No. 795,273. PATENTED JULY 25, 1905.

L. A. ESSNER.

CARBURETER.

APPLICATION FILED MAR. 25, 1904.

2 SHEETS—SHEET 1.

Fig. 1

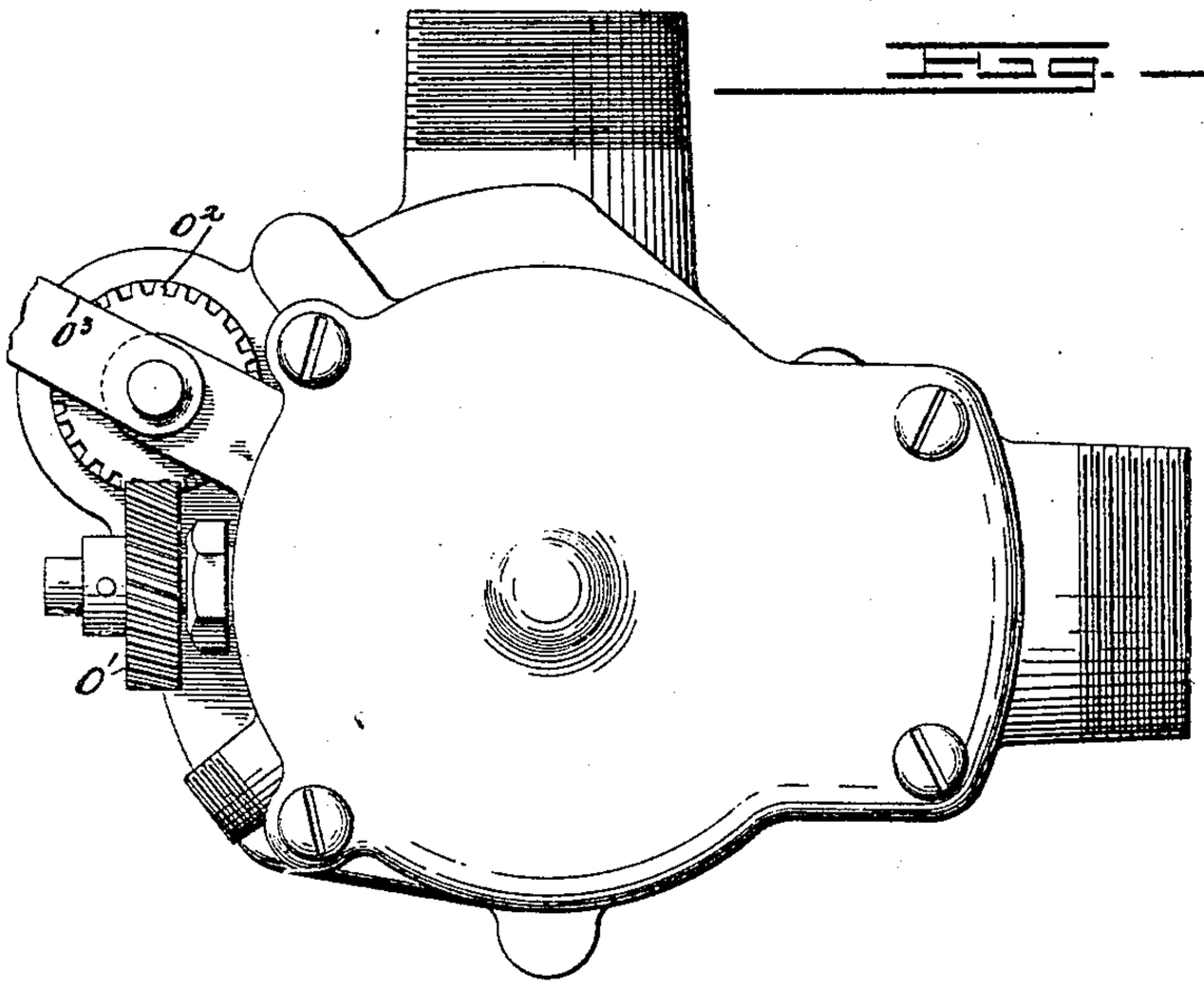
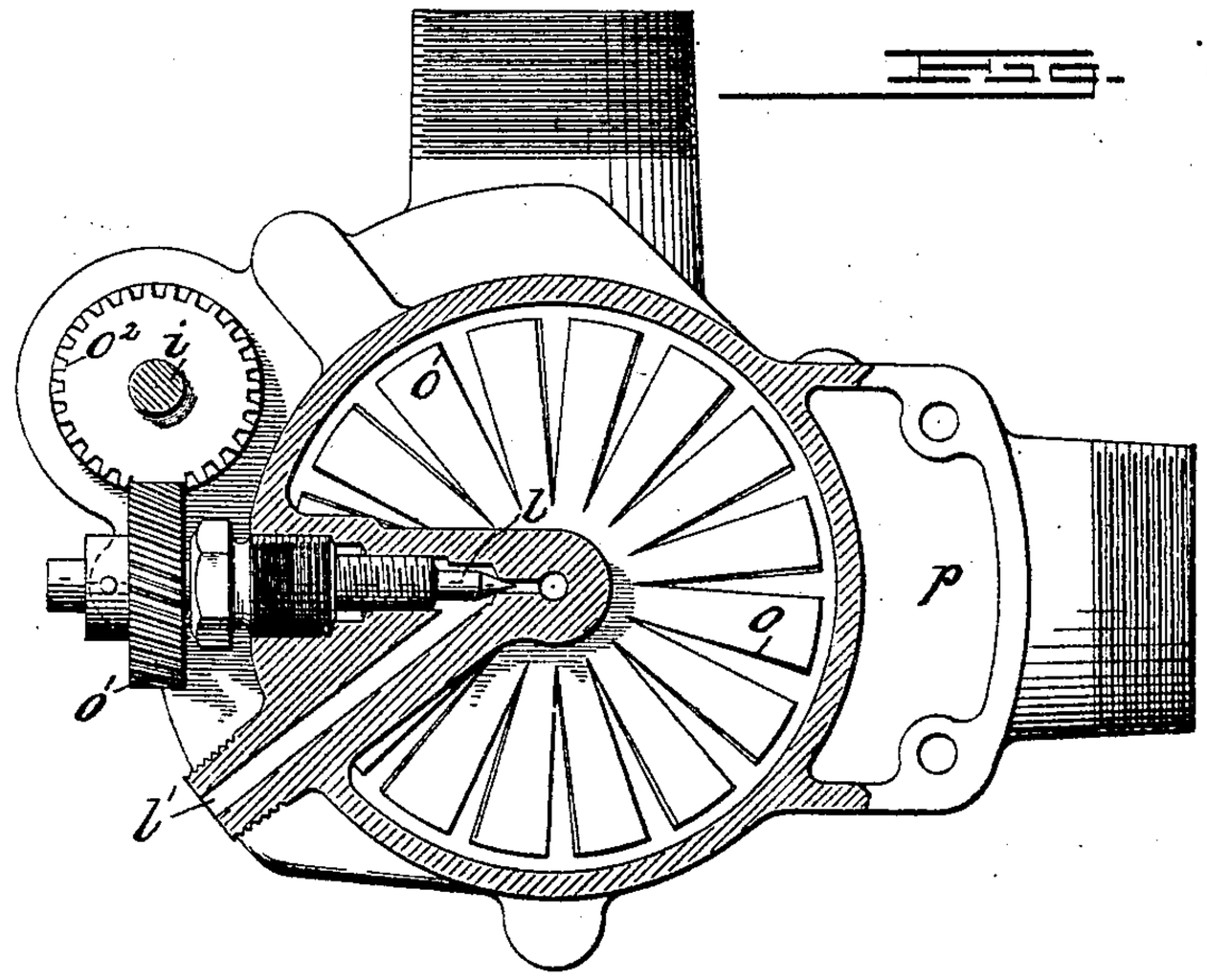


