S. McKISSOCK.

CARBURETER.

No. 170,097. Patented Nov. 16, 1875.

Fig. 1

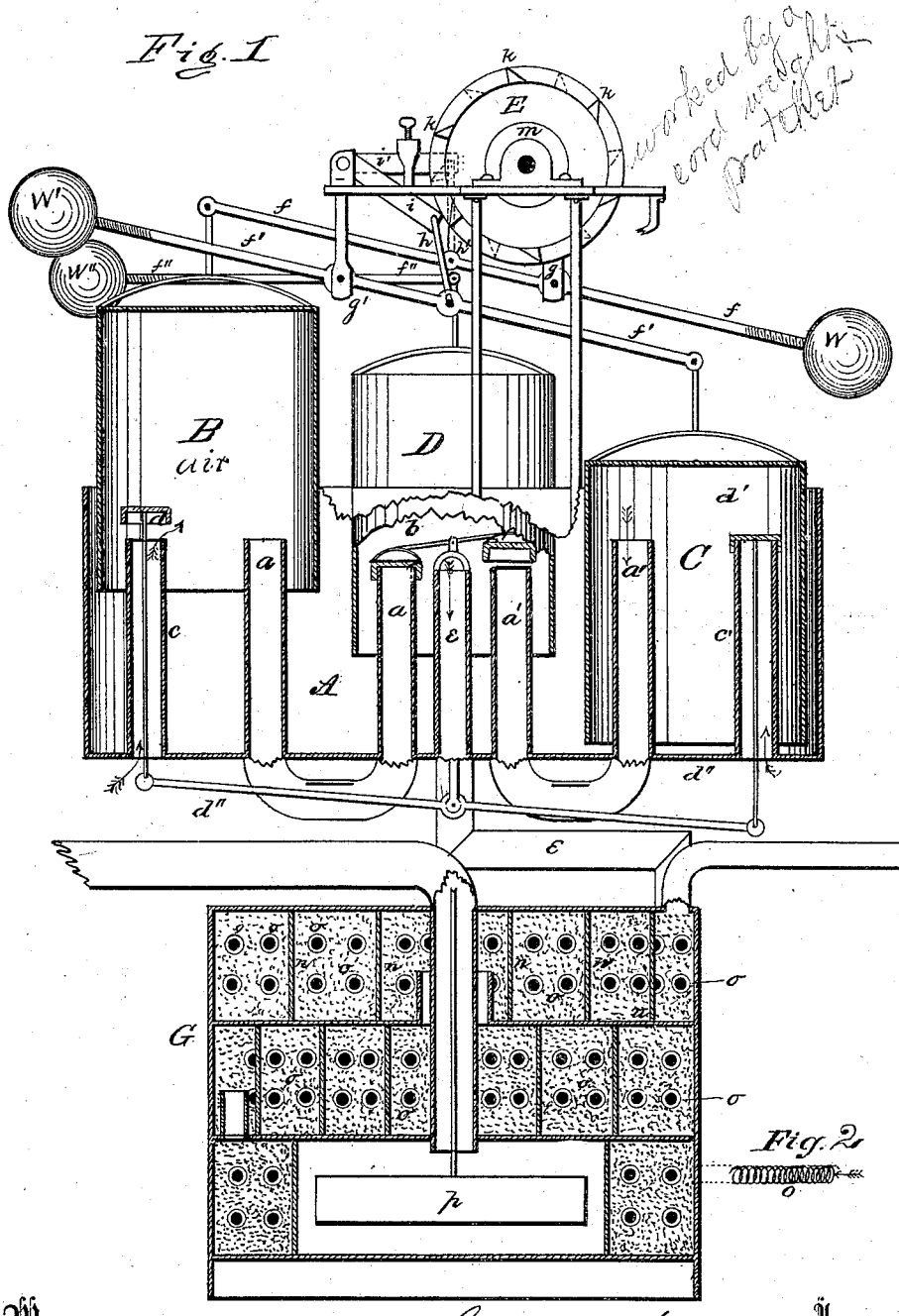

Fig. 2

Witnesses

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UNITED STATES PATENT OFFICE.

SAMUEL McKISSOCK, OF ALLEGHENY, PENNSYLVANIA.

IMPROVEMENT IN CARBURETERS.

Specification forming part of Letters Patent No. **170,097**, dated November 16, 1875; application filed July 15, 1875.

To all whom it may concern:

Be it known that I, SAMUEL McKISSOCK, of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Carbureters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is an elevation, partly sectional, of my invention. Fig. 2 is a detail view, showing, in perspective, a portion of coiled-wire pipe.

This invention relates to that class of carbureters in which weights are used to set the machinery in motion to supply air; and consists, chiefly, in the devices adopted for that purpose, and for maintaining a constant and adjustable pressure, and in the construction of the carbureting-tank and its parts.

