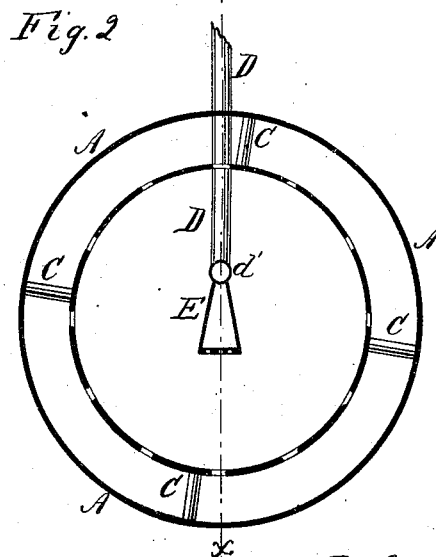
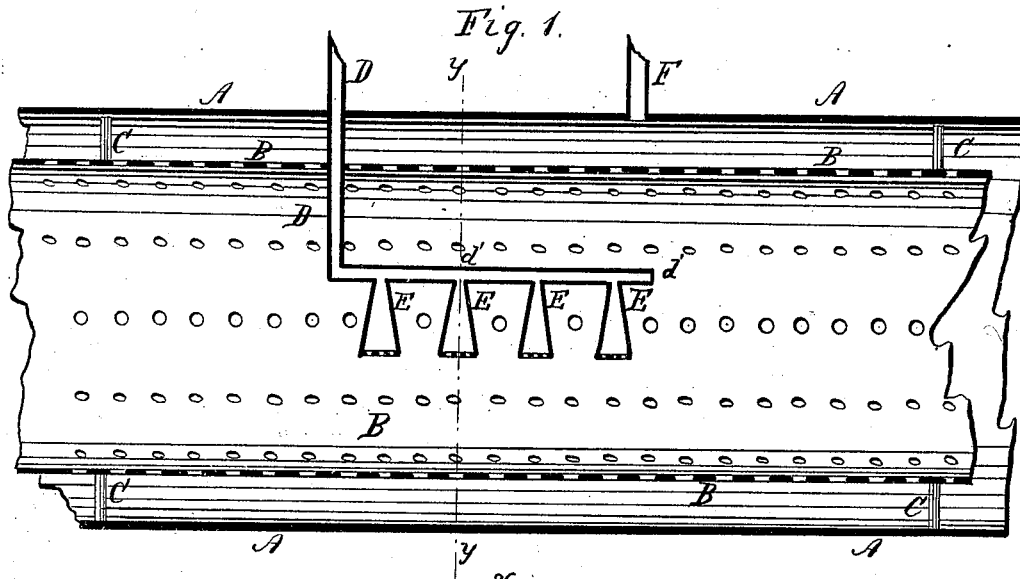


A. J. Smith,
Steam-Boiler Water-Heater.
N^o 55,172. Patented May 29, 1866.



Inventor;
A. J. Smith
Per Munn & Co
Attorneys

Witnesses;
J. H. Blount
Wm. Hewin

UNITED STATES PATENT OFFICE.

ANDREW J. SMITH, OF GREENVILLE, OHIO.

IMPROVEMENT IN STEAM-GENERATORS.

Specification forming part of Letters Patent No. 55,172, dated May 29, 1866.

To all whom it may concern:

Be it known that I, ANDREW J. SMITH, of Greenville, in the county of Darke and State of Ohio, have invented a new and useful Improvement in Steam-Boilers; 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 a part of this specification, in which—

Figure 1 is a vertical longitudinal section of a portion of my improved boiler, taken through the line *xx*, Fig. 2. Fig. 2 is a vertical cross-section of the same, taken through the line *yy*, Fig. 1.

Similar letters of reference indicate like parts.

My invention has for its object to furnish an improved steam-boiler in which the steam shall be formed in small quantities and as it may be required for use; and it consists of an improved steam-boiler formed by combining the perforated interior boiler and the induction water-pipes with each other and with the outer boiler, as hereinafter more fully described.

A is the outer boiler, which is made in the same shape and manner as the outer case or shell of an ordinary steam-boiler, and the ends are also attached in the ordinary manner. Within this boiler is placed a second boiler, B. This boiler should be made of wrought-iron, and in the same general form as the boiler A, but of such a size that it may be placed within the said boiler A leaving a space all around between the said boilers, as shown in Figs. 1 and 2. The boiler B is supported in this position by blocks C, through which pass bolts or rivets, which are riveted fast both to

the boiler A and to the boiler B. The principal object of this boiler B is to obtain a greater heating-surface, and it is perforated with numerous holes, as shown in the drawings, so that the heated air and steam may have free passage through all parts of both boilers.

The water-induction pipe D enters through the top of the boilers, as shown, and after reaching the interior of the boiler B it is bent at right angles, and passes along within the said boiler B, as seen in Figs. 1 and 2.

To the under side of the horizontal part *d'* of the pipe D is attached a number of small cone-shaped pipes, E, the bottoms of which are perforated with numerous small holes, as shown.

F is the eduction-pipe, through which the steam is conveyed to the engine or other place where it is to be used.

In using the boiler, the fire is first started, and as the boilers become heated the entire space within the boiler A becomes filled with the heated air. Water is then introduced, and as it passes through the small holes in the bottoms of the cone-shaped pipes E it comes in contact with the heated air or steam within the boiler, and is at once vaporized, the steam passing out through the pipe F, as before.

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

An improved steam-boiler formed by combining the perforated interior boiler, B, and the water-induction pipe D *d'* E with each other and with the outer boiler, A, substantially as described, and for the purposes set forth.

ANDREW J. SMITH.

Witnesses:

THEODORE BEERS,
FRANK E. MOORES.