

No. 689,660.

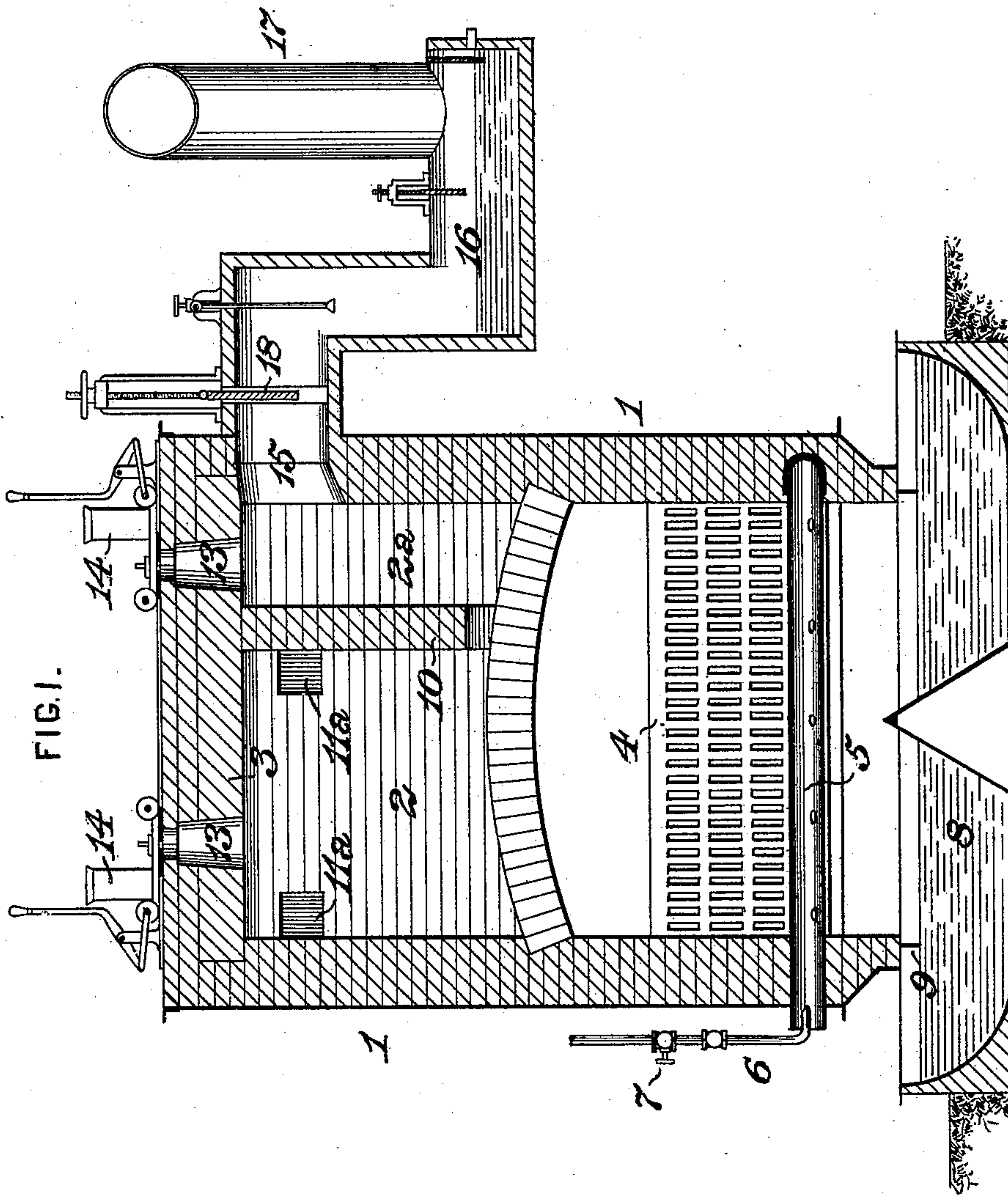
Patented Dec. 24, 1901.

