

(No Model.)

J. B. ARCHER.

APPARATUS FOR GENERATING VAPOR OR GAS.

No. 341,629.

Patented May 11, 1886.

Fig. 1.

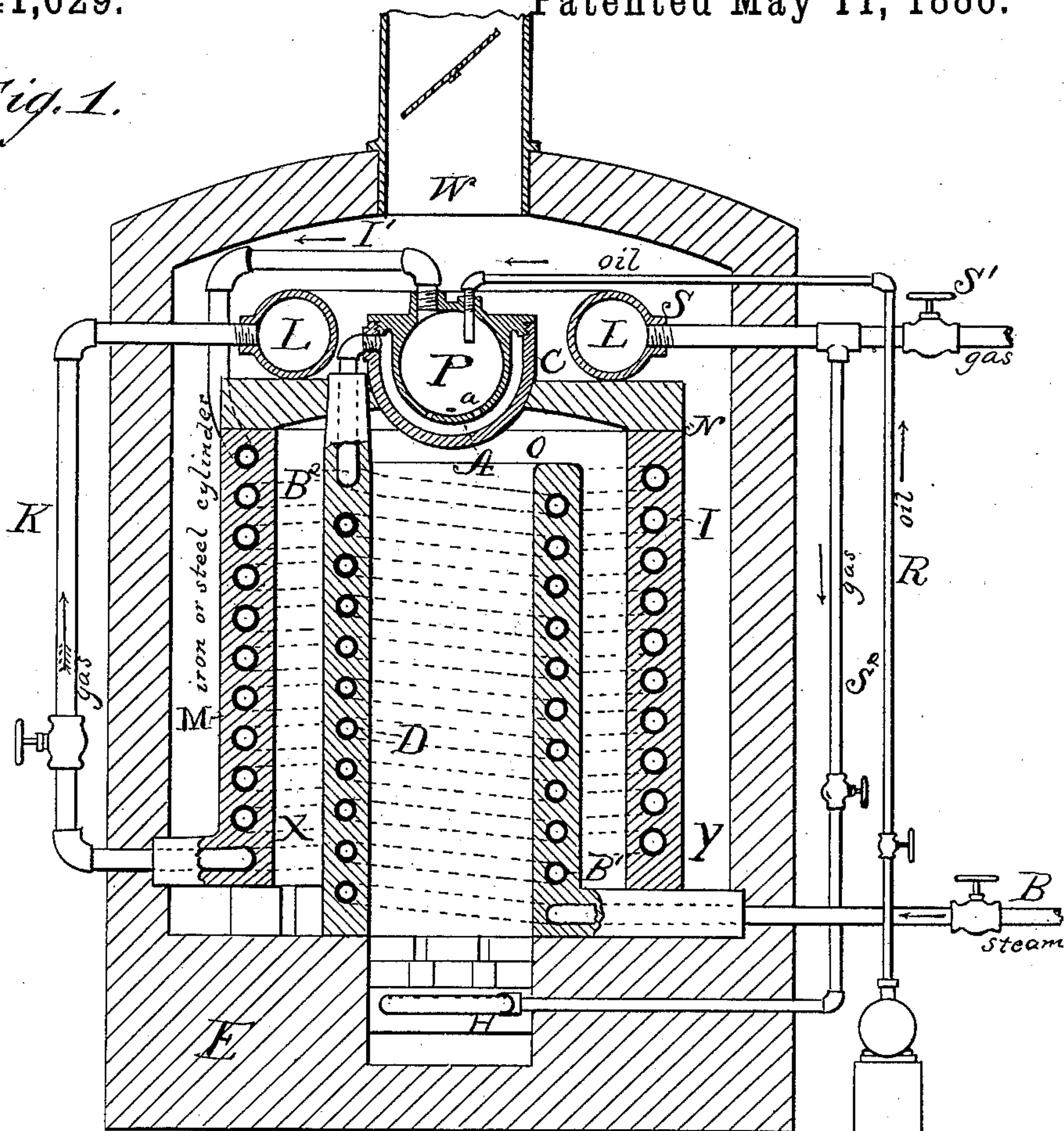


Fig. 3.

