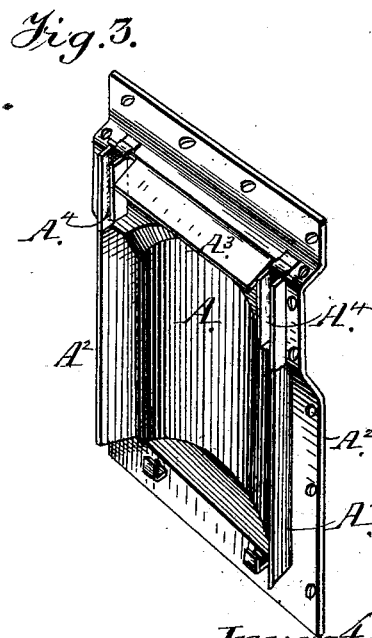
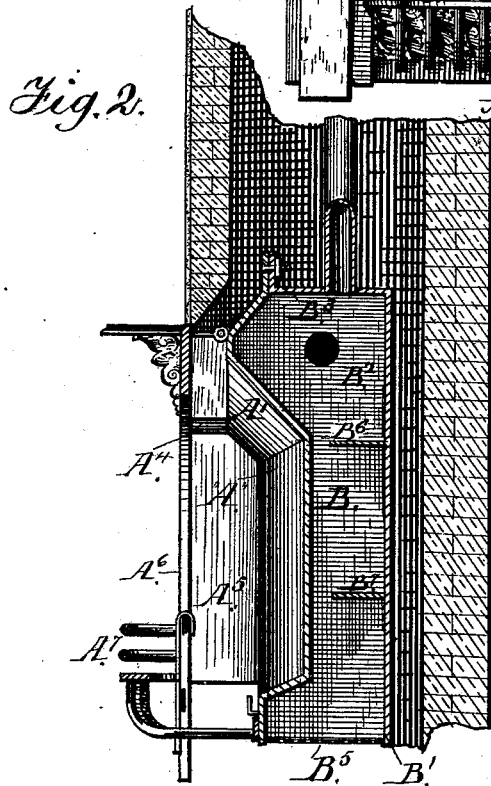
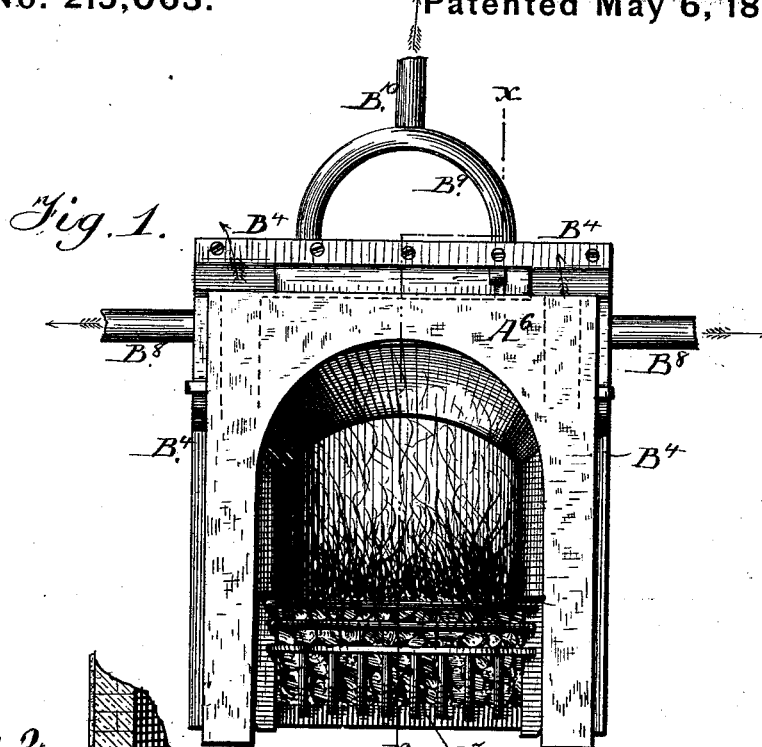


Fire-Place.

No. 215,063.

Patented May 6, 1879.



Witnesses;
O. D. Fowler Jr
J. A. Flanders

Inventor:
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att'y

UNITED STATES PATENT OFFICE.

CHARLES L. LEFEBURE, OF CHILLICOTHE, OHIO.

IMPROVEMENT IN FIRE-PLACES.

Specification forming part of Letters Patent No. **215,063**, dated May 6, 1879; application filed February 12, 1879.

