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CARBURETOR VALVE ASSEMBLY

Filed Aug. 15, 1960

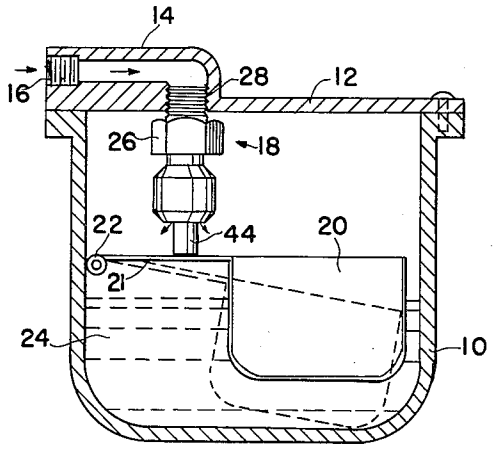

FIG. 1

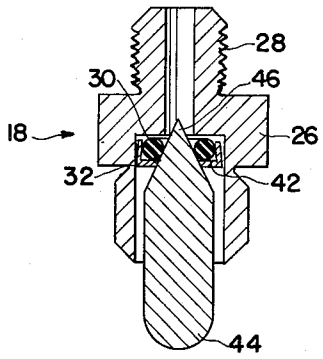

FIG. 2

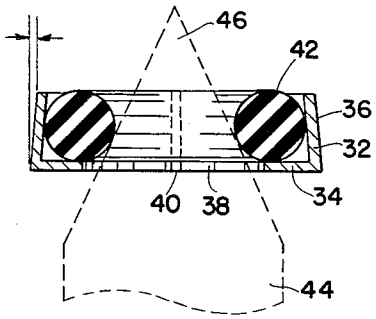

FIG. 3

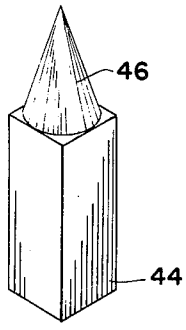

FIG. 4

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CARBURETOR VALVE ASSEMBLY

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This invention relates to carburetors, and in a more specific aspect to means for positively controlling fuel intake into the carburetor bowl to prevent flooding and increase the efficient use of the fuel.

Heretofore various types of carburetor constructions have been known to the prior art. These constructions include valve means controlling the fuel intake into the carburetor in relation to the amount of fuel in the carburetor bowl. The prior art devices have not proved effective in operation in positively sealing the fuel inlet when the fuel in the carburetor bowl is at the desired fuel level, resulting in flooding and excessive use of fuel.

In accordance with the present invention an improved carburetor construction has been provided which overcomes the deficiencies of the prior art. The carburetor includes valve means in the fuel inlet which function with the fuel level in the bowl so as to open or positively close the inlet into the carburetor, thereby preventing excessive use of fuel and overcoming flooding problems existing in the prior art devices.

The preferred carburetor construction includes a carburetor bowl having a fuel inlet and outlet. A valve is mounted in the fuel inlet to positively control the amount of fuel received within the carburetor bowl. The preferred valve construction includes an O-ring positioned within the hollow of the valve body which is engaged by the valve operator to positively close the valve and control the amount of fuel received within the carburetor bowl. The valve operator is preferably operated by the carburetor float in response to the fuel lever in the carburetor bowl.

Accordingly, it is an object of this invention to provide a new carburetor construction.

Another object of the invention is to provide a new carburetor construction incorporating valve means therein to positively control the fuel intake and prevent flooding and excessive use of fuel.

A still further object of the invention is to provide a new carburetor construction having an improved valve means mounted in the fuel intake to the carburetor bowl.

Another object of the invention is to provide a new carburetor valve.

A still further object of the invention is to provide a new carburetor valve having sealing means therein engageable by the valve operator to positively control the flow of fuel into the carburetor bowl.

Another object is to provide an improved carburetor valve which is inexpensive to construct and easy to assemble.

Various other objects, advantages and features of the invention will become apparent from the following description taken in connection with the accompanying drawings, in which:

FIG. 1 is a cross section view showing the preferred construction of the carburetor of the invention with the new valve means mounted in the fuel inlet.

FIG. 2 is an enlarged cross section view through the improved valve means.

FIG. 3 is an enlarged cross section view showing the O-ring retainer with the O-ring mounted therein.

FIG. 4 is an enlarged iso-metric view of the valve operator used in the carburetor valve of the invention.

The following is a discussion and description of a preferred specific embodiment of the new carburetor and carburetor valve of the invention, such being made with reference to the drawings whereon the same reference numerals are used to indicate the same or similar parts and/or structure. It is to be understood that such discussion and description is not to unduly limit the scope of the invention.

