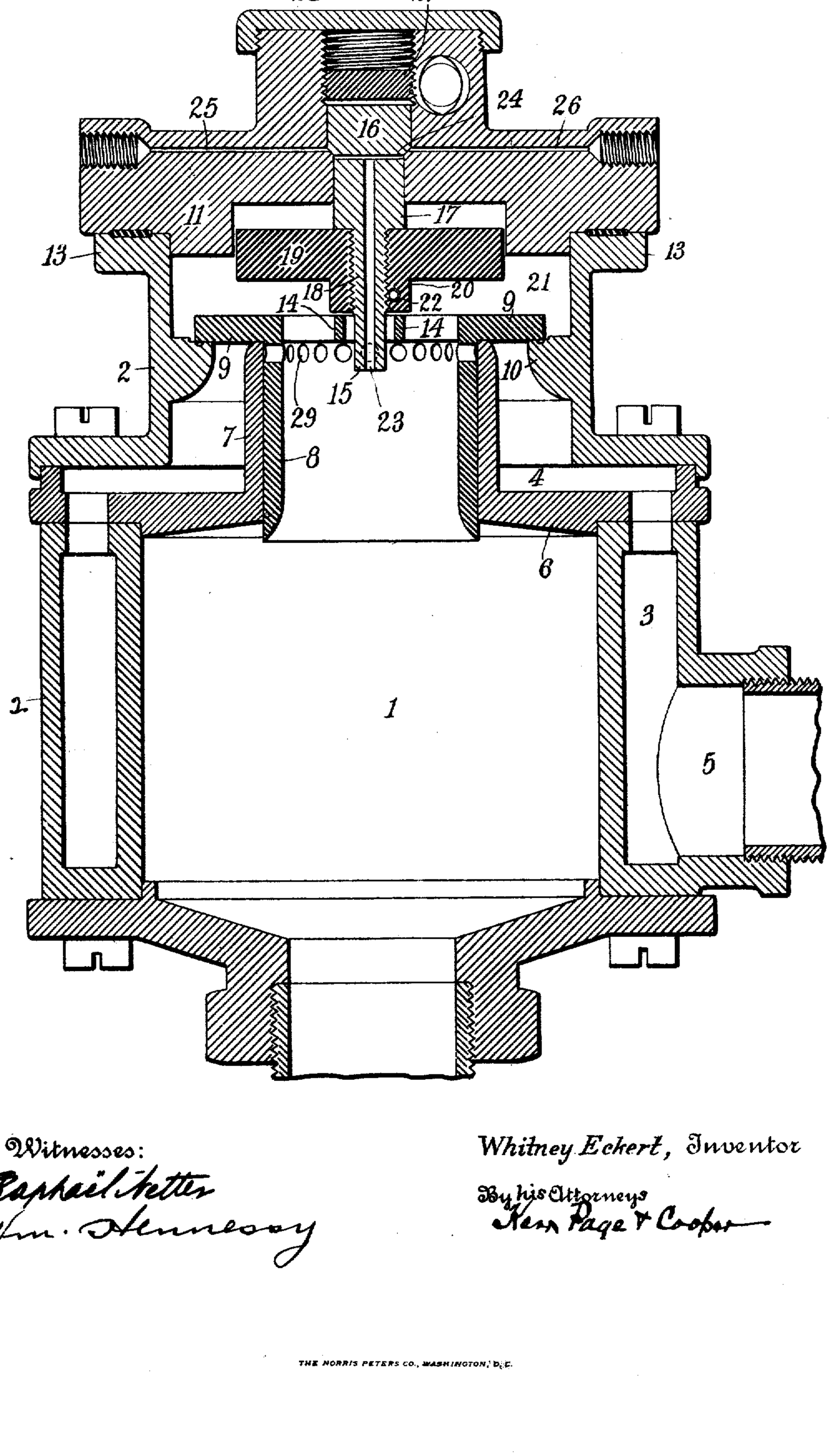
W. ECKERT.

CARBURETER.

APPLICATION FILED JUNE 16, 1908.

912,999. Patented Feb. 23, 1909.



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UNITED STATES PATENT OFFICE.

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CARBURETER.

No. 912,999. Specification of Letters Patent. Patented Feb. 23, 1909.

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To all whom it may concern:

Be it known that I, WHITNEY ECKERT, a citizen of the United States, residing at Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Carbureters, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

The invention which forms the subject of my present application is an improvement on the carbureter set forth and claimed in my application, Serial No. 427,683, filed in the United States Patent Office on April 17, 1908. In the carbureter disclosed in the said application, there is employed a valve for controlling the admission of air to the mixing chamber, which is adapted to be raised or opened by a partial vacuum created within the carbureter by the operation of the engine piston or pistons; which valve carries or is provided with an extension integral therewith, constituting a slide valve for controlling the admission of hydrocarbon to the mixing chamber.

