

No. 835,745.

PATENTED NOV. 13, 1906.

E. BOUCHAUD-PRACEIQ.
AUTOMATIC APPARATUS FOR CARBURETING AIR AND OTHER GASES.
APPLICATION FILED MAR. 29, 1905.

Fig. 1.

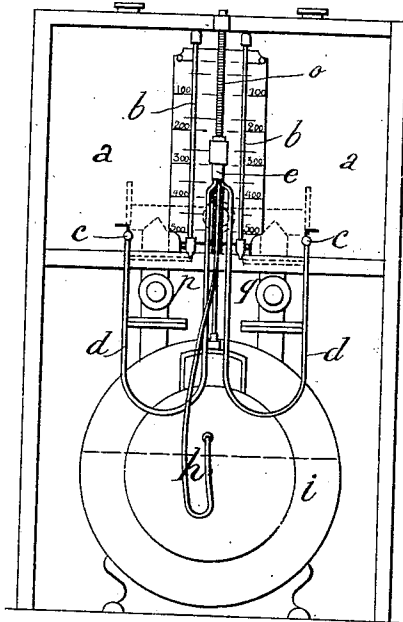


Fig. 2.

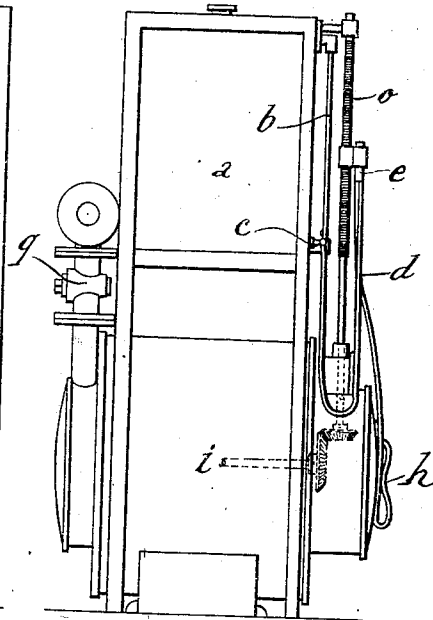


Fig. 4.

Fig. 3.

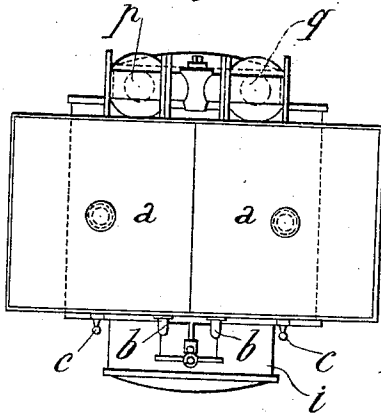


Fig. 6.

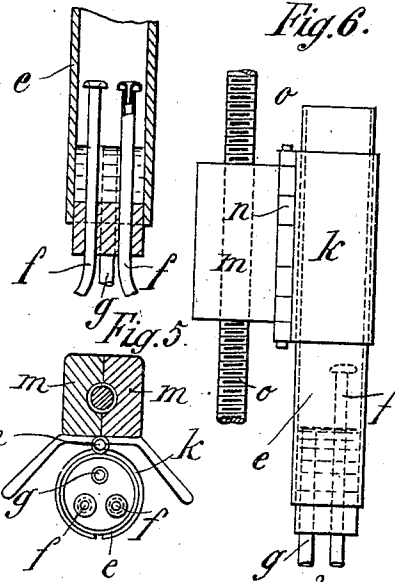
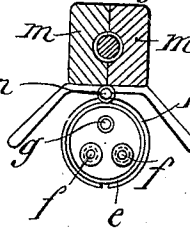


Fig. 5.



Witnesses:

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UNITED STATES PATENT OFFICE.

EDOUARD BOUCHAUD-PRACEIQ, OF PARIS, FRANCE, ASSIGNOR TO THE
PORTABLE GAS FOUNTAIN SYNDICATE LIMITED, OF PARIS, FRANCE.

AUTOMATIC APPARATUS FOR CARBURETING AIR AND OTHER GASES.

No. 835,745.

Specification of Letters Patent.

