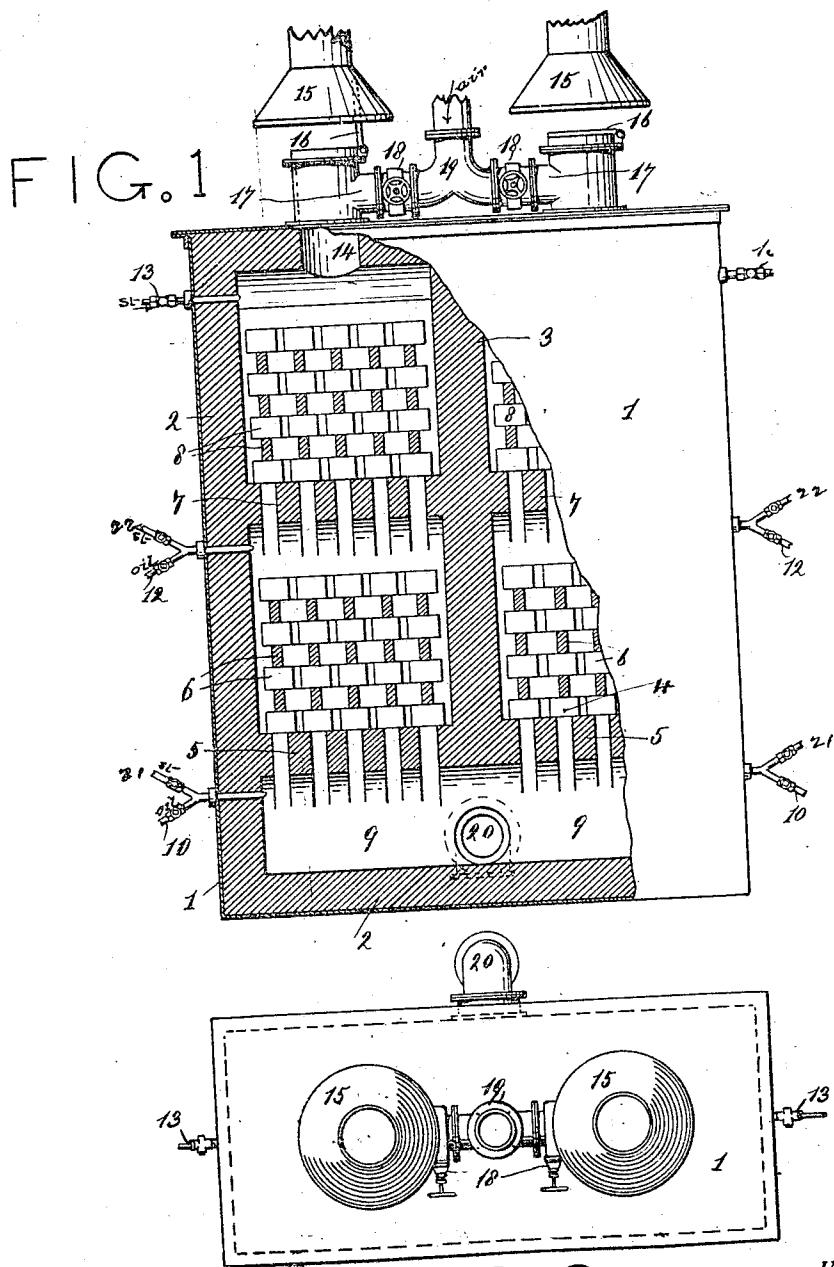


No. 819,666.

PATENTED MAY 1, 1906.

L. P. LOWE.
APPARATUS FOR GENERATING GAS.
APPLICATION FILED DEC. 5, 1905.



WITNESSES:
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FIG. 2

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APPARATUS FOR GENERATING GAS.

No. 819,666.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed December 5, 1905. Serial No. 290,333.

To all whom it may concern:

Be it known that I, LEON P. LOWE, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Apparatus for Generating Gas, of which the following is a specification.

This invention relates to an improved apparatus for making gas, the object of the invention being to provide an apparatus of this character which will economize in a greater degree than heretofore the heat generated by the combustion of fuel in the heating stage in the manufacture of gas from oil.

In the accompanying drawings, Figure 1 is a broken front elevation of the apparatus. Fig. 2 is a plan view thereof.

