Dec. 11, 1923. 1,477,012

E. J. SIMPSON

CARBURETOR

Filed Aug. 18, 1921

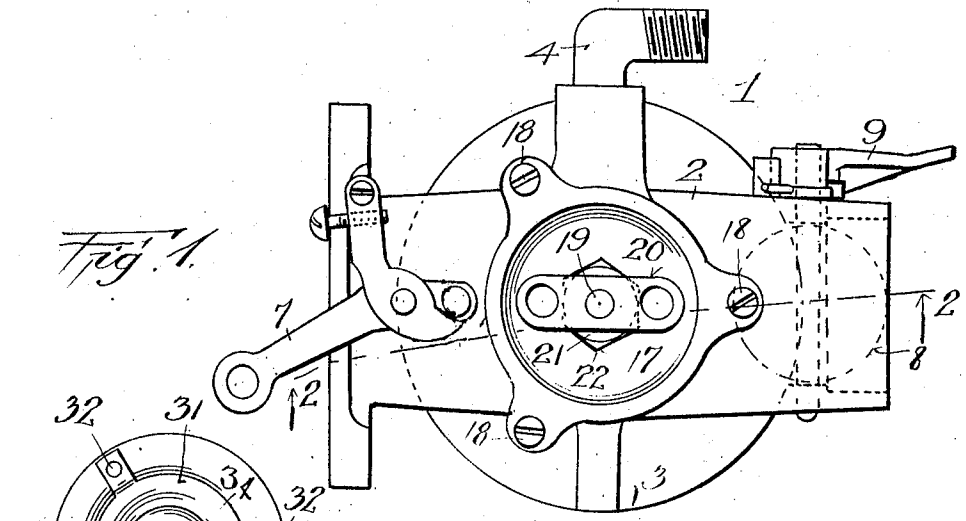


Fig. 1.

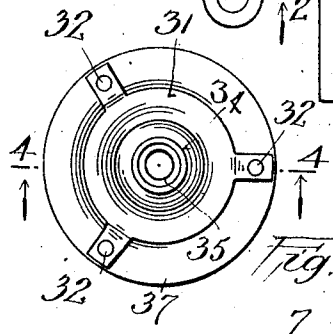


Fig. 3.

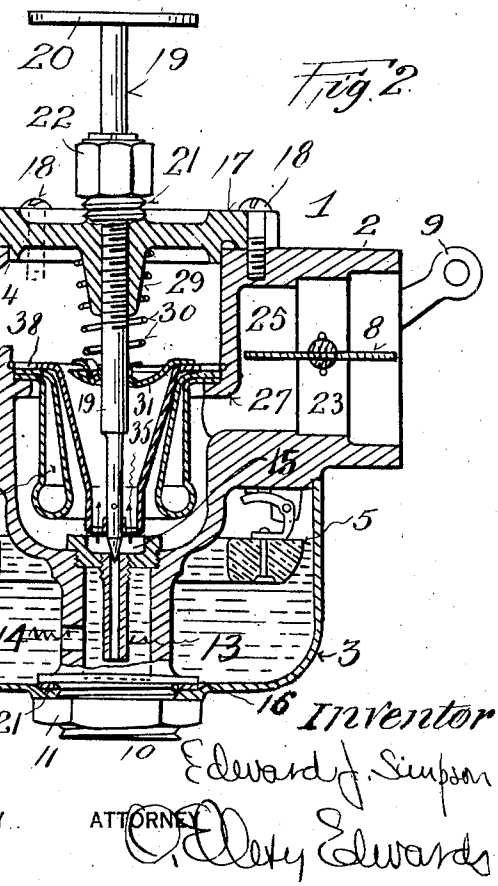


Fig. 2.

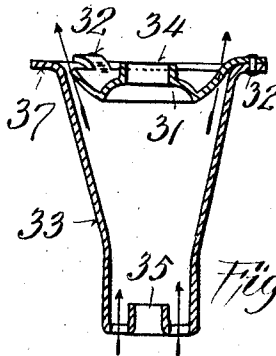


Fig. 4.

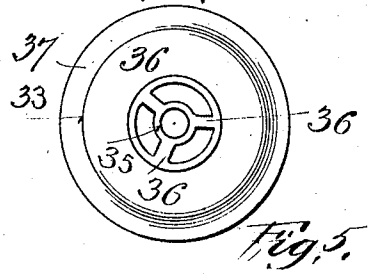


Fig. 5.

Inventor

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BY ATTORNEY

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Patented Dec. 11, 1923. 1,477,012

UNITED STATES PATENT OFFICE.

EDWARD J. SIMPSON, OF NEW YORK, N. Y.

CARBURETOR.

Application filed August 18, 1921. Serial No. 493,228.

To all whom it may concern:

Be it known that I, EDWARD J. SIMPSON, a citizen of the United States, and a resident of the city of New York, county of Kings, and State of New York, have invented a new and useful Improvement in Carburetors, of which the following is a specification.

The object of my invention is to provide a simple, efficient, durable and reliable carburetor and this object is accomplished by my invention, one embodiment of which is hereinafter more particularly set forth.

For a more detailed description of my invention, reference is to be had to the accompanying drawings, forming a part hereof, in which

Figure 1 is a plan view of a carburetor embodying my invention.

