C. W. PIERCE.

Rotary Steam Boiler.

No. 166,807. Patented Aug. 17, 1875.

Fig. 1

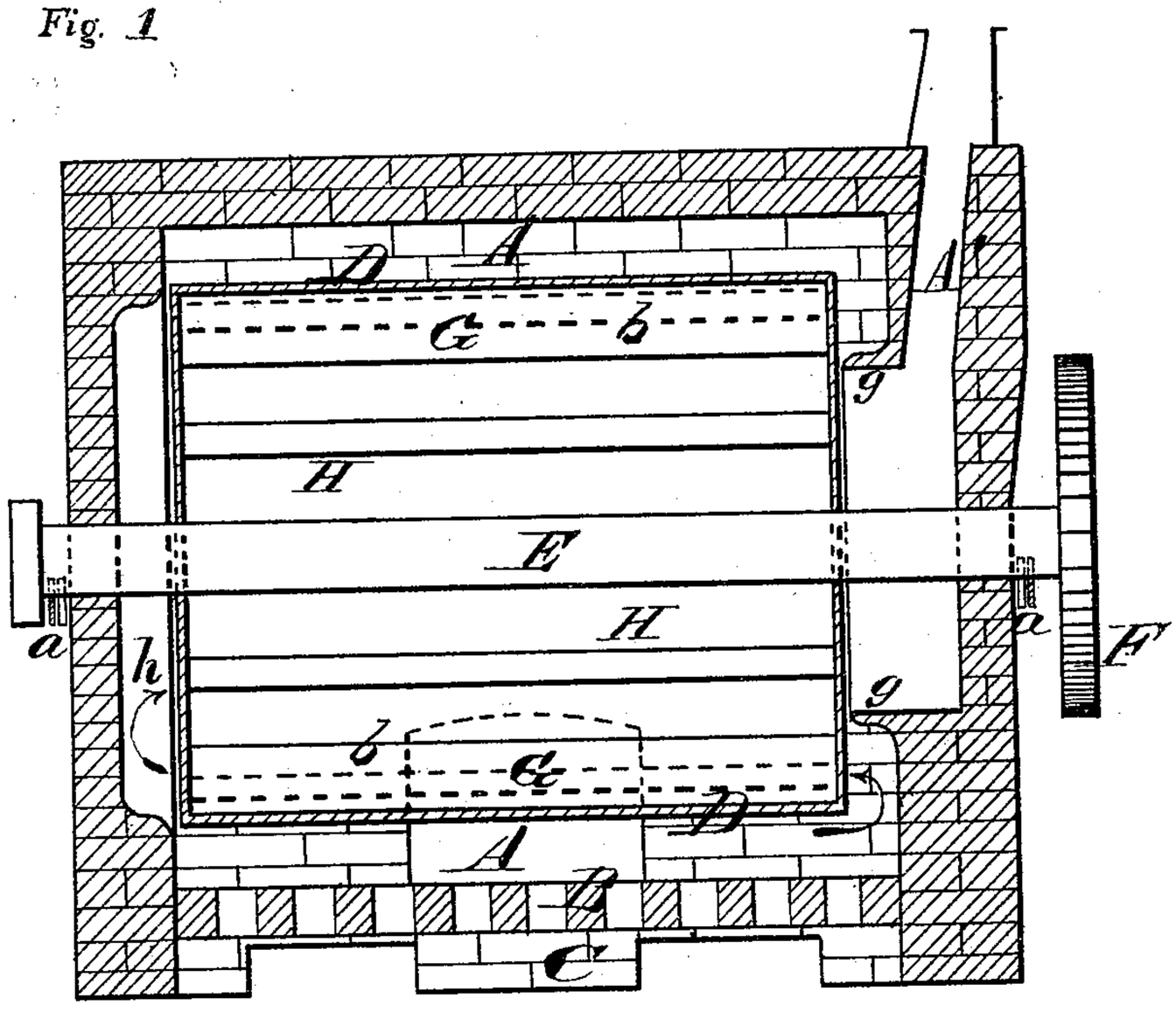
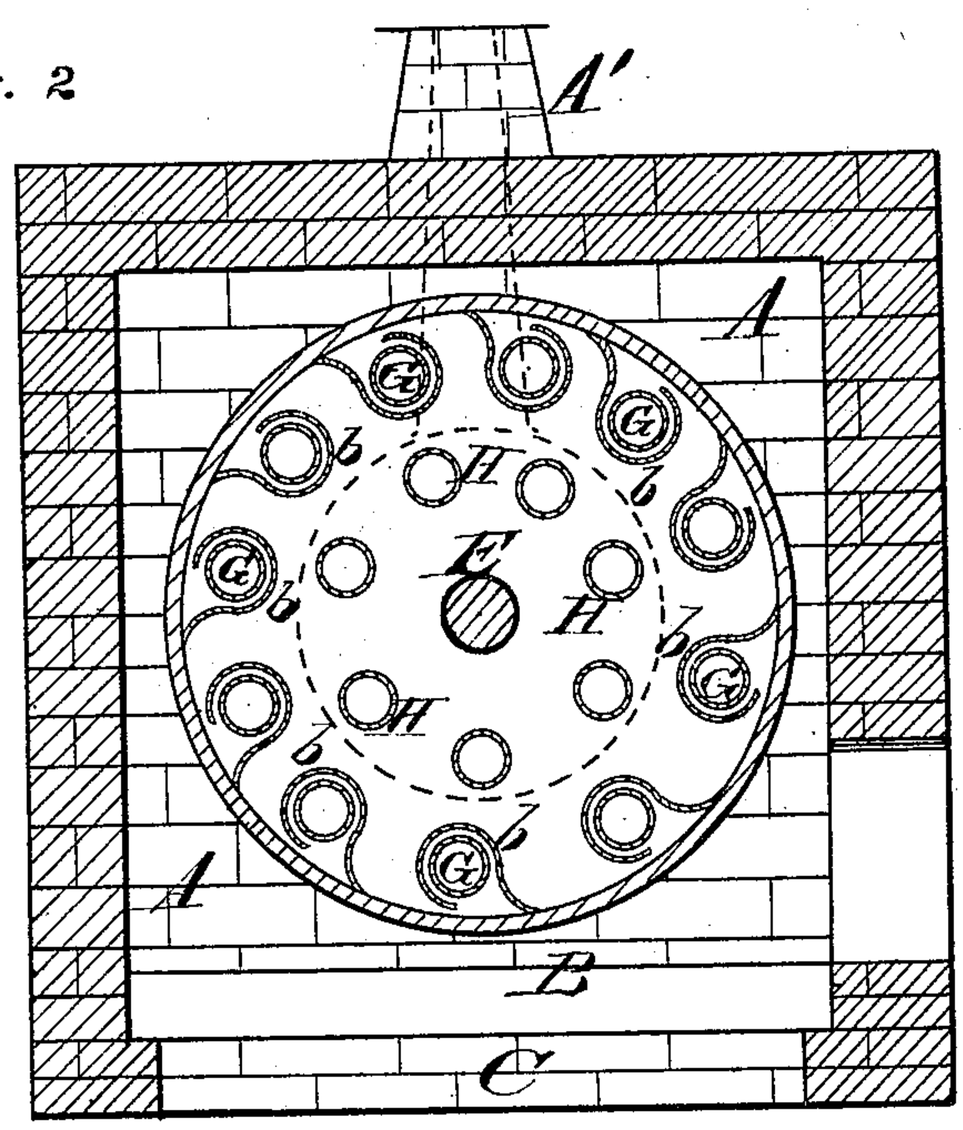


