

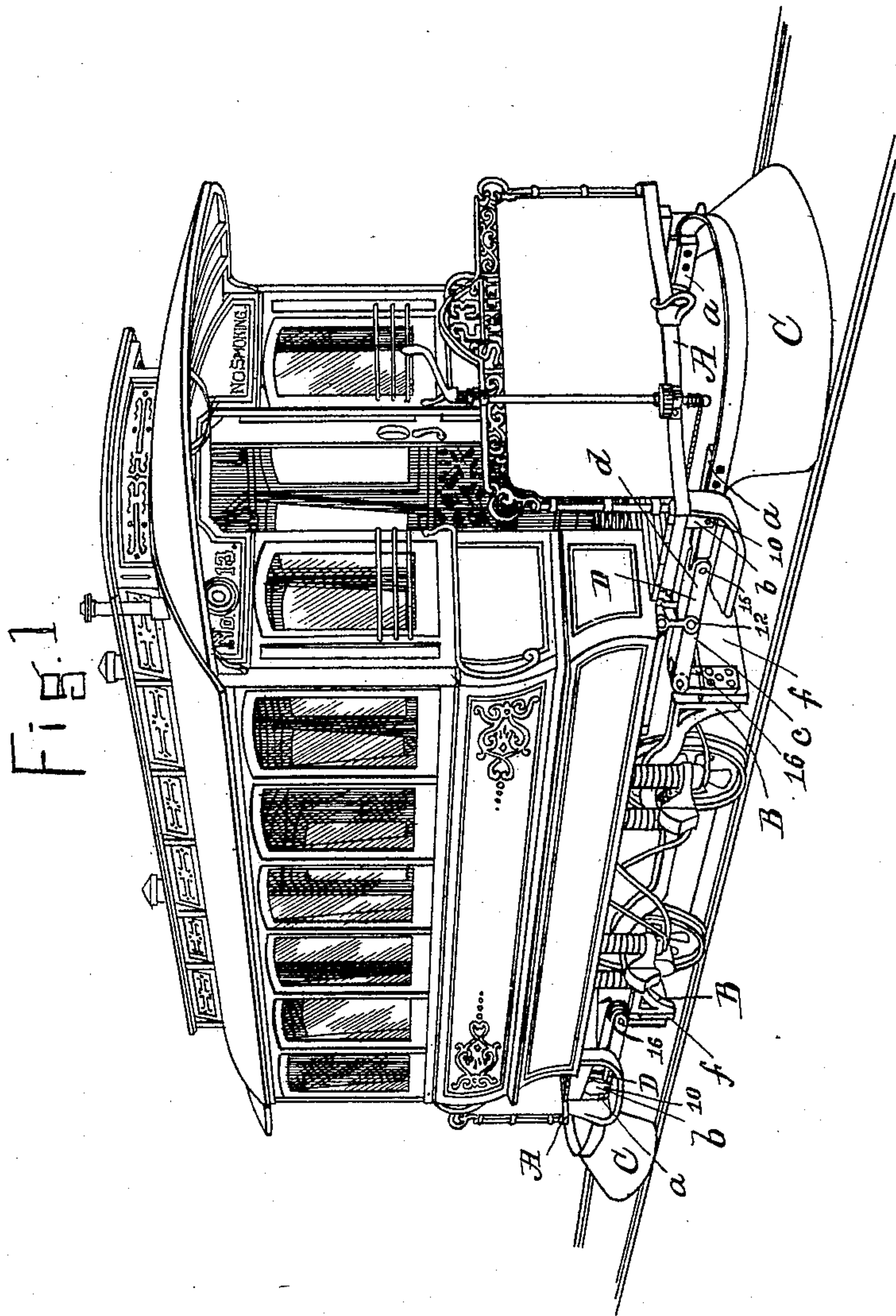
(No Model.)

2 Sheets—Sheet 1.

S. S. PUTNAM, Jr.
FENDER FOR RAILWAY CARS.

No. 452,530.

Patented May 19, 1891.



WITNESSES.

