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P. ALLEN.

CARBURETER FOR INTERNAL COMBUSTION ENGINES.

APPLICATION FILED MAY 31, 1907.

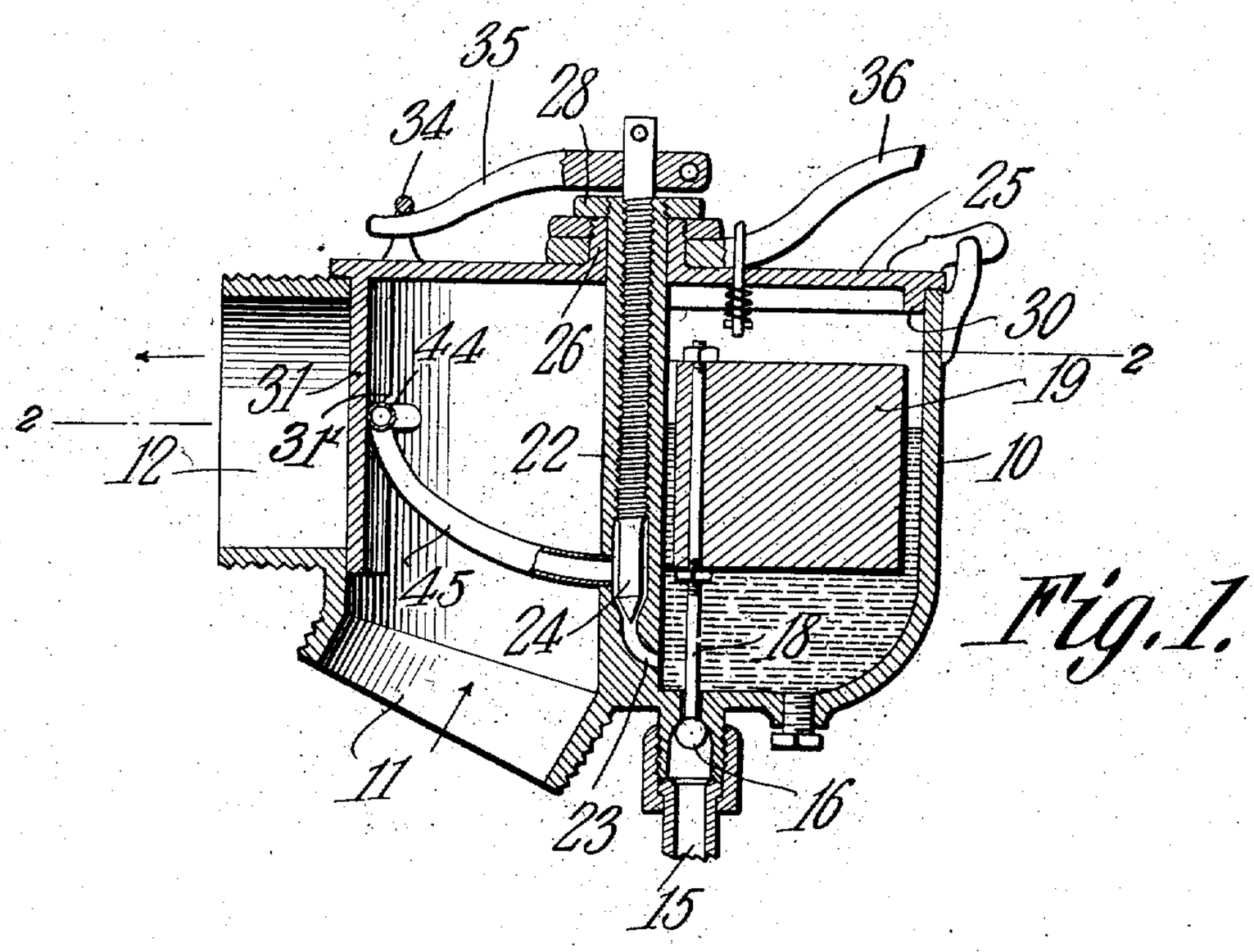
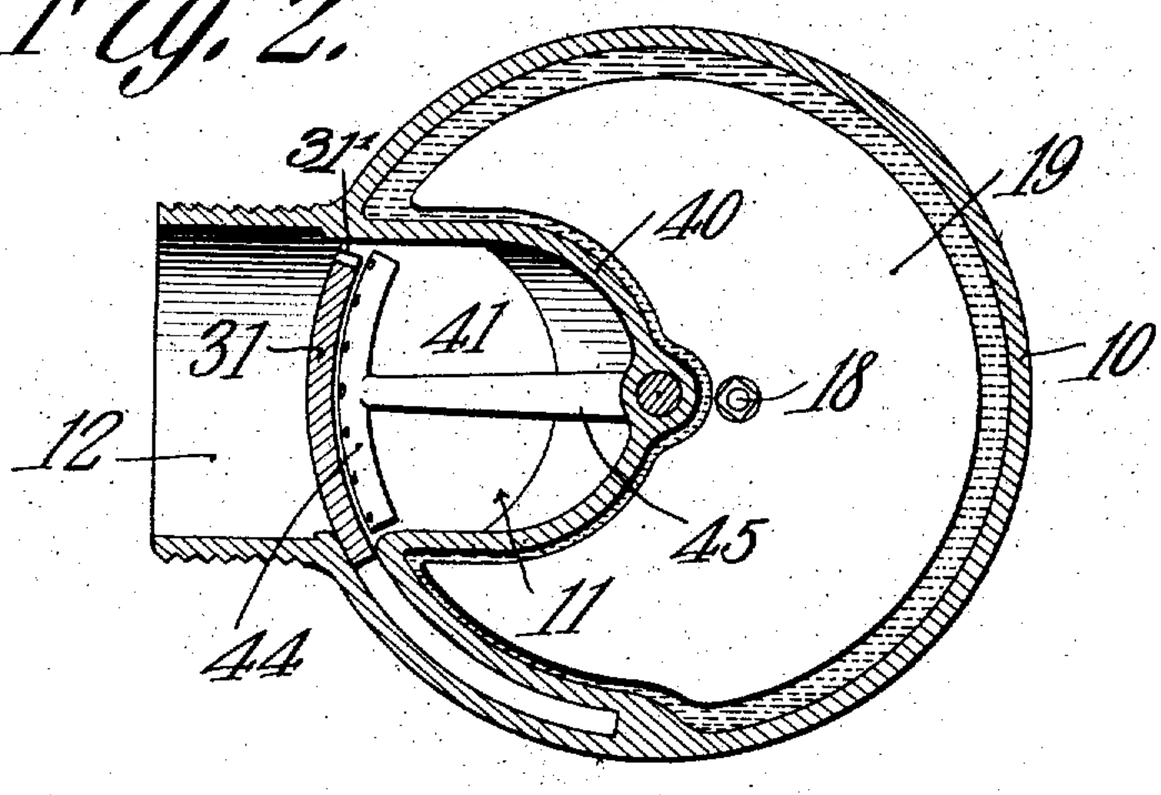


