

O. B. MONOSMITH.
CARBURETER.
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1,270,432.

Patented June 25, 1918.

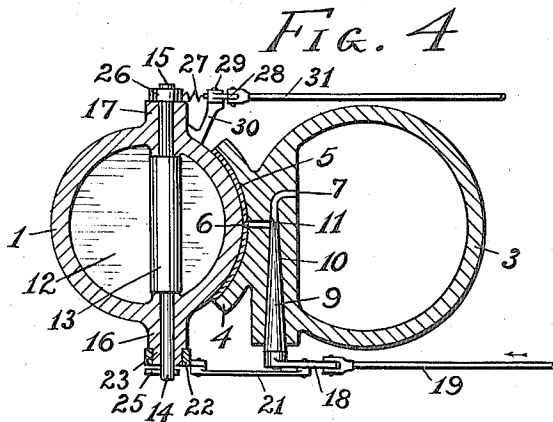
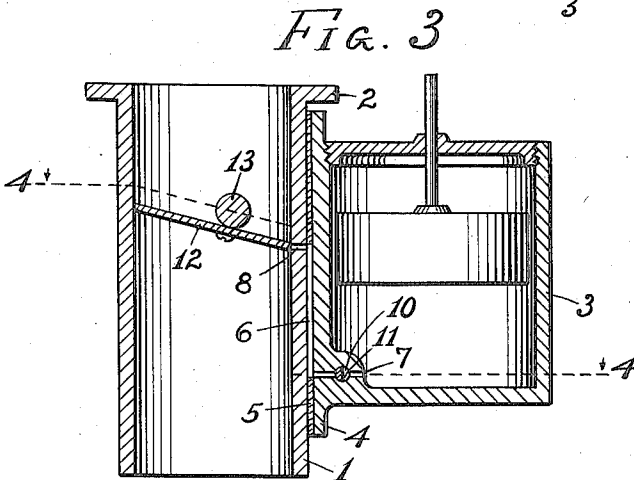
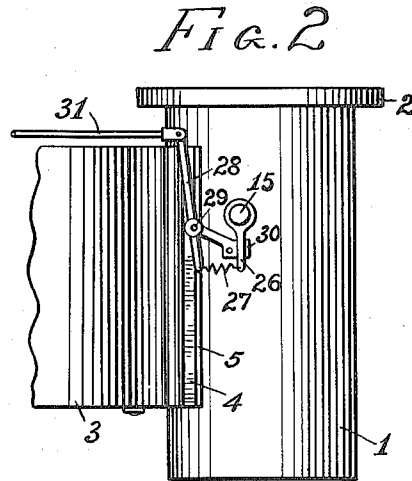
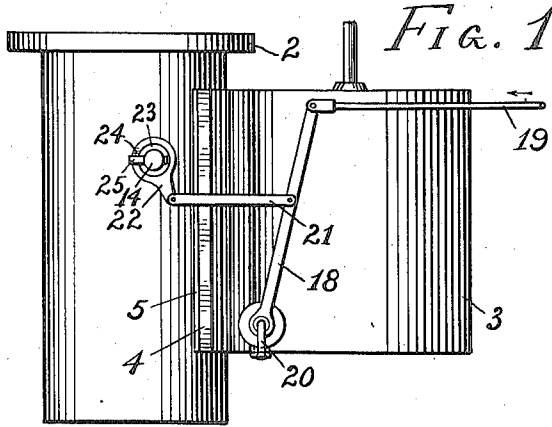
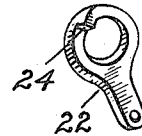


Fig. 5



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CARBURETER.

1,270,432.

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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 carbureters for internal-combustion engines used for propelling automobiles, and has for its principal object to provide a carbureter of simple construction, in which the fuel control valve is so connected to the throttle valve that the opening of the former will permit the independent opening of the latter by the suction of the engine to a corresponding position, but the throttle valve will be closed by the closing action of the fuel control valve. By this arrangement, the driver operates the fuel control valve, and the throttle valve is automatically operated in a corresponding degree to produce the proper mixture under varying conditions. In order that the throttle valve may be opened by the suction of the engine, it is decentered, thereby having one wing longer than its other. Under certain conditions it is desirable that the throttle valve should not be permitted to open too soon, and for this purpose, means are provided for regulating the tension of a spring, which is adapted to hold the valve in closed position.

For a clear understanding of the invention, reference will be had to the accompanying drawings, and the same will be hereinafter fully described, the novel features thereof being distinctly pointed out in the appended claims.

In the drawings corresponding parts are designated by the same reference characters.

Figure 1 is a side elevation of a carbureter showing the mechanism connecting the fuel control valve and the throttle valve.

Fig. 2 is a view looking at the other side and showing the means for adjusting the tension of the throttle valve spring,

Fig. 3 is a section of the carbureter,

Fig. 4 is a plan sectional view taken on line 4-4 of Fig. 3, and

Fig. 5 is a perspective view of the throttle valve arm.

Referring to the drawings, 1 represents the air tube which is connected to the engine in the usual manner by a flange 2 at its upper end. A float chamber 3 is fixed

to the side of the air tube, and between the flange 4 of the same and the air tube is arranged a sheet of copper or other suitable packing indicated by 5. The sheet of copper is provided with a vertical slot for forming a conduit 6, which connects an inlet opening 7 leading from the float chamber and an outlet aperture 8 extending to the inner surface of the air tube.

