G. W. SLAUGHTER, Jr.

CARBURETER FOR EXPLOSIVE MOTORS.

APPLICATION FILED MAY 14, 1908.

913,313. Patented Feb. 23, 1909.

Fig. 1.

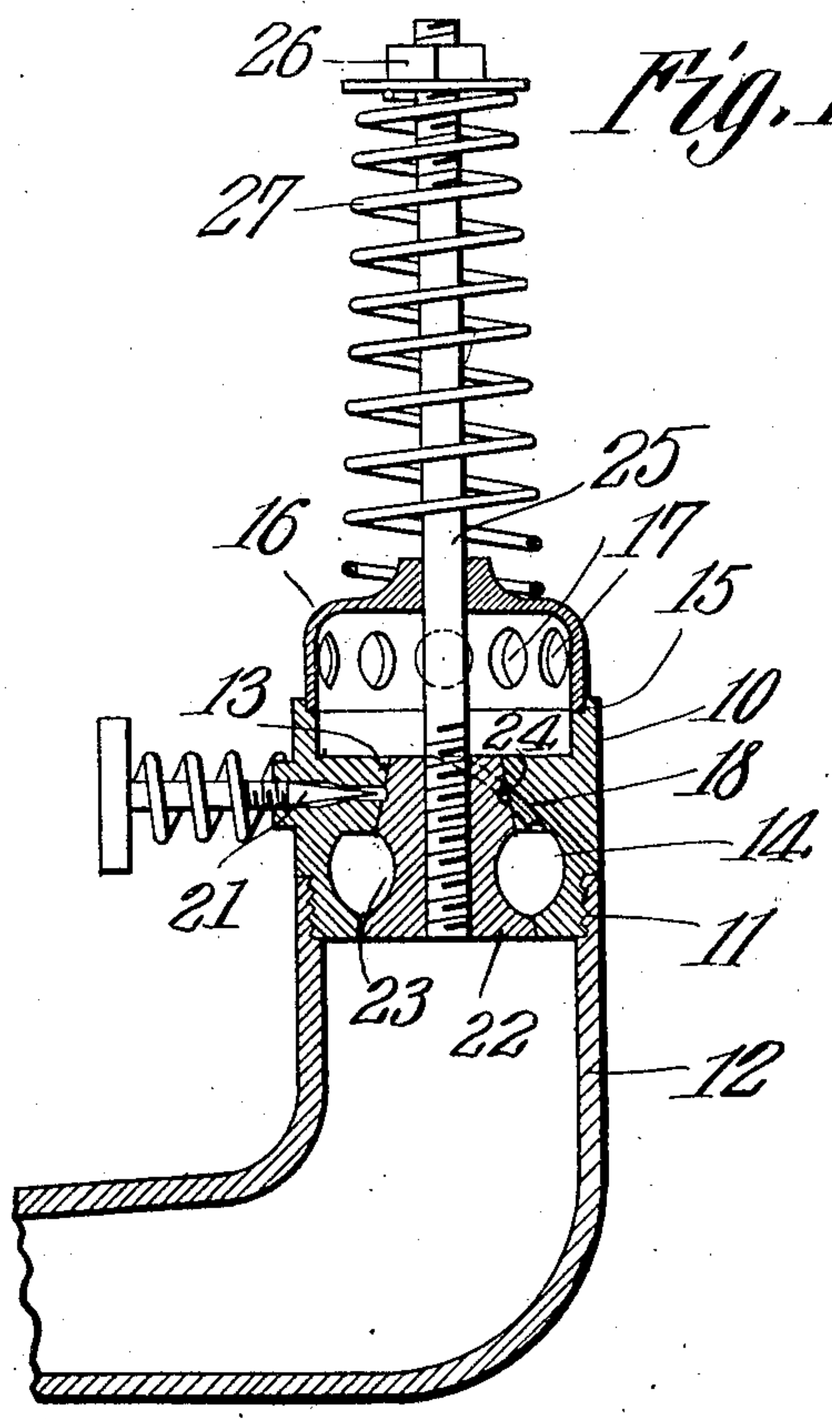


Fig. 2.

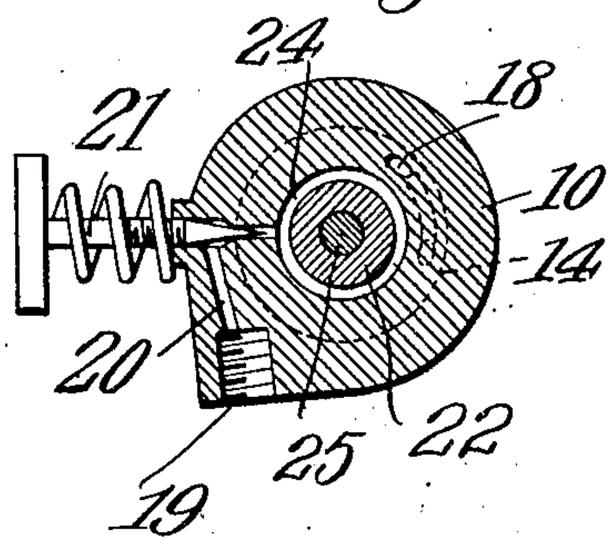


Fig. 4.

