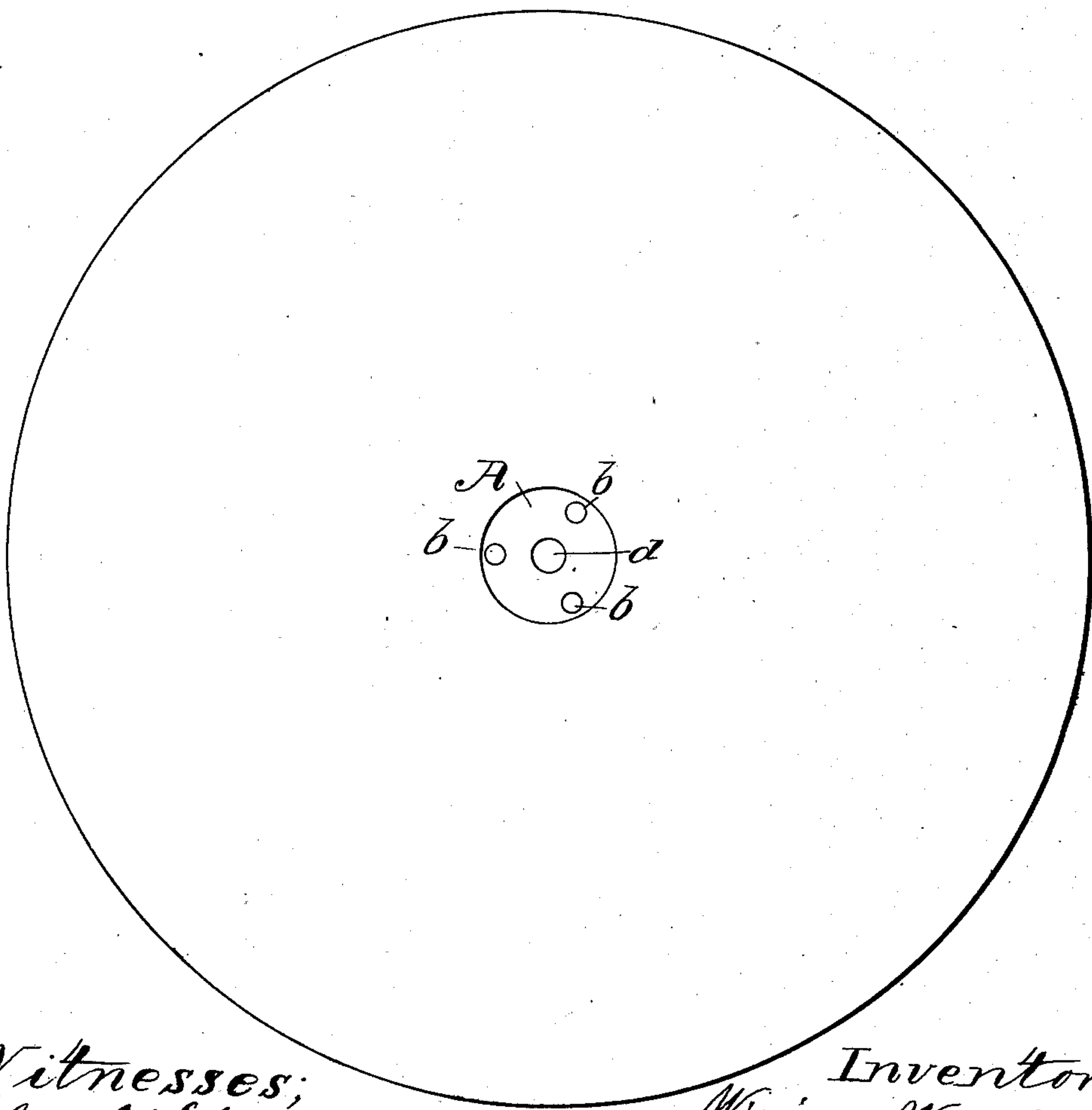
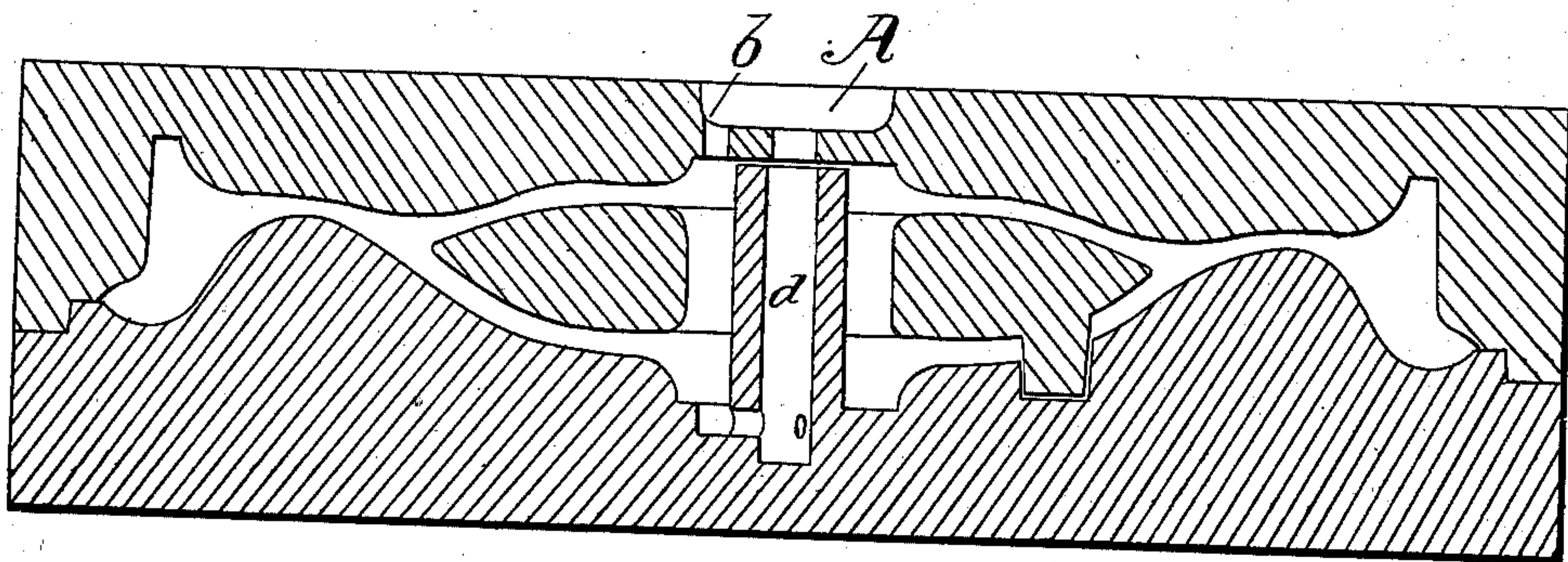


