J. W. RAYMOND.

CARBURETER.

APPLICATION FILED OCT. 23, 1914.

1,184,873.

Patented May 30, 1916.

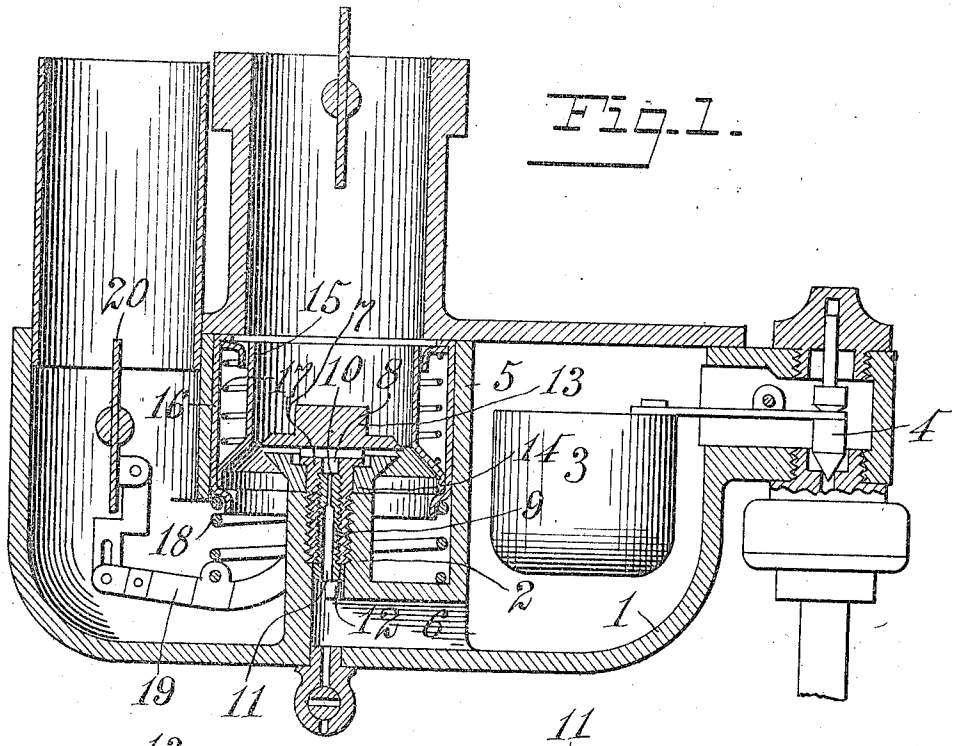


Fig. 1.

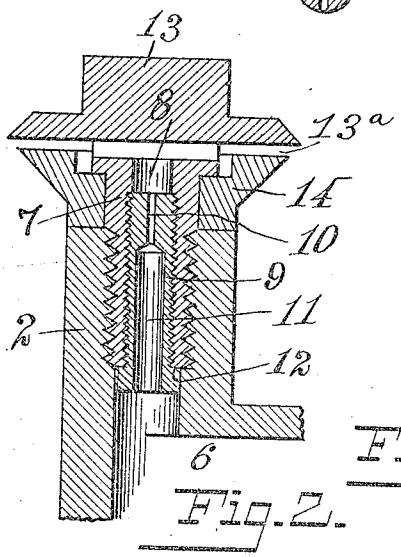


Fig. 2.

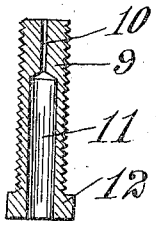


Fig. 3.

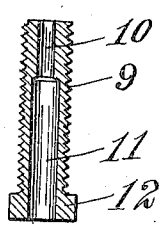


Fig. 4.

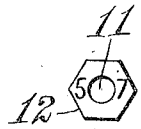


Fig. 5.

Witnesses:

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UNITED STATES PATENT OFFICE.

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CARBURETER.

1,184,873. Specification of Letters Patent. Patented May 30, 1916.

Application filed October 23, 1914. Serial No. 868,329.

To all whom it may concern:

Be it known that I, JOHN W. RAYMOND, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Carbureters; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in carbureters. The needle valve is a common element in carbureters for regulating the feed of the fuel to the manifolds of gas engines. Owing to a disposition, which is almost general, on the part of unskilled users of carbureters, to attribute all trouble that may arise, whether in the carbureter, engine or elsewhere, to the needle valve, it has become a special object of attention and more or less tampering with it later interferes with the obtainment of a proper mixture and thus may aggravate any trouble by rendering the carbureters less efficient.

