

Edward F. Rogers' Improvements in Ranges, Stoves, etc.

No. 120,459.

Patented Oct. 31, 1871.

Fig. 3.

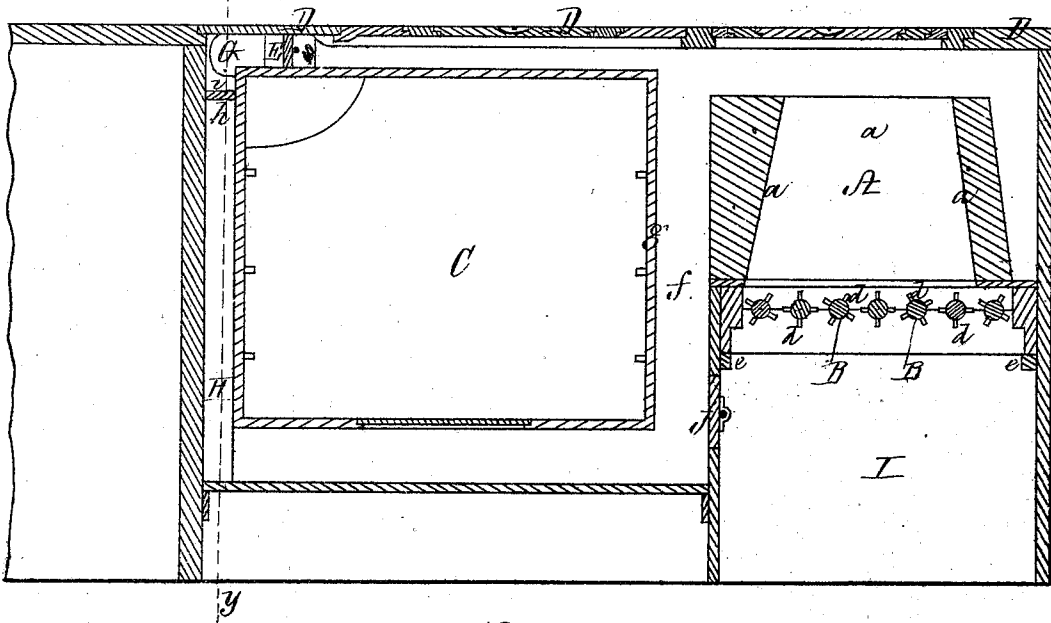


Fig. 2.

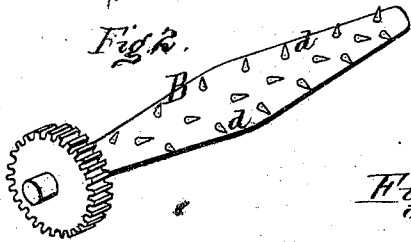
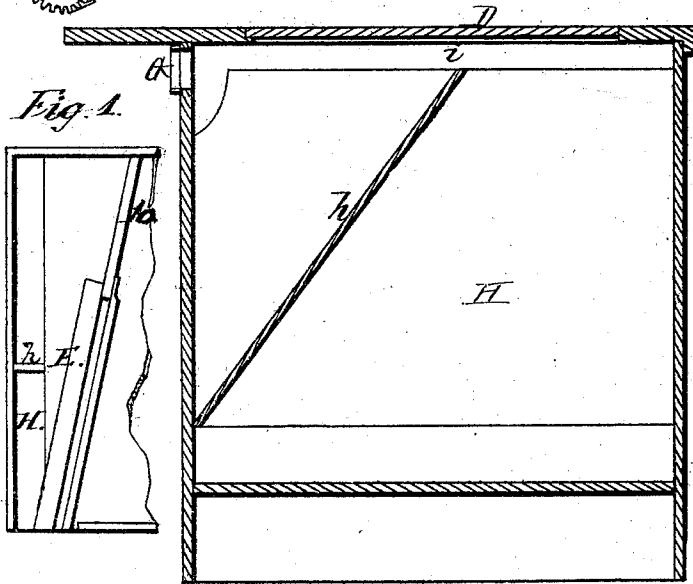


Fig. 4.



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UNITED STATES PATENT OFFICE.

