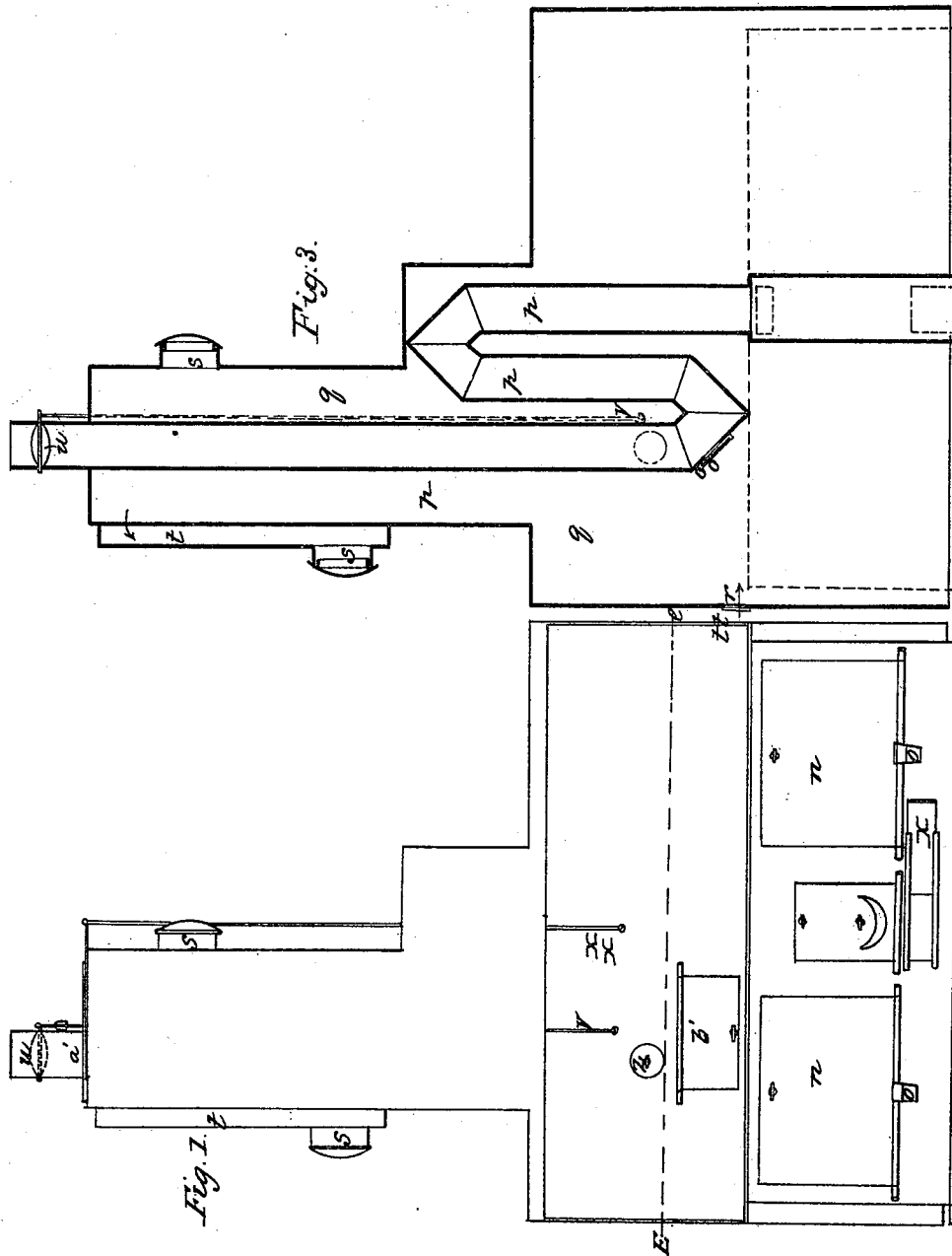


J. MAC GREGOR, Jr.

Cooking Range and Air Heating Furnace.

No. 7,142.

Patented March 5, 1850.

