(No Model.)

C. KNAPP.

ELECTRIC TROLLEY DEVICE.

No. 516,492. Patented Mar. 13, 1894.

Fig. 1.

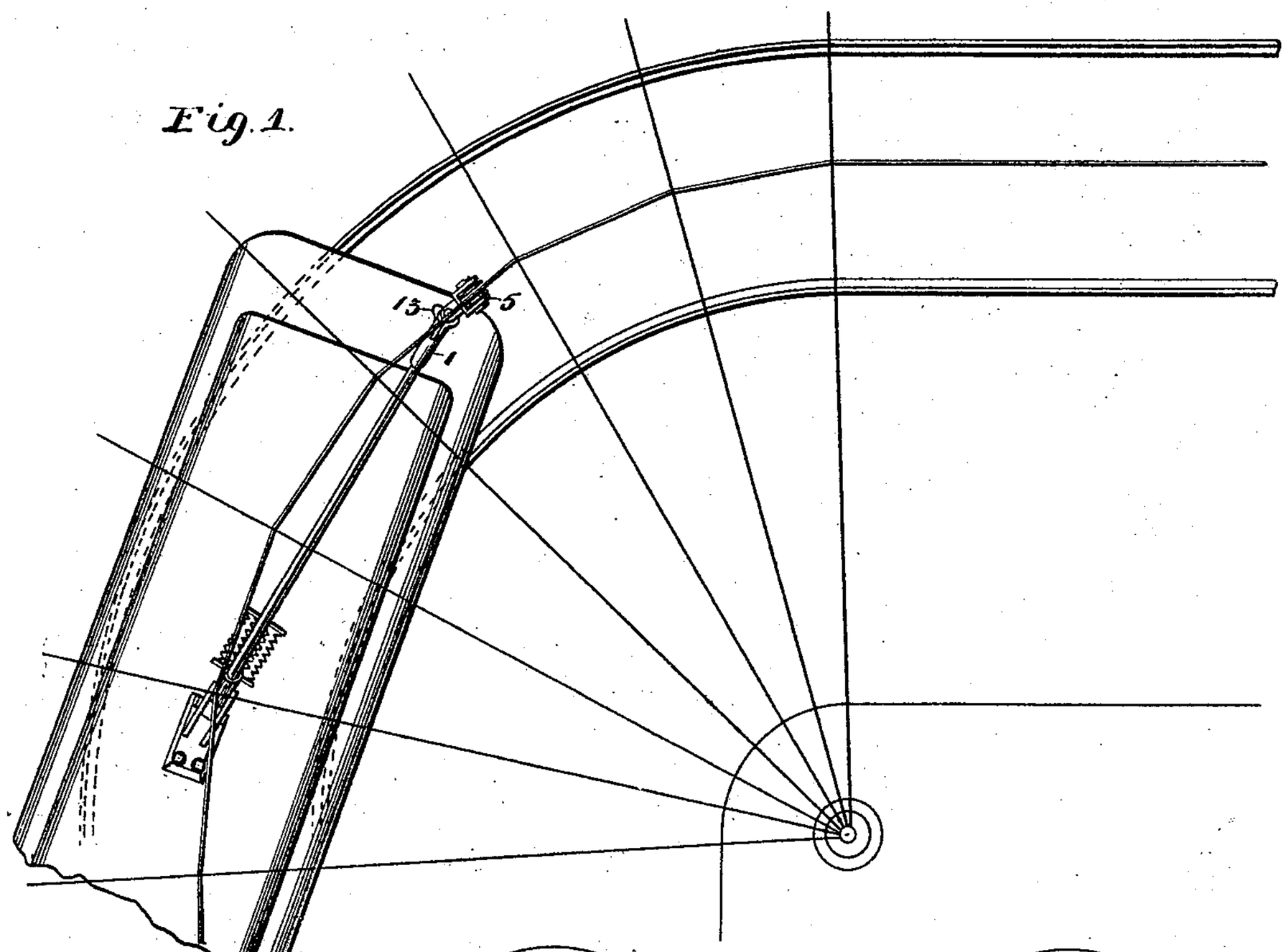


Fig. 2.

