

Aug. 10, 1926.

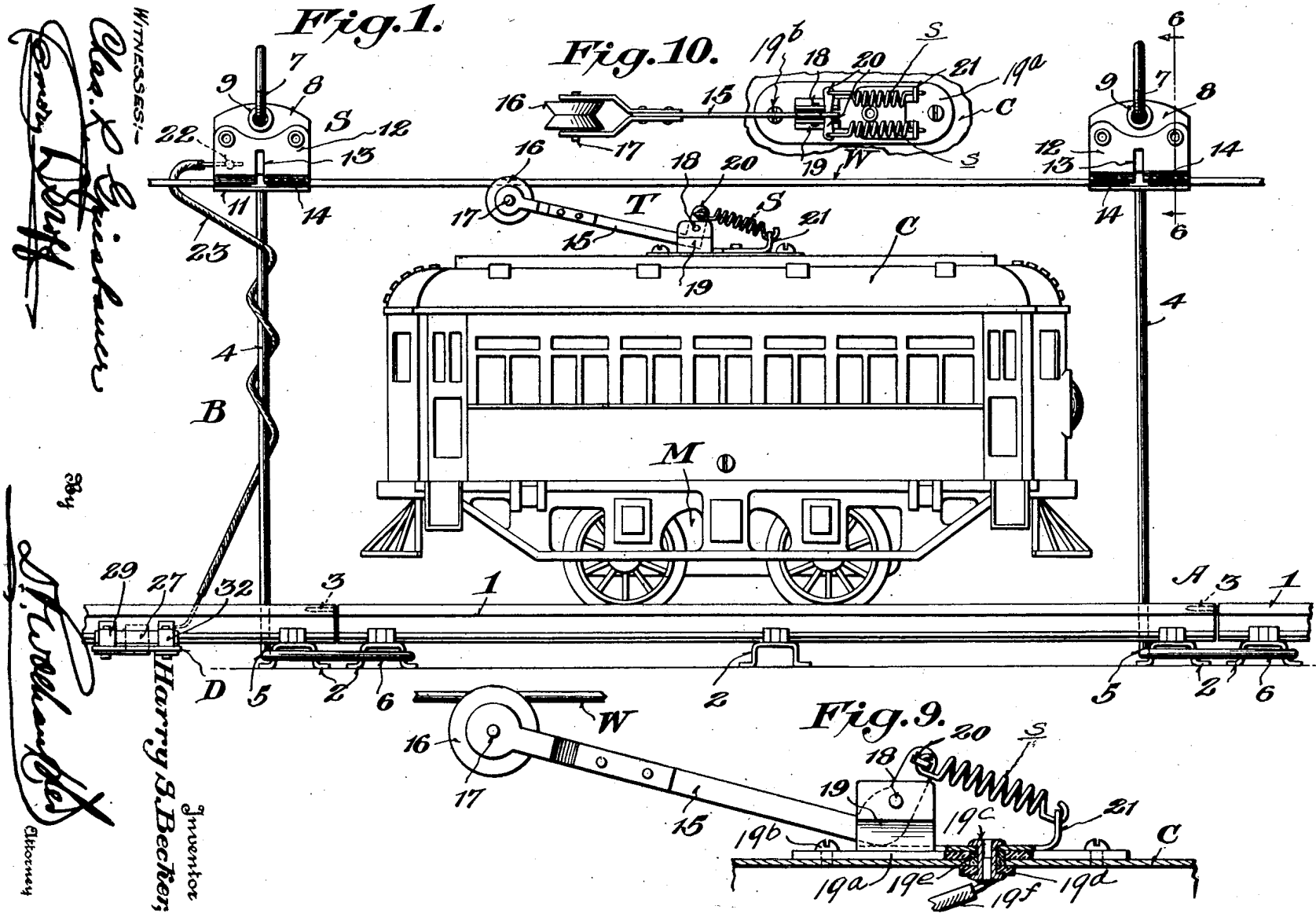
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TOY ELECTRIC TROLLEY RAILWAY

Filed April 1, 1925

3 Sheets-Sheet 1

1,595,283



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Fig. 2.

