W. H. PERKINS.

FURNACE.

APPLICATION FILED MAY 8, 1909.

958,763.

Patented May 24, 1910.

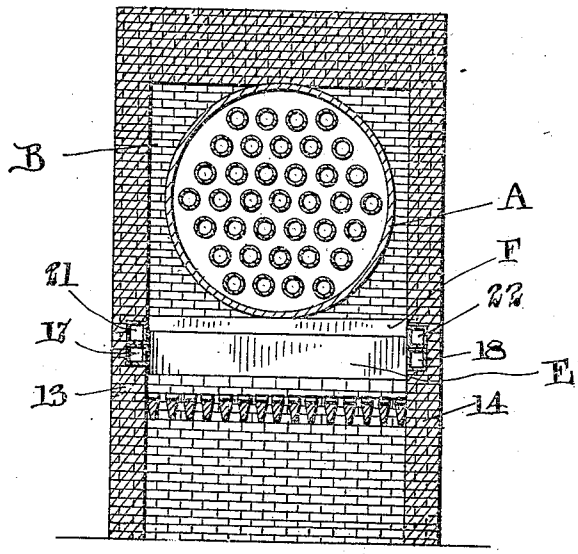

FIG. 2.

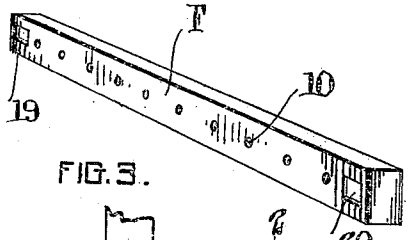

FIG. 3.

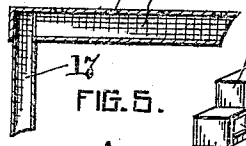

FIG. 5.

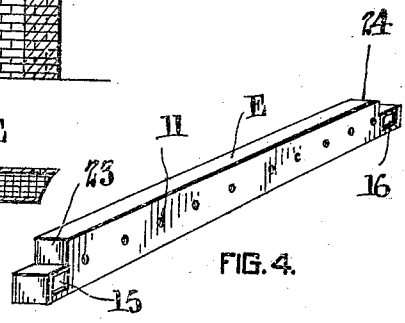

FIG. 4.

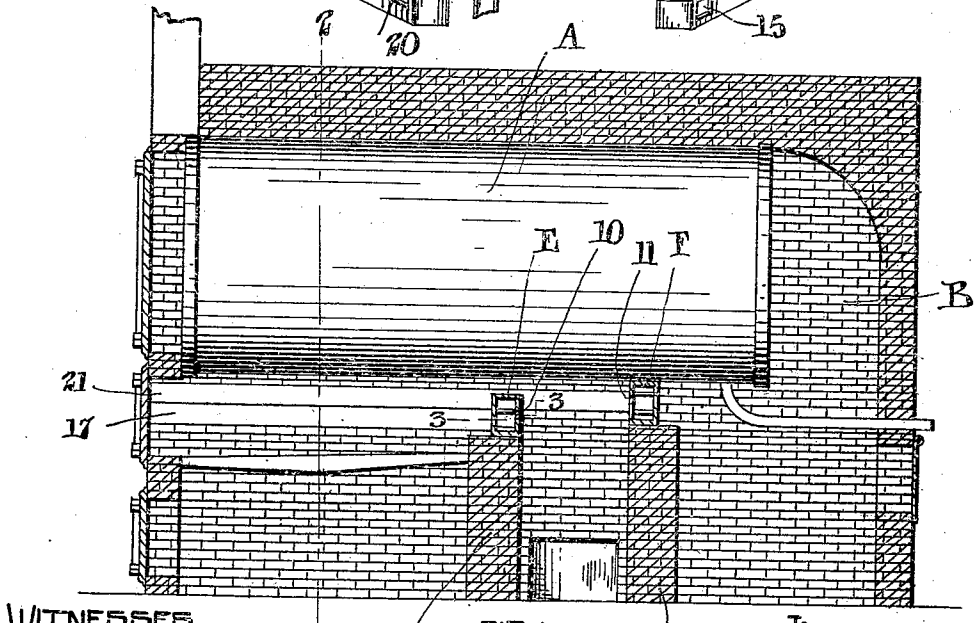

FIG. 1.

WITNESSES

Wm. A. Wyman

Russell E. Smart

INVENTOR

W. H. PERKINS

BY Fred B. Fehlendorf

ATTY.

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM HENRY PERKINS, OF OTTAWA, ONTARIO, CANADA.

FURNACE.

958,763. Specification of Letters Patent. Patented May 24, 1910.

Application filed May 8, 1909. Serial No. 494,929.

To all whom it may concern:

Be it known that I, WILLIAM HENRY PERKINS, of Ottawa, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Furnaces, of which the following is a specification.

My invention relates to improvements in furnaces of the type in which hot air is introduced beneath the boiler to promote a secondary combustion, and the objects of my invention are to provide means for introducing the air in as effective a manner as possible, and also to heat it prior to discharge; and it consists essentially of the improvements hereinafter described in detail in the accompanying specifications and drawings.

In the drawings, Figure 1 is a vertical section through a boiler furnace having my improved fuel saver. Fig. 2 is a section through the same on the line 2—2, Fig. 1. Fig. 3 is a perspective view of the air chamber on the baffle wall. Fig. 4 is a perspective view of the air chamber on the bridge wall. Fig. 5 is a sectional detail on the line 3—3, Fig. 1.

In the drawings, like characters of reference indicate corresponding parts in each figure.

Referring to the drawings, A represents a boiler of any suitable form, and B the masonry structure surrounding the same.

C is the usual bridge wall, and D is an auxiliary baffle wall provided between the bridge wall and the end of the boiler.

In accordance with the present invention, air chambers E and F are provided on the bridge and baffle walls respectively, the said air chambers having a series of discharge ports 10 and 11 respectively, which open toward each other. The end of the chambers extends into the side walls 13 and 14 of the masonry structure.

The chamber E is provided with two apertures 15 and 16 which communicate with longitudinally extending conduits 17 and 18, which open on the front of the boiler, the said conduits having their inner side exposed to the heat of the fire on the grate bars. The chamber F is also provided with apertures 19 and 20 which communicate with conduits 21 and 22 in the side walls, the said conduits resting on top of the conduits 17 and 18. To permit the passage of the conduits 21 and 22 over the chamber E, the ends of said chamber are provided with rabbets 23 and 24 adapted to accommodate the conduits. The inner faces of the conduits 21 and 22 are also exposed to the heat of the fire.

In operation, the air is drawn through the conduits 17, 18, 21 and 22 by the draft of the boiler. In passing through the conduits, it is heated, and discharging from the ports 10 and 11, commingles with the products of combustion in the space between the walls C and D, and permits a secondary combustion, which effects a saving of fuel.

As many changes could be made in the above construction and many apparently widely different embodiments of my invention, within the scope of the claim, could be made without departing from the spirit or scope thereof, it is intended that all matter contained in these specifications and drawings shall be interpreted as illustrative and not in a limiting sense.

What I claim as my invention is:—

A furnace provided with side walls, a bridge wall and a baffle wall, air chambers on the bridge wall and baffle wall, conduits in the side wall communicating with the air chambers and opening at the front of the furnace, the air chamber on the bridge wall being provided with rabbets 23 and 24 into which the conduit over the air chamber on the baffle wall will extend.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

WILLIAM HENRY PERKINS.

Witnesses:

RUSSELL L. SMART,

WM. A. WYMAN.