

Oct. 17, 1933.

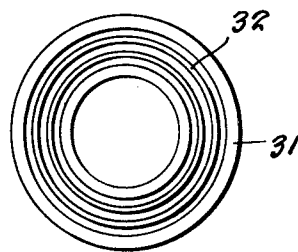
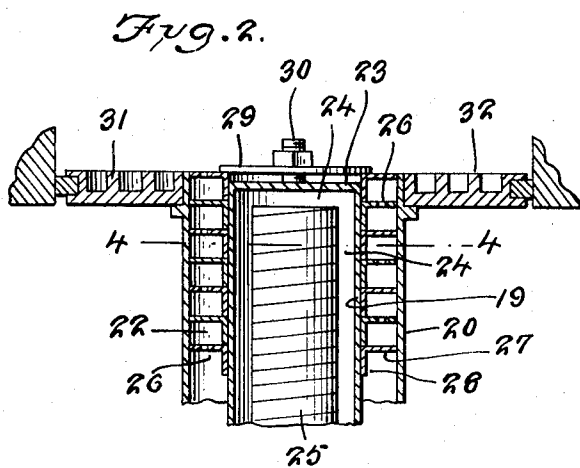
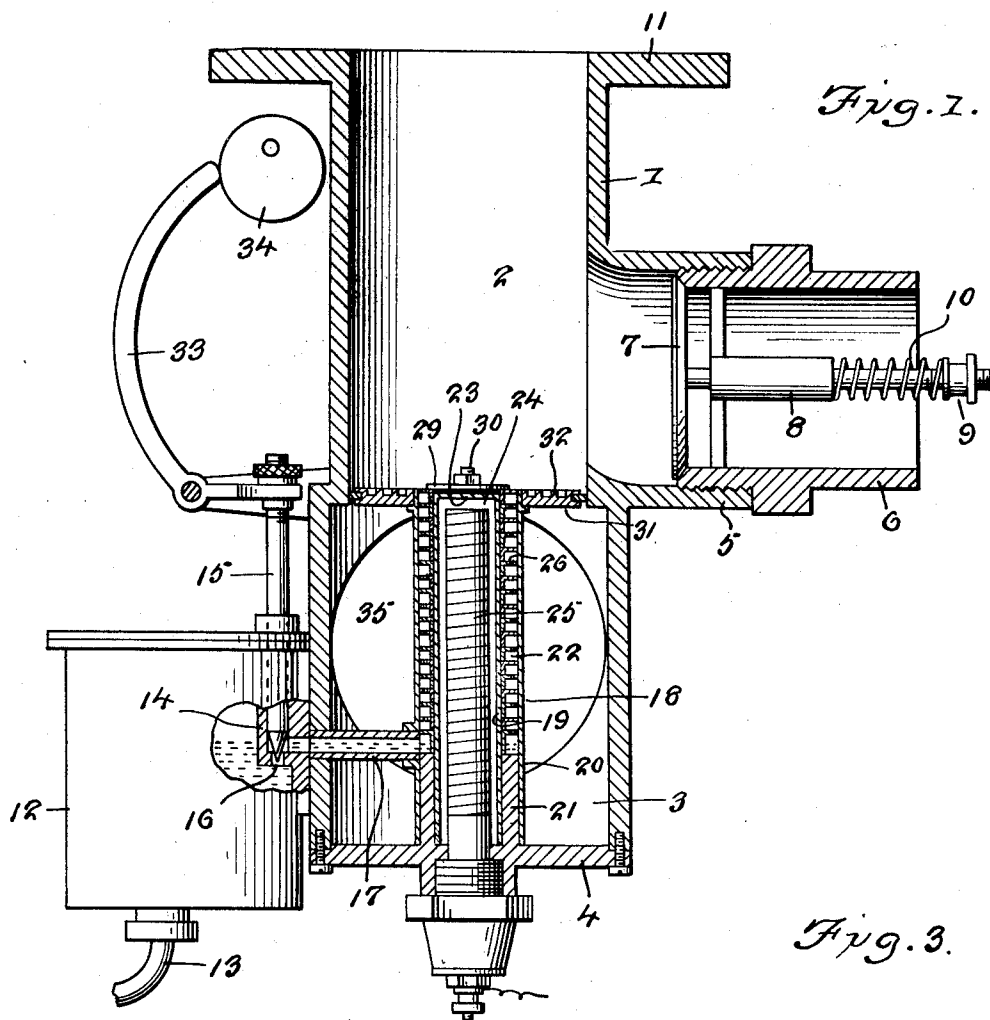
J. GRAZIANO

