

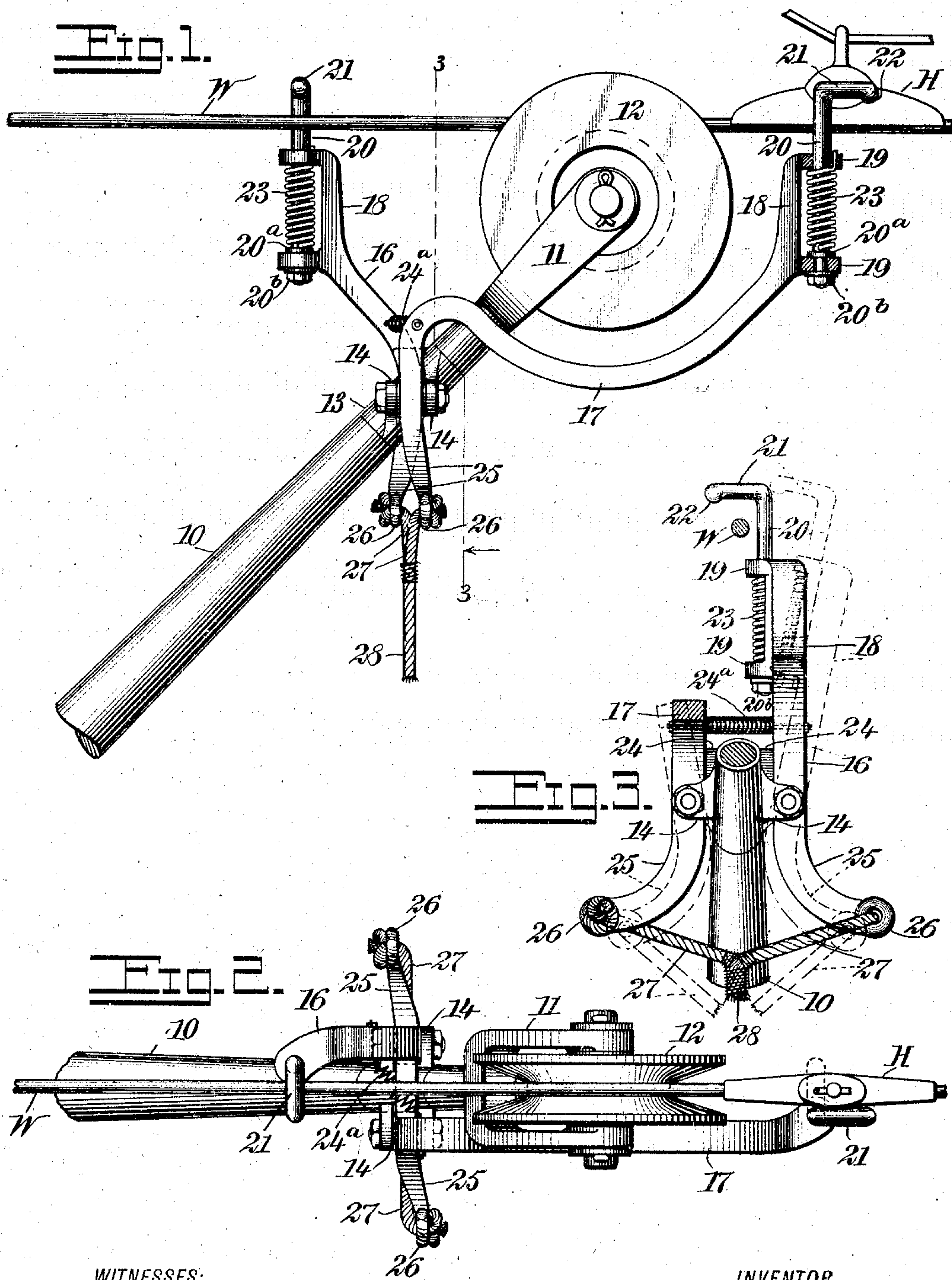
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L. McD. STEELE.

TROLLEY.

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WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## TROLLEY.

SPECIFICATION forming part of Letters Patent No. 791,835, dated June 6, 1905.

Application filed November 12, 1904. Serial No. 232,487.

*To all whom it may concern:*

Be it known that I, LOUIS McDONDLE STEELE, a citizen of the United States, and a resident of Middletown, in the county of Butler and State of Ohio, have invented a new and Improved Trolley, of which the following is a full, clear, and exact description.

My invention relates to trolleys or like conducting devices employed in connection with electric cars, and more particularly to means for preventing displacement of the contact member thereof from the conductor. Its principal objects are to provide a simple and effective mechanism of this character.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the upper portion of a trolley-pole and the coacting wire, to the former of which one embodiment of my invention is applied. Fig. 2 is a top plan view thereof, and Fig. 3 is a vertical transverse section on the line 3 3 of Fig. 1.

