

(No Model.)

E. F. WHITE.
HOT WATER FURNACE.

No. 540,128.

Patented May 28, 1895.

Fig. 2

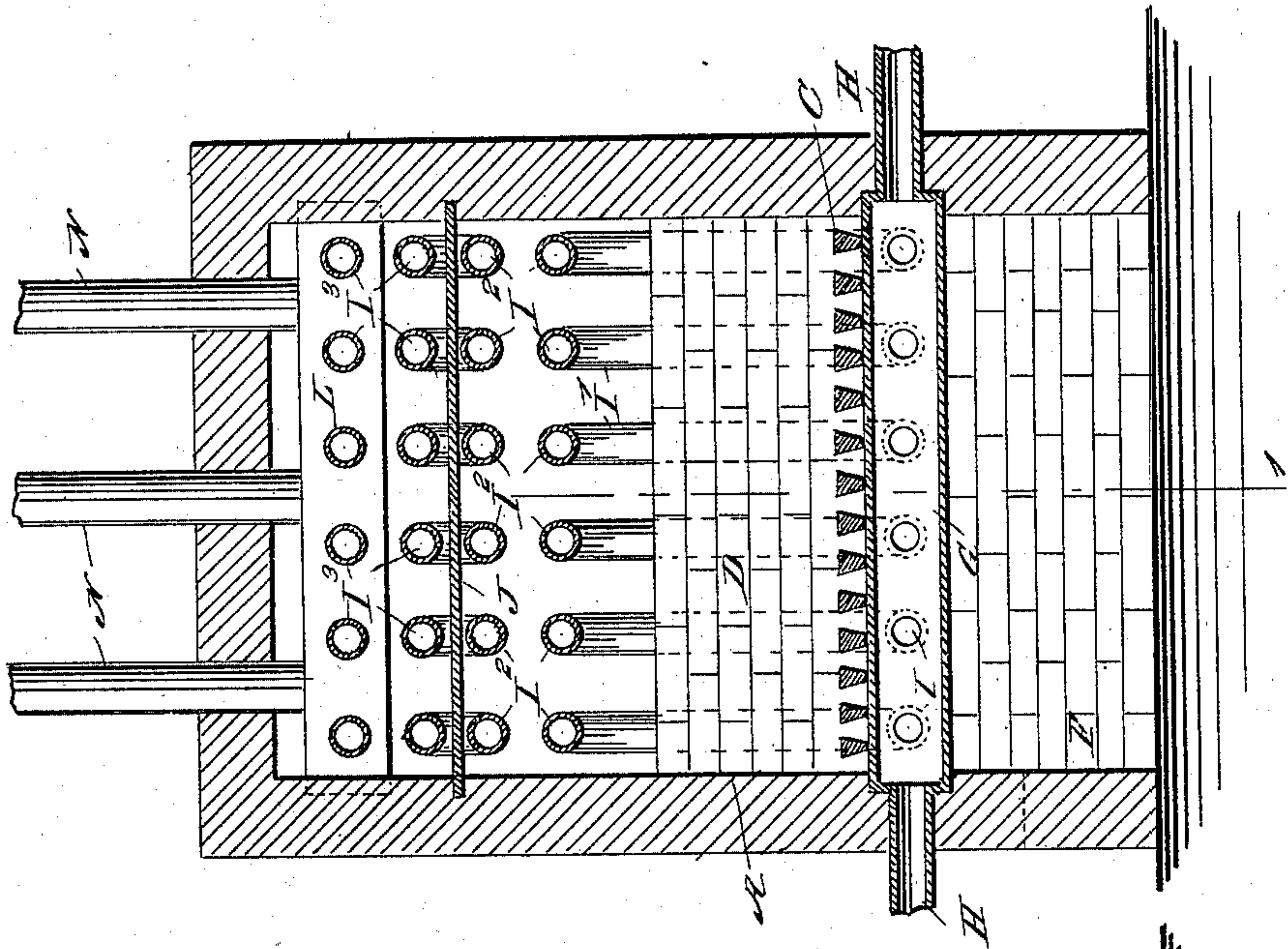
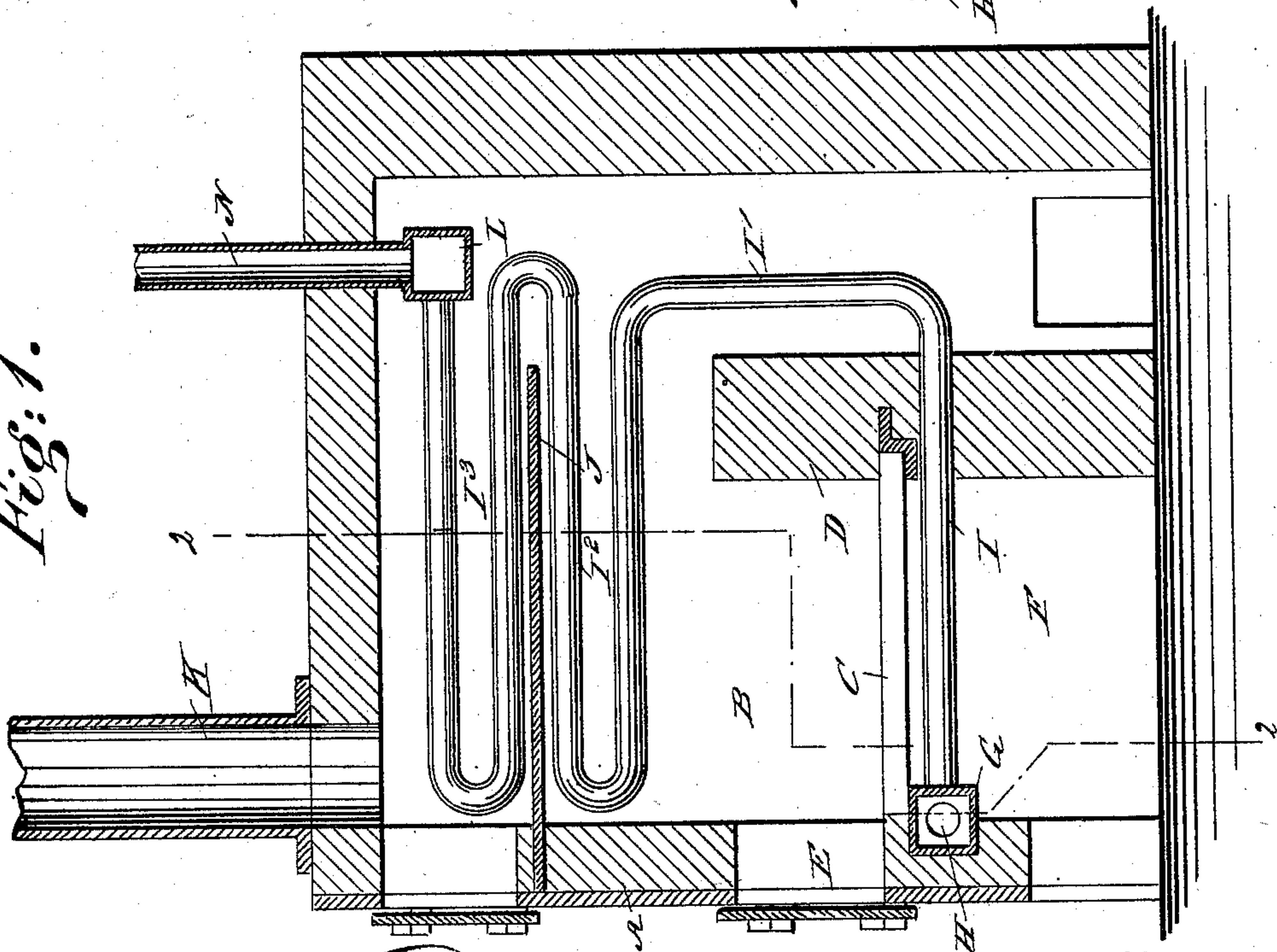


