

S. Smith,

Furnace-Grate Bar.

N^o 58,494.

Patented Oct. 2, 1866.

Fig. 1.

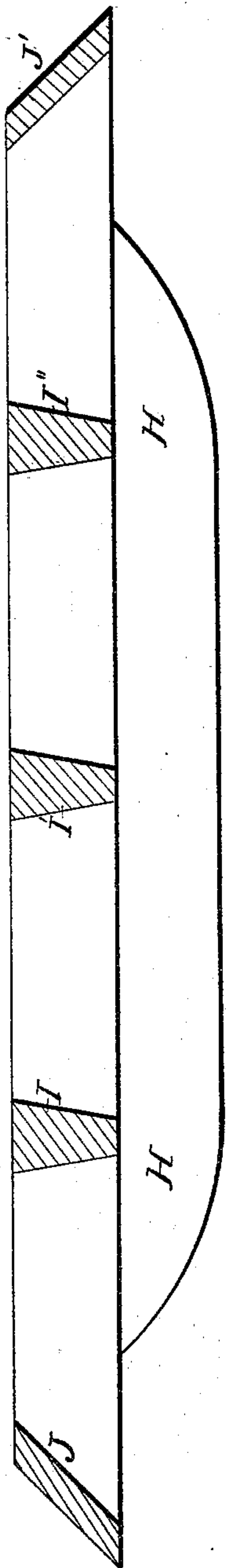


Fig. 2.

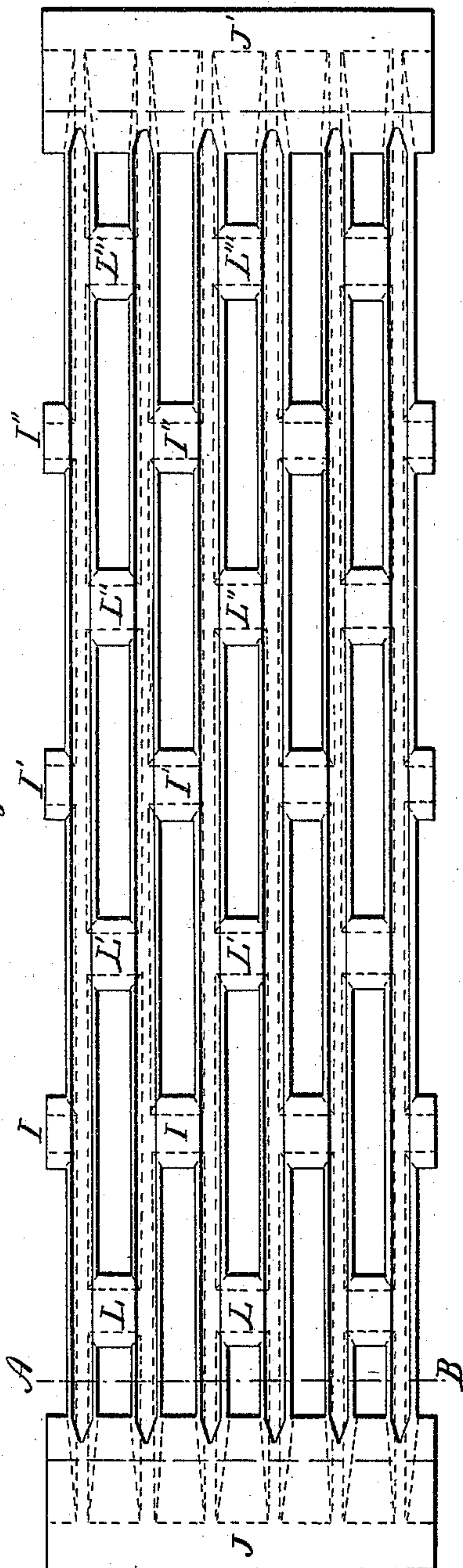
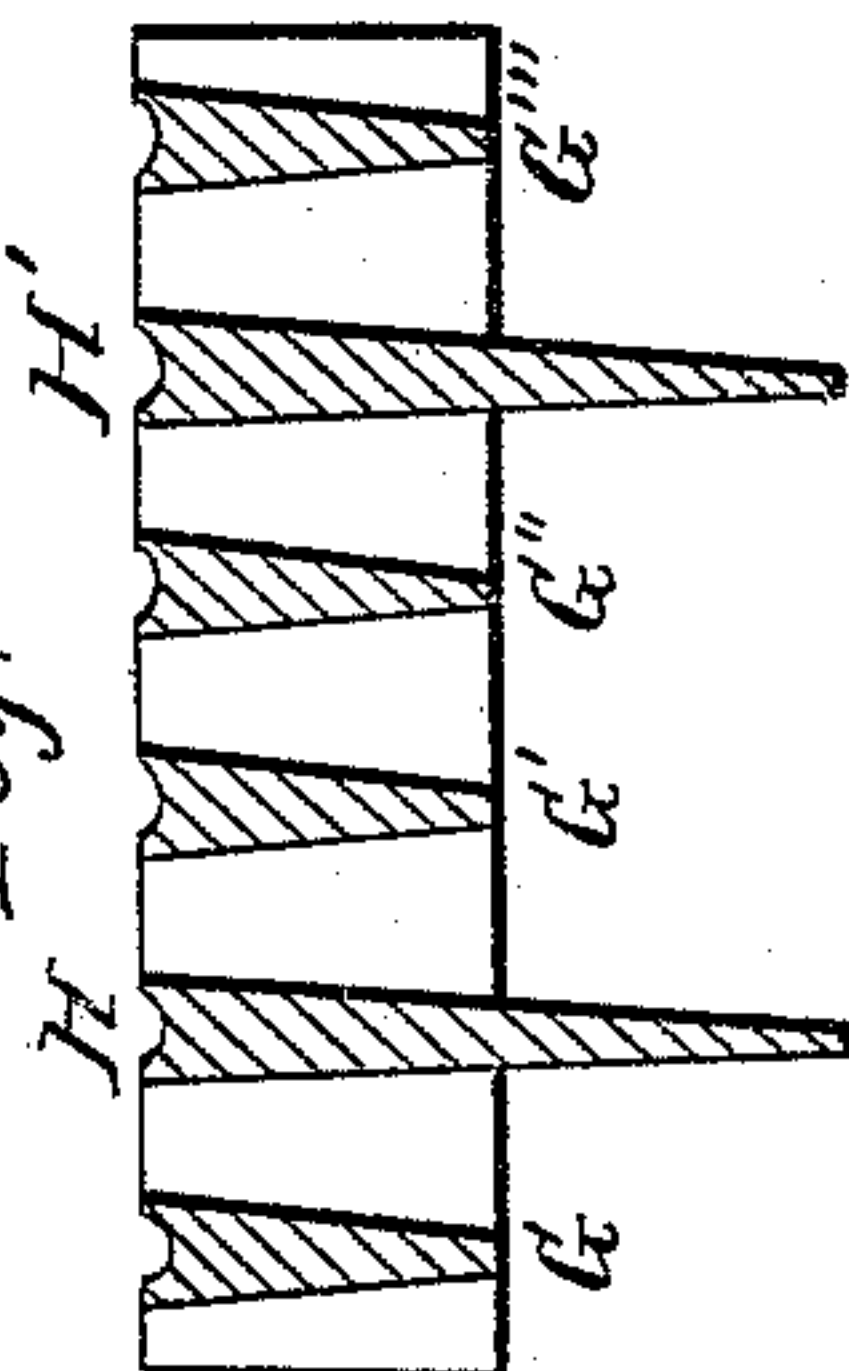