Fig. 2



WITNESSES

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CHARLES W. PIERCE, OF NEW YORK, N. Y.

IMPROVEMENT IN ROTARY STEAM-BOILERS.

Specification forming part of Letters Patent No. **166,807**, dated August 17, 1875; application filed July 17, 1875.

To all whom it may concern:

Be it known that I, CHARLES W. PIERCE, of New York, in the county of New York, and State of New York, have invented a new and valuable Improvement in Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a longitudinal vertical section of my boiler, and Fig. 2 is a transverse vertical sectional view thereof.

This invention has relation to rotary tubular steam-boilers; and the nature of my invention and improvement on this class of boilers consists in the combination, with the tubes or flues nearest the shell, of the boiler of cups or buckets, for the purpose of elevating the water and distributing it continuously to the boiler-shell above the water-line, thus preventing unequal expansion or contraction of the shell, as will be hereinafter explained.

In the annexed drawings, A designates the furnace-chamber, which in form is rectangular; B, the grate-bars, and C the ash-pit. D designates the boiler-shell, which is cylindrical and of any suitable length and diameter. Through the center of this boiler passes a tubular shaft, E, which is supported by anti-friction rollers *a a* outside of the furnace-chamber, and which has a spur-wheel, F, keyed on one end that receives rotation from any convenient prime mover. G G designate a number of flue-tubes, which are arranged equidistant apart, concentrically around the axis of the boiler-shell. These flues are near the boiler-shell, and each one of them is nearly encircled by a bucket, *b*, as shown in Fig. 2. The buckets *b* extend from one end to the other of the flues G, and are attached to the inner side of the cylindrical shell of the boiler. When the boiler is rotated the buckets *b* will successively pick up the water and carry it around through the steam-space and distribute it to the boiler-shell, thereby preventing undue or unequal expansion thereof. Inside of the circle of tubes or flues G is another circle of tubes H, which, like the flues G, extend from one head to the other of the boiler, and are concentrically arranged around the shaft E, as shown in Fig. 2. At one end of the boiler there is an annular flange, *g*, formed on the interior of the furnace-wall, which flange surrounds a chamber leading into the chimney A′. At the opposite end of the boiler an annular chamber, *h*, is formed in the furnace-wall, which chamber is of the same diameter as the boiler, and communicates with the open ends of the pipes G and H.

It will be seen that the flame and products of combustion will first pass through the flues G into the chamber *h*, and then return through the flues H into the chimney A′.

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

1. In a rotary boiler, the combination of the flue G with buckets *b*, substantially as set forth.

2. The combination, with a rotary boiler, of a furnace having annular flange *g* and annular chamber *h*, substantially as shown and described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

CHARLES W. PIERCE.

Witnesses:

W. GRIFFIN,

CHAS. WENDELL.