C. F. BARRETT.

FEED WATER-HEATER.

No. 191,747. Patented June 12, 1877.

FIG. 1.

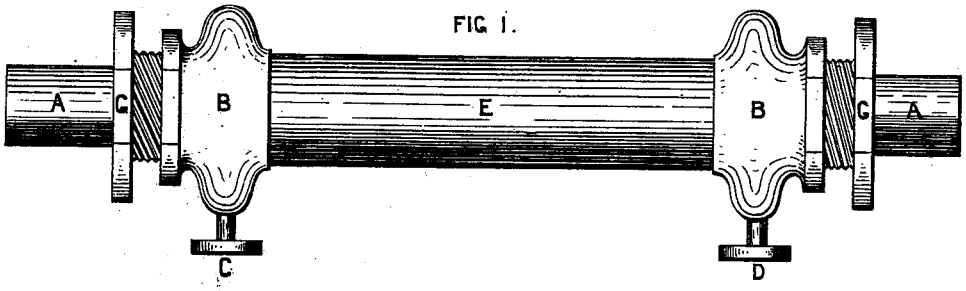
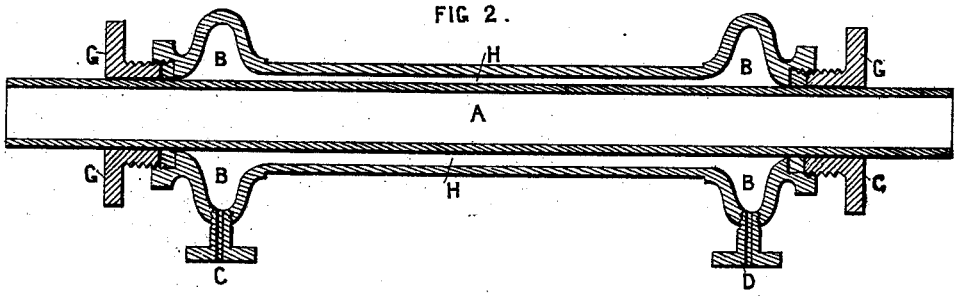


FIG. 2.



ATTEST:

John W. Ripley

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by L. J. Gordon his Atty.

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UNITED STATES PATENT OFFICE.

CHARLES F. BARRETT, OF NEW YORK, N. Y.

IMPROVEMENT IN FEED-WATER HEATERS.

Specification forming part of Letters Patent No. **191,747**, dated June 12, 1877; application filed May 3, 1877.

To all whom it may concern:

Be it known that I, CHARLES F. BARRETT, of New York city, county of New York, State of New York, have invented a new and useful Improvement in Feed-Water Heaters, which is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a side view of my improved feed-water heater; Fig. 2, a longitudinal cut section thereof.

The object of my invention is to supply a simple and cheap attachment to the exhaust-pipe of a steam-cylinder, whereby the feed-water to the boiler may be heated by the waste or exhaust steam, so as to be delivered in the boiler in a heated state.

In the drawings, A is the exhaust-pipe; B and B′, the reservoirs; C, the feed-pipe; D, the discharge pipe; E, the jacket or case, provided with stuffing-boxes at the ends thereof; G G, the packing-glands; H, the chamber between the reservoirs.

This contrivance being secured upon the exhaust-pipe A, filled with steam, the feed-water enters reservoir B through feed-pipe C, and, passing through chamber H between jacket E and pipe A, is heated before reaching reservoir B′, whence it issues through discharge-pipe D to the boiler.

I have successfully employed this invention during the last year in about these proportions of mechanism: Diameter of exhaust-pipe, six inches; of jacket, seven inches; length of jacket, fourteen feet; reservoirs, three inches deep; and have found that water entering at C at a temperature of about 30° left at D at a temperature of 180°, thereby securing a very considerable economy of fuel, and also lessening the strain on the boiler.

The purpose of the reservoirs is to accumulate a head of water, to avoid unnecessary strain of the heater, operating like the air-chamber of a force-pump, to receive a portion of the pressure and cause its gradual distribution along the surface of the chamber; that of the stuffing-boxes to prevent leakage and permit the heater to expand and contract without injury.

It is manifest that this apparatus is not limited in its application to an exhaust-pipe, but may be operated by live steam when that method is preferred.

What I claim, and desire to secure by Letters Patent, is—

The combination of pipe A, jacket E, reservoirs B and B′, packing-glands G G, and chamber H, operating together substantially as and for the purposes set forth.

C. F. BARRETT.

Witnesses:

S. J. GORDON,

JOHN W. RIPLEY.