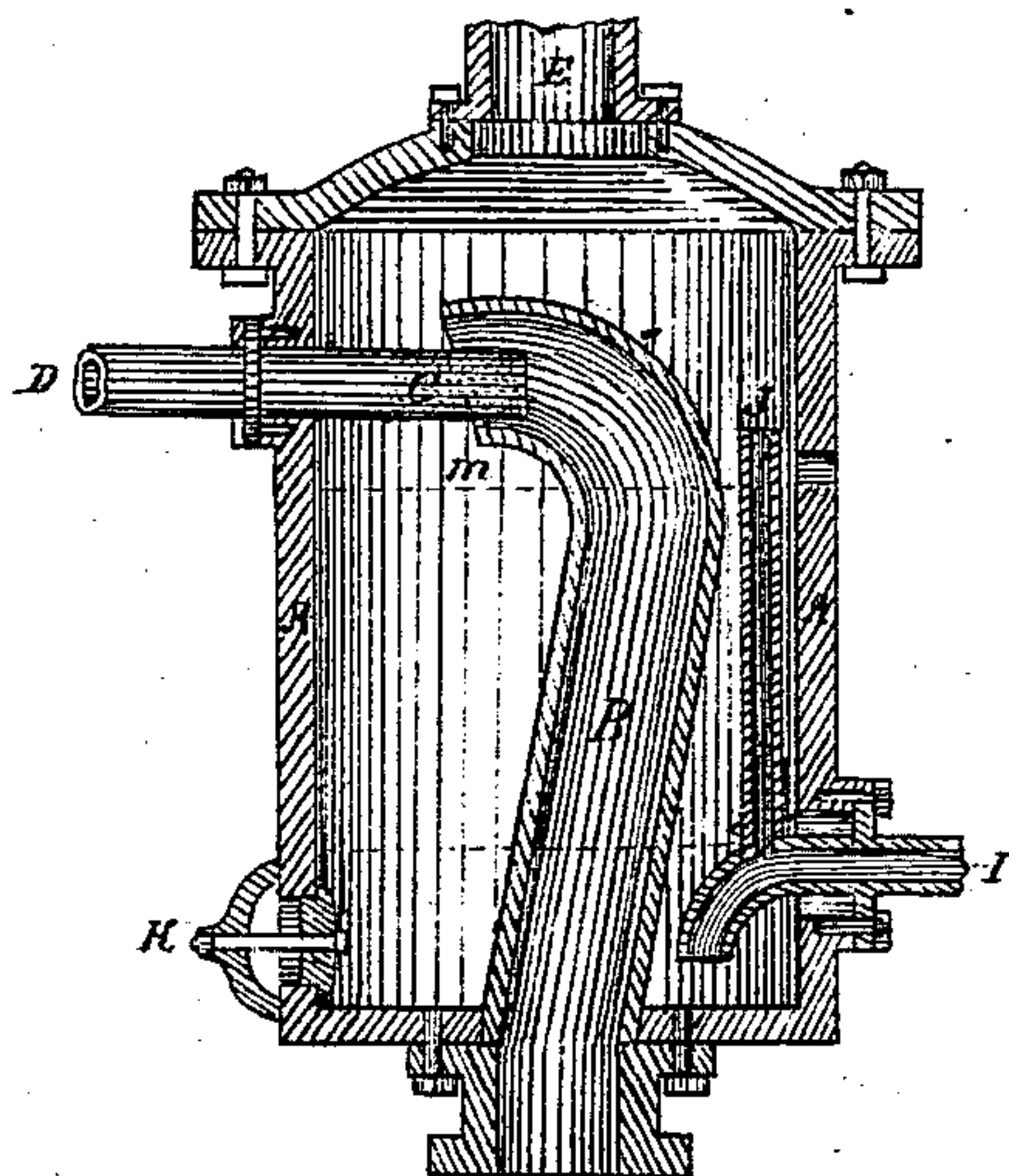


H. N. WATERS.

Improvement in Feed-Water Heaters for Steam-Generators.

No. 125,918.

Patented April 23, 1872.



Witnesses.

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UNITED STATES PATENT OFFICE.

HORATIO N. WATERS, OF MERIDEN, CONNECTICUT.

IMPROVEMENT IN FEED-WATER HEATERS FOR STEAM-GENERATORS.

Specification forming part of Letters Patent No. 125,918, dated April 23, 1872.

SPECIFICATION.

To all whom it may concern:

Be it known that I, HORATIO N. WATERS, of Meriden, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Feed-Water Heaters for Steam-Generators; and I do hereby declare that the following is a full, clear, and exact description thereof, whereby a person skilled in the art can make and use the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

My present invention is an improvement upon the invention for which Letters Patent of the United States were issued to me on the 18th day of February, 1868. It consists in a new arrangement of the entrance-steam pipe and sprinkler within the reservoir, whereby a deflector over the end of the said pipe is dispensed with, and the steam still brought into immediate contact with the spray of water from the sprinkler, and held there a sufficient length of time to heat the water to the boiling point and separate the impurities.

In the accompanying drawing, A is a section of a cylindrical reservoir. B is the entrance-pipe for the exhaust steam from the cylinder of the engine to pass into the heater. C is a sprinkler-pipe, pierced with small holes, through which the cold water enters the reservoir in fine jets. D is the cold-water pipe, leading to the sprinkler either from a pump or an elevated tank. E is the exit-pipe, for the waste steam to pass off into the atmosphere. I is the pipe by which the hot water is drawn off to feed the boiler. J is a device for retaining the water in the reservoir so that it shall not fall below the level of the interior of I, and is fully described in my previous patent before mentioned. K is a hand-hole, for cleaning out the interior of the heater and removing the sediment that falls to the bottom of the reservoir.

The steam-entrance pipe B passes into the reservoir through the bottom, and curves over, as shown in the drawing, to permit the sprinkler-pipe C to be placed within it, or partially within it, as shown. My invention is intended to be placed in the upright portion of the exhaust-pipe of a steam-engine.

The steam enters through the pipe B and strikes the water issuing from the holes in C, dashing it into fine spray, and heating it at once to the boiling point. The impurities in solution and suspension in the water are separated, and fall to the bottom of the reservoir with the heated water, which fills the reservoir, if not drawn down by the pump, up to the level *m* of the overflow. The force of the blast of the steam dashes some of the water in the form of spray against the side of the reservoir, but not upward, in the direction of the pipe E, so that it can be blown out by the force of the waste steam as it passes out from the heater.

By means of my present invention the deflector over the mouth of the pipe E, for the prevention of the water being blown through the exit-pipe, can be dispensed with.

Claims.

What I claim as my invention is—

1. The curved entrance-pipe B, when used in the interior of a feed-water heater-chamber to project the steam downward or laterally against a sprinkler-pipe, substantially in the manner described.

2. The arrangement of the cold-water sprinkler pipe within the steam-pipe, and the steam-pipe within the hot-water reservoir, substantially in the manner herein described.

HORATIO N. WATERS.

Witnesses:

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