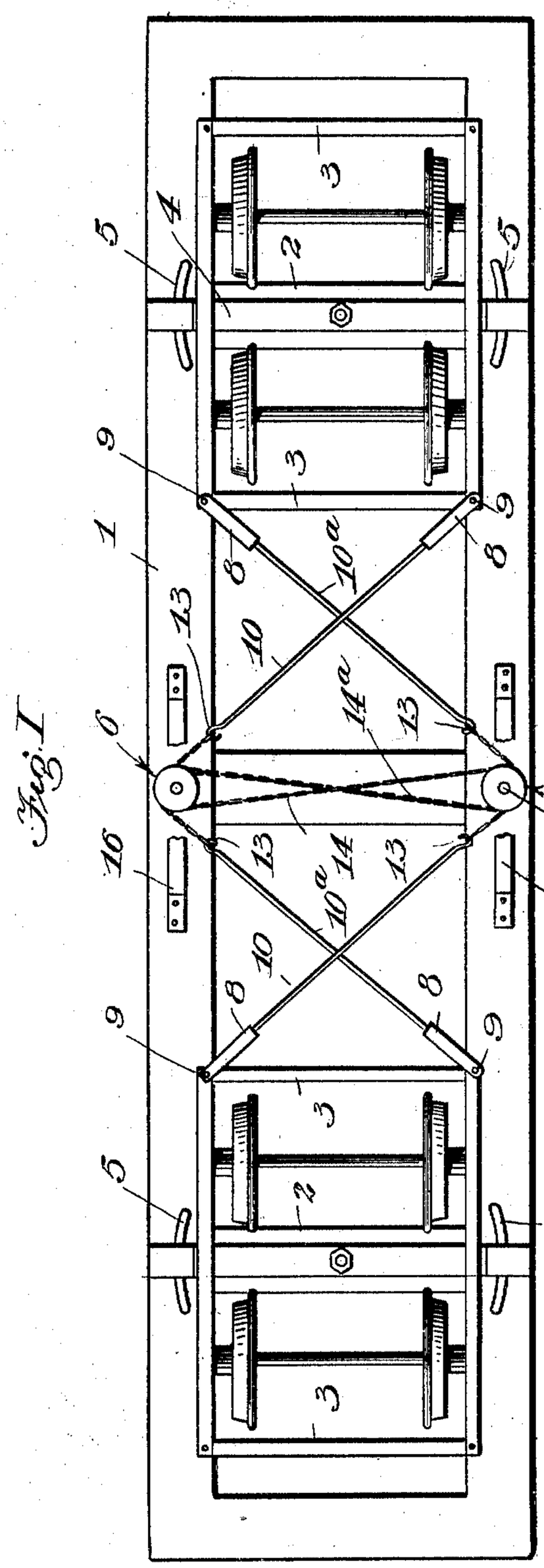
No. 760,084. PATENTED MAY 17, 1904.

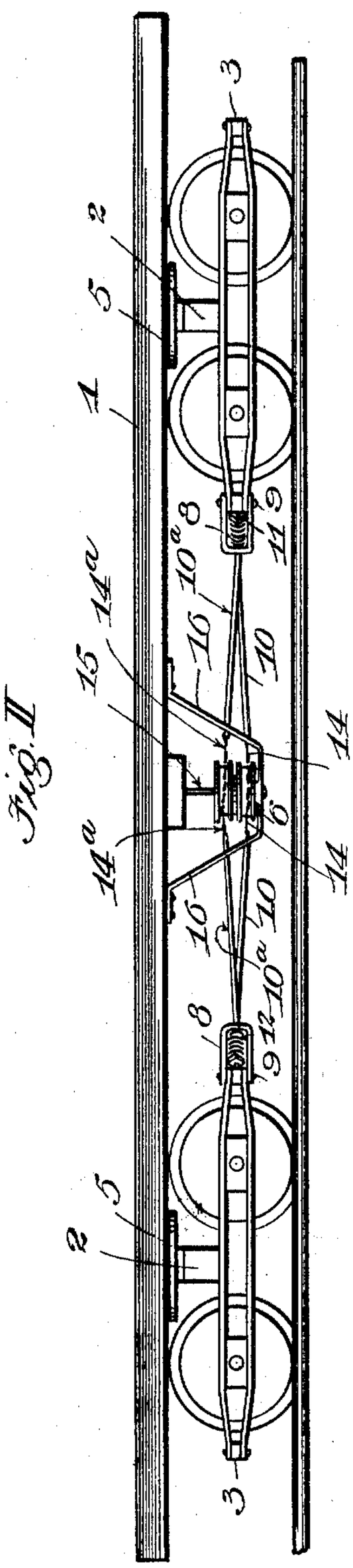
C. A. STELLE.

