E. HUBER.

Feed-Water Heater.

No. 210,536. Patented Dec. 3, 1878.

Fig. 1.

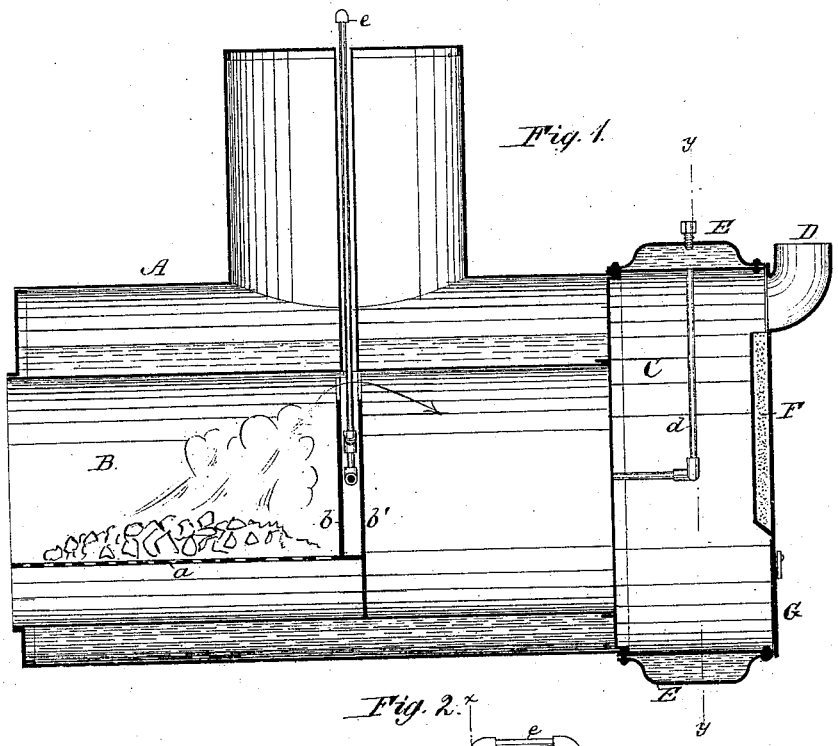
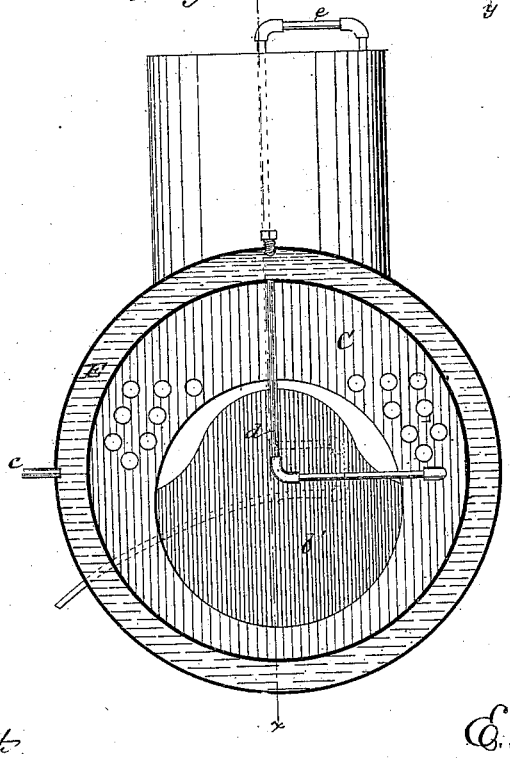


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

EDWARD HUBER, OF MARION, OHIO.

IMPROVEMENT IN FEED-WATER HEATERS.

Specification forming part of Letters Patent No. **210,536**, dated December 3, 1878; application filed August 1, 1878.

To all whom it may concern:

Be it known that I, EDWARD HUBER, of the city and county of Marion, and State of Ohio, have invented a new and Improved Feed-Water Heater; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a longitudinal section through the line *x x* of Fig. 2. Fig. 2 is a transverse section through line *y y* of Fig. 1.

My invention has reference to an improved feed-water heater; and it consists in the peculiar construction and arrangement of a circular jacket, arranged about the smoke-chamber of the boiler, having a supply-pipe and a discharge-pipe leading to the boiler, so that the water, in passing through said jacket to the boiler, is not only heated before being delivered into the boiler, but also serves to prevent the smoke-chamber from being burned out, as hereinafter more fully described.

In the drawing, A represents a boiler, having an internal flue, B, the front portion of which is fashioned into a fire-box with grate, *a*, and bridge-wall composed of two metal plates, *b b'*.

C is the smoke-chamber, communicating with the rear of the flue B, and discharging its contents through the pipe D. Around this smoke-chamber, either upon the outside, as shown, or upon the inside, is arranged the circular water-jacket E. This jacket receives its supply through a pipe, *c*, in the side, and discharges its water, as fast as it becomes heated, into the boiler through the pipe *d*, which leads from top of the jacket, where the water is the hottest and free from sediment.

In carrying the steam from the boiler to the point of utilization a pipe, *e*, from the steam-dome is extended down through a tube in the steam-space, and thence through the crown-sheet into the flue between the two plates *b b'* of the bridge-wall, and thence out at the side of the boiler to the cylinder. This mode of conducting the steam, it will be seen, causes it to be superheated.

To prevent the back end, F, of the boiler from burning out, it may be made hollow, as shown, and filled with ashes; or it may be constructed of fire-brick.

G is a removable door at the bottom of the smoke-chamber, for clearing out the deposits of ashes and soot in the same.

I am aware that it is not broadly new to arrange a water-jacket about the smoke-chamber of a steam-boiler inside of the outer shell to heat the feed-water as it passes through said jacket, and I therefore limit my invention to the peculiar construction and arrangement of the jacket formed by a circular strip of metal bolted at its edges to the outside surface of the extended shell of the boiler which forms the smoke-chamber, and swelled or bent up in the middle to receive the water.

Having thus described my invention, what I claim as new is—

The combination, with the boiler A, of the circular water-jacket E, consisting of a strip of metal bolted at its edges to the outside of that portion of the shell of the boiler which forms the smoke-chamber, and bent or swelled up in the center to receive the water, as described.

EDWARD HUBER.

Witnesses:
B. F. STAHL,
S. A. COURT.