(No Model.)

O. T. SOUTHWORTH.

Car Wheel and Axle.

No. 238,257. **Patented March 1, 1881.**

FIG. 1.

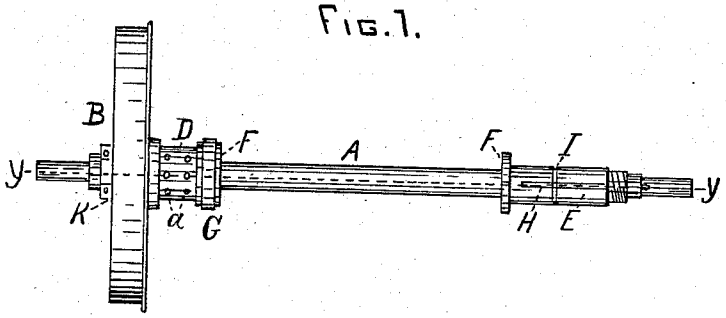


FIG. 2.

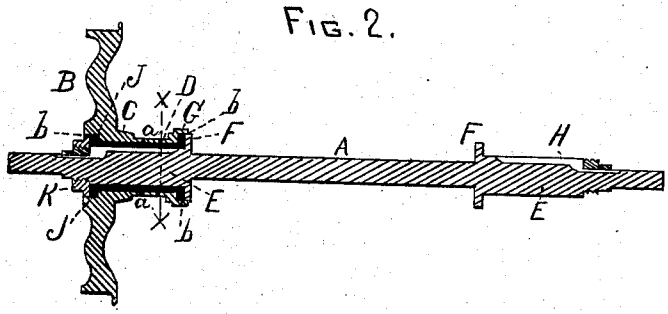
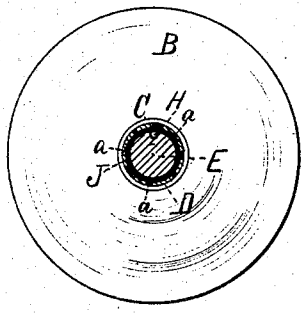


FIG. 3.



WITNESSES.

Arthur G. Mowry.

William Schreiber.

INVENTOR.

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UNITED STATES PATENT OFFICE.

ORSON T. SOUTHWORTH, OF CHICAGO, ILLINOIS, ASSIGNOR TO DIXON CAR AXLE COMPANY OF ILLINOIS.

CAR WHEEL AND AXLE.

SPECIFICATION forming part of Letters Patent No. 238,257, dated March 1, 1881.

Application filed November 22, 1880. (No model.)

To all whom it may concern:

Be it known that I, ORSON T. SOUTHWORTH, of Chicago, county of Cook, and State of Illinois, have invented new and useful Improvements in Railway-Car Axles and Wheels, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation of an axle and one wheel, (one wheel being removed,) embodying my improvement; Fig. 2, a longitudinal vertical section of Fig. 1, taken on line *y*; Fig. 3, an inside face view of one of the car-wheels and section of the cylinder, taken on line *x*, Fig. 2.

The object of the present invention is to improve the railway-car axle patented to Theron S. E. Dixon on November 27, 1874, No. 157,501.

The nature of the invention consists in enlarging the inner ends of the conical hub-bearings to form shoulders against the shoulders or enlargements on the axle-arms, and to pass onto said enlargements, that the Babbitt metal may have end bearing, and that dust or dirt may be excluded from the axle-arm, and in the novel form of the Babbitt metal or other soft-metal boxes to the wheel-hubs and cylinder, as the whole is hereinafter fully described and shown.

In the drawings, A represents the axle, and B the wheels.

I know that inwardly-extended hubs have been formed in two or more parts, and held together by the hub of the wheel. I therefore disclaim an elongated hub irrespective of construction.

The shoulders F of the axle are placed much farther in than in the Letters Patent referred to; and pressed into the hubs C of the wheels are steel or wrought-iron cylinders D, which are enlarged at G to fit the peripheries of the shoulders F, the object of which is to give to the wheels such additional bearings as will prevent them from wabbling on their axle-arms, and to sustain the strain which the lateral movement of the wheels against the rails produces.

The cylinders are perforated with holes *a*, in such numbers as to hold the Babbitt-metal linings or boxes J cast therein. The ends of the Babbitt metal are turned up, as shown at *b b*, to form bearings against the shoulders F and nuts K—that is, the boxes in the form of cylinders are flanged at their ends in rectangular form at each end, whereby the rotating bearings present a like anti-friction surface to the axle, in consequence of which a much more uniform wear of the parts is attained than when the shoulders F and the nuts bear partly against Babbitt metal and partly against iron or steel, as is the case in ordinary boxing; and in consequence of this construction car axles and wheels are provided to meet the wear and strain put thereon, and great safety is attained.

To insure the perfect lubrication of the bearing longitudinal and annular grooves H I are formed in the arm E, to enable the oil freely to flow round the moving surfaces.

I claim and desire to secure by Letters Patent of the United States—

1. In single car-axles with rotating wheels thereon, the cylinder D, attached to and projecting inward from the hubs of the wheels, and made with enlarged annular rabbets at their inner ends to form right-angular shoulders F on the axle, and to cap the periphery of said shoulders, in combination with the double-flanged Babbitt-metal boxing, as and for the purpose specified.

2. The Babbitt-metal boxes made in the form of double-flanged cylinders, in combination with the hub C, shoulders on the axle-tree, and nut for holding the hub on the axle-tree arm as specified.

O. T. SOUTHWORTH.

Witnesses:

G. L. CHAPIN,

ARTHUR G. MOREY.