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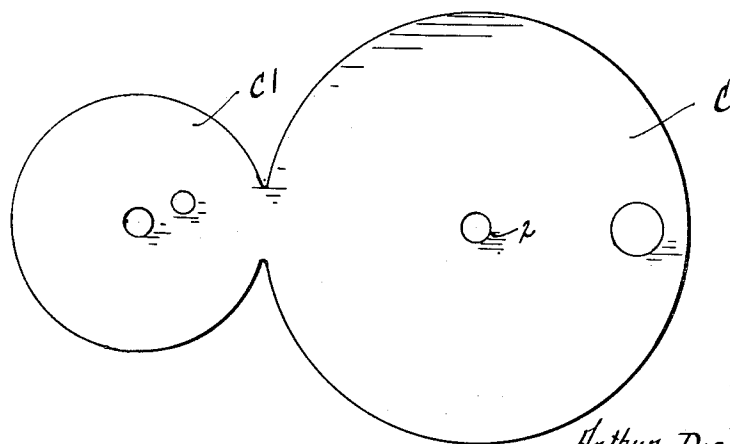
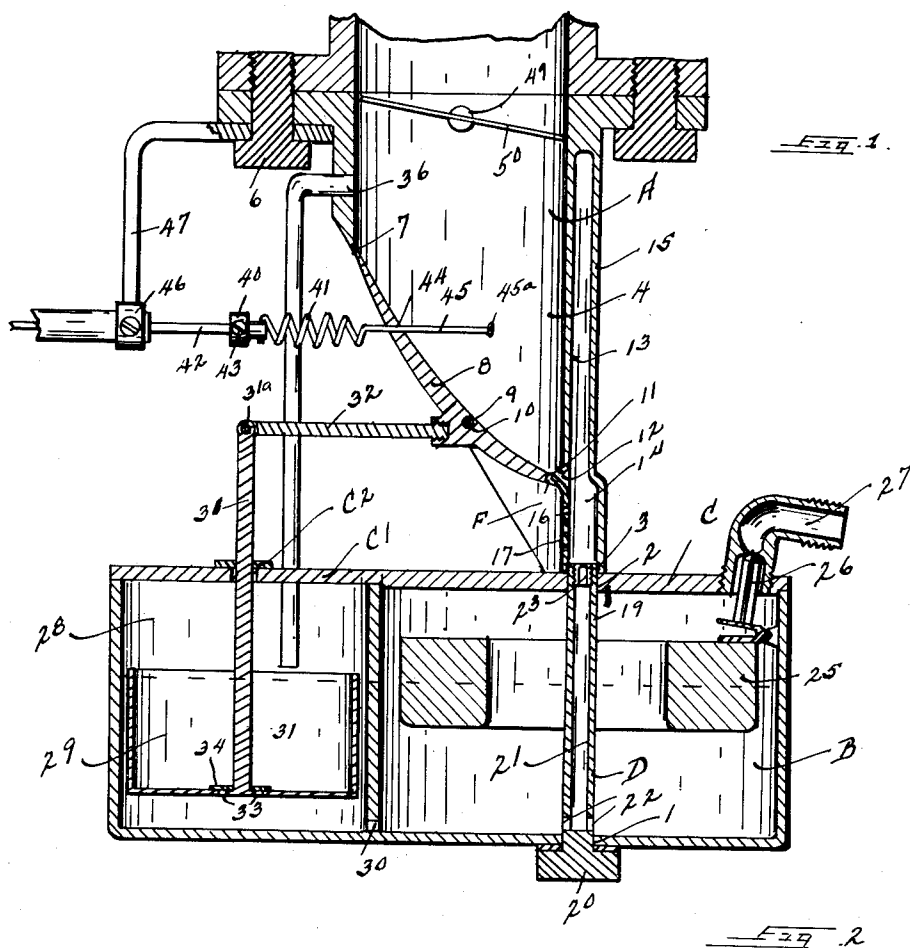
A. DICKERSON

