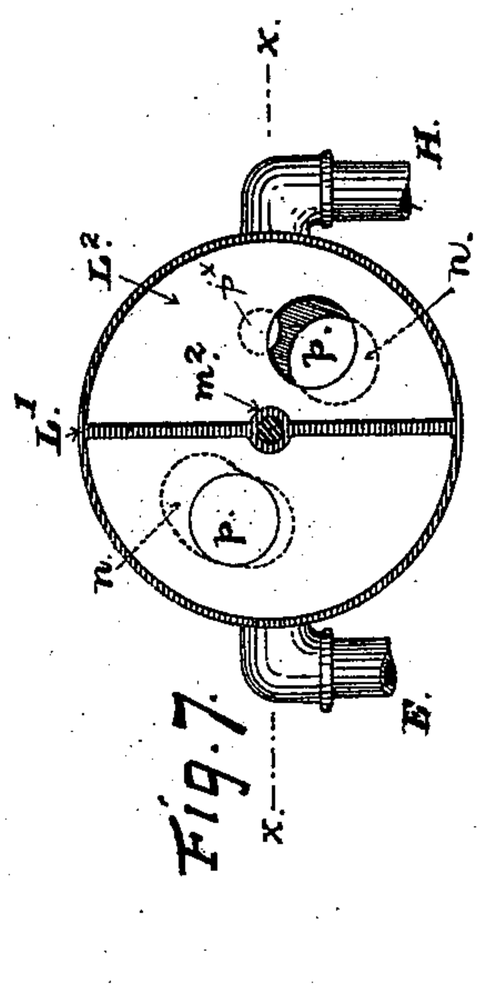

Fig. 7.

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UNITED STATES PATENT OFFICE.

OGILVIE MONCUR, OF YUBA, CALIFORNIA.

CARBURETOR.

SPECIFICATION forming part of Letters Patent No. 528,377, dated October 30, 1894.

Application filed August 16, 1893. Serial No. 483,257. (No model.)

To all whom it may concern:

Be it known that I, OGILVIE MONCUR, a citizen of the United States, residing in Yuba, county of Sutter, and State of California, have invented certain new and useful Improvements in Carburetors, of which the following is a specification.

My invention relates to improvements made in carburetors for portable gas-machines; and the same consists in certain novel construction and combination of parts as hereinafter fully described and pointed out in the claims.

The nature of the said improvements comprising the present invention and the manner in which I have constructed, produced and applied the same I will now proceed to describe with reference to the accompanying drawings that form part of this specification; the several figures therein being referred to by corresponding letters.

The said drawings represent a carburetor and a pump and connections arranged to maintain a constant flow of atmospheric air through the carburetor in the usual manner of making gas in these machines, the carburetor and the valve to control and regulate the supply of atmospheric air being shown, also, in section and in detail in such parts as contain my said improvements.

Figure 1 of the drawings is an elevation of the carburetor, partly in section. Fig. 2 is a top-view, or plan, of the float removed from the carburetor, and Fig. 3 is a vertical section taken diametrically through the float on the line *x x* Fig. 2. Fig. 4 is a top-view of the carburetor and the air-regulating valve and the pipes connecting it with the carburetor. Fig. 5 is an elevation of the same parts, with the body of the carburetor in section. Fig. 6 is a section through the valve on the line —*x*—*x*— Figs. 4 and 7, and Fig. 7 is a horizontal section through the valve.

The carburetor consists, mainly, of a gasoline holder A and a float B carrying a number of absorbing strips C C. These strips are attached to and suspended by the float in the gasoline to take up the fluid at all times as the level of the fluid falls.

D is a flexible air-tube or conductor through which air is carried from an inlet-pipe E in the side of the body A into the space under the top plate of the float. The pipe E is connected with the air-pump through a regulating valve L.

F is a mixing chamber in which the carbureted air carrying an excess of the hydrocarbon is reduced or diluted with air in order to bring it to the proper condition for burning; this being done by introducing an additional stream or quantity of air from the pump through a second pipe H into the chamber.

G is a service-pipe that carries off the gas from the carbureting space or chamber in the body A for consumption. The air-pipe H is connected to one side of the valve L and the pipe E to the opposite side.

I is a stand-pipe for charging the carburetor with gasoline.