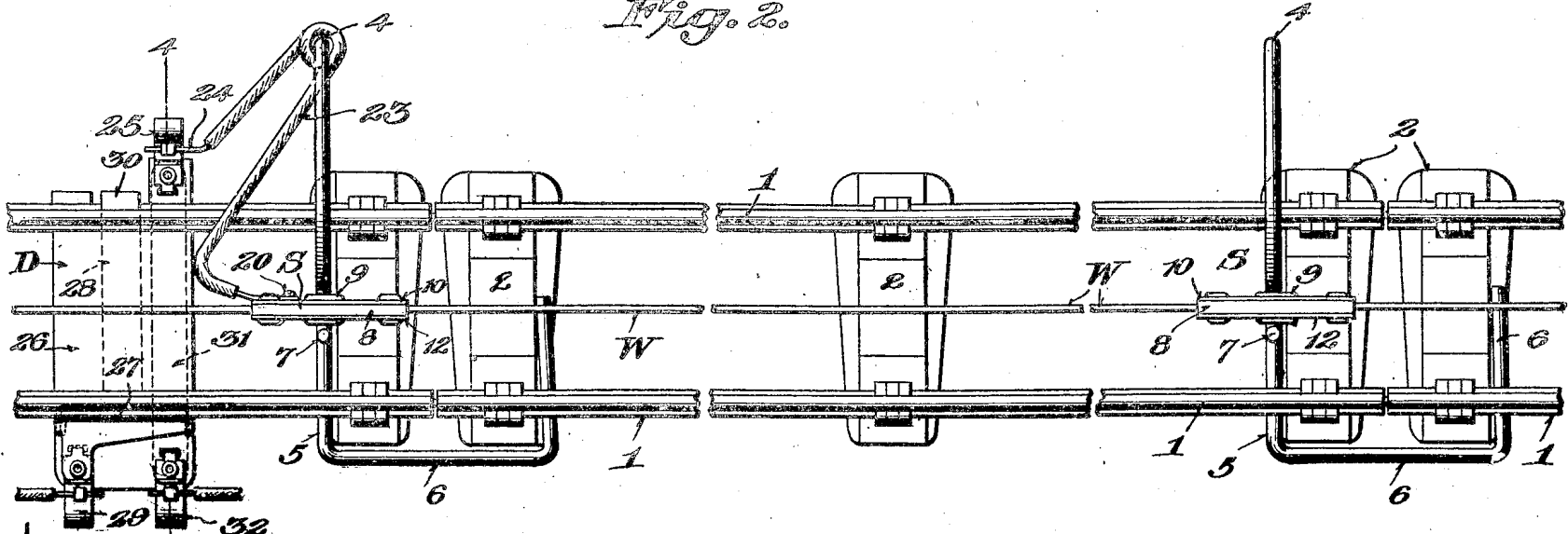


Fig. 3.

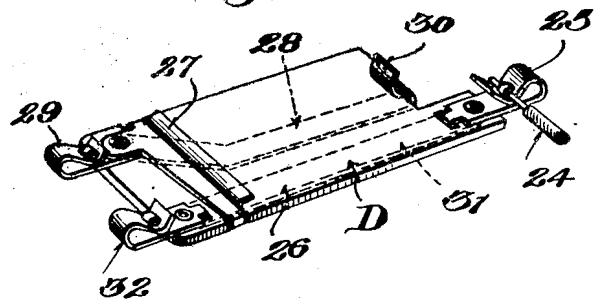
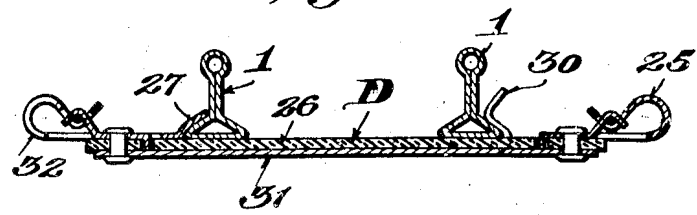


Fig. 4.



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Fig. 5.

