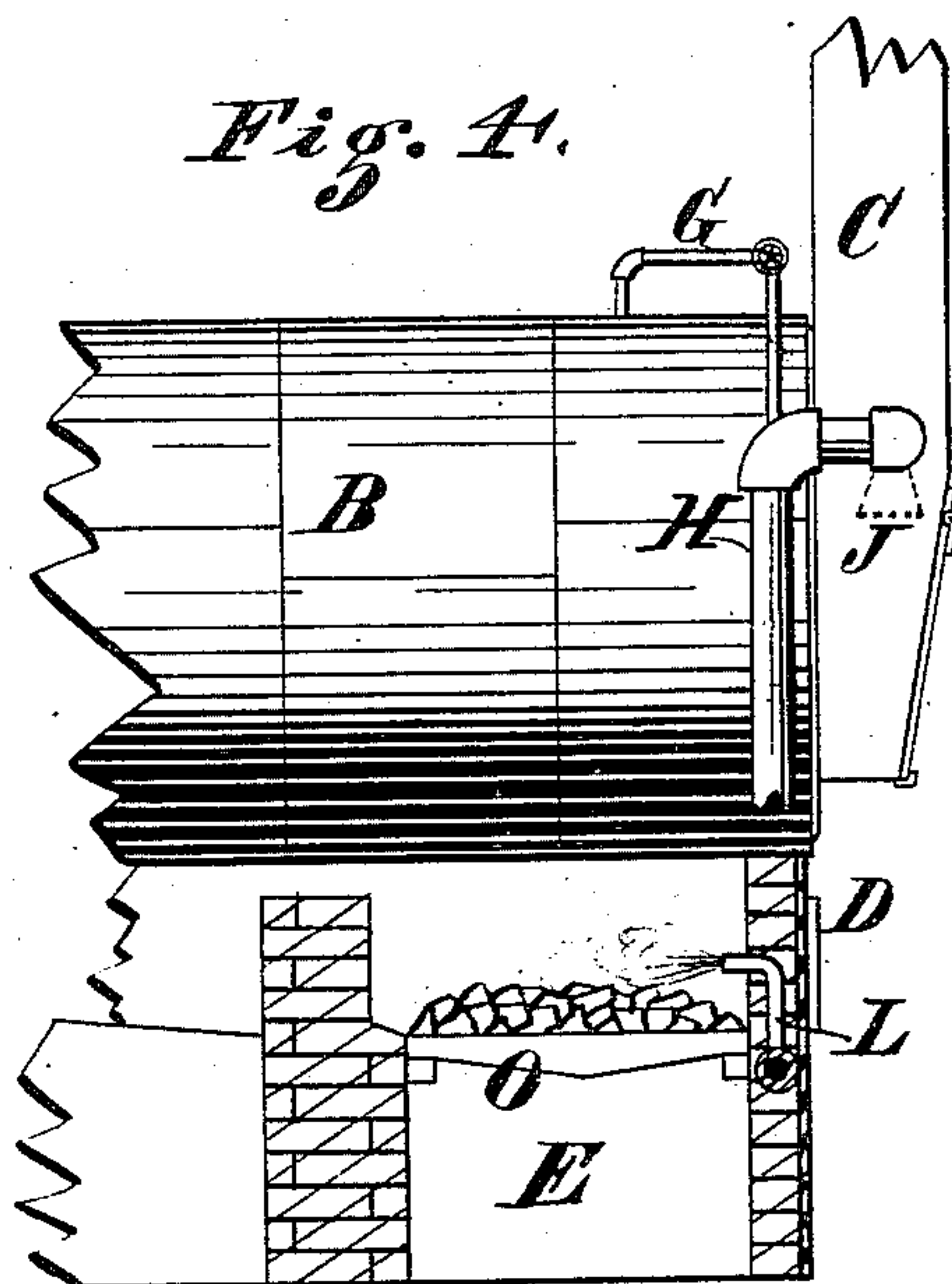
