H. S. OSBORN.

Refining Cast Iron.

No. 82,435. Patented Sept. 22, 1868.

Fig: 1.

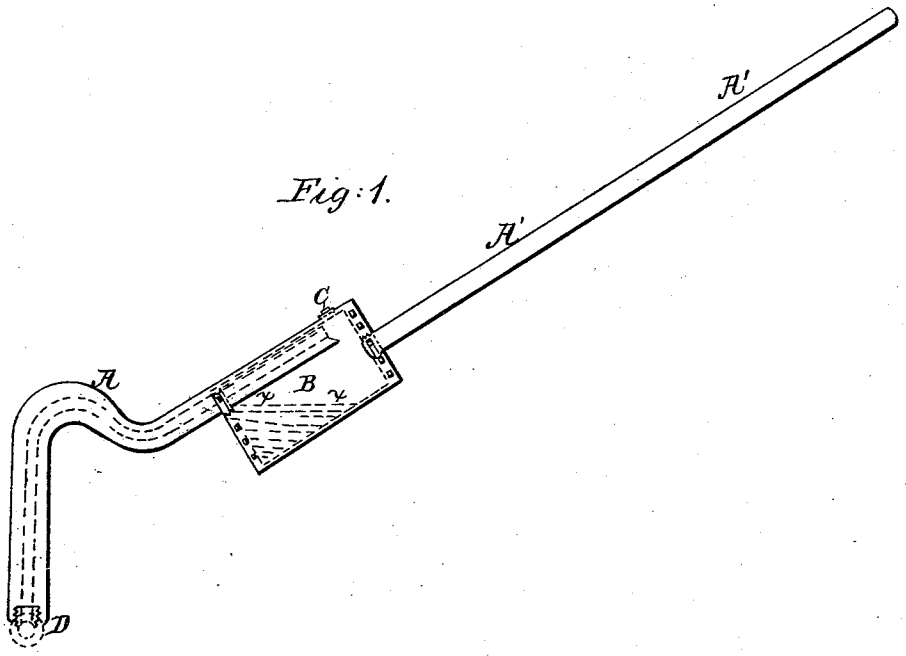
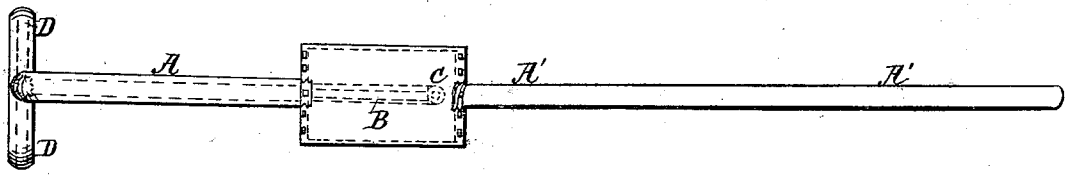


Fig: 2.



Witnesses.

William Young

E. W. Hunt

Inventor.

Henry S. Osborn

N. PETERS. Photo-Lithographer, Washington, D. C.

United States Patent Office.

HENRY S. OSBORN, OF EASTON, PENNSYLVANIA.

Letters Patent No. 82,435, *dated September* 22, 1868.

IMPROVEMENT IN REFINING CAST IRON.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, HENRY S. OSBORN, of Easton, in the county of Northampton, and State of Pennsylvania, have invented a new and useful Machine for Refining Melted Cast Iron in the process generally called "puddling," by means of a self-generating steam-"rabble" or iron bar taking the place of the instrument commonly called the rabble, in refining iron in the refinery or puddling-furnace; 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, in which—

Figure 1 represents a vertical section of the instrument in its position as being used by the workman, and

Figure 2 is the same instrument, as looked down upon from above, or in some degree a plan of the same.

In fig. 1, B is the iron box, of strong wrought iron, cylindrical in shape, with two wrought-iron heads, one into which the solid handle A′ A′ screws, and the other into which the curved rabble-end D A screws, as in the figure. The latter, or curved rabble-end of the instrument, has a thread chased in that end entering the steam-box, so that a small tube, also of wrought iron, may be screwed into it, which smaller tube passes directly into the steam-box, and reaches to the supply-hole at C, fig. 1, to prevent water from passing down to the bar-end D.

x B *x* represents the height of water when using the instrument.

Fig. 2 represents the instrument as seen from above, or as looked down upon. In this the form of the end D D is plainly seen with the perforations. These perforations may be of any number, such that when the steam is generated at full pressure it may be delivered under a pressure of not much more than ten to fifteen pounds to the inch, as, by experiments, it is found to be most effective at that pressure or less. This cross-piece must be plain and smooth, and screwed on, or so fastened as to allow of being easily disengaged in the usual way, by a tap from a small hammer, from any slag or cinder which may cling to it.

The workman introduces the rabble, just before needing to puddle, (regulating the time by experience,) and, when the proper time arrives, introduces into the molten iron the end D D, fig. 2, and, when the steam is freely passing out, draws it backward and forward and around until he sees that the iron shows decided signs of "coming to nature," always remembering that the end, D, is never to be submerged under the liquid slag and molten material until the steam is passing out from D D freely.

A "heat," which, with the ordinary rabble, requires twenty-five minutes, will generally be sufficiently decarbonized in less than seven minutes, and the mass more thoroughly treated, and will make finer and more solid-grained iron.

What I claim, is—

The self-generating steam-rabble, or the rabble in which the steam is generated by the heat surrounding the rabble, in the manner and for the purposes substantially as above described.

HENRY S. OSBORN.

Witnesses:

WILLIAM YOUNG,

G. W. STOUT.