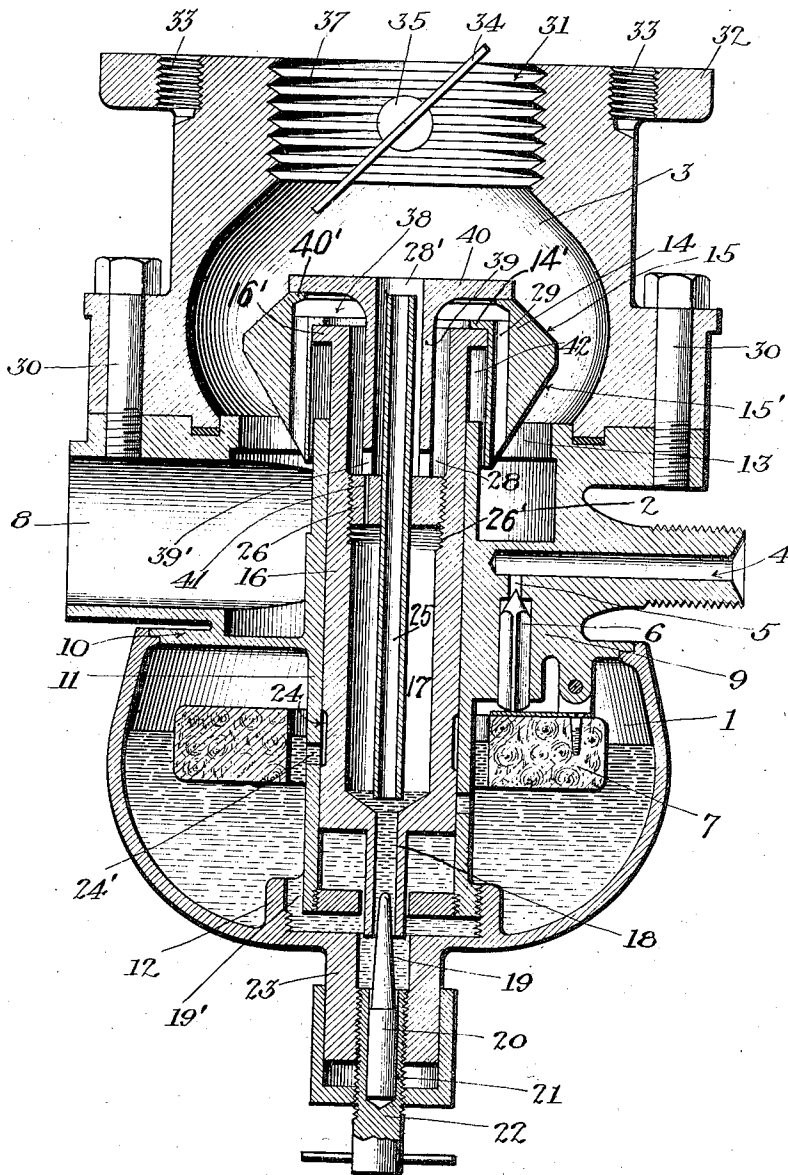


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CARBURETER.

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UNITED STATES PATENT OFFICE.

ALFRED C. STEWART, OF LOS ANGELES, CALIFORNIA.

CARBURETER.

1,064,867.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALFRED C. STEWART, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and the State of California, have invented a new and useful Improvement in Carbureters, of which the following is a specification.

The present invention relates to a carbureter of the type in which a vertically movable valve member is provided with an internal chamber communicating at its lower end, through a valve controlled nozzle, with oil supply means, and communicating with an aspirating tube, by which the oil is drawn by the suction at the outlet of the carbureter.

The main object of the present invention is to provide in a carbureter of this type, means for more effectual mixing of the air with the oil, as it is discharged from the said aspirating tube.

Other objects of the invention will appear hereinafter.

The accompanying drawing illustrates the invention, said drawing being a vertical section of the carbureter.