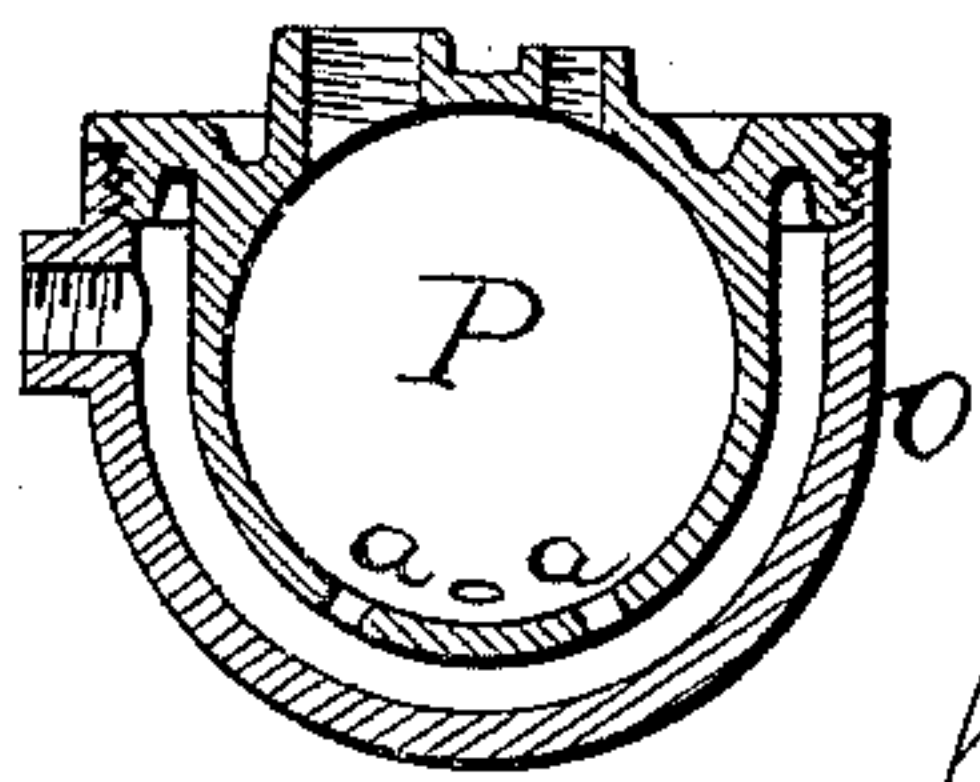