Fig. 2



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2 SHEETS—SHEET 2.

Fig. 1.

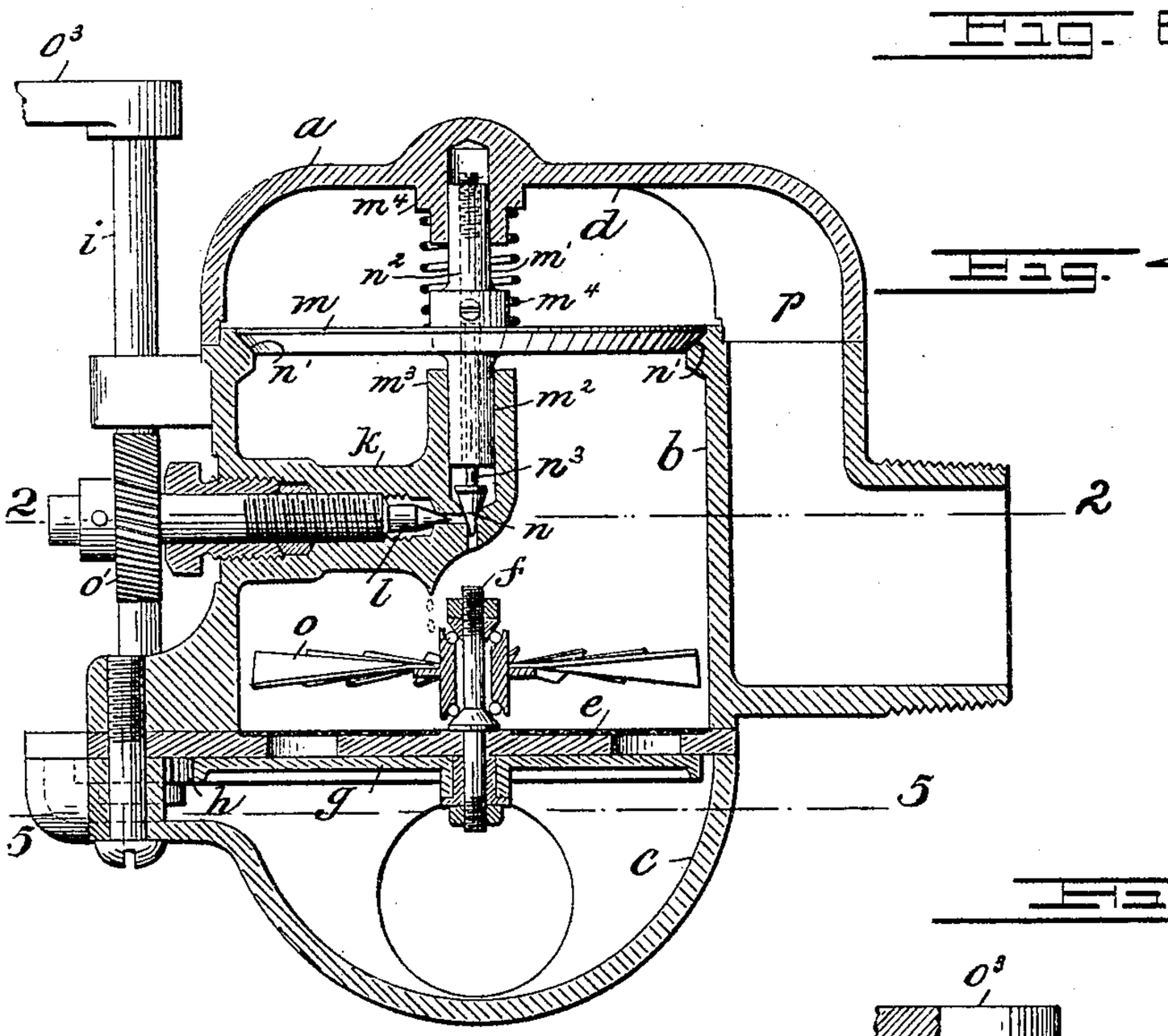


Fig. 2.

