J. A. PIERCE & F. E. SMILEY.

CARBURETER.

No. 188,667. Patented March 20, 1877.

Fig. 1.

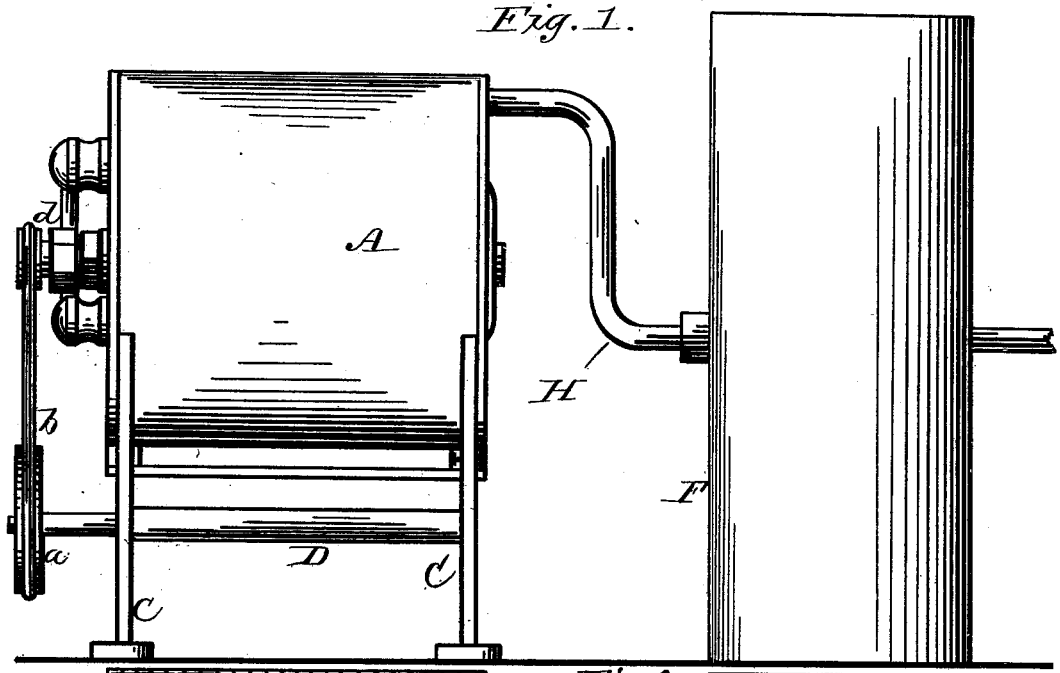
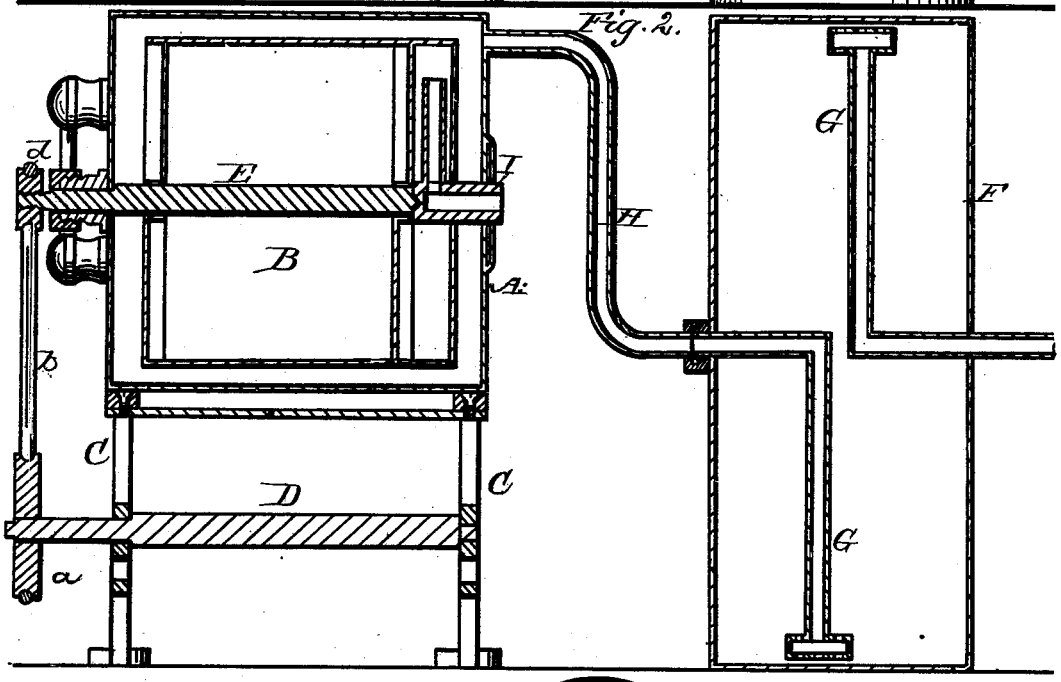


Fig. 2.

