

H. I. LEA.
GAS PRODUCER.
APPLICATION FILED FEB. 14, 1907.

999,807.

Patented Aug. 8, 1911.

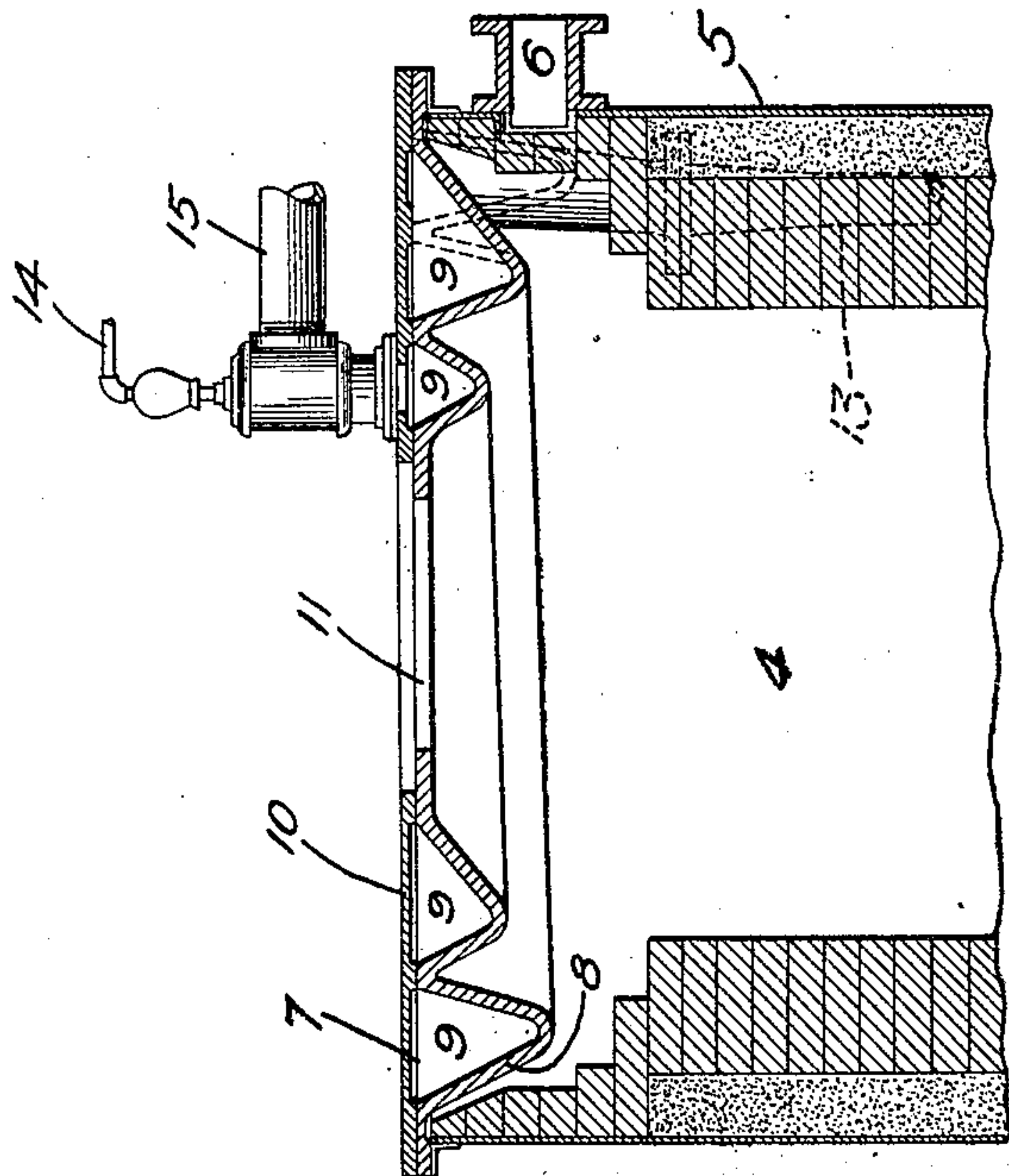


Fig. 1.

