

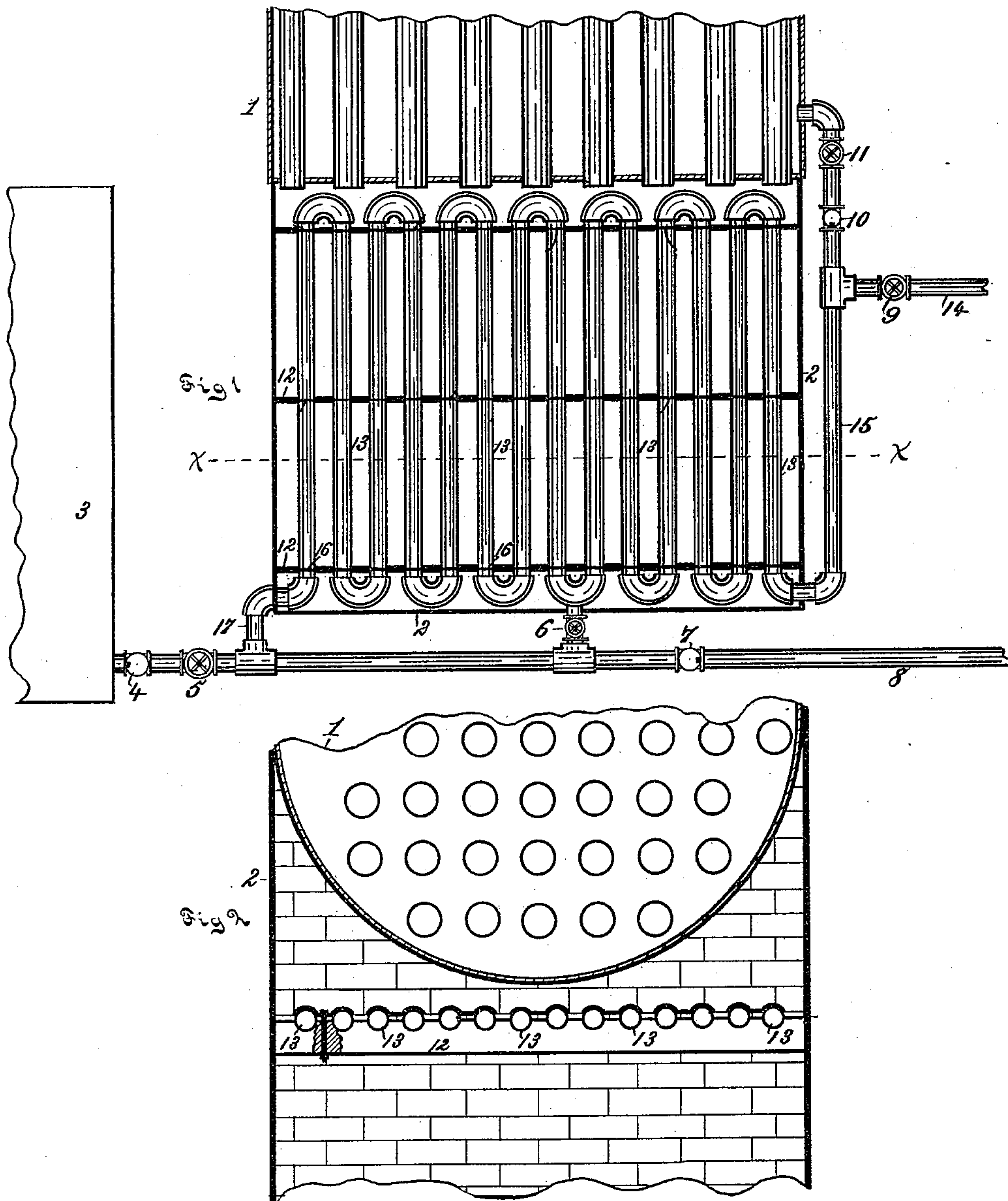
(No Model.)

G. V. SOUIAT & A. P. TROUARD.

GRATE BAR.

No. 438,499.

Patented Oct. 14, 1890.



WITNESSES:

Robert C. Ries.
P. C. Bierman

INVENTORS

Gustave Valerien Souiat.
Alcide Pierre Trouard.

BY

Walter H. Cook
ATTORNEY.

