

(No Model.)

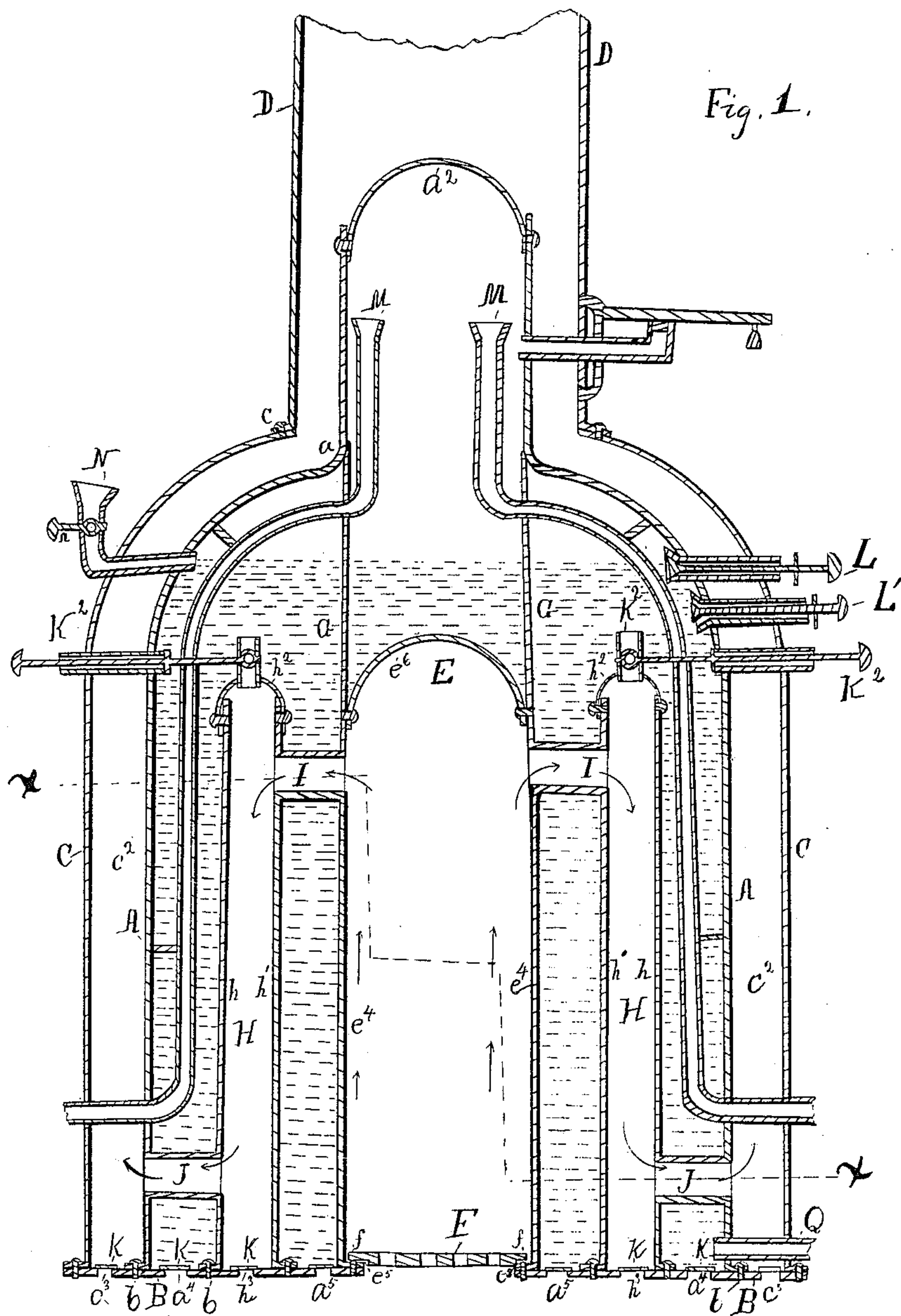
2 Sheets—Sheet 1.

A. L. GILSTRAP.

STEAM GENERATOR.

No. 365,000.

Patented June 14, 1887.



Witnesses.

N. A. Haseltine,
R. A. Haseltine,

Inventor.

A. L. Gilstrap

(No Model.)

