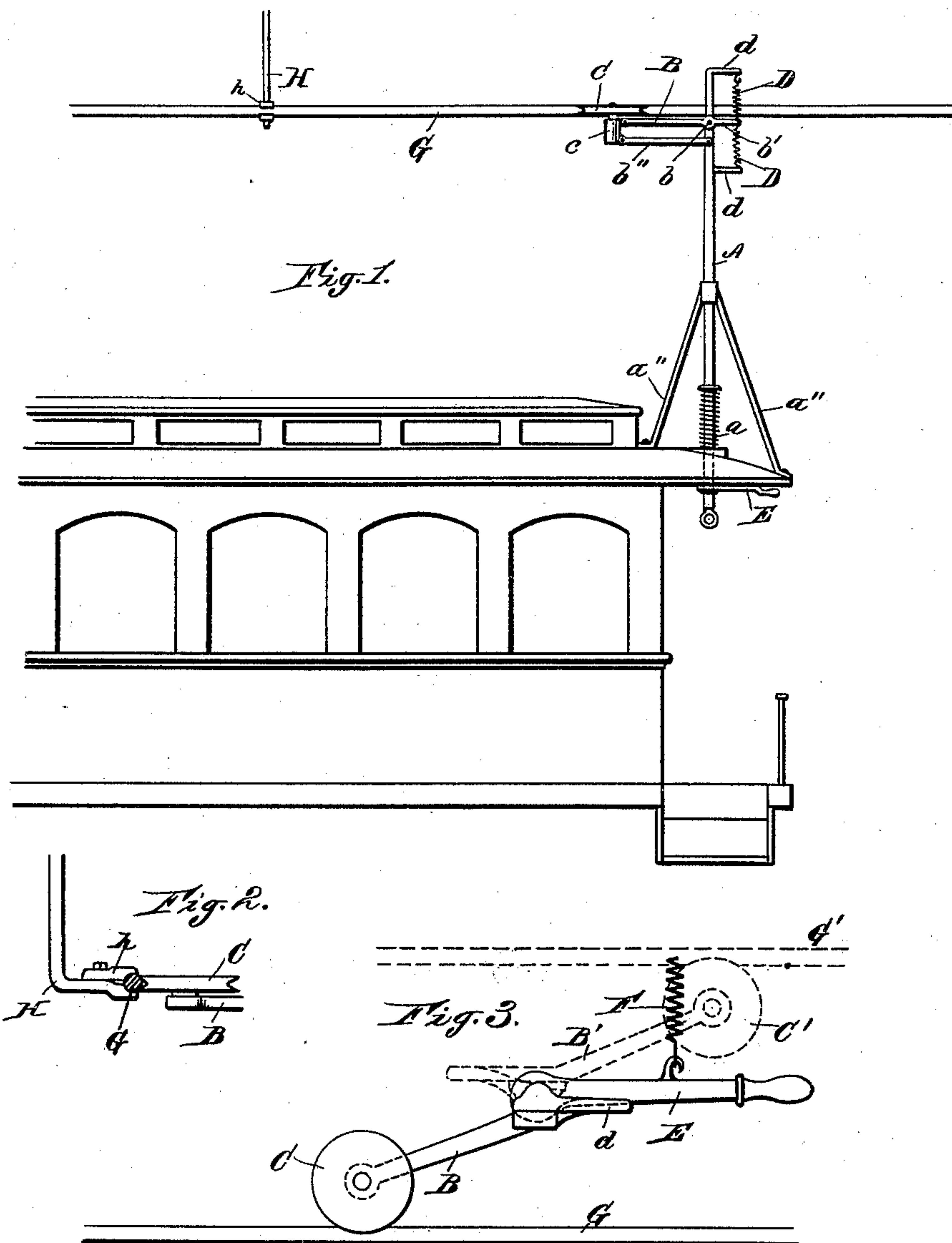


(No Model.)

F. E. FISHER.
CONTACT DEVICE FOR ELECTRIC RAILWAYS.

No. 405,544.

Patented June 18, 1889.



Attest.
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UNITED STATES PATENT OFFICE.

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CONTACT DEVICE FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 405,544, dated June 18, 1889.

Application filed February 15, 1889. Serial No. 300,000. (No model.)

To all whom it may concern:

Be it known that I, FRANK E. FISHER, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Contact Devices for Electric Railways; and I declare the following to be a full, clear, and exact description of the invention, such as it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to certain new and useful improvements in contact devices for electric railroads, and more particularly to that class of devices employing a traveling contact-pulley adapted to travel along the conducting-wire suspended above the line of travel of the car.

