P. BYARD.

Lubricating Car-Wheels.

No. 208,290. Patented Sept. 24, 1878.

Fig. 1.

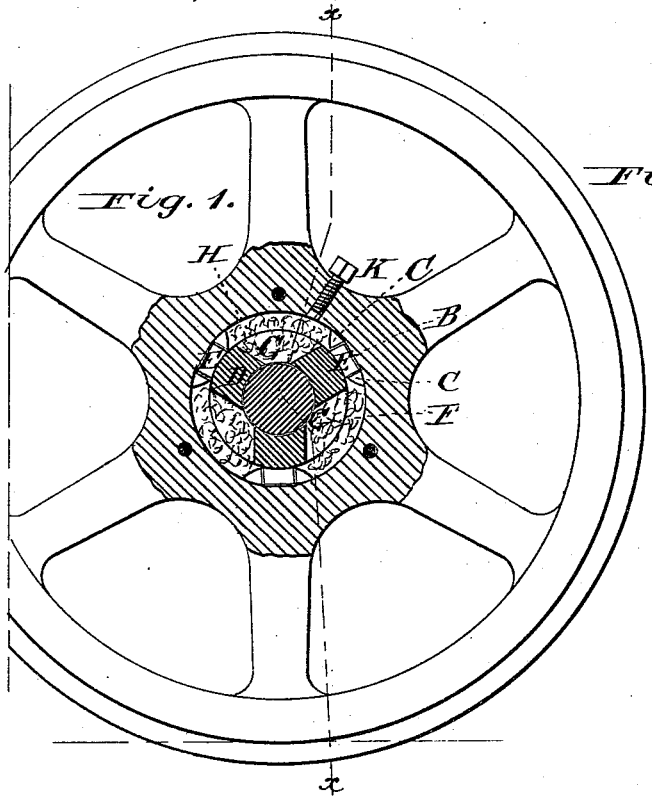


Fig. 2.

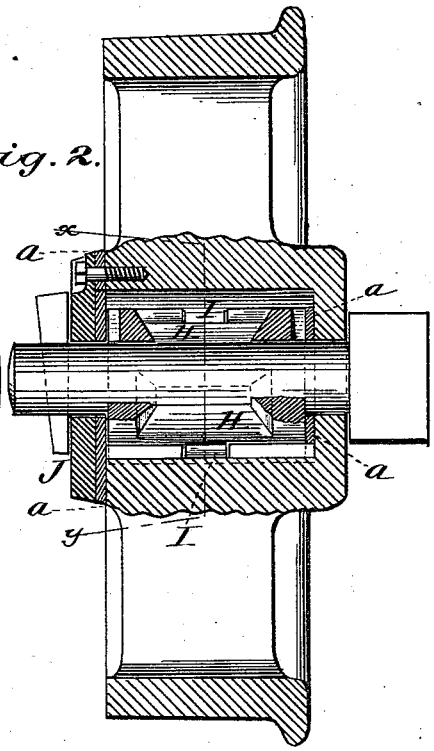
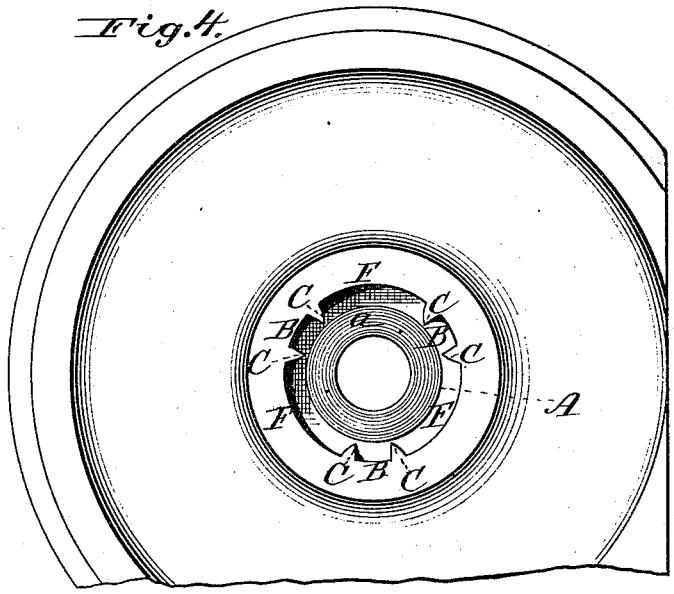


Fig. 4.



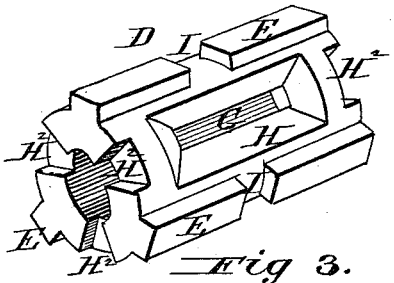
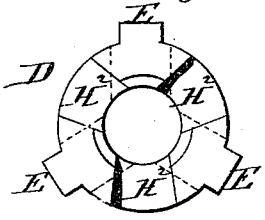


Fig 3.



Attest:
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UNITED STATES PATENT OFFICE.

PERRY BYARD, OF LEETONIA, OHIO.

IMPROVEMENT IN LUBRICATING CAR-WHEELS.

Specification forming part of Letters Patent No. **208,290**, dated September 24, 1878; application filed March 11, 1878.

To all whom it may concern:

Be it known that I, PERRY BYARD, of Leetonia, in the county of Columbiana and State of Ohio, have invented certain new and useful Improvements in Lubricating Car-Wheels; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

In car-wheels having free rotation upon their axles it is of the greatest importance that the means of lubricating the journal-bearings should be efficient and the wear upon said journals reduced as much as possible. I employ a supplemental bearing-hub of peculiar construction, and adapted for removal and replacement without taking the wheel from the axle. The wheel-hub has a chamber large enough to receive this bearing-hub, and its walls are provided with ribs forming grooves running through the wheel-hub, and within which the bearing-hub is locked from turning by means of ribs which fit into the said hub-grooves.

