No. 714,597. Patented Nov. 25, 1902.

E. L. P. MORS.

CARBURETER FOR EXPLOSIVE MOTORS.

(Application filed Jan. 28, 1902.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

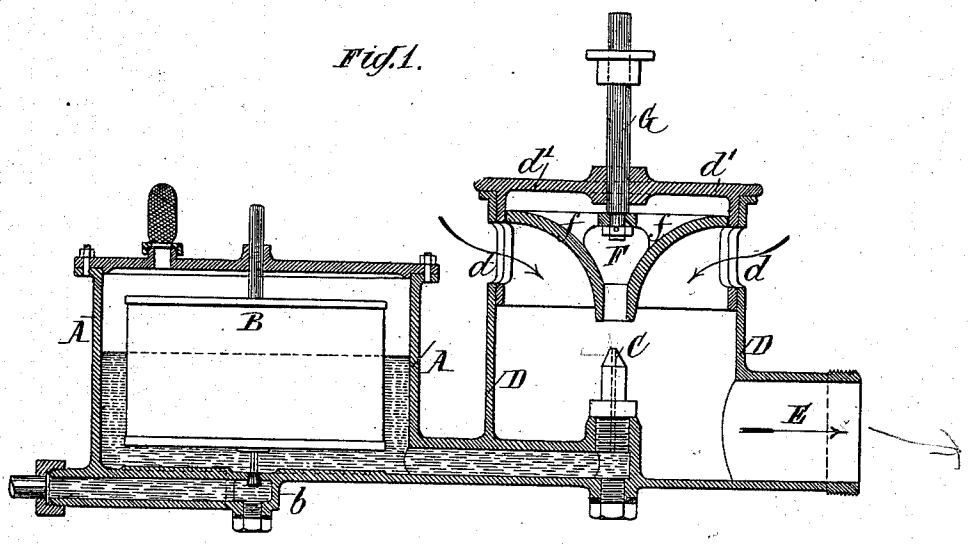


Fig. 2.

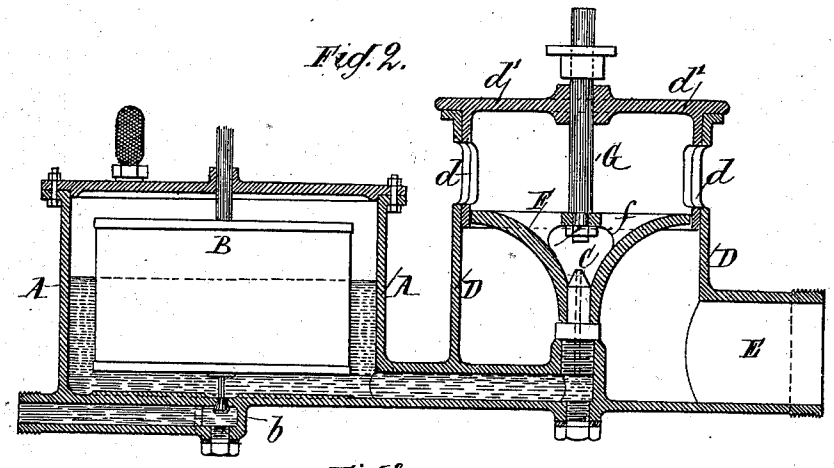
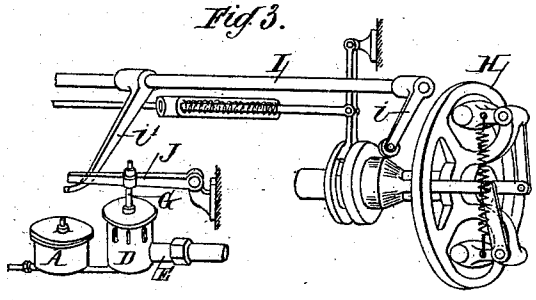


Fig. 3.



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Fig. 4.

