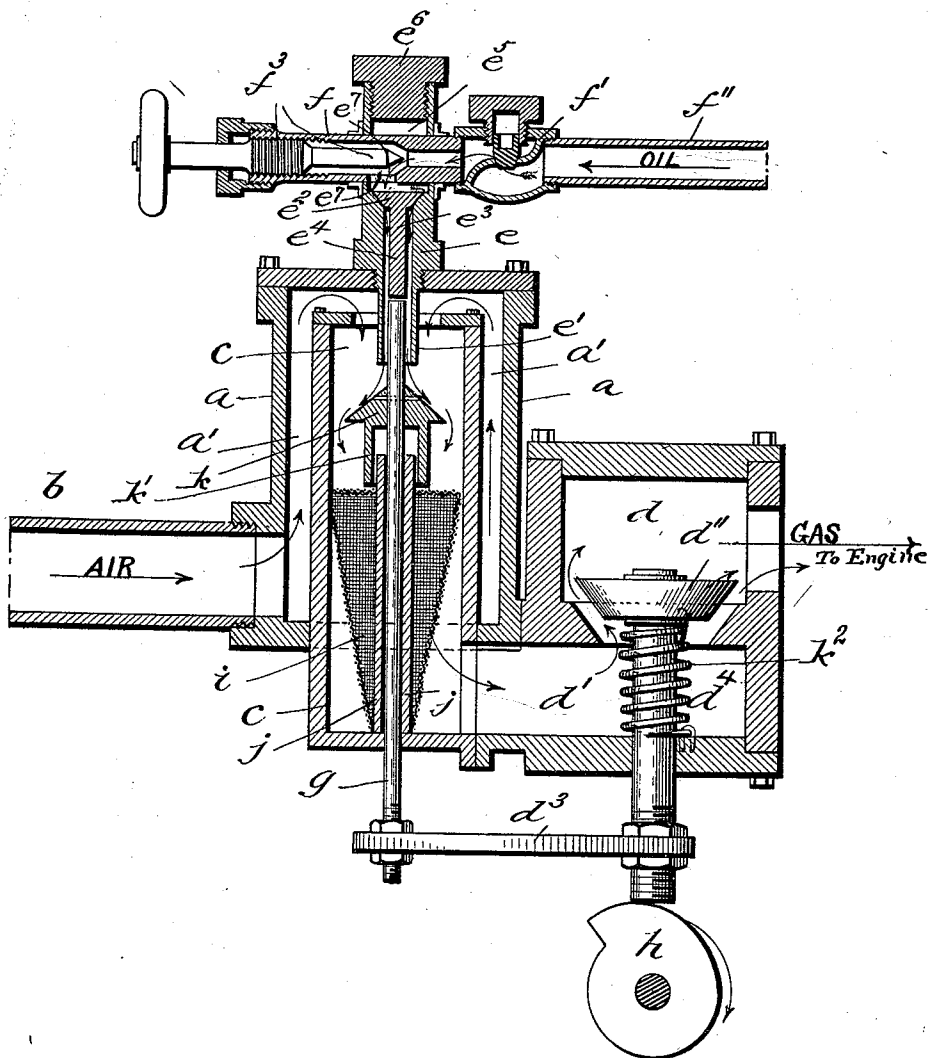


(No Model.)

J. W. LAMBERT.
CARBURETOR.

No. 517,344.

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Witnesses

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CARBURETOR.

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To all whom it may concern:

Be it known that I, JOHN W. LAMBERT, a citizen of the United States, residing at Union City, in the county of Randolph and State of Indiana, have invented certain new and useful Improvements in Carburetors, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a new and improved carburetor, and relates particularly to that class of carburetors designed for use in connection with gas engines; and it has for its object to provide a device of simple construction which will quickly vaporize the hydro-carbon fluid, and thoroughly mix the air with said vapor in its passage to the engine.

