

(No Model.)

G. W. MILTIMORE.

CAR WHEEL.

No. 262,909.

Patented Aug. 15, 1882.

Fig. 1.

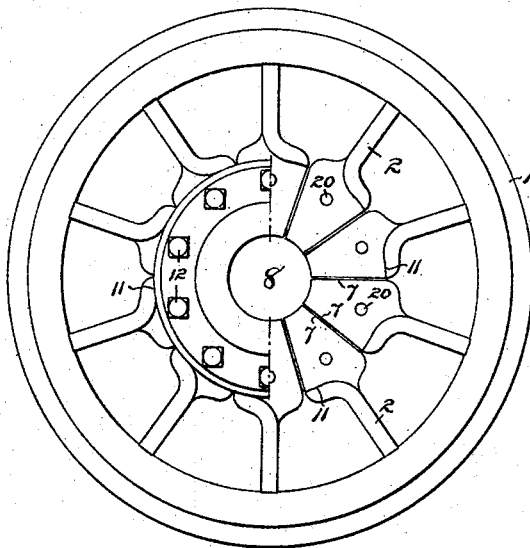


Fig. 2.

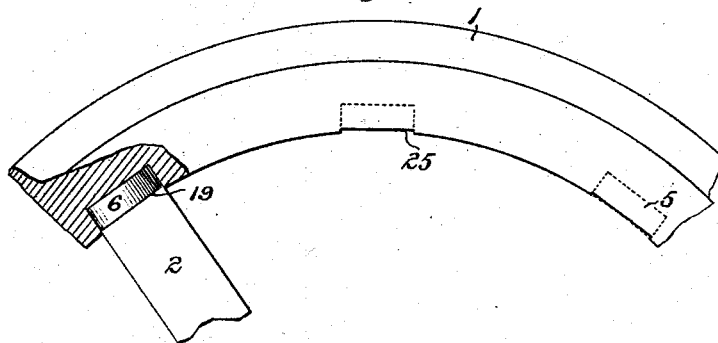
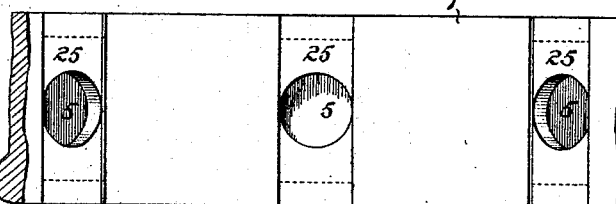


Fig. 3.



Attest;

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UNITED STATES PATENT OFFICE.

GEORGE W. MILTIMORE, OF CHICAGO, ILLINOIS.

CAR-WHEEL.

SPECIFICATION forming part of Letters Patent No. 262,909, dated August 15, 1882.

Application filed January 28, 1882. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. MILTIMORE, a citizen of the United States, residing in the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Car-Wheels, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

Wheels for railway-cars were formerly almost universally made of cast-iron and in a single piece. To cure many disadvantages attending the use of wheels made of this material and in this manner, principal among which is their liability to crack, particularly in cold weather, it has in recent years been found desirable to make these wheels by building them up from separate parts, and this has resulted either in defective or costly constructions.

In an application for United States Letters Patent filed in the Patent Office on the 12th of November, 1881, I have shown and described a wheel which is designed to overcome the dangerous defects of the older structures, and at the same time avoid the great expense attending the production of the more approved wheels.

The present invention relates to a wheel of the same general construction as the one therein shown; and it consists in certain details of construction, which will be hereinafter pointed out, by which the labor of making the wheel is materially lessened.

In said drawings, Figure 1 is a side elevation of a wheel embodying the present invention, one-half of the front hub-plate being broken away to show the converging ends of the spokes. Fig. 2 is a side elevation, partly in section, upon an enlarged scale, of a fragment of the rim of the wheel, showing more clearly the feature of construction constituting the present invention. Fig. 3 is an inside view of the same.

