No. 691,808. Patented Jan. 28, 1902.

W. B. POTTER.

COLLECTOR FOR SURFACE CONTACT RAILWAYS.

(Application filed June 12, 1899.)

(No Model.) 2 Sheets—Sheet 1.

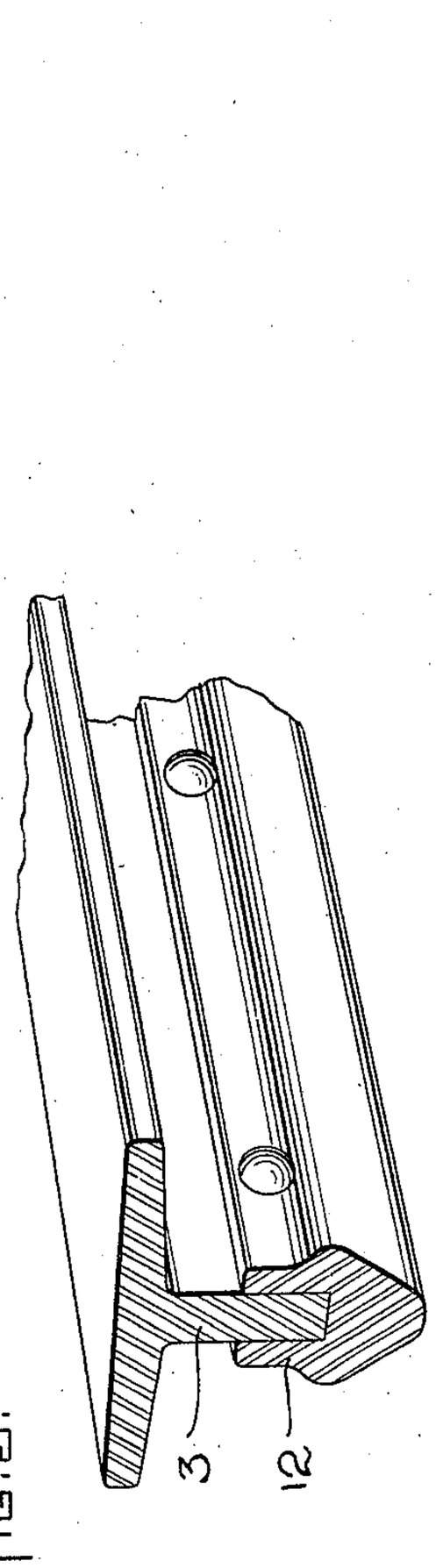

FIG. 3.

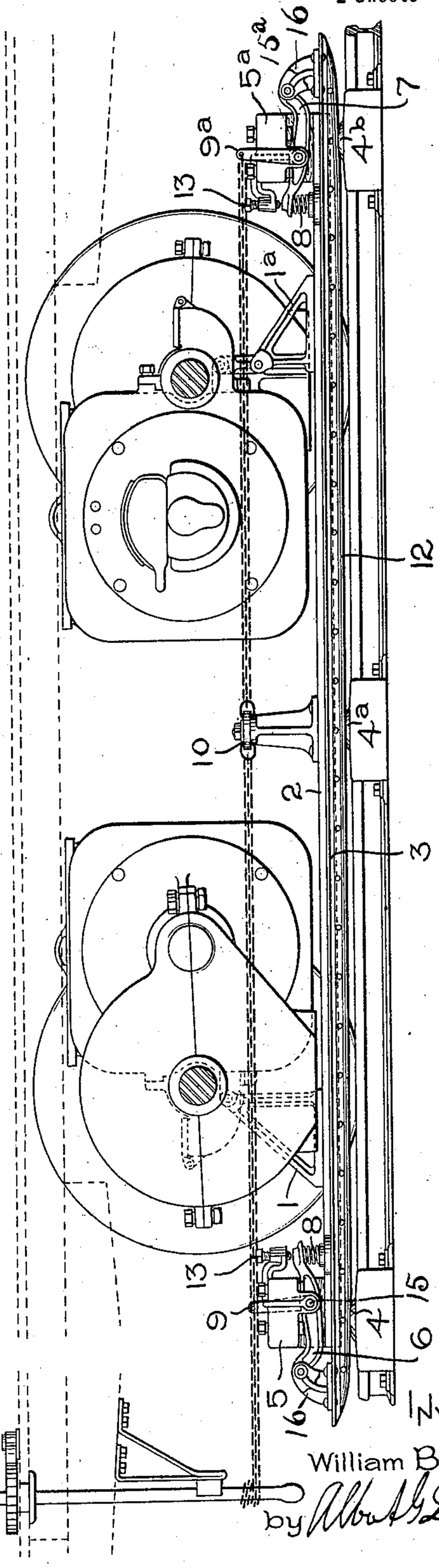

FIG. 1.

