J. PETERSON.

CARBURETER.

APPLICATION FILED SEPT. 15, 1910.

994,191. Patented June 6, 1911.

Fig. 1

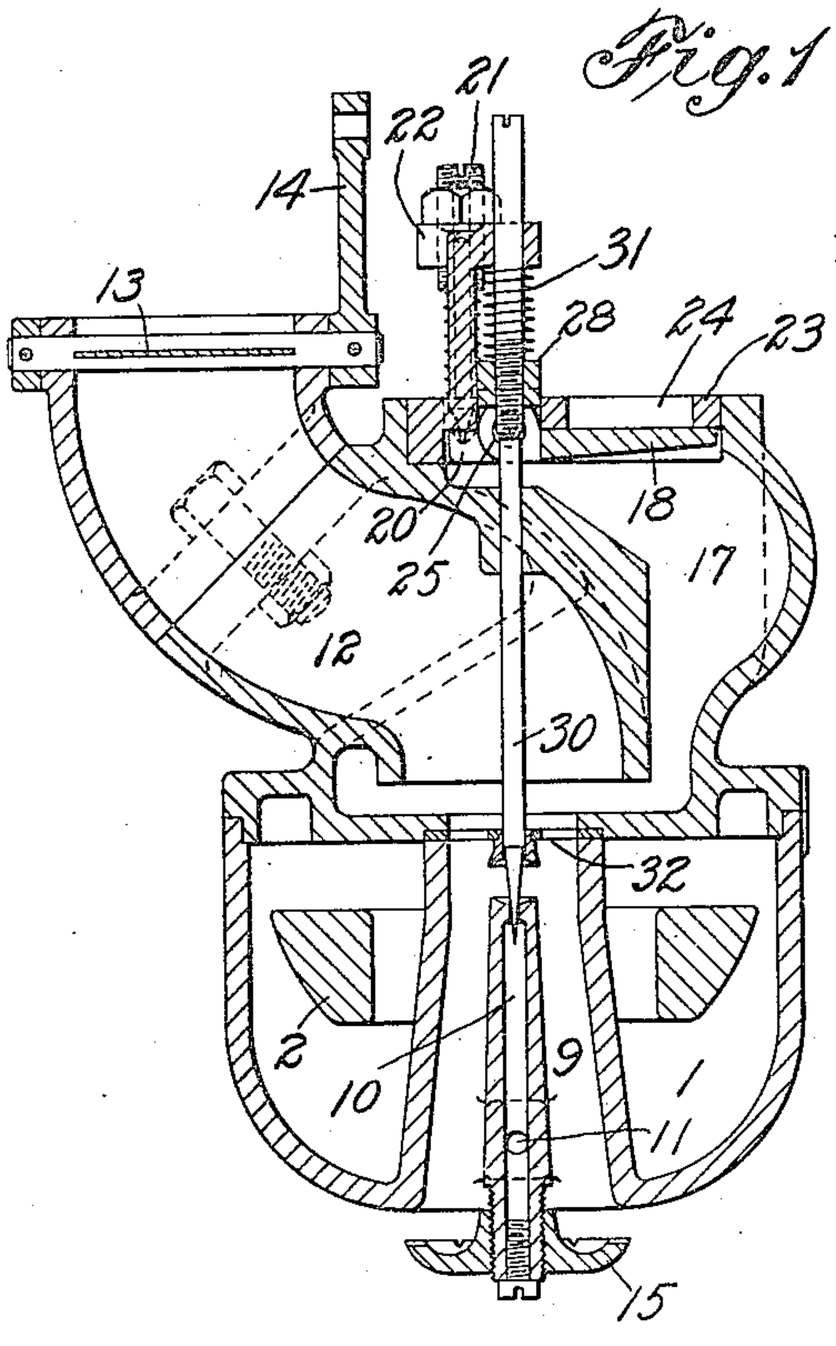


Fig. 2

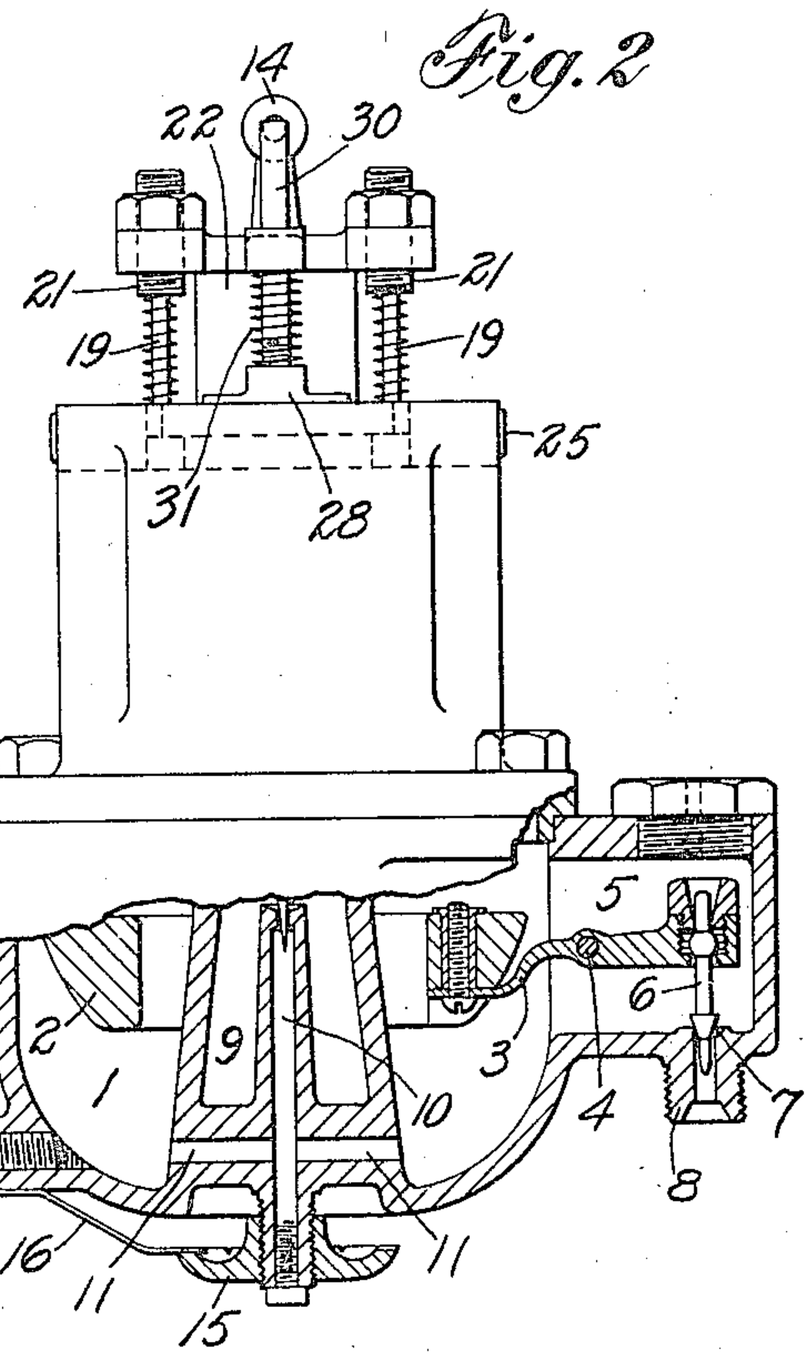


Fig. 3

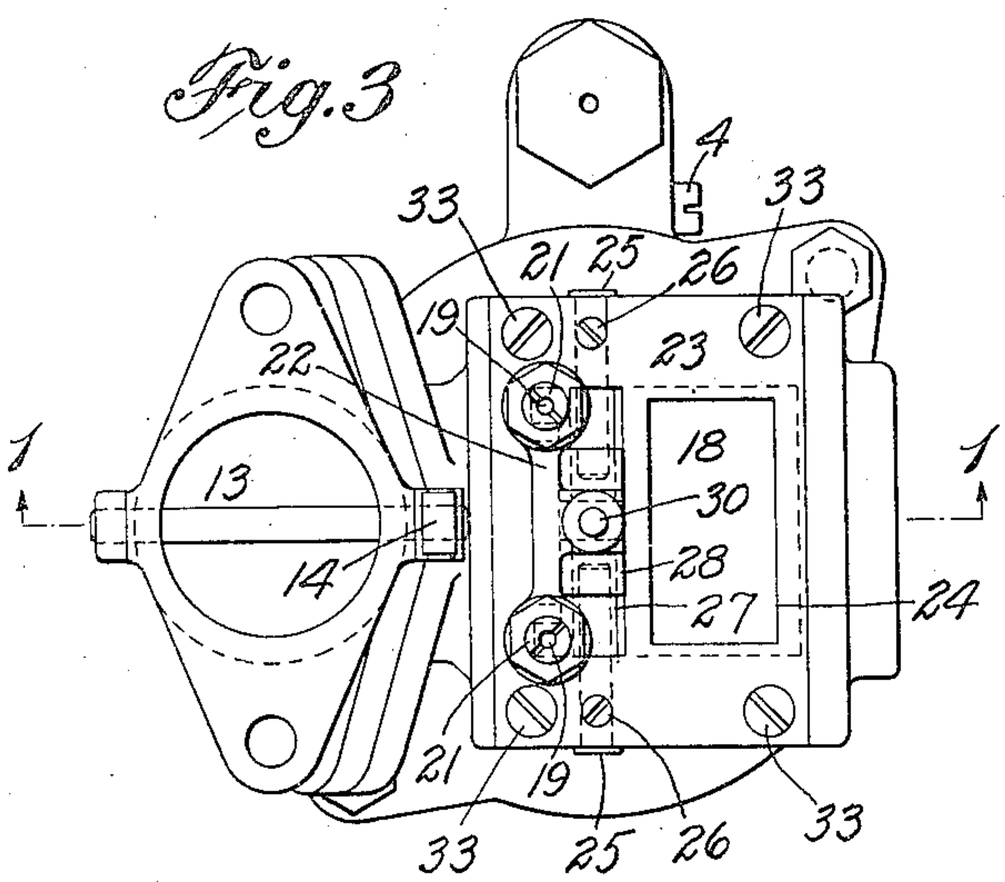


Fig. 4

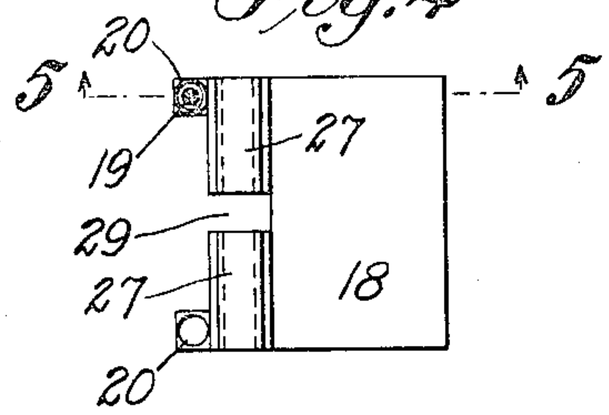
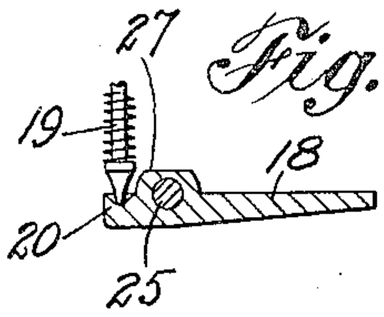


Fig. 5



Attest

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UNITED STATES PATENT OFFICE.

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CARBURETER.

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To all whom it may concern:

Be it known that I, JONATHAN PETERSON, a citizen of the United States, residing at Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Carbureters, of which the following is a specification.

This invention relates to an improvement in carbureters of the type in which the flow of fluid is varied in accordance with variations in the flow of air from an auxiliary intake to the mixing chamber, and it has for its main object the production of a simple, efficient and inexpensive device of this general character in which the working parts are readily accessible and open to inspection.

With this and other objects not specifically mentioned in view, the invention consists in certain constructions and combinations which will be hereinafter fully described and then specifically pointed out in the claims hereunto appended.

