

CAR-AXLE.

Patented Jan. 4, 1876.

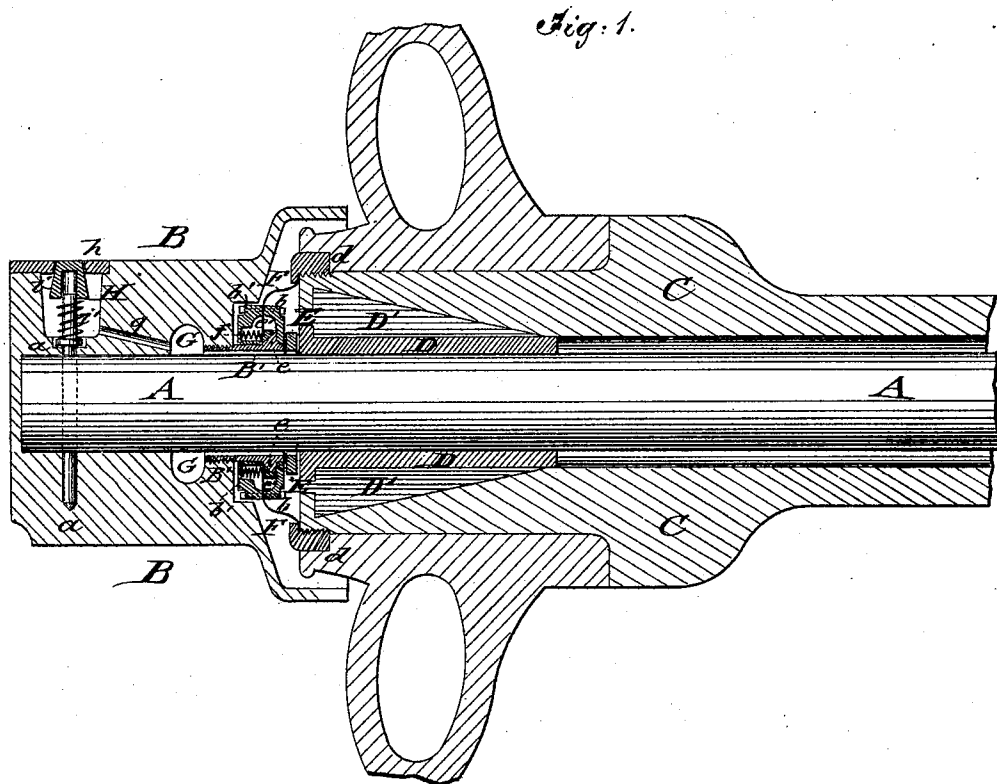
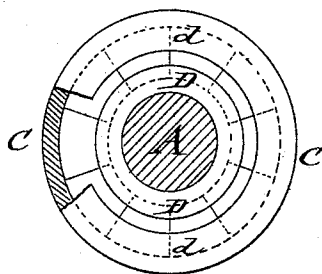


Fig: 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE W. MILTIMORE, OF JANESVILLE, WISCONSIN.

IMPROVEMENT IN CAR-AXLES.

Specification forming part of Letters Patent No. **171,835**, dated January 4, 1876; application filed June 19, 1875.

To all whom it may concern:

Be it known that I, GEORGE W. MILTIMORE, of Janesville, in the county of Rock and State of Wisconsin, have invented a new and Improved Car-Axle, of which the following is a specification:

The object of my invention is to improve the car-axles in such a manner that the construction and working of the same may be simplified, the wear of leather packing-rings on the stationary axle prevented, and the weakening of the axle by oils-ducts, &c., bored through the same, be done away with. The supply of the lubricant through the pedestal-boxes to the oil-reservoirs, and the feeding of the same to the axle-journals, is simplified, and made more effective and economical.

The invention consists of a steel ring, which is placed on the stationary axle in front of the journal-box of the revolving outer axle or sleeve, and retained thereon by a stationary sleeve of the pedestal-box. A double clamping-ring, with spring-acted interior ring, revolves with the sleeve, by a connecting-diaphragm secured in suitable manner on the stationary sleeve of the pedestal-box. The diaphragm creates an oil-chamber around the front end of the cushioned journal-box, and excludes impurities. The oil is supplied by grooves or channels of the stationary sleeve and the steel ring from an annular oil-reservoir of the pedestal-box, which is again connected by an inclined channel with a cavity, into which the oil is filled through a top hole, closed by a conical spring-plug, sliding on the vertical pin connecting axle and pedestal-box.