Fig. 1.

Fig. 2.



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CARBURETER FOR INTERNAL-COMBUSTION ENGINES.

No. 881,279. Specification of Letters Patent. Patented March 10, 1908.

Application filed May 31, 1907. Serial No. 376,533.

To all whom it may concern:

Be it known that I, PERRY ALLEN, a citizen of the United States, residing at Flint, in the county of Genesee and State of Michigan, have invented a new and useful Carbureter for Internal-Combustion Engines, of which the following is a specification.

This invention relates to carbureters for internal combustion engines, and has for its principal object to provide a device for automatically controlling the quality of the explosive charge.

A further object of the invention is to provide a carbureter in which the quantity of gasolene or other liquid hydro carbon will be exactly proportioned to the quantity of air used, and an exactly uniform charge maintained, no matter what the quantity of the charge may be.

A further object of the invention is to provide a device of this class in which the charge admission valve is connected to the valve which controls the supply of gasolene or other liquid fuel, so that the two valves move in unison.

A still further object of the invention is to provide a device of this class in which the gasolene or other liquid fuel is fed through a plurality of openings, nozzles or the like, the number of which is automatically proportioned to the quantity of air employed.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings: Figure 1 is a sectional elevation of a carbureter constructed in accordance with the invention. Fig. 2 is a plan view of the same on the line 2—2 of Fig. 1.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The casing 10 of the carbureter is preferably cylindrical in form and is provided at the bottom with a port 11 through which air is admitted, and at the side with a port 12 through which the explosive charge passes to the cylinder of the engine.

The gasolene or other liquid hydro-carbon is supplied through a pipe 15 in which is arranged a valve 16, the latter being carried by a stem 18 that is adjustably secured to a float 19 arranged within the carbureter casing.

At the center of the casing is a vertical standard 22 having a port 23 in which is arranged a needle valve 24. The stem of the valve is threaded and fits within a threaded opening in the standard, the upper end of the stem projecting some distance above the top of the carbureter casing.

The cap or cover 25 of the carbureter is provided with a central hub portion 26 that is free to turn on the standard 22 and is held down in place by a nut 28. The cap 25 has an inwardly extending annular flange 30 that fits within the upper portion of the carbureter casing and forms a guide for the cap, and at one side this flange is continued down to form a gate valve 31 that controls the discharge port 12. The port 12 is never wholly closed, there being at all times a small opening 31′ at the side of the gate valve, through which a small quantity of air may freely pass to form a starting charge without rendering it necessary to move the valve to open position for this purpose.

