H. W. MOORE.

Annealing Furnace. -

No. 58,666. Patented Oct. 9, 1866.

Fig. 1.

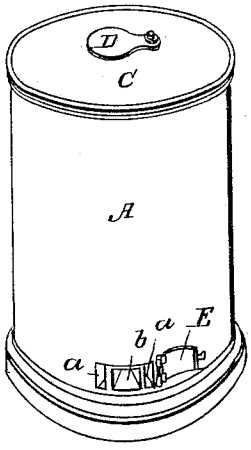


Fig. 3.

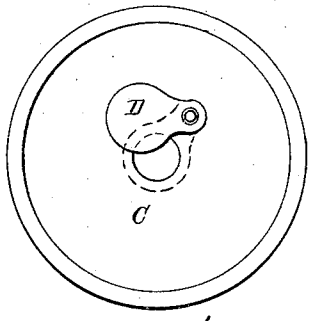


Fig. 4.

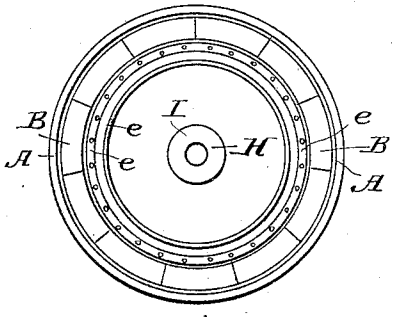


Fig. 2.

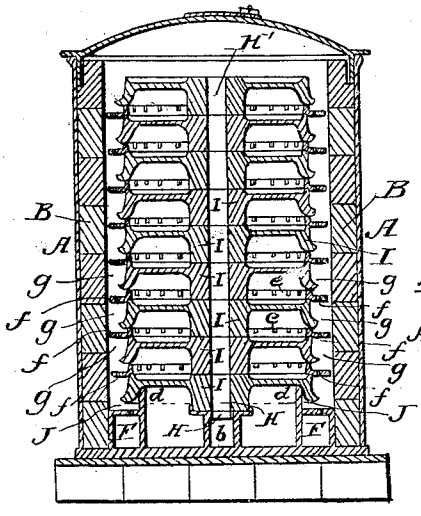
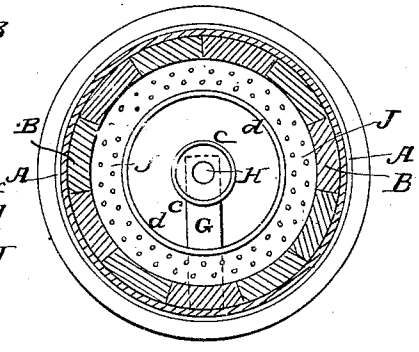


Fig. 5.



Witnesses:

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UNITED STATES PATENT OFFICE.

HIRAM W. MOORE, OF BRIDGEPORT, CONNECTICUT.

IMPROVEMENT IN ANNEALING-FURNACES.

Specification forming part of Letters Patent No. **58,666**, dated October 9, 1866.

To all whom it may concern:

Be it known that I, HIRAM W. MOORE, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Annealing Cast-Iron Car-Wheels; 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 an external view of the annealing-furnace. Fig. 2 represents a vertical section through the same. Fig. 3 represents a top plan of the furnace. Fig. 4 represents a view of the top of the furnace and its charge with the cover removed. Fig. 5 represents a plan of the bottom of the furnace.

Similar letters of reference, where they occur in the several figures, denote like parts in all the drawings.

My invention relates to the annealing of cast-iron car-wheels by burning charcoal in contact with the metal under a regulated and controlled system, and, in conjunction therewith, admitting a current of air through the openings in the hubs to cool that portion of the wheel.

I am aware that many attempts have been made to anneal cast-iron car-wheels; but from the difficulty of maintaining a uniform heat throughout a series of wheels such process has not gone into general use, although it very much improves and strengthens the wheel. To anneal them singly would be too expensive.

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 metallic shell lined with fire-bricks B. The top C of the shell or case is removable for placing in the wheels and alternate plates and the charges of charcoal, as will be explained, and has, moreover, an opening in its top portion covered by a plate, D, for closing up the furnace when desired.

In the bottom of the annealing-furnace there are three openings, *a*, *a*, and *b*, all controlled by a door, E, so as to close them against the admission of air, when, during the process of annealing, such closing becomes necessary. The openings *a a* lead into an annular flue, F, at the bottom of the furnace, while the opening *b* leads into the center of the furnace, as seen at G, Fig. 5, and there projects upward, as at H, and thence communicates with the vertical flue H′, formed by the openings in the hubs of the wheels I.

At the lower end of the inside of the furnace there is a support, *c*, for the hub of the under wheel of the pile that is to be annealed, and also a support, *d*, for the web or outer portion thereof, which is of cylindrical form.

Over the annular flue F, and between the support *d* and the brick-work B, there is a ring-plate, J, perforated with a series of holes, as more distinctly seen in Fig. 5, for admitting atmospheric air to promote the burning of the charcoal that is lying upon and around the wheels.

The lower wheel of the pile having been properly placed upon the base or supports, charcoal is thrown in around its rim, until sufficient for the purpose is so placed, and then, by preference, animal-charcoal is placed upon the web of the wheel. Then a flanged disk or ring, *e*, is laid over the wheel, said ring having suitable perforations for allowing air to pass through, while it will hold the charcoal upon that portion of its rim *f* that projects into the annular space *g*, between the rims of the wheels and the lining of the case or shell. Without these holding-flanges *f* the charcoal, as soon as it begins to burn, will settle down to the bottom of the furnace, and the heat there will become excessive, and the upper wheels of the series not receive their due share of heat or of carbon.

The wheels are placed in the annealing-case while hot, and when the case is full and charged the cover *c* is put on, and the draft-holes opened. The charcoal soon ignites, and, when fairly burning, the openings to the case may be closed, and sand thrown over the cover C, and the whole left to smolder, and then cool off.

I have mentioned the use of animal-charcoal, on the webs of the wheels. I prefer it for its purity, and the small quantity required makes it use inexpensive.

Having thus fully described my invention, what I claim therein is—

1. The openings *a a* at the base of the annealing-case, in combination with the annular

flue F and perforated plate J, for admitting atmospheric air to promote the combustion of the carbon in contact with the wheels, substantially as described.

2. In combination with the case A, the opening *b*, the horizontal air-flue G, and the vertical flue-space H′, for conveying air to and cooling the hubs of the wheels, substantially as described.

3. In combination with the annealing-furnace for containing a pile or series of wheels, the series of perforated and flanged rings to be placed between said wheels, for regulating and controlling the combustion of the charcoal therein, as and for the purpose described.

H. W. MOORE.

Witnesses:
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