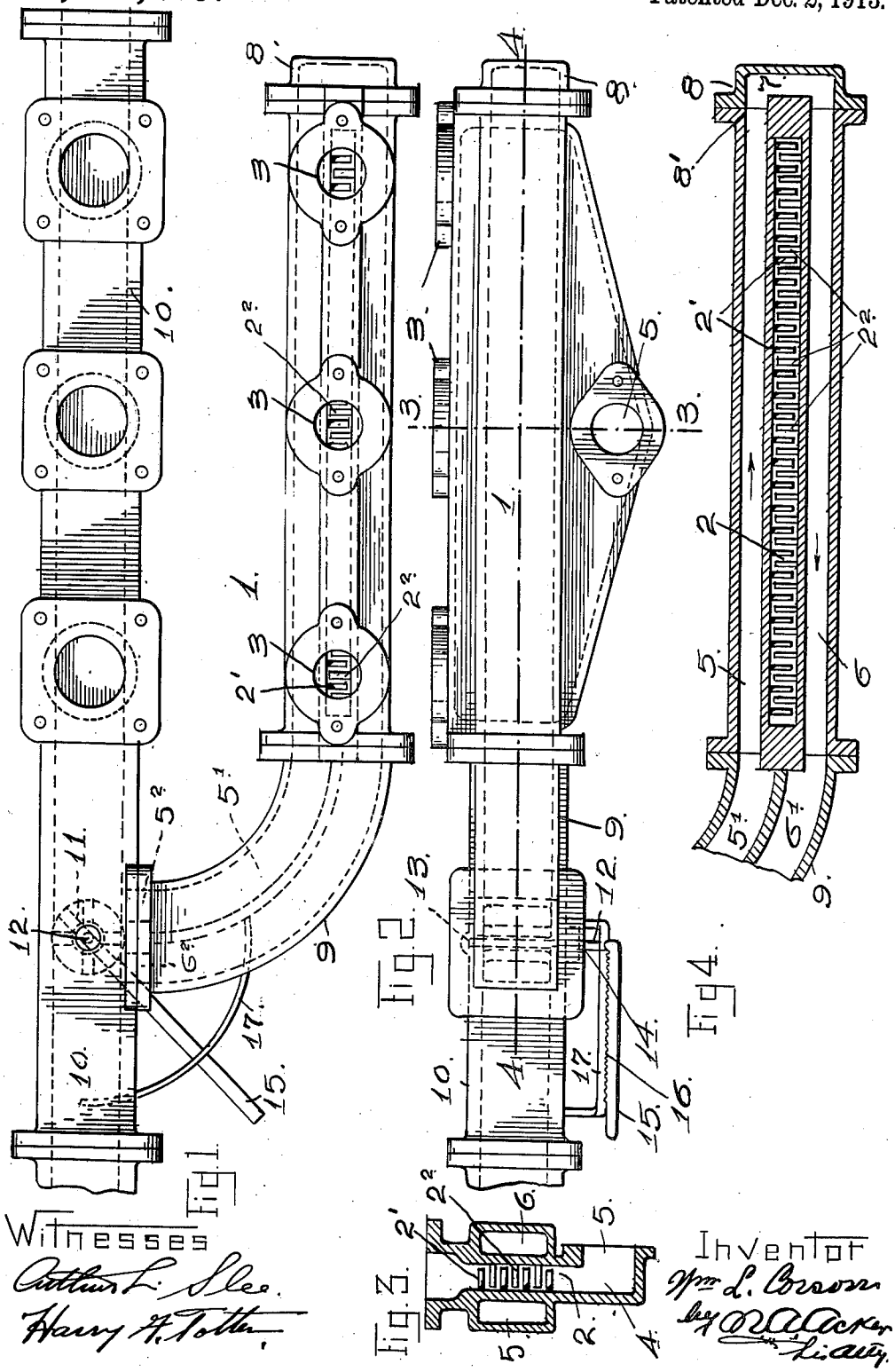
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GASIFIER FOR LIQUID FUELS.

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Witnesses

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GASIFIER FOR LIQUID FUELS.

1,080,139. Specification of Letters Patent. Patented Dec. 2, 1913.

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To all whom it may concern:

Be it known that I, WILLIAM L. CORSON, a citizen of Great Britain, residing in the city and county of San Francisco and State of California, have invented certain new and useful Improvements in Gasifiers for Liquid Fuels, of which the following is a specification.

