Sheet 1 - 2 Sheets.

G. S. G. Spence.

Range.

No. 9,393. Patented Nov. 9, 1852.

Fig. 1.

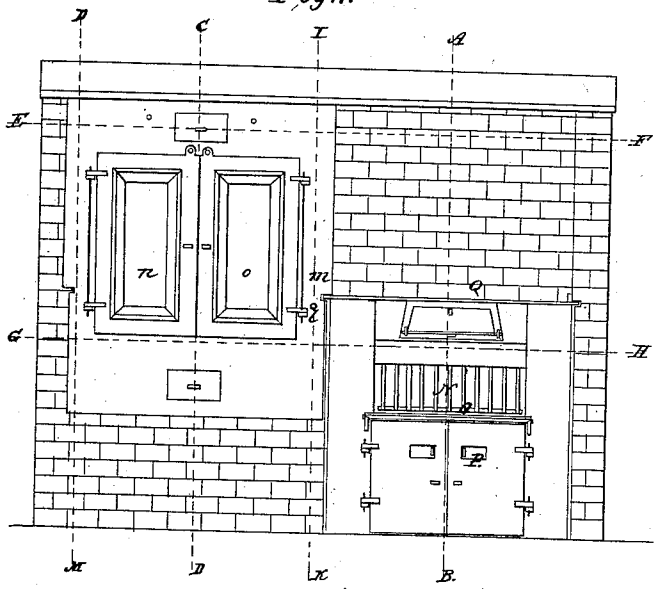


Fig. 4.

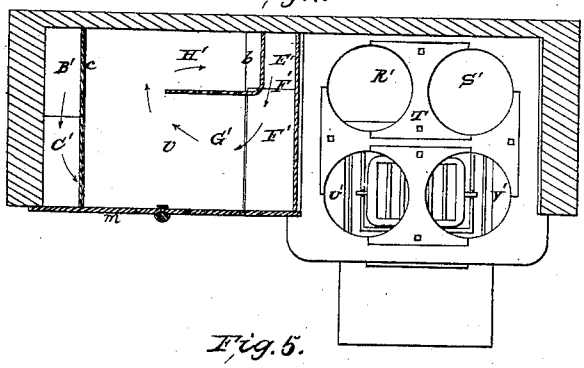
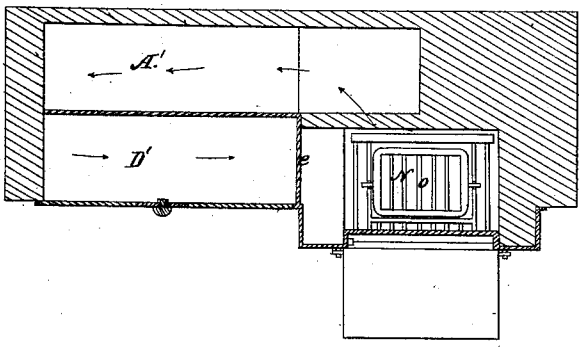


Fig. 5.



Sheet 2-2 Sheets.

C. S. C. Spence.

Range.

No. 9,393. Patented Nov. 9, 1852.

Fig. 2.

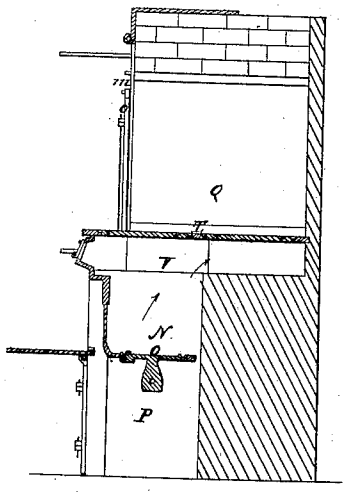


Fig. 7.

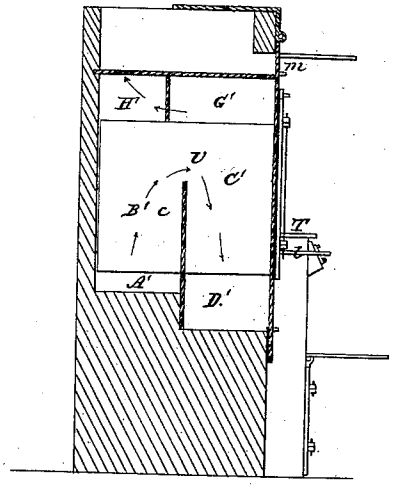


Fig. 3.