W. SWINDELL.
GAS PRODUCER.

(Application filed Aug. 9, 1901.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES:

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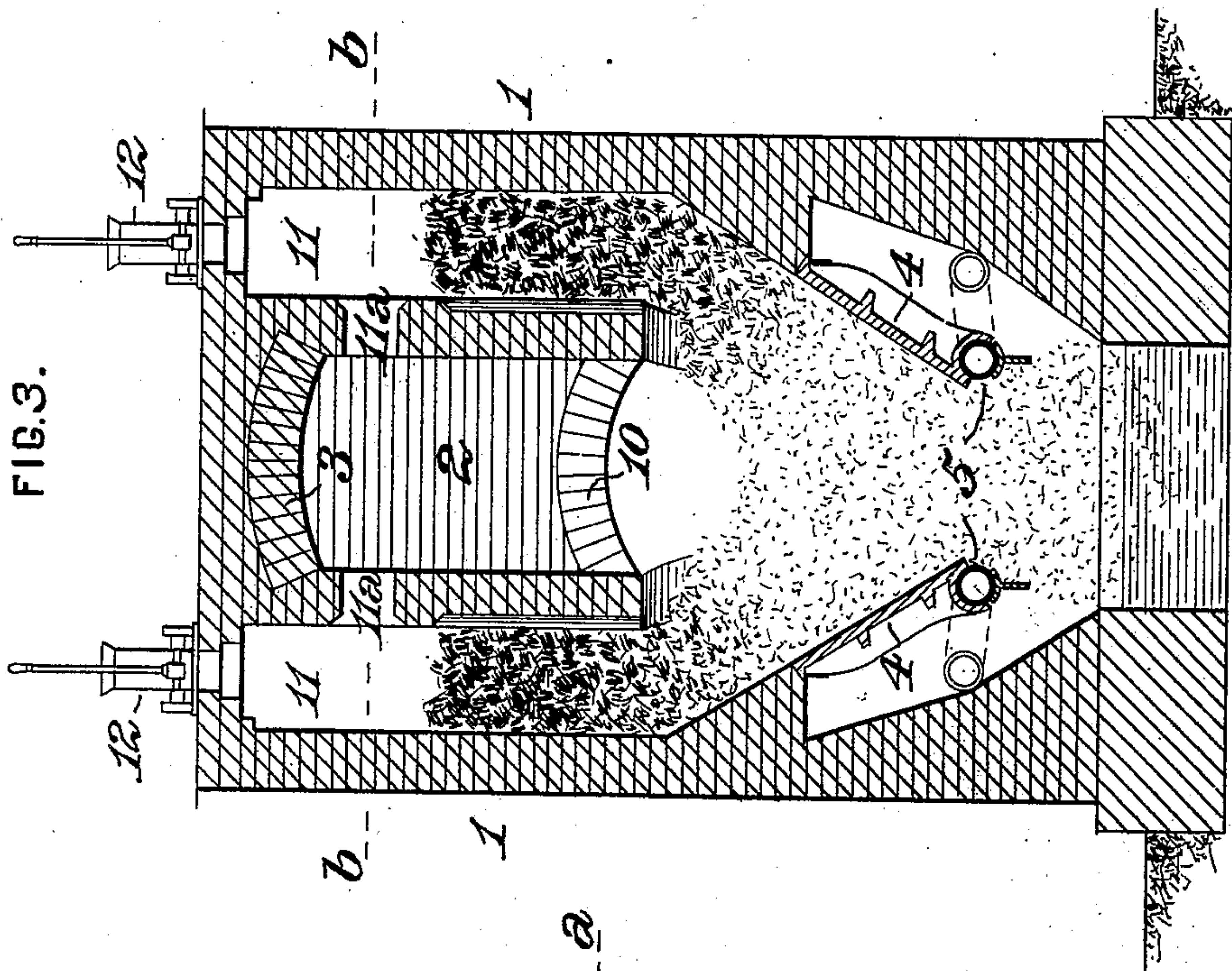