The hereinafter described invention relates to new and useful improvements in apparatus for gasifying distillates or other low grades of liquid fuels so that they may be employed for successfully operating internal combustion engines and dispenses with the use of gasolene as an internal combustion engine fuel, except for starting purposes, and has for its principal object to provide an inlet manifold with a chamber in which the liquid is gasified before it passes into the engine cylinders, and to surround this inlet chamber with a passage or duct through which the exhaust gases from the engine cylinders circulate, before they are directed to the atmosphere.

Another object is to provide a valve between the exhaust pipe and the inlet manifold for varying the flow of exhaust gases therefrom and into the passage or duct surrounding the inlet chamber, according to the density of the explosive fuel employed so that the inlet manifold will always be maintained at the proper temperature to thoroughly gasify the fuel passing through the chamber therein.

With the above mentioned and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings forming a part of this invention, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

To fully comprehend the invention, reference should be had to the accompanying sheets of drawings illustrating a complete constructed device for successfully carrying out the invention wherein—

Figure 1 is a plan view of my device disclosing the exhaust pipe, the inlet manifold, the valve controlled communication between the exhaust pipe and the inlet manifold; the gasifying chamber in the inlet manifold, and the passage for the exhaust gases around the gasifying chamber being shown in dotted lines. Fig. 2 is a side elevation of my device, disclosing the inlet manifold, the inlet and outlet openings for the gasifying chamber and the segment for controlling the position of the valve controlling the communication between the exhaust pipe and inlet manifold. Fig. 3 is a sectional view of the inlet manifold taken on line 3—3, Fig. 2, disclosing the gasifying chamber, the passage or duct for the exhaust gases around the same, and the heating pins projecting from the walls of the exhaust gas passage into the gasifying chamber. Fig. 4 is a horizontal sectional view of my improved inlet manifold, taken on line 4—4, Fig. 2, disclosing the gasifying chamber, the passage or duct for the exhaust gases surrounding the same, the heating pins projecting from the walls of the exhaust gas passage and extending into the gasifying chamber, the direction of the passage of the exhaust gases being shown by arrows.

Referring more particularly to the drawings, the reference numeral 1 designates my improved inlet manifold, preferably cast in a single piece, from any suitable material, and preferably oblong in shape. The interior of said manifold is provided in its center with a gasifying chamber 2, closed at each end of the manifold, thus dividing the manifold longitudinally into three compartments. The chamber 2 is provided at its top with suitable flanged outlet openings 3, one of which is connected to each cylinder inlet opening, and at its bottom with a hollow chamber 4, provided at one side with a flanged opening 5, which communicates with a source of fluid supply, thus it will be observed that the fuel to be used in operating the engine is taken in through the opening 5 and passes upwardly in the chamber 2 entering the engine cylinders through the openings 3. The chamber 2 is also provided with transversely projecting pins or baffles $2'$ and 2^2 which extend respectively from the side walls of the chamber, and are arranged in staggered relation to each other.

Extending longitudinally of the inlet manifold 1 and arranged one on each side of the chamber 2 are separate passages or ducts 5 and 6, which are open at each end of the

manifold, they communicating with each other through a channel 7 on the interior of a cap 8 secured over the outer end 8′ of the inlet manifold. The opposite ends of the passages or ducts 5 and 6 communicate respectively with passages 5′ and 6′, which extend longitudinally of and are arranged within a suitable pipe 9, the other end of said passages 5′ and 6′ communicate with an exhaust pipe 10 of the engine, through suitable spaced ports 5^2 and 6^2 arranged in one side thereof. The exhaust pipe 10 is of the usual construction and is provided in its center and in a line between the ports 5^2 and 6^2 with a butterfly valve 11, said valve being of the same diameter as the inside diameter of the pipe 10, and secured at its center to a shaft 12 which extends therethrough, one end of which is pivotally mounted in a suitable seat 13 on the interior of the pipe, and the other end of said shaft extends outwardly through a suitable opening 14 in the exhaust pipe, and is bent at right angles to the shaft 12, forming an operating handle 15. The handle 15 is adapted to be engaged throughout its path of movement by suitable notches or teeth 16, arranged on the surface of a segment 17, the ends of which are preferably attached to the pipes 9 and 10.

