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W. KOUNS.

CARBURETER FOR HYDROCARBON ENGINES.

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Fig. 1.

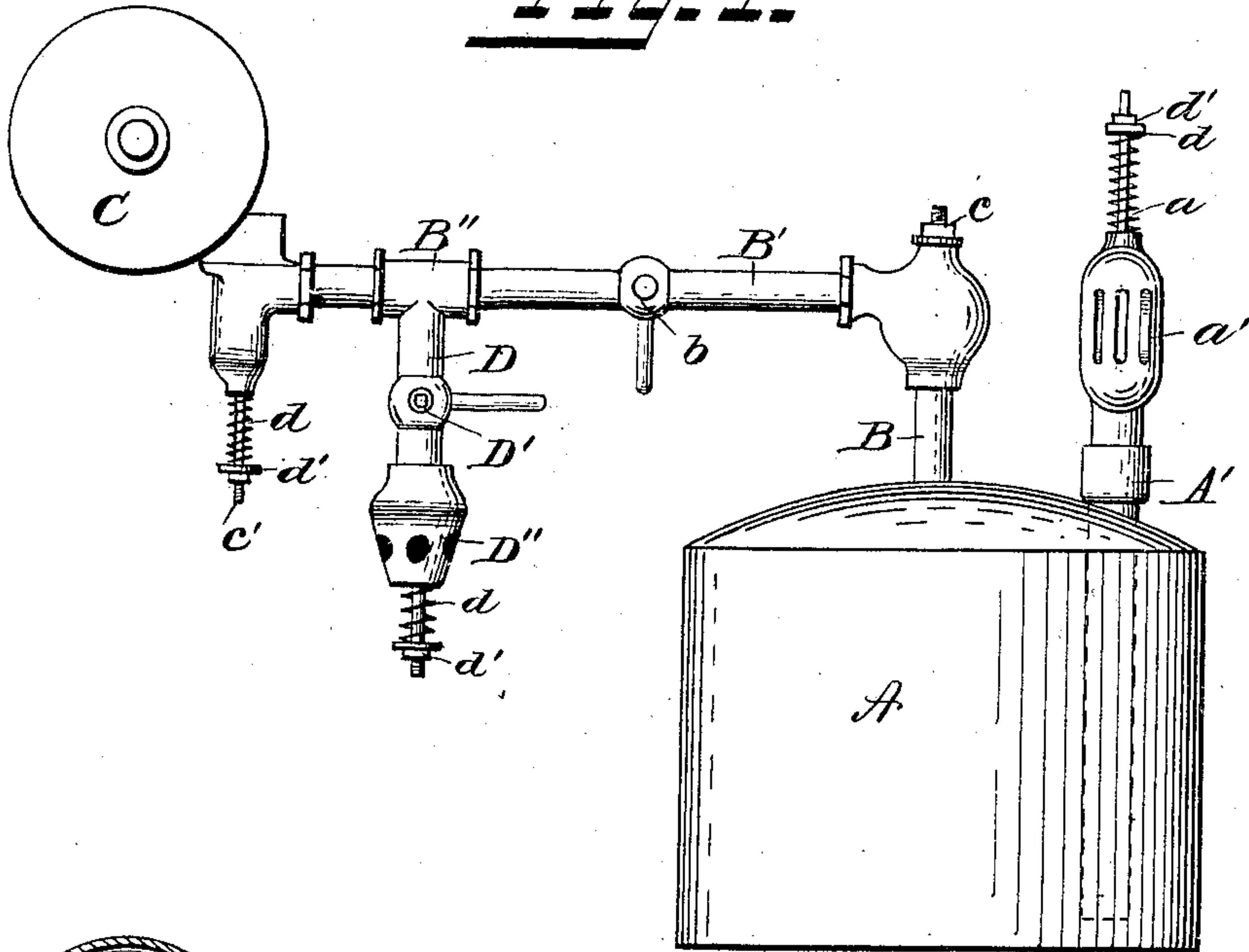
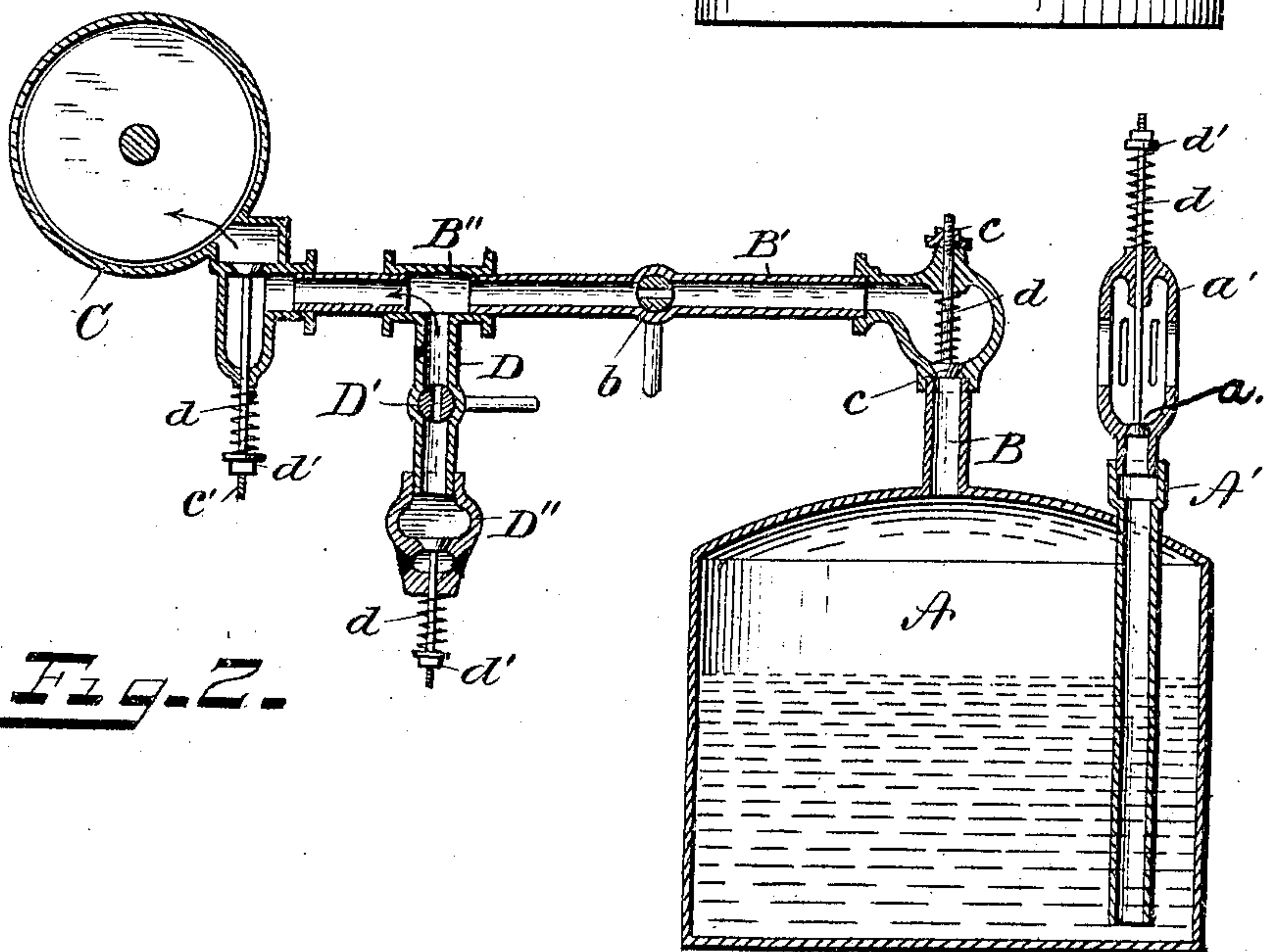


