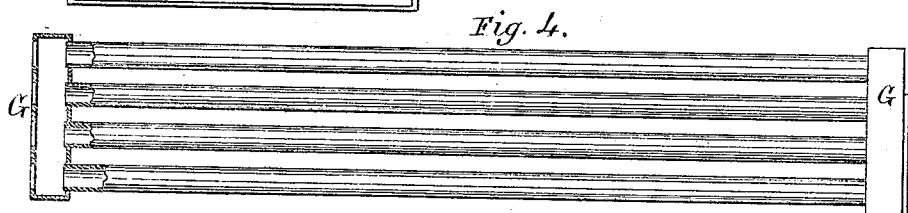
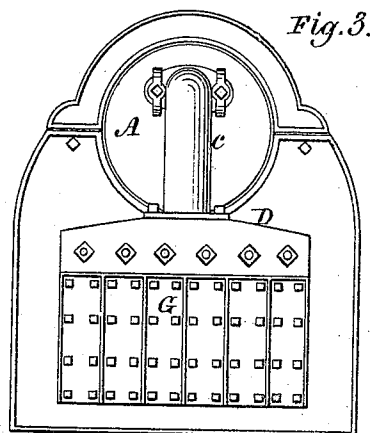
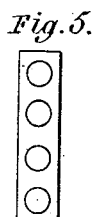
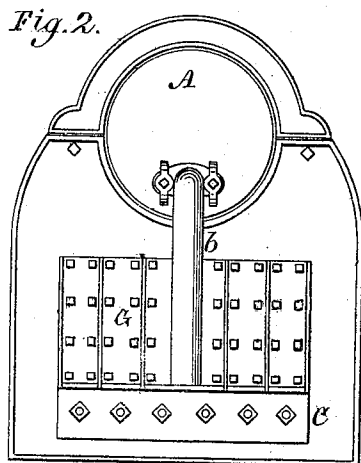
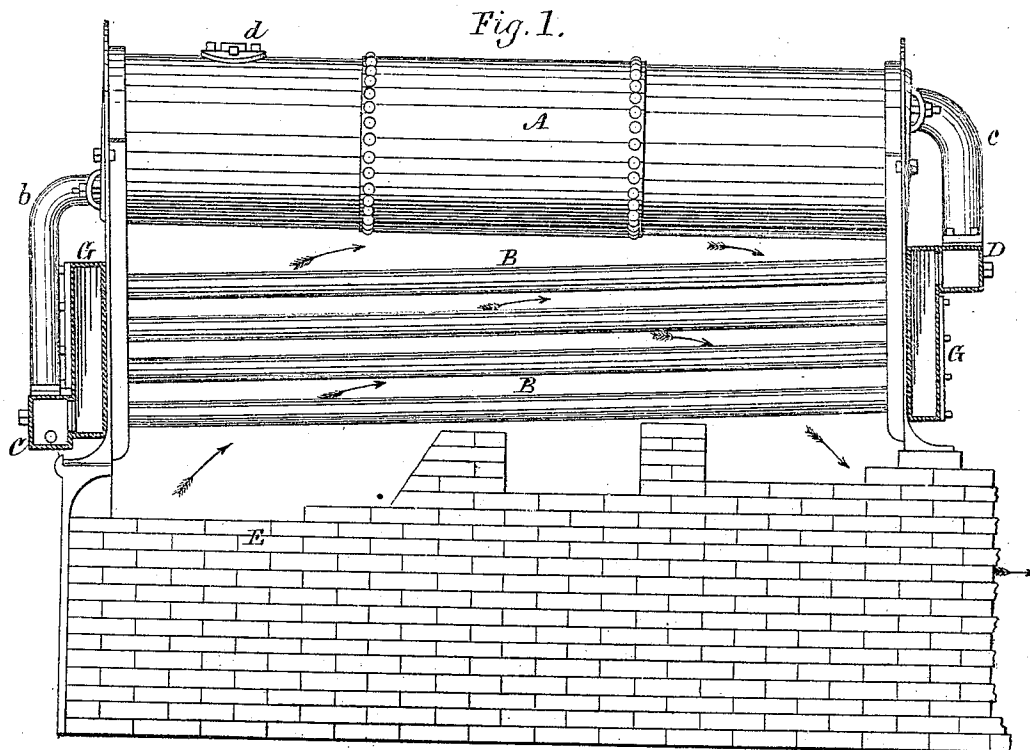


S. T. RUSSELL.
Improvement in Steam-Generators.
No. 129,061. Patented July 16, 1872.



Witnesses
Thomas C. Smith
Edmund Masson

Inventor.
Samuel T. Russell.
By atty. A. B. Stoughton.