In the accompanying drawings which form a part of this specification and in which like characters of reference indicate the same parts, Figure 1 is a sectional elevation of a device constructed in accordance with the invention, Fig. 2 is a side elevation, partly sectional, of the structure shown in Fig. 1, Fig. 3 is a plan view of the structure shown in Figs. 1 and 2, Fig. 4 is a detail view of the auxiliary air gate shown in Figs. 1 and 3, and Fig. 5 is a sectional view taken on the line 5—5 in Fig. 4.

In carrying the invention into effect, there is provided a float chamber 1 in which is mounted a float 2 of cork or other buoyant material. The float 2 is carried on one arm of a lever 3 fulcrumed at 4 to the walls of an inlet chamber 5 in open communication with the float chamber 1. The opposite arm of the lever 3 carries a valve 6 coöperating with a valve seat 7 formed on the inner end of a nipple 8 cast integral with the walls of the float chamber and to which a fluid supply pipe may be screwed. Within and concentric with the float chamber is formed an open fixed air passage 9 discharging upwardly, in which is mounted a fluid nozzle 10 having branch passages 11 in communication with the float chamber so that fluid may freely flow from the float chamber to the interior of the nozzle. Over the open fixed air passage and beyond the upper end of the nozzle is a throttle passage 12 in which is mounted a throttle 13 controlled by a lever 14. The desired quantity of fixed air may be adjusted by means of a cup 15 screwed to the lower part of the nozzle 10, and held in adjustment by means of a spring 16 engaging notches in the cup.

The structure so far described is old and well known in the art, and a more detailed description thereof is deemed unnecessary to an understanding of the present invention and is therefore omitted in the interest of brevity and clearness.

For the purpose of providing additional air when more than the minimum quantity flowing through the fixed air passage is required, there is provided an auxiliary air intake including a passage 17 discharging downwardly to the mixing chamber over the fixed air passage 9 before referred to. Under starting or no load conditions, auxiliary air is not required. There is therefore provided a gate for closing the auxiliary air intake, and this gate may vary within wide limits. As shown, however, a swinging gate 18 is employed. In the structure illustrated, however, the gate is arranged to be operated by the suction of the engine in connection with which it is used. When a suction operated gate is employed, there is also provided means normally holding the gate in closed position so that no air will pass through the passage 17 except when the suction of the engine is so great that air cannot flow fast enough through the fixed air passage 9. This means may vary within wide limits. As shown, it includes a pair of spring plungers 19 which bear against rearwardly projecting lugs 20 on the gate. The plungers are mounted to slide through threaded bearings 21 adjustably mounted in an upright bracket 22 at the upper end of the device, so that the pressure of the spring plungers may be varied at will. The bracket 22 is provided with a base plate 23 having a rectangular opening 24 therethrough which forms an inlet port to the passage 17. The gate is pivoted to this base plate by means of two pintles 25 held in place by two set screws 26.

For the purpose of causing a movement of the airgate to produce a relatively small movement of the valve controlling the flow of fluid from the nozzle to the mixing chamber, so that the flow of fluid and air will be proportionately varied under varying loads, there are provided a cam operated by the gate, a block engaging the cam, and

a valve carried by the block and coöperating with the nozzle, and these elements of the structure may vary within wide limits. As shown, however, a pair of separated cams 27 are employed, these cams being formed integral with the gate by flattening the hubs in which the pintles 25 work. A block 28 is provided which is arranged to slide freely against one face of the upright bracket 22 and over the space 29 between the separated cams 27, its lower edge being wide enough to engage both cams. This block is provided with an internally threaded aperture in which a needle valve 30 is screwed. The thread provides means whereby the needle valve may be adjusted vertically in the block. Coiled around the valve 30 is a spring 31 operating to hold the block against the cams at all times. The needle valve passes downwardly between the cams and through the intake 17 and the throttle passage 12 to the nozzle 10, its lower end being guided by a spider 32 secured in the casing of the fixed air passage.

It will be readily understood that when the suction of an engine in connection with which the device is used, operates to swing the gate downward to open position, the cams 27 will operate to lift the block 28 against the action of the spring 31 and lift the needle valve with it, thereby increasing the flow of fluid in exact proportion to the increased air supply due to the opening of the auxiliary air intake.