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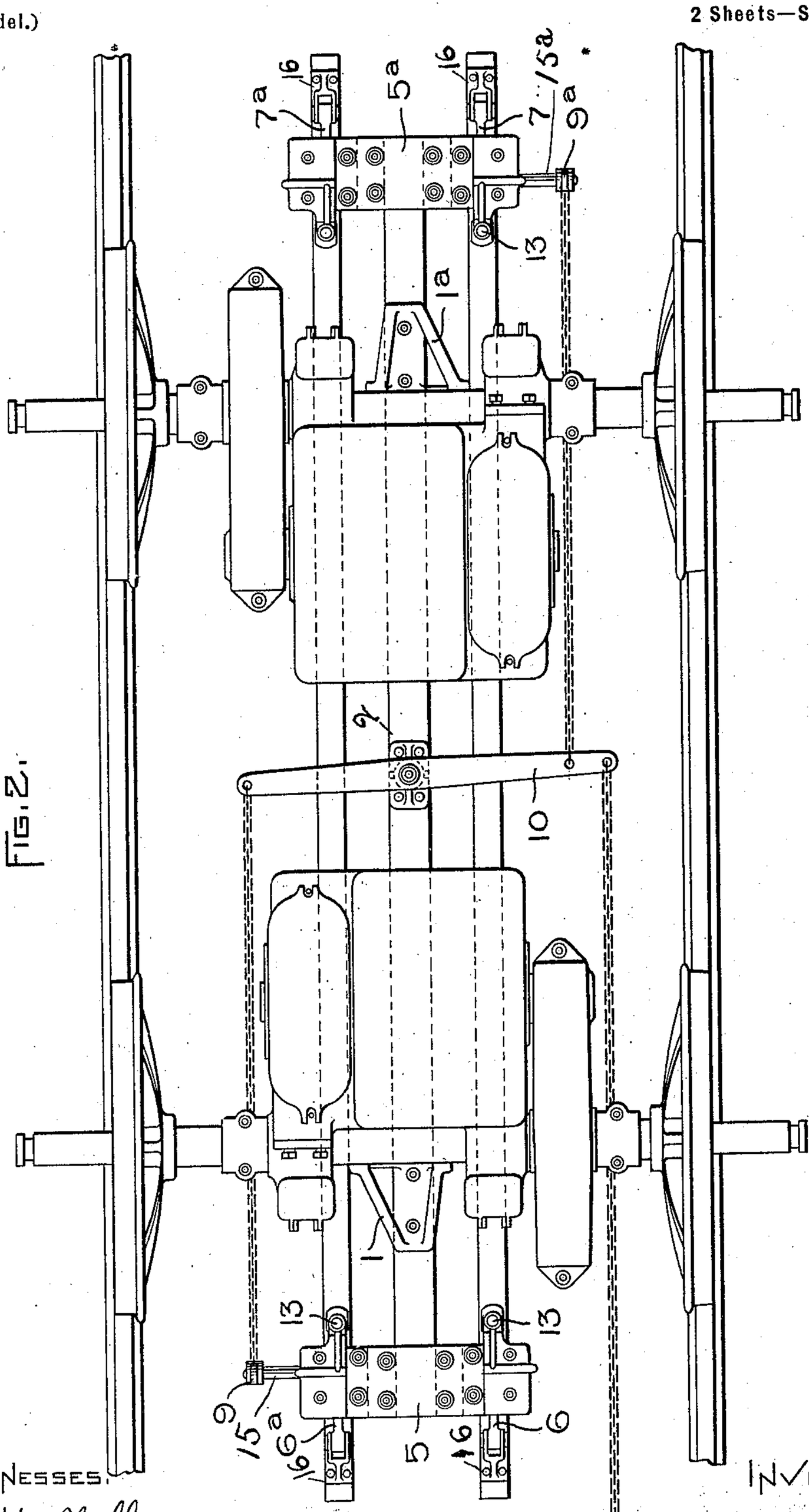

FIG. 2.

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UNITED STATES PATENT OFFICE.

