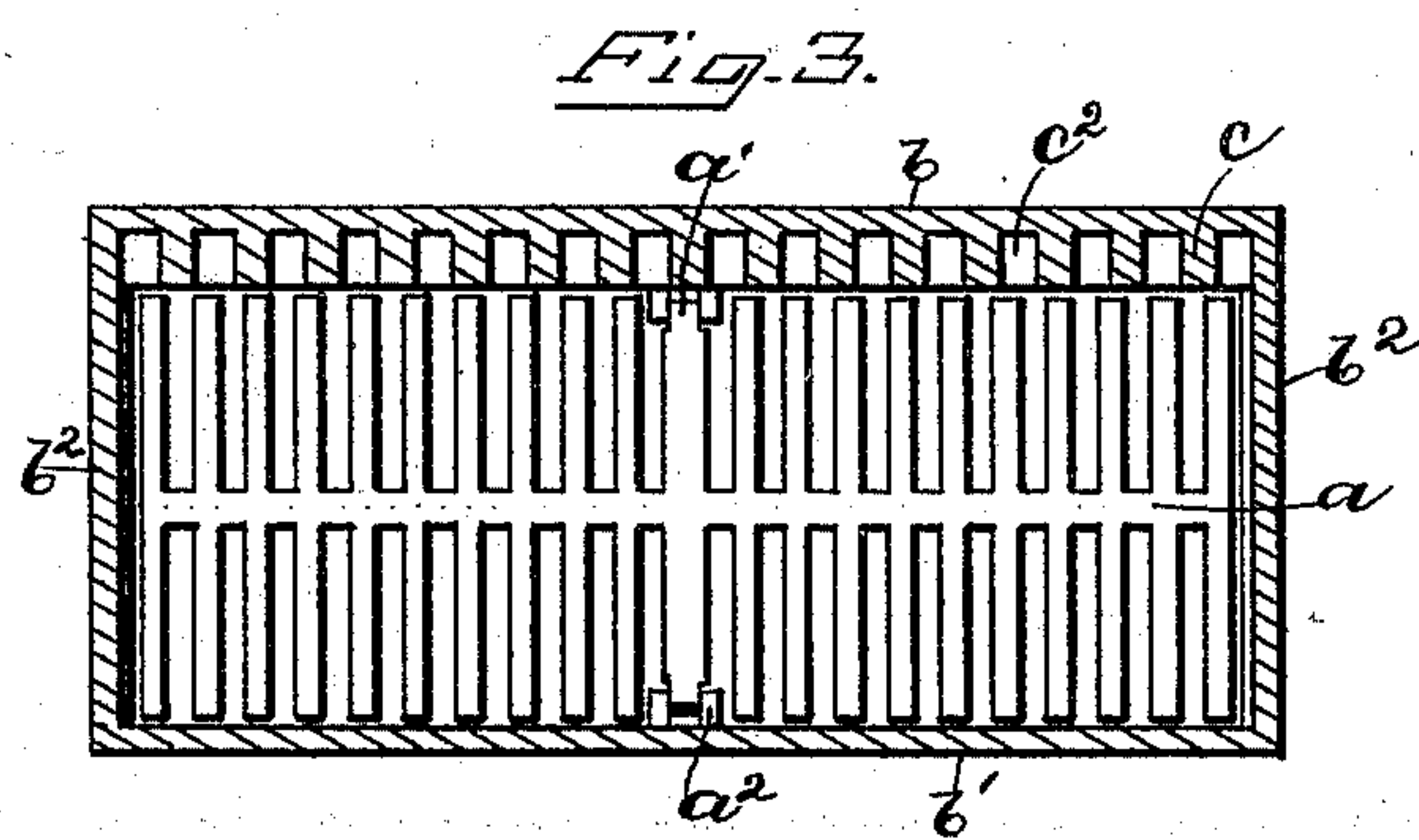
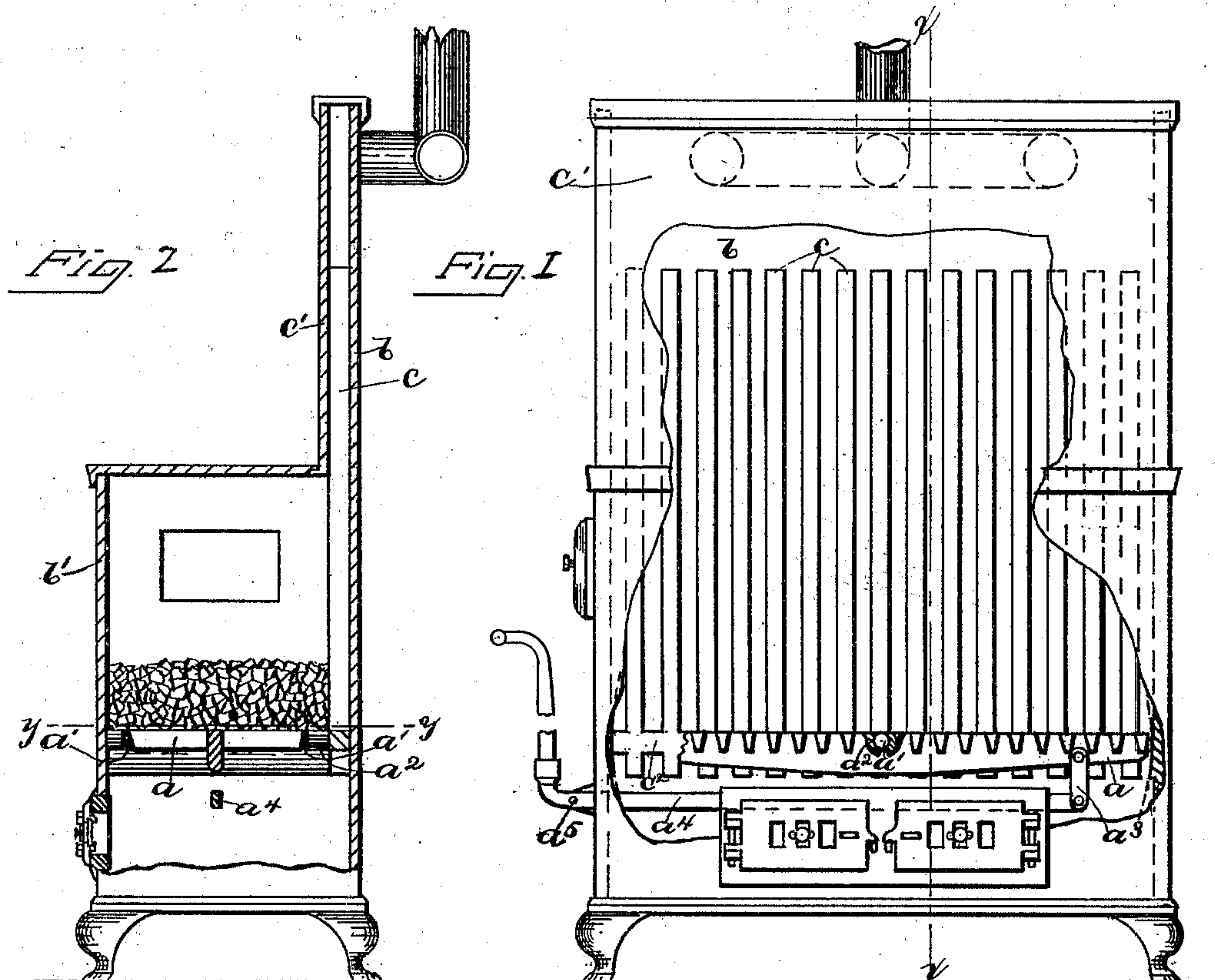