The object of the present invention is to provide a spray nozzle which is insertible in a bushing in the main tube which communicates with the gasolene chamber. This insertible spray nozzle has a bore of two-fold diameter, the smaller diameter constituting the outlet orifice. The said nozzle is detachable, therefore, other nozzles may be substituted in which the two-fold diameter of bore may vary according to the character of the oil. The piston displacement is ascertained when the carbureter is installed and the proper amount of fuel to supply such displacement is thenceforward admitted to the carbureters through an orifice that becomes permanent. The same piston displacement and velocity of air travel always requires the same jet opening and this opening becomes fixed and unchangeable. The carbureter is, therefore, relieved of the usual adjustable features which cause much annoyance and inefficiency in carbureters employing the needle valve, or a conical spray point partially closing the end of a round orifice. While a needle valve has heretofore been generally used to regulate the feed of oil, there are cases where what may be termed a spreader with a point to form a spray is used, and other cases where a tube is used with a multiplicity of small openings. These instrumentalities are no less objectionable than the needle valve for the reason that the spreader point has marked tendency to choke up the inlet, and the small openings in the tube have a similar tendency to clog up. The present invention eliminates all of these difficulties by providing a free unobstructed and non-adjustable inlet for the oil to the spray device.

Preceding a detail description of my invention, reference is made to the accompanying drawing of which—

Figure 1 is a vertical sectional elevation of the carbureter; Fig. 2 is an enlarged detail sectional view of the spray nozzle devices; Figs. 3 and 4 are detail sectional views of nozzles having different sizes of outlet orifices; Fig. 5 is a bottom plan view of one or the other of said nozzles with indications thereon denoting the size of the drill or the diameter of the orifice made thereby.

In the detail description to follow, only brief mention will be made of the well known parts of the carbureter which are illustrated and described in my pending application, Serial No. 817,441, filed Feb. 9, 1914.

Proceeding to a description of my present improvements, a permanent tube 2 extends from the bottom of the shell 1 in which is contained the gasolene or combustible, the inlet of which is controlled through a float 3 and valve 4. The tube 2 is partitioned from the float chamber by an annular wall 5 but communicates with said chamber by a lower passage 6. The spray nozzle consists of a stem 7 having a central orifice 8, a spray nozzle collar 14 and a spray head 13, which are spaced to provide a lateral annular spray orifice 13ª. The diameter of the spray head 13 is greater than that of the collar 14 in order to retard the too sudden rise of the spray. The stem 7 is screw-threaded into the permanent tube 2. A nozzle 9 is inserted in the stem 7 and has a screw-threaded engagement therewith. This nozzle 9 is inserted in the stem 7 of the spray nozzle through the lower end of said stem and the upper end thereof has a jet opening 10 leading from a lower open-

ing 11 of larger diameter. The jet opening 10 communicates with the spray nozzle orifice 8 and the amount of fuel entering said orifice 8 is controlled by the size of the opening 10 of said nozzle 9. The lower end of the nozzle 9 has a shoulder 12 which limits its penetration into the stem 7. The passage 6, as before stated, communicates with the opening in the tube 2 and, likewise, the fuel is fed to the nozzle 9. It will be observed that the nozzle 9 is removable from the stem 7 and that, therefore, it is possible to provide said stem 7 with inlet nozzles 9 having openings 10 of different diameters. It will, however, be understood that the spray nozzle stem 7 and the nozzle 9 may be one integral part. It will also be understood that the bore of the nozzle 9 may be uniform instead of differential diameters, I prefer, however, to have the lower part of said bore of larger diameter in order to augment and maintain a free passage through said nozzle. The main object and aim is to maintain a free and unobstructed passage for the fuel, so that when once established it remains free from tampering with.

By means of the present invention, a spray nozzle of the proper opening is provided, this being determined upon when the carbureter is installed. When the proper inlet orifice is thus ascertained, a nozzle 9 having such orifice becomes permanent. In Fig. 5, numerals are shown on the lower end or head 12 of the nozzle 9 which indicates the size of the opening 10, it being understood that said numerals are different on nozzles having different diameters of openings. The spray orifice 13^a is surrounded by a sleeve 15 where the mixing of the fuel with air takes place. The sleeve 15 is enlarged at its lower end and by shifting said sleeve the supply of air is regulated by increasing or decreasing the surrounding air space. Surrounding the sleeve 15 is an outer sleeve 16 between which and said sleeve 15 a coil spring 17 is placed and holds the sleeves 15 and 16 in normal position. The outer sleeve 16 is also vertically movable within the annular wall 5 and is maintained in its upper position, by a coil spring 18. It is lowered through means of a lever 19 which is suitably connected to an air inlet valve 20. These features are fully described in my pending application hereinbefore referred to and are therefore but briefly mentioned herein, the essential features of the present invention being the features more nearly related to the supply of fuel to a spray nozzle free from valve control, coöperating sprayer points, or a multiplicity of small jet openings.

Having described my invention, I claim.

In a carbureter, the combination with a shell providing a gasolene chamber, a main tubular portion communicating with said gasolene chamber, a screw-threaded plug insertible in the upper end of said main tubular portion, a screw-threaded plug insertible in the lower end of the first named screw-threaded plug having a bore of twofold diameter, the upper portion of said bore being contracted, and a collar on the lower end of said last named screw-threaded plug forming a shoulder which abuts with the lower end of the first named screw-threaded plug and limits the insertion of said last named screw-threaded plug, substantially as specified.

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

JOHN W. RAYMOND.

Witnesses:
R. J. McCarty,
Matthew Siebler.