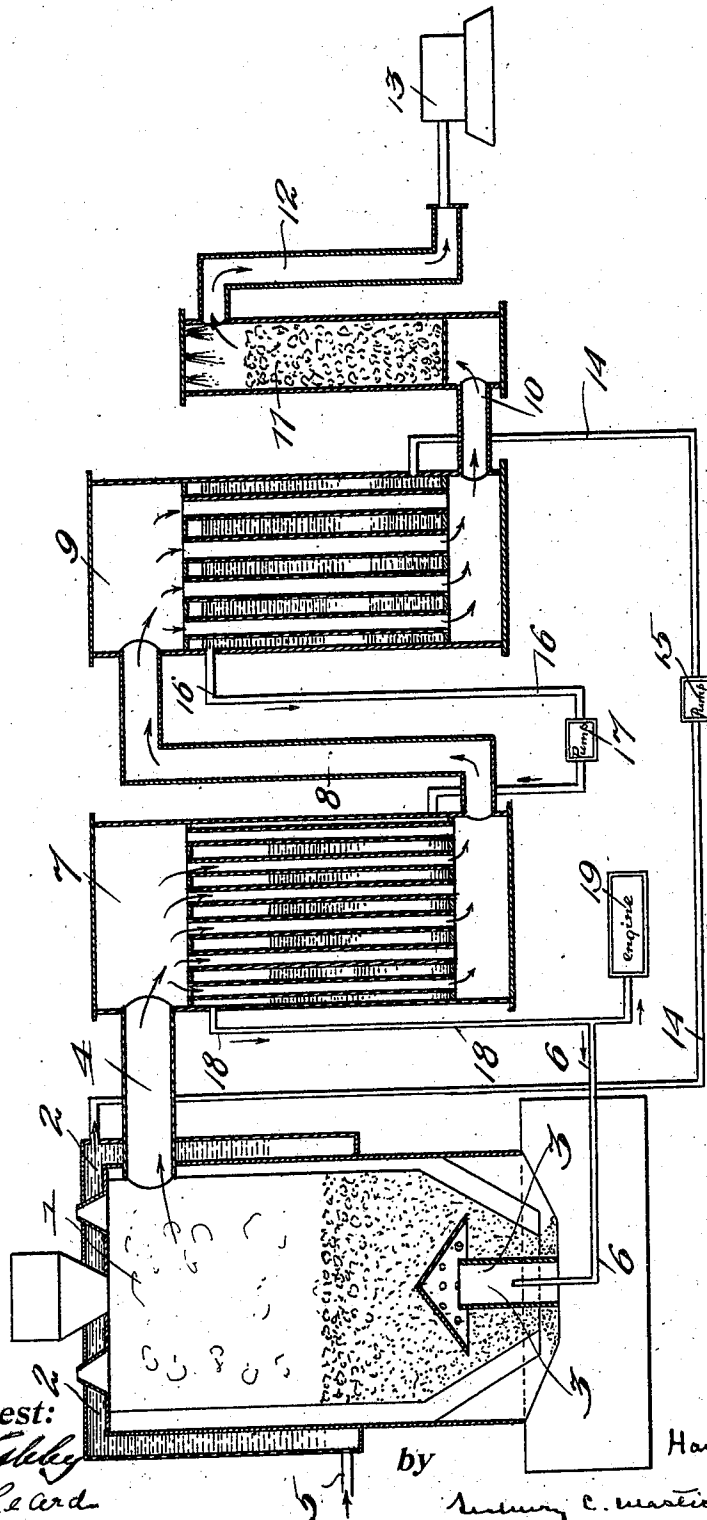


H. FOERSTERLING.
GAS GENERATING PLANT.
APPLICATION FILED APR. 6, 1907.

1,015,549.

Patented Jan. 23, 1912.



Attest:
H. G. Leard
H. G. Leard

by

Henry C. Masters his Atty

Inventor:

Hans Foersterling

UNITED STATES PATENT OFFICE.

HANS FOERSTERLING, OF PERTH AMBOY, NEW JERSEY, ASSIGNOR TO ROESSLER AND HASSLACHER CHEMICAL COMPANY, A CORPORATION OF NEW YORK.

GAS-GENERATING PLANT.

1,015,549.

Specification of Letters Patent.

Patented Jan. 23, 1912.

Application filed April 6, 1907. Serial No. 366,722.