(No Model.)

E. FALES.
STOVE OR FURNACE.

No. 505,448.

Patented Sept. 26, 1893.



WITNESSES
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Lucy F. Graves.

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UNITED STATES PATENT OFFICE.

EDWARD FALES, OF BOSTON, MASSACHUSETTS.

STOVE OR FURNACE.

SPECIFICATION forming part of Letters Patent No. 505,448, dated September 26, 1893.

Application filed December 5, 1892. Serial No. 454,033. (No model.)

To all whom it may concern:

Be it known that I, EDWARD FALES, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Stoves or
5 Furnaces, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to improve
10 the construction of the stove or furnace shown in my application for Letters Patent, Serial No. 437,934, filed June 25, 1892. In the stove or furnace therein shown vertical passages or
15 flues were formed upon the inside of the rear wall of the fire pot or chamber, and a smoke consuming chamber was located above the fire pot having a series of small passages commu-
20 nicating with and forming a continuation of the vertical passages or flues in the fire pot. The vertical passages in the fire pot served
25 as guide passages or flues for the flame, and products of combustion, conducting them to the small or contracted passages in the smoke consuming chamber, and as the entrances to
30 said passages become filled or choked with the flame, the heavy unburned particles of the coal and unconsumed gases were burned. The vertical passages in the fire pot were in
35 open communication at their lower ends with the ash pit, so that the currents or drafts of
40 air were allowed to pass upward vertically at the rear side of the bed of coal, but I find in practice that for the production of the best results these openings should be closed so
45 that all the drafts of air shall pass through the bed of coal, instead of at the rear side thereof, after which they may be guided upwardly to the smoke consuming chamber by
50 means of the vertical guide passages. My present invention therefore consists in the combination of the fire pot or chamber, the rear wall of which has a series of vertical ribs, to form guide passages or flues for the flame and products of combustion, interposed partitions or equivalents at or near their lower
ends, a smoke consuming chamber rising from said fire pot above said guide passages or flues, and having a series of small passages communicating with and forming con-
tinuations of said guide passages or flues, as will be hereinafter set forth; also in other de-

