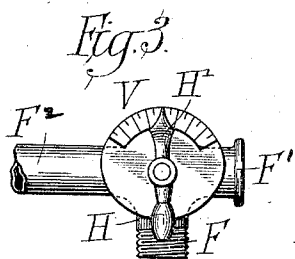
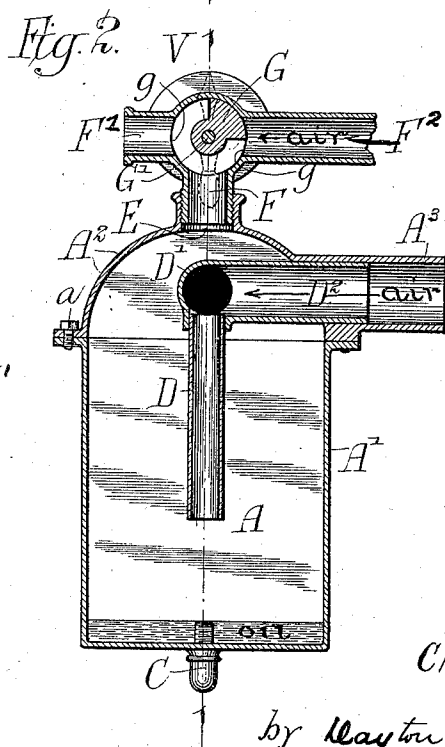
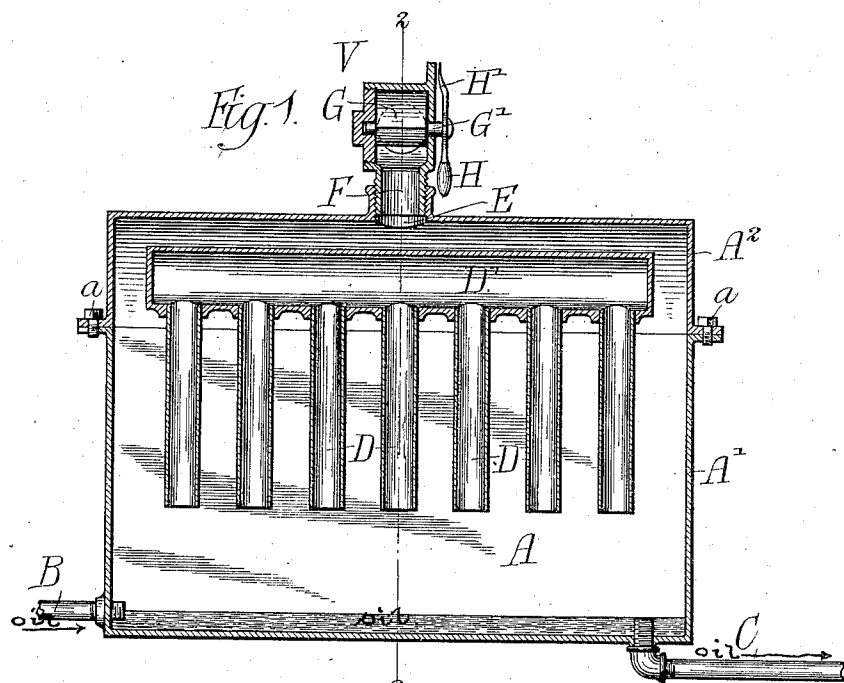


(No Model.)

C. BRUNNER.  
CARBURETOR.

No. 545,048.

Patented Aug. 27, 1895.



Witnesses  
John W. Adams  
Louis M. Whithead.

Inventor  
Charles Brunner

by Mayton, Poole & Brown  
his Attorneys.

# UNITED STATES PATENT OFFICE.

CHARLES BRUNNER, OF PERU, ILLINOIS.

## CARBURETOR.

SPECIFICATION forming part of Letters Patent No. 545,048, dated August 27, 1895.

Application filed September 12, 1892. Serial No. 445,654. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES BRUNNER, of Peru, in the county of La Salle and State of Illinois, have invented certain new and useful Improvements in Carburetors; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in carburetors of that class in which the air or gas to be carbureted is introduced to a closed tank through one or more downwardly-projecting pipes which terminate a short distance above the surface of a liquid hydrocarbon provided in the tank, and thereby cause the entering air-currents to impinge directly upon said surface.

The object of the invention is to provide an improved construction in carburetors of the character referred to, and to this end it consists in the matters hereinafter set forth, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a sectional elevation taken on line 1 1 of Fig. 2. Fig. 2 is a similar view taken on line 2 2 of Fig. 1. Fig. 3 is a detail view of the valve for controlling the proportions of the carbureted mixture.

