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2,996,290

GASOLINE SAVER FOR INTERNAL COMBUSTION ENGINES

Filed March 23, 1959

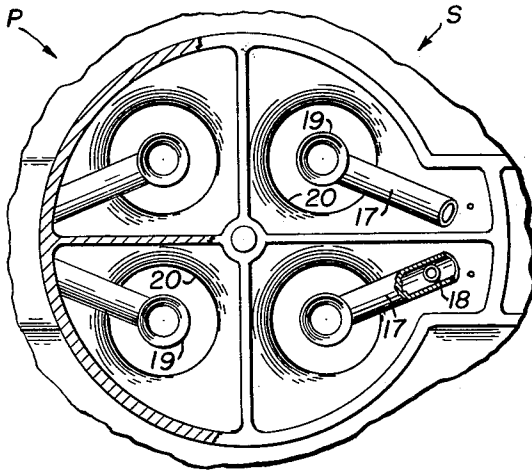


FIG. 1.

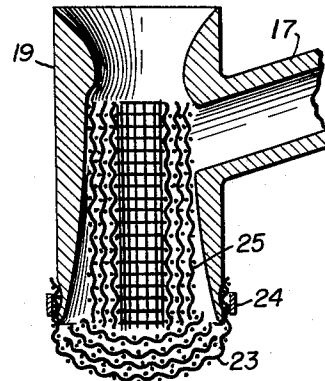


FIG. 3.

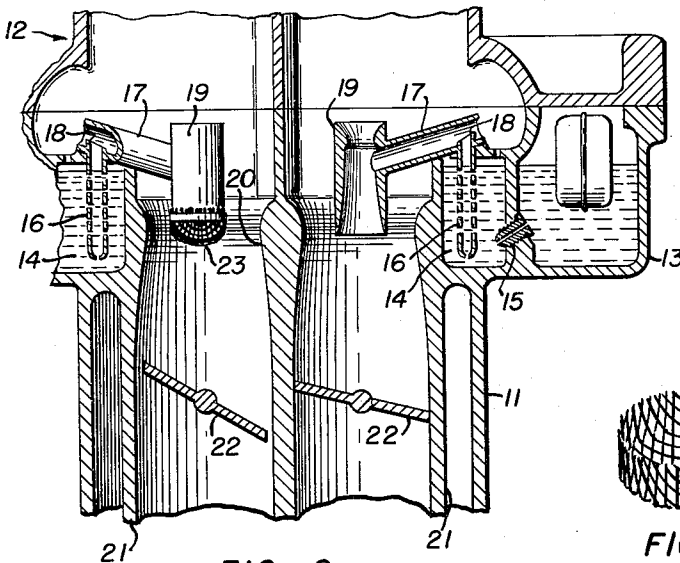


FIG. 2.

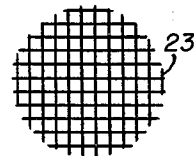


FIG. 4.

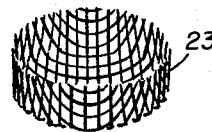


FIG. 5.

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2,996,290 GASOLINE SAVER FOR INTERNAL COMBUSTION ENGINES

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This invention relates to carburetors and has reference to a construction for atomizing liquid hydrocarbon fuels.

Although the invention is adaptable for use in various types of carburetors, it is particularly useful in four-barrel down-draft carburetors such as used in modern V-8 engines where pairs of high and low speed carburetor barrels are employed. The consumption of gasoline at high speeds is necessarily rapid and its passage through conventional carburetors is so fast that the globules of gasoline are not sufficiently divided to permit complete combustion when they reach the firing chamber of the engine.

The primary object of the invention is to increase efficiency in internal combustion engines.

A particular object of the invention is to save on the consumption of gasoline or other liquid hydrocarbon fuels.

Another object is to prevent liquid fuel from entering the crankcase and diluting the crankcase oil.

A further object of the invention is to provide means whereby less expensive (lower octane) gasoline may be used in modern high compression engines.

These and other objects will become apparent from the following description and the accompanying drawings, wherein:

FIGURE 1 is a broken plan and sectional view of a four-barrel down-draft carburetor which is particularly adaptable for use in combination with the improvements which comprise the invention.

