May 24, 1932. F. B. BIGELOW 1,859,650

FURNACE WALL

Filed Jan. 6, 1930

Fig. 1.

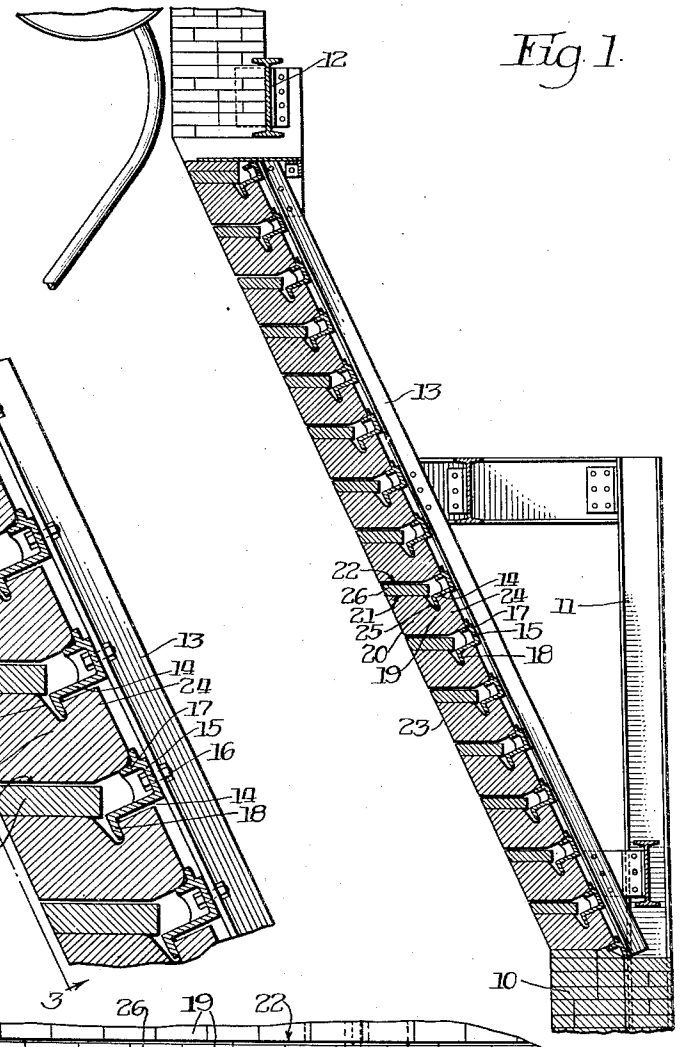
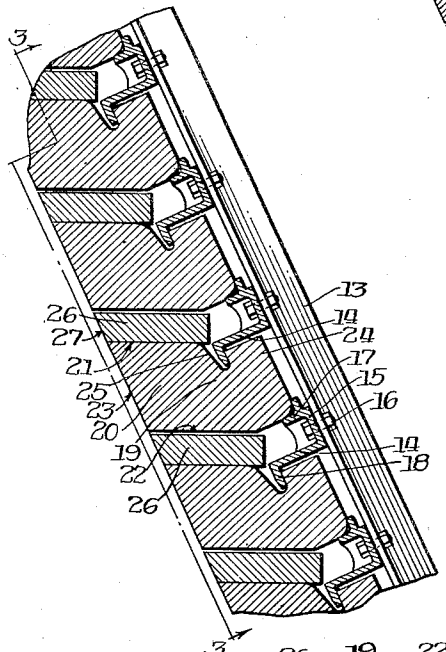


Fig. 2.



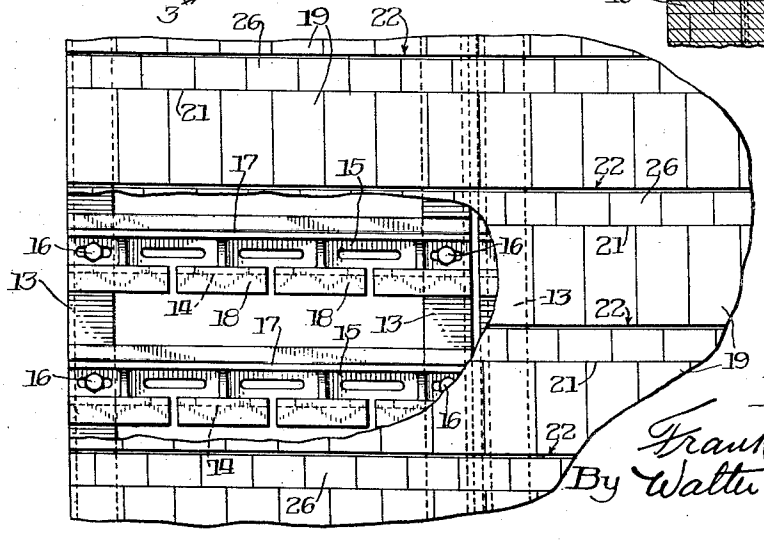


Fig. 3.

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1,859,650

UNITED STATES PATENT OFFICE

FRANK B. BIGELOW, OF DETROIT, MICHIGAN, ASSIGNOR TO BIGELOW-LIPTAK CORPORATION, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN

FURNACE WALL

Application filed January 6, 1930. Serial No. 418,740.