This wheel, as before remarked, is of the same general construction as that shown in my application now pending in the Patent Office. Its rim 1 is made of steel or wrought-iron, and is of the usual shape to enable it to run properly upon the track-rails. This rim is provided upon its inner periphery with a series of mortises, 5, which receive the tenons 6 of the spokes. The spokes 2 are made from or-

dinary flat commercial bars of iron of suitable size, one end being provided with the tenon 6 to enter the mortise 5 in the rim, the other end being cut away at its edges 7, so as to form substantially a sector of a circle, the piece being then twisted at about mid-length by giving it a quarter-turn, as shown in Fig. 1.

When a series of spokes of the construction just described have their tenons entered into the rim and are depressed and assembled in a radial series within said rim they will present the appearance shown in Fig. 1, their tapered inner ends, 7, fitting together like the sectors of a circle and forming a flat even surface on opposite sides. When the wheel is in this condition a mandrel is forced through the opening 8, which mandrel is of sufficient size to force each one of the spokes outward and seat it firmly against the rim. By the use of a suitable instrument the shoulders 11 of the spokes are then cut away, so that they will present perfectly-circular bearing-seats on opposite sides. The hub-plates are then placed over the mandrel and pressed to their proper positions within said circular bearing-seats, thus resting against the shoulders 11 of the spokes and operating to hold them outwardly in the position to which they have been forced. Holes 20 are then bored through the hub-plates and spokes, and the spokes are then secured in place and to the hub-plates by bolts 12, which are fastened either by riveting or by nuts.

It is not necessary that there should be a bolt for each spoke. A less number will often be found sufficient to hold the wheel firmly together, the intervening unbolted spokes being confined between the hub-plates. After the hub-plates have been bolted in place the mandrel is removed and the center opening or axle-bearing, 8, is reamed out to the desired size to receive the axle. The spokes should be cut of such a length and the hub-plates made with a central opening of such a size that the opening 8, when the mandrel is forced through it, will be considerably smaller than it is designed to be when the wheel is finished. This will permit of great force being used to force the spokes snugly home and admit a marring of their ends without injury, though it will entail considerable reaming out to produce the axle-bearing.

In the construction shown in my said appli-

cation the inner periphery of the rim of the wheel is turned to a perfect circle, and the shoulders, as 19, of the spokes are made convex in cross-section, so as to accurately fit the curvature of the rim. It is found in practice that to thus turn the rim and shape the shoulders of the spokes consumes considerable time and requires the services of a skilled workman, thus adding materially to the cost of the wheel. This is to a great extent avoided in the present invention, in which the inner periphery of the rim is allowed to remain in its rough condition, only the seats 25 for the shoulders 19 of the spokes being accurately finished. These seats, instead of being arcs of a circle, are made flat, as clearly shown in Figs. 2 and 3, thus permitting the shoulders 19 of the spokes to be flat instead of convex, and rendering their construction much more simple. Much labor is also saved in making the rim by making the seats 25 flat instead of concave, because by so doing the necessity of turning the interior of the rim is avoided, and I am enabled to cut the seats by a planer or by a milling apparatus which I have devised for the

purpose, and which will form the subject-matter of a future application for Letters Patent.

In Figs. 2 and 3 the size of the spoke 2 and the seats 25 is exaggerated to afford clearer illustration.

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What I claim is—

1. In a car-wheel, a solid rim having its inner periphery mortised to receive the tenons of the spokes, and cut away to form flat seats for the shoulders of the spokes, substantially as described.

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2. In a car-wheel, the combination of the solid rim having its inner periphery mortised to receive the tenons of the spokes, and cut away to form flat seats for the shoulders of the spokes, and the spokes having tenons and flat or square shoulders, as 19, substantially as described.

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In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

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GEORGE W. MILTIMORE.

Witnesses:

JAMES K. BATCHELDER,
S. E. WRIGHT.