J. F. MILLER.

GAS ENGINE CARBURETER.

APPLICATION FILED SEPT. 21, 1911.

1,097,039. Patented May 19, 1914.

Fig. 1.

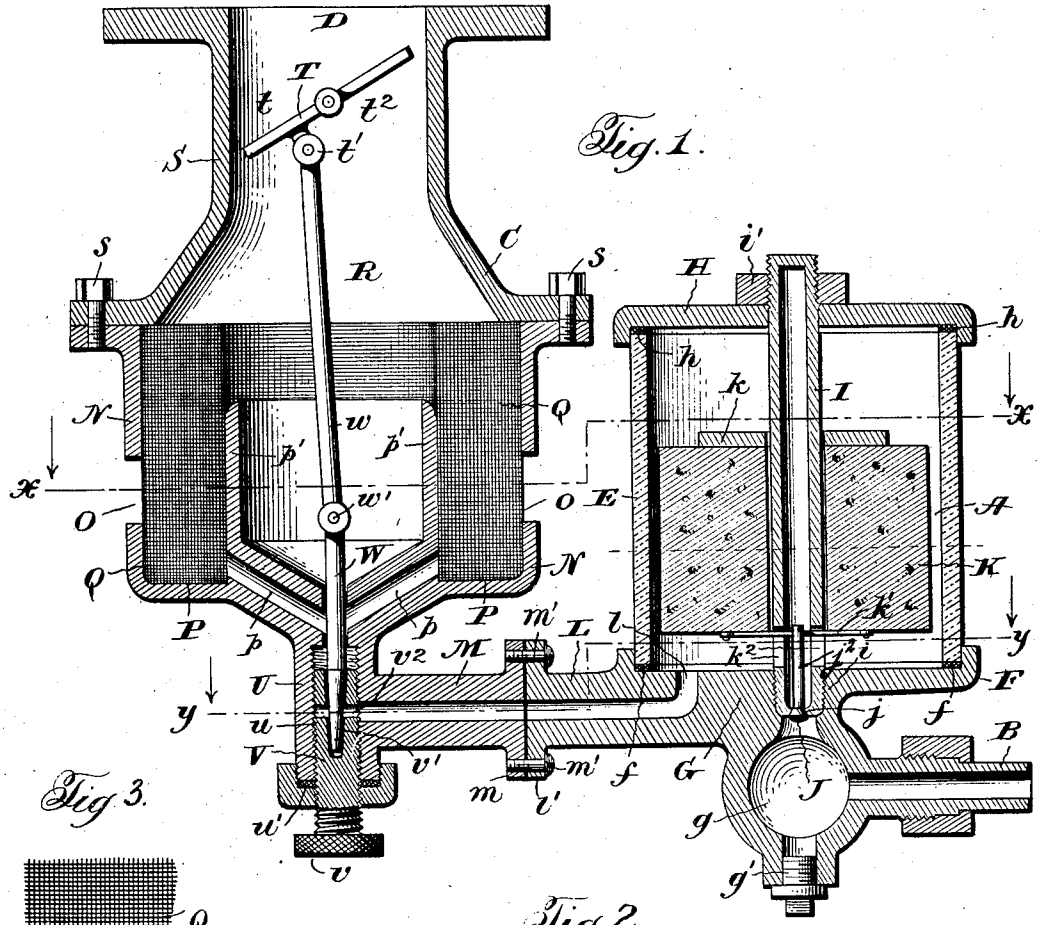
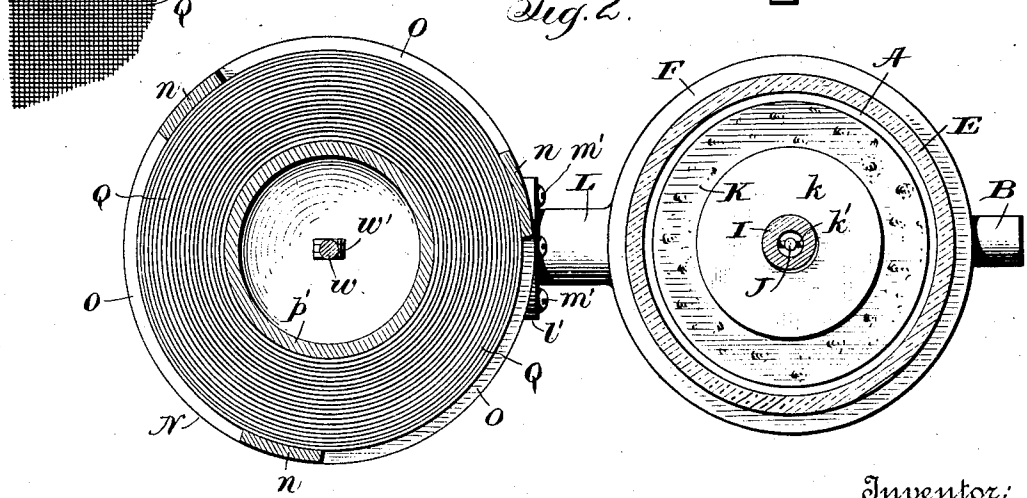


Fig. 3.

Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

JESSE F. MILLER, OF ALBANY, NEW YORK.

GAS-ENGINE CARBURETER.

1,097,039. Specification of Letters Patent. Patented May 19, 1914.

Application filed September 21, 1911. Serial No. 650,636.

To all whom it may concern:

Be it known that I, JESSE F. MILLER, a citizen of the United States, residing at Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Gas-Engine Carbureters, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in gas engine carbureters, and has for its object the provision of improved means for insuring a thorough mixture of the air and gas.

Heretofore in this art, it has been the general custom to employ as part of a carbureter, a jet opening through which the gasolene is drawn and mixed with the air in a carbureting chamber coincident with the drawing in of the air adjacent to said jet opening. By such an arrangement, it quite frequently occurs that the desired saturation of the air with the gasolene is not effected. As distinguished from such a method, it is the aim of the present improvements to compel the air to pass through the gasolene so as to take up and mix with the latter in its course to and through a carbureting chamber, thereby to substantially prevent any portion of the air entering the engine in its relatively pure or unmixed condition.

Improved details in the construction and arrangement of the several parts of a practical embodiment of my invention will be apparent from the detail description hereinafter contained when read in connection with the accompanying drawings forming part hereof and wherein the preferred embodiment of the invention is illustrated for the sake of imparting a full understanding of the invention.

In the drawings, Figure 1 is a vertical sectional view through the carbureter, Fig. 2 is a cross section on line x—x of Fig. 1; and Fig. 3 is a detail view.

Referring more specifically to the drawings, wherein like reference characters refer to corresponding parts in the several views, A represents a gasolene chamber adapted to receive its supply through the medium of a pipe B, conveniently detachably coupled to and leading from any suitable source of supply not necessary to be herein illustrated—for example, the usual gasolene tank of a motor vehicle.

C is the carbureting chamber into which the desired quantities of gasolene and air feed for the purpose of securing the desired mixture ultimately supplied the engine through the outlet D. The gasolene chamber A is composed of a casing having a cylindrical body portion E, preferably of glass of suitable thickness and strength seated at its lower end upon and inside of the ring or flange F of a disk-like casting G, a suitable packing f being interposed therebetween. The upper end of the cylinder is provided with a flanged cap H fitting over said end and having sealing engagement therewith through the medium of packing h, a hollow screw rod I threaded into the casting G as at i at its lower end and passing through the cap H where it is engaged outside of the cap by a nut i^1, clamping the parts together. The lower end of the hollow rod I is formed with a valve seat j to coöperate with a valve J, normally opening to a globular portion g of the casting G receiving gasolene through the pipe B and having a screw plug g' at its lower end to enable the cleaning of the valve and permitting discharge of sediment, etc.

The valve J is controlled by means of a float K sleeved for vertical play upon the rod I and adjustable in weight through the medium of ring-like weights k secured upon the upper end of the cork body portion K. The float is connected to the stem of the valve J through the medium of a pin k' secured to the bottom of the float and passing through the stem j^2 of the valve and through vertically disposed slots k^2 in the rod I. The casting G has a horizontally disposed stem L formed therewith, the same being hollow and communicating with an outlet opening l at the bottom of the gasolene chamber E, the end of the stem being provided with an apertured flange l' coöperating with a similar flange m on a corresponding stem M to secure these parts together by means of nuts and bolts m'. The stem M is also hollow and in alinement with the stem L to constitute the gasolene inlet to the carbureting chamber now to be described.

The carbureting chamber comprises a lower casting N peripherally open at its central portion as at O, save for the bridging portions n and formed in its base with a cylindrical seat P opening through the medium of passages p to the inlet M. Seated within the seat P and extending upwardly a substantial distance beyond the opening O is a closely rolled body of gauze Q, pref-

erably formed by winding up a sheet of brass gauze or other suitable wire cloth or porous material (brass gauze being preferable) after the fashion of a roll of ribbon, the whole assuming cylindrical formation and constituting a reticulated barrier across the inlet for air O and through which the air must pass to the chamber R within an upper casting S, bolted as at *s* to the lower casting N. The lower portion of the gauze roll adjoins the ends of the passages *p* for the gasolene.

