

G. A. JASPER & G. T. SHELDON.

Grate-Bars for Furnaces.

No. 157,287.

Patented Dec. 1, 1874.

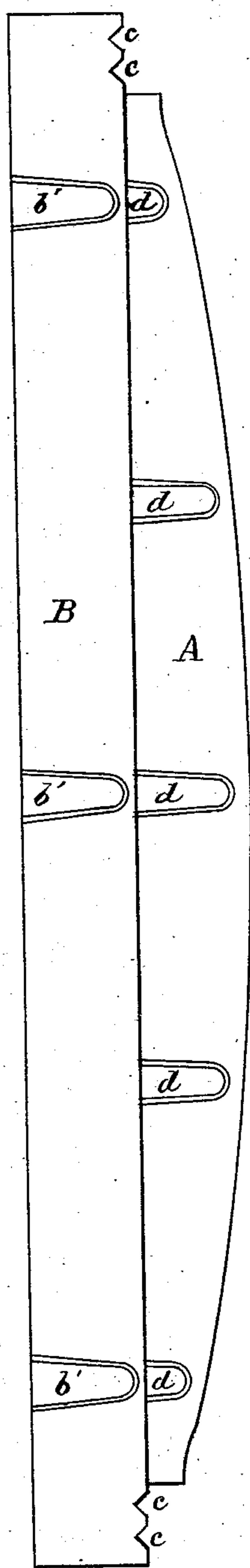


FIG. 1.

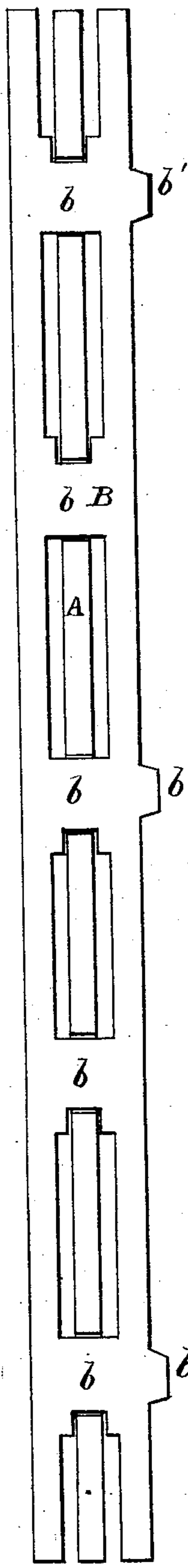


FIG. 2.

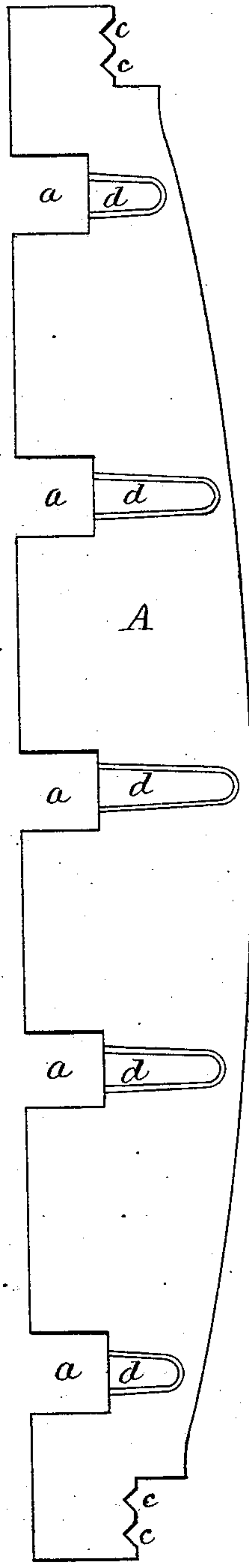


FIG. 3.

