

A. SEDGWICK.
WATER TUBE BOILER.

No. 177,358.

Patented May 16, 1876.

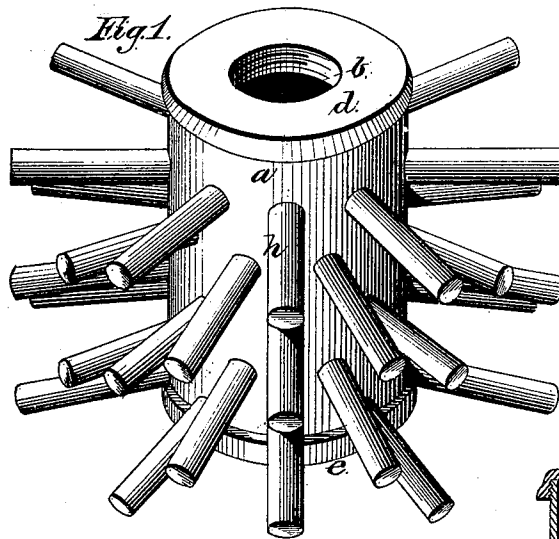


Fig. 2.

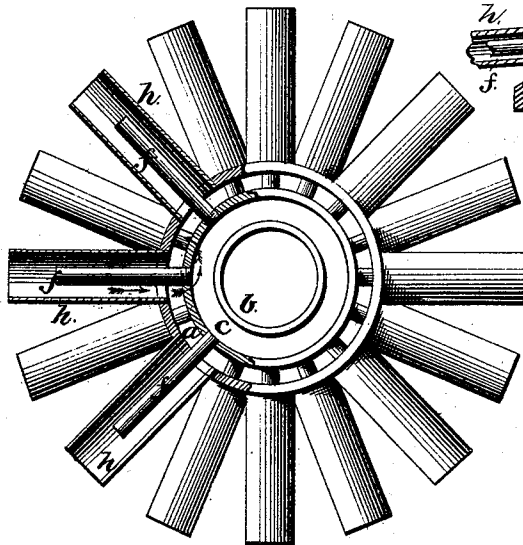
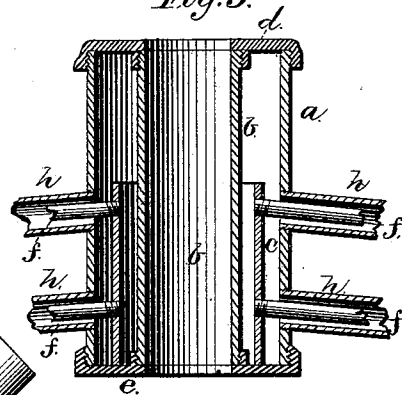


Fig. 3.



Witnesses:

Robert M. Brown.
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Inventor:

Alonzo Sedgwick

UNITED STATES PATENT OFFICE.

ALONZO SEDGWICK, OF POUGHKEEPSIE, NEW YORK.

IMPROVEMENT IN WATER-TUBE BOILERS.

Specification forming part of Letters Patent No. **177,358**, dated May 16, 1876; application filed August 31, 1875.

To all whom it may concern:

Bet it known that I, ALONZO SEDGWICK, of Poughkeepsie, in the county of Dutchess and State of New York, have invented an Improved Steam-Generator; and that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon, making a part of this specification.

This invention is in the nature of an apparatus for generating steam, and the invention consists in a series of cylinders and pipes combined, in the manner hereinafter described.

In the accompanying sheet of drawings, Figure 1 is the perspective view of the steam-generator. Fig. 2 is a transverse section of the same. Fig. 3 represents a vertical central section showing the position of the concentric cylinder *c* and the location of the circulating tubes below the water-line.

Similar letters of reference indicate like parts in the several figures.

The object of my invention is to construct a steam-generator or boiler, which will have a large heating surface, without any of the parts being of large dimensions, thus avoiding dangerous explosions and saving expensive repairs. I also make ample provision for the expansion and contraction of the different parts, making the connections in the most simple and safe manner, and provide for a perfect circulation of the water, providing, also, a large fire-surface with a magazine for coal, making it a base-burner when desired.

These improvements are illustrated in Fig. 1, Fig. 2, and Fig. 3, of the accompanying drawing.

The generator is constructed of two wrought-iron cylinders or drawn tubes *a* and *b* of different diameters; the smaller one *b* being placed within the large one *a*, both being screwed or riveted to the rings or heads *d* and *e* so as to be steam-tight, leaving the smaller cylinder *b* open, to be used either as a flue for the passage of the heat or as a magazine for coal.

The cylinder *a* is pierced with holes, at

suitable distances apart, for the reception of the pipes *h*, one end of the pipes being screwed or otherwise secured in the holes, the other end being closed by a cap or plug, allowing each pipe to expand or contract without interfering with the others.

The pipes below the water-line—the water-line being determined by and corresponding with the height of the cylinder *c*—are secured to the cylinder at such an inclination as will secure a circulation of the water as it is heated. To further increase the circulation of the water, I provide the short cylinder *c*, placed between the cylinders *a* and *b*, the upper end coming to the water-line, and pierced with holes corresponding to the holes in cylinder *a*, but smaller, to receive the small pipes *f*, which are introduced into the pipes *h* and secured in a similar manner into the cylinder *c*, both ends of the pipes *f* being left open.

The generator may be inclosed in an iron case, as shown, or it may be inclosed in brick-work or arranged in any other suitable manner. When in use it is provided with a furnace and steam and water fixtures, not deemed necessary to show.

The generator being filled with water above the top of cylinder *c* and a fire started, the heat circulates around the cylinder *a* and pipes *h*, causing the water as it heats to rise in the pipes *h*, and between the cylinders *a* and *c*, and return down between the cylinders *c* and *b*, and through the small pipes *f*, causing a rapid circulation of the water, which increases with the heat. The water, in rising between the cylinders *a* and *c*, readily parts with its steam, allowing it to escape into the space and horizontal pipes above the water-line, superheating the steam and storing it for use.

I claim as my invention—

In a steam-generator the combination of the cylinders *a* and *b* and heads *d* and *e*, with the cylinder *c* and pipes *h* and *f*, substantially as described.

ALONZO SEDGWICK.

Witnesses:

ROBT. N. PALMER,
DE WITT VARICK.