

# UNITED STATES PATENT OFFICE.

WILLIAM W. LOBDELL, OF WILMINGTON, DELAWARE.

ALLOY FOR MAKING CAR-WHEELS.

947,248.

Specification of Letters Patent.

Patented Jan. 25, 1910.

No Drawing.

Application filed March 26, 1909. Serial No. 486,011.

*To all whom it may concern:*

Be it known that I, WILLIAM W. LOBDELL, a citizen of the United States, residing in Wilmington, Delaware, have invented an Alloy for Making Car-Wheels, of which the following is a specification.

One object of my invention is to provide a car wheel having improved wearing qualities and which involves the use of a novel alloy whereby it shall be possible to cast car wheels, the grain of whose metal is finer and more dense than hitherto, while the wheel itself is relatively hard and of a durable construction.

In carrying out my invention I employ steel made in an open hearth furnace from scrap steel and charcoal or other suitable iron by either the basic or the acid process. When the bath is properly melted, the several alloying metals hereafter noted are added, being introduced into the furnace either in a solid or melted state, preferably the latter. Such melting is done in crucibles or in a separate furnace and the melted material is introduced into the bath either just before tapping or into the pouring ladle after tapping.

While the amounts of the various materials used depend to some extent upon the hardness and strength which it is desired the steel of the car wheels shall possess, I preferably employ the following metals in the percentages noted: molybdenum, 1%; vanadium, 1%; titanium, 1%; tungsten, 2%; chromium, 4%; nickel, 6%; and manganese up to 1%.

Molds for casting the wheels are prepared in the manner usual for steel castings except that the flange, the tread and the edge of said tread are cast in chill or iron molds, with the result that with the materials above employed, the grain of the metal is made fine and dense, and as a consequence, of an increased hardness and improved wearing quality. After the wheels are cast, they are removed as soon as possible from the chill molds and are placed in specially constructed annealing furnaces heated to a temperature of from 1,200 to 1,800 F. in which they are allowed to remain for several days or until they are thoroughly annealed. They may then be allowed to cool slowly, and then they are ready for any machining which may be necessary to prepare them for service.

I claim:—

1. A car wheel made of an alloy consisting of steel, tungsten, chromium, vanadium, molybdenum, nickel, titanium, and manganese in substantially the proportions specified.

2. A cast wheel consisting of an alloy containing steel with which is combined 1% each of molybdenum, vanadium, and titanium, 2% of tungsten, 4% of chromium, 6% of nickel, and manganese up to 1%.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

WILLIAM W. LOBDELL.

Witnesses:

DE HAVEN MORRIS,  
THOMAS H. BUCKLEY.