

(No Model.)

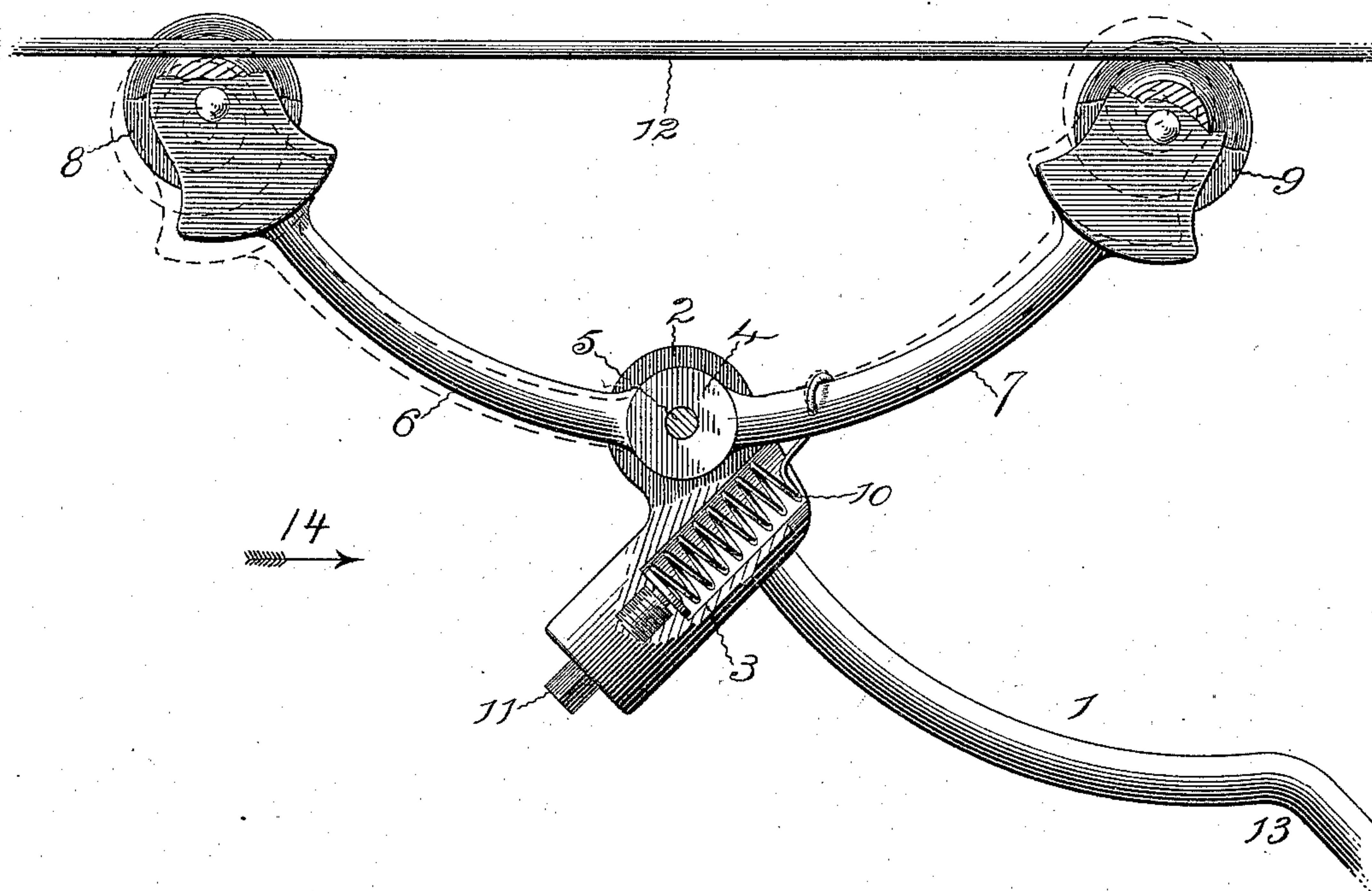
2 Sheets—Sheet 1.

J. H. RABBITT.  
TROLLEY.

No. 558,741.

Patented Apr. 21, 1896.

