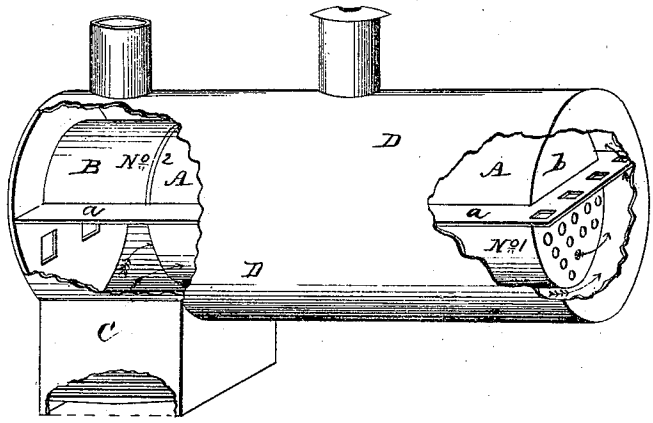
C. A. CLARK.

LOCOMOTIVE BOILER.

No. 179,398. Patented July 4, 1876.



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CARLOS A. CLARK, OF BLOOMFIELD, IOWA.

IMPROVEMENT IN LOCOMOTIVE-BOILERS.

Specification forming part of Letters Patent No. **179,398**, dated July 4, 1876; application filed September 30, 1875.

To all whom it may concern:

Be it known that I, CARLOS A. CLARK, of Bloomfield, in the county of Davis and State of Iowa, have invented an Improved Steam-Boiler, of which the following is a specification:

The object of my invention is to construct and combine a boiler and a furnace in such a manner that the water can be heated to produce steam, and the steam superheated at the same time by the same fire.

It consists in the manner of forming semi-annular chambers above and below the boiler, and connecting them with the fire-chamber, as hereinafter fully set forth.

My drawing is a perspective view illustrating the construction and operation of my invention.

A A represent a tubular boiler of common form, suspended in a case above the furnace, in such a manner that the caloric from the furnace-fire will pass from the front end to the rear, below the water-line, to heat the water and generate steam, and then pass from the rear end to the front end and the escape flue, above the water-line, to superheat the steam in the boiler and its dome. B is a division-plate conforming with the shape of the boiler, and extending forward from its front end. *a a* is a horizontal division-plate, rigidly secured to the boiler A and plate B in any suitable manner, as a means of suspending the boiler, and to form the two semi-annular chambers, Nos. 1 and 2, required above and below the boiler. A corresponding plate, *a a*, is attached on the opposite side, and the two plates *a a* are connected at the rear end of the boiler by a perforated plate, *b*, upon which a sliding register may be used to regulate the draft. C represents the fire-chamber of the furnace underneath the front end of the boiler A and division-plate B. D D represent the outside wall and casing, within which the boiler A is inclosed, and suspended by means of the horizontal plates *a a* and *b*, being attached to form the two semi-annular and connected chambers Nos. 1 and 2. This wall and casing may be constructed of any suitable material.

In the practical operation of my invention the caloric, and all the products of combustion rising from the furnace-fire, pass from the fire-chamber C through the tubes of the boiler A and the No. 1 chamber to the rear end of the boiler, and from thence up through the plate *b* to the front end again, to the escape-flue. The boiler is thus completely enveloped with the heat passing and retained in the two semi-annular chambers 1 and 2, and the water generated into steam below the water-line, and the steam superheated above the water-line at the same time and by the same fire.

I am aware that a boiler has been incased in such a manner as to form two chambers, and thereby cause the furnace-heat to be retained in its passage around the boiler to the escape-flue. But I claim that my manner of dividing an annular chamber into two semi-annular chambers by means of longitudinal flanges or division-plates on the side of the boiler is new, and advantageous in combining two chambers, Nos. 1 and 2, with the fire-chamber C.

I claim as my invention—

The combination of the boiler A A, division-plates B, *a a*, and *b*, casing D D, and fire-chamber C, to form and connect the semi-annular chambers Nos. 1 and 2, as and for the purposes shown and described.

CARLOS A. CLARK.

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