The carbureter comprises an oil chamber 1, an air inlet chamber 2, and a mixing chamber 3, connected together in any suitable manner. Means are provided for supplying oil to the oil chamber 1, said means consisting for example of an oil inlet 4 having a port 5 communicating with the oil chamber, said port being controlled by a valve member 6 slidably mounted in its seat and operated by a float 7 to admit oil to the oil chamber in such manner as to maintain a definite level of oil therein. The oil inlet 4 of said oil controlling valve is preferably formed in the intermediate member 9 which is formed internally with the air inlet chamber 2 and provided with an air inlet opening 8 extending laterally therefrom. Said intermediate member is provided with a bottom plate 10 which closes the top of the oil chamber 1 and which is formed with a tubular member 11 extending upwardly and downwardly from the plate 10 and screwing into a boss 12 on the inside of the bottom of the oil chamber. Said intermediate member is also provided with a circular valve seat 13 in its top for coöperation with the air controlling valve.

The air controlling valve may consist of a member 14 having frusto-conical upper and lower faces 15, 15' and provided with a

stem 16 extending downwardly within the tubular member 11, said stem being formed interiorly with a well 17 and having at its lower end a reduced tubular extension 18 communicating with the said well and opening at its lower end into an oil valve chamber 19 formed at the bottom of the oil chamber 1. A needle valve 20 resting in a seat 21 in a screw 22 which screws into the bottom of a boss 23 on the oil chamber, coöperates with the lower end of this reduced tubular portion 18 to control the passage of oil therethrough. The lower frusto-conical portion 15' of the air controlling valve member coöperates with the valve seat 13 to control the supply of air, the parts being so adjusted that when said valve portion 15 closes with its seat 13 the oil controlling valve at the bottom of the well 17 is still open to a slight extent. An aspirator tube 25 is mounted within the well 17 by means of a screw plug 26 extending across said well and serving as a horizontal partition therein, said aspirator tube extending nearly to the bottom of the well and the upper end of said tube extending within a cylindrical recess 28 in the upper end of a sleeve 16, said recess 28 communicating by passages 29 with the air inlet chamber 2 below the valve seat 13.

24 designates a groove around the stem 16 communicating with the oil chamber by opening 24' in tubular member 11 and serving as a liquid seal. Chamber 19 communicates with the oil chamber by a passage 19'.

The mixing chamber 3 may be secured to the intermediate member 9 by means of screws 30, and is provided at its upper end with an outlet 31 for communication of suction applying means, for example, the inlet of an internal combustion engine, and with means, such as flange 32, and screw holes 33, for enabling attachment of such suction applying means. The outlet passage 31 is somewhat smaller in diameter than the mixing chamber 3, and in said outlet passage is provided the throttle consisting preferably of a plate or disk 34 mounted on a suitable operating shaft 35 and serving as a butterfly valve in the usual manner. In order to prevent condensation of gasoline on the walls of said outlet passage 31, said walls are corrugated or grooved, as shown at 37, forming a series of ridges extending transversely to the direction of motion of the mixture past the throttle, so that any

gasolene which is condensed on such walls will collect on such ridges and will be exposed to the current of mixture or air in such manner as to be entrained or taken up by such current, thereby maintaining the quality and uniformity of the mixture. The construction of the outlet or throttle, in this manner, so as to provide for taking up the condensed oil, is not claimed herein, as it forms the separate matter of the aforesaid application.