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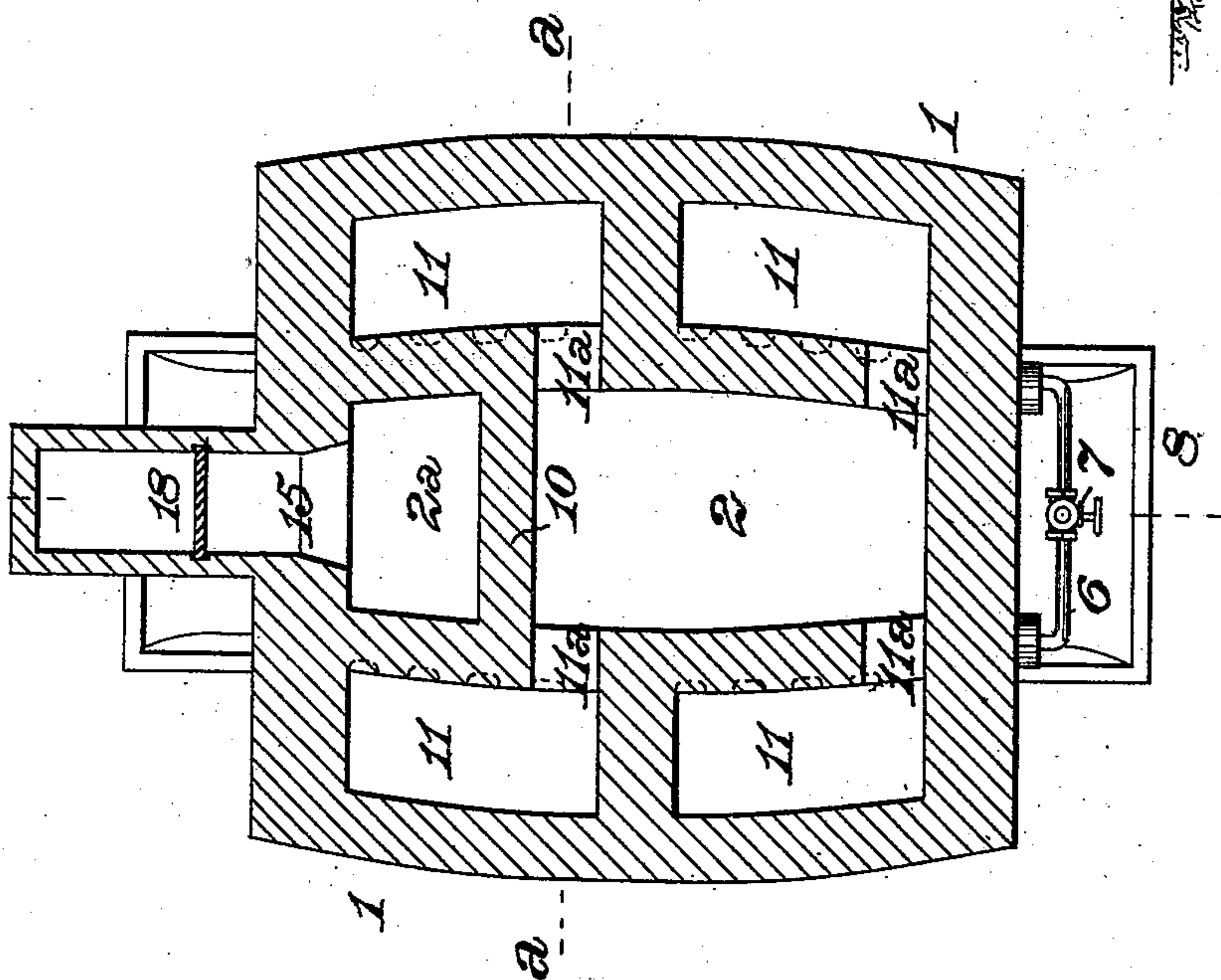
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Fig. 3.



