

(No Model.)

J. HOOPER.
CONVERTING CAST IRON BLANKS INTO STEEL AND THE MANUFACTURE
OF EDGE TOOLS THEREFROM.

No. 522,595.

Patented July 10, 1894.

Fig. 1.

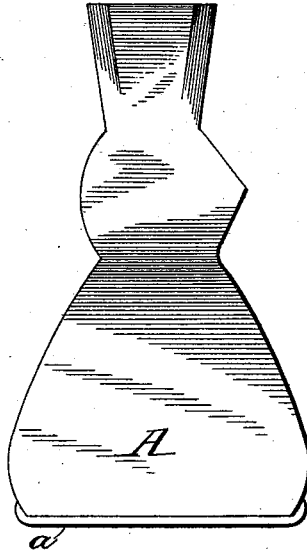
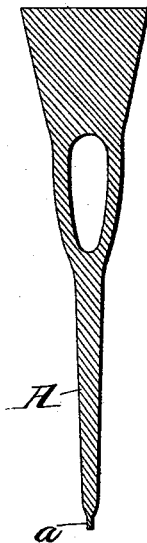


Fig. 2.



witnesses:
Harry B. Rohrer,
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UNITED STATES PATENT OFFICE.

JOSEPHUS HOOPER, OF LOUISVILLE, KENTUCKY.

CONVERTING CAST-IRON BLANKS INTO STEEL AND THE MANUFACTURE OF EDGE TOOLS THEREFROM.

SPECIFICATION forming part of Letters Patent No. 522,595, dated July 10, 1894.

Application filed July 17, 1893. Serial No. 480,749. (No model.)

To all whom it may concern:

Be it known that I, JOSEPHUS HOOPER, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Converting Cast-Iron Blanks into Steel and the Manufacture of Edge Tools Therefrom; 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 appertains to make and use the same.

My invention relates to certain new and useful improvements in converting cast iron blanks into steel, and the manufacture of edge tools therefrom.

In carrying out my invention I preferably cast the blanks as devoid of seams and blow-holes as possible, so as to be substantially smooth and solid. To convert them into steel they are packed in boxes with hematite ore, or other oxide of iron, oxide of manganese, or the like, and after being sealed up said boxes are subjected to the required heat in a suitable furnace, to remove the excess of carbon, as is well understood by those skilled in the art. The articles thus converted into steel may then be rolled, hammered, or otherwise wrought into the final shape they are to assume, and tempered.

In casting such blanks as are to be converted into steel by the method just referred to, I cast a fin along the edge or edges thereof. I make this fin thinner than the adjacent part of the blank, so that, when taken from the converting box, the percentage of carbon in said fin will be considerably less than that in the said adjacent part or final edge proper of the completed article.

In the accompanying drawings, Figure 1 represents a front view, and Fig. 2 represents a vertical cross section of a hatchet casting or blank A, having cast with it a fin *a* in accordance with my invention. While the hatchet blank is being converted into steel in the converting box, this fin is softened and toughened by its greater de-carbonization due to its relative thinness. Its function is fourfold: first, it protects the edge proper of the tool against two great decarbonization; secondly, being itself converted into substantially tough wrought iron, it is adapted to prevent the edge proper from becoming split, cracked, or folded, when rolled, hammered, or

otherwise wrought; thirdly, if left on while the tool is being tempered, it prevents temper cracks; and fourthly, cracks, flaws or imperfections that may arise during the converting operation are substantially confined to the fin and do not extend into the proximate edge proper of the casting, so that a product substantially uniform in size may be obtained.

It will of course be understood that the drawings illustrate merely one application of my invention. The fin is preferably not cut off until the tool has been tempered.

Having thus described my invention, what I claim is—

1. The method of converting a cast iron blank into steel and at the same time protecting the edges of said blank against excessive decarbonization, which consists in providing said edges with a projecting fin of less thickness than the edge portion of the blank from which it projects, subjecting the blank to decarbonization until it is converted into steel, and removing the fin subsequent to said decarbonization substantially as described.

2. The method of converting a cast iron blank into steel, and protecting its edges during the converting operation, and during subsequent working, which consists in providing said edges with a projecting fin of less thickness than the edge portion of the blank from which it projects, then subjecting the blank to decarbonization until it is converted into steel, and hammering or otherwise working the edges of the blank while the fin is still upon the blank; substantially as described.

3. The method of converting a cast iron blank into steel and protecting its edges during the converting operation and during subsequent working and tempering, which consists in protecting said edges with a projecting fin of less thickness than the edge portion of the blank from which it projects, then decarbonizing the blank and working and tempering the edges of the blank while the fin is still upon the blank; substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPHUS HOOPER.

Witnesses:

STUART W. WALKER,
HENRY E. GREEN.