

J. C. LONGLAND.

Water Bridge Boshes for Puddling Furnaces.

No. 161,135

Patented March 23, 1875.

Fig. 2

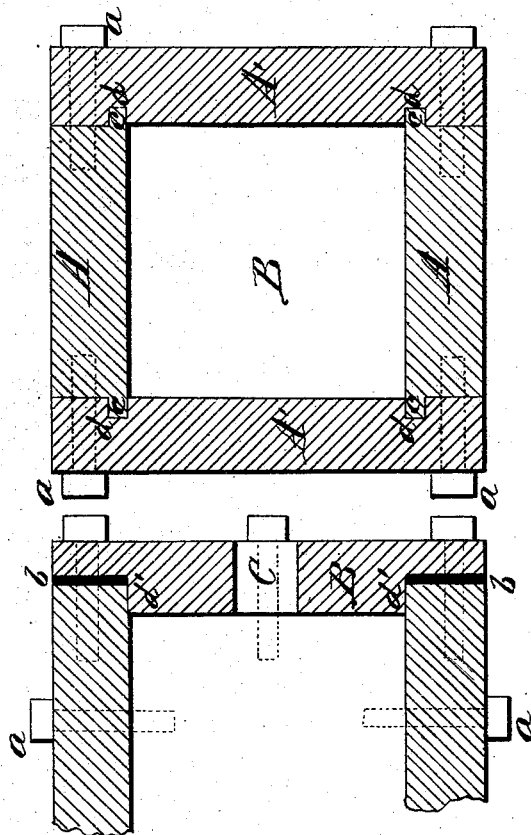
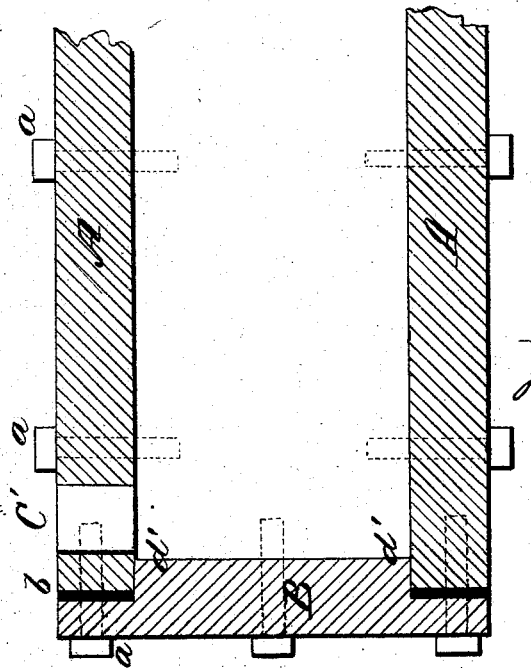


Fig. 1



Witnesses,  
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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN WATER-BRIDGE BOSHES FOR PUDDLING-FURNACES.

Specification forming part of Letters Patent No. **161,135**, dated March 23, 1875; application filed October 31, 1874.

*To all whom it may concern:*

Be it known that I, JAMES C. LONGLAND, of the city of Rome, in the county of Oneida and State of New York, have invented a new and valuable Improvement in a Bridge-Bosh for Heating and Puddling Furnaces; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of the door-frame. Fig. 2 is a representation of the water-bridge bosh.

This invention has relation to water-bridge boshes which are designed for use in puddling-furnaces.

Prior to my invention these boshes were made of cast-iron and of one piece, with passages through them for the circulation of water, leaving a large mass of solid iron next to the fire, which is but slightly benefited by said circulating-spaces, and which is so rapidly destroyed by heat that the boshes require to be frequently removed at large expense of time and money. The boshes have also been made of wrought-iron, three of the sides of the bosh being formed of a single plate of rectangular iron riveted to a flange on the fourth side. Boshes thus constructed when burnt out on the fire-side cannot be removed and again inserted into the furnace with the opposite side facing the interior of the furnace.

To obviate these objections the invention which I have made consists in constructing the boshes for puddling-furnaces of separately-removable wrought-iron plates secured together by tongues and grooves, in combination with tenoned end pieces and packing, whereby the water inside of the boshes will be in contact with the inner surface of every plate to which the fire can have access, and when any one of

the plates has been injured by the fire it may readily be removed and another plate substituted for it.

The shape and size of my improved boshes will be the same as those hitherto used, but instead of making them of cast-iron I construct them of wrought-iron plates A A' B B, of from one inch to one and a half inches thick, and secure these plates together by means of screw-bolts *a* arranged close together, using at the ends of the box any suitable packing, *b*, for insuring water-tight joints. The longitudinal joints of the box are formed by means of tongues *c* which enter grooves *d* made in the longitudinal pieces A'. The tongues *c* are formed on one side of the center of the edges of the pieces A, so that the bolts *a* can be inserted without cutting through said tongues. The tongues are thus left continuous from one end to the other of the box, thus affording great strength and making tight joints. The heads or ends B B are fitted to the longitudinal plates by forming shoulders *d' d'* which enter the ends of the box. C designates the inlet for water, and C' the outlet for it.

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

In a water-bosh, the longitudinal pieces A A, provided with the tongues *c c*, in combination with the longitudinal pieces A' A', provided with grooves *d d*, tenoned end pieces B B, and packing *b b*, and water induction and eduction passages C C', substantially as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JAMES C. LONGLAND.

Witnesses:

W. E. WRIGHT,  
E. L. STEVENS.