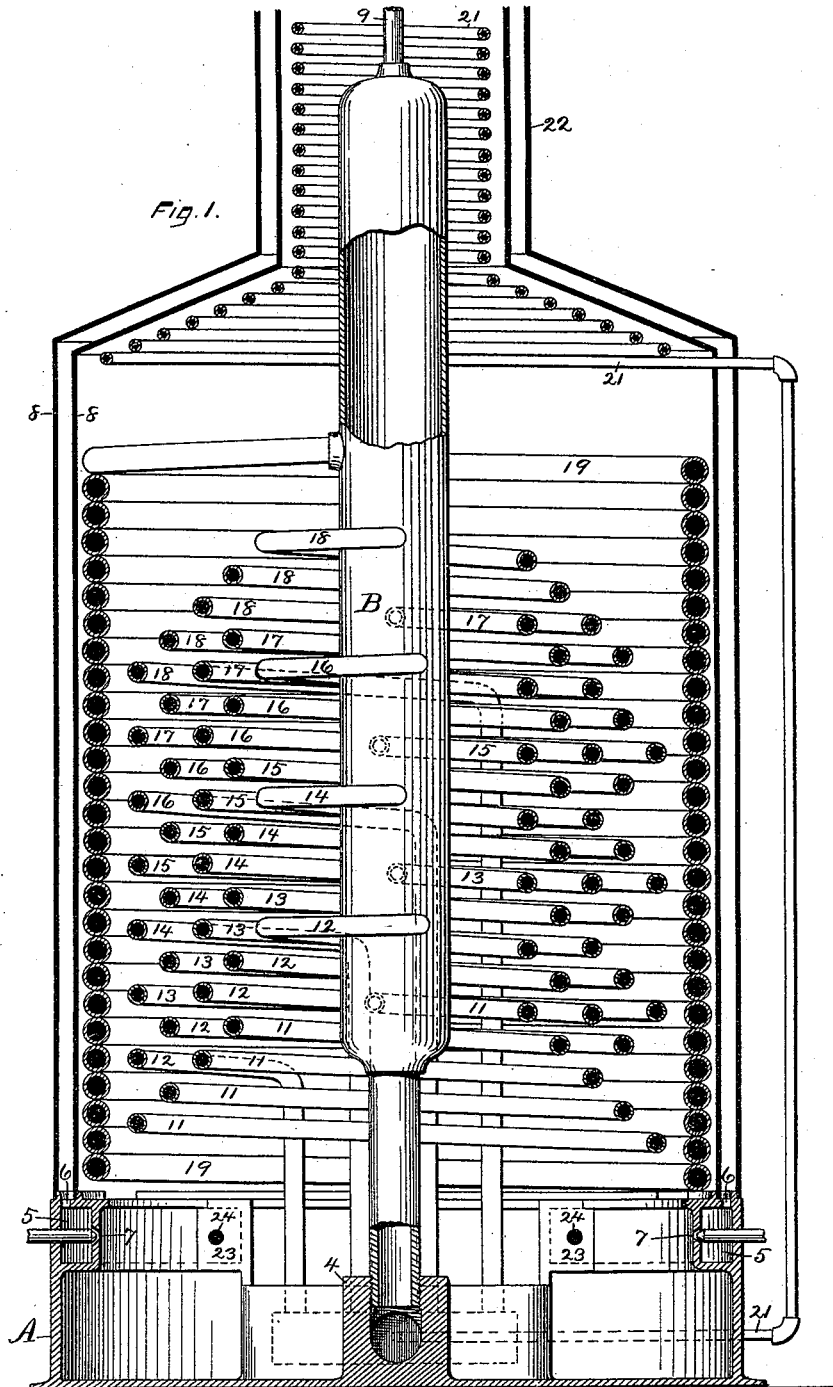


A. H. EDDY.  
STEAM GENERATOR.

No. 455,314.

Patented July 7, 1891.



Witnesses.  
John Edwards W.  
J. A. Lewis

Inventor.  
Arthur H. Eddy.  
By James Shephard Atty.

