

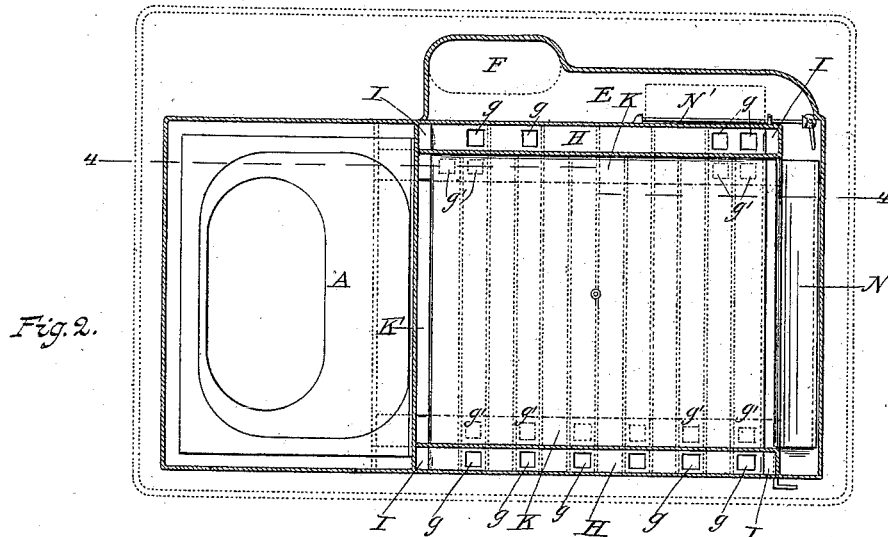
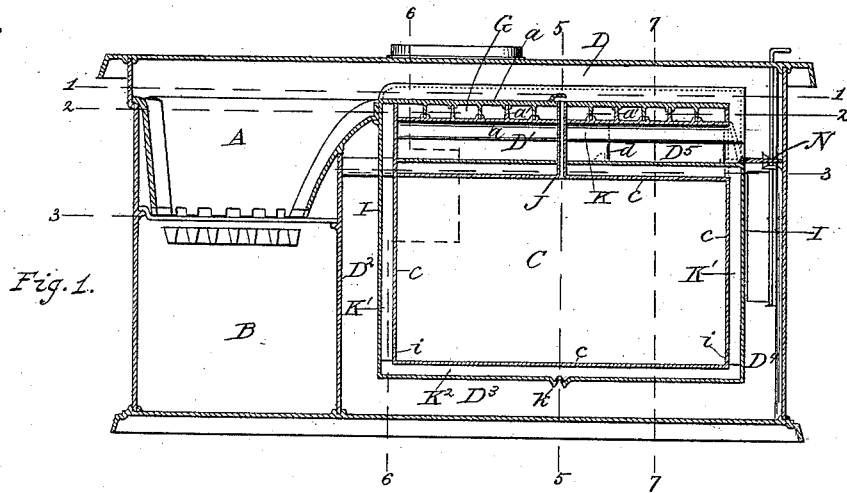
(No Model.)

3 Sheets—Sheet 1.

W. DOYLE.  
STOVE OR RANGE.

No. 423,137.

Patented Mar. 11, 1890.



Witnesses

William F. Selkirk  
A. Selkirk Jr.

William Doyle

Inventor.