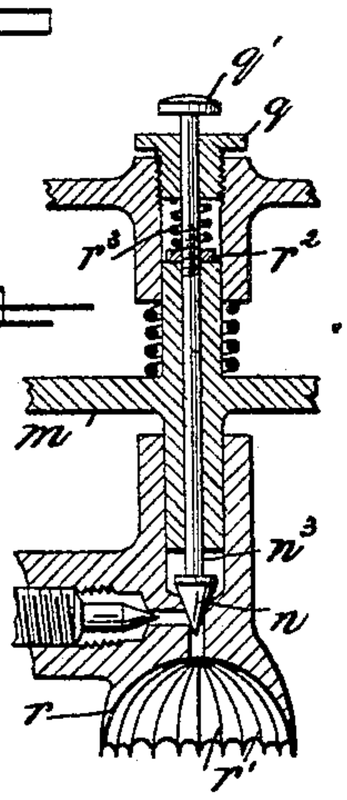


Fig. 3.

Fig. 4.

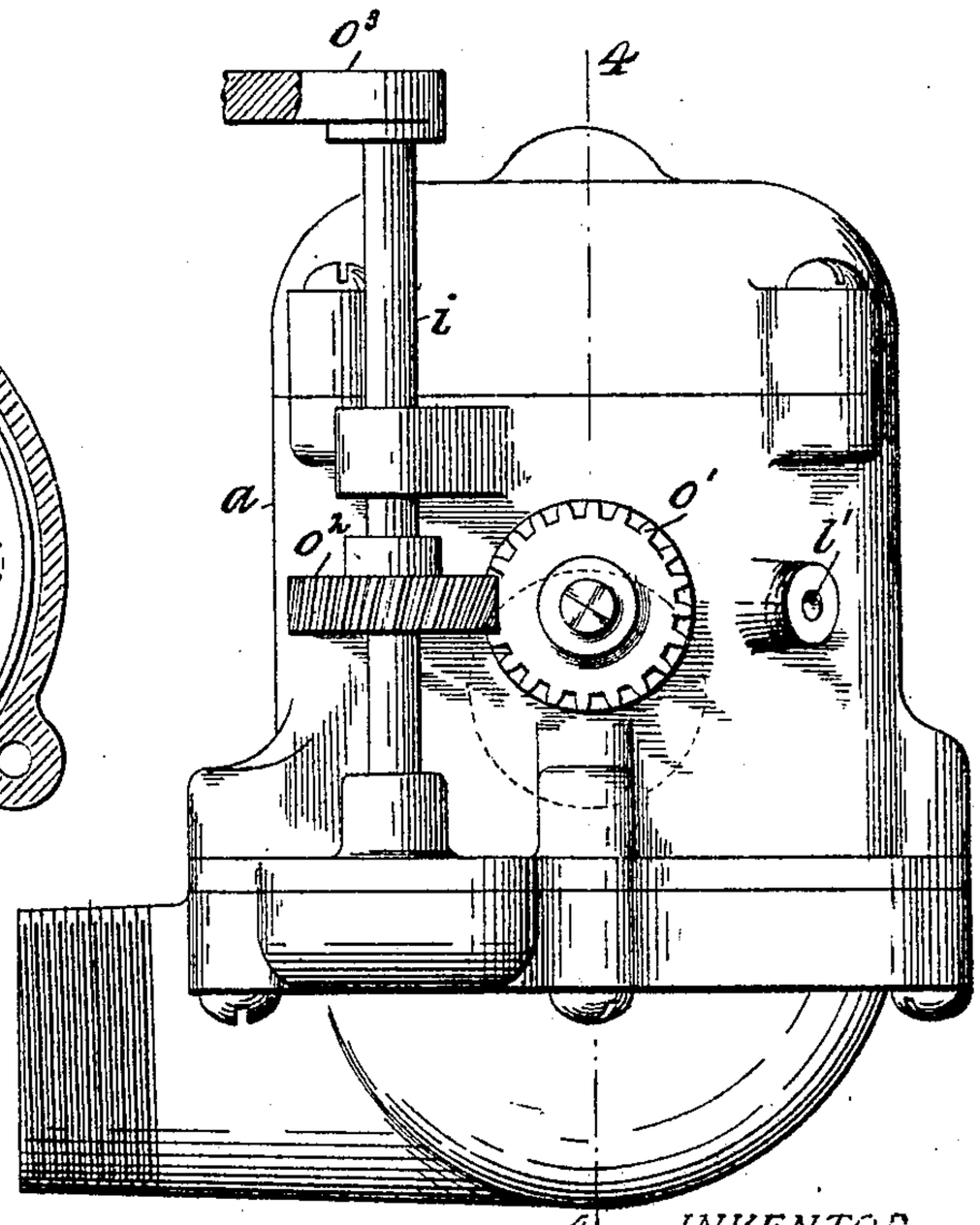
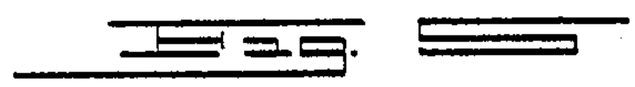


Fig. 5.