R. Henry Marsh
Henry H. Allen

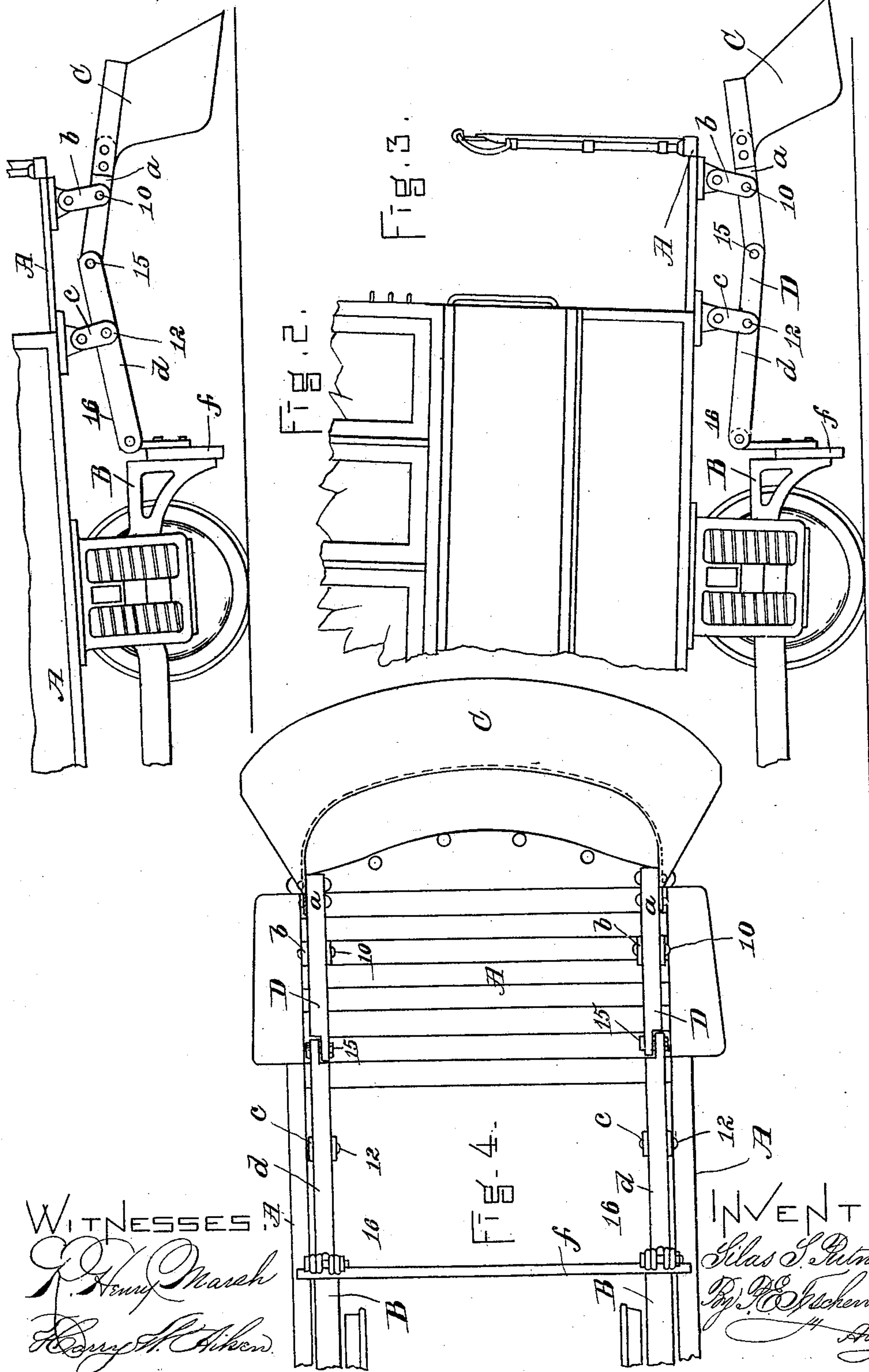
INVENTOR.

Silas S. Putnam Jr.
By J. E. Tschernach

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UNITED STATES PATENT OFFICE.

SILAS S. PUTNAM, JR., OF BOSTON, MASSACHUSETTS.

FENDER FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 452,530, dated May 19, 1891.

Application filed January 13, 1891. Serial No. 377,658. (No model.)

To all whom it may concern:

Be it known that I, SILAS S. PUTNAM, JR., a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Fenders or Guards for Railway-Cars, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of a street-railway car having my improved fender or guard applied thereto. Figs. 2 and 3 are side elevations of the same, showing the parts in different positions. Fig. 4 is an underneath view of the same.