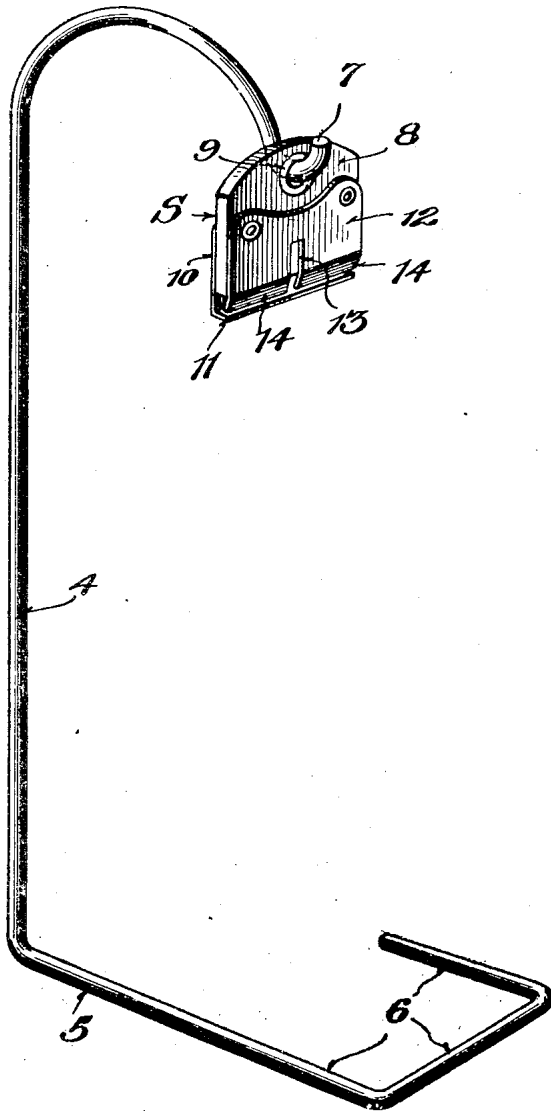


Fig. 6.

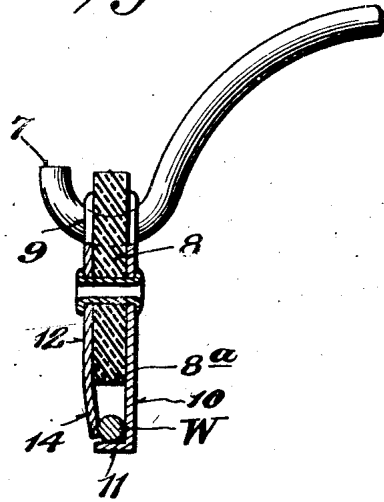


Fig. 7.

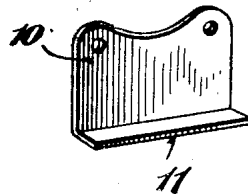
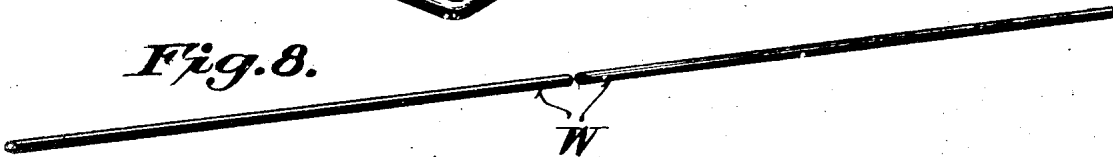


Fig. 8.



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# UNITED STATES PATENT OFFICE.

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## TOY ELECTRIC TROLLEY RAILWAY.

Application filed April 1, 1925. Serial No. 19,969.

This invention relates to toy railways, and more particularly to a novel and practical toy railway using an overhead trolley thereby simulating the appearance and effect of interurban traction lines.

A primary object of the invention is to provide a novel construction utilizing an overhead trolley rather than a third rail which has heretofore been universally used in toy railways. Where a conducting third rail is used in track construction special features of track insulation are required thereby making it necessary to construct special track sections, whereas in the present construction employing an overhead trolley it is entirely practical and feasible to use a two rail track, thereby making it possible to use the same track sections for trains of the present overhead trolley type as for mechanically or spring driven trains. This important feature not only has advantages from a manufacturing and stock carrying standpoint but also permits the owners of mechanical trains to electrically equip or "electrify" their "lines" by the addition of simple and practical equipment for supporting the trolley, together with the necessary electrical connections for the trolley and track.

A further object of the invention is to provide a construction that may be made at relatively low cost, and in which the parts can be made small enough to be conveniently packed for shipment in a dismantled condition, and which may be readily assembled by inexperienced persons to function in a practical and reliable way.

A further object of the invention is to provide novel means for securely supporting and positioning the trolley wire to thereby establish proper contact with the trolley wheel carried by the car.

A still further object of the invention is to provide a stable and substantial trolley support or pole possessing novel features which permit of its being readily attached to the trackway in such a way that it contributes to the stability of the track and also provides a rigid trolley wire supporting medium without disturbing any of the operating factors of the system.

With the above and other objects in view which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction,

combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

A preferred and practical embodiment of the invention is shown in the accompanying drawings, in which:

Figure 1 is a side elevation of a portion of a track having a trolley car thereon, the same receiving power from an overhead trolley wire.