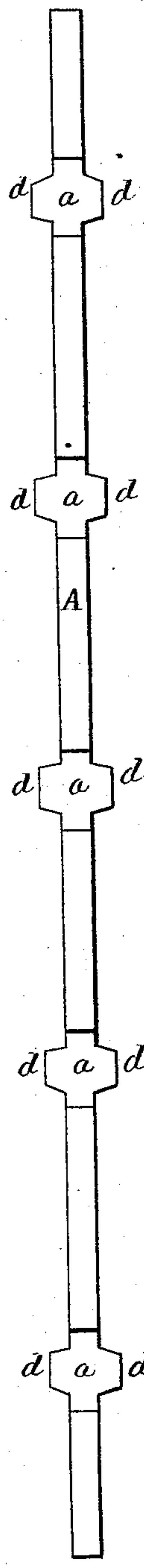


FIG. 4.

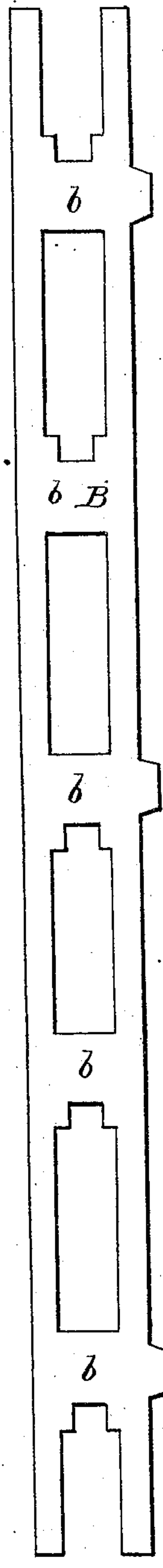


FIG. 5.

WITNESSES.

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UNITED STATES PATENT OFFICE.

GUSTAVUS A. JASPER, OF BOSTON, AND GEORGE T. SHELDON, OF CHELMSFORD, MASSACHUSETTS.

IMPROVEMENT IN GRATE-BARS FOR FURNACES.

Specification forming part of Letters Patent No. **157,287**, dated December 1, 1874; application filed November 13, 1874.

To all whom it may concern:

Be it known that we, GUSTAVUS A. JASPER, of Boston, in the State of Massachusetts, and GEORGE T. SHELDON, of Chelmsford, in said State, have invented an Improvement in Grate-Bars for Furnaces, of which the following is a specification:

In ordinary furnace-grates, what is technically known as a grate-bar consists of three narrow or thin, but deep, bars or slabs of iron, cast in one piece, and connected at intervals by cross-pieces, also forming a part of the casting. The ends of the castings rest upon supports at the bottom of the fire-chamber. The spaces between the slabs are the air or draft spaces, and great difficulty has been found in the use of sand-molds for casting grate-bars in which the air-spaces are narrow, since in such cases that part of the mold which is to form the air-space easily breaks. Our invention has especial reference to this difficulty. Another advantage which results from the invention is the proper cooling of the castings, especially at the time when made, and this result follows even when the air-spaces are of ordinary width. When the three slabs are cast together in one casting, the inner slab retains its heat much longer than the outside slabs, and thereby the slabs are liable to become warped relatively to each other, and the cross-pieces may be cracked or broken. This is true, in a degree, every time the grate-bar is heated. But in both cases our invention obviates the difficulty.

The invention consists in casting each grate-bar in two pieces, one straddling the other, as shown in the drawings.

Figure 1 is a side elevation of a single grate-bar. Fig. 2 is a plan of a single grate-bar. Fig. 3 is a side elevation of the center casting of the same. Fig. 4 is a plan of the center casting. Fig. 5 is a plan of the outside casting.

A is the center casting, having slots *a* in the upper edge, as shown. B is the outside casting, consisting of two slabs connected by cross-pieces, marked *b*, forming a part of the casting, and loosely fitting in the slots *a* of the inside casting. The outside casting is made to straddle or ride upon the inner slab, as shown, thereby forming a complete grate-bar. The inner slab is cast deeper than the others, for strength, and for the same purpose has cast upon it projections or lugs *d*. One of the outside slabs has lugs *b'*, to determine the width of the air-space between two adjoining sets. It follows that grates made up of bars thus cast may have air-spaces of any desired width, however narrow. The slabs of both castings, at the ends which rest upon the supports at the bottom of the fire-chamber, have slots *c*, as shown, to allow air to pass through the draft-spaces at those ends.

We claim—

The combination of the inner casting A and the outer casting B, substantially as described.

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Witnesses:

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