W. WILMINGTON.

CAR-WHEEL CHILLS.

No. 187,441. Patented Feb. 13, 1877.

Fig. 1.

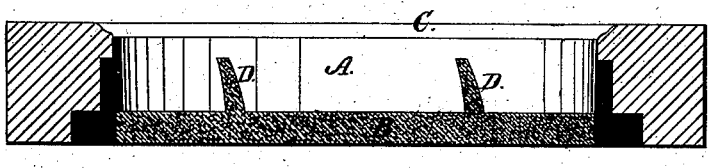
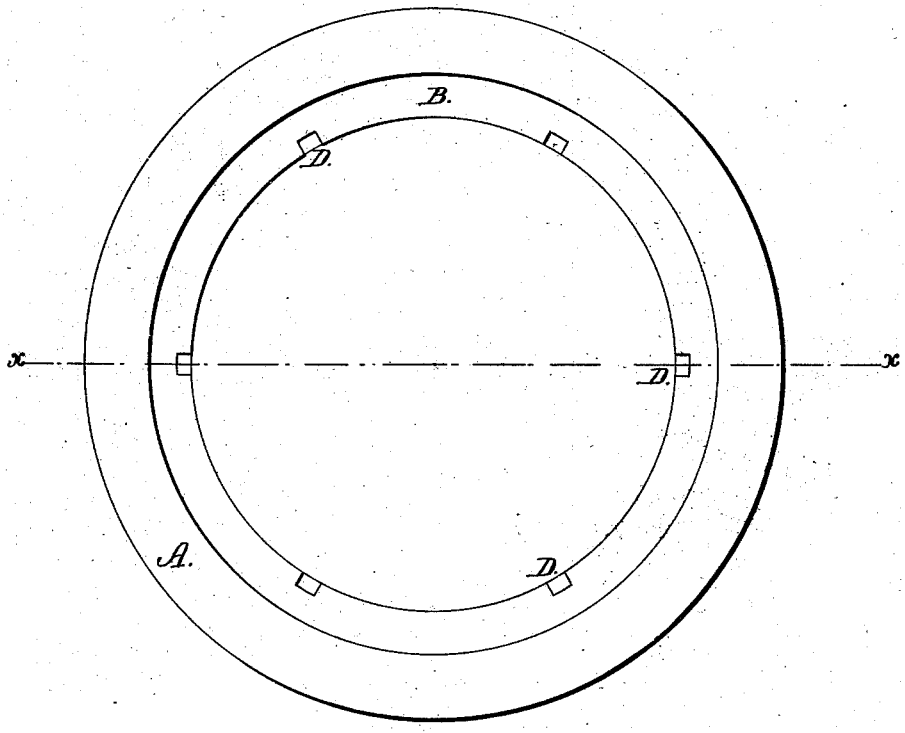


Fig. 2.



WITNESSES:

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Solon C. Kemon

INVENTOR:

Wm. Wilmington

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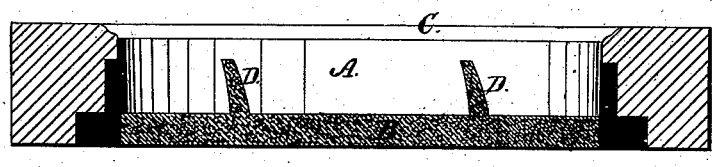
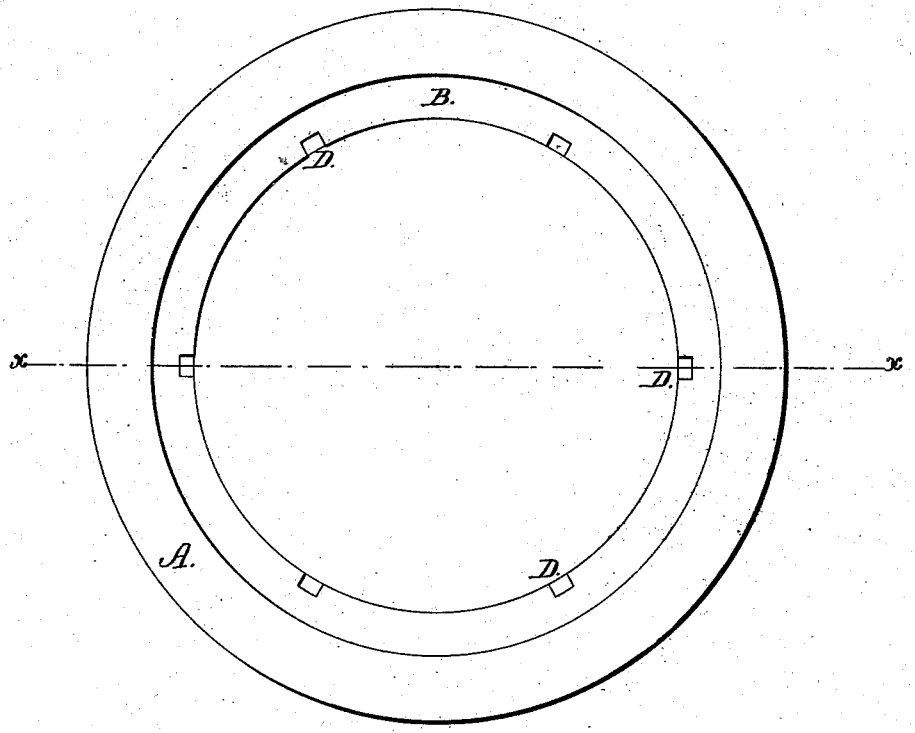