1,928,829

CARBURETOR

Filed Sept. 14, 1931

2 Sheets-Sheet 1



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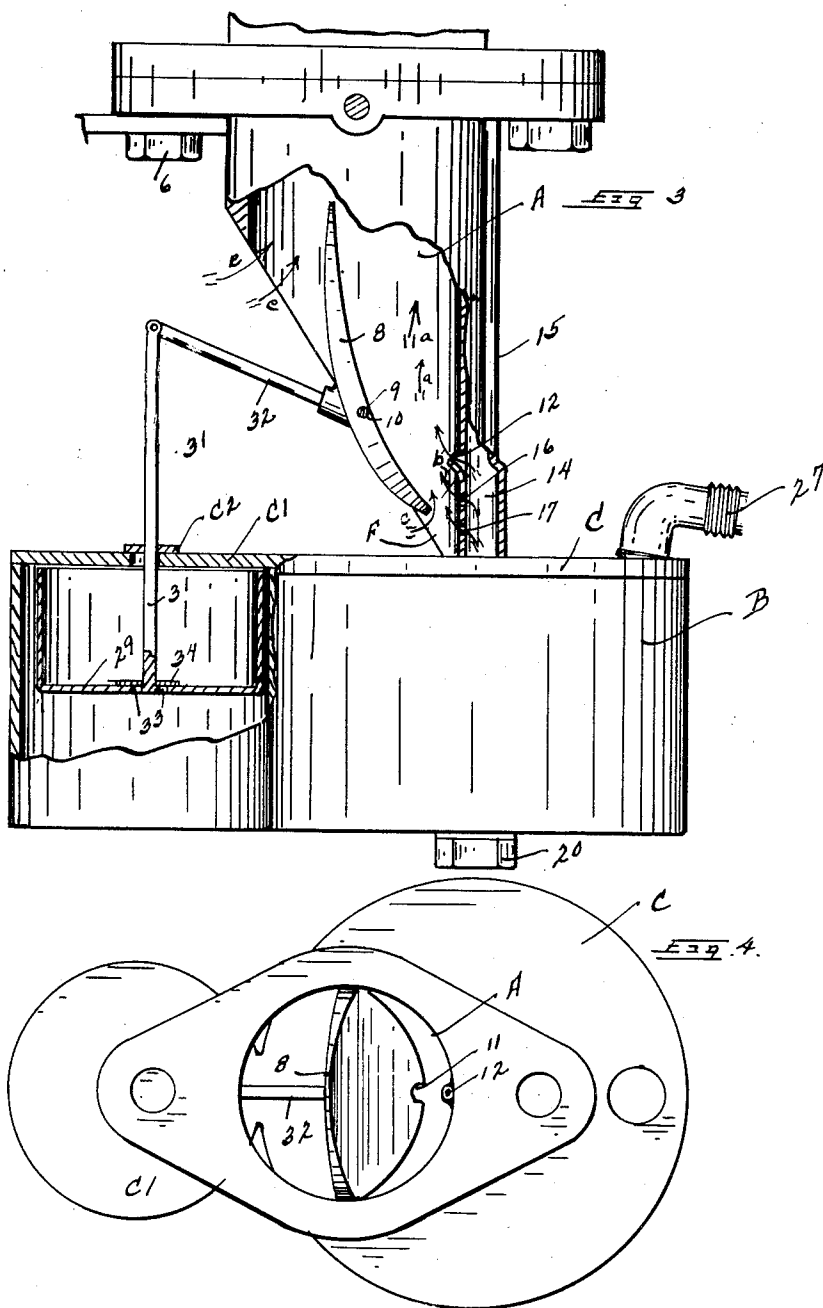
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UNITED STATES PATENT OFFICE

1,928,829

CARBURETOR

Arthur Dickerson, Logan, Utah

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Serial No. 562,683

5 Claims. (Cl. 261—64)

My invention relates to carburetors and has for its object to provide a new and efficient carburetor for providing the proper mixture of fuel and air for the engine.

5 A further object is to provide a simplified carburetor with few parts, few moving parts, and with means to control the opening of the air inlet valve by a fuel filled bucket.

10 A still further object is to provide a carburetor which will be economical to use, giving greater mileage and more power per gallon of fuel.

