REISSUED
NO. 16,638
DEC. 27 1927

Oct. 16, 1923. 1,471,220

R. M. TANGYE

CARBURETOR

Original Filed Oct. 6, 1919

Fig. 1.

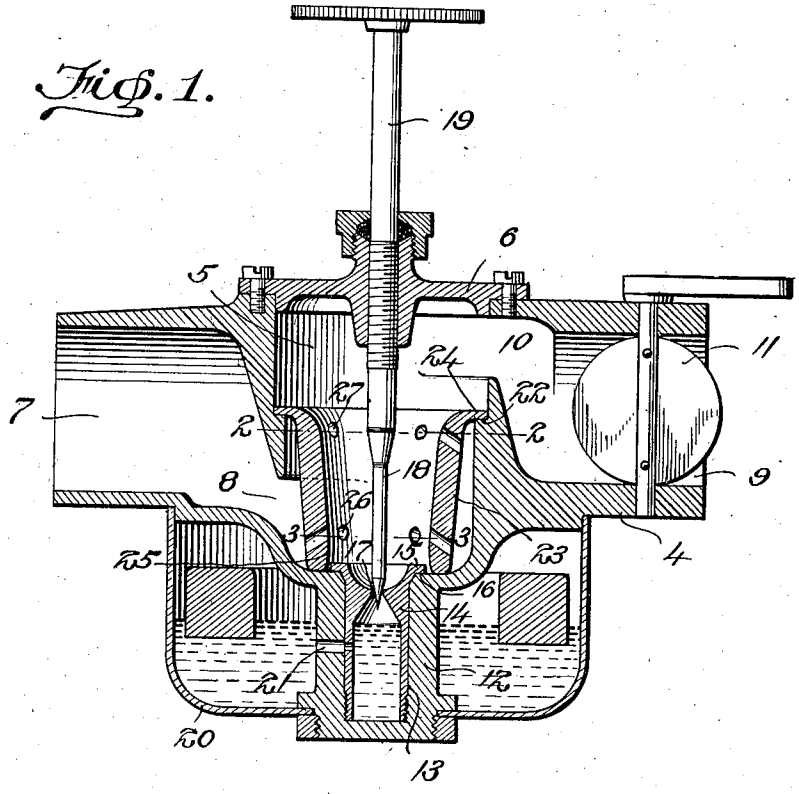


Fig. 2.

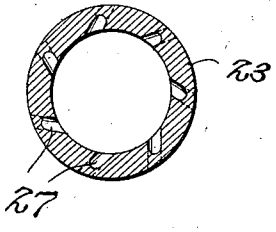
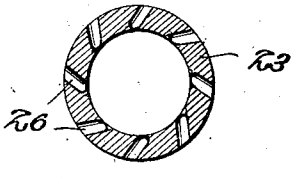


Fig. 3.



Inventor

Roy M. Tangye

By

Attorney

Patented Oct. 16, 1923. 1,471,220

UNITED STATES PATENT OFFICE.

ROY M. TANGYE, OF DENVER, COLORADO.

CARBURETOR.

Application filed October 6, 1919, Serial No. 328,756. Renewed March 19, 1923.

To all whom it may concern:

Be it known that I, ROY M. TANGYE, a citizen of the United States, residing at Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Carburetors, of which the following is a specification.

The present invention relates to improvements in carburetors, the object being to provide simple and effective means for securing a more complete intermingling of the liquid fuel and air to effect a more complete and thorough atomization of the former. A further and important object is to provide a device that can be made and sold as an article of manufacture, and can be placed in a carburetor without altering the structural features thereof beyond removing the device for which it is substituted.

The preferred embodiment of the invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a vertical sectional view through a carburetor, showing the device in place.

