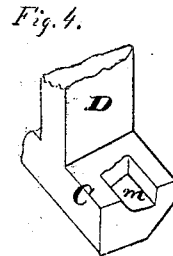
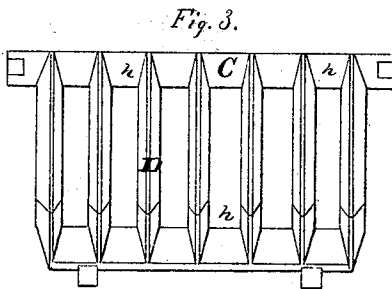
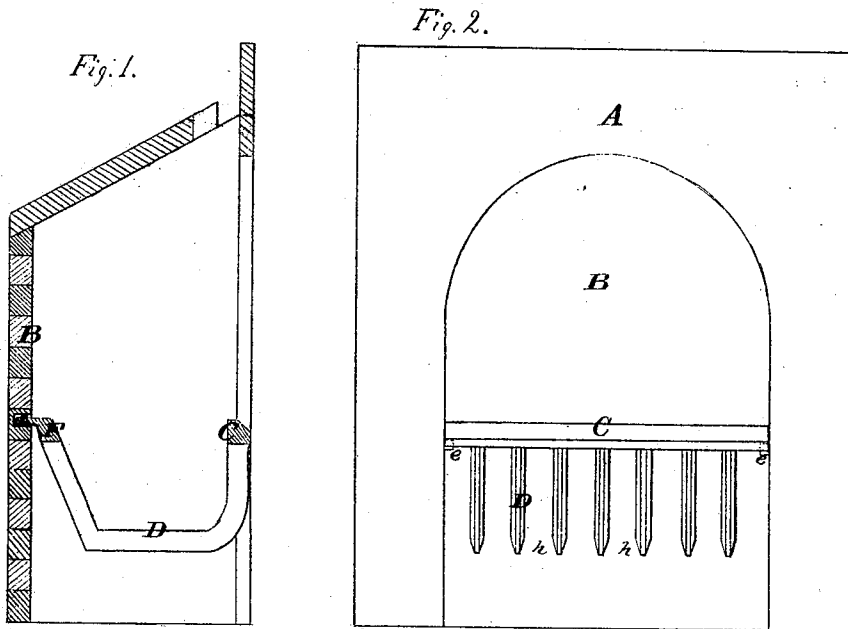


E. D. Merrick,

Grate.

No. 101,296.

Patented Mar. 29, 1870.



Witnesses
E. W. Anderson,
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E. D. MERRICK, OF NEW BRIGHTON, PENNSYLVANIA.

Letters Patent No. 101,296, dated March 29, 1870.

FIRE-PLACE GRATE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, E. D. MERRICK, of New Brighton, in the county of Beaver and State of Pennsylvania, have invented a new and valuable Improvement in Grates: and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a vertical view of my invention;

Figure 2 is a front view of the same;

Figure 3 is a bottom view; and

Figure 4 represents the mortise in the end of the front bar.

My invention relates to grates for burning coal in open fire-places and stoves, and consists, mainly, in the construction of devices whereby free draught is permitted to all parts of the grate, and purposes of economy in the manufacture subserved.

The letter A of the drawings designates a fire-place, and B its back wall.

My grate consists of two straight horizontal bars, connected by U-shaped cross-bars, all cast in one piece.

C designates the front horizontal bar. It is made broad and thick, to support the weight of the basket, and extends across the front of the fire-place in a straight line from jamb to jamb.

Pins *e e* are attached to the face of the fire-place, or into the walls thereof, whereby the ends of this front bar are supported.

Mortises *m m* are made in the ends of the bar to receive these pins.

D D represent the cross-bars. They descend perpendicularly from the front bar, and, bending, form the bottom of the basket; thence they slope sharply up to the rear horizontal bar F. These cross-bars are made broad on their inner faces, and beveled toward their outer edges.

Flaring spaces *h h* are thus formed between them, enhancing the air-draught and facilitating the introduction of the poker.

F designates the rear horizontal bar, slightly beveled on its rear face, and provided with the lugs *z z*, extending to the rear, and arranged to fit into mortises in the back wall, and thus form the rear support of the grate.

These lugs are made of suitable length to keep the rear bar F sufficiently distant from the back wall to allow of a free draught of air around the rear of the grate.

In the use of my grate, a perfect combustion of the fuel, gases, and smoke is obtained, and, by the free draught, a brilliant bed of live coals is formed throughout the entire grate-basket.

The passage of a current of air between the back

of the grate and the back wall largely increases the draught of the chimney, and, consequently, carries up the dust, obviating the necessity of a dust-flue in the back wall.

The air becomes heated in the flaring passage between the basket and back wall, and hence rises rapidly through the coals, and through the narrow crevice between the back wall and the rear horizontal bar. The front horizontal bar being straight, and being set back flush or in rear of the face of the fire-place, the ashes fall clear of the fender.

This arrangement also admits of putting in the summer-piece, without the annoyance of taking out the grate.

No obstruction can be offered by this form of grate to the free use of the poker in raking out the ashes.

In the manufacture, this grate offers many advantages, especially in the casting. No cores being necessary to form the mortises under the end of the front bar, there is no danger of "blowing." The whole grate may be cast in green sand. Hence there are less trouble and expense, and no castings rendered worthless by the formation of gases around the cores, which are necessary when the upper grate-bar is arranged to turn inward, in the usual manner, forming hooks at the ends.

The beveled form of the whole grate, and all its parts, is adapted to facilitate the draft from the molds.

The same follow-board may be used for all sizes of grates, and, when odd sizes are needed, they are readily obtained by filing a little of the metal from the ends of the front horizontal bar.

In stoves with my improved grate, no back wall or fire-brick is necessary. The fire being contained in the basket, with a free circulation of air behind it, does not come in contact with the front plate of the oven. Hence is avoided the annoyance of constantly replacing the burnt-out fire-backs.

Sometimes, instead of casting lugs on the rear horizontal bar, I propose to support it by hooks or pins fixed in the back wall.

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

The grate herein described, having the straight front bar C provided with the notches *m m*, the beveled U-shaped connecting-bars D, and the rear bar F, set out from the chimney-back by the lugs, the whole being cast in one piece, the general form of the grate, and all the parts thereof tapering downward, to provide for its ready extraction from the mold.

In testimony that I claim the above, I have heretofore subscribed my name in the presence of two witnesses.

E. D. MERRICK.

Witnesses:

W. B. LEMMON,
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