The cap 25 is provided with a projecting lug 34 that is connected to an arm 35 that projects from the needle valve stem 24, so that as the gate valve is moved the needle valve will, also, be moved and the quantity of gasolene allowed to pass through the port 23 will be in exact proportion to the quantity of explosive charge allowed to pass through the port 12.

Projecting from the hub 26 of the cap 25 is a lever 36 which may be connected to a manually operable lever, or to a governor controlled mechanism, or any other means for moving the cover and opening or closing the valve.

The interior of the carbureter is divided into two compartments by a vertical partition 40, the contour of which will be seen on reference to Fig. 2. The larger compartment forms the gasolene reservoir, while the smaller compartment 41 forms a port or passage through which the air passes from port 11 to port 12. A portion of the partition is arranged concentric with the circular wall of

the casing and is slightly spaced therefrom to form an annular recess into which the gate valve 31 may pass.

In alinement with the vertical center of the port 12 is a gasolene feed pipe 44 that is arranged in an arcuate line following exactly the curvature of the gate valve, and this pipe is provided with a number of perforations which face the gate valve and which are controlled by the latter, so that as the gate valve moves to open position the perforations will be successively uncovered and the number of perforations exposed will be in exact proportion to the extent to which the valve is opened. This gasolene pipe is supported by a tube 45 which leads from the port or passage 23, and the level of liquid maintained in the larger compartment of the carbureter is such that the pipe 45 will be constantly filled.

The end opening of the gasolene pipe 44 is opposite the constantly opened portion of the port 12, so that a charge can always pass to the cylinder of the engine for starting purposes, and this, without the necessity of opening the valve and flooding the cylinder, as is usual in the majority of devices of this type.

In operation, the lever 36 is moved either manually or automatically, and as the gate valve 31 is opened, the perforations in the pipe 44 are successively uncovered, and as a larger quantity of air passes through the port 12, a larger number of perforations will be opened to supply gasolene for carbureting the air, and at the same time the needle valve will be opened to a greater extent to furnish the increased quantity of gasolene.

It will be seen that the quality of the charge is uniform no matter what the quantity may be, and the proportions of gasolene and air are exact without regard to change in speed of the engine.

I claim:—

1. In a carbureter, a casing having an air passage provided with ports in both ends, a gate valve controlling the discharge port, a fuel supply pipe having a plurality of discharge ports facing the gate valve and under the control of said gate valve, a second valve controlling the quantity of fuel passing into the supply pipe, and means for connecting the two valves for mutual movement.

2. A carbureter having an air port, a gasolene pipe having a plurality of discharge ports, a valve controlling all of said ports, a second valve controlling the quantity of gasolene passing to the gasolene pipe, and means for connecting the two valves for mutual movement.

3. In a carbureter, a casing, a partition dividing the casing into a gasolene compartment, and an air passage, there being ports at both ends of said passage, a valve controlling the flow of air through the passage, said valve being held from full closing movement, a gasolene supply pipe having a plurality of feed openings also under the control of the valve, one of said openings being constantly uncovered to permit the formation of a starting charge, a second valve for controlling the quantity of gasolene passing into the supply pipe, and means for connecting said valves for mutual movement.

4. In a carbureter, a casing, a partition arranged in the casing and dividing the same into a gasolene compartment and an air passage, there being ports at both ends of the passage, a feed pipe in communication with the gasolene compartment, a float valve controlling the liquid level in the compartment, a gate valve controlling the quantity of air passing through the carbureter, a gasolene supply pipe leading from the compartment and provided with a plurality of discharging perforations adjacent to and controlled by said gate valve, a second valve for controlling the quantity of gasolene passing into the supply pipe, and means for connecting said valves for mutual movement.

5. In a carbureter, a casing, a partition dividing the casing into a gasolene compartment, and an air passage, there being ports at both ends of the passage, a float valve for regulating the liquid level in the compartment, a gate valve controlling the outlet port of the passage, a revoluble cap forming the top of the carbureter and carrying the valve, a gasolene feed pipe leading from the compartment and provided with a number of discharging perforations under the control of the gate valve, a needle valve controlling the quantity of gasolene passing through said pipe, and means for connecting the two valves for mutual movement.

6. In a carbureter, a casing, a partition dividing the casing into fuel compartment and air passage, there being ports at both ends of said air passage, a gate valve or throttle for the outlet port of said passage, a fuel supply pipe having a valve controlling the quantity of fuel fed thereinto, and said pipe also having a plurality of discharge ports under the control of said gate valve, said gate valve and fuel supply valve being connected to open and close simultaneously.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

PERRY ALLEN.

Witnesses:
ED. S. LEE,
NELLIE BORDEAU.