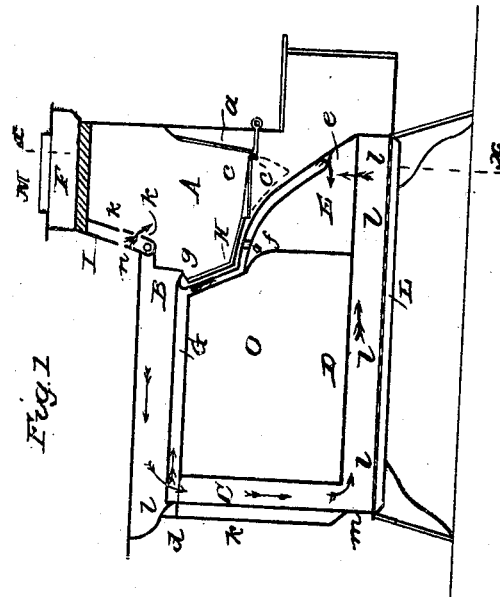
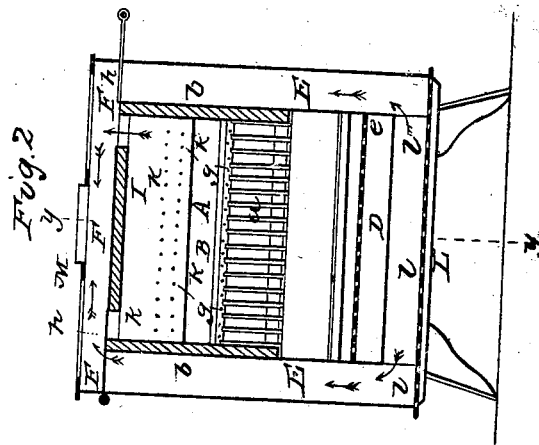


S. PIERCE.
Cooking Stove.

No. 54,400.

Patented May 1, 1866.



Witnesses
Thos Linn Carter
D. C. Richardson

Inventor
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UNITED STATES PATENT OFFICE.

SAMUEL PIERCE, OF CAMBRIDGE, MASSACHUSETTS.

IMPROVEMENT IN COOKING-STOVES.

Specification forming part of Letters Patent No. 54,400, dated May 1, 1866.

To all whom it may concern:

Be it known that I, SAMUEL PIERCE, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Gas-Burning Cooking-Stoves; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, forming a part of this specification.

Figure 1 is a longitudinal section through the lines *y y*, Fig. 2, and Fig. 2 is a cross-section through the lines *x x*, Fig. 1.

Like letters denote like parts in both figures.

My improvements consist, first, in placing a flue to receive the products of combustion from the fire-box direct or after passing round the oven and up the sides of the fire-box directly over said fire-box, and in combining this flue over the fire-box with flues at its sides and with the fire-box itself by means of dampers opening into the fire-box or into flues at the sides at will; second, in protecting the top and front of the oven next the fire-box from the extreme heat of the fire and products of combustion as they first issue by means of a current of air, which afterward serves to render equable the heat of a colder part of the oven, ventilating the same, and finally acts as a hot-blast to the fire; third, in an arrangement to discharge the ashes completely without discharging the coal; fourth, in a greatly improved hot-blast, more completely consuming the gases of the fuel; fifth, in an improved method of ventilating the oven with heated air; sixth, in forming a non-conducting bottom and back to a cook-stove by its own action.

To enable others skilled in the art to make and use my said invention, I will now proceed to describe the nature and operation of the same.

The fire-box A is surrounded at the sides and top with fire-brick or other non-conducting material, *b*, and its cross-section is shaped substantially as shown in Fig. 1. It is provided with a fixed grate, *a*, in front and over part of its bottom, with a dropping grate, *c*, hinged at the back, which, when the supporting-pin *i* is withdrawn, takes the position of the dotted lines *c'*, in consequence of the projection of the front plate of the oven O under

the fire-box. The products of combustion pass off through the flue B over the top of the oven, down the diving-flue C in rear of the oven, along the bottom flue, D, under the oven, all of which flues are in a single sheet, then, dividing, pass up flues E on each side of the fire-box to flue F over the fire-box, and thence to the escape-pipe M.

