HUTCHINSON & McAVOY.

Carburetor.

No. 51,946.

Patented Jan'y 9, 1866.

Fig. 3

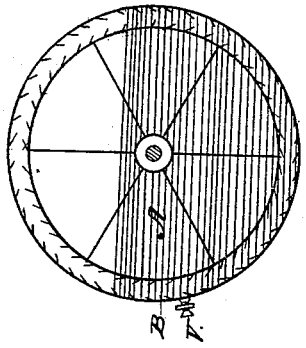


Fig. 4

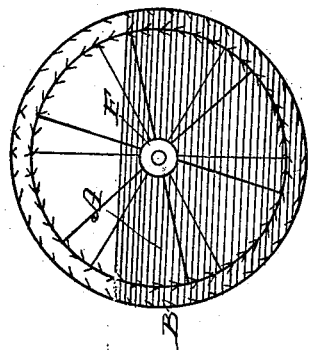


Fig. 1

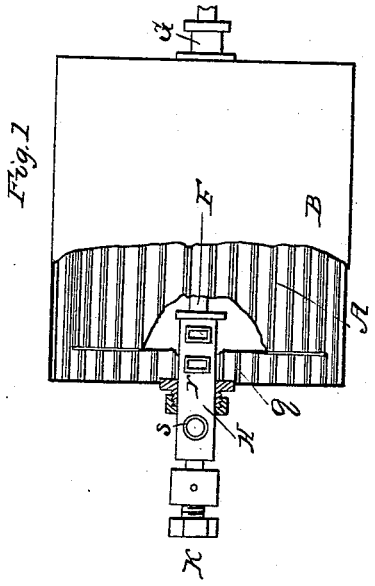
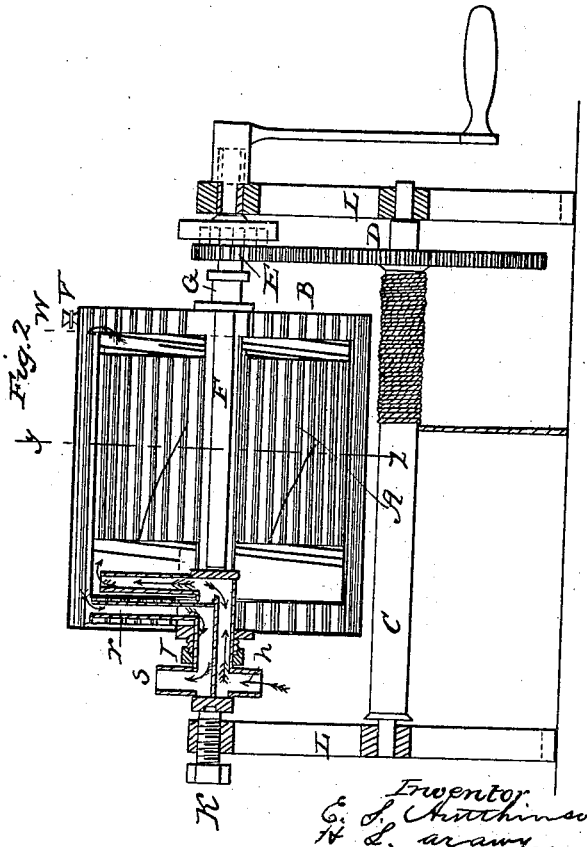


Fig. 2



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UNITED STATES PATENT OFFICE.

ELIAS S. HUTCHINSON AND HUGH L. McAVOY, OF BALTIMORE, MARYLAND.

IMPROVED APPARATUS FOR CARBURETING AIR.

Specification forming part of Letters Patent No. **51,946**, dated January 9, 1866.

To all whom it may concern:

Be it known that we, ELIAS S. HUTCHINSON and HUGH L. McAVOY, of the city and county of Baltimore, and State of Maryland, have made new and useful Improvements in Apparatus for Carbureting Air; and we do hereby declare the following to be a full, clear, and exact description of the nature, construction, and operation of the same, sufficient to enable one skilled in the art to which it is allied to construct and use the same, reference being had to the accompanying drawings, in which our improvements are shown as applied for the purpose of furnishing and illuminating gas.

Figure 1 is a longitudinal section. Fig. 2 is a horizontal view, showing, by broken lines in the peripheries of air-forcing wheel and drum, the air-box. Fig. 3 is a transverse section on line *w x*, Fig. 1. Fig. 4 is a transverse section on line *y z*, Fig. 1.

This machine consists of an air-forcing wheel, A, supported within a drum, B, which both revolve at the same time when set in motion by a weight attached to a cord passing over a spool, C, to which is connected a geared wheel, D, operating upon a pinion-wheel, E, upon a spindle, F, passing through a stuffing-box, G, affixed to the center of the drum B, and also through a hollow shaft in the center of the air-forcing wheel A, its opposite bearing being in the end of the air-box H. The air-box H also passes through a stuffing-box, I, in the center of the drum, at opposite end to G, and is maintained in a fixed position by means of a square socket at its outer extremity, into which is inserted the square end of a set-screw, K, in the supporting-frame L of the machine. The air-box H is a hollow cylinder, having a partition through its center extending nearly its whole length, the communication between the two halves thus divided being cut off by a stop or plug fitted at the end of the partition in the upper half. In the periphery of the air-box there are four openings, to which are affixed the pipes *p q r s*. The position of the partition in the air-box is horizontal, the upper division being for the outlet of carbureted air and the lower for the passage of air to be carbureted.

The operation of the machine may be now explained. The drum B and air-forcing wheel A being filled with carbonaceous fluid to a level about two inches above their centers, which is indicated in Figs. 1, 3, and 4, and the machine set in motion, as described, air is drawn by the forcing-wheel through the opening *p* into the air-box H, and, passing up the pipe *q* into the air-forcing wheel A, is partially carbureted therein; but by the pressure of the wheel it is made to pass out and between the outer periphery of the wheel and the inner of the drum, and thence by *r*, through the air-box H, to surface-pipe *s*, for illuminating or heating purposes, having been carbureted in its passage through the wheel and between it and the drum, as indicated by the arrows in Fig. 1.

The exterior of the wheel A and interior of the casing B are formed with numerous small buckets, or their equivalents, which, during the revolutions through fluid, keep the surfaces well saturated, and the air, being caused to pass through and return in close contact with the same, is thoroughly carbureted. The fluid having access to the same passage retains its level with the wheel, or the forcing apparatus may be used without the casing and the hollow shaft used to return the fluid to the head of the wheel, as well as the passage of the gas out an independent pipe within the same; or the gas may have an outlet through the back head by an improved stuffing-box.

We do not confine ourselves to any particular arrangement of driving apparatus or form or position of forcing apparatus, as the wheel might and casing may possibly be worked at such an angle of inclination as to avoid the use of a stuffing-box and air-box.

The hydrocarbon liquid may be introduced through a suitable valve or cock, V, on the periphery or either head, or it may be introduced through the air-box by inverting the latter.

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

1. A close casing of any form suitably subdivided and adapted to force and carburet air by its rotation and the gravity of the liquid.

2. The air-box H, constructed and employed substantially as and for the purpose set forth.

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