Figure 2 is a top plan view of a section of trackway showing the manner of arranging and mounting the trolley supporting means.

Figure 3 is a detail perspective view of a track carrying terminal device for the track and trolley.

Figure 4 is a detail cross sectional view taken on the line 4-4 of Figure 2.

Figure 5 is a perspective view of the trolley pole and suspension clip.

Figure 6 is an enlarged detail sectional view of the trolley suspension clip.

Figure 7 is a detail perspective view of the wire carrying plate of the suspension clip.

Figure 8 is a detail perspective view of the trolley wire.

Figure 9 is an enlarged side elevation, partly in section of the trolley pole mounting.

Figure 10 is a top plan view of the trolley pole mounting.

Similar reference characters designate corresponding parts throughout the several figures of the drawings.

In carrying the present invention into effect it is proposed to provide a trackway designated generally as A and trolley supporting means B cooperating with the track to support the trolley wire in position to be engaged by the traveling contact of the trolley pole carried by the car C, the latter having a propelling motor M.

The track A is preferably made in sections for convenience in storage and includes the rails 1-1 mounted upon cross-ties 2, the said rails 1 being connected by the metallic joint-pins 3 projecting at the ends of the hollow heads of the rails 1. The rails 1 and ties 2 present a metal-to-metal contact at all points and thus require no insulation as between the ties and the rails thereby making it possible to readily utilize the two-rail track commonly used in connection with spring-motor driven trains so that where

such trains are now in use it will be possible for the owner to readily convert such trackway into use as a part of an electrical trolley system by adding the necessary trolley supporting means and a car equipped with an electric motor.

In connection with the trolley supporting elements or means B it will be observed that the same are preferably connected with the track A thereby to provide a convenient point of connection for the supports, while at the same time also obtaining the advantage of utilizing the trolley supporting means for clamping or uniting adjacent track sections together, as when the base of the trolley supporting means clampingly engages a pair of adjacent ties 2—2 of adjoining track sections. While it will of course be understood that it is fully within the scope of the present invention to connect the trolley supporting means B with the track A either at the point of the ties or otherwise as by clamping the base of the trolley support directly to the rails, nevertheless the manner of attaching the trolley support shown in the drawings is practical and feasible and serves the additional function of a track connection or tie. Furthermore, it will also be understood that it is within the scope of the invention to mount the trolley supporting means independently of the track but adjacent thereto, the object and purpose of the invention being to provide a toy electrical railway system wherein trolley supporting means is utilized in connection with a track having rails upon which the toy car travels when its motor is energized.

Referring more specifically to the trolley supporting means B it will be observed from Figures 1 and 5 particularly that the same includes a vertical trolley pole or post 4 having a substantially horizontal base portion 5 provided with an angular tie-embracing clamping portion 6 adapted to fit over the sides of a pair of ties 2 as clearly shown in Figures 1 and 2 of the drawings. In connection with this base 5 it will be observed that the same extends beneath the rails 1—1 so that the clamp 6 engages the ties from the side opposite the pole or post 4 so that when the base is applied to the ties and moved into full clamping position the post will be moved far enough away from the adjacent rail 1 thereby not to interfere with the movement or passage of the cars and at the same time locate the hook portion 7 of the pole directly over the central portion of the track A. The upper end of the pole 4 may be provided with the curved offset portion which terminates in the hook 7, or the offset portion may be otherwise formed as conditions of manufacture may dictate.

For the purpose of carrying the trolley

wire and positioning the same in the proper relation to the track A there is provided a novel insulating suspension clip designated generally as S. This clip preferably consists of an insulating body 8 having an eye 9 for receiving the hook 7 and one side of said body is provided with a wire carrying plate 10 which is provided at its lower edge with a horizontal offset lip or ledge 11 which is spaced from the bottom edge 8<sup>a</sup> of the insulation thereby to provide ample room for receiving the trolley wire W. In order to retain the wire W on the ledge or shelf 11, the opposite face of the body 8 is preferably provided with a keeper plate 12 which is slit or cut as indicated at 13 thereby to provide the relatively resilient wire gripping fingers 14 for engaging the ends of adjacent wire sections. It will be understood that each clip 7 supports the end of adjacent wires W, or, in other words, supports one end of two wires which may be readily fitted into the space provided between the spring fingers 14 and the angle or corner provided by the offset portion 11 of the wire carrying plate. If desired, the offset portion 11 may assume a rounded formation instead of the more or less angular form shown in the drawings without departing from the spirit of the invention.