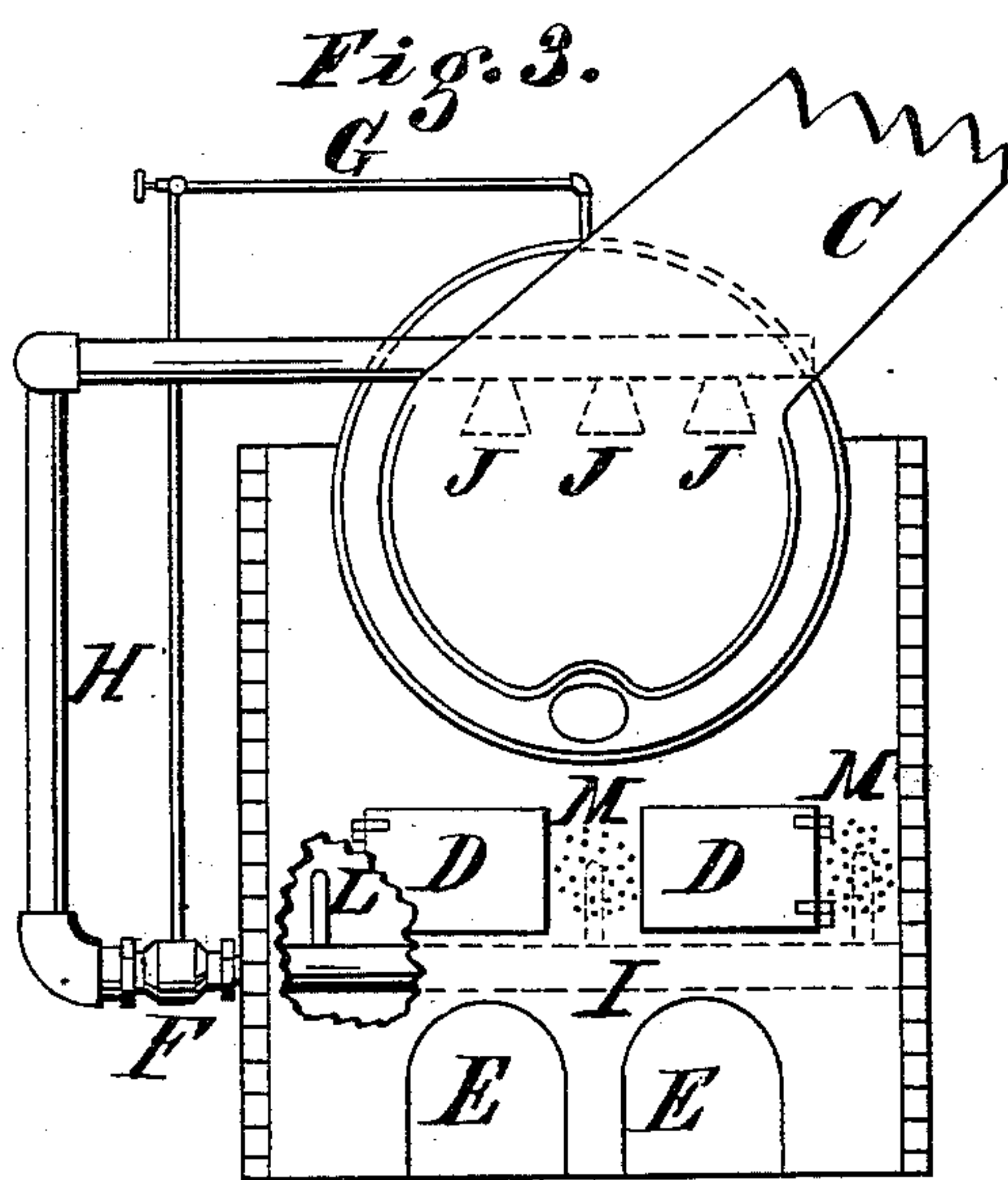
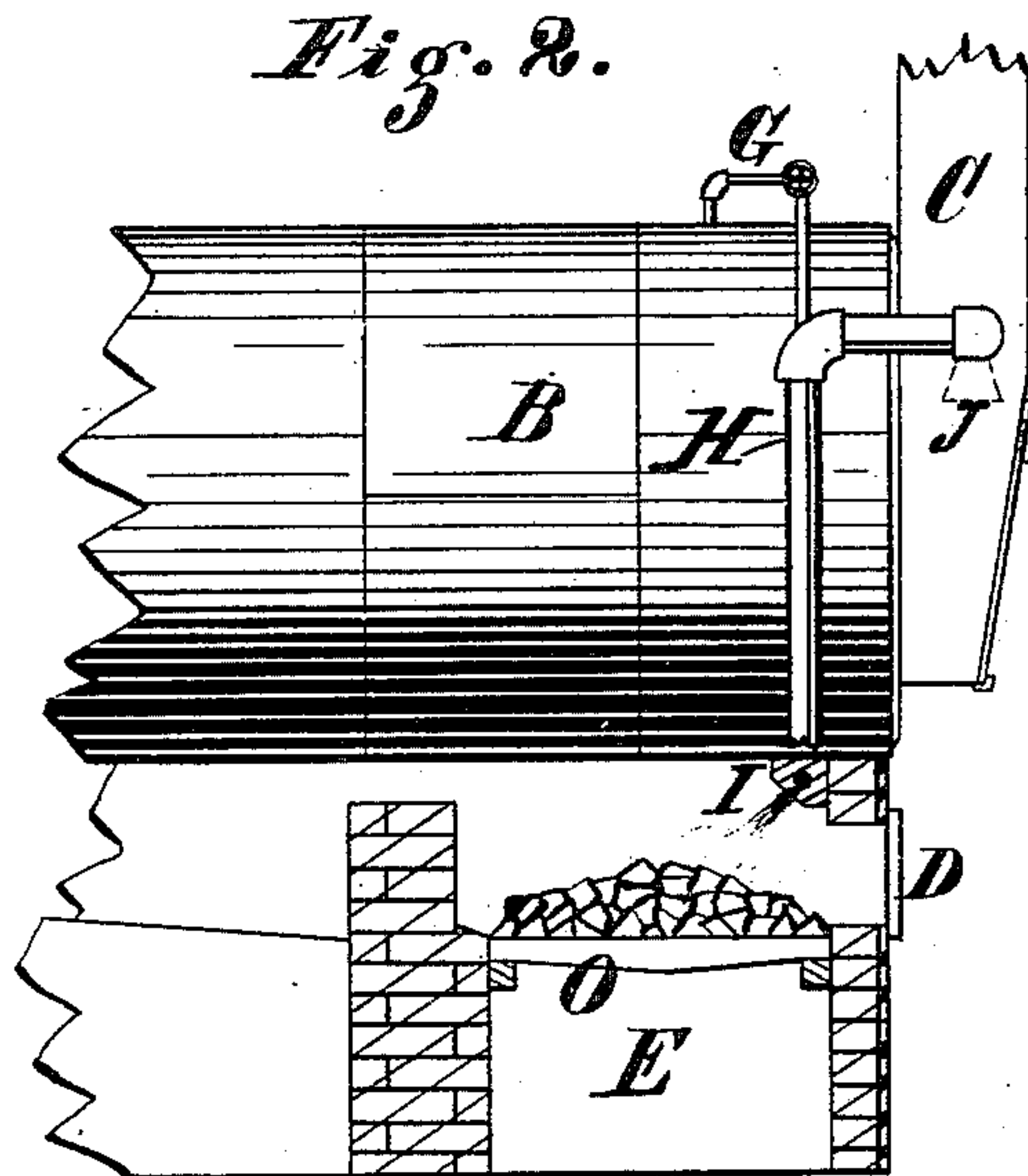
