

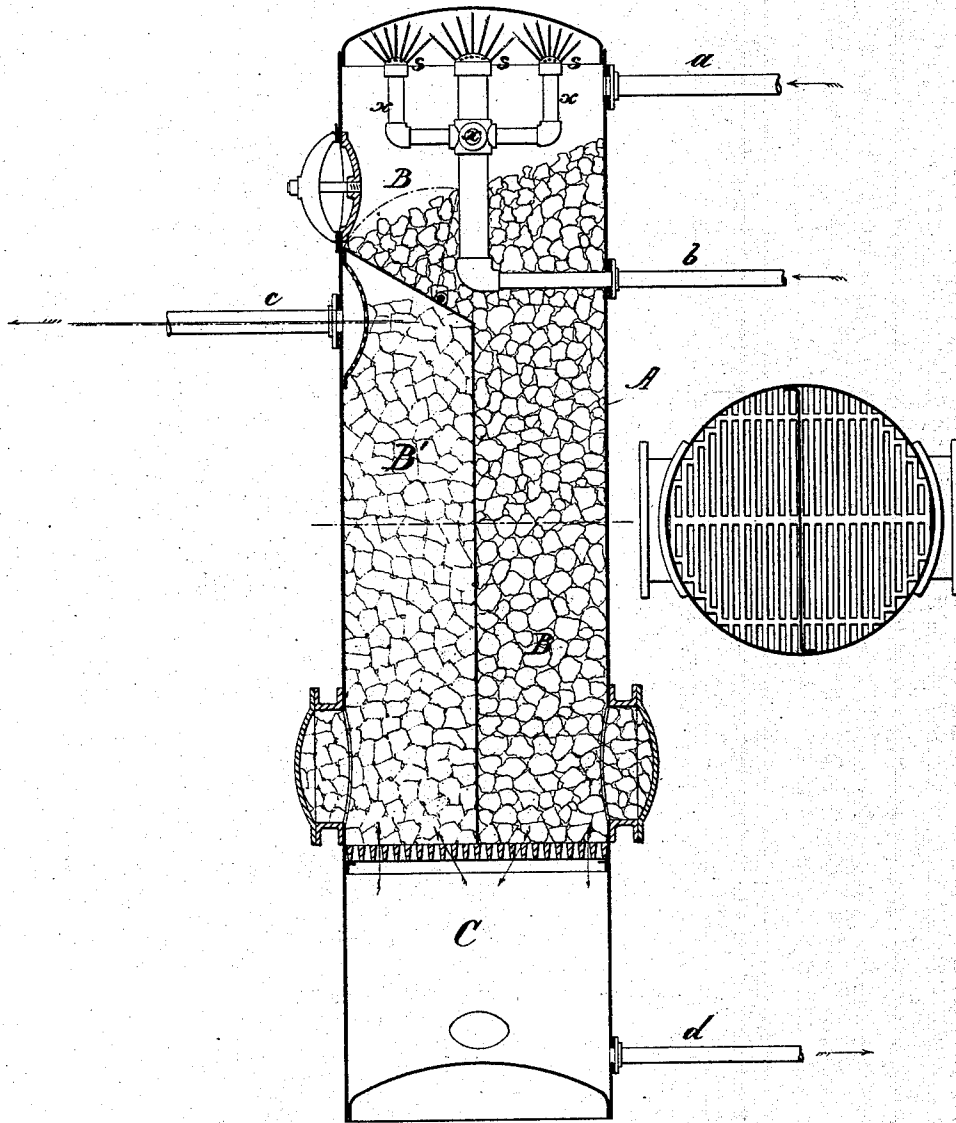
(No Model.)

M. W. HAZELTON.

FEED WATER HEATER AND PURIFIER.

No. 326,082.

Patented Sept. 8, 1885.



WITNESSES
J. R. Waterbury
Augustus Creveling

INVENTOR
Milton W. Hazelton
By Chas. W. Forbes
Atty

UNITED STATES PATENT OFFICE.

MILTON W. HAZELTON, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO
THE BABCOCK & WILCOX COMPANY, OF NEW YORK, N. Y.

FEED-WATER HEATER AND PURIFIER.

SPECIFICATION forming part of Letters Patent No. 326,082, dated September 8, 1885.

Application filed January 29, 1885. (No model.)

To all whom it may concern:

Be it known that I, MILTON W. HAZELTON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Feed-Water Heaters and Purifiers, of which the following is a specification, reference being had to the accompanying drawing, forming a part thereof, which represents a sectional elevation and plan view of my improved device.

The present invention relates to that class of devices in which the temperature of the feed-water is elevated by contact with live-steam and cleared of its impurities; and it consists in a special construction and internal arrangement of the parts, which I will first proceed to describe, but subsequently to define in the claim.

In the drawing, A represents the shell of the heater and purifier, generally made in cylindrical form, and provided with a steam-inlet, *a*, water-inlet *b*, water exit or delivery *c*, and a discharge or blow-off pipe, *d*.

B represents the steam-chamber, partially filled with coke or similar substance. B' a separated filtering-chamber containing any suitable filtering material, and C a settling-chamber, that communicates with the chambers B B' through a perforated diaphragm. The water-inlet pipe *b* is extended into the upper part of the steam-chamber B, and provided with branch pipes or nozzles *x x*, each being fitted with a perforated cap, *s*, as shown.

The steam-chamber B is partially filled with coke or similar substance, and the filtering-chamber B' contains any suitable filtering material. The feed-water is forced through the pipe *b* and discharged vertically in the form

of spray or jets that impinge against the adjacent end of the shell, which further separates the divided spray and facilitates its elevation in temperature by contact with the admitted steam. The water gravitates through the chamber B in a divided and heated state to the settling-chamber C, and rises in the filtering-chamber B' to the level of the delivery-pipe *c*. Such portion of the impurities that is not deposited on the surfaces of the lumps of coke in the chamber B will find its way to the settling-chamber C, and if carried by entrainment into the filtering-chamber B', it is still further arrested by the filtering material in the chamber B', that extends to the final exit of the water from the device.

The respective pipe-connections are provided with the usual cocks or valves for regulating the steam and water supply and blow-off, and suitable man and hand holes are also provided for the introduction of the coke and filtering material, and for cleaning and repairs, all of which will be readily understood by an inspection of the drawing.

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

In a feed-water heater and purifier, the combination of a steam-chamber partially filled with lumps of coke or similar substance, a separated filtering-chamber containing suitable filtering material, and a connecting settling-chamber located beneath and adjacent to both, substantially as set forth.

MILTON W. HAZELTON.

Witnesses:

C. W. FORBES,
C. R. WATERBURY.