Fig. 1.



WITNESSES:

Chas. Nida
Thos. G. Foster

INVENTOR

E. F. White

BY

Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

EDWIN F. WHITE, OF HOLLIDAYSBURG, PENNSYLVANIA, ASSIGNOR TO
HIMSELF AND OSMOND W. GARDNER, OF SAME PLACE.

HOT-WATER FURNACE.

SPECIFICATION forming part of Letters Patent No. 540,128, dated May 28, 1895.

Application filed October 29, 1894. Serial No. 527,194. (No model.)

To all whom it may concern:

Be it known that I, EDWIN F. WHITE, of Hollidaysburg, in the county of Blair and State of Pennsylvania, have invented a new and Improved Hot-Water Furnace, of which the following is a full, clear, and exact description.

The invention relates to hot water heating systems for heating dwellings and other buildings; and its object is to provide a new and improved hot water furnace, which is comparatively simple and durable in construction, and arranged to quickly heat the water and circulate the same through the pipes and radiators, and to utilize the fuel to the fullest advantage.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a sectional side elevation of the improvement on the line 1 1 of Fig. 2, and Fig. 2 is a sectional front view of the same on the line 2 2 of Fig. 1.

The improved hot water furnace is provided with the usual brick work or a metal shell A, in which is arranged a fire box B provided with a grate C resting at its rear end in the bridge wall D, and at its forward end in the front of the brick work or shell A close to the door E, for introducing the fuel. Below the grate C is arranged an ash pit F and a chamber G, built in the front wall of the furnace, and connected at its sides with the return pipes H leading from the radiators in the building.

The chamber G is connected with a series of pipes I, extending horizontally and rearwardly directly under the bars of the grate C, the said pipes finally passing through the bridge wall D to the rear thereof, to then extend upward as at I', and then forward and rearward in the form of a coil I² arranged in the top of the fire box B as is plainly illustrated in Fig. 1.

The rear end of the coil I² connects with a second coil I³ located above a partition J extending horizontally between the two coils I²

and I³, the said partition extending from the front of the furnace rearwardly, as indicated in Fig. 1, the rear end of the partition being a suitable distance above the top of the bridge wall D.

In the front part of the furnace above the partition J is arranged a chimney K, and in the rear part is arranged a chamber L extending transversely, and connected with the rear end of the coil of pipe I³. From this chamber L extend upwardly the out-flow pipes N, leading to the several radiators in the building. Now, it will be seen that when the pipe system is filled with water in the usual manner, and a fire is started in the fire box B, then the heat generated in the fire box, heats the coils I² and I³, as well as the pipe I extending under the grate C, so that the water circulating through the said pipes and coils is quickly heated and readily flows from the chamber L into the pipes N, to rise therein and pass to and through the several radiators, and then return with its temperature lowered, by the pipes H to the chamber G from which the pipes I start. It will be seen that the heat, smoke and gases, arising from the burning fuel in the grate C in the fire box B, pass upward and rearwardly over the bridge wall D and under the partition J, to then pass over the latter and forwardly, to finally pass into the chimney K extending from the top of the furnace at or near the front end thereof. Thus, the heat will also come in contact with the chamber L, and the chamber G is likewise heated by the downwardly reflected heat, so that the fuel is utilized to the fullest advantage before the smoke and gases pass to the chimney K. It will further be seen that by the construction described, a positive water circulation is obtained and the water carrying pipes are not in contact with the fuel in the fire box and hence not liable to be burned. Furthermore, the gases from the burning fuel circulate among the water pipes to heat the same and by their proper circulation insure economy in fuel.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

In a hot water furnace, the combination with the fire box and a horizontal partition form-

ing the top of the said fire box and terminating
a suitable distance from the rear furnace wall
above the bridge wall, of a chamber arranged
under the grate at the front end thereof, and
5 connected with the water return pipes, pipes
leading from the said chamber and extending
under the bars of the grate to the rear of the
bridge wall to then extend upwardly, and
each pipe to then form a horizontal coil under
10 the said partition and a second coil over the

said partition, and a chamber into which discharge the rear ends of the uppermost coils of the pipes, the said last named chamber being connected with the outflow pipes, substantially as shown and described.

EDWIN F. WHITE.

Witnesses:

JNO. CRY,

C. H. SMITH.