ANTIFRICTION DEVICE FOR RAILWAY CARS.

APPLICATION FILED AUG. 1, 1903.

NO MODEL. 2 SHEETS—SHEET 1.





Witnesses
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Jesse T. Hackley

Inventor
Charles A. Stelle
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NO MODEL. 2 SHEETS—SHEET 2.

Fig. III

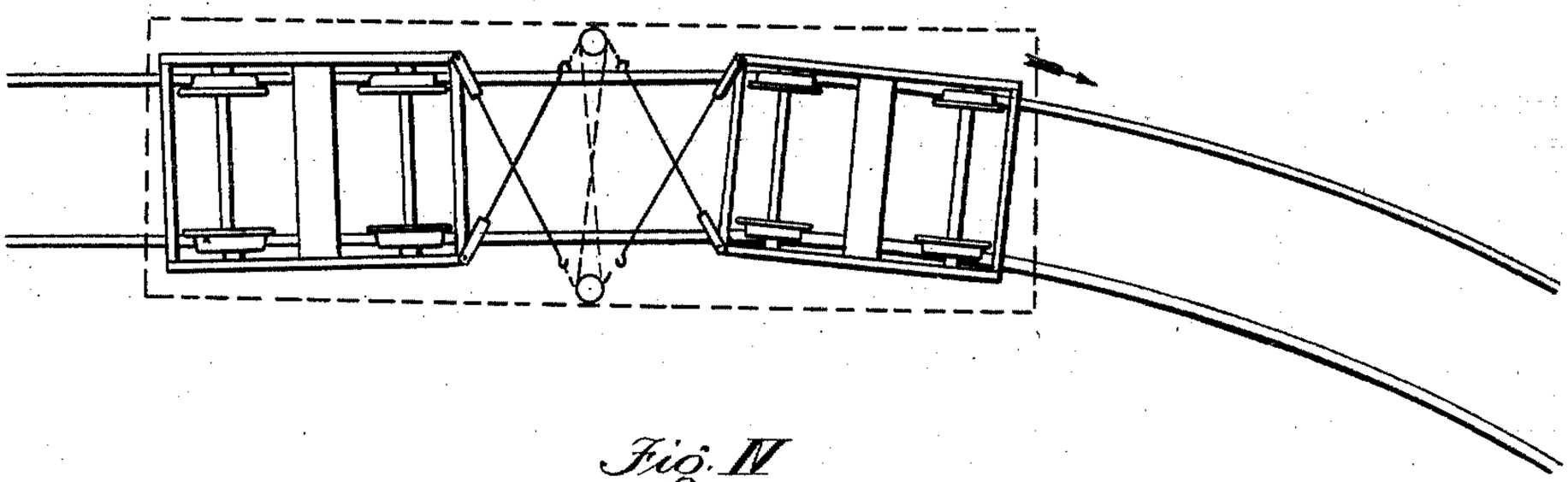


Fig. IV

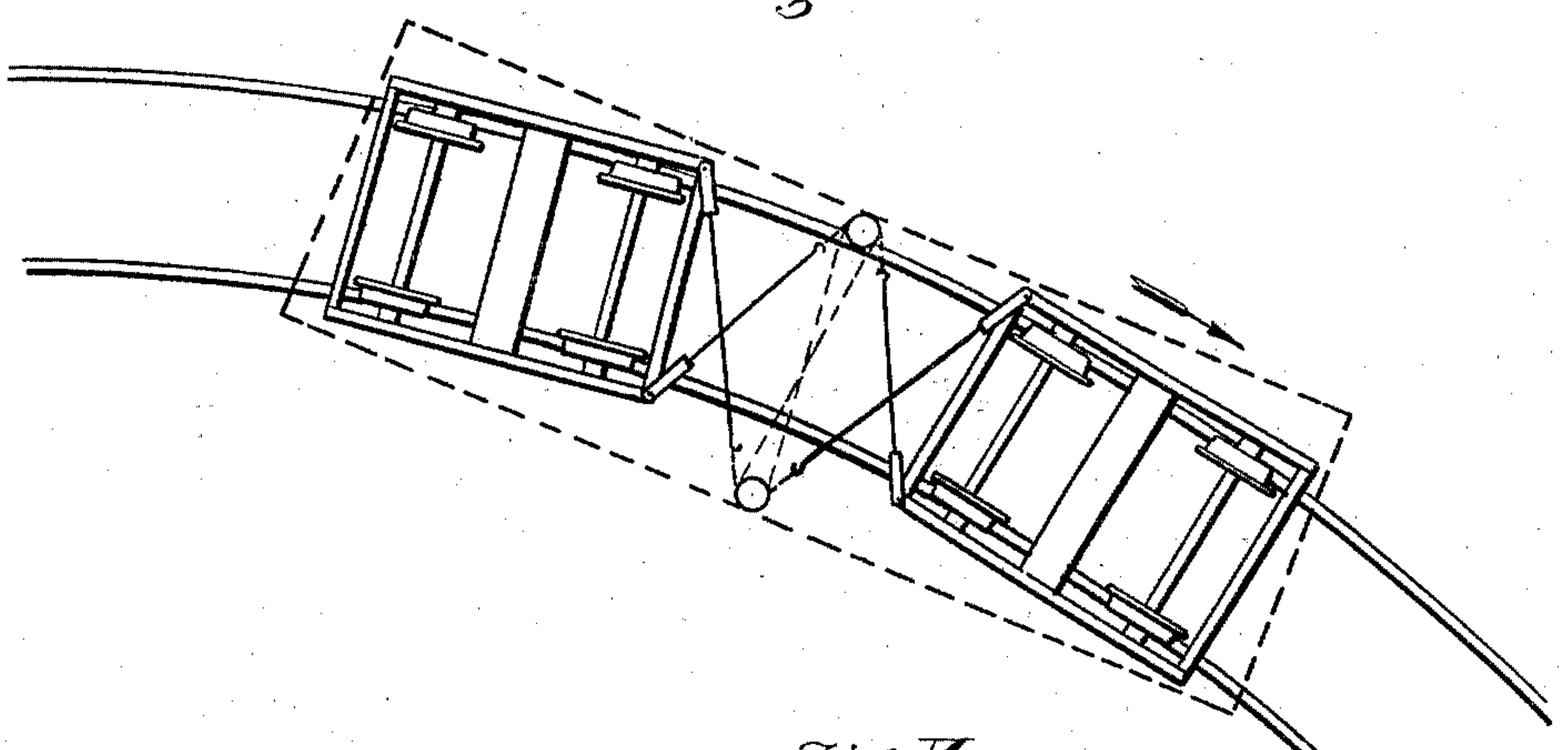


Fig. V

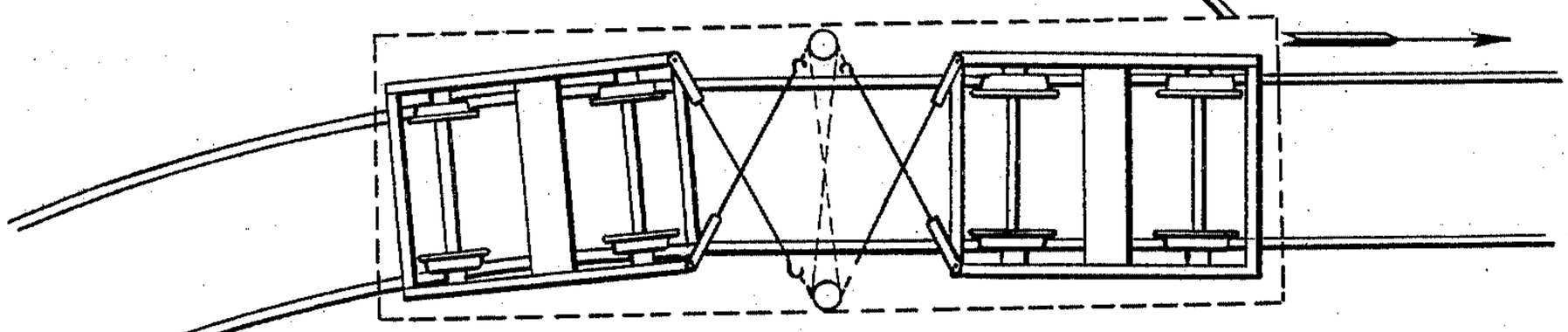
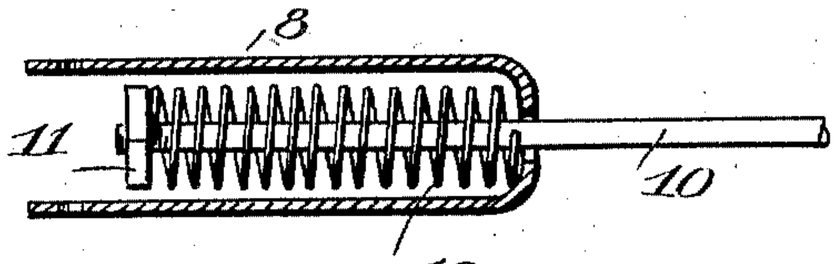


