E. J. BOWEN.

CAR-AXLE.

No. 183,118. Patented Oct. 10, 1876.

Fig. 1.

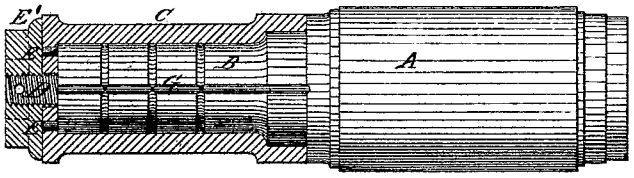


Fig. 2.

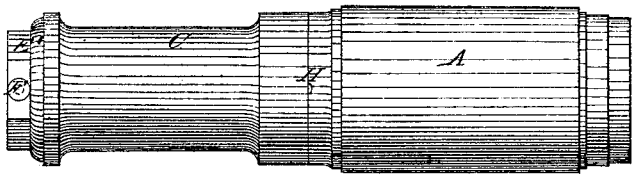
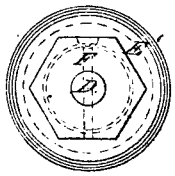


Fig. 3.



WITNESSES:

H. Rydquist.

John Goddals

INVENTOR:

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BY

ATTORNEYS.

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UNITED STATES PATENT OFFICE.

EZRA J. BOWEN, OF KENT, OHIO, ASSIGNOR OF ONE-THIRD HIS RIGHT TO ORANGE E. PAGE, AND ONE-THIRD TO THOMAS EGBERT, OF SAME PLACE.

IMPROVEMENT IN CAR-AXLES.

Specification forming part of Letters Patent No. **183,118**, dated October 10, 1876; application filed April 18, 1876.

To all whom it may concern:

Be it known that I, EZRA J. BOWEN, of Kent, Portage county, Ohio, have invented a new and Improved Car-Axle, of which the following is a specification:

The invention will first be described in connection with the drawing, and then pointed out in the claim.

Figure 1 is a sectional elevation of my improved axle. Fig. 2 is a side elevation, and Fig. 3 is an end elevation.

Similar letters of reference indicate corresponding parts.

A is the axle, of which the part B, corresponding to the journal, is turned down sufficiently for the application of a case or shell, C, of wearing substance—say, iron, steel, or composition—which is secured by a screw, D, and a nut or collar, E′, and is prevented from turning by a couple of dowel-pins, E. The nut is secured against working off by a pin, F, or other means. G represents grooves in part B of the axle, and H vent-openings, to induce air-currents to circulate inside the shell to prevent heating.

This contrivance allows steel to be used for the wearing part of the axle with iron for the rest, giving all the advantage of a steel axle without its uncertainty with respect of breaking, and with less cost. It will effect a large saving in axles by enabling them to be re-enforced and continued in use when they would otherwise be thrown into the scrap heap.

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

A car-axle provided with grooves between the journal and its shell, together with inlets and outlets for the air, as shown and described, whereby much of the heat generated by friction in the shell may be carried off by a circulation of air.

EZRA J. BOWEN.

Witnesses:

OLIVER H. NEWBERRY,

MILO SHORTS.