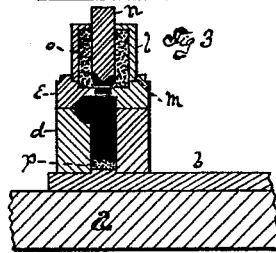
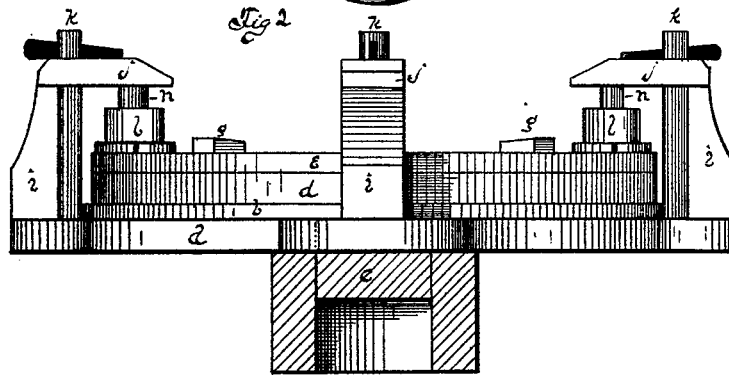
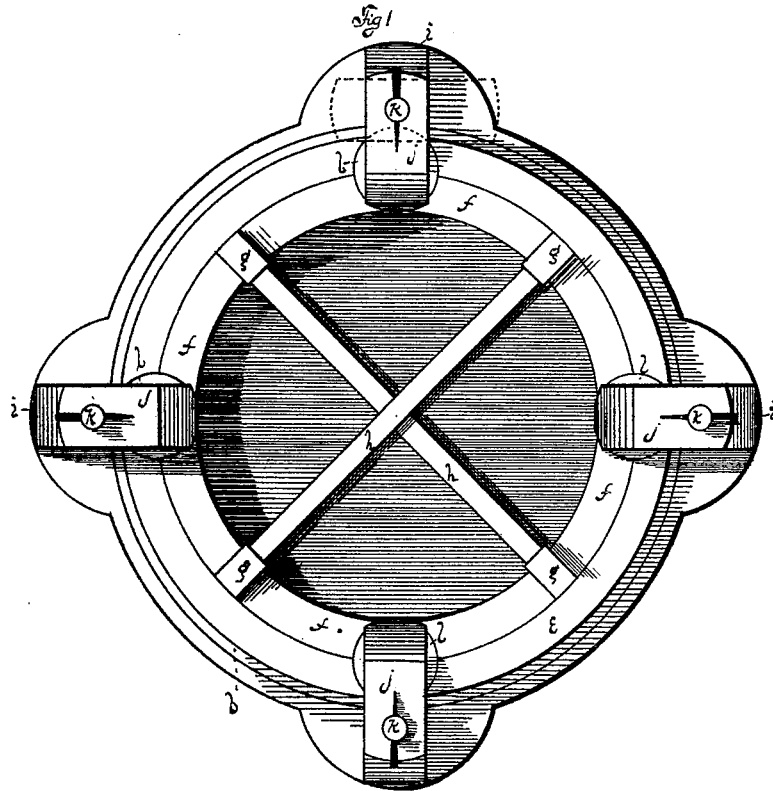


N. WASHBURN.

PROCESS OF CASTING CAR-WHEELS.

No. 183,786.

Patented Oct. 31, 1876.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN PROCESSES OF CASTING CAR-WHEELS.

Specification forming part of Letters Patent No. **183,786**, dated October 31, 1876; application filed February 25, 1876.

*To all whom it may concern:*

Be it known that I, NATHAN WASHBURN, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements pertaining to a Process for Producing Car-Wheels, more especially tires for railway-car wheels, of which the following is a specification, reference being had to the accompanying drawings, where—

Figure 1 is a top or plan view of a mold for putting my process into practice. Fig. 2 is a side view of the same, with a small part in section. Fig. 3 is a partial vertical section through the center of a pouring-conduit.

The invention is a simple but novel method of supporting the cast, and preferably compressed, ring while it is transferred, still hot, to a second mold, wherein its metallic body is cast to it.

I will describe the means by which my invention is put in practice, applied to the production of a compressed car-wheel tire.

The letter *a* denotes a platform or table; *b*, a plate borne upon the piston *c*, which is, by preference, the piston of a hydraulic jack, whereby plate *b* and its load may be moved upward with great power. *d* denotes a chilling ring for forming and chilling the exterior of the tire. *e* denotes a similar chill-ring for forming and chilling a portion of the exterior of the flange. *ffff* denote ring-sections for forming the interior of the tire. *gggg* denote wedges for setting the ring-sections to place. *hh* denote bars for holding the wedges in place. *iiii* denote standards for the buttons *jjjj*, which rotate on pillars *kkkk*. The letters *llll* denote conduit-cylinders, resting in sockets *m* on the rings *ef*. The plungers *n* fit to the mouths of these cylinders, which are cut back to afford place for refractory lining *o*. These cylinders, thus lined, are the pouring-places, and are set over proper openings into the matrix of the mold. This matrix has refractory lining *p* at the bottom. These refractory linings are used, when practicable, to prevent the immediate setting of the molten metal.

The manner of using this mold is as follows: The parts of the mold are all properly put and clamped together. The buttons *j* are turned to one side, as shown, in one instance, in Fig. 1, with the pouring-conduits in place, but the plungers *n* not in them.

The molten metal—preferably steel—is then poured till the matrix is filled and the pouring-conduits partially so. The plungers *n* are then inserted, the buttons *j* turned into position to hold them down, and the hydraulic jack set at work to raise the plate *b*, and with it the whole mold, thus forcing the plungers, comparatively speaking, down into the conduits, and forcing an extra amount of molten metal into the matrix, and so putting it under such pressure as to render it refined and homogeneous.

In another and prior application for patent I have described and claimed the process of first casting a tire, and then removing it, still hot, to a second mold, where the body is cast, and, by casting, welded or fused to the tire.

While I have been able to put that invention into successful practice, I have found that it is difficult to transfer the hot and rather plastic tire to the second mold without bending the tire, and that it is specially difficult to so place the hot tire in the second mold that it shall be of a true round when the whole wheel is finished.

I have found that I can obviate all these difficulties of transfer, and keep the tire of the true round to which it is at first cast, and almost wholly avoid the subsequent common process of "turning off," by transferring the tire in its chill-ring *d* (or chill-rings *d e*) from the first mold to the second. The chill-ring perfectly prevents the tire from bending, and holds it to the exact shape in which it is first cast—a true round—till the metal center is cast in.

The second mold has, of course, a proper place to receive the chill-ring as well as the tire.

The mechanism herein described forms the subject-matter of another application for patent by me, and for that reason is herein and hereby disclaimed.

I claim as my invention—

The process for making a car-wheel, consisting of steps, as follows: first, casting the tire; second, transferring the still hot tire in its chill-ring to a second mold; third, casting the center or body within the tire, all substantially as described.

NATHAN WASHBURN.

Witnesses:

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