

H. A. MILLER.
CARBURETER.
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983,247.

Patented Jan. 31, 1911.

Fig. 1.

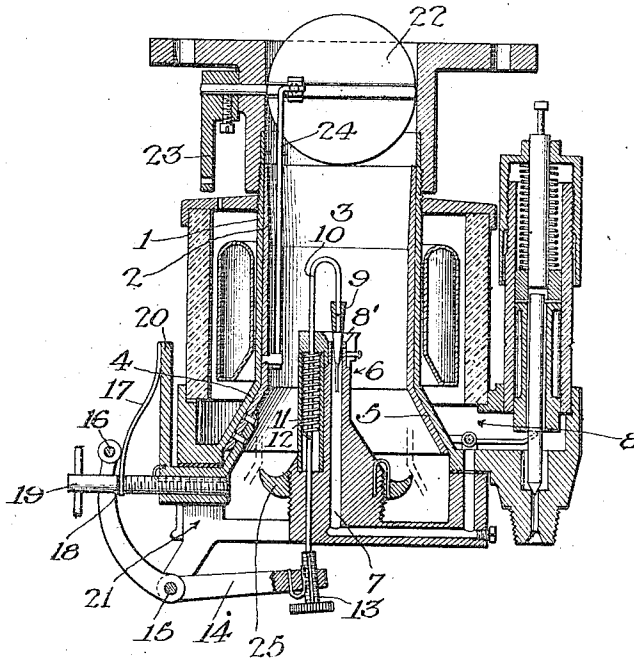
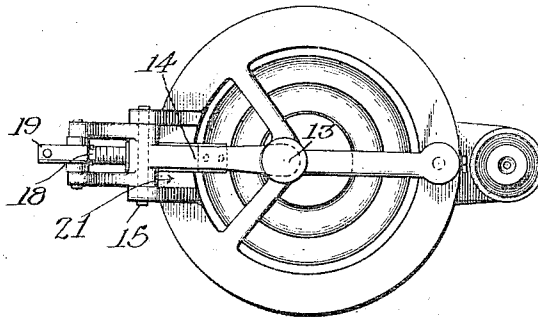


Fig. 2.



Witnesses:

Lute A. Miller
Louis W. Gratz

Inventor:

Harry A. Miller
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UNITED STATES PATENT OFFICE.

HARRY A. MILLER, OF LOS ANGELES, CALIFORNIA.

CARBURETER.

983,247.

Specification of Letters Patent.

Patented Jan. 31, 1911.

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To all whom it may concern:

Be it known that I, HARRY A. MILLER, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Carbureter, of which the following is a specification.

This invention relates to carbureters, and the main object of the invention is to provide for mechanically operating the needle valve of the nozzle through the medium of the air valve, whereby the amount of opening of the needle valve is directly proportioned to the amount of opening of the air valve, and to provide means for varying the time of opening of the needle valve with relation to the air valve. I accomplish this by means of an adjustable cam shaped spring which actuates a rock lever, the latter being in operative relation to the needle valve.

Another object of the invention is to provide for mechanically opening the air inlet simultaneously with the throttle valve and to open the air inlet an amount corresponding to the amount the throttle valve is opened, and to hold the said air inlet opened while the throttle valve is open, thereby not depending upon suction and inrushing air to open the air valve, with the advantage that fluttering of the air valve is avoided, thus making the carbureter of special utility with engines having two cylinders or less where the intervals between impulses of the engine are of sufficient duration to produce appreciable fluttering movement of the air valve.

Other objects and advantages will be brought out in the following description.

Referring to the drawings:—Figure 1 is a cross sectional view through the carbureter. Fig. 2 is a bottom view of the carbureter.

1 designates the main barrel of the carbureter within which a cylindrical sleeve 2 is mounted to slide, and within the sleeve 2 a mixing chamber 3 is formed. The lower end of the main barrel 1 is outwardly flared conically at 4, and the lower end of the sleeve 2 is provided with a conically flared portion 5 which forms the air valve and its conical walls act to deflect air inwardly toward the nozzle 6 which is arranged centrally of the sleeve 2, being provided with a fuel passage 7 which is also central of the sleeve 2 and which is supplied from a float

valve chamber 8. The upper end of the nozzle 6 has a cup shaped mouth 8' which surrounds the tapered end of the needle valve 9, the latter being supported by a valve rod 10 formed with a goose-neck and extending down through a tube 11 in which a coil spring 12 is arranged, the spring 12 being connected at its lower end to the stem 10 and the upper end of the spring bearing against the wall at the upper end of the tube 11, whereby the stem 10 is moved in a downward direction tending to close the needle valve 9.

