

UNITED STATES PATENT OFFICE.

JOHN W. EVANS, OF BELLEVILLE, ONTARIO, CANADA.

STEEL.

948,166.

Specification of Letters Patent.

Patented Feb. 1, 1910.

No Drawing.

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To all whom it may concern:

Be it known that I, JOHN W. EVANS, a subject of the King of England, and resident of Belleville, in the Province of Ontario and Dominion of Canada, have invented certain new and useful Improvements in Steel, of which the following is a specification.

The object of my invention is to provide a new and improved steel particularly suitable for use as tool steel, having the characteristics of being tough and hard to the end that it will retain an edge when working hard metals at high speed.

In carrying out my invention I produce my improved steel by combining in suitable proportions iron, titanium, vanadium and carbon. While the proportions of the metals and carbon as well as fluxing material may be varied in accordance with the character of steel to be produced, an efficient steel for the purpose may be produced comprising iron 92% or more, titanium 3% or less, vanadium 2% or less, and carbon 1% or less, and such other material that may be present in the iron ore. Such steel may be made from ores carrying the above named metals to which the proper proportions of carbon and fluxing material will be added during the process of reducing the ores, or the several ingredients may be mixed while the metal is in a molten state and before pouring the

same. Steel may also be made with the above named materials and proportions with nickel included therein in the proportion of 3% or less, the metals combined thus consisting of iron, titanium, vanadium, and nickel with the proper proportion of carbon. Such metals combined in the desired proportions produce high-class hard tough steel which will work efficiently as tool steel on hard metals at high speed, as well as for other purposes.

Having now described my invention what I claim is:

1. As a new article of manufacture, steel comprising iron, titanium, vanadium and carbon.

2. As a new article of manufacture, steel comprising iron, titanium, vanadium, nickel and carbon.

3. A new article of manufacture comprising steel containing iron 92% or more, titanium 3% or less, vanadium 2% or less, nickel 3% or less, and carbon approximately 1% or less.

Signed at New York city, in the county of New York, and State of New York, this 2nd day of July, A. D. 1909.

JOHN W. EVANS.

Witnesses:

HARCOURT BULL,
T. F. BOURNE.