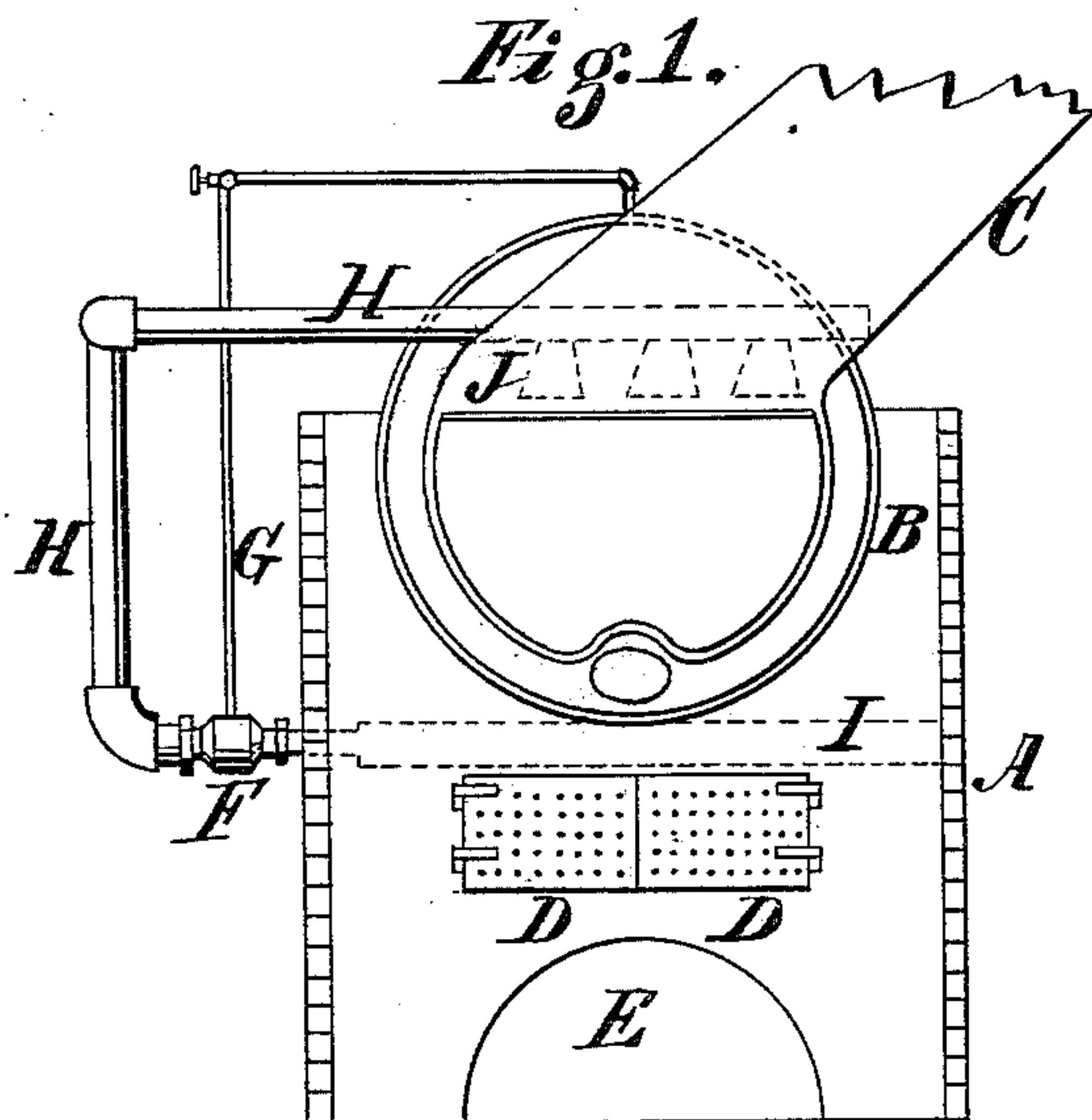