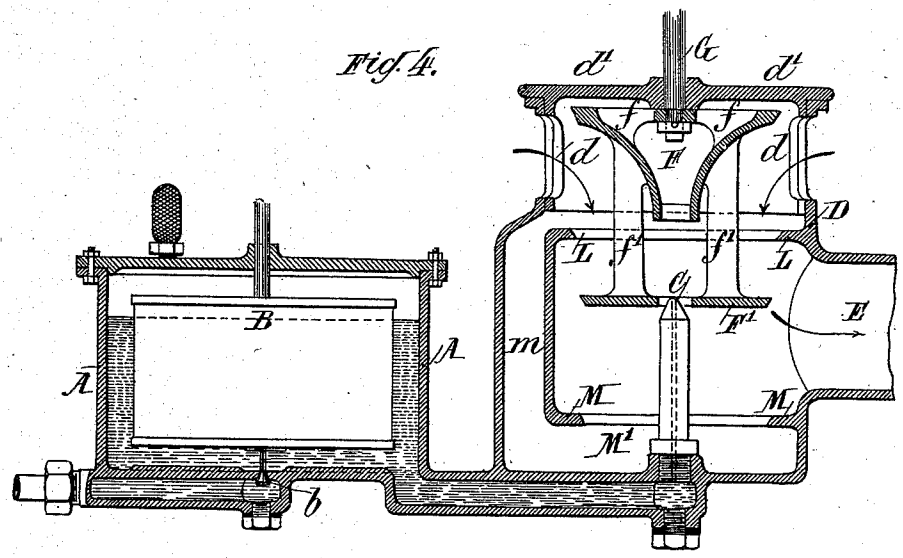
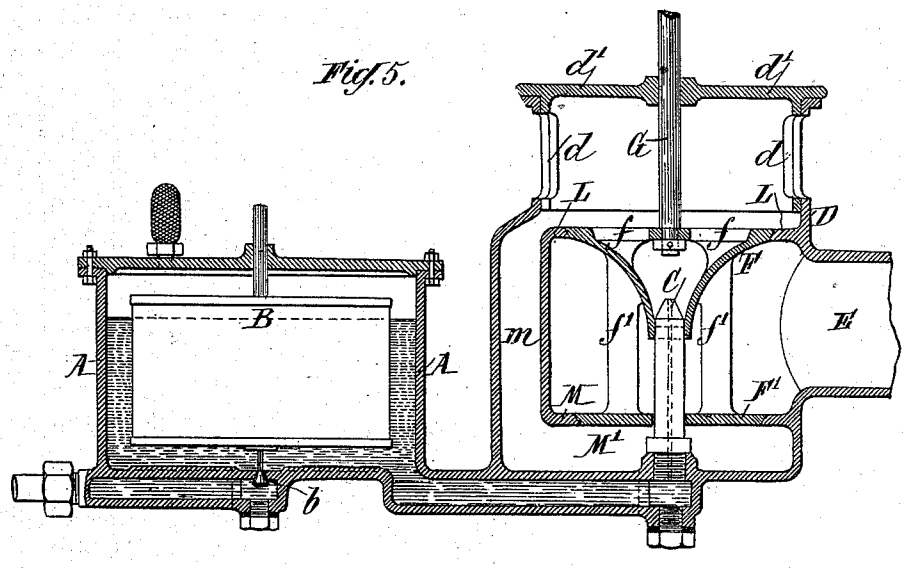


Fig. 5.



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UNITED STATES PATENT OFFICE.

EMILE LÉON PROSPER MORS, OF PARIS, FRANCE, ASSIGNOR TO SOCIÉTÉ ANONYME D'ELECTRICITE ET D'AUTOMOBILES MORS, OF PARIS, FRANCE.

CARBURETER FOR EXPLOSIVE-MOTORS.

SPECIFICATION forming part of Letters Patent No. 714,597, dated November 25, 1902.

Application filed January 28, 1902. Serial No. 91,613. (No model.)