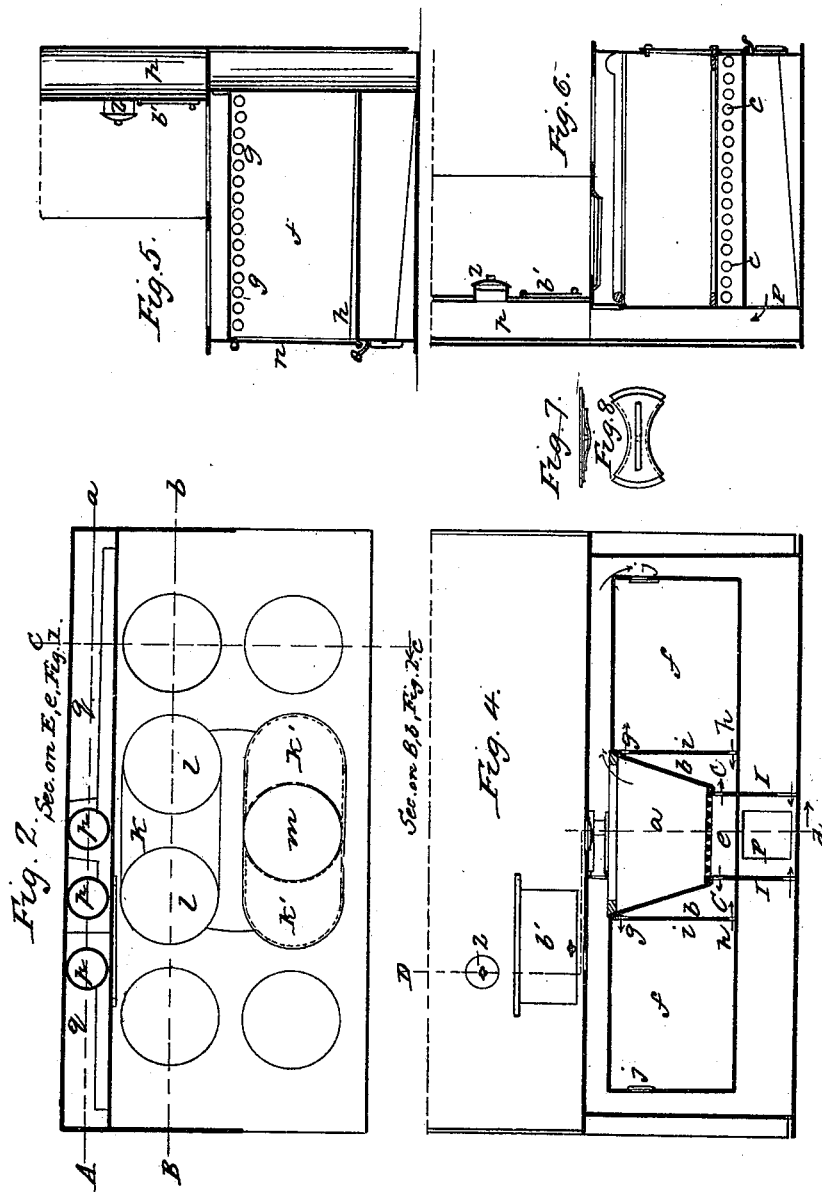


J. MAC GREGOR, Jr.  
Cooking Range and Air Heating Furnace.

2 Sheets—Sheet 2.

No. 7,142.

Patented March 5, 1850,



# UNITED STATES PATENT OFFICE.

JAMES MACGREGOR, JR., OF NEW YORK, N. Y.

## COOKING-RANGE AND AIR-HEATING FURNACE CONNECTED THEREWITH.

Specification of Letters Patent No. 7,142, dated March 5, 1850.

*To all whom it may concern:*

Be it known that I, JAMES MACGREGOR, Jr., of the city, county, and State of New York, have invented new and useful Improvements in Hot-Air Furnaces and Ranges, and that the following is a full, clear, and exact description of the principle or character which distinguishes them 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 front elevation of the range. Fig. 2, is a horizontal section on (E e) of Fig. 1. Fig. 3, is a vertical section taken at the line (A a) of Fig. 2. Fig. 4, is a vertical section taken at the line (B, b,) of Fig. 2. Fig. 5, is a vertical section taken at the line (C c) of Fig. 2. Fig. 6 is a vertical section taken at the line (D d) of Fig. 4. Figs. 7 and 8 are respectively an elevation and bottom plan of the center piece.

The same letters indicate like parts in all the figures.

The object of the first part of my invention is to produce in the ovens of ranges and other like articles, a constant circulation of hot air, and

The second part of my invention relates to the top and boiler holes of ranges and stoves, and consists in so constructing the contractors as that any two of the direct boiler holes may be changed into one of the same size as either one of the two, and the single boiler hole thus produced, brought directly over the fire. When by the same arrangement four boiler holes are reduced to two, they are also brought directly over the center of the fire, or nearly so.

The third part of my invention has for its object to prevent the breaking of the side of the ranges, and doors, by falling when not securely fastened up, and consists in attaching a spring support to the side of the range immediately below the hinge of the door, to receive and sustain it when it is allowed to fall, the elasticity of the support, preventing the breaking of the door or side of the range by concussion.

The fourth part of my invention relates to the warming of the rooms of a house, by the waste heat from the range, and providing a damper at the top of the hot air flue or reservoir which when open will allow

all the heated air to ascend out of the flue, and cause a current of air to pass from all rooms connected therewith when the register or registers are open in the said room or rooms, leading to the hot air flue, more particularly when the cold air flue is closed by the damper (t, t.).

