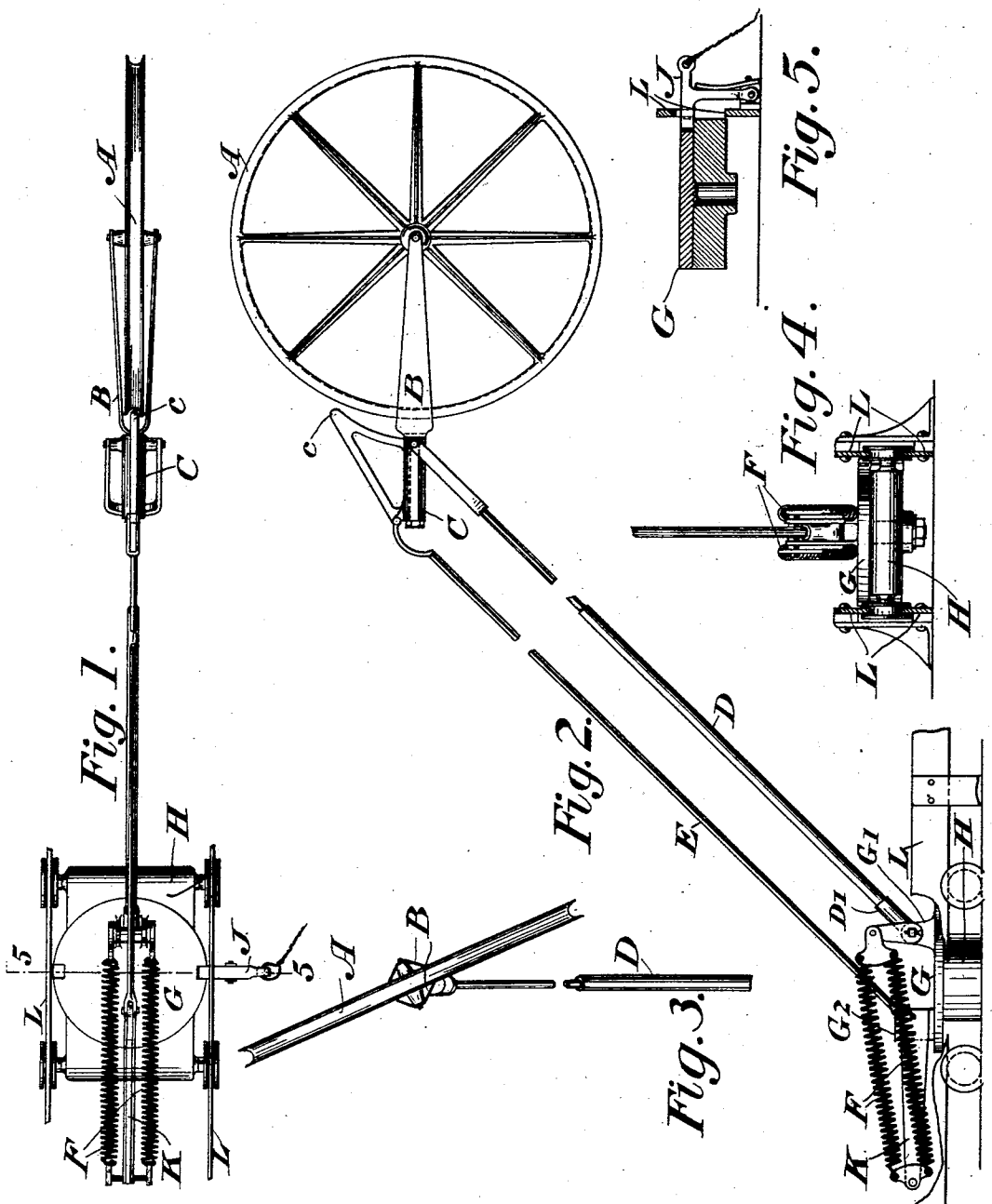
(No Model.) 3 Sheets—Sheet 1.