W. Wilmington,
Casting Car Wheels.
N^o 80,323. *Patented July 28, 1868.*



Witnesses;
Chas. H. Wilson
W. H. Chandler

Inventor;
William Wilmington
Per. J. C. Robbins
Atty.

United States Patent Office.

WILLIAM WILMINGTON, OF TOLEDO, OHIO.

Letters Patent No. 80,323, dated July 23, 1868.

IMPROVEMENT IN CAR-WHEEL.

The Schedule referred to in these Letters Patent and making part of the same.

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 the Casting of Car-Wheels; and I do hereby declare that the following is a full and exact description thereof.

The accompanying drawings represent a mould for casting one form of car-wheels. The melted iron is poured into the recess A, in the centre of the upper portion of the mould, whilst the mould is in a stationary horizontal position. The melted iron flows through the side holes *b b b*, and also through the hollow central core *d*. Apertures at the base of the core *d* permit the melted iron to flow outward into the interior of the mould, and intermingle with the fluid metal, which passes into the mould through the holes *b b b*. But I wish it to be understood that my improvement in the casting of car-wheels is applicable to every shape and style of cast-iron car-wheels that can be produced by the following-described method of casting such articles.

The following is my improved method of casting car-wheels:

I first pour into the central portion of any properly-prepared and firmly-bedded car-wheel mould the proper quantity of chill-hardening melted iron, to form the rim portion of the wheel, and then I immediately fill the mould with a melted iron of a softer and tougher nature. The last pouring of melted iron into the mould forces the first metal poured into the same outwards into the rim of the wheel-mould, thereby causing the chill-hardening iron to form the rim of the car-wheel, and the softer and stronger iron to form the hub and plate or plates of the same. The forcing outwards of the chill-hardening melted iron first poured into the mould by the melted softer iron immediately afterwards poured into the same, causes an intermingling of the two at and near their circle of contact, and this perfect union between these two qualities of iron causes the car-wheel thus produced to excel all other cast-iron wheels in every desirable quality.

In practice, I have found that the union between the two qualities of iron employed in the production of my improved car-wheels is more perfect when the melted softer iron is poured into the mould at a slightly-perceptible higher temperature than that at which the melted hard iron is poured into the same. For instance, the temperature of the hard (or chill-hardening) iron, at the time of pouring, being indicated by a yellowish red, the temperature of the softer iron should be indicated by a whitish red, distinctions that are well known to practical founders. But a good car-wheel will be produced when both qualities of iron are poured into the mould at about the same temperature.

I am aware that an attempt has been made to produce a car-wheel of hard and soft iron poured separately into a mould whilst in a state of rotation and slightly inclined, but, so far as I have been able to ascertain, no car-wheel has ever been produced by such a process; and from my own practical experience as a founder, I unhesitatingly assert that it would be impossible to produce a perfect casting by said process, and for the well-known reason that the slightest movement of a sand-mould, when ready for use, will destroy its integrity and crumble it into chaos. How absurd, then, to suppose that a car-wheel mould could successfully endure the centrifugal forcing outwards therein of the fluid metal, in addition to the tremor produced by the rotation thereof.

What I claim as my invention, and desire to secure by Letters Patent, as a new and improved article of manufacture, is—

The within-described cast-iron car-wheel, the said wheel being produced by the use of two qualities of iron, and by substantially the process herein described.

Witnesses:

Z. C. ROBBINS,
EDM. F. BROWN.

WM. WILMINGTON.