tails of construction to be hereinafter pointed out.

Figure 1, shows in front elevation a heating apparatus embodying this invention, the
55 front wall being broken away to expose the parts within; Fig. 2, a vertical section of the heating apparatus shown in Fig. 1, taken on the dotted lines $x-x$. Fig. 3 is a cross section on the dotted lines $y-y$ Fig. 2. 60

The grate a herein shown as flat, and rectangular in shape, is provided at points midway between its ends with trunnions a' , which rest in trunnion supports a'' , formed integral with or attached to the back or rear wall b ,
65 and front wall b' . The end walls b'' , which when secured to the front and rear walls form a chamber herein denominated the fire pot have formed integral with or secured to them, at points opposite the ends of the grate, con-
70 caved portions, the curvatures of which correspond to the arc traversed by the ends of the grate when rocked or tilted on its trunnions.

A suitable top wall is provided for the fire
75 pot or chamber and also an ash pit, which may be of any well known or suitable construction, and which may be provided with a door having a register or other suitable draft controller. 80

The inside of the rear wall b , is provided with a series of vertical parallel ribs c , extending preferably a short distance below the grate, when the latter is in its normal or horizontal position, and said rear wall b , is
85 herein shown as extending upwardly quite a distance above the top of the fire pot or chamber to constitute the rear wall of the smoke consuming chamber, and the vertical ribs c , continue upwardly to a point near the top of
90 said wall b . A plate c' , is placed upon or against the ribs c , forming the front wall of the smoke consuming chamber, and the top, as well as the sides of said smoke consuming chamber will be closed in any suitable way, 95
and from the top portion of the smoke consuming chamber above the upper ends of the ribs c , the smoke pipe leads. Partitions c'' , or any equivalents therefor, are interposed
100 between the ribs c , near their lower ends, preferably on a line in the same plane with the grate when the latter is in its normal, or

horizontal position, said partitions thereby closing the passages of spaces between the ribs *c* at the lower ends so as to prevent the currents or drafts of air which enter the ash pit from passing upwardly at the rear side of the bed of coal, but necessitating said currents or drafts of air passing upwardly through the bed of coal. The smoke consuming chamber thereby presents a series of small or contracted passages directly above and in continuation of the passages between the ribs *c*, on the rear wall of the fire pot, which passages thereby serve as guide passages, conducting the flame and products of combustion upwardly to the smoke consuming chamber, and dividing it so that said flame fills or chokes the entrances to said passages in the smoke consuming chamber and there burns the unconsumed gases or particles which may be forced upwardly. The high temperature at the entrances to these small passages also assist materially in consuming the gases.

I find in practice that by closing the lower ends of the guide passages, so that all currents or drafts of air shall pass up through the bed of coal, much better results are produced, than if said lower ends are open, because said currents or drafts of air become heated in their passage.

The grate *a*, has attached to its under side, by means of a link *a*³, a rod or arm *a*⁴, pivoted at *a*⁵, to a suitable stand, bracket or support,

or it may be otherwise supported, and the outer end of said pivoted arm or lever is socketed or otherwise formed to receive a detachable lever or shaker, which may be employed to move said arm or lever on its pivot to thereby shake the grate or dump the bed of coal.

If the heating apparatus herein described should be circular instead of rectangular the guide passages would be formed upon one wall directly beneath the smoke consuming chamber.

I claim—

In a heating apparatus, the combination of the fire pot or chamber, the rear wall of which has a series of vertical ribs *c*, to present guide passages or flues for the flame and products of combustion, interposed partitions or equivalents *c*², at or near their lower ends, a smoke consuming chamber rising from said fire pot above said guide passages or flues, and having a series of small passages communicating with and forming continuations of said guide passages or flues, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD FALES.

Witnesses:

BERNICE J. NOYES,
LUCY F. GRAVES.