To all whom it may concern:

Be it known that I, EMILE LÉON PROSPER MORS, civil engineer, a subject of the King of Belgium, residing at 48 Rue du Théâtre, Paris, Republic of France, have invented Improved Carbureters for Explosion-Motors, of which the following is a specification.

This invention relates to a carbureter for hydrocarbon, alcohol, and similar motors. The apparatus is characterized by the fact that it permits of the regulation of the motor by means of direct and immediate action upon the production of the gaseous mixture, but without this action giving rise to perturbations in the proportions of the elements constituting this mixture.

In order that the invention may be readily understood and carried into effect, reference is to be had to the accompanying drawings, in which—

Figures 1 and 2 show a constructional form of carbureter embodying this invention, these views being in vertical section and illustrating the appliance as adapted for the production of the gaseous mixture and as not so adapted, respectively. Fig. 3 is a diagrammatical representation of a device for connecting a centrifugal governor with this carbureter, and Figs. 4 and 5 represent in vertical section a modified form of carbureter-governor.

This appliance comprises the arrangements usual in carbureters of the injection or pulverization type. It includes a vessel A, in which the carbureting liquid is maintained at a constant level by means of a pin-valve *b*, controlled by a float B. This vessel supplies the injecting-nozzle C, placed in a carbureting-chamber D, communicating with the outer air by means of orifices *d*, the aperture of which may readily be varied by means of a register or damper *d'*, and also with a pipe E, conducting the gaseous mixture to the motor.

The essential part in this improved device consists in a wall or partition displaceable within the carbureting-chamber, which partition may be caused to occupy a position in which it leaves uncovered the orifice of the nozzle C and also the apertures for admitting air to the said carbureting-chamber or a position in which it isolates this nozzle and also the air-admission orifices from the interior of the carbureting-chamber. This movable partition may present the form shown in Figs. 1 and 2, which consists in a kind of funnel F, the upper base of which is of such a diameter as to exactly fit the inner cylindrical wall of the carbureting-chamber and move upon it with slight friction, the lower tubular portion being of such a size as to fit exactly upon the nozzle C, as shown in Fig. 2. This part F is rigidly connected by means of arms *f* with a rod G, guided so as to slide with slight friction in the cover of the carbureting-chamber and by means of which the said part F may be caused to occupy one or other of the positions indicated in Figs. 1 and 2.

When the part F occupies the position shown in Fig. 1, the carbureter operates under the ordinary conditions. The air entering through the orifices *d* encounters the jet of liquid issuing from the nozzle C, and the mixture passes to the motor through the pipe E. This is the well-known operation.

When the part F occupies the position shown in Fig. 2, the nozzle C is lodged in the tubular portion *f* of the said part F and is thus completely isolated from the carbureting-chamber in communication with the motor. The upper edge of the funnel being below the air-admission orifices *d*, the carbureting-chamber is isolated from the outer air. It follows that the production of the carbureted mixture being interrupted the motor is no longer supplied, and the important fact should be noted that throughout the entire cessation of production of the carbureted mixture, owing to the position of the part F, the carbureting-chamber is simultaneously isolated from the nozzle and from the outer air. In these conditions as soon as the part F has again been caused to occupy the position indicated in Fig. 1 and the production of the mixture has recommenced it will take place in the same condition as those obtaining before the descent of the part F without any manifestation of perturbations in the

carbureting—such as condensations, variations in the proportions of the mixture, and the like—such as would be produced if while merely intercepting the admission through the pipe E the chamber D were left during this period of cut-off in free communication with the nozzle and with the outer air.

If the part F is controlled by a centrifugal governor of any suitable kind, the motor may be efficiently regulated, such regulation being of the best possible kind, since it acts immediately upon the source of energy without disturbing the conditions of this latter.

The method of connecting the governor with the movable part F may be of any suitable kind, the arrangement being such as to maintain the part F in the position shown in Fig. 1, when the motor should run normally, and to cause it to occupy the position shown in Fig. 2, when the gaseous mixture should no longer be formed, so as to cause the motor to slacken.