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FIG. 5.

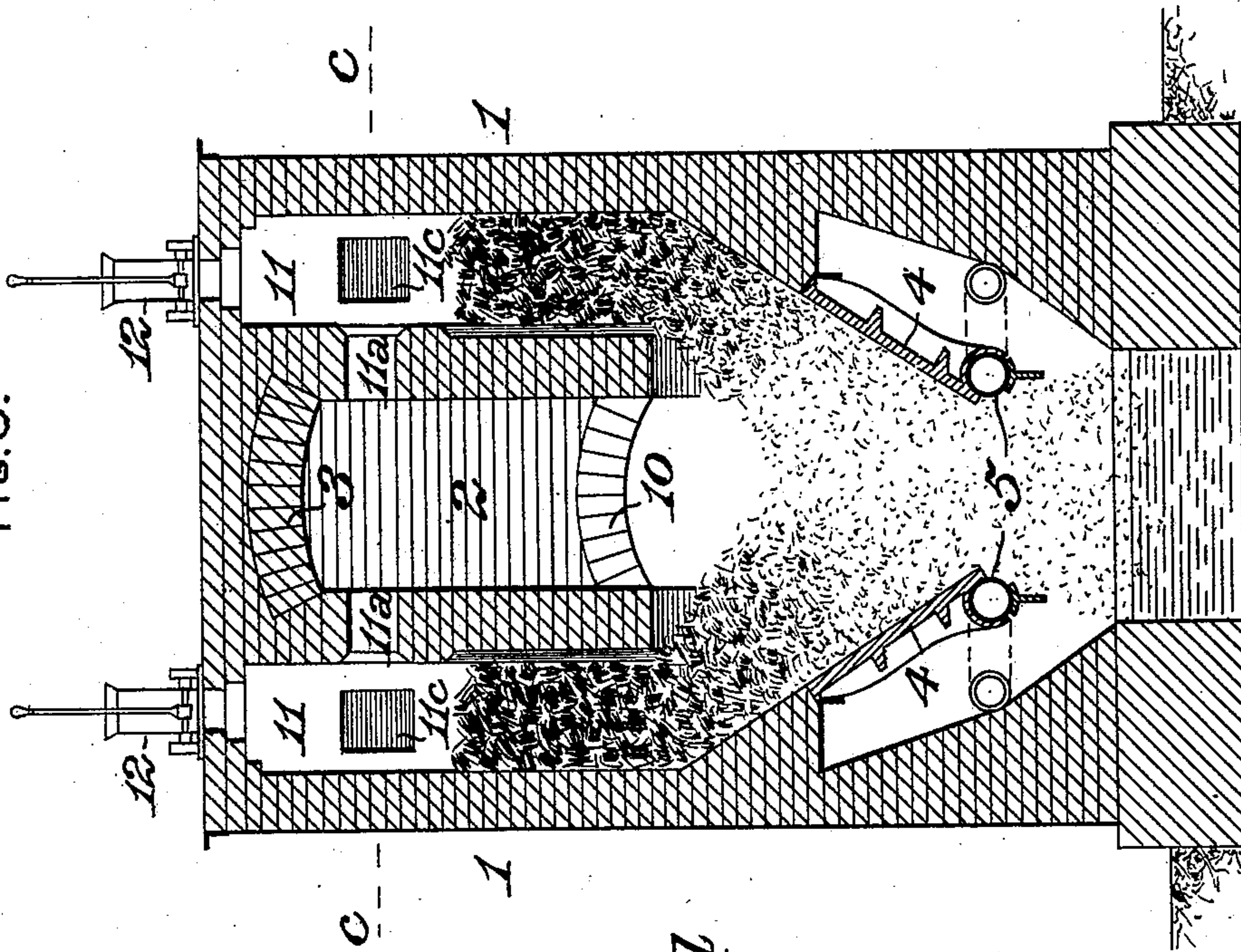
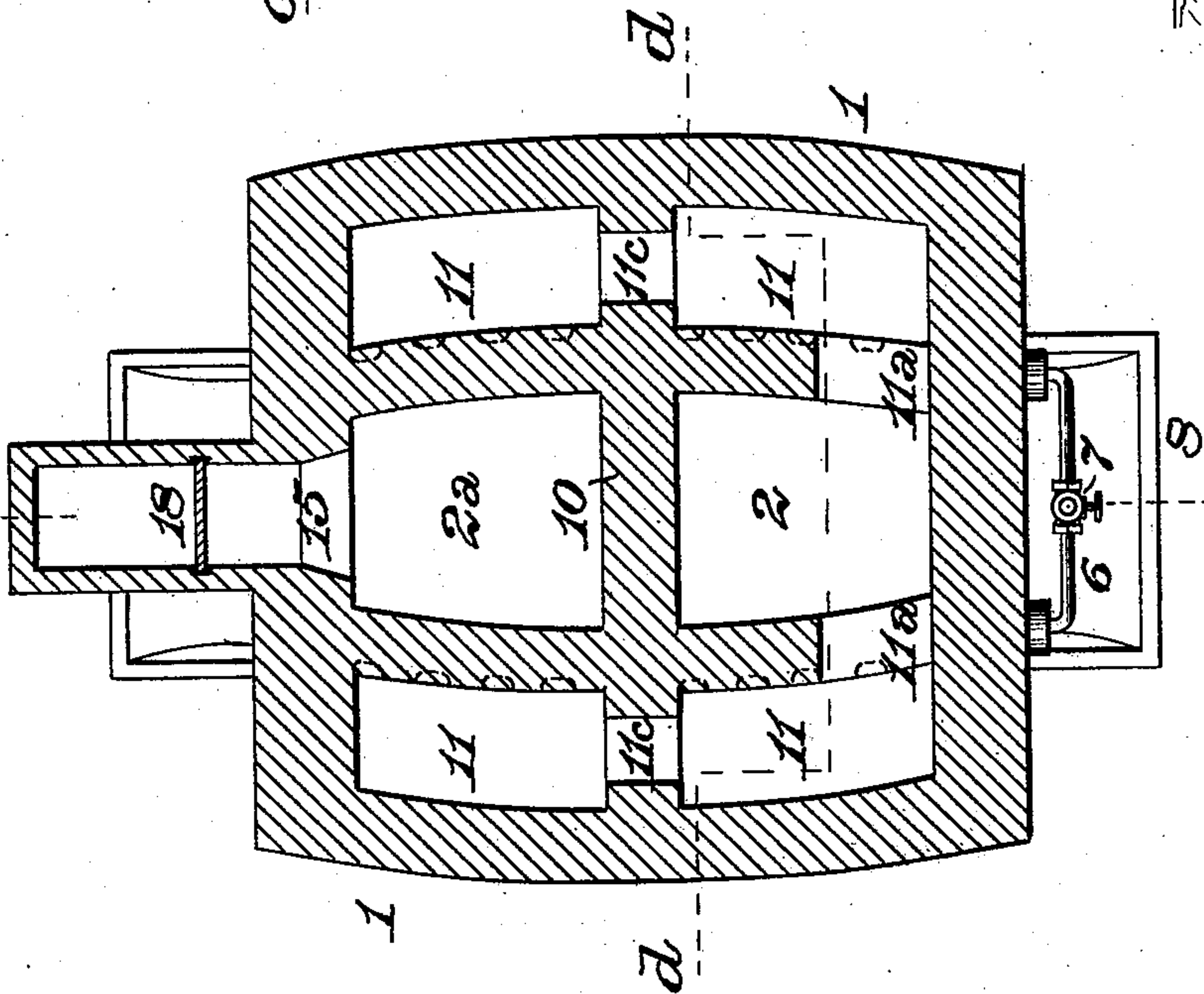


