

No. 664,400.

Patented Dec. 25, 1900.

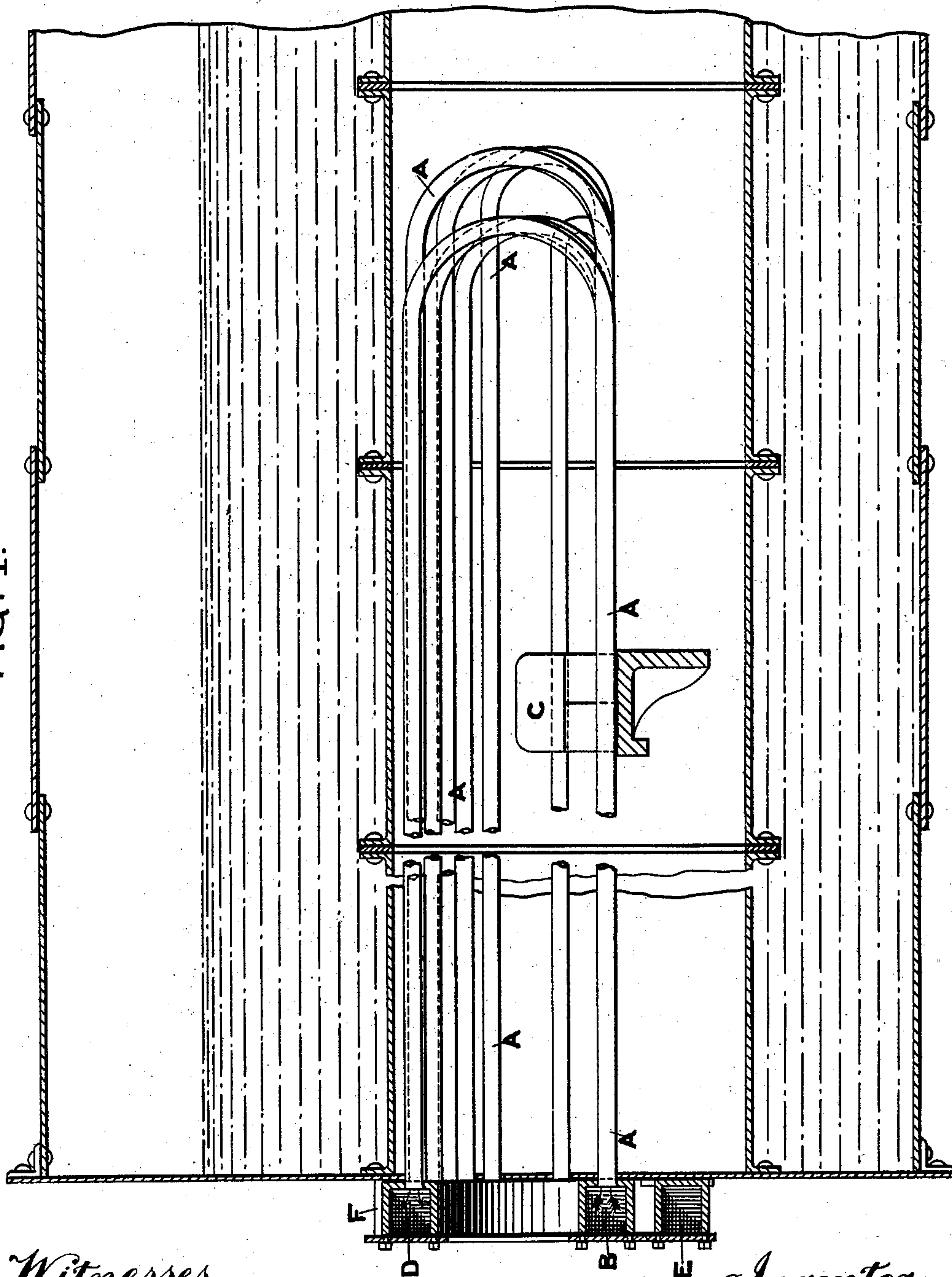
C. GLOVER.
STEAM GENERATOR.

(Application filed July 7, 1900.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 1.



Witnesses
John E. Walsh
Allan Bennett.

