

J. Connery

Steam-Boiler Superheater.

N^o 51,510.

Patented Dec. 12, 1865.

Fig. 1

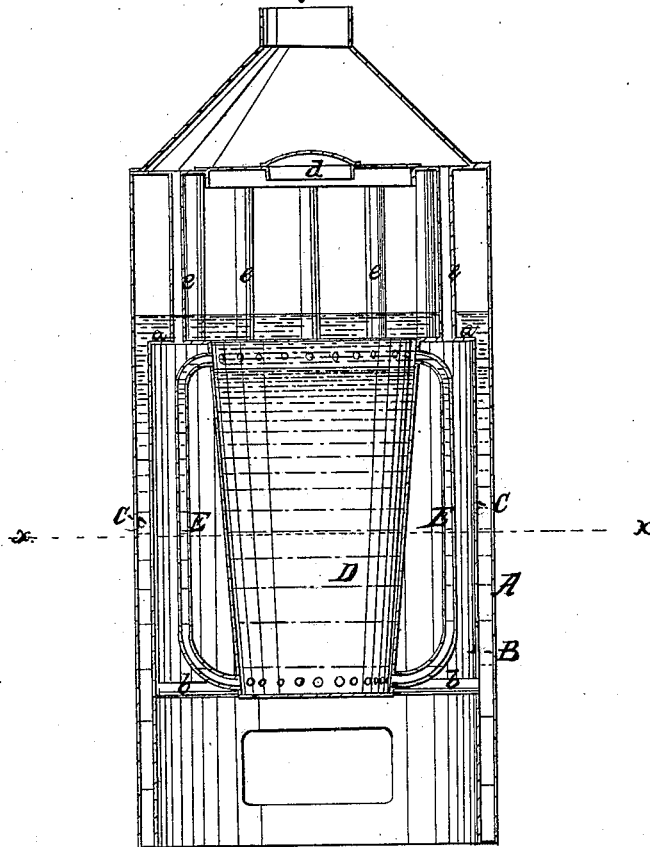
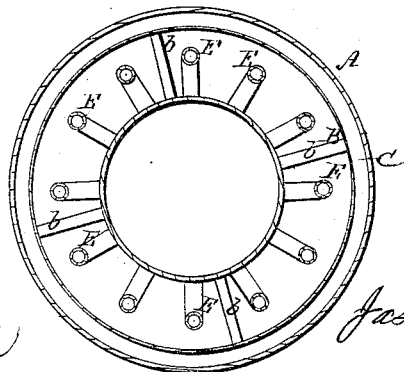


Fig. 2



Witnesses.

Thos. Luech

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Atty

UNITED STATES PATENT OFFICE.

JAMES CONNERY, OF WILMINGTON, DELAWARE, ASSIGNOR TO HIMSELF
AND WM. G. PENNYPACKER, OF SAME PLACE.

IMPROVEMENT IN STEAM-GENERATORS.

Specification forming part of Letters Patent No. 51,510, dated December 12, 1865.

To all whom it may concern:

Be it known that I, JAMES CONNERY, of Wilmington, in the county of New Castle and State of Delaware, have invented a new and Improved Steam-Boiler; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a vertical central section of this invention. Fig. 2 is a horizontal section of the same, taken in the plane indicated by the line *xx*, Fig. 1.

Similar letters of reference indicate like parts.

This invention relates to a steam-generator the fire-box of which is surrounded by a water-jacket extending all round. Suspended from the crown-sheet of the fire-box is a cylinder, which communicates with the water-space of the boiler. The outside diameter of this cylinder is much smaller than the inside diameter of the fire-box, and the annular space thus formed in the fire-box is occupied by a series of pipes emanating from the lower part of said cylinder, and terminating in its upper part in such a manner that a very large heating-surface is obtained and the water is caused to circulate freely throughout the boiler. From the crown-sheet of the fire-box rise a series of tubes through the upper part of the water-space and through the steam-space of the boiler, and by these means the heating-surface of the boiler is still further increased and the steam in the boiler is dried and partially superheated.

A represents the cylindrical shell of the boiler, which surrounds the fire-box B, leaving a narrow annular space, C, all round said fire-box, as shown in Fig. 2 of the drawings. The interior of the fire-box is occupied by a cylinder, D, which is suspended from the crown-

sheet *a*, and by a series of curved pipes, E, which emanate from the cylinder close down to its bottom and terminate near its top, as shown in Fig. 1. If desired, these pipes may commence and terminate at different levels, so as to effect a still further increase in the circulation of the water in the boiler.

The cylinder D is open on top, and from its lower part extend four (more or less) pipes, *b*, to the annular space C, and a communication is thus effected between the water-space of the boiler and the interior of the cylinder at the top and bottom thereof. By this arrangement the water is allowed to circulate freely throughout the whole boiler, and, furthermore, by the use of the cylinder D and pipes E, the heating-surface of the boiler is materially increased and steam is generated with great economy of fuel. Any sediment formed in the interior of the cylinder D can be readily cleaned out, access being had to it through a man-hole, *d*, in the top plate of the boiler.

The heated gases and products of combustion, rising from the fire in the fire-box, pass up through a series of tubes, *e*, which are secured at their bottom ends in the crown-sheet *a* and at their upper ends in the top plate of the boiler. These tubes, passing through the upper part of the water-space, increase the heating-surface of the boiler, and, furthermore, by their action the steam in the steam-space of the boiler is dried and partially superheated.

What I claim as new, and desire to secure by Letters Patent, is—

The cylinder D, with vertical pipes E and radiating-pipes *b*, in combination with the fire-box B, shell A, annular water-space C, and heating-tubes *e*, constructed and operating substantially as and for the purpose described.

JAMES CONNERY.

Witnesses:

WM. G. PENNYPACKER,
CHAS. S. ROBB.