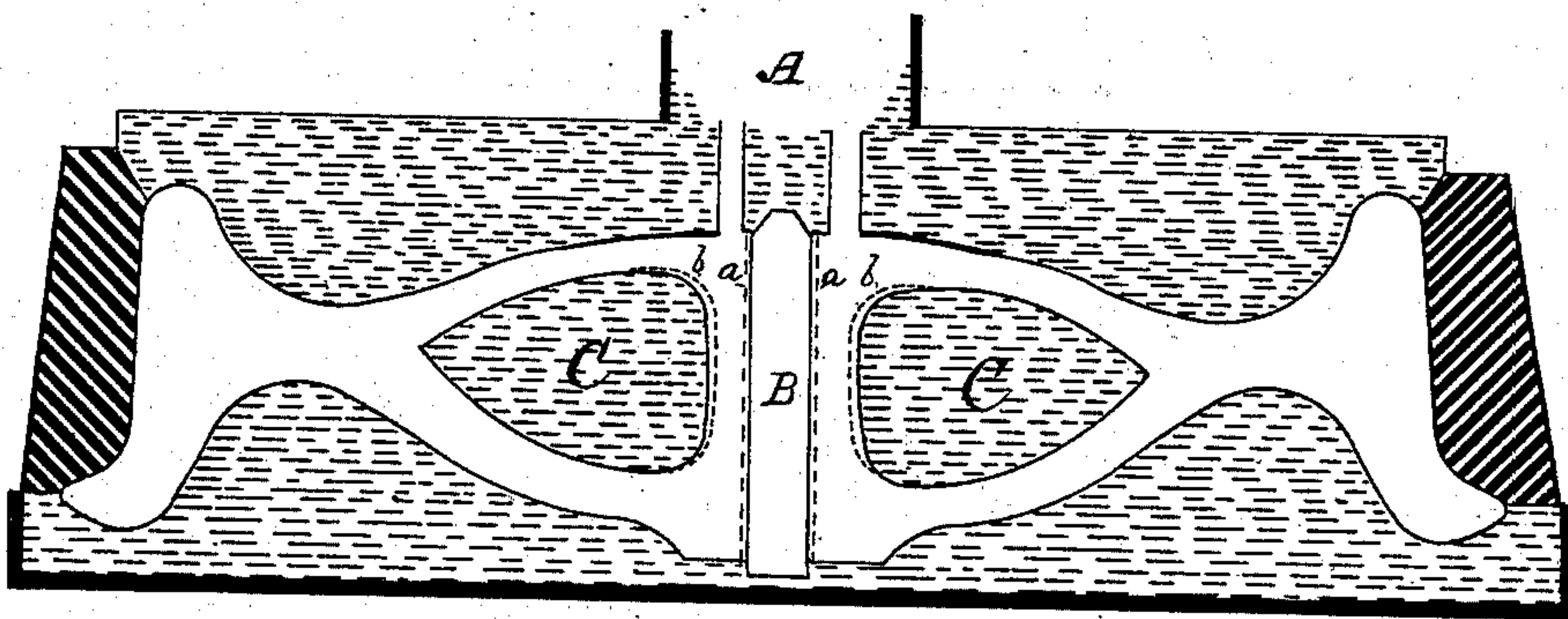


(No Model.)

W. WILMINGTON.  
CASTING CAR WHEELS.

No. 283,311.

Patented Aug. 14, 1883.



WITNESSES:

*H. B. Brown*  
*Edw. W. Ryan*

INVENTOR.

*Wm. Wilmington*  
*By Mann & Co*

ATTORNEYS.



# UNITED STATES PATENT OFFICE.

WILLIAM WILMINGTON, OF TOLEDO, OHIO.

## CASTING CAR-WHEELS.

SPECIFICATION forming part of Letters Patent No. 283,311, dated August 14, 1883.