His Atty  
A. Selkirk

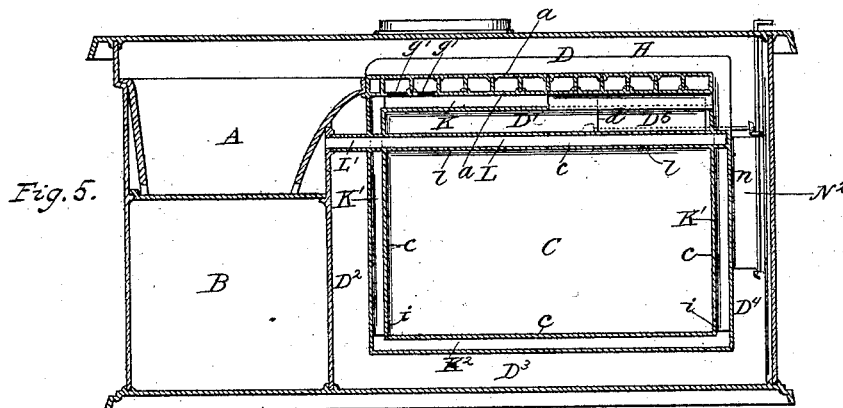
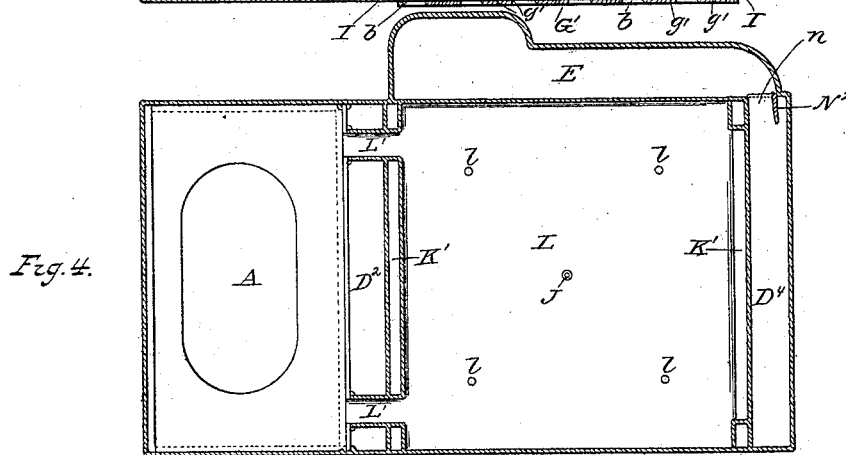
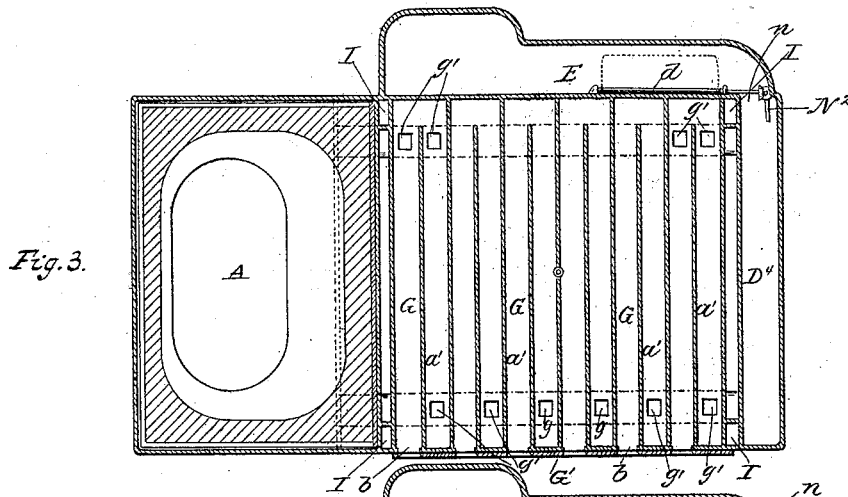
(No Model.)

3 Sheets—Sheet 2.

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Patented Mar. 11, 1890.



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(No Model.)

3 Sheets—Sheet 3.

W. DOYLE.  
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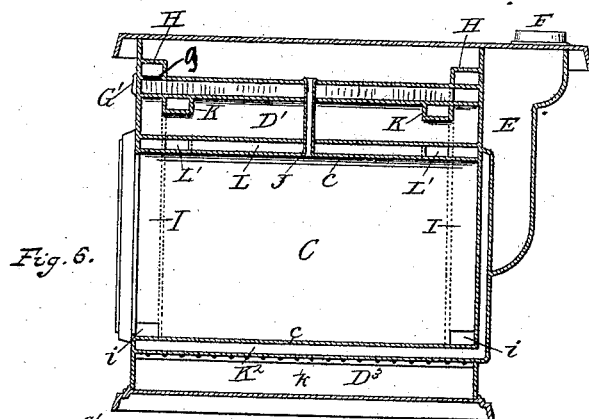


Fig. 6.