My invention relates particularly to fenders or guards for street-railway cars propelled by electric or other motors, and has for its object to maintain the fender at an approximately uniform distance from the ground without regard to the longitudinal rocking or tilting motion of the car-body.

To this end my invention consists in a fender or guard rigidly secured to and supported by compound levers arranged on either side of the body of the car and suspended therefrom by suitable links or hangers, the inner lever-arms on each side being pivotally connected with the car-truck, whereby as the front end of the car is tilted upward the outer ends of the outer lever-arms to which the fender is secured will be correspondingly depressed, while when the front end of the car is depressed the movement of the levers will be reversed, thus raising the fender as the end of the car is tilted down, the fender being thus maintained at a uniform distance from the ground, as hereinafter more particularly set forth.

In the said drawings, A represents the end of the frame or body of a railway-car, and B the truck of the same.

C is a fender or guard, preferably composed of sheet metal and of any suitable or desirable form. This fender C is rigidly secured at its inner upper corners to the outer arms or members *a a* of a pair of compound levers D D, arranged on opposite sides of the car-body and suspended therefrom by means of pivoted links or hangers *b c*, the hangers *b* being pivoted to the outer arms or members

a at 10, while the hangers *c* are pivoted to the inner arms or members *d* at 12, said arms *d* being pivoted at their outer ends at 15 to the arms *a* and being pivotally connected at their inner ends to some portion of the truck B—in the present instance to a transverse bar *f*, bolted to the forward portion of the truck B and forming a part of the same. With this construction and arrangement of parts, when the car-body is on a level, as shown in Fig. 1, the inner and outer arms *d a* of the compound levers D will be in a straight horizontal line, or nearly so, the fender being supported by the outer arms *a*, with its lower front edge at a proper distance from the ground. When the car is in motion and its body is subjected to the usual longitudinal rocking or tilting movement, as the front end of the car is raised the levers D will, by reason of their connection with the truck B, assume the position seen in Fig. 2, carrying the outer ends of the outer arms *a* downward in proportion as the end of the car is raised, so that the lower edge of the fender will remain at the same level as before, and when the front end of the car is depressed the movement of the levers D will be reversed, and the fender thereby carried upward in proportion to the downward movement of the said front end of the car, as seen in Fig. 3, and it will therefore be obvious that the lower edge of the fender will in this manner be kept at an approximately unvarying distance from the ground or track independently of the longitudinal rocking or tilting movement of the car, as is necessary to enable the fender to operate to the best advantage, while all liability of the fender striking or catching in the ground and thereby becoming injured or broken is entirely avoided. Furthermore, the levers D serve to hold and support the fender firmly in place against the force of any longitudinal thrust to which it may be subjected on encountering a person or object upon the track. The links or hangers *b c* are pivoted to the lever-arms *a d* at such points in their lengths as will cause the fender to move up and down a distance equal to the fall or rise of the front end of the car, whereby the lower edge of the fender is constantly maintained at a uniform distance from the track, as required.

The above-described arrangement of compound supporting-levers is exceedingly simple and free from liability to get out of order, and, together with the fender, can be applied
 5 to a car already in use at a small expense. Furthermore, these levers are so located that they will not interfere with the brake or other mechanism commonly applied to electric cars at present in use.

10 What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a railway-car, of a pair of compound levers arranged on either side of the same, said levers being each com-
 15 posed of two arms or members jointed together and suspended from the car body or frame by means of links or hangers pivoted thereto, the inner ends of the inner arms being pivotally connected with the car-truck,
 20 and a fender or guard rigidly secured to the outer ends of the outer arms or members of said compound levers, whereby the fender will be depressed or raised in proportion as the

outer end of the body of the car rises or falls, substantially as set forth.

2. In a railway-car, the compound levers D
 D, each composed of two arms or members *a d*,
 jointed together at 15, the inner ends of the
 inner arms *d* being pivotally connected with
 the car-truck, the swinging links or hangers
 30 *b c*, pivoted to the arms *a d* and adapted to suspend the same from the under side of the car-body, and the fender or guard C, rigidly secured to the outer ends of the outer arms
 35 *a*, whereby as the body of the car is tilted or rocked longitudinally the fender will be depressed as the end of the car ascends and raised as the end of the car is depressed, substantially as described.

Witness my hand this 8th day of January, 40
 A. D. 1891.

SILAS S. PUTNAM, JR.

In presence of—

T. E. TESCHEMACHER,
 HARRY W. AIKEN.