No. 795,452. PATENTED JULY 25, 1905.

W. K. RICHARDSON.

TROLLEY WHEEL.

APPLICATION FILED OCT. 17, 1904.

Fig. 1

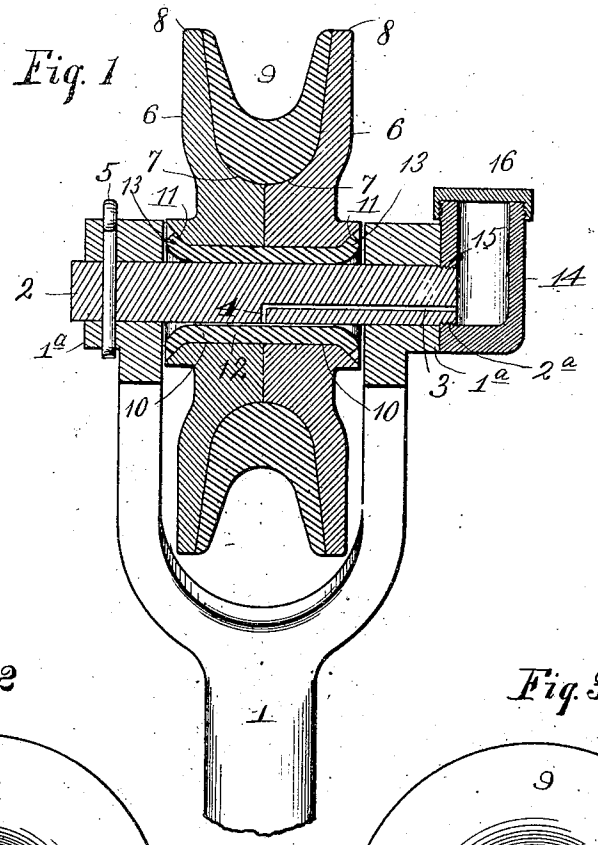


Fig. 2

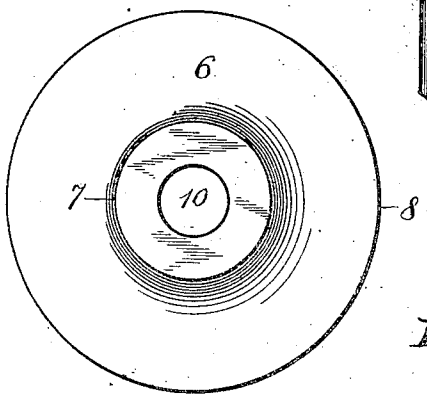


Fig. 3

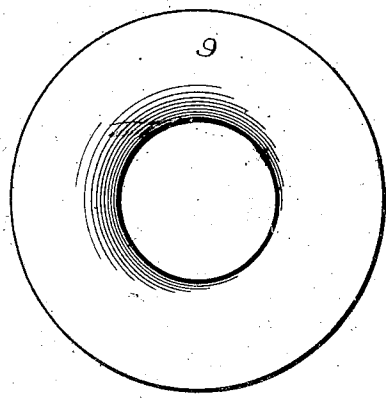
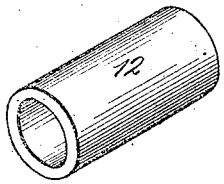


Fig. 4



WITNESSES:

R. E. Hamilton.

J. Moore.

INVENTOR.

William K. Richardson

By F. G. Fischer

Atty.

UNITED STATES PATENT OFFICE.

WILLIAM K. RICHARDSON, OF LEAVENWORTH, KANSAS, ASSIGNOR OF ONE-HALF TO MARTHA L. RICHARDSON, OF LEAVENWORTH, KANSAS.

TROLLEY-WHEEL.

No. 795,452. Specification of Letters Patent. Patented July 25, 1905.

Application filed October 17, 1904. Serial No. 228,887.

To all whom it may concern:

Be it known that I, WILLIAM K. RICHARDSON, a citizen of the United States, residing at Leavenworth, in the county of Leavenworth and State of Kansas, have invented certain new and useful Improvements in Trolley-Wheels, of which the following is a specification.

My invention relates to improvements in trolley-wheels; and my object is to arrange a trolley-wheel in such a manner that the portions thereof subjected to wear may be readily removed when necessary and new parts substituted therefor without discontinuing the use of the entire wheel.

The invention comprises a pair of separable disks, a bushing for detachably securing said disks together, and a grooved annulus secured in a seat formed in the disks.

The annulus is preferably composed of soft metal—such, for instance, as brass, copper, or an alloy—and the bushing of soft steel tubing or brass tubing, while the disks are made of steel or iron in order to form a durable and inexpensive backing for said bushing and annulus. By forming the disks of durable material their peripheral flanges, which straddle the overhead trolley-wire, will remain true and prevent the trolley-wheel from accidentally leaving the trolley-wire even though the annulus has become badly worn, and by making the bushing removable it may be replaced by a new one when worn, so that the trolley-wheel will not wabble on its spindle, and thus tend to leave the trolley-wire.

