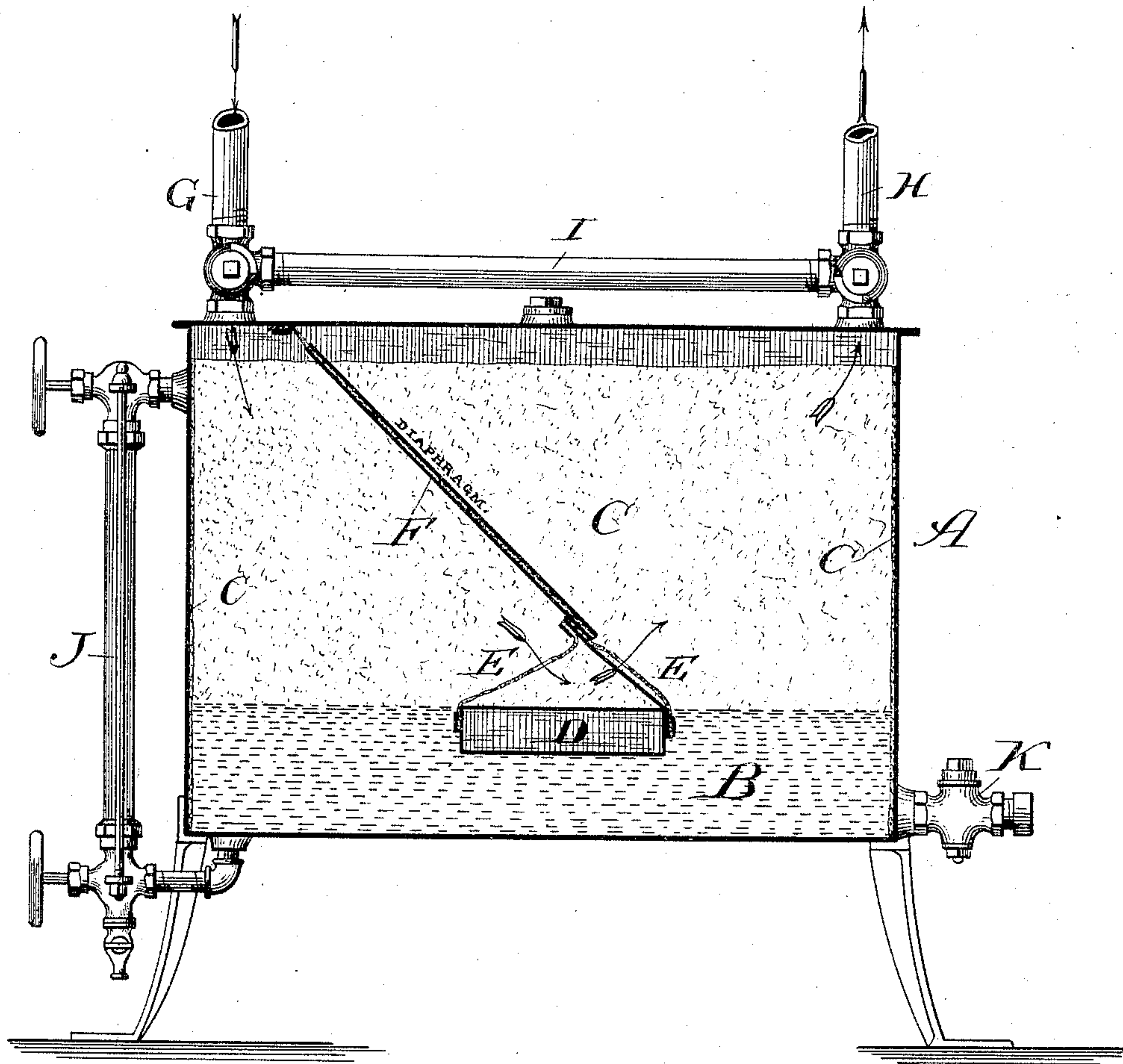


(No Model.)

A. B. SMITH.  
CARBURETOR.

No. 433,495.

Patented Aug. 5, 1890.



Witnesses:

Edw. S. Gaylord,  
Clifford H. White

Inventor:

Arthur B. Smith,  
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# UNITED STATES PATENT OFFICE.

ARTHUR B. SMITH, OF WILMETTE, ILLINOIS.

## CARBURETOR.

SPECIFICATION forming part of Letters Patent No. 433,495, dated August 5, 1890.

Application filed September 11, 1888. Serial No. 285,159. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR B. SMITH, a citizen of the United States, residing at Wilmette, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Carburetors, of which the following is a specification.

The object of my invention, in general terms, is to make a machine for carbureting gas which will enable the gas to be carbureted to a greater or less extent, as the necessities of the case may require, instead of always being carbureted to the same extent; and my invention consists in the features and details of construction hereinafter described and claimed.

