

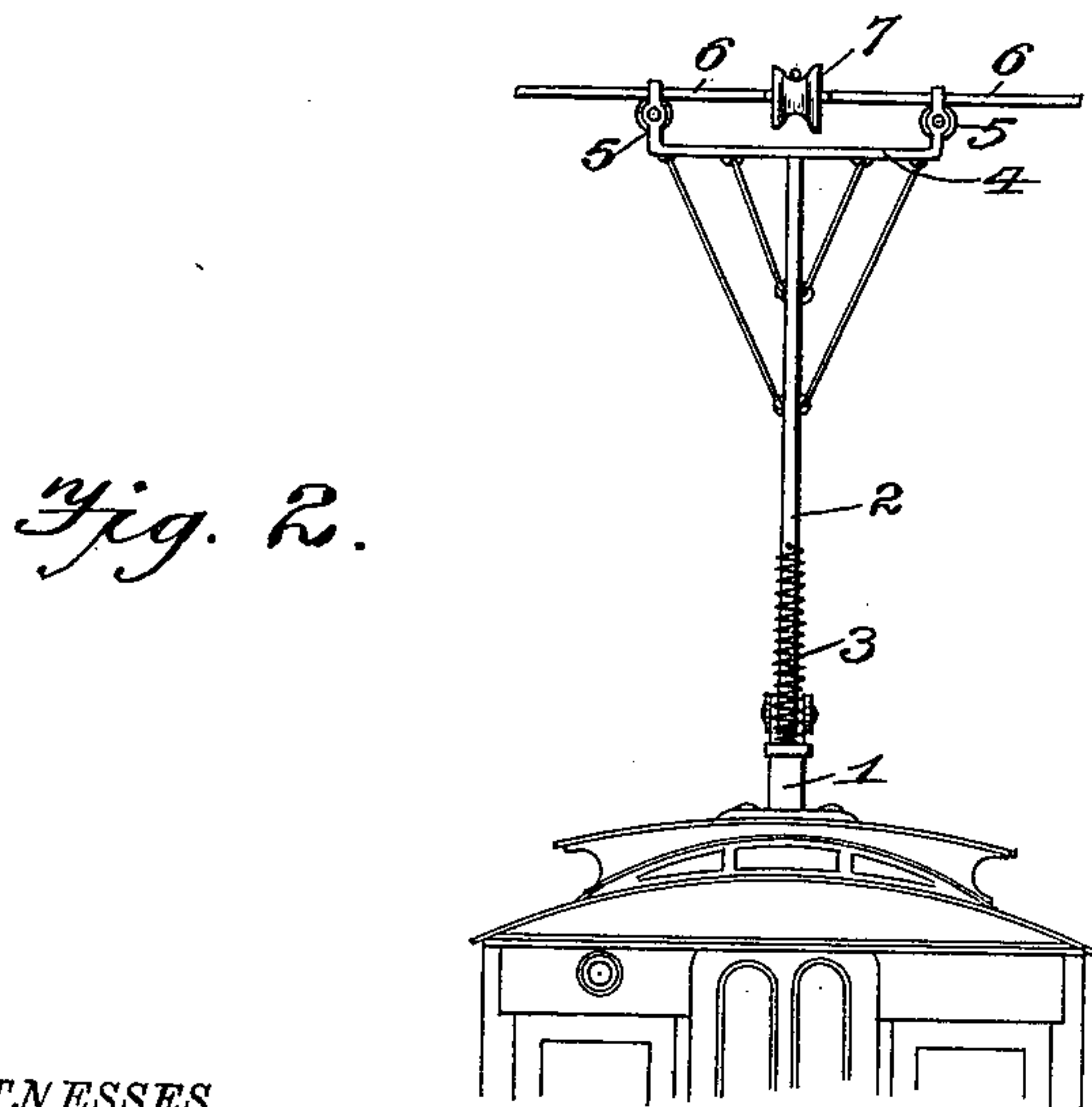