A still further object is to provide a fool proof carburetor which has fixed jets that cannot be tampered with and which has an air chamber to cushion the feed of fuel from the float chamber to the venturi of the device.

20 These objects I accomplish with the device illustrated in the accompanying drawings in which similar numerals and letters of reference indicate like parts throughout the several views and as described in the specification forming a part of this application and pointed out in the appended claims.

25 In the drawings in which I have shown the best and most preferred manner of building my invention

Figure 1 is a vertical diametrical section of the carburetor.

30 Figure 2 is a plan view of the cover for the float chamber and the adjacent bucket chamber.

Figure 3 is a side elevation of the carburetor with portions cut away to show the air valve opened to extreme position and the bucket raised to the highest position. The arrows "a" indicate the travel of the partially mixed fuel and air from around the air valve; the arrows "b" the fuel from the fuel jet chamber; the arrow "c" shows the air entering around the bottom of the 40 air valve and the arrows "e" show the travel of air over the top of the air valve.

Figure 4 is a plan view of the device with the throttle valve removed and showing the position of the air valve when in full open position.

45 In the drawings I have shown the carburetor as made of three pieces, the mixing chamber A, the float chamber B and the cover C, and all three are secured together by the fuel jet D, being screwed up through the bottom of the float chamber through a hole 1, through a hole 2, in the 50 cover C and into a threaded fuel hole 3 in the wall of the casing 4 of the venturi A. The mixing chamber A is made of a cylindrical casing 4, having a flange formed on the top side by which 55 the casing is secured to the intake manifold of

the engine by stud bolts. The air port opening into the casing is made by an angled opening 7 formed from the bottom open end of the casing on one side to near the top end on the opposite side, making the air opening 7 an oval in shape. 60

The air control valve 8 is made ovoidal in shape to fit the opening 7 and the valve is pivoted in the opening by a pin 9 being passed through a hole 10, which hole is formed on the valve 8, dividing the valve into two portions with the upper portion about twice as large as the lower portion. The pin 9 is passed into the walls of the casing to support the valve therein. An 65 idling opening 11 is cut away from the bottom of the air valve to allow air to pass therethrough over the face of the fuel port 12. The fuel port 12 is formed on the back side of the bore of the casing 4 and is in open connection with an air chamber 13 and an enlarged chamber 14 on the 70 bottom end thereof both chambers formed vertically in a boss 15 on the back outer side of the casing 4. The bottom end of the fuel port chamber 14 is the threaded hole 3 to receive the top end of the fuel jet D. An intermediate speed port 16 is bored from the chamber to the air space F 80 below the level of the fuel chamber 14, and the air control valve and a high speed port 17 is bored through the same wall of the chamber above the top side of the cover C. The two ports 16 and 17 act in two ways, first as air ports into the 85 chamber 14 and then as fuel ports therefrom; for as the motor is running at low speeds the ports allow air to enter into the chamber 14 and mix with the fuel being drawn therethrough, and as the motor is accelerated the suction is increased and the valve 8 opened farther, thereby drawing fuel out through the jets. The fuel jet D is made of a shaft 19 having the bottom end formed into a hexagonal head 20 and having the balance of the shaft tubular with a bore 21 95 therein, and having ports 22 connecting the bore 21 with the fuel in the float chamber B. A plug 23 having a jet opening therein is then screwed into the top end of the bore 21 to limit the maximum flow of fuel through the bore into the 100 chamber 14. A float 25 is pivoted in the chamber B and regulates the needle valve 26, controlling the level of fuel in the chamber and the fuel allowed to enter the chamber through the inlet 27. 105

Adjacent the chamber B I provide a small cylindrical chamber 28 closed by a protruding section C1 of the cover C and in which chamber a bucket 29 is carried, the bucket being of smaller diameter than the chamber and free to move 110

