

No. 674,104.

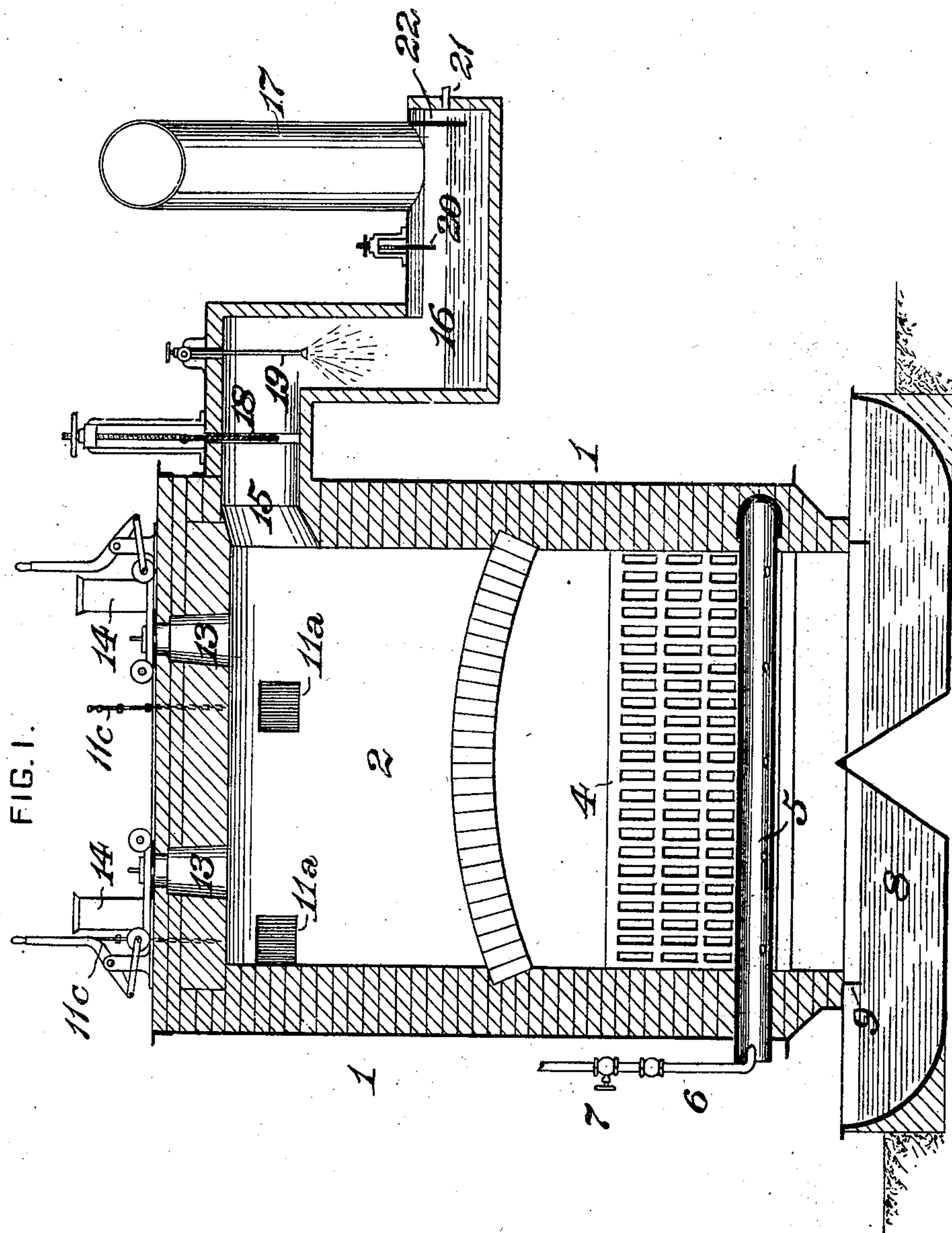
Patented May 14, 1901.

W. SWINDELL.
GAS PRODUCER.

(Application filed Jan. 28, 1901.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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2 Sheets—Sheet 2.

FIG. 3.