Figures 2 and 3 are cross sectional views on the lines 2—2 and 3—3 of Figure 1.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

The carburetor disclosed comprises a suitable shell 4 having an internal chamber 5 closed by a removable cap 6. The shell has an air inlet 7 on one side that communicates, as shown at 8, with the lower portion of the chamber wall. An outlet 9, opening through the opposite side of the shell, has communication at 10 with the upper portion of the chamber 5. The outlet is controlled by a suitable butterfly valve 11. The shell is furthermore provided below the chamber 5 with a depending extension 12 having a bore 13 in which is placed a spray nozzle 14 which has its upper end provided with a flange 15 that rest upon the bottom 16 of the chamber 5. This nozzle has its discharge orifice 17 delivering centrally and upwardly into the chamber 5. The said orifice is controlled by a needle valve 18, the stem 19 of which is threaded through the cover 6. Surrounding the extension 12 is a supply reservoir 20 that has communication with the lower portion of the nozzle 14 through a port 21. The chamber 5 is provided between the inlet port 8 and the outlet port 10 with an annular shoulder 22.

A choke element is employed, comprising a sleeve 23 of less diameter than the chamber 5 and tapering downwardly. This sleeve has its lower end resting upon the bottom 16 of the casing 5, while its top is provided with an outstanding flange 24 that rests upon the shoulder or seat 22. The bore of the sleeve is also preferably downwardly tapered, but has its lower portion expanded outwardly, as shown at 25. This choke sleeve is provided with a lower set of openings or ports 26 inclined inwardly and upwardly, and also arranged tangentially. These ports afford communication between the air inlet 8 and the lower portion of the bore of the sleeve. Another set of ports 27 is formed in the upper portion of the sleeve just below the flange 24, the latter port being inwardly and upwardly inclined and also tangentially disposed. The ports of the upper set are less in number than the lower, and have a combined area which is less than said lower ports.

The choke element 23 is made of material having considerable thickness in order that the holes 26 and 27 may have sufficient length to give a definite direction to the air streams as they enter; this direction will be tangential and upward causing the air within the choke element to move in upwardly directed helices. The rotary motion set up within the choke element causes the particles of liquid fuel to be broken up and results in complete and thorough atomization.

Choke element 23 remains stationary after it has been installed and as it is spaced on all sides from the walls of chamber 5 air can enter through all of the holes 26 and 27 which have a combined area sufficient to take care of any demand.

With this construction, it will be evident that two strata of air are drawn into the choke sleeve in a tangential direction at different points, and will be caused to whirl within the same. Experience has demonstrated that this action evidently results in a more complete and thorough atomization of the liquid fuel projected upwardly from the bottom spray nozzle, thereby insuring a better explosive mixture with a smaller amount of initial fuel. The device obviously can be either made as an initial ele-

ment in the construction of the carburetors or where other choke devices are employed, they may be removed and the present device used in lieu thereof.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction, may be resorted to within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. The combination with a carburetor of a choke element, comprising a tubular body of considerable thickness having a tapered bore and an outstanding flange at the end having the larger diameter of the bore, the end portions of the walls of said body having sets of tangentially disposed air inlets opening into the bore and inclined inwardly toward the end having the flange, the set at the flanged end having less aggregate capacity than the set at the opposite end, and means to deliver fuel to the bore of the choke element.

2. In a carburetor, the combination with a shell having an air passageway therethrough including an internal chamber having a bottom, of means for supplying fuel to the chamber, at the bottom thereof, and a choke element comprising a sleeve of considerable thickness located in the chamber and resting on the bottom thereof around the fuel supply means, said sleeve having tangential air inlet ports in its walls adjacent the fuel outlet.

3. In a carburetor, the combination with a shell having an air passageway therethrough including an internal chamber having a bottom, of means for supplying fuel to the chamber at the bottom thereof, and a choke element comprising a sleeve of considerable thickness located in the chamber and resting on the bottom thereof around the fuel supply means, said sleeve having a set of tangential air inlet ports in its walls adjacent to the fuel supply means and another set of tangential ports at its other end.

4. In a carburetor, the combination with a shell having an internal chamber provided with a bottom and with an air inlet opening into the lower portion of one side of the chamber and an outlet communicating with the upper portion of the opposite side of the chamber, said chamber having an annular seat between the inlets and outlets, of a choke sleeve of considerable thickness in the chamber having a flange at one end that rests upon the seat, the other end resting against the bottom of the chamber, said sleeve having a bore which is of greater diameter at the flanged end than at the opposite end, said sleeve having a set of tangentially disposed ports at each end, said ports being inclined inwardly toward the flanged end, and means for introducing fuel into the sleeve at the bottom thereof.

In testimony whereof I affix my signature.

ROY M. TANGYE.