Patented Nov. 13, 1906.

Application filed March 29, 1905. Serial No. 252,733.

To all whom it may concern:

Be it known that I, EDOUARD BOUCHAUD-PRACEIQ, of No. 33 Avenue d'Eylau, Paris, France, have invented a new and useful Improvement in Automatic Apparatus for Carbureting Air and other Gases, which invention is fully set forth in the following specification.

This invention relates to an apparatus serving to effect in an automatic manner either the carburization of air or of any gas, with a view to render it combustible, and consequently suitable for furnishing light, heat, or motive power, or for the enrichment of gases already combustible, but of an insufficient calorific or luminant power—such as water-gas, gas from wood, and generally all poor gases—or for effecting the attenuation of gas having excess of carburization, such as acetylene. All carbureting liquids—such as benzenes, alcohols, ethers, all essences of petroleum, of tar, &c.—can be employed even if mixed. The carbureting liquids are contained in one or several reservoirs situated in a raised position relatively to the rest of the apparatus, and the liquid is extracted automatically always in a manner proportional to the quantity of air or gas to be carburated, enriched, or attenuated by means of the arrangement which will be described relatively to the drawings annexed to the present description.

Figure 1 is a front view; Fig. 2, a side view; Fig. 3, a plan. Figs. 4, 5, and 6 are respectively a vertical section, a horizontal section, and a side view of the actual closing apparatus.

The apparatus consists of two reservoirs *a*, containing the carbureting liquid and which can be put alternately into action, so as not to interrupt the supply during the filling of one thereof. Each of these reservoirs is provided with a level-indicator tube *b*, showing by a suitable scale the contents of this reservoir. A cock *c* at the bottom of each reservoir is connected, by means of a flexible pipe *d*, with the closing apparatus, which is composed of a transparent gage-tube *e*, closed at the lower end by means of a plug, through which pass three tubes. Two of these tubes *f* are arranged with an upper mouth constituting a discharge for the carbureting liquid, and they communicate, respectively, with the tubes *d*. The third tube

g serves for collecting the liquid which passes into the gage-tube *e* and to conduct the same through a flexible tube *h* into a gas-meter of suitable size, (shown at *i* on the drawings.) The liquid spreads in a thin layer upon the water contained in the meter and evaporates instantaneously in contact with the gaseous current passing through the apparatus.

The vessel *e* is mounted in a sleeve *k*, carried by a screw-nut *m*, formed in two parts, articulated by means of a spring-hinge *n* and embracing a screw-spindle *o*, arranged vertically in front of the apparatus. This screw is situated on an axis connected to the drum or the clockwork of the meter, so as to revolve at a speed always proportional to the discharge of the meter—such as, for example, one revolution per cubic meter of air passing through the apparatus.

The pitch of the screw is determined by the other conditions of the construction of the apparatus in such manner as to realize a constant degree of carburization whatever may be the quantity of gas that the apparatus has to supply.

The action is as follows: The air or gas under pressure enters the meter through the pipe *p*, for example, and causes the meter to revolve. It then issues carburated through the second pipe *q*. The motion of the meter determines the proportionate rotation of the screw *o*, which in revolving causes the screw-nut *m*, and consequently the discharge-tubes *f*, to descend progressively, one of the tubes at least being in communication with the corresponding reservoir. By virtue of the principle of communicating vessels the level of the liquid is the same in the reservoir and in the tube *f*. When the screw-nut descends, owing to the rotation of the screw, the liquid overflows the tube *f* and falls into the vessel *e*. When it has risen to the level of the upper opening of the tube *g*, it flows off through the same into the meter and there carburates the air or the gas passing through the latter.

When the screw-nut has arrived at the bottom of its course, it is brought back to its upper starting-point by opening it for disengaging it from the screw and raising it up, and it is then allowed to close again. The second reservoir is then put in communication with the vessel *e* and the action continues.

The stem on which the screw *o* is formed is

reduced to a smaller diameter below the latter, so as to present a smooth part which would be embraced by the screw-nut *m* if it should be forgotten to raise the latter when it has completed its descending motion in order thus to avoid jamming and damage to the apparatus.

