THOMAS W. LYON.

Improvement in Reverberatory-Furnaces and Heating Rims of Car-Wheels.

No. 114,696. Patented May 9, 1871.

Fig1.

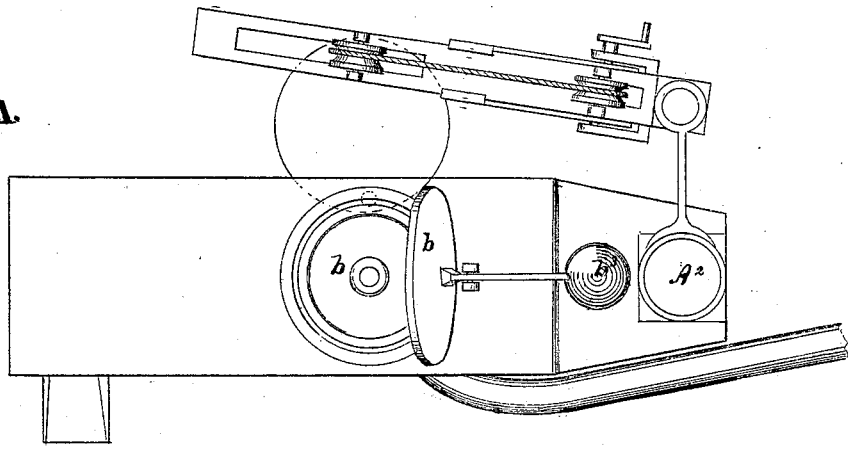
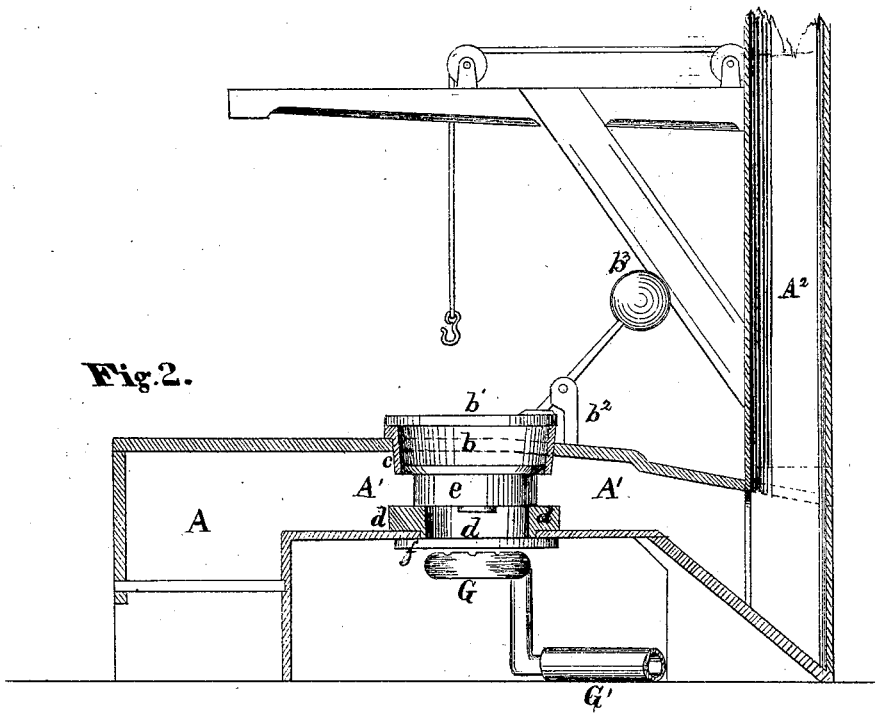


Fig.2.



Witnesses.
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THOMAS W. LYON, OF BENNETT, PENNSYLVANIA.

IMPROVEMENT IN REVERBERATORY FURNACES AND HEATING RIMS OF CAR-WHEELS.