The top of the car C is equipped with a trolley device T, the same comprising a standard 15 having the trolley wheel 16 mounted in harp 17 while the standard 15 is mounted to pivot on a horizontal axis on a swivelled bracket carried on the top of the car, the horizontal axis being indicated at 18 supported between the upstanding parts or ears 19 of the bracket. In connection with the mounting of the swivelled bracket 19 it may be observed from Figures 9 and 10 that the top of the car is fitted with an insulation plate 19<sup>a</sup> which is secured to the top of the car by suitable fastenings 19<sup>b</sup> or their equivalent while the bracket itself is mounted on the rivet 19<sup>c</sup>, thereby to swivel about a vertical axis and permit the trolley to have adequate sidewise movement for making the necessary turn on curves. It will thus be understood that the bracket 19 is loosely riveted thereby to move over the upper surface of the insulated plate, the rivet itself being insulated from the car top by an insulating washer 19<sup>d</sup> and insulating tube 19<sup>e</sup>. The wire 19<sup>f</sup> is soldered or otherwise secured to the rivet 19<sup>c</sup> thereby to complete the circuit from the trolley to one of the motor terminals. For the purpose of yieldingly mounting the standard to properly contact with the wire W, springs s may have one end fitted to the part 20 while the opposite ends are anchored to the hook of the swivelled bracket. Thus, with this arrangement it will be apparent that when the sectional wire W is suspended above the

track A the standard 15 will be lifted upwardly so that the wheel 16 will continuously contact with the trolley.

To complete the electric circuit for driving the motor of the car C the wire carrying plate 10 of the suspension clip S is provided with an electrical terminal 22 to which is attached one end of a wire 23 whose opposite end 24 is connected to a clip 25 carried by a track terminal device D. This device D is preferably made in such a way that it may be readily attached to and disconnected from the rails 1—1 and preferably includes in its organization an insulated base member 26 of fiber or other suitable material having at one side thereof a rail flange engaging abutment 27 permanently secured to its upper face. The underside of the body 26 is provided with a rail engaging terminal plate 28 having a wire terminal clip 29 at one side thereof and a yielding rail engaging flange 30 at the opposite end thereof as clearly shown in Fig. 3. Also the underside of the body 26 is provided with a link 31 for connecting the terminal 25 with the terminal 32 at the same side of the body as the terminal 29. The terminals 29 and 30 therefore constitute the line wire terminals for supplying the electrical energy to the trolley, and the rails, which together with the ties, form the ground return circuit for the motor. From an inspection of the device shown in Figure 3, and its manner of application illustrated in Figure 2, it will be observed that the rigid abutment 27 may be fitted to the base of one rail 1, whereupon the body 26 may be pressed upwardly to snap the member 30 over the other rail thereby to include both rails in the ground circuit. On the other hand the clip 32 and link 31 being insulated from the rails 1—1 insure electrical connection with the clip 25 which supplies the trolley suspension members S with current, and these of course in turn feed the motor of the car.

From the foregoing, it will be apparent that the present invention includes in its organization a novel toy trolley construction which utilizes cars of the interurban type in combination with rails having supported thereabove a suspended trolley, the motor of the car being supplied through a novel toy trolley pole.

It will also be observed that the trolley pole has a novel mounting on the top of the car whereby the entire trolley is insulated from the top of the car, and yet has a swivel mounting thereby to swing about a vertical axis while the spring *s* yieldingly maintains the trolley under uplifting tension thereby to cause the wheel to closely follow the trolley wire.

In addition to the advantage of assembling toy mechanical track sections utilized in a train-set of the automatic electric type,

the present construction is particularly desirable since it permits of the use of a higher speed motor which has not heretofore been possible because of the danger of the locomotive as well as the car jumping the track when swinging around a curve at high speed. However, with the present arrangement it will be apparent that the trolley assists in holding the locomotive on the track. In other words the trolley pole bearing against the trolley wires tends to prevent overturning of the car on rounding curves. Thus, the provision of a trolley feature in a toy railway contributes materially to the stability with which the train may be operated without danger of accidental derailment.

Other advantages have been heretofore pointed out, and it will of course be understood that changes in the form, proportion and minor details of construction may be resorted to, without departing from the spirit of the invention or scope of the appended claims.

