

G. W. TODD.
GRATES FOR FURNACES.

No. 176,761.

Patented May 2, 1876.

Fig. 1

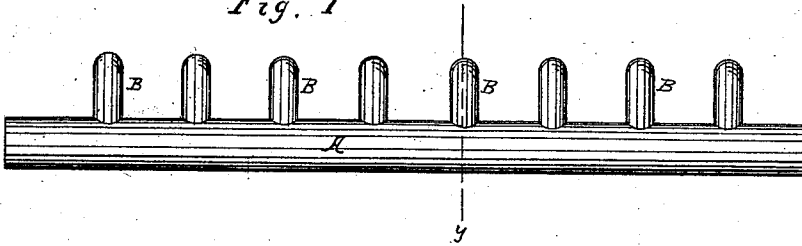
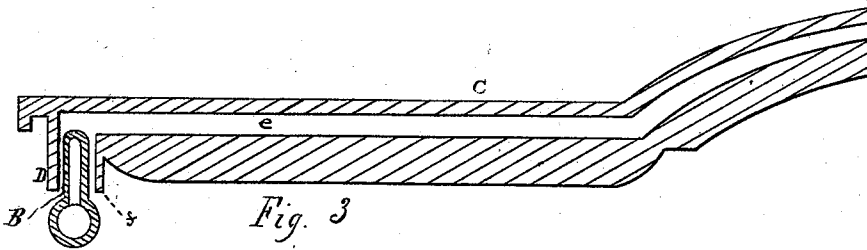
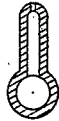


Fig. 2



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE W. TODD, OF ALLEGHENY, PENNSYLVANIA.

IMPROVEMENT IN GRATES FOR FURNACES.

Specification forming part of Letters Patent No. **176,761**, dated May 2, 1876; application filed December 31, 1875.

To all whom it may concern:

Be it known that I, GEORGE W. TODD, of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Grates for Furnaces; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to an improvement in grates for furnaces, the same being an improvement to be used in combination with the grate-bars for which Letters Patent were granted me October 11, 1875, No. 168,684; and consists in a tube or steam-pipe having a series of projecting tubes arranged at right angles to it, which projecting tubes enter the opening D of the tube C of the grate-bar described in my aforesaid Letters Patent, in such manner as to leave an opening between the outer walls of the projecting tubes of the pipe and the inner wall of the tube C of the grate-bar, whereby a current of steam and air commingled is caused to pass through the grate-bar and be discharged at the rear end of it, thereby increasing the draft of the furnace, and causing complete combustion of the smoke and unconsumed gases resulting from the fire upon the grate.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the accompanying drawings, which form part of my specification, Figure 1 is a side view of the steam-pipe. Fig. 2 is a transverse section of the same at line *y* of Fig. 1. Fig. 3 is a transverse section of the steam-pipe, and a longitudinal section of the grate-bar hereinbefore mentioned, said pipe and grate-bar being arranged in juxtaposition.

A represents a steam-pipe; B, its branches, which are arranged at right angles to the steam-pipe A, the length of the pipe and the number of its branches corresponding to the width of the furnace and the number of grate-bars used. C represents the grate-bar, and D the downward-projecting tube near the front end of the bar. *e* is the opening longitudinally through the bar. *f* represents the space between the inner wall of the tube C and the outer wall of the branches B of the pipe A. Steam entering the pipe A, flowing from it through branches B, entering the opening *e* of the grate-bar C, causes an induction of air through the space *f*, as indicated by the arrows marked *g*. The steam and air, commingling, pass through the grate-bar in a highly-heated condition, and are discharged at the rear end of the grate-bar, as indicated by the arrow *h*, where, commingling with the gases from the furnace, complete combustion of them follows, thereby generating an intense heat, and resulting in economy of fuel and an increased draft of the furnace.

It will be observed that my present invention in no wise diminishes the results and advantages described in my aforesaid Letters Patent, but increases them.

Having thus described my improvement, what I claim is—

The pipe A, having branches B, entering the downward projection D of the grate-bar C, with the space *f* between the branches B and inner walls of said downward projection, substantially as herein described, and for the purpose set forth.

GEORGE W. TODD.

Witnesses:

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