EDWARD F. ROGERS, OF CHELSEA, MASSACHUSETTS.

IMPROVEMENT IN COOKING RANGES.

Specification forming part of Letters Patent No. 120,459, dated October 31, 1871.

To all whom it may concern:

Be it known that I, EDWARD F. ROGERS, of Chelsea, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Ranges, Stoves, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a portion of a plan of a range, with the top plate removed, and having my improvements applied thereto. Fig. 2 is a view of my improved grate-bar. Fig. 3 is a longitudinal vertical section. Fig. 4 is a transverse vertical section on the line *y y* of Fig. 3.

My invention consists in so constructing the range or stove with a division-plate placed between the top of the oven and the top or hot plate above that the hot air and products of combustion will first pass down the flue between the fire-pot and the side of the oven and under the bottom thereof into a flue communicating with the smoke-pipe or outlet, this latter flue being provided with a division-plate placed diagonally or inclined upward from the bottom toward the front, which serves to check the hot air, &c., and retain it longer in contact with the bottom and sides of the oven, and also serves to conduct it toward the front thereof. My invention also consists in a grate-bar provided with projections and made larger in the middle than at the ends, so as to leave larger spaces at the front and back of the fire-pot, where the draught is not so powerful as in the middle, whereby the combustion is more nearly equalized than where grate-bars of uniform thickness are employed.

To enable others skilled in the art to make and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawing, A represents the fire-box. B B are the grate-bars, having an area in cross-section larger in the middle than at the ends, each of which is hinged in suitable bearings, and may be provided at their outer ends with gear-wheels *b*, each one of which engages that of the adjacent grate-bar, and by means of an arbor, *c*, are all revolved simultaneously to free the grate from ashes, clinkers, &c., which are crushed or ground up between the projections *d* with which

the bars are provided. The grate-bars B B are made larger in the middle (see Fig. 2) than at their ends, so as to leave larger spaces at the front and back of the fire-pot, where the draught is not so powerful as in the middle, whereby the combustion is more nearly equalized than when grate-bars are made of uniform thickness. The grate-bars are provided with projections *d d*, which serve to crush the cinders and clinkers so they will readily pass between the bars into the ash-box I. C is the oven, between the top of which and the top or hot plate D is a division-plate, E, which prevents the heat and products of combustion from passing from the fire-box directly to the smoke-pipe or outlet G to the chimney, and compels them to first pass down the flue *f* between the fire-box A and the side *g* of the oven, and under its bottom to a flue, H, which communicates directly with the outlet G. This latter flue H is provided with a division-plate, *h*, (see Fig. 4,) placed diagonally or inclined forward and upward from the bottom toward the top, and extending up to the top of and about half-way across the outer side of the oven, so as to leave a passage, *i*, through which the heat, &c., passes to the outlet G. The products of combustion in passing around under the oven impinge against the inclined division-plate *h*, which serves to check and retain them for a longer time in contact with the bottom and sides of the oven, and thereby impart additional heat thereto. Furthermore, the inclination of the division-plate *h* causes the current of hot air to be thrown toward the front, as required, instead of abruptly changing its direction, which would impair the draught and prevent the apparatus from working satisfactorily. The division-plate E is inclined from the outlet G to one side, as seen in Fig. 1, so as to allow the heat to come into contact with the greater portion of the top plate D, which is required to be kept hot. This division-plate may, however, run directly across the top of the oven if the construction of the adjacent flues be somewhat modified. This division-plate E is provided with a damper, 10, which is to be opened when the fire is started to allow the smoke to pass directly to the outlet G. The top of the fire-pot should not extend up as high as

the level of the upper surface of the oven, in order that the draught may pass through the outlet *ll* down the flue *f*.

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

1. The division-plate *E*, between the top of the oven *C* and the top plate *D*, in combination with the flues around the oven and the inclined division-plate *h*, substantially as and for the purpose described.

2. A grate-bar, *B*, provided with projections *d*, and having its area in cross-section larger at its middle than at its ends, substantially as and for the purpose described.

Witness my hand this 22d day of June, A. D. 1871.

E. F. ROGERS.

Witnesses:

N. W. STEARNS,
W. J. CAMBRIDGE.

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