For the purpose of controlling the mixture fed to the engine, a throttle valve T is fitted within the throat *t* of the upper casting S of the carbureter, and to adjust the intake of gasolene in consonance with the adjustment of the throttle valve, I coöperatively associate therewith the following valve controlling means, to wit: The junction between the inlet stem M and the passages *p* comprises a vertical hollow portion of the casting N, represented at U, the same being interiorly threaded as at *u* to receive a correspondingly exteriorly threaded plug V manually adjustable by means of a knurled head on the outer end thereof *v*. The plug just referred to has a tapering interior portion at its inner end *v'* communicating with lateral apertures v^2 adapted to register with the passage in the stem M. By the adjustment of the plug V the same operates as a valve to close or open, partially or otherwise, communication between the inlet M and the passages *p*, suitable packing means *w'* preventing escape to the exterior around the plug valve.

Working within the tapering interior portion *v'* of the plug which in the present particular itself constitutes a valve seat, is an elongated conical valve W pivotally connected to the throttle valve T through the medium of a link *w* hinged at its lower end as at *w'* to the stem of the valve W and at its upper end as at *t'* to the throttle valve T at one side of the pivotal point t^2 of the latter. By this arrangement, it will be appreciated that an adjustment of the throttle to control the amount of mixture admitted to the engine will simultaneously shift the valve W to adjust the amount of gasolene fed to the carbureter. The inner wall *p'* of the annular seat P extends upwardly a substantial distance on the interior of the casing N, to a point beyond the upper edge of the air inlet opening O to compel the air to travel vertically through the gauze body Q through which it takes up the gasolene in the passage of both through the carbureting chamber.

With an understanding of the detailed construction hereinabove outlined, the operation of the carbureter will probably be apparent, but it may be here observed that normally the parts are so adjusted that gasolene will pass through the source of supply into the float chamber A and from thence into the lower portion of the carbureter C until the float actuated valve closes the gasolene inlet to maintain a gasolene level approximately on the line, so indicated in Fig. 1, which is somewhat below the lower edge of the air opening O. The float is adjusted through the medium of the weights in the manner hereinbefore described to secure the automatic opening and closing of the valve in maintaining the level referred to. The gasolene is taken up by capillary action throughout the gauze body Q, so that the air when sucked in by the action of the engine, through the air opening O is compelled to pass through the gasolene saturated gauze and thus in turn becomes thoroughly saturated in its passage to the chamber R and prior to its escape to the engine, the adjustment of the amount of gaseous mixture escaping and the adjustment of the gasolene admitted to the carbureter being simultaneously effected as previously discussed.

By my improved construction, I have furnished in a simple and comparatively inexpensive device, a carbureter which secures advantageous and satisfactory results. In use, it will be understood that the device is not only applicable to motor vehicles, but is equally useful in connection with gas engines generally.

A characteristic of my improved carbureter is the safety against back-firing. It is a matter of quite general knowledge that the greater percentage of automobile fires are started from improper mixture back-firing through the carbureter, setting fire to gasolene, oil, etc., in the pan under the engine. This is provided against in my carbureter because, even if the mixture should get out of balance, it is impossible for the fire in the cylinders and in-take pipe to pass back through the carbureter owing to the intervening bridge of gauze through which it is impossible for flame to pass.

While I have, in the foregoing specification, referred particularly to gasolene, I desire it understood that the carbureter is useful not only in connection with gasolene, but also other volatile fuels.

I claim:

1. A carbureter comprising a casing, having a gas outlet leading therefrom, and a seat therein, said casing being provided with an air port and a passage for gasolene leading thereinto at points below the gas outlet, and a relatively thick compact body formed entirely of metal gauze fitting in the seat of the casing and directly overlying and completely covering the openings of the gasolene and air passages, said gauze being adapted to take up the gasolene by capillary action.

2. A gas engine carbureter, comprising a

casing, provided with a gas outlet in the upper portion thereof, a seat around the outer wall of the casing and positioned in the lower part of said casing, said casing being provided with a fuel port communicating with said seat and with an air port in the side wall thereof adjacent said seat, and a body formed of closely associated layers of wire gauze fitting within the seat in the casing and directly overlying said air and fuel passages.

3. A gas engine carbureter, comprising a casing provided with a gas outlet in the upper portion thereof, and with a seat in the lower portion thereof around the outer wall of the casing, said casing being provided with a fuel port communicating with said seat and with an air port in the outer wall thereof adjacent said seat, said seat being provided with an inner cylindrical wall extending upwardly above the ports in the wall of the casing, and a cylinder of rolled gauze fitting within the seat in the casing and directly overlying said air and fuel ports.

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

JESSE F. MILLER.

Witnesses:
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