UNITED STATES PATENT OFFICE.

GUSTAVE VALERIEN SOUIAT, OF CAMP PARAPET, AND ALCIDE PIERRE TROUARD, OF NEW ORLEANS, LOUISIANA.

GRATE-BAR.

SPECIFICATION forming part of Letters Patent No. 438,499, dated October 14, 1890.

Application filed April 3, 1890. Serial No. 346,469. (No model.)

To all whom it may concern:

Be it known that we, GUSTAVE VALERIEN SOUIAT and ALCIDE PIERRE TROUARD, citizens of the United States, residing, respectively, at Camp Parapet and New Orleans, in the parishes of Jefferson and Orleans and State of Louisiana, have invented certain new and useful Improvements in Grate-Bars; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the figures of reference marked thereon.

This invention has for its objects to provide novel means for retaining hollow grate-bars filled with water notwithstanding the excessive heat and consequent generation of vapor in the boiler-furnace, and to provide novel means whereby a continuous flow or circulation of water is maintained, and which may either pass through the hot grate-bars from the pump or other apparatus for forcing the feed-water into the boiler, or may circulate from a tank or feed-water heater through the hollow grate-bars back into the tank or feed-water heater from which it first came.

To accomplish this object our invention involves the features of construction, the combination or arrangement of parts, and the principles of operation hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a horizontal sectional view of our improved grate-bars with so much of a steam-boiler as illustrates our invention. Fig. 2 is a cross-section through line X X on Fig. 1 of our improved grate-bars with so much of a steam-boiler as illustrates our invention.

Like numbers refer to like parts.

The portion of a steam-boiler is indicated by numeral 1; casing of fire-box, 2; water-tank or feed-water heater by 3; check-valve, 4; valve, 5; valve, 6; check-valve, 7; pipe leading from pump, 8; valve, 9; check-valve, 10; valve, 11; bearing-bar, 12; hollow grate-bars, 13; pipe to conduct water to any desired place when not wanted in boiler, 14; pipe which

conducts water to the boiler, 15; pipe which conducts water from tank to hollow grate-bars, 17. When it is desired to start, boiler 1 is full of water, tank or feed-water heater 3 is full of water, valve 11 is closed, and valves 5, 6, and 9 are open. Water runs from tank or feed-water heater 3 into hollow grate-bars 13 and makes its exit through pipe 14 to any desired place. When sufficient steam has been raised to run the feed-pump, (not shown,) which feeds through pipe 8, valves 5, 9, and 6 are closed and valve 11 is opened, so that water passes through pipe 8, through check-valve 7, which prevents its returning to the pump, passes through pipe 17, and then enters hollow grate-bars 13, then passes into pipe 15 through check-valve 10, and then into the steam-boiler 1. The feed-water when it enters the boiler has been heated to a very high degree of heat. It will be seen that by having the feed-water thus circulating through the hollow grate-bars it will serve to keep the said bars cool, and at the same time be sufficiently heated to generate steam very readily when it enters the boiler, thus effecting a saving of fuel.

It will be seen that by our invention in case anything should happen to the grate-bars—such as leaking—the steam-boiler would not be affected, as check-valve 10 would prevent the water from leaving the boiler; also, in case when the feed-pump (not shown) is to be started and the valve 5 should be forgotten to be closed, that the water would be forced through the grate-bars, as check-valve 4 would stop its course and compel it to go to the grate-bars. When it is desired to blow out the grate-bars, valve 11 is closed and valve 9 is opened.

By the different combinations and special construction of our apparatus we have succeeded in making a successful working hollow grate-bar.

Having thus described our invention, what we claim, and wish protected by Letters Patent, is—

In a furnace, a feed-water heater consist-

ing of hollow grate-bars 13, a water-tank 3,
pipe 17, having check 4 and valve 5, pipe 8,
having valve 6 and check 7, a pipe 15, hav-
ing a check 10 and valve 11, and pipe 14, hav-
5 ing valve 9, the lattter pipe being adapted to
communicate with a pump, substantially as
described.

In testimony whereof we have hereunto sub-

scribed our names in the presence of two wit-
nesses.

GUSTAVE VALERIEN SOUIAT.
ALCIDE PIERRE TROUARD.

Witnesses:

M. C. SOUIAT,
ALF. S. DU FOSSAT.