Figure 2 is a sectional view through the line 2—2 of Figure 1, looking in the direction of the arrows.

Figures 3, 4 and 5 show details of my novel air valve, Figure 4 being a sectional view on the line 4—4 of Figure 3, and Figures 3 and 5 being top and bottom plan views, respectively.

Throughout the various views of the drawings, similar reference characters designate similar parts.

My improved carburetor 1 has a top casing 2, a float chamber 3, a fuel inlet 4, a float valve 5, a throttle valve 6 controlled by a lever 7 and a choke valve 8 controlled by a lever 9, all of which may be of any suitable construction, but are preferably made substantially as shown. The casing 2 has an extension 10 which is threaded at its bottom to receive a nut 11 which supports the exterior wall of the float chamber 3 against a washer 12 which is pressed against a collar 13 on the extension 10. The interior of the extension 10 has a large port 14 through which gasoline or other fuel may freely enter into the interior of this projection. The upper end of the projection 10 is close by a cup 15 with an extension 16 at its center which extends preferably to just below the level of the port 14. The port 14 is always immersed when the carburetor is in use and gasoline flows through it and up through the extension 16 and into the well 15 where it stands at the float chamber level.

The upper central portion of the casing 2 is closed by a suitable plate 17 which is held in place by screws 18 and the center of this plate 17 is threaded to receive the valve stem 19 which has a perforated plate 20 fixed to its upper end by which it may be turned. The valve 19 is kept from turning too freely by means of a split sleeve 21 through which it passes and a nut 22. The split screw is preferably formed integral with the plate 17.

The interior of the casing 2 is divided into two parts, one the intake part designated generically by the character 23 and the other, the outlet, designated by the character 24. These parts are separated by two vertical partitions 25 and 26 which are connected by a diaphragm 27 which is in a plane perpendicular to the spindle 19 and on this diaphragm 27 rests a flanged air distributing ring 28 which is enlarged near its lower end so as to distribute air evenly about the cup 15. The parts are so connected and designed that air enters through the part 23 of the casing and passes about the exterior of the ring 28 and thence up through the interior of the ring 28, the path being divided in a manner which will now be described.

The lower surface of the plate 17 is provided with a conical projection 29, about which is placed a coil spring 30 which presses on a small dished disc 31 which has three radially disposed arms which are secured by suitable rivets 32 to a funnel 33. The disc 31 has a boss 34 and the funnel 33 a corresponding boss 35, secured thereto by spider arms 36. These bosses slide freely on the valve stem 19. The upper end of the funnel 33 is flanged at 37 to receive the rivets 32 and to form a secondary valve which will rest on the ring 28.

The ring 28 is kept in place by any suitable means as by a spring wire 38 which rests in a suitable groove in the walls 25 and 26 and above the seat 27.

In view of the foregoing, the operation of my improved carburetor will be readily understood. Air enters through the part 23 and is distributed by the ring 28 about the basin or well 15 where fuel rests according to the float level. When the suction is not very great, that is when the engine to which the carburetor is attached is not using much power, say running at a speed which corresponds to ten miles an hour or less, the suction is not great enough to raise the funnel 33 and then all the mixture must pass

through the interior of this funnel and about the exterior of the disc 31 which is symmetrically placed with an even annular opening about the periphery of the interior of the funnel 33 at its upper end. When there is a greater suction, the tension of the spring 30 is overcome and then the funnel 33 rises so as to open the secondary valve about the flange 37 and then air enters the outlet part 24 of the casing 2, both through the funnel 33 and about its exterior. The parts are so arranged and disposed that air going about the exterior of the funnel 33 is not brought in the same intimate contact with fuel as the air passing through the interior of the funnel 33 so that although the suction is greatly increased the fuel consumption is not disproportionately increased.

While I have shown and described one embodiment of my invention, it is obvious that it is not restricted thereto, but that it is broad enough to cover all structures that come within the scope of the annexed claims.

Having thus described my invention, what I claim is:

1. A carburetor having a mixing chamber, an annular air guide extending to near the bottom of this chamber, a well for fuel at the bottom of this chamber, a funnel mounted in said air guide so as to close the outlet of the same and means for holding said funnel in said air guide so that the funnel may be raised more than a predetermined minimum amount of fuel and air pass through the funnel, whereby additional air and fuel may pass on the exterior of the funnel when it is so raised and the air whether passing inside or outside of the funnel is brought into intimate contact with the fuel and thoroughly mixed therewith.

2. A carburetor comprising a casing having an air inlet, a fuel inlet and a mixture outlet, and enclosing a mixing chamber and a well surrounding said fuel inlet, an annular pendant air guide projecting downward close to said well, and a hollow automatic valve within said air guide forming an annular air passage between them and also close to said well, its upper part closing such air passage except when the valve is unseated by suction.

3. A valve for regulating the flow of fuel and air through a carburetor comprising a funnel having a flange at its upper end, a disc having a central guiding perforation, and of slightly less diameter than the interior of the funnel fixed to said flange so as to leave a narrow circular opening between the disc and the funnel and a guiding means at the lower end of the funnel.

In testimony whereof, I have hereunto set my hand and seal this 30 day of July, 1921.

EDWARD J. SIMPSON.