W. R. JONES.

FASTENINGS FOR BESSEMER CONVERTER SECTIONS.

No. 185,753. Patented Dec. 26, 1876.

Fig. 1.

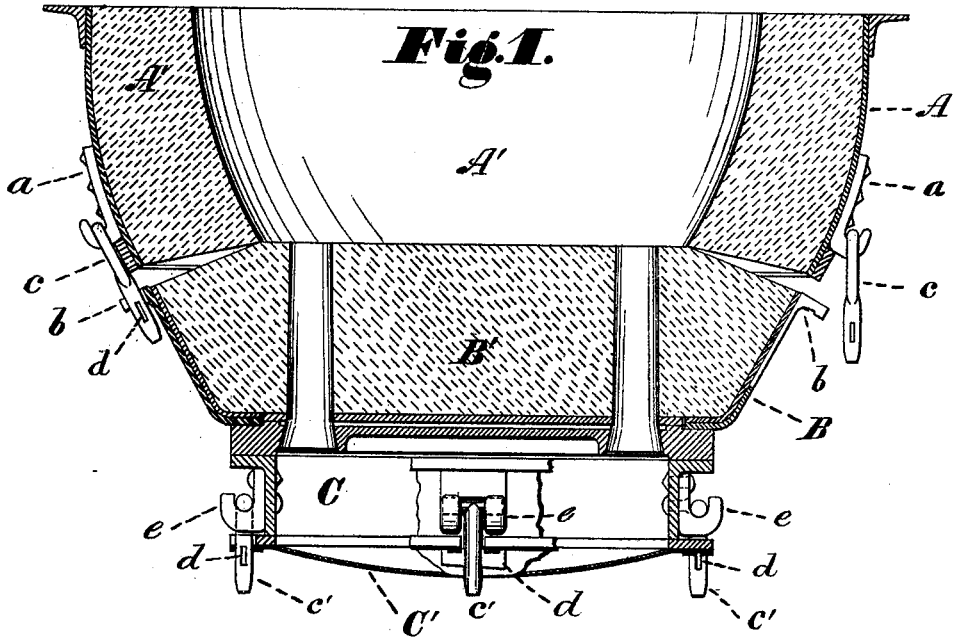


Fig. 2.

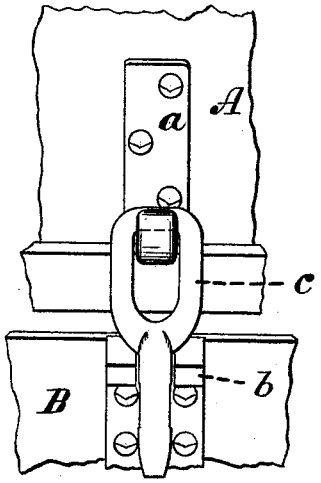
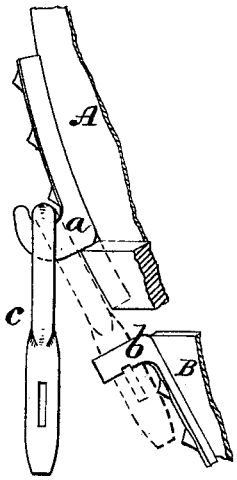


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM R. JONES, OF BRADDOCK'S FIELD, PENNSYLVANIA.

IMPROVEMENT IN FASTENINGS FOR BESSEMER-CONVERTER SECTIONS.

Specification forming part of Letters Patent No. **185,753**, dated December 26, 1876; application filed October 16, 1876.

To all whom it may concern:

Be it known that I, WILLIAM R. JONES, of Braddock's Field, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Fastenings for Bessemer-Converter Sections; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a vertical section of that part of a converter embodying my invention. Fig. 2 is a front elevation in detail. Fig. 3 is a side elevation in detail.

This invention relates to the construction of devices for readily uniting or displacing the bottom of Bessemer converters and the air-chamber cover from the bottom.

The most approved form of converter is that with a joint below the trunnions, by means of which the bottom or lower portion of the bulb may be taken off for repairs to the tuyeres or other parts. In large plants it is customary to use this form and keep a number of supplementary bottom sections to replace at once those in which the tuyeres have become burned out or worn short. This is necessary in order to increase the capacity of the plant, by keeping the converters at work as steadily as possible.

Now, in the present form, the bottom section and the cover of the blowing-chamber are attached to the main bulb of the converter, and to each other, by means of a number (generally twelve) of pins, which are rigidly attached to the flange or lug of one part and enter holes in the flange of the other part, being fastened by a key-pin or wedge. This is all well enough when the converter is to be taken apart, as it is only necessary to knock out the keys. But to put the sections together is another thing. Here are twelve or fourteen fixed bolts, every one of which must be in line with its respective hole in the other section. This is a difficult thing to accomplish, on account of the great weight of the sections, which require a steam or hydraulic crane to move them. In the great hurry incidental to the Bessemer process, the workmen think all is right, and pass the word to lower away. Down comes the ponderous mass, and as the adjustment is seldom accurate, one or more pins are snapped off and rendered useless. This is a great and annoying nuisance, besides causing a loss of very valuable time, which I propose to do away with by my invention.

It comprises two forms—a device for uniting the bottom section to the main bulb, and one for uniting the metal cover to the bottom section. The latter must be shorter than the former, because there is less room for it.

To these ends, then, my invention consists of either a T or loop-headed bolt, the head seated on a lug or lugs on one section of the converter, and the shank passing through an open-slotted flange or lug on the other section, beyond which the usual key-wedge is driven through the bolt-shank.

In the drawings, A is the shell of the main section of the bulb, and A′ its lining. B is the shell of bottom section; and B′ its lining, having the tuyere-holes for the blast. C is the air-chamber casing, and C′ its cover.

On the outside of shell A, around its lower edge, are placed lugs *a*, each having an upwardly-turned end, forming a hook, as seen in Figs. 1 and 3. On the outside of shell B, around its upper edge, and corresponding to the lugs *a*, are placed lugs *b*, each having a square shoulder with an open slot. The under side of the shoulder may have a groove as a seat for the key-wedge. These two portions are united by means of the loop-headed bolts *c*, the loop passing over the lug-hook *a*, while the shank slips into the open slot of lug *b*, after which the key *d* is driven home.

The cover C′ of the air-chamber is clamped in a similar manner, except that the bolts *c*′ are T-headed and the lugs *e* are slotted to form a seat for the shank, and a bearing on each side for the T-head. In other respects the two fastenings are alike.

Thus constructed, in assembling and uniting the parts there is no necessity for such nicety of adjustment before lowering away at the crane, and no possibility of breakage. If a bolt fail to enter its slot, it is simply pushed out of its seat. Or the bolts may all be un-

shipped and thrown on the ground till the sections are brought together, when a few moments suffice for attaching them and driving the keys. If any of them should accidentally break, another can be had to take its place without the delay of riveting or other fastening.

Altogether, the operation of uniting the sections by this means is rendered short and simple, with no loss of time, no breakage, no necessity of lengthy repairs, as are usual with the present form. The time thus saved can be profitably occupied in one or more extra "blows" daily.

Having thus fully described my invention, I claim—

A coupling for the sections of a converter, consisting of a bolt, having a loop or T-head, a hooked lug, to support said bolt, an open-slotted shoulder, to receive the bolt-shank, and a key to fasten the coupled parts together, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 2d day of October, 1876.

WILLIAM R. JONES.

Witnesses:
GRAM. CURTIS,
WILLIAM WHITE, Jr.