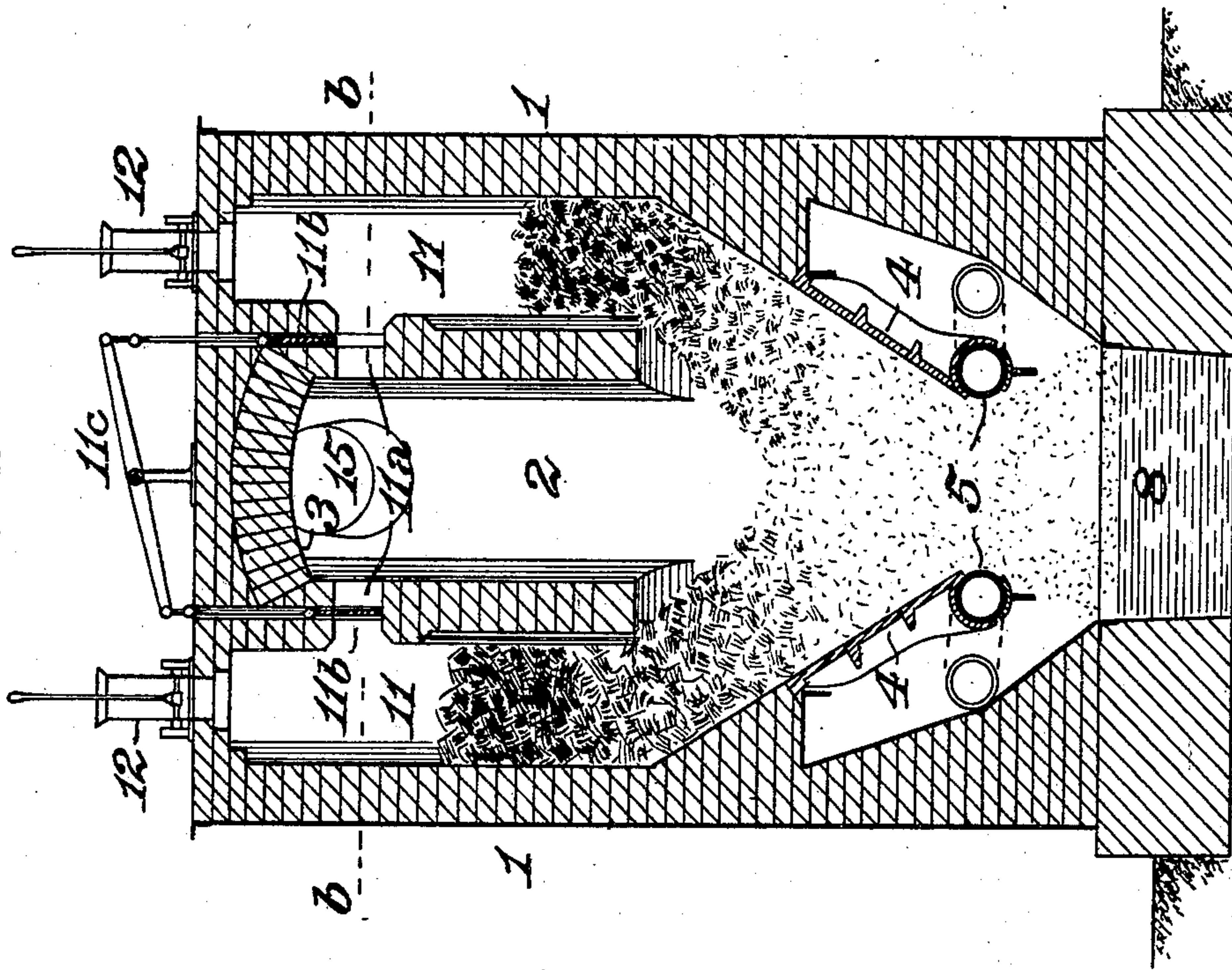
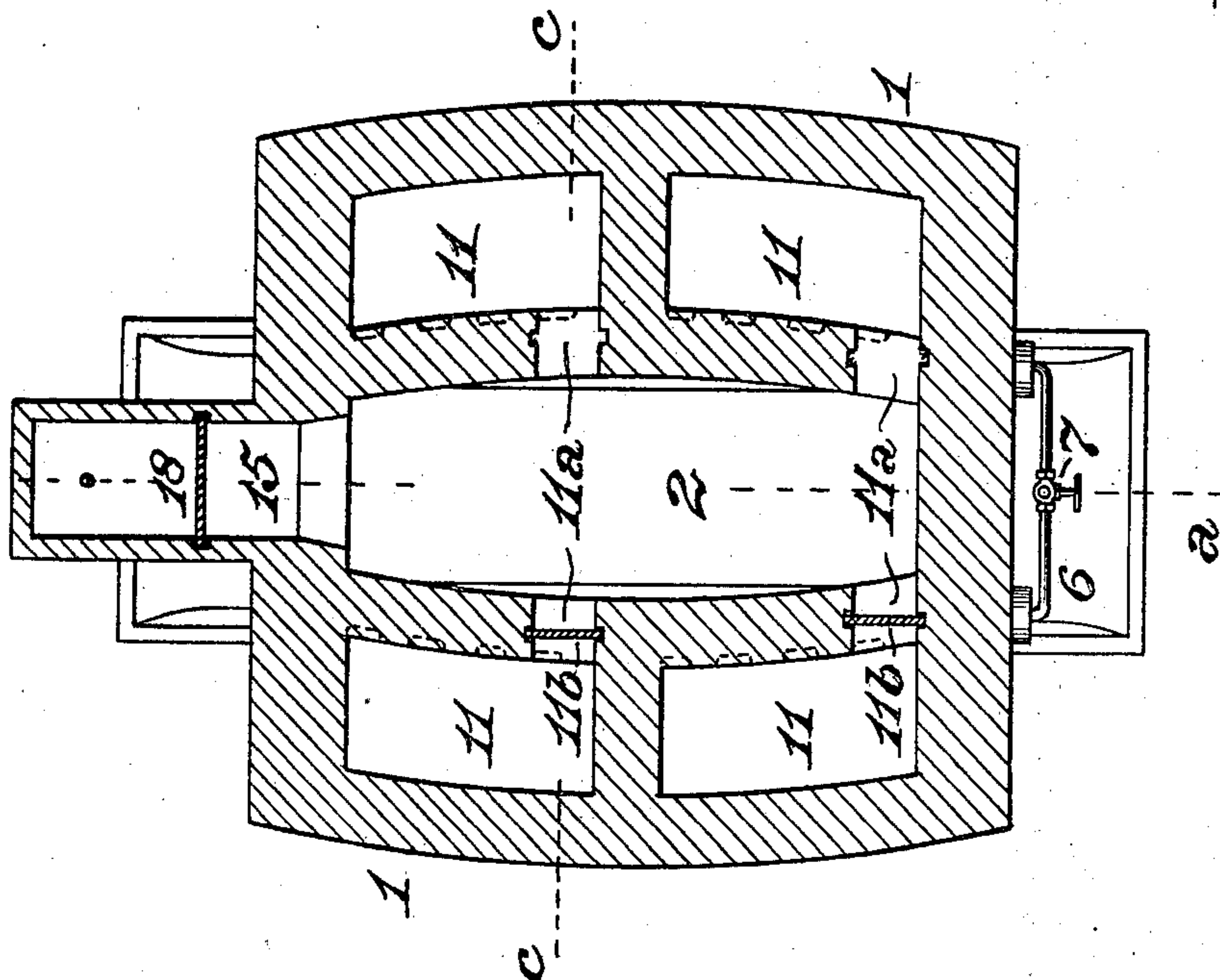