S. HARRIS.

ELECTRIC TROLLEY DEVICE AND CONDUCTOR CONSTRUCTION THEREFOR.

No. 588,145. Patented Aug. 17, 1897.



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(No Model.) 3 Sheets—Sheet 2.

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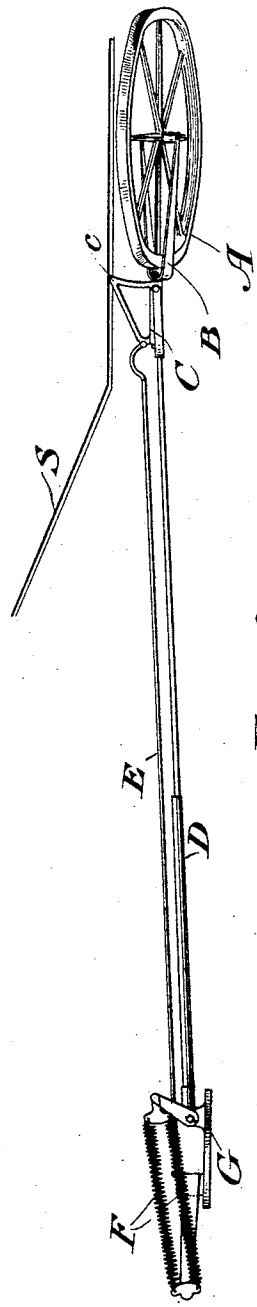

Fig. 6.

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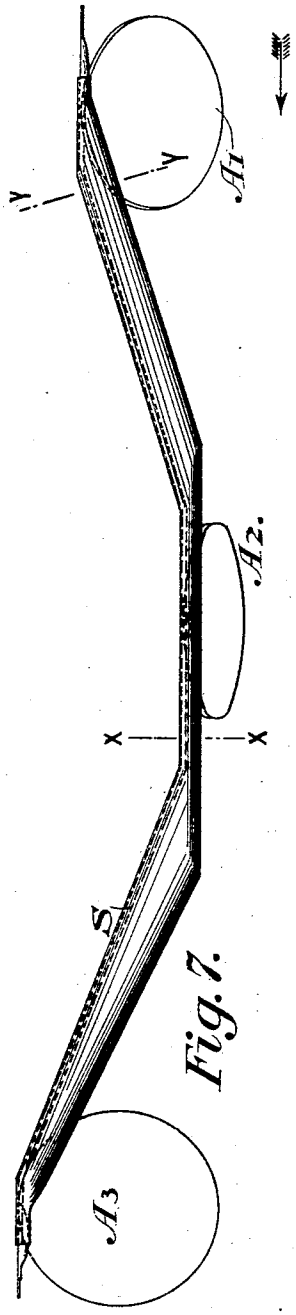

Fig. 7.

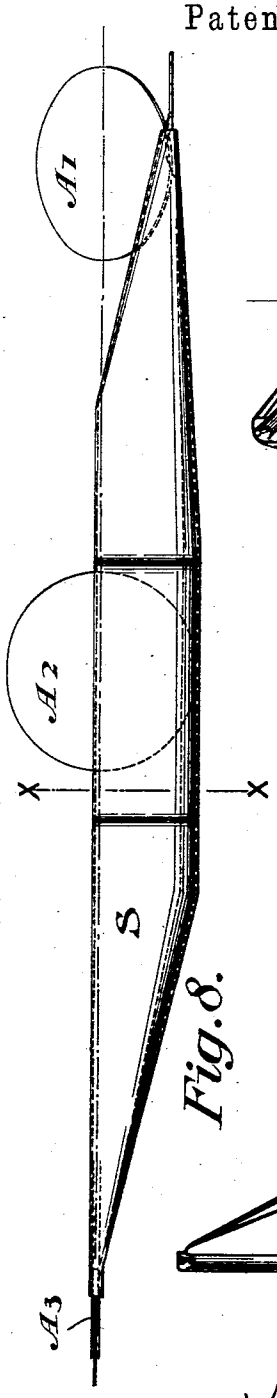

Fig. 8.