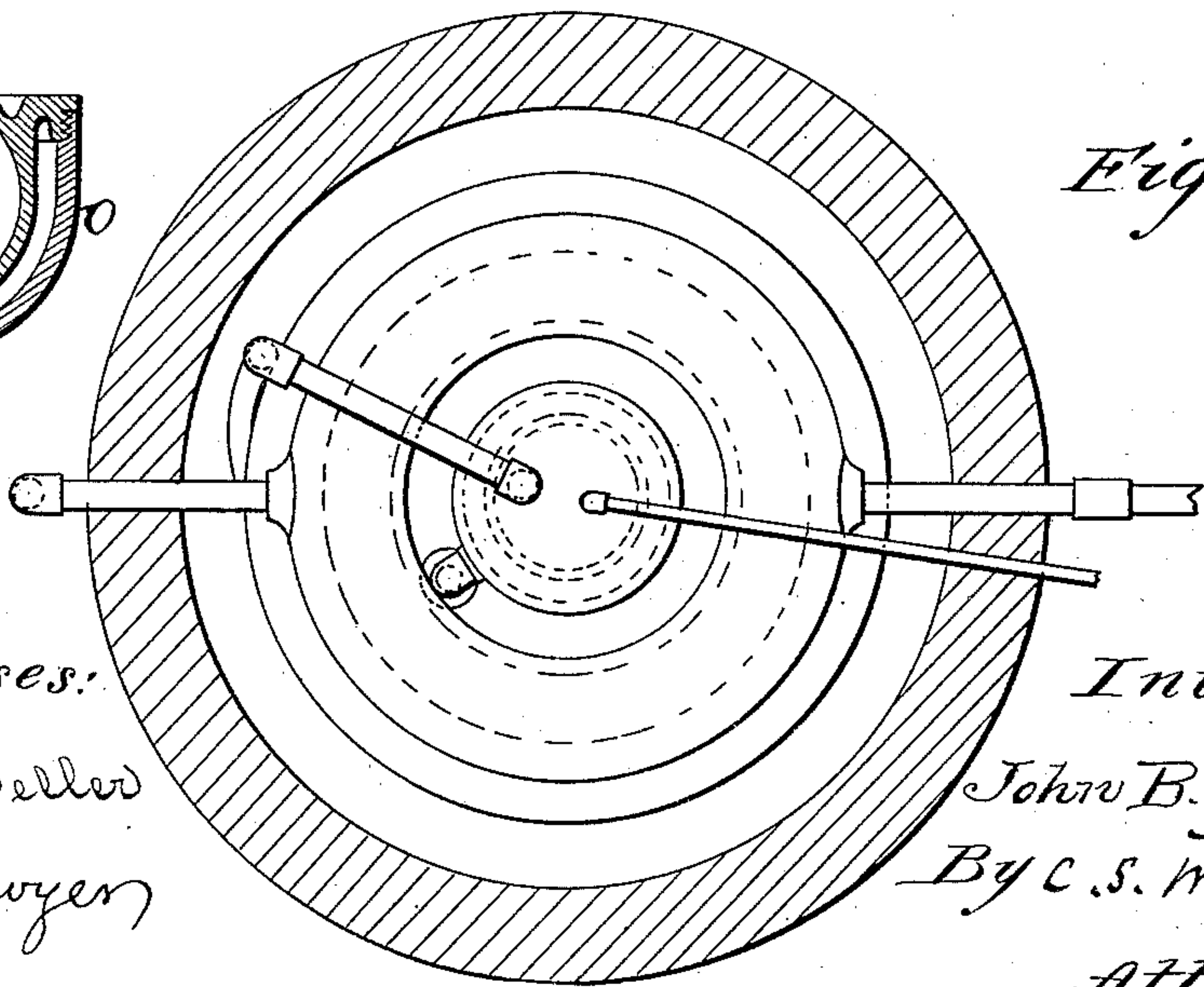


