(No Model.)

R. W. HAWKESWORTH.

OVERHEAD CONTACT AND SWITCH.

No. 419,771. Patented Jan. 21, 1890.

Fig. 1.

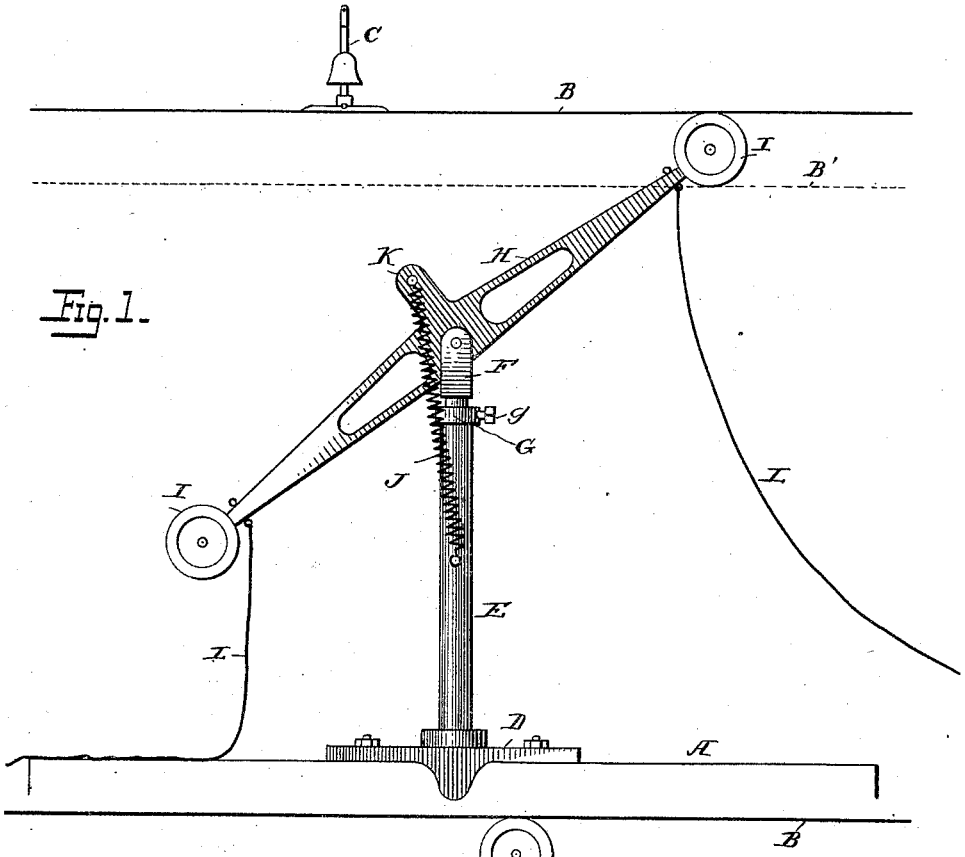
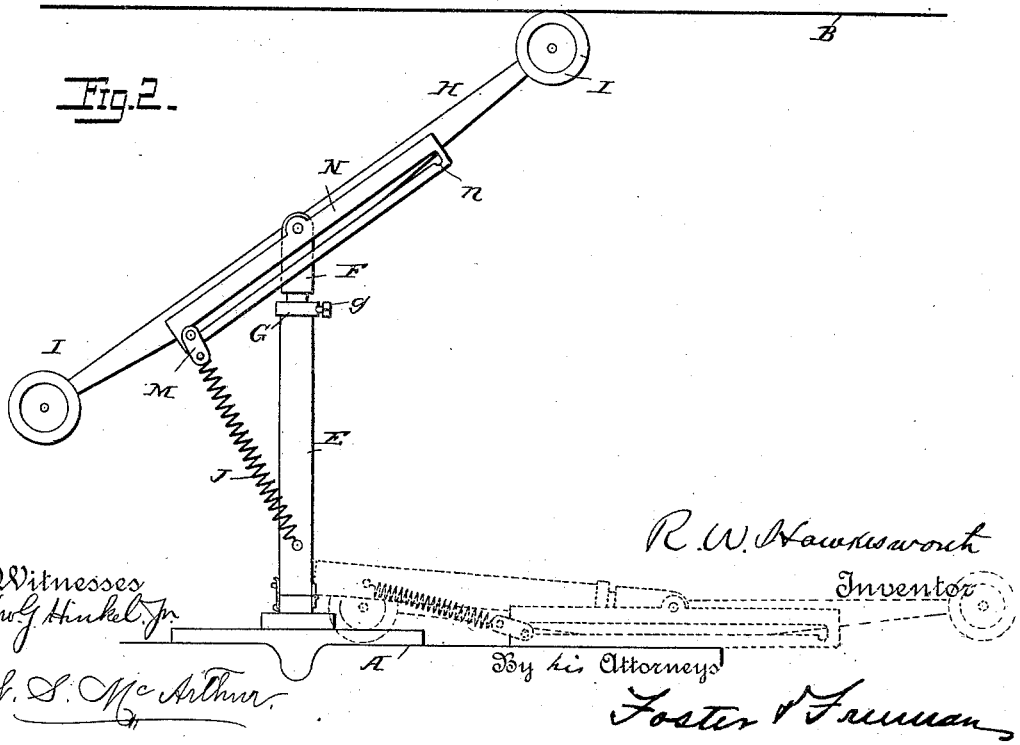


Fig. 2.



Witnesses
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Inventor
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UNITED STATES PATENT OFFICE.

ROBERT W. HAWKESWORTH, OF EAST ORANGE, NEW JERSEY.

OVERHEAD CONTACT AND SWITCH.

