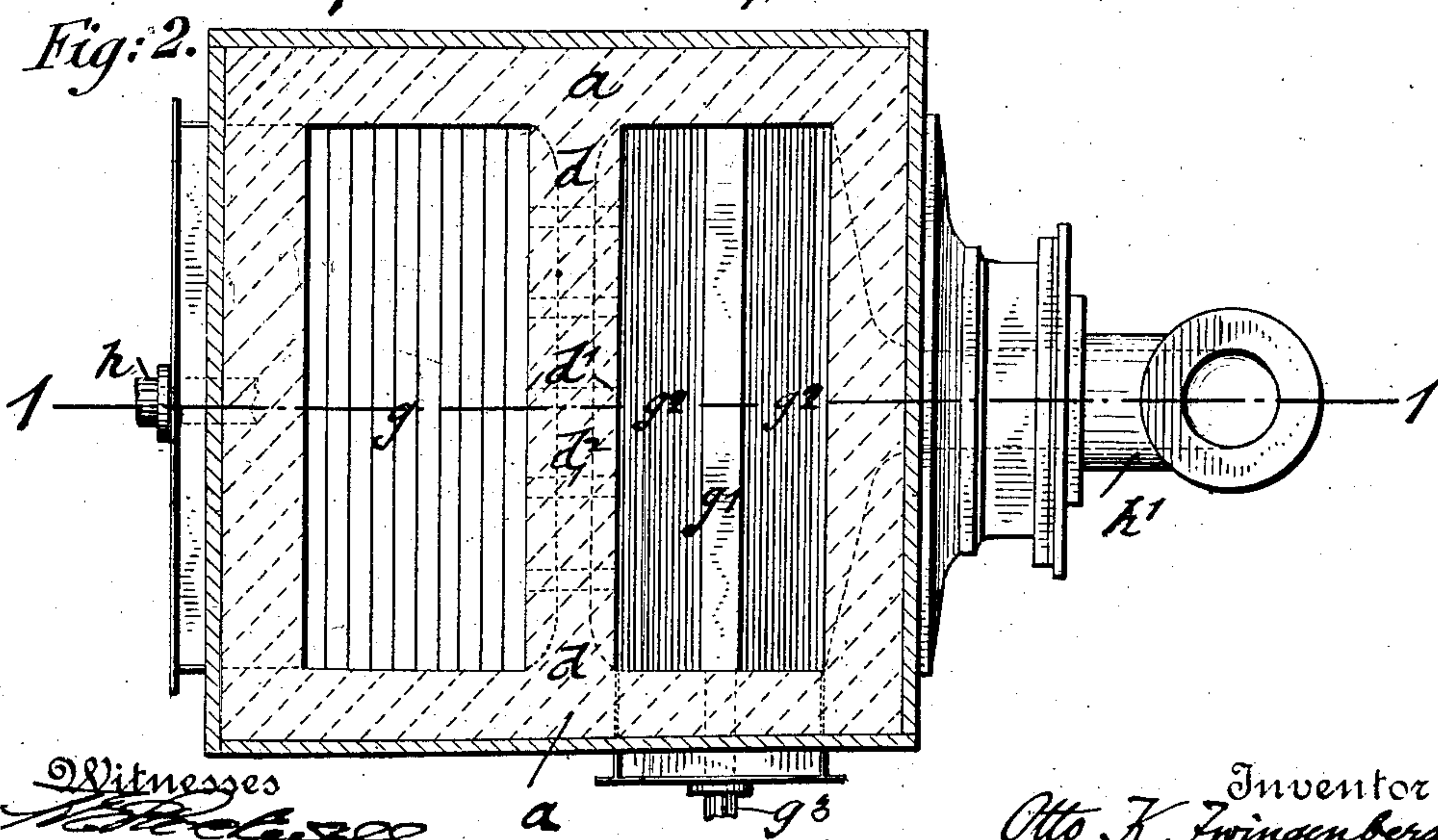