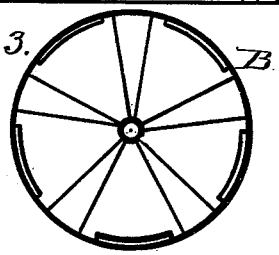


Witnesses:

Louis F. Brous,

Thos. A. Brantt.

Fig. 3.



Inventors:

John A. Pierce,

F. E. Smiley,

by John A. Tydershelm,

Attorney.

UNITED STATES PATENT OFFICE.

JOHN A. PIERCE AND FRANCIS E. SMILEY, OF PHILADELPHIA, PA.

IMPROVEMENT IN CARBURETERS.

Specification forming part of Letters Patent No. **188,667**, dated March 20, 1877; application filed December 11, 1876.

To all whom it may concern:

Be it known that we, JOHN A. PIERCE and FRANCIS E. SMILEY, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Carbureters; and we do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which our invention appertains to fully understand, make, and use the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation of the carbureter embodying our invention. Fig. 2 is a central longitudinal vertical section thereof. Fig. 3 is an end view of the air-drum.

Similar letters of reference indicate corresponding parts in the several figures.

Our invention consists of an air-forcing apparatus, in combination with a reversible carbureting-chamber, within which the induction and eduction pipes extend alternately to opposite ends, whereby the air has to traverse the entire length of said chamber before passing out therefrom.

Referring to the drawings, A represents a horizontally-extending cylinder, within which is mounted a revolving drum, B, consisting of chambers the sides of which are formed of plates overlapping each other, with spaces between the ends of the adjacent plates, so that communication is had to and from the interior of the drum.

The cylinder A is supported on a stand or standards, C, on which is mounted a shaft, D, extending parallel with the axial shaft E of the drum B, and on the end of said shaft D is a pulley, *a*, around which passes a belt or band, *b*, passing around a pulley, *d*, secured to the end of the shaft E of the drum B.

F represents the carbureting-chamber, consisting of a cylindrical or other shaped vessel, and within the same are fitted two pipes, G G′, of bent or angular form, one end of each of which communicates with the interior of the chamber, and one end of the pipe G communicates with the cylinder A by means of a pipe, H, and the end of the other pipe, G′, has connected to it the pipe leading to the place of service of illumination or other purpose.

The operation is as follows: Water will be placed in the cylinder A, and the height thereof will be indicated by a gage suitably applied. A cord will be wound on the shaft D, and, passing over an elevated pulley, it will be unwound by means of a suitably-connected weight, whereby power will be communicated to the shaft E and drum B, so that air will be drawn into the cylinder A, for the passage of which we may use a pipe, I, arranged centrally of said cylinder, and bent or angular within the same, so as to extend to a proper height, and prevent escape of the water therein.

The carbureting-chamber will be filled with sawdust or other packing, and receive a quantity of hydrocarbon fluid sufficient to thoroughly saturate the packing.

The air forced from the cylinder A will pass through the pipe H into the pipe G, to which the pipe H is attached, and descend to the bottom of the chamber F, then ascend through the saturated packing to the inner end of the other pipe, G′, whereby it will be highly charged with carbon, after which it is passed out in the carbureted state through the pipe G′ to the place of service.

When the packing becomes matted or soggy we invert the chamber F, and the air from the chamber A, entering the pipe G, is directed to the top of the chamber F, then descends through the packing to the bottom of said chamber, and finally has its exit by the pipe G′. This has a tendency to separate or soften the packing, and permits the passage of the air therethrough, so that the hydrocarbon vapor will be properly taken up and passed out.

It will also be seen that the location of the shaft D, whose bearings are on the stand or standards C, which likewise support the cylinder A and the inclosed air-drum B, is such that there is great compactness of the parts, besides simplification and cheapening of apparatus of this class.

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

The air-cylinder, A in combination with the reversible chamber F, having the induction-pipe G and eduction-pipe G′, extending alternately to opposite ends of said chamber, substantially as and for the purpose set forth.

JOHN A. PIERCE.
FRANCIS E. SMILEY.

Witnesses:
JOHN A. WIEDERSHEIM,
JNO. A. BELL.