D. M. CUMMINGS.
Car-Wheel and Axle.

No. 203,893. Patented May 21, 1878.

Fig. 1.

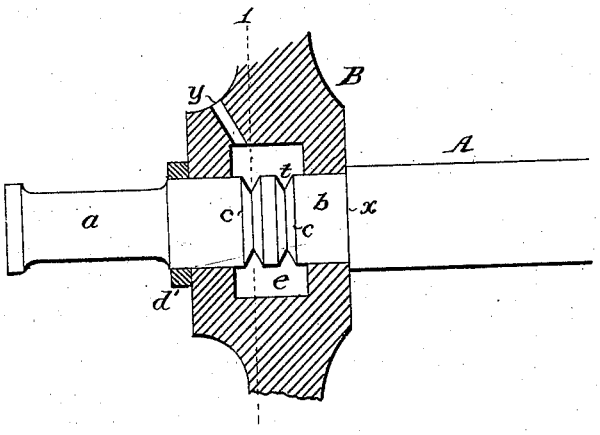
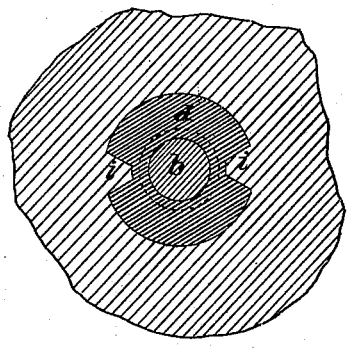


Fig. 2.



Attest:
Fred. Benjamin.
C. A. Welch

Inventor
D. M. Cummings
By his Attorney
Charles E. Foster

UNITED STATES PATENT OFFICE.

DANIEL M. CUMMINGS, OF ENFIELD, NEW HAMPSHIRE.

IMPROVEMENT IN CAR WHEEL AND AXLE.

Specification forming part of Letters Patent No. **203,893**, dated May 21, 1878; application filed May 2, 1878.

To all whom it may concern:

Be it known that I, DANIEL M. CUMMINGS, of Enfield, Grafton county, New Hampshire, have invented Improvements in Car Axles and Wheels, of which the following is a specification:

My invention relates to that class of car wheels and axles in which one or both wheels may turn independently of the axle; and consists in the peculiar mode, fully described hereinafter, of connecting the wheel to the axle.

In the drawing, which forms part of this specification, Figure 1 is a longitudinal section through the center of the wheel, showing one end of the axle; and Fig. 2 is a transverse section on the line 1 2, Fig. 1.

Heretofore, in connecting wheels to the axles to turn loosely thereon, the connecting devices have been of such a character as to require the use of wheels or axles specially constructed for the purpose, or the means of attachment have been complicated, expensive, and lacking in durability.

My object has been to secure an attachment of a practicable character, cheap, effective, and, if necessary, capable of being applied to wheels and axles already in use. This object I attain by the construction shown in the drawing, in which—

A represents an axle, having the usual journal *a*, wheel-bearing *b*, and shoulder *x* for resisting the thrust of the wheel.

In the bearing *b*, I make one, two, or more concentric channels, *c c*, of any suitable shape, and in the hub of the wheel, around these channels, is formed a chamber, *e*, which may be continuous or divided by projections *i* into two or more sections, as shown in Fig. 2.

Through an opening, *y*, leading from the chamber to the face of the wheel, I pour melted Babbitt metal, or other suitable metal or composition, *d*, which fills the chamber *e* and grooves *c c*, as shown.

The metal filling retains the wheel in its position on the axle, but does not interfere with the free rotation of the same, the annular projections *t* turning in the grooves *c* with but little friction. While the filling serves to retain the wheel in place, it is subjected to but comparatively little friction or strain, as the thrust of the wheel is against the shoulder *x*, and as the main bearing of the wheel is on the face of the bearing *b* on both sides of the filling metal.

It will be seen that the partitions or lips *i* prevent any movement of the filling in the hub, and by dividing the filling prevent it from binding on the axle when it shrinks in cooling, and that two or more annular chambers may be arranged side by side.

In some instances greater security may be obtained by shrinking on the axle outside the wheel a band, *d'*.

I claim—

1. The combination, with the axle A, its shoulder *x*, and grooved bearing *b*, of the wheel having a chambered hub and a body, *d*, of Babbitt metal or its equivalent, filling the chamber and grooves of the axle, substantially as set forth.

2. The wheel provided with one or more chambers, divided by lips *i*, within termediate soft-metal filling adapted to grooves in the axle, substantially as and for the purpose specified.

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

DANIEL M. CUMMINGS.

Witnesses:

C. C CHANDLER,

C. G. MORGAN.