J. H. STREICH.

FEED WATER HEATER.

APPLICATION FILED DEC. 30, 1908.

936,184.

Patented Oct. 5, 1909.

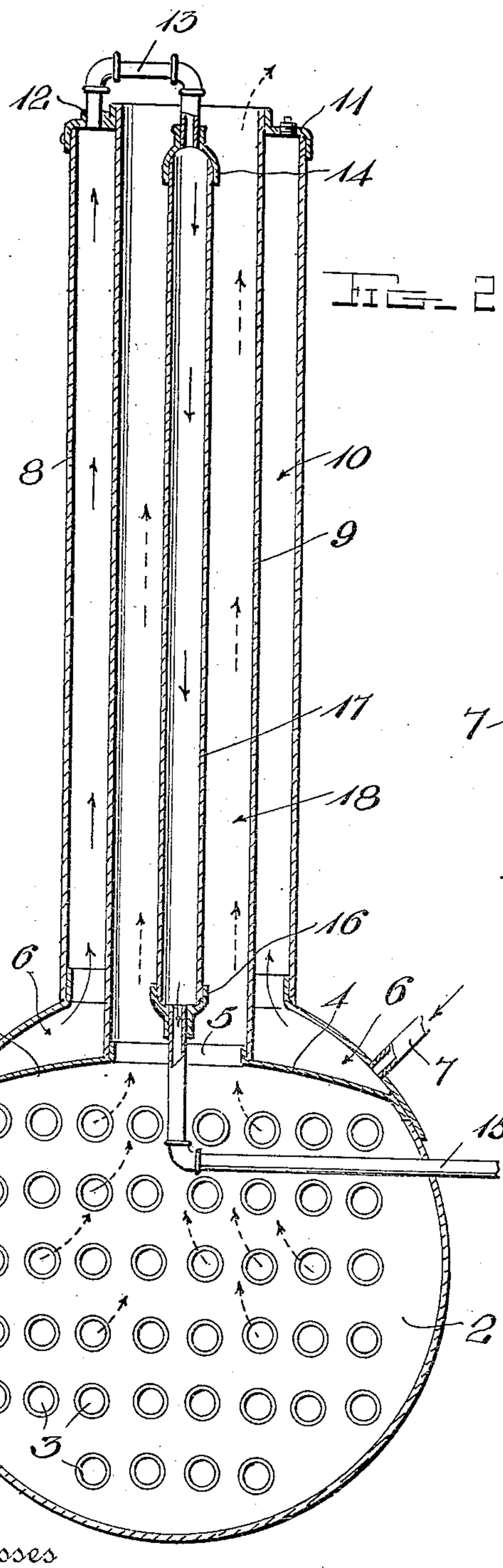


FIG. 2

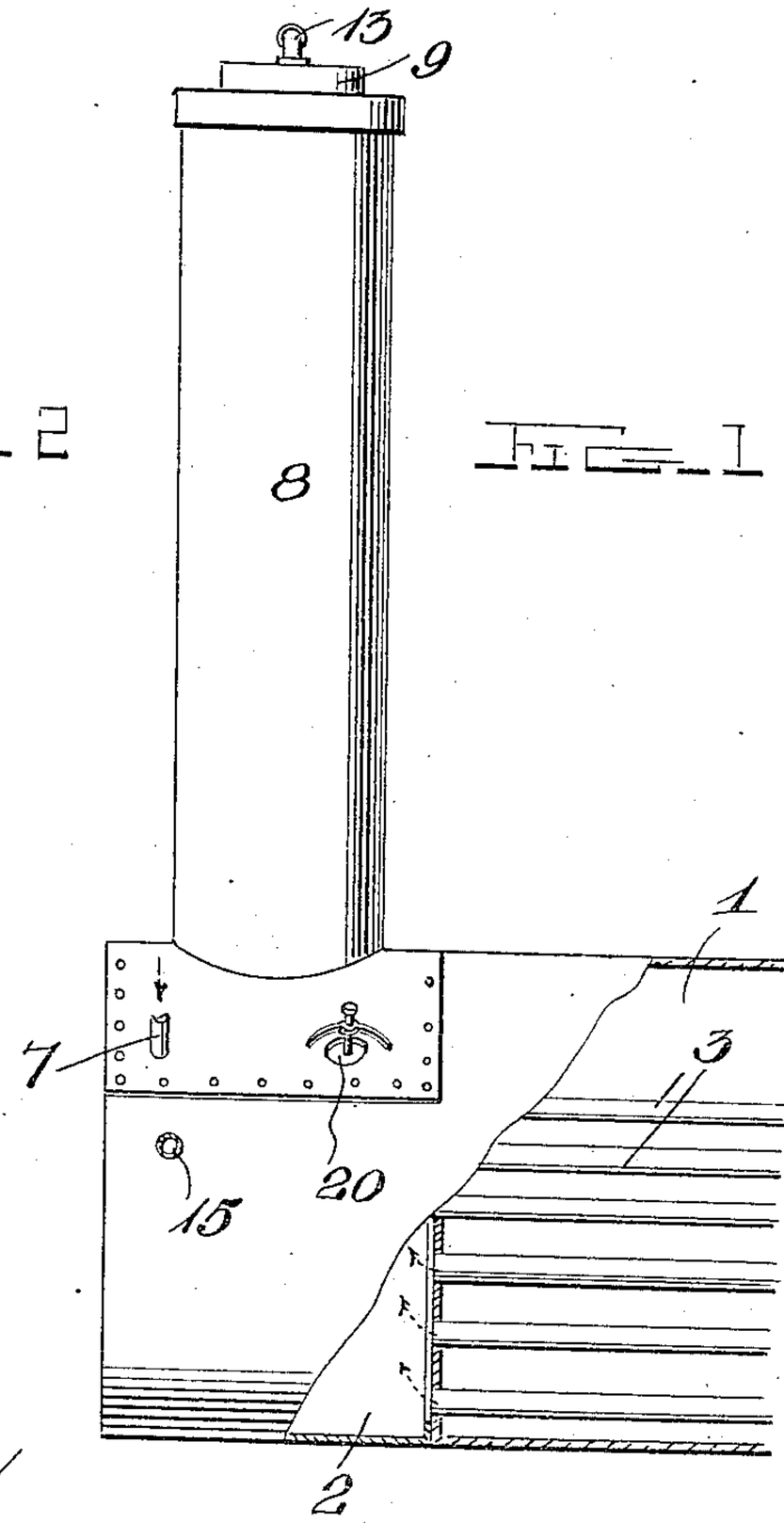
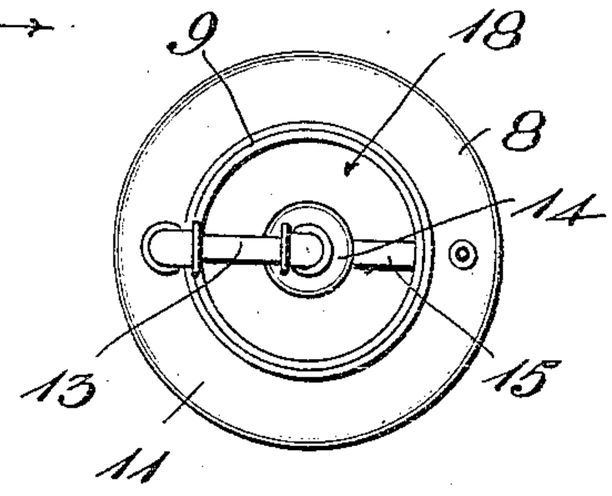