In constructing the carburetor, I make it of various sizes according to the capacity of the machine I desire to produce.

The mixing-chamber F on the top of the carburetor is made considerably smaller than the carburetor-body, and in most cases about one half the diameter of the body. The top of the chamber F is fitted with a tight head or cover F′ through which the pipe I projects a sufficient distance to bring the end of the pipe to the proper height above the surface, where the carburetor is buried in the ground; and in the bottom is an opening F^2 into the space in the upper part of the carburetor. The top A′ in which is placed the chamber F, is movable for giving access to the float.

F^3 is a conical screen of perforated sheet metal, or of wire netting fixed over the outlet end of the air-pipe H and over the opening F^2 in the mixing-chamber.

G′ is a trough-shaped plate fixed against the side of the chamber over the outlet end of the service-pipe G. This part is closed at the bottom and its mouth or open top is carried up close to the top of the chamber, so that the gas is carried off out the upper part of the chamber instead of being drawn off directly through the screen and from the lower part of the chamber where the mixing takes place.

The air-pipe H passes through the upper part of the carburetor into the mixing chamber and its upwardly turned end terminates under or inside the perforated screen.

The float has a conical plate or disk $B^\times$ fit-

ting closely to the sides of the body A, but having sufficient play to move easily up and down and an air-tight, hollow ring, or body, B^2 to which the top $B^\times$ is attached by stiff upright arms or members B^3; and to the under side of the top B^2 is secured a number of strips C C of absorbent material, such as lamp-wicking, at regular distances apart all around the circle. The upper ends of these strips are inserted into flat tubes b^4 b^4 and are fastened by compressing the tubes; or any other suitable fastening means may be used. Thus attached to the top of the float they extend downward into the body of gasoline and they are of such length that they will touch the bottom when the level of the gasoline is below the point required to buoy up the float. By that means they continue to take up the gasoline and to remain saturated as long as any gasoline remains in the carburetor.

The top plate is dished or conical in form with the apex uppermost. It has an opening in the center surrounded by a rim b^5 for the stand-pipe; and also a thimble b^3 or an aperture with a coupling for the flexible air-tube opens into the space B. This tube is the conductor for the air that is forced through the pipe E into the main space of the carburetor and it is made of a flexible tube in order to accommodate the rising and falling movements of the float.

The air-pipe E is connected to one side of the valve L on the pump, while the other air-pipe H is connected to the opposite side of the valve; this valve of the apparatus being constructed to control and regulate the supply of air to both parts of the carburetor in different proportions at the proper time by a single adjustment. The construction of this valve is shown more particularly in detail views Fig. 4, 6, and 7.

The body of the valve is divided diametrically by an upright partition L′ into two compartments m $m^\times$ one for each air-pipe, and each compartment has an outlet and coupling on the outside to take the pipe. In the center of the valve-body, which is circular in form, is a bearing or socket m^2 for a rotatable stem L^3 carrying on its foot a thin disk-valve L^2 that fits closely to the circular sides of the body and against the flat bottom. In each compartment there is an inlet-aperture n in the flat bottom, and a corresponding aperture p $p^\times$ in the disk overlying the bottom and in line with the opening in it.

The openings in the disk L^2 are of equal area; but the openings in the bottom of the valve-body beneath the disk are elongated and are arranged also with relation to the disk-openings in such manner that the size of the inlet-aperture for the air into one valve compartment will be increased or will be reduced in area over the corresponding inlet in the opposite compartment according to the adjustment or change in position of the disk L^2. This construction is designed to regulate by a single valve the quantity of air passing into the carburetor chamber into the main portion of the carburetor and into the mixing-chamber above, and also to vary the proportions of the two separate streams of air by a single adjustment of the valve; so that the stream or body of air entering the carburetor at one inlet shall be increased in proper proportion over the volume of air introduced into the carburetor through the other inlet.

