

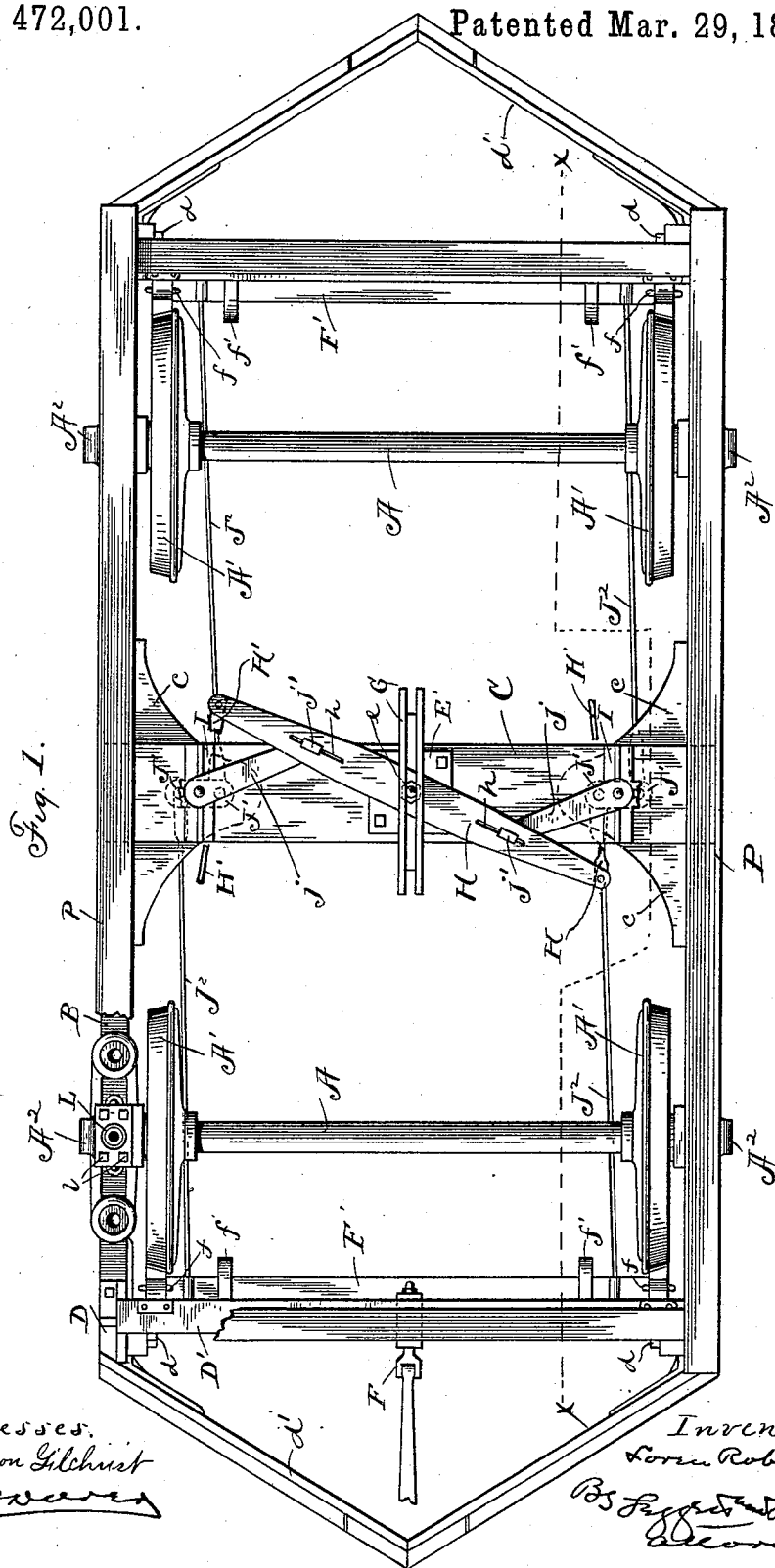
(No Model.)

