W. H. WINN.

GAS AND AIR CARBURETER.

No. 192,399. Patented June 26, 1877.

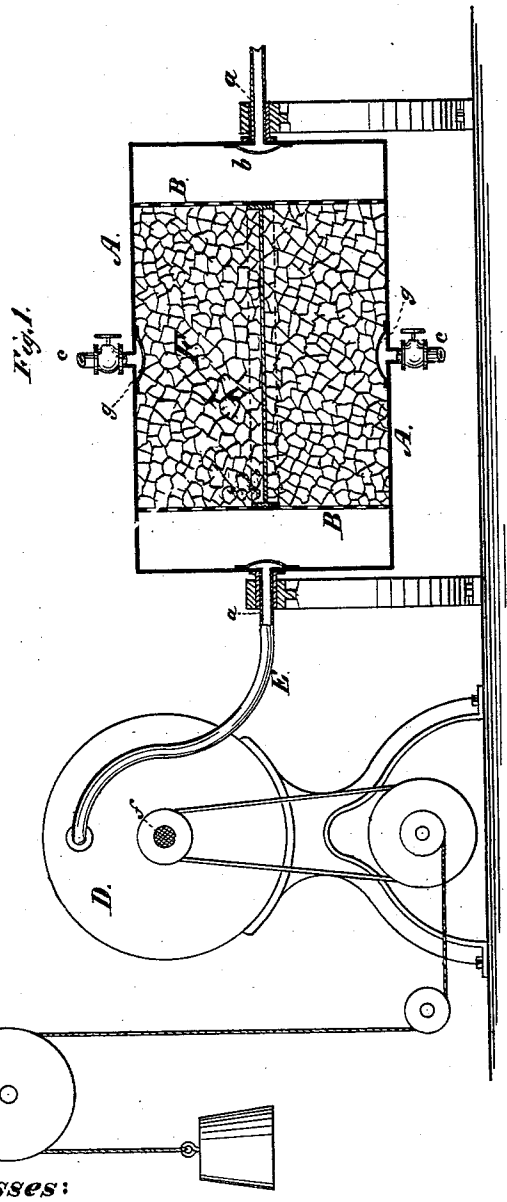


Fig. 1.

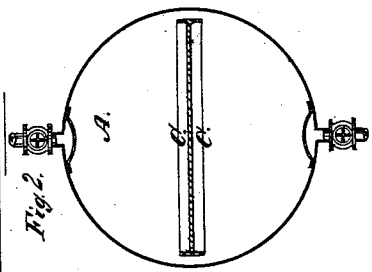


Fig. 2.

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UNITED STATES PATENT OFFICE.

WILLIS H. WINN, OF NEW YORK, N. Y.

IMPROVEMENT IN GAS AND AIR CARBURETERS.

Specification forming part of Letters Patent No. 192,399, dated June 26, 1877; application filed February 2, 1877.

To all whom it may concern:

Be it known that I, WILLIS H. WINN, of the city, county, and State of New York, have invented certain Improvements in Gas and Air Carbureters, of which the following is a specification:

The object of this invention is to provide a gas and air carbureter which shall be safe from danger of explosion, and in which perfect provision shall be made for the uniform carburation of the gas or air passed therethrough.

This invention comprises two pans having their openings in opposite directions, and provided within a reversible cylinder containing a fibrous material saturated with the carbureting-liquid, the whole so constructed and arranged that any surplus of the carbureting-liquid deposited from the fibrous material will be collected, and on the reversal of the cylinder be caused to again pass into and through the fibrous material, by which means the entire quantity of hydrocarbon is utilized in carbureting the gas or air passed through the cylinder, and a uniform carbureting effect exerted upon the gas or air, as the case may be.

Figure 1 is a side elevation and partial section of an apparatus embracing my said invention, and Fig. 2 is a transverse sectional view of the carbureting-cylinder thereof.