To all whom it may concern:

Be it known that I, HANS FOERSTERLING, a subject of the Emperor of Germany, and a resident of Perth Amboy, county of Middlesex, State of New Jersey, have invented certain new and useful Improvements in Gas-Generating Plants, of which the following is a specification.

The invention relates to improvements in gas generating plants.

In order to generate and purify generator gas the gas producer plant, as heretofore known and constructed, consists of a producer proper and an economizer, which is used for pre-heating the air necessary for gasifying the fuel, and a scrubber.

With a gas producer plant of the character as above described it is possible to generate one brake H. P. hour with 1.1 to 1.25 pounds of coal. I have constructed a new gas producer plant with which I can generate one H. P. hour with less than one pound of coal.

In the following I have described, in connection with the accompanying drawing, one means of carrying out my invention, the features thereof being more particularly pointed out hereinafter in the claims.

The drawing is a diagrammatic view showing a means of carrying out my invention.

In the drawing 1 represents a gas producer of any suitable construction water jacketed in whole or in part. In the drawing the water jacket 2 comprising the primary water heater is shown as surrounding only a part of the producer 1.

3 is a steam inlet to the producer 1 and 4 is a gas outlet therefrom.

5 is a pipe for conducting water to water jacket 2.

6 is a steam pipe for conducting steam to steam inlet 3.

7 is an upright tubular boiler, connected with producer 1 by gas outlet 4 and with secondary water heater 9 by a pipe 8.

11 is a scrubber of any suitable type connected with water heater 9 by pipe 10 and with gas engine 12 by pipe 13.

14 is a pipe connecting water jacket 2 and water heater 9 and 15 is a pump for forcing water therethrough.

16 is a pipe connecting water heater 9 and boiler 7, and 17 is a pump for forcing water therethrough.

18 is a pipe for conducting steam from boiler 7 to pipe 6 and steam engine 19.

As shown, the hot gases coming from the producer 1 pass through boilers 7 and water heater 9, or there may be more boilers and heaters in the series if desirable, which boilers and water heaters are fed with preheated water from the water jacket 2, the preheated water passing first to the last water heater in the series and thence to that one next to it earlier in the series, the water turning to steam in the earliest boiler in the series as in boiler 7. The steam generated in this last named boiler is used for the gasification of the coal in the producer and the surplus steam generated in the boiler may be used as live steam in any desired manner or for the generation of power by means of a steam engine or turbine 19.

It will be noted that I make use of all the available heat units in order to generate steam which is used for the gasification of the fuel and if any steam remains after using what is necessary for such use, I am enabled to utilize that also.

It is obvious that the construction of a gas producing plant of the character as herein set forth may be varied in many ways. I do not restrict myself to the construction of what is known as a gas producer plant. The same principle of construction, etc., can be applied to the construction of any kind of gas generating plant.

What I claim and desire to secure by Letters Patent of the United States is:—

1. In an apparatus for the continuous production of producer gas and steam in excess of the requirements of the producer, a gas producer, a gas chamber in the upper portion thereof, a water-jacket surrounding the upper portion of the gas producer and forming a primary water heater, a boiler adjacent thereto but entirely separate therefrom and adapted to generate steam in excess of the producer requirements, a secondary water heater, an uninterrupted passage-way for the hot gases from the fuel bed to the gas chamber of said producer and from the gas chamber to said boiler, means for conducting gases from said boiler to said secondary water heater, a connection from said water-jacket to said secondary water heater, a connection from the secondary water heater to the boiler, means for

returning a portion of said steam to said producer and means for leading off the remainder of said steam.

2. In an apparatus for the continuous
5 production of producer gas and steam in excess of the requirements of the producer, a gas producer, a gas chamber in the upper
10 portion thereof, a water-jacket surrounding the upper portion of the gas producer and
lying wholly above the fire zone, said water-jacket comprising a primary water heater,
15 a boiler adjacent thereto but entirely separate therefrom and adapted to generate steam in excess of the producer requirements, a secondary water heater, an uninterrupted passage-way for the hot gases from the fuel bed to the gas chamber of

said producer and from the gas chamber to said boiler, means for conducting the gases from said boiler to said secondary water heater, a connection from the water-jacket to said secondary water heater, a connection from the secondary water heater to the boiler, means for returning a portion of said steam to said producer and means for leading off the remainder of said steam.

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

HANS FOERSTERLING.

Witnesses:

HERBERT PHILLIPP,
FRITZ HOYLER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."