2 Sheets—Sheet 1.

J. G. DIVOLL.

Car-Truck.

No. 200,646. Patented Feb. 26, 1878.

Fig. 1.

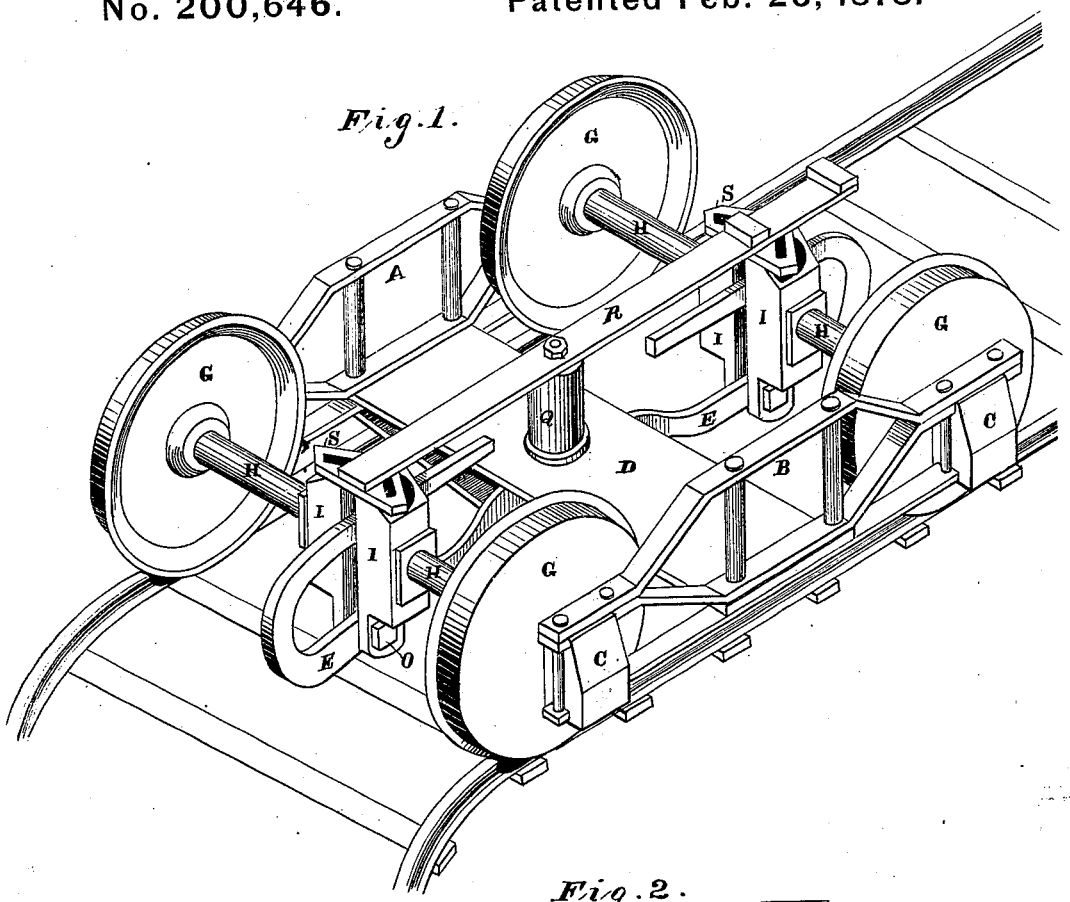
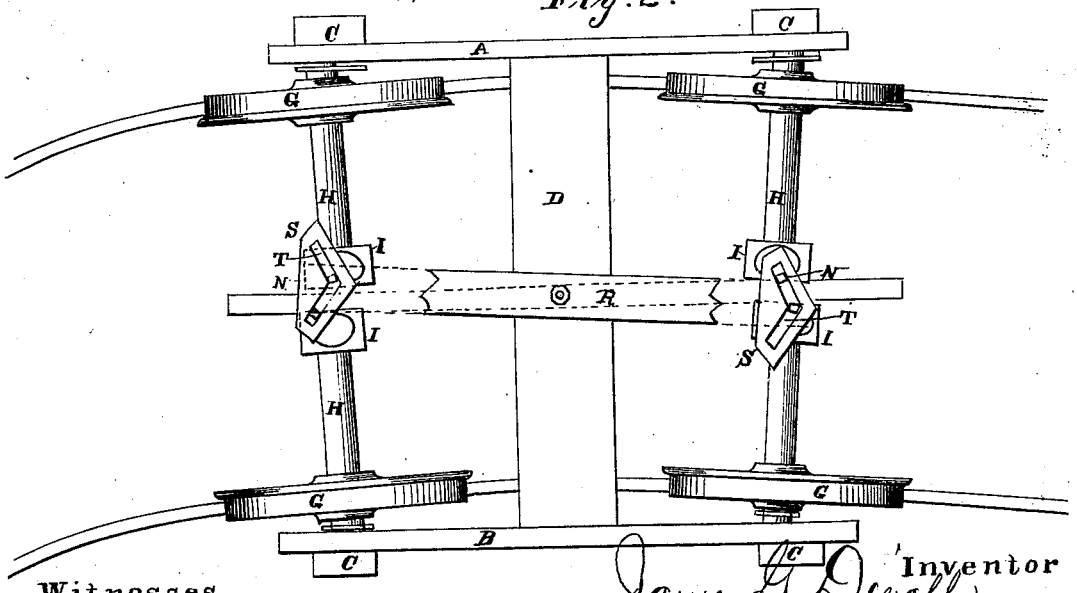