In the accompanying drawings (a) represents the fire chamber on each side of which are hot air chambers (b b) into which cold air is fed through openings (c c) in the plates (d d) from the aperture (e) in the front plate of the range. As the air in the hot air chambers (b b) becomes heated it rises and enters the ovens (f f) through a series of apertures (g, g.) The hot air in the ovens being admitted at the top, displaces a portion of the cold air in them which escapes into the hot air chambers (b b) through openings (h h) near the lower edge of the plate (i) by which means a constant circulation of hot air is kept up in the ovens and the heat therein is equalized. In the event of the ovens becoming overheated, the hot air contained in them may be drawn off through dampers (j, j,) at the sides of the ovens.

By reference to Fig. 2 it will be seen that by removing the center piece (k) between the two back boiler holes, marked (l l) and inserting the two contractors, seen in front in dotted lines, marked (R' R') the two holes in (l l) are changed into one of the same size as either as seen at (m) in front and when this change is effected it is obvious that the one boiler hole is brought directly over the fire. In the same manner the four boiler holes may be reduced to two adapted to the same utensils.

In case the side or other doors of stoves or ranges are not securely fastened up, I guard against any danger of their breaking by falling by attaching to the side of the stove, directly below the hinge of the door (n) (see Figs. 1 and 5) a spring support (o) upon which the door strikes in falling, and by the elasticity of which any injury to the door from the concussion is obviated.

The arrangement which I employ for heating and ventilating the rooms of a building by the waste heat of the range or other similar apparatus, is clearly shown in Figs. 1, 2 and 3 of the drawings in which (p) is the smoke pipe of the range which I cause to din once or twice in the course of its passage through the flue (q') which sur-

rounds it, as well for the purpose obtaining greater radiation, as to break the draft, which without such an arrangement would in ordinary cases be too strong. Cold air is admitted from without to the flue ( $q'$ ) through an aperture at ( $r$ ) which being heated by radiation from the smoke pipe ( $p$ ) rises to the top of the flue where it is confined, and from which it can be admitted into rooms through dampers ( $s$ ). In case it is desired to warm a lower room and not the upper ones (the supply being limited) the hot air can be brought down from the top of the flue through the side flue ( $t$ ) and delivered into such lower room. At the upper end of the smoke pipe is a damper ( $u$ ) for controlling the draft in the range, which by means of the wire ( $v$ ) is regulated by the attendant at or near the range. The damper ( $a'$ ) at the top of the hot air flue is made to shut air tight, and as much as possible to resist the radiation of heat. It is shown, hung on a shaft in Fig. 1, at one end of which is a crank or arm, extending out at about an angle of forty five degrees, to the plane of the damper. To this arm is attached the wire ( $x$ ) that extends outside of the hot air chamber to near the range, so that the damper can be operated by the one managing the range. But the wire may go inside of the hot air flue or any other mode may be used to remove the damper ( $a'$ ).

$Z$  in Figs. 1, 4, 5 and 6 represents a register that is in the smoke pipe ( $p$ ) and communicates with the room in which the range is situated, and when open allows the fumes to escape through the smoke pipe.  $P$  is the smoke flue in the range.  $X$  is a slide damper for the purpose of admitting external air into the smoke flue  $P$ , to check the draft and for cleaning out under the ovens and the

smoke flue  $P$  (supposed to be secured to me in a patent granted in 1845). ( $b'$ ) is a door to be opened when it is desired to ventilate the room or to move the slide door ( $o, o$ ) in the pipe ( $p$ ). ( $o, o$ ) is a slide door in the pipe ( $p$ ) for the purpose of cleaning out soot and all other obstructions to the draft. ( $r$ ) is a flue, through which cold air is admitted to the hot air chamber. ( $t, t$ ) is a damper in the flue ( $r$ ) for the purpose of regulating the admission of cold air and of closing the said flue when ventilation is required in either or all of the rooms.

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

1. Equalizing the heat in the oven by allowing the air to circulate and ascend through the chamber between the fire box and front oven plate, for the purpose substantially as set forth.

2. I also claim so constructing the contractors as that two of the boiler holes may be changed into one, of the same size as either of the other two; by which means, a boiler hole may be had directly over the center of the fire, or four boiler holes reduced to two, all being of the same size, as described.

3. I claim in combination with the air heating apparatus the disposition or arrangement of the valves  $a'$  and  $t$  with either of the valves  $s, s$ , or the door  $b'$  for the purpose of ventilation as described. The position of the valves are not material so that their combined operation shall be as set forth.

JAMES MACGREGOR, JR.

In presence of—

W. S. GODDARD,  
J. J. GREENOUGH.