Fig. 2.



WITNESSES:

W. W. Hollingsworth

Glover & Kennon

INVENTOR:

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BY Munn & Co.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM WILMINGTON, OF TOLEDO, OHIO.

IMPROVEMENT IN CAR-WHEEL CHILLS.

Specification forming part of Letters Patent No. **187,441**, dated February 13, 1877; application filed December 16, 1875.

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—

Figure 1 is a central cross-section through the line *x x* of Fig. 2, and Fig. 2 is a plan view.

My invention relates to an improved car-wheel chill. The object of the same is to cast a wheel with such an arrangement of the chilled portion of the tread as would give the greatest wearing qualities, and at the same time preserve such form and amount of unchilled surface to the tread as will entirely, or to a necessary extent, relieve the tension, which is the result of casting wheels with the entire face of the wheel chilled to a uniform depth.

My improvement consists in constructing the chill with an inner recess at the outer edge of the portion forming the tread, and with a number of transverse grooves, running from said recess across the inner face of the chill; both of which grooves and recess are to be filled with sand or non-chilling material, to conform to the face of the chill preparatory to casting the wheel. The grooves I extend about two-thirds across the face of the chill, and in a tapering form, with the smaller end of the groove next to the part forming the flange, and the larger end opening into the circular recess. The larger end of said grooves I make about one-half an inch in width, while the smaller end is about one-half that width.

I prefer the grooves to cross the face of the chill in a diagonal direction, because in this position they present less surface to the rail at a time; but very good results can be obtained by having the grooves formed at right angles across the chill.

In some modifications of the chill it may be desirable, instead of the grooves, to use holes, placed close together in a line across the face of the chill, and fill them with sand, in which event I form the holes with the greatest diameter at the outer face of the chill. The effect of filling the circular recess and transverse grooves or their equivalents with sand is to modify the chilling of these portions of the tread of the wheel, and, by retarding the cooling of the tread of the wheel opposite such sand-spaces, to permit the sections of the tread between such sand-spaces to contract by drawing away from the parts of the tread that are in a semi-fluid state opposite the said spaces, thereby preventing chill-cracks, and lessening the strain of the wheel in the act of cooling.

In the drawing, A represents a car-wheel chill constructed in accordance with my invention. B represents the portion of the chill that forms the outer portion of the tread of the wheel, the same being recessed and filled with sand, to prevent rapid cooling of the metal at these points. C is the portion of the chill that forms the flange of the wheel; and D are the diagonally-arranged transverse grooves, which are of larger size at the point where they communicate with the recess B, and which, like said recess, are also filled with sand.

I am aware of the fact that it is not new to employ a chill having transverse grooves, in which cores are inserted and project inwardly from the face of the chill, to form grooves in the wheel, into which grooves a piece of hardened steel is afterward driven to complete the wheel, and I therefore disclaim the same.

Having thus described my invention, what I claim as new is—

A car-wheel chill having a circular recess, B, with transverse spaces D, adapted to be filled with non-chilling material, as and for the purpose set forth.

WILLIAM WILMINGTON.

Witnesses:

CHARLES I. SCOTT,

JOHN ROBINSON.