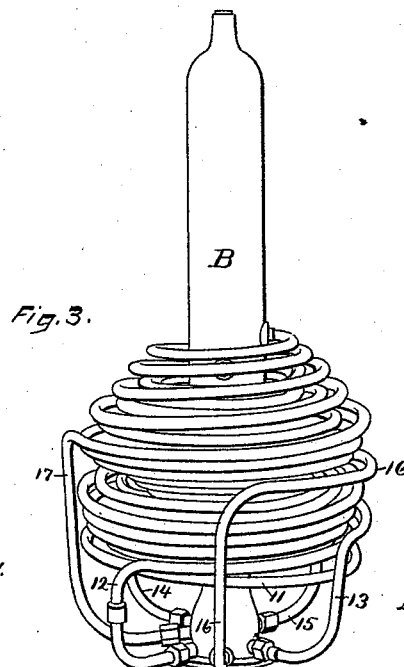
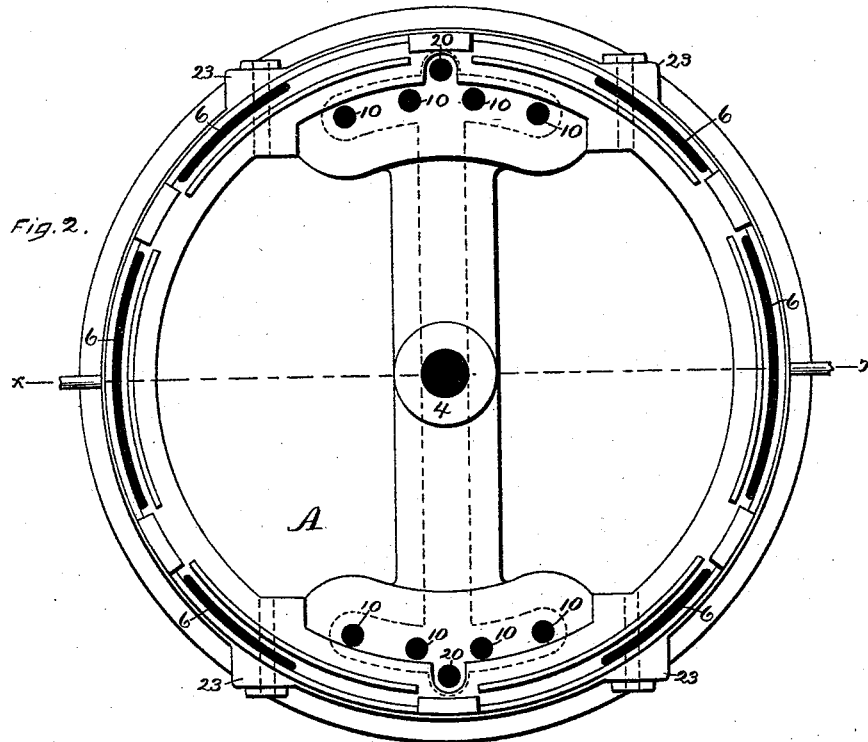
(No Model.)

2 Sheets—Sheet 2.

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Att'y.

# UNITED STATES PATENT OFFICE.

ARTHUR H. EDDY, OF HARTFORD, CONNECTICUT.

## STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 455,314, dated July 7, 1891.

Application filed September 4, 1890. Serial No. 363,901. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR H. EDDY, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Steam-Generators, of which the following is a specification.

My invention relates to improvements in steam-generators; and the objects of my improvement are simplicity of construction and efficiency and economy.

In the accompanying drawings, Figure 1 is a central vertical section, partly in elevation, of my generator, the plane of section being indicated by the line *xx* of Fig. 2. Fig. 2 is a plan view of the base of my generator; and Fig. 3 is a perspective view of the central portion of my generator, showing a slightly-different construction of connecting the pipes with the base.

