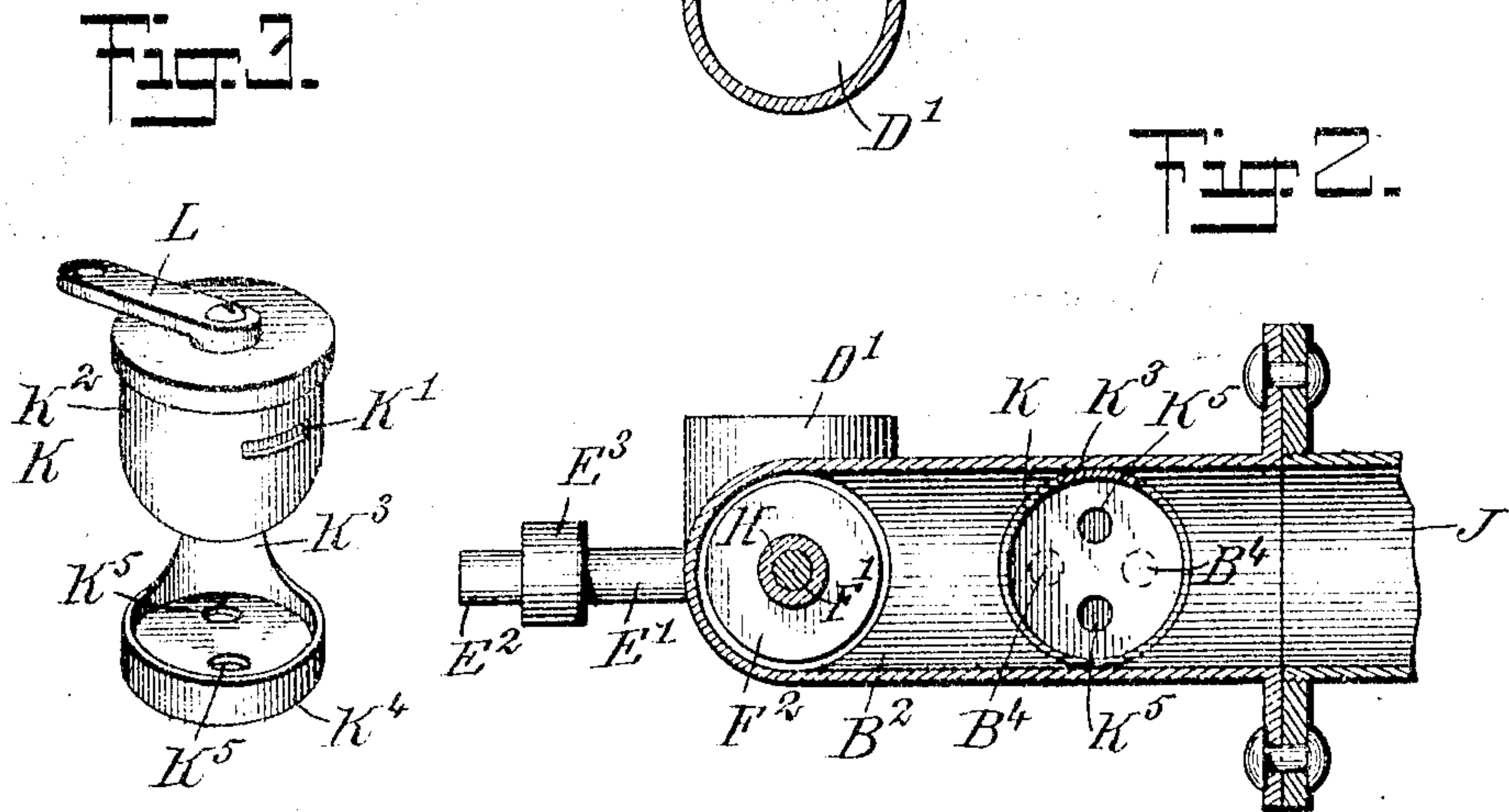
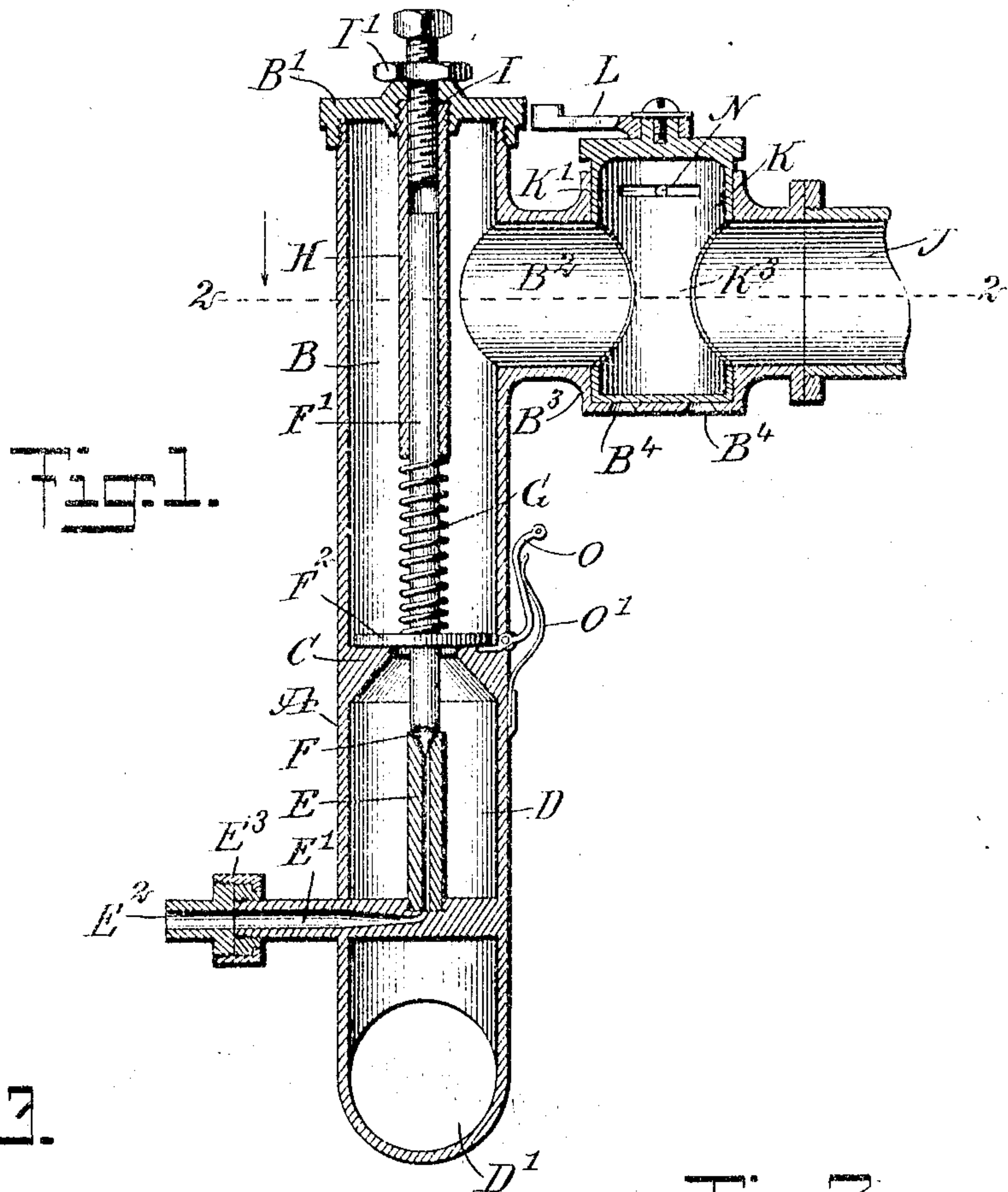