FIG. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM SWINDELL, OF ALLEGHENY, PENNSYLVANIA.

GAS-PRODUCER.

SPECIFICATION forming part of Letters Patent No. 674,104, dated May 14, 1901.

Application filed January 28, 1901. Serial No. 45,017. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SWINDELL, of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Gas-Producers, of which improvement the following is a specification.

The object of my invention is to provide a gas-producer in the operation of which a better and more uniform grade of gas may be generated than under prior constructions and a higher yield of gas may be obtained from the fuel employed.

The improvement claimed is hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a vertical longitudinal section through a gas-producer, illustrating an application of my invention at the line *a a* of Fig. 2; Fig. 2, a horizontal section through the same at the line *b b* of Fig. 3, and Fig. 3 a transverse section at the line *c c* of Fig. 2.

In the practice of my invention the vertical walls 1 of the producer are, as heretofore, built of suitable masonry, preferably of substantially rectangular contour, as shown in Fig. 2, and inclose a central chamber 2, which is covered and closed at its top by an arched roof 3, and which may be termed the "gas-discharge chamber," and two or more lateral generating-chambers 11. In the instance shown four generating-chambers are employed, two being located on each side of the gas-discharge chamber; but a greater or less number may be adopted, in the discretion of the constructor, without departure from the spirit of my invention.

The side walls of the producer are inwardly sloped or inclined from the lower ends of the generating-chambers (which, similarly to the gas-discharge chamber, are open at their bottoms) to the tops of correspondingly-inclined grates 4, which are supported below them on the producer-walls. Longitudinal blast-pipes 5, to which currents of steam are supplied by pipes 6, controlled by a valve or valves 7, extend along the lower sides of the grates 4. The lower portions of the generating-chambers and gas-discharge chamber communicate through the space between the grates 4 with an ash-pit 8, which is preferably adapted to be water-sealed, transverse plates 9 ex-

tending across the ash-pit to a level below that at which water may normally stand therein, as shown in Fig. 1.

