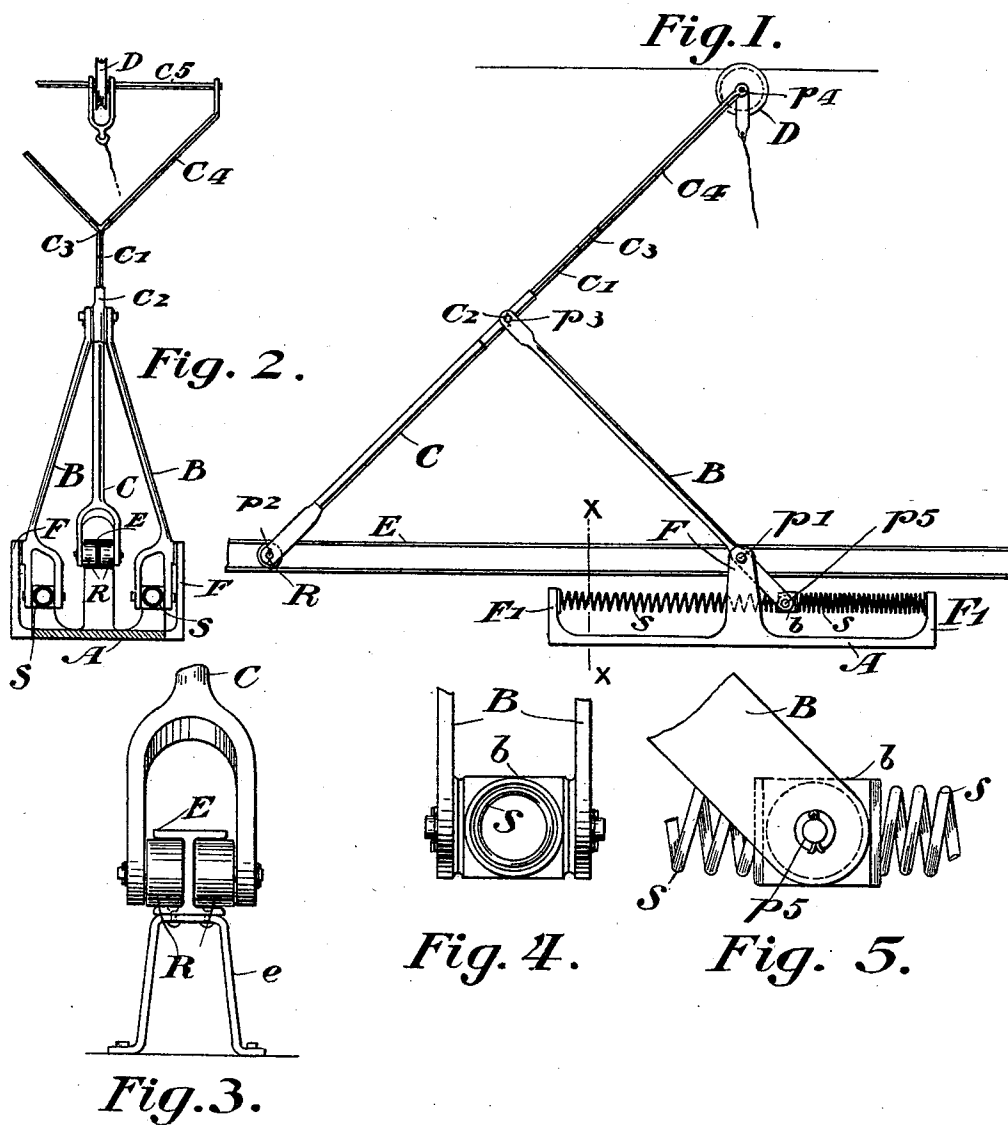


(No Model.)

D. S. SHALLENBERGER.
ELECTRIC CONTACT DEVICE.

No. 588,188.

Patented Aug. 17, 1897.



WITNESSES:

M. S. Sharpe
H. C. Stiff

INVENTOR
D. S. Shallenberger
BY
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UNITED STATES PATENT OFFICE.

DAVID S. SHALLENBERGER, OF JOHNSTOWN, PENNSYLVANIA, ASSIGNOR
TO THE STEEL MOTOR COMPANY, OF SAME PLACE.

ELECTRIC CONTACT DEVICE.

SPECIFICATION forming part of Letters Patent No. 588,188, dated August 17, 1897.

Application filed January 30, 1897. Serial No. 621,367. (No model.)

To all whom it may concern:

Be it known that I, DAVID S. SHALLENBERGER, of Johnstown, Cambria county, Pennsylvania, have invented certain new and useful Improvements in Electric Trolleys, of which the following is a specification.

My invention relates to that class of trolleys adapted to be carried by a moving vehicle to make contact with a suspended conductor, and has for its object the provision of a simple and effective trolley having various advantageous features, as will be hereinafter pointed out.

