

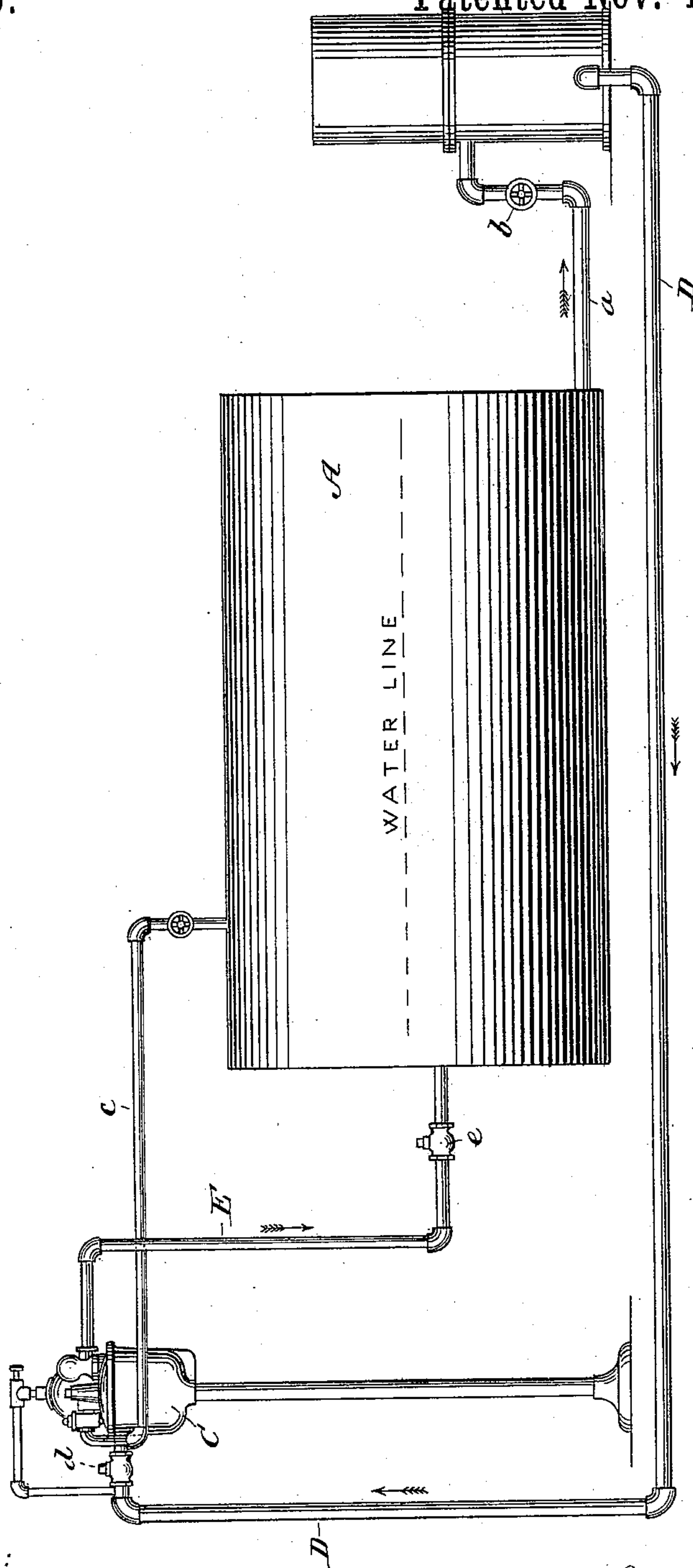
(No Model.)

J. H. BLESSING.

DEVICE FOR PREVENTING INCRUSTATION.

No. 330,460.

Patented Nov. 17, 1885.



WITNESSES:

Edward Wolff.
George Cook.

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UNITED STATES PATENT OFFICE.

JAMES H. BLESSING, OF ALBANY, NEW YORK.

DEVICE FOR PREVENTING INCRUSTATION.

SPECIFICATION forming part of Letters Patent No. 330,460, dated November 17, 1885.

Application filed September 8, 1885. Serial No. 176,467. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. BLESSING, a citizen of the United States, and a resident of Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Devices for Preventing the Formation of Incrustation in Boilers, of which the following is a specification.

