J. A. PIERCE.

CARBURETER.

No. 182,598. Patented Sept. 26, 1876.

Fig. 1.

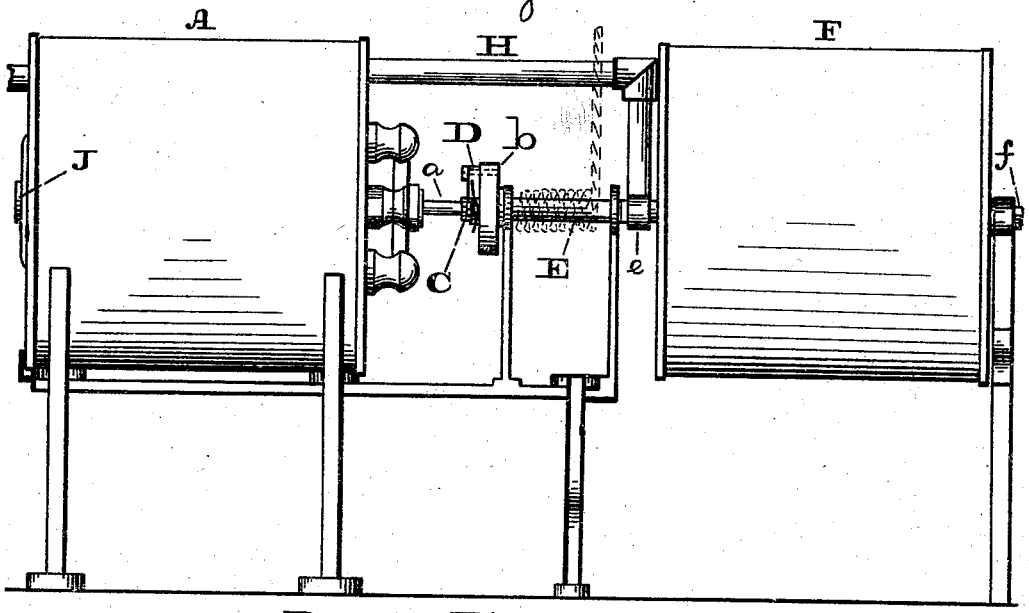


Fig. 2.

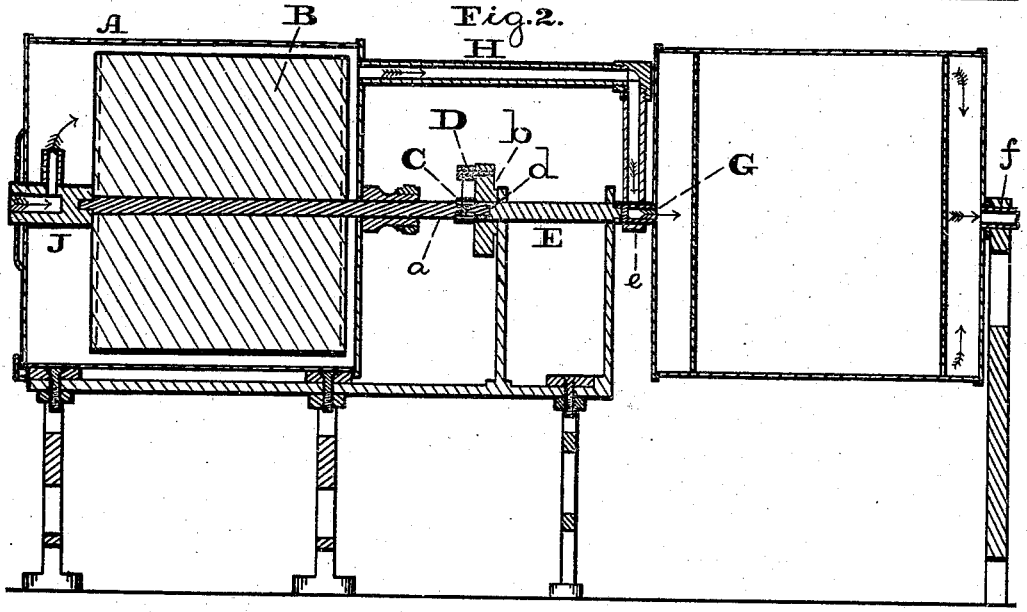
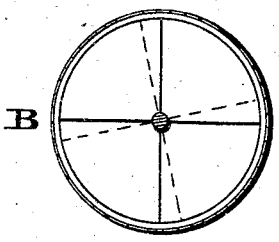


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN A. PIERCE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF TWO-THIRDS OF HIS RIGHT TO JAMES BRADLEY AND JOHN ROBINSON, AGENT, OF SAME PLACE.

