(No Model.)

2 Sheets—Sheet 1.

W. ROBINSON.

STREET CAR.

No. 435,123. Patented Aug. 26, 1890.

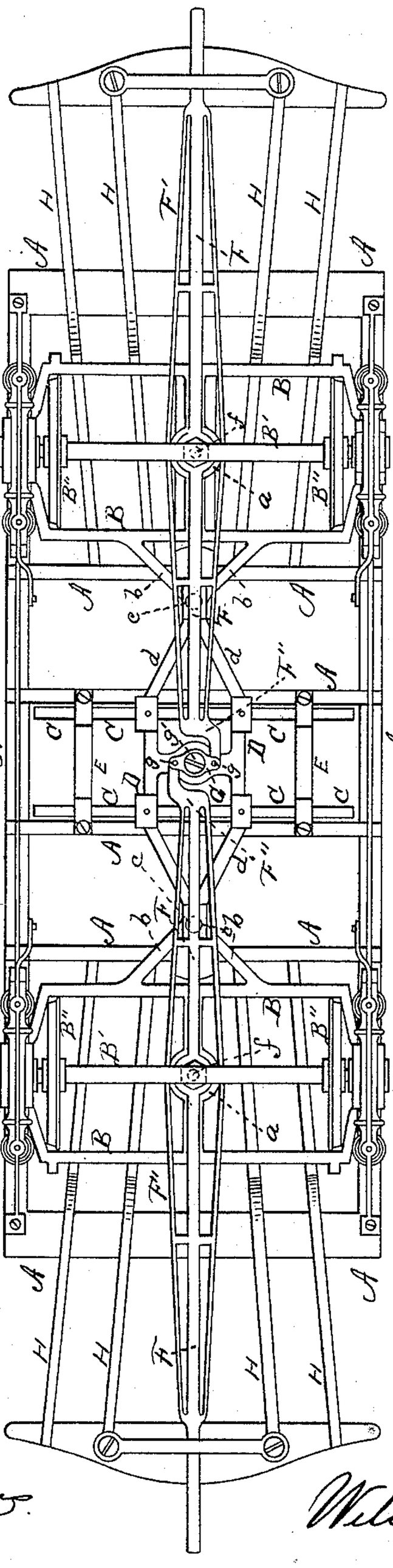

Fig. 1.

WITNESSES

Henry W. Williams.

Joseph Ashbaugh.

INVENTOR.

William Robinson.

(No Model.) 2 Sheets—Sheet 2.

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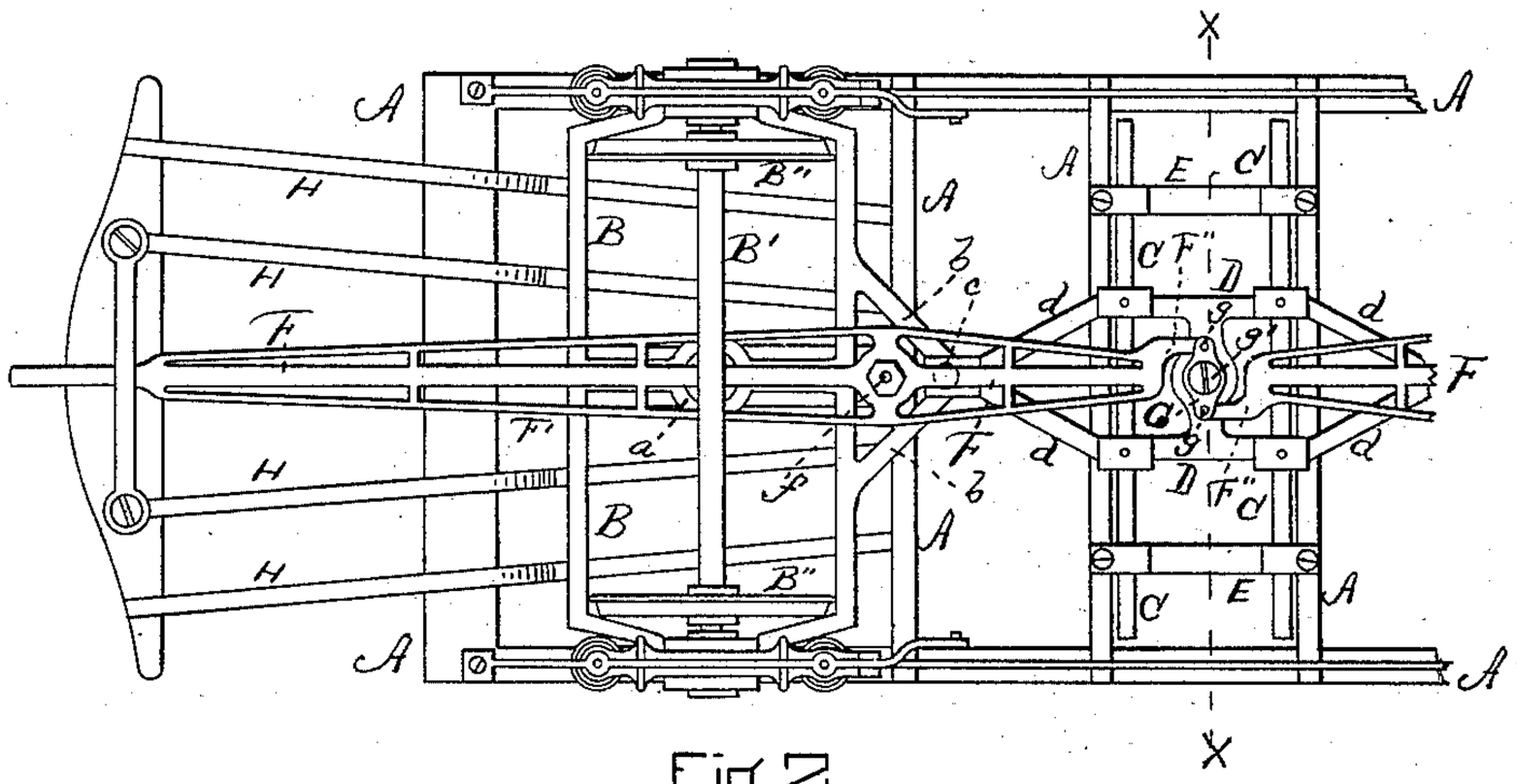