To this end my invention consists in the novel construction, arrangement, and combination of parts, as hereinafter described and claimed.

Referring to the drawings, Figure 1 is a side view of a trolley embodying my improvements. Fig. 2 is an end view of the same, partly in section. Fig. 3 is an enlarged end view of the lower part of the arm C and contiguous parts. Fig. 4 is an enlarged section on the line xx of Fig. 1. Fig. 5 is an enlarged side view of the lower end of one of the B arms and contiguous parts.

The arms B B are transversely pivoted near their lower ends to the parallel upwardly-extending flanges F F of the base-plate A. The converging upper ends of arms B B are pivotally secured to each other and to the double socket C².

C and C' are arms, preferably of metallic tubing, within opposite ends of the socket C².

The lower end of socket C² is forked and carries the pivotally-secured rollers R R, adapted to roll, as shown, between the flanges of an I-beam E, which extends longitudinally with the vehicle and is supported from the base and the roof of the vehicle by suitable supports, &c.

Secured to C' by the connector C³ are the diverging arms C⁴, carrying between them a transverse shaft C⁵, upon which a movable contact-maker, as D, is adapted to slide to adjust itself to lateral variations in the position of the conductor.

S S are springs suitably secured at their ends to the flanges F' F' on the base A. Secured to each spring is a block b , connected to the forked lower end of one of the B arms by

a pin b^5 . By this arrangement one end of each spring becomes a compression member and the other end a tension member. When the contact-carrying arm is reversed, the former compression end of the spring becomes the tension-spring.

For the purpose of keeping the contact-maker over the center of the car I construct my device with the distances p^3 to p^2 , p^3 to p' , and p^3 to p^4 substantially equal.

It will be seen that a trolley constructed according to my invention will make contact with the conductor in any of the positions it ordinarily assumes; that the contact-maker is kept over the car, so that it is not necessary to place the conductor out of the central position over curves or to reverse the position of the trolley when reversing the direction of travel; that the device, being simple in construction and having few small or delicate parts, is extremely durable, and that the contact-maker can be lowered very close to the top of the vehicle to go under bridges and other low places in the conductor construction.

I do not limit myself to the exact details herein described and shown, as many modifications may be made without departing from the scope of my invention.

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

1. In an electric trolley, the combination of a contact-carrying arm longitudinally movable at its lower end in a fixed horizontal plane, with an upwardly-spring-pressed arm pivotally secured to the contact-carrying arm and adapted to transmit the upward pressure to the outer end thereof.

2. In an electric trolley, in combination, a member movable in a vertical plane, means for imparting upward pressure to the outer end of said member, a contact-carrying arm pivotally secured to said outer end and means for retaining the lower end of said arm in a fixed horizontal plane.

3. In an electric trolley, in combination, a member movable in a vertical plane, means for imparting upward pressure to the outer end of said member, a contact-carrying arm

pivottally secured at about its longitudinal center to the outer end of said member, said arm being substantially twice the length of said member, and means for retaining the lower end of said contact-carrying member in a fixed horizontal plane.

4. In an electric trolley, in combination, an upwardly-pressed member, a contact-carrying arm, a pivoted connection between the outer end of said member and the longitudinal center of said arm, and a longitudinal track along which the lower end of said arm is adapted to move and by which said end is retained in a fixed horizontal plane.

5. In an electric trolley, in combination, a contact-carrying arm provided with rollers at its lower end, a track along which said rollers are adapted to roll, and an upwardly-pressed member pivottally secured near its outer end to the longitudinal center of said arm.

6. In an electric trolley, in combination, a longitudinal track, a contact-carrying arm provided with rollers adapted to engage said track, a member movable about a transverse axis and pivottally secured to the longitudinal

center of said arm, and spring connections to said member at a point below said axis.

7. In an electric trolley, in combination, a base, a member pivottally secured thereto and movable in a vertical plane, a contact-carrying arm pivottally secured to the outer end of said member a transverse shaft upon one end of said arm and a contact-maker movable along said shaft, and means for retaining the lower end of said arm in a fixed horizontal plane.

8. In an electric trolley, in combination, a longitudinal I-beam, a contact-carrying arm carrying rollers at its lower end adapted to engage the sides of said I-beam, a member pivottally secured at its outer end to said arm, and means for imparting upward pressure to the outer end of said member.

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

DAVID S. SHALLENBERGER.

Witnesses:

R. H. DUNHAM,

H. W. SMITH.

It is hereby certified that Letters Patent No. 588,188, granted August 17, 1897, upon the application of David S. Shallenberger, of Johnstown, Pennsylvania, for an improvement in "Electric Contact Devices," an error appears in the printed specification requiring correction, as follows: On page 1, line 51, the reference letter "*b*⁵" should be *p*⁵; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 31st day of August, A. D., 1897.

[SEAL.]

WEBSTER DAVIS,
Assistant Secretary of the Interior.

Countersigned:

BENJ. BUTTERWORTH,
Commissioner of Patents.