

UNITED STATES PATENT OFFICE.

HARRY M. NICHOLS, OF NEW YORK, N. Y.

MANUFACTURE OF STEEL.

SPECIFICATION forming part of Letters Patent No. 276,453, dated April 24, 1883.

Application filed January 29, 1883. (No specimens.)

To all whom it may concern:

Be it known that I, HARRY M. NICHOLS, a citizen of the United States, and a resident of New York, in the county and State of New York, have invented certain new and useful Improvements in the Manufacture of Steel, of which the following is a specification.

My invention relates to certain improvements in cementation-baths for converting cast and wrought iron into steel.

The object of the invention is to economically produce from various forms of iron, whether pure or of inferior grade, a good quality of steel.

The invention consists in the employment of whalebone as a cementation-bath in the process of converting iron into steel. This bath is also applicable to aluminium and to various other metals to which it may be desired to impart the qualities of toughness and elasticity.

The method of applying my invention consists in subjecting the iron which is to be converted into steel, or the other metals to which it may be desired to impart the qualities characteristic of steel, to heat until it has acquired a temperature commonly designated as "white

heat." The metal is in this condition subjected to a dry bath of finely-divided whalebone. It is allowed to remain in this bath a sufficient time to acquire the required properties. Preferably it is allowed to cool in the bath. In some instances it is found desirable to add to the bath of whalebone a quantity of powdered hard-wood charcoal, approximately equal quantities of each being employed.

The invention will be found of especial service in converting iron bars and wire into steel; also for imparting to implements of iron or a poor grade of steel qualities and characteristics of articles of a fine grade of steel. The invention, however, is equally applicable to pig-iron and any other form of cast or wrought metal.

I claim as my invention—

The hereinbefore - described cementation-bath, consisting of finely-divided whalebone.

In testimony whereof I have hereunto subscribed my name this 27th day of January, A. D. 1883.

HARRY M. NICHOLS.

Witnesses:

JAMES YOUNG,
CHARLES A. TERRY.