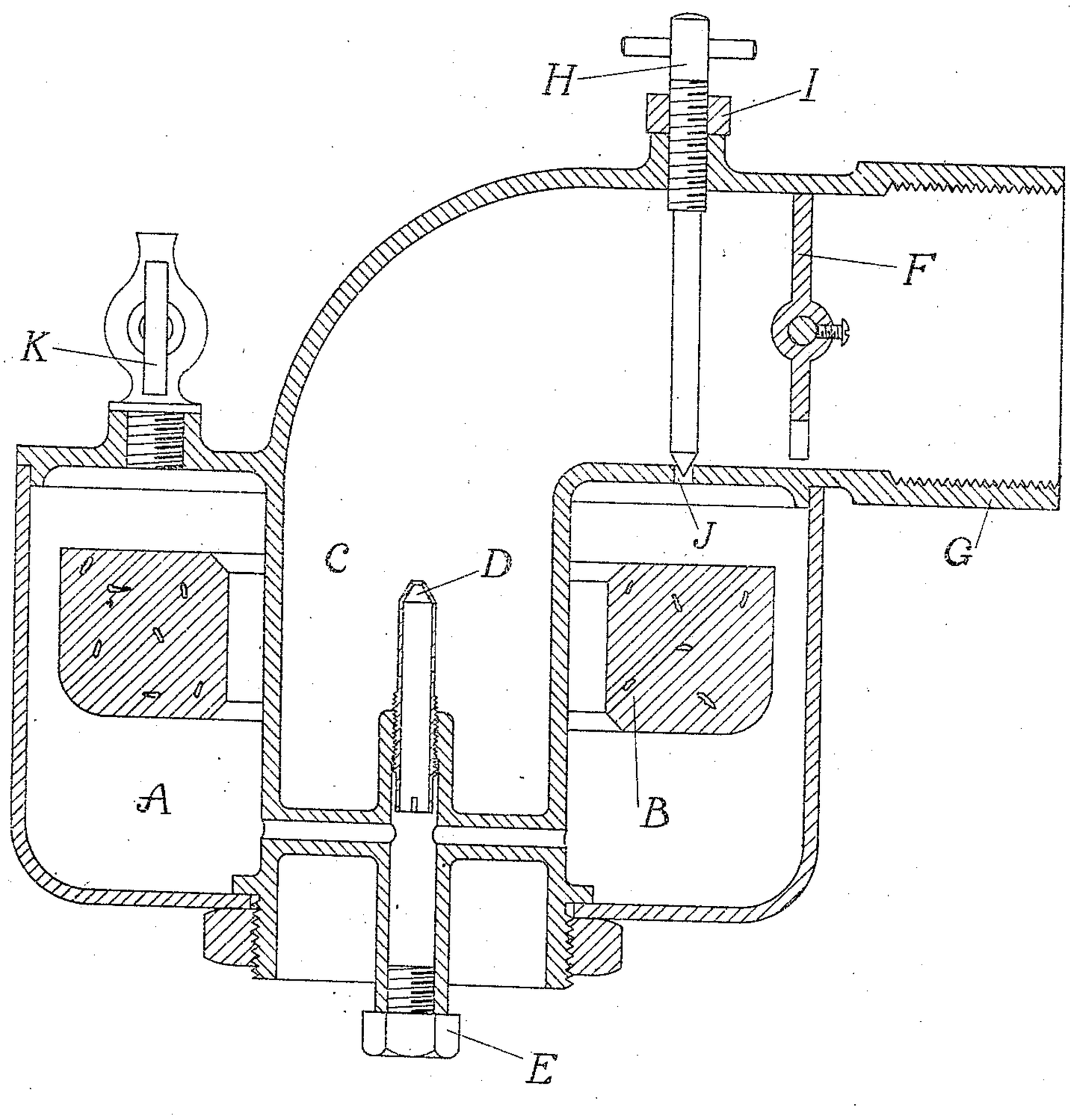
A. M. WOLF.

CARBURETER.

APPLICATION FILED MAY 26, 1909.

954,488.

Patented Apr. 12, 1910.



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CARBURETER.

954,488. Specification of Letters Patent. Patented Apr. 12, 1910.

Application filed May 26, 1909. Serial No. 498,519.

