A. McMILLEN & H. MINOR.

CARBURETER.

No. 180,359. Patented July 25, 1876.

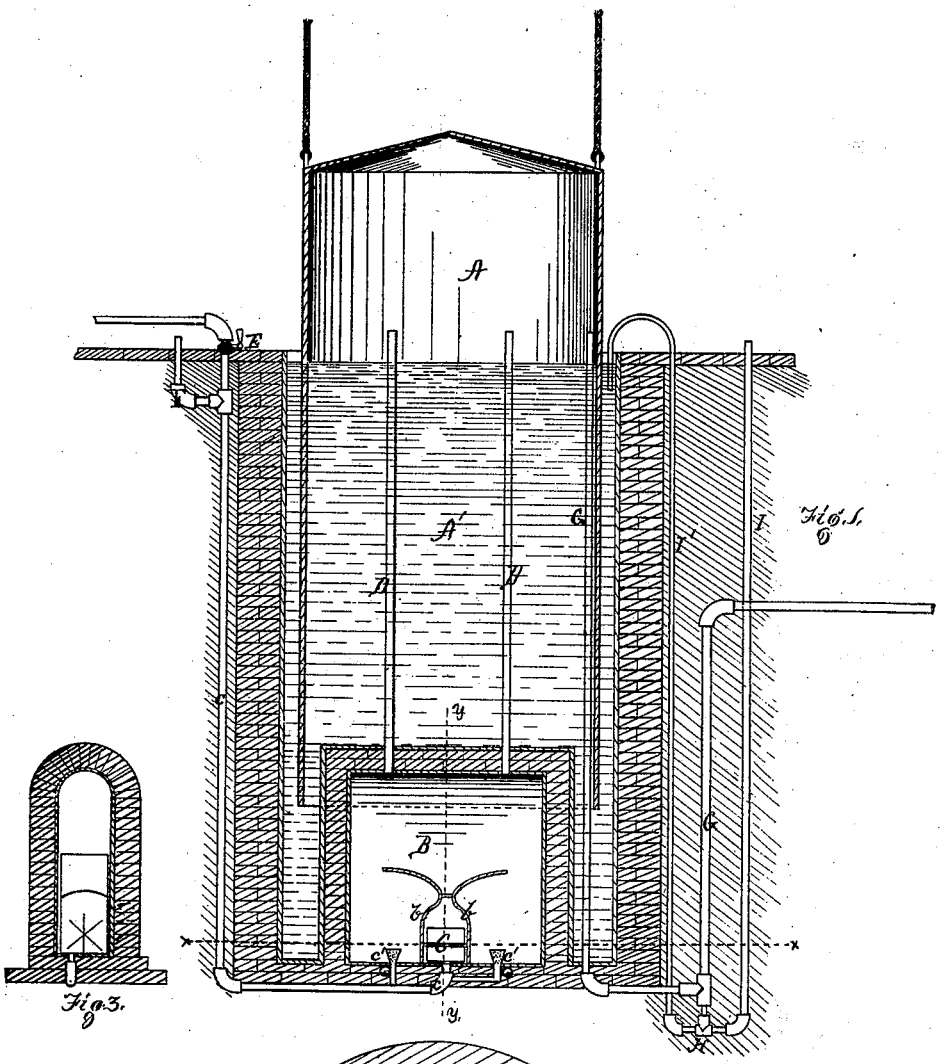

Fig. 1.

Fig. 3.

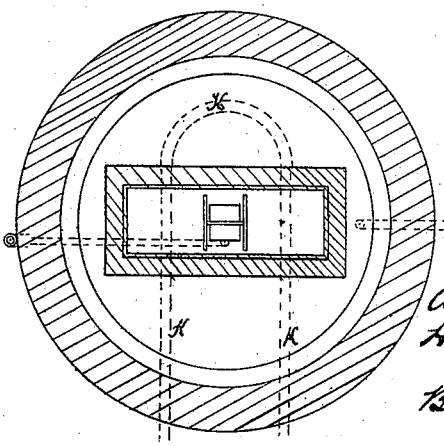

Fig. 2.

Witnesses.

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IMPROVEMENT IN CARBURETERS.

Specification forming part of Letters Patent No. **180,359**, dated July 25, 1876; application filed December 9, 1875.

To all whom it may concern:

Be it known that we, ANDREW MCMILLEN and HAMMELL MINOR, both of Pittsburg, county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Gas Generators or Carbureters; and we do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a vertical section of a generator or carbureter embodying our invention. Fig. 2 is a horizontal section of the same on the line *x x*, Fig. 1; and Fig. 3 is a transverse vertical section of the oil-reservoir or carburetting-chamber on the line *y y*, Fig. 1.

Like letters refer to like parts wherever they occur.

Our invention relates to that class of gas-generators termed carbureters, employed for charging air or gas with hydrocarbon or like vapors; and it consists, first, in inclosing the flutter-wheel by vertical partitions that divide up the carbureting-chamber into two or more reservoirs, which connect with the wheel-chamber by openings in or near the bottom of the partitions, so as to maintain the supply of liquid in the wheel-chamber, said partitions likewise serving to limit the direction of the gas or air forced through the chamber; second, in combining with the service-pipe of a carbureting or similar gas apparatus a T extension or drip-pipe and a double line of pipe or tubing, whereby the condensed hydrocarbon or other liquids may be drawn or forced from the tubing by an air-pump; and, finally, in details of construction hereinafter specified.