FIGURE 2 is a vertical broken sectional view of the carburetor illustrated in FIGURE 1.

FIGURE 3 is an enlarged vertical sectional view of a secondary venturi and illustrating examples of the invention in connection therewith.

FIGURE 4 is a plan view of a preferred form of the invention, and

FIGURE 5 is a perspective view of FIGURE 4 showing the arcuate shape thereof.

The carburetor illustrated in FIGURES 1 and 2 is exemplary and is representative of any multiple-barrel downdraft carburetor wherein there are secondary venturies on which the improvements comprising the present invention are mounted. The carburetor shown includes an outer housing 11, an air horn assembly 12 mounted thereon, separate bowls 13 on opposite sides of the outer housing, main wells 14 inwardly of the bowls and connected therewith by metering jets 15. Perforated main well tubes 16 extend upwardly above the main wells 14 into lateral and inwardly depending mixture passage tubes 17, the outer ends of which are open and communicate with the interior of the air horn assembly 12. It is to be noted that the upper ends of the main well tubes 16 are beveled, as at 18, and that the high sides thereof are adjacent the open ends of the passage tubes 17. The inner ends of the passage tubes 17 support tubular secondary venturi 19 which are axially aligned with and extend into, but are spaced from, primary vertical venturies 20 of the barrels 21.

The carburetor shown is divided into primary and secondary systems P and S, for example, in FIGURES 1 and 2, the pairs of secondary venturies 19 and primary venturies 20 operate in unison, and the throttle valves 22 of this system P open first, as when the engine is turning at a low speed. At high speed both pairs of throttle valves 22 are open.

One form of the invention is directed to multiple layers

of concave disks 23 of screen wire over and depending from the discharge end of each secondary venturi 19 where the outer disk is of larger diameter and the periphery of which is held in place by a ring clamp 24. The number of disks 23 required may vary depending on the mesh of the screen.

In the form of the invention shown only in FIGURE 3, cylindrical layers 25 of screen wire are inserted in the secondary venturies 19 a distance so as to be positioned over the discharge ends of the mixture passage tubes 19. As shown in the drawing, the cylindrical layers 25 may be employed in conjunction with the disks 23, but it is pointed out that the two forms of the invention may be used independently of each other.

In operation, all four secondary venturies 19 may include the disk screens 25, or any desired combination thereof. It has been found that the invention is more effective on the primary system P than the secondary system S, and that the cupped disks 23 are more effective than the cylindrical screens 25.

The invention is not limited to the exemplary constructions herein shown and described, but may be varied within the scope of the appended claims.

What is claimed is:

1. In a down draft carburetor including a tubular secondary venturi axially aligned in but spaced from a vertically disposed primary venturi in a carburetor barrel, said secondary venturi being open at its upper and lower ends and connected therebetween with the inner end of a lateral mixture passage tube for supplying aerated hydrocarbon fuel to said secondary venturi and said carburetor valve, means atomizing the said fuel mixture received in said secondary venturi, said means comprising multiple layers of depending cup shaped disks of screen wire received one within another, and clamp means around the upper portion of the outer said cup shaped disk securing the same on the lower end of said secondary venturi.

2. In a downdraft carburetor including a tubular secondary venturi axially aligned in but spaced from a vertically disposed primary venturi in a carburetor barrel, said secondary venturi being open at its upper and lower ends and connected therebetween with the inner end of a lateral mixture passage tube for supplying aerated hydrocarbon fuel to said secondary venturi and said carburetor valve, means atomizing the said fuel mixture received in said secondary venturi, said means comprising multiple cylindrical layers of screen wire within the inner wall of said secondary venturi and at least partly over the discharge end of said mixture passage tube.

3. In a down draft carburetor including a tubular secondary venturi axially aligned in but spaced from a vertically disposed primary venturi in a carburetor barrel, said secondary venturi being open at its upper and lower ends and connected therebetween with the inner end of a lateral mixture passage tube for supplying aerated hydrocarbon fuel to said secondary venturi and said carburetor valve, means atomizing the said fuel mixture received in said secondary venturi, said means comprising multiple layers of concave disks of screen wire secured over and depending from the lower end of said secondary venturi and multiple cylindrical layers of screen wire within the inner wall of said secondary venturi and at least partly over the discharge end of said mixture passage tube.

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