1,931,379

CARBURETOR

Filed Dec. 22, 1931

2 Sheets-Sheet 1



Joseph Graziano
INVENTOR

BY Victor J. Evans & Co.
ATTORNEY

Oct. 17, 1933.

J. GRAZIANO

1,931,379

CARBURETOR

Filed Dec. 22, 1931

2 Sheets-Sheet 2

Fig. 4.

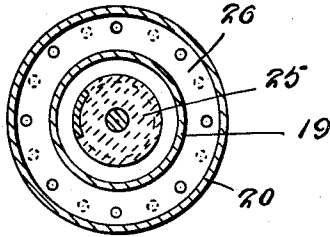


Fig. 5.

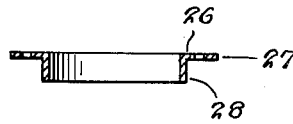


Fig. 6.

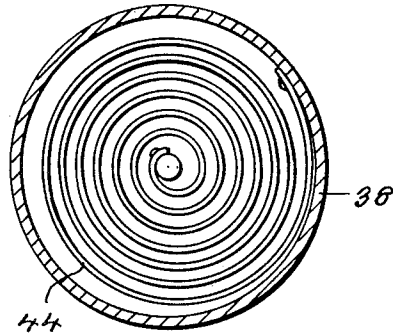
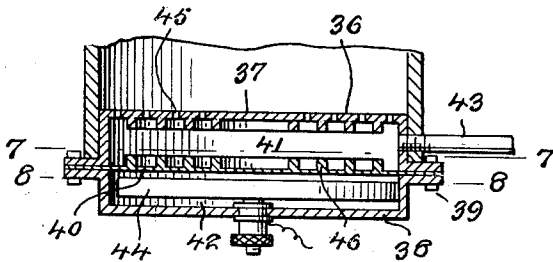


Fig. 7.

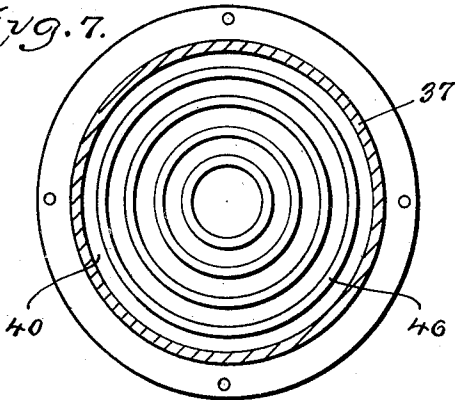


Fig. 9.

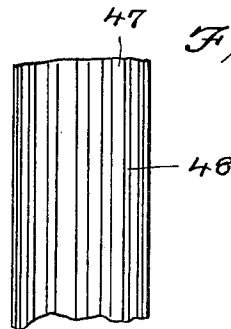
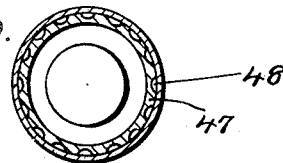


Fig. 10.



Joseph Graziano
INVENTOR

BY Victor J. Evans & Co.
ATTORNEY

UNITED STATES PATENT OFFICE

1,931,379

CARBURETOR

Joseph Graziano, Hazelton, Pa.

Application December 22, 1931

Serial No. 582,628

2 Claims. (Cl. 219—38)

This invention relates to carburetors especially adapted for crude fuel and has for the primary object, the provision of means for heating and breaking the fuel into vapor which when mixed with air will produce a combustible mixture for use in an engine.

