(No Model.)

P. BRAKE.

COOKING RANGE AND STOVE.

No. 282,263. Patented July 31, 1883.

Fig. 1.

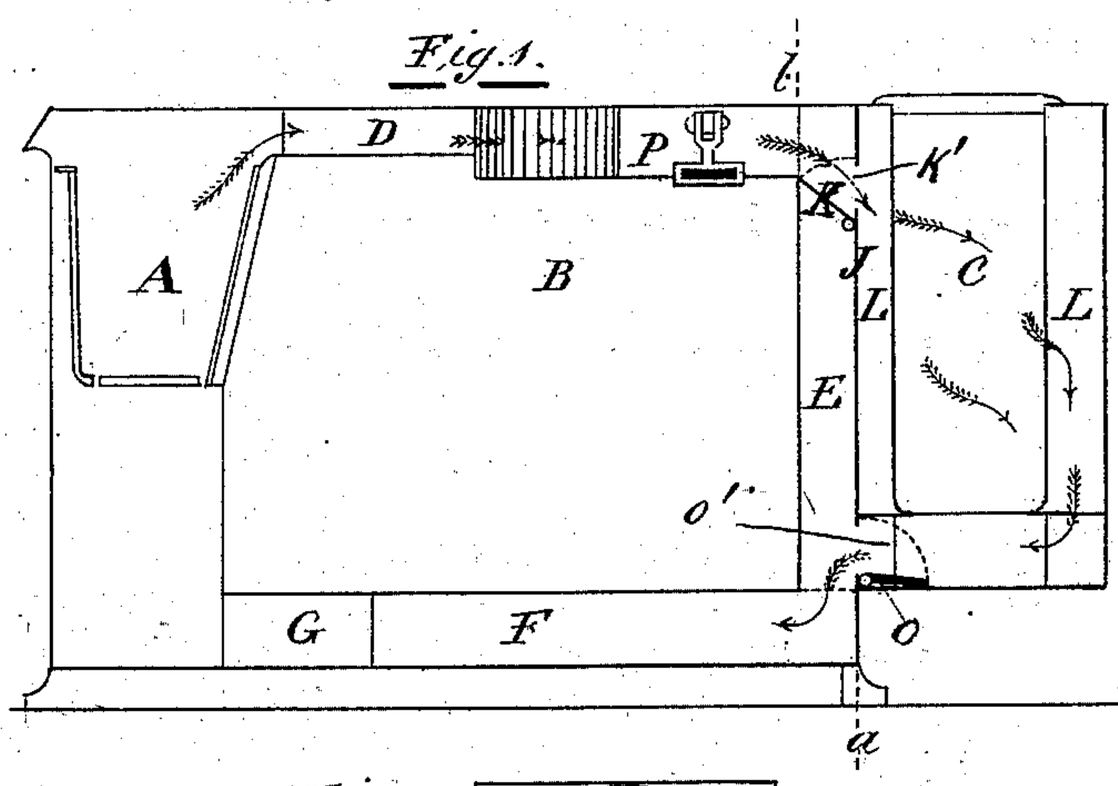


Fig. 2.

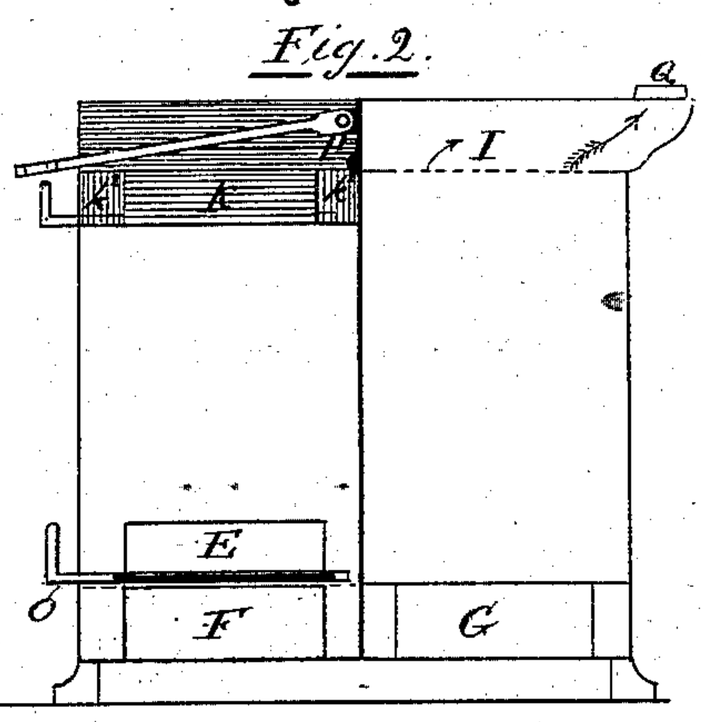


Fig. 3.

