T. H. HARRINGTON.

Carbureters.

No. 155,155. Patented Sept. 22, 1874.

Fig. 1.

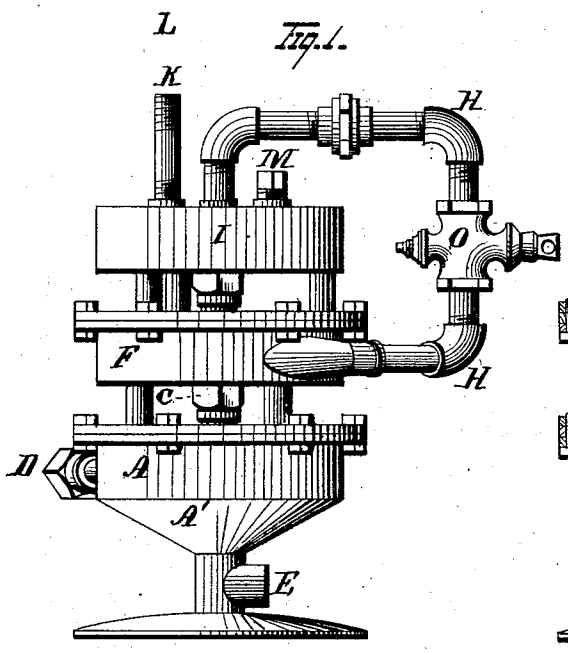


Fig. 2.

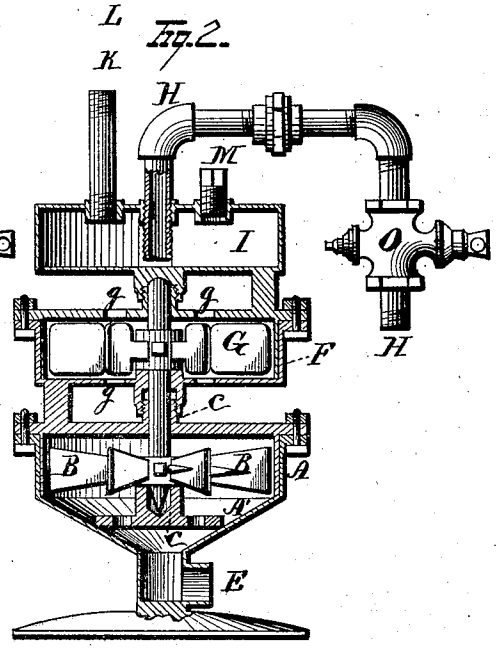
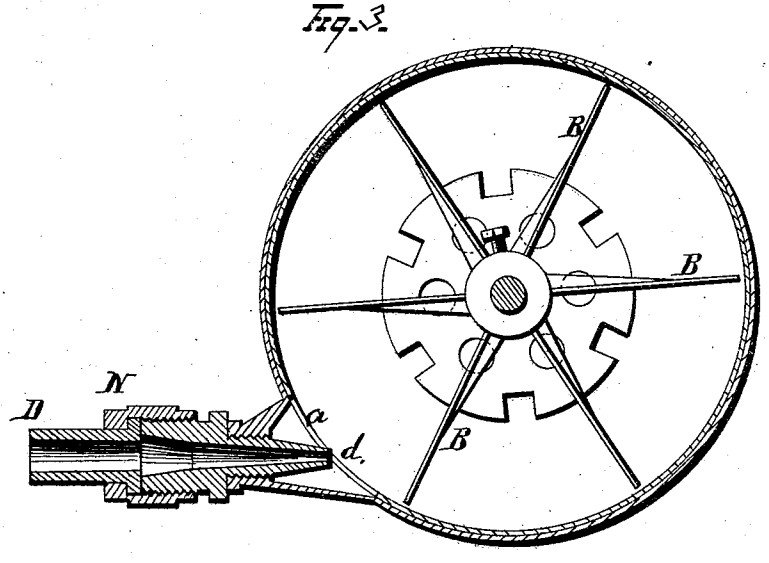


Fig. 3.



WITNESSES

W. D. Newman

R. M. Barr.

INVENTOR

Thomas H. Harrington.

By Legget & Legget. Attorneys.

UNITED STATES PATENT OFFICE.

THOMAS H. HARRINGTON, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN CARBURETERS.

Specification forming part of Letters Patent No. **155,155**, dated September 22, 1874; application filed September 9, 1874.

To all whom it may concern:

Be it known that I, THOMAS H. HARRINGTON, of Pittsburg, 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.

My invention relates to a novel carbureter, designed to carburet common air by passing it through gasoline, and thereby to render it an illuminating-gas; and consists in a novel construction of the different parts, their relative positions in a vertical series, whereby space is economized, and the machine much simplified, and a novel water-motor for driving the operative mechanism.

In the drawings, Figure 1 is a view, in elevation, of one of my machines, showing its external appearance, and the relative position of the parts. Fig. 2 is a sectional view by a vertical plane, showing the internal construction and the operative mechanism. Fig. 3 is a sectional view through water-service pipe D.