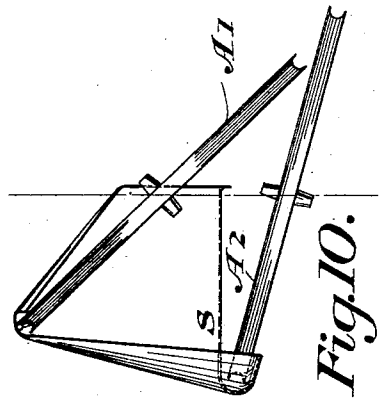

Fig. 10.

Fig. 11.

Fig. 12.

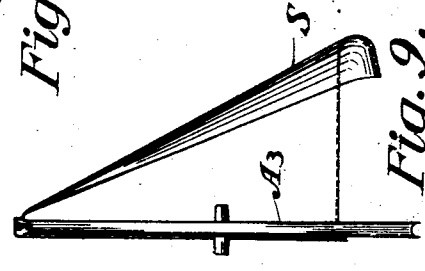

Fig. 9.

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UNITED STATES PATENT OFFICE.

SAMUEL HARRIS, OF JOHNSTOWN, PENNSYLVANIA, ASSIGNOR TO THE STEEL MOTOR COMPANY, OF SAME PLACE.

ELECTRIC TROLLEY DEVICE AND CONDUCTOR CONSTRUCTION THEREFOR.

SPECIFICATION forming part of Letters Patent No. 588,145, dated August 17, 1897.

Application filed January 20, 1897. Serial No. 619,978. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL HARRIS, of Johnstown, Cambria county, Pennsylvania, have invented certain new and useful Improvements in Electric Trolley Devices and Conductor Construction Therefor, of which the following is a specification.

My invention relates to trolley devices of the class adapted to be carried by a moving vehicle to establish contact with a suspended conductor.

The object of my invention is the provision of an improved trolley which shall be more durable and effective than those now known to the art.

To this end my invention has for its central feature the provision of a large contact-wheel horizontally swiveled, so as to follow lateral variations in the position of the conductor by merely turning on its own axis.

My invention also provides an improved conductor connection to adapt such a large wheel to pass under bridges and other places where necessity requires that the conductor should be located close to the roof of the car.

Other features of my invention and the various advantages to be gained thereby will be pointed out hereinafter.

Referring to the drawings, Figures 1 and 2 are respectively plan and side views of my improved trolley. Fig. 3 is a view of the upper part thereof, showing the position of the contact-wheel when turned so as to allow for lateral variation in the position of the conductor. Fig. 4 is an end view of the trolley-base. Fig. 5 is a section of a part of the base on the line 5 5 of Fig. 1. Fig. 6 is a side view of my trolley passing under one of my improved conductor connections. Figs. 7 and 8 are respectively side and plan views of the conductor connections. Figs. 9 and 10 are end views, respectively, of the exit and entrance thereof. Figs. 11 and 12 are sections respectively on the lines Y Y and X X.

Secured to the roof of the car is a longitudinal track L, upon which a truck H is adapted to roll. This arrangement allows me to place the base at any desired longitudinal position, so that contact may be made at or about the center of the car whatever the direction of travel. Vertically pivoted to this track is the turn-table G, upon which the parallel trolley-rods D and E are pivotally secured. The rotary movement of the base and the longitudinal movement of the truck may be locked by the key J, as shown, at any suitable location.

The rod D is secured within the lever-socket D′, which latter is horizontally pivoted between lugs G′ G′ on the top of the turn-table. From one end of D′ the tension-springs F F are secured to a horizontal projection K from G^2, which is another lug extending upward from G. In this manner I may secure the requisite upward pressure at the end of rod D, and therefore between A and the conductor.

The rod E is horizontally pivoted to the lugs G^2.