Referring now to the drawings in detail, FIG. 1 shows a carburetor bowl 10 having a top 12. Top 12 has a fuel inlet 14 and the fuel line to the carburetor can be secured to the threaded end 16 of the fuel inlet 14. A carburetor valve, shown generally at 18, is mounted in fuel inlet 14 to control the amount of fuel received within the carburetor bowl 10. Suitable fuel outlets (not shown) convey the fuel in the carburetor bowl 10 to a gasoline engine or the like.

A float 20 is pivotally mounted at 22 to the side of the carburetor bowl 10 in any suitable manner and is raised and lowered as the fuel 24 fills the carburetor bowl 10. The arm 21 on the carburetor bowl serves to open and close the valve 18 in the manner hereinafter explained.

The valve 18 includes a valve body 26 which is reduced in diameter and threaded at one end portion as shown at 28. The threaded end 28 is threadedly mounted in the fuel inlet 14 on top 12 and projects inwardly into the carburetor bowl. The valve body 26 is hollow and preferably has a shoulder 30 formed therein.

Suitable sealing means are preferably received within the hollow of the valve body 26. A preferred manner of providing the sealing means is shown in FIGS. 2 and 3 and includes a generally annular O-ring retainer 32 which has a bottom 34 and a side 36. The retainer 32 has an opening 38 through the center thereof and is preferably split as shown at 40 from the center opening 38 across the bottom 34 and up the side 36. The provision of the split 40 permits the retainer 32 to be compressed when mounted.

The side 36 of the retainer 32 is preferably tapered inwardly from the bottom 34 as illustrated in FIG. 3. Preferably the side 36 is tapered at approximately a 3 degree angle, the tapering being provided so that when the retainer is received within the hollow of the valve body 26 as shown in FIG. 2 the edge between the side 36 and the bottom 34 will bite into the hollow of the valve body to secure the retainer therein. Other means can be used to retain the sealing member within the valve body 26, such as by providing snap rings or the like to contact the valve body, however the retainer shown and described has been found to be very satisfactory and inexpensive to construct.

An O-ring 42 formed of a suitable resilient material is provided and is received within the O-ring retainer 32. The O-ring 42 is desirably dimensioned relative to the retainer 32 so as to project slightly above the side 36 and into the hollow or opening 38. When in position in the valve body 26, the O-ring 42 will thus engage the shoulder 30 formed therein and be in sealing contact therewith. The O-ring 42 can be formed of various types of plastics, rubber materials, synthetic rubbers and the

like. O-rings sold under the trademark Biton by the Parker O-ring Company of Cincinnati, Ohio, have been found desirable in this application. The O-ring used should be one which will remain flexible over a wide range of temperatures and will not be attacked by the fuel being used.

An elongated valve operator **44** is provided. Operator **44** can be rectangular in cross section in the body portion thereof and preferably has a tapered conical end portion **46** as shown in FIG. 4. The valve operator **44** is dimensioned relative to the hollow opening in the valve body **26** so as to be received therein and to provide space for the passage of fluid or fuel therethrough. The conical end portion **46** of valve operator **44** is receivable in the opening **38** of the O-ring retainer **32** and will engage the O-ring **42**, urging it into sealing engagement with the shoulder **30** in the valve body **26**. The operator **44** is urged into engagement with the O-ring by the arm **21** of the float **20** when the fuel **24** is at the full level in the carburetor bowl **10**. As fuel is withdrawn from the carburetor bowl **10**, the float **20** will be lowered with the fuel level and the arm **21** will be released from engagement with the valve operator **44**. The tapered end portion **46** of the valve operator will thus be released from sealing engagement with the O-ring **42**, thereby permitting entrance of fuel into the carburetor bowl through the fuel inlet **14** and the valve **18** as shown by the arrows in FIG. 1. When the carburetor bowl **10** is again filled to the full level with fuel, the arm **21** will engage and urge the valve operator **44** into the valve body **26** and into sealing engagement with the O-ring **32** to positively and effectively seal the fuel inlet. This positive control of fuel intake eliminates flooding and excessive use of fuel in the carburetor.

The carburetor and valve means shown and described hereinbefore is extremely simple to manufacture and install. The valve means consists of a minimum number of parts, requiring no special fitting or machining. The valve means can be installed in present day carburetors merely by removing the standard valve and threadily mounting the valve body **26** in the fuel inlet. The positive opening and closing of the fuel intake into the carburetor bowl results in substantial savings in the fuel consumed and eliminates flooding experienced with the prior art devices. The carburetor valve, with the exception of the O-ring, is preferably made of brass to avoid rusting.

While the invention has been described in connection with a preferred specific embodiment thereof, it will be evident that this description is intended to illustrate and not limit the scope of the invention, which is defined by the claims.

