

No. 855,699.

PATENTED JUNE 4, 1907.

I. N. ENRIGHT.
GAS GENERATOR.

APPLICATION FILED APR. 21, 1906.

Fig. 1

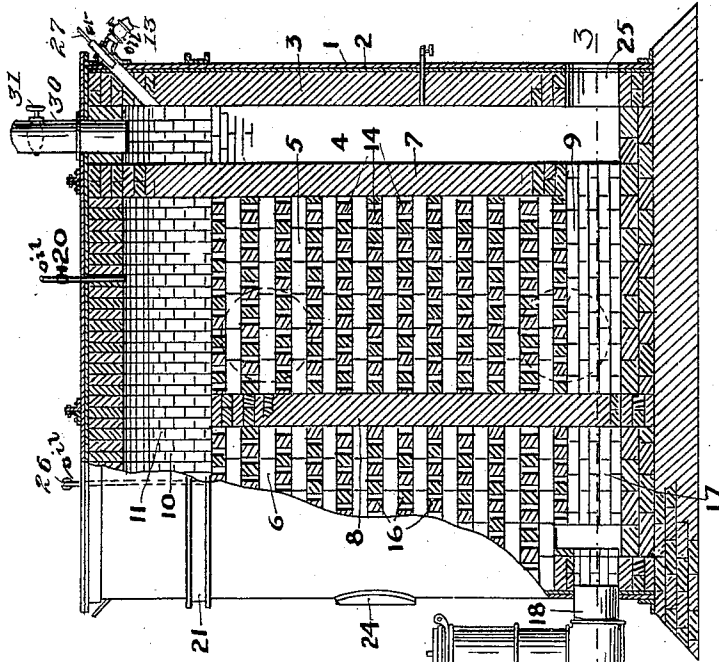


FIG. 2

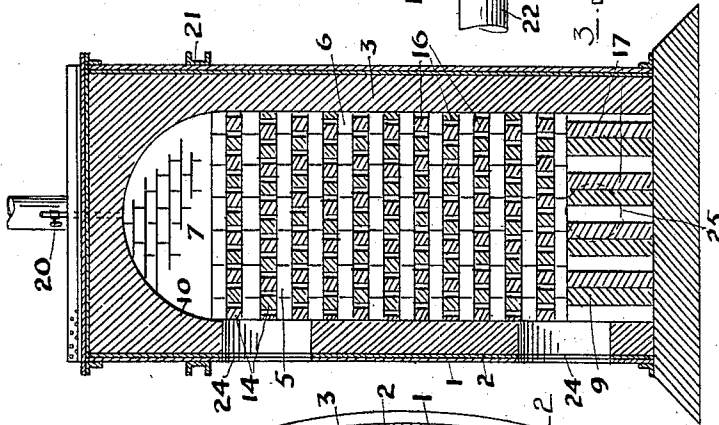
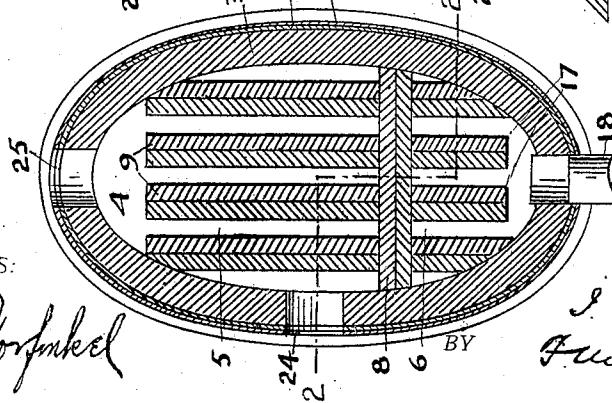


FIG. 3



WITNESSES:

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GAS-GENERATOR.

No. 855,699.

Specification of Letters Patent.

Patented June 4, 1997.

Application filed April 21, 1906. Serial No. 312,998.

To all whom it may concern:

Be it known that I, ISAAC N. ENRIGHT, 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 Gas-Generators, of which the following is a specification.

This invention relates to an improved gas generator, and is especially adapted for generating water gas from crude oil.

The object of the invention is to provide a gas generator which will be simple and economical to manufacture not requiring any skilled labor to erect and by which the gas can be generated economically.

In the accompanying drawing, Figure 1 is a central vertical section of the apparatus; Fig. 2 is a horizontal section on the line 2—2 of Fig. 1; Fig. 3 is a horizontal section on the line 3—3 of Fig. 1.

