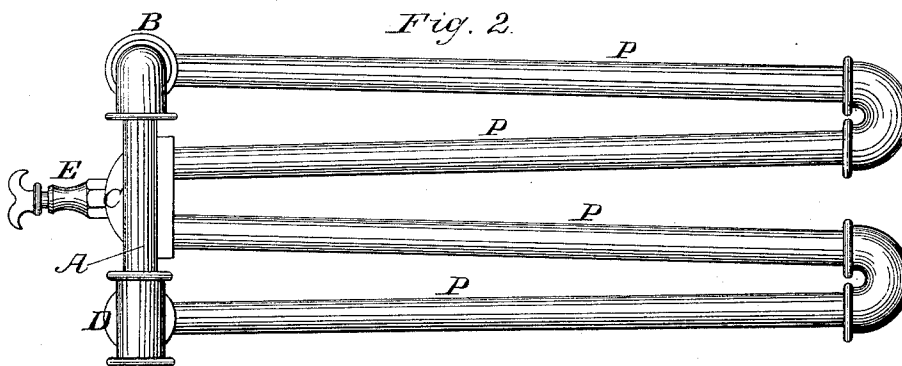
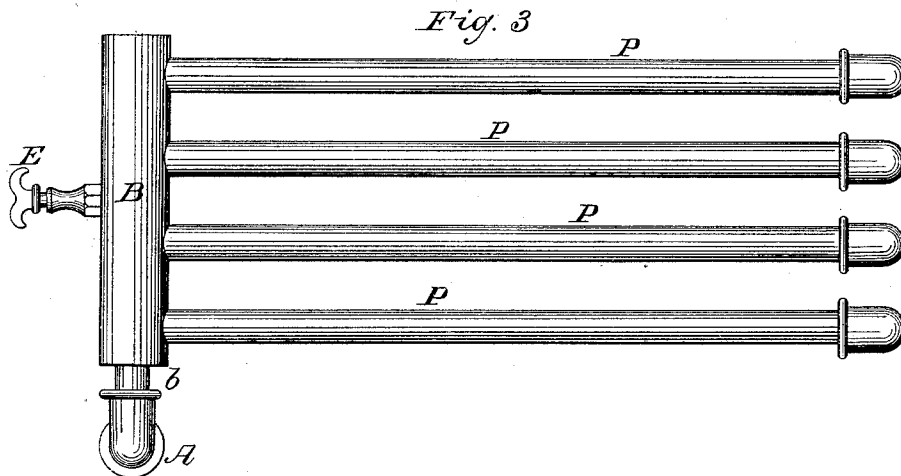
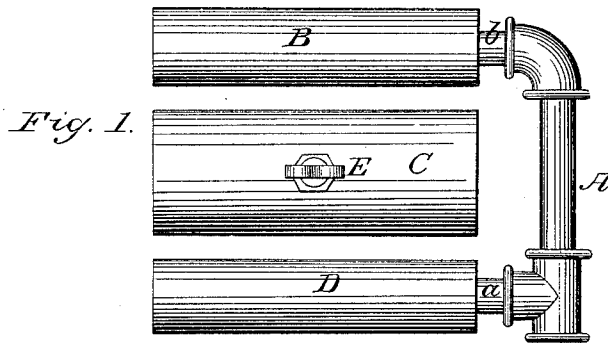


R. T. CRANE.

Steam Heater.

No. 67,504.

Patented Aug. 6, 1867.



Witnesses:
M. E. Mans
L. L. Coburn

Inventor:
R. T. Crane

United States Patent Office.

RICHARD T. CRANE, OF CHICAGO, ILLINOIS.

Letters Patent No. 67,504, dated August 6, 1867.

STEAM-HEATER.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, RICHARD T. CRANE, of Chicago, in the county of Cook, and State of Illinois, have invented a new and useful improvement in Steam-Heaters; and I do hereby declare and make known that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and the letters and figures marked thereon, which form part of this specification.

My invention relates to that class of steam-heaters in which coils or piles of steam pipes are used to contain the steam and radiate the heat, and its object is to insure a uniform and equal temperature throughout the entire apparatus or radiator.

In ordinary steam-heaters, when the steam is admitted into the same at the top, and where an outlet is made at the bottom of the coil to take off the condensed steam or water, the water, in running down into and through the lower part of the coil, tends to cool the same, and in very cold weather renders it extremely liable to freeze up, or at least to become so cold as to subserve no practical or beneficial purpose.

My invention consists in admitting the steam into the radiator, composed of a series of coils of pipes, both at the top and bottom of the same, through headers, so that the water formed by the condensation of steam flows down into the lower header through and against a current of ascending steam, entering the lower part of the apparatus from the boiler, which counteracts the tendency of the condensed steam to cool the coil, and thus keeps the entire radiator at an equal uniform temperature, as desired.

To enable others skilled in the art to understand how to construct and use my invention, I will proceed to describe the same with particularity, making reference in so doing to the aforesaid drawings, in which—

Figure 1 represents an end view of my invention.

Figure 2 is a side elevation thereof; and

Figure 3 is a plan or top view of the same.

Similar letters of reference in the several figures denote the same parts of my invention.

A represents the pipe leading from the boiler, having two branches, *a b*, the one connected with the radiator at the bottom, and the other at the top, as shown. The radiator consists of a series of coils, *P*, connected by the upper and lower headers *B D*, and also by a header *C*, which is provided with a valve or stop-cock, *E*, at which the air in the various coils escapes when the steam is admitted into the radiator at *a b*, as shown, the pipe *a* leading into the lower header *D*, and the pipe *b* into the upper header *B*.

Thus, the steam entering the said headers *B D*, is diffused and distributed uniformly through all the pipes in the series, while the header *C* enables all the air in the entire series to be taken off at a single outlet, *E*. Thus it is readily seen that all the steam which condenses in the apparatus will run down into the lower header *D*, and thence into the boiler, while the incoming current of hot steam directly from the boiler keeps the lower part of the coils from cooling, as described.

Having described the construction and operation of my invention, I will specify what I claim, and desire to secure by Letters Patent.

I claim, in combination with a series of coils, *P*, and the headers *B C D*, the arrangement of the steam-inlet pipes *a b*, substantially as and for the purposes specified.

R. T. CRANE.

Witnesses:

W. E. MARRS,

L. L. COBURN.