

No. 633,319.

Patented Sept. 19, 1899.

E. R. INMAN.
CARBURETER.

(Application filed June 29, 1898.)

(No Model.)

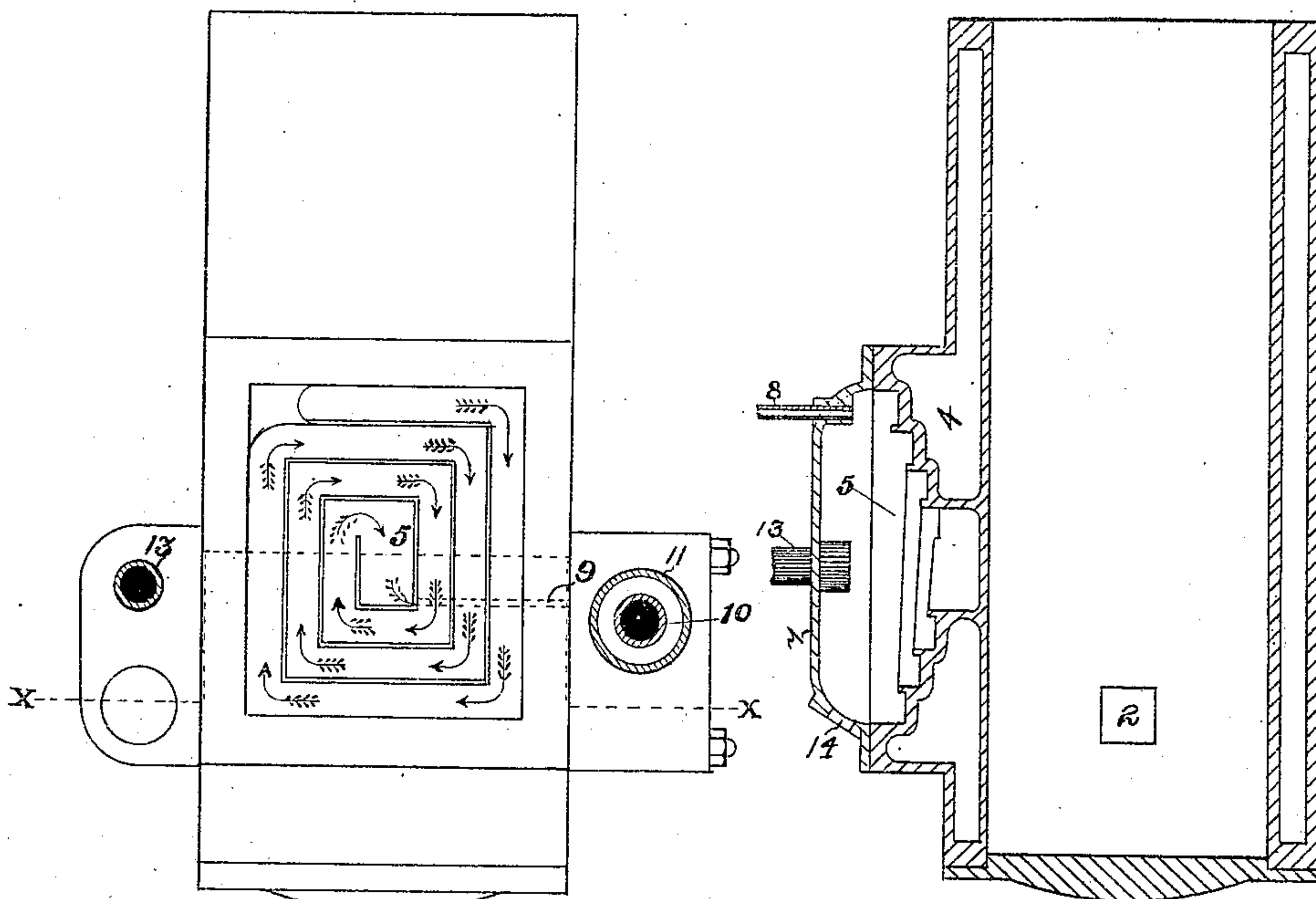


Fig. 2

Fig. 3

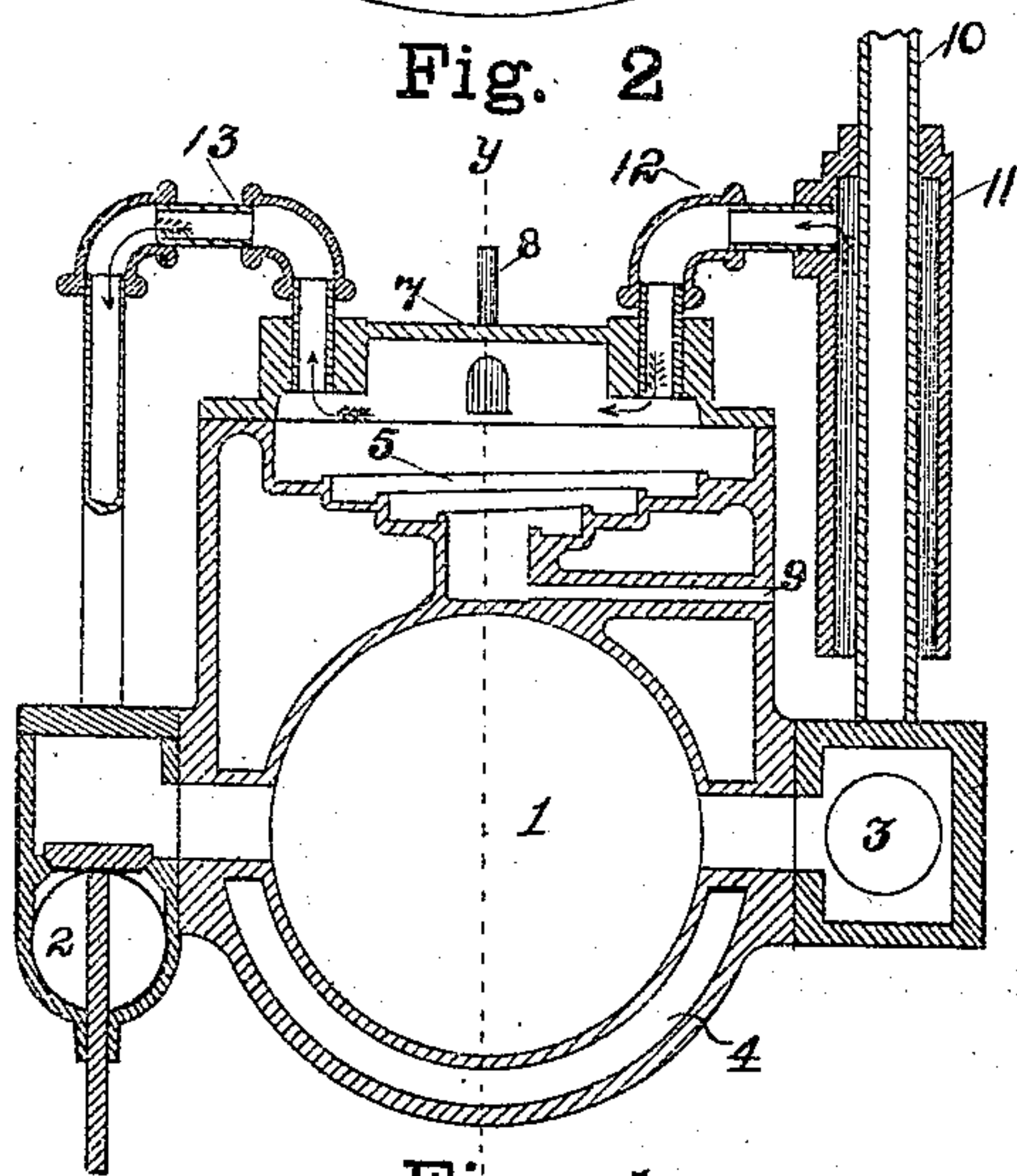


Fig. 1

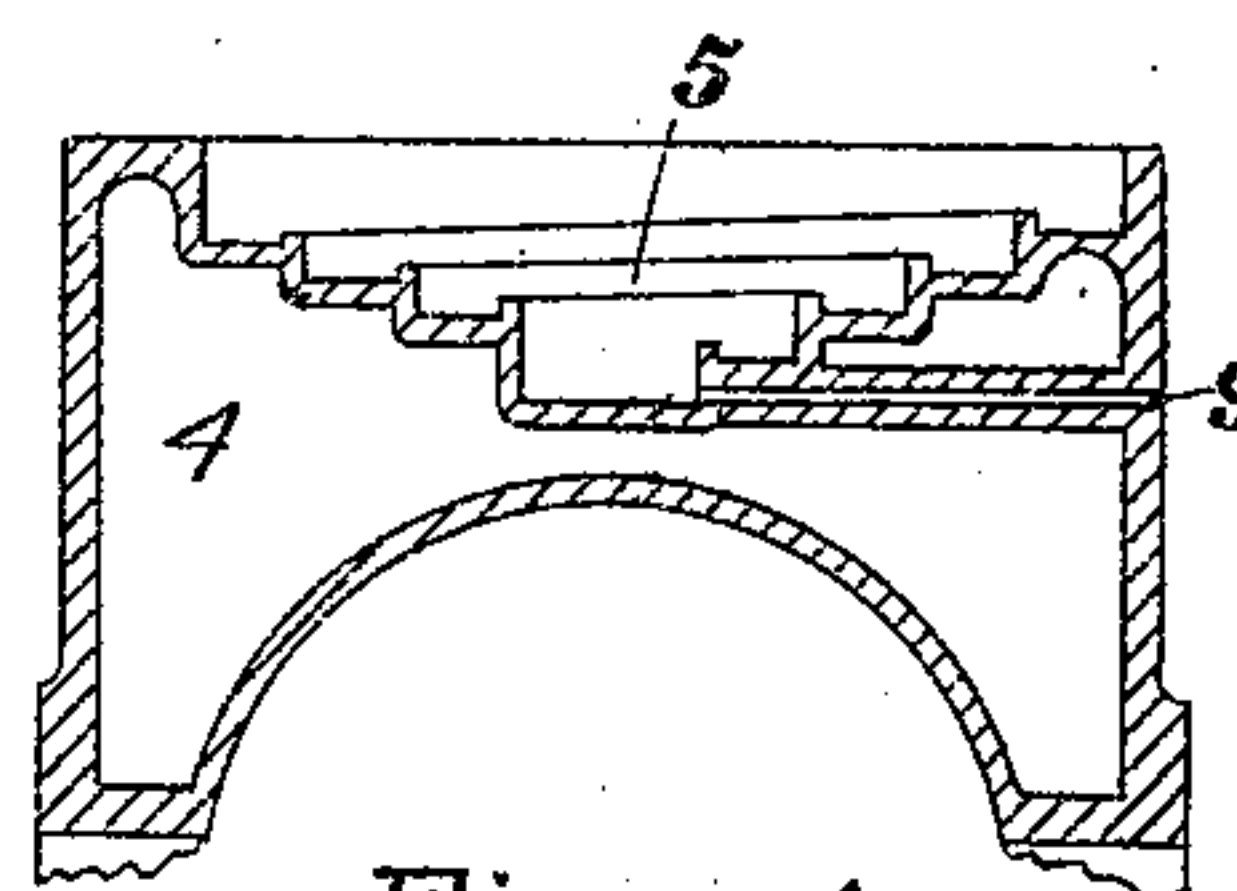


Fig. 4

Witnesses
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EDWARD RAY INMAN, OF INDIANAPOLIS, INDIANA.

CARBURETER.

SPECIFICATION forming part of Letters Patent No. 633,319, dated September 19, 1899.

Application filed June 29, 1898. Serial No. 684,767. (No model.)

To all whom it may concern:

Be it known that I, EDWARD RAY INMAN, of Indianapolis, in the county of Marion and State of Indiana, have invented new and useful Improvements in Carbureters; and I do hereby declare the following to be a full, clear, and exact description of said invention, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in carbureters, the same being a device for generating gas from crude or refined petroleum and petroleum products when such gas is to be used as the motive agent of gas and combustion engines and motors.

In the drawings, Figure 1 is a vertical transverse section on line *x x* of Fig. 2. Fig. 3 is a longitudinal vertical section on line *y y* of Fig. 1. Fig. 2 is a plan view of my device, showing the carbureter with the cover removed. Fig. 4 is a modified form.