Fig. 2.



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2 Sheets—Sheet 2.

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Fig 3

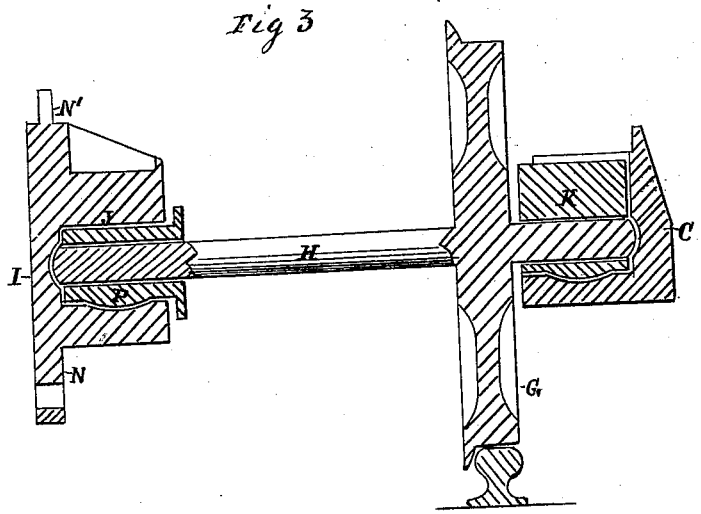
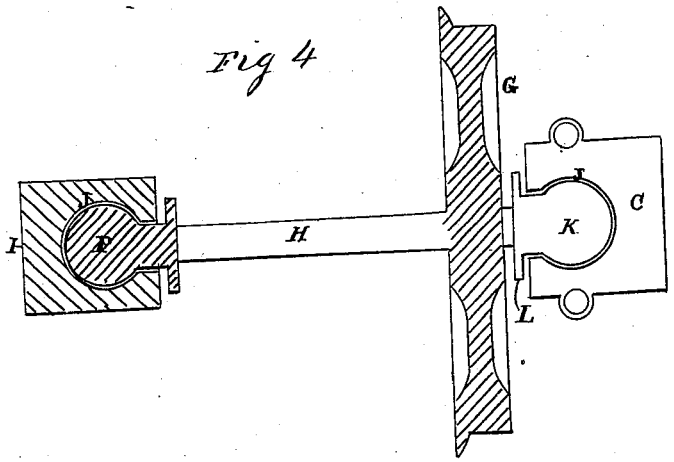


Fig 4



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UNITED STATES PATENT OFFICE.

JAMES G. DIVOLL, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN CAR-TRUCKS.

Specification forming part of Letters Patent No. **200,646,** dated February 26, 1878; application filed December 29, 1877.

To all whom it may concern:

Be it known that I, JAMES G. DIVOLL, of the city and county of San Francisco, and State of California, have invented an Improvement in Car-Trucks; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My invention has reference to the construction of car-trucks, and relates more particularly to arrangement of divided axles, and a novel method of mounting the axles, so that the car-wheels can adapt themselves to the curves of the tracks.