The invention consists in providing a vaporizing-chamber; suitable automatically operated valve mechanism for intermittently introducing the desired quantity of fluid into said chamber; an air chamber entirely surrounding the upper part of the vaporizing-chamber, the air entering said chamber near its lower end and circulating around the vaporizing-chamber before entering same, whereby hot air may be used and the vaporizing-chamber heated thereby; an outwardly-opening valve located between the engine and the vaporizing-chamber, and mechanism for intermittently opening and closing said valve, said valve being closed after the fluid inlet-valve is closed, all of which will be fully hereinafter described and particularly set forth in the claims appended.

In the drawing is represented a vertical longitudinal sectional view of my improved carburetor.

Referring to the various parts by letter *a* designates the air chamber; *b* the air inlet pipe which enters the chamber *a* near its lower end; *c* the vaporizing-chamber which extends up into the air chamber, and is located centrally therein, its upper end extending near to the upper end of the air chamber, an air space *a'* being formed between the chambers *a* and *c*; *d* the main valve chamber which is connected by the under passage *d'* to the lower end of the vaporizing chamber; *e* the fluid inlet pipe which passes through the cover to the air chamber, its lower end *e'* extending down into the vaporizing-chamber

a suitable distance through a large opening in the upper end of said chamber; *e⁵* the enlarged bore of said pipe at the upper end thereof; *e²* a valve seat formed therein for the gravitating valve *e³*, which valve is formed with the depending stem *e⁴*; *e⁶* a removable plug screwed into the upper end of pipe *e*, said plug permitting the removal of the valve *e³*, when pipe *f* is removed from the pipe *e* as hereinafter set forth; *f* a pipe passing horizontally through pipe *e* just above the valve *e³*, and communicating therewith by an opening *e⁷*; *f'* an inwardly opening check-valve secured to one end of pipe *f'*, and *f''* a pipe through which the hydrocarbon passes to check-valve and to pipe *f*; this check valve may be removed from the pipe *f* and said pipe may then be removed from the pipe *e*, thus permitting the removal of the valve *e³* through the upper end of pipe *e* as described; *f³* a needle valve located within pipe *f*, the seat of said valve being located over the valve *e³* of pipe *e*; *g* a vertically-movable rod extending centrally through the vaporizing-chamber, its upper end being adapted to contact with the lower end of the valve stem *e⁴*, and its lower end extending through the bottom of the vaporizing-chamber; *d''* the main-valve which is in the main valve chamber, and opens inwardly; *d⁴* the main valve stem whose lower end extends below the valve chamber and passage *d'*; *d³* a bar which connects the rod *g* and valve stem *d⁴* below the vaporizing-chamber; *h* a suitably shaped cam operated by suitable mechanism and bearing on the lower end of valve stem *d⁴* and adapted to raise and lower rod *g* through the connecting bar *d³*, the rod *g* being of such a length that its upper end will contact with the stem *e⁴* of valve *e* during the latter part of the upward movement of valve *d''*, thereby opening valve *e*, for a purpose hereinafter set forth. In the vaporizing-chamber is located the inverted gauze cone *i*, the smaller end of said cone resting on the bottom of the chamber, and its larger end extending to about the middle thereof, said larger end being equal in diameter to the interior of the chamber; *j* a tube secured to the bottom of the chamber *c* and through which the rod *g* passes, said tube extending up-

wardly through the cone *i* and its upper end extending above the upper end of the cone a suitable distance; *k* a cone secured on rod *g* between the tube *j* and the lower end of the pipe *e*, said cone being of a suitable diameter at its lower end and provided on its lower side with the depending annular flange *k'* which surrounds the upper end of tube *j* and prevents the fluid entering said tube.

10 The operation of my improved carburetor is as follows:—The hydro-carbon fluid is led through the pipe *f''* and check valve *f'*, and valve *f''* is adjusted to admit the desired quantity of fluid into the chamber of valve *e''*.

