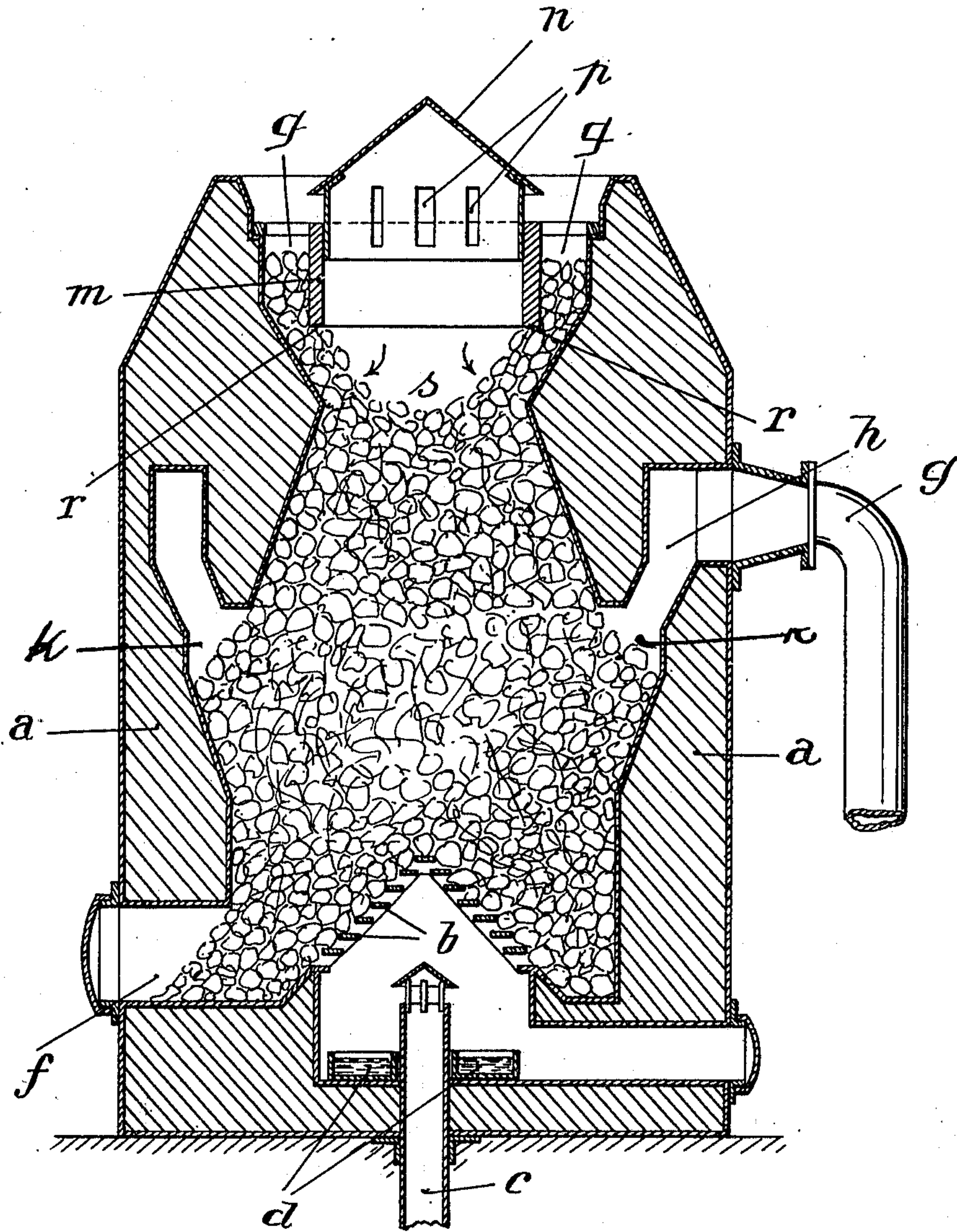


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 APPARATUS FOR THE MANUFACTURE OF POWER GAS.
 APPLICATION FILED DEC. 13, 1906.

990,212.

Patented Apr. 18, 1911.



Witnesses:
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UNITED STATES PATENT OFFICE.

EMIL FLEISCHER, OF DRESDEN-STREHLEN, GERMANY.

APPARATUS FOR THE MANUFACTURE OF POWER-GAS.

990,212.

Specification of Letters Patent.

Patented Apr. 18, 1911.

Original application filed November 30, 1904, Serial No. 234,933. Divided and this application filed December 13, 1906. Serial No. 347,595.