UNITED STATES PATENT OFFICE.

SAMUEL T. RUSSELL, OF SPRINGFIELD, OHIO.

IMPROVEMENT IN STEAM-GENERATORS.

Specification describing Letters Patent No. 129,061, dated July 16, 1872.

To all whom it may concern:

Be it known that I, SAMUEL T. RUSSELL, of Springfield, in the county of Clark and State of Ohio, 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 same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 represents a side elevation of the generator with the brick-work removed to exhibit the interior. Fig. 2 represents a front elevation of the generator above the fire part or front. Fig. 3 represents a rear elevation of the generator above the brick-work. Fig. 4 represents a view of one of the sections of tubes that overlie the furnace, with one of the section-heads and a portion of the tubes broken away to show the interior. Fig. 5 represents a front view of a section-head uncovered so as to disclose the holes.

Similar letters of reference, where they occur in the several separate figures, denote like parts of the generator in the drawing.

My invention relates to a steam-generator composed of a receiver or receptacle for holding a supply of steam and water, a set of sections of tubes placed under the receiver and connected to it at each end by pipes and passages, as will be explained.

To enable those skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawing. The receiver A, for containing both water and steam, may be supported and protected or covered by brick-work in any of the usual well-known ways. Underneath the receiver and over the furnace or fire-box are arranged two or more sections of tubes, B, in which the steam is generated, and these tubes or sections, or series of tubes, are connected at each of their ends with section-heads G. Over these section-heads, opposite to where each section of tubes enters them, there are bolted sectional plates, which may be readily removed to clean or repair the tubes and be readily replaced again. I have represented the tubes in sections of four, (any other number not less than two may be used,) and each plate as covering a corresponding number. The section-heads G at the front of the generator—calling

that the front where the fire-box E is placed—connect with a pipe or passage, C, arranged at the lower end of said heads, and common to all of the section-heads, and from this pipe or passage C a connecting-pipe, b, extends up to and connects with the front end of the receiver A. The section-heads G at the rear of the generator connect with a pipe or passage, D, arranged at the top or upper portions of said heads, and from this pipe or passage D a connecting-pipe, c, extends to and is united with the rear of the receiver A. Thus the water from the receiver has a free circulation through the pipe b, passage C, section-heads G, section-tubes B, rear section-heads G, passage D, and pipe c to the rear upper portion of the receiver. The section-tubes B are immediately over the fire-box and combustion-chamber, and the flame and burning gases are turned up through and between said tubes by one or more bridge-walls, and thence may pass into any ordinary chimney or stack. These section-tubes are inclined from the front to the rear, so that whatever steam is generated in them passes freely into and through the rear section-heads, pipe or passage D, connecting-pipe c, into the upper part of the receiver, from whence it may be taken, by a pipe connected to the flange d, to where it is to be utilized.

The different parts of this generator may all be made of cast or wrought iron, as is usual in the construction of steam-generators; or some of the parts may be made of copper or brass, if so preferred.

The boiler or steam-generator, as herein described and shown, is cheap and efficient, and can be readily cleaned or repaired, as all its parts are easy of access on account of its sectional structure.

The gist of this invention consists in terminating each series of tubes B in the section-heads G G, each head common to all the tubes of that series, and each tube of the series accessible through the section-heads by removing a plate or cover that discloses the series, and in connecting the section-heads G G to the transverse passages C D, from which, respectively, the front and rear connecting-pipes b c lead to the receiver A, said passages C and D being common to all the section-heads at their respective ends of the generator.

Having thus fully described my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

In combination with the receiver A, sectional tubes B, and connecting-pipes *b c*, the section-heads G G and the series of tubes terminating therein, and the transverse passages

C D, common to all the section-heads, as and for the purpose described and represented.
SAMUEL T. RUSSELL.

Witnesses:

JAMES A. CASHMAN,
H. P. JONES.