A is a cylindrical chamber, provided with an opening or port, *a*, on its side, and an inverted conical bottom, A′. B is a water-wheel, adjusted on a vertical axis, C, to revolve within the cylindrical portion of the chamber A. *c* is a step, in which the bottom of the vertical shaft C rests, and in which it turns. D is a water-supply pipe, terminated in a nozzle, *d*, through which a jet of water is thrown upon the buckets of the wheel B at its periphery. E is an exit or discharge port for the water after it has dropped from the bucket after delivering its impact. The shaft C projects upward into the chamber F, and is here provided with a blower-fan. This fan G receives its air from the outside through the axial openings *g g* above and below the chamber F, and discharges the said air through an exit-pipe, H, which leads from the air-chamber F up into the top of the gasoline-chamber I at the top of the machine. The pipe H extends down into the chamber I nearly to the bottom of the same, so as to discharge the air into the gasoline near the bottom of the liquid mass. K is the service-pipe leading directly to the burners L. M is a feed-port for supplying gasoline to the chamber I, as required. A stop-cock at N regulates the supply of water to the wheel B, and another, O, regulates the flow of air to the gasoline-chamber I.

The operation is as follows:

Gasoline is supplied to the chamber I through the port M. The cocks O and N are opened. The water from the pipe D is forced in a small strong jet against the extremities of the buckets of the wheel B, causing it to revolve, and it in turn revolves the air-fan G in the chamber F. The fan G draws in atmospheric air through the openings *g g*, and drives it out through the pipe H into the bottom of the chamber I, where it escapes into the gasoline, and bubbles up through the latter, taking on its illuminating properties, and from which it is conveyed away to the burners through the pipe K. The wheel B is made to possess a uniform and steady motion by regulating the supply of water by the cock N, and as it always passes in a jet against the extremity of the buckets, a very small amount of water will suffice to drive the wheel. As soon as the water has expended itself on a bucket, it falls below the wheel into the conical chamber A′, where it is out of the way of the said wheel, and the latter is permitted to run unimpeded by the water that has been used. As fast as the water falls into the conical bottom A′ it passes off through an ample exit-port, E.

It will thus be seen that a steady motion is given to the fan G, and, consequently, a steady, uniform pressure is maintained in the chamber I above the gasoline, and the flame is, therefore, kept steady at the burners L. If more or less pressure is desired in the chamber I, it is regulated by the cock O in the pipe H.

The arrangement of the chambers A and F in a vertical series enables me to employ a horizontal wheel, B, and to fix the fan G on the same shaft above. By giving the leaves of the fan a very slight twist, the action of the air upon them tends to lift the axle C from the shoe *c*, and therefore causes the said shaft to run with very little friction. Moreover, the vertical arrangement of the chambers A, F,

and I enables a machine to be constructed that is thoroughly portable, and occupies the minimum of lateral space.

In the construction shown in the drawings, the top of the chamber A and the bottom and sides of the chamber F are cast in a single piece, as also the top of the chamber F, and bottom and sides of the chamber I, thus forming a very cheap and economical machine, all of which are very essential in a machine designed for sale to private families for use in the house.

Heretofore, where wheels have been employed to force air through the gasoline or other hydrocarbons, they have been propelled by air, steam, weights, or other medium than water. Mine is designed to be propelled by water, which is nearly always available in localities where the machines are employed. It is readily attached to a service water-pipe, and is, therefore, always ready for use, readily governed, and the water itself is not employed in the process. When gas is shut off the stop-cock O is closed, which prevents the gas or gasoline from escaping through the chamber F.

What I claim is—

1. In combination with a carbureter or generator, a water-wheel, B, and fan-wheel G, arranged upon the same vertical shaft, and air-conduit H, substantially as and for the purpose set forth.

2. The combination, in an air-carbureting machine, of the water-wheel B, constructed with radiating arms, and chamber A, constructed and adapted to be attached to a service-pipe, D, at the port *a*, and be operated by the water from the same, substantially as shown and set forth.

3. The combination, in an air-carbureting machine, of a water-wheel, B, for operating the fan, a water-service pipe, D, provided with diminished nozzle *d*, conical-bottomed chamber A, and exit-port E, all substantially as and for the purpose specified.

4. The air-carbureter composed of propelling water-wheel B and chamber A, the fan-chamber F and fan G, the gasoline-chamber I, and pipe H, all arranged in a vertical series, with the wheel B and fan G upon the same vertical shaft, all substantially as and for the purposes set forth.

5. The combination, with the water-wheel B and shoe *c*, of the shaft C and fan G, with its leaves slightly twisted, all substantially as and for the purpose set forth.

6. The air-carbureting machine, constructed in a compact and connected vertical series, so as to be portable, composed of chamber I, pipe H, fan-chamber F and fan G, shaft C and foot *c*, water-wheel B, chamber A, with conical bottom A′, water-service connection D, with diminished nozzle *d*, and exit-port E in the standard, all as set forth and shown.

In testimony that I claim the foregoing, I have hereunto set my hand this 5th day of September, 1874.

THOMAS H. HARRINGTON.

Witnesses:

WELLS W. LEGGETT,

EDWIN I. NOTTINGHAM.