

J. ECCLES.
CAR AXLE-BOX.

No. 169,792.

Patented Nov. 9, 1875.

FIG. 1.

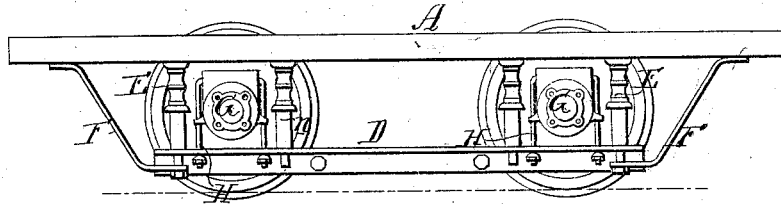


FIG. 2.

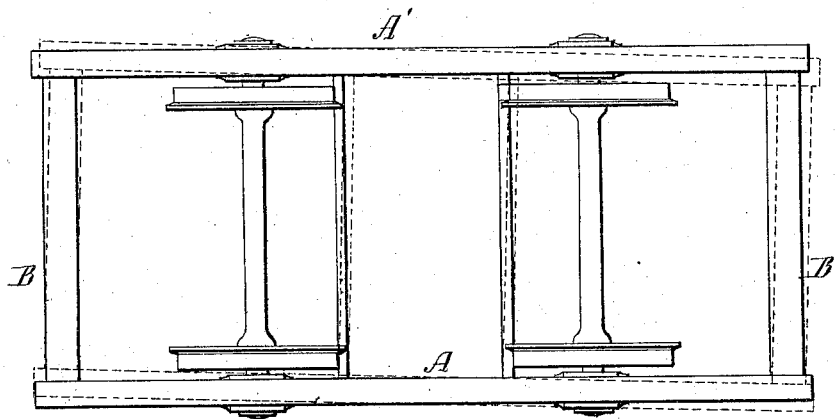
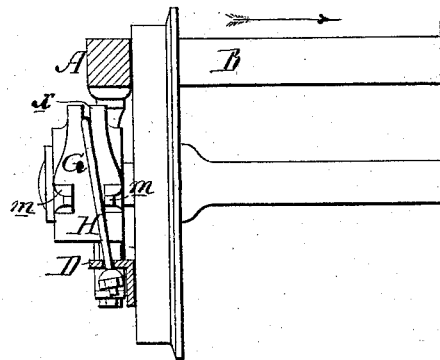


FIG. 3.



Witnesses, Harry Smith
Hubert Howson

James Eccles
by his Attorneys,
Howson and Co

UNITED STATES PATENT OFFICE.

JAMES ECCLES, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO SAMUEL ECCLES, JR., OF BALTIMORE, MARYLAND.

IMPROVEMENT IN CAR-AXLE BOXES.

Specification forming part of Letters Patent No. **169,792**, dated November 9, 1875; application filed August 10, 1875.

To all whom it may concern:

Be it known that I, JAMES ECCLES, of Philadelphia, Pennsylvania, have invented certain Improvements in Railroad-Cars, of which the following is a specification:

The object of my invention is to so apply the axle-boxes to the frame of a railroad-car that the lateral movement of the said frame, independently of the wheels and axles, shall not be accompanied with the usual disagreeable shocks, and so that the journals of the axles and their bearings in the boxes shall not be so liable to rapid deterioration as in ordinary cars. This object I attain in the manner which I will now proceed to describe, reference being had to the accompanying drawing, in which—

Figure 1 is a side view of a street-car with my improvements; Fig. 2, a plan view, and Fig. 3 a transverse section drawn to an enlarged scale.

The frame of the car consists of the longitudinal sills A and A', connected together by the cross-pieces B and B'. Below each of the sills A and A' is arranged an angle-iron bar, D, through openings in which pass the lower ends of rods E, the bar being steadied longitudinally by braces F, and springs *a* being interposed between the bar and frame of the car, so as to allow the said bar to have a vertical movement.

Each axle-box G is free from direct contact with the frame, and has in the top a recess, *x*, adapted to the upper end of the yoke H, the two legs of which pass one down each side of the box and through the angle-iron, beneath which the end of each leg is furnished with a nut or key and rounded washer, so that the yoke shall be at liberty to vibrate freely in a lateral direction only.

In ordinary cars axle-boxes are so guided by hangers on the frame that they cannot move laterally, but the journals are permitted to have such end play in the boxes that the frame of the car and its superincumbent body may move laterally independently of the wheels and axles when the car traverses curves in the track. This movement of the car, under such circumstances, is more or less abrupt and accompanied with shocks, due to

the collar of the axle-journals coming into sudden and violent contact with the bearings in the boxes.

Another objection to the ordinary mode of applying axle-boxes to cars is the excessive wear of the journals and bearings, due to the combined rotating and endwise movement of the journals.

In order to overcome these objections I so adapt the journals of the axles to the bearings in the boxes that they can have no end play therein, and so that the axles and boxes both vibrate simultaneously, and I rely entirely upon this lateral vibration of the boxes for allowing the frame to move laterally independently of the axles and wheels. The weight of the frame and body of the car and the load has a tendency to maintain the yokes H of the axle-boxes in a vertical position, and this tendency will not be neutralized as long as the car traverses a perfectly straight track; but when the car reaches a curve or uneven portion of the track, there will be a tendency of the frame to move laterally—say in the direction of the arrow, Fig. 3—when the yoke of the box will assume an inclined position; but the yoke cannot be moved from a vertical to an inclined position without slightly raising the frame and body of the car, so that there is always a tendency on the part of the frame to restore the yoke and box to their normal or vertical position; but this tendency is not of an abrupt character, but so easy as to obviate the objectionable shocks, which, in ordinary cars, are, as before remarked, due to the sudden contact of the axles with the ends of the bearings in the boxes. In other words, the lateral play of the car, independently of the axles, is not resisted with the usual abruptness, which results in disagreeable shocks, but gently by the weight of the car, which really acts as a cushion. All undue lateral movements of the frame independently of the axles are, however, prevented by lugs *m m* on each side of the axle-box, the yoke coming in contact with one or other pair of lugs when the lateral movement of the frame is excessive, as shown in Fig. 3.

These lugs may, if desired, be faced with india-rubber or other elastic material.

It will be readily understood that the boxes may be connected to the bar D by links in place of the yokes.

I claim as my invention—

1. The combination of the bar D, and the springs interposed between the bar and the frame, with the axle-boxes G and the yoke H.
2. The combination of the axle-box and its lugs *m* with the yoke H.

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

JAMES ECCLES.

Witnesses:

HUBERT HOWSON,
HARRY SMITH.