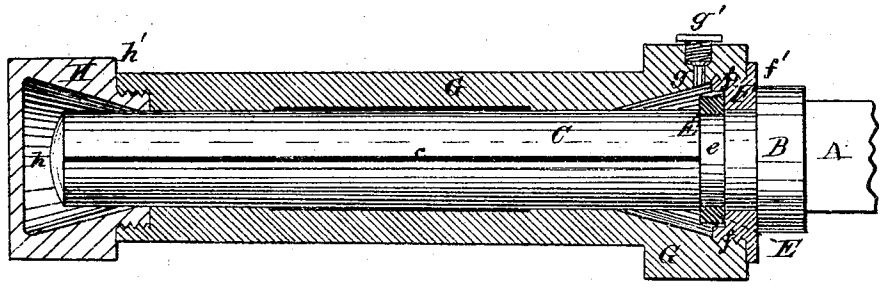
B. A. BERRYMAN.

Carriage-Axles and Axle-Boxes.

No. 135,068. Patented Jan. 21, 1873.



ATTEST

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UNITED STATES PATENT OFFICE.

BAYARD A. BERRYMAN, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN CARRIAGE-AXLES AND AXLE-BOXES.

Specification forming part of Letters Patent No. **135,068**, dated January 21, 1873.

To all whom it may concern:

Be it known that I, BAYARD A. BERRYMAN, of St. Louis, in the county of St. Louis and State of Missouri, have invented a certain Improvement in Axle-Boxes for Wheels of Vehicles, of which the following is a specification:

My invention relates to a self-lubricating axle-box for wheels of vehicles. The first part of my invention consists in providing the spindle with a fixed collar, which is shrunk into a circumferential groove of the spindle outside the loose collar, by which the wheel is retained upon the axle. The second part of my invention consists in the provision of an oil-cup or reservoir, which is tightly screwed into the outer end of the box, and is preferably provided with a collar by which the hub is held on the box.

The drawing is a longitudinal section of the axle-box with a side view of the spindle.

A is part of the axle; B, the butting-ring; and C, the spindle. The spindle has one or more oil-grooves, *c*, extending from the outer end to the collar E. The collar E is made circular and shrunk into a circumferential groove, *e*, turned into the spindle. F is a loose collar, which is slipped on the spindle before the fixed collar E is secured in position. The groove *e* is first turned in the spindle and the loose collar then slipped on up to the butting-ring. The collar E is then heated so as to increase its circumference and slipped on the spindle up to the loose collar and the groove *e*, and as it cools it contracts and shrinks into the groove, becoming tight therein. One or more pins may be inserted (passing through the collar and into the axle) to hold the collar with greater firmness. The loose collar has a screw-threaded portion, *f*, on which the inner end of the box G is screwed, and a portion, *f'*, extending beyond the box, suited to receive a key or wrench, by which the collar may be turned to screw or unscrew it. *g* is an oil-hole, and *g'* a screw-stopper to the same. H is the oil-cap screwed into the outer end of the box. This cap answers two purposes, first, as an oil-reservoir, having a chamber, *h*, containing oil; and, secondly, to retain the hub on the box by means of the shoulder *h'*. The box is inserted in the hub from the rear side and extends through it flush with the outer end of the hub; the cap H is then screwed in and the hub is firmly held between the shoulder at the rear end of the box and the cap. A portion of the cap is made angular to receive a key, by which it is screwed and unscrewed.

The oil is poured in through the hole *g*, and, if in sufficient amount, most of it flows down the grooves *c* to reservoir *h*, from whence, when the wheel is in motion, it is supplied to the spindle.

I claim as new and of my invention—

1. The fixed collar E shrunk into a circumferential groove in the axle and forming an abutment for the collar F to retain the wheel, as described.

2. The loose collar F, confined between the customary "butting-ring" or collar B and the fixed collar E, as set forth.

3. The chambered cap H, covering the end of the spindle, screwed into a female thread within the end of the box and provided with a shoulder, *h*, to retain the hub, all as specified.

4. An axle-box and axle combined, having the fixed collar E, movable screw-collar F, grooved spindle C *c*, box G, chambered cap H, oil-hole *g*, and plug *g'*, all constructed and arranged to operate as set forth.

BAYARD A. BERRYMAN.

Witnesses:

SAML. KNIGHT,

ANDREW D. BISHOP.