(No Model.)

E. LONGSTRETH.

Crown-Bar for Fire-Boxes.

No. 228,090. **Patented May 25, 1880.**

FIG. 1.

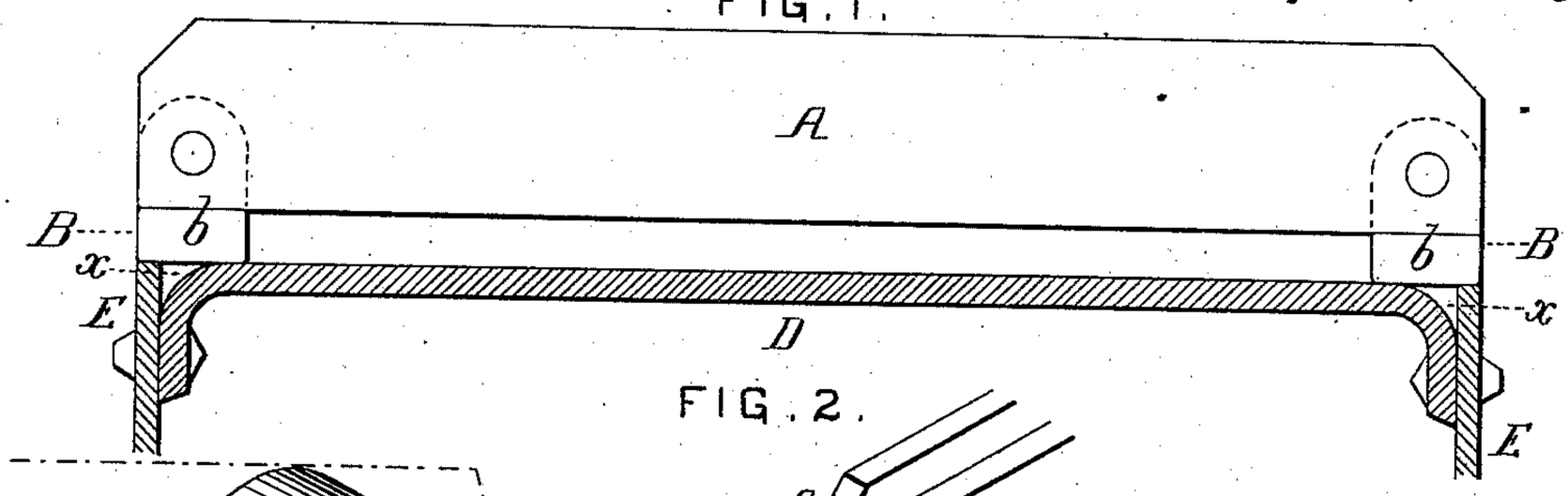


FIG. 2.

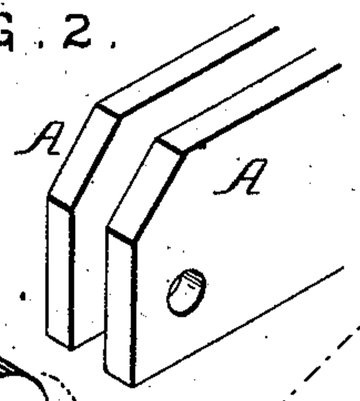


FIG. 3.

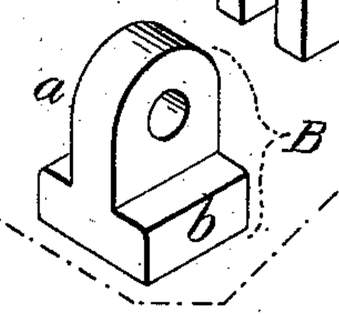


FIG. 4.