(No Model.)

E. W. VANDUZEN.
SMOKE CONSUMING FURNACE.

No. 259,608.

Patented June 13, 1882.



Witnesses

Jno. C. Hiles.
Herbert P. Cook.

Inventor

Ezra W. Vanduzen.
by Wood & Bond
his Attorneys &c.

UNITED STATES PATENT OFFICE.

EZRA W. VANDUZEN, OF NEWPORT, KENTUCKY.

SMOKE-CONSUMING FURNACE.

SPECIFICATION forming part of Letters Patent No. 259,608, dated June 13, 1882.

Application filed January 10, 1882. (No model.)

To all whom it may concern:

Be it known that I, EZRA W. VANDUZEN, a citizen of the United States, residing at the city of Newport, in the county of Campbell and State of Kentucky, have invented certain new and useful Improvements in Smoke-Consuming Furnaces, of which the following is a specification.

This invention relates to improvements in the means employed for promoting combustion and preventing smoke in boiler-furnaces; and the invention consists in the combination of a steam-injector pipe and a gas-supply pipe both tapping and terminating in the uptake or chimney of the furnace, an injector and a transverse distributing-pipe connected with the injector and arranged along the front of the grate in close proximity to a cluster of independent air-orifices pierced in the front wall or door of the furnace, whereby air is supplied in small streams to be heated and distributed, all of which will appear more fully hereinafter.

The invention is clearly illustrated in the accompanying drawings, in which Figure 1 is a front elevation of a boiler-furnace with my improvement applied thereto. Fig. 2 is a longitudinal section of the same, partly in elevation. Fig. 3 represents a modified form of the plan shown in Figs. 1 and 2. Fig. 4 is a central longitudinal section of the furnace with the boiler and supply-pipes in elevation.

A represents the walls of the furnace; B, the boiler; C, the smoke-stack; D, the doors; E, the ash-pit; F, an injector; G, the steam-pipe tapping the steam-drum; H, an air-pipe, which projects into the smoke-stack near the end of the boiler-flues.

J J represent bell-shaped openings into pipe

H, through which air and gases enter. These are placed on the under side to prevent particles of dust, &c., from entering and clogging the orifices.

I represents the common air and steam distributing pipe. It may be located above the doors D, as shown in Fig. 1, or below the same, as shown in Figs. 3 and 4.

L represents the steam and air supply pipe projecting upward opposite a cluster of small air-orifices, *m*. The construction and arrangement and operation of these orifices and of the pipes I and L are fully described in another application of even date herewith.

It is obvious that either method of admitting air may be used in connection with the steam-pipe G and gas-pipe H tapping the smoke-stack, and still obtain the advantages of my invention herein.

Having described my invention, what I claim as new is—

In a boiler-furnace, the combination of the steam-injector pipe G, the gas-supply pipe H, tapping and terminating in the uptake C, the injector F, and the transverse distributing-pipe I, connected with the injector and arranged along the front of the grate in close proximity to the cluster of independent air-orifices pierced in the front wall of the furnace, substantially as and for the purposes described.

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

EZRA W. VANDUZEN.

Witnesses:

HERBERT P. COOK,
J. H. CHAS. SMITH.