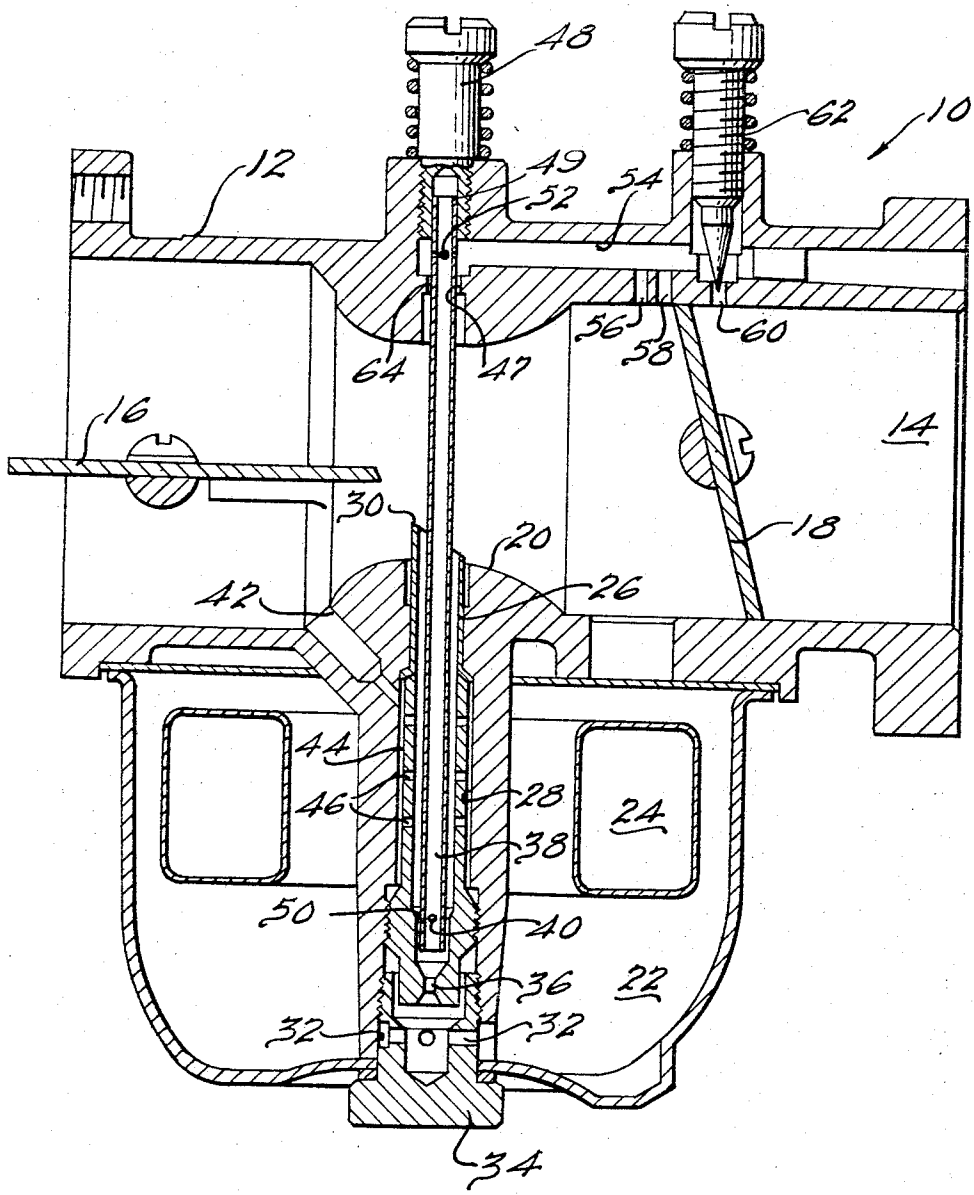
Aug. 1, 1967 E. M. BIMBERG 3,333,833

CARBURETOR

Filed March 29, 1965



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CARBURETOR

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ABSTRACT OF THE DISCLOSURE

A carburetor having an air nozzle, a main fuel discharge jet therein, an idle tube transversely mounted in said air nozzle, and an annular idle air bleed opposite said main jet and surrounding said idle tube whereby a a flow of air from said air nozzle through said annular idle air bleed atomizes a flow of fuel from said idle tube. The atomized fuel is thereafter introduced to the carburetor induction passage downstream of the carburetor throttle.