To all whom it may concern:

Be it known that I, AUSTIN M. WOLF, citizen of the United States, residing at New York, in the borough of Manhattan, county of New York, and State of New York, have invented certain new and useful Improvements in Carbureters, of which the following is a specification.

My invention relates to carbureters or other such devices as are employed to vaporize a liquid hydrocarbon for use in internal combustion engines or the like.

The object of the invention is to provide a carbureter in which the quality of the mixture is constant, irrespective of the speed of the engine. This is done by supplying ample hydrocarbon to be vaporized when the engine runs slowly and by preventing too much being volatilized when the velocity of the air through the carbureter is high.

Other advantages will be apparent later.

In the accompanying drawing, Figure 1, a section of the desirable form of construction is shown.

The float chamber A contains the float B, which keeps a constant level of the liquid therein by means of a needle valve (not shown) which regulates the rate at which the hydrocarbon is admitted to the carbureter. The top of the nozzle D is approximately the proper height of the liquid. As the fuel is used, the level sinks and the valve is allowed to reopen. The fuel flows into the float chamber and when the proper level is reached, the valve completely shuts off the supply. The liquid flows from the float chamber A to the mixing chamber C, passing up through to the top of the spraying nozzle D. The latter is accessible by removing the drain-plug E, which also allows cleaning out of sediment or other foreign matter. Air enters the open bottom of the mixing chamber C just above the plug E and is then drawn up and through the carbureter by suction, the liquid hydrocarbon being volatilized when the air passes the nozzle D. The throttle F is shown as being of the butterfly type. The intake manifold or pipe conveying the mixture from the carbureter, screws into the outlet end G of the same.

The suction caused by the engine is never constant so long as the speed of the same varies. Therefore, under this condition, the liquid hydrocarbon in the spraying nozzle is, in the ordinary carbureter, volatilized so as to make a constantly varying mixture. In order to prevent this happening, the liquid in the nozzle should be less accessible to the swift current of air than what it is when the air goes by it at a low rate of speed. This I accomplish by causing a partial vacuum, increasing with the increase of speed of the engine, behind the liquid, so that the swift current of air cannot take up too much liquid, yet the slow current of air, when there is practically no vacuum, has easy access to the same.

Communication is established between the float chamber and the mixture outlet by means of the hole J. The size of the latter is capable of variation through the needle valve H. When once it is properly adjusted, it is locked in position by the nut I. Communication is established between the float chamber and the atmosphere by means of the cock K. This is also adjustable. In order that the liquid used can flow freely into the float chamber from the tank where stored when needed and that the same can pass on to the spraying nozzle, atmospheric pressure is required in the float chamber. This is supplied through the cock K. When the speed of the engine increases, the partial vacuum in the outlet of the carbureter will extend into the float chamber through the hole J. Thus the atmospheric pressure in the float chamber is reduced, a condition that does not exist in the ordinary carbureter where it remains constant. From this it will be seen that the liquid at the nozzle is held back and the air is unable to take up too much of it and produce an over rich mixture at higher speeds. The positions of the valve H and opening J are such that they are subjected and sensitive to the varying pressures caused by the suction of the engine. The drawing shows them in a convenient position; namely in the mixture outlet in the vicinity of the throttle. The float chamber must be perfectly air-tight, except for the two communications mentioned above. The adjustments of both H and K must be made under running conditions of the engine, when the proper results are obtained. Once set, the adjustments need no further attention.

From the foregoing description, taken in connection with the accompanying drawing, it is thought the complete operation, construction, and many advantages of my in-

vention will be readily understood by those skilled in the art to which it appertains, and I desire it understood that slight changes in the detailed construction and arrangement of parts may be made without departing from the scope of the invention and the appended claim.

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

In a carbureter, a float chamber, a mixing chamber, a portion of said mixing chamber passing immediately adjacent said float chamber and separated therefrom by a wall, said wall forming a cover to said float chamber, a valve in said wall establishing communication between both said chambers, and an adjustable cock in said cover admitting atmospheric pressure to said float chamber, as described.

In testimony whereof I affix my signature in the presence of two witnesses.

AUSTIN M. WOLF.

Witnesses:

MATTHEW CASEY,

JAMES MOONEY.