Specification forming part of Letters Patent No. 114,696, *dated May* 9, 1871.

To all whom it may concern:

Be it known that I, THOMAS W. LYON, of Bennett, in the county of Allegheny and State of Pennsylvania, have invented a new and valuable Improvement in Furnaces; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a top view of my furnace. Fig. 2 is a central vertical longitudinal section of the same.

This invention relates to improvements in reverberatory furnaces; and it consists in beneficial devices applied to the flue, or that portion between the fire-box and the chimney in which the heat is utilized, the object being the production of a furnace for heating the rims of car-wheels for the purpose of tempering the rim or tread of the wheel.

Referring to the drawing, A A^1 A^2 represent a furnace in the general form shown, which, aside from the improvements hereinafter described, may be of the ordinary construction of that species of furnaces known as reverberatory, and used exclusively for heating purposes, A being the fire-box, A^1 the flue or furnace heating-chamber, and A^2 the chimney.

On the upper side of the flue or chamber A^1 is a circular opening, *b*, into which is fitted a ring, *c*, which is in the shape of the frustum of a cone, so as to receive the car-wheel easily and yet to close upon its flange. The ring *c* is covered by a door, b^1, which is balanced by a lever and ball or weight, b^3, supported on a projection, b^2, so as to be easily operated and regulated.

On the under side of the flue or chamber A^1 is another circular opening, *d*, into which is fitted a ring, d^1, in the form of a cylinder, having a strengthening-flange, d^2, upon which the car-wheel to be heated and tempered rests, as at *e*. The opening in the ring d^1 is closed on the under side by a door, *f*, that turns on a pivot, and that can be pushed to one side of the opening or over it, as required.

G G′ represent a pipe for conducting water; it is bent up, and terminated in the form of a circle or ring, as shown, the ring having perforations on the upper side, so that the water may be ejected in jets against the side of the car-wheel by placing the perforated ring G within the ring d^1 under the wheel. The openings *b* and *d* admit the air to the sides of the wheel also when it is in position and the doors are open.

The car-wheel may be raised and placed in position by means of a suitable revolving crane, H, having windlass *h*, rope h^1, and pulleys h^2 and h^3, or their equivalents, all arranged and supported substantially as shown. The crane is also used to remove the wheel.

The furnace being in operation and the car-wheel in position, the fire comes in contact with the face of the rim of the wheel, and the inner face of the flange of the wheel which portions of the wheel are thereby heated as desired, while the air and water against the sides of the wheel tend to keep the center and sides of the wheel comparatively cool; and thus the desired result is effectually accomplished. When the wheel is removed, the openings can be closed, and the flame and smoke will pass up the chimney. When the wheel is being heated, it should be turned at intervals to cause an even heating of it, and when heated to the proper degrees it should be taken out and dipped into cold water.

By means of this improved furnace, steel car-wheels can be tempered as described without the usual danger of breaking in consequence of the great central expansion, and the tempering of such wheels can be effectually accomplished with ease and economy.

I claim as my invention—

1. The openings *b* and *d* in the upper and lower sides of the flue or chamber A^1, provided with doors b^1 and *f*, and rings *c* and d^1, all constructed and arranged substantially as and for the purposes set forth.

2. In combination with the opening *d* and ring d^1 in the lower side of the chamber or flue A^1, the pipe and perforated ring G′ G, substantially as constructed and arranged, and for the purposes set forth.

3. The method herein described of heating the rim or outer portion of a car-wheel, and keeping the central or inner portion comparatively cool, by means of a furnace having the upper and lower openings *b* and *d*, provided with the rings *c* and *d*^{1}, and having a water-pipe and perforated ring, G and G$'$, all constructed and arranged substantially as and for the purposes set forth.

In testimony that I claim the above, I have hereunto subscribed my name in the presence of two witnesses.

THOMAS WILLIAM LYON.

Witnesses:
H. K. SAMPLE,
J. L. MAXWELL.