No. 888,263.

PATENTED MAY 19, 1908.

C. A. RADER.  
CARBURETER.

APPLICATION FILED MAY 16, 1906.



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# UNITED STATES PATENT OFFICE.

CHARLES AUGUST RADER, OF EL PASO, TEXAS.

CARBURETER.

No. 888,263.

Specification of Letters Patent.

Patented May 19, 1908.

Application filed May 16, 1906. Serial No. 217,123.

*To all whom it may concern:*

Be it known that I, CHARLES AUGUST RADER, a citizen of the United States, and a resident of El Paso, in the county of El Paso and State of Texas, have invented a new and Improved Carbureter, of which the following is a full, clear, and exact description.

The invention relates to explosive engines, notably such as are used on automobiles and the like.

The object of the invention is to provide a new and improved carbureter, arranged to insure the uniform feed of gasoline or the like and without the use of a float, and to control the charge by regulating the admission of air to the charge according to the speed of the engine.

The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional side elevation of the improvement; Fig. 2 is a sectional plan view of the same on the line 2—2 of Fig. 1, and Fig. 3 is a perspective view of the throttle valve.

The casing A of the carbureter is provided with a charge delivery chamber B connected by a valve seat C with a mixing chamber D open to the atmosphere at D'. Within the mixing chamber D is arranged a discharge nozzle E connected with a pipe E' extending to the outside of the mixing chamber D, and the outer end of this pipe E' is connected with a supply pipe E'' by a suitable union coupling E<sup>3</sup> or the like. The nozzle E is adapted to be closed by a needle valve F, the stem F' of which extends centrally through the valve seat C up into the delivery chamber B, and on the said stem F' within the delivery chamber B is secured a valve F<sup>2</sup> adapted to be seated on the seat C. The relation of the valves F and F<sup>2</sup> is such that normally both valves are seated, so that the valve F closes the nozzle E while the valve F<sup>2</sup> closes the seat C, and hence the connection between the delivery chamber B and the mixing chamber D.