My present invention pertains to certain features of novelty and betterment in the sloping or inclined refractory walls of furnaces, such as those composed of or including refractory elements subjected to the intense furnace heat.

An upright wall for furnaces is set forth in United States Patent 1,670,490, Jack E. Bigelow, furnace wall construction, granted May 22, 1928 and now owned by the Bigelow-Liptak Corporation, and the present invention constitutes an improvement in such construction particularly adapted to sloping walls.

An object of the invention is to provide an inclined wall which, while adequately and fully supporting or carrying the refractory blocks without danger of unintentional dislodgment, will allow them to be replaced when injured with comparative ease and without unnecessarily disturbing or requiring the uncalled for removal of neighboring bricks or blocks.

To permit those skilled in this art to fully understand the invention and to appreciate its structural and functional advantages, a present, preferred embodiment of the invention has been illustrated in the accompanying drawings, forming a part of this specification, and, for simplicity, like reference numerals have been employed to designate the same parts throughout the several views.

In the drawings:—

Figure 1 is a fragmentary, vertical section through a furnace showing the sloping, refractory wall;

Figure 2 is an enlarged, vertical section through a portion of such wall; and

Figure 3 is a fragmentary elevation of the construction with certain portions broken away, as indicated by line 3—3 associated with Figure 2.

Referring to the drawings, it will be observed that the structure includes a lower wall 10, a suitable frame-work 11, and an upper beam 12, the parts 11 and 12 supporting a plurality of parallel, spaced, inclined bars 13, 13 which may be angle-bars arranged in pairs and spaced slightly apart.

Such supporting elements 13, 13 have bolted or otherwise secured against their under surfaces a number of parallel, horizontal bars 14, 14 spaced apart vertically or lengthwise of their sustaining members 13, 13, each such part 14 having an upper or back web 15 bolted or similarly fastened at 16, 16 to the faces of the carrying bars 13, 13, an upper, relatively-narrow, downwardly-sloping ledge 17, and a wider, lower, inclined, interrupted, latch or hook portion 18.

The slanting or declivous refractory wall detachably carried by such inclined, metal framework comprises alternate horizontal rows of supporting-blocks and filler-bricks, each such main or supporting brick or block 19 having a horizonal or level principal or body portion 20 with horizontal top and bottom surfaces 21 and 22, respectively, and an exposed, desirably-inclined face 23 parallel to the framework, and an inclined section 24 designed to rest on the comparatively-narrow ledge or shelf 17 of one such bar 14 and to be maintained and secured in such relation by the hook 18 of the next higher bar engaging in a cross groove or channel 25 in the top of the block at about the junction of its horizontal and sloping top faces.

The gaps between the spaced rows of such bricks or blocks 19 are occupied by flat filler-bricks 26 resting on the horizontal, upper surfaces of the members 19 and desirably beveled on one edge 27 to conform to or register with the aligned surfaces 23 of the larger, supporting bricks or blocks.

From an understanding of the foregoing, it will be clear that the bricks or blocks 20 are securely held demountably in place and that there is no danger of unintentional dislodgment or removal of the intervening filler-bricks 26 which rest on flat, level surfaces.

In order to remove any block 20, the filler-blocks 26, immediately above and below it are slid forwardly out of place, whereupon such member 20 may be rocked upwardly sufficiently to free it from its ledge and then be slid downwardly sufficiently to release it from the hook or latch thus completely demounting it from its support.

A new refractory may be substituted for

the one thus detached by a reversal of the operations specified, whereupon two filler-blocks may be put back in place.

By reason of this construction, any filler-block may be easily replaced and any one or more of the supporting blocks may be comparatively readily taken out and a new one or ones substituted therefor in the manner stated.

The invention is not confined and limited to the precise details of structure shown and described, since the embodiment presented is by way of example only, and substantial changes may be incorporated in the wall without departure from the invention as defined by the following claims.

I claim:

1. In a furnace-wall construction, the combination of a sloping metal framework including a plurality of spaced horizontal bars at different elevations, each of such bars having an inclined ledge and an inclined latch portion, spaced rows of main refractory blocks, each such row having an inclined part resting on one of such ledges with a groove in its upper surface occupied by the depending latch portion of the next bar, each said row of main blocks having outstanding horizontal parts, and intermediate rows of horizontal refractory filler-bricks, each such row resting on the horizontal part of one of said rows of main blocks, whereby any filler-brick may be readily removed by merely sliding it out of place and any main block may be demounted by first removing the filler-bricks immediately above and below it and rocking it to release it from its ledge and latch.

2. A refractory block for use in sloping furnace walls composed solely of two integral portions at an oblique angle to one another, each of said portions having substantially parallel upper and lower surfaces, said block having a cross groove in its top surface at approximately the junction of said two portions, the end face of one of said portions being oblique to its substantially parallel top and bottom surfaces and the end face of said other portion being at approximately right angles to its substantially parallel upper and lower surfaces.

In witness whereof I have hereunto set my hand.

FRANK B. BIGELOW.