Referring to the accompanying drawings, A represents an elongated tank, containing water as a luting for the three air-chambers B C D. These are bottomless, B C pumping the air, and D storing and giving it an adjustable pressure. From the interior of chambers B C are air-pipes *a a'*, opening in the said chambers, passing down through the bottom of tank A, over and up into chamber D, where their ends are opened and closed alternately by their respective check-valves *b b'*, pivoted on a bearing on top of the main supply-pipe in the chamber D. These pipes *a a'* feed the pumped air from chambers B C into chamber D. When one chamber is pumping the valve in its supply-pipe is open by reason of pressure of air into D, while the other is automatically closed, thus keeping the air from backing out of D into the other chamber. Air is fed to these chambers B C by the inlet-pipes *c c'*, also supplied with the check-valves *d d'*, which work alternately by means of rods connected with the walking-beam *d''*. These prevent the air from backing out of the pumping-chambers after its entrance thereto. From the chamber D, above the water-level, an open-ended pipe, *e*, passes down into the carbureting-tank. From the tops of chambers B C rise rods, to which are pivoted long operating-levers *f f'*, also pivoted, near their middle points, in bearings *g g'*, respectively. At their opposite ends are placed adjustable counterbalance-weights W W'. Connected with these levers, between their central bearings and their pivoted ends, are crank-rods *h h'*, to whose opposite or upper ends are attached the pivoted dogs *i i'*. The normal position of these dogs, by reason of weights W W', is horizontal. From this position they are pushed down to operate the levers *f f'* and pump-chambers B C by the lugs *k* on the escapement-wheel E, which is operated by a cord and weight attached to the drum *m*, which works the wheel E by a pawl and ratchet. Connected with a rod rising from chamber D is a third pivoted lever, *f''*, with an adjusting counter-balance, W'', for the purpose of controlling the pressure of air under the chamber D, and thence into the carbureting-chamber G. This latter consists of a vessel having one or more horizontal partitions with an air-inlet pipe above the first, and a gas-outlet pipe below the lowest. In each of these partitioned compartments spiral walls *n* are placed, leading from the inlet above to the compartment below, and so on through the series. In these passages are laid, in like manner, spirally-wound wires *o*, one or more, or any equivalent in purpose and effect. These connect with the air-inlet, ending in each compartment at its exit into the one below, and there beginning again. Cotton is loosely packed around these wires and saturated with the hydrocarbon. The intention is to obtain all the diffusive properties possible for the carbureting material, and at the same time give free passage to the air. These spirally-coiled wires constitute porous pipes, the air-passages being through the center of the coils from which the air has access to the saturated packing, so as to become carbureted while freely passing along. The middle portion of the lowest compartment is left open and free from partitions, wires, and cotton. The superfluous oil collects here, and when it gets too high a float, *p*, in connection with the oil-feed pipe, stops the flow until the supply is reduced. The wound wire forms a sort of open-sided pipe, to convey the air and give it free access to the carbureting material, so as to absorb the greatest pos-

sible quantity of the carbon therein. A perforated or slotted pipe would answer the purpose, but I consider the wire the best.

The *modus operandi* is as follows: The operating-weight, being wound upon the drum *m*, sets wheel E in motion. Lugs *k* operate dogs *i i'* alternately, and they, by means of cranks *h h'*, operate the levers *f f'*, which thus work the pumping-chambers B C. Air comes into these through the inlet-pipes *c c'*, and is forced out through pipes *a a'* into pressure and storing chamber D, prevented from returning by check-valves *b b'*. From this it is forced through pipe *e* into carbureter G, where it winds around through the wires *o* in a spiral through the cotton or other fibrous substance saturated with the carbureting material, finally reaching the open chamber at the bottom, whence it passes out through the feed-pipe to the burners or gasometer.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is as follows:

1. In combination with the carbureting-chamber G, having the spiral partitions *n* and intermediate corresponding channels, the wires *o o*, arranged at intervals apart, running parallel with said partitions, wrapped in suitable packing, and forming continuous spiral air-passages through the said channels, substantially as specified.

2. In a carbureter, the porous air-pipes formed by the spirally-coiled wires *o*, externally packed, and having open channels through the center of the coils, with lateral access to the packing, substantially as described.

3. In combination with the chambers B C D, the pipes *a a'* and *c c'*, with their respective valves *b b'* and *d d'*, connected and operating alternately, as shown and described.

4. In combination with the chambers B C D and their operating-levers *f f' f''*, respectively, the adjusting counter-balances W W' W'', as and for the purposes set forth.

5. The alternately-acting pumping-chambers B C, in combination with the intermediate storing and pressure chamber D, pipes *a a'*, connecting said chambers, valves *b b'*, carbureting-chamber G, and pipe *e*, substantially as described and shown.

6. The combination, with the alternately-acting pumping-chambers B C, weighted levers *f f'*, and ratchet-wheel E, having double row of alternating teeth, of the dogs *i i'* and links *h h'*, substantially as described, and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 9th day of July, 1875.

SAMUEL McKISSOCK.

Witnesses:

JAMES J. McTIGHE,

THEO. J. McTIGHE.