

(No Model.)

H. CALLAHAN.
CARBURETOR.

No. 245,443.

Patented Aug. 9, 1881.

Fig. 1.

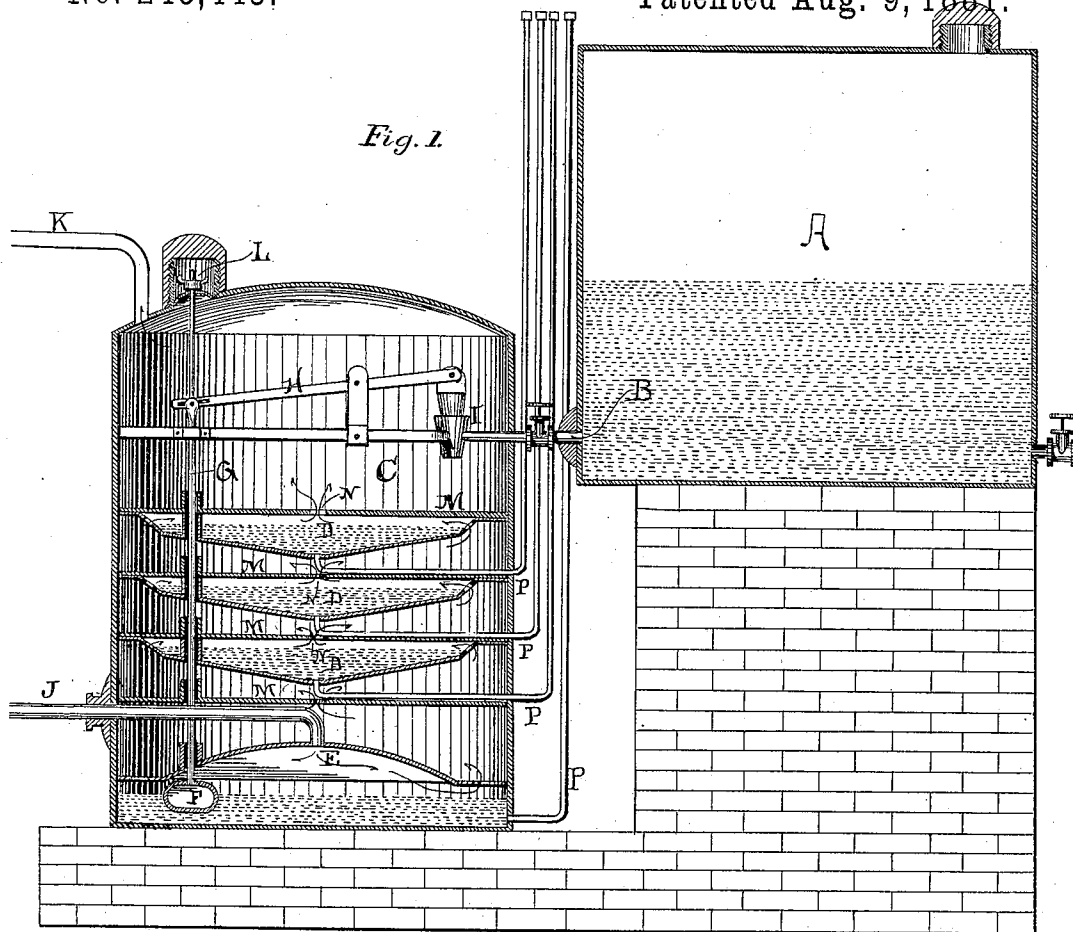
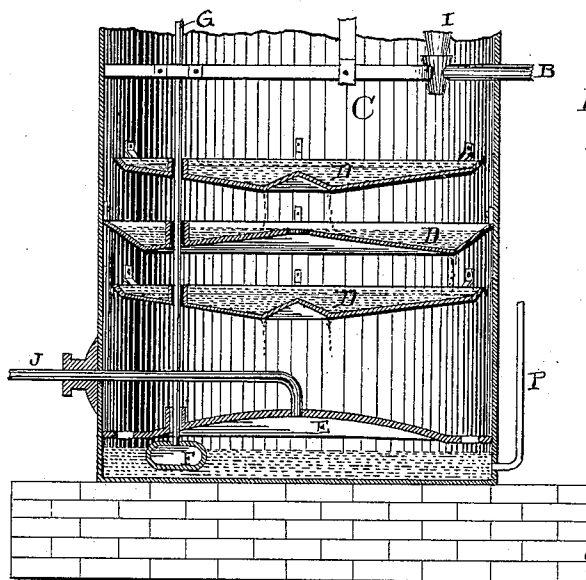


Fig. 2.