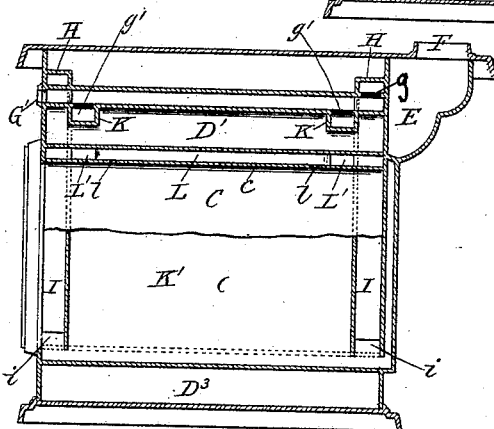


Fig. 7.

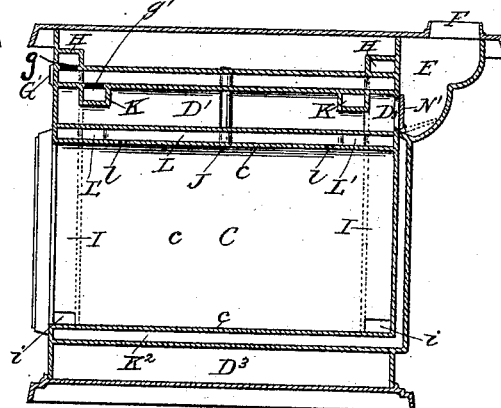


Fig. 8.

Witnesses,

William H. Selkirk  
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Inventor.  
His Attorney  
Alex. Selkirk

# UNITED STATES PATENT OFFICE.

WILLIAM DOYLE, OF ALBANY, NEW YORK, ASSIGNOR OF ONE-HALF TO  
ANNE DOYLE, OF SAME PLACE.

## STOVE OR RANGE.

SPECIFICATION forming part of Letters Patent No. 423,137, dated March 11, 1890.

Application filed August 28, 1889. Serial No. 322,266. (No model.)

### *To all whom it may concern:*

Be it known that I, WILLIAM DOYLE, a citizen of the United States, residing at Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Stoves or Ranges, of which the following is a specification.

My invention relates to stoves or ranges; and it consists in the combination of devices and parts hereinafter described, and set forth in the claims.

The purposes of my invention are to provide in stoves or ranges and in connection with the flues commonly employed for circulating the hot gases and with the oven heating chambers and flues which will communicate with the flues for the passage of the gases; also, to provide means for the heating of air and conducting the same, mingling with the heated gases, to flues around the stove and then to the exit, and also to provide means whereby heated air will be introduced into the oven, and thence have passage into the flues leading in the fire-box; and, further, to provide specific means whereby the improvements in this invention may be employed for stoves or ranges. I attain these objects by the means illustrated in the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical longitudinal sectional elevation of a stove or range containing the improvements of this invention. Fig. 2 is a horizontal section taken at line 1, Fig. 1. Fig. 3 is a horizontal section taken at line 2, Fig. 1. Fig. 4 is a horizontal section taken at line 3 3, Fig. 1. Fig. 5 is a vertical longitudinal section taken at line 4 4, Fig. 2. Fig. 6 is a transverse sectional view taken at line 5 in Fig. 1. Fig. 7 is a transverse sectional view taken at line 6 in Fig. 1, and Fig. 8 is a transverse sectional view taken at line 7 in Fig. 1.

The same letters of reference refer to like parts throughout the several views.

In the drawings, A is the fire-box; B, the ash-pit; C, the oven; D, the horizontal top flue; D', the return horizontal flue; D<sup>2</sup>, the front vertical flue; D<sup>3</sup>, the lower horizontal flue. D<sup>4</sup> is the rear vertical flue; D<sup>5</sup>, the direct flue, and E is the horizontal exit-flue leading

from flue D<sup>5</sup> to the exit-opening F to the smoke-pipe.

