

UNITED STATES PATENT OFFICE.

JOHN E. WHEELER, OF LYNN, MASSACHUSETTS.

IMPROVEMENT IN CAR-AXLE BOXES.

Specification forming part of Letters Patent No. 204,641, dated June 4, 1878; application filed March 4, 1878.

To all whom it may concern:

Be it known that I, JOHN E. WHEELER, of Lynn, in the county of Essex and Commonwealth of Massachusetts, have invented an Improvement in Combined Oiler and Car-Axle Box, of which the following is a specification:

This invention relates to the following-described means for providing the journal of car-axles with a steady and permanent lubrication; also in the means described for freeing the bearings of the axle from dust, dirt, or scale, as will hereinafter be more fully described.

In the drawing, Figure 1 is a vertical section of a car axle and wheel showing my invention. Fig. 2 is a side elevation of the same, showing a removable vessel adapted to fit in the recess at the end of the axle. Fig. 3 is a plan of the lower portion of the box, and Fig. 4 is a plan of the upper portion thereof. Fig. 5 is a modification hereinafter more fully explained.

It has long been desirable to provide an efficient means for lubricating the bearings of car-axles in a uniform and steady way, in order that the same may be kept constantly oiled, so that all undue friction resulting from insufficient oiling may be avoided.

Various ways have been invented for accomplishing this purpose; but none, to my knowledge, have worked perfectly.

The most common way consists in packing the bottom of the box with cotton-waste saturated with oil. Asbestos combined with wool-waste or cotton-waste or semi-elastic material has also been used for this purpose in much the same way. Reservoirs of oil have been located above the bearings to provide a regular supply for the same; but in practice these methods have been found to possess defects, which it is my intention to remedy. Therefore, in place of the saturated packing, and in place of reservoirs which distribute upon the bearing from above the axle, I chamber or recess the end of the axle, as shown at *a*, and provide suitable ducts *b* for the conveyance of the oil from said chamber to the bearing.

For the purpose of easily filling said chamber with a lubricant, I make a vessel, *c*, of a shape corresponding to the shape of the chamber *a*, which may be removed from the end of

the axle, filled with oil or other lubricant, and be replaced in the chamber *a* in position to feed through the ducts *b*. This removable vessel may be filled in any desirable way, but must be so closed after filling as to prevent any leakage of oil therefrom, or from the chamber in the end of the axle, except by means of the holes *b'*, which correspond in position to the ducts *b* bored in the axle. I therefore provide the end of this removable vessel with a guide, *c'*, which is arranged to fit into a corresponding recess in the interior of the chamber. I further provide this removable vessel with a flange, *c''*, which is bolted to the flange *c''* at the end of the axle. A suitable packing may be interposed between the two, if desirable.

The journal-box is made preferably in two parts, *d d'*, and the lower one has arranged or formed upon its inner surface the recesses *e*, which preferably are arranged to cross each other, and at their juncture be provided with a hole through the bottom of the box. The upper portion of the box is also provided with a recess, *e'*. The purpose of these recesses is to free the journal from any dust, dirt, scale, &c., which may collect upon the same, and for this purpose the box is fitted quite closely to the journal, in order that the said dirt, &c., may be scraped off into the recesses across the box and drop therefrom through the hole.

It will readily be seen that by this construction the oil or other lubricant is distributed upon the bearing by centrifugal force, and that the dirt and dust are removed from the journal, so that the supply-ducts are always free to deliver a constant supply of the lubricant used.

In some instances I may, in lieu of the removable chamber of the vessel, connect the recess in the end of the axle with an oil-reservoir located above the bearing and opening into said chamber, thereby providing a permanent construction—a reservoir that is easily filled and a constant supply of the lubricant—without departing from the spirit of my invention.

The end of the axle may be shaped as described without diminishing the strength, provided it is not extended beyond the inner end of the bearing. If necessary, the axle may be

enlarged at the bearing, to either secure sufficient strength or a chamber of increased size. It is not intended, however, that said chamber shall ever be extended beyond the inner end of the bearing, and the best construction would probably be not to extend it to within two or more inches of the end.

In order that the lower portion of the box *d'* shall be kept constantly against the shaft-journal, for the purpose of freeing the same from all foreign matter detrimental to the perfect working in the bearings, I support said portion upon a spring, *g*, which rests upon the cross-piece *h* at the bottom of the box, and constantly acts to keep the lower portion of the box snugly against the journal, in order that the cleaning-recesses may work to the best advantage, and at the same time to prevent the escape or overflow of oil from the bearing.

I am aware that the patent granted Andrews & Carr, No. 27,416, of March 13, 1860, describes a recessed shaft or journal in which is inserted an air-tight chamber containing a lubricant, and that said chamber is provided with an automatic valve at its end, through which the lubricant may escape into the chamber in the shaft or journal surrounding it, and from thence by a small hole at the bearing; also, that the patent 51,276, granted Aerts, November 28, 1865, describes various devices for lubricating a journal by lifting the same from a reservoir below the journal to a chamber above the same, from which it flows to the bearing, and various other contrivances for preventing the lubricant from being projected violently against the upper part of the box, and for preventing the leakage of the lubricant from the bearing.

I am further aware that the patent granted J. A. Osenbruck, May 1, 1877, 190,246, describes a railway-wheel having a loose bearing upon an axle, provided with a complex system of filtering-chambers, oil-chambers, pockets, catch-basins, catch-tubes, and pipes and other passages for oiling or lubricating the journal; but I do not claim the air-tight chamber with its automatic end valve of Andrews & Carr, the lifting-disk for elevating the fluid, the packing applied beneath the axle, a reversed gutter or a half-shoe-shaped piece, or half-dome of metal in combination with a groove, as set forth in the Aerts patent, or the complex arrangement of passages, cham-

ber, and basins elaborated in the Osenbruck device, for the same are not the objects of my invention.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination, in an axle, of a chamber, *a*, in its end, not extended beyond the inner edge of the axle-bearing, a removable vessel for holding a lubricant adapted to entirely fill said chamber, and provided with an outlet or duct, *b'*, opening directly into the duct *b* in the axle, substantially as and for the purpose described.

2. In combination with an axle having an interior lubricating-chamber, a yielding box arranged to be constantly held against the under portion of said axle to prevent the waste of the lubricant, substantially as described.

3. The combination of an axle having an interior lubricating-chamber opening upon the bearing with the box *d* and the yielding box *d'*, each provided with means for removing dirt from the journal, for the purposes set forth.

4. In combination with an axle having an interior lubricating-chamber arranged within the end of said axle, but not extended beyond the outer bearing, a reservoir arranged upon a line with or above the journal opening into said lubricating-chamber, and the boxes *d d'*, substantially as and for the purpose described.

5. In combination with a chamber formed in the end of an axle, not extended beyond the inner edge of the bearing, and provided with ducts opening upon the bearing, a removable vessel, completely filling said chamber, for holding the lubricant, with suitable guides for directing its insertion into said chamber, and a flange for bolting it to the flange or collar upon the axle, substantially as described.

6. In combination with a distributing-chamber in the end of an axle provided with ducts opening upon the bearing, the car-axle box described, consisting of the portion *d d'*, adapted to prevent the waste of the lubricant and to cleanse or remove the dirt, &c., from the journal, substantially as and for the purposes set forth.

JOHN E. WHEELER.

• Witnesses:

F. F. RAYMOND, 2d,
FRANK G. PARKER.