

J. RICHARDSON.

Cooking Stove.

No. 310.

Patented Jan'y 29, 1837.

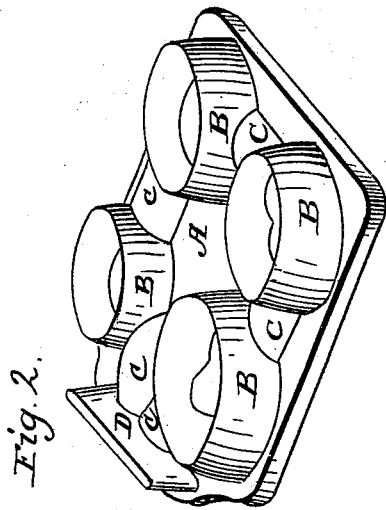
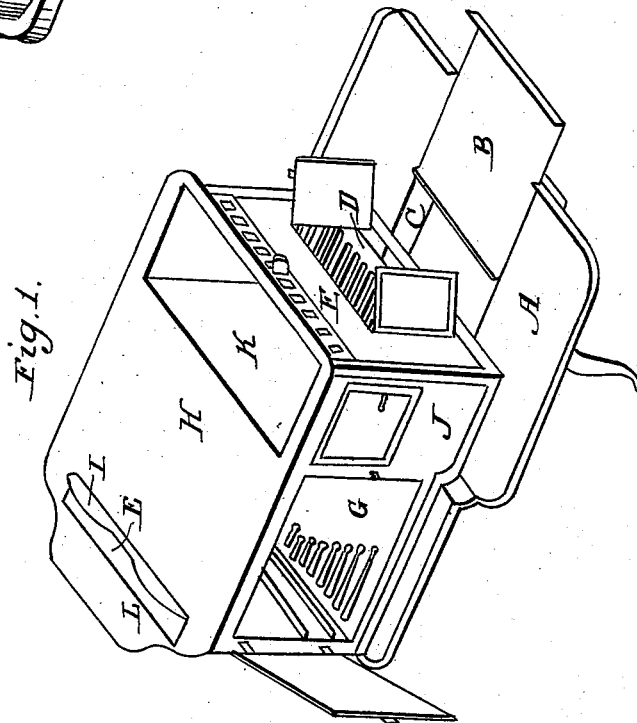
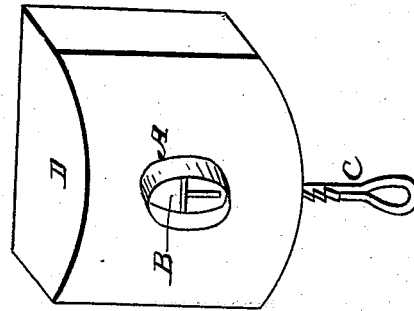


Fig. 3.



UNITED STATES PATENT OFFICE.

JAMES RICHARDSON, OF POULTNEY, VERMONT.

COOKING-STOVE.

Specification of Letters Patent No. 310, dated July 29, 1837.

To all whom it may concern:

Be it known that I, JAMES RICHARDSON, of Poultney, in the county of Rutland and State of Vermont, have invented new and useful Improvements in the Construction of Cooking-Stoves, with an Iron Oven Attached to the Same.

The following is a full and exact description of the construction, and operation of said stove, as invented or improved by me. This stove is made of cast iron, has a sunk hearth or bottom—so called; a fire room or pit, with a fire grate therein, to burn fuel upon, and to be placed at different heights in the fire pit, as occasion requires; an oven at the back part, and nearly adjoining the fire pit and a cap or top, covering the fire pit and oven with boiler holes therein.

The novelties of this stove are, 1st, that the fire and heated air may be driven downward, through the opening in the grate, under and past the oven, while the grate and fuel are placed at different heights above the top part of the flue, under the oven, and at a higher elevation than the oven bottom. 2d, In the oven there is a horizontal plate, covering the whole size of the oven at the bottom, and resting about one inch above it.

