M. J. O'RIELLEY.

Steam-Generator.

No. 215,834. Patented May 27, 1879.

Fig. 1

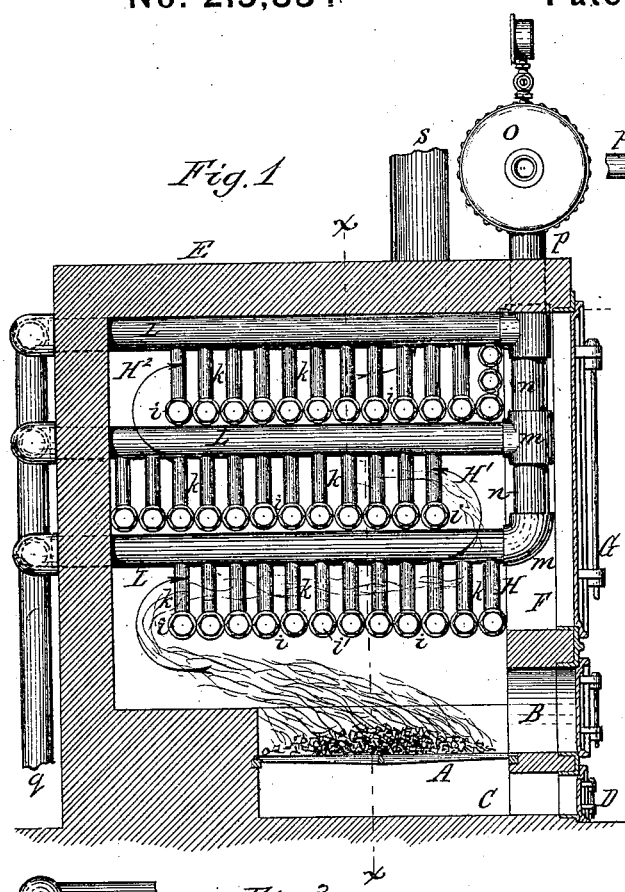


Fig. 2.

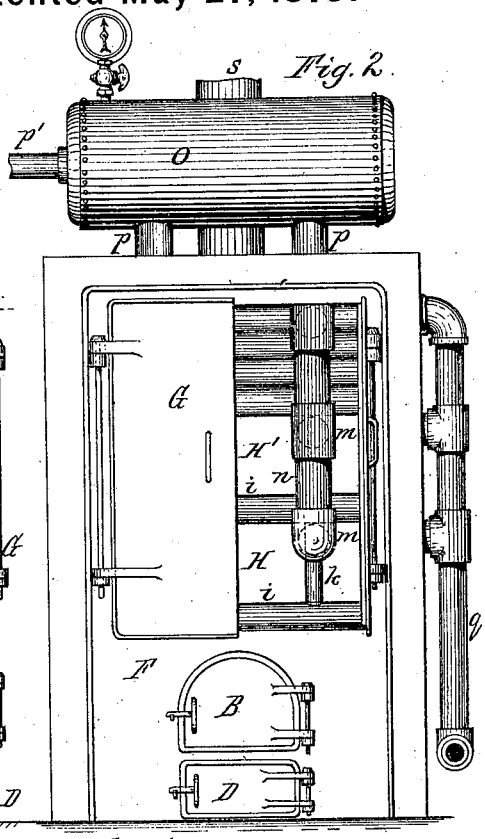


Fig. 3

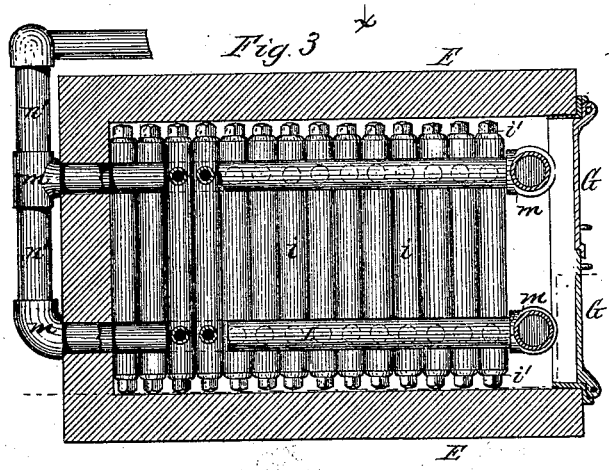


Fig. 4

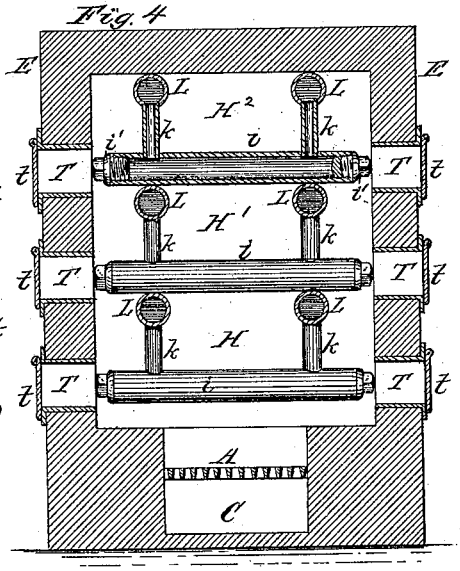
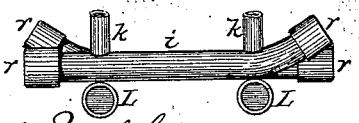


Fig. 5.