Each of the generating-chambers 11 communicates at a short distance below its top with the gas-discharge chamber 2 by a port 11^a, which is controlled by a valve or door 11^b. The doors of each pair of opposite generating-chambers are preferably adapted to be coincidentally operated in opposite directions—that is to say, so that the opening movement of either one of them may be effected simultaneously with the closing movement of the other. To this end the doors of each pair of opposite chambers 11 are in the instance shown connected by rods or chains to the opposite ends of double-armed operating-levers 11^c, which are pivoted centrally to suitable supports on the top of the producer. A fuel-supply opening is formed in the top of each of the gas-generating chambers, each of said openings being controlled by a suitable feed-hopper 12, through which fuel may be charged into the chamber at proper intervals, as in ordinary practice. The gas-discharge chamber 2 may also be provided with fuel-supply openings 13, controlled by feed-hoppers 14.

A discharge-passage 15, controlled by a damper 18, leads out of the upper portion of the gas-discharge chamber 2 and extends downwardly to a connection with one end of a water-trough 16, from the opposite end of which a delivery-pipe 17 leads to a desired point of gas-delivery. A pipe 19 for the supply of a spray of water or current of steam leads into the downward extension of the discharge-passage, and a pipe 21 is provided for the discharge of water from the outer end of the water-trough 16. A plate 22, which extends across the water-trough to a level below that of the pipe 21, serves to prevent the escape of gas through the latter. The area for the passage of gas over the surface of the water in the trough may be varied, as desired, by an adjustable partition or gate 20, which may be raised and lowered, as desired, by the operator. Tar, soot, and other products which pass with the gas from the producer are collected in the water-trough, from which they are withdrawn from time to time through an opening controlled by a suitable valve or gate.

In the operation of the producer fuel is charged into and maintained in combustion in the generating-chambers 11, the solid residuum passing down and being supported
 5 on the grates 4. The gas generated by the combustion of the fuel in each of the generating-chambers passes through the port 11^b thereof into the gas-discharge chamber 2 and thence through the discharge-passage 15 and
 10 water-trough 16 to the delivery-pipe 17. The charging of one generating-chamber with fuel and the delivery of gas from the opposite chamber are alternately effected, the door 11^b of the former being closed and that of the latter
 15 opened during these operations.

The alternation of fuel-charging and gas-delivery, which is provided for by a construction substantially as herein described and shown, attains a substantially advantageous
 20 result in regard to the quality and uniformity of production of the gas generated and also promotes the full utilization of the gaseous elements of the fuel.

I claim as my invention and desire to secure
 25 by Letters Patent—

1. In a gas-producer, the combination of a gas-discharge chamber, generating-chambers located on opposite sides thereof and having separate fuel-supply openings, a fuel-support
 30 below and open to each of said chambers, valve-controlled ports establishing communication between the generating-chambers and gas-discharge chamber, and a discharge-passage leading out of the gas-discharge chamber.

35 2. In a gas-producer, the combination of a gas-discharge chamber, generating-chambers located on opposite sides thereof and having separate fuel-supply openings, a fuel-support below and open to each of said chambers,
 40 means for coincidently opening communica-

tion between the gas-discharge chamber and one of the generating-chambers, and closing communication between the other generating-chamber and the gas-discharge chamber, and a discharge-passage leading out of
 45 the gas-discharge chamber.

3. In a gas-producer, the combination of a gas-discharge chamber, generating-chambers located on opposite sides thereof and having separate fuel-supply openings, a fuel-support
 50 below and open to each of said chambers, ports establishing communication between the generating-chambers and gas-discharge chamber, doors or valves controlling said ports, a double-armed operating-lever piv-
 55 oted to a support on the top of the producer, and having its arms connected to the port-doors of two opposite generating-chambers, and a discharge-passage leading out of the gas-discharge chamber.
 60

4. In a gas-producer, the combination of a central gas-discharge chamber, generating-chambers located in pairs on opposite sides of the gas-discharge chamber, all of said chambers being open at bottom and each having a
 65 fuel-supply opening, grates supported upon the producer-walls below the bottoms of said chambers, ports, each leading from the upper portion of one of the generating-chambers to the gas-discharge chamber, doors, each con-
 70 trolling one of said ports, means for operating the port-doors of each pair of generating-chambers independently of the others, and a discharge-passage leading out of the gas-discharge chamber.

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Witnesses:

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