H. C. ROTH.

CARBURETER.

APPLICATION FILED JAN. 26, 1912.

1,042,606.

Patented Oct. 29, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

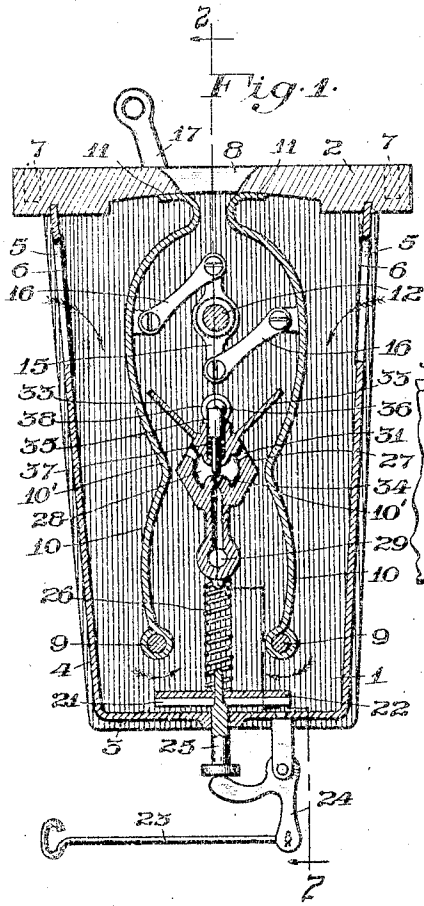
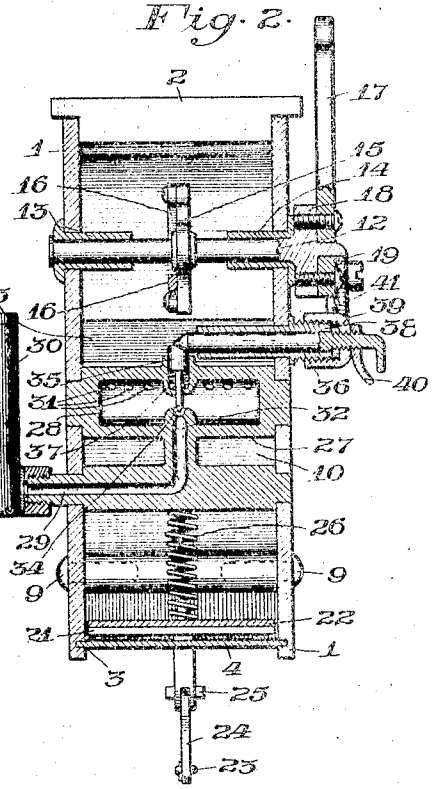


Fig. 2.



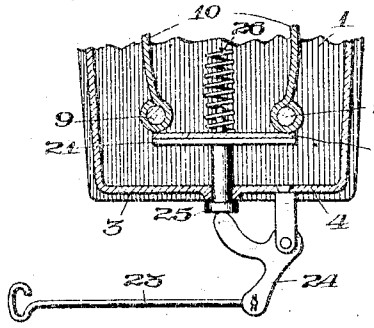


Fig. 3.

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2 SHEETS—SHEET 2.

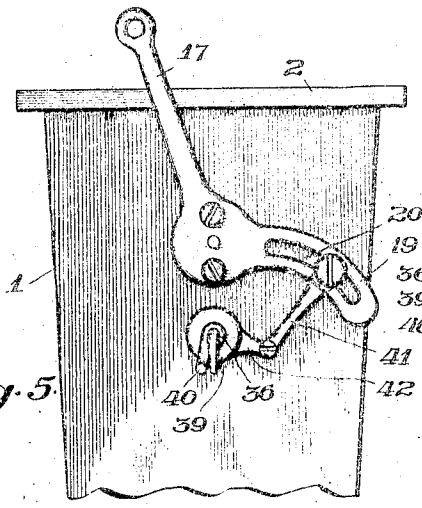

Fig. 5.

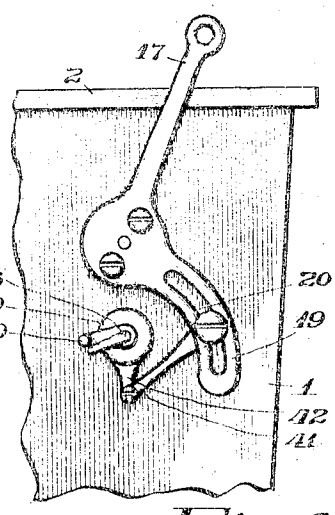

Fig. 6.

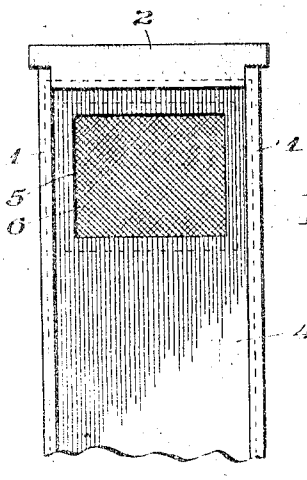

Fig. 4.