In my present improvement, while preserving the same general construction of the other parts and providing for a similar mode of operation of the device as a whole, the hydrocarbon controlling valve is a gravity valve independent of, but directly controlled by, the movement of the air valve and is so arranged as to secure in its operation a result in certain respects different from and superior to that obtained by the former type.

The invention will be described by reference to the accompanying drawing, the single figure of which is a central vertical section of the improved valve mechanism connected with a carbureter of the kind heretofore described and now shown, only so far as is necessary to an understanding of its operation, for purposes of illustration.

The mixing chamber of the carbureter is indicated by the numeral 1. Surrounding this mixing chamber is an outer casing 2, preferably of similar form but large enough in diameter and height to leave an air space or chamber around and above the mixing chamber, as shown at 3 and 4, for the passage of air admitted through a pipe 5.

The top of the mixing chamber 1 is formed by a plate 6, having a central aperture, surrounded by an upwardly extending tubular neck 7, in which is fitted a cylindrical valve member 8, capable of reciprocating movement in said neck. At the upper end of said valve member is an outwardly extending or horizontal flange 9, adapted to seat, when said valve member is in its lowest position, on the upper edge of the neck 7, and also on a flange or shoulder on the surrounding wall of the upper portion of the casing 2. It will be seen that when the valve member 8 is in its normal position the flange 9 spans and covers the annular port formed between the neck 7 and the shoulder 10, and therefore closes the annular passage through which air is drawn into the mixing chamber 1, through the pipe 5.

The top of the outer casing 2 is closed by a casting 11, secured by suitable screws or bolts to a flange 13, and through the center of said casting or cover an opening is formed constituting a chamber for containing the hydrocarbon supply valve and its appurtenances, as hereinafter described.

The construction of the parts thus far described is substantially the same as that present in the carbureter described in my pending application above referred to.

Across the upper end of the valve member 8 extends a spider or series of arms radiating from a hub 14 having a central aperture, and above this valve member, and having its lower end projecting down through the hub 14 is the hydrocarbon valve constructed and arranged as follows: Working freely within the bore or chamber in the casting 11 is the valve 15, consisting of a metal body, cylindrical in form, and with portions of three substantially different diameters. The upper end 16 of the valve body is the part of greatest diameter, and has a beveled shoulder joining it to the intermediate portion 17 of smaller diameter. The lower portion 18, of smallest diameter, is threaded to receive a flange or head 19, provided with a downwardly extending boss 20, and working freely in a circular recess 21, in the under side of the casting 11, which forms an air chamber or dash-pot. The head 19 is held securely to the valve body after being screwed in position by a threaded key 22. A longitudinal passage 23 is bored through the valve body 15, from its lower end, to meet a transverse passage or bore 24, immediately below the beveled shoulder, and two or more passages or ducts 25, 26, are provided in the casting 11 adapted for connection with an oil supply at one end, and opening into the valve chamber at the inclined shoulder or ledge correspond-

ing to and forming a conical seat for the beveled shoulder on the valve body 15. The upper portion of the valve chamber is internally threaded to receive a threaded washer 27, which is capable of vertical adjustment by any suitable means, and surmounted by a screw cap 28.

It will be understood that more than two passages 25, 26, may be used, or only one, and that the same is true with regard to the transverse passage 24.

The operation of the device is as follows: The washer 27, being raised to permit the desired amount of play to the valve 15, and the engine cranked for starting, the valve member 8 will be raised from its seat by the suction of the engine to admit air. In the upward movement of this valve the hub 14 encounters the boss 20, and raises the valve 15 from its conical seat. Hydrocarbon from one or more of the passages 25, 26 flows down through the central bore of valve 15, and is sprayed or atomized by the inrushing charges of air subsequently admitted through the top and through the series of holes 29 in the valve 8, and carried along with the air into the mixing chamber below.

In practice I have found that under normal running conditions and proper adjustment the valve 8 apparently remains open continuously, and that exactly the proper amount of hydrocarbon is thus supplied. In other words, the reciprocation of the valve is hardly detectable, and it appears to merely flutter. This condition is altered to a perceptible reciprocation on a reduction of speed due to any cause, so that the supply of hydrocarbon is to a large extent regulated automatically.

The play and consequent feed of the valve 15 may be fixed in any position of adjustment to meet any desired conditions of running, and in operation the device works smoothly and evenly. The bearing surfaces being reduced to a minimum, the parts are little subject to wear, and immediately upon the cessation of movement of the valve 8 the supply of hydrocarbon is effectually and automatically shut off.

What I claim is:

1. In a carbureter, the combination with a valve for controlling the admission of air to the mixing chamber, of an independent gravity valve in its path of movement for controlling the admission of hydrocarbon, said oil valve having one or more ducts or passages through its body, and a conical portion controlling oil ports entering the valve chamber through a corresponding conical seating portion of the same, as set forth.

2. In a carbureter, the combination with a valve for controlling the admission of air to the mixing chamber, of an independent gravity valve in the path of movement of the air valve for controlling the admission of oil, said oil valve having a flange or head at its lower end working in a recess or air chamber, as set forth.

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