In order that the invention may be fully understood, reference will now be made to the accompanying drawings, in which—

Figure 1 represents a vertical central section of my improved trolley-wheel. Fig. 2 is a side elevation of one of the disks forming part of my improved trolley-wheel. Fig. 3 is a detail side elevation of the grooved annulus forming part of the trolley-wheel. Fig. 4 is a detail perspective view of the bushing forming part of the trolley-wheel.

In said drawings, 1 designates a harp of ordinary form. 2 designates a spindle secured in the upper bifurcated end of said harp and provided with a longitudinal counterbore 3, extending from one end of said spindle to the central portion thereof, where it communicates with an orifice 4, extending downwardly to the under side of the spindle.

5 designates a cotter extending downwardly through the spindle and one of the bosses 1 on the harp in order to secure said spindle from either rotatable or longitudinal movement.

6 designates a pair of disks having reduced inner margins 7 and peripheral flanges 8 at their outer margins, forming a seat for a grooved annulus 9. Disks 6 have registering transverse openings 10 extending through their hubs and terminating at their outer ends in outwardly-flaring portions 11.

12 designates a bushing which fits snugly within openings 10 and is expanded at its opposite ends 13 to snugly fit the flaring portions 11, and thus reliably hold the disks together. The ends of said bushing are substantially flush with the outer ends of the disk-hubs, so that the bushing will not wear to any appreciable extent by grinding contact with the proximate portions of the harp.

14 designates an oil-cup provided at its lower portion with an opening 15, having threads which engage the threaded end 2^a of spindle 2. Said oil-cup is locked in position by screwing it upon the spindle until it contacts with the side of the adjacent boss 1^a, and it is provided at its upper end with a screw-cap 16 for the exclusion of dust, &c., from the oil. Opening 15 communicates with the outer end of counterbore 3, so the oil in cup 14 will have an uninterrupted passageway to the bushing.

When the grooved annulus and the bushing become too badly worn for further use, the trolley-wheel is removed from its spindle and one of the expanded ends 13 is either straightened or cut off, so the bushing may be removed from openings 10, after which the worn annulus and said bushing may be replaced by duplicates.

As the annulus and the bushing only form about one-third of the trolley-wheel, it is obvious that the cost of maintenance will be much less than when a trolley-wheel formed from a single piece of metal is employed, because when the latter becomes too badly worn for further use the entire wheel must be thrown away.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A trolley-wheel comprising a pair of metal disks which form the outer sides, peripheral flanges and hub of the wheel, there being transverse openings through the hub

portions, a tubular bushing extending through said openings, a grooved wear-annulus whose outer sides snugly fit and completely cover the grooved faces of the disks, and means whereby said parts are secured together, substantially as set forth.

2. A trolley-wheel comprising a pair of metal disks which form the outer sides, peripheral flanges and hub of the wheel, there being transverse openings through the hub portions, a grooved wear-annulus whose outer sides snugly fit and completely cover the grooved faces of the disks, and a tubular bushing extending through said openings, the ends of the said bushing being expanded to engage the sides of the disks and securely hold the parts together, substantially as set forth.

3. A trolley-wheel comprising a pair of metal disks which form the outer sides, peripheral flanges and hub of the wheel, there being transverse openings through the hub portions, a tubular bushing extending through said openings, the ends of the bushing being flaringly expanded to fit into and engage the hub ends of the disks and being substantially flush therewith, and a grooved wear-annulus whose outer sides snugly fit and completely cover the grooved faces of the disks, substantially as set forth.

4. A trolley-wheel comprising a pair of metal disks which form the outer sides, peripheral flanges and hub of the wheel, there being transverse openings through the hub portions, a tubular bushing extending through said openings, a grooved wear-annulus whose outer sides snugly fit and completely cover the grooved faces of the disks, the inner reduced portions of the disks being in contact, and means whereby said parts are secured together, substantially as set forth.

5. A trolley-wheel comprising a pair of metal disks which form the outer sides, peripheral flanges, and hub of the wheel, there being transverse openings through the hub portions, a grooved wear-annulus whose outer sides snugly fit and completely cover the grooved faces of the disks, and means to hold the assembled parts together.

6. A trolley-wheel comprising a pair of metal disks which form the outer sides, peripheral flanges, and hub of the wheel, there being transverse central openings in the hub portions, a wear-annulus of alloy whose outer sides snugly fit and completely cover the grooved faces of the disks in which is formed the groove of the wheel, and means to hold the assembled parts together.

7. A trolley-wheel comprising a pair of metal disks which form the body of the wheel provided with central transverse openings having countersunk ends, and a tubular bushing inserted through the said openings and having its extremities expanded into the countersunk ends of the same.

In testimony whereof I affix my signature in the presence of two witnesses.

WM. K. RICHARDSON.

Witnesses:
F. G. FISCHER,
J. MOORE.