

UNITED STATES PATENT OFFICE.

ALEXANDER W. SLOCUM, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF
ONE-HALF TO CHARLES V. SLOCUM, OF PITTSBURG, PENNSYLVANIA.

METHOD OF MAKING CAST-IRON ARTICLES.

No. 830,536.

Specification of Letters Patent.

Patented Sept. 11, 1906.

Application filed February 12, 1903. Serial No. 143,095.

To all whom it may concern:

Be it known that I, ALEXANDER W. SLOCUM, of Pittsburg, Allegheny county, Pennsylvania, have invented a new and useful
5 Improvement in the Methods of Making Cast-Iron Articles, of which the following is a specification.

I have discovered that cast-iron car-wheels can be produced having greatly-increased
10 hardness and toughness, and therefore of greater durability, by combining rutile with the cast-iron in the manner which I will now describe.

In the practice of my invention I take the
15 cast-iron when it has been delivered from the cupola-furnace into a ladle and then while it is at or below the temperature at which it is delivered from the cupola I introduce into it rutile—an oxid of titanium—preferably in
20 the proportion of one per cent. or less of the weight of the iron. I may add the rutile by placing it in a paper box or package of any suitable material, pushing it with an iron or steel rod or other article suitable for the purpose to the bottom of the ladle, and then
25 stirring the rutile, so as to mix it thoroughly with the iron. The carbon or other metal-oids of the cast-iron reduce the titanium oxid and produce metallic titanium, which
30 alloys with the iron, giving the desired result. The iron is then cast into the car-wheel molds.

The discovery that the titanium may be

made to alloy with the iron at temperatures at or below that at which it leaves the cupola
35 greatly decreases the cost of such alloys and renders them commercially available in the casting of comparatively small articles.

The proportion of rutile added to the iron and the manner of introducing it may be varied, since

What I claim is—

1. The method of making cast-iron articles which consists in tapping the molten cast-iron from a melting-furnace, and while it is at or
45 below the temperature at which it was delivered from said furnace, mixing titanium oxid therewith, whereby the oxid is reduced by the carbon content of the iron, and then casting the article, substantially as described.
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2. The method of making cast-iron articles which consists in tapping the molten cast-iron from a melting-furnace, and while it is at or below the temperature at which it was delivered from said furnace, incorporating
55 therewith one per cent. or less, of titanium oxid, allowing the carbon content of the iron to reduce the oxid, and then casting the article; substantially as described.

In testimony whereof I have hereunto set
60 my hand.

ALEXANDER W. SLOCUM.

Witnesses:

L. M. REDMAN,
H. M. CORWIN.