

UNITED STATES PATENT OFFICE.

SAMUEL A. WILDE, OF TAUNTON, MASSACHUSETTS.

COOKING-RANGE.

SPECIFICATION forming part of Letters Patent No. 645,772, dated March 20, 1900.

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To all whom it may concern:

Be it known that I, SAMUEL A. WILDE, a citizen of the United States, residing in Taunton, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Cooking-Ranges, of which the following is a specification.

My invention relates to an improved construction of cooking-ranges and a reorganization of the flue system thereof, whereby the oven is uniformly heated on all of its closed sides, with a maximum of oven-space and ample flue-space for all purposes of a range.

The specific improvements are fully described below, and pointed out in the claims. They are also illustrated in the drawings forming a part of this specification, in which—

Figure 1 is a horizontal section of the range, taken on line X X, Fig. 2. Fig. 2 is a central longitudinal vertical section of the range. Fig. 3 is a partial vertical transverse section taken on line y y, Fig. 1.

a is the front wall of the range, to which is hinged a door *a'*, disclosing when open the entire interior of the oven.

d is the rear wall of the range, having secured thereto or integrally formed therewith two vertical flues B D, separated by a vertical partition C, said flues extending from the top of the range entirely to the floor or bottom plate thereof, where they connect with bottom flues, to be described. They occupy practically the entire width of the oven-space of the range.

b is the side plate of the range at the right. *e* is the side plate at the left, forming the front of the fire-box *g*, which is lined with fire-brick in the usual manner.

g' is the grate. *h* is the oven, having side walls *m n* and bottom and top walls *o p*, respectively.

k is the top of the range. K is a flue-space over the top of the oven between top plate *k* and the top wall *p* of the oven.

Connected to the vertical partition C is a horizontal partition H, extending between the floor *o* of the oven and the bottom plate *f* of the range from C to *c*, thus dividing the bottom space into two horizontal cross-flues E F from the rear nearly to the front. Of these flues, E connects with vertical downtake-flue

B and F connects with vertical uptake-flue D. The throat or gap *c'* forms the communication between the two flues through which the draft-current passes around the terminal *c* of the partition. The vertical flues B and D are provided with dampers B' D', which can be swung in the usual manner from the open to the closed position, and vice versa, by means of damper-rods *q r*, projecting to the outside of the range. In the drawings damper B' is represented in the horizontal or open position and damper D' in the vertical or closed position. These positions are those in which the dampers are set after the fire is well started and when it is designed to heat the oven.

s is the final outlet of the products of combustion, to which the smoke-pipe is attached.

The wall *n* of the oven is separated from the wall *b* of the range by but a small interval, leaving an interspace A not in the main path of the products of combustion, but in communication therewith and forming a restricted flue through which said products can to some extent circulate. It is much narrower than the flues proper; but as it extends the entire width and height of the range it has a very considerable aggregate area and circulation enough to keep that side of the oven at the proper temperature, while from its narrowness it takes up but little space and incidentally allows a maximum capacity to the oven. The opposite side *m* of the oven is kept up to the proper temperature by heat conduction through the fire-brick wall in direct contact with the burning fuel. It is thus seen that provision is made for heating the oven on five of its six sides, the sixth being closed by the door.

The course of the heating-flame and products of combustion is as follows: Passing upward from the fire-box, they spread out in a thin sheet over the flue-space at the top of the oven, as indicated by arrows, and pass rearward and diagonally toward the opening B'' of downtake-flue B as constrained by the draft, (damper D' being closed,) thence downward behind the oven to the cross-flue E, thence forward through said flue to the throat *c'*, thence around the turn into flue F, as indicated by dotted arrows in Fig. 1, and back to the rear, entering uptake-flue D, passing upward through said flue and out at the

smoke-pipe. A small portion of the sheet of flame passing over the top of the oven finds its way downward through the passage A (shown by arrows) and passes thence by degrees into the current running through main flue E, thus giving to space A its function and utility as a restricted or partial flue. To have this function, it is quite important that the thickness of the restricted flue should be much less than that of the main or free flues; otherwise it would interfere with the free course of the main portion of the flame and gases through the circuit intended for it by way of the main flues and impair the action of the draft by causing eddies and short-circuiting.

I claim and desire to secure by Letters Patent—

1. In a cooking-range, the combination of the oven, the fire-box adjacent thereto, the sheet-flue extending from the fire-box over the top of the oven, the vertical downtake and uptake flues side by side at the rear of the range, provided with suitable dampers, the horizontal cross-flues beneath the oven communicating with each other at the front end and with the respective downtake and

uptake flues at the rear ends, and the restricted flue A, at the side of the range opposite the fire-box, in communication with the top sheet-flue and horizontal flue E, but out of the main current, substantially as specified.

2. In a cooking-range, an oven surrounded by heating means on five sides thereof as follows: a fire-box at one side, a sheet-flue extending over the whole top, a flue-space at the rear divided by a vertical partition into two equal flues, one downtake and one uptake, each provided with a suitable damper, a flue-space at the bottom divided by a horizontal partition into two parallel flues communicating with each other at the front, and with the respective downtake and uptake flues at the rear, and a restricted flue-space covering the whole side of the oven opposite the fire-box, in communication with the top sheet-flue and with one bottom flue at the side thereof, substantially as specified.

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Witnesses:

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