(No Model.)

E. R. STILWELL.

FEED WATER HEATER.

No. 427,019. Patented Apr. 29, 1890.

Fig. 1.

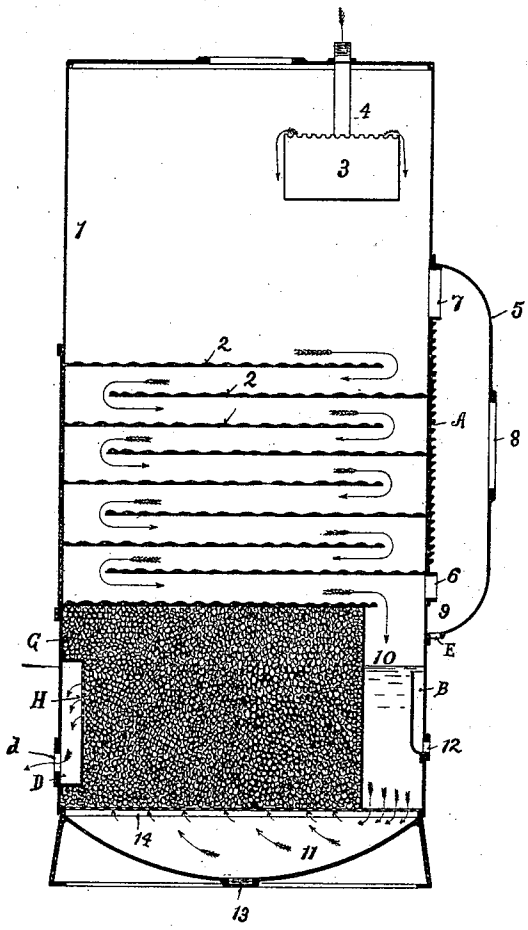


Fig. 2.

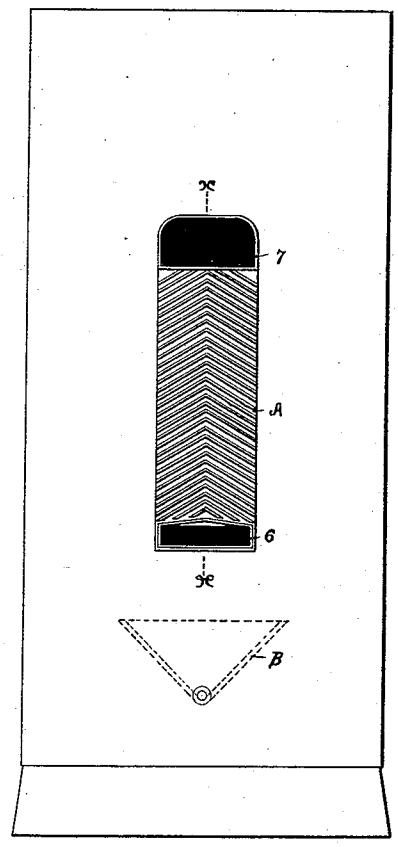
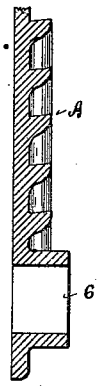


Fig. 3.



WITNESSES:

C. M. Miles

T. Simmons

INVENTOR

Edwin R. Stilwell

BY Woods Boyd

HIS ATTORNEYS.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

EDWIN R. STILWELL, OF DAYTON, OHIO, ASSIGNOR TO THE STILWELL & BIERCE MANUFACTURING COMPANY, OF SAME PLACE.

FEED-WATER HEATER.

SPECIFICATION forming part of Letters Patent No. 427,019, dated April 29, 1890.

Application filed January 13, 1890. Serial No. 336,735. (No model.)

To all whom it may concern:

Be it known that I, EDWIN R. STILWELL, a citizen of the United States, and a resident of Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Feed-Water Heaters, of which the following is a specification.

My invention relates to that class of feed-water heaters shown in Letters Patent granted me October 4, 1864, No. 44,561.