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UNITED STATES PATENT OFFICE.

LOUIS A. ESSNER, OF PRINCESS BAY, NEW YORK, ASSIGNOR OF ONE-THIRD TO GEORGE C. PERKINS, OF TOTTENVILLE, NEW YORK, AND ONE-THIRD TO WILLIAM H. BEDELL, OF HUGUENOT, NEW YORK.

CARBURETER.

No. 795,273. Specification of Letters Patent. Patented July 25, 1905.

Application filed March 25, 1904. Serial No. 199,955.

To all whom it may concern:

Be it known that I, LOUIS A. ESSNER, a citizen of the United States, residing at Princess Bay, Staten Island, in the county of Richmond, State of New York, have invented certain new and useful Improvements in Carbureters; 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 appertains to make and use the same.

The invention relates to improvements in carbureters; and it consists in the novel features and combinations hereinafter described, and particularly pointed out in the claims.

The object of the invention is to provide an improved device of this class which will be relatively simple and inexpensive in construction, convenient in installation, neat in appearance, and generally superior in point of efficiency and adaptable to varying conditions of use.

In the drawings, Figure 1 represents a plan view of my improved device; Fig. 2, a sectional plan view of the same, taken on lines 2 2 in Fig. 4; Fig. 3, a side elevation. Fig. 4 represents a vertical sectional elevation of my improved device, taken on lines 4 4 in Fig. 3. Fig. 5 represents a sectional view from beneath of the air-feeding device, taken on lines 5 5 in Fig. 4; and Fig. 6 represents a fragmentary sectional view of a modified form of the valve-operating means of my improved device.

Corresponding letters illustrate corresponding parts throughout.

In the drawings, *a* represents the carbureter-case, which consists, essentially, of three parts—a central portion or vaporizing-chamber *b*, the lower portion or air-inlet *c*, and the upper portion or vapor-delivery conduit *d*, connecting with the outlet of the central portion or vaporizing-chamber *b*. Interposed between the central portion *b* and the lower portion *c* of the carbureter-case *a* is an air-regulating device consisting of a plate *e*, secured in any well-known manner. A central stud *f* passes through the plate *e* and supports the plate *g*. One side of said plate has formed thereon teeth designed to mesh with a gear-wheel *h*, secured to the control-shaft *i*. The plate *e* is provided with a series of openings for the admission of air, and the plate *g* is also provided with corresponding openings adapted to register with the openings in the plate *e* when it is desired to admit air to the vaporizing-chamber *b*. It will be noted that the openings in the plate *g* are of such shape and location that they register successively with the openings in the plate *e*, and thereby permit a graduated flow of air to the vaporizing-chamber *b*. The vaporizing-chamber *b* of the carbureter-case has cast integral therewith and extending inwardly and upwardly an extension *k* for the reception of an oil or hydrocarbon supply needle-valve *l*, an oil-conduit *l'*, and a bearing for the tubular extension of the vertically-moving vapor-supply valve *m* and needle check-valve *n*. As illustrated in the drawings, the stud *f* projects into the vaporizing-chamber *b* and supports a rotatable fan *o* of ordinary construction, having suitable blades for causing the circulation of air, which is supported on suitable ball-bearings. The upper extremity of the vaporizing-chamber *b* has formed thereon a valve-seat *n'* for the reception of the vapor-supply valve *m*, and adjacent to said valve-seat *n'* is a vapor-delivery conduit *p*, which connects with the engine supply-pipe.

