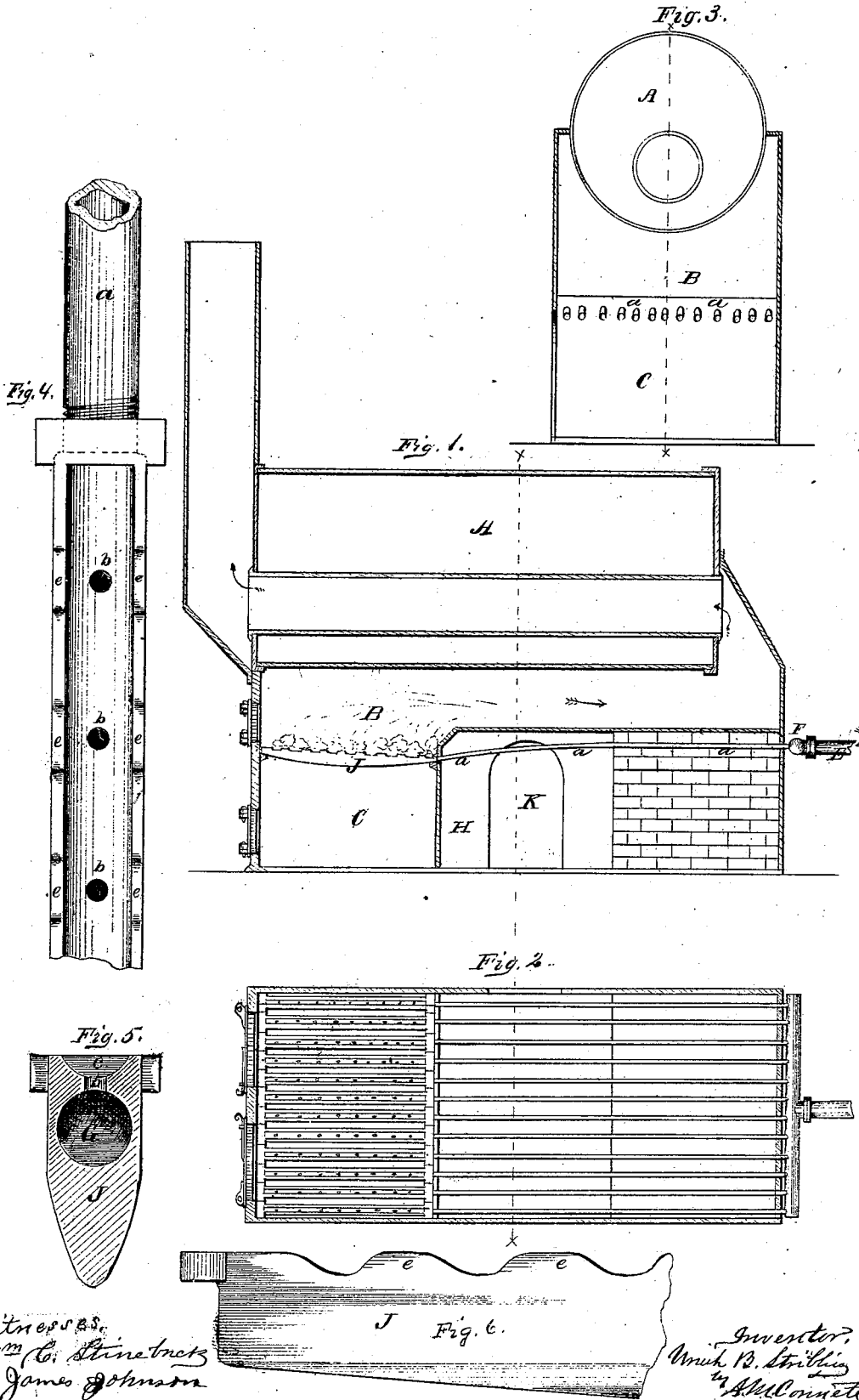


U. B. STRIBLING.

BOILER FURNACE.

