

(No Model.)

C. W. WOLFE & T. H. CAMPBELL.
RAILWAY CAR AXLE.

No. 427,816.

Patented May 13, 1890.

Fig 1

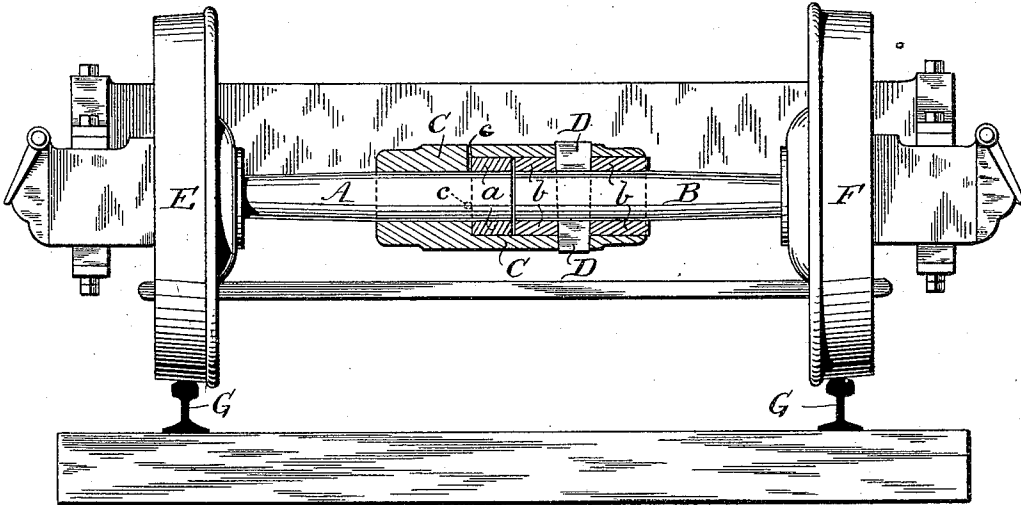


Fig 2

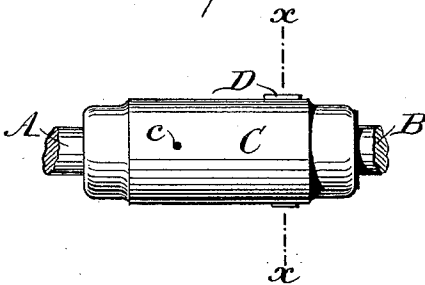
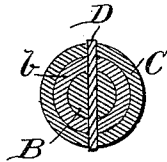


Fig 3



WITNESSES:

H. Walker
C. Sedgwick

INVENTOR:

C. W. Wolfe
T. H. Campbell
Munn & Co

BY

ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES W. WOLFE, OF ALBANY, AND THOMAS H. CAMPBELL, OF GREEN ISLAND, NEW YORK.

RAILWAY-CAR AXLE.

SPECIFICATION forming part of Letters Patent No. 427,816, dated May 13, 1890.

Application filed September 16, 1889. Serial No. 324,009. (No model.)

To all whom it may concern:

Be it known that we, CHARLES W. WOLFE, of Albany, in the county of Albany and State of New York, and THOMAS H. CAMPBELL, of Green Island, in the county of Albany and State of New York, have invented a new and Improved Railway-Car Axle, of which the following is a full, clear, and exact description.

Our invention relates to railway-car axles and wheels, and has for its object to provide a simple, efficient, and durable sectional axle the wheels of which are capable of independent rotation as a car supported by them rounds curves of shorter or longer radius to either side, so as to materially reduce friction and wear and tear of railway equipment and promote the comfort and safety of railroad travel.

The invention consists in certain novel features of construction and combinations of parts of the wheeled railway-car axle, all as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a front view of a car-truck with sectional axles and a coupling therefor made in accordance with our invention, parts being in longitudinal section. Fig. 2 is an elevation of the central portion of the axle and its coupling, and Fig. 3 is a transverse section taken on the line $x x$ in Fig. 2.