A is the carbureting cylinder or chamber, which is made, as may be said, of solid or non-foraminated material—that is to say, of sheet metal or the like—supported upon hollow axles *a*, and provided internally at each end with the diaphragm B, of perforated sheet metal, which are arranged in a manner substantially the same as has hitherto been done in reversible carbureters, the office of said diaphragms B being to afford clear spaces at the ends of the cylinder to facilitate the distribution of the air to the fibrous material F, and of the carbureted air from said material to the outlet of the apparatus. The carbureting-cylinder A is, as it were, divided into two opposite chambers by means of two pans, C, arranged with their openings in opposite directions, as more fully represented in Fig. 2, so that when one pan is in position for retaining its contents therein the other will be inverted, the purpose of which is herein presently set forth. D represents the air or gas forcing mechanism, by which the gas or air to be carbureted is forced into the carbureting-cylinder A. This air-forcing mechanism D may be operated by a weight passing over suitable pulleys, or by other appropriate means, and is connected by the pipe E with the adjacent hollow axle *a* of the carbureting-cylinder A. The hollow axles communicate direct with the interior of the cylinder A, that one connected, as just explained, with the pipe E constituting the inlet to the cylinder A, and the opposite one constituting the outlet thereof. Over these inlets and outlets is placed wire cloth or gauze having a mesh of sixty to the inch—in other words, of such a degree of fineness of mesh as to prevent flame from ignited vapor on one side of the wire-gauze from passing to the other. The inlet air-passage of the air-forcing mechanism D is represented at *f*, and over this inlet air-passage *f* is placed wire-gauze of the mesh and character hereinbefore referred to in connection with the inlets and outlets just described of the cylinder A.

In the operation of the invention the air drawn into the air-forcing mechanism D through the inlet air-passage *f* is forced through the pipe E, through the adjacent hollow axle *a*, into the adjacent end of the cylinder A, thence through the contiguous perforated diaphragm B, through the mass of fibrous or other absorbent material represented at F, thence out through the opposite end of the cylinder to and through the opposite hollow axle *a*, from which, by pipes, it is conducted in the usual manner to the place of consumption.

It is, of course, to be understood that the fibrous material F has previously been saturated to any requisite degree with naphtha, gasoline, or other carbureting-liquid passed in through the uppermost of two cocks, *c*, the air being carbureted by its passage in contact with the carbureting-liquid with which said fibrous or equivalent material is saturated. Any surplus of the liquid introduced as just explained descends, and that from the upper compartment of the cylinder A is caught in the uppermost of the pans C, while that from the lowermost compartment passes to the

lower side or bottom of the cylinder A, the surplus being thus removed from the material F after the same has received a certain degree of saturation.

When the material F has been deprived of its carbureting-liquid to such an extent as to tend to impair the carbureting action upon the air or gas passed through the same, the cylinder A is turned a half-revolution on its axle *a*, thus reversing the relative position of the surplus liquid received from the fibrous material, as just hereinbefore explained, whereupon such surplus again descends, passes through the material F, resaturating the same, and any remaining surplus being again caught, (that from the upper part of the cylinder A by the uppermost of the pans C, and that from the lower part of said cylinder by the bottom of the cylinder A,) so that by this means a continual but practically uniform saturation of the material F is secured, and as a result of this not only is a practically uniform carburation of the gas or air secured, but the entire quantity of liquid introduced into the cylinder A is utilized without waste of the heavier portions thereof commonly experienced in other carbureters.

It is, of course, to be understood that the passages of the cocks *c* are covered with wire-gauze (indicated at *g*) in the same manner as the inlet and outlet passages of the cylinder A and the inlet or passage of the air-forcing mechanism D, all the openings of the cylinder A, the air-forcing mechanism D, and the connection between the two being thus separated from the external atmosphere by wire-gauze of the requisite mesh. The ignition of any vapors issuing from any of such openings is prevented from igniting the vapors or gases within the apparatus, inasmuch as the flame cannot pass through wire-gauze of the mesh and character herein set forth.

I do not claim a perforated plate or diaphragm placed midway within the body or carbureting-cylinder, dividing the same into two parts, as such has been hitherto known, and is practically different in principle and operation from my invention herein set forth; but

What I claim as my invention is—

In a gas or air carbureter dependent for its operation on the forced passage of a current of gas or air therethrough, the pans C C, centrally arranged within the reversible carbureting-cylinder A, substantially as and for the purpose herein set forth.

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