The drawing represents a longitudinal vertical sectional view of my improved machine.

A represents the vessel or receptacle in which the carbureting is done; B, the carbureting-fluid; C, a lining of felt, cotton cloth, or similar material covering the inner walls of the carbureting-vessel; D, a float resting on the carbureting-fluid; E, a perforated cloth, through the perforations of which the gas passes while being carbureted; F, a swinging diaphragm flexibly hung to the top of the carbureting-vessel and connected to the float; G, the gas-inlet pipe; H, the gas-outlet pipe; I, a cross-cut pipe uniting the inlet and outlet pipes above the carbureting-vessel; J, a transparent or glass tube to indicate the amount of the carbureting-fluid in the vessel, and K a pipe for drawing off the carbureting-fluid.

In making my improved carbureting-machine I make a vessel of tin or other material of any desired or suitable size or shape. As shown in the drawing, the carbureting-vessel is made rectangular in form, and is supported on legs to hold it somewhat above the table or shelf on which it may be placed. I arrange within the carbureting-vessel a swinging diaphragm F, which is intended to be flexibly hinged or connected to the top or upper portion of the vessel, so that it can assume a more or less vertical position, as hereinafter described. To the lower end of this diaphragm I arrange a float D, which is connected to the diaphragm by any rigid connecting-piece, and by a perforated cloth E,

which is preferably made of some porous material, so that the carbureting-fluid may saturate the same and keep it saturated. The carbureting-fluid is introduced into the vessel until a sufficient quantity has been admitted. In the drawing, the carbureting-fluid B is shown as filling about one-third of the vessel, although enough may be admitted to almost fill the same. The float D rests upon the carbureting-fluid, and is preferably made of a weight to be almost submerged in the same, so that the porous perforated cloth E may come in contact with the carbureting-fluid and absorb the same. As the carbureting-fluid rises in the vessel by the introduction of a greater quantity, the float rises with it, and the swinging diaphragm F assumes a more horizontal position, and as the fluid sinks in the vessel, as it is absorbed in carbureting the gas, the float sinks with it and the swinging diaphragm assumes a more vertical position. A glass or transparent tube J is preferably arranged on the outside of the carbureting-vessel, so as to communicate with its interior and permit a portion of the carbureting-fluid to enter such tube, and thus indicate at all times the quantity of fluid in the vessel.

At the top of the vessel, and preferably at opposite ends thereof, are arranged two pipes G and H, affording ingress and egress to the gas. The pipe G leads from the source of gas and the pipe H to the burners or place where the gas is to be consumed. A pipe I, forming a by-pass, connects the pipes G and H above the top of the carbureting-vessel. At the junctures of the pipe I with the ingress and egress pipes are arranged three-way cocks, so that the gas may be wholly shut off from the carbureting-vessel and carried through the by-pass I and egress-pipe H to the place of use, or so that the by-pass I may be wholly shut off from the ingress and egress pipes and the whole of the gas carried through the carbureting-vessel, or so that the ingress, by-pass, and egress pipes may all be partially closed, so that a part of the gas only will be carried through the carbureting-vessel, the other part passing directly through the by-pass into the egress-pipe, where it is joined by that portion which has passed through the



carbureting-vessel and been carbureted. In this way I am able to regulate the quantity of gas which shall be carbureted, whether the whole, a part, or none, as circumstances  
5 may require. The gas which enters the carbureting-vessel is forced down by the swinging diaphragm and compelled to pass through the perforations in the cloth E. In this way it is always required to closely approach the  
10 surface of the carbureting-fluid so as to take up and absorb the fluid, and by passing through the perforations of the cloth, which is constantly saturated with the carbureting-fluid, complete carbureting of the gas is in-  
15 sured. To make the result more certain and invariable, I prefer to line the carbureting-vessel with cotton cloth, felt, or other absorbent material, which will be in a condition of constant saturation with the carbureting-  
20 fluid.

What I regard as new, and desire to secure by Letters Patent, is—

In a carbureting-machine, the combination of a carbureting-vessel adapted to contain carbureting-fluid, an inclined swinging dia- 25 phragm obliquely dividing the carbureting-vessel above the carbureting-fluid into two parts, a float resting on the carbureting-fluid, a perforated cloth connecting the diaphragm and the float, a pipe adapted to convey gas 30 into that part of the carbureting-vessel which is beneath the inclined side of the swinging diaphragm, and a pipe adapted to convey gas out of that part of the carbureting-vessel which is above the inclined side of the swing- 35 ing diaphragm, substantially as described.

ARTHUR B. SMITH.

Witnesses:

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HATTIE FARNHAM.