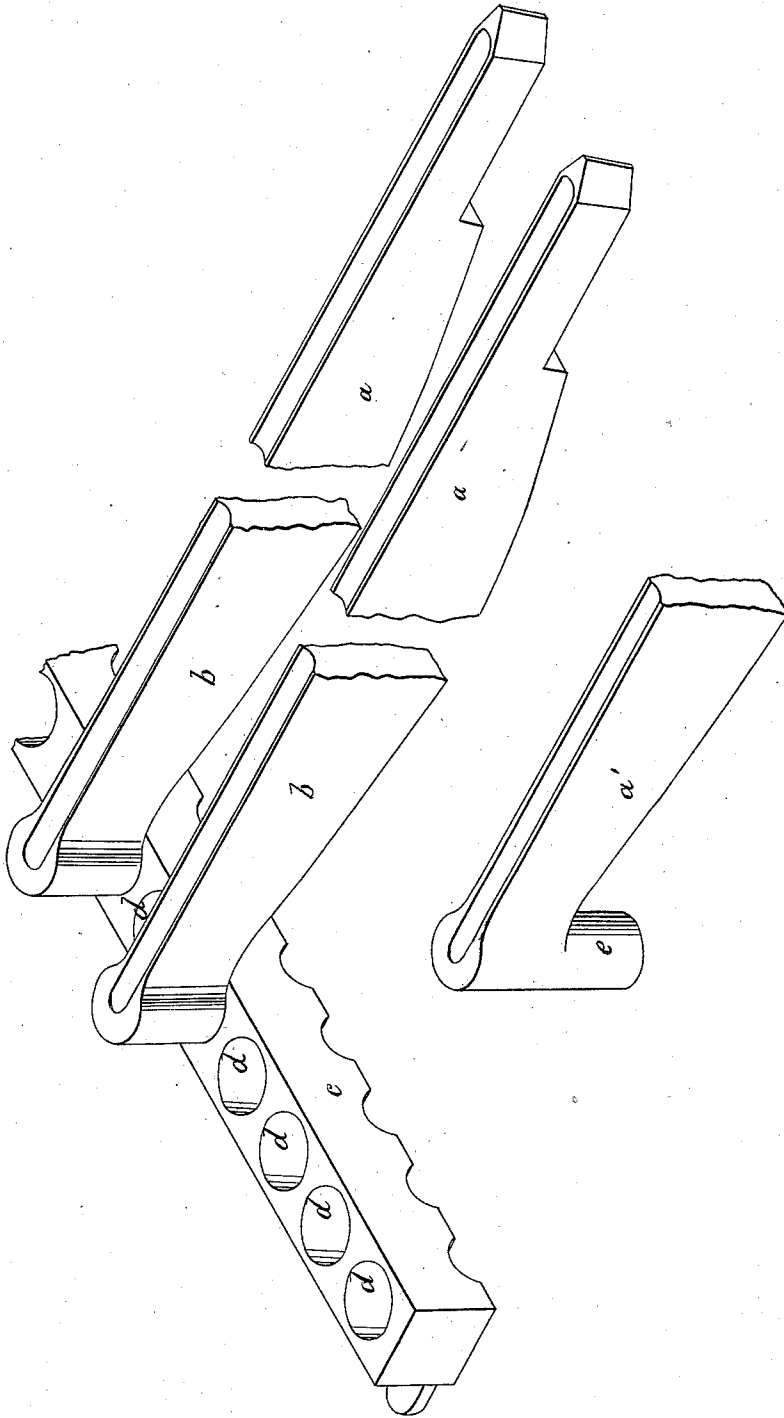


B. C. Vanduzen,

Furnace-Grate Bar.

No 10,996.

Patented May 30, 1854.



UNITED STATES PATENT OFFICE.

BENJ. C. VANDUZEN, OF CINCINNATI, OHIO, ASSIGNOR TO I. B. MARTIN AND B. C. VANDUZEN.

FURNACE GRATE-BAR.

Specification of Letters Patent No. 10,996, dated May 30, 1854.

To all whom it may concern:

Be it known that I, BENJAMIN C. VANDUZEN, of Cincinnati, Hamilton county, State of Ohio, have invented a new and useful Improvement in the Construction of Shifting Furnace-Bars; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the annexed drawings, making part of this specification.

The object of my improvement is a construction of the grate bars of a furnace that shall admit of easy and efficient cleaning, either by means of a slice bar, or by shifting of the grate bars themselves, and this without incurring the danger of dislodging or disarranging the bars.

With the form of furnace grate now generally in use, the lugs, which are employed to keep them the right distance asunder, come inconveniently in the way of the slice bar which is used to stir the fire and to detach clinkers, &c., &c.; and it often occurs that the attendant, inadvertently striking a lug, will dislodge and capsize one or more bars, when the rest, having no longer any lateral support, fall over on their flat side, in which weak position and being relaxed with the heat, they sag in the middle and dropping from their places; suspend the operations of the furnace until a new set of bars (worth from \$30 to \$40) can be supplied. So great is the heat of the furnace, that a few seconds sometimes suffices for this catastrophe.

In the annexed drawing, portions of a bearing bar and two grate bars, are represented in perspective, (a) being the front and (b) the back ends of two grate bars, and (c) one end of the bearing bar; having sockets (d) for the reception of pivots (e) projecting from the under side of the rear extremity of the grate bars, and seen in detached view (a'). These pivots hold the

rear ends of the bars equidistant, and maintain each bar to its proper verticality, while their circular form permits the front ends of the bars to be moved laterally at the discretion of the furnace man. This lateral mobility of the front end of the bar, without unshipping or dislodgement of the rear end, not only affords a ready means of removing ashes and cinders, but in case of sudden danger, the entire contents of the fireplace may be instantly dropped into the ash pit. Also in case of one or more bars becoming inefficient, they can be removed without disturbing the rest.

I am aware that grate bars have been provided at their lower edges with projections affording connection for a steam or feed air pipe, and therefore, make no claim to such projections separately considered, but

What I claim herein as new and of my invention and which I desire to secure by Letters Patent is—

The form and arrangement substantially as described of furnace grate bars, and bearing bar; the former being clear of the usual protuberances, for lateral support, and having each one a pivot at its rear end, occupying a socket in the bearing bar; so as while holding the rear ends of the grate bars to their proper places and relative distance to capacitate them for lateral shifting at their front ends, at the option of the furnace man, without liability to dislodgement; or for removal of a portion, without endangering the stability of those which remain; and for other objects as set forth.

In testimony whereof, I have hereunto set my hand before two subscribing witnesses.

BENJAMIN C. VANDUZEN.

Witnesses:

GEO. H. KNIGHT,
EDWARD H. KNIGHT.