This plate has several oblong, or tapering holes or apertures therein, which are from one to nine inches in length, and one inch wide at the widest place; these holes or apertures commence near the back and cooler parts of the oven plate, and run toward the front part of oven, diminishing in length as they approach the center of the plate.

This plate is here called the upper or movable bottom of the oven. The object of the last named plate, with apertures therein, is to assist in equalizing the heat in the oven, by means of discharging the heat which is created in the under oven bottom through these holes, to the back or cooler parts of the oven. The hearth or fixed bottom is made thirty-eight inches long and twenty-six inches wide, with a sunken cavity in the center; four inches deep, fourteen inches wide, and extends the whole length of said hearth or bottom. The sunk part, in the hearth bottom, with the fixed oven bottom, form a horizontal flue under the oven, which connects with a perpendicular flue back of the oven. The plates, forming the sides of fire pit and oven rest upon the hearth plate. The fire pit is twelve inches deep from top to bottom, eight inches wide,

and twenty-one inches long. The longest way of the fire pit crosses the fire pit in front of the oven, and is made by four plates, viz., a front with a door, a back, and two sides, which last continue and form the sides of the oven, and are connected with the back plate of the stove. Within these last mentioned plates, and back of the fire pit, the doors to the oven are hung. The front plate of the fire pit stands thirteen inches back of the front edge of the hearth, and has two doors in it near the bottom. Above the last mentioned doors in said front plate, and above the grate and fire, are several holes or apertures, of sufficient size and number, to admit a sufficient quantity of draught air to consume the fuel freely, while the fire is passing under the oven, independently of other draught air. These holes are set farther apart than the distance of their diameters, and are covered by means of a slider plate, with corresponding apertures therein. This last mentioned plate is attached to the front fire pit plate and over the apertures therein, in such a manner that it may be slipped backward and forward, covering and uncovering the holes in said front plate as occasion may require.

The holes or apertures in the front plate and slides thereon, are designed to let in draught air above the grate, in order that the fire and heat may be forced downward through the grate and the lower flue, under the oven. The back fire-pit plate is eight inches back of the front plate, and has ledges cast upon it at different distances above the flue which is under the oven, as has also the front fire-pit plate, for the grate to rest upon. The construction of the fire pit is such as may be adapted, and is designed by your petitioner to be used for the consumption of wood and anthracite or other coal. If used for coal the sides thereof should be lined with fire bricks to prevent them from burning out. These bricks may rest upon an iron frame, placed upon the cleats, inside of the fire pit, and the coal grate, and the coal may be placed in said frame. On the back, and oven side of the back fire-pit plate, at the lower edge, is a straight flange cast on said plate, extending between the sides of the sunk part in the hearth. There is also another flange, cast on the back, commencing near the bottom and end of said plate, and runs in a rising and circular direction, nearly to the top of the back, and

thence to the bottom, at the other end. These flanges project out about $\frac{1}{4}$ inch, and the front side oven plate stands against these flanges, which form a box space or cavity between these two plates, which is ventilated with cool air, coming through holes in the health plate in each side of sunk part in the hearth under the space, between the fire pit and front oven plate. The cool air is let in between these plates to prevent the excessive heat that would otherwise be within them. The oven, as aforesaid, is back of the fire pit, and is separated therefrom by the back fire pit plate and the front side oven plate.

