

# United States Patent Office.

CHARLES USHER, OF IOWA FALLS, IOWA.

*Letters Patent No. 62,706, dated March 5, 1867.*

## IMPROVEMENT IN THE MANUFACTURE OF IRON AND STEEL.

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, CHARLES USHER, of Iowa Falls, in the county of Hardin, and State of Iowa, have invented a new and useful Improvement in the Manufacture of Iron or Steel; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to fully understand and make use of the same.

The present invention consists in plating wrought iron or steel with malleable iron, welding it to either of the former by the aid of borax, and then chilling it very hard. By this means I obtain the strength of wrought iron and the durability of the chilled malleable iron; the iron thus produced being especially adapted for the calks and toes of horse-shoes, plough-shares, and many other useful purposes.

The process or mode of manufacture is as follows: First take a piece of malleable iron, which, when melted, will fully cover the surface required, and about one-third the quantity of borax, when lay them both on the wrought iron or steel, as the case may be, and heat them in a furnace until the malleable iron has melted, which will then run over the surface of the said wrought iron or steel, and, firmly adhering, form a covering or plating to it, as is obvious without any further explanation.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent—

The within-described process for plating iron and steel, substantially as herein described.

CHARLES USHER.

Witnesses:

J. C. WALDREN,

L. P. JONES.