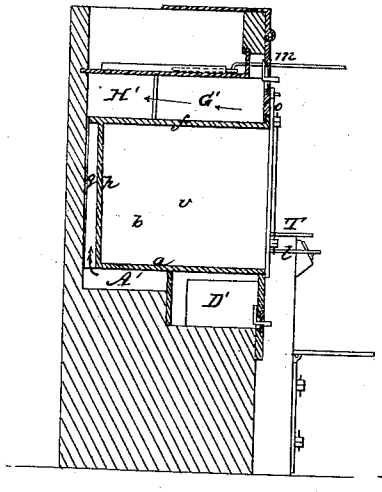
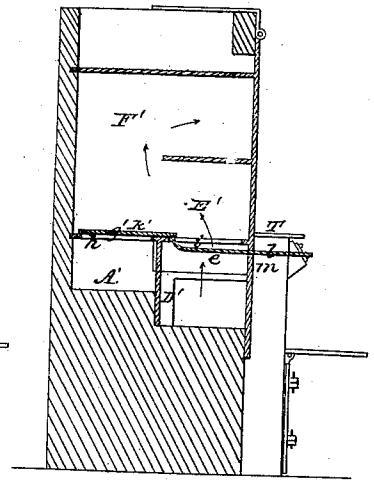


Fig. 6.



UNITED STATES PATENT OFFICE.

GEO. S. G. SPENCE, OF BOSTON, MASSACHUSETTS.

COOKING-RANGE.

Specification of Letters Patent No. 9,393, dated November 9, 1852.

To all whom it may concern:

Be it known that I, GEORGE S. G. SPENCE, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in the Elevated-Oven Cooking-Range; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, letters, figures, and references thereof.

Of the said drawings Figure 1 denotes a front elevation of my improved cooking range. Fig. 2 is a vertical and transverse section of it taken through the fire grate and on a line from A to B of Fig. 1. Fig. 3 is a vertical and transverse section of it taken through the middle of the oven or on a line from C to D of Fig. 1. Fig. 4 is a horizontal section of it taken on line from E to F Fig. 1 and through the flues over and against the top of the oven. Fig. 5 is a horizontal section of it taken on the line G, H, Fig. 1 and so as to exhibit the flues underneath the oven. Fig. 6 is a vertical and transverse section of it taken on a line from I to K Fig. 1 and through those side flues of the oven which are next adjacent to the fire place. Fig. 7 is a transverse and vertical section of it taken on a line from L to M Fig. 1 and through the flues that run against the other side of the oven.

In the said drawings N represents the chamber for combustion of the fuel, O being the fire grate and P the ash pit thereof. Over this chamber of combustion is a flue space V, that extends under a boiling chamber Q and has orifices R′, S′, U′, V′ made through its top T, such orifices being for the reception of boiling vessels or what are termed front and rear boilers.

The oven seen at U is what is usually termed among manufacturers of cooking ranges an "elevated oven", this term being given to it because it is placed above the fire place. It may be placed on the right or left hand side of the fire place, as occasion may require.

Underneath the rear part of the bottom *a* of the oven, a flue A′ is carried and led transversely across, or from side *b*, to side *c* of the oven. This flue opens out of the flue space V, and into a vertical flue B′ that extends upward and along the rear part of the side *c* of the oven. The upper part of the flue B′ opens into a flue G′ that descends against the front part or remainder of the side *c* of the oven, and opens into what I term a reservoir flue D′ which runs underneath and against the bottom *a* of the oven, and from the side *c* to the side *b*. The said reservoir flue I make much larger in its depth or transverse dimensions than the flue A′ in order that it may hold a larger or great quantity of hot air. The said reservoir flue I make to terminate at its front end against a cast iron or metallic plate *e* which constitutes part of the side of the chamber of combustion, and this in order that additional heat from the fuel in combustion may be radiated through such plate and into the reservoir flue.

