

O. B. MONOSMITH.
CARBURETER.
APPLICATION FILED AUG. 30, 1912.

1,080,118.

Patented Dec. 2, 1913.

Fig. 1

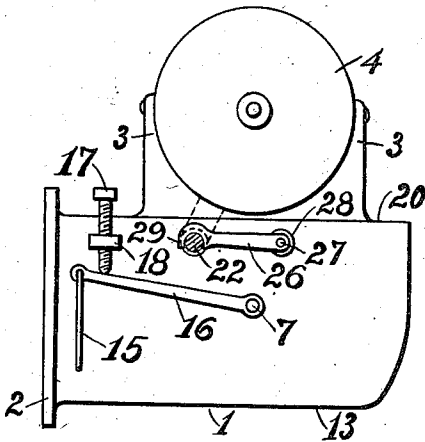


Fig. 2

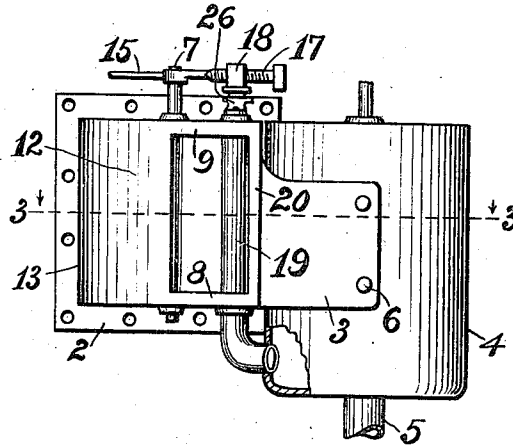


Fig. 3

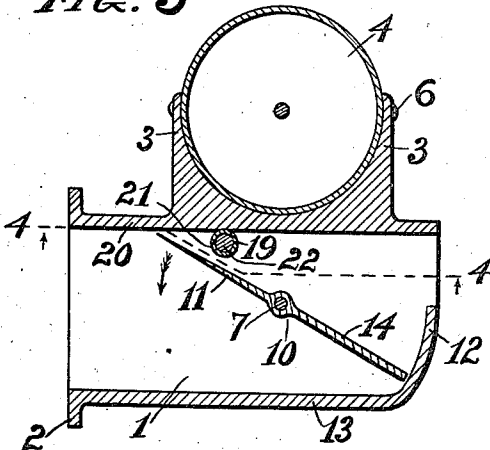


Fig. 4

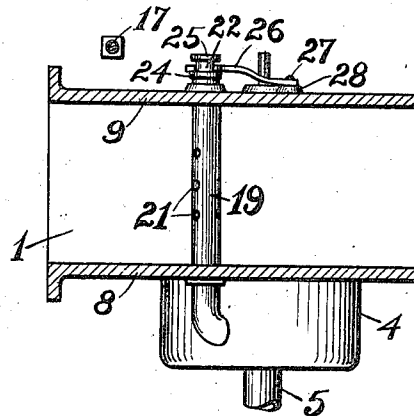
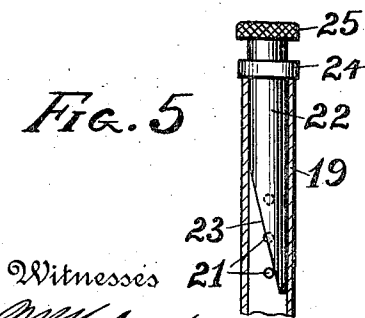


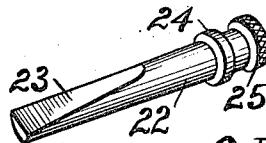
Fig. 5



Witnesses

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Fig. 6



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UNITED STATES PATENT OFFICE.

OLNEY B. MONOSMITH, OF LORAIN, OHIO.

CARBURETER.

1,080,118.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, OLNEY B. MONOSMITH, a citizen of the United States, residing at Lorain, in the county of Lorain and State of Ohio, have invented certain new and useful Improvements in Carbureters, of which the following is a specification.

This invention relates to improvements in carbureters for internal-combustion engines, and has for its principal object to provide a carbureter of simple and inexpensive construction, which will supply the most efficient mixture at various speeds of the engine. This is accomplished by so arranging a spraying tube in an air passage in such relation to a throttle valve, that the operation of the latter will regulate the area of the air inlet and at the same time proportionately regulate the flow of the gasoline and also the flow of the mixture to the engine, and thereby secure the most efficient mixture for high, low and intermediate speeds of the engine.

A further object of the invention is to provide simple and effective means for controlling the spraying openings which are located in the wall of the spraying tube.