The objects of my invention are, first, to provide an improved contact device of such construction that the traveling contact will bear against the conductor, the arrangement being such that the contact-pulley will pass freely along the conductor and will not be liable to catch or to be stopped in its progress, and at the same time will form a positive contact with the conductor, and, second, to provide an improved contact device for electric railways of such construction that the traveler will be permitted to yield vertically to accommodate any sagging of the conductor, said traveler having a bearing against the conductor, and being adapted to be thrown into and out of contact with the conductor by means of a suitable appliance within the reach of the operator.

The various features of my invention will be more fully described and pointed out in the following specification and claims.

In the drawings, Figure 1 is a side elevation of a car with my improved contact device applied thereto. Fig. 2 is a detail view showing the manner in which the traveler bears against the wire. Fig. 3 is a plan view illustrating the means for maintaining contact between the traveler and the conducting-wire.

A represents a suitable standard or support, preferably passing through the roof of the car, as shown, and having at its upper end a suitable lateral arm B, carrying at one end a contact-pulley C. The arm B is preferably

pivoted to the standard A, as shown at *b*, and provided with an arm *b'* upon the opposite end from the contact-pulley.

D D are springs extending from lateral arms *d d* upon the standard A to the extremity of the arm *b'*. These springs are adjusted to support the arm which carries the contact-pulley in a substantially horizontal position, but at the same time they permit the said arm to yield vertically to accommodate any sagging of the conducting-wire.

The standard A is provided with a spring or other suitable mechanism *a*, preferably at the point where it passes through the roof of the car. This mechanism is of sufficient strength to support the weight of the standard A and the various parts connected thereto; but in case of a greater sagging of the wire than will be accommodated by the lateral arm B the grip of the pulley upon the wire will be sufficient to cause the spring or other device to yield and permit the standard to lower to allow the contact-pulley to follow the wire, and as soon as the sagging portion is passed the spring will return the standard to its normal position. Beneath the roof and within reach of the operator is located a lever E, said lever being connected to the lower extremity of the standard. By means of this lever the operator may turn the standard A so as to throw the contact-pulley away from the conducting-wire, thus breaking the contact. A spring F serves to return the handle to its normal position as soon as it is released by the operator, thus causing the standard to rotate and again bring the contact-pulley into contact with the wire.

Any suitable braces or stays may be provided to stiffen and support the standard A—as, for instance, those shown in Fig. 1 at *a''*.

The contact-pulley C may be mounted directly upon the arm B, or, as shown in Fig. 1, an additional arm *b''* may be provided, said arm being pivotally connected at one end to the standard and at the other end to the step-block *c*, the arm B being also pivotally connected to said step-block, the pulley being mounted upon the block *c*. The operation of this device is to keep the contact-pulley in a horizontal position, whether the arm B be raised or lowered, to permit the contact-pulley to follow the conducting-wire.

I am aware that various devices for forming electrical contact with overhead wires have been made; but in all such devices the traveling contact-pulley is liable either to become caught upon the wire, thus endangering the entire apparatus, or, where the said pulley is mounted at the top of a long swinging arm supported upon the car, the contact is liable to be broken by the motion of the car and the consequent vibration of the arm. My device is designed to overcome these difficulties and to afford a contact with the overhead wire which shall be at once positive and at the same time sufficiently yielding to permit the pulley to follow the wire in any slight deviation from a straight line. The wire G is supported in the hanger H, which is provided with a clamp *h* to firmly retain the wire in position and at the same time to leave it partly exposed, so as to permit an uninterrupted contact between the contact-pulley and the wire.

In order to adapt this device for use in connection with parallel conductors, it is only necessary to provide an arm B', (shown in dotted lines in Fig. 3,) upon which arm is mounted an additional contact-pulley C'.

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

1. In an overhead contact for electric railways, a traveling contact device adapted to form a contact against the side of the conductor, said contact device being supported upon a yielding horizontal arm pivotally sup-

ported at the top of a suitable standard or post, and in connection therewith mechanism for maintaining contact between the said contact device and the conductor, substantially as described.

2. In an overhead contact for electric railways, the combination, with the conductor supported in suitable hangers adapted to expose the side of said conductor, of a traveling contact device adapted to form a contact with the side of said conductor, said contact device being supported upon a yielding arm pivoted to the top of a suitable standard or post, substantially as described.

3. In an overhead contact device for electric railways, a traveling contact-pulley mounted upon a suitable lateral arm, said arm pivotally connected upon the upper end of a suitable standard and provided with suitable springs for maintaining said lateral arm in a substantially horizontal position and at the same time to permit said arm to yield vertically, and in connection therewith suitable means for permitting the standard to rise and lower upon the car, and suitable means for throwing the contact-pulley into and out of contact with the conducting-wire, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

FRANK E. FISHER.

Witnesses:

JOHN E. WILES,

H. WARD NOBLE.