No. 609,784. Patented Aug. 30, 1898.

G. J. CAPEWELL.

RAILWAY CAR TRUCK.

(Application filed May 19, 1896. Renewed Jan. 5, 1898.)

(No Model.)

Fig. 1

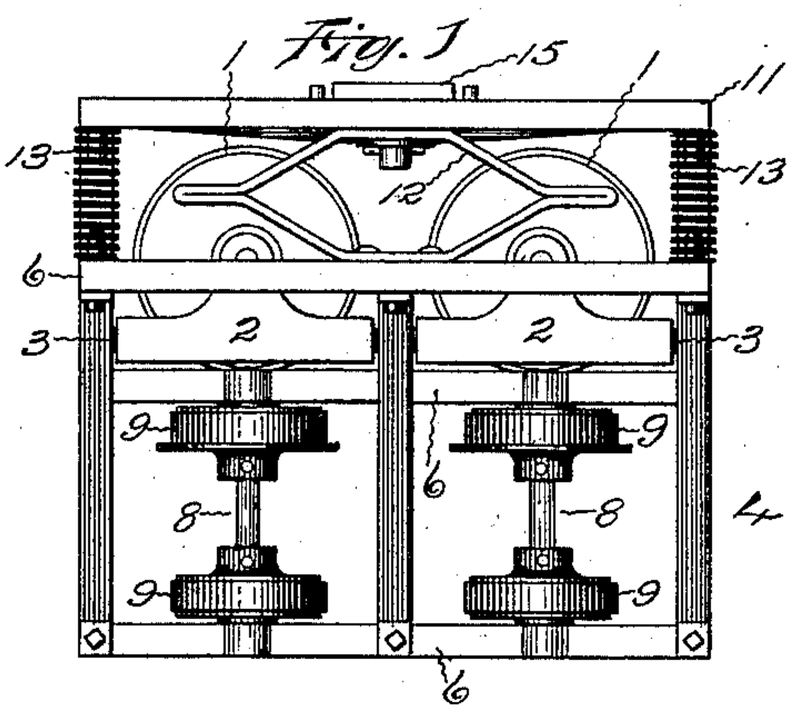


Fig. 2

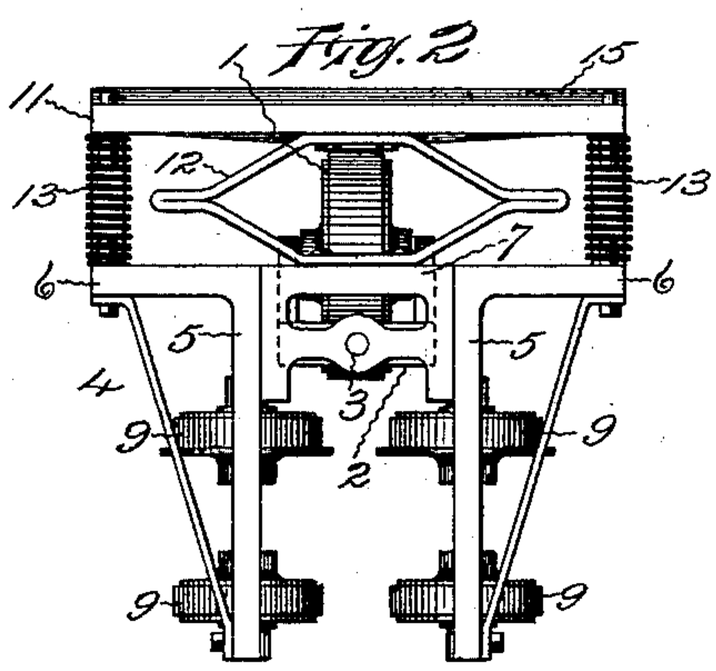


Fig. 3