It will be seen that the discharge of carbureting liquid will depend on the speed of rotation of the screw *o* and upon the pitch of the latter. It is therefore easy to obtain at will different degrees of carburization by replacing the screw *o* by another one of a suitable different pitch, so as to cause the discharging-tubes through which the liquid flows into the meter to descend at a greater or smaller speed.

Having thus described the nature of my said invention and the best means I know of carrying the same into practical effect, I claim—

1. In apparatus for carbureting air or other gases, a carbureting-chamber, a reservoir for the carbureting liquid, a movable receptacle communicating with said reservoir and said carbureting-chamber, and motor means acting to vary the elevation of said receptacle relative to the height of the liquid in the reservoir, thereby effecting passage of liquid from the reservoir into the receptacle and from the latter into the carbureting-chamber in regulated quantity.

2. In apparatus for carbureting air or other gases, a carbureting-chamber, a reservoir for the carbureting liquid, a movable receptacle, flexible pipings connecting said movable receptacle to said reservoir and said carbureting-chamber, and motor means for imparting relative movement between the receptacle and reservoir thereby effecting passage of liquid from the reservoir into the receptacle and from the latter into the carbureting-chamber in regulated quantity.

3. In apparatus for carbureting air or other gases, a carbureting-chamber, a reservoir for the carbureting liquid, a movable receptacle, flexible piping through which said receptacle communicates with the reservoir and the carbureting-chamber, and motor means acting to vary the elevation of said receptacle relative to the height of the liquid in the reservoir, thereby effecting passage of liquid from the reservoir into the receptacle and from the latter into the carbureting-chamber in regulated quantity.

4. In apparatus for carbureting air or other gases, a meter through which the air or gas to be carbureted is made to pass, a reservoir for the carbureting liquid, a screw-spindle receiving rotary motion from the mechanism of the motor, a screw-nut on said screw-spindle, a vessel fixed to said nut, a tube emptying into said vessel from said res-

ervoir, and a flexible connection between said vessel and meter.

5. Apparatus for carbureting air and other gases consisting of the combination with a wet gas-meter, through which the air or gas to be carbureted is made to pass under pressure, of a raised reservoir containing the carbureting liquid, a vessel mounted on a screw-spindle rotated by the mechanism of the meter, a flexible tubular connection between the said vessel and the reservoir, a second flexible tubular connection between the said vessel and the meter so that as the vessel is made to descend by the rotation of the screw, the liquid is made to pass from the reservoir into the vessel in a continuous regulated manner and to descend from the latter into the meter where it evaporates and mixes with the air or gas, substantially as described.

6. In apparatus for carbureting air and other gases, a wet gas-meter through which the air or gas to be carbureted is made to pass, one or more reservoirs of carbureted liquid raised above the said gas-meter, a vertical screw-spindle receiving rotary motion from the mechanism of the gas-meter, a screw-nut on said screw-spindle, a vessel fixed to said nut, one or more tubes projecting up a certain height through the bottom of the vessel, flexible tubes connecting the said tube to the said reservoirs so that the liquid can flow from the latter into the former, cocks on said tube for cutting off communication between the vessel and reservoirs and a flexible tube connecting the lower part of the vessel with the inlet of the gas-meter so that the liquid can flow from the former into the latter, substantially as described.

7. In apparatus for carbureting air and other gas, a wet gas-meter, through which the air or gas to be carbureted is made to pass, one or more reservoirs of carbureting liquid, raised above said gas-meter, a vertical screw-spindle receiving rotary motion from the mechanism of the gas-meter, a divided screw-nut on said screw-spindle adapted to open on a hinge so as to be shifted from bottom to top thereof, a receptacle fixed on said nut so as to be carried downward by the rotation of the said screw-spindle, and means for causing the carbureting liquid to flow from the reservoir into the receptacle and from the latter into the gas-meter, substantially as described.

In witness whereof I have hereunto signed my name, this 13th day of March, 1905, in the presence of two subscribing witnesses.

EDOUARD BOUCHAUD-PRACEIQ.

Witnesses:

JULES ARMENGAUD, Jeune,
HANSON C. COXE.