FIG. 1

FIG. 3



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN H. STREICH, OF OSHKOSH, WISCONSIN.

FEED-WATER HEATER.

936,184. Specification of Letters Patent. Patented Oct. 5, 1909.

Application filed December 30, 1908. Serial No. 469,929.

To all whom it may concern:

Be it known that I, JOHN H. STREICH, a citizen of the United States, residing at Oshkosh, in the county of Winnebago and State of Wisconsin, have invented certain new and useful Improvements in Feed-Water Heaters; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to feed water heaters and particularly to that type which is used upon locomotive boilers.

The object of the invention is to provide a heater which may be cheaply installed and which will effectively heat the water to be fed to the boiler and at the same time will occupy a small space.

With the foregoing and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claim.

In the accompanying drawings, Figure 1 is a fragmentary longitudinal vertical section. Fig. 2 is a transverse vertical section. Fig. 3 is a top plan view.

Referring more especially to the drawings, 1 represents the boiler, 2, the smoke box at the end thereof, and 3 the usual flue tubes contained in the boiler.

In order to adjust the device I secure a plate 4 over the smoke box with a central opening therein 5 for a purpose which will be hereinafter described. This plate 4 with the boiler casing forms a chamber or tank 6 to which the feed water is conducted by a pipe 7, which will be hereinafter termed the inlet pipe.

The stack is shown at 8 and inside thereof is a concentric tube or cylinder 9 forming a chamber 10 which constitutes a continuation of the chamber or tank 6. The upper end of this chamber 10 is closed by an annular cap 11, having a pipe coupling 12 formed in one side thereof to receive the pipe 13, the inner end of which is connected to a reducing coupling 14.

The outlet pipe or the pipe which feeds the water from the heater tank to the boiler is shown at 15 as extending downwardly and laterally through the smoke box 2 and having at its upper end a reducing coupling 16. Between the reducing couplings 14 and 16, I provide an enlarged pipe 17 which is arranged concentric with the tube 9 which leaves the annular smoke passage 18. A suitable flushing opening closed by a block 19 is provided at the lower edge of the tank 6 and a suitable hand-hole 20 for cleaning purposes is provided and may be closed in any suitable manner.

In operation the water enters through the inlet pipe 7, circulates around through the tank 6 and up around the stack tank or chamber 10 through the pipes 13 and 17 to the outlet pipe 15 where it is led to the boiler in the usual manner. The water at this latter stage will be found highly heated and sometimes in a boiling state. This condition permits of ready forming of steam when injected into the boiler by the usual injector pumps, thereby economizing the amount of fuel used and also utilizing the waste heat passing out of the stack which is otherwise wasted.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention, as defined in the appended claim.

I claim as my invention:—

In a device of the class described, the combination with a boiler, of a plate bridged across the smoke box thereof and forming with the boiler a tank, a smoke stack communicating with the smoke box through the tank, a cylindrical casing surrounding the stack and attached thereto and to the boiler, said casing forming with the stack a continuation of the tank, a centrally, disposed, enlarged tube arranged within the stack, an inlet pipe connected to the tank, an outlet pipe connected to said tube and passing through the smoke box to the outside of the boiler, and a pipe connecting the tank and tube at the top of the stack.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN H. STREICH.

Witnesses:

F. C. HORN,

LOUIS THIEL.