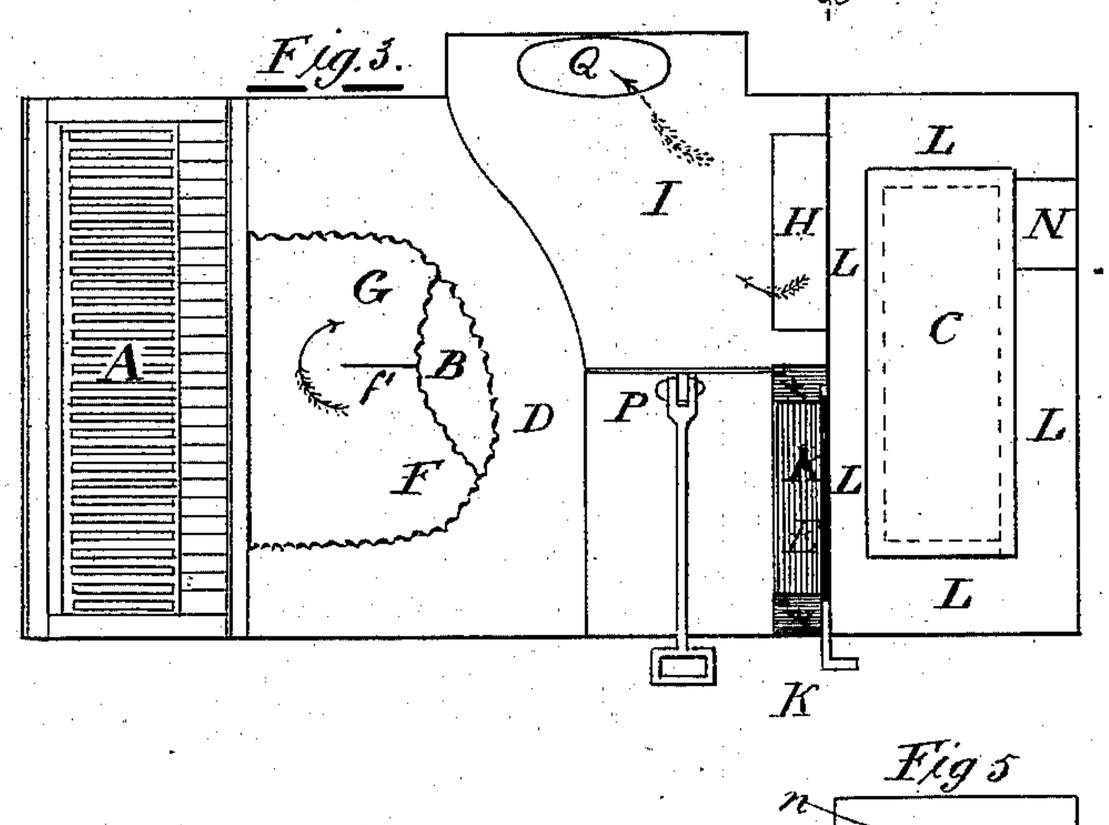


Fig. 4.