My invention contemplates the employment of a separate short axle for each wheel. The outer end of each short axle I mount in a bearing which is capable of a slight horizontal rotation, while the inner end is mounted in a swinging box or bearing, which is connected with a strong frame midway between the wheels. This swinging box is attached to the frame by a movable fastening below the axle, and an arrangement is applied which connects the upper ends of all four boxes of each truck, so that they can swing in opposite directions when it is desired to adapt the wheels to the curve of the tracks, all as hereinafter more fully described.

Referring to the accompanying drawings, Figure 1 is a perspective view of my invention. Fig. 2 is a plan view. Figs. 3 and 4 are sectional detail views.

A B represent the truss-frame, which connects the outer ends of the axles outside of the wheels on each side of the truck, and in the ends of which the axle-boxes C C are secured in the usual manner of constructing truss-frame car-trucks. These two truss-frames I connect together by a strong beam or plate, D, which passes across between the two pairs of wheels, and which is strongly bolted to the lower beam of each truss-frame at each end. I then secure to the middle of this cross-beam another beam, E, which extends parallel with the truss-frames A B, and midway between them. This beam E is bolted at its middle to the middle of the beam or plate D, and its ends extend out beyond and underneath the axles at each end, and are turned up and bent again toward the middle, as represented.

Each car-wheel G I secure upon one end of a short independent axle, H. The outer end of each short axle is supported in the usual axle-box C, while the inner end is supported in another axle-box, I, which is mounted on the end of the beam E between the two wheels, as hereinafter described.

The axle-boxes C are constructed as follows: each axle-box has a circular chamber, J, made vertically in it, which extends from its top nearly to its bottom. A portion at the rear side of this chamber is cut away, so that a cylindrical bearing-block, K, can be slipped down into the chamber from the top. This box or bearing has a projection, L, on one side, which extends through the cut-away or slotted portion which connects with the chamber, so that the whole forms an elevated ball-and-socket joint. The hole in which the journal of the axle enters and bears is made in this block K. The neck or projection C, which passes through the slot or opening, is somewhat narrower than the width of the slot, so that the bearing-block can rock horizontally a limited distance in either direction to accommodate the adjustment of the axle.

The inner end of each short axle is supported in a box or bearing, which is secured in a swinging block, I. One of these swinging blocks is secured on each side of the beam E, directly between the two boxes C C. Each block has an extension, N, projecting downward from the inner edge of its lower end, and a bolt, O, passes through this extension on one side, through the beam E, and through the extension of the block on the opposite side. The boxes P are movable horizontally in the blocks I, being secured in the same manner that the bearing-block is secured in the outside boxes C.

Q is a post or casting, which is secured upon the middle of the cross-plate D, and which is just as high as the blocks I. A bar, R, has its middle pivoted upon top of this post or casting, and its ends extend parallel with the beam E above the upper ends of the blocks I I.

A casting, S, is secured to the under side of this bar directly above each pair of blocks I I, and this casting has two angular slots, T T, made in it, one extending on each side over each block. These slots are made to extend

at an angle to the line of the axle, and at angles to each other in opposite directions, as represented. A pin or stud, N′, extends upward from each block and enters the slot directly above it. Now, by swinging the bar R in either direction, to the right or left, the angular slots will throw the upper ends of each pair of blocks in opposite directions, so that the wheels of the truck will be cramped to run on a curve.

The blocks I I being pivoted at their lower ends, when their upper ends are swung back or forth by the pins moving in the angular slots, the boxes P are thrown out of line according to the distance the bar R is moved to the right or left, and the movable boxes accommodate themselves to the adjustment. In order to render this adjustment automatic, I connect the bar R of the forward trucks with a similar bar on the rear trucks, so that the curve of the track itself will adjust the bar, and thus cramp the wheels correspondingly.

In a six-wheel truck I will only mount the outside axles in this manner, as the intermediate wheels will follow the curve without adjustment. It will be noticed that by this arrangement the swinging boxes are held rigidly in place at whatever position they are adjusted to the oppositely-inclined slots, counteracting each other in steadying and holding the blocks.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

The blocks I I, attached to the beam E by a pivot at its lower end, and connected by means of pins or studs N with the oppositely-inclined angular slots T T in the casting S, in combination with the adjustable boxes P K and short axle H, the whole operated by the pivoted bar R, which connects one truck of the car with the other, substantially as shown, and for the purpose described.

In witness whereof I hereunto set my hand.

JAMES G. DIVOLL.

Witnesses:
FRANK A. BROOKS,
JOS. BAYLESS.