*Fig. 1*



Witnesses

*C. E. Stuart and*

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Inventor  
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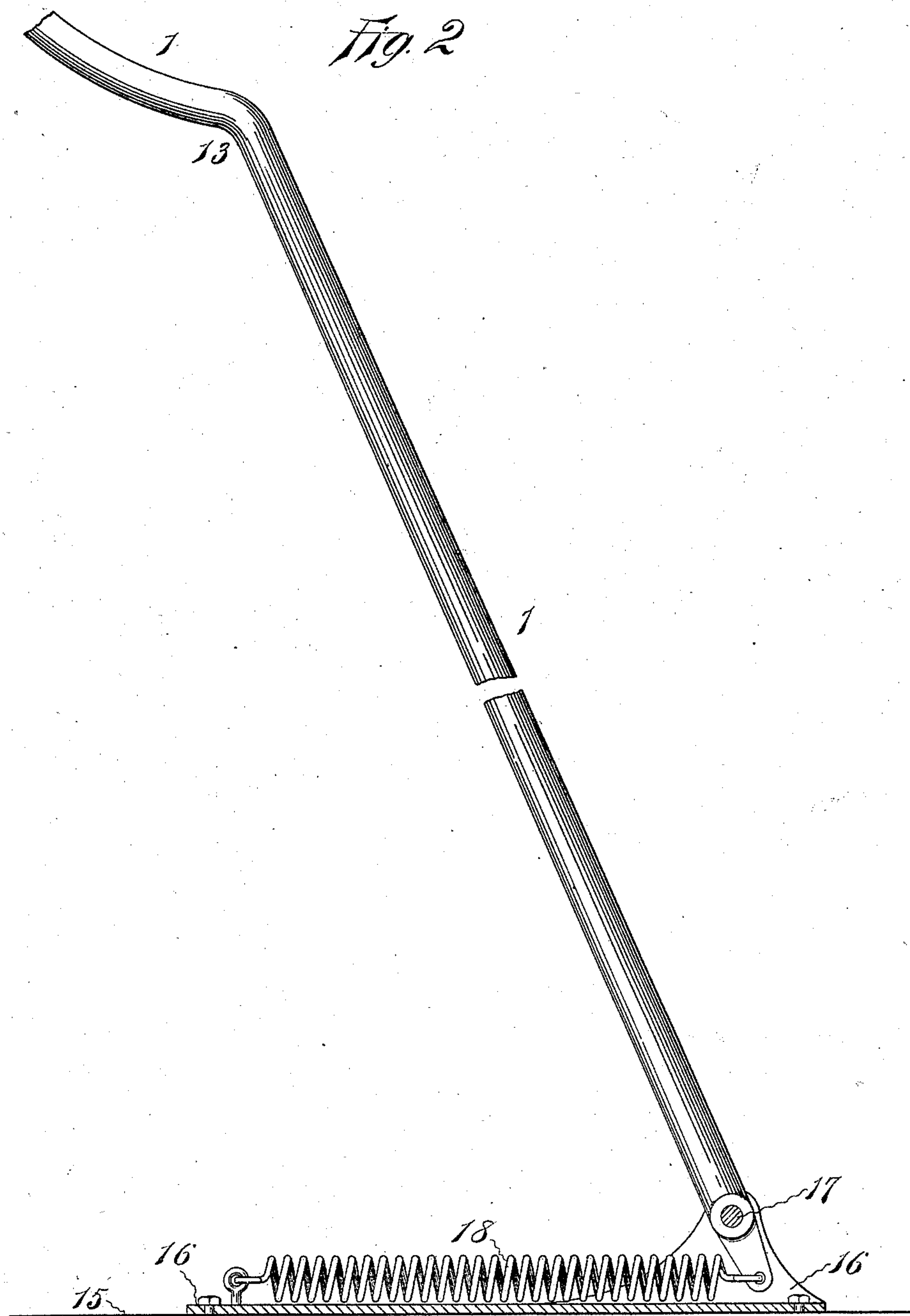
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*Inventor.*

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# UNITED STATES PATENT OFFICE.

JAMES H. RABBITT, OF WETHERSFIELD, CONNECTICUT, ASSIGNOR OF  
ONE-HALF TO DANIEL F. MURPHY, OF SAME PLACE.

## TROLLEY.

SPECIFICATION forming part of Letters Patent No. 558,741, dated April 21, 1896.

Application filed October 10, 1895. Serial No. 565,256. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES H. RABBITT, of Wethersfield, in the county of Hartford and State of Connecticut, have invented certain  
5 new and useful Improvements in Trolleys, which improvements are described in the following specification and are illustrated by the accompanying drawings.

My invention relates to that class of trolleys which are used in electric railroading for the purpose of maintaining a closed-circuit connection between the motor which is carried by the car and the trolley-wire which accompanies the track. The same relates more  
15 particularly to mechanism which is attached to the free end of a trolley-pole for the purpose of maintaining a continual electrical contact between the trolley-pole and the trolley-wire.

It is the object of my invention to render such contact certain and constant. To accomplish this object I use a trolley-pole, which is mounted upon the car in the usual manner; a bar, which is centrally pivoted to the  
25 free end of the trolley-pole; two contact-wheels, which are carried by the opposite ends of said bar, respectively, and an adjustable spring acting between such bar and trolley-pole.

With reference to these structural elements it is the particular object of my invention, first, to secure such an alternative action of the two contact-wheels that both of them cannot leave the wire at one and the same time,  
35 and, second, to impart to one of those wheels an unusual sensitiveness and promptitude in following the ups and downs of the wire.

The best mode in which I have contemplated applying the principles of my invention is illustrated by said drawings, in which—

Figure 1 is a side elevation of my improved trolley in operative contact with a trolley-wire. Only the upper portion of the trolley-pole is shown in this figure, and parts of the  
45 mechanism are removed for the purpose of showing the construction. Fig. 2 is a like elevation of the lower portion of the trolley-pole with its attachments.

