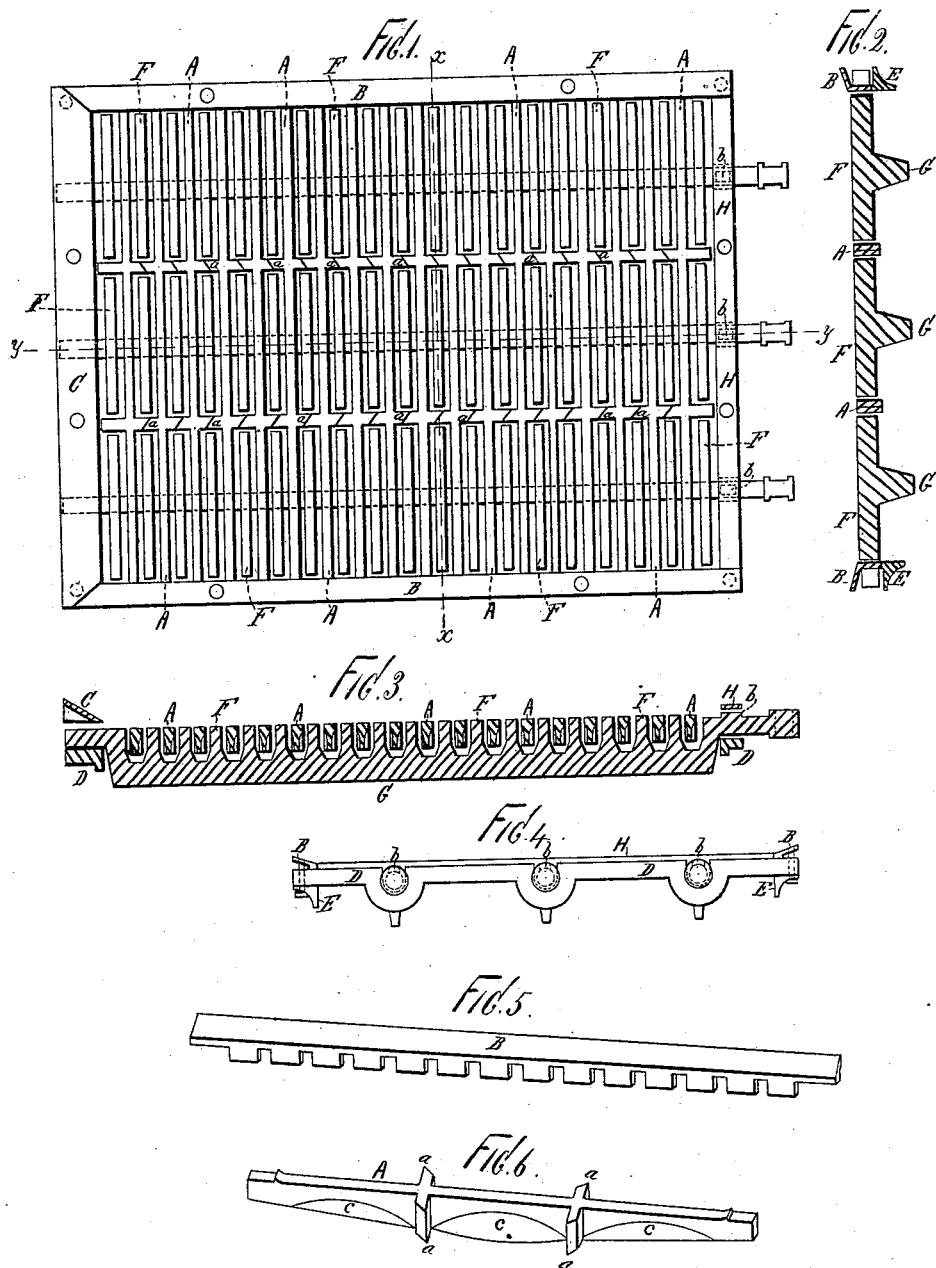


(No Model.)

F. W. WEAVER & D. NORTON.
FIRE GRATE.

No. 267,388.

Patented Nov. 14, 1882.



ATTEST-
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UNITED STATES PATENT OFFICE.

FREDRICK W. WEAVER AND DANIEL NORTON, OF TROY, NEW YORK.

FIRE-GRATE.

SPECIFICATION forming part of Letters Patent No. 267,388, dated November 14, 1882.

Application filed April 24, 1882. (No model.)

