J. PETERSON.

CARBURETER.

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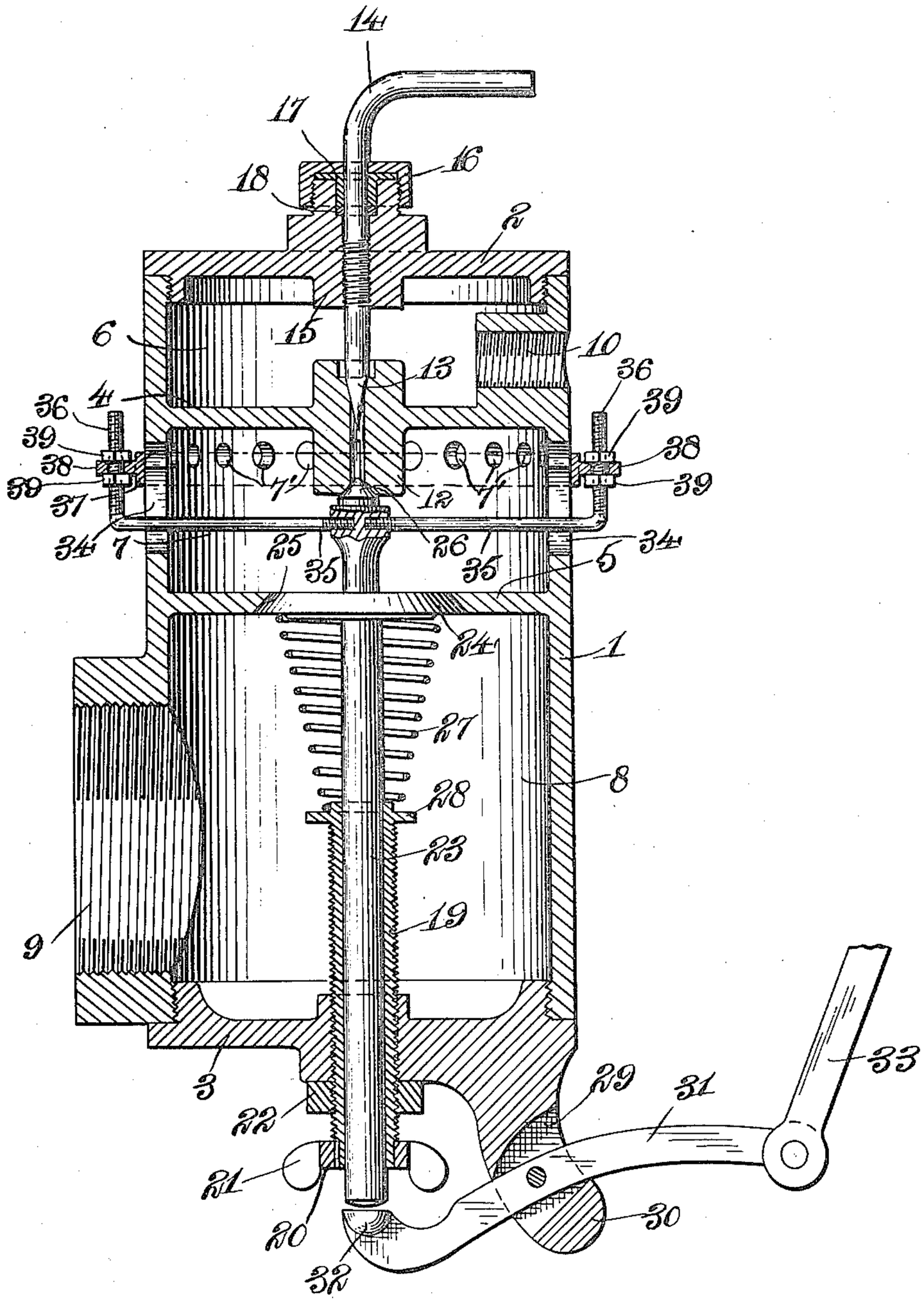

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UNITED STATES PATENT OFFICE.

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CARBURETER.

963,804.

Specification of Letters Patent. Patented July 12, 1910.

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To all whom it may concern:

Be it known that I, JOHN PETERSON, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Carbureters, of which the following is a specification.

My invention relates to carbureters employed in connection with gasolene or hydrocarbon engines to effect the production of an explosive mixture of air and gasolene vapor for introduction to the engine cylinder.

The object of my invention is to provide a device of the character mentioned adapted to effect the proper mixture of air and gasolene vapor at all speeds of the engine with which it is connected.

