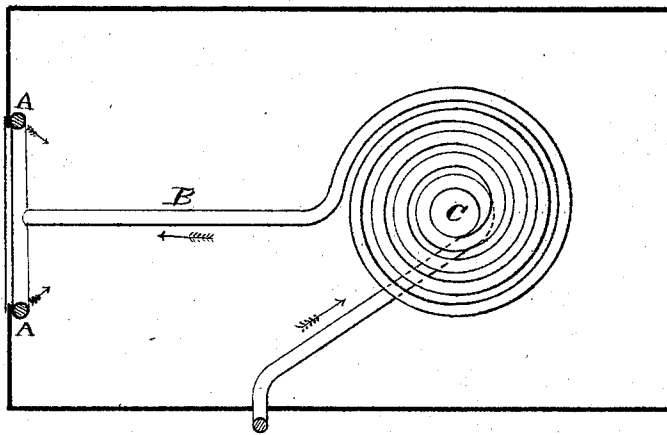
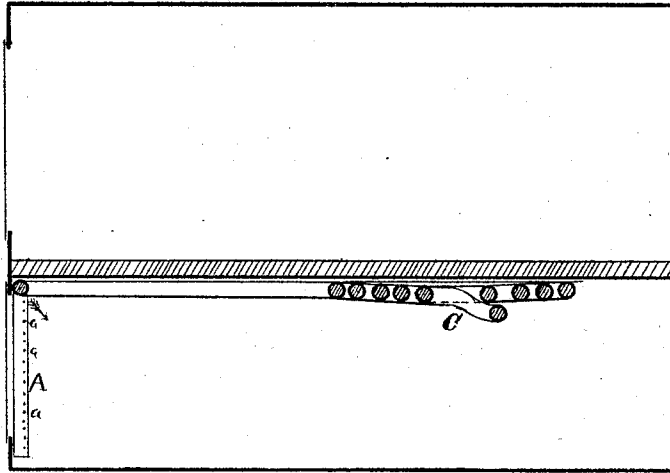


E. BOUGHTON.
Hot-Air Draft for Furnaces.

No. 144,249.

Patented Nov. 4, 1873.



Attest, Witnesses,
Geo. S. Kaatz

Inventor,
Enoch Boughton

UNITED STATES PATENT OFFICE.

ENOCH BOUGHTON, OF SOUTH NORWALK, CONNECTICUT.

IMPROVEMENT IN HOT-AIR DRAFTS FOR FURNACES.

Specification forming part of Letters Patent No. **144,249**, dated November 4, 1873; application filed August 6, 1873.

To all whom it may concern:

Be it known that I, ENOCH BOUGHTON, of South Norwalk, county of Fairfield, State of Connecticut, have invented an Improved Hot-Air Draft for Furnaces, of which the following is a specification:

My invention relates to superheating and drying steam and mixing the same with the air-draft to a furnace; and consists in the use of a coil-pipe beneath the grate in connection with discharge-pipes around the ash-pit doorway.

The object of my invention is to impart to the air admitted to the fuel through the grate a particular property and degree of heat, so that it shall readily unite with the gases of the fuel and more perfectly consume them, thereby increasing the effectiveness of the fuel and lessening the quantity of visible smoke.

My invention is not intended to force a greater quantity of air through the fuel, but to give the most favorable condition to the elements composing the air for good combustion, without increasing the quantity or forcing it. To accomplish this, I mix with the air, as it passes through the ash-pit door, dried steam, of a temperature as near ten atmospheres as possible. This steam is prepared in a peculiar form of coil-pipe, as fully shown in the drawings, of which—

Figure 1 is a longitudinal section of furnace and coil. Fig. 2 is a plan of same.

The manner of arranging the pipes A A around the ash-pit door, and the location of the discharge-openings *a a a*, are readily understood. To the center of these discharge-pipes, over the door, I attach the pipe B, which runs at a right angle for a short distance, and is then coiled under the grate of the furnace without touching it, beginning at the outer circle or diameter of the coil and gradually

curving to the center. At the same time each turn is slightly depressed toward the center. Here it is carried under the coil to the outside of boiler and up to the steam-room of the same, that portion of the pipe B nearest to the discharge A being the highest. At C the pipes turn suddenly downward, and run then on nearly a level line for the retention of the moist or surcharged steam. The heat from the fire dries the steam as it passes through the coil to the discharge, which brings it to the proper condition for assisting instead of retarding combustion. If the steam is moist, or in the condition it usually is when taken directly from the steam-room immediately over the water, it would make the air moist and heavy and retard combustion. With my invention the steam is brought to a gaseous state that will greatly increase combustion when mixed with the air of the draft.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the pipe B, coiled as described, and turned downward and outward at C, and arranged under the grate, with the discharge-pipes A A having openings *a a*, for the purpose specified and shown.

2. The method herein described of drying and heating steam, for mixing with the air-draft of a furnace to promote and assist combustion, by means of the retaining and coil pipe B in connection with discharge-pipes A A and discharge-openings *a a a*, arranged as specified and set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

ENOCH BOUGHTON.

Witnesses:

A. SKAATS,
GEO. SKAATS.