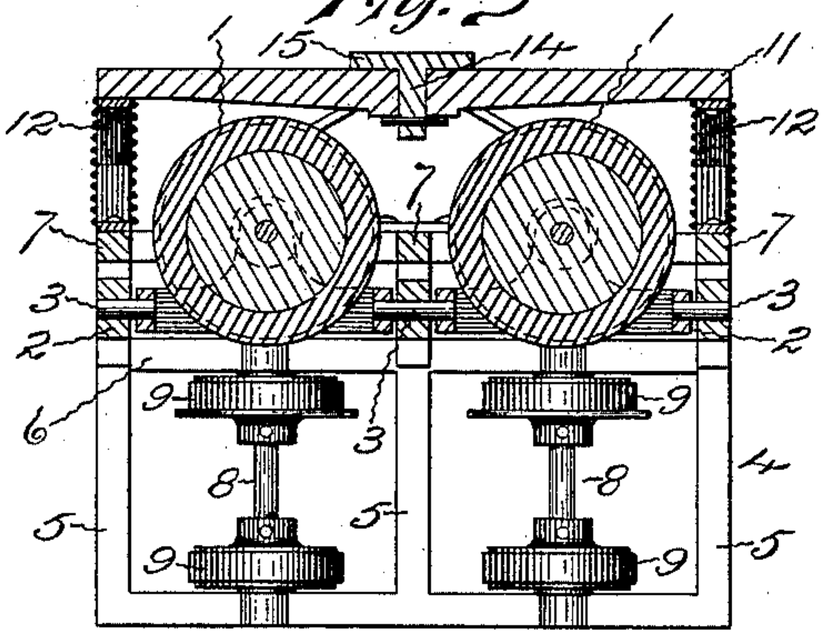


Fig. 4

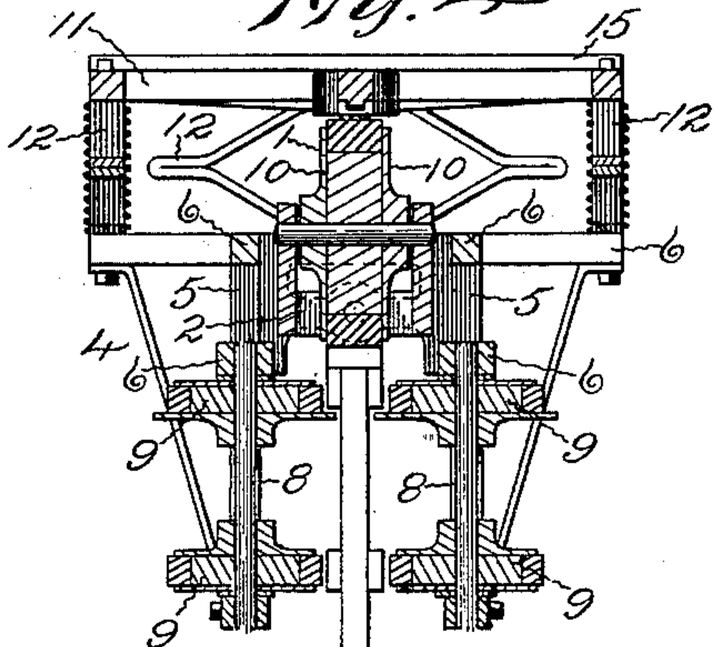
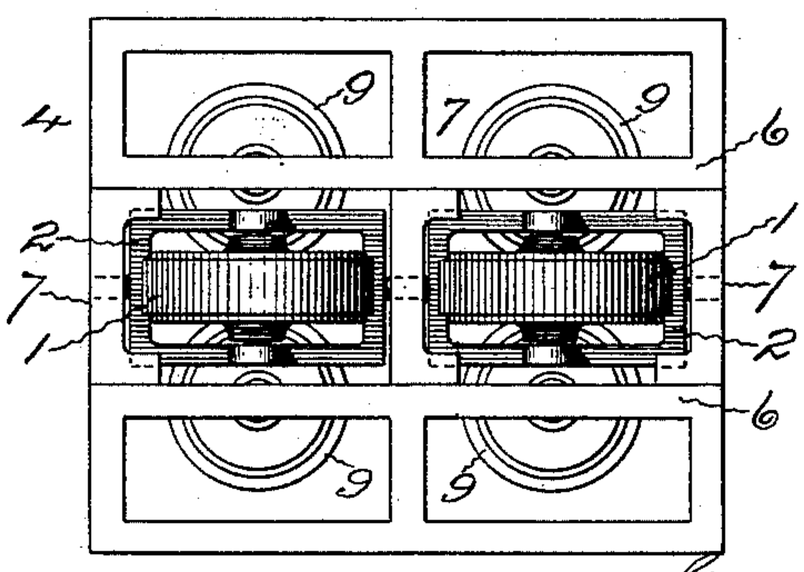


Fig. 5



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UNITED STATES PATENT OFFICE.

GEORGE J. CAPEWELL, OF HARTFORD, CONNECTICUT.

RAILWAY-CAR TRUCK.