Fig. 2.

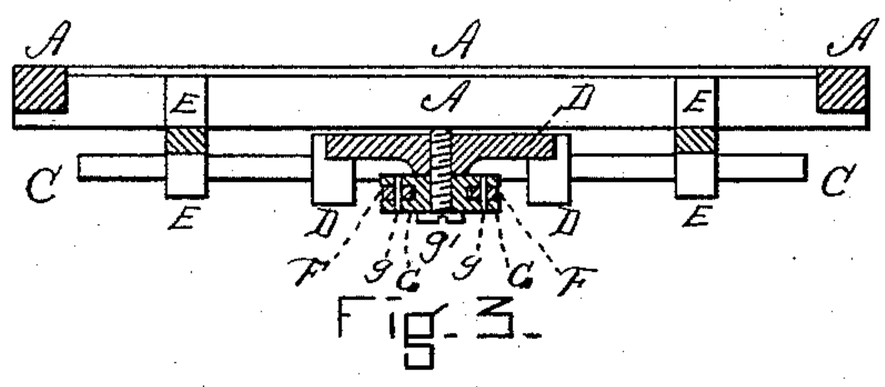

Fig. 3.

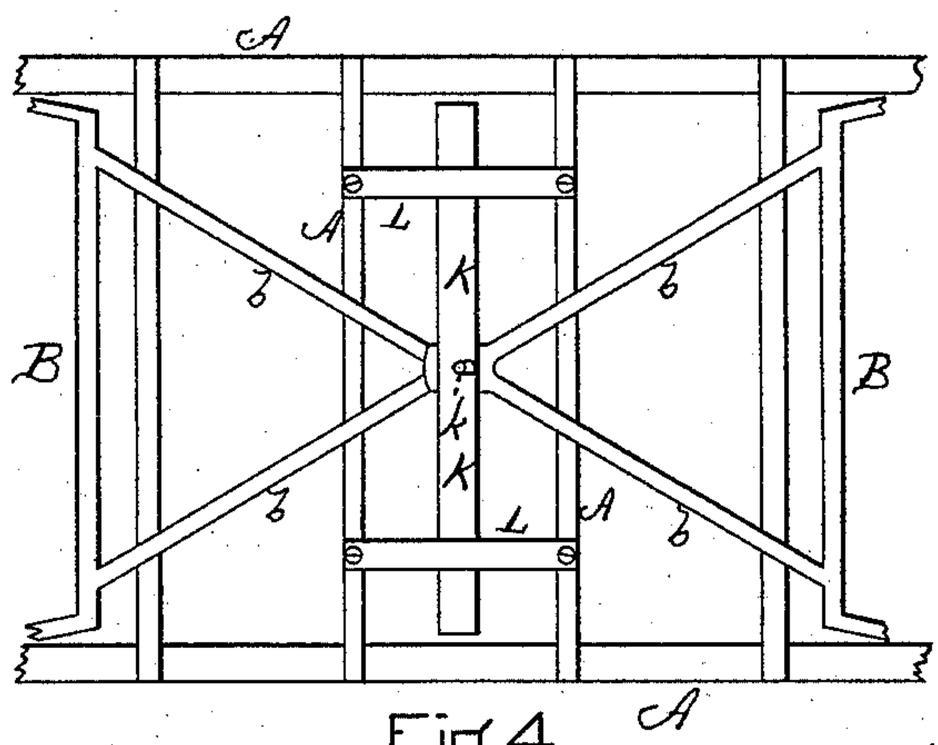

Fig. 4.

WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM ROBINSON, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE ROBINSON RADIAL CAR TRUCK COMPANY, OF PORTLAND, MAINE.

STREET-CAR.

SPECIFICATION forming part of Letters Patent No. 435,123, dated August 26, 1890.

Application filed April 3, 1882. Renewed January 6, 1890. Serial No. 335,962. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ROBINSON, of Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Street-Railway Cars, of which the following is a specification.

This invention relates to that class of street-railway or four-wheeled cars provided with radial trucks.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is a plan of the under side of the bottom frame of a car embodying my invention. Fig. 2 is a similar plan view showing a modification. Fig. 3 is a vertical section on line *x x*, Fig. 2. Fig. 4 is a plan view of a modification.

A represents the frame of the car-bottom, to which are pivoted at *a* the trucks B, carrying the axles B′ and wheels B″. Brackets *b*, rigidly secured to or integral with the trucks B, are loosely connected at *c* with the brackets *d*, fixed to or a part of the frame D, by means of pivots working in slots or in other suitable manner, whereby slight longitudinal elongation of the parts is permitted when the frame D is thrust to one side for the purpose of radiating the trucks. The frame D is preferably rigidly secured to the sliding rods C, which lie loosely in suitable openings in the bars E, which are rigidly secured to the frame A. As is evident, sliding the rods C in the bars E produces lateral motion in the frame D, fixed to said rods, which motion carries the inner ends of the trucks B to one side, thus producing radiation of said trucks with their axles B′.

F F are the draw-bars provided with the gird-rods F′ and pivoted to the frame A at *f* concentrically with the truck-pivots *a*, as seen in Fig. 1, or eccentrically to the truck-pivots, as seen in Fig. 2. These draw-bars, which are constructed, preferably, substantially as shown, have their inner ends loosely connected by pins *g* to the opposite ends of a horizontal bar or link G, centrally pivoted at *g′* to the frame D. The draw-bars are bent (or are provided with projecting side lugs) at F″, in order to reach the pivotal points near the ends of the link G. The draw-bars might be made straight and be provided at their inner ends with a loose sliding connection; but the construction described is deemed preferable. Thus it will be seen that the draw-bar is pivoted not at but between its ends to the car-frame between the end and center of the car, and has its inner end connected with a laterally-sliding frame or bar D, thus causing the power which radiates the trucks to be applied centrally between them. The result is that there is no more strain on one truck than on the other and a minimum amount on each. The radiating force being communicated directly to both trucks independently, is equal and positive on each. It will be observed that a relatively slight side movement of the outer end of the draw-bar produces sufficient lateral movement of the sliding frame D to radiate the trucks. Thus the inner platform-supports H, between which the draw-bar swings, may be placed as near together as usual.

The draw-bars may be pivoted at any desired points in the car-frame forward of the center. When pivoted at the point shown in Fig. 2, the draft on the car is carried farther back than is the case when they are pivoted concentrically with the truck-pivots. This causes less strain, and is a more philosophical method of applying force to move the car than when the draw-bar is attached at or toward the end of the car.

The sliding bars C C, which slide practically in the bottom frame of the car, impart by means of the frame D and brackets *b* great rigidity to the trucks, as will be readily perceived.

In the modification shown in Fig. 4 a sliding bar K slides in the cross-pieces L, and the brackets *b* of the trucks are pivoted or otherwise suitably connected to each other, and also at *k* to said bar K. Thus the trucks are held rigidly in position by the bar K. In this modification the radiating power would be applied directly to the forward truck.

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

1. The draw-bar pivoted to the car-frame A independently of the truck and forming no

part thereof, said draw-bar adjustably engaging the laterally-sliding frame D, situated midway from the ends of said car-frame, in combination with the swiveling trucks B, situated at either side of said sliding frame D and adjustably connected thereto, whereby lateral motion produced in said sliding frame by the action of said draw-bar thereon is transmitted to said swiveling trucks and converted into vertical rotary motion therein, substantially as described.

2. The draw-bar F, pivoted to the car-frame independently of the trucks and forming no part thereof, in combination with the laterally-sliding frame D and loosely engaging the same, substantially as and for the purpose described.

3. The draw-bar F, in combination with the car-frame and pivoted thereto at a point approximating the middle of said draw-bar, said draw-bar being pivoted to said car-frame independently of the swiveling trucks and forming no part thereof, substantially as and for the purpose set forth.

4. In combination with the car-frame A, provided with swiveling trucks B, a draw-bar pivoted to said car-frame at a point concentric with the swiveling point of said truck, but having no rigid connection therewith, substantially as set forth.

5. The draw-bar F, provided with the gird-rods F′, substantially as and for the purpose set forth.

6. The combination of the car-frame A, bars E, sliding rods C, and frame D, substantially as and for the purpose described.

7. The combination of the frame D, link G, and draw-bars F, arranged substantially as and for the purpose set forth.

WILLIAM ROBINSON.

Witnesses:
JOSEPH ISHBAUGH,
HENRY W. WILLIAMS.