The lower end of the valve stem 10 rests against an adjusting screw 13 in the end of a rock lever 14 pivoted at 15 and provided with a roller 16 which is adapted to ride along a cam shaped spring 17, the lower end of spring 17 being forked and engaging a groove 18 in an adjusting screw 19. The cam spring 17 is secured to a bracket 20 which projects through an opening 21 in the lower portion of the carbureter and is attached to the conical air valve 5 so that as the air valve 5 is moved in either direction the spring 17 is bodily moved therewith and acting against roller 16 operates or controls the position of the rock lever 14, thereby adjusting the position of the needle valve 9.

22 designates the throttle valve which is arranged above the mixing chamber 3 and controlled by lever 23. A link 24 is connected at its upper end to the throttle valve 22 and at its lower end is connected to the sleeve 2, so that the sleeve 2 and air valve 5 are moved longitudinally whenever the throttle valve 22 is adjusted. When the throttle valve 22 is in its extreme open position, as shown in Fig. 1, the air valve 5 is in its highest position, giving the fullest opening for the admission of air which enters around a spreader 25 which is arranged below the nozzle 6. As air is sucked into the carbureter it enters past the spreader 25 and is deflected toward the nozzle by the conical air valve 5. The amount of air which enters is, of course, in proportion to the opening formed between the air valve 5 and spreader 25, which size of opening is in turn proportioned to the position of the throttle valve 22. When the throttle valve 22 is closed, the air valve 5 will occupy its lowest position, as indicated in dotted lines, leaving only the slightest opening between the spreader 25 and air valve.

As the air valve 5 approaches its lower or

substantially closed position, the cam spring 17 lowers therewith and permits the rock lever 14 to tilt under the pressure it receives from the downwardly moving valve stem 5 10, so that the needle valve 9 is closed into a position corresponding to the closed position of the air valve 5. By so shaping the cam spring 17 and adjusting the same by means of adjusting screws 19, it is possible 10 to nearly close the air valve and still leave the needle valve 9 open sufficient to permit fuel to pass therethrough. As the air valve rises and opens, the cam spring 17 lifts and forces out the end of the lever 14, thereby 15 lifting the stem 10 and opening the needle valve 9, permitting greater flow of fuel. For a rich mixture, that is, one containing a large proportion of gasoline to air, the adjusting screw 13 may be adjusted to secure 20 a quick and full opening of the needle valve 9 whenever the air valve 9 opens.

By screwing the spreader 25 up or down, the amount of normal air permitted to enter, with the tube 5 in lower position, may be 25 regulated. It is thus possible to adjust for a mixture rich with gasoline, if desired, for starting or slow running, by nearly closing the spreader or vice versa.

What I claim is:

30 1. In a carbureter, a mixing chamber, a nozzle discharging into the mixing chamber, an air valve below the nozzle for admitting air to the mixing chamber, a throttle valve 35 above the nozzle, a connection from the throttle valve to the air valve for mechanically opening the air valve in unison with the throttle valve, a needle valve for said nozzle, a lever bearing against the needle valve, and cam means carried by the air 40 valve for operating said lever to actuate the needle valve.

2. In a carbureter, a mixing chamber, a

nozzle discharging into the mixing chamber; an air valve below the nozzle for admitting air to the mixing chamber, a throttle valve, 45 above the nozzle, a connection from the throttle valve to the air valve for mechanically opening the air valve in unison with the throttle valve, a needle valve for the nozzle, a pivoted lever, an adjusting screw 50 in one end of the lever bearing against the stem of said needle valve, and adjustable cam means carried bodily by the air valve and operatively engaging the other end of said lever. 55

3. In a carbureter, a mixing chamber, a nozzle discharging into the mixing chamber, an air valve below the nozzle for admitting air to the mixing chamber, a throttle valve 60 above the nozzle, a connection from the throttle valve to the air valve for mechanically opening the air valve in unison with the throttle valve, a needle valve for the nozzle, a pivoted lever, an adjusting screw in one end of the lever bearing against the 65 stem of said needle valve, a screw carried by the air valve, a spring having an adjustable end engaging said screw, and a roller in the end of said lever traveling on said spring.

4. In a carbureter, a mixing chamber, a 70 nozzle discharging into the mixing chamber, an air valve comprising a sleeve with a flared lower end slidable in the mixing chamber, and a spreader below the said flared portion and adjustable toward and from the 75 same to vary the size of the air inlet.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 22 day of February 1910.

HARRY A. MILLER.

In presence of—

G. T. HACKLEY,

FRANK L. A. GRAHAM.