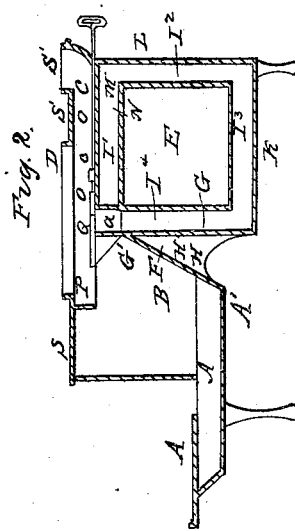
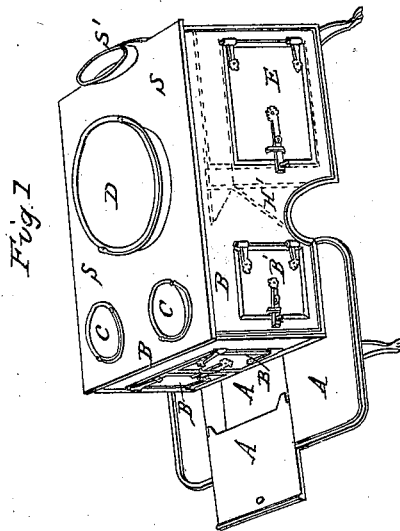
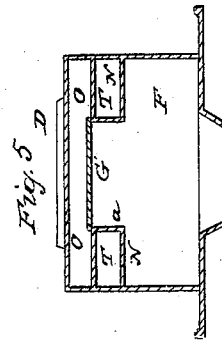
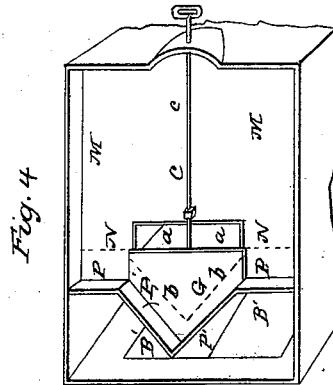
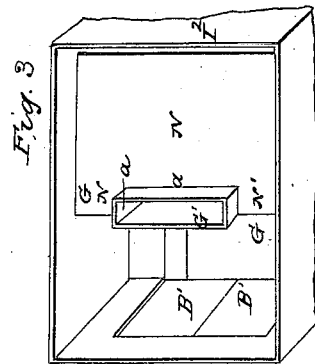


E. FERREN.
Cooking Stove.

No. 1,408.

Patented Nov. 12, 1839.



UNITED STATES PATENT OFFICE.

EBENEZER FERREN, OF HAVERHILL, NEW HAMPSHIRE.

CONSTRUCTING THE FLUES OF COOKING-STOVES.

Specification of Letters Patent No. 1,408, dated November 12, 1839.

To all whom it may concern:

Be it known that I, EBENEZER FERREN, of Haverhill, in the county of Grafton and State of New Hampshire, have invented certain Improvements in the Manner of Constructing Cooking-Stoves; and I do hereby declare that the following is a full and exact description thereof.

The general form of my cooking stove is the same with that of many others now in use, consisting essentially of a fire chamber, with an oven in the rear thereof, as will appear from reference to Figure 1, in the accompanying drawing, in which A, A, are the bottom plate, sliding cover, and ash pit of the furnace, or fire chamber; B, B, the body thereof, and B', B', doors for the supply of fuel. C, C, are openings immediately over the fire for the reception of cooking utensils. D, is a larger opening for the same purpose, which opening is situated in part over the oven E, and in part over the fire chamber; the arrangement of the respective parts being such that the whole of the heated air from the furnace may be made to pass directly under a cooking utensil at D, or may be made first to circulate around the four sides of the oven by an arrangement of flues, and the action of a valve, or damper, constructed and operating in a way to be presently described. When the draft is made to circulate around the oven, it does so in direct contact with the four plates forming its front and back, and its bottom and top, and the stove is so constructed that the direct heat from the back plate of the fire chamber does not, in any degree, influence, so as unduly to increase, that of the fore part of the oven. E', is the door of the oven, the dotted lines around which show the situation of the flues surrounding the oven, which are more distinctly represented in the next figure. S, S, is the top plate, in one continuous piece, and S', the smoke pipe, or exit flue.

Fig. 2, represents a section of the stove made by a vertical plane passing longitudinally from the front to the back, through the middle thereof.

In all the figures where like parts occur, they are designated by the same letters of reference.