The present invention relates generally to carburetors and more particularly to an improved idle system for carburetors.

The present invention is an improvement over the idle system shown in Patent No. 3,269,712 issued Aug. 30, 1966, for Carburetor, and assigned to the assignee of the present invention.

In the prior application, the idle air bleed is provided by drilling one or more holes in the idle fuel tube and exposing the drilled holes to the induction passage. In the operation of the carburetor disclosed in the prior application, a "slugging" effect has been noted on occasions. The slugging effect manifests itself by irregular operation of the engine at idle and is attributed to solid slugs of fuel being discharged through the idle system.

It is an object of the present invention to provide in a carburetor an improved idling system wherein the idle air bleed system more completely atomizes the idle fuel supplied to the engine.

It is a further object of the present invention to provide a carburetor having an improved idle system which is simple in construction and relatively inexpensive to manufacture.

These and other objects and advantages of the present invention will become readily apparent from the following detailed description taken in connection with the appended drawings in which the single figure is a sectional view of a carburetor embodying the present invention.

Referring now to the drawings, numeral **10** designates a carburetor having a body **12** and induction passage **14** therethrough containing a choke valve **16** and a throttle valve **18** mounted therein on opposite sides of an air nozzle or venturi **20**. A fuel bowl **22** is secured to body **12** by suitable means (not shown) and contains an annular float **24** which controls the level of fuel in bowl **22** by regulating suitable valve means (not shown). A main fuel discharge jet **26** is mounted in a fuel well **28** with its discharge end **30** disposed to discharge fuel into the throat of the air nozzle or venturi **20**. Fuel is supplied to main jet **26** from fuel bowl **22** by passages **32** in nut **34**, fixed restriction **36**, idle tube **38**, and port **40** in tube **38**. Air from induction passage **14** is brought through main jet air bleed passage **42** to passage **44** between the jet **26** and well **28** and through perforations **46** to form a fuel-air emulsion in main jet **26** prior to discharge from the end **30**.

Idle tube **38** is preferably, but not necessarily, coaxial with main jet **26** and extends transverse the induction passage **14** through a bore or passage **47** in the nozzle or venturi **20**. One end **49** of idle tube **38** is secured to adjustable nut **48** threadedly mounted in body **12**. Rotation of the adjustable nut **48** moves idle tube **38** axially in main jet **26** to bring port **40** into variable registration with a wall **50** formed in main jet **26**. The port **40** constitutes the main metering restriction, the area of which may be regulated through variable registration with wall **50**.

Idle tube **38** is provided with a plurality of fuel discharge ports **52** which communicate with idle passage **54** formed in the side wall of the carburetor body **12**. A plurality of discharge ports **56**, **58** and **60** connect idle passage **54** with the induction passage. An adjustable needle valve **62** controls the area of discharge port **60**. The bore or passage **47** is larger than the idle fuel tube **38** and the clearance **64** between the passage **47** and the tube **38** forms an annular idle air bleed in communication with the induction passage. Air passing through annular air bleed **64** sweeps all around idle tube **38** and is brought into intimate and turbulent contact with fuel discharged through port means **52**. Passage means **54** connects port means **52** and idle air bleed **64** to the discharge ports **56**, **58** and **60** from which the idle fuel is discharged in a highly atomized state.

Although the present invention has been described with reference to a preferred embodiment, it will be readily apparent to one skilled in the art that various modifications can be made without departing from the spirit of the invention.

I claim:

1. A carburetor having a fuel bowl and induction passage with a throttle therein, a main fuel discharge jet communicating with said induction passage at a nozzle portion of restricted cross section, an idle tube transversely mounted in said induction passage, an annular idle air bleed surrounding said idle tube and communicating with said nozzle at substantially the same cross sectional portion of said nozzle wherein said main fuel discharge jet communicates, means connecting said tube to said fuel bowl, fuel discharge port means in said idle tube adjacent said idle air bleed, and passage means connecting said port means and idle air bleed to the induction passage downstream of said throttle.

2. In a carburetor having a fuel bowl and induction passage with an air nozzle of restricted cross section and a throttle therein, a transverse passage formed in said nozzle, conduit means connecting said transverse passage with the induction passage downstream of said throttle, an idle tube extending across said induction passage into said transverse passage and being radially spaced therefrom, means connecting said idle tube to said fuel bowl and port means in said tube adapted to discharge into said transverse passage.

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