With the above and other objects in view, the invention consists in the combination and arrangement of the parts hereinafter fully described and illustrated in the accompanying drawings which show a preferred embodiment thereof.

The novel features of the invention will be particularly pointed out in the appended claims.

In the drawings like characters of reference indicate corresponding parts.

Figure 1 is a plan view of a carbureter constructed in accordance with my invention, Fig. 2 is a rear elevation of Fig. 1, Fig. 3 is a sectional plan taken on line 3—3 of Fig. 2, Fig. 4 is a longitudinal sectional elevation taken on line 4—4 of Fig. 3, Fig. 5 is a sectional elevation on an enlarged scale of the spraying tube, and Fig. 6 is a perspective view of the spindle valve.

Referring to the drawings, 1 represents an air passage preferably square in cross section and having at its forward end a suitable flange 2 for attachment to the inlet of an internal-combustion engine. Projecting laterally from the outer side of the air passage 1 is a pair of lugs for embracing and supporting a suitable float chamber 4 for containing gasoline, which may be admitted

thereto through a pipe 5. The float chamber 4 is fixed to said lugs by rivets 6 or other suitable means.

Arranged in the air passage 1 and supported on a vertical spindle 7 pivoted in the lower and upper walls 8 and 9 thereof, is a butterfly throttle valve 10, which is preferably made of spring plate with its forward wing 11 tapering toward its free end, in order that said end will be flexible for a purpose hereinafter explained. The rear portion 12 of the side wall 13 of the air passage 1 curves inwardly on an arc corresponding to the swing of the rear wing 14 of the throttle valve for partially closing the air inlet to prevent admission of the air to the corresponding side of the throttle valve. Said rear portion 12 terminates on a longitudinal line passing through the pivotal point of the throttle valve, so that air will be admitted only on one side of said throttle valve for its entire movement from closed to full open position.

The throttle valve 10 may be operated from any convenient position by means of the rod 15 which is connected to a lever arm 16 fixed to the projecting end of the valve spindle 7. The closing movement of the throttle valve may be limited by any suitable means, such as an adjusting screw 17 which is supported in a post 18 projecting from the upper wall 9 of the air passage and engages the lever arm 16.

Connected to the lower portion of the float chamber 4 is a spraying tube 19 which passes upwardly through the lower and upper walls 8 and 9 of the air passage 1 adjacent to its inner side 20 at an intermediate position between the pivotal point of the throttle valve 10 and the free end of its forward wing 11. The spraying tube 19 is preferably fixed in the upper and lower walls of the air passage in some suitable manner, and also soldered to said inner side thereof to prevent the air passing between said tube and said side. The spraying tube 19 is provided with one or more spraying openings 21 through its forward wall, which openings are preferably arranged on an angle of 30° with relation to a longitudinal line passing through the pivotal point of the throttle valve 10. When the spraying tube 19 is provided with more than one spraying opening, said openings are arranged in spaced vertical alinement.

In order to control the flow of gasoline

through the spraying openings 21, a spindle valve 22 of substantially the same diameter as the tube is mounted therein and the lower portion thereof is cut away at one side on a bevel as shown at 23. It will be readily seen from Fig. 5, that by rotating the spindle valve 22, the lowest spraying opening will be first uncovered, then the others in succession and they will be closed in the reverse order from which they are uncovered. Said spindle valve is provided with a collar flange 24 which supports it on the upper edge of the tube, and has a suitable head 25 for rotating it. A locking means for retaining the spindle valve 22 in the spraying tube 19 and also for holding it in set position is provided, consisting of a flat spring 26 which is pivoted at 27 to a boss 28 on the upper wall of the air passage and having a hook shaped free end 29 for embracing the spindle valve and pressing downwardly on the collar flange 24. The spindle valve 22 may be readily removed from the spraying tube 19 by swinging the hook end 29 of the spring 26 out of engagement therewith.

As is apparent from the foregoing, the spindle valve in the spraying tube may be adjusted to have a portion or all of one of the spraying openings, or more than one opening uncovered as will give the proper flow of gasoline in proportion to the air to produce the most efficient mixture, when the engine is running at normal or intermediate speed. By opening the throttle valve in the direction of the arrow Fig. 3, it will be observed that the area of the space between the free end of the forward wing of the throttle valve and the area of the space between the spraying tube and said wing, increases in proportion to the distance from the pivotal point of the throttle valve to an arc passing through said tube and an arc made by the free end of said wing. Therefore by simply operating the throttle valve, the air inlet is controlled by restricting or increasing the area between the spraying tube and the forward wing of the throttle valve and also the flow of the gasoline is proportionately regulated, and at the same time the flow of the mixture to the engine, whereby is secured the most efficient mixture for different speeds of the engine. As the forward wing of the throttle valve is flexible, it will yield against the suction pressure and thereby admit a corresponding inflow of mixture without manually operating the throttle valve.