A spring G is coiled on the stem F' and rests with one end on the top of the valve F<sup>2</sup> and abuts with the other end against a guide H in which the upper end of the stem F' is

mounted to slide, the said guide H being preferably secured to a cap B' closing the upper end of the chamber B. The upward sliding movement of the stem F' and, consequently, the opening movement of the valves F and F<sup>2</sup>, is limited by a screw rod I screwing in the cap B' and extending down into the guide H within the path of the upper end of the stem F'. Now, by screwing the screw rod I further in or out, the valves F, F<sup>2</sup> open less or more, and after the screw rod I has been adjusted to the desired position it is locked in place by a suitable jam nut I'.

The delivery chamber B is provided with a horizontal extension B<sup>2</sup> connected by a pipe J with the cylinder of the engine, and the said extension B<sup>2</sup> is provided with a valve casing B<sup>3</sup> for a throttle valve K to turn in. The outer end of the throttle valve is provided with an arm L connected with a lever under the control of the operator in charge of the engine. The throttle valve K is provided with an elongated slot K' into which projects a pin N held on the casing B<sup>3</sup>, to limit the turning movement of the throttle valve K. The upper end K<sup>2</sup> of the throttle valve K is tubular, and connected by a stem K<sup>3</sup> with the tubular bottom K<sup>4</sup> provided with apertures K<sup>5</sup> adapted to register with air inlets B<sup>4</sup> formed in the bottom of the casing B<sup>3</sup>. The apertures K<sup>5</sup> are so arranged relative to the air inlets B<sup>4</sup>, that they are out of register when the throttle valve K is fully open, and when the throttle valve is partly closed on turning the arm L, then the apertures K<sup>5</sup> register with the air inlets B<sup>4</sup> to admit air into the mixture, passing from the delivery chamber B by way of the pipe I into the cylinder of the engine. Thus, from the foregoing it will be seen that by the operator manipulating the throttle valve K, more or less air may be admitted to the explosive mixture to govern the explosive power of the charge in the cylinder. When the engine is running, the suction in the cylinder causes an opening of the valves F<sup>2</sup>, F, so that gasoline can flow out of the nozzle E and be mixed with the air passing through the air inlet D', up into the mixing chamber B, from which the mixture passes by way of the pipe J into the cylinder of the engine. Now, the amount of the charge passing to the engine is regulated by the operator manipulating the throttle valve K correspondingly, and additional air can be admitted to the charge by turning the throttle valve K correspondingly.



that is, until the apertures  $K^5$  register with the air inlet openings  $B^4$ .

A lever  $O$  fulcrumed on the casing  $A$ , extends under the valve  $F^2$  to allow the operator to lift the valves  $F^2$  and  $F$  off their seats when starting the engine, the valve  $O$  being pressed on by a spring  $O'$  to normally hold the lever  $O$  in an inactive position, that is, to allow the valves  $F^2$  and  $F$  to seat by the action of the spring  $G$ .

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

1. In a carbureter, a charge chamber, a valve casing connected with the chamber and provided with openings in its bottom, a throttle valve in the casing, said valve having tubular end portions connected by a stem, the lower tubular portion being provided with openings adapted to register with the openings in the valve casing, and means for operating the valve.

2. In a carbureter, a charge chamber, a valve casing connected with the chamber and provided with openings in its bottom, a throttle valve in the casing, said valve having tubular end portions connected by a stem, the lower end portions being provided with openings adapted to register with the openings of the casing, a pin and slot connection between the valve and casing to limit the movement of the valve, and means for operating said valve.

3. In a carbureter, a charge chamber, a valve casing connected with the charge chamber and having openings in one end, a

valve in the casing and having cylindrical ends connected to each other to form a passage therebetween, one cylindrical end portion being provided with openings adapted to register with the openings of the casing, means for operating the valve, and means for limiting the movement of said valve.

4. A carbureter, comprising a mixing chamber communicating with the atmosphere and having a discharge nozzle therein, a charge chamber at one end of the mixing chamber and having a valve seat at the end connected with said mixing chamber, and a guide tube projecting into it from its other end, a needle valve for closing the discharge nozzle and having its stem working in the said guide tube, a valve on the stem in the charge chamber, a spring for pressing the valves to their seats, said spring surrounding the stem between the valve and the lower end of the guide tube, adjustable means for regulating the opening of the valves, a valve casing connected with the charge chamber and having air inlets therein, and a throttle valve for controlling the flow of the explosive mixture through the casing, said valve having openings adapted to register with the openings of the valve casing to admit air to the said mixture.

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

CHARLES AUGUST RADER.

Witnesses:

U. S. COEN,  
RANDOLPH S. TERRY.