My invention relates to improved means for preventing the formation of scale in boilers. To overcome this difficulty many devices have been constructed for the purpose of causing the water to flow in a continuous circuitous passage through a boiler and filter, the circulation of the water being caused by the difference in weight of two columns of water of different temperature. These devices have, however, all proved ineffectual, and are of no practical value, due to the fact that the water will not circulate, there being no positive force to move it; but by means of my present invention this difficulty has been entirely removed, as will be readily understood by the detailed description hereinafter given.

In an application about to be filed by John W. Hyatt devices are shown and described whereby a positive force is applied to the water, such devices consisting, essentially, in the combination of a filter and a pump; but in one respect this arrangement has been found inefficient, in that, unless the filter is closely watched, it is liable to fill with silt and other foreign matters extracted from the water, and thereby become choked and prevent the free circulation through it. As the pump exerts a continuous pressure on the water, the filter in the course of time will become filled beyond its capacity, resulting in the bursting thereof or of the pipes leading thereto. A further objection to the use of a pump is that in all cases it is absolutely necessary to employ foreign power to operate it. A steam-pump, as is well known, is very wasteful of steam, and thus renders its employment too expensive, and in all cases where such pump is not used it is necessary to impart motive power through a belt or its equivalent, which is obviously an inconvenient arrangement, as in many cases the power will not be accessible; and, again, as soon as the power for operating the pump ceases the latter will necessarily stop and the circulation of the water be discontinued,

whereas by means of the steam-trap as long as there is the smallest quantity of steam generated in the boiler the circulation of the water will be effected.

The object of my present invention is to overcome these objections and to provide devices whereby the water will receive a positive pressure for forcing it in a continuous passage through the boiler and filter, and at the same time be automatic in their operation and require no special attention.

The accompanying drawing shows my improvement in side elevation.

A represents a boiler, of any suitable construction and dimensions, and B a filter connected therewith by means of a pipe, *a*, provided with the stop-valve *b*. To the lower end of the filter is connected a steam-trap, C, by means of the receiving-pipe D, having a check-valve, *d*, said trap being also connected with the boiler A by means of the discharge-pipe E, said pipe being also provided with a check-valve, *e*. To the upper part of the boiler leads the equalizing-pipe *c* from the trap C. The water entering the boiler passes therefrom through the pipe *a* into the filter B, said pipe *a* being connected to the filter at a point below the water-line in the boiler. The water will then pass down through the filter, through the receiving-pipe D into the trap C, whence it will be again forced into the boiler A through the discharge-pipe E, and into the filter through the pipe *a*, and in this way a constant circulation of the water through the boiler and filter kept up as long as the generation of steam is continued in the boiler. By thus causing the water to continuously circulate through the boiler and filter all the impurities are extracted therefrom before they have accumulated sufficiently to adhere to the boiler, and all danger of any incrustation forming in the latter thereby obviated.

I would have it understood that I do not limit my invention to any particular form of trap; but I preferably employ the one shown and described in patent granted to myself December 5, 1882, and numbered 268,384. As this construction of trap is so well known to those skilled in the art, a detailed description of its construction or operation is not deemed necessary. Nor do I limit myself to any construction of filter, but prefer to use such as is

shown and described in Letters Patent granted to J. W. Hyatt March 6, 1883, numbered 273,542, which filter is so constructed that the filtering-bed contained therein may be easily
5 and readily cleansed of the impurities extracted from the water passing through it. This arrangement is exceedingly simple and effective, the trap being automatic in its operation, and, as the pressure exerted thereby
10 on the water never exceeds the pressure in the boiler, all possibility of bursting the filter is removed.

As filters have heretofore been employed in conjunction with boilers, and also with means
15 for causing the water to circulate through them, I would have it understood that I make no broad claim to such; but

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

1. The combination, with a boiler, of a filter 20 connected therewith, and a return-steam trap connected with both the boiler and filter, and adapted to positively force the water in a continuous passage through said boiler and filter, substantially as set forth. 25

2. The combination, with a boiler, of a filter connected therewith by means of the pipe *a*, and the return-steam trap C, connected with the filter by the pipe D, and with the boiler by means of pipes E *c*, substantially as set forth. 30

JAMES H. BLESSING.

Witnesses:

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WM. M. BENDER, Jr.