Fig. 3 shows, diagrammatically and by way of example, an arrangement of parts effecting the connection between a governor and a carbureter in accordance with this invention.

The governor is represented at H. It comprises a slide with cam-surface *h*, upon which rests an arm *i*, rigidly fixed to a shaft I, carrying an arm *i'*, which acts upon a lever J, pivoted to the rod G of the part F, Fig. 1. A fork connected with the slide permits of hand actuation of the governor, so as to effect retardation or acceleration. The parts connecting the governor and the carbureter may of course vary according to the various types of motor and its various applications, and the above description is given by way of example only.

In the form of carbureter represented in Figs. 1 and 2 the displacement of the part F, in order to move it from the position shown in Fig. 2 to that represented in Fig. 1, may give rise to a certain resistance, owing to the fact that this partition is submitted, on the one hand, to the reduction of pressure produced by the motor and, on the other hand, to atmospheric pressure. This may be obviated by the employment of an arrangement such as that represented in Figs. 4 and 5. It is similar in principle to the foregoing; but the part F causes the separation of the carbureting-chamber from the air-admission orifices by coming against the edge of an aperture of corresponding size formed in a partition L. Arms *f'* render the part F rigid with a plate F', which comes over an aperture formed in a wall M, forming the lower part of the carbureting-chamber, and below which is a chamber M', which communicates by means of a passage *m* with that part of the carbureting-chamber adjacent to the air-admission orifices.

Fig. 4 represents the carbureter in operative condition, the part F F' being raised. Fig. 5 shows it inoperative, the part F F' being lowered. In this latter condition this part is submitted upon both sides to atmospheric pressure, and its displacement does not give rise to any effort resulting from a counter pressure.

It is to be understood that the invention is not limited to the constructional arrangements represented, but may be constructed with any desirable modifications, whereby its principle is not affected. In certain motors the movable partition may be actuated by hand and the governor may be dispensed with.

I claim as my invention—

1. A carbureter having a mixing-chamber, an injector-nozzle opening freely into the chamber, air-supply openings above the nozzle and means to simultaneously cut off the air openings and nozzle from the supply-pipe to the motor, substantially as described.

2. A carbureter having a mixing-chamber in which the air and vapor is mixed by the suction from the motor, an injector-nozzle in the lower part of the chamber opening freely into the chamber, and air-supply openings in the upper part, means independent of the suction to cut off communication between the air-openings and the motor, said means being also adapted to simultaneously cut off the nozzle from the motor, substantially as described.

3. A carbureter having a mixing-chamber in which the air and vapor is mixed by the suction from the motor, a connection from the chamber to the motor, an injector-nozzle in the chamber opening freely upwardly into the chamber, air-supply openings in the upper part of the chamber, and means independent of the suction for simultaneously cutting off both air-openings and nozzle from the motor, substantially as described.

4. A carbureter provided with a mixing-chamber, an injector-nozzle and air-supply openings above the nozzle, a part F having a tubular portion to fit over the nozzle, and an upper base fitting the mixing-chamber, whereby on operating said part F the air-openings and the nozzle will be simultaneously cut off from the motor.

5. A carbureter, having a mixing-chamber, an injector-nozzle and air-supply openings, and balanced means for cutting off the nozzle and the air-openings from the motor.

6. A carbureter, having a mixing-chamber, an injector-nozzle, air-supply openings above the nozzle, a chamber having upper and lower openings within the mixing-chamber and a pipe leading to the motor, and means for simultaneously cutting off the nozzle, and said upper and lower openings in the mixing-chamber from the motor, substantially as described.

7. A carbureter having a mixing-chamber, an injector-nozzle opening freely into the

chamber, air-supply openings above the nozzle, and a means adapted to simultaneously cut off the air-openings and nozzle from the supply-pipe to the motor, and a governor to control said means, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EMILE LÉON PROSPER MORS.

Witnesses:
GUSTAVE DUMONT,
EDWARD P. MACLEAN.