In the operation of the apparatus, when the carburetor is freshly charged, the greater proportion of air is passed directly in contact with the fluid and only a small proportion of air is allowed to flow into the mixing-chamber; but as the carbureting process continues the vapor or charged air in the space above the fluid becomes richer or more highly charged, so that it becomes necessary to increase the proportion of atmospheric air in the chamber in order to dilute the mixture and bring it to the required condition for producing a clear, bright light at the burner. At such times the quantity of air that comes in direct contact with the volatile liquid is reduced at the valve, while the quantity passing into the upper part of the carburetor—in that part which I have termed the mixing-chamber where the highly charged or enriched air is collected—is increased. To the stem of the valve is fixed a handle M for turning the disk L^2, and on the outer end of the handle there is a pointer setting over a scale on the cover of the valve, of which the first figure, or mark, on the cover indicates the position required at the beginning of the operation when the carburetor is charged, while the last mark or figure gives the position for shutting off the pump from the carburetor. Between these two points the remaining marks, or figures, give different positions of the valve to vary the proportion between the two streams or volumes of air.

At the beginning of the operation, to set the carburetor at work, the first position of the valve gives an inlet of full area in the compartment m that is connected by the pipe E with the main part of the carburetor, while in the opposite compartment $m^\times$ connected with the mixing-chamber the air-inlet has the smallest area which can be produced with an inlet of full area in the other compartment. From that position the valve is turned in the direction of the arrow Fig. 4, and at the next mark on the cover the inlet in the compartment $m^\times$ will be increased in area while the opposite inlet is kept at the same area. As this adjustment of the valve is continued in the same direction, the inlet p^* will be further increased in area, and by further adjustments positions of the valve-disk will be obtained in which the inlet in the compartment on one side of the partition will be of greater area than the inlet in the opposite compartment and consequently the proportion of the air admitted to the mixing-chamber will be greater than that which passes into the body of the carburetor below. Thus

constructed and arranged this valve gives control of both streams or bodies of air flowing into the carburetor and enables their proportions to be regulated and varied in a simple manner by turning and setting the handle of the valve from point to point as the carburetor is kept in operation. This valve is set directly upon the pump X. It can be arranged and connected for operation with any air-pump or air-forcing apparatus of the various kinds commonly used with carburetors in these machines.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The herein described carburetor-float, comprising the movable conical-plate of circular shape fitted closely to the sides of the carburetor body, as described, the hollow float below the plate, the rigid arms securing the plate to the float by which the said plate is supported above the surface of the liquid, the absorbent strips attached to the under side of the plate and depending therefrom through the open space under the plates and into the body of liquid in the carburetor, and the flexible tube connected at one end to an air supply pipe outside the carburetor and at the other end inserted through the top of the conical plate and set to deliver the air into the space above the top of the liquid and through the suspended absorbent strips, substantially as hereinbefore set forth.

2. In a carburetor for gas-machines having a gasoline-holding space at the bottom, the combination of a mixing-chamber at the top communicating directly with the space above the body of gasoline in the carburetor-chamber, a perforated screen inclosing opening or passage between the said chamber and the space below, an air-pipe arranged to deliver air into the said chamber inside the said screen, an air-supply pipe connected to the carburetor to deliver air into the space above the gasoline and an outlet for connecting a gas-pipe to the mixing-chamber to carry off the gas from the mixing-chamber for consumption, substantially as described.

3. In a carburetor for gas-machines, the combination with the carburetor having a carbureting-space above the body of gasoline, of a mixing-chamber over the carbureting space and communicating directly with said space, a perforated screen inclosing the communicating opening or passage between the chamber and said space, an air-pipe arranged to deliver into the chamber inside said screen, an air-pipe arranged to carry air into the carbureting space below the mixing-chamber, and a valve adapted for connection with an air-pump having a compartment for each pipe-inlet with an inlet from the pump into said compartment and a rotatable disk-valve controlling said inlet apertures and having openings through it which are formed and set with relation to the inlets in the two compartments of the valve-body, as described, for varying the proportions between the two streams of air separately supplied to the carburetor, as specified.

4. In combination with the carburetor, having the carburetor-space and mixing-chamber, as described, the air-pipes —E—H— valve-body —L— having two compartments —*m*—*m*$^{\times}$— with inlet-apertures in the bottom separated by a partition, a disk-valve having openings —*p*—*p*$^{\times}$—, and individual couplings on the valve-body communicating with the compartments for connecting the air-pipes thereto, and means for turning and setting the valve-disk, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

OGILVIE MONCUR. [L. S.]

Witnesses:
M. E. SANBORN,
H. A. WALTON, Jr.