J. BROWNBACK & M. TOWERS, Jr.

RANGE.

No. 189,919. Patented April 24, 1877.

Fig. 1.

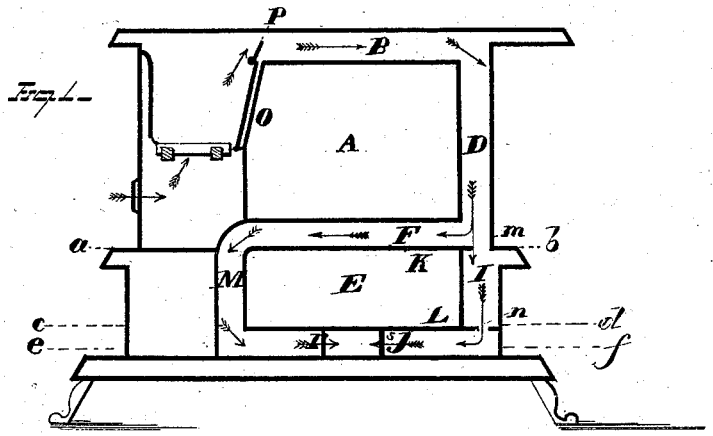


Fig. 2.

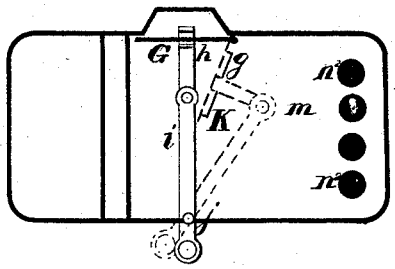


Fig. 3.

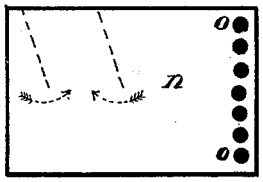
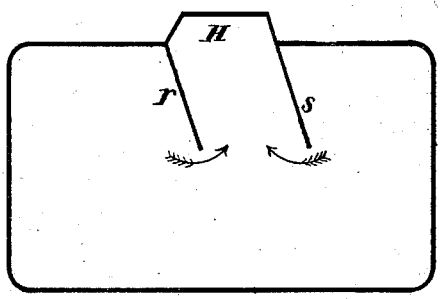


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

JAMES BROWNBACK, OF LIMERICK STATION, AND MICHAEL TOWERS, JR., OF PHŒNIXVILLE, ASSIGNORS TO MARCH, BROWNBACK & CO., OF LIMERICK STATION, PENNSYLVANIA.

IMPROVEMENT IN RANGES.

Specification forming part of Letters Patent No. **189,919**, dated April 24, 1877; application filed June 27, 1876.

To all whom it may concern:

Be it known that we, JAMES BROWNBACK and MICHAEL TOWERS, Jr., of Limerick Station and Phœnixville, respectively, in the respective counties of Montgomery and Chester, and State of Pennsylvania, have invented certain new and useful Improvements in Ranges; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 represents a vertical cross-section of our invention. Fig. 2 is a sectional view of the same taken through line *a b* of Fig. 1. Fig. 3 is a partial section, taken through line *c d* of Fig. 1, while Fig. 4 is a section of Fig. 1 through line *e f*.

This invention relates to certain improvements in double-oven warming-closet ranges, whereby the heat may be made to entirely surround both the upper and lower ovens, or, if desired, it may be cut off from passing beneath the lower oven, and caused to flow through an intermediate or dividing flue that serves to separate the bottom and top plates of the respective upper and lower ovens; and to that end our invention consists in certain details of construction and arrangement of parts, which will more fully appear from the following description and claims.