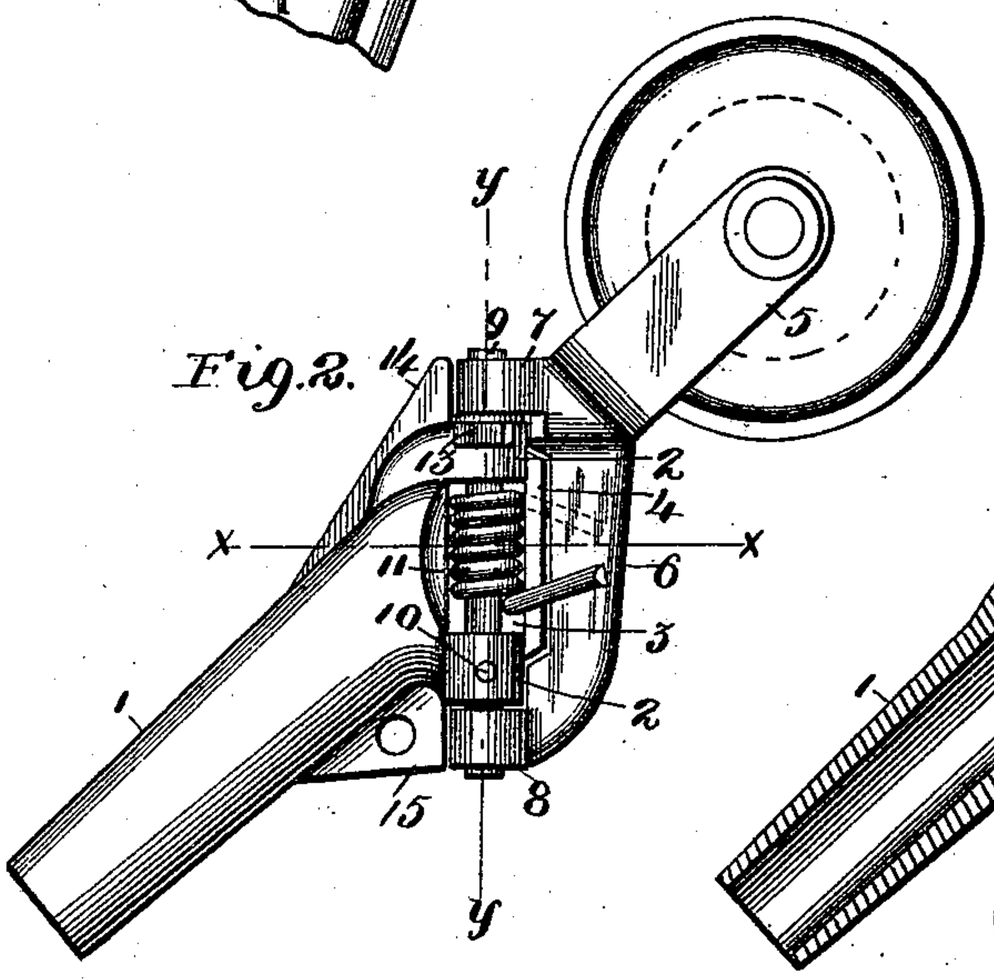


Fig. 3.