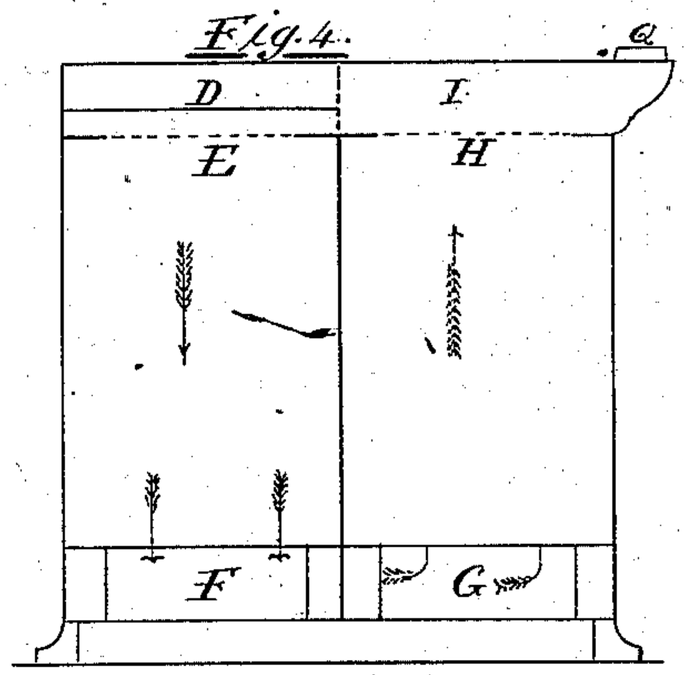


Fig 5

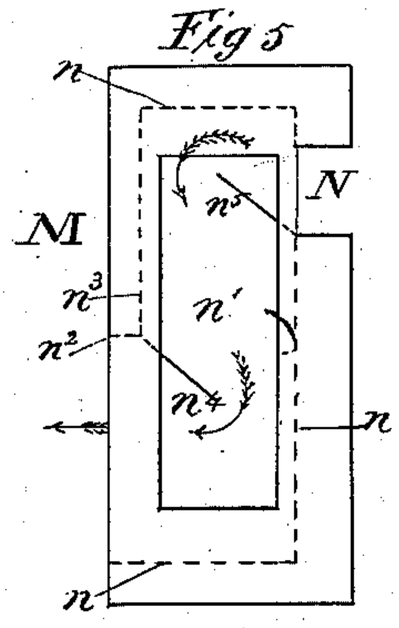


Fig. 6.

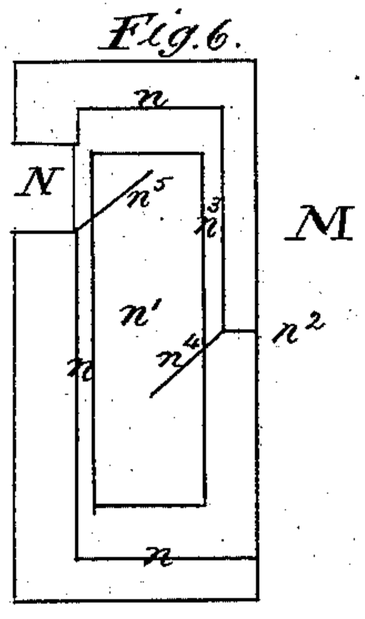
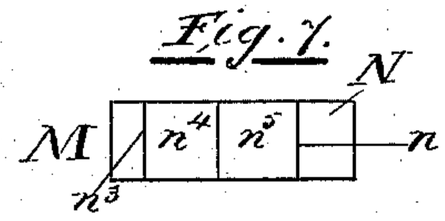


Fig. 7.



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UNITED STATES PATENT OFFICE.

PETER BRAKE, OF TORONTO, ONTARIO, ASSIGNOR OF ONE-HALF TO JOHN CUSSONS STEELE, OF VAUGHN TOWNSHIP, CANADA.

COOKING RANGE AND STOVE.

SPECIFICATION forming part of Letters Patent No. 282,263, dated July 31, 1883.

Application filed March 16, 1883. (No model.)

To all whom it may concern:

Be it known that I, PETER BRAKE, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Cooking Ranges and Stoves; and I do hereby declare that the following is a full, clear, and exact description thereof, whereby others skilled in the art may make and use the same, reference being had to the drawings forming a part of this specification.

My invention relates to that class of cooking ranges and stoves provided with a water-tank located in a special chamber attached to and forming a part of the range or stove.

The invention has for its object the saving of fuel and the obtaining of a more perfect action of the oven, and also of the water-tank therein.

In the ordinary cooking-range the upright plate forming the partition between the range proper and the water-tank is cut away about two-thirds of its surface, exposing this much of the tank-surface to the flame as it comes from over the oven. This area of heating-surface is the full extent of direct heating surface which can be obtained from this mode of construction. The action of the flame thereon is as follows: The flame in leaving the furnace passes over the crown of the oven, and thence through the aforesaid orifice in the partition-plate, and acts upon the exposed surface of the water-tank directly at the back of the said orifice, and returns back under the oven and heats the bottom thereof, and thence passes to the chimney. It will be observed that the active flame acts only on the exposed surface of the tank; that the other spaces around and partially under the tank are filled with inactive heated air, which is nearly non-productive of any effect in the heating of the water therein.