In the accompanying drawing, Figure 1 represents a vertical central section of my improved car-axle, showing the construction of the different parts; and Fig. 2 is an end view of sleeve, showing connection of the same with stationary axle.

Similar letters of reference indicate corresponding parts.

A represents the stationary axle, which is connected to the spring or pedestal bearers or boxes B by vertical fastening-pins *a*. C is the outer revolving axle or sleeve, which forms around the stationary axle an oil-reservoir of uniform width, as the axle A is constructed

without projecting shoulders of even thickness throughout. The journal-box D revolves with the sleeve on the axle, being cushioned by an annular wedge-shaped sleeve-ring, D', of wood, interposed between sleeve and box, and retained by face-flanges of the same, as shown in Figs. 1 and 2. The cushioning-sleeve furnishes a more elastic connection of the journal-box with the outer sleeve. The wheels are set loosely on the sleeve, and revolve with the same, except when passing around a curve; or, when there is a slight difference in the diameters of the wheels, they turn on the sleeve to the same extent that they would slip on the track when rigidly applied to the axle. A steel collar or ring, E, of oblong cross-section, is placed stationary on the axle in front of journal-box D, to take up the lateral motion of the car, and is retained in position by a stationary sleeve, B', of the pedestal-box. An interior metallic ring, *b*, clamps, by fastening-bolts, with an outer corresponding ring, *b'*, of similar shape and size, and an intermediate diaphragm, F, of sheet-copper, that is attached along its outer circumference by a flanged screw-nut, *d*, to the sleeve C, forming thus an annular reservoir around the sleeve B'. The diaphragm is made bulging, to produce a certain degree of flexibility for the varying positions of the outer sleeve C and of the metallic revolving rings. The rings *b* and *b'* revolve with the outer sleeve C on the stationary sleeve B', which is fitted to carry the same. The sleeve B' has a conical projecting rim, *e*, on which slides a ring, *e'*, of triangular cross-section, that is placed within the cavity formed by the rings *b b'*, and acted upon by spiral springs *f*, seated in socket-recesses of the outer ring *b'*. The springs press the sliding ring *e'* along the inclined plane of the projecting rim *e* in forward direction on the interior ring, preventing the escape of oil while furnishing a sufficient quantity to the ring-cavity from the diaphragm-reservoir to lubricate the revolving rings of the same. Dust and other impurities are fully kept out by the tight-fitting of the parts on the stationary sleeve. An annular cavity, G, of the pedestal-boxes B around the stationary shaft forms an oil-reservoir, from which, by longitudinal channels or grooves of the stationary sleeve B' and

of steel ring E, the oil is fed to the journal-box axle and diaphragm-reservoir. The pressure of oil on filling the different reservoirs from the oil-cup H of the pedestal-box forces the same through the different channels to supply fully all the parts with oil, so that they can be run for some time without refilling. An inclined channel, g, connects the reservoir G with the oil-cup H, into which the oil is filled through a top hole, h, that is closed from below by a conical plug, i, that slides on the upper end of pin a, and is forced up by a spiral spring, v', seated between plug and a shoulder of pin a.

By pressing the spring-plug down the oil may be filled in until the reservoir G is full, from which it is conveyed to the diaphragm-reservoir, the journal-box, and the reservoir formed between sleeve and axle. The entire quantity of oil is thus gradually fed to the parts requiring the same, while no weakening of the axle, either by any parts cutting into the same or by oil-ducts or shoulders, is produced.

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

1. In car-axles, the combination of a revolving sleeve with a sheet-metal diaphragm, inclosing the journal-box, and forming a supplementary oil-reservoir around the stationary axle, substantially in the manner and for the purpose set forth.

2. The combination of the sheet-metal diaphragm, attached to the revolving outer axle or sleeve, with the double clamping-rings fitting on the stationary sleeve of the pedestal-box, to prevent escape of oil from diaphragm-reservoir and entering of dust, substantially as set forth.

3. The combination of revolving diaphragm clamping-rings, inner spring-acted sliding ring, stationary sleeve, and stationary steel ring with journal-box of stationary axle, substantially as shown and described.

4. The combination of the oil-cup and oil-reservoir of the pedestal-box with the grooved stationary sleeve of the same, and the grooved steel ring for conveying the lubricant to the revolving parts, substantially as specified.

5. The oil-cup of pedestal-box, having top aperture, in combination with conical spring-acted interior plug, sliding on vertical axle-fastening pin, substantially as set forth.

6. The combination of the outer revolving sleeve and the journal-box of the stationary axle, both having face-flanges, with an intermediate wedge-shaped cushioning-sleeve, substantially as and for the purpose set forth.

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Witnesses:

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