Aug. 30, 1932. C. E. WILLIAMS 1,874,401

CHARGE FORMING DEVICE

Filed Jan. 20, 1923 2 Sheets-Sheet 1

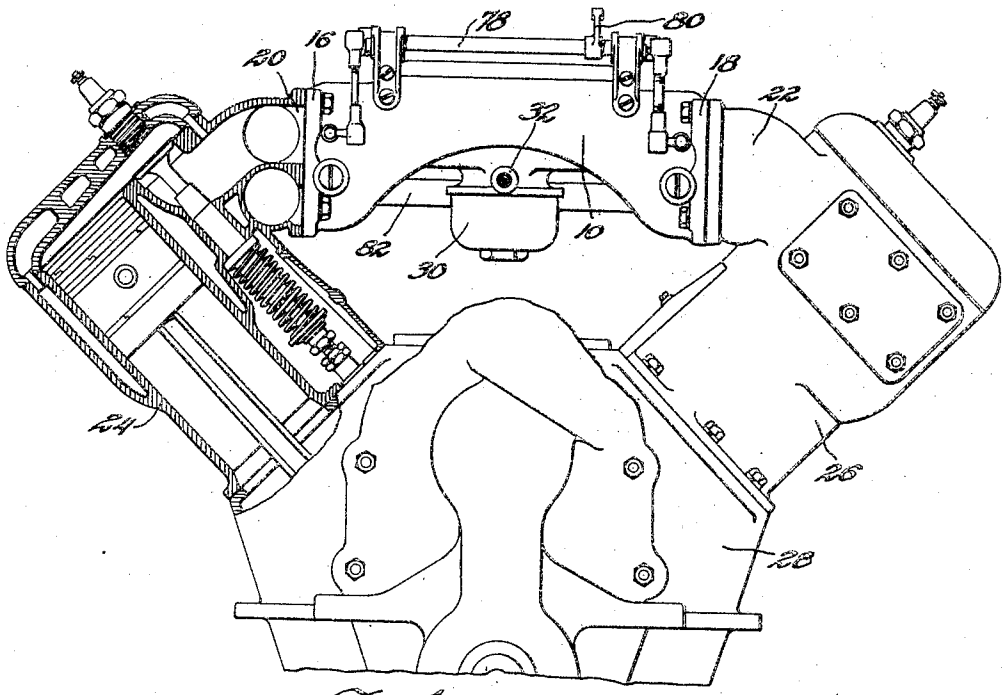


Fig. 1

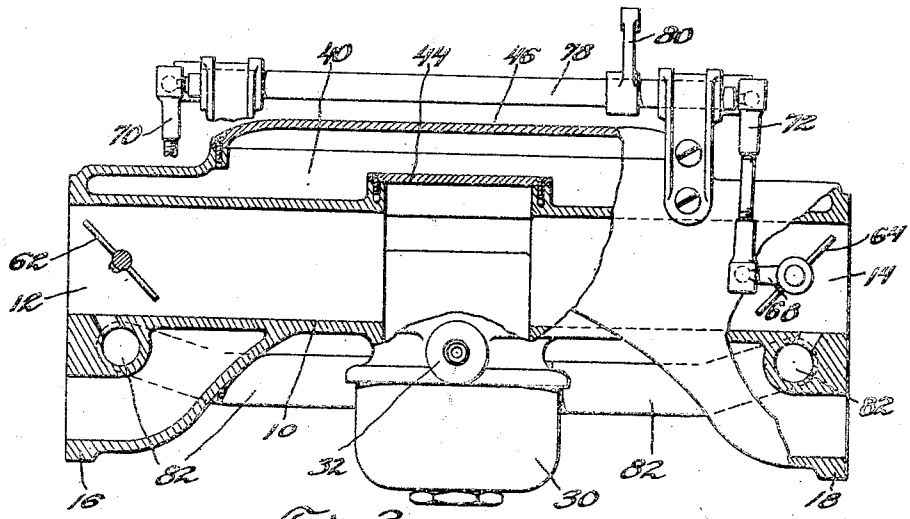


Fig. 2

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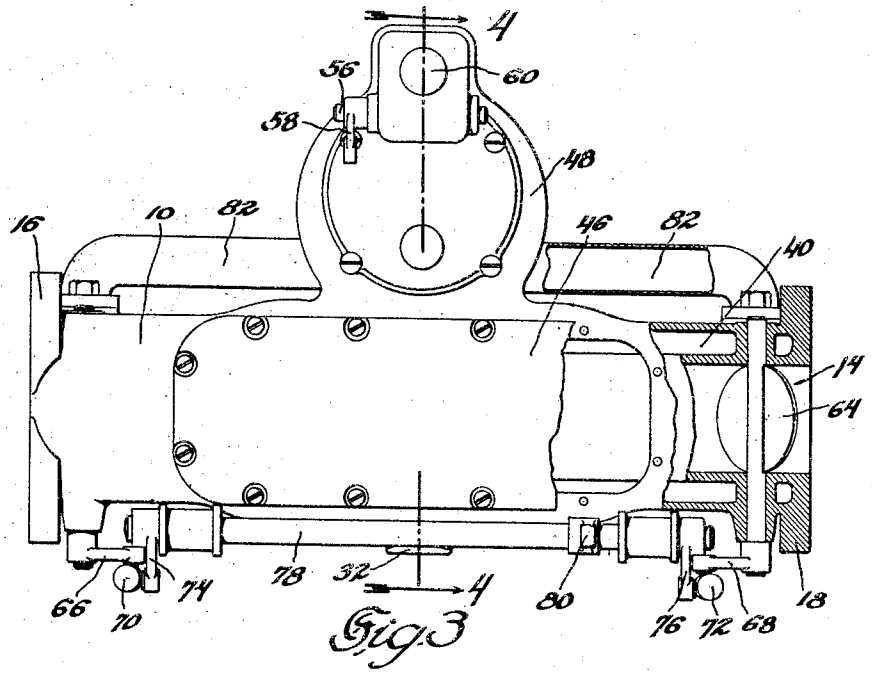


Fig. 3

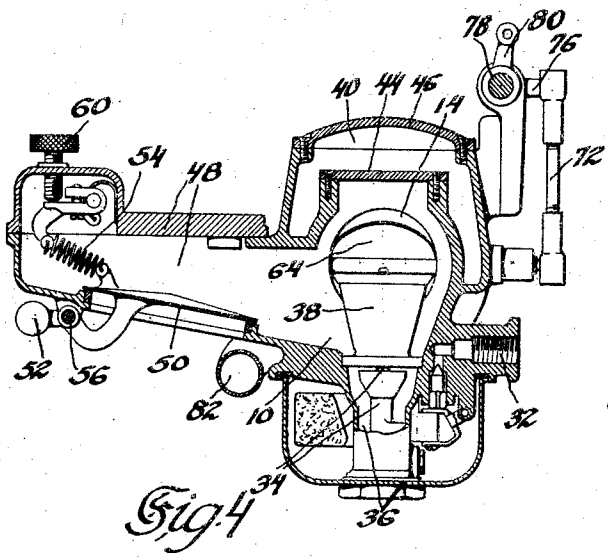


Fig. 4

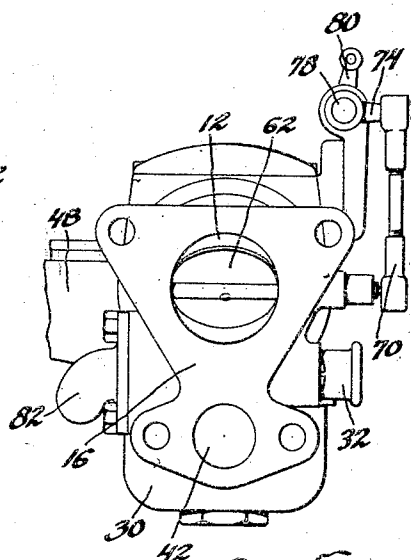


Fig. 5

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UNITED STATES PATENT OFFICE

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CHARGE FORMING DEVICE

Application filed January 20, 1923. Serial No. 613,956.

This invention relates to charge forming devices, and is illustrated as embodied in such a device for a V-type automobile engine.

