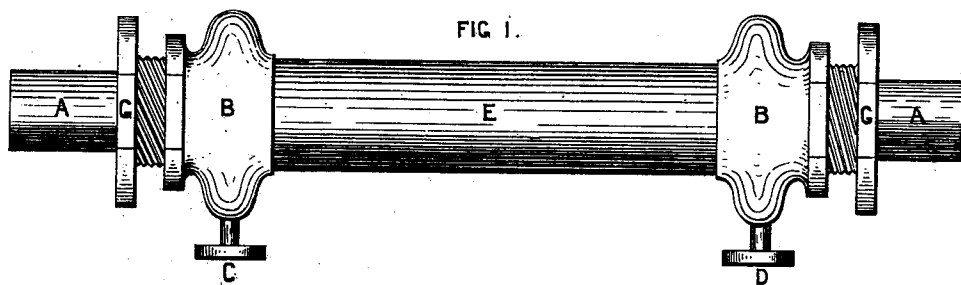
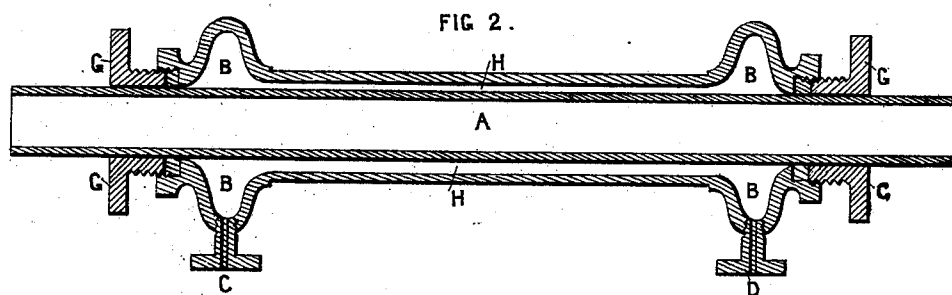


C. F. BARRETT.
FEED WATER-HEATER.

No. 191,747.

Patented June 12, 1877.



ATTEST.

John W. Ropley
Chas. H. Norton

Charles F. Barrett
by L. J. Gordon his Atty.

INVENTOR.

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.