Inventor
Clarence Glover

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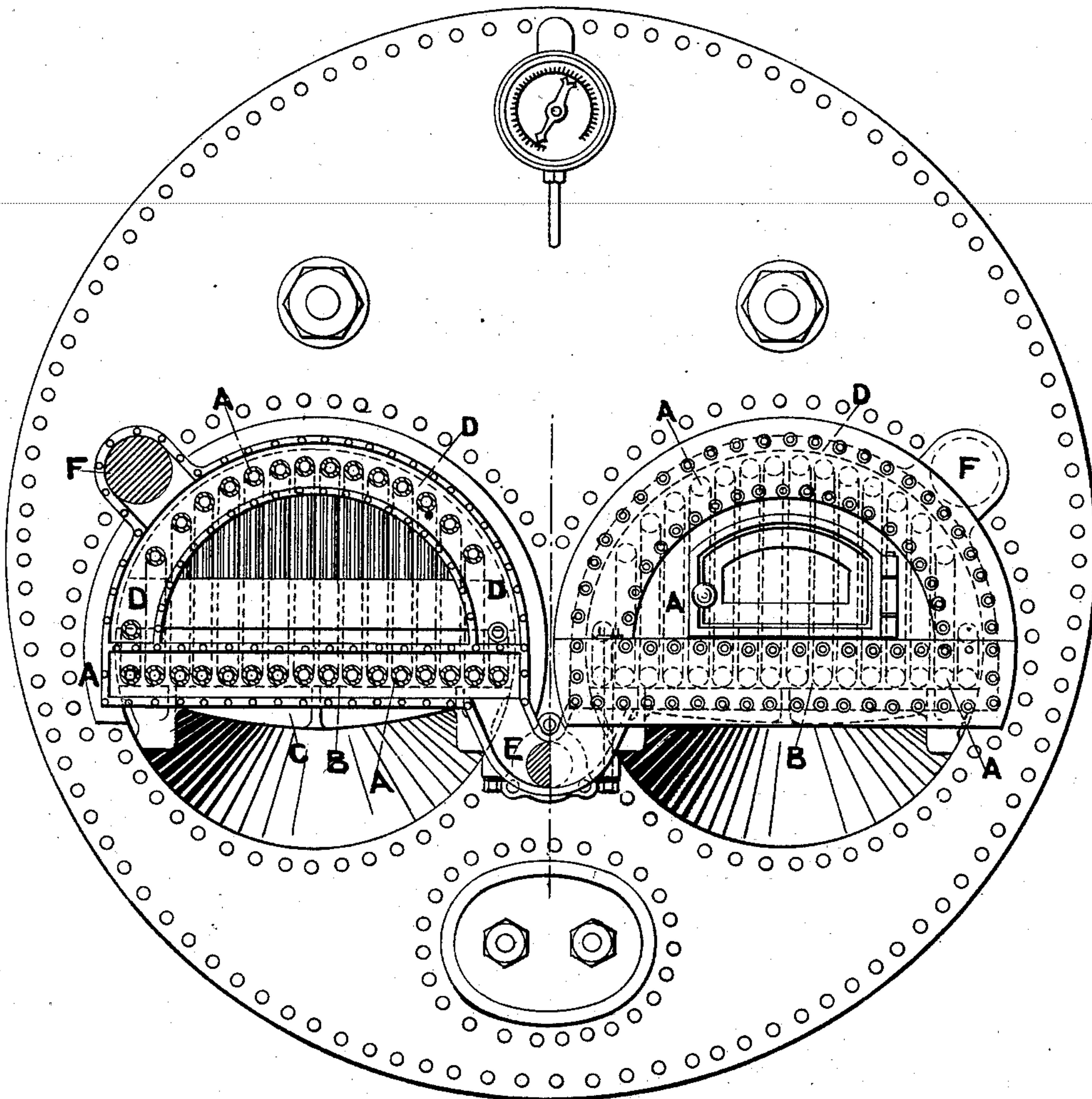
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STEAM GENERATOR.

(Application filed July 7, 1900.)

(No Model.)

2 Sheets—Sheet 2.

FIG. 2.



Witnesses
Abner Reed
William Klean

Inventor.
C. Glover
by *Robert W. Jenner*
Attorney

UNITED STATES PATENT OFFICE.

CLARENCE GLOVER, OF LEEDS, ENGLAND.

STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 664,400, dated December 25, 1900.

Application filed July 7, 1900. Serial No. 22,877. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE GLOVER, a subject of the Queen of Great Britain, residing at Leeds, in the county of York, England, have invented certain new and useful Improvements in Steam-Generators, of which the following is a specification.

My invention relates to improvements in steam-generators, the object being to provide a more durable and efficient furnace. For this purpose I employ a tubular furnace consisting of hollow or tubular grates or fire-bars. I construct the fire-bars in the form of tubes or hollow bars, through which water is allowed to circulate from the boiler or through which water may be pumped or injected to feed the boiler. The said bars may be of any convenient shape or section, but are preferably round or elliptical.

The tubular furnace consists of a series of tubes, which have air-spaces between them and are preferably so arranged as to pass to or beyond the bridge to any convenient distance, where they may either be connected to the boiler or be returned over the bridge for reconnection to the front of the boiler.

My improved tubular furnace, besides adding considerably to the durability of the bars, improves the draft by preventing the formation of clinker. It also considerably increases the steam-raising power of the boilers to which it is applied.

Figure 1 shows a sectional elevation of my invention as applied to an ordinary Lancashire boiler. Fig. 2 shows a front elevation of same, partly in section.

A represents the tubes, which issue from a lower or inlet chamber B, fixed upon the front of the boiler. The said tubes form the fire-bars at the bottom of the furnace of the boiler and are preferably carried beyond the bridge

C, then turned and brought forward again near the top of the furnace to the front of the boiler, where they enter the arched upper or outlet chamber D. The bridge C is secured to the sides of the fire-tube, and the lower end portions of the tubes A rest on the bridge C and are supported by it. Portions of the bridge C project upwardly between the lower parts of the tubes A and retain the fuel on them. The lower chambers B B are connected to each other and to the boiler by a three-way inlet-pipe E, (or the said chambers may be supplied from a suitable feed-water pump or injector,) and the upper chambers D D have each an outlet F to the boiler.

The fire-bars may consist throughout of my improved tubular bars, or tubular bars may be employed in combination with solid bars, arranged alternately or otherwise, as may be desired.

What I claim is—

The combination, with a boiler provided with two fire-tubes, of two chambers B B secured across the front ends of the said fire-tubes, a three-way inlet-pipe E connecting the said chambers together and to the boiler, two curved chambers D D secured over the chambers B B and connected separately to the boiler, and looped tubes for water connecting the chambers B B with the chambers D D and projecting within the said fire-tubes, the lower parts of the said tubes constituting the grate, substantially as described and shown.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

CLARENCE GLOVER.

Witnesses:

JOHN G. WALSH,
ALLAN BENNETT.