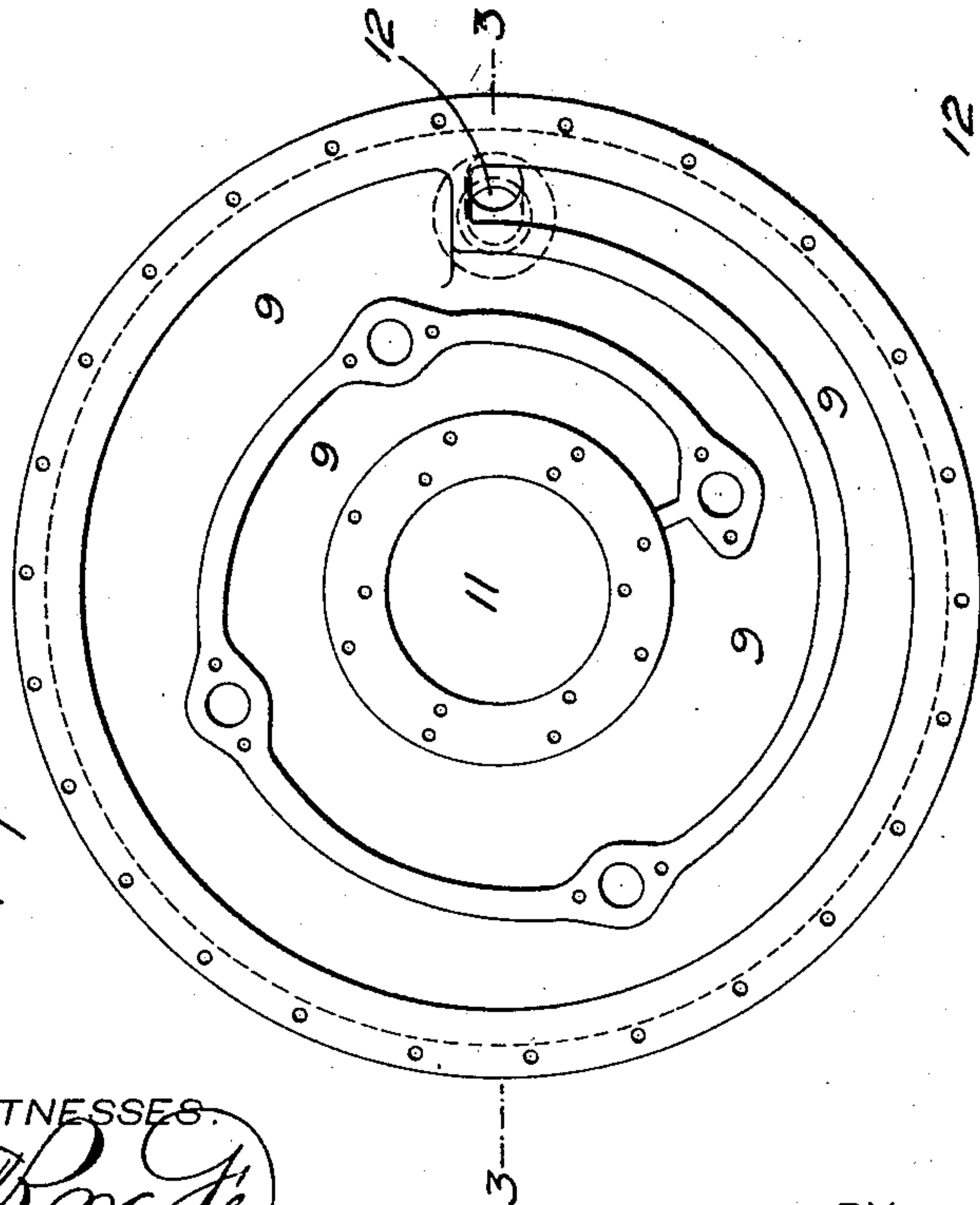


Fig. 2.