FIG. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM SWINDELL, OF ALLEGHENY, PENNSYLVANIA.

GAS-PRODUCER.

SPECIFICATION forming part of Letters Patent No. 689,660, dated December 24, 1901.

Application filed August 9, 1901. Serial No. 71,466. (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.

My present invention relates to gas-producers of the general class or type which is set forth in Letters Patent of the United States No. 674,104, granted and issued to me under date of May 14, 1901; and its object is to enable the advantageous results of the invention set forth in said Letters Patent to be substantially attained under a more simple and durable construction.

The improvement claimed is hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a vertical longitudinal central section through a gas-producer, illustrating an application of my invention; Fig. 2, a horizontal section through the same on the line *b b* of Fig. 3; Fig. 3, a transverse section on the line *a a* of Fig. 2; Fig. 4, a horizontal section on the line *c c* of Fig. 5, showing a modification of structural detail; and Fig. 5, a transverse section on the line *d d* of Fig. 4.

In the practice of my invention the vertical walls of the producer are, as heretofore, built of suitable masonry, preferably of substantially rectangular contour, as shown in Figs. 2 and 4, and, as in Patent No. 674,104 aforesaid, inclose a central chamber, the upper portion of which is in this instance divided into two compartments and which is covered and closed at its top by an arched roof 3 and may be, as in said patent, termed the "gas-discharge chamber" and also inclose two or more lateral generating-chambers 11. Four generating-chambers, two of which are located on each side of the central gas-discharge chamber, are herein shown; but a greater or less number may be employed, 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 extending across the ash-pit to a level below that at which water may normally stand therein, as shown in Fig. 1.