15 The cam *h* is operated by suitable mechanism, to raise valve *d''* and by means of the bar *d''* and rod *g*, opens valve *e''* on the latter part of the upward movement of the valve *d''* as previously described. The charge of fluid now

20 passes through the valve *e''* and pipe *e* and is spread out or broken by contact with the cone *k* and then passes down to the gauze cone *i*. The air enters the chamber *a* through the pipe

25 *b* and circulates around the vaporizing chamber and passes into said chamber through the opening in the top thereof. The inflowing air in the chamber *c* strikes the inflowing fluid on the cone *k*, and aids in scattering the fluid,

and then passes with it through the gauze cone *i*, thoroughly vaporizing the fluid, and as vapor they pass through passage *d'* and valve *d''* into the engine. In closing the valves, the valve *e''* having been raised only on the

30 latter part of the upward movement of the main valve, will close on the first part of the downward movement of said main valve, and the main valve will remain open for a longer time than the valve *e''*. It will thus be seen

35 that all the vapor will be drawn from the vaporizing-chamber before the next charge of fluid enters it, thereby keeping said chamber clean and in good condition for each successive charge, and preventing residuary deposits. As will be readily understood, hot air

40 may be introduced into the air chamber, and, by circulating it around the vaporizing chamber as described, heat this latter chamber and thereby greatly aid in the process of vaporization. And, as is manifest, different

45 mechanism may be employed for operating the valves, for instance, the bar *d''* may be dispensed with, the rod *g* made integral with the stem of valve *e''* and separate cams or operating mechanism provided for each valve.

50 The devices in the vaporizing-chamber may also be modified without departing from the scope of the invention.

If desired, a stuffing box may be used at the entrance of rod *g* into the tube *j* through

60 the bottom of the chamber *c*, but in practice it has been found that a stuffing box at this point is not necessary, the depending flange of the cone *k* preventing the entrance of fluid into the tube and thereby preventing any

65 leakage at the lower end of said tube.

A spiral spring *k''* is attached to stem *d''* in order to assist in closing valve *d''*.

Having thus fully described my invention, what I claim is—

1. A carburetor, consisting of a vaporizing-chamber having an air inlet, an oil inlet pipe opening into said chamber, an inlet valve in said pipe, a passage connecting the vaporizing-chamber and engine, an outlet valve in this passage, and mechanism for opening and closing this latter valve and the valve in the oil inlet pipe, said mechanism closing the oil-inlet valve before the vapor outlet valve is closed, substantially as described and for the purpose set forth.

2. A carburetor consisting of a vaporizing-chamber having an air inlet, an oil inlet pipe opening into said chamber, an inlet-valve in said pipe, a rod, as *g*, passing through the vaporizing chamber, its upper end being adapted to open the inlet valve in the oil pipe, when said rod is raised a sufficient distance, a passage leading the gas from the vaporizing-chamber, an outlet valve in said passage the stem of said valve being connected to the rod *g* and mechanism for intermittently opening and closing this valve, said mechanism intermittently opening and closing the inlet valve through the rod *g*, said oil inlet valve being closed before the gas outlet valve is closed, substantially as described and for the purpose set forth.

3. A carburetor consisting of a vaporizing chamber having an air inlet, an oil inlet pipe opening into said chamber, an inlet-valve in this pipe, a rod extending through the vaporizing-chamber and operating the oil-inlet valve, a tube surrounding this rod and extending from the bottom of the vaporizing-chamber to near the upper end thereof, a cone secured on the rod above the end of the tube, said cone being formed with a downwardly-extending annular flange which surrounds the upper end of the tube, and a passage to lead the gas from the vaporizing chamber, substantially as described.

4. A carburetor consisting of a vaporizing chamber *c*, an air chamber *a* surrounding said vaporizing chamber, a space being formed between the two chambers, the air entering chamber *c* through an opening in its top, an oil inlet tube passing through the chamber *a* and into chamber *c* through the air opening in the top thereof, an inlet valve in this pipe, a valve regulating the flow of oil to this inlet valve, and means for breaking and spreading the oil in the chamber *c*, and a passage leading the gas from the chamber *c*, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN W. LAMBERT.

Witnesses:

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