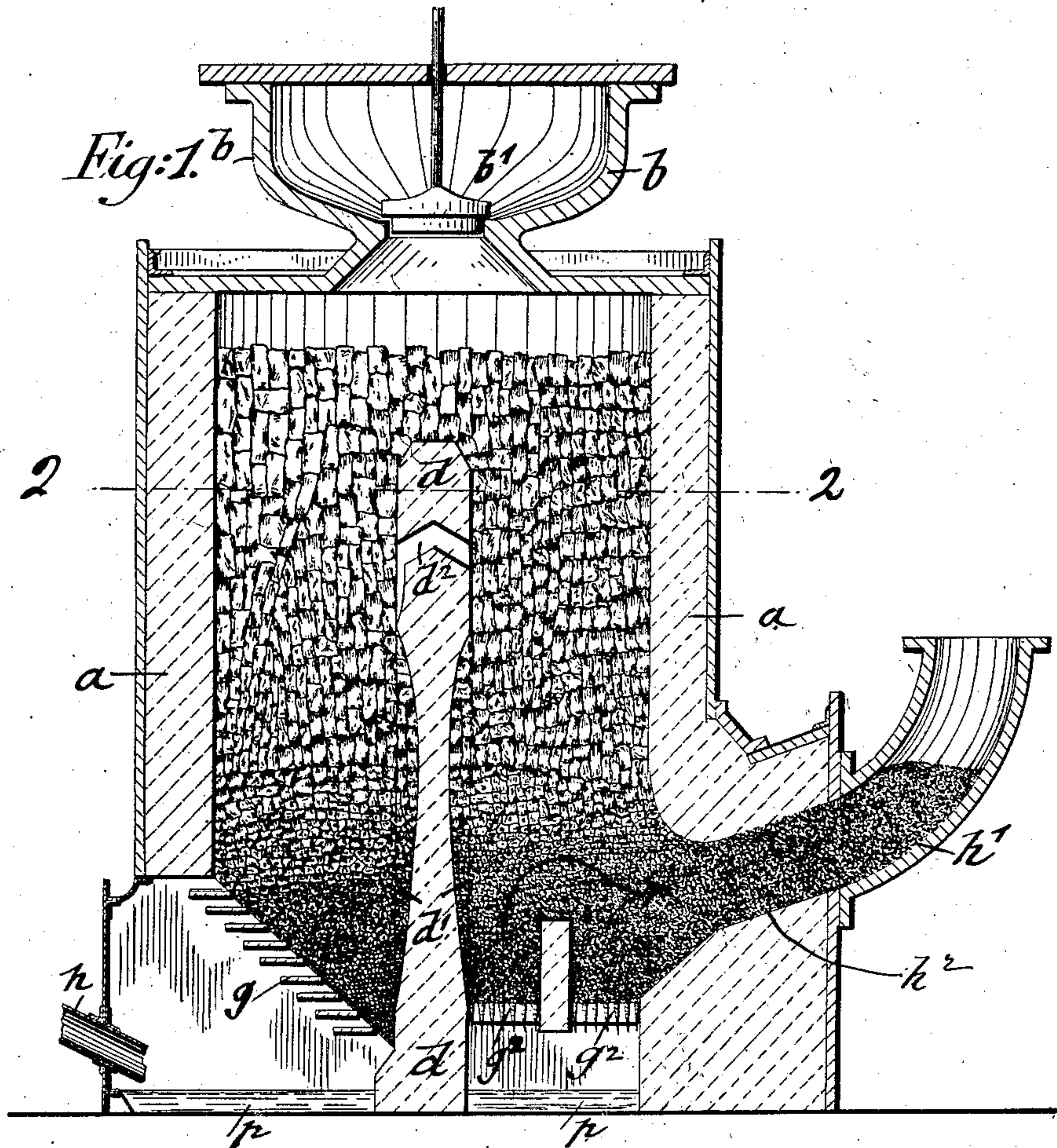