C is a member to which D and E are pivotally secured and has a cylindrical opening therethrough to receive the swivel end of the yoke B, in which the contact-wheel A is rotatably secured. By pivotally securing the rods D and E in this manner C must always remain in the same position, so that the swivel end of B always remains horizontal. This contact-wheel I prefer to make of aluminium, so that it will not be unduly heavy, and its size is preferably about four feet in diameter. By the use of such a wheel I am enabled to obtain an excellent contact at all times, and because of its comparatively slow rate of rotation the wheels and bearings have a greatly-increased life. Another advantage in the use of such a feature is that I do not need lateral movement of the arm itself, as I have the easier movement of the swiveled yoke to effect the same purpose. The horn *c*, which I prefer to form integral with C, serves as a contact when the trolley is passing under low places, as will be hereinafter described, and also serves as a guard in case the wheel leaves the conductor, the oblique side of the horn *c* being adapted to engage span-wires and lower the trolley without any danger of entanglement therewith.

In Figs. 6 to 12, inclusive, I show the conductor connections I provide for passing my large wheel under bridges and other places. This connection is substantially a single shield S, to which the conductor is secured

at each end. It may be constructed of a number of pieces of sheet-iron, brass, or other suitable material, secured together in any desired manner.

A′ is the contact-wheel as it enters the shield. It is shown, as I prefer to have it, turned at an angle of about forty-five degrees as it enters.

A^2 is the wheel as it is under the bridge, in a car-barn, or other similar locations. In this position the horn *c* becomes the contact portion of the device, as shown in Fig. 6.

A^3 shows the wheel as it emerges from the shield at a preferred angle with the conductor of ninety degrees.

I desire to be understood as not limiting myself to the exact details herein set forth, as many modifications may be made in my improved trolley and in the conductor connection described without departing outside the scope of my invention.

What I claim, and desire to protect by Letters Patent, is—

1. In an electric trolley device, the combination of a base, arms mounted thereon about transverse pivots, and a contact-wheel carried by said arms and adapted to follow lateral variations of the conductor by its own movement about a horizontal axis.

2. In an electric trolley device, the combination of a rotatable base and means for normally preventing it from rotation, arms pivoted to said base, and a contact-wheel carried by the arm and adapted to follow the lateral variations of the conductor by its own movement about a horizontal axis.

3. In an electric trolley device, in combination, a base, parallel arms pivotally secured to said base, means for imparting upward pressure to the outer end of one of said arms, a member pivotally secured to the outer ends of each of said arms, a yoke horizontally swiveled in said member, and a contact-wheel carried by said yoke.

4. In a trolley device for electric vehicles, in combination, a longitudinal track carried by the vehicle, a truck movable along said track and carried thereby, a turn-table carried by said truck, and connections from said truck to the contact portions of the devices.

5. In a trolley device for electric vehicles, in combination, a longitudinal track upon the vehicle, a truck carried thereby, and movable therealong, a table revoluble upon said truck, and means for simultaneously locking the movement of the table and the truck.

6. An electric trolley device comprising, in combination, a pair of arms pivotally secured on a revoluble base, means for imparting upward pressure to the outer end of one of the said arms, a member pivotally secured to said arms in a horizontal position, and a yoke swiveled in said member, and carrying a contact.

7. A conductor connection of substantially hook-shaped sections having inclined end portions and a central horizontal portion, substantially as specified.

8. A conductor connection adapted for use at bridges &c. with trolley devices employing large wheels adapted to make contact with a suspended conductor, having a horizontal portion adapted to be placed under the bridge and inclined portions at each end thereof, connected to the conductor and adapted to turn the contact-wheel to a nearly horizontal position, substantially as set forth.

9. In an electric railway, the combination of a trolley device having a horizontally-swiveled contact-wheel and a horn, as *c*, with a conductor connection adapted to turn the contact-wheel and make contact with the horn.

In testimony whereof I have affixed my signature in presence of two witnesses.

SAML. HARRIS.

Witnesses:
JEWRY KAUFMAN,
H. W. SMITH.