SPECIFICATION forming part of Letters Patent No. 419,771, dated January 21, 1890.

Application filed October 14, 1889. Serial No. 326,993. (No model.)

To all whom it may concern:

Be it known that I, ROBERT W. HAWKESWORTH, a citizen of the United States, and a resident of the township of East Orange, Essex county, and State of New Jersey, have invented certain new and useful Improvements in Overhead Contacts and Switches, of which the following is a specification.

My invention relates to electric railroads, and more particularly to the trolleys adapted to be connected with the car and to bear against a conductor of electricity and convey the current from said conductor to the motor on the car, and it has for its object to improve and better the construction and arrangement of such trolleys, so that they may be better adapted for the purposes described; and to these ends my invention consists in a trolley constructed and arranged substantially as hereinafter set forth.

Referring to the accompanying drawings, Figure 1 is a side view of a trolley embodying my invention and represented as mounted on the top of a car, and Fig. 2 is a similar view of a modified form.

In the operation of electric railways it is common to arrange an electric conductor along the track supported upon suitable insulators, and this conductor is charged with an electric current from some suitable source, preferably at the terminals or other stations on the road. The car traveling on the track carrying the electric motor is usually provided with some means of making traveling electrical connection with the conductor, and my present invention relates more particularly to such means of connection between the car and the charged conductor.

In the accompanying drawings, A represents a portion of the car, (shown in the present instance as being the top of such car,) and B represents a conductor supported in suitable insulators C of any desired construction. Mounted upon the car is the base-piece D, from which rises an upright or post E, having at its upper end a block F, preferably fitting into a socket in the post E, so that it can be turned laterally therein. In many instances I find it convenient to provide means for adjusting the height of the block F, and while this may be done in many ways I have shown a collar G, surrounding the block and having a set-screw *g*, by means of which the collar may be slid upon the lower portion of the block and form a bearing on the standard or post E. Mounted in the block in any suitable way, it being shown as bifurcated or U-shaped at its upper portion, is a double-ended arm H, pivoted so that it may be rocked or tilted in the block. The extremities of this arm are provided with some sort of contact device I, suitable for the particular purpose for which it is to be used, the drawings showing revolving rollers of the ordinary construction, and these contact devices are connected electrically with the motor or other apparatus on the car in a manner well understood and not necessary to be illustrated specifically. These contact devices are adapted to bear upward against a conductor, downward upon a conductor, or to make contact in any other manner suitable to take current from the conductor and transmit it to the electrical devices on the car. Connected to the double-ended arm is some suitable means to maintain one of the contact devices in contact with the conductor, and I have shown in Fig. 1 a spring J, connected to a projection K on the arm and to the post E in such a manner that whichever end of the arm is raised the spring will tend to maintain it in such position. Some means must be provided for tilting or rocking the double-ended arm, so that the ends thereof, respectively, may be placed in contact with the conductor, as required, and I have shown cords L, attached to the ends and adapted to be operated to tilt the arm, so that the contact device will bear upon the conductor in the proper manner, whichever direction the car may be moving.

In Fig. 2 I have shown the spring J connected to a block or weight M, which is arranged to slide in a slot in the plate N, attached to the double-ended arm, and this slot has recesses *n* at its extremities to better hold the block in position. The weight of the block M assists the spring in maintaining the arm in contact with the conductor. When, however, the contact device bears upon the upper side of the conductor, as shown in dotted lines B′, the spring should be made so as to push instead of draw upon the arm.

It is often advantageous to provide some means whereby the standard can be lowered for the purpose of passing under bridges or other obstructions and be laid along the body of the car when not in use, and for this purpose I have shown the standard E as hinged near its bottom and adapted to be tilted over, so as to be laid practically horizontal, as shown in dotted lines, Fig. 2; or it may be supplied with means for tilting it and holding it at any intermediate position in a manner well understood. The double-ended arm being, preferably, practically balanced on its pivot, requires very little tension upon the spring to hold it in position, and it being thus elastically held it will accommodate itself more easily to variations in the position of the conductor or changes of the relations between the conductor and car, the resiliency of the spring between the arm and post serving to maintain the contact devices in proper position, and the block supporting the arm being free to rotate on its axis to a greater or less extent allows the arm to follow the conductor in passing curves, corners, &c., without danger of derailment of the contact device.

It is evident from the above that the invention is not limited to the precise construction of the double-ended arm or supporting devices shown, as they may be varied to suit the requirements of any particular case without departing from the spirit of my invention.

I claim as my invention—

1. A trolley for electric railroads, consisting of a double-ended arm carrying contact devices at each end, substantially as described.

2. A trolley for electric railroads, consisting of a pivoted double-ended arm carrying contact devices at each end, and means for maintaining either end in contact with the conductor, substantially as described.

3. A trolley for electric railroads, consisting of a pivoted double-ended arm carrying contact devices at each end, and a spring for maintaining the arm in contact with the conductor, substantially as described.

4. A trolley for electric railways, consisting of a pivoted double-ended arm carrying contact-pieces at each end, an adjustable support for the arm, and a spring for maintaining the arm in contact with the conductor, substantially as described.

5. The combination, with a pivoted trolley-arm for electric railways, of a standard supporting the same, the said standard being made in sections and arranged to be thrown into and out of position, substantially as described.

6. The combination, with a standard, of a pivoted double-ended trolley, a spring for holding the trolley in position, and a slotted slide to receive the end of the spring, substantially as described.

7. The combination, with a standard, of a double-ended pivoted trolley carrying contact-pieces at each end and supported in the standard, connections with the ends for tilting the trolley, and means for holding the trolley in tilted position, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ROBERT W. HAWKESWORTH.

Witnesses:
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APPLETON D. PALMER.