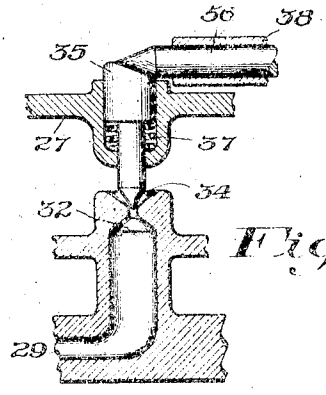

Fig. 8.

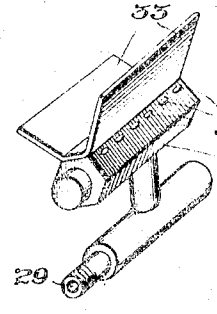

Fig. 7.

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CARBURETER.

1,042,606. Specification of Letters Patent. Patented Oct. 29, 1912.

Application filed January 26, 1912. Serial No. 673,564.

To all whom it may concern:

Be it known that I, HARRIS C. ROTH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Carbureters for Explosive-Engines, of which the following is a complete specification.

The present invention relates to carbureters, and more particularly to the type described in my pending application, Serial No. 641,310, filed July 29, 1910. The improvement has more special reference to the oil admission and oil distributing feature of the carbureter, the object being to provide a carbureter in which the proportion of air and oil may be properly regulated and held uniform at all speeds of the engine, and a thorough mingling of the oil and air obtained.

In the accompanying drawings Figure 1 is a vertical section of a carbureter embodying my improvement; Fig. 2 is a central vertical section of same taken as indicated by the line 2—2 in Fig. 1; Fig. 3 represents a vertical section of the lower end of the carbureter with the air damper valve shown in closed position; Fig. 4 is a side elevation of the upper half of the carbureter showing the screened air inlet; Fig. 5 is a fragmentary front elevation illustrating the construction and connection of the levers for operating the air and oil valves; and Fig. 6 shows a similar view but with the levers in their open position; Fig. 7 is a detail perspective of the valve head which forms the oil inlet and oil reservoir, with the deflected plates attached; and Fig. 8 represents an enlarged detail section of the constricted conical shaped oil inlet and valve for controlling same.

The body of the carbureter is formed by the two parallel side plates 1, 1, which are secured at their upper ends to the head 2 by means of screws or solder. The side plates 1 are grooved along their inner edges, these grooves 3 receiving the casing 4, which constitutes the ends and bottom of the body. The casing 4 is provided near its upper end with the openings 5 for the admission of air, these openings being covered with the fine mesh screen 6 which is soldered to the casing. The carbureter head 2 is designed to be secured to the engine cylinder (not shown) by means of suitable bolts (not shown) engaging the holes 7. The said head 2 is provided with an opening or port 8 through which the mixture is drawn into the engine.

Between the plates 1, 1 are hinged, on the pins 9, 9, the oppositely disposed coacting plates 10, 10, which terminate at their upper ends adjacent the mixture port 8, forming an adjustable closure for same. In order to secure greater contact between the ends of the plates 10 and head 2, the ends of said plates are provided with the laterally deflected ends 11. Structurally and functionally, the plates 10, 10 and their operating levers are substantially the same as the corresponding plates in the carbureter of the application to which reference has been made.

A shaft 12, parallel with the hinge pins 9, is supported in the walls 1, 1 of the upper portion of the body, the headed bushings 13 and 14, which are fixed to the ends of said shaft, holding same against endwise movement. A lever 15, centrally secured to the shaft 12, connects, by means of the links 16, with the plates 10, so that when the shaft 12 is caused to rock it will cause said plates to either open or close the port opening 8, depending on the direction in which the shaft is made to rock. Rocking movement of the shaft 12 is effected by means of the operating lever 17, which is secured to said shaft, as shown, through the boss 18, the latter forming part of the shaft 12. The operating lever 17 is provided with the curved arm 19, having the arcuate slot 20 formed therein.

Below the hinge pins 9 of the curved plate 10, in the lower portion of the casing of the carbureter, is arranged the air or damper valve 21. In Fig. 1 this valve is shown open, and in Fig. 3 it is shown closed. In starting the engine this damper valve is partly closed in order to secure a richer mixture. The valve is covered on its upper, or seat contacting side, with the felt 22, and is lifted by the operator through the rod 23, the bell crank 24, which is pivoted in a suitable support on the bottom of the carbureter, and the stem 25, as clearly shown in Figs. 1 and 3. The helical spring 26 operates to hold the damper valve 21 normally in open position.

