W. V. MANY.

Car Wheel.

No. 5,095. Patented May 1, 1847.

Fig. 1.

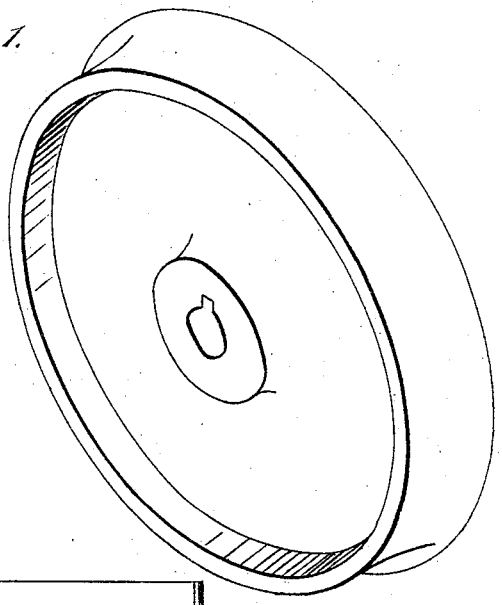


Fig. 2.

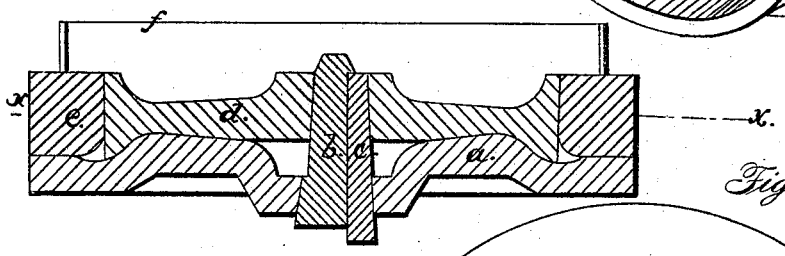


Fig. 3.

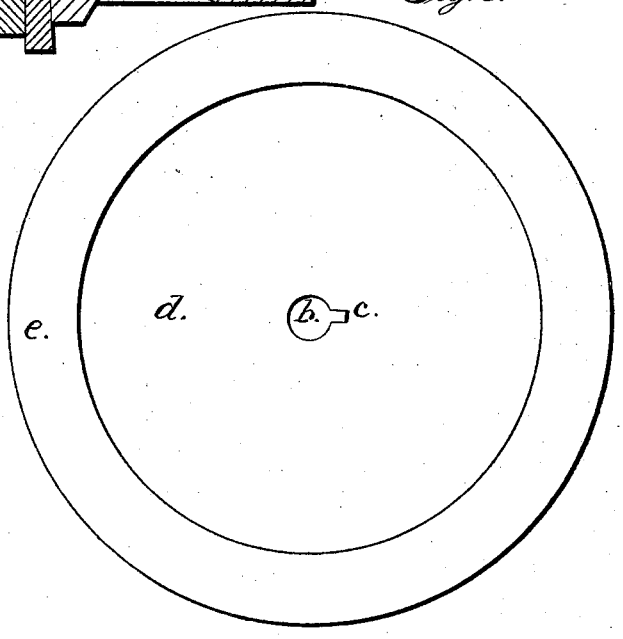
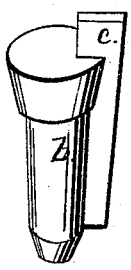


Fig. 4.



UNITED STATES PATENT OFFICE.

WM. V. MANY, OF ALBANY, NEW YORK.

CAST-IRON CAR-WHEEL.

Specification of Letters Patent No. 5,095, dated May 1, 1847.

To all whom it may concern:

Be it known that I, WILLIAM V. MANY, of the city and county of Albany and State of New York, have invented a new and useful Improvement in the method of Making Cast-Iron Railroad-Wheels, and that the following is a full, clear, and exact description of the principle or character which distinguishes it from all other things before known and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of the wheel; Fig. 2, a cross vertical section of the mold with the pattern therein; Fig. 3, a horizontal section of the same taken at the line (X, X) of Fig. 2; and Fig. 4, a separate view of the central pin.