The sleeve 16 is formed with an outwardly extending flange 16' at its upper end and the head 14 is formed with an inwardly extending flange 14' resting on said flange 16'. A screw-threaded plug or partition 26 screws into a screw-thread 26' on the interior of the sleeve 16 and is formed with an upwardly extending tube 39 provided at its upper end with an outwardly extending plate 40 which engages on an inwardly extending flange 40' on the head 14, so that the head 14 is clamped between plate 40 and flange 16'. An annular groove 38 is formed in the valve head 14 between the lower flange 14' and the upper flange 40' and passages 29 are formed in the valve head 14 extending from the groove 38 vertically and downwardly to the bottom of the valve, opening at the inclined lower face 15' of the valve, so as to be in communication with the air inlet chamber 2. The aspirator tube 25 extends upwardly through the partition or plug 26 and within the tubular projection 39 from said plug, leaving a space between the outside of the said aspirator tube and the tubular portion 39, said space communicating with the space 28 between said tubular portion 39 and the sleeve 16 through perforations 39' formed in said tubular portion 39. The plug or partition 26 is perforated as at 41, said perforation being of small diameter so as to provide restricted communication between the well 17 and the space above said plug which is in communication with groove 38 communicating through passages 29 with the air inlet chamber. The valve member 14 is formed with a recess 42 extending upwardly from the bottom of said valve member, the cylindrical wall of said recess being adapted to surround and telescope over the tubular guide member 11 and protecting the guiding parts from dirt or dust coming through the air inlet.

The operation is as follows: The oil is maintained at a constant level in the oil chamber 1 by the regulating devices 6 and 7. The oil passes from the oil chamber 1 through the channel 19' and the valve 19 to the lower part of the chamber 17 in the interior of the valve stem 16. At each suction stroke of the engine, air is drawn through the inlet 8 and past the valve member 14 and through the throttle outlet 31,

the valve member 14 being lifted in this operation and at the same time the oil is drawn up from the chamber 17 aforesaid, through the tube 25, into the mixing chamber 3, between the air inlet and the throttle, the oil so drawn up through said tube being mixed with the air passing around the valve member 14 and with the air passing through the passages 38 and 28, the oil having been thereby brought into more or less thorough mixture with the air. The tube 39 forces the air coming through passages 29, to descend to the bottom of the space between the aspirator tube 25, so that it catches and carries up into the mixing chamber, the oil that flows out of top of the aspirator tube.

What I claim is:

1. In a carbureter, the combination with a mixing chamber and an air inlet chamber provided with a seat, of a valve head movable vertically to cooperate with said seat and having a stem, a vertical tubular guide for said stem, said stem being provided with an interior well in its lower portion and with an oil inlet at the bottom of said well and being interiorly screw-threaded above said well, a plug screwed in said screw-threaded portion of said stem, a tubular portion extending upwardly from said plug and provided with a top plate extending outwardly therefrom at its upper end, said tubular portion being perforated at its lower end, said plug having a perforation for restricted passage of air therethrough and said valve having flanges engaged between the upper end of said stem and the said plate, and provided with passages communicating at their lower ends with the air inlet chamber and communicating at their upper ends with the space between the interior of the stem and said tubular portion on said plug, an aspirating tube extending through said plug and communicating at its lower end with said well in the stem and extending at its upper end with the said tubular portion on said plug, and means for supplying oil to the inlet at the bottom of said well.

2. In a carbureter, the combination with a mixing chamber and air inlet chamber provided with a seat, of a valve head movable vertically to cooperate with said seat, and having a stem, a vertical tubular guide for said stem, said stem being provided with an interior well in its lower portion, with a recess in its upper portion and with a partition between said well and recess, said partition being perforated, a tubular member extending within said recess and separated from the walls of the recess to form an intervening space, said head being provided with passages communicating at their upper ends with said space and at their lower ends with the air inlet chamber, an aspirating tube extending through said parti-

tion in the valve stem and communicating
at its upper end with the interior of said
tubular member, said tubular member being
separated from said aspirating tube and
5 perforated for passage of air from the space
around said tubular member upwardly
around said aspirating tube.

In testimony whereof, I have hereunto set
my hand at Los Angeles, California this
19th day of June 1911.

ALFRED C. STEWART.

In presence of—

ARTHUR P. KNIGHT,
GLADYS RUSSELL.