We make the car-axle in two sections A B, of about equal length and of any required diameter. On the inner truly-turned end of the part A is tightly fitted by shrinking or forcing it on a collar a , which is turned truly on the outside, and on the inner end of the part B is tightly fitted a longer collar b , which is also truly turned at the outside to the same size as the collar a or a trifle larger. Before the car-wheel E is forced onto the axle-section A a metal sleeve C is slipped onto it, this sleeve being bored so as to nicely but loosely fit upon the part A for some distance outside of its collar a —say for ten or twelve inches—and the sleeve is also counterbored to fit upon or over the collars $a b$ of both parts or sections of the axle, whereupon a key D is driven into slots or ways made for it through the

sleeve, the collar b , and the axle-section B. If desired, the key may be secured against working loose by riveting it down at the ends or by use of a suitably-applied set-screw or other device. The collars $a b$ will preferably be shrunk or otherwise fitted onto the axle-sections A B before their respective wheels E F are forced onto them. With this construction it is manifest that while both of the axle-sections are held in alignment either wheel E F is free to outrun the other while a car which they support is rounding curves of the track G G, the wheel at the longer outside track-rail turning faster than the other wheel running on the inside shorter rail, thus lessening friction and entirely obviating grinding of the wheels on the rails and overstrain or overheating of the axle boxes and bearings, and maintaining durability of the car running-gear and of the track and road-bed. Our arrangement of sectional axle and wheels also prevents loosening of the car-wheels or their axle, which occurs with a solid or continuous axle having fixed wheels, which are sometimes twisted loose on the axle by great strain in rounding curves, thereby throwing the weight on the loose joint of the axle and wheel instead of on the axle and box, and causing many disastrous railway wrecks, which would be obviated by our improvement.

When the wheels are turning curves to the right hand, the wheel E will be free to turn faster than the wheel F, and the axle-section A, with its collar a , will turn in the sleeve C to accommodate the difference in rotative speeds of the two wheels, and when the wheels are turning curves to the left hand the wheel F will overrun or turn faster than the wheel E, while the sleeve C turns upon the axle-section A and its collar a to accommodate the different rotative speeds of the two wheels. When the car is traveling on a straight stretch of track, both wheels will turn together and there will be no independent rotation of the axle-section A in the sleeve C nor of the sleeve on the axle, and as this independent movement occurs only on curves of the track the coupling of the two axle-sections requires comparatively little lubrication, which may

be provided by occasionally injecting oil through two or three small holes *c*, made in the sleeve C about at places next the outer shoulder of the collar *a* of the axle-section A.

5 We specially mention the long bearing which the sleeve C has on the axle-section and collar A *a* and the long lap the sleeve has on the collar *b* of the axle-section B, thereby producing a sectional axle which for all
10 practical purposes is as strong as the usual solid axle. Furthermore, the re-enforcement of the inner end of the axle-section B by the collar *b* prevents weakening of the axle by insertion of the sleeve-fastening key D.

15 Our improvement is applicable to all classes of cars for use on street-railways or steam-railroads, and is especially adapted for heavy parlor-cars or sleeping-coaches, as will readily be understood.

20 Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with two axle-sections having fast collars on their adjacent ends, of
25 a sleeve inclosing both collars and having its bore contracted to fit one axle-section adjacent to the end of its collar, and a pin or key

securing the sleeve to the collar of the other section, substantially as set forth.

2. In railway-car axles, the combination, 30 with two axle-sections having wheels at their outer ends, one section having a short collar at its inner end and the other section having a long collar at its inner end, of a sleeve fitted by a long bearing to one axle-section next its 35 short collar and also over said collar, said sleeve also fitted over the long collar of the other axle-section, and a key or detent fastening the sleeve to the axle-section having the long collar, substantially as herein set 40 forth.

3. The combination, with a sectional axle A B and wheels E F thereon, of collars *a b* on the sections A B, respectively, a sleeve C, fitted on the section A and its collar *a*, and 45 fitted also on the collar *b* of the section B, and a key D, fitted through the sleeve, the collar *b*, and the section B, substantially as herein set forth.

CHARLES W. WOLFE.
THOMAS H. CAMPBELL.

Witnesses:

HERBERT S. HARP,
WILLIAM H. WOLFE.