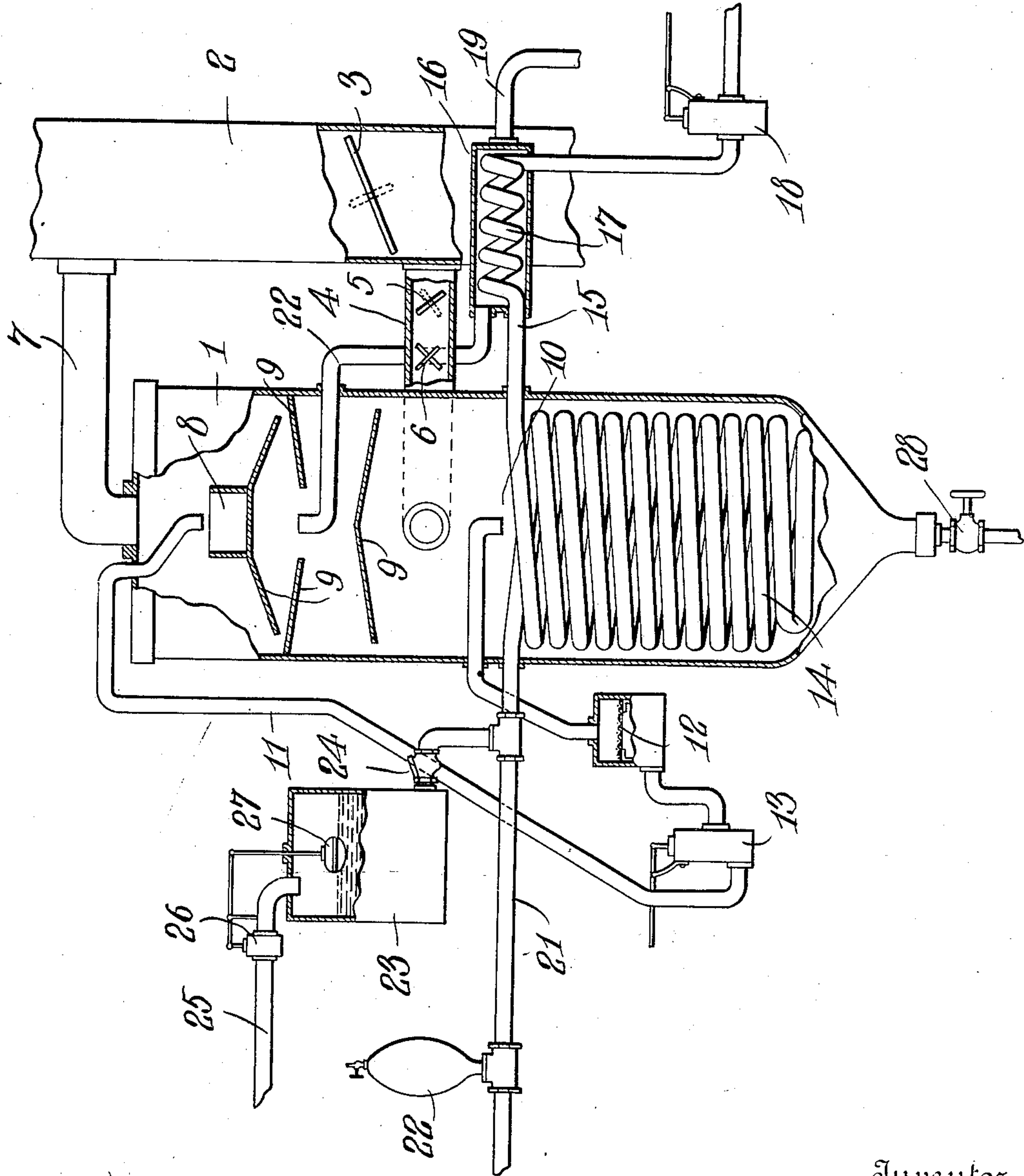


J. F. MILES.  
WATER HEATER.  
APPLICATION FILED MAY 7, 1908.

908,301.

Patented Dec. 29, 1908.



Witnesses  
*C. E. Smith.*  
*C. H. Griesbauer.*

Inventor  
*Joseph F. Miles,*  
By *A. B. Wilson & Co.*  
Attorneys



# UNITED STATES PATENT OFFICE.

JOSEPH FURNAS MILES, OF PARIS, TEXAS.

## WATER-HEATER.

No. 908,301.

Specification of Letters Patent.

Patented Dec. 29, 1908.

Application filed May 7, 1908. Serial No. 431,394.

*To all whom it may concern:*

Be it known that I, JOSEPH F. MILES, a citizen of the United States, residing at Paris, in the county of Lamar and State of Texas, have invented certain new and useful Improvements in 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.

This invention relates to an improved smoke consumer and water heater, for radiators.

The object of the invention is to provide a water heater of this class adapted to be connected with the smoke stack of a furnace to receive the smoke and gases passing there-through, which are utilized for heating the return feed water for the heating system.

With this 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 claims.

The accompanying drawing represents a side elevation, partly in vertical section of this improved smoke consumer and auxiliary water heater, showing the same applied to the smoke stack of a furnace.

In the embodiment illustrated a heater 1 is shown arranged adjacent to a furnace smoke stack 2, having a damper 3 arranged therein, preferably near its lower end and a pipe 4 is connected with the smoke stack 2 and projects into the heater 1 terminating preferably at a point midway of the width thereof. This pipe 4 is also provided with a damper 5 for regulating the amount of smoke to be passed into said heater. A suction fan 6 is also preferably arranged within the pipe 4 and is designed to draw in the smoke from the stack 2 and force it out into the heater. A return pipe 7 connects the top of said heater with said smoke stack, to carry off the gases and smoke after the heat has been extracted therefrom.