WILLIAM B. POTTER, OF SCHENECTADY, NEW YORK, ASSIGNOR TO THE GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

COLLECTOR FOR SURFACE-CONTACT RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 691,808, dated January 28, 1902.

Application filed June 12, 1899. Serial No. 720,290. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. POTTER, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Collectors for Surface-Contacts Railways, (Case No. 907,) of which the following is a specification.

This invention relates to surface-contact electric railways, the novel features being directed to an improved form of collector which is of special advantage in mixed systems composed in part of a trolley supply-wire and in part of a surface-contact supply system. In such systems the same amount of care is not commonly bestowed on paving the section throughout which the trolley extends as the surface-contact section, and the inequalities of paving in such sections work considerable damage on the skates or collector-shoes which feed the motors with current from the surface contacts. It is the object of my invention to cure this difficulty by mounting the surface-contact collecting devices so as to be capable of being raised from the road-bed a sufficient distance to clear any ordinary inequality which may be expected.

It is a further object to provide the rail which acts as a collector in the "spot" type of surface-contact railways with a removable wearing-shoe which may be easily applied and taken off and which greatly reduces expense in renewing worn parts, the bottom or sole piece of the collector only being necessary to be renewed, the main body of the rail or angle-iron which constitutes the collector-support being a permanent structure and lasting as long as any other part of the motor equipment.

The several features of novelty will be more fully described hereinafter and will be definitely indicated in the annexed claims.

In the drawings, Figure 1 is a side elevation of part of a car equipment embodying my improvements. Fig. 2 is a plan of the same, and Fig. 3 a detail perspective view showing my improved form of collector-rail.

Referring to the drawings, 1 1^a represent brackets mounted on the motor-frames or axle or suspended from any other portion of the car which remains in substantially fixed relation to the road-bed, on which is mounted a steel girder 2, which forms a support for a collector 3. In the construction shown in Fig. 2 transverse standards 5 5^a are supported on the girder 2, and these support two collectors 3 3, one collector being adapted to engage the switch-pick-up rail and the other to engage the power-rail of a sectional safety-railway.

4 4^a 4^b represent surface contacts through which current is fed to the collector from a buried supply-conductor, commonly through magnetically or mechanically controlled mechanism for rendering the contact points or spots "alive" only during transit of the car over them.

In systems of this kind as commonly installed the collector-shoe is given only sufficient play to yield slightly with relation to the road-bed, as shown in my Patent No. 591,878. In the improvements contemplated by my invention, however, I give it sufficient range of movement to clear such differences of paving as would be likely to occur between a well-paved track-section or street and a poorly-paved one.

Upon the girder 2 are mounted at or near the ends of the collector two low standards 5 5^a, through which passes transversely of the car a shaft 15, on which are fastened levers 6 6^a 7 7^a, one end of which is engaged by a short and stiff coil-spring 8, fastened to or mounted in a socket supported by the collector-rail 3, and the other end of which is pivotally connected with a limited amount of free play, to a lug or standard 16, riveted to the flange of the collector-rail. By this construction the collector is permitted a slight vertical play to allow for the irregularities in the surface conductors. On the shaft 15 are mounted levers 9 9^a, rigid with the levers 6, &c., and connecting, respectively, with chains or rods, the free ends of which are connected with an equalizing-bar 10, controlled by a handle 11 on the platform of the car. The motorman is expected to operate this handle when his car leaves the surface-contact system, and thus to raise the collector a safe distance above the ground. When the handle 11 is turned, the bar 10 is moved on its axis and levers 9 9^a are moved to cause the shafts 15 to be rotated,

whereby the levers 6, &c., are moved, compressing the springs 8 and lifting the lugs 16, whereby the entire collector is raised. The handle is then secured in its position as shown in Fig. 1.

In order to reduce the expense of renewal of the collector, I provide it with a removable sole or shoe 12. This may be made in the form of a long channeled bar of steel having a plurality of bolt-holes to register with corresponding holes in the web of the collector-rail 3, and therefore capable of being readily assembled with or disconnected from said rail. By this construction the parts are strongly secured together, a bar of considerable thickness and durability is provided, and the latter can be readily detached when worn out. The manufactured part, such as the angle-iron shown or one of other suitable shape, may be used as the support, the invention consisting in supporting a removable wearing-shoe from a support in substantially the manner shown.