Another object of this invention is the provision of a novel construction of heater which is so located that the air received in the carburetor will not come in direct contact therewith and obviate the possibility of cooling or chilling the heater.

With these and other objects in view, this invention consists in certain novel features of construction, combination and arrangement of parts to be hereinafter more fully described and claimed.

For a complete understanding of my invention, reference is to be had to the following description and accompanying drawings, in which

Figure 1 is a vertical sectional view illustrating a carburetor constructed in accordance with my invention.

Figure 2 is an enlarged fragmentary vertical sectional view illustrating baffles associated with the heater.

Figure 3 is a plan view illustrating a closure and collecting disk associated with the heater.

Figure 4 is a sectional view taken on the line 4—4 of Figure 2.

Figure 5 is a detail sectional view illustrating one of the baffles.

Figure 6 is a fragmentary sectional view illustrating a modified form of heater.

Figure 7 is a sectional view taken on the line 7—7 of Figure 6.

Figure 8 is a similar view taken on the line 8—8 of Figure 6 showing a modified form of heating coil.

Figure 9 is a fragmentary side elevation illustrating a modified form of baffle.

Figure 10 is a sectional view illustrating the form of baffle shown in Figure 9 associated with the heater.

Referring in detail to the drawings, the numeral 1 indicates in entirety a carburetor especially adapted for vaporizing crude fuel and includes a mixing chamber 2 and a heat chamber 3, the lower end of which is closed by a removable cover 4. The chambers 2 and 3 are of integral construction with the chamber 2 disposed above the heat chamber and provided with a laterally extending air intake neck 5 having communication with the mixing chamber at a point above the heat chamber 3. The neck 5 is

internally screw threaded to receive a valve cage 6 provided with a self seating valve 7, the stem of which is slidably mounted in a guide 8 carried by the cage. An adjusting nut 9 is threaded to the stem and has one end of the coiled spring 10 bearing thereagainst while the opposite end of the spring presses against the guide for normally urging the valve 7 into a seated position. The upper end of the chamber 2 is flanged as shown at 11 for attachment to the usual intake manifold of an engine.

A float control fuel chamber 12 is carried by the heating chamber 3 and is provided with the usual supply pipe 13. A needle valve guide 14 is mounted in the fuel chamber 12 and receives a slidable needle valve 15 for controlling a fuel port 16 which is in communication with a fuel tube 17 located in the heat chamber 3. The tube 17 is connected to a combined heater and vaporizer 18 mounted vertically within the heat chamber 3 and includes an inner shell 19 and an outer shell 20. The shells 19 and 20 are mounted on an annular flange 21 formed integrally with the cover 4. The shells when mounted cooperate with each other in forming a fuel receiving space 22 adapted to receive fuel by way of the tube 17 from the chamber 12. The upper end of the shell 19 is closed by a wall 23 cooperating with the inner shell and the cover 4 and providing a chamber 24 to receive an electrical heating element 25 carried by the cover 4. The heating element 24 is adapted to be connected to an electrical source by a suitable circuit having a control switch.

A plurality of superimposed baffles 26 are mounted on the inner shell 19 and have contact with the outer shell 20 forming between the shells a series of communicative compartments, the baffles being apertured or perforated to provide the communication between the compartments. Each baffle consists of a perforated disk 27 provided with a centrally arranged opening to receive the inner shell and provided with an annular flange 28 for spacing the baffle from the adjacent baffle. The lowermost baffle rests upon the flange 21 and the uppermost baffle is engaged by a retaining disk 29 removably mounted on a stud 30 carried by the end wall 23 of the inner shell 19 thereby providing means which will permit the baffles to be easily assembled or disassembled within the shells.

A plate 31 is mounted on the upper end of the outer shell 20 and contacts with the walls of the mixing chamber 2 for the purpose of closing said chamber from the heat chamber 3 and the plate is provided on its upper face with a series of an-

nular ribs 32 forming therebetween a plurality of annular grooves adapted to connect therein any fuel within the mixing chamber which may not have become vaporized before leaving the vaporizing chamber 22 of the heater.

