

April 20, 1943.

J. T. W. MOSELEY ET AL
CARBURETOR VAPOR RELIEF VALVE

2,316,882

Filed Nov. 19, 1940

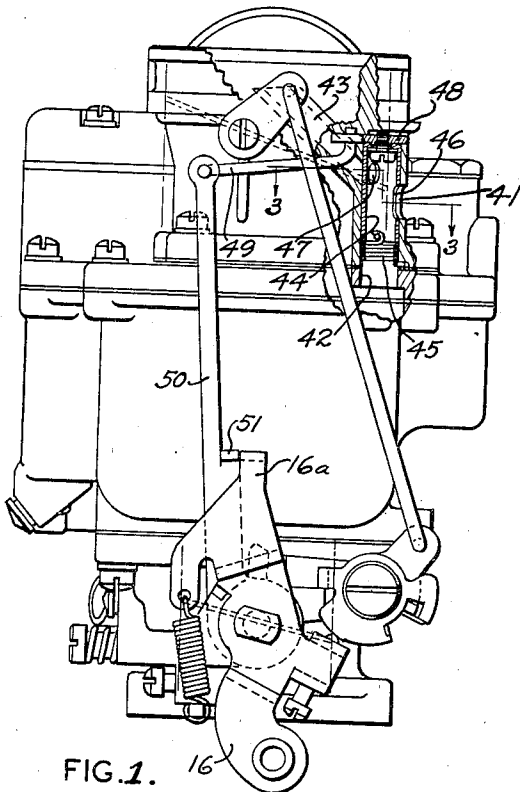


FIG. 1.

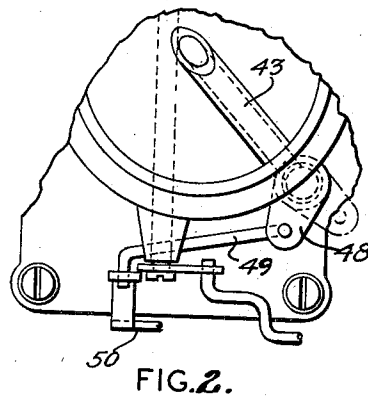


FIG. 2.

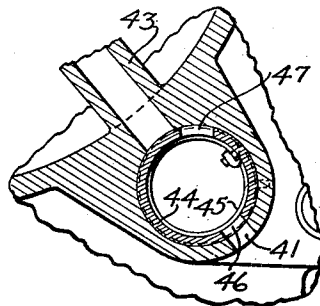


FIG. 3.

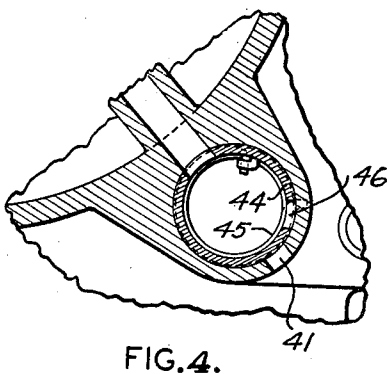


FIG. 4.

INVENTORS
JAMES T. W. MOSELEY
GEORGE E. SELDON
Donald U. Rice
ATTORNEY

UNITED STATES PATENT OFFICE

2,316,882

CARBURETOR VAPOR RELIEF VALVE

James T. W. Moseley, Clayton, and George E. Seldon, Kirkwood, Mo., assignors to Carter Carburetor Corporation, St. Louis, Mo., a corporation of Delaware

Application November 19, 1940, Serial No. 366,270

1 Claim. (Cl. 261—72)

This invention relates to carburetors for internal combustion engines and consists particularly in novel means for releasing vapors formed in the usual fuel reservoir of the balanced vent type, without directing such vapors through the balancing duct and into the carburetor mixture conduit.

