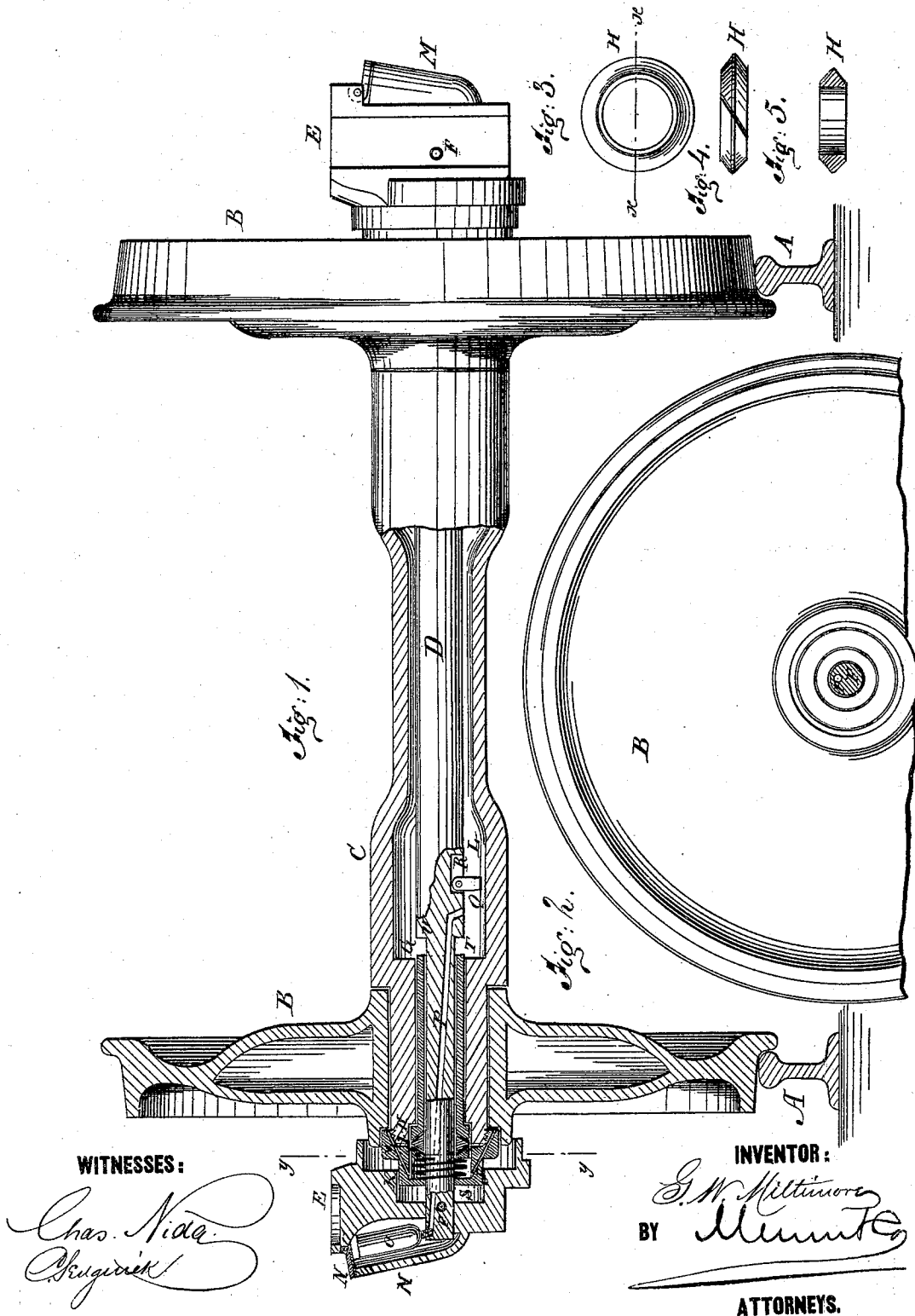


G. W. MILTIMORE.
Car-Axles.

No. 147,340.

Patented Feb. 10, 1874.



UNITED STATES PATENT OFFICE.

GEORGE W. MILTIMORE, OF JANESVILLE, WISCONSIN.

IMPROVEMENT IN CAR-AXLES.

Specification forming part of Letters Patent No. **147,340**, dated February 10, 1874; application filed November 8, 1873.

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 useful Improvement in Railway-Car Axles, of which the following is a specification:

The object of this invention is to furnish a railway-car axle so constructed that it shall have less friction on the bearing-surfaces, and so that the torsion or twisting occasioned by curves or irregularities of the track shall be avoided, and also be less liable to injury from concussion and wear and tear than when constructed in the usual manner, while dust is entirely excluded, and its several parts can be readily taken apart for repairs or other purposes. With this object in view, my invention consists, first, in so combining a revolving sleeve with a solid stationary axle that the lubricating material is introduced into the oil-chamber between them from oil-cups attached to the bearers; secondly, in an elastic or flexible ring on the journal of the axle-box, constructed and arranged so as to be compressed on the axle, to prevent the escape of the lubricating material; thirdly, in a novel oil-feeder, attached to the lower side of the fixed axle; fourthly, in such an adjustment of the axle-sleeve and bearers that the friction caused by lateral motion is taken up on a bearing-surface near the center of motion, and within the limits of the sleeve where the oil is stored; fifthly, in certain spaces as provision for lateral motion.

