RATHBONE & HAILE.

Cooking Stove.

No. 47,567. Patented May 2, 1865.

Fig. 1

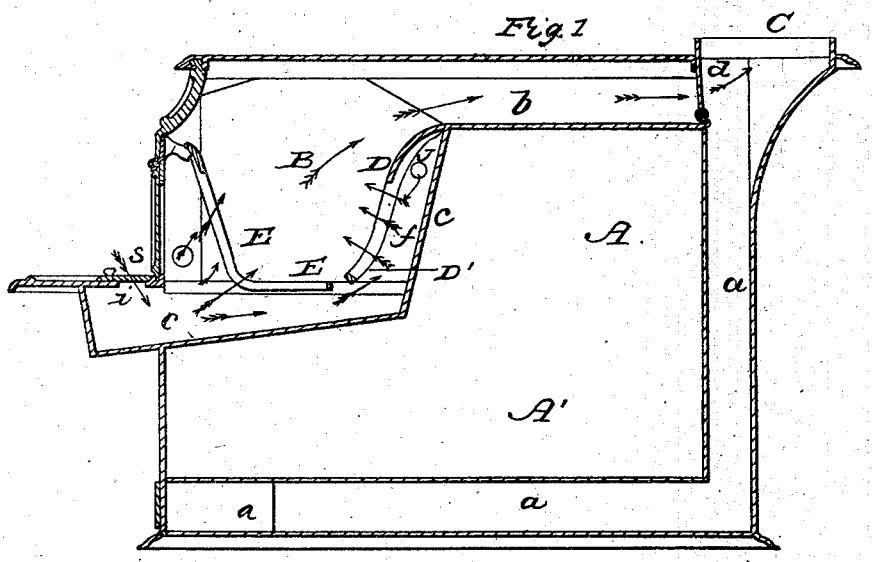


Fig. 2.

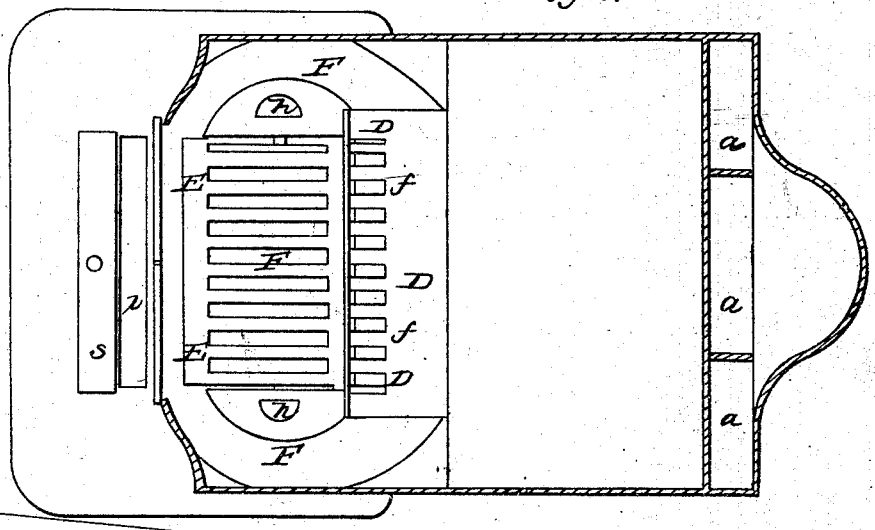
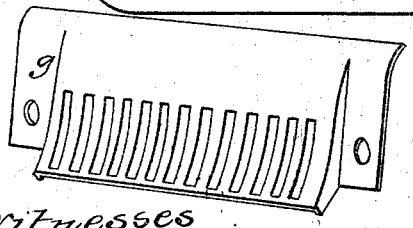


Fig. 3



Witnesses
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UNITED STATES PATENT OFFICE.

LEWIS RATHBONE AND WILLIAM HAILES, OF ALBANY, NEW YORK.

COOKING-STOVE.

