Feb. 23, 1926. 1,574,448

W. J. SHORT

AUTOMATIC CARBURETOR ADJUSTMENT

Filed June 26, 1923

Fig. 1.

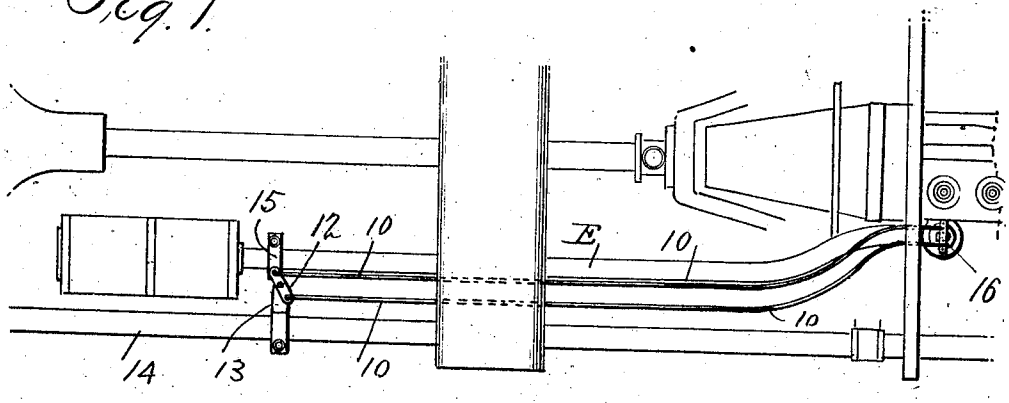

Fig. 3.

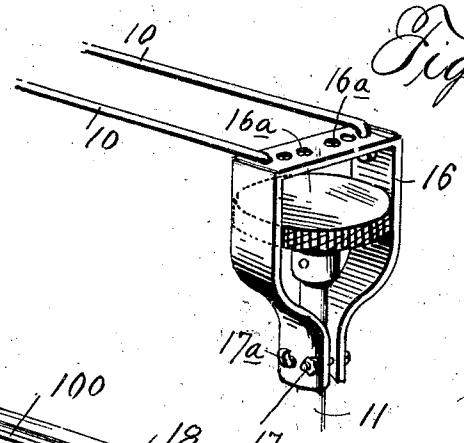

Fig. 2.

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UNITED STATES PATENT OFFICE.

WILLIAM J. SHORT, OF HEBER SPRINGS, ARKANSAS.

AUTOMATIC CARBURETOR ADJUSTMENT.

Application filed June 26, 1923. Serial No. 647,855.

To all whom it may concern:

Be it known that I, WILLIAM J. SHORT, residing at Heber Springs, Arkansas, a citizen of the United States, have invented certain new and useful Improvements in Automatic Carburetor Adjustments, of which the following is a specification.

The object of my invention is to provide means for the automatic regulation of the supply of fuel to the carburetor of an explosive engine which will regulate the quantity to suit the engine temperature which will be efficient, simple of construction and convenient of application to the engine. By my invention the temperature of the exhaust gases in passing through the exhaust determines the quantity of fuel supplied to the carburetor by automatically turning the needle valve of the carburetor. My invention consists in whatever is described by or is included within the terms or scope of the appended claims.

In the annexed drawings:

Fig. 1 is a plan view illustrating an embodiment of my invention;

Fig. 2 is a perspective view illustrating another embodiment;

Fig. 3 is a detail view in perspective of the means for connecting the valve turning devices therewith.

In the embodiment of my invention shown in Fig. 1 I utilize the longitudinal expansion and contraction of the exhaust pipe due to the passage of the exhaust gases therethrough to impart movement to a connection between the pipe and needle valve. Such connection comprises a pair of parallel rods, 10, which extend from front to rear of the car which at their front ends are respectively attached to the stem, 11, of the needle valve on opposite sides of the center thereof and at their rear ends are connected to a lever, 12, pivoted between the rods to an arm, 13, secured to the chassis, 14, so that by the rocking of said lever one rod will be moved forward and the other rearward and thus a balanced force will be applied to the valve stem to rotate it. Said lever, 12, is pivotally connected to a collar, 15, which is clamped to the exhaust pipe E so as to partake of the longitudinal movement of said pipe under changes of temperature.

The connection between the rods and the valve stem consists of a yoke, 16, which straddles the valve stem having a horizontal portion above the turning head of the stem to which the rods are attached and having downwardly extending legs which are clamped to the valve stem by means of a bolt, 17, which connects the legs on one side the stem, the legs on the opposite side of the stem being secured together by a hook and hole connection, 17^a it being an inexpensive and easily applied turning device for the stem. For adjustment purposes the horizontal top of the yoke is provided with several holes, 16^a, of graduated distances from the center of the valve which permit shifting of the connection between the rods and the yoke to vary the amount of turning the valve.

In the embodiment of my invention shown in Fig. 2 instead of having the rod arrangement which is connected with the needle valve directly connected with the exhaust pipe E′ and directly moved by the latter I connect the lever, 120, corresponding with the lever, 12, with a bar, 18, that is in contact therewith, or lies close enough to be heated therefrom and which at its forward end is secured to the exhaust pipe, being free therefrom at all other points of its length so that it may be free to expand and contract longitudinally and thereby to rock the lever, 120, and through the rods, 100, rotate the needle valve. It may be clamped at its forward end by a bolt, 19, passing through lugs that straddle the exhaust pipe, and preferably is loosely supported at its rear end by lugs, 20, that straddle such pipe. Said bar, 18, is in effect a part of the exhaust pipe but it affords an advantage over using the exhaust pipe in that changes of length under changes of temperature are slower because it heats up more slowly than the exhaust pipe does and does not so quickly reduce the gasoline feed, with the danger of reducing the feed before the engine has heated up to a point where it can run on the minimum of gasoline.

It will be seen that by utilizing the temperature of the exhaust gases as I do the mechanism involved is very simple, it is easily applied and is out of the way so that it does not interfere with work on the engine. A very important advantage in using exhaust gases is that the temperature thereof is more constant or uniform, that is to say, it is not exposed to conditions which will vary it, such for example as those which exist where a thermostat is placed adjacent the engine within the hood because in the

latter case if the car is run with the hood open, or in extremely cold weather, for example, there will be a lower temperature to which the thermostat is exposed and, hence, the temperature to which the thermostat is exposed may not have a direct relation to the engine temperature, and the action will not be as dependable as with my invention.

What I claim is:

1. The combination of a carburetor valve and the pipe extending from the exhaust manifold of an internal combustion engine, such pipe being free to move longitudinally under temperature changes due to exhaust gases passing through such pipe, a device connected with and partaking of such longitudinal movement of said pipe, the point of connection between said device and the pipe being a substantial distance from the exhaust manifold and the carburetor valve, and an operative connection between said device and the carburetor valve for transmitting to the valve the longitudinal movement of the exhaust pipe.

2. The combination of a carburetor valve and the exhaust pipe of an internal combustion engine, such exhaust pipe being free to move longitudinally under temperature changes due to exhaust gases passing through such pipe, a device connected with and partaking of such longitudinal movement of the exhaust pipe, the point of connection between said device and exhaust pipe being a substantial distance from the carburetor valve, and an operative connection between said device and the carburetor valve for transmitting to the valve the longitudinal movement of the exhaust pipe, such connection situated to be substantially unaffected by heat from the exhaust pipe.

In testimony whereof I hereunto affix my signature.

WILLIAM J. SHORT.