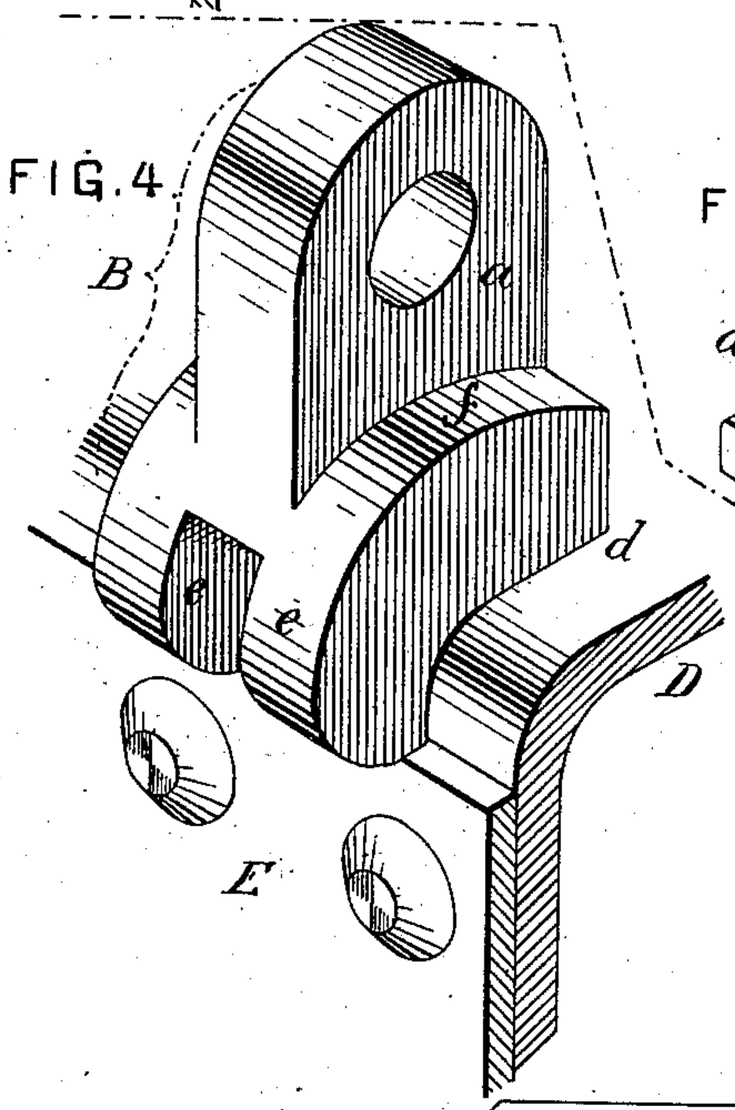


FIG. 5.