A water tank 8 is preferably arranged at the upper end of said heater and has arranged therebelow a plurality of deflecting plates as 9 which serves the double function of deflectors for the smoke and as water distributors for the water which flows over the edge of said tank onto the said plates and passes downwardly into the heater. The water in its passage over these plates which are heated

by the smoke and other products of combustion, receives heat therefrom and accumulates in said heater 1 until it reaches a predetermined point shown at 10 for a purpose hereinafter to be described. A pipe 11 opens at one end through the top of said heater 1 and discharges into the tank 8, the other end thereof extending into the heater and terminating at a point below the normal water level 10 thereof and is designed to convey the water from the lower portion of the heater upward and discharge it again into the tank 8 thereof, keeping up a continuous circulation of the water in the heater that is designed to heat a water-containing coil arranged in the heater and hereinafter described.

A strainer 12 is arranged in the pipe 11 preferably near its lower end for straining the water as it comes from the heater and a pump 13 is also arranged in said pipe for drawing the water from the heater and forcing it upward to be discharged at the upper end thereof into the tank 8. A double coil of pipe 14 is disposed in said heater and the end 15 thereof extends into a drum 16 and is arranged in the form of a coil 17 and passing out of said drum is connected with a radiator (not shown) forming the feed water pipe for the radiator. A pump 18 is preferably connected with said pipe 15 between the drum 16 and the radiator to assist in the circulation of the water. An engine exhaust pipe 19 opens into the drum 16 at one end and the exhaust steam passing through said drum assists in the heating of the water in the coil 17 arranged therein. A pipe 22 is connected with the other end of the drum for conveying the exhaust from the engine into the heater 1 below the deflector plates therein as clearly shown in the drawings.

The return pipe from the radiator is shown at 21 and is connected with the other end of the coil 14 to convey the return water into said coil where it is heated and again passed through the pipe 15 to the radiator and the circulation is kept up in this manner. An air chamber 22 is connected with the pipe 21 in the usual manner. A water tank 23 is connected with the pipe 21 and is provided with an automatic valve 24 at its connection with said pipe 21. A pipe 25 leads from the water main to the tank 23 and is provided with an automatic valve 26 operated by a float 27 disposed in the tank 23 and which is designed to turn on and cut off the water



supply as required. A valve 28 is arranged at the lower end of the heater 1 for letting off the water when desired.

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 this invention as defined in the appended claims.

I claim as my invention:—

1. A water heater comprising a receptacle connected with the smoke stack of a furnace for the passage of the products of combustion therethrough, smoke deflecting means arranged in said receptacle, a water supply, a pipe opening through the top of said receptacle on to said deflecting means, a water pipe coiled in said receptacle and connected with the feed pipe of a radiator and with the return pipe thereof, said coil being immersed in the water in said receptacle which passes over and receives heat from the smoke deflecting means.

2. A water heater comprising a receptacle connected with the smoke stack of a furnace for the passage of the products of combustion therethrough, smoke deflecting plates arranged in said receptacle and a water supply pipe opening at one end through the top of said receptacle and discharging on to said deflecting plates and having its other end extending into said receptacle at a pre-determined point for drawing off the water therefrom and conveying it to the upper end of said receptacle, a water pipe coiled in said receptacle and connected at one end with the feed pipe of a radiator and at its other end with the return pipe thereof, said coil being immersed in the water which passes over and receives heat from the smoke deflecting means.

3. A water heater comprising a receptacle connected with a smoke stack to receive the products of combustion therefrom, smoke deflecting plates arranged in said receptacle, a water supply pipe opening at one end through the top of said receptacle and discharging onto said deflecting plates, and having its other end extended into said re-

ceptacle, at a point below the normal water level of said receptacle and a pump connected with said pipe for causing the circulation of the water in said receptacle, a coiled water pipe arranged in said receptacle below the normal water level thereof and connected at one end with a feed pipe of a radiator and at its other end with a return pipe thereof and means for letting off the water from said receptacle.

4. In a water heater the combination of a receptacle connected with a smoke stack, smoke deflecting plates arranged in said receptacle and having a water tank disposed thereabove, a pipe opening through one end of said receptacle and discharging into the tank therein and having its other end disposed within said receptacle below the normal water level thereof, a pump connected with said pipe for circulating the water through said receptacle, a double coil of pipe arranged in said receptacle at the lower end thereof and having one end connected with the return pipe of a radiator, the other end of said double coil extending through an auxiliary heater and connected with the feed pipe of a radiator.

5. In a water heater the combination of a receptacle connected with a smoke stack, smoke deflecting plates arranged in said receptacle and having a water tank disposed thereabove, a pipe opening through one end of said receptacle and discharging into the tank therein and having its other end disposed within said receptacle below the normal water level thereof, a pump connected with said pipe for circulating the water through said receptacle, a double coil of pipe arranged in said receptacle at the lower end thereof and having one end connected with the return pipe of a radiator, the other end of said coil extending into an auxiliary heating drum and arranged in the form of a coil therein and connected with the feed pipe of a radiator and an engine exhaust pipe opening into said drum.

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

JOSEPH FURNAS MILES.

Witnesses:

J. W. McREYNOLDS,  
J. F. McREYNOLDS.