3 Sheets—Sheet 1.

S. ROBERTSON.
RUNNING GEAR FOR STREET CARS.

No. 472,001.

Patented Mar. 29, 1892.



(No Model.)

3 Sheets—Sheet 2.

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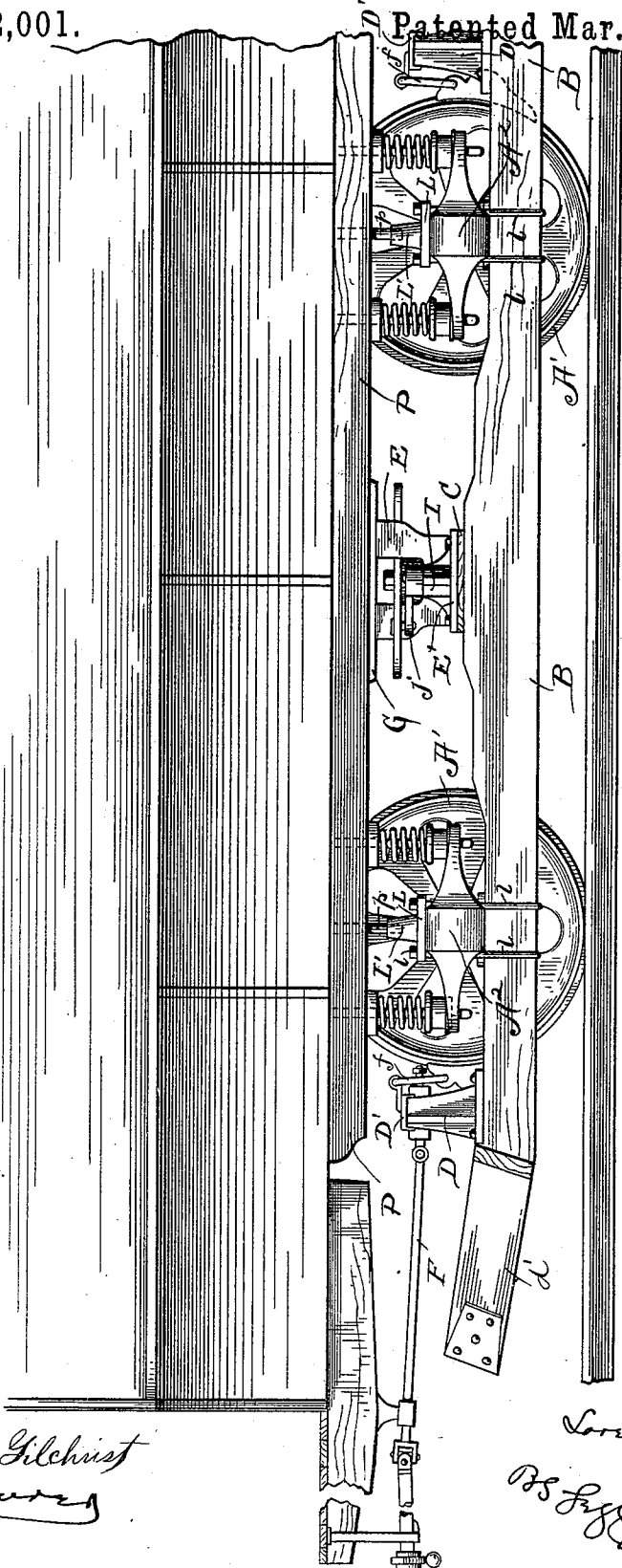


Fig. 2.

Witnesses

E. Byron Gilchrist
C. R. Noyes

Inventor

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Attest
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(No Model.)