In the drawing, Figure 1 is a sectional view, showing the construction of the parts and their combination, the wheels being seen on the rail-track. Fig. 2 is a section of Fig. 1 on the line *y y*. Fig. 3 is a section on the line *x x*, showing the flexible ring. Fig. 4 is an edge view of the same. Fig. 5 is a cross-section of Fig. 3, taken on the line *x x*.

Similar letters of reference indicate corresponding parts.

A A are the rails. B B are the wheels. C is a revolving sleeve, on the ends of which the wheels are loosely mounted. D is the fixed axle, attached permanently to the car-truck by the bearers E E on its ends, which bearers are secured thereto by pins F. The spring or pedestal of the car rests on these bearers. The

axle D is a round bar of wrought-iron or steel, and not necessarily turned, except at the journals. G is the journal-box, which is slipped into the sleeve, and revolves with it on the end of the axle. The wheels and sleeve revolve together around the stationary axle, except when the distance traveled by the two wheels is varied by going round a curve, or when there is a difference in the diameter of the two wheels. In such case, one or both wheels turn on the sleeve to the same extent that one or both would be compelled to slip on the track had both wheels been rigidly attached to the axle. The weight of the car is supported by the stationary axle, while the revolving sleeve and bearers E E support the wheels in a perpendicular position, and hold them to the rails or gage of the track. H is the flexible ring, which is preferably triangular in cross-section, and made of rawhide, and split, as seen in Fig. 4, so that when it is pressed against the box it will hug the axle. The end of the box G is made concave, as also is the side of the washer I, against which the spring bears. J is the spring. K is the cap, which screws onto the end of the sleeve. The flexible ring H, the washer I, spring J, and cap K revolve with the box and sleeve. L is the oil-chamber, which extends through between the sleeve and the axle, as seen in the drawing, from one box to the other. M is the oil-box, attached to the pedestal-bearers, with hinged covers N, as is usual. O are oil-cups within the boxes, the necks of which are attached, by means of screw-threads, to the oil-hole P of the axle. This oil-hole extends from the top of the axle to the oil-chamber L, and is inclined downward, as seen in the drawing. Q is an oil-feeder, hinged in a recess, R, made in the axle. This feeder drops down by its own gravity.

The oil is thrown by centrifugal force against the inner surface of the chamber and forms a stratum, which is broken by the feeder Q, which causes it to flow toward box, to lubricate the axle-journal. Some portion of the lubricating-oil will work through the box and into the spring-chamber of the cap K. The wheel on the sleeve is lubricated from this source by means of one or more oil-passages, V, extending diagonally from the base of the cap through the edge, as indicated by the line

R. There will always be a slight revolving motion of one or both wheels on the sleeve. This motion will be equal to what the slip would be were the wheels rigid on the axle, as is usual. This motion is but trifling, and the wear at this point is scarcely appreciable; but that much slip and consequent torsion would be destructive were the wheels rigidly attached to the axle. The space T is made smaller than the space S, so that all friction caused by lateral motion shall be confined within the space T. The lateral play of the sleeve and wheels on the axle is provided for by the space S between the bearer and the back of the cap K, and the space T between the inner end of the box and the shoulder *u* of the axle.

It will be seen that all the lubricating material is introduced through the oil-cups O; consequently the sleeve is not weakened by boring or cutting it in any manner, and the lateral motion of the wheels and sleeve is not imparted to the car. The cap K, it will be observed, confines the wheel upon the sleeve, while at the same time it conveys the oil for lubricating the wheel on the sleeve, it being understood that the stationary axle-bearing and the wheel-bearing are separate and distinct parts, and are lubricated by different devices.

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

1. The sleeve G, in combination with the fixed axle P and the oil-cup O, the axle being provided with an oil-passage leading into the reservoir L, all as and for the purpose described.

2. In combination with the sleeve G, the compressible cleft ring H surrounding the fixed axle P, the concave washer I, the spring J, and the screw-cap K, provided with the oil-ways V, all substantially as and for the purpose described.

3. The feeder Q, attached to lower side of fixed axle within the cavity R, constructed to operate within the oil-reservoir L, as and for the purpose described.

4. The screw-cap K, provided with oil-ways V, in combination with outer axle C, containing an oil-reservoir, and with the wheel B.

5. The spaces T and S, as a provision for lateral motion, substantially as shown and described.

GEORGE W. MILTIMORE.

Witnesses:

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