A designates a closed tank, of cast-iron or similar material, and here shown as comprising a base portion A' and a top portion A<sup>2</sup>, the two parts being secured together in any suitable manner, as by bolts *a*. Gasolene or similar liquid hydrocarbon is admitted to the tank in this instance through a supply-pipe B opening in the base of the tank, near the bottom thereof. An open-mouthed waste-pipe C, entering the bottom of the tank and extending a short distance above the same, serves to limit the depth of the hydrocarbon.

The air or gas to be carbureted is admitted by one or more depending pipes D, connected at their upper ends with the supply of air or gas and extending downwardly to within a short distance of the surface of the hydrocarbon, said pipes D serving thus to direct the air or gas directly upon the surface of said

hydrocarbon, so that by such contact it will be impregnated with a hydrocarbon vapor. As a convenient construction said depending pipes D are here shown attached at their upper ends to a header-pipe D' provided in the upper part of the tank and extending substantially the full length thereof. Said header-pipe D' is supported by a central lateral branch pipe D<sup>2</sup>, connected therewith and extending through a convenient opening in the said tank, such opening being in this instance provided with a surrounding tubular or cylindric portion A<sup>3</sup>, into which the outer end of said pipe D<sup>2</sup> fits in such manner as to be supported thereby. An outlet-opening for the carbureted mixture is herein shown provided at the top of the tank, about midway of the length thereof, the passage between the lower ends of the depending tubes D and the outlet being unobstructed, so that the free circulation of the air or gas is practically unimpeded by its passage through the tank. Any suitable pipe F leading off from the outlet-opening may be used to conduct away the carbureted mixture to the point where the same is to be used.

For the purpose of permitting the relative proportions of the hydrocarbon vapor to the air or gas to be regulated, said pipe F is herein shown as formed with lateral branches F' F<sup>2</sup>, the former leading off to the vapor-engine or other desired point where the carbureted mixture is to be used, and the latter being open to the air (or connected to the gas-supply, according as air or gas is used) and being provided with a valve V for regulating the volume of air or gas admitted thereby. Said valve V is in this instance located at the angle of the T-pipe thus formed, the walls of said T-pipe being curved, as shown at *g*, to cooperate with an oscillating valve-plate G and serve as a casing for the same. Said valve-plate is pivoted within the casing by being rigidly attached to a shaft G', the ends of which are journaled in the side walls of said casing, and one of which ends projects through the wall and carries a handle H and pointer H', both rigidly affixed thereto. The valve-plate G is adapted to oscillate across the mouth of the second supply-pipe F<sup>2</sup> to open and close the same, and the position of the

valve at any point is indicated by the pointer H' on a suitable graduated scale attached to the adjacent face of the valve-casing.

The operation of the carburetor thus constructed is obvious. Air or gas is admitted to the tank A through the inlet-pipe D<sup>2</sup>, passes down through the depending pipes D, by which it is directed with considerable force directly against the liquid hydrocarbon in the bottom of the tank. Becoming thereby impregnated with the hydrocarbon vapor, the carbureted mixture will pass freely and unobstructedly upward through the top of the tank and out through the outlet-pipe F'. Obviously but little or no power will be wasted in forcing the air or gas through the carburetor because of the free and uninterrupted passage afforded for said air or gas, and by reason of which its circulation will not be retarded. At the same time the impinging of the downwardly-directed entering air or gas against the surface of the liquid hydrocarbon will suffice to saturate said air or gas with the vapor of said hydrocarbon. By means of the valve V any desired form of uncarbureted air or gas may be admitted through the additional supply-pipe F<sup>2</sup> and the carbureted mixture thus diluted to the desired proportions.

Obviously the action of the carburetor will be the same whether the air or gas is forced into and through said carburetor under pressure or is drawn through the same by the vacuum of the vapor-engine.

I claim as my invention—

A carburetor comprising a closed tank

formed of upper and lower sections suitably secured together, a pipe entering the lower section near its bottom for supplying liquid hydrocarbon, an overflow opening near said bottom for determining the maximum depth of said liquid hydrocarbon, a lateral opening in the upper section, a tubular projection of said upper section surrounding the opening, a longitudinal header pipe in the upper portion of the tank extending substantially the full length thereof, a plurality of depending pipes attached at their upper ends to the header pipe with their ends open and terminating at a distance from the bottom of the tank, a lateral extension of said header pipe with its open outer end fitting within the tubular projection surrounding the opening in the upper portion of the tank and serving thereby to support the header pipe and the depending pipes connected thereto, an outlet opening in the top of the tank, a T pipe connected with said opening and constructed to form a valve casing, an oscillating valve plate pivoted in the angle of the T pipe and operating to close one branch of the same, a handle or pointer affixed to the pivot of the valve plate without the walls of the T pipe, and a graduated scale on the outside of the casting adjacent to the pointer, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

CHARLES BRUNNER

Witnesses:

HENRY A. ZUBROD,  
GEORGE ALDERSON.