It will be readily understood also that by removing the screws 33, the valve and all its connections may be bodily lifted from the device for inspection without disturbing any of the adjustments.

Changes and variations may be made in the structure by means of which the invention is carried into effect. The invention, therefore, is not to be restricted to the precise details of the structure shown and described.

What is claimed is:

1. In a carbureter, the combination with an open fixed air passage, of an auxiliary air intake, a gate for closing the intake, means normally holding the gate in closed position, a support for the gate, a cam carried and operated by the gate, a block engaging the cam and movable in a plane intersecting the gate support, a needle valve adjustably mounted in the block, means for holding the block against the cam, and a fluid nozzle coöperating with the valve.

2. In a carbureter, the combination with an open fixed air passage, of an auxiliary air intake, a suction operated gate for closing the intake, means normally holding the gate in closed position, a support for the gate, a cam carried and operated by the gate, a block engaging the cam and movable in a plane intersecting the gate support, a needle valve adjustably mounted in the block, means for holding the block against the cam, and a fluid nozzle coöperating with the valve.

3. In a carbureter, the combination with an open fixed air passage, of an auxiliary air intake, a suction operated swinging gate for closing the intake, means including spring plungers for normally holding the gate in closed position, a cam operated by the gate, a block engaging the cam, a needle valve adjustably mounted in the block, means for holding the block against the cam, and a fluid nozzle coöperating with the valve.

4. In a carbureter, the combination with an open fixed air passage, of an auxiliary air intake, a suction operated swinging gate for closing the intake, means including spring plungers for normally holding the gate in closed position, a cam integral with the gate, a block engaging the cam, a needle valve adjustably mounted in the block, means for holding the block against the cam, and a fluid nozzle coöperating with the valve.

5. In a carbureter, the combination with an open fixed air passage, of an auxiliary air intake, a suction operated swinging gate for closing the intake, means including spring plungers for normally holding the gate in closed position, a pair of separated cams integral with the gate, a block engaging both cams, a needle valve adjustably mounted in the block between the cams, means for holding the block against the cams, and a fluid nozzle coöperating with the valve.

6. In a carbureter, the combination with an open fixed air passage, of an auxiliary air intake, a suction operated swinging gate for closing the intake, means including spring plungers for norm lly holding the gate in closed position, a pair of separated cams integral with the gate, a block engaging both cams, a needle valve threaded through the block between the cams, means for holding the block against the cams, and a fluid nozzle coöperating with the valve.

7. In a carbureter, the combination with an open fixed air passage, of an auxiliary air intake, a suction operated swinging gate for closing the intake, means including spring plungers for normally holding the gate in closed position, a pair of separated cams integral with the gate, a block engaging both cams, a needle valve threaded through the block between the cams, a spring holding the block against the cams, and a fluid nozzle coöperating with the valve.

8. In a carbureter, the combination with an open fixed air passage discharging upwardly, of an auxiliary air intake discharging downwardly toward the passage, a suction operated gate for closing the intake said gate being arranged to swing in vertical

planes within the intake, means including a pair of spring plungers for normally holding the gate in horizontal closed position, a pair of separated cams integral with the gate, a block overlying and engaging both cams, a needle valve threaded through the block between the cams said valve projecting downwardly through the intake and into the passage, and a fluid nozzle within the passage and coöperating with the valve.

9. In a carbureter, the combination with an airgate having two hubs spaced apart and each carrying a cam, of a needle valve mounted between the hubs of the airgate, a block adjustably carried by the valve, and means for holding the cams in contact with the block.

10. In a carbureter, the combination with an airgate having two hubs spaced apart and each carrying a cam, a spring normally closing the airgate, a needle valve mounted between the hubs of the airgate, a block threaded on the valve, and a spring for holding the cams in contact with the block.

11. In a carbureter, the combination with an airgate having two hubs spaced apart and one of which carries a cam, of a needle valve mounted between the hubs of the airgate, a block carried by the valve, and means for holding the cam in contact with the block, whereby a movement of the airgate produces a relatively small movement of the valve.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

JONATHAN PETERSON.

Witnesses:

SYDNEY I. PRESCOTT,

FRANK H. VICK, Jr.