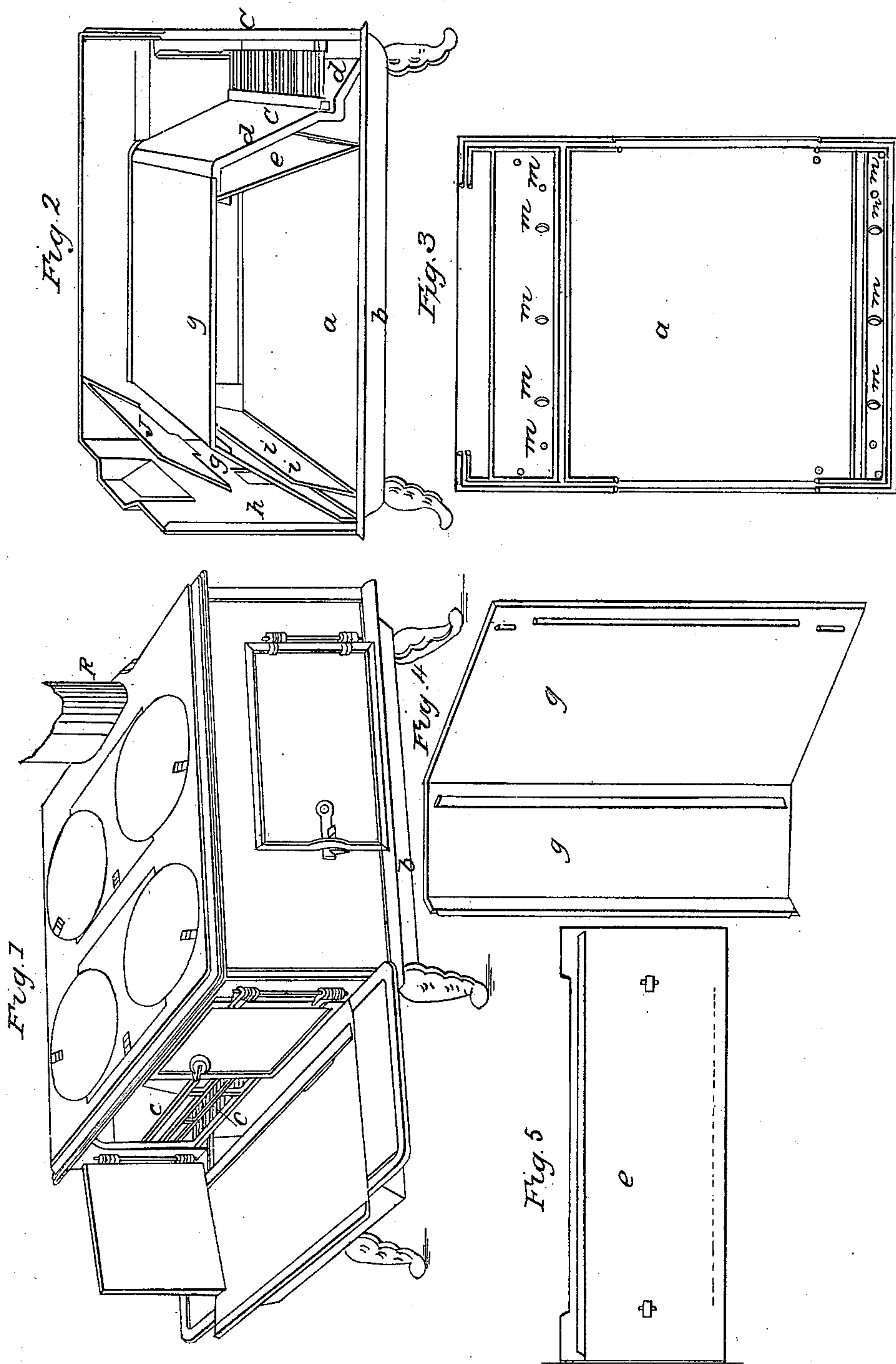


J. R. STAFFORD.

Cooking Stove.

No. 6,807.

Patented Oct. 23, 1849.





# UNITED STATES PATENT OFFICE.

JAS. R. STAFFORD, OF CLEVELAND, OHIO.

## COOKING-STOVE.

Specification of Letters Patent No. 6,807, dated October 23, 1849.

*To all whom it may concern:*

Be it known that I, JAMES R. STAFFORD, of Cleveland, Cuyahoga county, State of Ohio, have invented a new and Improved  
5 Method of Constructing Cooking Stoves and Ranges; and I do hereby declare that the following is a full and clear description of my invention.

The nature of my invention consists in  
10 heating the bottom oven plates of stoves or ranges by other means than by causing the flame, smoke or air which has passed through the fire to pass under the same, as is herein more particularly described.

15 To enable others to understand and use my invention I will describe it.

Figure 1, represents a perspective view of a cooking stove. Fig. 2, represents same stove, the top, side plate and hearth of  
20 which is removed to show the interior construction and arrangement.