We will now proceed to describe our apparatus specifically, so that others skilled in the art to which it appertains may make and use the same.

In the drawing, A indicates a gasometer, and A′ the well thereof. The well is sunken at any appropriate point relatively to the building to be lighted, and is bricked and cemented in the usual manner. The size of the well, gasometer, &c., will depend upon the size of the building to be lighted, and will, of course, vary greatly. At the bottom of gasometer-well A′ is located a carbureting-chamber, B, which may be of any suitable form or material; but is preferably a narrow arched chamber, as shown, made of boiler-iron, and arched over with brick. This carbureting-chamber B is divided into three compartments by partitions *b b*, perforated at the bottom for the passage of liquids from one compartment to another, said partitions being caused to approach, so as to narrow the upper part of the middle compartment, and then to flare or turn back, so as to partially close the side compartments, and at the same time to form tables, which receive any condensed vapors and conduct them to the central compartment. Journaled within the central compartment is a flutter-wheel, C, which is sufficiently large to extend across the chamber, and is operated by the blast from the induction-pipe *c*. *c* is the main induction or blast pipe, which discharges into the central compartment containing the flutter-wheel, and is the only inlet for air or gas in small machines; but when a greater volume of gas is to be formed, or when it is necessary for any reason to carburet more air than can be forced through the flutter-wheel chamber, a series of branch pipes and auxiliary nozzles *c′ c′* may be introduced into the side compartments. D D are vertical pipes, which conduct the gas formed in the carbureting-chamber B to the gasometer A. The lower ends of pipes D D should be over the tables formed by partitions *b b*, so that any vapors condensed in the pipes will be directed into the flutter-wheel chamber. This blast or induction pipe *c* is provided with a cock, E, at or near the top of the well, so that communication between the carbureter and the gas or air supply may be closed at pleasure. F is a branch pipe, which connects the blast-pipe *c* with any suitable hydrocarbon-reservoir, and should, like the induction-pipe, be provided with means for shutting off the supply of liquid when the carbureting-chamber has been charged. G is the usual service-pipe, which is carried to the bottom of the well, so as not to interfere with the rise and fall of the gasometer, and is led thence to the building to be supplied. To the lowest point upon G is secured an extension or T pipe, H, to trap out from the service-pipe any liquids which might otherwise accumulate therein, and from the T-pipe

a double line of tubing, I I′, extends to the level of the top of well A, or the earth's surface, one of said pipes I′ being bent, so as to discharge into the gasometer-well, and the other being closed by a cap, or in other suitable manner.

In order to heat the carbureting-chamber B, when, from any cause, the temperature thereof becomes too low, we provide a coil of pipe, K, which is extended down from the surface, and carried beneath the chamber B, as shown. Steam or hot air is passed through pipe K.

The operation of these devices is as follows: The connection between the blower or gas-supply and the carbureting-chamber or generator being closed by means of E the valve in oil-supply pipe or branch F is opened, and the hydrocarbon passes by the induction-pipe into the central compartment, and thence into the side compartments of the chamber B until the generator is sufficiently charged, after which the supply-pipe F is closed and the cock E turned to connect the blower or gas-supply. The air or gas forces any liquid which may remain in the lower part of induction-pipe *c* into the chamber B. The blast (air or gas) entering the flutter-wheel chamber strikes the vanes of the flutter-wheel, causing the revolution of the wheel, which agitates the contents of the central compartment, so as to prevent the settling of the heavier portions of the liquid, and keeping the carbureting-liquid uniform. The flutter-wheel also retards and spreads the blast, causes the air or gas to become uniformly charged with vapors, and counteracts any irregularity in the working of the machine. From the flutter-wheel compartment the gas escapes into the upper part of the carbureting-chamber, and thence by pipes D to the gasometer, any condensation which takes place in the upper part of the chamber B, or in pipes D, being deflected into the flutter-wheel chamber by the flared or spread portions *b b*. From the gasometer A the gas is conducted to the building to be supplied by means of the service-pipes, and any hydrocarbon or aqueous vapors condensed in the service-pipe will be trapped in the T-extension, whence it may be drawn or blown out by attaching the blower or an exhaust to the line of tubing I I′.

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

1. The combination of the carbureting-chamber B and the inclosed flutter-wheel C, arranged at the bottom of the carbureting-chamber and over the air-induction pipe *c*, substantially as and for the purpose specified.

2. In combination with the carbureting-chamber and flutter-wheel the curved perforated partitions, which divide up the carbureting-chamber and inclose the flutter-wheel, substantially as and for the purpose specified.

3. In combination with the service-pipe of a gas apparatus the T-extension H, and a double line of tubing, I I′, connecting with the same, in the manner and for the purpose specified.

4. The combination of the carbureting-chamber B, divided into a series of compartments by perforated partitions *b b*, the flutter-wheel, and the air-induction pipe and series of blast-nozzles *e e′ c′*, substantially as and for the purpose specified.

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Witnesses:
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