Fig. 2.



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# UNITED STATES PATENT OFFICE.

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## CARBURETER FOR HYDROCARBON-ENGINES.

No 812,753.

Specification of Letters Patent.

Patented Feb. 13, 1906.

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*To all whom it may concern:*

Be it known that I, WESLEY KOUNS, a citizen of the United States, residing at Salina, in the county of Saline and State of Kansas, have invented certain new and useful Improvements in Carbureters for Hydrocarbon-Engines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to an autoregulated carbureter; and it consists in the construction and arrangements of its several parts, which will be hereinafter more fully described, illustrated in the drawings, and particularly pointed out in the claim.

The principal object of my invention is to provide a carbureter which will be automatically regulated in its production of gas of any desired quantity and quality by the demand of the work to be performed, responding instantly to the load or urgency of the machine to which it supplies power to the extent of its capacity or automatically lessening its production of gas as the demand or urgency upon it is lessened, thus rendering it specially adapted to automobiles and like machines.

A further object of my invention is to construct its parts simple in form, so that they may be readily understood and operated, strong and durable in character, easily and cheaply repaired or quickly replaced when broken or worn out, and easily adjusted, thus giving to the user a strong, durable, and serviceable producer of gas of any desired quantity and quality to use and employ in connection with any suitable machine.

These objects I accomplish by the apparatus illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my improved apparatus, and Fig. 2 is a vertical longitudinal section of the same.

Similar letters of reference indicate corresponding parts in both figures of the drawings.

