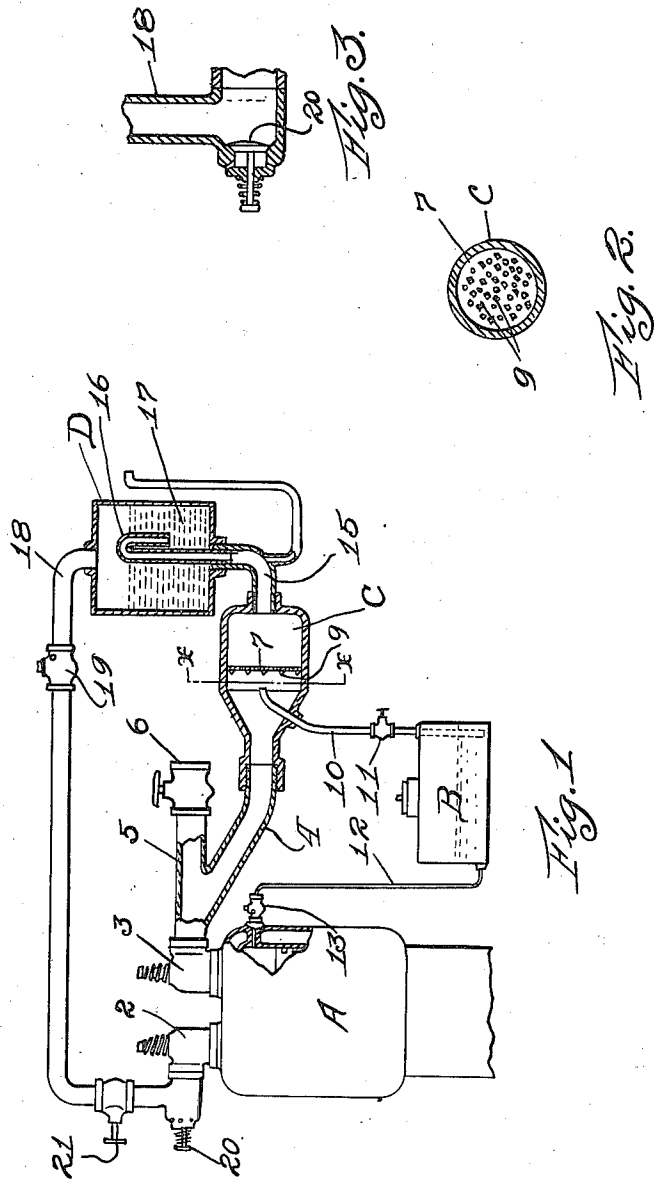


F. PFEIFER.
PROCESS OF AND APPARATUS FOR GENERATING GAS.
APPLICATION FILED JUNE 11, 1917.

1,296,115.

Patented Mar. 4, 1919.



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UNITED STATES PATENT OFFICE.

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PROCESS OF AND APPARATUS FOR GENERATING GAS.

1,296,115.

Specification of Letters Patent.

Patented Mar. 4, 1919.

Application filed June 11, 1917. Serial No. 174,007.

To all whom it may concern:

Be it known that I, FRANK PFEIFER, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented a new and useful Improvement in Processes of and Apparatus for Generating Gas, of which the following is a specification.

The object of this invention is to provide an improved process and apparatus for generating gas from crude petroleum and in which both the method and apparatus are simple and efficient in operation.

With these and other objects in view, my invention comprises the improved method and apparatus which are hereinafter particularly described and claimed.

In the accompanying drawing forming part of this specification, Figure 1 is a typical side elevation partly in section of the apparatus by which my improved process can be carried into practice; Fig. 2 is a section taken on the line X—X of Fig. 1, and Fig. 3 is a section of a detail of my improved apparatus.

In the drawing A indicates a detail of an internal combustion engine having the usual intake and exhaust valve fittings 2 and 3, which are adapted to be operated in the usual manner to allow the ingress of fuel mixture into the cylinder and the exhaust of the spent gases. Associated with the parts described are a fuel tank B for supplying heavy fuel oil, a gas generating chamber C and a scrubber or washer D. One end of the gas generating chamber C is connected with a branch 4 leading from the exhaust duct 5, which latter is connected with the outlet of the exhaust valve fitting 3, so that a portion of the exhaust gases emanating from the engine are admitted into chamber C. A valve 6 in the main exhaust duct 5 can be used to check or partly check the main egress of exhaust gases from the engine and cause any desired portion thereof to be forced downwardly through the branch 4 and into the gas generating chamber. The gas generating chamber is provided with a baffle wall 7 in the form of a perforated plate having pointed projections 9 against which the oil from the supply chamber B is sprayed and broken up minutely into fine particles, which readily mix and form a gaseous vapor with the exhaust gases which are admitted into

the gas generating chamber by the branch duct 4. The passage admitting the heavy oil into the gas generating chamber is in the form of a small pipe 10 containing a controlling valve 11 and connected with the top of the fuel chamber B. The lower portion of the fuel chamber is connected by the bleeder pipe 12 containing the check valve 13 with the upper end of the cylinder A, so that a small portion of the gases from the interior of the cylinder are caused to force the heavy fuel oil upwardly and spray the same against the baffle wall in the gas generating chamber. The gas which is thus produced in chamber C by the thorough mixing of the fine particles of heavy fuel oil and the exhaust gases from the engine are conducted by the passage 15 upwardly into the upper portion of the washer D through an elbow or seal 16, which depends downwardly into a bath of water or liquid 17 contained in the washer. In this manner the gas is rid of objectionable impurities and is free to pass from the upper portion of the washer through a duct 18 into the fuel ingress valve fitting 2 from whence it is admitted at proper intervals into the cylinder of the engine. A suitable check valve 19 contained in pipe 18 having a small orifice checks back pressure upon the gas contained in the scrubber. An automatic valve 20 adjoining the valve 2 admits a suitable quantity of air to mix with the gas which is admitted into the engine cylinder. A hand operable valve 21 is connected with the pipe 18 and is used for the purpose of shutting off the supply of gas or regulating the same.

It will thus be observed that the heavy fuel oil is forced under the pressure of gases in the cylinder of the engine which is being operated into a gas generating chamber, where it is intimately united with exhaust gases from the same engine under pressure, and after the mixture thus formed is washed, it is mixed with air and admitted into the engine where it is used as a power propelling medium.

In accordance with the patent statutes, I have described the principles of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof, but I desire to have it understood that the construction shown is only illustrative and that the invention can

be carried out by other means and applied to uses other than those above set forth within the scope of the following claim.

5 Having described my invention, what I claim as new and desire to protect by Letters Patent is:—

10 Apparatus for generating gas, comprising, in combination, an internal combustion engine having valved fuel ingress and valved exhaust openings, a reservoir for holding heavy fuel oil connected by a passage with the combustion chamber of said engine to force the oil out of said reservoir, a gas

generating chamber connected with said reservoir and with the exhaust outlet of said engine whereby oil and exhaust gases are formed into a vapor, said gas generating chamber being also connected by a duct with the valved ingress passage of said engine, and a valved air inlet arranged to admit and mix air with the vapor conducted by said duct into the engine. 15 20

In testimony whereof I have signed my name to this specification.

FRANK PFEIFER.