To all whom it may concern:

Be it known that we, FREDRICK W. WEAVER and DANIEL NORTON, of Troy, county of Rensselaer, and State of New York, have invented certain new and useful Improvements in Fire-Grates, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Our invention has relation to the construction and arrangement of fire-grates, particularly those used for the support of a large fire-bed, as in boilers, furnaces, &c., and the object of our said invention is to produce a grate of the kind named above, whereon the fire may be kept in good condition at all times without the necessity of the constant use of the poker or slicer, no matter what may be the length or breadth of the grate-surface, thus preventing the too frequent opening of the fire-doors and the injurious effects upon the fire of the constant stirring now commonly resorted to; and to this end our invention involves certain novel and useful peculiarities of construction and relative arrangements or combinations of parts and details of manufacture, all of which will be herein first fully described, and then pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan of a grate-bed constructed and arranged in accordance with our invention. Fig. 2 is a section upon line *x x* of Fig. 1, and Fig. 3 a section upon line *y y*. Fig. 4 is a front or end view of the grate-bed. Fig. 5 is a perspective view of one of the inclined side pieces or protectors detached, and Fig. 6 a similar view of one of the principal grate-bars.

In all these figures like letters of reference, wherever they occur, indicate corresponding parts.

A A are the main grate-bars, running from side to side of the fire-bed and resting upon suitable supports. These bars are made separately from each other, so that they may be readily dismantled when required, and they are provided each with suitable flanges, *a a*, intermediate between the ends of the bar, said flanges abutting against each other and dividing the grate-surface into any desired number of sections or parts, according to the width of

the grate-surface. The sides B B, which cover the ends of bars A, are notched, so as to hold the ends of said bars in proper relative position upon their supports, and so as to prevent the admission of clinkers, &c., at the ends of the bars. The upper surfaces of the pieces B B are inclined downwardly and toward the grate-surface to direct ashes, dust, &c., thereon, that it may readily fall through into the ash-pit below. One end piece, C, is similarly inclined, and projects over the bearings of the shaking or cleaning sections in order to keep the bearings free and clear of ashes, &c. The end supports, D D, for the shaking-sections are bolted upon or otherwise securely coupled with the side supports, E E, upon which the main grate-bars rest, and these together form the frame-work of the fire-bed.

Between the parallel grate-bars A A are the bars F F of the shaking-sections, forming a substantially level surface for the support of the fire. The bars F F are mounted upon a longitudinal bar, G, supported at each end in suitable bearings, and provided in front with a projecting piece, upon which any convenient shaking implement may be applied. Upon the upper surface of front ends of bars G is a stop-lug, *b*, made to strike against the walls of the bearings, so as to limit the movements of the shaking-sections, in order that the fire will not be too much disturbed when they are operated. A top plate or strip, H, covers the front bearings of the shaking-sections and prevents admission of ashes, &c., thereto. The shaking-sections are in number as many as may be desired, and their bars rock just enough to loosen any débris upon the under side of the fire and to permit it to drop through the grate, thus cleaning the fire without the use of the poker and without opening the door. The shakers are found to stir the fire just enough to admit the air from below to the live coals and preserve the grate-surface comparatively clear of detrimental accumulations. The side and end covering-pieces are held in place by removable bolts, so that any part of the grate may be readily dismantled whenever required. The bars of the shaking-sections are made with straight sides, parallel with the adjoining top edges of the main bars, in order to prevent any undue grinding

and clogging of clinkers, &c.; and in order to permit of the ready descent of whatever material may be loosened by the shaking-sections the faces of the main bars, below their tops, are cut away, as shown at *c c*, or given a slight "draft," as it is called. This construction prevents any clogging by reason of the passing material being compelled to move down through an opening or passage, which is larger as the final outlet is reached or approached. The entire movement of the shaking-sections is, however, always within the limits of the plain or uncut portions of the sides of the main grate-bars, being regulated by the stop-lugs above mentioned.

The grate constructed and arranged in accordance with the foregoing explanations will be found cheap, serviceable, not likely to warp or get out of order, easy to repair, and effectual in maintaining the fire at a proper and economical state with very little trouble or care on the part of the operator.

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

1. In a fire-grate, the main bars cut away on their under sides, as explained, and provided with the short flanges, arranged to abut against each other, the bars of the shaking-sections located between said main bars in the

compartments formed by said flanges, and the side and end covering-pieces combined and arranged substantially as shown and described.

2. In combination with the main bars cut away on their under sides, as explained, and having the short flanges arranged to abut against each other, the shaking-sections mounted upon supports at either end, and provided with stop-lugs upon their axes to prevent them from turning too far in either direction, substantially as shown and described.

3. The main bars cut away on their sides, as explained, and the intermediate bars of the shaking-sections moving between the plain parts of the main bars, substantially as and for the purposes set forth.

4. In combination with the main parallel bars, the side pieces notched to fit over the ends of said bars, said pieces being connected with the grate-frame by removable bolts and made detachable, substantially in the manner and for the purposes set forth.

In testimony that we claim the foregoing we have hereunto set our hands in the presence of two witnesses.

FREDRICK WILLIAM WEAVER.
DANIEL NORTON.

Witnesses:

JAS. FORSYTH,
WM. H. H. SAUNDERS.