To all whom it may concern:

Be it known that I, EMIL FLEISCHER, doctor of philosophy, chemist, and resident of 32 Piergartenstrasse, Dresden - Strehlen, Kingdom of Saxony, German Empire, have invented new and useful Improvements in Apparatus for the Manufacture of Power-Gas, of which the following is a specification.

10 This invention relates to that type of generator for the manufacture of power gas, in which air is drawn into a gas generator from above while the combustible gas produced is drawn off laterally through an exhaust pipe opening into the apparatus.

15 The present application is a division of an application heretofore filed by me on the 30th day of November, 1904, Serial No. 234,933, upon which Letters Patent of the United States were issued No. 841,499, dated January 15, 1907.

My invention relates particularly to that kind of downdraft producers, wherein air is admitted by a central conduit into the body of fuel below its surface and consists in the proper arrangement of such central conduit in the generator and the shape of the walls of the generator. To these ends I provide the upper air-supply by means of an air-chamber located centrally in the charging-chamber of the vertical producer-shaft, from which the air passes downward into the fuel in the shaft, the bottom of such air-chamber being of considerable area. The fuel in the charging-chamber moves down on all sides of the air-chamber leaving beneath the air-chamber a hollow space with a pointed lower end. The air entering such hollow space fills the space and passes thence through the fuel toward the gas-outlets located farther down in the shaft. To compel all the gaseous products to travel through the incandescent portions of the fuel, the producer-shaft is preferably narrowed or decreased in horizontal area below the bottom of the air-chamber, so that all the products of combustion and distillation must pass through a comparatively small horizontal area, in which the fuel will be evenly highly heated and will be brought into intimate contact with such highly-heated fuel.

55 A gas generator suitable for carrying out the process is illustrated in the accompanying drawing which shows a central vertical section of the apparatus.

a is the body of the apparatus provided with a grate *b* and an air supply-pipe *c* as usual, and in the present case, with a water-supply or an evaporating pan *d* and with an ash hole *f*.

The power-gas is drawn off through the pipe *g*, either by means of a special exhaust-pump or by the motor itself, from the annular channel *h* which occupies a position in the generator above the conical slope of the combustible.

In the upper part of the generator the ring or tube *m* is so set as to allow of its height being adjusted and it is closed by a roof *n* and furnished with lateral slits *p* (above the level of the freshly introduced coal) through which the air can gain access to the interior of the ring. The fuel is supplied to the space *q* around the ring, this space being left open at top, so that the air has access to the fresh fuel from above only, this arrangement allowing of the easy breaking up of fuel which tends to cake together.

Beneath the lower edge *r* of the ring is formed the funnel-shaped crater *s* into which the secondary air enters, passing through the fuel and burning the products of combustion and distillation produced in the upper part of the same to form fixed gases, which latter in traversing thereafter the glowing coke are for the most part transformed into carbon monoxid and hydrogen (together with nitrogen).

It will be evident that this arrangement may be variously modified. For example, a pyramidal grate may be provided whose bars extend as far upward as the upper stratum of fuel.

Now what I claim and desire to secure by Letters Patent is the following:

1. A gas-producer having a vertically-arranged producer-shaft, a body located in the upper part of the shaft and centrally thereof and having a bottom of considerable area so that the fuel will move downward past said body and form a hollow space beneath the body, and means for supplying air to said hollow space, and the walls of the shaft being inclined inwardly below the bottom of said body, substantially as described.

2. A gas-producer having a vertically-arranged shaft, a body located in the upper part of the shaft and centrally thereof and having a bottom of considerable area so that the fuel will move downward past said body

and form a hollow space beneath the body, means for supplying air to said hollow space, and a lateral gas-outlet leading from the shaft below the portion thereof forming
5 the main producing-chamber, the walls of the shaft being inclined inwardly below the bottom of the air chamber, and the shaft extending below said outlet to form a secondary updraft producing-chamber, substantially
10 as described.

3. In a gas generator for carrying out the process described, the combination with the generator shaft, of a wide ring located in the middle of the upper fuel zone of said
15 shaft and adjustable vertically therein, means for supplying air to the interior of said ring, and means for causing a down-draft through said upper fuel zone; substantially as described.

4. In a gas generator for carrying out the process described, the combination with the generator shaft, of a ring located in the middle of the upper fuel zone, means for supplying air to the interior of the said ring, and means for causing a down-draft
25 through said upper fuel zone, the generator shaft converging inwardly below said ring so as to form a narrowed throat thereat; substantially as described.

In testimony, that I claim the foregoing
30 as my invention, I have signed my name in presence of two witnesses, this thirtieth day of November, 1906,

EMIL FLEISCHER.

Witnesses:

ULYSSES J. BYWATER,
PAUL ARRAS.

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