A is the upper oven, having a horizontal flue, B, extending over its upper plate, the said flue leading from the fire-pot C to the rear descending flue D. The lower oven E is separated from the upper oven A by an intervening horizontal flue, F, which connects at the rear of the ovens with the descending flue D. G is a swinging damper, hinged at *g* within the forward portion of the flue F, and said damper controls an opening in the side of the range leading into the side exit-flue H, which extends from the bottom to the top of the range. A rod, *h*, is attached to the damper G, and the other end of said rod is pivoted to the inner end of an oscillating lever, *i*, which latter freely turns on a bearing, *j*. By placing the socket end of the shaker on the outer end of lever *i* the damper G may be opened or closed at will. *k* is a ledge, secured to the upper plate of lower oven E, and serves as a stop to limit the movement of damper G. When damper G is thrown open, the heat, passing down the descending flue D, will flow through the intermediate flue F, thereby warming the bottom of oven A and the top of lower oven E, and then pass out into the exit-flue H. The rear end of lower oven E is provided with a descending flue, I, which merges into the lower horizontal flue J. Within the flue-space I, and preferably on a line with the upper and lower walls K and L of the lower oven E, the perforated division-plates *m* and *n* are placed, the upper plate having large perforations n^2, while the lower plate *n* is provided with small perforations *o*, the said plates serving to retain the heat for a time within the rear descending flue I. These openings are preferably of a circular form, though they may be made of rectangular or of any other desired shape, or single rectangular openings may be substituted therefor. Also, instead of a number of perforations in said division-plates *m* and *n*, there may be substituted in each one a long, narrow, rectangular opening, making with the flue I an open flue between the horizontal flues F and J. This rectangular opening in each division-plate would be of equal length in both plates, but wider in plate *m* than in the lower plate *n*, in order to retain the heat for a time within the rear descending flue I. A descending flue, M, is formed in front of the lower oven E, and said flue constitutes a connection between the horizontal flues F and J. Within the lower flue J flue-plates *r* and *s* are arranged on each side of the exit-flue H. When damper G is closed, the heat passing down the descending flue D is divided into two currents, one volume passing through the intermediate flue F and down the front descending flue M and into the lower flue J, where it is retarded in its course by the flue-plate *r* before it reaches the exit-flue H. The other volume of heat passes through the upper per-

forated plate *m*, and is slightly retarded in its progress by the plate *n*, which is provided with perforations of less area than the upper plate. The heat then passes into the lower flue, around the flue-plate *s*, and into the exit-flue H. A dust-flue, O, is formed between the rear plate of the fire-pot and front plate of the upper oven, and the opening in said flue is controlled by an oscillating damper, P, which turns on a horizontal axis that is secured to the rear fire-plate. In raking the fire the damper is opened, when a current of air rushes through the flue O and removes all dust that has accumulated about the same.

It will be seen from the foregoing description that the upper oven may be highly heated for cooking purposes while the lower one may serve either as a warming oven or it may also be highly heated and used as a cooking or baking oven.

In order to admit of the flue-space at the right end of the lower warming-oven, the range may be made plain or boxed, and also the range may be made with a plain or sunk bottom, within which the lower flue is formed.

Having fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a range, the combination, with its upper and lower ovens, of an intermediate flue, F, and damper G, substantially as and for the purpose set forth.

2. In a range, the combination with the upper and lower ovens of the flues B, D, F, I, J, and M, and damper G, substantially as and for the purpose specified.

3. In a range, the combination with an upper and lower oven and upper intermediate and lower distributing flues, of an exit-flue formed on the side of the range, having openings communicating with the intermediate and lower flue, and a damper located in the intermediate flue, and adapted to govern an opening in the exit-flue, substantially as and for the purpose set forth.

4. In a range, the combination of the perforated plates *m* and *n* with the lower oven E, substantially as and for the purpose specified.

5. The combination of the jointed rods or levers *h i* with the swinging damper G and the stop *k*, substantially as and for the purpose set forth.

6. The combination, with the flues J and H, of the flue-plates *m* and *n*, substantially as and for the purpose set forth.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

JAMES BROWNBACK,
MICHAEL TOWERS, JR.

Witnesses:
JEROME JOHN,
H. H. GARGUS.