G. F. JASPER.

Feed-Water Heater and Filter.

No. 164,176. Patented June 8, 1875.

Fig. 2.

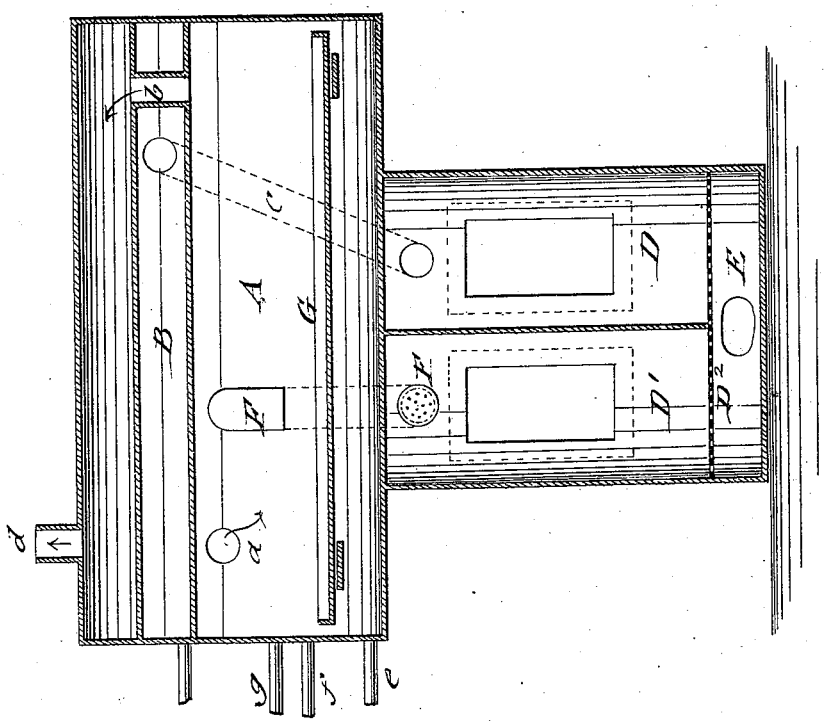
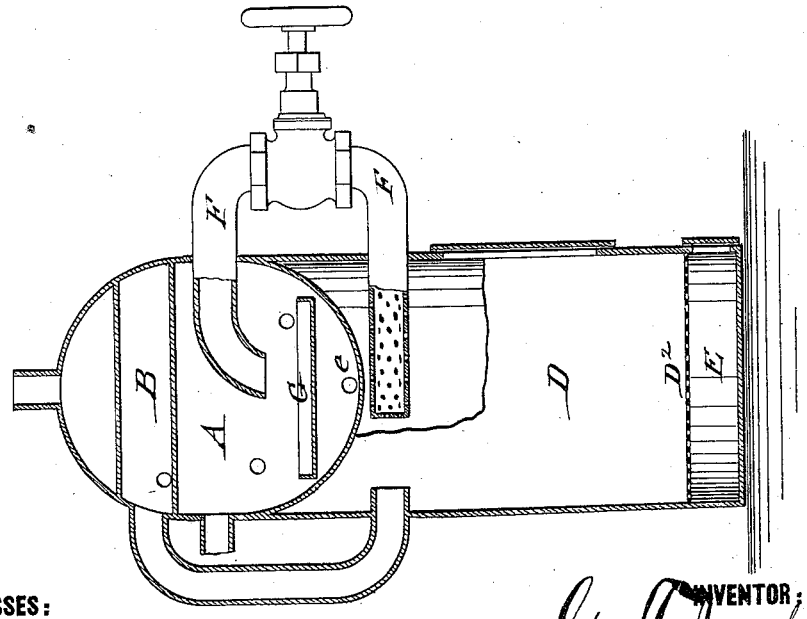


Fig. 1.



WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORG F. JASPER, OF FREEBURG, ILLINOIS.

IMPROVEMENT IN FEED-WATER HEATERS AND FILTERS.

Specification forming part of Letters Patent No. **164,176**, dated June 8, 1875; application filed April 24, 1875.

To all whom it may concern:

Be it known that I, GEORG F. JASPER, of Freeburg, in the county of St. Clair and State of Illinois, have invented a new and Improved Feed-Water Heater and Filter, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a vertical transverse, and Fig. 2 a vertical longitudinal section, of my improved feed-water heater and filter.

Similar letters of reference indicate corresponding parts.

My invention relates to improvements in the feed-water heater and filter for which a patent was granted to me under date of December 1, 1874, and No. 157,334, so that the heating and filtering process is still more completely accomplished; and the invention consists of a water-box in the heating-tank, from which the water is conveyed to a double filter-receptacle, and back by a return pipe to the sediment-pan, from which it is fed to the pump.

In the drawing, A represents the heating-tank, which is provided at the upper part thereof with a water-box, B, arranged laterally and horizontally therein. Exhaust steam is supplied to the heating-tank by an entrance-pipe, *a*, the steam passing from the lower section of the tank by a communicating pipe, *b*, to the upper part of the heating-tank, and to the outside by a top pipe, *d*. The steam, surrounding the water-box at both sides, heats up the water therein, which is then conducted through an outer pipe, C, to the top part of one section of a filter-receptacle, D D^1, arranged below the heating-tank. The filter-receptacle D is divided by a lateral partition-wall into two parts, D D^1, each being provided with suitable man-holes and covers for replacing the charcoal, hay, or other filtering material used therein. A perforated bottom, D^2, is applied at some distance above the solid bottom of the filtering-receptacle, and forms a mud-chamber, E, with mud-pipe for drawing off the impurities collecting therein. The water passes first through the filtering material of one section to the mud-chamber, and then up again through the filtering material of the other section, and through a return pipe, F, with interior strainer end and exterior check-valve, to the heating-tank. The return pipe F passes back into the heating-tank A, and discharges the filtered water to a sediment-pan, G, supported in the lower part of the tank A. The remaining impurities of the feed-water, which has been purified to a great extent by its passage through the filters, are settled in the pan by the influence of the heat and the freedom from agitation therein. A bottom pipe, *e*, conveys the water to the feed-pump, while a pipe, *f*, above the same at about the height of the sediment-pan, serves as a waste-pipe, and a pipe, *g*, below the water-box, for the purpose of admitting directly water to the heating-tank when the regular working of the filters is temporarily interrupted during the running of the engine for the purpose of cleaning the filters and replacing the material therein.

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

The combination of the water-box, double filter-receptacle, connecting-pipe C, return pipe F, and sediment-pan G, substantially as and for the purpose specified.

GEORG FRANZ JASPER.

Witnesses:
BARTHOL FRANZ,
LOUIS NICOL.