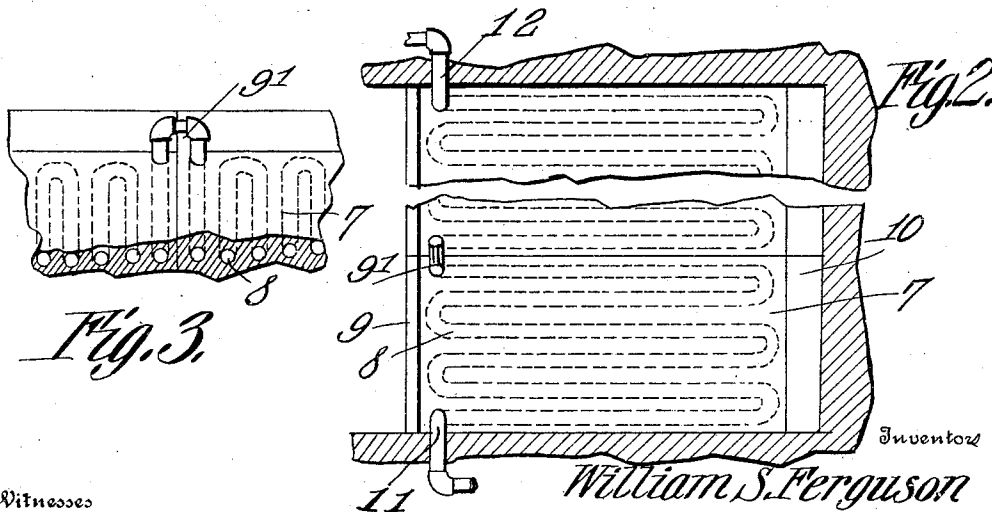
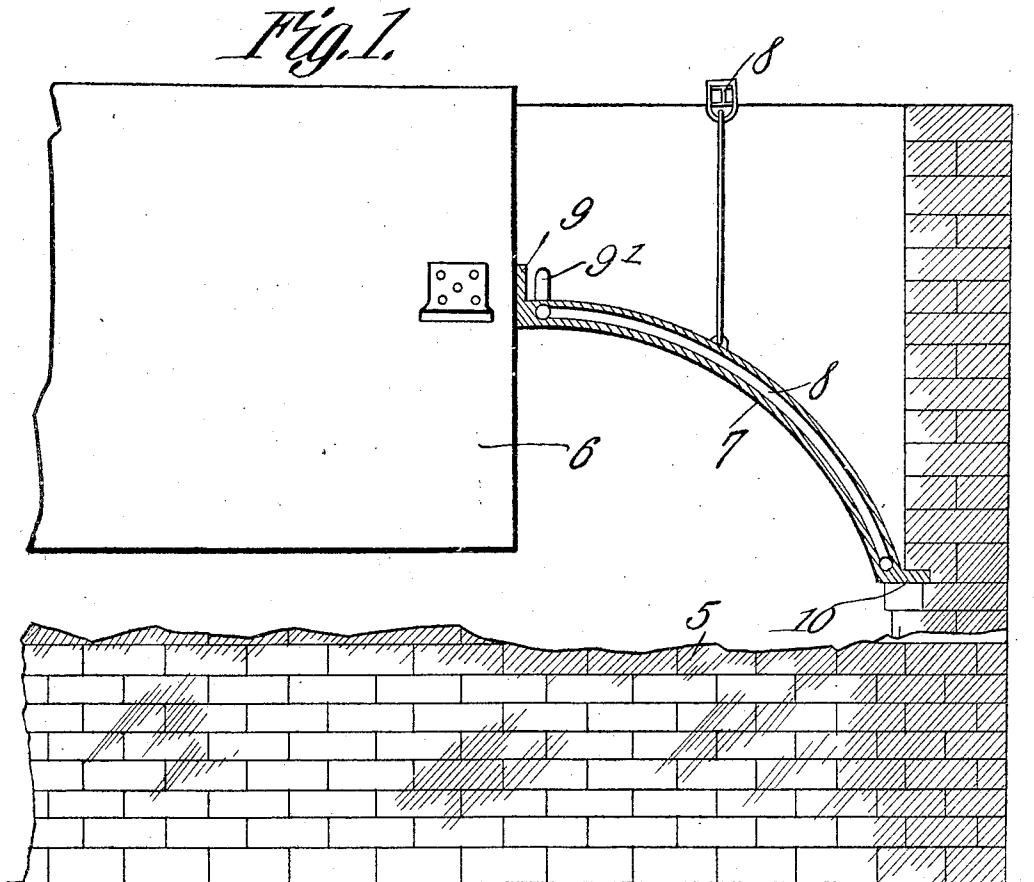