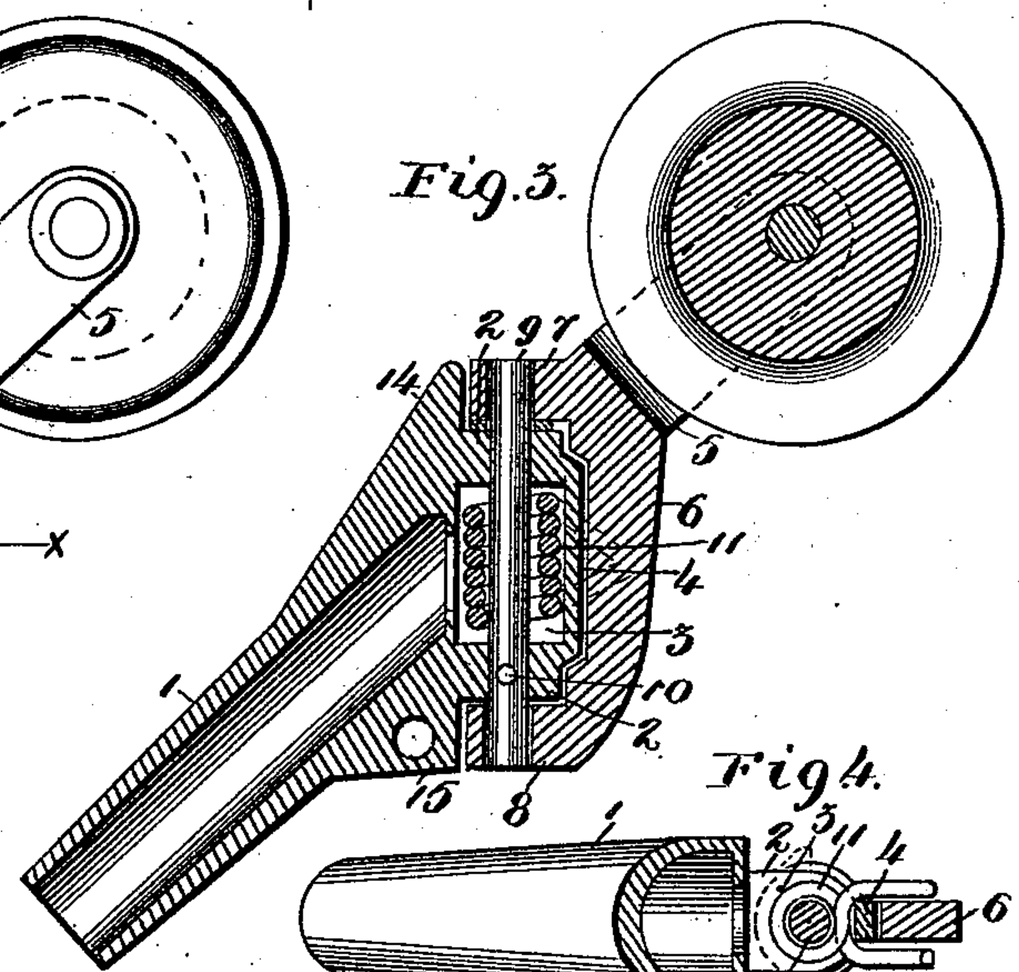
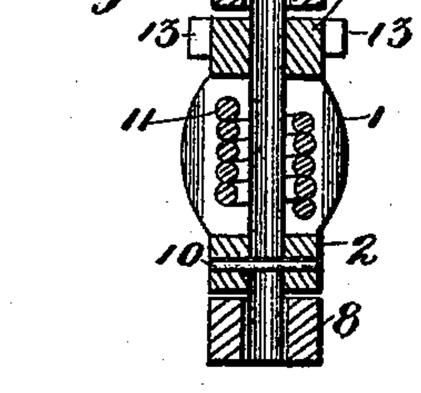


Fig. 4.

Fig. 5.



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ELECTRIC-TROLLEY DEVICE.

SPECIFICATION forming part of Letters Patent No. 516,492, dated March 13, 1894.

Application filed November 20, 1893. Serial No. 491,400. (No model.)

To all whom it may concern:

Be it known that I, CHARLES KNAPP, of the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Electric-Trolley Devices, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in electric trolleys and consists in the novel arrangement and combination of parts more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a plan view of a car having my invention applied thereto. Fig. 2 is a side elevation of my invention. Fig. 3 is a side sectional elevation thereof. Fig. 4 is a section taken on the line *x*—*x* of Fig. 3; and Fig. 5 is a section taken on the line *y*—*y* of Fig. 3.

