H. W. Moore.

Cooling and Annealing Car Wheels.

No. 51,338. Patented Dec. 5, 1865.

Fig. 1.

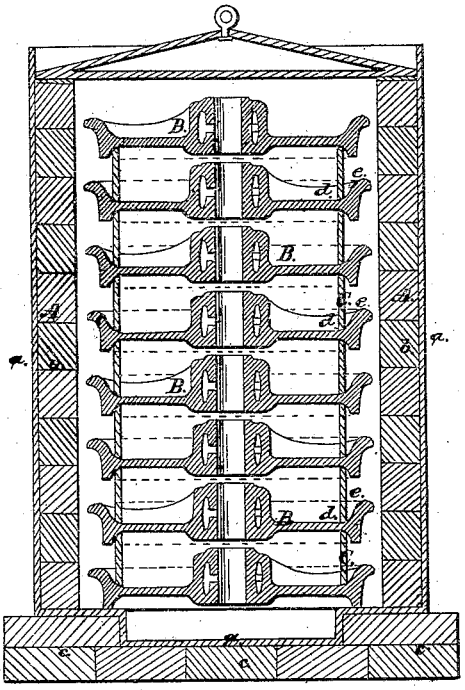


Fig. 2.

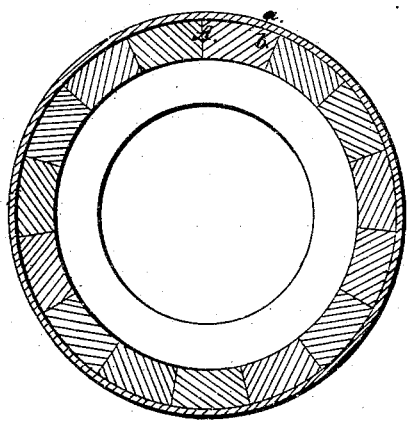
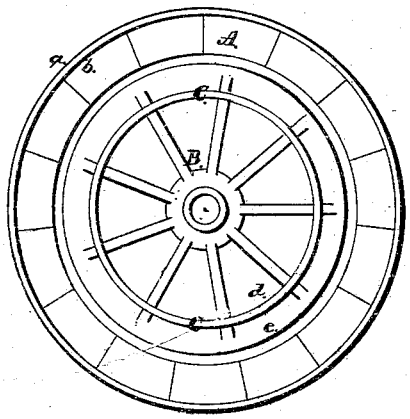


Fig. 3.



Attest:

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UNITED STATES PATENT OFFICE.

H. W. MOORE, OF BRIDGEPORT, CONNECTICUT.

IMPROVED DEVICE FOR ANNEALING CAR-WHEELS.

Specification forming part of Letters Patent No. **51,338**, dated December 5, 1865.

To all whom it may concern:

Be it known that I, H. W. MOORE, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented a new and useful process for annealing, or for annealing and cooling car-wheels that are cast with a chilled tread or rim; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a vertical section through a pile or series of wheels that are to be treated after my plan. Fig. 2 represents a top view of a case or pit in which the process may be carried on. Fig. 3 represents a similar top view, with a top view of the wheels placed therein.

Similar letters of reference where they occur in the separate figures denote like parts in all cases.

Many plans have been devised for cooling car-wheels that are cast with a chill, so as to obviate the strain incident to unequal shrinking and preserve the chilled tread or rim; and however much may have been accomplished by others there still remained much to be done before a perfect wheel could be produced. I believe I have gone a step beyond any of those who preceded me, and have produced a wheel that has more strength and less strain in its web than any others, the metal in the web being annealed so as to approximate malleable iron, while, at the same time, the chill in the rim or tread and flange is perfectly maintained.

My process consists in removing the wheels from the flask or mold while still hot and placing them in a pile in a pit or case, and dividing the portion that is to be annealed from the portion that is cast in a chill by a metal or other suitable ring or partition and filling the inside of the ring or partition with charcoal and the outer side with sand or other non-conducting material, by which means the plate or web of the wheel, by the burning slowly of the charcoal, becomes annealed and of the nature of malleable iron, while the chill is preserved in its original state.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same, with reference to the drawings.

A represents a permanent case, in which my process may be carried out. It is composed of an outer shell of iron, *a*, lined with fire-brick, *b*, and standing upon a permanent base, *c*; and B represents the car-wheels placed therein, there being a ring, C, between each of the adjacent wheels to keep them separate and to define the line between the portion to be annealed and the portion to be left in the chilled state. As these wheels and rings are placed one upon the other in the case or pit charcoal in lump or in finer pieces is thrown into the space inclosed by the ring, as shown by the lines *d d* in Fig. 1, while sand or other equivalent non-conducting material is put in, on, around, and behind the tread and flange of the wheel, as shown at *e e* in said Fig. 1, and thus the chilled portion is preserved from injury by being heated in contact with burning material, which will always soften or draw out the chill to some extent.

The charcoal is ignited by the red-hot iron of the wheels and burns slowly in a semi-smothered state, which carbonizes the portion of the wheel it is in contact with and prevents any strain in the wheel caused by unequal shrinking, the sand outside of the ring preventing any such annealing process to the tread and flange or rim of the wheel.

By this process I can make a very strong, and, at the same time, a very light wheel.

What I claim, and desire to secure by Letters Patent, is—

Annealing the center or plate of a car-wheel so as to render it quite malleable, without annealing or injuring the chill or tread of the wheel, by means of an annular partition or wall interposed between the wheels, the inside of the wall having charcoal and the outside sand or their substantial equivalents placed therein, as and for the purpose substantially as described.

H. W. MOORE.

Witnesses:
E. A. PARNETT,
W. S. KNOWLTON.