A fuel control valve 9, is rotatably mounted in a horizontal recess 10, which is provided in the float chamber and intersects the inlet opening 7. The fuel control valve is preferably made tapering to prevent leaking around the outer end, and its beveled end 11 is adapted to regulate the amount of fuel admitted through the inlet opening 7 and thence to the air tube by way of the outlet aperture 8. A throttle valve 12 is arranged within the air tube, and when in closed position stands at an angle with its edge covering the outlet aperture 8. This valve is fixed to the underside of a horizontal shaft 13, which is positioned a little to one side of the center of the valve and its reduced ends 14 and 15 are pivoted in bosses 16 and 17 projecting from the sides of the air tube. Said shaft is arranged just far enough from the center of the valve to bring it when fully open to the center of the air tube. As the throttle valve is decentered, one side thereof is larger than the other, and the suction of the engine will act upon the larger side thereby forcing it open to admit air. At the same time, the outlet aperture 8 will be uncovered.

The mechanism connecting the fuel control valve 9 to the throttle valve 12, and the means for regulating the tension of the spring tending to hold the throttle valve in closed position, will now be described. To the projecting end of the fuel control valve is fixed a lever 18, and to its upper free end is pivoted an operating rod 19, which is adapted to be actuated longitudinally by the driver. A suitable flat spring 20, which is fastened to the bottom of the float chamber 3, engages the end of the fuel control valve for holding it in place. Pivoted to the lever 18 is a link 21, and the other end of this link is pivotally connected to an arm 22, which is rotatably mounted on a neck 23 of the boss 16. From said arm projects a lug 24, which is adapted to engage a pin 25 carried by the reduced end 14 of the throttle valve

shaft, for closing the valve, or be engaged by the pin for limiting the opening movement of the valve. Although the greater weight of the larger side of the throttle valve 12 tends to keep it in closed position, it is an advantage to have a more positive means, and furthermore be able to adjust said means for varying conditions. This is accomplished by fixing a depending arm 26 to the other reduced end 15 of the throttle valve shaft, and connecting the free end thereof by means of a coiled spring 27 to a lever arm 28, which is pivoted at 29 to a bracket 30 extending from the air tube. To the upper end of said lever arm is pivotally connected an operating rod 31, which is also adapted to be manipulated by the driver for increasing or decreasing the tension of the coiled spring 27. The tension of said spring controls the freedom of action of the valve.

Operation: In starting the engine, the operating rod 19 is moved in the direction of the arrow to open the fuel control valve and thereby admit gasolene by way of the conduit 6 to the outlet aperture 8. As the arm 22 is rotatably mounted upon the neck 23 of the boss 16, and the lug 24 carried by this arm is above the pin 25, the opening of the fuel control valve will cause said arm to move to the left, thus throwing the lug out of engagement with the pin. No action being imparted to the throttle valve, it remains closed. The fuel control valve being open and the throttle valve being closed, a very rich mixture is produced by slowly turning the engine for starting. As soon as the engine begins running, the throttle valve opens, due to the inrushing air, until the pin 25 strikes the lug 24. This limits the opening movement of the throttle valve to a position corresponding to that of the fuel control valve, thus automatically producing a correct mixture. A further opening of the fuel control valve causes a momentary enriching of the mixture, and thus takes place throughout the whole opening action. In closing the fuel control valve, the lug 24, by engaging the pin 25, forces the throttle valve to its closed position, and thus both valves are closing at the same time in a corresponding degree for maintaining the correct mixture. When it is desirable to prevent the throttle valve being opened too readily by the inrushing air or allow it to open more easily, the tension of the spring 27 may be increased or decreased by manipulating the operating rod 31.

Having fully described my invention, what I claim is:

1. In a carbureter, the combination of an air tube, a fuel chamber, a valve for controlling the flow of the fuel from the chamber to the air tube, a butterfly valve in the air tube, the pivotal point of the butterfly valve being decentered whereby it tends to close, and mechanism for opening the fuel control valve and permitting inrushing air to open the butterfly valve and closing the latter with the closing of the former, substantially as described.

2. In a carbureter, the combination of an air tube, a fuel chamber, a conduit leading from the fuel chamber to the air tube, a fuel control valve in the conduit, a butterfly valve in the air tube, the butterfly valve having one edge covering the outlet of the conduit when in closed position, and mechanism for opening the fuel control valve and permitting the opening of the butterfly valve and closing the latter with the closing of the former, substantially as described.

3. In a carbureter, the combination of an air tube, a fuel chamber, a valve for controlling the flow of fuel from the chamber to the air tube, a butterfly valve in the air tube, the butterfly valve being fixed to a shaft, a lever for operating the fuel control valve, a pivotally supported arm actuated by the lever, the arm carrying a lug, and the lug being adapted to cooperate with the shaft of the butterfly valve to permit the butterfly valve to open when the fuel control valve is opened but to close it when the fuel control valve is closed, substantially as described.

4. In a carbureter, the combination of an air tube, a fuel chamber, a valve for controlling the flow of fuel from the chamber to the air tube, a butterfly valve in the air tube, the butterfly valve being fixed to a shaft, the shaft being pivoted in bosses of the air tube, a lever for operating the fuel control valve, an arm pivotally supported upon a boss of the air tube, a link connecting the arm to said lever, a pin fixed in said shaft, and a lug carried by said arm for cooperating with the pin to limit the opening of the butterfly valve when the fuel control valve is opening and to close the same during the closing of the latter, substantially as described.

In testimony whereof I affix my signature.

OLNEY B. MONOSMITH.