Fig. VI



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UNITED STATES PATENT OFFICE.

CHARLES A. STELLE, OF PASADENA, CALIFORNIA.

ANTIFRICTION DEVICE FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 760,084, dated May 17, 1904.

Application filed August 1, 1903. Serial No. 167,906. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. STELLE, a citizen of the United States, residing at Pasadena, in the county of Los Angeles and State of California, have invented a new and useful Antifriction Device for Railway-Cars, of which the following is a specification.

This invention relates particularly to means whereby friction between the car-wheels and the rails is materially decreased when the car passes around a curve.

Ordinarily the rails at curves, particularly of street-railway tracks, require to be oiled in order to reduce friction and consequent wear of wheels and track and to avoid the resultant screech of the wheels in rounding a curve.

The main object of the present invention is to elimiate as far as possible the friction, to obviate the annoying noise, and to do away with the necessity of oiling the rails at curves, and to prolong the life of the rails and wheels, as well as to relieve the strain upon the wheels and trucks, and thus prolong the life of the running-gear of the car.

The accompanying drawings illustrate the invention, and referring to the same, Figure I is a plan view of an upturned car-frame with running-gear, showing the truck-controlling means. Fig. II is a side elevation of the running-gear equipped with the present invention. Fig. III is a plan view of a portion of a curve and adjacent tangent track-section. Two trucks are shown equipped with the invention. One truck is shown as on the tangent and the other truck is shown as having just entered the curve. The view is diagrammatic in character to illustrate the operation of the invention. Fig. IV is a view similar to Fig. III, except that both trucks are shown upon the curve. Fig. V is a view similar to Fig. III, except that the first truck has entered the tangent and the rear truck is just leaving the curve. Fig. VI is a detail partly in section of the connection between the U-bar and a reach-rod.

Briefly, the invention comprises in combination with the two car-trucks of means connecting the two trucks for turning one truck relatively to the car-body when the other truck has been turned by the curve of the rails.

Referring to Fig. I, 1 designates the car-frame having cross-beams 2, to which are swiveled truck-frames 3. The center truck-beam 4 is extended beyond the side bars of the truck, and opposite ends of the center beam 4 play over segmental plates 5 as the truck is turned relatively to the car-frame, which steadies the car-frame on the trucks.

Mounted underneath the frame 1 and midway between the two trucks are opposite pairs of sheaves 6 and 7. Attached to the inner opposite corners of each truck are U-bars 8, which may be swiveled thereon by means of pins 9. The end of each U-bar is drilled to receive the end of a reach-rod 10 10^a, there being four reach-rods, one for each U-bar. Each reach-rod extends into the U-bar a considerable distance and carries a nut 11 on its end, there being a coiled compression-spring 12 between the nut 11 and the bow of the U-bar. The other ends of the U-bars are provided with hooks 13. The hooks of the reach-rods 10 are connected by a flexible connection, as a chain 14, while the hooks of the reach-rods 10^a are connected by a chain 14^a. Chain 14^a from the reach-rod 10^a first passes over one of the sheaves 7 and thence across the frame 1 to one of the sheaves 6, thence to the other reach-rod 10^a. The chain 14 first passes from the reach-rod 13 over the other of the sheaves 7, thence crossing the chain 14^a passes over the other of the sheaves 6, thence to the other reach-rod 10.