Witnesses.

Chas. J. Brokhuit.

Edw. J. Brady.

Inventor.

M. J. O'Rielley.

By Wilhelm & Bonner.

Attorneys.

UNITED STATES PATENT OFFICE.

MICHAEL J. O'RIELLEY, OF BUFFALO, NEW YORK.

IMPROVEMENT IN STEAM-GENERATORS.

Specification forming part of Letters Patent No. **215,834**, dated May 27, 1879; application filed March 10, 1879.

To all whom it may concern:

Be it known that I, MICHAEL J. O'RIELLEY, of the city of Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Steam-Generators, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to a steam-generator designed more particularly for heating purposes, and has for its object the construction of a simple, cheap, efficient, and safe generator, which may be readily taken apart when required.

My invention consists of a steam-generator composed of horizontal and vertical pipes, arranged to form horizontal flues between the pipes, as will be hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a side elevation of my improved generator with one of the side walls removed. Fig. 2 is a front elevation of the generator. Fig. 3 is a partly sectional plan view. Fig. 4 is a cross-section in line *x x*, Fig. 1. Fig. 5 is a view showing a modified mode of constructing the horizontal pipes.

Like letters of reference designate like parts in the several figures.

A represents the grate; B, the fire-door; C, the ash-pit; D, the ash-pit door; E, the inclosing brick-work; F, the front plate, and G G the doors thereof.

H H^1 H^2 are three horizontal sections or groups of pipes constituting my improved generator. Each section is composed of a series of horizontal pipes, *i*, arranged closely together and transversely to the direction of the draft, so as to form horizontal partitions, which separate one flue from the other. *k* are vertical pipes, arranged near each end of the horizontal pipes *i*, for connecting the latter with a horizontal manifold or main pipe, L, running parallel with the direction of the draft. The vertical pipes *k* are provided at their ends with right and left hand screw-threads, and tap directly into threaded openings in the pipes *i* and manifolds L. *m* are fittings arranged at the ends of the manifolds L, and *n* *n'* are short pipes provided with right and left hand screw-threads for connecting the fittings *m*.

In the drawings, the pipes *n* at the front of the generator are arranged vertically, and the pipes *n'* at the rear horizontally; but either arrangement may be used at both ends, as may be preferred.

O is a steam-drum, connected with the upper section, H^2, by pipes *p*, and *p'* is the pipe by which the steam is conducted to the radiators. *q* is the vertical water-supply pipe connecting the sections H H^1 H^2 at the rear.

The horizontal pipes *i* are closed at the ends by any suitable means. As shown in Figs. 1, 3, and 4, their ends are closed by screw-plugs *i'* tapping into the pipes, while in Fig. 5 their ends are shown closed by screw-caps *r*, inclosing the end of each pipe.

The last-mentioned construction renders it necessary to bend one end of each pipe, as clearly shown in the figure, to make room for the screw-caps.

The horizontal-pipes *i* of the lowest or first section, H, are arranged to lie closely against the front of the generator, and to leave a space between the last pipe *i* of the series and the rear wall of the generator for the passage of the flame into the next flue above.

The pipes *i* of the second section, H^1, lie closely against the rear wall and leave a passage at the front, and the sections alternate in this manner to the top of the generator, where the hot air and gases escape into the smoke-pipe or chimney *s*. T are open frames set in the side walls of the generator opposite the ends of the horizontal pipes *i*, and provided with hinged doors *t*, so that upon opening the doors and removing the plugs or caps closing the ends of the pipes *i* the latter can be readily cleaned out.

The water enters the lower section, H, through the pipe *q*, and its level is preferably held midway between the top and bottom of the generator. The water is divided in my improved generator into very small bodies, which are heated very quickly and present a large surface to the fire, thereby enabling the generator to make steam rapidly with a very economical consumption of fuel. The small diameter of the pipes of which the generator is composed renders the apparatus capable of sustaining a great pressure safely, and effectually guards against explosions.

Upon disconnecting the short pipes *n* at the front, and the pipes *n'* and fittings *m* at the rear, any one of the sections H H¹ H² can be withdrawn through the front doors G when required to be repaired.

When the rear connecting-pipe *n'* and fittings *m* are arranged on the inner side of the rear wall, it is not necessary to disconnect the fittings *m* at the rear in order to withdraw a section.

I claim as my invention—

1. A steam-generator composed of two or more sections, H H¹ H², each composed of horizontal pipes *i*, arranged closely together and transversely to the direction of the draft, vertical pipes *k*, and manifolds L, arranged parallel with the draft, the different sections forming horizontal flues, one above the other, through which the draft passes successively, substantially as set forth.

2. A steam-generator composed of two or more horizontal sections, H H¹ H², each composed of horizontal pipes *i*, vertical pipes *k*, and manifolds L, and right and left hand threaded pipes *m*, connecting the different sections, so that each section can be readily removed, substantially as set forth.

M. J. O'RIELLEY.

Witnesses:
JNO. J. BONNER,
JAMES B. OLNEY.