*a, a*, Figs. 2 and 3 is the bottom oven plate which extends over the entire surface of the stove as shown and on which the up-  
25 right plates are placed. In some cases I so construct *a*, that it does not extend further into the fire chamber than to allow the back fire plate to rest upon it and in the construction of some of my stoves and ranges I find  
30 it convenient to make *a* in two or more pieces. The apertures *n n n* &c., Fig. 3, shown near front and rear ends of *a* Fig. 3, are for allowing the air within the oven to circulate between *a* and *b*. *b* is the bottom  
35 plate which is always made of nearly the same length and breadth of *a* and it may be constructed in parts or as a whole, care being taken in its construction that no exterior air be admitted between it and *a* or through  
40 the joints when made in parts. *b* is attached to *a* either by bolts or by the rods of the stove and is fitted into grooves on under-side of *a*.

To prevent the loss of heat which may be  
45 either radiated from under side of *a* or which may be carried between *a* and *b* by heated air, I place on the bottom surface of *b* some reflecting or non-conducting substance. When I use my invention for a  
50 range *b* may be dispensed with and brick work substituted.

*c, c*, Figs. 1 and 2 are the fire grates.

*d d* is the fire plate which I construct in different forms always endeavoring so to  
55 construct my stoves and ranges that the plates in contact with the fire shall rest on

or be brought in contact with the bottom oven plate or plates so that their heat may be transmitted to it or them.

*e* Figs. 2 and 5 is a plate placed in rear of  
60 fire plate to protect the oven from the intense heat of *d d* and also to serve to give direction to the circulating air of the oven. I generally place a paneled plate on *e* on the side toward *d d* which I fill with some  
65 nonconducting substance as an additional protection against the radiation of *d, d*. As it will be seen that but a portion of the upper edge of *e* is brought in contact with the top of oven *g*, the open space at top of *e*  
70 permits the air between *a* and *b* to enter the oven.

*g, g*, Figs. 2 and 4 constitute the top and back of oven and is made in one piece for the purpose of more effectually heating the  
75 rear end of the oven and for transmitting by conduction a greater amount of heat to the rear of bottom oven plate *a*.

*i i* Fig. 2 is placed as shown for the purpose of preventing the cooler air on the bot-  
80 tom oven plate *a*, from passing into the apertures *n n n* &c. near the rear end of the oven bottom, the air of oven which circulates through the space between *a* and *b* passes from the oven over the top of *i i*  
85 when *d d* becomes highly heated. When first making a fire *g g* being thinner than *d, d*, becomes first heated, when for a short time a circulation of the air between *a* and *b* will be in the reverse direction of that here-  
90 in before and hereinafter described.

To prevent the admission of air around the ends and under side of *d, d*, *e i i* and rear part of *g, g*, I sometimes cover the apertures  
95 *n n n* &c. both in front and rear with tubes of metal and when placed close together or when made in long oblong tubes I dispense with *e* and *i i*.

*j* Fig. 2 is placed as shown to turn the heat downwardly into the space *h* for the  
100 purpose of heating the rear end of the oven. When I construct small stoves or ranges or when the draft of the chimney or smoke flue is not sufficient I dispense with *j*.

I sometimes place between *d, d*, and the  
105 fire a protection plate or some nonconducting substance to prevent its burning out.

Having described in part the construction of my cooking stoves and ranges I will now explain the operation so that a further de-  
110 scription may be better understood.

The products of combustion (viz. flame,



smoke and unconsumed gases) pass from the fire chamber over the upper part of *d d* and *g g*, thence descend into space *h*, thence around lower side of *j* from thence they  
 5 rise into smoke flue *k* Fig. 1 or when *j* is not used they pass more directly into smoke flue, space *h* being heated by the reverberation of the heat passing off by smoke flue.

10 The great body of heat being either in contact with *d, d* or not far removed from it, *d d* soon becomes highly heated, the air which is in the space between *d d* and *e* or within the tube or tubes described as being  
 15 placed within the oven nearest the fire chamber, becomes rarefied by the action of the heat of *d, d* and ascends into the upper portion of the oven over the top edge of *e*.

As the greatest heat in the stove or range  
 20 will be nearest the fire plates and as air nearest them will be more highly heated, there will be a constant ascent of the air within the space between *d d* and *e* or in the tubes before mentioned occupying that  
 25 space. To supply this circulation air within the oven not so highly heated will pass between *i i* and *g g* thence under the oven bottom *a* into the space between *d d* and *e* or into the tubes before described and this

circulation continues until all parts of the 30 oven are equally heated or as near so as the circulation will heat it.

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

The manner herein described of causing 35 the air contained within the oven and spaces to circulate within and under the oven without allowing the heated air to pass from the oven or spaces into the fire chamber or smoke pipe: which effect is produced by lo- 40 cating the plate *e*, within the oven and near the fire back *d*, and connecting the space between *e*, and *d*, with the body of the oven and with the space between the bottom plate of the oven and the plate *b*, and also con- 45 necting the space below the bottom plate of the oven with the rear end of the body thereof, substantially as herein set forth, not intending by this claim to restrict myself to the mode of construction herein described 50 but to so vary the same as I may deem expedient while I attain the same ends by means substantially the same.

JAMES R. STAFFORD. [L. s.]

Witnesses:

S. W. HOLLADAY,  
 R. C. McILRATH.