Fig. 2.



Witnesses:

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Inventor:

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UNITED STATES PATENT OFFICE.

JOHN B. ARCHER, OF WASHINGTON, DISTRICT OF COLUMBIA.

APPARATUS FOR GENERATING VAPOR OR GAS.

SPECIFICATION forming part of Letters Patent No. 341,629, dated May 11, 1886.

Application filed March 12, 1885. Renewed April 12, 1886. Serial No. 193,650. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. ARCHER, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Apparatus for Generating Vapor or Gas; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to that class of apparatus made use of for generating vapor or gas from liquid hydrocarbons by the action thereof of superheated steam; and the nature thereof consists in a novel combination of the parts of the generator and constructions hereinafter described and shown.

In the accompanying drawings, in which corresponding parts are designated by similar letters, Figure 1 is a vertical central section of the improved apparatus. Fig. 2 is a plan, the top or crown of the generator being removed in order to more distinctly show the parts thereof. Fig. 3 illustrates in detail the chamber into which the oil is introduced and vaporized.

The object of my invention is to furnish an apparatus for generating gas or vapor from liquid hydrocarbon and steam to be used in connection with any suitable gas-furnace. The steam enters the apparatus from any suitable source of supply and passes by the pipe B, spiral pipe B', and branch pipe B² to the chamber C. The spiral pipe B' is incased by an iron or steel cylinder, D, which rests upon the base E of the generator, and may be provided with an annular jacket, which protects it from the direct action of the flame rising from the burner H, as is shown in another application. A spiral pipe, I, of larger diameter than the pipe B', is connected by a branch pipe, I, with the chamber C, and by another branch pipe, K, with the annular retort, L. The annular retort surrounds the chamber C and is provided with an exit pipe, S, having a stop-cock, S', and branch pipe S² leading to the burner H. The pipe I is incased by an iron or steel cylinder, M, upon which rests the circular crown-piece N, sup-

porting the annular retort L and protecting it from the direct action of the flame.

The chamber in which the volatilization of the liquid hydrocarbons takes place consists of an outer casing, O, in which is placed a receiver, P, the interior of which is of spherical or elliptical form. An internal screw is cut upon the upper part of the chamber O, and an external thread upon the receiver P, so that the latter may be screwed firmly down upon the former, and thus be secured in position. By this construction a steam-space, A, is formed between the outer casing, O, and inner shell, P, into which superheated steam flows from the pipe B². The oil enters the receiver P by the pipe R, which is provided with a stop-cock, and there meets the steam which flows in from the steam-space through the holes *a*. The oil is thus vaporized by the direct action of the superheated steam upon it and by the heat conducted from the steam-space A. The vapor thus generated, together with a portion of the steam introduced into the receiver P, passes by the branch pipe I' through the coil-pipe I, where the fluids are thoroughly intermixed and intensely heated, and thence through the branch pipe K to the annular retort or reservoir L, where they form a fixed gas, which may be drawn off by the pipe S. The hot gases of combustion pass upward from the burner H, thence downward through the annular flue X, and thence upward again through the annular flue Y to the smoke-stack W, heating on their way the steam flowing upward through the pipe B' and steam-space A, the gas or vapor flowing downward through the pipe I and the annular retort L.

I do not claim the spiral coil of pipe and incasing-cylinder of iron or steel, as claims specifying these features are to be found in another application, No. 158,564, filed by me March 12, 1885.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination of the oil-induction pipe R, the steam-pipe B², the perforated receiver P, the casing O, and the gas or vapor pipe I, substantially as and for the purpose described.

2. The combination of the burner H, the steam-pipes B B' B², the oil-induction pipe R, the perforated receiver P, the casing O, and the gas and vapor pipe I, substantially as and
5 for the purpose described.

3. The combination of the burner H, steam-pipes B, B', and B², the oil-induction pipe R, the receiver P, the steam-space A, the gas or vapor pipes I, I', and K, and the annular re-
10 tort L, as and for the purpose described.

4. The combination of the receiver P, provided with holes in its bottom for the inflow of steam, the steam-pipe B', the steam-space A, the oil-induction pipe R, and the gas or vapor
15 pipe I', as and for the purpose described.

5. The combination of the receiver P, upon which is cut an external screw provided with pipes for the inflow of oil and the outflow of gas or vapor, and the external casing, C, hav-
20 ing an internal screw-thread and provided

with a pipe for the inflow of steam, and forming a steam-space below the receiver P, substantially as and for the purpose described.

6. The combination of the superheating steam-pipe B', incased by a cylinder of iron 25 or steel, the branch pipe B², the chamber in which the oil is volatilized located above the burner, and the pipe I, also incased in a cylinder of iron or steel.

7. The combination of the spiral vapor or 30 gas pipe I, incased in a cylinder of iron or steel, the crown-piece N, the branch pipe K, and the annular retort L, as and for the purpose described.

In testimony whereof I affix my signature in 35 presence of two witnesses.

JOHN B. ARCHER.

Witnesses:

C. FRED KELLER,
C. S. WHITMAN.