

C. E. B. HAYES.
Car-Axles.

No. 150,156.

Patented April 28, 1874.

Fig. 1.

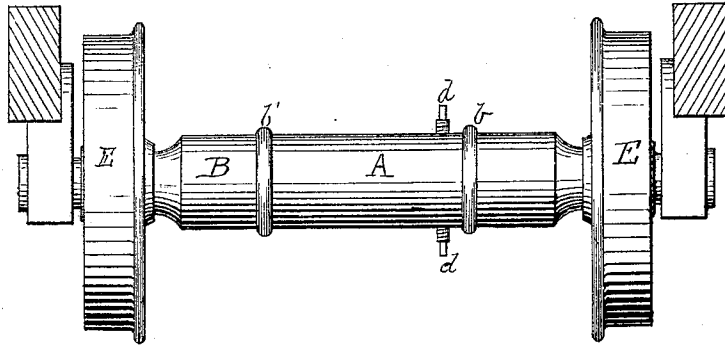


Fig. 2.

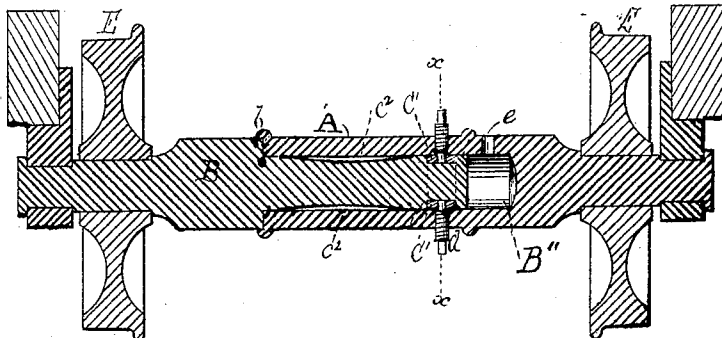
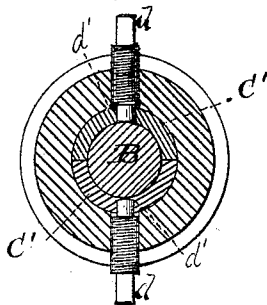


Fig. 3.



Witnesses:

Edwin James

H. C. Gordon

Inventor

Cornelius E. B. Hayes.

per J. E. J. Holmead

Attorney.

J. M. J. Holmead
attys.

UNITED STATES PATENT OFFICE.

CORNELIAUS E. B. HAYES, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN CAR-AXLES.

Specification forming part of Letters Patent No. **150,156**, dated April 23, 1874; application filed June 18, 1873.

To all whom it may concern:

Be it known that I, CORNELIAUS E. B. HAYES, of the city of Baltimore and State of Maryland, have invented certain Improvements in Railroad-Car Axles, of which the following is a specification; and I do hereby declare that in the same is contained a full, clear, and exact description of my said invention, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

My invention relates to that class of car-axles which are made to consist of a hollow and a solid section, the solid being inserted in the hollow section, thus forming an axle which shall enable each wheel to turn independently of each other. It is well known that much torsional injury is inflicted upon the ordinary solid axle in rounding curves, as the wheel upon the outer rail of the curve revolves more rapidly than the wheel upon the inner rail. This injury is prevented by that class of axles which allow each wheel to revolve at its own speed, but heretofore at such a loss by interior friction and other causes as to render such axles unreliable and unpopular. My invention aims to improve this class of axles by rendering them, as far as possible, non-frictional and self-lubricating, and also to prevent the extension of the axle or gage of the wheels.

In the accompanying drawing forming a part of this specification, Figure 1 is an elevation of my improved axle with its wheels. Fig. 2 is a longitudinal section, and Fig. 3 a cross-section thereof on line *x x*.

Similar letters of reference indicate similar parts of the invention in all the views.

A is the hollow section of the axle, upon the outer end of which, which is reduced in size to receive it, is one of the car-wheels E. B is the solid part of the axle, fitted to the straight bore of the hollow section A thereof and extending into it to within a short distance of the end of the bore, an oil-space, B'', being left, into which oil is introduced through the hole *e*. The outer end of the solid part B of the axle is

reduced to the size necessary to allow it to receive the other wheel E. At the point where the solid and hollow sections of the axle first unite, a shoulder is formed on the former, which butts against the end of the latter section, which is provided with a strengthening-bead, *b*, lapping over the shoulder and making a neat finish. The central portion of the part B is reduced in diameter, as shown, leaving a chamber, *c*², throughout the length of which the revolving co-operating surfaces are relieved from friction. C' is a ring in two parts, fitted to a groove turned in the section B, the parts of the ring C' being held in position by means of the set-screws *d*, tapped into the section A of the axle. By means of the attachment thus formed between the solid and hollow sections of the axle, the extension of the axle, or the gage of the wheels, is prevented. The oil introduced through the hole *e* into the chamber B'' will find its way to the operating surfaces, and keep up a thorough lubrication. This provision, together with the reducing of the center of the solid section of the axle, and the devices for guarding against the spread or extension of the wheels, render the axle herein described free from the objections which have hitherto been urged against axles of this class.

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

The solid section B, having its center reduced in size, as shown, and provided with the rings C', in combination with the hollow section A, having set-screws *d*, an oil-space, B'', being left in the said hollow section, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CORNELIAUS E. B. HAYES.

Witnesses:

EDWIN JAMES,
JOS. T. K. PLANT.