W. H. HAYNES.

CAR-AXLE.

No. 194,239. Patented Aug. 14, 1877,

Fig. 1.

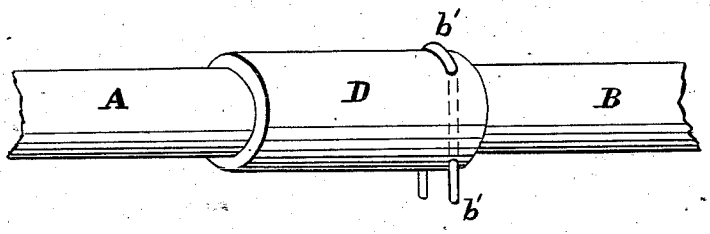


Fig. 2.

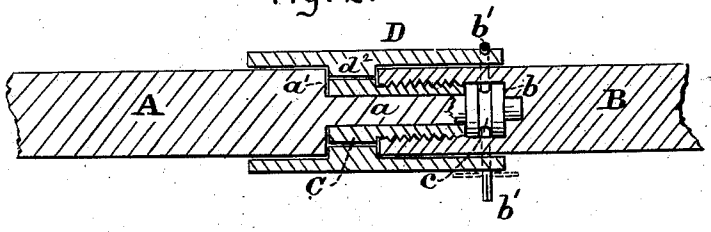


Fig. 3.

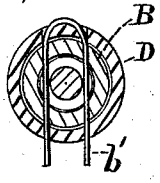


Fig. 4.

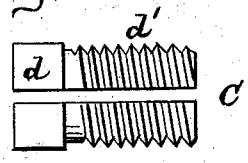


Fig. 5.

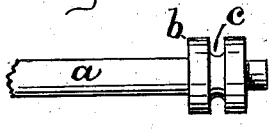
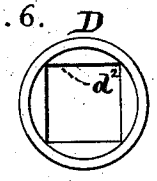


Fig. 6.



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WARREN H. HAYNES, OF NORTH SUDBURY, MASSACHUSETTS.

IMPROVEMENT IN CAR-AXLES.

Specification forming part of Letters Patent No. **194,239**, dated August 14, 1877; application filed December 1, 1876.

To all whom it may concern:

Be it known that I, WARREN H. HAYNES, of North Sudbury, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Railroad-Car Axles; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is a perspective view. Fig. 2 is a longitudinal section. Fig. 3 is a transverse section, showing the fastening-pins extended through the sleeve, axle, and groove. Fig. 4 is a view of the divided collar detached. Fig. 5 is a detached view of the head and neck of the section of the axle which holds the divided collar. Fig. 6 is an end view of the sleeve, showing the square part in the middle.

My invention relates to car-axles in two sections, jointed in the middle to allow free independent action of each wheel, to avoid friction in turning curves; and the invention consists in the joint of the axle, constructed as hereinafter described.

A and B represent the sections of the car-axle, jointed at or near the middle. On the inner part of section A is formed a neck, *a*, and head *b*, provided with a groove, *c*. This head may be made longer, and provided with two or more grooves to receive as many pins as required to strengthen the joint. C is a divided collar, constructed to fit over the neck *a*, and is provided with a square part, *d*, and screw-threads at d^1. The inner part of section B of the axle is hollowed, and provided with screw-threads to fit over the screw-threads on the collar C. D is a sleeve, the ends of which are constructed to fit over the axle, and a square part, d^2, is formed inside, near the middle, to fit over the square part *d* of the collar to hold it in place. The sleeve is held in place by the double pins b' inserted through holes in the sleeve, and through section B of the axle, and through the groove *c*, as shown in the drawings.

The number of the grooves and holding-pins in the sleeve and axle may be increased, as required, to render the joint entirely secure; and the fastening-pins may be secured in place by bending over the ends, as shown by dotted lines in Fig. 2, or in any other preferable way.

What I claim as new, and desire to secure by Letters Patent in jointed car-axles, is—

1. The divided collar C, provided with screw-threads, adjusted on the neck *a*, and held in place by shoulder a' and head *b* of section A, in combination with the hollowed end of section B, provided with screw-threads to fit over the screw-threads of the divided collar, substantially as and for the purposes described.

2. The sleeve D, having the square part d^2, in combination with the jointed axle A B and the divided collar C, having the square part *d*, substantially as and for the purposes described.

3. The combination of section A, having neck *a*, shoulder a', and grooved head *b*, the section B, having screw-threads in the hollowed end, divided collar C, having square part *d* and screw-threads at d^1, sleeve D, having square part d^2, and pins b', substantially as and for the purposes described.

In testimony that I claim the foregoing as my own invention I affix my signature in presence of two witnesses.

WARREN H. HAYNES.

Witnesses:
W. H. FOX,
S. E. FOX.