up and down in the said chamber. A port 30 connects the chamber 28 with the float chamber B to maintain the same level in both chambers. The bucket 29 is provided with a centrally positioned vertical rod 31 which rod has the top end secured pivotally to a lever 32 by a pin 31a, which lever 32 is screwed into the front side of the valve 8 and any movement of the valve 8 is transmitted to the lever, the rod and to the bucket. The bottom of the bucket is perforated at 33 around the rod 31 to allow fuel to enter the bucket through the bottom thereof and a flap valve 34 is carried around the rod, adapted to close the perforation 33 and allow fuel to enter the bucket and allow the bucket to move more freely in the chamber when in the downward movement, but offering more resistance to the upward movement of the bucket, thereby restraining the movement of the valve 8, preventing excessive movement of the valve 8, due to sudden increase or decrease of suction from the engine; the full bucket offers more resistance to the opening movement of the valve 8, but allows it to close instantly when the suction has been taken away or the throttle valve closed. The cover C1 has a hole therethrough large enough to allow for all motions of the rod 31. A plate C2 is carried around the rod 31 above the cover C1 and resting thereon to prevent any foreign material from entering the chamber 28. A link may be used connecting the rod 31 and the lever 32 if desired.

An additional feature of the device is an accelerating pipe 36 which is secured into the casing 4 above the valve 8 and has the lower end passed down through the cover C1 into the chamber 28 and the bottom of the pipe is just above the level of the fuel in the two chambers B and 28 or at such a position as to bring fuel into the tube at the correct moment to prevent flat spots in the acceleration of the motor, and when the throttle is opened suddenly, thereby throwing the valve 8 open, the bucket will raise the fuel therein over the end of the pipe 36 bringing the fuel thereinto and such fuel will be drawn through the pipe into the engine in nearly a raw state giving the necessary extra fuel for quick acceleration, and as the fuel in the bucket is drawn off, the mixture in the chamber A will be thinned out to the proper proportion required.

To provide a choke for the carburetor I attach a collar 40 to a helical spring 41 and the collar is provided with a bore in one end into which the end of the choke wire 42 is placed and secured by the set screw 43. The other end of the spring is passed through a hole 44 in the valve 8 and the end of the spring is straightened out to form a bar 45 with the end 45a turned to prevent the bar from being pulled out of the valve. The choke wire is supported by a collar 46 supported from the bolt 6 by a bracket 57. The bar 45 allows the valve 8 to operate freely under normal conditions when the choke wire is pushed in, but when the choke wire is pulled out the bar engages the end 45a with the inner side of the valve 8 holding the valve normally closed by the spring pressure. When the car is started in this position the valve 8 must open against the tension of the spring and the tension may be varied by pulling the choke wire out more or less as need demands, thus providing an adjustment which does not close off all the air but closes off just the necessary amount for starting the motor and with such an arrangement the motor will continue to run even after warm without the choke flooding the motor and killing it as the valve 8 will be

open sufficient to make the engine run, but the mixture would be richer than desired, so the operator may push the choke rod into the desired position for smoothest running of the motor at the leanest mixture.

The operation of my device is as follows:

To start the motor the choke rod is pulled out and the tension of the spring will close the valve 8 in the opening 7. The motor is then rotated and the suction thus created partially opens the valve 8 commensurately with the spring tension and the suction of the motor. Fuel is drawn through the jet opening of the plug 23 into the chamber 14 and mixed with air entering through the ports 16 and 17 and the mixture is drawn out through the port 12 into the mixing chamber A where it is mixed with the air entering around the valve 8 and thence to the motor.

The suction of air around the port 12 tends to vaporize the fuel more completely as the air is being sucked through the small opening 11 and such suction creates sufficient friction to aid in the vaporization.

The choke lever is then pushed in to the proper position for the best mixture in running the motor depending upon weather conditions. To accelerate the motor the throttle valve is opened which draws more air into the chamber A opening the air valve 8 and as the motor is opened the suction through the port 12 increases and as the acceleration is continued the air which enters the chamber 14 through the port 16 is neutralized and fuel is then drawn out through the port 16 upon further acceleration into the mixing chamber and as further acceleration takes place the air through the port 17 is neutralized and fuel is drawn therefrom into the mixing chamber in a like manner. The fuel thus entering through the ports 16 and 17 is at once mixed with air and the position of the lower end of the valve 8 causes complete breaking up of the fuel into vapors and the air entering over the top open end of the valve is mixed with the vapors to give the proper lean mixture for best running of the motor under high speed. All of the fuel for the motor must be drawn through the jet opening of the plug 23 regardless of the speed of the motor, the amount of acceleration, and the position of the valve 8.