A transverse partition-wall 10 is built in the central gas-discharge chamber, said wall extending from the inner wall of the generating-chambers 11 on one side thereof to that of the generating-chambers on the opposite side and from the roof 3 to or near the bottoms of said inner walls, said partition-wall dividing the upper portion of the gas-discharge chamber into a receiving-compartment 2, which communicates with each of the generating-chambers, and a delivery-compartment 2^a, from which a discharge-passage 15 leads to a desired point of gas-delivery.

As shown in Figs. 1 to 3, inclusive, each of the generating-chambers 11 communicates directly and independently with the receiving-compartment 2 through a port 11^a in the inner wall of the generating-chamber.

In the modification shown in Figs. 4 and 5 two of the generating-chambers communicate directly with the receiving-compartment 2 through ports 11^a, as above described, while the other two generating-chambers communicate indirectly with said compartment through the two generating-chambers first specified, ports 11^c being provided for this purpose in the partition-walls which separate the adjoining generating-chambers.

The discharge-passage 15, which leads out of the upper portion of the delivery-compartment 2^a of the gas-discharge chamber, is controlled by a damper 18 and extends downwardly to a point of connection with a water-trough 16, from the opposite end of which a delivery-pipe 17 is led to the desired point of delivery of the gas. The water-trough is preferably provided with suitable appliances for the separation of tar, soot, and other prod-

ucts which pass with the gas from the delivery-compartment, said appliances not, however, constituting part of my present invention and not being, therefore, herein at length
5 set forth.

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 on
10 the grates 4. The gas generated by the combustion of the fuel in each of the generating-chambers passes therefrom into the upper portion of the receiving-compartment 2 of the gas-discharge chamber, either directly through a
15 port 11^a or intermediately through a port 11^c, into an adjoining generating-chamber, and thence through the port 11^a of the latter chamber into the receiving-compartment. From the receiving-compartment 2 the gas passes
20 downwardly under the bottom of the partition-wall 10 into the delivery-compartment 2^a, and thence through the discharge-passage 15 and water-trough 16 to the delivery-pipe 17. The several generating-chambers 11 are suc-
25 cessively charged with fuel at such intervals that there may be a comparatively bright fire in one or more of them at the time when another is charged. The gas which is first evolved from the fresh charge meets and min-
30 gles in the receiving-chamber 2 with the purer and hotter gas from the generating-chambers in which the charges of fuel have been more highly heated and more completely converted into gas, and the smoke, soot, and other foreign
35 matters of the gas of the fresh charge are consumed in such admixture. The partition-wall 10 prevents the gas of the fresh charge from escaping directly to the discharge-passage 15 and by intercepting all traverse of
40 gas from the generating-chambers to said passage otherwise than through the space below the bottom of the partition-wall protracts the period within which the admixture of the gas from the fresh and the partially-consumed
45 charges of fuel is effected and promotes the

full utilization of the gaseous elements of each of said charges.

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

1. In a gas-producer, the combination of a 50 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, ports establishing continuous communication 55 between the generating-chambers and gas-discharge chamber, a discharge-passage leading out of the gas-discharge chamber, and a partition-wall extending across the upper portion of the generating-chambers and the gas- 60 discharge chamber.

2. In a gas-producer, the combination of a gas-discharge chamber, a plurality of generating-chambers located on opposite sides thereof and having separate fuel-supply openings, 65 ports establishing continuous communication between one of the generating-chambers on each side of the gas-discharge chamber and said chamber, ports establishing continuous communication between the several generat- 70 ing-chambers on each side of the gas-discharge chamber, and a discharge-passage leading out of the gas-discharge chamber.

3. In a gas-producer, the combination of a gas-discharge chamber, divided transversely 75 into receiving and delivery compartments, generating-chambers located on opposite sides thereof and having separate fuel-supply openings, a fuel-support below and open to the generating-chambers and the compartments of 80 the gas-discharge chamber, ports establishing continuous communication between the generating-chambers and the receiving-compartment of the gas-discharge chamber, and a gas-discharge passage leading out of the delivery- 85 compartment of said chamber.

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Witnesses:

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