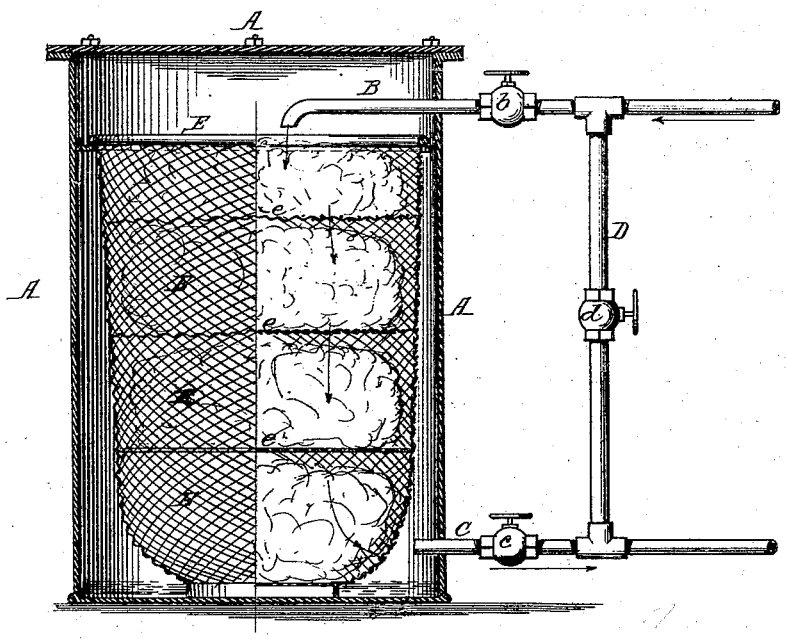
W. D. SNOW.

Carbureter.

No. 168,797. Patented Oct. 11, 1875.



Attest:
H. L. Perine.
W. L. Coombs

Inventor:
Wm. D. Snow.
By James L. Norris.
Atty.

UNITED STATES PATENT OFFICE.

WILLIAM D. SNOW, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN CARBURETERS.

Specification forming part of Letters Patent No. **168,797**, dated October 11, 1875; application filed October 5, 1875.

To all whom it may concern:

Be it known that I, WILLIAM D. SNOW, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Carbureters, of which the following is a specification:

This invention relates to certain new and useful improvements in apparatus for carbureting air or gas, its object being to provide a convenient and ready means for inserting the packing material in such apparatus, and supporting the same therein, so as to prevent the said packing from settling in a compact mass at the bottom of the machine, and also to insure a thorough distribution of the volatile hydrocarbon throughout the carbureting-chamber by capillary attraction, and to prevent the collection of explosive mixtures of air and vapor in the apparatus, which would endanger the apparatus and surrounding objects.

My invention consists in a cylindrical, polygonal, or other shaped vessel, provided with inlet-pipes for filling in the carbureting-fluid and for the admission of air or gas, and an exit-pipe leading to the burners for the escape of the carbureted air or gas, and containing a vessel or basket of wire-gauze or other suitable foraminous material, contracted or conically-shaped toward the bottom, and provided with a series of horizontal partitions of wire-gauze or equivalent foraminous material, the spaces between which are filled with a packing of sponge or other fibrous material, as hereinafter more fully set forth and described.

The drawing represents a vertical sectional view of my improved apparatus for carbureting gas or air. The letter A represents an outer casing of metal or other suitable material, of a cylindrical, polygonal, or other suitable shape, and provided with the pipes B and C, the pipe B for the admission of air or gas to be carbureted, and the pipe C for the escape of the carbureted air or gas on its way to the burners. Said pipes are provided with stop-cocks *b* and *c*, to control the flow of the air or gas through the same, and communicate with each other by means of an upright pipe, D, provided with a stop-cock, *d*, by means of which the carbureted air or gas can be diluted with the uncarbureted air or gas to any desired extent, if too richly carbureted. The letter E represents a basket or basket-shaped vessel of wire-gauze or other foraminous material, provided with a series of wire-gauze or other foraminous horizontal partitions, *e*. The lower part of said basket is contracted, as shown, so as to leave an annular clear space around the bottom of the vessel A, for the collection of the hydrocarbon fluid employed for carbureting the air or gas. The spaces between the partitions are filled or packed with any suitable fibrous material, preferably with cut sponge, to absorb the carbureting-liquid, and present an extended surface of the same to the action of the air or gas to be carbureted.

The carbureting-vessel is provided at any convenient point with an aperture or pipe for filling in the hydrocarbon liquid, and a suitable outlet at or near the bottom for drawing off any residue, when desired.

The operation of my invention will be readily understood from the foregoing description. The spaces in the basket are properly filled with the sponge or other fibrous material and the basket placed in the vessel A, which is securely closed. The vessel A is then charged with the hydrocarbon liquid, consisting, as usual, of the lighter varieties of naphtha, or the volatile constituents of petroleum. This will be absorbed or taken up by the capillary attraction of the sponge, which will expose an extended evaporating-surface to the action of the air or gas which is let in through the pipe B, thoroughly carbureting the same. Any surplus hydrocarbon collects in the annular space around the bottom of the basket, and, as the absorbed hydrocarbon is carried off from the sponge by the air or gas, the surplus hydrocarbon is carried up by the capillary attraction, thus insuring the effective operation of the machine until the hydrocarbon liquid is entirely exhausted.

As thus constructed, an extremely simple, effective, and safe apparatus is produced, in which the packing can be readily and conveniently inserted and supported in such manner as to prevent the matting or settling of the same, which would interfere with the effective working of the machine.

The wire-gauze partitions serve as supports for the sponge or fibrous material, to prevent its settling, while, at the same time, they do not interfere with the capillary action of the several layers.

The wire-gauze basket and its filling of sponge, which virtually fill the upper portion or gas-space of the apparatus, effectually prevent the collection of any amount of explosive gases; and should such gases or mixtures collect in small quantities, the wire-gauze or foraminous sides of the basket, acting upon the principle of the Davy safety-lamp, will effectually prevent any communication of fire to the apparatus, and thus insure perfect safety in its use.

The carbureters, as thus constructed, can be filled and transported from place to place with perfect safety, as the bulk of the hydrocarbon is absorbed by the sponge, and in case of carelessness in properly securing the openings of the same, or of accidental breaks, very little, if any, of the liquid can escape, to endanger surrounding objects. This, it will be seen, is an important advantage in innumerable instances, when portable carbureters are required.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

In an apparatus for carbureting air or gas, the combination, with the carbureting-vessel A, of the foraminous or wire-gauze basket E, provided with horizontal foraminous partitions for supporting the packing, and narrowed toward the bottom, so as to leave an annular space for the hydrocarbon liquid, the upper part being of such size as to fill or nearly fill the gas-chamber of the vessel A and prevent the collection of explosive gases, substantially as described.

In testimony that I claim the foregoing, I have hereunto set my hand in the presence of the subscribing witnesses.

W. D. SNOW.

Witnesses:

JAMES L. NORRIS,

ALBERT H. NORRIS.