When the motor is being accelerated, and the valve 8 is drawn open by the suction of the motor, more fuel is introduced into the device through the pipe 36 as the bucket 29 will be raised by the valve 8 to introduce fuel into the end of the jet pipe and the fuel thus introduced will cover all heavy fueling required for quick acceleration. As the suction continues the fuel drains from over the end of the pipe 36 and the motor mixture smooths out to a lean mixture, giving the power required.

With each acceleration of the motor the valve 8 is opened and the bucket raised thereby introducing a separate supply of fuel into the device for quicker acceleration than would otherwise be possible.

The air chamber 13 cushions the effect of the fuel being drawn up through the plug 23 into the chamber 14 and aids in the mixing of the fuels in the chamber 14 when the low speed port is being used, and provides a more constant flow of fuel from the chamber 14.

Having thus described my invention I desire to secure by Letters Patent and claim:

1. In a carburetor of the class described the combination of a cylindrical mixing chamber

having the lower end cut diagonally to form an air opening thereinto; a float chamber mounted under said chamber having a cover thereover; a boss on the back side of said chamber forming an air chamber therein; a fuel jet having a head on the lower end thereof, passed through said float chamber in open connection therewith and screwed into said air chamber, securing the mixing chamber, the cover and the float chamber together, with a plug having a jet opening therein in the top end of said fuel jet; ports through the wall of said air chamber into the cylindrical bore of the mixing chamber; an air control valve pivotally mounted in the air opening of said mixing chamber with the bottom end in alignment with the top port shutting out the lower port; a cylindrical bucket chamber adjacent the float chamber in open connection therewith and covered by a portion of said cover; a bucket of smaller diameter than said chamber carried therein; ports through the bottom of said bucket adapted to be closed by a floating plate; a vertical shaft in said bucket; a lever connected with the free end of said shaft and having the other end screwed into said air valve; a spring for choking and normally holding the air valve closed, said spring having the end formed into a bar to allow the air valve to open thereon when the choke is not needed, but to hold the valve normally closed against spring pressure when needed to start the motor under cold conditions; and a choke wire secured to the free end of said spring.

2. In a carburetor the combination of a cylindrical mixing chamber superimposed over a float chamber and a bucket chamber; an air port into said mixing chamber; a valve to control the opening of said port by the suction of the motor; a bucket carried in said bucket chamber having a valve in the bottom thereof to close when the bucket is raised to offer more resistance to the valve when opening, said resistance lessening as the fluid is drained from the bucket; and ports leading from the float chamber into the back

side of said mixing chamber to direct fuel thereinto, the direction and volume of flow of fluids through the lowermost ports being commensurate with the amount of suction and the opening of the said air port.

3. In a carburetor the combination of a mixing chamber having a diagonal opening closed by an ovidal valve pivoted therein; a bucket connected to said valve means by said bucket and fluid therein to control the opening of the valve commensurate with the suction of the motor and the amount of fluid in the bucket; choke means to add tension to the opening of the valve when desired; and ports to direct fuel into the mixing chamber at the lower end of said valve from a source of fuel supply.

4. In a carburetor the combination of a mixing chamber having a diagonal opening therein above the float chamber, said opening being closed by a pivoted air valve; means to control the flow of fuel through the mixing chamber; an air chamber formed on the back side of said mixing chamber; a jet to introduce fuel into said air chamber; a port to direct fuel into the mixing chamber at the lower end of said air valve; and other ports to direct air into said air chamber below said port, when running at low speed, and to draw fuel from said chamber when the speed is increased.

5. In a carburetor the combination of a mixing chamber having an ovidal opening thereinto closed by an air valve; a fluid chamber adjacent the float chamber; a bucket mounted in said fluid chamber; a lever connecting said bucket to said air valve; a fuel jet from said fluid chamber into the mixing chamber above the air valve, with the level of the bottom of the fuel jet just above the level of the fuel in the bucket to provide extra fuel in the mixing chamber when the bucket is raised over the end of the fuel jet by the extra opening of the air valve when accelerating.

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