The groove-forming ribs and the hub-locking ribs have coincident interruptions or cross-spaces, so as to form an annular way communicating with spaces between the groove-forming ribs, which spaces communicate with the journal-bearing through the bearing-hub by means of longitudinal openings in the bearing-hub, the sides and ends of said openings being made flaring outward, to form, in connection with the wheel-hub spaces, large receptacles for cotton-waste and the lubricating material.

Each end of the supplemental bearing-hub has radial grooves extending from the journal-bearing to the waste and oil holding spaces, the purpose of which is to produce a circulation of the lubricating material from one end of the supplemental hub to the other through the bearing-surface of said hub and its surrounding waste-holding spaces, so that there is an oil-circulation crosswise and lengthwise of the bearing-hub and the journal-bearing.

Both the notched ends of the bearing-hub are covered with rubber gaskets, which seal the openings for the journal. The outer gasket and the cap J also cover and seal the ends of the spaces F in the wheel-hub.

The supplemental bearing-hub, while giving complete lubrication to the journal-bearings, is adapted for removal when worn out, and may be replaced by a new one at very little cost by simply removing the outer cap-plate. In this way, also, the cotton-waste can be removed and renewed when desired.

Referring to the drawings, Figure 1 represents a partial section of a car-wheel embracing my invention; Fig. 2, a section in the line of the axle; Fig. 3, the supplemental bearing-hub, and Fig. 4 the grooved wheel-hub to receive and lock the supplemental bearing-hub.

The axle is firmly secured to the truck of the car, and the wheels are adapted to rotate upon the journal-bearings thereof. The hub of the wheel is formed with a chamber, A, of considerably greater diameter than the axle-bearing, and grooves B are formed upon its walls by ribs C, running through the hub, and equidistant. A supplemental bearing-hub, D, is adapted to fit into this hub-chamber flush with the faces of the wheel, and be locked therein so that it cannot rotate by ribs E, fitting into the grooves B of the wheel-hub. Between the groove-forming ribs C are spaces F in the wheel-hub, and the bearing-hub has corresponding openings G, the sides and ends of which are flared outward, so as to form chambers H in the bearing-hub coincident with the wheel-hub spaces F, to receive and hold cotton-waste.

The flaring out of the sides of the bearing-hub form comparatively large holding-spaces for the cotton-waste, with narrow openings at the journal-surface, as shown in Figs. 1 and 2, thereby utilizing the bearing-hub to form a series of pockets for the cotton-waste and the oil. The outer ends of this bearing-hub are formed with radial grooves or recesses H^2, extending from the journal-surface to the hub-spaces F, the object of which is to provide means for giving a circulation to the oil through the bearing-hub openings G, between said hub and the journal-bearing, and by means of said end recesses in the hub to the outer spaces, F,

thus maintaining an end circulation and a perfect lubrication in the supplemental bearing-hub.

To give a cross-circulation of the lubricant around and through the supplemental bearing-hub and the cotton-waste-holding spaces, the groove-forming ribs C in the wheel-hub and the interlocking ribs E of the bearing-hub are interrupted with coincident openings or spaces I, in a manner to form an annular way through the wheel-hub spaces F, and through the bearing-hub openings G, thus making an endwise and crosswise oil-circulation through the bearing-hub, over the axle-bearing, and through the cotton-waste-holding spaces.

A plate, J, covers the outer end of the wheel-hub chamber and the supplemental bearing-hub, and to seal the channels or circulating-spaces in the end of the bearing-hub I use a rubber gasket, *a*, Fig. 2, which also seals the ends of the wheel-hub chamber. These sealing-gaskets also serve to prevent end-play of the supplemental bearing-hub by forming end bearings thereto.

The supplemental bearing-hub is made of any suitable metal, and when worn out it may be removed and replaced by a new one at little cost by taking off the outer cap, which I prefer to secure by thumb-screws. The cotton-waste is renewed in the same way. The lubricant is supplied direct to the wheel-hub spaces through a tap-screw, K, between the spokes and passing through the wheel-hub.

By my improvement the axle lasts much longer and the journal-bearings are kept free from dust and dirt. The supplemental hub forms a skeleton-bearing, and, being made of metal softer than that of the axle, can be renewed, and thus save both the axle and the wheel for much longer use.

I claim—

1. The supplemental bearing-hub D, having the ribs E, and the wheel-hub chamber, having the groove-forming ribs C, the ribs of both the bearing-hub and the wheel-hub chamber having coincident interruptions or spaces I, to form a cross annular way or passage around said hub-bearing communicating with the cotton-waste chambers, as specified.

2. The supplemental bearing-hub D, having the end grooves or channels, H^2, the openings G, the chambers H, and rib-spaces I, as described, in combination with the cotton-waste chambers F in the wheel-hub, as specified.

3. The combination, with the supplemental bearing-hub having end grooves or channels H^2 and the wheel-hub having the cotton-waste spaces F, of the confining-cap J and the sealing-gaskets *a*, as and for the purpose specified.

4. The supplemental bearing-hub having locking-ribs E, flaring side openings, G, and end grooves or channels, H^2, in combination with the wheel-hub chamber having the annular space I, the groove-forming ribs C, the annular crossway around said hub-bearing, and the sealing-gaskets *a*, all constructed and adapted for lubricating car-wheel axles, as set forth.

In testimony that I claim the foregoing I have affixed my signature in the presence of two witnesses.

PERRY BYARD.

Witnesses:
M. E. TAGGART,
H. F. CHRISTY.