A designates the base, having a central hub 4 and an enlargement across its middle portion, which is cored out to form a chamber, as indicated by the broken lines in Figs. 1 and 2. The outer wall of the base is of a round form and contains upon each side a semi-cylindrical air-chamber 5, which chambers are provided with openings 6 on the top, and also with side openings or perforations 7, as shown in Fig. 2. Mounted upon this base is a double hood or case 8 8, with an air-space between its walls, into which air-space the openings 6 communicate, while the openings 7 communicate with the combustion-chamber on the interior of said base and hood. The central perforation of the central hub has secured to it a central chamber B, which extends upwardly through the middle of the combustion-chamber, and the lower end of which opens into the chamber below the hub 4. The steam or gas generated is taken from this central chamber B through a conduit 9 at its upper end. The chamber below the hub in the base, in the form shown in Fig. 2, is provided with several holes 10, into which one end of the several pipes 11, 12, 13, 14, 15, 16, 17, and 18 are secured, while their opposite ends are secured to the central chamber B, each pipe after reaching the height of its base-coil extending upwardly on a gradually-decreasing circle, so as to produce what may be termed a "conical" series of coils for each pipe. These several

conically-coiled pipes are surrounded by a series of coils 19, which may be formed by a pipe having its lower end secured within one of the holes 20 of the base and its upper end secured to the central chamber B, as shown, the other one of the holes 20 in that case being plugged up or omitted; or, if desired, this series of coils 19 may be formed by two pipes with their lower ends secured to the base in the holes 20 and their upper ends secured to the central chamber B, the pipes being wound together to form a single series of surrounding coils 19 in a cylindrical form, as shown. I also connect a pipe 21 with the chamber in the base A and extend said pipe upwardly to the central portion of the hood 8 8, and then wind it in a series of conical coils up to the smoke-stack 22, and from there upwardly in a series of cylindrical coils, and carry its upper end to any suitable pump, the said pipe being for the purpose of a feed-water heater in supplying the generator with fluid.

23 designates enlargements in the base, provided with openings 24, that extend through the semi-annular air-chambers 5, as indicated by the broken lines in Fig. 2, and as shown in Fig. 1. These openings are for the introduction of jet-burners for burning liquid fuel, and when such fuel is used they form the only air-inlet to the combustion-chamber. If solid fuel is used, it may be admitted to the combustion-chamber through openings in the bottom of the base.

I have not specifically illustrated the manner of connecting the pipe ends to the respective parts, as the manner of connecting them is not essential to this invention so long as they are properly connected.

In Fig. 3 I have shown substantially the same central chamber and series of conically-coiled pipes with their upper ends connected to said chamber, while their lower ends are connected to the base of the central chamber integral therewith, instead of being connected directly to the separately-formed base A, thereby enabling me to connect these pipes to the central chamber prior to securing said chamber to its base. This base and series of pipes, as shown in Fig. 3, are designed to be bolted to the central hub of the base A, in which case the holes 10 will be either omitted or plugged up, and substantially the same re-

sult and provision for the circulation of fluid are maintained as in the construction first described. The construction shown in Fig. 3 is, however, the preferred one.

5 In use the fluid from which gas or steam is generated will be maintained at a height within the central chamber B above the highest point where the pipe-coils are connected therewith, so that there will be a perfect circulation of the fluid through the several coils.

10 I claim as my invention—

1. The combination of the central chamber, the several pipes wound in a series of coils of conical form and communicating with said chamber at their upper and lower ends, and a series of surrounding coils 19, in substantially a cylindrical form, also communicating

with said central chamber at their upper and lower ends, substantially as described, and for the purpose specified.

2. The combination of the base having the semi-annular air-chambers 5 5, the chambered central hub 4, the central chamber extending upwardly from said hub, the several coils of pipe communicating by their upper and lower ends with said chamber, and the double hood 8, forming an air-space communicating with the combustion-chamber through the semi-annular chambers 5, substantially as described, and for the purpose specified.

ARTHUR H. EDDY.

Witnesses:

M. C. MILLS,

JAMES SHEPARD.