When one truck is swiveled relatively to the car-frame, the other truck is swiveled a relative distance to a symmetrical position through the medium of the connecting reach-rods and chains—that is to say, if the outer end of the frame of one truck is moved toward the right side of the frame 1 then the outer end of the frame of the other truck is also moved to the right side of frame 1.

When the car approaches a curve, the flanges of the outer wheels of the front truck ride against the outer rail, and as the car advances the front truck is thereby turned relatively to the frame of the car, and as the front truck

is thus turned the rear truck is turned through the connections before described. Although the rear truck is on the straight track, the turning thereof is allowed by reason of the clearance between the wheel-tread and track-tread. As the car advances, the rear truck having been turned relatively to the car-body will as the car advances tend to cause the forward truck to be directed away from the outside rail and toward the inside rail, thus relieving the friction which would otherwise result between the flanges of the outside wheels and the outside rail. As the car takes the curve both trucks will be shifted relatively to the car-body to coincide more closely with the curve of the track than would be the case in shifting the trucks merely through the action of the rails directly upon the flanges of the wheels. Thus the friction between the outside rails and the outside wheels is much less when the car goes around a curve. As the car leaves the curve as soon as the front truck strikes the tangent it will be shifted in the opposite direction, which will tend accordingly to shift the rear truck, so that as the rear truck is about leaving the curve it will enter the tangent while substantially in line with the front truck.

As the front truck of the car enters the curve it is shifted as stated, and through the described connection shifts the rear truck so that the flange of the outside front wheel of the rear truck rides against the outer rail and the inside rear wheel of the rear truck rides against the inside rail, equalizing the friction and throwing the inside wheels of the rear truck away from the guard-rail, which avoids the friction and resultant squeak which would otherwise occur.

In going into a tangent from a curve the front truck as it shifts turns the rear truck automatically, so that the inside rear wheel of the rear truck is thrown against the inside rail automatically and the outside front wheel of the rear truck is thrown against the outside rail thus equalizing friction, as before, and eliminating the squeak.

The friction in entering and leaving a curve being equalized results in a saving of power required to propel the car, while when the car is full on the curve the position of both trucks relatively to each other and to the car-body gives the wheels traction in a curve coinciding with the curve of the track and obviates friction of the flanges against rails completely, and thereby saving power to the utmost, as all the power required is for merely propelling the car, none being required for overcoming the friction of flanges against rails.

The springs 12 are employed to give resiliency to the connections connecting the two trucks, which is very important, as if the connections were absolutely fixed in length any slight irregularity in the track or construction of the trucks would be apt to cramp one or the other of the trucks, so that the car might be derailed.

The sheaves 6 and 7 are mounted upon stationary shafts 15, which may be supported by brackets 16.

While I have shown and described the preferred embodiment of my invention, it should be understood that various changes and modifications may be made therein without departing from the spirit of my invention as defined in the claims.

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

1. A car-frame, a pair of trucks supporting the same, sheaves between the two trucks, reach-rods connected to each truck, chains connecting the reach-rods, said chains being supported and guided by said sheaves.

2. A car-frame, a pair of trucks supporting the same, reach-rods connected to opposite corners of adjacent ends of the trucks, chains connecting diagonally opposite reach-rods, and sheaves supporting said chains.

3. A car-frame, a pair of trucks supporting the same, two pairs of sheaves carried by the frame on opposite sides thereof and midway between the two trucks, reach-rods connected to opposite corners of adjacent ends of each truck, chains connecting diagonally opposite reach-rods, each chain passing over a sheave in each pair of sheaves.

4. A car-frame, a pair of trucks supporting the same, two pairs of sheaves carried by the frame on opposite sides thereof and midway between the two trucks, reach-rods connected to opposite corners of adjacent ends of each truck, chains connecting diagonally opposite reach-rods, each chain passing over a sheave in each pair of sheaves, the connection between a reach-rod and a truck comprising a U-bar swiveled to the truck, the end of the reach-rod loosely passing through the bow of the U-bar, and a coil-spring between the bow of the U-bar and a nut on the end of the reach-rod.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, at Los Angeles, in the county of Los Angeles and State of California, this 27th day of July, 1903.

CHARLES A. STELLE.

Witnesses:
GEORGE T. HACKLEY,
H. D. STELLE.