A further object is to provide a carbureter as mentioned which will be durable and of great efficiency, and further which will be comparatively simple of construction hence of low cost to manufacture.

Other objects will appear hereinafter.

But these objects in view of my invention consist in a carbureter characterized as above mentioned and in certain details of construction and arrangements of parts all as will be hereinafter fully described and particularly pointed out in the claims.

My invention will be more readily understood by reference to the accompanying drawing which forms a part of this specification, the figure shown therein illustrating a central vertical section of a carbureter employing the preferred form of my invention.

Referring now to the drawing 1 indicates the preferably cylindrically formed body of my device provided with the detachable upper and lower heads 2 and 3 respectively preferably threaded in the upper and lower extremities thereof. Traversing the interior of said body are partitions or division-walls 4 and 5 dividing said body interior into 3 independent chambers or compartments, an upper gasolene or fuel receiving chamber 6, an intermediate mixing chamber 7 and a lower outlet chamber 8 which, when the carbureter is in use, communicates, through a nozzle 9 threaded for the reception of a conduit, with the operating engine. Formed in the chamber 6 is a nozzle 10 preferably threaded to accommodate an oil or fuel supply pipe. Establishing communication between chambers 6 and 7 is a duct extending through an enlargement 12 formed integrally with the partition 4. In order to effect the governing or regulation of the flow of the fuel through said duct, I provide a needle valve 13, the stem 14 thereof extending through a boss 15 formed upon the cover or upper head 2 and being preferably threaded therein. Threaded upon the upper extremity of said boss is a cap nut 16 inclosing a bushing 17 and a packing 18 provided for obvious reasons. Extending through the peripheral walls of the chamber 7 is a series of perforations 7′ which, when the device is in operation, serve in the capacity of air inlets. Threaded into the lower head 3 is a sleeve 19 fixed, preferably by a key 20, to the lower exteriorly projecting extremity of which is a thumb nut 21 by means of which the positioning of said sleeve in said head may be readily regulated. A lock nut 22 threaded upon said sleeve adapted to abut the outer surface of said head 3, is adapted to lock said sleeve in adjusted position. Reciprocally mounted in said sleeve is a stem 23 carrying at this upper extremity a check valve 24 adapted to seat in a beveled valve port 25 formed in the partition 5. A needle valve 26 formed upon and upwardly projecting from the valve 24 is adapted, when the latter is seated, to close the lower extremity of the duct 11. A compression coil spring 27 interposed between the under side of the valve 24 and the upper flanged extremity 28 of the sleeve 19 is adapted to normally hold the valves 24 and 26 in seated position.

Pivotally mounted in a slot 29 formed in an ear 30 depending from the head 3 is a lever 31 the enlarged extremity 32 of which is disposed directly in the path of vibration or reciprocation of the stem 23, said lever being adapted to be adjusted by means of an actuating lever 33 to regulate the extent of vibration or reciprocation of the said valve stem and hence the extent of depression of the valves 24 and 26. The slot 29 is so formed that the lever 31 may not at any time entirely check vibration or reciprocation of the stem 23 hence the supply to the engine may not at any time be entirely shut off; enough vibration of said stem being permitted, when said lever is at the extremity of its retarding or checking movement, to

permit of the passage of enough gas through the carbureter to keep the engine running, such provision being of obvious advantage.

Having their inner extremities rigidly secured, preferably threaded, in an enlargement formed in the valve head 26 for their accommodation, the outer extremities thereof extending through vertically extending elongated narrow slots 34 formed in the outer wall of the chamber 7, are oppositely extending substantially horizontally disposed rods 35 the outer end portions 36 of which are bent upwardly to a vertically extending position as shown. Slidable upon, the same snugly fitting the outer surface of the circumferential wall of the chamber 7 is a ring 37 of a width preferably slightly greater than the diameter of the air inlets 7′. Formed upon and outwardly projecting from said ring are perforated ears 38, the same being so positioned as to loosely engage the end portions 36 of the rods 35. Threaded upon said rod end portions are nuts 39 adapted to engage said ears 38 and by means of which the ring 37 may evidently be adjusted to any desired position thereon. With such provision it is clear the member 37 may be adjusted to automatically regulate the air intake to the chamber 7, that is, said member may be adjusted upon the rods 35 to open or close the air inlets 7′, as desired, with reference to the valves 24 and 26.