Referring to the drawings, 1 represents the casing of a gas-generator lined with refractory material 2. The interior thereof is divided centrally by a vertical wall 3, extending completely to the top from a point near the bottom, where it is supported by an arch 4. Upon arches 5 on each side of said wall is supported a pile of regenerative material 6, extending to a point nearly half-way up the casing, and at a suitable distance above the top of said regenerative material 6 is arranged on each side a second set of arches 7, supporting a second pile of regenerative material 8. At the bottom of the generator below said arches 5 is the combustion-chamber 9, into which enters on each side of said casing an oil-pipe 10. Into the space between the top of the regenerative material 6 and the arches 7 at each side enters an oil-pipe 12, and into the space between the regenerative material 8 and the top of the casing on each side enters a steam-pipe 13. The oil is injected through the pipes 10 and 12 by steam admitted through pipes 21 and 22, respectively. From the top of the casing on each side leads a flue 14, discharging into a stack 15 and controlled by a valve 16. Connecting with said flues are conduits 17, controlled by valves 18 and connected with a common conduit 19 for supplying an air-blast. From the center of the combustion-chamber leads a gas-outlet 20.

The mode of operation of the apparatus is as follows: A fire having been started in the combustion-chamber, oil is admitted by the pipe 10 on one side—say on the right—and the valve 16 on the right is closed, the valve 16 on the left is open, and the air-blast is ad-

mitted on the right. The products of combustion of the oil pass up through the regenerative material 6 and 8 on the left and out to the stack. After a suitable time the valve 16 on the left is closed and that on the right is open, the air-blast is admitted on the left and closed on the right, and the oil-pipe 10 is opened on the left and closed on the right, so that the direction of the products of combustion is reversed. After the regenerative material in the casing has been sufficiently heated the gas-making stage is commenced, and for this purpose, supposing that the last preceding step in the heating stage has been from left to right, the valve 16 on the right is closed, the air-blast on the left is closed, the oil-pipe 10 on the left is closed, and steam is admitted through the steam-pipe 13 on the right and passes down through the regenerative material 8 and 6, becoming thereby superheated. At the same time oil is admitted by the pipe 12 on the right, mingles with the superheated steam, and passes through the regenerative material 6 on the right, and thence through the arches 5 and through the gas-outlet 20. When the temperature of the regenerative material 6 has fallen so low so that the gas produced is too rich, the gas-making stage is discontinued and the regenerative material is reheated. For this purpose the steam-pipe 13 and oil-pipe 12 on the right are closed, the valve 16 on the left is open, and an air-blast is admitted on the right. Although the regenerative material 6 has fallen to too low a temperature to make gas economically, yet it is still at a very high temperature, and it is in the utilization of this residual heat in an apparatus of this character that my invention resides, as the blast of air entering on the right and passing through the regenerative material 8 and 6 becomes thereby very highly heated, so that when it arrives at the supply of oil admitted through the pipe 10 the combustion of the oil is economical and effective. The products of combustion pass upward through the regenerative material 6 and 8 on the left, and when these piles of regenerative material have been sufficiently heated the air-blast on the right is shut off, the valve 16 on the left is closed, and the oil-pipe 10 on the right is also closed, and the gas-making process is now repeated on the left by introducing steam by the pipe 13 and oil by the pipe 12 on the left. By making the apparatus double and using first one side and then the other for the com-

plete operation, consisting of the two stages, the heating stage and the gas-making stage, I am enabled to utilize also the same side of the apparatus as has just been used to provide a hot blast for the combustion in the succeeding heating stage at the opposite side of the apparatus. This arrangement is therefore very economical, for the combustion thus effected by using the hot blast is economical in fuel.

I claim—

1. A gas-generator having a wall dividing the interior centrally and extending from the top to a point near the bottom, regenerative material on each side of said wall, a gas-outlet and a fuel-inlet at the bottom of the generator, means for introducing steam and fluid fuel at each side into contact with the regenerative material, a flue for the products of combustion leading from each side at the top, means for introducing an air-blast at the top on each side, and suitable valves for controlling said flues and means, substantially as described.

2. A gas-generator having a wall dividing the interior centrally, and extending from the top to a point near the bottom, an upper and a lower pile of regenerative material on each side of said wall, a gas-outlet below all the

regenerative material, a fluid-fuel inlet at each side above the lower pile, a steam-inlet at each side above the upper pile, a flue for the products of combustion at each side at the top, an air-blast conduit for conducting air to the top at each side, and suitable valves for controlling said flues and conduits, substantially as described.

3. A gas-generator having a wall dividing the interior centrally, and extending from the top to a point near the bottom, an upper and a lower pile of regenerative material on each side of said wall, a gas-outlet and a fluid-fuel inlet below all the regenerative material, a fluid-fuel inlet at each side above the lower pile, a steam-inlet at each side above the upper pile, a flue for the products of combustion at each side at the top, an air-blast conduit for conducting air to the top at each side, and suitable valves for controlling said flues and conduits, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

L. P. LOWE.

Witnesses:

BESSIE GORFINKEL,
ANNIE PETERSON.