The reservoir flue is made to open into a horizontal flue E′ which runs backward of the top of the oven and across the oven and opens upward into another horizontal flue F′ which runs forward against the remainder of the side *b* of the oven and opens into a flue G′ that runs across the top plate *f* of the oven and from the side *b* to the side *c* and over and against the front part of the said top plate. The said flue G′ opens into a flue H′ that runs over the rear part of the top of the oven and across the oven from the side *c* to the side *b* and finally opens into the chimney or a flue leading into the same.

Through the partition or plate *g* that forms the lower boundary of the side flue E′ two flue openings *h*, *i*, are made so as to respectively connect the said flue E′ with the flues A′ and D′. A sliding damper or valve *k* is appplied to the two openings *h*, *i*, so that it can be made to close either of them at pleasure, the rod *l* of such damper being made to extend through the front plate *m* that supports the oven doors *n*, *o*.

Against the rear end *p* of the oven there is a narrow chamber or space *q* which is made to open out of the flue A′ so as to allow heat to radiate or pass out of such flue and into the said space *q* while the main draft of the volatile products of combustion is through the flues A′, B′, C′, D′, E′, F′, G′, and H′. By taking hold of the damper rod and drawing the damper forward so as to cover the front one of the two openings *h*, *i*, the main or direct draft will be made to pass directly upward from the flue A′ into the flue F′ without coursing through the flues A′ B′, C′, D′, and E′, they receiving heat only by lateral radiation from such draft or current. When the rear one of the openings

h, *i*, is closed by the damper and the front one is opened the main draft is made to pass through all the flues.

By my improved arrangement of flues it will be perceived that I am enabled to heat the top, the bottom, and the two sides by draft flues applied against each of them. I do not simply employ the main draft flues against the top and bottom only, and use radiating chambers against the two sides and rear end of the oven, but I not only heat the top and bottom of the oven by direct draft flues, but I heat both of the sides of it by such flues while the rear end only is heated by a radiating chamber. Besides this by bringing the front end of the reservoir flue directly against the side plate of the fire place I obtain the advantage of an increase of radiation of heat into it whereby I am not only enabled to stimulate or improve the draft but to supply it with heat so as to partially or wholly make up for the amount lost by radiation in passing through the flues A′, B′, C′, D′.

My particular combination and arrangement of draft flues and radiating chamber as applied in the above described manner to the bottom, top, two sides, and end and as disposed with respect to the fire place renders me able to obtain a greater equality of heat in the oven and a better distribution of the direct draft around the surface of the oven than can be obtained where draft flues are applied to the top and bottom only and combined with radiating chambers applied to the sides and end or when draft flues are applied to the sides and connect with a single flue at top and bottom of the oven.

What I claim as my invention is—

My improved combination of a heat radiating chamber applied to the rear end, and two draft flues applied to each of the four faces at top, bottom, and two sides of an elevated oven of a cooking range, that is to say I claim the combination of the heat radiating chamber *q* (against the end of the oven) two draft flues A′, D′, (against the bottom of the oven) two flues B′, C′, (against one side of the oven), two draft flues E′, F′, (against the other side of the oven), and two draft flues G′, H′, (against the top of the oven), all connected and made to operate together substantially as specified, my said combination of flues as they are above arranged causing the smoke and other volatile products of combustion to pass from the back of the flue space under the boiling chamber into a flue leading under the rear part of the oven and transversely across or from side to side of the oven, thence up a flue leading against the side of the oven, thence down a flue leading against such side of the oven, thence into a reservoir flue leading transversely across and under and against the bottom of the oven, thence upward into and through a flue leading horizontally and along the other side of the oven and from front to rear of it, thence into and through a flue leading horizontally against such second or other side of the oven, thence into a flue leading across the top of the oven and from side to side of it, thence into and through another flue leading over and against the said top and in an opposite direction to that last mentioned and thence into the chimney or discharge flue.

In testimony whereof I have hereunto set my signature, this fifth day of August, A. D. 1852.

GEO. S. G. SPENCE.

Witnesses:
R. H. EDDY,
FRANCIS GOULD.