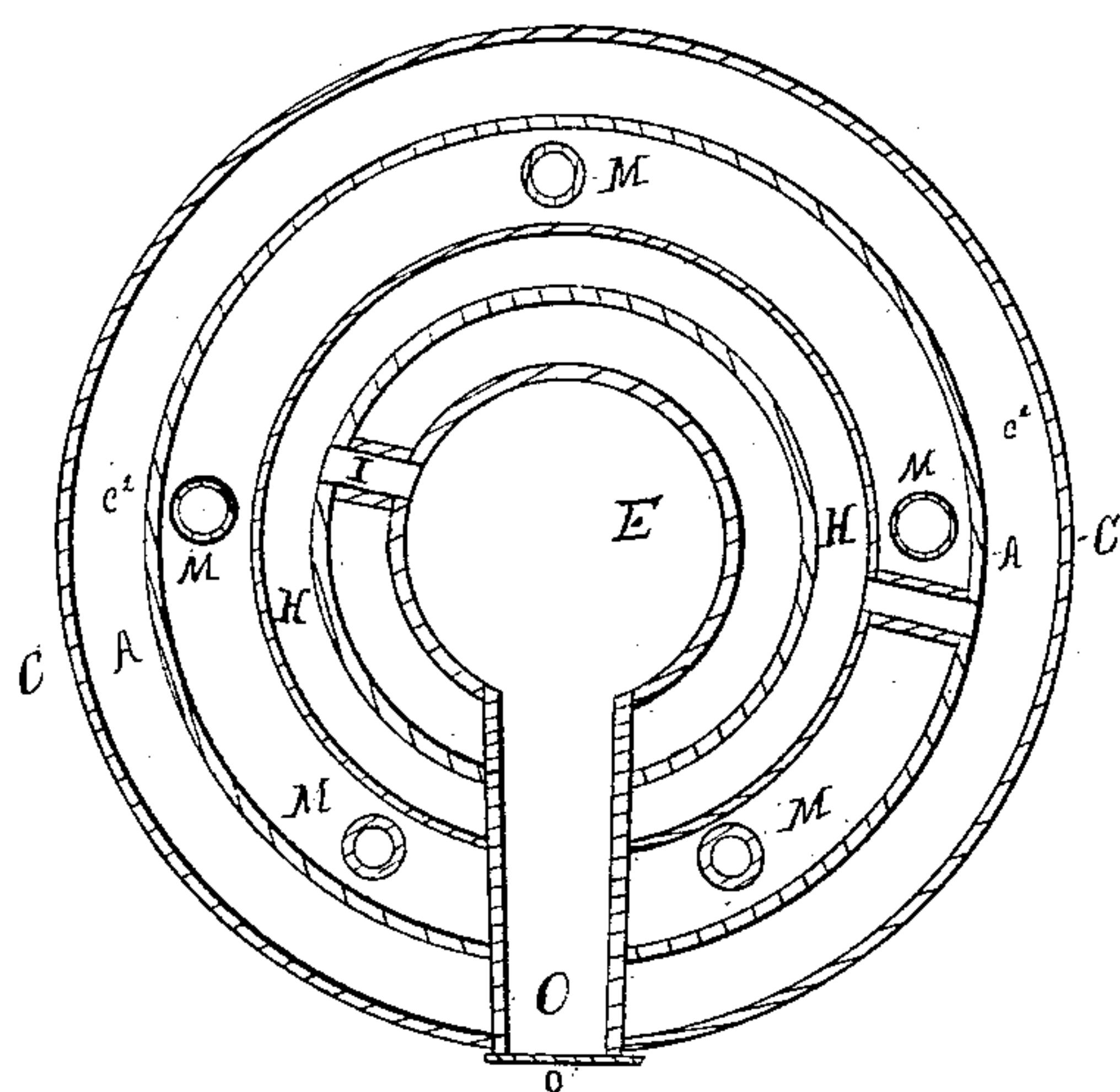
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A. L. GILSTRAP.

STEAM GENERATOR.

No. 365,000.

Patented June 14, 1887.



Witnesses.
H. A. Haseltine,
G. A. Clarke

Inventor
Albion L. Gilstrap

UNITED STATES PATENT OFFICE.

ABNER L. GILSTRAP, OF SPRINGFIELD, MISSOURI.

STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 365,000, dated June 14, 1887.

Application filed August 12, 1886. Serial No. 210,680. (No model.)

To all whom it may concern:

Be it known that I, ABNER L. GILSTRAP, a citizen of the United States, residing at Springfield, in the county of Greene and State of Missouri, have invented certain new and useful Improvements in Steam-Generators; 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 steam-generators; and it consists in the construction, novel arrangement, and adaptation of devices, as will be hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is a vertical longitudinal section of a generator embodying my improvements. Fig. 2 is a cross-section upon the line $x x$ of Fig. 1.