The same letters indicate like parts in all the figures.

From the time that the value of railroad wheels with a chilled tread and flanch was established, the difficulty of thus casting them has been recognized, for it was soon ascertained that the chill sets and cools the metal of the rim before the parts which connect it with the hub, and these in cooling shrink and necessarily break or become so weak as to break when subjected to strain or jar. To obviate this the hub was for a long time made in sections, termed the "split hub," to enable it to open and yield to the contraction of the spokes, arms, or other connections between the hub and rim; but this construction is attended with serious objections, such as the want of strength in the hub and the necessity of putting on wrought iron hoops or bands to secure the segments together. These recognized objections to the split hub have led to numerous improvements and suggestions, all more or less objectionable, for casting the wheel in a single piece by so forming the connections between the hub and rim as to admit of contraction without breaking; but as all these require the metal, as it contracts, to bend, it obviously must be weakened.

The object of my invention is to avoid all the objections to the split hub, and to the various modes which have been substituted therefor, and my invention consists simply in casting the whole wheel in a chill by means of which all the parts are cooled at the same time, and without undue strain on any part, I am thus enabled to cast a wheel in one single piece, without the split hub, and to connect the rim and hub in any desired form, the plain disk being in my estimation the most simple and efficient.

In the accompanying drawing (*a*) represents a metallic plate the surface of which is formed to correspond with the shape of the inner face of a railroad wheel, but which for example is made to correspond with the face of the wheel represented at Fig. 1 of the drawings. In the center of this plate there is a hole to receive a metal pin (*b*), from which projects a wing (*c*). After this pin has been inserted the pattern (*d*) of the wheel is put on, and then a metal ring (*e*) the inner periphery of which corresponds with the form of the tread and flanch of the wheel, as chills for casting railroad wheels are usually made, and onto this ring is placed the cap (*f*) of a mold that the outer face of the wheel may be molded in sand, when it is desired to chill only one side of the disk, as I have found by experiment that it is necessary only to chill one face of the wheel. The upper face of the pattern (*d*) is made with a projection or print core to make an impression in the sand to receive the end of the pin (*b*) when inserted in the mold. After the wheel has been molded, the pattern is removed, the mold put together and secured in the usual way, the central pin inserted and the metal run in, and so soon as the central hole is chilled, the pin (*b*) must be driven out to prevent the contraction of the cooling metal from gripping the pin too hard. But the wheel may be cast without the central hole in the hub, or the hole may be cast on a sand core instead of a metal pin.

The periphery of the pattern should be made tapering, the reverse of the taper of the tread of the wheel to admit of drawing it out of the ring that forms the rim, as this part of the pattern does not determine the form of the rim and flanch, these being formed by the metallic plate (*a*) and the ring (*e*); but if desired the pattern may have the form of the intended wheel, as this will only require the ring to be removed before the pattern can be taken out.

When it is desired to cast the wheel with the entire surface chilled another plate similar to the plate (*a*) but formed to correspond with the shape of the outer face of

the wheel, is substituted for the cop, the end of the central pin being fitted to a hole in the center of this plate.

From the foregoing it will be seen that by this mode of procedure all the parts of the wheel contract equally and at the same time, and that in this way strong and solid wheels can be cast, thus avoiding the necessity of making the split hub, or of giving such form to the part or parts that connect the rim and hub as to admit of yielding to the contraction after the rim has been set by chilling.

It will be obvious that instead of connecting the hub and rim by a disk, this connection can be formed with spokes, arms, or in any other desired manner which will admit of molding and chilling, and therefore I do not wish to limit myself to any form of wheel, but to vary the form thereof, or of the connections between the hub and the rim in any manner that may be desired.

What I claim as my invention and desire to secure by Letters Patent is—

Casting the wheels of railroad cars or locomotives with the chilled rim by chilling the part or parts that form the connection or connections of the rim and hub, substantially as described, whether both surfaces of the wheel be chilled or only one as described, whereby a better wheel can be cast in one piece than by any other plan with which I am acquainted.

WILLIAM V. MANY.

Witnesses:
C. P. VAN NESS,
WILLIAM H. SEWARD.