10 designates a trolley-pole, at the upper extremity of which is a head or harp 11, carrying a contact member or trolley-wheel 12, which runs upon the conductor or wire W, supported by hangers H. Surrounding the pole just below the head is a collar 13, from which project opposite pairs of lugs 14 14, preferably lying in planes at substantially right angles to that of the wheel. Between these lugs are pivoted arms 16 and 17. The arms extend upwardly toward and outwardly from the conductor, the first of these lying wholly at the front of the wheel, while 17 extends to a point at the rear of the wheel. At their upper extremity each of these arms has a substantially vertical portion 18, from which project bearing members 19 19. In openings in these bearing members are rotatably mounted the stems 20 of guard members, which are held against downward movement by collars 20<sup>a</sup>, fixed upon the portions 18 and contacting with the upper faces of the lower bearing members, while they are maintained against upward displacement by nuts 20<sup>b</sup>, threaded upon their lower ends. At the upper extremity of each is an extension 21, projecting

from the stem at substantially right angles and across the conductor when the trolley-wheel is in coaction therewith. The outer end of the extension may be hooked at 22. The guard-member extensions are normally held in this position across the conductor by means of springs 23, conveniently of spiral form and each having one end attached to the stem and the other end to one of the bearing members. The guard members may be rotated in their bearings in either direction against the tension of these springs, which is exerted to return them to their normal position.

The arms 16 and 17 are drawn toward one another and into contact with suitable stop projections 24 24, situated upon opposite sides of the collar 13, by a spring 24<sup>a</sup>, having an end connected to each of them. Below the lugs the arms depend at 25 and are bent outwardly, being provided at their separated ends with eyes 26 to receive the branches 27 of the trolley-cord 28.

The relation of the guard members to the wheel is preferably such that although while the bottom of the wheel-groove is in contact with the conductor the arms will be separated therefrom upon the wheel's lowering from the conductor, so that if there is a tendency to displacement the guard members will contact with the conductor and check this movement, returning the wheel to its proper position. Upon the guard members encountering any obstruction—such, for example, as the hangers—they turn upon their stems, and thus are enabled to pass it freely, being returned to their guard position by the springs when released. It should be noted that as these guard members are separated from one another, being in front and at the rear of the wheel, they need occupy no greater lateral space than the trolley-wheel itself, and are thus able to enter any space as great as the thickness of the wheel.

When it is desired to remove the trolley from coaction with the conductor, it is only necessary to pull upon the cord in the usual manner, when, since the tension of the spring ordinarily employed to raise the pole is greater than that of the spring 24<sup>a</sup>, the arms will be drawn



toward one another at their lower ends, thus separating the guard members, when the pole may be drawn down. In a similar manner the tension of the lifting-spring upon the cord  
5 separates the guard members when the pole is being raised, permitting the conductor to be received between the guard members, which guide the wheel-groove into coaction therewith.

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

1. The combination with a trolley-pole and its contact member for coaction with a conductor, of a pair of pivoted arms movable toward  
15 and from the conductor, guard members rotatable upon the arms and extending above the conductor, and springs connecting the guard members and arms.

2. The combination with a trolley-pole and  
20 its contact member for coaction with a conductor, of a pair of pivoted arms movable toward and from the conductor, a stem rotatable in each arm, extensions from the stems, and springs connecting the stems and arms.

25 3. The combination with a trolley-pole and its contact member for coaction with a conductor, of a pair of pivoted arms movable toward and from the conductor, a stem rotatable in each arm, extensions from the stems having  
30 hooked ends, and springs connecting the stems and arms.

4. The combination with a trolley-pole and its contact member for coaction with a conductor, of a pair of pivoted arms movable toward  
35 and from the conductor, guard members rotatable upon the arms and extending above

the conductor, a spring connecting the arms, and a spring connecting each guard member with its arm.

5. A holder for trolleys comprising a collar adapted to surround a trolley-pole, opposite lugs projecting from the collar, arms pivoted upon the lugs, and guard members movable in the arms. 40

6. A holder for trolleys comprising a collar adapted to surround a trolley-pole, opposite lugs projecting from the collar, arms pivoted upon the lugs and extending outwardly therefrom and also forwardly and rearwardly, and guard members movable in the arms. 45 50

7. A holder for trolleys comprising a collar adapted to surround a trolley-pole, opposite lugs projecting from the collar, arms pivoted upon the lugs, and guard members rotatable in the arms and being provided with  
55 angular extensions.

8. A holder for trolleys comprising a collar adapted to surround a trolley-pole, opposite lugs projecting from the collar, arms pivoted upon the lugs, guard members rotatable  
60 in the arms and being provided with angular extensions, springs connecting the arms, and a spring connecting each guard member with its arm.

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

LOUIS McDONDLE STEELE.

Witnesses:

GEORGE L. MILES,  
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