IMPROVEMENT IN CARBURETERS.

Specification forming part of Letters Patent No. **182,598**, dated September 26, 1876; application filed July 21, 1876.

To all whom it may concern:

Be it known that I, JOHN A. PIERCE, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Carbureters; and I 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 my 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 apparatus embodying my invention. Fig. 2 is a central vertical longitudinal section thereof. Fig. 3 is an end view of a revolving drum.

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

The invention consists in a carbureter, composed of a stationary air-chamber, a revolving air-drum, and a revolving carbureting-chamber, the two latter connected by a divided shaft, joined by a pawl and ratchet, and combined with the ordinary cord and weight, the cord winding on one length of said shaft, in such manner that the carbureting-chamber alone rotates when the shaft turns in one direction, and both the carbureting-chamber and drum are revolved by the shaft automatically turning in the opposite direction, the shaft thus also being utilized as a means for winding the cord, the air-chamber and carbureting-chamber being connected by a stationary pipe for conveying air from the former to the latter.

Referring to the drawings, A represents a 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 adjacent plates, so that communication is had to and from the interior of the drum.

The shaft or axis *a* of the drum B projects at the sides of the cylinder A, and has connected to its end a ratchet, C, over which is a pawl, D, hung to a collar, *b*, secured to a shaft, E, which is fitted to the shaft *a* by a tenon-joint, *d*, so that by the rotation of the shaft E in one direction the pawl D rides freely over the ratchet C, and in the other direction said pawl engages with the ratchet, so as to impart rotation to the shaft *a*, and consequently to the drum B.

F represents the carbureting-chamber, which consists of a revolving cylinder or drum, one side of which has connected to it a hollow collar, G, whose end adjacent to the shaft E is squared, so as to engage with the squared end of said shaft, so that the chamber F and the shaft E will rotate in common. The chamber F is formed with partitions or diaphragms, and within the same will be placed a quantity of suitable packing or material of an absorbent nature.

In order to provide a communication between the cylinder A and chamber F, I employ a pipe, H, one end of which is connected to the cylinder A, and the other end is formed with a sleeve, *e*, which encircles the collar G, and communicates with openings formed in said collar.

Water will be placed in the cylinder A, and the height thereof will be indicated by a gage, suitably applied. Air will be admitted to the cylinder A by means of a stationary pipe, J, which will be arranged centrally of said cylinder, and bent or angular within the cylinder, so as to extend to a proper height, and prevent escape of the water therein.

A quantity of hydrocarbon fluid is introduced into the chamber F, and the latter will be rotated, so that a cord (shown in dotted lines, Fig. 1) will be wound on the shaft E, and the pawl D will ride freely over the ratchet C without imparting rotation to the shaft *a*. The weight attached to the cord now imparts rotation to the shaft C in the opposite direction from that in which it was wound; and the pawl D will engage with the ratchet C, so as to cause rotation of the shaft *a*, and consequently to the drum B. The air forced from the cylinder A enters the conveying-pipe H, and, entering the openings of the collar G of the chamber F, passes into the said chamber F, where it is charged with the carbon, and in this carbureted condition it is directed from the chamber F through a pipe, *f*, to the place of service, for illumination or enriching other gases.

It will be seen that I provide a simple and durable apparatus for the purpose intended. The shafts *a* E afford solid and strong connections between the cylinder A and the chamber F, and leakage is prevented.

It will also be seen that the pawl-and-ratchet connection of the divided shaft, the winding length of said shaft, as also its other end, and the air-conveying pipe, are intermediate of the air-drum and carbureting-chamber, thus centering said parts and making a compact machine.

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

The stationary air-cylinder A, with inclosed revolving drum B, and the revolving carbureting-chamber F, in combination with a divided shaft, *a* E, carrying the drum and chamber at opposite ends, connected by a pawl and ratchet, and having one length for the winding-cord, and with the stationary air-pipe H, the pawl and ratchet, the winding length of the divided shaft, the other length thereof, and the air-pipe being intermediate of the aforesaid drum and chamber, substantially as and for the purpose set forth.

JOHN A. PIERCE.

Witnesses:
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