Specification forming part of Letters Patent No. **47,567**, dated May 2, 1865.

To all whom it may concern:

Be it known that we, LEWIS RATHBONE and WILLIAM HAILES, of Albany, county of Albany, and State of New York, have invented a new and useful Improvement in Stoves; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a longitudinal section taken in a vertical plane through the center of a stove which is adapted for cooking purposes. Fig. 2 is a horizontal section through the upper part of the stove. Fig. 3 is a perspective view of the back plate of the fire-chamber.

Similar letters of reference indicate corresponding parts in the three figures.

Bituminous or soft coal is very difficult to burn in the grate of a common cooking-stove unless air can be supplied in sufficient quantities and at all points of the body of coal to support combustion, and as it would be very desirable to use soft coal in cooking-stoves our invention consists in so constructing the fire-chambers of such stoves as to supply air freely to the sides and bottom of a bed of coal confined within the fire-pot, and thus furnish oxygen in sufficient quantities to keep up combustion; at the same time we prevent the rapid destruction of the back plate of the fire-pot by the intense heat, all as will be hereinafter described.

To enable others skilled in the art to understand our invention, we will describe its construction and operation.

The stove to which our invention is applied is represented in the accompanying drawings, and consists of an upper and a lower oven, A A′, a fire-chamber, B, flues *a a* and *b*, ash-box *c*, and a damper, *d*, which, when open, gives a direct draft from the fire chamber B to the pipe C, over the oven A, as indicated by the arrows in Fig. 1, but when the damper *d* is closed, as shown in the drawings, the products of combustion arising from the fire-pot will be conducted through the flues *b* and *a a*—that is to say, they will pass over the oven, down behind the same, thence toward the front of the stove, beneath the oven, and finally into the central outlet-flue.

That portion of the stove to which our invention relates consists of a perforated or grated back plate, D, which, in conjunction with the grate-bars E, forms the fire-pot for containing the coals. This grated or perforated plate D forms, with the oven-plate *e*, a space, *f*, which extends transversely across the stove and communicates with the space between the bottom of the ash-pan *c* and the grate-bars E, as shown in Fig. 1. The form of the guard-plate D is clearly shown in Fig. 3, wherein it will be seen that it is constructed with wings *g g*, which have perforations through them. The perforations through these wings are for the purpose of conducting air from the chamber *f* into side chambers, F F, which communicate with the fire-pot through the openings *h h*. (Shown in Fig. 2.) The air which is supplied to the fire-pot through the chambers above mentioned enters mainly through the opening *i* at the front of the stove; but besides this inlet we are enabled by our arrangement to introduce air through the side plates of the stove, as shown at *j*, Fig. 1, which air enters the space outside of the fire-pot, and thence impinges upon the bed of coals therein, so as to maintain combustion.

By our invention we have a stratum of air between the back or guard plate, D, and the oven of the stove, as well as between the bottom of the fire pot and the oven of the stove; hence it will be seen that the heat in the oven will be equalized and the guard-plate prevented from rapidly burning out. We also have a stratum of air at each end of the fire-pot, circulating through the chambers F F and supplying the fire with fuel. Provision is made for regulating the supply of air to the fire-chamber by the employment of a damper or slide-valve, *s*, and, if desirable, dampers may be applied to the openings through the sides of the stove.

While we do not claim perforating the back plate of the fire-chamber of a cooking-stove or range for the purpose of introducing oxygen above or amidst the products of combustion and burning coals, we do claim—

1. Grating the back plate of a stove so that the draft-flue will cause air to circulate through the bed of partially-ignited coals from a point near the base to the top thereof,

from a chamber in rear of said back plate, in such manner that the refractory particles of coal are caused to burn, substantially as described.

2. The combination of a front passage, *i*, a grated back, D, and a cross passage, *f*, substantially as described.

3. The combination of the front passage, *i*, end passages, F F, cross-passage *f*, grated back D, and draft-flue *b*, substantially as described.

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