Fig. 3.



Witnesses;
James Repes
Alfred Poor

Inventor;
Stevy Smith

UNITED STATES PATENT OFFICE.

STERRY SMITH, OF SALEM, MASSACHUSETTS.

GRATE-BAR.

Specification forming part of Letters Patent No. 58,494, dated October 2, 1866.

To all whom it may concern:

Be it known that I, STERRY SMITH, of Salem, in the county of Essex and State of Massachusetts, have invented an Improvement in Furnace Grate-Bars; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters and figures marked thereon.

Figure I is a side view of the bar. Fig. II is a plan or top view. Fig. III is a section on the line A B, Fig. II.

My improved furnace grate-bar is constructed in such a manner as to insure great strength for supporting the coal or other fuel, and at the same time expose a very large surface for the radiation of heat and for contact with the draft of air that is supplied to the fuel, the longitudinal parallel bars of which the compound grate-bar is formed being strengthened at intervals upon opposite sides of the bars by small projections which connect the bars together. The whole of the compound bar is solid, and is cast in one piece.

In Fig. II, which is a plan of the compound bar, there are six parallel bars, their distance apart being about the same as the thickness of the bar. Their length varies according to the dimensions of the furnace or the distance from one wall of the fire-chamber to the other.

The bars are all very deep in proportion to their breadth. Four of them, G G' G'' G''', are straight or square on the lower side, as seen in Fig. III, and two of them, H H', are curved downward at the bottom in nearly the shape represented in Fig. I.

It will be observed that by placing the deep bars H H' in the position represented in Fig. III, the compound bars, when placed side by

side in a furnace, form a grate in which the deep bars alternate with two shallow bars.

I commonly use four or five divisions or lugs, I I', &c., and L L', &c., Figs. I and II, which are placed between the parallel single bars and connect them together, thus preventing the lateral motion of the bars when exposed to a high heat, and enabling me to employ a very thin bar as compared with those heretofore in use. These lugs or divisions are usually made in the shape shown in Fig. I at I I', being wider at the top than at the bottom, to facilitate the passage of ashes and waste products through the grate. All of the parallel bars are also narrower at the bottom than at the top, as represented in Fig. III.

The lugs or connections I and L are not in line with each other across the grate, but each lug is attached to two contiguous bars, centrally between the next two lugs, as in Fig. I. This allows for slight expansion and contraction of the parts without causing fracture.

The bars are connected together by the sloping plates J J', which form the ends of the compound bar, as represented in Figs. I and II.

What I claim, and desire to secure by Letters Patent, is—

A grate-bar composed of a series of parallel longitudinal bars connected together by lugs placed alternately on opposite sides of the next adjoining bar, in combination with the curved bars H H', alternating with the bars G G', as shown and described.

STERRY SMITH. [L. S.]

In presence of—

JAMES ROPES,
ALFRED POOR.