The top of the oven O is formed of double plates. Its front, behind the ash-pit N, is projected forward beneath the fire-box, and is formed of double plates, except a very small lower portion, which is of single plate. Between each pair of plates is a channel or flue, and the same is the case behind the fire-box, where the oven is formed of triple plates. These channels or flues are continuous from the top, in rear of the stove, to the bottom of the doubled plate in rear of the ash-pit, but are narrowed in rear of the fire-box by the flues formed by the tripled plates. Air, being admitted at *d* through a narrow hollow bridge across flue C, passes over the top of the oven and behind the fire-box and ash-pit through flue G, constantly gaining heat, and is discharged into the oven through the holes *e*, which are located in what would otherwise be the coldest part of the oven. The air and gases of the oven thus displaced are driven off through the hole *f* and pass into the flue H, when they become still hotter, and are discharged into the fire at *g* through a series of small holes, thereby serving as a hot-blast from below to the fire.

Over the fire-box, and in rear of it, is a hanging bridge, I, (hollow,) and admitting air from the exterior through holes *n* and discharging it above the fire through small holes *k*, making another hot-blast above the fire.

The back and bottom of the stove are of double plates, forming the cavities K and L, into which, through holes *l* at the top of the cavity K and thickly dispersed in the bottom plate of the flue D, will drift the light ashes carried over by the draft, thus forming a non-conducting exterior to the bottom and rear end of the stove.

The flues E are provided with dampers *h*, which either close them entirely, as represented on the right of Fig. 2, leaving an opening in the top of the fire-box to discharge the products of combustion directly into flue F, or

leave them entirely open, as at the left of Fig. 2, closing the openings in the top of the fire-box. By this means the draft can be changed at once to allow the removal of boiling or steaming vessels from the boiler-holes in the top of the stove above flue B without permitting any escape of gas or smoke into the room, or to allow small cooking to be done without heating the oven.

The projecting front of the oven and shape of the fire-box prevent the grate *c* from dropping so far as to empty the fire-box of coals, which will wedge in the orifice or rest on the plate over flue H, while it allows the ashes to be thoroughly cleaned out.

The flue D under the oven has an orifice, *m*, closed by a suitable adjustable plate, which allows the flue to be swept out without disturbing the ashes which have drifted through the holes *l*.

The level of the coal in fire-box A will be somewhat above the bottom of flue B, so that the flames and gas rising in the fire-box will be drawn down along bridge I, the top of the fire-box being raised above the general level of the top of the stove by nearly the height of said bridge.

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

1. The combination of flue F, when placed over the fire-box A, with said fire-box and with flues E by means of dampers *h*, operating substantially as described and for the purpose stated, but disclaiming such combination

with any different arrangement or position of flue F.

2. The air-flues G, formed of the double oven-plates, passing over and round the oven and behind the fire-box, enabling the current of air flowing in them to be intensely heated, so as to heat the interior oven-plates behind the ash-pit and render equable the atmosphere of the oven by discharging the hot air through holes *e*, thus ventilating the oven.

3. The combination of the air-flues G, with their holes *e*, as just described, and with the oven O, with holes *f*, and flue H behind the fire-box, having its holes at *g* in the fire-box, to make a hot-blast and effectually consume the gases, substantially as described.

4. The holes *g k* at the back of the fire-box, above and below the outlet thereof, arranged and combined with respect to the combustion-chamber over the fire-pot, substantially as and for the purpose described.

5. Forming the bottom and back of the stove of double plates with an interspace, when the interior one of such doubled plates is pierced with holes *l*, as drawn, for the purpose of having ashes drift through said holes and between the plates, to form a non-conducting back and bottom, substantially as described, but disclaiming the use of doubled plates unless the interior one is so perforated.

SAMUEL PIERCE.

Witnesses:

THOS. WM. CLARKE,
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