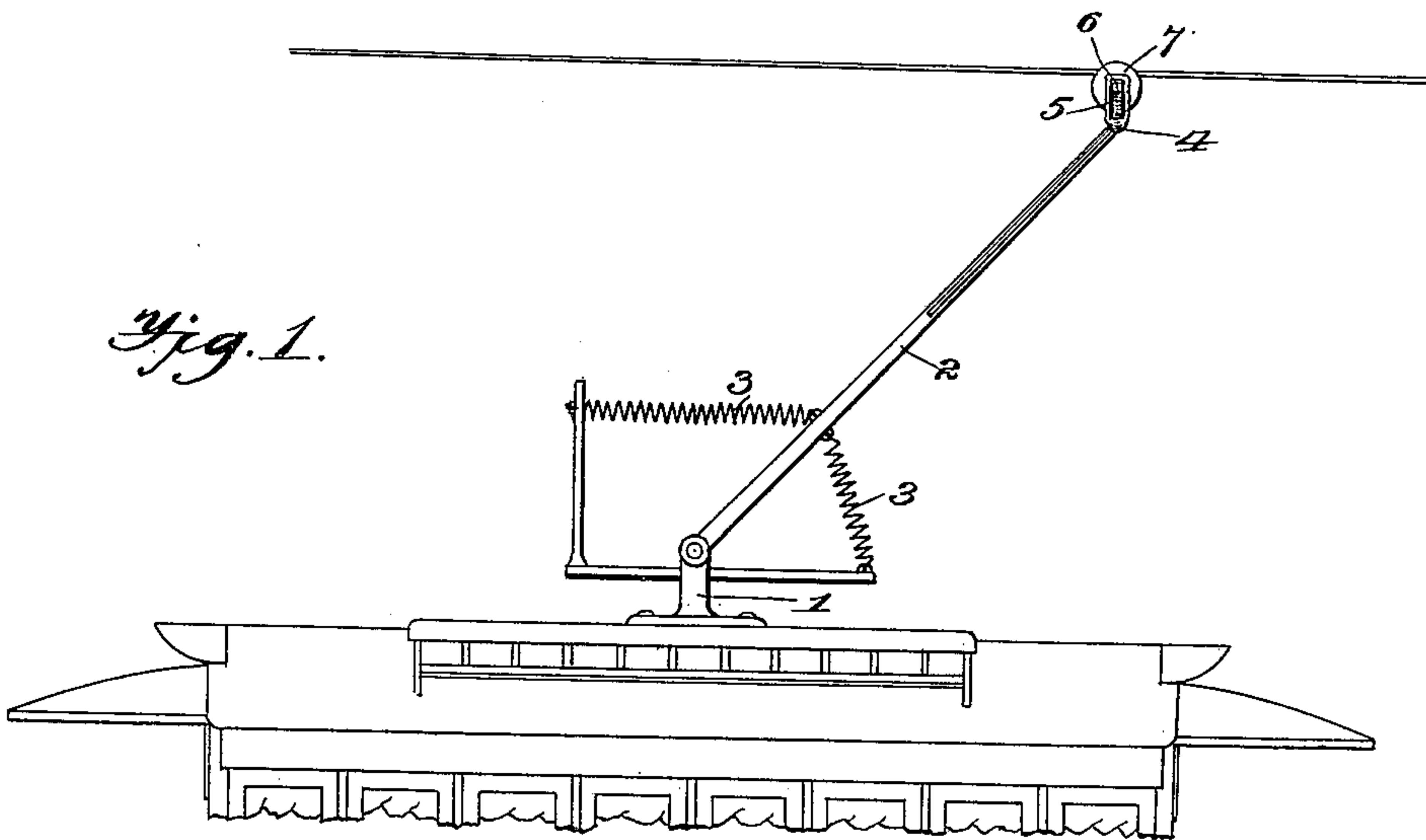
No. 613,181.

