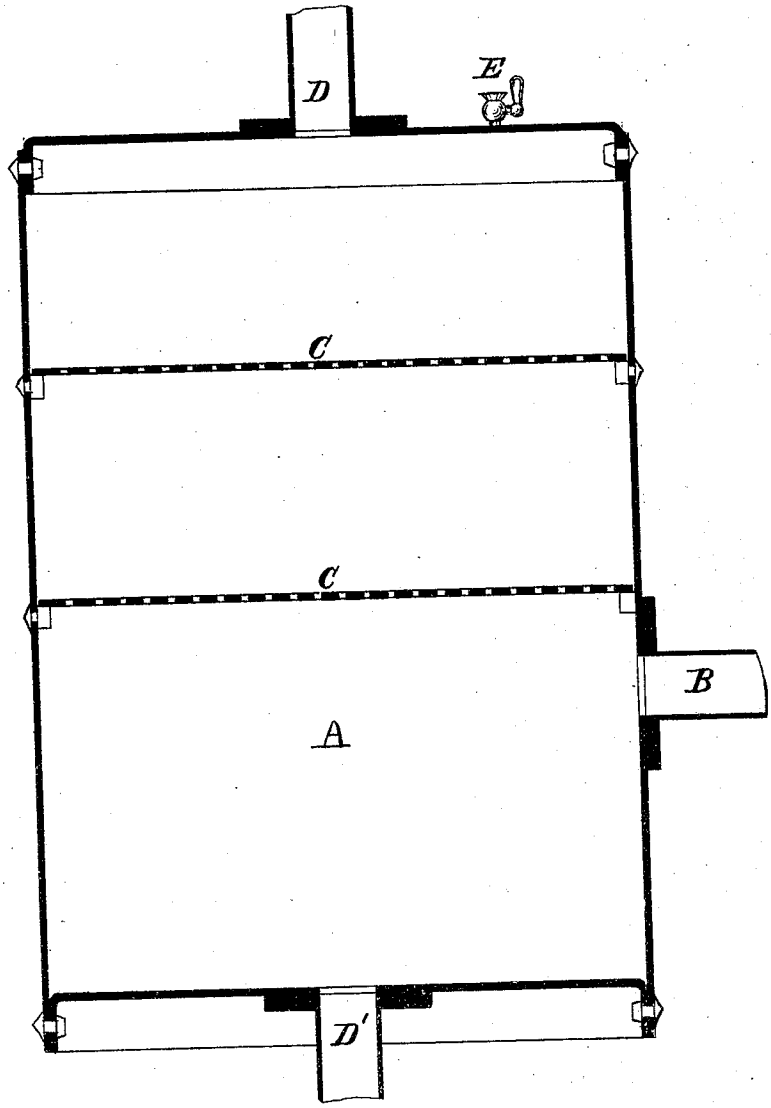
L. C. WYATT.

Improvement in Feed-Water Heater and Condenser.

No. 130,351. Patented Aug. 6, 1872.



WITNESSES

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UNITED STATES PATENT OFFICE.

LEMUEL C. WYATT, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN FEED-WATER HEATERS AND CONDENSERS.

Specification forming part of Letters Patent No. **130,351**, dated August 6, 1872.

To all whom it may concern:

Be it known that I, LEMUEL C. WYATT, of the city of Baltimore and State of Maryland, have invented certain Improvements in Feed-Water Heaters and Condensers Combined, of which the following is a specification; and I do hereby declare that the same is a full, clear, and exact description of my said invention, reference being had to the accompanying drawing and to the letters of reference marked thereon.

My invention relates to means by which a portion of the exhaust steam from the engine is utilized in heating the feed-water used to supply the boiler, the said exhaust steam being condensed within the apparatus and mixed with the feed-water, and is designed to be attached to that description of an engine known as non-condensing or high-pressure.

The accompanying drawing forming part of this specification is a vertical section of a combined feed-water heater and condenser, exhibiting the peculiar construction which I claim as my invention.

A is a cylindrical box or condenser. B is a branch exhaust-pipe from the engine entering the box near the bottom. C C are perforated or slotted plates resting on projections on the side of the condenser A. D is the cold-water feed-pipe entering the condenser at or near the top, and has a stop-cock by which the flow of water is regulated. D′ is the hot-water feed-pipe leading from the bottom of the condenser to the feed-pump which forces the water to the boiler. E is a cock through which oil or tallow may be passed through the condenser into the boiler.

The operation of my combined feed-water heater and condenser is as follows: The exhaust steam admitted to the condenser through the branch-pipe B is condensed, which establishes a partial vacuum in the said condenser inducing the flow of cold water through the pipe D, and keeps up the condensation and vacuum. The water thus heated by the exhaust steam falls to the bottom of the condenser, and is led through the pipe D′ to the feed-pump which delivers it into the boiler.

To facilitate the thorough intermixing of the steam and water, and the impartation to the water of the heat contained in the steam, the perforated or slotted plates C C are used. These plates divide the inflowing water into small streams, whereby a greater surface is exposed to the action of the steam.

The advantages I claim for my invention are as follows: The effective heating of the feed-water for the use of the boiler by a branch exhaust, the main exhaust remaining unimpaired; the lessening of the pressure in the main exhaust, caused by the branch-pipe entering a chamber in which a partial vacuum exists, which virtually increases the power of the engine; and the freshening of the feed-water by the addition of the condensed steam on vessels using salt water as a supply for the boiler. By placing the heater above the receiving-valves of the feed-pump the hot water descends by the force of gravity to the pump, and can be forced into the boiler at any degree of temperature.

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

The condenser A in combination with the branch-exhaust pipe B, feed-pipes D and D′, and perforated or slotted plates C C, to raise water for the feed-pump by the condensation of a portion of the exhaust steam, constructed and arranged substantially as shown and described.

LEMUEL C. WYATT.

Witnesses:

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