In the accompanying drawings, Figure 1 is a sectional side elevation of my cooking-range through the center of the stove. Fig. 2 is a transverse sectional elevation through the line *a b*. Fig. 3 is a plan, partly in section, with the cover removed to show the arrangement of the flues from the furnace to the chimney. Fig. 4 is a transverse sectional elevation, showing the descending and ascending flues. Fig. 5 is a plan of the tank-seat. Fig. 6 is also a plan of the tank-seat turned over to show the side walls of the flue N. Fig. 7 is an end view of the tank-seat, showing side walls, n n^3, and diversion-plates n^4 n^5 of flue N.

My improvements consist in the application and arrangement of certain flues and dampers not hitherto used in cooking-ranges, which receive the flame from the crown of the oven and lead it so as to nearly surround the entire surface of the sides, ends, and bottom of the tank with a direct active flame, acting, first, on the side of the tank next to the partition-plate; secondly, on both ends; thirdly, on the rear side thereof, when it is drawn downward by a flue placed in the tank-seat, through which it passes and spreads over the bottom of the tank and heats the same, and thence through the partition-plate and oven-flues to the chimney, hereinafter more fully described.

A represents the furnace of my cooking-range; B, the oven; C, the water-tank; D, flue above the oven; E, the downward flue to the bottom of the oven; F, the flue below the oven, and f' a partition-plate; and G, the return-flue leading to the ascending flue H and short flue I, which connects with the chimney; P, a side damper for direct draft from furnace to chimney; J, the main partition-plate separating the range proper from the tank-chamber; K, an inlet-damper, which acts on an orifice, k', in and near to the top of partition-plate; k^2 k^2, end pieces at damper K, for preventing the flame from passing down the flue E; L L L L, a flue surrounding the tank C; M, a tank-seat on which the tank is placed, having a flue, N, therein; O, an outlet-damper connecting the flue N with the flue E; n', opening in tank-seat; n n^2 n^3, side walls of flue N; n^4 n^5, diversion-plates for spreading the flame.

Referring to Fig. 3, it will be observed that a portion of the crown of the oven has been removed, and also a portion of the sole thereof, to show a portion of the flue F, partition-plate f', and the return-flue G, all below the oven.

The inlet-damper K, with orifice k', end pieces, k^2 k^2, outlet-damper O, with orifice o', the tank-seat M, with flue N, constitute the chief features of my invention.

The operation of the range when the tank

is shut off is as follows: The flame, on leaving the furnace A, passes through the flue D above the oven, and passes down the flue E to the bottom flue, F, and passes onward to the front end of the oven, and turns round the partition-plate f', and is then known as the "return-flue" G, and continues its course to the back end of the stove, and joins the ascending flue H, in which it rises and enters the short flue I above the oven, which connects with the chimney.

The operation of the range, in connection with the tank, is as follows: The flame, on leaving the furnace A, passes through the flue D above the oven, and, passing through the opened damper K, it enters the tank-chamber and surrounds the tank C. It is then drawn down the flue N in tank-seat M and heats the bottom of the tank, and thence, passing through the opened outlet-damper O, enters the flue E immediately above the flue F, and, after passing through the flues F, G, H, and I, goes into the chimney.

When it is desired to use the oven for expedition, it is only necessary to shut the dampers K and O, when the whole heating-power of the furnace is conserved for baking purposes.

When the range is required for cooking only, the damper P is opened, which gives the full heating-power of the furnace for general purposes on the top of the range.

Having thus described my invention, I claim—

1. In a cooking range or stove provided with a water-tank in the rear end thereof, the inlet-damper K, with orifice k', and end pieces, k^2 k^2, in combination with the outlet-damper O, with orifice o', each located, as shown, in the partition-plate J, and operating as set forth.

2. In combination with the dampers K and O and end pieces, k^2 k^2, a tank-seat, M, with the flue N in the rear thereof, and returning below the bottom of the tank and heating the same, thence passing through the outlet-damper O and connecting with the flue E, as shown and described, and operating as set forth.

3. In combination with the dampers K and O, a tank-seat, M, with flue N in the rear thereof, and returning below the bottom of the tank and heating the same, thence passing through the outlet-damper O and connecting with the flue E, as shown and described, the flue N, with opening n', being adjusted to suit a range or stove with return or single flues, as may be required.

PETER BRAKE.

Witnesses:
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