2 Sheets--Sheet 1.

T. A. STOMBS.

Automatic Rotary Carbureters.

No. 166,427. Patented Aug. 3, 1875.

Fig. 1.

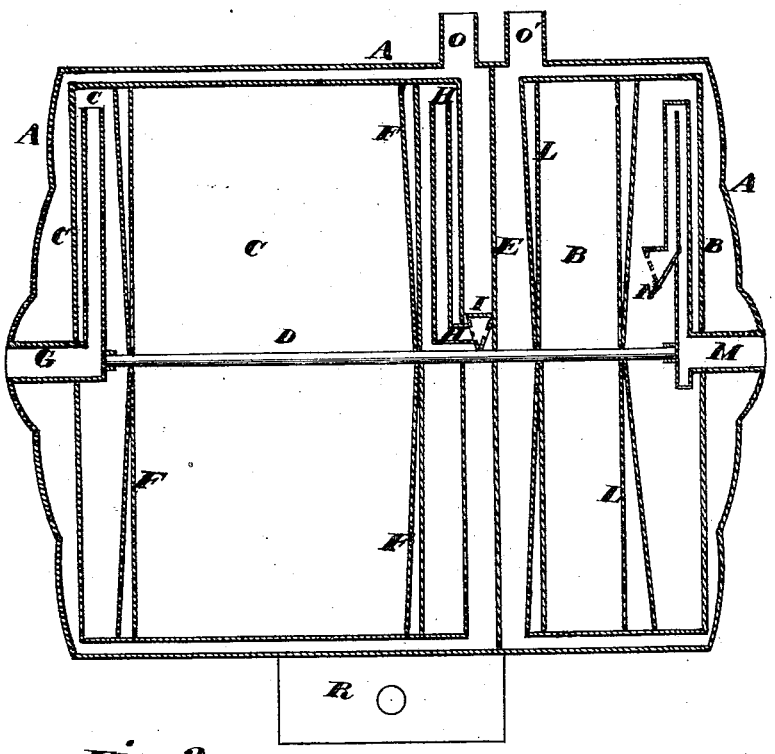
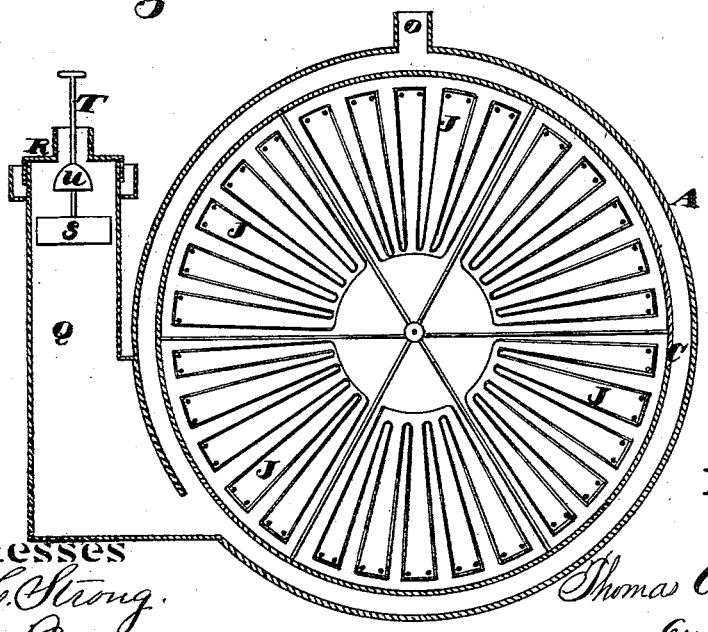


Fig. 2.



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2 Sheets--Sheet 2.

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Fig. 3.

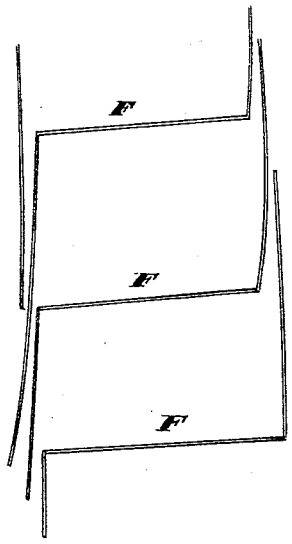

Fig. 4.

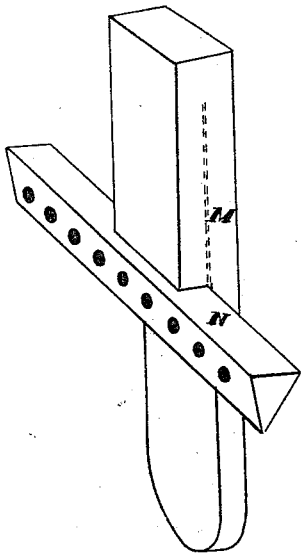

Fig. 6.

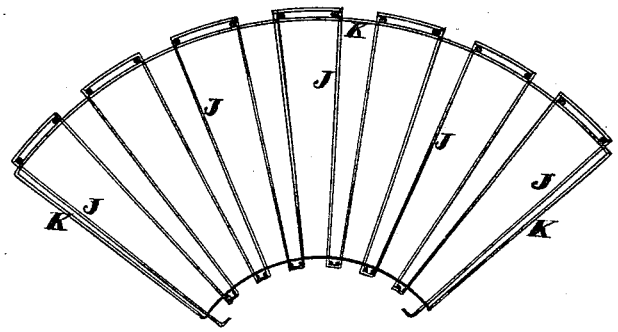

Fig. 5.

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UNITED STATES PATENT OFFICE.