SPECIFICATION forming part of Letters Patent No. 609,784, dated August 30, 1898.

Application filed May 19, 1896. Renewed January 5, 1898. Serial No. 665,705. (No model.)

To all whom it may concern:

Be it known that I, GEORGE J. CAPEWELL, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Railway-Car Trucks, of which the following is a specification.

The invention relates more particularly to the class of trucks provided for railway-cars designed for high speeds which have one, two, or more traction-wheels having wide treads arranged one behind the other centrally of the truck and intended to be run on a rail having a broad flat tread-surface and wheels on each side that travel close to side rails for guiding and keeping the traction-wheels in place on the flat-top rail.

The object of the invention is to provide simple, cheap, strong, and durable trucks in which the traction-wheels are held by frames connected with the frames holding the side guiding-wheels in such manner that the traction-wheel and guiding-wheel frames while securely and unyieldingly held together are capable of independent oscillation on axes extending longitudinally of the trucks, whereby the traction-wheels can tip from side to side and run flat on the broad traction-face of the rail without tipping the guiding-wheel frames and causing the guiding-wheels to bind against the side rails of the track.

Referring to the accompanying drawings, wherein the invention is illustrated in connection with one style of truck, Figure 1 is a side elevation of this truck. Fig. 2 is an end elevation of the same. Fig. 3 is a central longitudinal sectional view. Fig. 4 is a transverse section taken through one of the traction-wheels, and Fig. 5 is a plan of the truck with the car-platform removed.

The truck may have, as desired, one, two, or more traction-wheels 1, but that shown in the views is provided with a pair of traction-wheels arranged centrally one behind the other. The journals of these traction-wheels turn in bearings which support oblong frames 2, the bearings desirably being so arranged that the frames hang below the journals of the wheels. Pivots or longitudinally-extending journals 3 connect the wheel-frames 2 with the truck-frame 4. These frame-journals securely hold the wheel-frames and the truck-frame together in an unyielding manner, but at the same time allow either independently of the other to oscillate transversely of the truck on an axis extending longitudinally of the truck—that is, the truck-frame is connected with the wheel-frames so as to move forward and backward or upward and downward with them; but the wheel-frames can rock sidewise on the frame-journals without rocking the truck-frame.

The truck-frame shown is a skeleton having vertical bars 5 and horizontal bars 6, that are usually cast integral, and cross-bars 7, bolted to the others. This frame extends on each side of the longitudinal center much below the wheel-frames and is provided with vertical bearings, in which are held the journals 8 of horizontally-arranged wheels 9. These wheels are located so their treads, which are wide and flat, will travel close to the faces of the side rails of the track, which are located below the traction-rail, as shown in Fig. 4. The bearings for the journals of these wheels are preferably arranged so there can be one pair of wheels on each side of and below each traction-wheel, and the upper of these pairs of side wheels are usually provided with flanges that extend beneath the top side rail of the track. The horizontally-arranged side wheels keep the traction-wheels on the top of the traction-rail, and the flanges of the upper side wheels will prevent the traction-wheels from jumping up from the rail and becoming displaced.

The traction-wheels are preferably built of two flanges or plates 10, bolted or otherwise connected together, with a mass of rubber, leather, or other cushioning material held between and projecting somewhat beyond them to form a rim that will run noiselessly and smoothly upon the rail. The side guiding-wheels are also preferably constructed in the same manner.

Above the truck-frame which supports the side guiding-wheels is a frame or platform 11, that is adapted to be connected with the bottom of the car-body. This platform is shown as connected with the truck-frame by leaf-springs 12 and spiral springs 13. The leaf-springs are of any common form and are ar-

ranged along each side and across the ends of the truck-frame, while the spiral springs are located at the corners of the frame.

The platform 11 is provided with a perforation for the passage of the king-bolt 14, that extends upward and pivotally holds the car-body to the truck. A plate 15 is preferably secured to the bottom of the car-body above the platform to insure an easy movement between the parts when the truck turns, as in rounding a curve, and the king-bolt may be forged a part of this plate. The leaf-springs along the sides allow some spring, but hold the truck-frame and the platform together against strains tending to separate them longitudinally, and the leaf-springs across the ends also allow some spring, but hold the truck-frame and the platform together against strains tending to separate them transversely. The spiral springs aid in sustaining the weight of the car and its load.