Application filed July 10, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM WILMINGTON, of Toledo, in the county of Lucas and State of Ohio, have invented a new and useful Improvement in Casting Car-Wheels; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification, in which the figure is a vertical central section of a car-wheel mold used in carrying out my invention.

This invention is an improvement in the method of casting car-wheels, the object of which is to modify the chill-hardening qualities of the iron forming the central parts of the wheel. Heretofore I have practiced different methods of modifying the chilling qualities of the iron forming these parts of the wheel by placing in the receiving-basin of the mold, or in a pouring-ladle, finely-powdered ferro-manganese, or its equivalents in other powdered metals, the same to be melted by contact with the molten iron in the basin or in the ladle, and conveyed into the mold by different methods, to be diffused through the molten iron forming the central portions of the wheel. These different methods have produced very beneficial results upon the car-wheels, but are attended with much cost and delay when casting the wheels.

To lessen the cost and time when casting the wheels, and prevent the molten iron forming the hub and inner plates of wheels from becoming too hard and rigid by coming in contact with the cold compact cores and moist sand of the mold, is the object of my invention.

It consists in affixing to the desired portions of the outer surfaces of the cores of the mold, by suitable adhesive compositions used in foundry-work, about a half a pound of very finely powdered ferro-manganese having a large per cent. of carbon and silicon in its composition, allowing the same to be melted by the molten iron which comes in contact with the ferro-manganese when the mold is being filled, which ferro-manganese, being melted, will be diffused through the hub and inner plate parts of the wheel, thereby modifying

the chilling qualities of the iron forming these parts, and preventing the same from being too hard and rigid. To accomplish this same result in modifying the chilling qualities of iron in these parts of the wheel, I use, instead of ferro-manganese, very finely powdered spiegeleisen having a large per cent. of carbon, silicon, and manganese in its composition. Of this metal I use larger portions than the former.

In single-plated car-wheels, instead of affixing all the ferro-manganese to the core, I coat the inner surface of the upper and central parts of the mold with the dust or very finely powdered ferro-manganese by sifting said dust through the meshes of suitable cloth, then causing the same to adhere to the sand of the mold by passing a tool over the same, which is termed in foundry-work "sliking."

I do not confine myself to the use of the exact amount named of the ferro-manganese or the spiegeleisen, nor do I confine myself to the use of the above-named metals alone, but use as equivalents any of the known metals or metalloids having large portions of carbon, silicon, and manganese in their composition, and I may use each singly or in combination in such portions as practice shows to produce the best results upon the car-wheels.

In the drawing, letter A is the receiving-basin, B the central core, and C the core of the plates. The dotted lines *ab* show where the ferro-manganese is attached to the cores by a preparation of water, glue, flour, or molasses, as may be desired.

I disclaim as my invention the alloying of molten iron or steel with ferro-manganese, spiegeleisen, or cast-iron derived from argillaceous or black band iron ores when the same is melted in a furnace cupola or crucible, for this is common.

I also disclaim in this present application melting by contact with molten iron in a ladle or in the receiving-basin of a car-wheel ferro-manganese, spiegeleisen, or cast-iron derived from argillaceous iron ores, and causing the melted metal by different methods to penetrate downward into the mold of a car-wheel, for this has heretofore been practiced.

What I claim as my invention is—



1. The method of modifying the chilling  
properties of certain parts of the iron of a  
car-wheel, which consists in lodging against  
the inner surface of the mold certain propor-  
5 tions of ferro-manganese, or its equivalent,  
and allowing the molten iron poured into the  
mold to melt said ferro-manganese and cause  
its admixture with the iron at such points as  
it is desirable to modify said chilling or hard-  
10 ening effect, as described.

2. A car-wheel mold having attached to its  
inner surface a quantity of ferro-manganese,  
or its equivalent, as and for the purpose speci-  
fied.

WILLIAM WILMINGTON.

Witnesses:

ALEXANDER WEBER,  
LINCOLN HAYES.