Referring to said drawings, A represents the gasolene-tank, provided with the fresh-air-inlet pipe A', the upper part of which is furnished with an automatic air-inlet valve

a, while the lower end of said pipe extends downwardly into the tank within a short distance from its bottom. Upon the upper part or crown of the tank A is provided a gas-outlet pipe B, to which is connected the gas-supply pipe B', which leads from thence to the engine-cylinder C. An automatic check-valve c is provided in the supply-pipe B' at its junction with the outlet-pipe B of the tank A, and a similar automatic check-valve c' is located in said pipe at the point of its connection with the engine-cylinder, each of said valves being provided with suitable coiled springs d upon their stems, which are adapted to receive proper tension by means of the screw-caps d' upon said stems, as shown in Fig. 2.

At a suitable point upon the supply-pipe B' between the engine-cylinder C and the tank A is located a globe-valve b, and upon said pipe between the said globe-valve b and the engine-cylinder C is provided an auxiliary fresh-air pipe D, having globe-valve D' and air-inlet valve D'', which is also automatic in its action.

The automatic air-inlet valve a, attached to the top of pipe A' of tank A, is located within an open frame or cage a', which is adapted to be removably secured to the top of pipe A' in such manner that the same may be readily removed to pour the desired quantity of gasolene into the tank A and again replaced to prevent the evaporation of the gasolene into the open air, while at the same time readily allowing the inlet of fresh air into the tank through the pipe A'. The air-valve a, with its supporting-frame a', is first removed from the top of the pipe A' and the desired quantity of gasolene poured down said pipe into the tank A, mixing with the air contained therein to form a strong charge of gas, which rises to the upper part of the tank and collects in the space between the roof of the same and the surface of the gasolene in the tank. The air-valve and its frame are then replaced in their normal position upon the pipe A' to prevent the evaporation of the gasolene from the tank and at the same time to provide for the ready admission of air when the engine is in operation. The action of the piston of the cylinder C in drawing a charge of gas from the tank also serves to draw in fresh air through the valve a, which passing down the pipe A' emerges from the



bottom of the same and rises to the surface of the gasoline, becoming thoroughly impregnated with the same in its passage upwardly; thus forming a charge of gas in the upper part of the tank. The piston in the engine-cylinder C being now thrown into operation, (in the first instance by hand or otherwise,) said piston draws a charge of gas from the top of the tank A through the pipes B and B' and the automatic check-valves c c' into the cylinder C, and on the return stroke of said piston these valves c c' automatically close and the charge of gas is compressed in said cylinder C to form an explosive charge. On the reverse movement of said piston the air-valve a on pipe A' is automatically opened by the pressure of the piston in cylinder C and on its return draws in air to form another charge of gas for said cylinder. In order to equalize the charge of gas and, if necessary, diminish its strength to suit the power to be furnished, the auxiliary air-pipe D is located at the point B'' on the supply-pipe B', the purpose of which is that as each charge of gas is drawn by the suction of the piston from the tank A to the point B'' a predetermined supply of air may be drawn through the air-inlet D'' on auxiliary air-pipe D, so as to contact and mix with the charge being drawn from the tank A to the point B'' preparatory to being drawn into the engine-cylinder, thereby forming the desired mixture of air and gas for the combustion charge. In this manner the strength of each charge of gas can always be regulated to suit the requirements of power desired. These successive movements of the piston draw air into and through the gasoline-tank, form the gas, and compress it in the cylinder, and thus produce the explosive charge for driving the automobile or other machine.

The globe-valve b on the supply-pipe B' may be opened or closed at will by hand to start or stop the operation of the engine,

while the globe-valve D' on auxiliary air-pipe D may be opened or closed, according to the necessity of increasing or diminishing the supply of air at that point to form the desired mixture for the combustion charge.

It will be noted that the valves a and c keep the pressure in tank A somewhat below atmospheric pressure while the engine is operating. The spring-loaded valve a opens only when the pressure in tank A is sufficiently lower than atmospheric pressure to overcome the initial compression of spring d, and likewise the pressure in pipe B' must be lower than the pressure in tank A to overcome the initial compression of its spring d. It follows, therefore, that in operation the pressure in tank A will be below atmospheric pressure, and this condition is very desirable, since it favors the use of relatively heavy oils and insures the free vaporization of oils which would volatilize much less freely at atmospheric pressure.

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

In an autoregulated carbureter, the combination with the cylinder of an engine, and a supply-pipe B', provided with the globe-valve b, automatic check-valves c c', and auxiliary air-pipe D, having automatic air-inlet valve D'', and globe-valve D', of a gasoline-tank A, having outlet-pipe B, connecting with supply-pipe B', and being provided with air-inlet pipe A', the lower end of which extends nearly to the bottom of said tank and its upper end having attached thereto an air-valve a and its frame a', substantially as described.

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

WESLEY KOUNS.

Witnesses:

GEO. D. HOLMQUIST,  
J. VEDDER STEVENS.