No. 874,276.

PATENTED DEC. 17, 1907.

O. K. ZWINGENBERGER.
GAS PRODUCER.

APPLICATION FILED JAN. 7, 1907.



Witnesses
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OTTO K. ZWINGENBERGER, OF NEW YORK, N. Y.

GAS-PRODUCER.

No. 874,276.

Specification of Letters Patent.

Patented Dec. 17, 1907.

Application filed January 7, 1907. Serial No. 351,250.

To all whom it may concern:

Be it known that I, OTTO KONRAD ZWINGENBERGER, a citizen of the Empire of Germany, residing in New York, borough of Manhattan, county and State of New York, have invented certain new and useful Improvements in Gas-Producers, of which the following is a specification.

This invention relates to certain improvements in gas-producers which are intended for burning fuels and especially fuels of less value, such as bituminous coal, lignite, peat and the like, for the production of gas for power heating and illuminating purposes, free from tarry and other substances, by which the value of the gas is diminished; and for this purpose the invention consists of a gas-producer embodying the novel features of construction which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a vertical longitudinal section of my improved gas-producer on line 1, 1, Fig. 2, and Fig. 2 is a horizontal section on line 2, 2, Fig. 1.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, *a* is the gas-producer, which is of rectangular or other shape and the walls of which are made of fire-bricks in the usual manner. At the upper end of the producer is a hopper *b* with a bell *b*¹ that closes the contracted end of the neck of the hopper, through which the fuel, which is to be changed into gas for power, heating and illuminating purposes, is supplied from time to time so as to keep the gas-producer in continuous operation. The general process of combustion of the fuel takes place under the well known conditions prevailing in most of the known gas-producers.

The gas-producer is provided within its combustion-chamber with a transverse partition *d* which terminates at some distance below the top. This partition *d* is diminished in thickness at the middle portion *d*¹, and provided in its upper thicker portion with transverse channels *d*² in the upper larger part of the partition *d*. An inclined step-shaped grate *g* is arranged at one side of the partition *d*, to which air may be supplied under pressure by means of a supply-pipe *h*, the air passing to the fuel through the step-shaped grate *g* after the fuel is ignited. At

the opposite side of the partition *d* is arranged a horizontal grate *g*² with a fire-bridge *g*¹. Air under pressure is admitted to the space beneath the grate *g*² through a pipe *g*³. An outlet-pipe *h*¹ is arranged at the opposite side of the gas-producer adjacent to the second grate *g*² so as to permit the passage of the gases to the point of use. The outlet-pipe *h*¹ communicates with a laterally-extending outlet-passage *h*² which leads through the wall of the combustion-chamber immediately adjacent and slightly above the horizontal grate *g*². In the lower part of the gas-producer, below both grates *g*, *g*², are arranged pans *p* for holding water which is to be evaporated and carried by the entering current of air through the glowing fuel, above the step-shaped grate, over the partition *d*, and through the channels *d*² to the opposite side of the partition, to the outlet-pipe.

All the gases and tarry substances generated by the burning fuel, and the steam generated from the water below the step-shaped grate *g*, pass over the partition-wall *d* and through the channels *d*² in the same, into the chamber at the opposite side of the partition, where the fuel is dried and carbonized by the high temperature in the chamber. The gases, the tarry substances and the steam pass through the high column of glowing fuel, so that the tarry substances are decomposed and burned while the steam acts on the glowing carbon. The heat generated in the chambers at both sides of the partition by the combustion of the fuel over the grates *g* and *g*², the glowing body of coked fuel, reduces the carbon dioxid to carbon monoxid, which is conducted through the outlet-pipe to the place of use. The fire-bridge on the horizontal grate serves for lengthening the passage of the gases through the glowing coke so as to decompose the tarry-substances and generate by the action of the steam carbon monoxid and hydrogen.

The partition *d* with its diminished middle portion and its transverse channels in the upper and larger part of the partition facilitates the sliding of the fuel along the middle portion, while the transverse channels permit the passage of the hot gases of combustion through the partition as well as over the upper end of the same.

The gas-producer can be operated as required, either under high or low pressure.

The advantages of the gas-producer are

the increased yield of useful gases and the better quality of the same owing to the decomposition of the tarry substances.

Having thus described my invention, I
5 claim as new and desire to secure by Letters Patent:

1. A gas-producer having an upright partition in the combustion-chamber thereof, a firing-grate at one side of said partition, a
10 grate at the opposite side of said partition, an outlet adjacent said second grate, and a fire-bridge on the latter which lengthens the passage of the gases to said outlet.

2. A gas-producer provided within its
15 combustion-chamber with an upright parti-

tion extending upwardly from the bottom thereof, a grate at each side of said partition, an outlet-passage leading laterally from said chamber adjacent and slightly above one of said grates, and a fire-bridge supported on
20 said last-named grate at the middle portion thereof.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

OTTO K. ZWINGENBERGER.

Witnesses:

PAUL GOEPEL,
HENRY J. SUHRBIER.