I claim:

1. A toy electric railway including a metallic track, a car equipped with an electric motor and adapted to travel on said track, a trolley-pole engaging with and supported by a part of the track, an insulated member carried by the pole, an electrical conductor trolley-wire suspended from the insulated member, and means associated with the track for conducting electrical current to the same and to the trolley-wire.

2. A toy electric railway including in combination, a metallic track, a trolley-wire support carried by the track, an insulated suspension clip carried by the trolley support, a trolley-wire carried by said insulated suspension clip, and a wire terminal device electrically connected to the track and to the trolley-wire.

3. An electric toy railway including in combination, a sectional track each section including rails and cross-ties, a metallic member constituting a trolley pole and bent at its lower end to provide a base portion adapted to engage a pair of adjacent cross-ties, an insulating suspension clip carried by the trolley pole, a trolley wire engaging said clip, and a car having an electric motor therein, adapted to travel on said track and having a trolley for engaging said wire.

4. A toy railway including in combination, a sectional track, each section including rails and cross-ties, a trolley pole comprising a vertical portion having the upper end thereof bent over the track-way and having the lower end thereof formed horizontally and adapted to clampingly engage the cross-ties of adjacent track sections, an insulating suspension clip attached to the upper end of the trolley pole, a wire engaging said clip, a car adapted to travel on the

track and having a trolley for engaging said wire, and a track terminal clip detachably fitted to the rails of the track and adapted to establish electric connection with said rails and with the trolley.

5 5. A toy railway including in combination a track-way, an overhead trolley, and an electrical terminal device carried by the rails and contacting therewith, said terminal element being also electrically connect-  
10 ed with the trolley wire.

6. A toy railway including in combination a track-way comprising a pair of metallic rails, an overhead trolley wire suspended  
15 above the track-way, and a terminal clip detachably fitted to said rails of the track-way and having one electrical terminal in electrical contact with both rails, and hav-  
20 ing a second electrical terminal insulated from said rails, and a wire connecting said second terminal with the overhead trolley wire.

7. A toy railway including in combina-  
25 tion a track-way including metallic rails, an overhead trolley wire suspended above the rails, and a device for supplying current respectively to the rails and to the overhead trolley wire, said device compris-  
30 ing an insulating base having rigid and resilient abutment elements located at opposite edges and adapted to respectively engage the opposite rails of the track, a terminal  
35 connected with said abutments, a pair of terminals located at the opposite sides of the insulating base, means insulated from the rails for connecting said terminals, and  
40 an electrical connection between one of said terminals and the overhead trolley wire.

8. A toy railway including in combina-  
45 tion a sectional track, each section including rails and cross-ties, an overhead trolley wire and means for supporting said wire, said means comprising a single member bent  
50 to form a trolley pole having a wire suspending arm, and a base portion adapted to be fitted to a pair of adjacent ties by a movement parallel to the longitudinal axes of the ties.

9. A toy railway including in combina-  
55 tion a sectional track, each section including rails and cross-ties, an overhead trolley wire and means for supporting said wire,

said means comprising a member bent to form a vertical pole portion and an offset arm for supporting the overhead trolley wire and the bottom thereof being bent horizontally and offset in angular formation thereby to embrace the ties of adjoining track sections.

10. A toy railway of the overhead electric trolley type including means for supporting said wire including a trolley pole, and a suspension clip carried by the pole, said clip comprising an insulating body adapted to detachably engage a portion of said pole, a wire holding plate having an offset angular flange portion projecting below the insulating body and resilient means cooperating with said flange to detachably engage the trolley wire.

11. A toy railway of the overhead electric trolley type including an overhead sectional trolley wire, and means for suspending said sectional trolley wire comprising a trolley pole, an insulating suspension clip detachably engaging a portion of said pole, and having metallic elements fitted to opposite sides thereof said elements having means for yieldingly and detachably engaging the ends of adjacent sections of the trolley wire, and one of said plates having an electrical terminal connection.

12. A toy electric railway including an overhead current carrying trolley-wire and means for supporting said wire, said means including a metallic member constituting a trolley pole and a suspension clip detachably fitted to the pole, said clip comprising an insulated body engaging a portion of the pole and means carried by the insulated body for holding said wire.

13. A toy electric railway including a metallic trolley-wire support adapted to be connected to the trackway, an insulation member suspending from the trolley-wire support, and yieldable metallic elements carried by said insulation member for engaging and supporting sections of trolley-wire thereby to provide a continuous unbroken overhead conductor.

In testimony whereof I hereunto affix my signature.

HARRY S. BECKER.