It will be observed that the valve 11 is mounted to turn in said exhaust pipe 10 and direct the flow of exhaust gases therefrom through the port 5^2 into the passage 5′ of the pipe 9, and into passage or duct 5, in one side of the inlet manifold, the gases circulating through the channel 7 and passing from the manifold into the exhaust pipe 10 in the rear of the valve by the passages 6, 6′ and 6^2. The exhaust gases in their flow through the passages in the inlet manifold will cause the walls thereof and the pins 2′ and 2^2 to become heated to a very high degree of temperature, so that as the fluid is drawn into the gasifying chamber 2 it encounters the staggered pins 2′ and 2^2, which have become highly heated, and is quickly vaporized by the intense heat therefrom, entering the engine cylinders in a state of high temperature.

It will be observed by pivoting the valve 11 in the exhaust pipe that the entire exhaust from the engine or any portion thereof, may be directed into the passages or ducts surrounding the gasifying chamber thus adapting my device to the gasifying of all low grades of liquid fuel, and it will also be observed that a continuous flow of exhaust gases is always maintained in said passages 5 and 6, when desired.

Any suitable means or fuel may be used for starting the engine, but the following is preferred.

The engine may be started by any highly combustible fuel, such as gasolene, the exhaust gases therefrom directed around the gasifying chamber, and after the chamber has attained a sufficient temperature to gasify the fuel to be used in the operation of the engine the flow of the lighter fluid may be cut off from the inlet manifold and the operating fluid admitted thereto.

Having thus fully described my invention what is claimed as new and desired to be protected by Letters Patent is—

1. In a gasifying device for liquid fuels, the combination of an outer casing having longitudinally extending partitions forming an intermediate gasifying chamber, and oppositely disposed heating chambers, the heating chambers communicating with one another at one end, and one of said heating chambers constituting at its opposite end an inlet, and the other heating chamber constituting at its opposite end an outlet, said inlet and outlet being adapted for connection with the exhaust pipe of an internal combustion engine, one of the exposed sides of the gasifying chamber having intermediate its ends an inlet opening for the fluid supply and the opposite exposed side of the gasifying chamber having an opening for communication with the engine cylinder.

2. In a gasifying device for low gravity liquid fuels, the combination with an exhaust pipe of an internal combustion engine, of an inlet manifold, a gasifying chamber in said manifold, a communication between said chamber and source of fluid supply, an independent communication between said chamber and engine cylinder, a receiving duct extending around said gasifying chamber, an inlet communication from said exhaust pipe to said duct, an outlet communication from said duct to said exhaust pipe, the inlet and outlet of the receiving duct being arranged at the same point and being provided with a valve so that the circulation of the exhaust gases is through the duct and entirely around said gasifying chamber.

3. In a gasifying device for liquid fuels, the combination of an exhaust pipe of an internal combustion engine, of an inlet manifold comprising an elongated casing forming a gasifying chamber, said casing being closed at opposite ends and having intermediate its top wall one or more outlet openings, one for each engine cylinder, and also having in its bottom wall an inlet opening for the fluid supply, said inlet opening being intermediate the ends of the casing, a longitudinally extending wall at each side of the casing connected to the latter so as to form inclosing passages open at each end, an end passage or duct connecting the said passages at one end, and auxiliary passages leading from said inclosing passages at the opposite end thereof and communicating with the exhaust pipe of the engine.

4. In a gasifying device for low gravity liquid fuels, the combination with an ex-

haust pipe of an internal combustion engine, of an inlet manifold, a gasifying chamber in said manifold, a communication between said chamber and source of fluid supply, a communication between said chamber and engine cylinder, a receiving duct surrounding said chamber and having its inlet and outlet at the same end of the device, baffle plates projecting from the walls of said duct and extending into said gasifying chamber and valve controlled means in the exhaust pipe adjacent said inlet and outlet of the duct for circulating heated gases from said exhaust pipe through said duct and returning said gases to said exhaust pipe.

5. In a gasifying device for liquid fuels, the combination of an exhaust pipe of an internal combustion engine, of an inlet manifold comprising an elongated casing forming a gasifying chamber, said casing being closed at opposite ends and having intermediate its top wall one or more outlet openings, one for each engine cylinder, and also having in its bottom wall an inlet opening for the fluid supply, said inlet opening being intermediate the ends of the casing, transversely extending pins or baffles within the gasifying chamber projecting from opposite walls thereof in staggered relation, a longitudinally extending wall at each side of the casing and connected to the latter so as to form inclosing passages open at each end, a cap at one end of the device forming a duct connecting with the respective passages at one end, and auxiliary passages leading from said inclosing passages at the opposite end of the device and communicating with the exhaust pipe of the engine, and a valve in the exhaust pipe adjacent said auxiliary passages, substantially as and for the purpose 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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