My stove is divided into two sections, the fire chamber, and the oven section; between which sections there is a free space, open to the air of the room, excepting at the upper

part, where the draft passes from the fire chamber to the oven section. F, is the back plate of the fire chamber, which I usually place so as to form an angle of about 60° with the horizon. G, is the front plate of the oven-section of my stove, H, being the open space between the fire chamber and the back, or oven, section, the side and top plates of the stove serving to unite these portions to each other. The plates F, and G, may be cast in one piece, but if cast separately they are to be firmly connected together at their line of junction at G'. The bottom plates A' of the fire chamber, and K, of the oven section, are in separate pieces, leaving the space between them, represented by the dotted line H', (Fig. 1) entirely open. I, I, I, is the flue surrounding the oven, the exterior of which flue consists of the front plate G, the bottom plate K, the back plate L, and the top plate M. This latter, however, does not constitute the top plate of the stove, but is intermediate between the top plate of the stove S, S, and the top plate of the oven N; the oven flue I', being below it, and the direct flue O, O, from the fire to the exit pipe, being above it. The front oven flue I⁴, communicates with the flue, or space, O, O, by means of a short, inclosed flue *a*, occupying about one half of the width of the stove. The situation and construction of this short flue will be seen distinctly in Fig. 3, which is a horizontal section of the stove at the upper surface of the plate N; *a*, *a*, *a*, and G', being the plates which form this short flue, the upper edges of which are flush with the surface of the plate M, Figs. 2, and 4. The plate N, is so formed as that its portion N', N', shall embrace the ends of the flue *a*, *a*, and connect them with the plates G, and F, (Fig. 2) at their junction with each other; this plate by being extended up at G', forms the front portion of the flue *a*, *a*, *a*, as shown clearly in Fig. 5, which is a sectional view across the stove at the back of the fire chamber, and which will be presently described.

Fig. 4, is a top view of the stove, the top plate S, S, being removed, so as to exhibit the intermediate plate M, M, and its appendages; *a*, *a*, is the top of the short flue, leading from the flue I⁴, Fig. 2. P, P, is a partition which extends from the front edge of the plate M, to the top plate S, S. This partition plate forms at P', P', an angular, or curved, recess to receive the

fore end of the valve, or shutter, Q, which valve plate is represented as in contact with the partition P', P', leaving the short flue a, a, open, in which position it cuts off all
 5 direct communication between the fire chamber and the space O, O, above the plate M; and the draft from the fire is then compelled to pass entirely around the oven, in a way to be presently explained.
 10 The part P', P', of the partition extends over the fire chamber, and when the valve Q, is drawn back so as to cover the flue a, a, its front edge will stand in the situation of the dotted lines b, b, compelling the draft
 15 to pass directly above the plate M, to the smoke, or exit, pipe S, (Fig. 1.) The plate M, extends farther forward than the plate N, to admit of sufficient play to the valve Q. The dotted lines N, N, show the place of the
 20 front edge of the plate N. c, c, is the rod for working this valve. Instead of a sliding valve made in the form shown at Q, a hinged valve, or shutter, may be used; in which case it will be made of such length
 25 and width as to cover the opening of the flue a, a, and it will be hinged so as to turn on the edge of the front plate, G', of said flue. The recess formed by the partition P', P', will, in this case, be made rectangular, and of such form and size as to be closed
 30 by the valve, when the flue a, a, is to be left open.

Fig. 5, is a section across the stove in front, and in the plane, of the back plate
 35 F, of the fire chamber, which plate extends up at G', so as to constitute the front plate of the flue a, a. T, T, are two openings, one on each side of the flue a, a, and between the plates M, and N; said openings
 40 leading into, and forming a part of, the oven flue I', Fig. 2.

From the foregoing description, the manner in which this stove is made to operate will be readily understood. When the valve
 45 Q, is in contact with the partition P', P', and the flue a, a, is, consequently, left open, the heated air from the fire will pass through the openings T, T, on each side of the short flue a, a, in to the flue I', and
 50 through I², I³, and I⁴; at the top of which latter, it will be conducted through the short flue a, a, into the space O, O, and

thence to the exit pipe S'. By this arrangement of the flues, the oven, when in use, has four of its sides fully, and equally, 55 exposed to the action of the heated air.

In describing this stove, I have referred to certain parts thereof which resemble, or are similar to, those employed in other cooking stoves, and which parts I do not, 60 therefore, intend to claim as constituting any part of my invention. I do not claim the employment of an intermediate plate which like that marked M, M, covers an oven flue, and forms the bottom of an opening through which a direct draft from the fire chamber may be established by the opening of a valve; nor do I claim the mere carrying of the heated air around the four 65 sides of an oven; but

I do claim—

The arrangement of the respective parts of my stove, by which I effect the objects in view in a more perfect manner than has been done in any of the those hitherto in- 75 vented—that is to say, I claim, in a stove having an open space between the fire chamber and the oven, the manner of combining the short flue a, a, and the openings T, T, so as to admit the heated air from the furnace, or fire chamber, into the upper oven 80 flue through openings such as those represented at T, T, on either side of the short flue a, a, situated and operating as herein described; the heated air passing first over, 85 then back of, under, and up, the front of, the oven and being in contact, through its whole course, with the plates forming the interior of the oven, passing thence through the above named short flue, into the space 90 leading to the exit pipe; said short flue being furnished, also, with a valve, or shutter, such as is herein described, for the purpose of establishing the current of heated air around the oven flues, or of admitting it to 95 pass directly under the cooking utensils in the top plate, and to the exit pipe; the whole being constructed and arranged substantially in the manner described.

EBENEZER FERREN.

Witnesses:

GREENLEAF L. PWRAT,
 JONATHAN POOL, Jr.