Where the constant level chamber of the carburetor is provided with a balancing duct leading from the top of the chamber into the mixture conduit, usually at a point anterior to the choke valve, vapors formed in the top of the reservoir, due to boiling of the fuel are directed through the balancing duct and into the air cleaner and these vapors are partially retained in the air cleaner. Such boiling occurs during idling or when the engine is stopped and, in case the operator attempts to start the engine before the vapors are dissipated, they are drawn through the carburetor and into the engine, with a result that an over-rich or "loaded" condition is produced which may delay starting. This condition is aggravated, of course, where the balancing duct is the only outlet for the vapors from the upper part of the fuel reservoir.

If adequate means is not provided to permit the escape of these vapors, super-atmospheric pressure may be created in the fuel reservoir with a result that liquid fuel may be forced out through the main nozzle so as to "load" the intake manifold.

Accordingly, it is an object of the present invention to provide means, particularly applicable to a fuel reservoir of the balanced type, for releasing vapors formed in the reservoir when the engine is idling or stopped without, at the same time, effecting the normal functioning of the balancing vent or duct.

This object and other more detailed objects hereafter appearing are attained substantially by the devices indicated in the accompanying drawing in which:

Fig. 1 is a side view of a carburetor, portions being broken away and sectioned for clearer illustration.

Fig. 2 is a partial top view of the carburetor in Fig. 1.

Fig. 3 is a detail horizontal section taken on broken line 3—3 in Fig. 1.

Fig. 4 is a section similar to Fig. 3, but showing the valve structure in a different position.

There is shown in Figs. 1-4, inclusive, a form of invention in which an atmospheric port 41 is formed in the wall of balancing duct 42 leading to tube 43. Rotatably mounted in the vertical

portion of this balancing duct is a tubular valve structure 44 which is constantly urged in a counterclockwise direction (see Figs. 3 and 4) by a coiled spring 45. Valve structure 44 has an opening or orifice 46 disposed to register with atmospheric port 41, under certain conditions, and a second orifice 47 disposed to register with tube 43 under other conditions.

Secured to the upper extremity of tubular valve structure 44 is a manipulating crank 48 to which is pivotally connected a link 49 secured at its opposite end to the upper extremity of rocker link 50 which otherwise conforms with link 38 in the first form. When the throttle valve is substantially closed, throttle crank element 16a engages lip 51 so as to rotate rocker link 50 and valve arm 48 in a direction to move valve structure 44 to the position shown in Fig. 3 in which valve orifice 46 registers with port 41 and valve orifice 47 is out of registry with tube 43 so that this tube, in effect, will be closed. When the throttle valve is opened beyond a predetermined degree, lip 50 on the rocker link will be released by throttle crank element 16a to permit rotation of valve structure 44 counterclockwise under the influence of coiled spring 45 so as to move valve orifice 46 out of registry with atmospheric port 41 closing this port, and bring valve orifice 47 into registry with tube 43 to open the balancing duct. Thus, under conditions where boiling may occur in the fuel reservoir, the inside balancing duct is closed and an adequate atmospheric port is opened to the reservoir for releasing the gasoline vapor, but whenever the throttle is at least slightly open, the balancing duct is open for normal functioning.

The invention not only prevents the collection of substantial quantities of vapors in the air cleaner and silencer, but also provides means to prevent build up of pressure in the fuel reservoir and the consequent spilling of liquid fuel into the intake manifold through the main nozzle when the engine is running slowly or is stopped.

The invention may be modified in various respects as will occur to those skilled in the art and the exclusive use of all such modifications as come within the scope of the appended claim is contemplated.

We claim:

In a carburetor, a mixture conduit having a throttle therein, a fuel reservoir having a portion above the normal fuel level, a tubular passageway having ports connecting said reservoir above the normal fuel level respectively with the mixture conduit and with atmosphere, a valve means for

alternately opening and closing communication between said ports and said reservoir, and means actuated by movement of the throttle to closed position to move said valve means to a position establishing open communication between the reservoir and atmosphere, said means also operating the valve means reversely to close com-

munication between the reservoir and atmosphere and open communication between the reservoir and mixture conduit upon movement of said throttle toward open position.

JAMES T. W. MOSELEY.
GEORGE E. SELDON.