The same reference-figures indicate identical parts throughout the several views.

The construction of my device is substantially as follows:

My device is constructed in connection with a gas-engine cylinder 1 of the usual type employed in gas-engines, having the usual inlet-port 2 and exhaust-port 3, together with the respective valves communicating therewith. Said cylinder is also provided with a water-jacket 4. Above the cylinder is formed the generating-chamber 5, the side walls of which are preferably integral with the outer walls of the water-jacket. Said generating-chamber is formed by a spiral way or groove, which winds about the inside of the chamber in a continuous passage from the upper to the lower portion. In the cover 7 of said chamber, and at one end thereof, is inserted a pipe 8, by means of which oil is introduced to the carbureter, said oil being deposited upon the spiral way at its uppermost portion. - The oil travels thence by gravity throughout the entire length of said spiral way to the bottom thereof and passes out through a way 9 provided therefor. In order to vaporize the oil so introduced within the generator, heat must necessarily be there present, which heat is supplied by the heated water in the water-

space 4 about the cylinder, said water becoming of a sufficient degree of heat after the engine has been in operation for several minutes. This water, in order to produce the best results for which it is intended—namely, the cooling of the cylinder—should be introduced into the water-jacket at a temperature not below the boiling-point of water and be discharged therefrom at a temperature of about 220°, which degree of heat will be transmitted to the chamber of the carbureter by radiation and the necessary degree of heat thereby attained. As a supplementary means of heating the oil, if desirable, the lower wall or bottom of the carbureter may be formed intact with the upper wall of the cylinder 1, and as said cylinder would become heated at this point above the surrounding temperature the oil as it flows along said bottom would become heated to a much higher temperature than that stated. I do not limit myself, however, to this form of construction, as an open space or water-passage may be left between the bottom of the carbureter and the cylinder-wall, and by this construction the carbureter would receive its entire heat from the surrounding water.