An object of the invention is to reduce the area of the surfaces engaged by the charge after it is formed, by forming the charge directly in a chamber having outlets at opposite ends arranged, when used with a V-type motor, to supply charges alternately (or simultaneously) directly to the passages in the opposed cylinder blocks. This reduces variation in the charge, due to the walls taking up and giving off particles of fuel. In the illustrated embodiment of the invention, a float chamber and a fuel nozzle and a primary air inlet are arranged centrally of the bottom of the chamber, and an auxiliary air inlet is arranged in an extension centrally of the side of the chamber.

According to another feature of the invention, and having in view the same purpose of reducing variations in the charge, a throttle valve is arranged in each of the above described outlets, operating mechanism connecting the valves being arranged to open and close them simultaneously under the control of the driver. By this arrangement in the illustrated type of engine the charge is not subject to the full suction from the engine until it enters the passages in the cylinder blocks.

Other features of the invention, including an improved arrangement of the device with a bypass connecting the outlets around the throttle valves to correct for any differences in the settings of the valves, and other novel combinations and particular constructions, will be apparent from the following description of the illustrative embodiment of the invention shown in the accompanying drawings, in which:

Fig. 1 is a view, partly in front elevation and partly in section, showing an improved charge forming device mounted between the opposed cylinder blocks of a V-type engine;

Fig. 2 is a view, partly in front elevation and partly in section, of the device;

Fig. 3 shows the device partly in top plan view and partly broken away;

Fig. 4 is a sectional view on the line 4—4 of Fig. 3, and,

Fig. 5 is an end elevation of the device.

In the illustrated form the device comprises an elongated mixing chamber 10, having outlets 12 and 14 at opposite ends arranged in flanges 16 and 18 bolted to intake passages 20 and 22 of opposed cylinder blocks 24 and 26 secured to crankcase 28. A float chamber 30, receiving fuel from a passage 32, together with a fuel inlet nozzle 34 and a primary air inlet passage or nozzle 36, are arranged centrally of the bottom of the mixing chamber, the nozzles being arranged just below a strangle tube 38. The chamber is jacketed, so that a space 40 for water or other heating fluid is provided, this space opening through flanges 16 and 18 as shown at 42 in Fig. 5, to communicate with passages in the cylinder blocks. To facilitate assembling strangle tube 38 in place, cover plates 44 and 46 are provided.

As above explained an extension 48 is arranged centrally of the side of the device to provide a seat for an auxiliary air inlet valve 50, shown as having a counterweight 52 and as being held yieldingly in place by a spring 54. This valve is pivotally mounted at 56, and is controlled, when starting, by a lever 58 (Fig. 3). The compression of spring 54 may be adjusted by a screw 60.

The throttle valves are shown as butterfly valves indicated at 62 and 64, mounted in outlets 12 and 14 respectively and are swung simultaneously in opposite directions by levers 66 and 68 connected by links 70 and 72 to levers 74 and 76 mounted on a rockshaft 78 operated by a vertical arm 80. In order to guard against variations due to the possibility that the valves may not be set exactly alike, a bypass 82 connects outlets 12 and 14 outside of the valves.

It will be apparent that the charge passing directly from the mixing chamber to the passages in the cylinder blocks, has a minimum variation due to deposition on and evaporation from the walls it passes, and that placing the throttle valves directly in the opposite outlets maintains a comparatively constant condition in the mixing chamber.

These considerations are of especial importance in eliminating any tendency of the engine to backfire or to choke, due to variations in the mixture caused by deposition on or evaporation from the walls of particles of fuel.

While one embodiment of the invention has been illustrated and described, it is not my intention to limit its scope thereby, or otherwise than by the terms of the appended claim.

I claim:

A carburetor having an approximately horizontal passage constituting a mixing chamber and adapted to deliver fuel mixture from its ends to respective cylinder blocks of an internal combustion engine, a fuel reservoir positioned to deliver fuel to said mixing chamber, means for supplying fuel from said reservoir and air to said chamber approximately midway thereof, a single fuel jet supply means discharging into said chamber and supplying fuel to both said blocks, two throttle valves positioned one at each end of said chamber, means for actuating said valves simultaneously and an equalizing passage connecting the ends of said chamber outside the throttle valves.

In testimony whereof I affix my signature.

CHARLES E. WILLIAMS.