At the extreme back part of sunk hearth stands a perpendicular plate, of the same length of the fire pit—this is the back plate of the body of the stove. Two and one-half inches forward, and parallel to the last mentioned plate, stands the plate which forms the back side of the oven, called back oven plate. The space between these two plates forms a perpendicular flue, connecting the flue under the oven with that over the oven. The outlet for the pipe, in the top or cap, is still back of the perpendicular flue. That part of sunk hearth under the oven is covered with a plate, called oven bottom. About one inch above the last named plate, rests another plate, called the movable oven bottom before named. That part of the sunk hearth, forward of the fire pit, is covered with a plate which may be moved horizontally to and from the front fire pit plate, to admit or prevent the admission of draft air under the grate, in the fire pit as occasion requires, and is called the hearth slide. The perpendicular plates, forming the fire pit and oven sides, may be level with each other on the top. These last named plates are covered with a horizontal plate, that covers the top of the oven, and is called the oven top plate; it projects over, and outside of the fire pit, and oven, about two inches on every side except the back side, where the projection is about six inches; on the outer edge of this plate is cast a perpendicular flange, raised about $1\frac{1}{4}$ inches high—this flange is to receive the cap or top plate upon, and the space between them forms a flue, from the top of the fire pit, over the top of the oven, to the pipe or outlet for fire and smoke, which is above, and back of the perpendicular flue. Through the oven top plates, and directly over the fire pit, is an open space, of the size of the fire pit, for the passage of the fire to the cap and into the flue, over the oven, from the fire pit. In the same plate, and immediately over the perpendicular flue, there is another opening, of sufficient length and width, to let fire and smoke pass through said flue; and to let a perpen-

dicular damper pass up through, to the under side of the cap. In this perpendicular flue or space, between the back plate, and back end oven plate, is a plate forming a perpendicular damper—this is of a width and size, at lower end, to fill the sunk part of hearth, and of a sufficient height, that, when the bottom of the damper is raised as high as the oven bottom, the upper part of the damper will extend upward through the oven top plate to the under side of the cap, so as to shut the flue, leading over the oven, to the pipe. This damper is attached to the back side of oven plate, in such a manner that it can be raised up or let down, so as to open or close the upper or under flue as occasion requires, in order to draft the heat under, or over the oven; or a part thereof each way, by raising the damper half its distance, which is done by means of a rod attached to it for that purpose, which extends through the back plate of the stove. Therefore, the fire may be driven downward through the grate, when it is raised a distance above the top part of the flue under the oven, to the perpendicular flue, back of the oven, by closing the doors of the fire pit and the hearth slide, at the same time opening the apertures above the grate, by means of the slider plate and raising the perpendicular damper out of the under flue, and thereby closing the flue over the oven, so as effectually to prevent the draft thereof.

The above described principles of driving heat and flame downward through the grate, and under the oven, into the back perpendicular flue, while the grate is raised above the top part of the under flue, will also apply to a stove, with a rotary or revolving cap or top with a similar constructed fire pit and oven. If designed for a revolving top, the outlet to receive the pipe may be near the middle of the above described back plate, instead of being on the top cap. The damper plate for this back perpendicular flue is to be of a shape and size corresponding with the size and shape of said flue. This damper plate is placed horizontally in said flue, and is to be moved upward and downward so as to pass the upper and lower edge of the pipe hole, or outlet by means of an iron rod attached to said damper for that purpose. If it is designed to have the fire pass in the under flue with the grate raised as above, this horizontal damper is to be raised above the pipe or outlet in the back, which will throw nearly the whole draft air under the oven, if the draft fixtures placed in front be regulated as above directed, or the fire and heat can nearly all be thrown through the flue over the oven by stopping the draft in front by means of the slider plate and draw-

ing out the hearth slide, at the same time letting down the back damper below the pipe hole or outlet.

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

1. The application of the upper or movable oven bottom in the way and manner above described, to be applied to any stove oven, for the purpose of equalizing the heat therein. Also the application of the last named dampers for a perpendicular flue of any form in any oven stove, when the pipe or outlet for fire and smoke is on either side of the stove.

2. I also claim as my invention and improvement the combination of the above described raised grate in the fire pit in its position and connection with the slider plate, above the grate for draft air, and with the

flue under the oven, connecting with the back, perpendicular flue, and its connection with, and its position to the two described dampers or valves in the perpendicular flue.

3. And also the combined parts of said stove, as they stand in connection with each other and the other parts of the stove.

I do not claim to be the inventor of any plate described in the above specification, except the upper, movable oven bottom, and the last named damper, or valve for a perpendicular flue, separately and independently of the combination herein claimed.

Poultney, Vt., March 22d, 1837.

JAMES RICHARDSON.

Witnesses:

J. JOSLIN,
JOEL BEAMAN.