In the drawings, the numeral 1 denotes the  
50 trolley-pole, which is of any ordinary con-

struction, and for convenience may be bent at 13 and above, as shown.

The numeral 15 in Fig. 2 denotes the top of an electric car, to which bracket 16 is attached in the usual manner. In this bracket  
55 pole 1 is fixed in the usual vibratory manner by pivot 17, and is provided with a spring or set of springs 18, tending to raise the free end of the pole toward the trolley-wire 12, all in the usual manner. 60

The actuating-spring 18 may be formed and applied in any preferred manner for the purpose of imparting to pole 1 the necessary tendency toward a vertical position.

The free end of pole 1 is split so as to have  
65 two parallel cheeks 2, of which but one is shown in the drawings. Between these two cheeks is pivoted, by pin 5, a crescent-shaped or bent bar 4, having two arms 6 and 7, to whose free ends are pivoted in the usual manner two peripherally-grooved contact-wheels  
70 8 and 9, respectively. Pole 1 is also provided with a socket 3, which is located just below cheeks 2 in the position shown. In this socket is seated a spring 10, which is attached to arm 7, is provided with an adjusting-screw 11, and exerts a continual effort to deflect arm 7 toward pole 1. The tension of this spring is such that under normal conditions of smooth  
80 running wheel 8 is held up to a position of constant and full engagement with wire 12, while wheel 9 is held partly, but not fully, separated from that wire. The described position of these wheels relative to the trolley-wire is shown in Fig. 1, where that wire is  
85 shown running in the bottom of the groove in wheel 8 and in the outer part of the corresponding groove in wheel 9.

The arrow 14 denotes the direction in which the trolley is represented as moving. 90

Such being the construction of my improved trolley, its peculiar mode of operation remains to be described. Trolley-pole 1, being actuated by spring 18, which is carried by the car, tends to lift both wheels 8 and 9 into  
95 full contact and engagement with wire 12, while spring 3 actuates bar 4 in such a manner that wheel 9 tends to separate from that wire. As the result of these two tendencies, wheel 8 tends constantly to a full and com- 100



plete engagement with the trolley-wire, and wheel 9 tends to the above-described partial engagement therewith, which is illustrated in the drawings. By means of the adjusting-screw 11 the tension of spring 3 is so regulated that under ordinary conditions of smooth running the said wheels severally engage the trolley-wire in precisely the described manner. In case of any considerable undulation either of the car or of the wire the trolley-pole and the wire are either brought slightly nearer together or are carried slightly farther apart. In the former case bar 4 turns slightly upon pivot 5 and wheel 9 is carried up into full engagement with the wire, so that the wire is then fully engaged by both wheels. In the latter case bar 4 turns pivotally in the opposite direction, so that wheel 8 promptly follows the wire, while wheel 9 is separated from it. In this manner the length of the trolley-pole may be supplemented by the entire length of arm 6. If any sudden depression in the wire, or any solder, or any guy attachment, or any other dependent obstruction upon the wire passes over wheel 8, the latter, being suddenly depressed, presses arm 6 downward, throws up arm 7, and thus may complete for the moment a complete engagement between the wire and wheel 9. In the same manner the depression of either wheel forces the other up against the wire, and these several adjustments of the trolley to the wire by the pivotal movement of bar 4, being independent of the inertia of pole 1, are instantaneous. My invention therefore presents these advantages—namely, that by the alternative action of the contact-wheels the circuit is maintained by one wheel or the other at all times, so that the wire is not lost, and that, by reason of

the lightness of bar 4 and its proximity to the trolley-wire, the contact-wheel 8 is able to follow the absolute and relative irregularities of that wire with unexampled promptitude.

Such being the construction and operation of my invention, I claim—

1. An electric trolley, consisting of a spring-actuated pole, a bar, which is centrally pivoted to the free end of said pole, and two contact-wheels, which are respectively pivoted to the opposite ends of said bar, and are pressed toward the trolley-wire by the action of said spring-actuated pole, in combination with a spring, which is located between said pole and said bar, and assists the said action of said spring-actuated pole as to one of said contact-wheels, and opposes the said action of said pole as to the other of said wheels, substantially as and for the purpose specified.

2. An electric trolley, consisting of a spring-actuated pole, a bar, which is centrally pivoted to the free end of said pole, and two contact-wheels, which are respectively pivoted to the opposite ends of said bar, and are pressed toward the trolley-wire by the action of said spring-actuated pole, in combination with a spring, which is located between said pole and said bar, is provided with tension-adjusting mechanism, and assists the said action of said spring-actuated pole as to one of said contact-wheels, and opposes the said action of said pole as to the other of said wheels, substantially as and for the purpose specified.

In testimony whereof I hereunto set my name in the presence of two witnesses.

JAMES H. RABBITT.

Witnesses:

WILLARD EDDY,

JOHN H. BROCKLESBY.