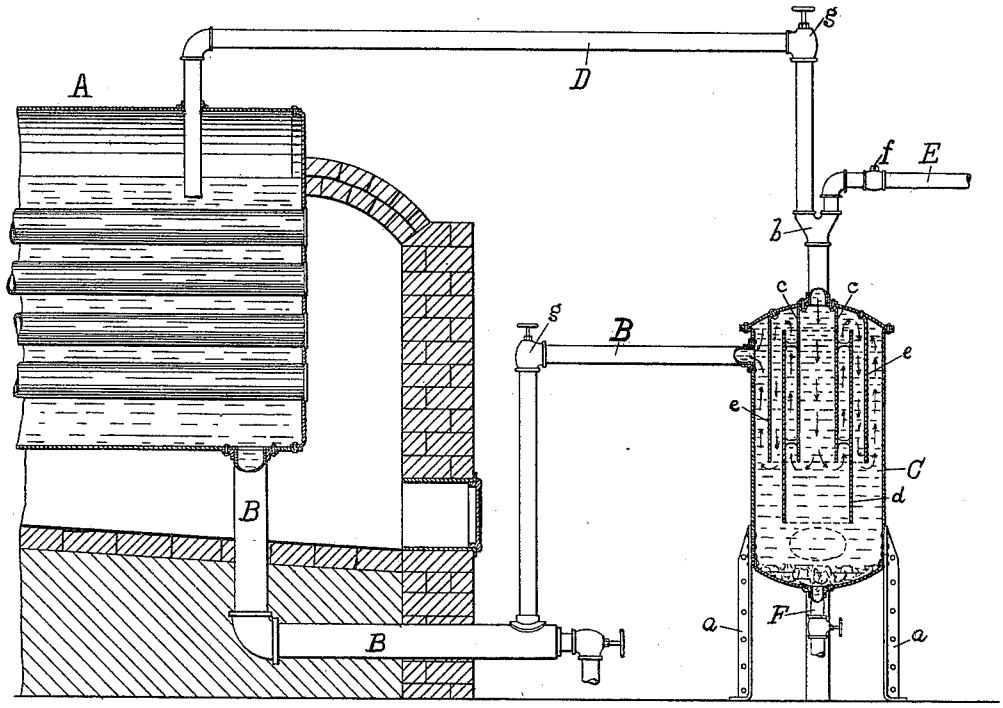
(No Model.)

T. T. PARKER.

FEED WATER HEATER AND PURIFIER.

No. 566,219. Patented Aug. 18, 1896.



WITNESSES

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THOMAS T. PARKER, OF CINCINNATI, OHIO.

FEED-WATER HEATER AND PURIFIER.

SPECIFICATION forming part of Letters Patent No. 566,219, dated August 18, 1896.

Application filed December 30, 1895. Serial No. 573,695. (No model.)

To all whom it may concern:

Be it known that I, THOMAS T. PARKER, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Feed-Water Heaters and Purifiers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification.

The purpose of my invention is to supply the feed-water for steam-boilers to a purifying-receptacle in circuit with the heated water of the boiler, whereby the feed-water before it is supplied to the boiler may be heated to a high degree of temperature sufficient to precipitate the scale-forming substances in the feed-water before they have any opportunity of getting into the boiler; and the invention consists of certain novel construction and arrangement of parts whereby the feed-water may be heated and circulated slowly through the purifier to enable the precipitation of the scale-forming substances to be more effectually accomplished.

In the drawing the figure is a vertical section of a portion of a tubular boiler with my improved purifier attached.

A is the end of a tubular boiler, and C a purifying-chamber supported on suitable standards *a a*. The purifier C is connected with the boiler by the supply-pipe B, while the water in the upper portion of the boiler is in circulation with the purifier by the pipe D, so that there is a constant circulation between the purifier and the boiler through the pipes B and D.

E is the feed-water pipe, which is introduced through the **Y** *b* into the circulating-pipe D.

When the purifier-drum is of the cylindrical shape shown in the figure, I provide a series of annular partitions *c*, *d*, and *e*, which extend down from the head part of the way through the purifier. These annular partitions are bolted to the head and to each other, as shown, or they may be secured in other ways. The partition *d* does not extend to the top of the receptacle, and extends down toward the bottom of the receptacle farther than the others, so that space is left for the circulation of the water in the purifier, as shown by the arrows in the figure. The area of these annular partitions gradually increases, so that the current of the water gradually grows less as it circulates through the purifier. The feed-water is supplied from the pump to the circulating-pipe D through the **Y**, the valve *f* being open, and the feed-water is carried down into the purifier, where it is heated by the water circulating from the boiler, the solid matters precipitated by the heat being deposited in the bottom of the purifier, while the hot, lighter feed-water rises within the annular partition *d*, then descends again, and rising again outside of the annular partition *e* passes to the boiler through the pipe B, the effect of the annular partitions being, as already said, to gradually retard the flow of the feed-water, so that while in the purifier all the scale-forming substances may be effectually precipitated. The solid matter is either removed through a manhole or blown off through the blow-off pipe F at the bottom of the purifier.

g g are valves in the circulating-pipes for cutting off the circulation when desired.

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

1. In a feed-water heater and purifier, the combination with a boiler and cylindrical purifying-drum with induction and eduction pipes therefrom to the boiler, of a feed-water pipe with **Y** connecting same to the circulating induction-pipe and a series of annular partitions arranged within the purifier to reduce the velocity of the circulation, substantially as and for the purpose described.

2. In a feed-water heater and purifier, the combination with a boiler and cylindrical purifying-drum with induction and eduction pipes therefrom to the boiler, of a feed-water pipe with **Y** connecting same to the circulating induction-pipe and annular partitions arranged within the purifier in series, one set extending below the other set, substantially as shown and described.

THOMAS T. PARKER.

Witnesses:
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