



# UNITED STATES PATENT OFFICE.

EDWARD FARON, OF NEW YORK, N. Y.

## IMPROVEMENT IN STEAM-GENERATORS.

Specification forming part of Letters Patent No. 50,109, dated September 26, 1865.

*To all whom it may concern:*

Be it known that I, EDWARD FARON, of the city of New York, N. Y., have invented certain new and useful Improvements in Steam-Boilers; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the drawings which accompany this specification and form a part thereof, and to the letters of reference which are marked thereon.

The nature of my invention consists in the construction of a boiler with a series of inclined tubes or flues placed immediately over the fire, through which the water passes, in connection with the steam which is generated in them, and in further providing a second series of tubes or flues above the first, through which all the steam passes into the steam-box, and in which tubes or flues the steam in its passage is superheated, both series of tubes or flues being entirely within the inclosure of the furnace.

To enable those skilled in the art to make and use my said improvement, I will proceed to describe the same.

In the drawings, Figure 1 is a longitudinal section, and Fig. 2 is a front view.

A is the furnace, containing both series of tubes or flues within it.

B B are the steam-generating tubes or flues, forming the first series of tubes or flues above the grate-bars, and ending at the water-line.

C C are the superheating-tubes, forming the second series, which are entirely above the water-line, and through which all the steam must pass on its way to the steam-box D.

E E are the water-spaces, and F is the connection to the smoke-pipe.

G G are man-holes to the water-spaces, and H the man-hole to the steam-box.

J J are perforated plugs inserted in the receiving-ends of the superheating-tubes C C, reducing the size of the aperture for the purpose of insuring an even flow of steam through all the tubes, and thereby producing and delivering into the steam-box D steam of uniform quality. The steam-box D has no connection with any other part of the boiler, and

therefore all the steam generated must pass through the superheating-tubes C C before entering the steam-box on its way to the cylinder.

L is a water-guard, to prevent the water from entering the superheating-tubes, and K is a perforated plate, to prevent any flame which might pass the generating-tubes from reaching the superheating-tubes, and is located between the generating-tubes and the superheating-tubes, and rests upon stops upon the ends of the furnace.

It will be seen that the advantage of my improvement over other forms of boilers is found in the saving of weight and space, also in the facility with which it can be cleaned and repaired, and in thoroughly superheating the steam, by which a saving of fuel is effected.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The construction of a steam-boiler in which all the steam generated shall pass through the superheating-tubes, as and for the purpose set forth.

2. The construction of a steam-boiler in which the generating and superheating tubes are arranged horizontally, or nearly so, and entirely within the furnace, substantially as described.

3. The perforated plugs J J on the receiving-ends of the superheating-tubes, for the purpose of equalizing the flow of steam in all the superheating-tubes alike.

4. The perforated plate K, in combination with the generating-tubes and the superheating-tubes, as and for the purposes set forth.

5. The water-guard L, in combination with the superheating-tubes, in the manner and for the purpose described.

6. The arrangement of the generating-tubes B B and the superheating-tubes C C in such a manner as that the fire passes around the outside of both, as set forth and described.

EDWARD FARON.

Witnesses:

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