B. BURGESS.

Casting Car-Wheels.

No. 208,371. Patented Sept. 24, 1878.

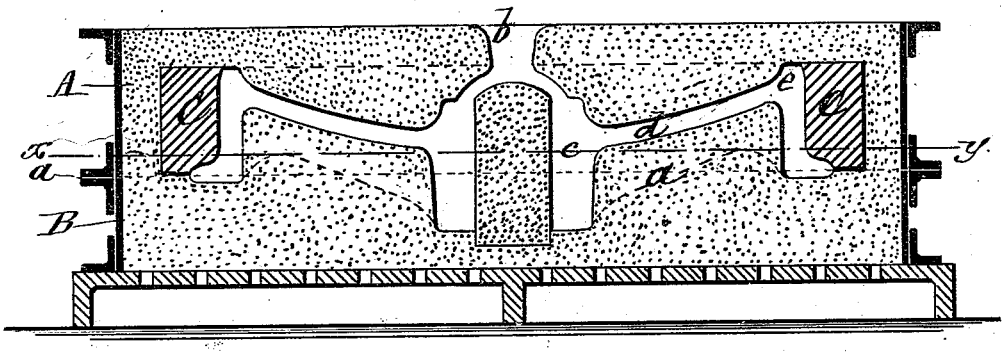
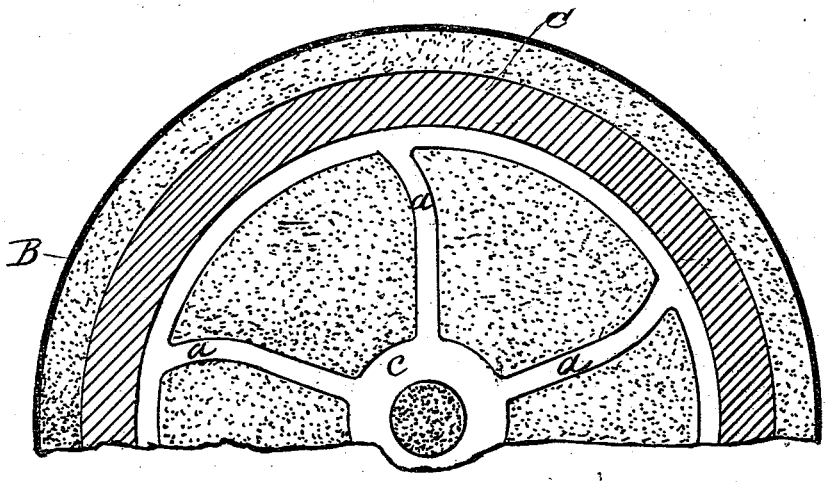


Fig 2.



WITNESSES:

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UNITED STATES PATENT OFFICE

BENJAMIN BURGESS, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-HALF HIS RIGHT TO JOHN N. CONWAY, OF SAME PLACE.

IMPROVEMENT IN CASTING CAR-WHEELS.

Specification forming part of Letters Patent No. **208,371**, dated September 24, 1878; application filed November 1, 1877.

To all whom it may concern:

Be it known that I, BENJAMIN BURGESS, of the city of Baltimore and State of Maryland, have invented certain Improvements in Casting Car-Wheels, of which the following is a specification; and I do hereby declare that in the same is contained a full, clear, and exact description of my said invention, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

This invention relates to certain improvements in the manufacture of that class of car-wheels wherein the hub and the web or rim are connected by a single continuous plate instead of spokes, and which are known as "plate-wheels."

The object of the said invention, briefly stated, is to prevent during the casting operation the accumulation of slag, dross, or scoria at that part of the wheel termed the "tread," or that portion of the wheel directly in contact with and acted upon by the rail.

Car-wheels of the plate description are usually formed either with a straight or circularly-corrugated plate connecting the hub with the rim of the wheel, or with two or more plates of concavo-convex form arranged concentrically or occupying reversed positions with reference to the hub and rim—that is to say, with the concave or convex sides adjoining.

The object of the various designs of plates above referred to is to give certain elasticity to the wheel and prevent rupture of any member of the same by contraction in cooling. In all the above designs, however, the major part of the molten metal, in passing from the hub portion of the mold toward the rim, has either to traverse a declining channel, or a horizontal or a circuitous one, terminating at the periphery of the wheel. In this movement of the molten metal the slag or dross which floats on the surface thereof is carried directly in contact with the face of the mold forming the tread, and the dross or slag becomes permanently fixed at that point by the chilling of the metal around it.

In consequence of the above-described defects in construction, ordinary car-wheels are usually found to have spongy or soft areas, which rapidly develop into flat places, thereby rendering the wheels useless.

The present invention consists in freeing the tread and other portions of the wheel designed to come in contact with the rail from scoria and other recrement by pouring the metal at the hub and conducting the metal to the rim, first through the arm-channels, and subsequently up a plain concavo-convex plate-channel. The scoria conveyed to the hub portion of the mold with the molten metal, together with oxide formed within the mold, floats on the surface of the metal in the form of a crust, which from its size cannot enter the arm-channels before referred to. The scoria is thus retained in the hub-recess, which constitutes a well or reservoir, from which clean metal flows toward the rim until the metal rises to the plate-channel. Upon the metal reaching the lowest point of the convex upper surface of the mold, a trap is effected, and the metal is fed from below the crusted surface thereof to the inclined channel, and thence to the tread of the wheel. The scoria is thus finally carried to the upper surface of the hub, at which place a spongy formation does not injure the wearing properties of the wheel.

Any light impurities entering the inclined channel after the metal rises over the lower edge of the concave under surface of the mold, and before the trap is formed, ultimately reach the upper edge *e* of the wheel, which does not come in contact with the rail.

Figure 1 in the drawing is a sectional view of the wheel-mold, the flasks and other appliances used being of the ordinary and well-approved description. Fig. 2 is a sectional plan of the mold on line *x y* of Fig. 1.

The dotted surface represents the sand. The cope A and drag B unite at the parting *a*. The gate *b* connects with the hub *c* of the mold, C being the metallic chill used to form the tread part thereof. The plain concavo-convex plate-channel is shown by *d*, rising to the highest point *e* of the tread of the wheel. The arm-channels are represented by *a*.

Having thus described my invention, what I claim as new, and wish to secure by Letters Patent of the United States, is—

In the manufacture of car-wheels, the method of freeing the tread and other portions of the wheel in contact with the rail from slag, dross, scoria, &c., by pouring the metal at the hub and running the metal to the rim, first through the arm-channels, and subsequently up a plain concavo-convex plate-channel to the highest point of the mold, substantially as herein described, for the purpose set forth.

In testimony whereof I have hereunto subscribed my name this 13th day of September, in the year of our Lord 1877.

BENJAMIN BURGESS.

Witnesses:
W. W. WHARTON,
THOS. MURDOCH.