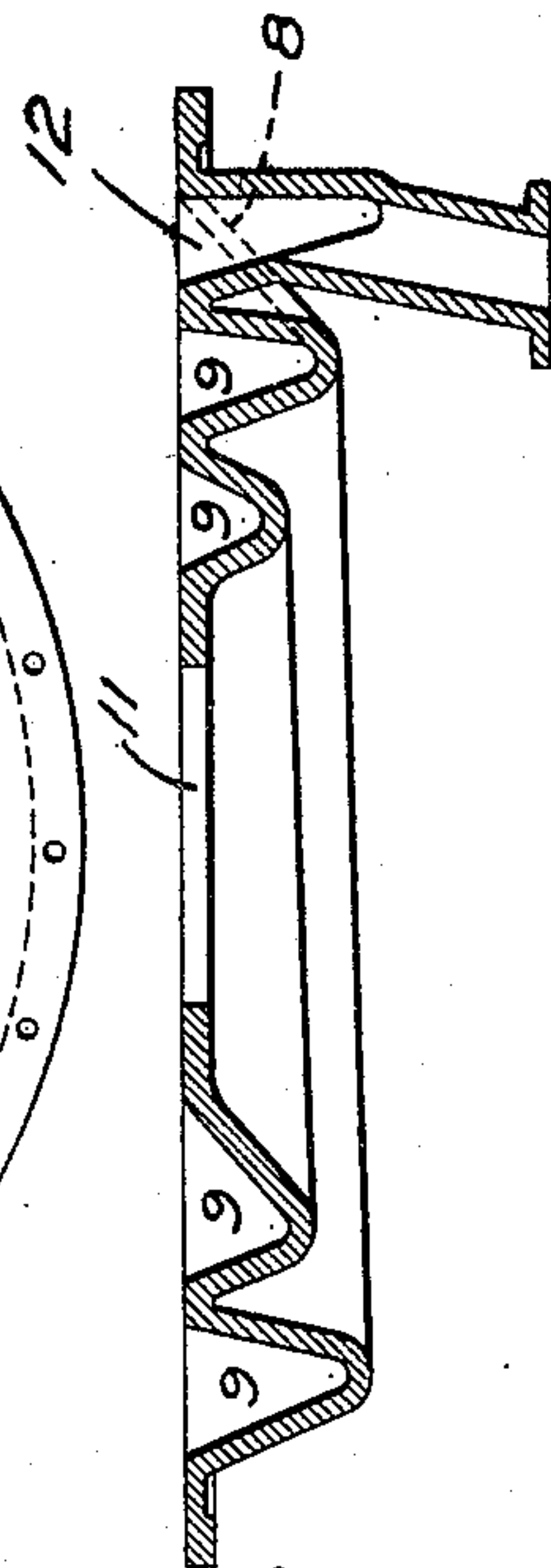


Fig. 3.

WITNESSES.

R. M. Tero.
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BY

INVENTOR

Henry I. Lea
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UNITED STATES PATENT OFFICE.

HENRY I. LEA, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE COLONIAL TRUST COMPANY, TRUSTEE, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

GAS-PRODUCER.

999,807.

Specification of Letters Patent.

Patented Aug. 8, 1911.

Application filed February 14, 1907. Serial No. 357,245.

To all whom it may concern:

Be it known that I, HENRY I. LEA, a citizen of the United States, and a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have made a new and useful Invention in Gas-Producers, of which the following is a specification.

This invention relates to gas producers and more particularly to means for delivering steam or water vapor to the air entering the producer.

The object of the invention is to produce means for utilizing the sensible heat of the outgoing gases to vaporize the water which is to be carried into the producer by the air.

In the drawing: Figure 1 is a sectional elevation of a portion of the producer provided with an embodiment of my invention. Fig. 2 is a plan view of one form of my invention. Fig. 3 is a sectional view on the line 3—3 of Fig. 2.

The apparatus illustrated is in effect a boiler comprising a spiral passage which is located at the top of the gas generating chamber of the producer and through which the air delivered to the producer is caused to pass. Water is delivered to the spiral passage by suitable means, employing a suitable valve construction if desired.

Referring to the drawings: The gas generating chamber 4 of the gas producer is inclosed within a shell portion 5 and is provided near the top with a gas offtake port 6. A flash boiler 7 which embodies my invention is mounted upon the top of the gas generating chamber adjacent to the gas offtake port 6, and comprises a portion 8 which is provided with spiral groove 9 and a portion 10 which coöperates with the portion 8 to close the top portion of the groove 9 and thereby form a spiral passage. The top portion 10 forms the top of the gas generating chamber. A fuel hopper may be arranged above the producer which may have its discharge end through the opening 11 of the flash boiler 7. The portion 8 is provided with a flanged part 12 which communicates with the outer

extremity of the groove 9 and which is adapted to be connected to a pipe 13 which delivers the saturated air to the producer below the fuel bed contained in the gas generating chamber.

Water may be supplied to the groove 9 through a pipe 14 communicating with a suitable source of supply and said water will enter the groove 9 near its inner end, and in flowing in the spiral path to the deepest part of the groove, which is adjacent to the outlet port 12, it is vaporized by the sensible heat of the outgoing gases. Air may enter the groove through the pipe 15 and become heated by the sensible heat of the gases, whereby its vapor carrying capacity is increased.

What I claim and desire to secure by Letters Patent is:

1. A steam or vapor generator comprising a portion provided with a spiral groove increasing in depth and sectional area in the direction of the steam outlet port, a member coöperating therewith to close said groove and thereby form an inclosed spiral passage, means for admitting water in regulable amounts to said passage and a vapor outlet port communicating with said passage.

2. A steam or vapor generator comprising a spiral groove increasing in depth and cross sectional area from the inlet port to the outlet port, in combination with an inlet port and an outlet port, and means for introducing air into said passage.

3. A steam or vapor generator comprising a spiral groove provided with an inlet port and an outlet port and increasing in cross-sectional area from the inlet port to the outlet port.

4. A steam or vapor generator comprising a portion provided with a spiral groove increasing in depth and cross-sectional area in the direction of the steam or vapor outlet port and a member coöperating therewith to close said groove and thereby form an inclosed spiral passage provided with an inlet port and an outlet port.

5. A steam or vapor generator comprising a spiral groove provided with an inlet port and an outlet port and increasing in depth and cross-sectional area from the inlet port to the outlet port, in combination with means for admitting regulable amounts of water thereto.

In testimony whereof, I have hereunto subscribed my name this 30th day of January, 1907.

HENRY I. LEA.

Witnesses:

CHARLES W. MCGHEE,
E. W. MCCALLISTER.

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