3 Sheets—Sheet 3.

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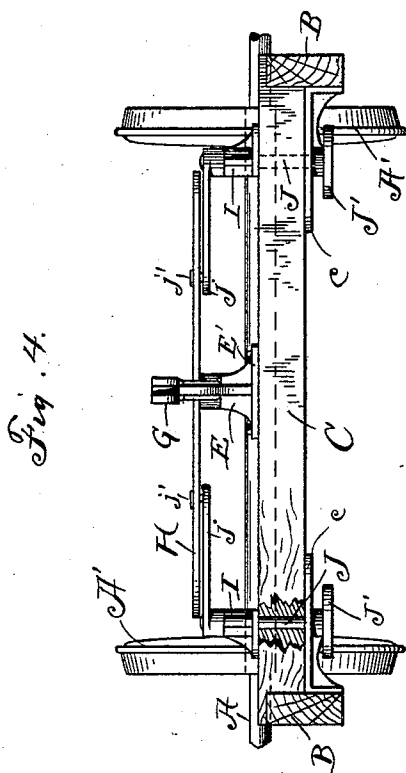


Fig. 4.

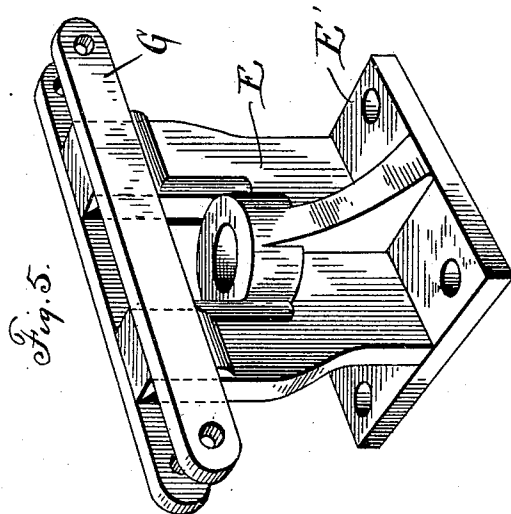


Fig. 5.

Witnesses:

E. Byron Gilchrist
[Signature]

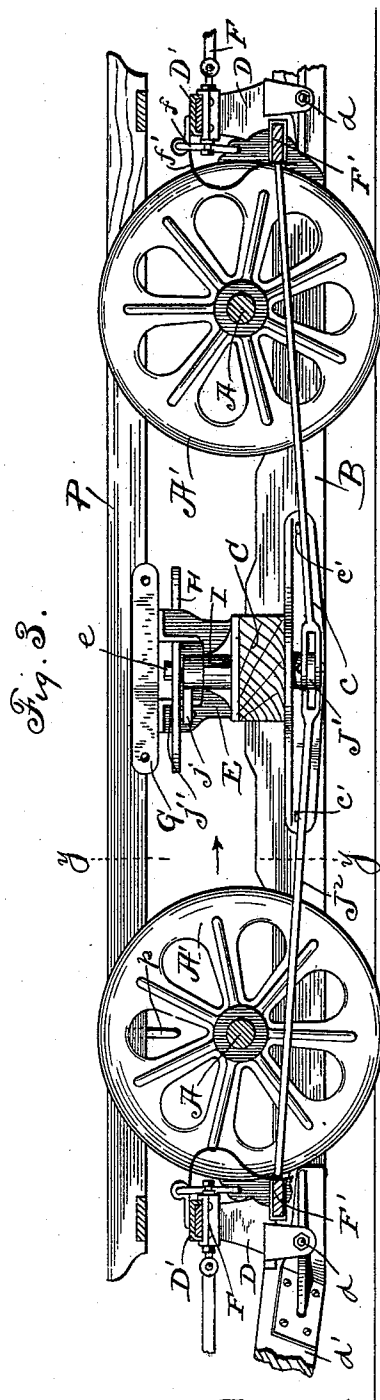


Fig. 3.

Inventor:

Samuel Robertson
[Signature]
[Signature]
[Signature]

UNITED STATES PATENT OFFICE.

SOREN ROBERTSON, OF CLEVELAND, OHIO, ASSIGNOR TO THE FULTON
FOUNDRY CO., OF SAME PLACE.

RUNNING-GEAR FOR STREET-CARS.

SPECIFICATION forming part of Letters Patent No. 472,001, dated March 29, 1892.