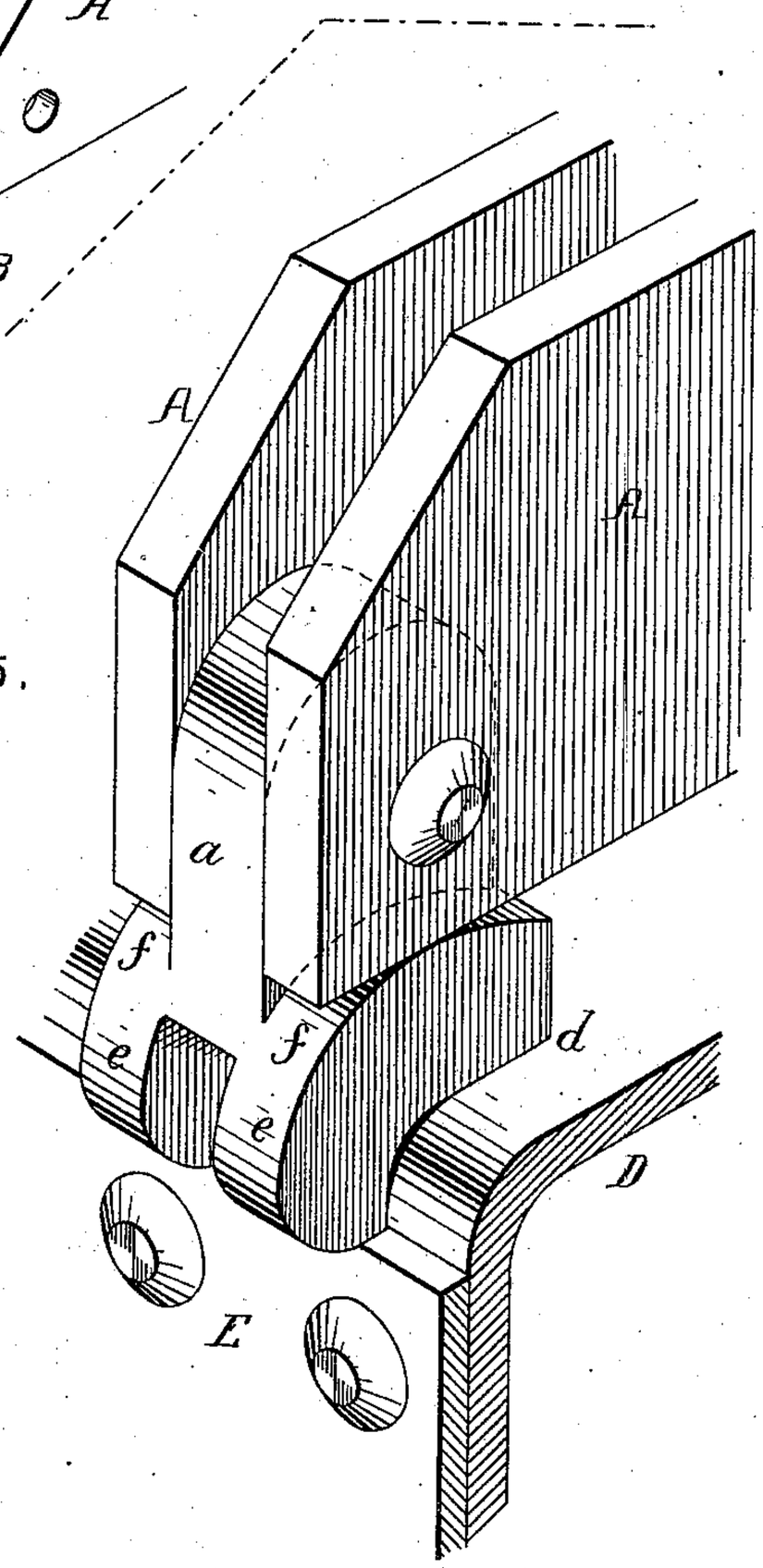
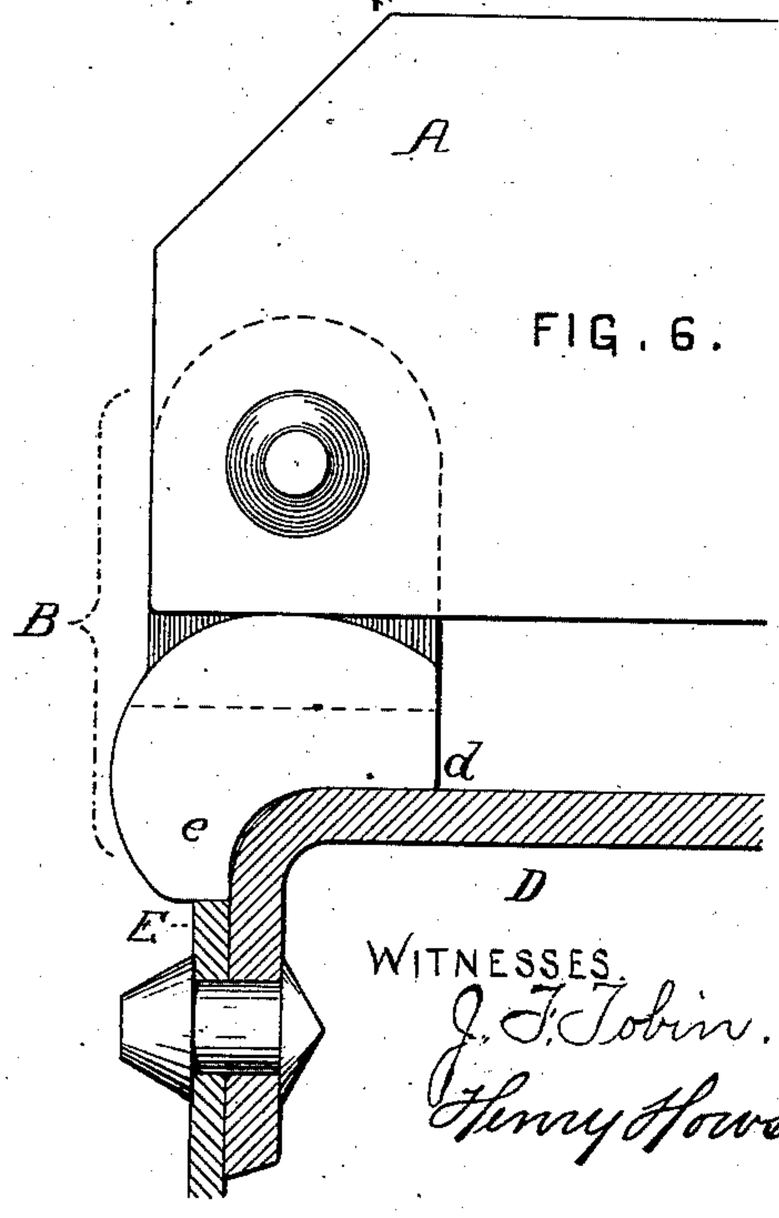


FIG. 6.