I claim:

1. An elongated valve body having an exteriorly threaded inlet end portion, said valve body being internally bored and having an enlarged portion therein forming a shoulder therein, a circular and relatively thin ring of deformable gasoline fuel resistant material received within said valve body and in engagement with said shoulder therein, a separate annular retainer within said valve body and positioned to engage said ring to urge same into sealing engagement with said shoulder, the inside diameter of said retainer being larger in diameter than the opening through the center of said ring of deformable material, said retainer having the radially outer surface thereof tapered from one end portion thereof to the other end portion thereof and in biting engagement with said valve body, an elongated valve operator having flat sides and a tapered conical end portion, said tapered end portion of said valve operator being positioned within said bore of said valve body and engageable with said ring of deformable material to urge same against said shoulder and seal said bore with the other end portion of said valve operator projecting from said body, said valve operator being free floating and moveable to close said valve bore, said ring being of size, shape and resiliency to prevent contact between said tapered end portion of said valve operator and said shoulder when said valve operator is in its closed position, fuel passing from said inlet end of said valve body through said bore and along said sides of said valve operator when said valve operator is in an opened position.

2. A valve body having exterior mounting means on one end portion, said valve body having a bore therethrough and a shoulder formed in said bore in said valve body intermediate the ends thereof, a circular and relatively thin annular deformable member of a hydrocarbon type fuel resistant material positioned within said bore of said valve body and engaging said shoulder therein, a separate retainer member within said bore engaging said deformable member and of size and shape on the outer surface thereof to fixedly engage said bore and hold said retainer therein, said retainer having a central opening therethrough coaxial with the opening in said deformable member and larger in size than said opening in said deformable member, a valve operator having flat sides and a tapered end portion, said tapered end portion of said valve operator being positioned in said valve body and engageable with said deformable member therein to close said bore with the other end portion of said valve operator projecting from said valve body, said valve operator being free floating and moveable to close said valve bore, said deformable member being of size, shape and resiliency to prevent contact between said tapered end portion of said valve operator and said shoulder when said valve operator is in its closed position, fuel passing from said one end portion of said valve body through said bore and along said sides of said valve operator when said valve operator is in an opened position.

3. A valve body having a threaded end portion, said valve body being hollow throughout its length with one end portion thereof being enlarged to form a shoulder therein, a circular and relatively thin ring of deformable gasoline fuel resistant material positioned in said valve body and in engagement with said shoulder therearound, a separate ring-shaped retainer having the radial outer surface tapered from one end thereof to the other end thereof, said retainer having an opening therethrough larger than the opening in said ring and mounted in said enlarged end portion of said hollow of said valve body in contact with said ring and with said radially outer surface in biting engagement with the wall of said valve body, and an elongated non-compressible valve operator having flat sides and a tapered conical end portion with said tapered end portion being positioned in said enlarged end portion of said valve body and with the other end portion thereof projecting therefrom, said tapered end portion of said valve operator being engageable with said ring of deformable material in valve closing position, said valve operator being free floating and moveable to close said valve, said ring being of size, shape and resiliency to prevent contact between said tapered end portion of said valve operator and said shoulder when said valve operator is in its closed position, fuel passing from said threaded end portion of said valve body through the hollow thereof and along said sides of said valve operator when said valve operator is in an open position.

4. A valve body having means therewith to mount same, said valve body having a bore therethrough and a shoulder formed within said bore, a circular and relatively thin deformable member of hydrocarbon fuel resistant material positioned in said bore and in contact with said shoulder, said deformable member having an opening therein to permit passage of fuel therethrough, a separate substantially ring-shaped retainer member positioned within said bore in contact with and holding said deformable member in position in contact with said shoulder, said retainer member having spaced portions therearound each contacting said deformable member therearound with said deformable member out of contact with said retainer member between said spaced portions thereof, being

shaped and of size to in position snugly engage the walls of said bore and resist movement relative thereto and having an opening therein larger than said opening in said deformable member, and a valve operator having a tapered end portion positioned within said bore and engageable with said deformable member therein to close said bore, the other end portion of said valve operator extending from said valve body, said valve operator being free floating and movable to close said bore, said deformable member being of size, shape and resiliency to prevent contact between said tapered end portion of said valve operator and said shoulder when said valve operator is in its closed position, fuel passing from the inlet of said valve body through said bore and along the sides of said valve operator when said valve operator is in an open position.

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Dedication

3,054,594.—*Victor Hecht*, Haysville, Kans. CARBURETOR VALVE ASSEMBLY. Patent dated Sept. 18, 1962. Dedication filed Sept. 25, 1968, by the inventor and the assignee, *The Haysville State Bank*.

Hereby dedicate to the Public the entire remaining term of said patent. [*Official Gazette January 28, 1969.*]

Notice of Adverse Decision in Interference

In Interference No. 93,403 involving Patent No. 3,054,594, V. Hecht, CARBURETOR VALVE ASSEMBLY, final judgment adverse to the patentee was rendered Dec. 28, 1965, as to claim 4.

[*Official Gazette December 17, 1968.*]