In the operation of the device, the valve 13 being in open position to permit of the passage of vaporous gasolene or fuel through the duct 12, upon the suction stroke of the engine piston, the check valve 24 and hence the valve 26 will, because of a partial vacuum being formed in the chamber 8, be lowered to opening position, the same obviously carrying therewith in their downward movement, the member 37 which, in its downward actuation uncovers the air inlets 7′. In such event gasolene vapor will be admitted to the chamber 7 where it will be mixed with a proper percentage of air as regulated by the ring 37, such mixture passing through the valve port 25 to chamber 8 and thence to the engine cylinder. Upon the return stroke of the engine piston, in which event the suction or pull upon the check valve is removed, the latter and hence the valve 26 will be returned to closing position by means of the spring 27 thereby shutting off passage of fuel through the device and the supply of explosive mixture to the engine; and simultaneous with such closing of said valves will be the returning to initial or closing position of the air intake regulator 37. Hence it is evident that with such construction the greater the suction created in the chamber 8 the greater will be the extent of opening of said valves and to a greater extent the uncovering of the air intake ports, in other words the supply will be automatically regulated to satisfy the demand for it. By means of the sleeve 19 the tension of the spring 27 may be adjusted so as to exert any desired force or pressure upon the valve 24.

While I have shown what I deem to be the preferable form of my carbureter I do not wish to be limited thereto as there might be many changes made in the details of construction and the arrangement of parts without departing from the spirit of my invention comprehended within the scope of the appended claims.

Having described my invention what I claim as new and desire to secure by Letters Patent is;

1. In a carbureter, the combination of a mixing chamber, means for admitting fuel thereto, regulatable means for admitting air to said mixing chamber, a suction operated valve governing the outlet from said mixing chamber, and connections between said valve and said air admission means whereby actuation of said valve automatically actuates said air admission means, substantially as described.

2. In a carbureter, the combination of a mixing chamber, means for admitting fuel thereto, regulatable means for admitting air to said mixing chamber, a suction operated valve governing the outlet from said mixing chamber, and adjustable connections between said valve and said air admission means whereby actuation of said valve automatically actuates said air admission means, substantially as described.

3. In a carbureter, the combination of a mixing chamber, means for admitting fuel thereto, regulatable means for admitting air to said mixing chamber, a suction operated valve governing the outlet from said mixing chamber, connections between said valve and said admission means whereby actuation of said valve automatically actuates said air admission means, substantially as described.

4. In a carbureter, the combination of a mixing chamber, means for admitting fuel thereto, regulatable means for admitting air to said mixing chamber, a suction operated valve governing the outlet from said mixing chamber, adjustable connections between said valve and said air admission means whereby actuation of said valve automatically actuates said air admission means, substantially as described.

5. In a carbureter, the combination of a body having partitions dividing the interior thereof into an upper fuel receiving chamber, an intermediate mixing chamber, and a lower outlet chamber, there being a duct passing through the uppermost of said partitions establishing communication between said fuel and said mixing chambers and a valve port in the lower partition, es-

tablishing communication between said mixing and outlet chambers, a needle valve threaded into the end wall of said body for regulating the flow of fuel through said duct, air inlets formed in the peripheral wall of said mixing chamber, a sleeve threaded in the lower end of said body, a stem reciprocally mounted in said sleeve carrying a check valve adapted to seat in said valve port, a ring slidable upon said body adapted to cover said air inlets, an adjustable operative connection between said ring and said stem, and a second valve carried by said stem adapted to close the lower extremity of said fuel duct, a coil spring interposed between said check valve and the upper extremity of said sleeve adapted to normally seat said last named valves, and adjustable means operatively connected with the lower extremity of said body adapted to limit the reciprocatory movement of said valve stem, substantially as described.

6. In a carbureter, the combination of a body having partitions dividing the interior thereof into an upper fuel receiving chamber, an intermediate mixing chamber, and a lower outlet chamber, there being a duct establishing communication between said fuel and said mixing chambers and a valve port establishing connection between said mixing and outlet chambers, a needle valve adapted to control the flow of fuel through said duct, air inlets formed in the peripheral wall of said mixing chamber, a stem carrying a check valve adapted to seat in said port, a needle valve carried by said stem adapted to close the lower extremity of said fuel duct, a ring slidable upon said body adapted to cover said air inlets, an adjustable operative connection between said ring and said stem, said connection comprising arms secured to and outwardly projecting from said stem through slots provided in said peripheral wall and means adjustably securing said ring to said arms, spring means adapted to normally seat said check valve and said last named needle valve, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

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Witnesses:

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