Referring to the drawing, it will be seen that the generator is of an elliptical form having an outside casing 1 lined with asbestos 2 and an inner lining 3 of fire-brick or other refractory material. The interior of the casing is divided into three chambers 4, 5 and 6 by brick partitions 7 and 8 extending transversely across the generator, the first partition 7 resting upon piers 9 and extending to the top of the apparatus while the second partition 8 extends from the bottom to an arch 10 extending between the partition 7 and the farther end of the casing, and forming the bottom of a flue 11. This upper arch is surrounded by a steel channel iron band 21 which prevents the springing out of the arch. Oil for generating the heat for gas making is admitted at the top of the combustion chamber 4 by a pipe 13, and is injected by steam through a pipe 27. Air for combustion is admitted by a pipe 30, controlled by a valve 31. The flames and products of combustion pass downward through the combustion chamber 4 and between the piers 9 underneath the brick partition 7 and up through the heating chamber 5. This heating chamber is filled with checker brick work 14 also supported upon the piers 9. The products of combustion pass upward through the checker work and highly heat the same and then pass into the flue 11 over the top of the brick partition 8 and down through the superheating chamber 6. This superheating chamber, in like manner as the heating chamber 5,

contains checker brick work 16 supported upon piers 17, and the products of combustion passing down through this checker work highly heat the same. The waste gases then escape by means of a pipe 18 through a valve 19 and may be thence conducted to a stack, not shown.

After the combustion has been continued for a sufficient length of time to highly heat the refractory material in the chambers 5 and 6, the oil and air are shut off, and oil is sprayed down into the chamber 5 through an opening 20. This finely divided oil falling upon the highly heated refractory material in the chamber 5 is converted into gas, which escapes over the partition 8 and down through the refractory material in the chamber 6 and out by the pipe 18 and by a pipe 22 (the valve 19 being now closed) and thence to a washer and scrubber in the usual manner. In passing over the highly heated refractory material in the chamber 6 the oil vapor is converted into a fixed gas. When the heat in the chamber 5 has been sufficiently reduced by the vaporization of the oil sprayed through the inlet 20, steam is admitted at the opening 13, which steam, passing down through the combustion chamber and up through the chamber 5, combines with the hot lamp black deposited upon the refractory material in the chamber 5, and forms therewith water gas, which, passing down the chamber 6 is superheated and converted into a fixed gas and passes over and mixes with the gas formed directly by vaporization of the oil, as already explained.

Oil may be also admitted by a pipe 26 to the superheating chamber 6, the initial temperature of which is less than that of the generating chamber 5, and when the heat therein has been sufficiently reduced, this oil supplied may be shut off and the operation repeated with the first generating chamber 5.

24 represents man-holes for rechecking. It will be observed that there is a man-hole at the top of the heating chamber, and also one at the bottom, so that it is possible to rechecker without removing any part except the bricks themselves. 25 is a door for starting the fire.

The combustion chamber 4 being of large size, the result is that the atomized oil is completely burned while in suspension and there is no chance for it to carbonize upon the brick-work.

I claim:—

1. A gas generator comprising a casing of
an elongated closed curve in horizontal con-
tour, and transverse partitions dividing it
5 into a combustion chamber at one end, a
heating chamber in the middle and a super-
heating chamber at the other end, the first
partition extending from a point above the
bottom of the generator to the extreme top
10 thereof, and the second partition extending
from the bottom of the generator to a point
below the top thereof, checker work in the
heating and superheating chambers, means
15 for admitting oil and air into the combustion
chamber, means for shutting off the oil and
air, and means for admitting oil directly
into the heating chamber, substantially as
described.
2. A gas generator comprising a casing of
20 an elongated closed curve in horizontal con-
tour, and transverse partitions dividing it
into a combustion chamber at one end, a
heating chamber in the middle and a super-
heating chamber at the other end, the first
25 partition extending from a point above the
bottom of the generator to the extreme top
thereof, and the second partition extending
from the bottom of the generator to a point
below the top thereof, checker work in the
30 heating and superheating chambers, piers
upon the bottom of the heating and super-

heating chambers upon which the checker
work rests, means for admitting oil and air
into the combustion chamber, means for
shutting off the oil and air, and means for
admitting oil directly into the heating cham- 35
ber, substantially as described.

3. A gas generator comprising a casing of
an elongated closed curve in horizontal con-
tour, and transverse partitions dividing it 40
into a combustion chamber at one end, a
heating chamber in the middle and a super-
heating chamber at the other end, one of said
chambers having man-holes at the top and
bottom thereof, the first partition extending 45
from a point above the bottom of the gen-
erator to the extreme top thereof, and the
second partition extending from the bottom
of the generator to a point below the top
thereof, checker work in the heating and 50
superheating chambers, means for admitting
oil and air into the combustion chamber,
means for shutting off the oil and air, and
means for admitting oil directly into the
heating chamber, substantially as described. 55

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

I. N. ENRIGHT.

Witnesses:

BESSIE GORFINKEL,
F. M. WRIGHT.