

J. McGREGOR, Jr.

Cook Stove.

No. 5,296.

Patented Sept. 18, 1847.

Fig: 1.

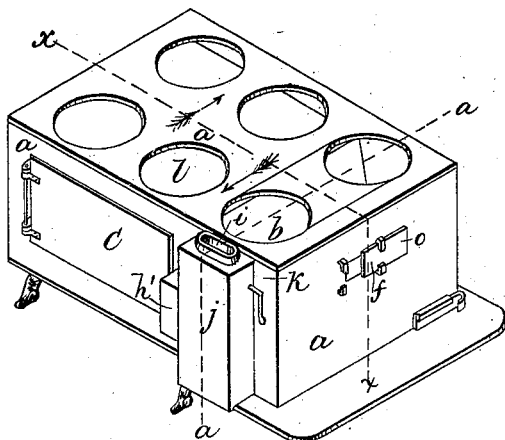


Fig: 3.X-X

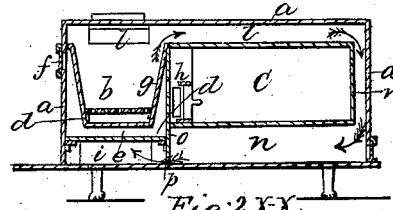


Fig: 2.X-X

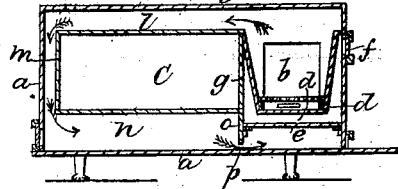


Fig: 4.a-a

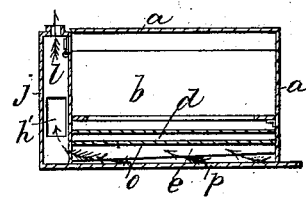


Fig: 5.

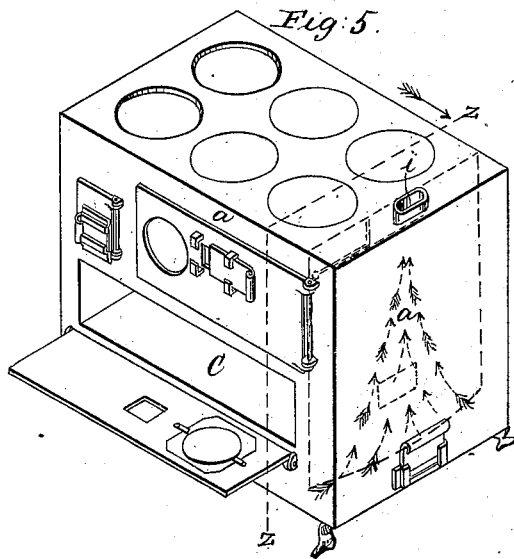
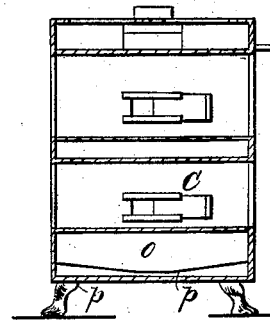


Fig: 6.Z-Z



# UNITED STATES PATENT OFFICE.

JAMES MACGREGOR, JR., OF WILTON, NEW YORK.

## COOKING-STOVE.

Specification of Letters Patent No. 5,296, dated September 18, 1847.

*To all whom it may concern:*

Be it known that I, JAMES MACGREGOR, JR., of the town of Wilton, in the county of Saratoga and State of New York, have invented a new and useful Improvement in Cooking-Stoves, and that the following is a full, clear, and exact description of the principle or character which distinguishes it from all other things before known and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of a stove on my improved plan; Figs. 2 and 3, longitudinal vertical sections taken at the line (X X) of Fig. 1, looking at each in the direction of the arrows; Fig. 4, a cross vertical section taken at the line (a, a) of Fig. 1; Fig. 5, a perspective view of another form of stove, to represent a modification of my improved plan, and Fig. 6, a cross vertical section thereof taken at the line (Z, Z) of Fig. 5.

The same letters indicate like parts in all the figures.

