

J. FOURNIA.
 DEVICE FOR HEATING FEED WATER.
 APPLICATION FILED MAR. 21, 1908.

976,794.

Patented Nov. 22, 1910.

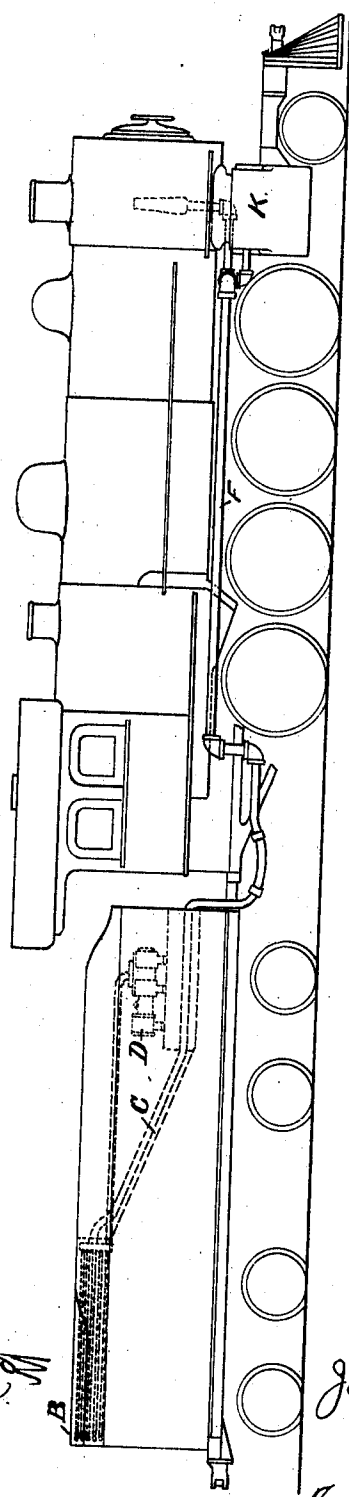


Fig. 1.

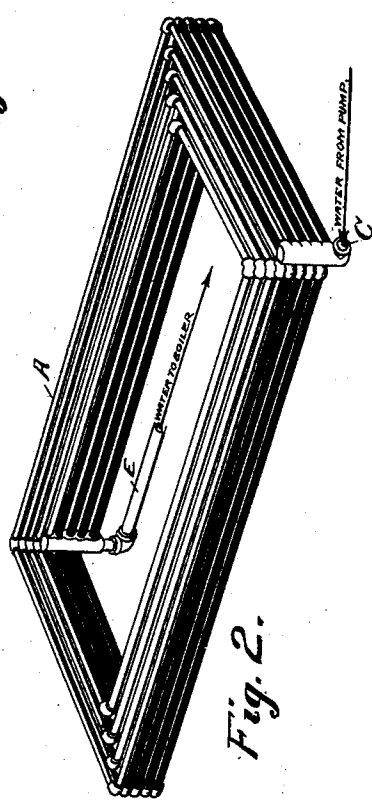


Fig. 2.

Witnesses
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 by
Frederick W. Camblon, Atty

UNITED STATES PATENT OFFICE.

JOHN FOURNIA, OF ALBANY, NEW YORK, ASSIGNOR OF ONE-HALF TO FREDERICK R. GREENE, OF ALBANY, NEW YORK.

DEVICE FOR HEATING FEED-WATER.

976,794.

Specification of Letters Patent.

Patented Nov. 22, 1910.

Application filed March 21, 1908. Serial No. 422,421.

To all whom it may concern:

Be it known that I, JOHN FOURNIA, a citizen of the United States, residing at the city of Albany, in the county of Albany, and State of New York, have invented certain new and useful Improvements in Devices for Heating the Feed-Water of Boilers, of which the following is a specification.

My invention relates to devices for heating the feed water of boilers, and the object of my invention is to provide an efficient and economical manner for applying heat to the water supply of a steam boiler, particularly adapted for use in locomotives. I accomplish this object by means of the mechanism illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of a locomotive and tender supplied with my invention. Fig. 2 is a perspective view of the pipe through which the water circulates.

Similar letters refer to similar parts throughout the several views.

I arrange a coil of pipe, A, in such a manner that there shall be a series of rows of pipe separated from each other, with a space between adjacent pipes of each series, provided for the circulation and flow of steam between and about each of the pipes forming the coils coming in contact with the entire surface thereof. I place a coil of pipe thus arranged within a box, B, preferably on the tender, as shown in Fig. 1 and connect the same by means of a pipe, C, with a pump, D. The other end of the coil is connected by means of the pipe, E, with the boiler. The box, B, is covered and closed tightly, making a steam containing receptacle, which is connected by means of the pipe, F, with the piston valve steam chest, K, and the exhaust of the engine. Whereby the exhaust steam from the engine is carried through the

pipe, F, to the box, B. By this arrangement of the pipes, A, within a steam containing receptacle, B, the feed water in its passage through the coil will become heated and forced into the boiler under the pressure of the pump. Because the water is compelled to travel throughout the coil and thus brought in contact with the surface of the pipe heated by the steam before it is delivered to the boiler it becomes much warmer than if it were pumped into a receptacle through which steam pipes were used for heating the contents since the continuous flow of the water in the pipes necessarily keeps it in closer contact with the heating element than if it were simply forced in an apartment heated by steam passing through pipes.

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

The combination with a locomotive and its tender of means for heating the feed water for a locomotive; comprising a box located on the tender; a coil of pipe arranged in such a manner that there shall be a series of rows of pipe separated from each other, with a space between adjacent pipes of each series, whereby the steam supplied to the box will circulate between and about each of the pipes forming the coil, coming in contact with the entire surface thereof: a means for conveying water to be heated to said coil; a means for connecting said coil with the boiler of the locomotive; a means for conveying steam to the interior of said box.

In testimony whereof I have affixed my signature in presence of two witnesses.

JOHN FOURNIA.

Witnesses:

FREDERICK W. CAMERON,
LOTTIE PRIOR.