W. S. FERGUSON.
FEED WATER HEATER.
APPLICATION FILED OCT. 26, 1908.

931,046.

Patented Aug. 17, 1909.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM S. FERGUSON, OF LEESVILLE, LOUISIANA.

FEED-WATER HEATER.

No. 931,046.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed October 26, 1908. Serial No. 459,549.

To all whom it may concern:

Be it known that I, WILLIAM S. FERGUSON, a citizen of the United States, residing at Leesville, in the county of Vernon and State of Louisiana, have invented a new and useful Feed-Water Heater, of which the following is a specification.

This invention relates to feed-water heaters for steam boilers, and has for its object to utilize the waste heat at the rear end of the furnace for heating the water; and to this end the invention consists in forming a continuous sinuous passage in the arch at the rear end of the furnace through which passage the water flows before it enters the boiler.

In the accompanying drawing:—Figure 1 is a vertical sectional view of the rear end of a steam boiler furnace and the arch. Fig. 2 is a plan view of the arch. Fig. 3 is a plan view partly broken away.

Referring more particularly to the drawing, 5 denotes the brick work at the rear end of the furnace and 6 is the boiler. These parts are of the ordinary construction and nothing is claimed with respect thereto.

The arch-bars are indicated at 7. They are hung as usual from a beam 8 supported on the side walls of the furnace, and rest at their upper ends against the rear end of the boiler, above the uppermost line of flues, and at their lower ends on the rear end wall of the furnace. The upper and lower ends of the arch-bars are formed with flanges 9 and 10 respectively whereby they are firmly supported as stated.

The arch-bars are formed with a continuous passage 8 of approximate even cross section, which passage is built into and forms a part of the arch-bar. The passage extends in a sinuous course from one end of the bar to the other and opens at its ends into the back of the bar, connections with the passage of the adjoining arch-bar being made by means of a union coupling 9.

Connection with the injector or pump is made at one end 11 of the arch, and with the boiler at the other end 12 thereof, so that the feed water flows in a sinuous course throughout the entire length of the arch, resulting in a rapid heating thereof.

By the arch herein described a simple efficient feed-water heater is had which utilizes the waste heat at the rear end of the boiler, and at the same time the life of the arch is prolonged as the water protects it from the effects of excessive heat. The passage may be obtained by molding it direct in the casting, or it may be a pipe bent or formed by elbows into the desired shape and then inserted into the mold previous to the casting.

What is claimed is:—

An arch for heating boiler furnaces comprising a series of bars, each having at its upper and lower ends outwardly projecting flanges, the upper flanges being engageable with the end wall of the boiler above the tubes, and the lower flange being supported on the rear wall of the furnace, and said arch also extending at its ends up to the side walls of the furnace, whereby the space between the rear end of the boiler and the side and rear furnace walls is completely bridged over; and each of said bars having a sinuous passage through which the feed water flows, each of said passages having an inlet at one end and an outlet at the opposite end of the bar, a connection between the inlets and the outlets of adjoining bars, whereby a continuous passage through the entire length of the arch is had, an outlet from the passage at one end of the arch, and an inlet at the opposite end thereof.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

WILLIAM S. FERGUSON.

Witnesses:

H. T. BOOKER,
HOY BOOKER.