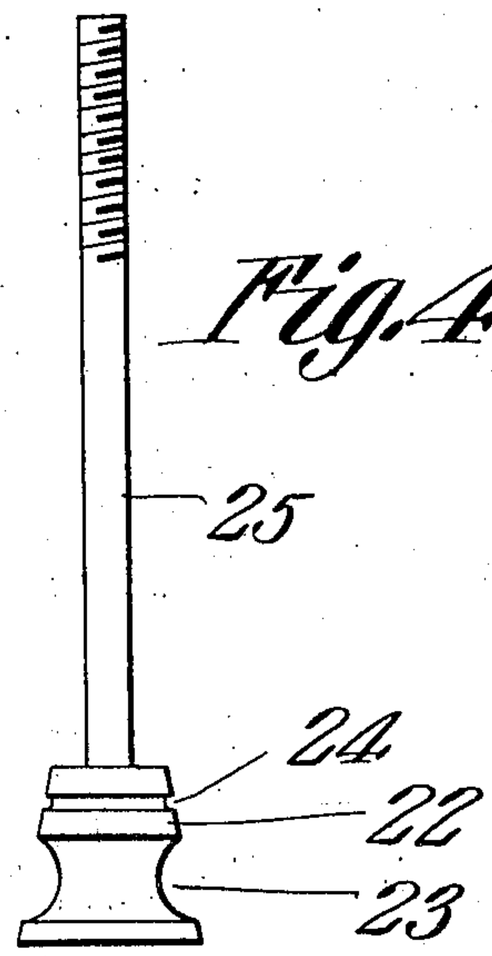
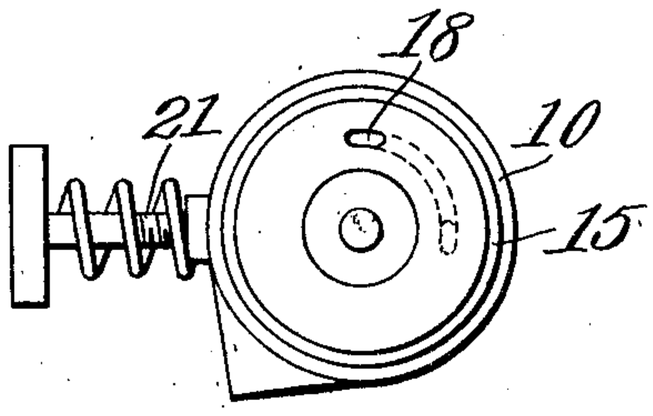


Fig. 3.



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Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE W. SLAUGHTER, JR., OF SAN AUGUSTINE, TEXAS, ASSIGNOR OF ONE-HALF TO WILLIAM McDONALD, OF SAN AUGUSTINE, TEXAS.

CARBURETER FOR EXPLOSIVE-MOTORS.

No. 913,313. Specification of Letters Patent. Patented Feb. 23, 1909.

Application filed May 14, 1908. Serial No. 432,939.

To all whom it may concern:

Be it known that I, GEORGE W. SLAUGHTER, Jr., a citizen of the United States, residing at San Augustine, in the county of San Augustine and State of Texas, have invented a new and useful Carbureter for Explosive-Motors, of which the following is a specification.

This invention relates to carbureters for explosive motors and more particularly to that type of carbureter arranged to enrich a body of incoming air with a predetermined amount of liquid hydro-carbon.

One object of the invention is to provide an improved and simple form of carbureting valves.

Another object of the invention is to provide an improved means for more thoroughly mixing the liquid hydro-carbon and air.

A third object of the invention is to regulate the quantity of liquid hydro-carbon to be admitted, and that without reference to the condition of the atmosphere as to temperature or barometric pressure.

The invention consists in general in a carbureting valve provided with a measuring chamber for the liquid hydro-carbon and an improved form of mixing chamber.

The invention further consists in certain novel details of construction, combinations of parts and improved arrangement thereof, hereinafter fully described, illustrated in the accompanying drawings, and specifically set forth in the claims.

In the accompanying drawings like characters of reference indicate like parts throughout the several views and Figure 1 is a vertical sectional view of the invention. Fig. 2 is a transverse sectional view taken through the center of the hydro-carbon valve. Fig. 3 is a top plan view with the cage and valve proper removed. Fig. 4 is a detail elevation of the valve.