When an engine or motor provided with my device is in operation, the charge of gas and air is drawn into the cylinder by the forward movement of the piston, this being the usual manner of charging all motors of the specified type; but in my device the air is passed through the carbureter and there becomes charged and mingled with the gas which has been expelled from the oil by the means aforesaid.

It being desirable to heat the air before it enters the carbureter the method of so heating same and its course of travel are substantially as follows: About the exhaust-pipe 10 is formed a drum or heater 11, which heater may be a sleeve placed about said pipe, with a sufficient space between the periphery of said pipe and the inner wall of the sleeve to permit a passage of air through said space. Entering said sleeve and communicating from thence to the carbureter-chamber is a pipe 12. Passing out of said carbureter-chamber is an outlet-pipe 13, by means of which the air is drawn from the chamber through the inlet-valve to the cylinder. As the air passes

through the sleeve it becomes heated, and thereby a suitable and prepared vehicle for the reception of such an amount of gas as to make it an explosive agent. The air passing
 5 through pipe 12 the gas is mingled with it and it thence passes through pipe 13 by the way of inlet-valve into the engine-cylinder and is there compressed, ignited, and exploded by the usual functions of the explosive-motor.
 10 I do not wish to limit myself to this particular form of device, however, for heating the air before entering the carbureter, as many other forms of device may be substituted as circumstances may require in adapting my device to
 15 various styles of engines.

I am aware that other carbureters are in use for a similar purpose; but according to the best of my knowledge, information, and belief all existing devices employ the exhaust
 20 of the engine for heating the carbureters. I do not, as has already been demonstrated, employ such method; but, as stated, the heat from the water surrounding the cylinder is the principal heating agent, direct heat from
 25 the wall of the cylinder being employed as a supplementary supply when the heavier or less volatile oils are to be utilized. The heating of the air before the same is brought into the presence of the gas I believe to be a most
 30 desirable and beneficial function and I claim the same as a particular and valuable point of my invention.

For the purpose of applying preliminary heat to the carbureter I provide an opening
 35 14 at one end of the cover, into which may be directed the flame of a torch or blowpipe and by which means the chamber of the carbureter may be brought to the desired degree of heat before oil is introduced into the carbureter for the purpose of generating sufficient gas to start the engine.

Having thus described my device, what I claim as new, and desire to secure by Letters Patent, is—

45 1. In a carbureter for gas-engines, a carbureter-chamber formed integral with the walls

of the cylinder of the engine, substantially as and for the purpose specified.

2. The combination with the cylinder of a gas-engine; of a water-jacket; and a carbureting-chamber provided with suitable air,
 50 oil and gas induction and eduction pipes, the exterior walls of said water-jacket serving as interior walls of said carbureting-chamber, both chambers being adapted to be heated
 55 by the radiation of heat from said engine-cylinder, substantially for the purpose set forth.

3. The combination with the cylinder of a gas-engine of a carbureting-chamber, provided with suitable air, oil and gas induction
 60 and eduction pipes, and a water-jacket interposed between said cylinder and a portion of the walls of said carbureting-chamber, whereby said carbureting-chamber is heated, both
 65 by the direct radiation of heat through the walls of said engine-cylinder and the indirect radiation of heat therefrom through the water in said water-jacket, substantially as and for the purpose specified.

4. In a carbureter for gas-engines, a carbureting-chamber, the walls of which are formed
 70 in contact with the walls of the water-jacket and cylinder-wall, a removable cover for said chamber, an oil-inlet pipe leading to said chamber, an oil-outlet pipe leading from
 75 said chamber, and air-passage leading to said chamber, and air-heater consisting of a sleeve formed about the exhaust-pipe of such engine, said heater forming a part of the passage whereby air is admitted to said carbureting-chamber, an air and gas outlet pipe,
 80 or other suitable means connecting said carbureting-chamber with the inlet-port of said gas-engine, all combined, arranged and operating substantially as shown and described.

85 In testimony whereof I affix my signature in presence of two witnesses.

EDWARD RAY INMAN.

Witnesses:

H. C. H. COOPER,
 C. M. GLOVER.