In Figs. 1, 3, and 5 are horizontal flue-plates *a a*, arranged below the horizontal flue D and extending rearwardly from the fire-box A to the rear vertical flue D<sup>4</sup>, and also from one side of the stove to the other, as illustrated in the several figures. These flue-plates are preferably made with division-strips *a' a'*, so as to form air-heating chambers G G, into which air is admitted through inlet-openings *b*, regulated by a suitable register-plate G', Fig. 3. These air-heating chambers G communicate from their upper sides through opening *g* to the horizontal flues H H, Figs. 2, 6, 7, and 8, and these flues H communicate at their opposite ends with the vertical flues I I, which discharge into the oven C at its lower corners, as at *i i*, as illustrated by Figs. 1, 6, 7, and 8. J is an outlet pipe or opening from the oven to horizontal flue D.

The air-heating chambers G G have communication through openings *g' g'* with horizontal air-flues K K, which communicate with the vertical sheet from air-flues K' K', leading to horizontal air-flue K<sup>2</sup> between the oven C and the flue D<sup>3</sup>, to which latter communication is had from flue D<sup>3</sup> through the opening *k*. L is a horizontal sheet-flue above oven C, having its lower plate provided with openings *l l*, through which air mingled with gases from the oven C can escape into said flue L and be discharged into fire-box A through passages L'.

N, Figs. 1 and 2, is a horizontal damper, which, when closed, as shown by full lines, will cause the gases from the stove to pass from flue D directly into the exit-flue E when damper N' is turned open, as indicated by dotted lines in Fig. 2. N<sup>2</sup> is a damper which controls the passage of the gases from the rear vertical flue D<sup>4</sup> to the exit-flue E. When the dampers N and N' are in a closed position, as at full lines, Figs. 1 and 2, and damper N<sup>2</sup> is open, as shown in Fig. 2, the passage of the gases will be from the fire-box A through the flues D D' D<sup>2</sup> D<sup>3</sup> D<sup>4</sup> D<sup>5</sup>, and thereby heat the oven by the circuitous passage of the heated gases from the fire-box to the exit-flue E.

The manner in which my improvements op-

erate is as follows: When the register G' is open to admit air through openings *b* into the air-heating chambers G G and the fuel is burning in the fire-pot, with the valves N, N', and N<sup>2</sup> turned to position to cause the gases from the burning fuel to move in the circuitous passage, as above described, one portion of the air heated in chambers G G will pass out, after being heated within said chambers, through openings *gg* into flues H H, and thence into the corner flues I I and be discharged into the oven at low points in the same, as at *i i*, when the air mingled with the gases evolved from the cooking materials within the oven, or a portion of the same, will escape from the oven through passage-way J to the flue D, while another portion of this heated air mingled with the gases in the oven may escape through openings *ll* into the horizontal sheet-flue L, and then have passage through the small exit-flues L' into the fire-box or the chamber containing the fire-box.

By my above-described improvements heated air is made to enter the oven and mingle with the gases evolved therein from the cooking material and be drawn from thence from the oven through passage-way J into the horizontal flue D, and be thus made to ventilate the oven by this heated air without reducing the temperature of the oven, and also lead the heated air and gases from the oven through openings *ll* into the fire-box A to contribute to the combustion of the fuel, and also cause a portion of the heated air from the air-heating chambers G G to have passage through

flues K', K', and K<sup>2</sup> to flue D<sup>3</sup> and contribute to the heating of the oven, and at the same time prevent the inner plates *c c* of the oven from having portions thereof becoming excessively heated by the heated gases moving in the flues D<sup>2</sup>, D<sup>3</sup>, and D<sup>4</sup>.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a cooking stove or range, the combination, with the horizontal flue D and oven C, of air-heating chambers formed between plates *a a*, interposed between said flue and oven, provision for admission of air to said heating-chambers, flues H H and I I, communicating from said air-heating chambers to said oven at or near its lower corners, and a passage-way from the chamber of the oven to flue D, substantially as and for the purpose set forth.

2. In a cooking stove or range, the combination, with the flue D and oven C, of air-heating chambers interposed between the said oven and flue, having provision for admission of air to said air-heating chambers, flue K, leading from said air-heating chambers to flues K', K', and flue K<sup>2</sup>, provided with opening *k*, communicating with flue D<sup>3</sup> below the said oven, substantially as and for the purpose set forth.

WILLIAM DOYLE.

Witnesses:

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