The chief novel feature of the improvement lies in the construction of the oil inlet and associated parts. The valve head 27, in which is formed the oil reservoir 28, extends transversely between and is supported by

the walls 1, 1 of the carbureter body, and is located in the contracted portion of the carbureter chamber between the inwardly projecting portions 10^1 of the plates 10. The lower portion of said valve head 27 has formed therein the oil conduit 29 connecting at its receiving end with the constant level cup 30, and terminating at its delivery end in the said reservoir 28. The oil reservoir 28 communicates with the air passageway of the carbureting chamber through the plurality of orifices 31. Normally the oil is at the level indicated by the line 32 in the oil inlet 29, and is sucked out through the orifices 31 because of the partial vacuum existing in that portion of the carbureter chamber above said oil inlet, the partial vacuum being due, of course, to the aspiration stroke of the piston.

In starting the engine the carbureter is flooded and the reservoir 28 filled. To more effectively vaporize the oil deflector plates 33 are made to extend across the carbureter chamber immediately above the orifices 31, so that the air in being drawn by same at a high velocity will impinge said deflector plates with the entrained oil and thus secure a thorough mixture of oil and air. The oil conduit 29 terminates at the reservoir 28 in the constricted conical shaped opening 34. The peculiar shape of this opening, in conjunction with the vertical valve stem 35, has the effect of very thoroughly breaking up the oil.

The upper end of the valve stem 35 is formed to receive the conical point of the valve adjusting lever 36. A helical spring 37 operates normally to lift the valve stem from its seat, while advance movement of the valve adjusting lever 36 will tend to close the valve, and a backing off of same will operate to open the valve. The valve lever 36 is supported in the fixed bushing 38, which is, in turn, mounted in one of the side plates 1 of the carbureter. The cap 39 has a threaded connection with the lever 36, the handle locknut 40 locking these members together, and the cap 39 has a threaded connection (right or left, as the direction of movement of the levers may require), with the bushing 38. It follows that a rocking movement of the adjusting lever 36 will effect endwise movement of same and thus raise or lower the valve stem 35, opening or closing the valve accordingly. A link 41 connects the arm 42 of the threaded cap 39 with the slotted arm 19 of the valve adjusting lever 17. The connection between the link 42 and said arm 19 is adjustable in the arcuate slot 20, this slot having a center of curvature corresponding with the pivotal center between said link 41 and arm 42, when the latter is in its closed position, the same as the corresponding construction in my former application before referred to.

By the above described construction the mixture is thoroughly vaporized, and furthermore, accurate and positive adjustment can be made to insure a proper amount of fuel at both low and high speed, and a uniform mixture may be obtained at all speeds.

What I claim as my invention, and desire to secure by Letters Patent, is:

1. In a carbureter, in combination, a carbureting chamber, an oil reservoir located therein and provided with a plurality of upwardly extending orifices for the ejection of oil, deflector plates arranged above said reservoir, a constant level cup, a conduit connecting the cup and reservoir, said conduit terminating in the reservoir in a constricted, valve-controlled, conical-shaped opening, and an oil valve for controlling said opening, substantially as described.

2. In a carbureter, in combination, a carbureting chamber, an oil reservoir located therein and provided with a plurality of upwardly extending orifices for the ejection of oil, deflector plates arranged above said reservoir, a constant level cup, a conduit connecting the cup and reservoir, said conduit terminating in the reservoir in a constricted, valve-controlled, conical-shaped opening, an oil valve comprising a vertically arranged stem and a horizontally arranged valve adjusting lever, the contacting ends thereof being formed with correspondingly tapered heads, and a spring for normally holding the vertically arranged stem in open position, substantialy as described.

3. In a carbureter, in combination, a body formed with parallel sides and provided at its upper end with a mixture discharge port and at its lower end with an air inlet, two oppositely disposed coacting plates within said body, said plates being hinged at their lower ends, curved inwardly intermediate of their length to form a contracted air passageway, and terminating at their upper ends adjacent the mixture discharge port, an oil inlet located in the carbureting chamber between the inwardly curved portions of said plates, a vertically movable damper valve arranged to control the opening of the air inlet, a spring operating to hold said valve in an open position, and means for controlling the movement of the hinged plates and the damper valve, substantially as described.

4. In a carbureter, in combination, a carbureter chamber, a mixture valve, an oil reservoir located in said carbureter chamber and provided with upwardly extending orifices for the ejection of oil, an oil valve controlling the admission of oil to said reservoir, said oil valve comprising a vertically arranged stem and a horizontally arranged adjusting lever, the contacting ends thereof being formed with correspondingly tapered

heads, a spring for normally holding the vertical stem in open position, a fixed bushing forming a support for the transversely arranged valve adjusting lever, a cap secured by lock-nut to the transverse lever and having a threaded connection with said fixed bushing whereby rotation of said lever will effect longitudinal movement thereof, and means actuated in conjunction with said mixing valve for imparting rocking movement to the transversely arranged adjustable lever, substantially as described.

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