No. 113,110.

Patented Mar. 28, 1871.



Witnesses.  
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# United States Patent Office.

URIAH B. STRIBLING, OF MADISON, INDIANA.

Letters Patent No. 113,110, dated March 28, 1871.

## IMPROVEMENT IN BOILER-FURNACES.

The Schedule referred to in these Letters Patent and making part of the same.

I, URIAH B. STRIBLING, of Madison, county of Jefferson, Indiana, have invented certain Improvements in Boiler Furnaces, of which the following is a full and clear specification.

The first part of my invention consists in a combination of draught-pipes, consisting of a series of tubes extending back from the grate-bars to a cross-pipe, this latter being connected with a blower, upon which all the draught for the furnace depends, as the doors for admitting fuel and those of the ash-box are kept closed, except when in actual use. These pipes do not pass through the furnace-flue, but are placed sufficiently low to prevent the temperature of the air from rising too high, but still be warm enough to prevent lowering the temperature of the fuel.

The second part of my invention relates to the peculiar form and construction of the grate-bar used.

The bars receive the draught from the tubes above mentioned and distribute it equally throughout the area of grate surface.

Another feature in the form of the bar tends to prevent the fuel from packing so closely to the bars as to check the draught by stoppage of the holes in the bar for exit of the air, and thus insure more perfect combustion.

Figure 1 is a longitudinal vertical section of the furnace through the line *x x*, fig. 3.

Figure 2 is a plan of the furnace, showing the draught-tubes.

Figure 3 is a transverse vertical section of the boiler and furnace through the line *x x*, figs. 1 and 2.

Figures 4, 5, and 6 are respectively the plan, section, and elevation of the grate-bar, drawn enlarged.

### General Description.

A is the boiler;

B, the furnace; and

C, the ash-pit, constructed and arranged in the usual manner.

J represent the grate-bars, the peculiar construction of which will be described further on.

A draught-pipe, E, connects a blower (not shown) with a transverse pipe, F.

To this pipe are attached the smaller draught-tubes *a a*, equal in number to the grate-bars used.

The aggregate capacity of these tubes should correspond with the capacity of the draught-tube E.

The draught-tubes *a a* connect with the rear ends of the grate-bars, each to each; and if the cross-pipe F is situated as indicated in the drawing, these pipes or tubes will extend back under the furnace-flue a sufficient depth below the said flue to warm the air enough to prevent any decrease in temperature, but not heat it too much.

The bar is cored out, as at G, so as to be hollow throughout its entire length, (see fig. 5,) except that the front end is closed.

The rear end is tapped to receive the tube *a*, which may be secured thereto in any manner, but preferably by a thread cut on the tube.

Through the upper side of the grate-bar are drilled holes *b b*, at suitable distances apart, which open into the hollow G of the bar.

The aggregate area of these holes should about equal the area of the tubes *a*, so that the air may be equally distributed along the bar.

The fuel is prevented from packing down too close to the bar and obstructing the draught, by grooving the top of the bar lengthwise, as at *c*, fig. 5, and the projecting ledges formed by this groove are cut laterally, so as to form corrugations, as shown at *e e*, figs. 4 and 6.

At the rear end of the grate-bars, under the furnace-flue, is a chamber, H, for the convenience of removing damaged bars. This chamber may be open entirely at both ends, or it may be provided with a door, K.

This furnace may be used for any purpose, but is described here in connection with steam-boilers.

Having thus described my invention,

What I claim is—

1. The system of draught-pipes E and F and draught-tubes *a a*, when used in connection with the hollow grate-bars J, and all arranged to operate in the manner substantially as shown, and for the purposes set forth.

2. A grate-bar, J, with a hollow, G, perforations *b b*, groove *c*, and corrugated edges *e e*, substantially as shown, and for the purposes set forth.

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Witnesses:

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