Application filed August 7, 1891. Serial No. 402,011. (No model.)

To all whom it may concern:

Be it known that I, SOREN ROBERTSON, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Running-Gear for Street-Cars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in running-gear trucks for street-cars, and is designed more especially for electric-motor cars; and it consists in certain features of construction and in combination of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan taken below the body of the car, portions being broken away to show the construction. Fig. 2 is a side elevation. Fig. 3 is a longitudinal vertical section on line $x x$, Fig. 1. Fig. 4 is an elevation in transverse section on line $y y$, Fig. 1. Fig. 5 is an enlarged view in perspective of post E and bars G.

The car-axles A and the car-wheels A' may be of ordinary construction, as also the journal-boxes A², the latter being preferably of the variety known as the "Bemis" box.

B B are the side pieces of the truck-frame, constructed of wood. Members B B are connected at the longitudinal center thereof by a broad wooden cross-beam C, this beam at the ends thereof being provided with brace-heads c , usually of cast metal, members c being secured at the extremes thereof to side pieces B by means of bolts c' , the length of each member c where it engages member B being such as to effectually brace the framework of the truck to keep the latter square, so that the alignment of the wheels will always be correct, and no other bracing for the purpose is required. This is a matter of considerable importance, as on an electric-motor car the room for ordinary diagonal bracing is very limited. Instead of ordinary cross-beams connected directly with members B at the ends of the frame, I provide metal brackets D, securely bolted to members B in the position shown, and to the top of these brack-

ets are secured channel-bars D', these channel-bars extending crosswise the car from one bracket to the opposing bracket, such channel-bars constituting the end cross-pieces of the truck-frame. To members D' are attached the coupling mechanism F, supposed to be the same as shown and described in United States Letters Patent No. 443,921, of December 30, 1890. By elevating the channel-bars D', as shown, they are in position for attaching the coupler and for attaching the links f and springs f' , that connect with the brake-beam F'. These channel-bars as compared with their weight are very strong widthwise, and hence are well adapted to sustain the draft of the car-coupler, and I consider it a great advantage to attach the coupler and the springs and links of the brake-beams to the truck-frame rather than to the car-body, by which arrangement the brake-shoes do not vary up and down as when they are suspended from the car-body.

Upon cross-beam C, at the longitudinal center thereof, is mounted a metal post E, this post having a broad base E' bolted to the beam, and the upper section of the post is forked, as shown more clearly in Fig. 5. To the prongs of this post are rigidly secured by bolts or rivets bars G G, these bars extending lengthwise the truck for attaching the one side of the respective motor-frame. (Not shown.) Below bars G is pivoted to the head of the post at e the equalizing-lever H. From the extremes of lever H lead rods H' H', that in turn connect with chains (not shown) that wind on the spindles of the hand-brakes, (not shown,) these latter being attached to the car-body, as heretofore, at the respective platforms.

I I are upright boxes or hubs mounted on beam C, in the bore of which hubs are respectively journaled the short upright shafts J J. These shafts extend down through holes in beam C, and below the beam each shaft is provided with a cross-bar J'. The extremes of bars J' at equal distances from shaft J are connected by rods J² with the respective beams F'. The upper end of each shaft J is provided with a rock-arm j , each rock-arm having an upwardly-projecting wrist j' , that operates in a slot h of lever H.

In the position of parts shown in Fig. 1 the brakes are supposed to be "off" or inoperative, in which case cross-bars J' stand crosswise the car. If by operating a brake-wheel
 5 on either platform of the car lever H be moved in the direction of the arrow both arms j will be actuated in the direction to set the brakes, and in so doing the variable leverages of members H, j, and J' would act on
 10 the brakes with accelerating force. For instance, cross-bars J' with the brakes off stand crosswise of the car; but in setting the brakes members J' approximate their dead-centers, thus greatly accelerating the power applied
 15 to the brakes, and the same in a less degree may be said of the variable leverages of members H and j. Brackets D are forked at their lower ends, and to and between the prongs are pivoted at d' fenders d', the arrangement being such that the fenders are held normally in approximately a horizontal position as close to the track-rails as may be practicable, and the fenders may tilt upward
 20 in case they should engage the track or pavement by reason of the tilting or rocking of the car endwise.