THOMAS ALLEN STOMBS, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN AUTOMATIC ROTARY CARBURETERS.

Specification forming part of Letters Patent No. **166,427**, dated August 3, 1875; application filed June 12, 1875.

To all whom it may concern:

Be it known that I, THOMAS ALLEN STOMBS, of San Francisco city and county, State of California, have invented an Automatic Rotary Carbureter; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention without further invention or experiment.

My invention relates to certain novelties in the construction of rotary carbureters, and it relates principally to the use of an automatic rotary driver in connection with a rotary air forcing mechanism, the fans of said driver being of peculiar construction. It also consists in the use of a very effective system of carbureting sheets within the air-cylinder, and an automatically-operating check-valve to regulate the supply of liquid in the machine.

Referring to the accompanying drawing for a more complete explanation of my invention, Figure 1 is a vertical longitudinal section of my machine. Fig. 2 is a transverse section. Fig. 3, Sheet 2, shows the arrangement of the partitions and the ingress and egress openings. Fig. 4 shows the construction of the supply-pipe. Fig. 5 shows the shape of the partitions in the device. Fig. 6 is a section of the carbureting-sheets.

A is an outer containing-case, within which the driver B and the air-cylinder C rotate, being supported upon the shaft D and separated from each other by means of a diaphragm, E, which extends across the case, as shown. The carbureter consists of the cylindrical portion C, within which are formed the inclined leaves or partitions F. These partitions are so constructed that, as the edge of the opening upon one side passes below the surface of the liquid it will inclose a certain proportion of air within the space, and the corresponding opening upon the opposite side, being raised above the surface of the liquid, the inclosed air will be discharged upon that side. A pipe or tube, G, admits the air at the center of one end of the case, and the continuation of the tube within the case is carried up above the surface of the liquid where it discharges, as shown. The discharge-tube H, at the opposite end of this part of the case, receives the air above the surface of the liquid and discharges it into a horizontal tube, I, through the perforations, in which the air escapes and passes to the exit-opening *o*.

My carbureting-sheets consist of a continuous sheet of woolen or other suitable fabric, J, which passes in and out around a frame, K, this frame being shaped like the chambers of the cylinder C, and each chamber contains one of these frames and its sheets.

It will be seen that at every revolution of the cylinder these blanket sheets will be plunged below the surface of the liquid, and when they again emerge will be thoroughly saturated. Between these saturated sheets the air is passed, and thus becomes thoroughly carbureted before it discharges from the chamber. These sheets are easily made and renewed when worn out.

In order to make my device automatic or self-operating, not depending upon any outside machinery to drive it, I secure to the same shaft D what I call a driver, B. This driver consists of a cylinder similar to C, with partitions L, which open alternately upon the receiving side and the discharge side of the cylinder.

A pipe, M, receives air or gas, as may be desired, and discharges it through the perforated horizontal tube or chamber N below the surface of the gasoline or other liquid. From this point it rises and enters the chambers formed by the inclined partitions in the wheel successively, and being inclosed by the rotation of the wheel which its buoyancy causes, it will escape through the opening in the opposite side and pass out of the case by its discharge-pipe *o'*. The chambers of the driver B may also be provided with carbureting sheets J, similar to those shown in the cylinder C.

If it be desired to use only common air and carburet it, the air for the driver would have to be brought in under some pressure, but when the object is to use coal-gas, and either carburet it or mix it with a certain proportion of common air or hydrocarbon gas for illuminating or heating purposes, it will readily be seen that it is only necessary to admit it to the driver from a street-main with its ordinary pressure to insure the constant action of the

machine. It will also be seen that its speed will be regulated by the amount of gas consumed at the burner, running from an almost imperceptible rate for one burner up to a rapid rotation at its full capacity. By regulating the sizes of the two cylinders it will be easy to mix gas and air or hydrocarbon in any suitable or desirable proportions, so as to make it available for many purposes.

The air-passages, through which the gas is admitted to the driver, are formed by peculiarly-shaped vanes V. These vanes present an inclined face to the inflowing gas, and each vane passes by the previous one upon the inside, and is bent, so that after passing the edge of the previous vane it stands transversely to the shaft, as shown at V′, Fig. 5. By this construction it will be seen that two-thirds of the surface of each vane which are presented outwardly are placed at an angle, while of the two-thirds which are exposed inwardly or to the back pressure, only one part is inclined, while the other third presents a flat face, and this prevents any effect or back pressure to retard or turn the machine backward.

In order to regulate the supply of gasoline or other liquid within the case, and keep it at a uniform height, the liquid is brought by a pipe to a vessel, Q, which is attached and opens into the case A. The pipe enters the cover R, which is sealed around its edges by a water-chamber or otherwise.

Within the vessel Q a float, S, is placed, and this float rises or falls with the supply of liquid. When the vessel is full the stem T of the float rises into the end of the supply-pipe, and a valve, U, shuts off any further supply until the float again falls below the proper level.

This device being entirely automatic, needs but little attention, and is very economical.

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

1. The driver B, with its inclined partitions L, and provided with the inlet-passage formed by the vanes V V, standing at different angles, and the air-cylinder C, with its partitions F, mounted upon the same shaft D within the case A, and provided with inlet and exit openings, as shown, the whole constructed to operate substantially as and for the purpose herein described.

2. The carbureting-sheets consisting of the continuous fabric J, passing alternately to the circumference and the center of the chambers of the cylinder around the frame K, in combination with the automatic device for regulating the supply of liquid, the same consisting of the float S, with its stem T and valve U, when fitted to rise and fall at the lower end of the supply-pipe, which connects with the chamber A, substantially as herein described.

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