

UNITED STATES PATENT OFFICE.

WILLIAM G. HAMILTON, OF NEW YORK, N. Y.

IMPROVED METAL FOR AND MODE OF MANUFACTURING CAR-WHEELS.

Specification forming part of Letters Patent No. 85,089, dated December 22, 1868.

To all whom it may concern:

Be it known that I, WILLIAM G. HAMILTON, of the city, county, and State of New York, have invented a new and useful Improvement in Car-Wheels; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same.

The best car-wheels at present made are composed of cast-iron with chilled treads; but such wheels are necessarily lacking in tensile strength, and their breakage is one of the most frequent causes of disaster to life and property upon all railroads. The only metal that seems to possess sufficient tensile strength to resist the severe concussions to which car-wheels are exposed is cast-steel, and, to some extent, this material has been employed in their manufacture; but, owing to the high temperature requisite to cast this metal, it is impossible to chill the treads of such wheels, as the molds would become melted, and the result is that the treads of steel wheels soon wear out and become uneven and worthless. The object of this improvement is to produce a car-wheel which shall have, to a great extent, the tensile strength of steel throughout its body, coupled with the hardness of chilled iron at the tread.

I have found, by experiment, that a mixture of steel, low steel, or steel-sponge, made direct from the ore, and cast-iron, preferably of about equal parts, but which may be changed according to circumstances, produces, when melted, either together or separately, and mixed in a molten state, a compound which, when cast in chill-molds in

the ordinary manner for producing cast-iron wheels, will chill in the tread and form a smooth homogeneous casting, having the quality of resistance to tensile strain in a higher degree than any compound of metal heretofore known, which can be cast at a temperature sufficiently low to chill. This result is produced, as I suppose, by the partial decarbonization of the iron on the one hand by the admixture of the steel therewith, and on the other by the maintenance of the steel by the iron in a fluid condition, sufficiently low, in respect to temperature, to cast in chill-molds.

By the use of this improvement I am enabled to produce, in a convenient manner, by the use of the ordinary molds, a car-wheel having a tensile strength approaching that of cast-steel, with a durability and hardness of tread equal, for all practical purposes, to that of the best chilled cast-iron wheels.

I do not limit or confine myself to any particular method of manipulation; but I prefer to make use of the ordinary molds and processes employed in the production of cast-iron wheels.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent, as an improved article of manufacture—

A car-wheel composed of mixed steel, low steel, or steel-sponge, and cast-iron, with chilled tread, substantially as described.

WM. G. HAMILTON.

Witnesses:

A. E. BEACH,
FRANK BLOCKLEY.