It is to be understood that slight changes in the details of construction and arrangement of the parts may be resorted to without sacrificing any of the advantages or departing from the principle of the invention.

Having fully described my invention, what I claim is:

1. In a carbureter, the combination of an

air passage, a butterfly throttle valve pivoted within the air passage, the throttle valve being arranged on an angle when in closed position, a spraying tube located in the air passage forward of a transverse line passing through the pivotal point of the throttle valve and behind an arc made by its forward free end, and means for keeping the air passage closed on the opposite side of the throttle valve from that on which is located said spraying tube, substantially as described.

2. In a carbureter, the combination of an air passage, a butterfly throttle valve pivoted within the air passage, the throttle valve being arranged on an angle when in closed position, a spraying tube located in the air passage forward of a transverse line passing through the pivotal point of the throttle valve and behind an arc made by its forward free end, and an inwardly curved rear portion for shutting off the air passage on the opposite side of the throttle valve from that on which is located said spraying tube, substantially as described.

3. In a carbureter, the combination of an air passage, a throttle valve pivoted within the air passage, the throttle valve being arranged on an angle when in closed position, a spraying tube located in the air passage forward of a transverse line passing through the pivotal point of the throttle valve and behind an arc made by its forward free end, and the spraying tube being provided with spraying openings through its forward wall, substantially as described.

4. In a carbureter, the combination of an air passage, a throttle valve pivoted within the air passage, the throttle valve being arranged on an angle when in closed position, a spraying tube located in the air passage forward of the pivotal point of the throttle valve and behind an arc made by its forward free end, the spraying tube being provided with spraying openings through its forward wall, and means for controlling the size of said openings, substantially as described.

5. In a carbureter, the combination of an air passage, a throttle valve pivoted within the air passage, the throttle valve being arranged on an angle when in closed position, a spraying tube located in the air passage forward of the pivotal point of the throttle valve and behind an arc made by its forward free end, the spraying tube being provided with spraying openings through its forward wall and arranged in alinement, a spindle valve mounted in said spraying tube, and the spindle valve being cut away on one side to permit the uncovering of said spraying openings as the spindle valve is rotated, substantially as described.

6. In a carbureter, the combination of an air passage, a throttle valve pivoted within

the air passage, the throttle valve being arranged on an angle when in closed position, a spraying tube located in the air passage forward of the pivotal point of the throttle valve and behind an arc made by its forward free end, the spraying tube projecting through the air passage and having an open end, said spraying tube being provided with alining spraying openings in its forward wall, a spindle valve mounted in said spraying tube for controlling said spraying openings, and means for retaining said spindle valve in the spraying tube and also for holding it in locked position, substantially as described.

7. In a carbureter, the combination of an air passage, a throttle valve pivoted within the air passage, the throttle valve being arranged on an angle when in closed position, a spraying tube located in the air passage forward of the pivotal point of the throttle valve and behind an arc made by its forward free end, the spraying tube projecting through the air passage and having an open end, said spraying tube being provided with alining spraying openings in its forward wall, a spindle valve mounted in said spraying tube for controlling said spraying openings, a collar flange on the spindle valve for supporting it upon the open end of the spraying tube, the spindle valve terminating in a head, and a spring having a hook shaped free end for engaging said collar flange to retain said spindle valve in the spraying tube and also to hold it in locked position, substantially as described.

8. In a carbureter, the combination of an air passage, the air passage being substantially square in cross section, a butterfly throttle valve pivoted within said air passage and arranged on an angle when in closed position, a spraying tube located in the air passage and fixed to the side thereof forward of the pivotal point of the throttle valve and behind an arc made by the free end of its forward wing, the spraying tube being provided with spraying openings in its forward wall, and means for controlling said spraying openings, substantially as described.

9. In a carbureter, the combination of an air passage, the air passage being substantially square in cross section, a butterfly throttle valve pivoted within said air passage and arranged on an angle when in closed position, the forward wing of the butterfly throttle valve being made of spring plate and tapering toward its free end, a spraying tube located in the air passage and fixed to the side thereof forward of the pivotal point of the throttle valve and behind an arc made by the free end of its forward wing, the spraying tube being provided with spraying openings in its forward wall, and means for controlling said spraying openings, substantially as described.

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

OLNEY B. MONOSMITH.

Witnesses:

F. M. GRAHAM,
GEORGE F. GESSNER.