



# UNITED STATES PATENT OFFICE

JOHN WM. GAYNER, OF SALEM, NEW JERSEY.

## GAS-PRODUCER.

SPECIFICATION forming part of Letters Patent No. 645,719, dated March 20, 1900.

Application filed January 15, 1898. Serial No. 666,806. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN WILLIAM GAYNER, a citizen of the United States, residing at Salem, county of Salem and State of New Jersey, have invented a new and useful Improvement in Gas-Producers, which improvement is fully set forth in the following specification and accompanying drawings.

My invention consists of a gas-producer provided with novel means for removing the accumulations from the conduit leading from the fire-chamber without interrupting the operation of the plant.

The invention also consists of novel structural features hereinafter fully described and specifically claimed.

Figure 1 represents a vertical section of a gas-producer embodying my invention. Fig. 2 represents an irregular plan view of the interior thereof.

Similar letters and numerals of reference indicate corresponding parts in the figures.

Referring to the drawings, A designates the fire-chamber of a gas-producer, the same having the exit-flue 1.

As stated, my invention relates to the means for cleaning the accumulations of soot, ashes, &c., from the conduit leading from the fire-chamber A to the valve A<sup>x</sup>, by which the gas is directed to either side of a regenerating-furnace. The said valve A<sup>x</sup> is of ordinary construction and does not form a part of this invention. In accordance with the principle of my invention the conduit that conducts the gas from the fire-chamber for delivery to the place of consumption is also provided with a normally-closed outlet into which the accumulations in the conduit can be conveyed by approved means—for instance, a scraper or hoe operated exteriorly to said conduit. This outlet is provided with means for opening and closing the same, whereby the accumulations deposited therein from the conduit can be removed without interrupting the operation of the gas-producer. This outlet can be a chamber that opens into the conduit and also opens exteriorly to the gas-producer. The accumulations within the conduit are conveyed to this chamber by said exteriorly-operated means and are removed from the chamber, owing to means that I employ for closing said

chamber, to form a compartment that opens to the exterior and from which the said accumulations can be removed. In thus closing the chamber there is no danger of communication between the conduit and the atmosphere when removing these accumulations, so that the operation of the plant is continuous.

It is understood, of course, that various structures can be resorted to to secure the above result, and in the drawings I have shown one embodiment of my invention. The conduit leading from the fire-chamber A to the valve A<sup>x</sup> consists of three flues—namely, a lateral flue 1, leading from the fire-chamber, an upright flue 17, leading downwardly from the outer end of flue 1, and a lateral flue 18, leading from the lower end of the upright flue 17 to the valve A<sup>x</sup>. The chamber F in the present illustration is a downward continuation of the upright flue 17, being provided at its lower end with an opening that is closed by a door G and being provided between its ends with a valve C', whose handle E extends through the wall thereof. Said valve C' and lever E are preferably similar to the valve C and lever D, heretofore described, a box E' being employed to receive the boss of said lever. The said flues are provided with means for conveying the accumulations therein into the chamber, which in the instance illustrated consist of hoes 15 and 19 in the lateral flues 1 and 18, whose handles extend through openings in plates 16 and 20, that cover larger openings in the wall of the conduit opposite the ends of said lateral flues 1 and 18. These larger openings in the wall of the conduit, in connection with said plates, provide sockets H' to receive the blades of the hoes when the latter are not in use, thereby supporting the same within the wall of the conduit. The handles of the hoes 15 and 19 fit closely within the openings in said plates when they are being manipulated to scrape the accumulations from said flues, as well as when resting in the sockets H', formed by said recesses and plates. In the particular embodiment shown in Fig. 1 a vault J is made below flue 1, that access may be had to the handle of the hoe or scraper 19.

It will be seen from the foregoing that I

provide, in effect, a chamber that connects with the conduit and which also opens exteriorly to the gas-producer, although normally closed. Controlling this chamber are the means referred to, conveniently a valve by which this chamber can be closed to the conduit, so that after the accumulations have been deposited in the chamber communication with the conduit can be cut off to allow such accumulations to be readily removed to the exterior without interrupting the operation of the plant. In said drawings I have shown the valve as situated about midway between the ends of an upright chamber, the latter forming a continuation of the upright flue. In this construction the accumulations that are scraped into the upright flue fall upon this valve and remain there until the valve is manipulated to deposit them in the lower compartment of this chamber that is formed by said valve. After the accumulations are thus deposited in the lower compartment the valve is again closed, and then the door G can be opened to permit said accumulations to be removed. It will be understood, however, that the particular arrangement of the upright and lateral flues, the chamber, and the valve can be varied without departing from the spirit of my invention, and therefore, except in the claims for the specific construction, I do not consider that my invention is limited to the structural details herein shown. For instance, the flues composing the conduit will often vary in number and relative location, and the chamber may or may not be a lower continuation of the upright flue. The particular location of the valve within said chamber can be variously modified and need not be situated about midway between the ends of said chamber, as now shown, to always form an upper and a lower compartment. Various other modifications and changes will also present themselves, according to the exigencies of the plant or furnace under construction, and I therefore illustrate but one embodiment of the invention, although, as I have expressly said, my invention is not confined to the specific structural characteristics therein shown.