The object of my invention is to construct a device which will prevent the trolley wheel from jumping the wire on a curve as the car is passing over the same; this I accomplish by keeping the groove of the trolley wheel always parallel to the direction of the wire.

In detail my device may be described as follows:

Referring to the drawings, 1 represents the upper end of a trolley pole the said end terminating in an enlarged portion having bearing surfaces 2, 2, between which is located a chamber 3, the limits of which chamber are defined by the connecting strip 4. The trolley fork is composed of two members or prongs 5, which in their normal position are in line with the general direction or axis of the pole as best seen in Figs. 2 and 3. The lower portion of the trolley fork terminates in a yoke 6 having lugs 7 and 8 embracing the bearing surfaces 3, 3. The lugs 7 and 8 and the bearing surfaces 3 have registering openings through which passes a pin 9 about which the yoke of the fork swings. The pin 9 is stationary being secured to the metal forming one of the bearing surfaces by a pin or bolt 10. A coiled spring 11 is located within the chamber 3 encircling the pin 9 and having its terminals free, one on each side of the strip 4 and yoke 6 respectively. As the trolley is made to turn to the right or left from its normal position during the passage of the car around the curve, the trolley will swing about the pin 9, and the yoke 6 will bear against one end of the spring 11 tightening the same and allowing the opposite end of the spring to brace against the strip 4; and as the car approaches the straight track, the resilient action of the spring restores the trolley to its normal position. Of course as the car passes the curve the spring 11 yields to permit the trolley to turn on the pin or pivot 9 sufficiently to keep the trolley wheel groove parallel to the direction of the wire as best shown in Fig. 1. As the car is approaching a curve from the straight track, the change of direction of its motion generally gives the trolley pole a sudden jerk or swing, such suddenness having a tendency to twist the yoke 6 about the pin 9 more than is warranted by the curvature of the track on which the car is passing; and to prevent the yoke from turning too far from this cause and thus keep it within the limits of the resilient action of the spring, I provide lugs 13 adjacent to the bearing surfaces 3, which have a tendency to limit the degree of twist given to the yoke carrying the trolley wheel, said lugs being best shown in Fig. 5. Also to prevent the conducting wire from catching and becoming entangled in the mechanism in case the trolley for some unaccountable reason should jump the wire, I provide guards 14 and 15 adjacent to the bearing surfaces 3, so that if the wire should strike either one or the other of said guards, the same will slip or glide off without entangling itself in the mechanism. The object of having the trolley forks parallel or in line with the pole is for the purpose of reducing to a minimum the friction of the lugs 7 and 8 upon the bearing surfaces 3, the action with my construction being that the pressure due to the pole pressing against the conducting wire will be transmitted through the fork substantially at right angles to the pin 9, the friction upon the bearing surfaces 3 being thus reduced to a minimum.

Having described my invention, what I claim is—

1. A trolley consisting of a pole the terminal thereof forming bearing surfaces, a

fork supporting the trolley wheel and having a yoke at its opposite end embracing the bearing surfaces of the pole, a pivotal connection between the fork and pole, a spring for restoring the fork to its normal position, and means on said pole for limiting the degree of twist or movement of the fork, substantially as set forth.

2. In a trolley device, a pole the terminal of which forms suitable bearing surfaces, suitable lugs one on each side of the upper of said surfaces, and guards adjacent to each bearing surface for guiding the wire, substantially as set forth.

3. A trolley device consisting of a pole the free end thereof forming suitable bearing surfaces, a trolley fork having members normally in line with the axis of the pole, a yoke having lugs forming part of the trolley fork, said lugs embracing said bearing surfaces, a fixed pivotal pin passing through registering openings of the bearing surfaces and lugs embracing the same, a suitable chamber between the bearing surfaces, a strip on one side of said chamber, a spring encircling said pin and having its free ends on opposite sides of the strip and the yoke, lugs on either side of and adjacent to the upper bearing surface for limiting the swing of the yoke, and guard strips for guiding the wire, substantially as set forth.

In testimony whereof I affix my signature in the presence of two witnesses.

CHARLES KNAPP.

Witnesses:
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