The vapor-supply valve *m* is provided with an upper and lower tubular extension, lettered, respectively, *m'* and m^2, which operate in the bearings m^3 and m^4 of the extension *k* and the under side of the upper portion *d* of the carbureter-case *a*. The vapor-supply valve *m* is provided with a central bore n^2 for the reception of the tubular extension or shank n^3 of the check-valve *n*. m^4 is a spiral spring interposed between the valve *m* and the casing *d* to hold the valve *m* to its seat *n'* and yet permit it to be opened when sufficient force is brought to bear upon the under side of the valve, so that the gas or vapor formed in the vaporizing-chamber *b* lifts said valve automatically, thereby gaining access to the vapor-delivery conduit *p*, which connects with the engine supply-pipe. The check-valve *n* is so adjusted with the vapor-supply valve *m* that they seat and move simultaneously with each other. The needle-valve *l* is of the ordinary kind, suitably secured in the extension *k* and surrounded by a packing-box which has screw-threaded engagement with the carbureter-chamber *b*.

A small spiral gear *o'* is secured to the stem of the needle-valve and located outside of the chamber *b*, which engages with a spiral gear

o^2, secured to the control-shaft i, so that the oil-supply and air-supply can be simultaneously operated by a single handle o^3, which is secured to the control-shaft i.

In the modified form of the valve-operating means, as illustrated in Fig. 6, the shank n^3 of the check-valve n extends through the vapor-supply valve m and passes through the adjustable bushing q, which is secured in the top of the upper portion of the vapor-delivery conduit d. A small head q' is secured to the shank n^3, designed to enable the check-valve n to be raised when desired. The shank n^3 is threaded and provided with an adjusting-nut r^2, so that the check-valve n can be adjusted in relation to the vapor-supply valve m. A small spiral spring r^3 is interposed between the nut r and the threaded bushing q'. In the modified form the extension k is provided with an inverted cup r, having a series of grooves r' formed therein for the purpose of facilitating the flow of gasolene and distributing the same to the lower edge of said cup.

The operation of the above-described device is as follows: The control-shaft i, which simultaneously regulates the flow of the oil and air supply, is given a slight turn which permits the oil to flow down on the blades of the rotatable fan, which causes a circulation of air and insures thorough vaporization of the oil. The vapor or gas formed in the vaporizing-chamber lifts the vapor-supply valve and check-valve automatically, thereby permitting the vapor to enter the vapor-delivery conduit, which connects with the engine supply-pipe.

Various changes in the form and details of my invention may be inserted at will without departing from the spirit of my invention, and my improved carbureter is not limited to use on gas-engines, but may be used on any explosive-engine; nor is it limited to the use of gasolene, as it will feed alcohol and similar substances as well, and I am aware that changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit of the invention.

Having thus described my invention, what I claim is—

1. In a carbureter, the combination of a casing containing a mixing-chamber, a fuel-inlet passage leading into said chamber, a fuel-supply valve and a check-valve in said passage, an air-inlet leading into said chamber, and separated therefrom by a fixed apertured plate, a plate provided with graduated apertures rotatably mounted upon said fixed plate, a shaft geared to said supply-valve and to said rotating plate whereby said valve and plate are simultaneously operated to admit fuel and air to said chamber in predetermined relative quantities, and a draft-operated fan supported upon said fixed plate.

2. In a carbureter, the combination of a casing containing a mixing-chamber, a fuel-inlet passage leading into said chamber, a fuel-supply valve and a check-valve in said passage, an air-inlet leading into said chamber, and separated therefrom by a fixed apertured plate, a plate provided with graduated apertures rotatably mounted upon said fixed plate, a shaft geared to said supply-valve and to said rotating plate whereby said valve and plate are simultaneously operated to admit fuel and air to said chamber in predetermined relative quantities, a draft-operated fan supported upon said fixed plate, a vapor-delivery conduit leading from said chamber and a vapor-supply valve in said conduit, said valve connected to the check-valve for simultaneous operation.

3. In a carbureter, the combination of a vaporizing-chamber, an inverted fuel-distributing cup within said chamber, said cup being provided with internal grooves.

This specification signed and witnessed this 17th day of March, 1904.

LOUIS A. ESSNER.

Witnesses:
WM. H. BEDELL,
FREDK. C. FISCHER.