In Fig. 2 I show two fire-chambers or producers A' A', exit-flues A<sup>2</sup> therefor, scrapers A<sup>3</sup> in said flues, the flue A<sup>4</sup> confluent with said flues A<sup>2</sup>, a scraper A<sup>5</sup> in said flue A<sup>4</sup>, and a gas-valve A<sup>x</sup>, which is in communication with said flue A<sup>4</sup>.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a gas-producer, a conduit leading from the fire-chamber, a chamber opening thereinto and to the exterior of the gas-producer, means for conveying accumulations in the conduit into said chamber, and means for closing said chamber to form a compartment opening to the exterior from which the accumulations can be removed.

2. In a gas-producer, a conduit leading from

the fire-chamber, a chamber opening thereinto and to the exterior of the gas-producer, means for conveying accumulations in the conduit into said chamber, and a valve for closing said chamber to form a compartment opening to the exterior from which the accumulations can be removed.

3. In a gas-producer, a conduit leading from the fire-chamber, a chamber opening thereinto and to the exterior of the gas-producer, means for conveying accumulations in said conduit into said chamber, and a valve in said chamber dividing the same into compartments.

4. In a gas-producer, a conduit leading from the fire-chamber, a compartment connected with said conduit, means for conveying accumulations in said conduit into said compartment, and means for closing the communication between said conduit and compartment, whereby the accumulations deposited within the latter can be removed.

5. In a gas-producer, a conduit leading from the fire-chamber, a downwardly-extending compartment connected with the lower side of said conduit, means for conveying accumulations in said conduit into said compartment, and means for closing the communication between said conduit and compartment, whereby the accumulations deposited within the latter can be removed.

6. In a gas-producer, a conduit leading from the fire-chamber and comprising upright and lateral flues, a compartment connected with said upright flue, means for conveying accumulations in said conduit into said compartment, and means for closing the communication between said conduit and compartment, whereby the accumulations deposited within the latter can be removed.

7. In a gas-producer, a conduit leading from the fire-chamber and comprising upright and lateral flues, a compartment connected with said upright flue below the lateral flue, means for conveying accumulations in said conduit into said compartment, and means for closing the communication between said conduit and compartment, whereby the accumulations deposited within the latter can be removed.

8. In a gas-producer, a conduit leading from the fire-chamber, a compartment connected with said conduit, a scraper in said conduit for removing the accumulations from the walls thereof and conveying the same to said compartment, and means for closing the communication between said conduit and compartment, whereby the accumulations deposited within the latter can be removed.

9. In a gas-producer, a conduit leading from the fire-chamber, a compartment connected with said conduit, a scraper in said conduit for removing the accumulations from the walls thereof and conveying the same to said compartment, a handle for said scraper passing through and fitting closely within an opening in a wall of the conduit, and means for closing the communication between said con-

duit and compartment, whereby the accumulations deposited within the latter can be removed.

10. In a gas-producer, a conduit leading  
5 from the fire-chamber, a compartment connected with said conduit, a scraper in said conduit for removing the accumulations from the walls thereof and conveying the same to  
10 said compartment, a socket in the wall of said conduit to receive said scraper when the same is not in use, and means for closing the communication between said conduit and compartment, whereby the accumulations deposited within the latter can be removed.

15 11. In a gas-producer, a conduit leading from the fire-chamber, a compartment connected with said conduit, a scraper in said conduit for removing the accumulations from the walls thereof and conveying the same to  
20 said compartment, a handle for said scraper passing through and fitting closely within an opening in a wall of the conduit, a socket in the wall of the conduit adjacent said opening to receive said scraper when the same is not  
25 in use, and means for closing the communication between said conduit and compartment, whereby the accumulations deposited within the latter can be removed.

12. In a gas-producer, a conduit leading  
30 from the fire-chamber and comprising upright and lateral flues, a compartment connected with said upright flue, a scraper in said lateral flue for conveying the accumulations into said upright flue, a handle for said scraper  
35 extending through and fitting closely within

an opening in the wall of the conduit opposite the end of the lateral flue, and means for closing the communication between said conduit and compartment, whereby the accumulations deposited within the latter can be re- 40 moved.

13. In a gas-producer, a plurality of lateral flues communicating with a common flue, said flues leading from the fire-chamber, said common flue being provided with a normally- 45 closed outlet-opening exterior to the gas-producer and into which the accumulations in said lateral and common flues can be conveyed, and means for opening and closing  
50 said outlet.

14. In a gas-producer, a conduit leading from the fire-chamber, a compartment connected with said conduit, means for conveying accumulations in said conduit into said compartment, and a valve controlling the 55 communication between said conduit and compartment.

15. In a gas-producer, a conduit leading from the fire-chamber, a chamber connected with said conduit, means for conveying accumulations in said conduit into said chamber, 60 and a valve situated within said chamber and upon which said accumulations are deposited, said valve dividing said chamber into compartments.

J. WM. GAYNER.

Witnesses:

E. J. GAYNER,  
F. B. MORRISON.

It is hereby certified that in Letters Patent No. 645,719, granted March 20, 1900, upon the application of John Wm. Gayner, of Salem, New Jersey, for an improvement in "Gas-Producers," an error appears in the printed specification requiring correction as follows: In line 46, page 3, the hyphen between the words "outlet" and "opening" should be stricken out; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 27th day of March, A. D., 1900.

[SEAL.]

THOS. RYAN,

*First Assistant Secretary of the Interior.*

Countersigned:

C. H. DUELL,

*Commissioner of Patents.*