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HENRY CALLAHAN, OF DAYTON, OHIO.

CARBURETOR.

SPECIFICATION forming part of Letters Patent No. 245,443, dated August 9, 1881.

Application filed April 15, 1881. (No model.)

To all whom it may concern:

Be it known that I, HENRY CALLAHAN, of Dayton, in the county of Montgomery and State of Ohio, have invented new and useful Improvements in Carburetors; and I do hereby declare that the following is a full and accurate description of the same.

My invention relates to that class of carburetors wherein the liquid hydrocarbon is contained in trays one above another, and, being introduced into the upper tray, overflows from one to another until the residue reaches the bottom of the apparatus. The air, entering at the bottom, ascends to the top, passing over the liquid hydrocarbon in its transit; and it consists, principally, in trays formed so that the overflowing liquid will flow along the under surface or bottom, and thus expose the passing air-current, both above and below, to contact with surfaces of liquid hydrocarbon.

That others may fully understand my improvement I will particularly describe the same, having reference to the accompanying drawings, wherein—

Figure 1 is a vertical section of my invention. Fig. 2 is a similar section, showing a modified arrangement of the pans.

A is a tank for volatile liquid hydrocarbon. It is situated at any proper and convenient point above the premises, and may be at a considerable distance from the carburetors, with which it is connected by pipe B.

C is the case of the carburetor, which is divided horizontally by pans D, placed in series one above another. The liquid hydrocarbon is admitted at the top, and the uppermost pan having been filled the liquid overflows into the next pan below, and so on until all the pans are filled and a sufficient quantity of liquid collected in the compartment E at the bottom of the tank C to raise the float F, which, by means of the stem G and lever H in the top of the case C, operates the controlling-valve I to limit or stop the flow of hydrocarbon from the tank A.

The air to be carbureted is forced through the air-pipe J and discharged into the compartment E near its center, and it thence travels over the surface of the hydrocarbon liquid toward the periphery, where it escapes through apertures provided for it into the space above, and from thence it is compelled to travel from

the center to periphery and from periphery to center over the liquid contents of each pan D, until it reaches the top of the case, saturated with the volatile vapor of hydrocarbon, and passes off to the burners through the pipe K. The evaporation of the hydrocarbon liquid will constantly reduce the quantity of said liquid in the pans and in the compartment E, and the float F will therefore fall and open the cock I to admit a fresh quantity. While air is passing rapidly through the apparatus the evaporation will be so rapid that the cock I will be constantly a little open, the inflow being just equal to the evaporation if the apparatus has been properly adjusted. The required adjustment may be effected by means of the screw L and the end of the float-rod G.

In its general features the apparatus above described is similar to others now in use, and I do not, therefore, propose to make any general or broad claim thereon.

The pans D are made with bottoms conical or sloping downward from the point where the escaping liquid overflows, so that the overflow liquid, impelled by its well-known quality of capillary attraction or adhesion, will travel down said bottom on the outside, covering the same with a moving film of liquid hydrocarbon, along and in contact with which the moving current of air travels. By this means the area of liquid surface exposed to the current of air is doubled, because it encounters said liquid both above and below each pan.

The pans may be simply very flat cones, as shown in Fig. 1, with interposed diaphragms M, with central apertures, N, through which the drip will fall from one pan to the next below, and the air will be compelled to pass in its ascent, and thence outward over the edge of the pan and inward again to the aperture N of the next diaphragm above. The same end may be gained without the diaphragms M, shaping the pans as shown in Fig. 2—viz., with surfaces arranged so that the drip will be successively from one to the other and the air escape upward through an aperture in the center of each pan successively.

At the lowest point in the bottom of each pan a pipe, P, is connected, and carried thence out of the apparatus and upward to some convenient point, where, when occasion requires, a pump may be attached and the contents of

the pan pumped out. This will become necessary from time to time, when evaporation has reduced the liquid to a thick and unvolatile mass.

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

1. In a carburetor, the inlets J B for air and oil, respectively, and the gas-outlet K, combined with a series of pans, one above another,
10 to hold liquid hydrocarbon, each having its bottom conical, sloping downward from the point of overflow to the point where the surplus liquid will drip off into the pans below, whereby both upper and under surface of each

pan presents an evaporating-surface to the 15 current of air passing upward in said apparatus, substantially as set forth.

2. The pans D D, having conical bottoms to conduct the overflow, combined with interposed diaphragms M, each having a central 20 aperture for the passage of air, which is thereby compelled to pass over both the upper and under surfaces of the pan.

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