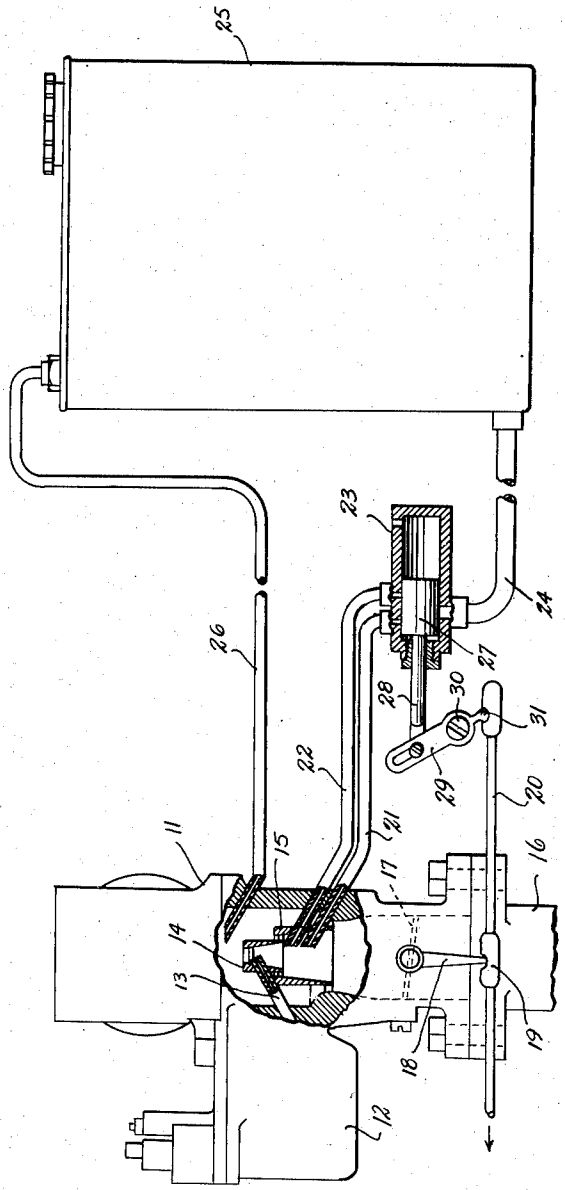
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MOISTURE INJECTOR FOR INTERNAL-COMBUSTION ENGINE CARBURETORS

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MOISTURE INJECTOR FOR INTERNAL-COMBUSTION ENGINE CARBURETORS

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2 Claims. (Cl. 261—18)

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This invention relates to carburetor devices and more particularly to a device for injecting moisture into the carburetor of an internal combustion engine responsive to opening the throttle.

A main object of the invention is to provide a novel means for introducing moisture into the fuel mixture of an internal combustion engine whereby improved performance and fuel economy will be obtained for the engine.

A further object of the invention is to provide an improved moisture feed means for internal combustion engine carburetors, said feed means being very simple in construction, easy to install, reliable in operation and providing varying degrees of moisture injection, depending upon the position of the engine throttle.

Further objects and advantages of the invention will become apparent from the following description and claims and from the accompanying drawing wherein the single figure is an elevational view, partly in cross-section, illustrating an internal combustion engine carburetor provided with moisture injection means constructed according to the present invention.

Referring to the drawing, 11 designates a carburetor of conventional design having a float chamber 12 from which extends a fuel discharge nozzle 13 which terminates in the fuel Venturi element 14. Positioned below Venturi element 14 is the mixing Venturi element 15 in which the vaporized fuel is mixed with air. In the exit portion of the carburetor which is connected to the intake manifold 16 of the engine is a throttle valve 17 having an actuating arm 18 pivotally connected at 19 to a throttle control rod 20. Throttle control rod 20 is biased by means not shown to a rearward position wherein throttle valve 17 is closed. Valve 17 is opened by moving rod 20 forwardly in the direction indicated by the arrow in the figure.

Projecting through the wall of carburetor 11 and terminating in the mixing Venturi element 15 are a pair of moisture injection conduits 21 and 22. Conduit 21 is connected to the forward portion of a cylinder 23 and conduit 22 is connected to said cylinder at a point spaced a short distance rearwardly of the connection of conduit 21. The forward portion of cylinder 23 is connected by a conduit 24 to the lower end of a water reservoir 25. The top end of reservoir 25 is connected by a conduit 26 to the upper air intake portion of carburetor 11. Conduit 26 provides air vent means for admitting air into the upper portion of reservoir 25 as water is discharged from said reservoir through conduit 24.

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Slidably positioned in cylinder 23 is a plunger member 27 which is connected by a plunger rod 28 to a lever member 29. Lever member 29 is pivoted at 30 to a stationary portion of the engine and is pivotally connected at 31 to the end of throttle control rod 20. Plunger member 27 is biased by rod 20 to a forward position in cylinder 23 wherein it closes off the ports communicating with the respective conduits 21, 22 and 24. When rod 20 is moved forwardly, plunger member 27 moves rearwardly and initially establishes communication between conduit 24 and conduit 21. Moisture is then injected by gravity into mixing venturi 15 through conduit 21. When rod 20 is moved further forwardly, as when the speed of the engine is being increased, the port communicating with conduit 22 is exposed and an additional moisture charge is injected into venturi 15 through conduit 22. The quantity of moisture injected into the carburetor is thus made dependent on the degree of opening of throttle valve 17, and no moisture will flow into the carburetor when the throttle valve is closed.

The addition of moisture to the vaporized fuel mixture improves the engine performance, provides increased fuel economy, and reduces the amount of carbon ordinarily deposited on the parts inside the engine, which thus prolongs the life of the engine.

While a specific embodiment of a moisture injection device for carburetors has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore it is intended that no limitations be placed on the invention other than as defined by the scope of the appended claims.

What is claimed is:

1. A carburetor comprising a liquid fuel venturi, a liquid fuel and air mixing venturi below and communicated with said liquid fuel venturi, a throttle valve on the suction side of said mixing venturi, a water supply, conduit means leading from said supply comprising a plurality of water jets discharging into said mixing venturi, and control means in said conduit means responsive to opening of said throttle valve for occluding said plurality of water jets while said throttle valve is closed and successively opening said water jets as said throttle is progressively opened, said control means comprising a cylinder connected in said conduit means, a piston working in said cyl-

inder and operatively connected to said throttle valve for actuation responsive to the opening and closing movements of the throttle valve, a series of longitudinally spaced ports in said cylinder with which said water jets are severally connected, and a single port to which is connected that portion of said conduit means leading from said water supply, said piston being arranged to occlude said series of ports and said single port in the closed position of said throttle valve and to uncover said single port and successive ones of said series of ports as said throttle valve is moved from closed position toward full open position.

2. Moisture-injection means for an internal combustion engine carburetor having a fuel and air-mixing venturi and a throttle valve, comprising a water reservoir, a feed conduit extending from the reservoir, a control valve, said control valve comprising a cylinder connected to the conduit and having a piston slidable therein, means operatively connecting said piston to said throttle valve for responsive movement with said throttle valve, a first conduit leading from said cylinder and discharging into said fuel and air-mixing venturi of the carburetor, and a second conduit leading from said cylinder and discharging into said fuel and air-mixing venturi, the connection of said second conduit with said cylinder being longitudinally spaced from the connection of said first conduit to said cylinder, said piston being

arranged to occlude the connections of all three conduits with said cylinder while the carburetor throttle valve is closed and to communicate said feed and first conduit connections together in its initial movement, and to communicate the feed conduit with both the first and second conduits as said throttle valve is progressively opened.

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