To all whom it may concern:

Be it known that I, CHARLES L. LEFEBURE, of Chillicothe, in the county of Ross and State of Ohio, have invented certain new and useful Improvements in Fire-Places; and I do hereby declare that the following is a full, clear, and exact description of the invention; 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.

This invention relates to improvements in grate-backs, hot-air chambers, and pipes over those in present use, in utilizing more effectually and economically the heat from the back and top of an open fire, and applying the air thus heated in heating the same or other rooms.

Heretofore many grate-backs have been made with either a concave cast-iron back, corrugated longitudinally, with inclined top and sides, or with a smooth iron casting, to which an iron plate in the rear is bolted or attached, so as to form an air-chamber, the sides, top, and grate-back, all cast in one piece.

Either mode is objectionable for the following reasons: First, the corrugated back is more likely to warp and crack from the heat bearing unequally upon it, expanding some portions more rapidly than others; second, the inclination of the grate-back is at such an angle that the greater part of the heat is not retained within the fire-place, and hence is not brought to bear so powerfully upon the air-chamber, and, in addition, the reflection of the heat is comparatively so small that the room is not heated as much as it might be, and a great portion of the heat is wasted by escaping up the chimney; third, in other grate-backs, if any imperfection of the casting, or any crack or flaw in the grate-back occurs the whole air-chamber must be torn out and a new one substituted.

My invention obviates these difficulties. The back, being a smooth surface, is not subject to an unequal contraction or expansion. The inclination is at such an angle as to utilize all the heat of the fire by reflecting it out into the room and on the floor, and such portion as would otherwise be wasted by escaping up the chimney is retained and used in heating the

air-chamber; and, in addition, if by reason of any defect or any other cause any smoke or gas should penetrate or enter the air-chamber, the difficulty may be removed by substituting a new back-plate without tearing out the air-chamber or disturbing any other portion thereof.

This invention will be particularly pointed out in the claims, and the construction more particularly described by reference to the accompanying drawings, in which—

Figure 1 is a front elevation. Fig. 2 is a vertical section on line *x x*, Fig. 1; and Fig. 3 is a perspective view of the grate-back, with its side flues and damper.

Similar letters of reference indicate corresponding parts wherever they appear in the different figures.

A is the grate-back, curved or concaved, so as to form the smooth back and sides of the fire-place, while the top A¹ is formed on a forward inclination of about forty-five (45) degrees, for the purpose of retaining the heat and reflecting the same downward. On the sides of grate-back A are formed flanges A², through which bolt-holes are made for joining the same to the flange of the air-chamber.

Parts A A¹ A² are cast or otherwise formed in one piece. At the top of the fire-place is placed a cut-off or damper, A³, which extends nearly the whole width of the fire-place. When it is turned upward or open, the draft on the fire is greater, and the smoke has free access into the chimney through the opening thus provided.

When it is desired to decrease the draft and retain the heat more in the fire-place the damper is closed, or partially closed, when the smoke will pass through the lesser openings or flues A⁴, formed on each side of the top of the fire-place. These flues A⁴, and also the damper A³, are attached to the front of plate or grate-back A.

To the sides of the grate-back may be secured the side pieces A⁵, which extend outward flush with the flues A⁴, and over the front edge of these is placed the mantel A⁶, which gives a finished appearance to the fire-place, and also forms a support for grate A⁷. To the back of grate-back A, or to its flanges A², is cemented and bolted the air-chamber B. This

air-chamber with its back B¹, sides B², top B³, and flanges B⁴, is formed all in one plate or in one piece.

In the bottom of the air-chamber is provided perforated bottom B⁵, and inside the air-chamber, and attached to its back, are deflecting-plates B⁶ B⁷. In each side and near the top of the air-chamber are formed openings, with short pipes B⁸, to which pipes may be attached for carrying the heated air from the hot-air chamber B into the adjoining rooms on the same floor, or upper rooms of the house.

In the top of chamber B are formed openings with pipes B⁹, and to these may be attached different pipes for carrying the heated air to different rooms above; or the two pipes may connect with the one pipe B¹⁰.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The grate-back A, having flange A², in combination with plate B¹, having flange B⁴,

the two flanges being bolted and cemented together, substantially as and for the purpose set forth.

2. Grate-back A, having incline A¹, in combination with damper A³ and flues A⁴, substantially as and for the purpose set forth.

3. A chamber, B, composed of back B¹, sides B², top B³, flange B⁴, perforated bottom B⁵, deflecting-plates B⁶ B⁷, and openings and pipes B⁸ B⁹, in combination with grate-back A, damper A³, and flues A⁴, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

CHARLES L. ^{his} X LEFEBURE.
mark.

Witnesses:

GEORGE W. DENIG,
WM. BRIGGS.