P is a frame, preferably of wood, that is interposed between the truck-frame proper and the sills of the car-body, frame P being rigidly but detachably secured to the under side
 30 of the car-sill, usually by means of bolts, in which case the bolts should fit so easily in their holes that they may readily be removed, so that the car-body can be lifted off, leaving frame P and the mechanism below this frame intact.

To hold frame P and the attached car-body as against lurching in any direction, I provide as follows: L L are caps seated on top of the
 40 respective journal-boxes and held in place by U-shaped bolts l, these bolts being passed up from below and embracing members B, so that these bolts also hold the journal-boxes to their seats. These caps have upwardly-projecting hubs L', in the vertical bores of which
 45 operate, respectively, steady-pins p, the latter depending from and being rigidly attached to frame P. Steady-pins p should be of considerable size—say an inch and a quarter (more or less) in diameter—and caps L, when the car is loaded, should come as close
 50 to the under side of frame P as is practicable, in which case steady-pins p may be quite short, which, together with their large size, render them abundantly capable of sustaining the lurching of the car-body. With such construction, after the car-body has been removed frame P can easily be lifted off and
 55 as easily returned to its place, and after the removal of frame P the mechanism below is easily accessible for repairs or other purposes. When frame P has been returned to its place, all of the adjustments of the mechanism below may be made before the car-body
 60 is returned to its place, all of which is found to be very convenient.

What I claim is—

1. In running-gear for street-cars, a truck-frame having wooden side pieces connected at the longitudinal center thereof by a cross-beam, such cross-beam having broad metal
 70 brace-heads secured to the side pieces as a means of bracing the frame, substantially as set forth.

2. A truck-frame for street-cars, having
 75 wooden side pieces bearing brackets at the ends thereof, and channel-bars secured to and on top of opposing brackets, such channel-bars extending crosswise of the car, substantially as set forth.

3. A truck-frame for street-cars, having
 80 wooden side pieces bearing brackets, with channel-bars secured to the brackets, substantially as indicated, such brackets having forked lower ends, and fenders pivoted to and
 85 between the prongs of such brackets, substantially as set forth.

4. In running-gear for street-cars, in combination, side pieces and cross-beam for bracing the same, a post mounted on such cross-beam,
 90 and an equalizing-lever pivotally mounted on such post, together with connecting mechanism, substantially as indicated, whereby the brakes are simultaneously operated by means of such single equalizing-lever, sub-
 95 stantially as set forth.

5. In running-gear for street-cars, side pieces connected by a brace-beam, the latter bearing a post, an equalizing-lever mounted on the post and operatively connected with hand
 100 mechanism for operating the brakes from the car-platform, and a rock-shaft mounted on the brake-beam, such shaft bearing rock-arms provided with wrists engaging slots in the equalizing-lever, such rock-shaft bearing
 105 cross-bars the extremes whereof are connected with the brake-beams, the arrangement being substantially as indicated, whereby the variable leverage of these members accelerate the force applied to the brakes in
 110 setting the brakes, substantially as set forth.

6. The combination, with a frame located between the truck-frame proper and car-body and journal-boxes secured to the truck-frame, of caps mounted and secured on top of the
 115 journal-boxes, and steady-pins connected with the intermediate frame, such steady-pins operating, respectively, in vertical holes of the caps, substantially as set forth.

7. The combination, with truck-frame and
 120 journal-boxes mounted thereon, of a cap mounted on each journal-box and engaging steady-pins, and U-shaped bolts embracing the side pieces of the frame and engaging the box and engaging the opposing cap, sub-
 125 stantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 28th day of June, 1891.

SOREN ROBERTSON.

Witnesses:

C. H. DORER,

WARD HOOVER.