WITNESSES.

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EDWARD LONGSTRETH, OF PHILADELPHIA, PENNSYLVANIA.

CROWN-BAR FOR FIRE-BOXES.

SPECIFICATION forming part of Letters Patent No. 228,090, dated May 25, 1880.

Application filed March 29, 1880. (No model.)

To all whom it may concern:

Be it known that I, EDWARD LONGSTRETH, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented an Improvement in Crown-Bars for Fire-Boxes, of which the following is a specification.

My invention consists of the combination of the crown-bars and fire-box of a boiler of the locomotive type, with certain bearing-blocks interposed between the said bars and fire-box, and constructed in the peculiar manner fully described hereinafter, so that a portion of each block shall bear on the crown-sheet and a portion on the upper edge of one of the side plates, the said upper edge of the plate being below the upper surface of the crown-sheet, so that there may be no recess for the lodgment of sediment.

In the accompanying drawings, Figures 1, 2, and 3 are views representing ordinary crown-bars applied to the top of the fire-box of a locomotive type of boiler; Fig. 4, a perspective view, showing my improved bearing-block for the crown-bars; Fig. 5, a perspective view of a portion of the crown-bars, and showing their adaptation to the improved bearing-block; and Fig. 6, a vertical section of part of the crown-sheet and side plate of the fire-box, with the bearing-block and part of the crown-bars.

Figs. 4, 5, and 6 of the accompanying (original) drawings are drawn to a scale of six inches to a foot, the remaining figures being drawn to a reduced scale.

The crown-bars of fire-boxes of the style of boiler to which my invention relates originally consisted of solid forgings made with swells or enlargements for the stay-bolts, and with turned-down ends for bearing on the flanged edges of the crown-sheet and upper edges of the side plates; but this style of crown-bar has been of late years abandoned for the more economical duplex bar shown in in Figs. 1, 2, and 3. This consists of two bars, A A, placed a short distance from each other and supported near each end by bearing-blocks B B, each block having a lug, *a*, interposed between and secured by a bolt or rivet to the two bars, which rest on shoulders on the block outside the lug.

It has been usual to make these bearing-blocks with flat bases *b*, which rested partly on the rounded edge of the crown-plate and partly on the edges of the side plates, E E, of the fire-box, these side plates being carried upward so that their edges were level with the upper surface of the crown-sheet—an arrangement which, although it presented an appropriate bearing for the blocks, resulted in the formation of triangular recesses *x* at each edge of the crown-plate, and in these recesses sediment of a non-conducting character accumulated and induced the burning of the crown-sheet where the recesses occurred.

In order to overcome this difficulty I construct the bearing-blocks and adapt them to the fire-box in the manner shown in Figs. 4, 5 and 6, on reference to which it will be seen that the upper edges of the side plates, E E, are so far below the level of the upper surface of the crown-sheet that there are no recesses in which sediment can find a lodgment; but it is essential that each bearing-block should rest both on the crown-sheet and on the upper edge of the side plate; hence, instead of making the bearing-block with a flat base, the latter has a lip or lips, *e*, which rest on the edge of the side plate of the fire-box, while the straight portion *d* bears on the crown-sheet.

There are two bars, A, resting near each end on the rounded shoulders *f f* of the blocks, one bar on each side of the lug *a*, the latter projecting upward from the block and being secured to the said bars by rivets or bolts, each of which is somewhat less in diameter than the hole in the lug, so that the bearing-blocks will not be disturbed by any differential expansion or contraction of the fire-box and crown-bars.

I claim as my invention—

The combination of the crown-bars A A and fire-box of a boiler of the locomotive type with bearing-blocks B, the base of each of which has a lip or lips, *e*, for bearing on the edge of the side plate of the fire-box, while the portion *d* bears on the crown-sheet, all substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD LONGSTRETH.

Witnesses:

JAMES F. TOBIN,

HARRY SMITH.