

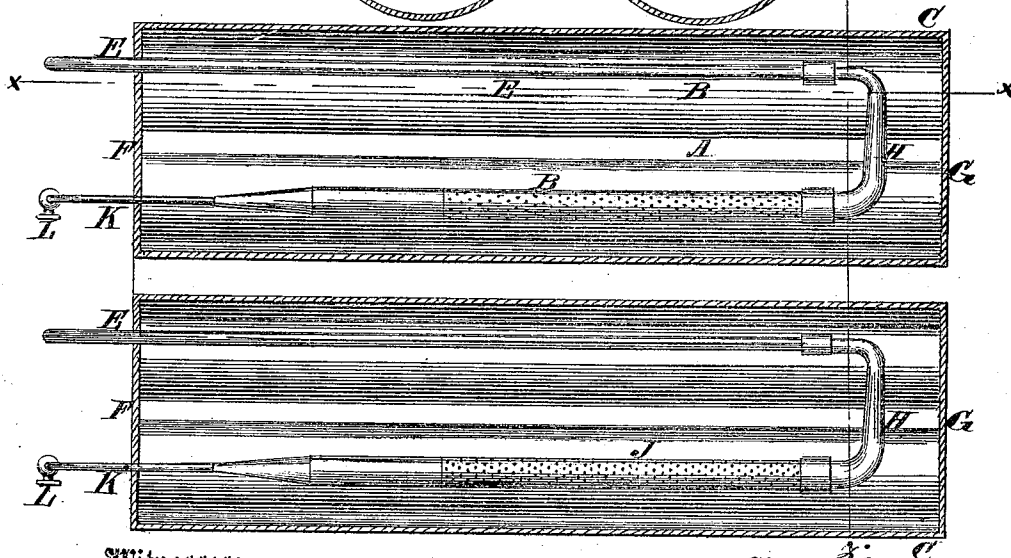
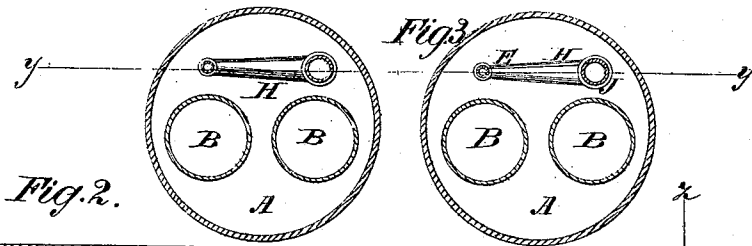
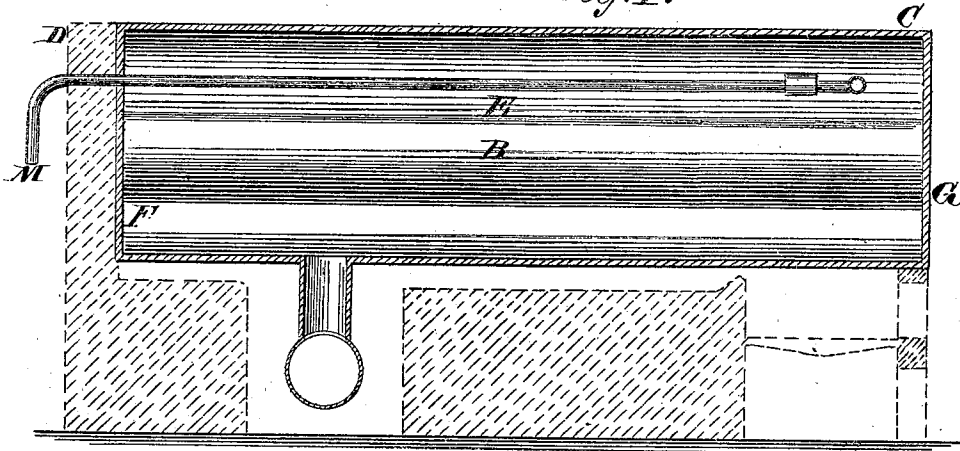
J. W. YOUMAN.

Improvement in Feed-Water Apparatus for Steam-Boilers.

No. 132,888.

Patented Nov. 5, 1872.

Fig. 1.



Witnesses:

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JOHN W. YOUMAN, OF MOBILE, ALABAMA.

IMPROVEMENT IN FEED-WATER APPARATUS FOR STEAM-BOILERS.

Specification forming part of Letters Patent No. 132,888, dated November 5, 1872.

To all whom it may concern:

Be it known that I, JOHN W. YOUMAN, of Mobile, county of Mobile, State of Alabama, have invented a new and useful Improvement in Mode of Supplying Steam-Boiler with Feed-Water, of which the following is a specification:

This invention relates to a new and improved mode of introducing feed-water into steam-boilers; and consists in the construction and arrangement of parts hereinafter described.

In the accompanying drawing, Figure 1 represents a vertical longitudinal section of the boiler taken on the line *xx* of Fig. 2. Fig. 2 is a horizontal section on the line *yy* of Fig. 3. Fig. 3 is a section on the line *zz* of Fig. 2.

Similar letters of reference indicate corresponding parts.

In this example of my invention I show a pair of flue-boilers, A A, but the improvement may be applied to boilers otherwise constructed. B represents the flues. C is the front and D the back end of the boilers. E represents the feed-water pipe which passes through the rear head F and extends forward to near the front head G, and is bent as seen at H, and returns back to and through the rear head. This pipe is located above the flues B, at or near the water-line, and near the shell of the boiler, as seen. The feed-water is received into the part E, to which the force-pump is attached. The part J is perforated with small holes, preferably only on its upper side, and about one-fourth of its circumference, and about one-half, more or less, of its length. K is a small blow-off tube attached to the end of

J, and extending through the rear head F, with a stop-cock, L, therein.

The feed-water, in passing through the pipe E, and before it reaches the perforated section, will become heated to near or quite the boiling-point, and the sediment contained therein will be deposited in the pipe, and may be blown off from time to time through the pipe K. This perforated tube J may be larger in diameter than the other part, and may be arranged in the boiler so as to be just submerged. In this position it will serve as a surface blow-off by shutting off the feed-water. The force-pump is attached at the point M.

Introducing the feed-water in this manner subjects the boiler to no undue expansion and contraction, as the water is gradually heated before it comes in contact with the shell, and when set free in the boiler is filtered and discharged through the pipe in small jets and strikes the top of the shell at a temperature but little below that of the water already in the boiler.

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

In combination with a boiler, the feed-water apparatus herein described, consisting of the imperforate heating-pipe E, filtering-pipe J, and blow-off tube K, all constructed and arranged for operation substantially as set forth.

JOHN WESLEY YOUMAN.

Witnesses:

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