The needle valve 15 is adapted to be moved towards and from its seat for controlling fuel through the port 16 by the pivotal movement of an arm 33. The arm 33 being actuated by a cam 34 and the latter is associated with the usual throttle or control of the carburetor so that as the throttle is opened and closed, the needle valve will be accordingly operated.

The heat chamber 3 or opposite walls thereof is provided with an opening 35 adapted for connection with an exhaust pipe so that the exhaust from an engine may be passed through the chamber 3 for heating the fuel allowing the use of the electric heater to be discontinued after the engine is in operation.

In operation, fuel passes into the combined heater and vaporizer when the needle valve 15 is opened and is highly heated by the electric heater 25 changing the fuel into a vapor which passes upwardly through the various compartments becoming thoroughly cracked or broken and enters the mixing chamber 2. The rise of the vapor is aided by the suction of the engine within the mixing chamber. The suction of the engine in the mixing chamber creates therein a partial vacuum unseating the valve 7 permitting air which mixes with the vapor or vaporized fuel and passes into the engine in a highly combustible condition. The air admitted to the mixing chamber 2 can be varied by adjusting the nut 9 on the stem of the valve to increase and decrease the tension of the spring 10. After the engine is running the exhaust thereof passes through the heating chamber 3 to heat the shells and fuel contained therein and the electrical heater 25 will then be rendered inoperative by opening the switch of the circuit between the electrical heater and the source. Should any raw or unvaporized fuel enter the mixing chamber 2 it will be caught within the grooves of the plate 31 and as the latter receives heat from the shells it will vaporize such fuel.

It is to be noted that the combined vaporizer and heater is so located within the carburetor that the air entering the mixing chamber will not come in direct contact with the heater thereby obviating the chilling of the heater by the incoming air.

Referring to my modified form of invention as shown in Figures 6 to 8, the heater and vaporizer 36 is constructed from separable sections 37 and

38 detachably secured together by fasteners 39. A plate 40 is supported within the sections 37 and 38 to form a fuel chamber 41 and a heat chamber 42, fuel being admitted to the fuel chamber 41 by the tube 43 and an electrical heating coil 44 of spiral formation is mounted in the chamber 42 to thoroughly heat the sections and the plate 40. The section 37 is provided with a series of perforations 45 to allow the vaporized fuel in the fuel chamber 41 to escape therefrom into the carburetor. Series of annular ribs 46 are formed on the plate 40 and the top wall of the section 37 and cooperate with each other in forming baffles for aiding in breaking up the fuel in the fuel chamber 41 during the vaporization thereof.

Referring to my modified form of invention as shown in Figures 9 and 10 a core 47 is provided with a plurality of vertically arranged grooves 48 and the core is adapted to be positioned between the inner and outer shells 19 and 20 so that as the fuel is vaporized between the shells it passes upwardly through the grooves of the core which aids in cracking or breaking up of the fuel.

While I have shown and described the preferred embodiment of my invention, it will be understood that minor changes in construction, combination and arrangement of parts may be made without departing from the spirit and scope of my invention, as claimed.

Having thus described my invention, what I claim is:

1. A heater for carburetors comprising detachable sections connected to a carburetor and one section having perforations in communication with the carburetor, a plate secured between said sections and forming therebetween fuel and heat chambers, means for admitting fuel to the fuel chamber, an electrical heater in the heat chamber, and a plurality of ribs formed on one of the sections and the plate and located within the fuel chamber to form baffles.

2. A heater for carburetors comprising detachable sections connected to a carburetor and one section having perforations in communication with the carburetor, a plate secured between said sections and forming fuel and heat chambers, means for admitting fuel to the fuel chamber, an electrical heater in the heat chamber, and a plurality of annular ribs formed on one of the sections and the plate and located within the fuel chamber to form baffles, said ribs of the sections located between the perforations.

JOSEPH GRAZIANO.