A set-screw 13 in a lug projecting from the standard 5 serves to vary the degree of depression of the collector-shoe, thereby compensating for wear of the parts and promoting the continuance of an effective contact.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination with an electric vehicle, of a collector pivotally suspended therefrom to bear by gravity upon the conductor and yield to slight irregularities in the elevation of the latter, springs independent of the collector-pivots for controlling such movements and means controlled by the motorman for pivotally elevating said collector entirely above the conductor.

2. The combination with an electric vehicle, of a rigid collector-rail or skate therefor, levers mounted on the car, each pivoted to one end of the collector-rail, whereby the latter is pivotally suspended to bear by gravity upon the conductor and yield to slight irregularities in the elevation of the latter, springs independent of the collector-pivots for controlling such movements, a bar or lever pivotally mounted on the car between the ends of the collector-rail, connections between the bar and the levers, and means controlled by the motorman for moving the bar on its pivot.

3. The combination with an electric vehicle, of a collector therefor, supporting-levers 6, 7 pivoted to the car near the ends of the collector, each lever being pivoted at one end to the collector and having yielding connection therewith at its other end, levers formed rigid with the supporting-levers, an equalizing-bar pivoted to the car between the ends of the collector, connections between the levers and the bar, and an operating connection with the bar.

4. The combination with an electric vehicle, of a rigid collector-rail or skate therefor, spring-pressed levers, additional levers from which said collector-rail is pivotally suspended, for moving the collector on its pivots, an equalizing-bar, connections between the additional levers and the bar, and an operating connection with the bar.

5. The combination with an electric vehicle, of a rigid collector-rail or skate therefor, pivotally suspended at its ends therefrom, levers carried by the car for moving the collector on its pivots, an equalizing-bar pivoted to the car between the ends of the collector, connections between the bar and the levers, a handle controlled by the operator, and a connection between the bar and the handle.

6. A collector for surface-contact railways, comprising a T-rail having flanges for the attachment of supporting means, and a wearing-shoe removably socketed with the rail.

7. A collector for surface-contact railways, comprising a rail having a longitudinal rib and a wearing-shoe removably connected therewith.

8. A collector for surface-contact railways, comprising a rail having a longitudinal rib and a grooved steel wearing-shoe inclosing the edge of the rib and bolted thereto.

9. A car-collector, which comprises a T-rail provided with flanges for the attachment of supporting means, and with a longitudinal rib; and a separate grooved wearing-shoe, the rib being removably secured in the groove in said shoe.

10. A car-collector, which comprises a T-rail provided with flanges for the attachment of supporting means, and with a longitudinal rib; and a separate removable wearing-shoe, the rib and shoe being partially inclosed the one by the other, and bolts or the like for attaching one to the other, which bolts pass through both at the point of partial inclosure.

11. A car-collector, which comprises a T-rail provided with flanges for the attachment of supporting means, and a removable wearing-shoe, each part having projections which make a fit with corresponding projections of the other.

12. A collector, which comprises a flanged T-rail having a depending projection, and a wearing-shoe removably secured to the projection.

13. A collector comprising a flanged T-rail, a removable wearing-shoe arranged alongside a depending projection of the rail and projecting below the same, and bolts passing transversely through the lower part of the projection and the upper part of the shoe.

14. The combination with an electric vehicle, of a rigid collector-rail or skate pivotally suspended at both ends from said vehicle, to bear by gravity upon the conductor and yield to slight irregularities with the elevation of the latter, springs independent of the collector-pivots for controlling such movements, and means controlled by the motorman for elevating said collector on its pivots entirely above the conductor.

15. The combination with an electric vehicle, of a rigid collector-rail or skate, two le-

vers pivotally mounted intermediate their ends on the car at opposite ends of the collector, each lever being pivoted at one of its ends to the collector, a spring interposed between the collector and the other end of each lever, and means controlled by the motorman for simultaneously lifting the pivoted ends of both levers.

16. The combination with an electric vehicle, of a rigid collector-rail or skate, two levers mounted intermediate their ends on the car at opposite ends of the collector-rail, each lever being pivoted to the collector-rail at its end which is nearer the end of the collector, a spring interposed between the other end of the lever and the collector-rail, an equalizing-bar pivoted on the car intermediate said levers, operating connections from the suspending-pivots of the levers to the respective ends of the equalizing-bar, and means controlled by the motorman for moving said bar on its pivot.

In witness whereof I have hereunto set my hand this 9th day of June, 1899.

WILLIAM B. POTTER.

Witnesses:

BENJAMIN B. HULL,

MABEL E. JACOBSON.