HENRY CHISHOLM.

Improvement in Converters for the Manufacture of Bessemer Steel.

No. 115,279. Patented May 30, 1871.

Fig. 1.

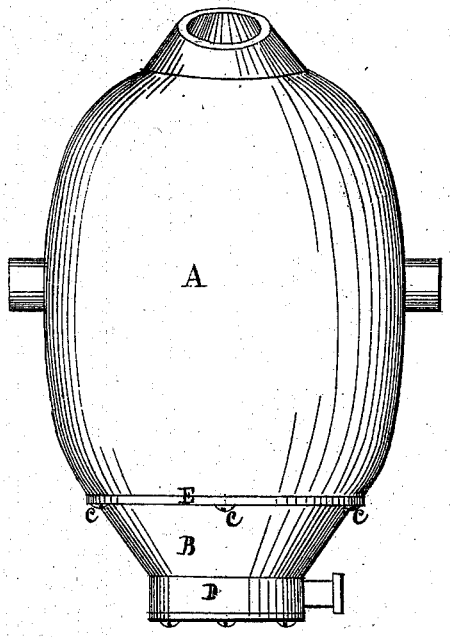
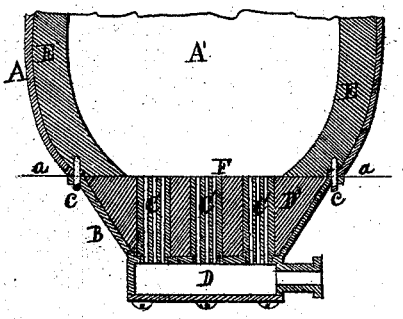


Fig. 2.



Witnesses.
J. H. Burridge.
C. R. Gaites

Inventor.
H. Chisholm.
per Burridge & Co.
Attys

UNITED STATES PATENT OFFICE.

HENRY CHISHOLM, OF CLEVELAND, OHIO.

IMPROVEMENT IN CONVERTERS FOR THE MANUFACTURE OF BESSEMER STEEL.

Specification forming part of Letters Patent No. 115,279, dated May 30, 1871.

To all whom it may concern:

Be it known that I, HENRY CHISHOLM, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Steel-Converting Vessels, of which the following is a description, reference being had to the accompanying drawing making part of this specification.

Figure 1 is a side view of the converting-vessel. Fig. 2 is a vertical section below the trunnions.

Like letters of reference refer to like parts in the different views.

I am aware that H. Bessemer has made certain improvements in steel-converting vessels, patented December 5, 1865, No. 51,399, and which I do not claim; but my improvement in the construction and arrangement of converting-vessels relates to so connecting the upper and lower sections that the base of the lining of the upper section is in contact with the face of the filling in the lower section, this joint or connection of the two sections being in line with the top of the tuyeres, and so arranged that the bottom section may be easily and readily attached, forming a proper joint, and detached with the least possible injury to the lining, as more fully hereinafter set forth.

In the drawing, A, Fig. 1, represents the casing or body of upper section of the converting-vessel, with curved sides, and B the lower section or bottom, with the outside casing; C, the tuyeres; and D chamber below, into which the air is conveyed in the usual way, and forced through the tuyeres to act upon the molten mass in the chamber A′. When the bottom section is removed the lining in the upper section is retained in place by the curved form below the trunnions; hence no support is required at the bottom or base of the lining. The vessel is hung upon trunnions and provided with a nozzle at the upper end in the ordinary manner. *c c* are screw bolts or pins for securing the sections together.

In converting-vessels as usually constructed and arranged the joint for connecting and disconnecting the sections is either above the tuyeres and below the trunnions, or below said tuyeres. It is difficult to handle and manage the former arrangement, and in the latter case the lining of the chamber A′ becomes united with the ganister filling around the tuyeres in the lower section, as it extends above said joint into the base of the chamber. These are serious objections to both of these plans, and the evils attendant are well understood by those skilled in the art. Ease and facility of attaching and detaching the bottom or lower section of a converter to the upper section with the least possible injury to the lining of the chamber are a desideratum in this process when expedition is required. To avoid these difficulties and objections attendant upon the usual manner of constructing and arranging the sections of converters is the object of my improvement, and which consists in so attaching the lower section that the surface or face F across the top of the tuyeres forms a plane, or nearly, in line with the base of the chamber A′ and lining, as indicated by the joint or line *a*, Fig. 2—that is to say, the surface F across the tuyeres is made without any part raised above the flange of the bottom casing, as noted by the line *a a*; hence the base of the lining E and the flange of the upper casing are in a common line with the surface or face F and plane of the bottom casing.

By this manner of attaching the upper and lower sections there can be introduced between the joint graphite or other suitable material to prevent the lining E from being cemented with the filling D′ of the bottom by fusion when subject to the intense heat of the molten metal in the chamber A′; hence the old bottom or section B can in this way, it is found, be quickly and easily removed and a new one readily attached without injury to the lining of the chamber or delay in the process of manufacture.

The importance of connecting and detaching the bottom with ease and facility with-

out breaking down or injuring the lining is well understood in the art to which this invention belongs.

Claim.

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

The two sections, so arranged in relation to each other that the base and lining of section A and the surface F of section B shall be in line, or nearly so, at the joint *a*, when the sections, constructed substantially as described, are connected together, as and for the purpose set forth.

HENRY CHISHOLM.

Witnesses:

W. H. BURRIDGE,

J. H. BURRIDGE.