The nature of my invention consists in constructing the lower flue of a cooking stove which passes under the oven of greater depth than usual and making the division plate between the oven and fireplace, which may be called the check plate, or any other plate, at or near that end of the flue which leads into the rising flue or exit pipe, so that it shall extend down below the bottom of the oven to form a reservoir of hot air extending from the bottom plate of the oven down to the lower edge of the check plate at the end of the bottom flue the draft being all below the edge of this plate, so that the gaseous products of combustion, air, &c., which enter the deep flue under the oven will rise by rarefaction, and occupy the space between the bottom of the oven and the lower edge of this plate, and thus guard and protect the oven from being suddenly affected by changes in the fire chamber and flues. And my invention also consists in making the draft aperture of such a flue larger in the parts that are farthest from the exit pipe and gradually reduced toward the pipe for the purpose of equalizing the heat under the oven, for as the tendency of all currents is to rush in straight lines from one point to another, it follows that unless some impediment be interposed, the heat

will be concentrated under that part of the opening which is nearest the exit pipe, but by gradually reducing the size of the aperture, through which the draft passes, as it approaches the exit pipe, this tendency is checked and the heated air, smoke, &c., is forced to pass mainly through the enlarged part and thus to equalize the temperature under the oven.

In the accompanying drawings (a) represents the external form of the stove, which may be varied at pleasure, and (b) the fire chamber which is in front of the oven (c) and extends entirely across the front of the stove; the front and back plates of the fire chamber are inclined in opposite directions from top to bottom to form a chamber (d) between them and the front plates of the oven and stove, the two (the plates of the fire chamber) being united by extending under the hearth plate and between it and another plate (e) below it, so that the air of the room which enters in front and near the top of the fire chamber through a register (f) shall circulate and be heated on its way around to the register holes (g) in the front plate of the oven, through which it circulates to aid in baking and then passes through a register (h) and auxiliary pipe (h') to the exit pipe (i) made in a projection (j) at the side of the oven and at one end of the fire chamber.

When the oven is not to be heated the draft from the fire chamber passes directly from the end into the exit pipe (i); but when the damper (k), (made in the usual manner) is closed, the draft passes from the back of the fire chamber over the oven in the horizontal flue (l), down the back diving flue (m) into and through a large horizontal flue (n) under the oven; and at the forward end the front oven plate (o) extends down below the bottom of the oven (c) to leave a narrow opening (p) the whole width of the stove through which the draft passes to the space below the hot air chamber (d) under the fire chamber, on its way to the exit pipe (i); and as the exit pipe is placed on one side of the stove and at one end of the draft aperture (p), it (the aperture) is made smaller at the end toward the exit pipe and gradually larger toward the other end, so that the current of smoke, &c., which tends from all directions to move in straight lines to the exit pipe shall then be checked by the size of the aperture (p), and caused

to pass under and heat every part of the oven equally by the enlarged size of the aperture at the end farthest from the exit pipe. The smoke and other products of combustion fill up the large flue (*n*) under the oven, and as the draft therefrom to the exit pipe is all below the lower edge of the check plate (*o*) at the forward end of this flue the most highly heated products of combustion will rise in that part of the flue space, which is above the draft aperture (*p*), and thus form a reservoir of heated air gases, &c., which will transmit the heat to the bottom plate of the oven, and which from its bulk will act as a regulator of heat to prevent the oven from being suddenly affected by any sudden change in the intensity of the heat in the fire chamber, &c., a change which takes place in other stoves whenever the fire is charged anew and when any of the doors or dampers in the fire place or flues are opened or closed.

The manner of applying my improvements to stoves made with the exit pipe in the middle of the back of the stove, and at the end of the reservoir flue under the oven is fully represented in Figs. 5 and 6, the latter of which is a vertical cross section in which

it will be seen that the draft aperture (*p*) below the edge of the check plate (*o*) is largest at each end and gradually reduced toward the middle which opens directly into the exit flue (*i*). This arrangement is represented by dotted lines in Fig. 5. It will be obvious that a reservoir flue such as I have above described may be advantageously applied to the bottom of all kinds of ovens.

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

1. Making a reservoir in the upper part of the horizontal flue under the oven by means of the check plate at or near the end of the flue, substantially as described.

2. And I also claim making the draft aperture in the check plate of such a flue smaller near the exit pipe or flue and gradually larger as it recedes therefrom, substantially as described, whereby the smoke and other products of combustion are caused to circulate and pass under the entire bottom of the oven, as described.

JAMES MacGREGOR, JR.

Witnesses :

A. P. BROWNE,  
J. J. GREENOUGH.