The truck-frame is connected with the car-body so that it can yield slightly in all directions and also oscillate for turning curves. The truck-frame is by means of the side guiding-wheels kept central of the track with but little friction, and the traction-wheels are held firmly and securely connected with the truck-frame; but they can tip from side to side, so their wide treads will run flatly upon the broad tread-surface of the rail.

The truck is strong, durable, and it is easy-running, for the traction-wheels run flatly upon the rail without tipping the guiding-wheel frame, which is the truck-frame proper, and causing the guiding-wheels to bind against the side rails of the track. The truck cannot easily be displaced from the track and it runs noiselessly and smoothly. As there is a suitable yielding between the truck-frame and the platform connected with the car-body and a desirable independent oscillation of the traction-wheels, the comfort of the passengers is insured at high rates of speed. By the use of rims of cushioning material for the traction and guiding wheels, made possible by this construction, the truck runs noiselessly and easily at very high rates of speed without uncomfortably affecting the passengers in the car supported by such trucks.

I claim as my invention—

1. In combination in a car-truck, a traction-wheel, a wheel-frame supported by the journal of the traction-wheel, and a truck-frame connected with the wheel-frame by pivots that extend lengthwise of the wheel-frame in front and back of the traction-wheel whereby the wheel-frame and the truck-frame are permitted an oscillation independently of each other on an axis extending longitudinally of the wheel, substantially as specified.

2. In combination in a car-truck, a wide-tread traction-wheel located centrally of the truck, a wheel-frame supported by the journal of the traction-wheel, and a truck-frame adapted to be connected with a car-body, pivotally supported by the wheel-frame, substantially as specified.

3. In combination in a car-truck, a wide-tread traction-wheel located centrally of the truck and having a journal that extends transversely of the truck, a wheel-frame supported by the transverse journal of the traction-wheel and having a journal that extends longitudinally of the truck, and a truck-frame adapted to be connected with a car-body, supported by the longitudinal journal of the wheel-frame, substantially as specified.

4. In combination in a car-truck, a wide-tread traction-wheel located centrally of the truck, a wheel-frame supported by the journal of the traction-wheel, a truck-frame adapted to be connected with a car-body, pivotally supported by the wheel-frame, and horizontally-arranged guiding-wheels located each side of and below the traction-wheel, substantially as specified.

5. In combination in a car-truck, a wide-tread traction-wheel located centrally of the truck, a wheel-frame supported by the journal of the traction-wheel, a truck-frame adapted to be connected with a car-body, pivotally supported by the wheel-frame, and a pair of horizontally-arranged guiding-wheels located upon each side of and below the traction-wheel, substantially as specified.

6. In combination in a car-truck, wide-tread traction-wheels located centrally of the truck, one behind the other, independent wheel-frames supported by the journals of the traction-wheels, a truck-frame adapted to be connected with a car-body, connected with the wheel-frame by pivots, and a pair of horizontally-arranged guiding-wheels located on each side of and below each of the traction-wheels, substantially as specified.

7. In combination in a car-truck, a traction-wheel located centrally of the truck and having a wide tread of elastic material, a wheel-frame supported by the journal of the traction-wheel, and a truck-frame adapted to be connected with a car-body, pivotally supported by the wheel-frame, substantially as specified.

8. In combination in a car-truck, a traction-wheel located centrally of the truck and having a wide tread of elastic material, a wheel-frame supported by the journal of the traction-wheel, a truck-frame adapted to be connected with a car-body, pivotally supported by the wheel-frame, and horizontally-arranged guiding-wheels having wide treads of elastic material located each side of and below the traction-wheel, substantially as specified.

9. In combination in a car-truck, a wide-tread traction-wheel located centrally of the truck, a wheel-frame supported by the journal of the traction-wheel, a truck-frame bearing spiral and leaf springs, pivotally supported by the wheel-frame, a car-frame supported by the springs and adapted to be piv-

otally connected with a car-body, and horizontally-arranged guiding-wheels located each side of and below the traction-wheels, substantially as specified.

10. In combination in a car-truck, traction-wheels located centrally of the truck, one behind the other and having wide treads of elastic material, independent wheel-frames supported by the journals of the traction-wheels, a truck-frame bearing spiral and leaf springs and connected with the wheel-frames by pivots, a car-frame supported by the springs and adapted to be pivotally connected with a car-body, and a pair of horizontally-arranged guiding-wheels having wide treads of elastic material located on each side of and below each of the traction-wheels, substantially as specified.

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