Patented Oct. 25, 1898.

J. WALSH.  
TROLLEY POLE.

(Application filed Nov. 2, 1896.)

(No Model.)



WITNESSES

*C. E. Hunt*  
*L. W. Sweepbridge*

INVENTOR

*John Walsh*  
*by John Wedderburn*  
Attorney

# UNITED STATES PATENT OFFICE.

JOHN WALSH, OF ELYRIA, OHIO.

## TROLLEY-POLE.

SPECIFICATION forming part of Letters Patent No. 613,181, dated October 25, 1898.

Application filed November 2, 1896. Serial No. 610,835. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN WALSH, a citizen of the United States, residing at Elyria, in the county of Lorain and State of Ohio, have  
5 invented certain new and useful Improvements in Trolley-Poles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it ap-  
10 pertains to make and use the same.

This invention has reference to a novel construction in a trolley-pole for electric cars; and it consists in the features of construction hereinafter fully described and specifically  
15 claimed.

In the accompanying drawings, illustrating this invention, Figure 1 is a side elevation of the upper portion of a car provided with these improvements. Fig. 2 is an end elevation of  
20 the same.

Referring now to said drawings, 1 indicates a support or post upon the roof of the car, having the pivoted trolley-pole 2, which is under the influence of the counterbalancing-  
25 springs 3. The said post 1 is firmly secured to the roof of the car, while the pivotal connection between the pole and said post permits the pole to swing up vertically and in alinement with the center of the car. The  
30 said pole is preferably made of spring-steel and tapers toward its outer end, where it is provided with a cross-head 4, suitably braced thereto. The said cross-head 4 is provided at its ends with fingers 5, in the outer ends of  
35 which are guide-openings to receive a sliding rod 6. The said guide-openings and rod are preferably square, with the exception that the latter has a circular bearing portion midway between the ends thereof upon which the  
40 trolley-wheel turns.

It will be seen from the foregoing description that I provide a trolley-pole which effectually prevents the trolley-wheel from leaving the wire, since the sliding rod 6 moves  
45 transversely to the car to conform to the varying distances in rounding curves, &c., so as to keep the wheel always upon the wire. The said trolley-wheel should be a little larger than those used at present, for the purpose of  
50 preventing the ends of the sliding rods from coming in contact with the span-wires. It will be noted, further, that should the trolley-wheel leave the wire said wire is caught by the rod 6, which completes the circuit.

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

1. The combination with a car, of a pivoted trolley-pole provided at its upper end with a sliding rod movable transversely with relation  
60 to the trolley-pole, and a rotatable trolley-wheel carried by said sliding rod and through which said rod extends and which is incapable of longitudinal movement thereon.

2. The combination with a car, of a pivoted  
65 trolley-pole provided at its upper end with a cross-head having guides, a sliding rod situated within said guides, and a rotatable trolley-wheel through which said rod extends.

3. The combination with a car, of a pivoted  
70 trolley-pole provided at its upper end with a cross-head having guides, a sliding rod situated within said guides, and a rotatable trolley-wheel through which said sliding rod extends, said trolley-wheel and rod being im-  
75 movable longitudinally with relation to each other.

4. The combination with a car, of a pivoted trolley-pole provided at its upper end with a cross-head having guides, antifriction-rollers  
80 in the lower ends of said guides, a sliding rod situated within said guide, and a rotatable trolley-wheel through which said rod extends.

5. The combination with a car, of a pivoted trolley-pole provided at its upper end with a  
85 cross-head having guides, a sliding rod situated within said guides and incapable of axial rotation, and a rotatable trolley-wheel situated about midway between the end of said rod and through which said rod extends and  
90 which is incapable of longitudinal movement thereon.

6. The combination with a car, of a pivoted trolley-pole provided at its upper ends with a sliding rod movable transversely with relation  
95 thereto, curved fingers at the ends of said rod, and a rotatable trolley-wheel carried by said rod and incapable of longitudinal movement thereon.

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

JOHN WALSH.

Witnesses:

S. A. OSBORNE,  
HENRY FORDL.