Referring by letter to the drawings, A indicates the outer walls of the generator, secured to the base-plate B, by means of bolts or rivets b , extending through the lower edge or rim of the outer walls, A, and base-plate B. The said walls A all around extend upward to a point at or near a horizontal line with the top of the fire-box, the elevation of which fire-box may be any height desired, and from which horizontal line the walls A are curved or rounded inward and upward to a line about vertical with the outside of the fire-box, and from thence directly upward to any desired extent, and are provided with a suitable cap, a^2 , concave on the under side.

C is an outer covering, extending around the walls A of the generator and secured to the base-plate B in a similar manner, and forming between the walls A a flue or space, c^2 , around the walls A, extending upward and connecting with the smoke-stack, being identical with the smoke-stack D, at the point C, at or nearly on a horizontal line with the point a of the generator-walls A.

D is a smoke-stack, made of any desired size and shape.

E is a fire-box, placed inside and about the center of the walls A, and its sides e^1 are secured to the base-plate B, by means of a rim riveted or bolted thereto, preferably extending around the interior of the fire box, forming a shoulder on the base-plate, around the inside of the fire-box, and opening through the base-plate to receive a grate, F, the rim f

of which rests on said shoulder at the lower end of the fire-box. The base-plate B is preferably square, but may be made in any desired form and thickness, with a hole through it about the center and under the fire-box E and grate F, to permit the ashes and cinders to drop through from the fire-box and to admit a draft of air. To the upper end of the fire-box is secured a cap, e^6 , bolted or riveted on. This cap is concave on the under side. To the sides e^4 on the outside are secured such number of rods or bars G as may be desired, connecting with the inside of the upper part of the walls A, for the purpose of strengthening the generator.

H is a boiler-flue composed of two walls, extending around the fire-box, midway, or nearly so, between it and the walls A, and the walls $h h'$ are secured at their base to the base-plate B, by most convenient turn of rims bolted or riveted thereto, in like manner as the walls A. To the top of this boiler-flue H is fixed a cap, h^2 , concave on the under side co-extensive with its walls and riveted or bolted thereto. This boiler-flue may extend up to or near the top of the body of the fire-box, as may be desired, and is connected at or near the top by any desired number of tubular flues, I, with the fire-box at or near its top, by which the fire-flame and heated air pass from the fire-box in the boiler-flue; and again, the boiler-flue has a connection, by any suitable number of tubular flues, J, from its bottom into the flue c^2 , at or near its bottom, by which the flame and hot air pass from the boiler-flue into the flue c^2 , and from thence around the walls A, and out of the smoke-stack D.

To clean out the flues and the water-spaces between them, openings are made down through the base-plate, which openings are indicated at c^3 , h^3 , a^4 , and a^5 , each of which is supplied with the usual covering-plates, through which the ashes, cinders, and soot, and also the sediment and water, may be driven out of the generator.

At the top of the boiler-flue H, on one or more sides, if desired, are provided openings into said flue for the water and steam in the generator, for admitting and shutting off water and steam when required to clean out the flue c^2 and other flue-connections, of ashes, cinders, soot, and sediment. These openings

are supplied with the usual stop-cocks, h^2 , the turning-bar of which is passed through a tube inserted in the flue c^2 and the walls A, terminating in a handle outside of the flue c^2 .

5 At and below the water-line in the generator two ordinary steam-gages, L and L', for showing the presence of water and steam, are inserted into and through the flue c^2 and walls A.

10 Steam connecting-pipes M M are shown in Fig. 1 secured on the inside of the walls A A, and are used to conduct the steam from the generator to the engines, supposed to be secured to the base-plate outside of the flue c^2 .

15 N is a reception-pipe, having a stop-cock, n , in it, inserted into and through flue c^2 and walls A, on a level with the upper steam-gage, as shown in drawing No. 1, and is used for the purpose of filling the generator with water.

20 Over the base-plate and secured thereto, entering the flue c^2 from the force-pump or insulator, and passing inside of that flue half-way around the walls A, is placed the supply-pipe Q, made in the usual manner, and used to supply the generator with water when in use.

25 O is an opening or door, through which to

place the fuel into the fire-box, and to this door is attached a shutter, o .

Having described this invention, what I claim is—

A steam-boiler consisting of the following 30 elements: a casing, C, surrounding the generator proper and forming the smoke-flue c^2 , leading to the uptake or stack, flue H, leading from the furnace down through the water-space and into the flue c^2 , one or more outlets, 35 M, leading from the steam-dome down through the water-space and out through the boiler-shell and its casing, water-feeders Q, the braces G, and plates K, for affording access to the lower ends of the water-space and smoke flues, 40 all constructed and adapted to operate substantially in the manner and for the purposes described.

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

ABNER L. GILSTRAP.

Witnesses:

S. A. HASELTINE,

S. C. HASELTINE.