Jan. 18, 1927. 1,614,974

N. F. STRAUSS

ELECTRIC WATER HEATER

Filed Feb. 15, 1926

Fig. 1

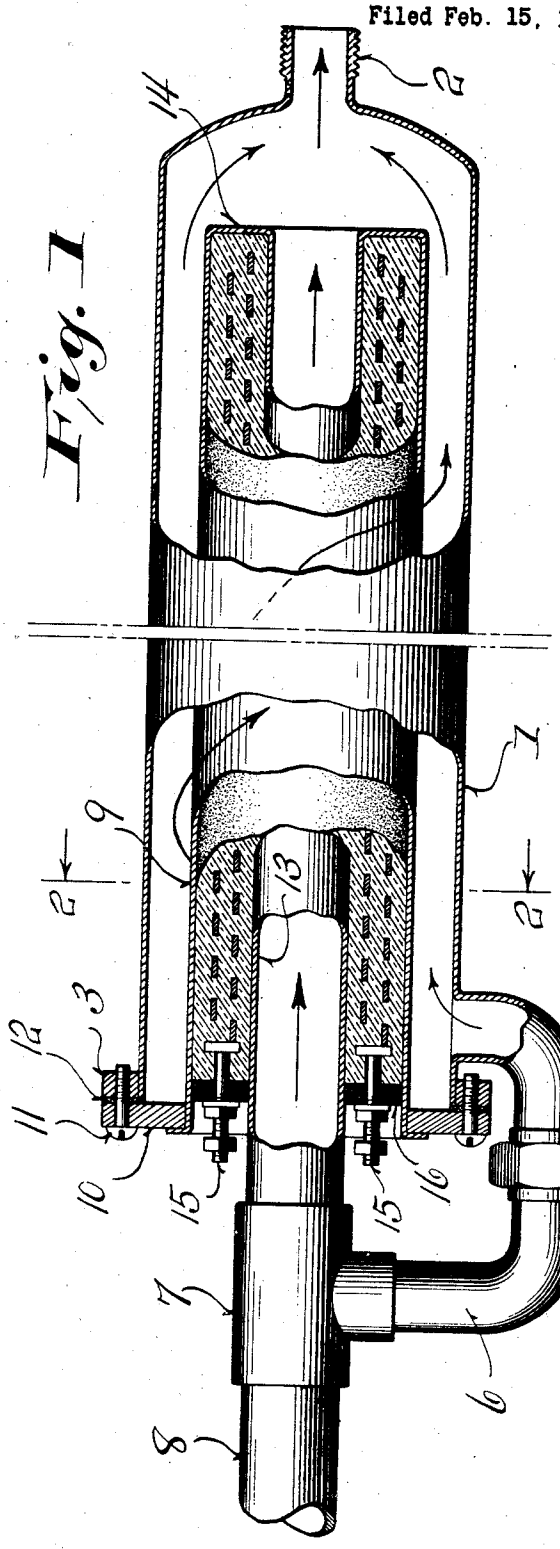
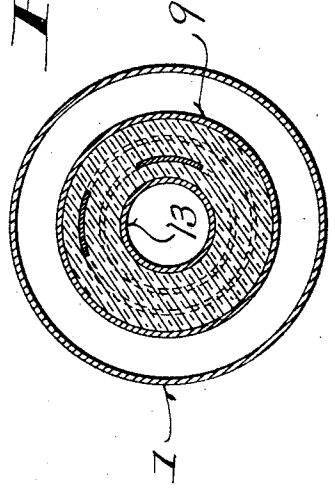


Fig. 2



Inventor:
Norbert F. Strauss
By
Attorneys.

Patented Jan. 18, 1927. 1,614,974

UNITED STATES PATENT OFFICE.

NORBERT F. STRAUSS, OF MILWAUKEE, WISCONSIN.

ELECTRIC WATER HEATER.

Application filed February 15, 1926. Serial No. 88,440.

This invention relates to electric water heaters.

Objects of this invention are to provide an electric water heater of a circulating type through which the water passes, and to so construct the heater that the water will pass both inside and outside of the heater in a continuous flowing stream, thus exposing the maximum surface for heating the water and adapting the heater to continuous heating of the stream of flowing water.

Further objects are to provide an electric heater which is so constructed that the heating unit closes one end of the water jacket or tube and forms a portion thereof when it is in position, and to so organize the parts of the heater that the heating unit may be most readily withdrawn and replaced or repaired as needed.

Further objects are to provide a very simple and sturdy type of electric water heater, which may be constructed very cheaply, and which may be easily installed.

An embodiment of the invention is shown in the accompanying drawings, in which:—

Figure 1 is an elevation of the heater partly in section and with parts broken away.

Figure 2 is a transverse sectional view on the line 2—2 of Figure 1.

The heater comprises an outer shell or jacket 1 which has an elongated metal tube provided with a pipe receiving fitting 2 at its discharge end. Preferably this tube has welded or brazed thereto an annular ring or flange 3 at its inner end. It is provided with an elbow pipe 4 adjacent its inner end which may be connected by means to a union 5 with a pipe 6 extending from the T-fitting 7 which is threaded to the water supply pipe 8.

The heating unit comprises an enclosing shell 9 which has welded or brazed thereto a relative heavy flange or washer 10 at its inner end, the flanges 3 and 10 being apertured and fastened together by means of screws or bolts 11, a suitable gasket 12 being interposed if desired. The inner portion of the heating unit consists of a pipe 13 and the outer end of the heating unit is closed by means of an annular plate 14.

The resistance element of the heating unit may be constructed in any suitable manner and is interposed between the shells 9 and 13, as illustrated in the drawing. The terminals of the resistance unit are connected to the terminal members 15, which project through an insulating end washer 16 carried within the shell 9, as shown most clearly in Figure 1.

It is to be particularly noted that the inner tube 13 of the heating elements continues outwardly and is screwed into the T-fitting 7.

In operation, the incoming water passes from the supply pipe 7 into the central pipe 13 and also a portion of this stream of water is by-passed by the pipes 6 and 4 and passes between the outer shell 1 and the shell 9 of the heating element, the two streams finally discharging from the fitting 2 into the receiving pipe.

In renewing or repairing the heating elements, it is merely necessary to loosen the unit 5 and thereafter to unscrew the pipe 13 from the T 7, the screws or bolts 11 being removed to facilitate its operation. Thereafter the heating unit may be withdrawn bodily from the outer shell and may be repaired or replaced as desired.

It will be seen that a very simple type of electric heater for a circulating stream of water has been provided and that this unit may be made of any diameter or length as required by the particular type of service for which it is installed.

Although the invention has been described in considerable detail, it is to be understood that the same may be variously embodied and is therefore to be limited only as claimed.

I claim:—

1. An electric water heater, comprising an outer casing having a closed end provided with a delivery pipe and having an open end, an inlet pipe leading into said outer casing adjacent its open end, a supply pipe projecting into said casing through its open end and opening into said casing in proximity to the closed end of the casing, an imbedded electric heater surrounding said last mentioned pipe, a shell surrounding said heater and forming therewith a unit, and a flange closing the open end of said casing and surrounding said shell, whereby an annular water chamber is formed about said heater, and a central water chamber passes through said heater, the pipe which enters said casing being connected to said supply pipe.

2. An electric water heater, comprising an annular heating unit having an inner and

an outer casing with the inner casing opening completely therethrough, a flange carried by said heater and of annular shape, a casing having an open end removably held to said flange and having a delivery end, and a supply pipe opening into the central casing of said heater and opening into the outermost casing at a point adjacent the flange.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin.

NORBERT F. STRAUSS.