The object of my present invention is to provide means for removing the oil which is carried into the heater by the steam. The lubrication of the piston and cylinder of an engine as now employed supplies so much oil that a great deal of it is carried off with the steam, and it is desirable to remove this oil and prevent it from being carried into the boiler, which is effectually accomplished by the means hereinafter set forth.

The various features of my invention will be shown and explained by the description of the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical elevation of my improvement. Fig. 2 is a transverse side elevation with the front of the steam-chamber removed.

Fig. 3 is a cross-section on line *x x*, Fig. 2.

1 represents the shell of the heater, which is preferably made of boiler-iron of cylindrical form, and 2 a series of corrugated shelves, the same in construction and arrangement substantially as shown in my said former patent.

3 represents the feed-water box, and 4 the feed-water pipe.

5 represents the cap or cover of the steam-chamber.

6 represents a lower port for introducing a part of the steam below the corrugated shelves.

7 represents a port for introducing steam under the overflow-box 3.

8 represents the steam-feed-pipe opening.

In order to catch or arrest the oil, I provide the plate A, which is opposite the steam-inlet 8, with a series of divergent or V-shaped serrations, forming ridges and grooves, so that the oil strikes and lodges on the ridges and passes down the sides around the opening 6 and drops into a space 9 below the opening 6.

E represents an opening for the reception of a petcock, through which the oil may be drawn off from time to time as it accumulates. In case all of the oil is not taken off by the corrugated plate A, I provide additional means inside of the heater for drawing it off.

D represents the hot-water well, which is located inside of the filter-chamber G.

d represents the feed-pipe for the pump.

H represents perforations in the strainer-plate, through which the hot feed-water passes from the filter into the hot-water well. These perforations are only part way down the strainer-plate, so as to make an enlarged reservoir for supplying the pump.

10 represents the feed-water passage leading from the corrugated shelves to the mud-well 11 below the filter-chamber.

The skimmer B is composed of a V-shaped piece of metal secured to the inside of the shell 1 and located in the passage 10 below the water-line, said skimmer having at its bottom a blow-off 12, opening through the shell, and the construction being such that the heater-shell constitutes one wall of the skimmer. The oil will gather on the top of the water in this passage 10. By opening a cock at 12 at the bottom of the skimmer the top surface of the water in this passage 10 will be drawn off, thus removing the oil.

The mud-well is made dish-shaped and provided with a blow-off opening 13.

14 represents a perforated partition, on which the filter material is placed. By making the bottom concave the mud is more easily washed out and removed.

Having described my invention, what I claim is—

1. In a feed-water heater and filter, the combination of the heater-shell 1, the series of shelves 2, the filter-chamber G, the passage 10, arranged beside and leading under and over the filter-chamber, and the skimmer B, secured to the inside of the heater-shell in the said water-passage below the water-line

and provided with the blow-off 12, whereby the shell forms one wall of the skimmer, substantially as described.

2. In a feed-water heater, the combination, with the heater-shell and a steam-chamber having a steam-inlet 8 and two steam-openings 6 and 7, arranged to deliver the steam at different points into the heater-shell, of a serrated plate A, located opposite the steam-inlet and between the said steam-delivery openings, and a blow-off opening E at the base of the steam-chamber, substantially as described.

3. In a feed-water heater, the combination, with the heater-shell and a steam-chamber having the steam-inlet 8 and steam-delivery openings 6 and 7, of a plate A, arranged opposite the steam-inlet between the steam-delivery openings and provided with divergent serrations, and a blow-off opening E at the base of the steam-chamber, substantially as described.

4. In a feed-water heater, the combination, with the filtering-chamber G, of the hot-water well D, formed of the partition H, perforated at the top portion, and the feed-pipe *d*, tapping the said hot-water well some distance below the perforations of the plate, substantially as described.

In testimony whereof I have hereunto set my hand.

EDWIN R. STILWELL.

Witnesses:

BENJAMIN F. MCCANN,

ALBERT EMANUEL.