The numeral 10 indicates the body of the valve. This valve body is provided with a threaded portion 11 arranged to receive the end of an inlet pipe 12 which affords communication to the engine cylinder. The valve body 10 is provided with a frusto-conical valve seat 13 having an annular groove therearound as indicated at 14. The admission end of the valve body 10 is rabbeted as indicated at 15 and a cage 16 provided with inlet ports 17, is held in this rabbeted portion. Extending from the air inlet end of the valve body to the top of the groove 14 is an air passage 18 the ends whereof are preferably displaced angularly with reference to the axis of the valve seat, as clearly shown in Fig. 3. In the preferred form of the invention this air passage is spirally formed as shown in that figure and Fig. 1. The valve body is further provided with a threaded connection 19 adapted to receive a pipe leading from the hydro-carbon supply tank, the fuel being fed therefrom by either gravity or under pressure as may be found most convenient. Leading from this connection to the frusto-conical valve seat is a hydro-carbon passage 20 provided with a needle valve 21 of the usual form. The valve proper comprises a frusto-conical body portion 22 provided with an annular groove therearound as shown at 23. This annular groove is adapted to coincide with the annular groove 14 when the valve is closed. Above this groove 23 is a small groove 24 extending around the frusto-conical valve-body 22 and so arranged that when the valve is closed it will lie opposite the opening of the passage 20. A valve stem 25 runs upward through the cage 16 and carries at the outer end a nut and washer 26. A spring 27 is arranged to be held between this nut and washer and the top of the cage 16, being properly tensioned to keep the valve tightly closed except during the suction stroke.

In the operation of this device, the needle valve 21 having been properly adjusted, the hydro-carbon flows through the passage 20 and into the annular groove 24. Now, upon the suction stroke of the engine, the valve is opened and the hydro-carbon flows down the side of the frusto-conical valve it being drawn in also directly from the passage 20. At the same time air enters through the spirally formed passage 18 and imparts a rapid whirling motion to the body of air contained in the groove 14 and groove 23. Simultaneously air enters the annular passage formed by the opening of the valve and the hydro-carbon is thus forced down and mixed by the combined whirling movement of the air in the groove 14 and groove 23 and the movement of the air down along the side of

the frusto-cone. There is thus obtained a very thorough mixture of the hydro-carbon and air.

Having thus described the invention what is claimed as new is:—

1. In a carbureter, a valve body provided with a frusto-conical valve seat and having a hydro-carbon passage leading from the exterior of the body to said valve seat, said valve seat being further provided with an annular groove formed therearound below the opening of said passage and an air passage from the admission end of said valve body to said groove, and a frusto-conical valve yieldingly held in said valve seat.

2. In a carbureter, a valve body provided with a frusto-conical valve seat and having a hydro-carbon passage leading from the exterior of the body to said valve seat, said valve seat being further provided with an annular groove formed therearound below the opening of said passage and an air passage from the air admission end of said valve body to said groove, the inlet end of said air passage being angularly displaced around the axis of said valve seat with reference to the outlet end, and a frusto-conical valve yieldingly held in said valve seat.

3. In a carbureter, a valve body provided with a frusto-conical valve seat and having a hydro-carbon passage leading from the exterior of the body to said valve seat, said valve seat being further provided with an annular groove formed therearound below the opening of said passage and a spirally formed air passage from the air admission end of said valve body to said groove, in combination with a frusto-conical valve yieldingly held in said valve seat.

4. In a carbureter, a valve body provided with a frusto-conical valve seat and having a hydro-carbon passage leading from the exterior of the body to said valve seat, said valve seat being further provided with an annular groove formed therearound below the opening of said passage and an air passage from the air admission end of said valve body to said groove, the inlet end of said air passage being angularly displaced around the axis of said valve seat with reference to the outlet end, in combination with a frusto-conical valve having an annular groove therearound arranged to position opposite said hydro-carbon passage when the valve is closed.

5. In a carbureter, a valve body provided with a frusto-conical valve seat and having a hydro-carbon passage leading from the exterior of the body to said valve seat, said valve seat being further provided with an annular groove formed therearound below the opening of said passage and an air passage from the air admission end of said valve body to said groove, the inlet end of said air passage being angularly displaced around the axis of said valve seat with reference to the outlet end, in combination with a frusto-conical valve having an annular groove therearound arranged to position opposite said hydro-carbon passage when the valve is closed, said valve further having a second annular groove therearound arranged to position opposite the annular groove in the valve-seat when said valve is closed.

6. In a carbureter, a valve body provided with a frusto-conical valve seat and having a hydro-carbon passage leading from the exterior of the body to said valve seat, said valve seat being further provided with an annular groove formed therearound below the opening of said passage and a spirally formed air passage from the air admission end of said valve body to said groove, and a frusto-conical valve held in said valve seat provided with an annular groove therearound arranged to position opposite said hydro-carbon passage when the valve is closed, said valve further having a second annular groove therearound arranged to position opposite the groove in said seat when said valve is closed.

7. In a carbureter, a valve body provided with a frusto-conical valve seat and having a hydro-carbon passage leading from the exterior of the body to said valve seat, said valve seat being further provided with an annular groove formed therearound below the opening of said passage and an air passage from the air admission end of said valve body to said recess, the inlet end of said air passage being angularly displaced around the axis of said valve seat with reference to the outlet end, in combination with a frusto-conical valve having an annular groove therearound arranged to position opposite said passage when the valve is closed, said valve further having a second groove therearound arranged to position opposite said annular groove in the valve seat when the valve is closed, and a needle valve held in said hydro-carbon passage to control the flow of hydro-carbon therethrough.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

GEO. W. SLAUGHTER, JR.

Witnesses:

EUGENE A. BURRUS,

T. L. FOSTER.