

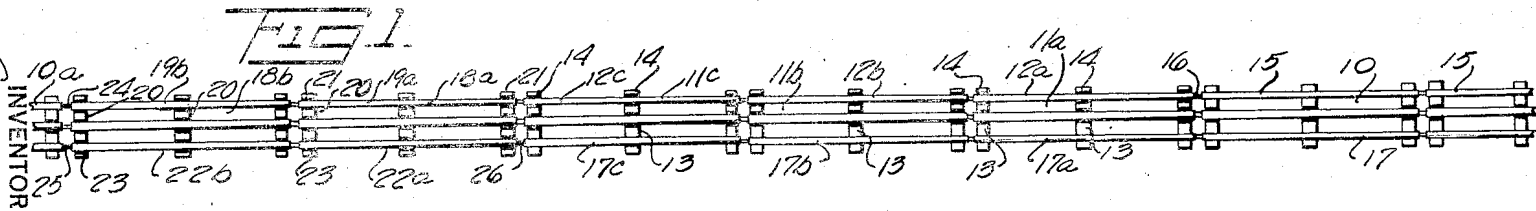
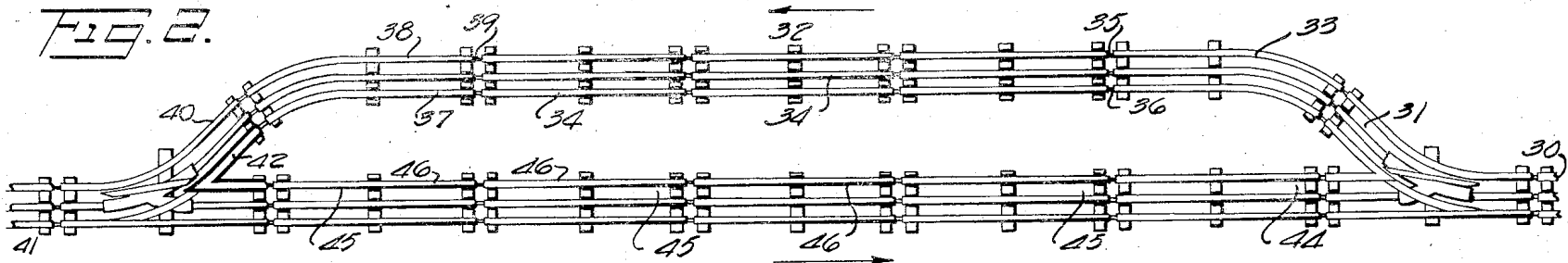
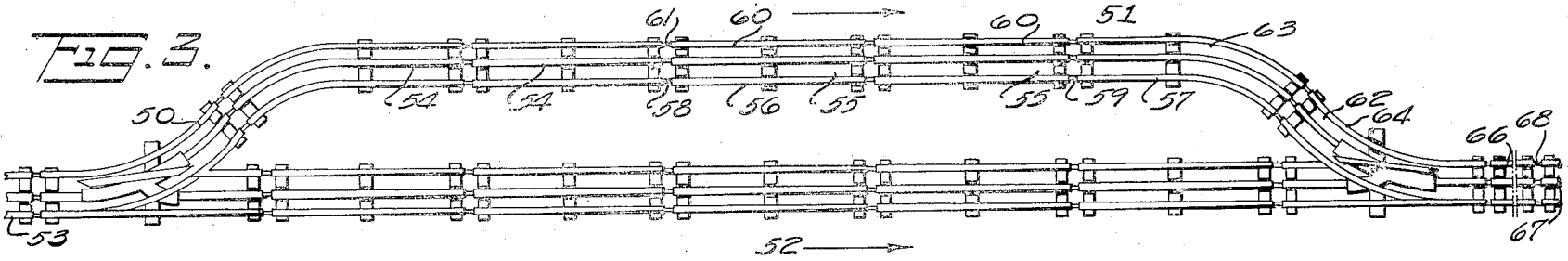
May 29, 1928.

L. CARUSO
TOY RAILROAD

Filed Oct. 27, 1925

3 Sheets-Sheet 1

1,671,227



LOUIS CARUSO
 INVENTOR
 BY *George S. Johnson*
 ATTORNEY

May 29, 1928.

1,671,227

L. CARUSO

TOY RAILROAD

Filed Oct. 27, 1925

3 Sheets-Sheet 2

FIG. 4.

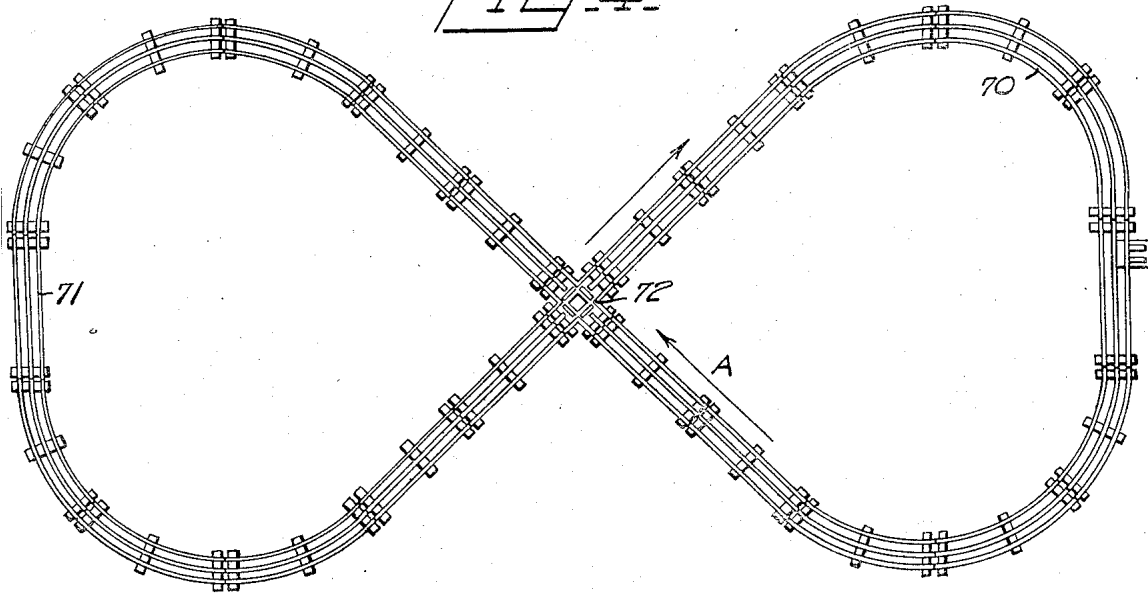
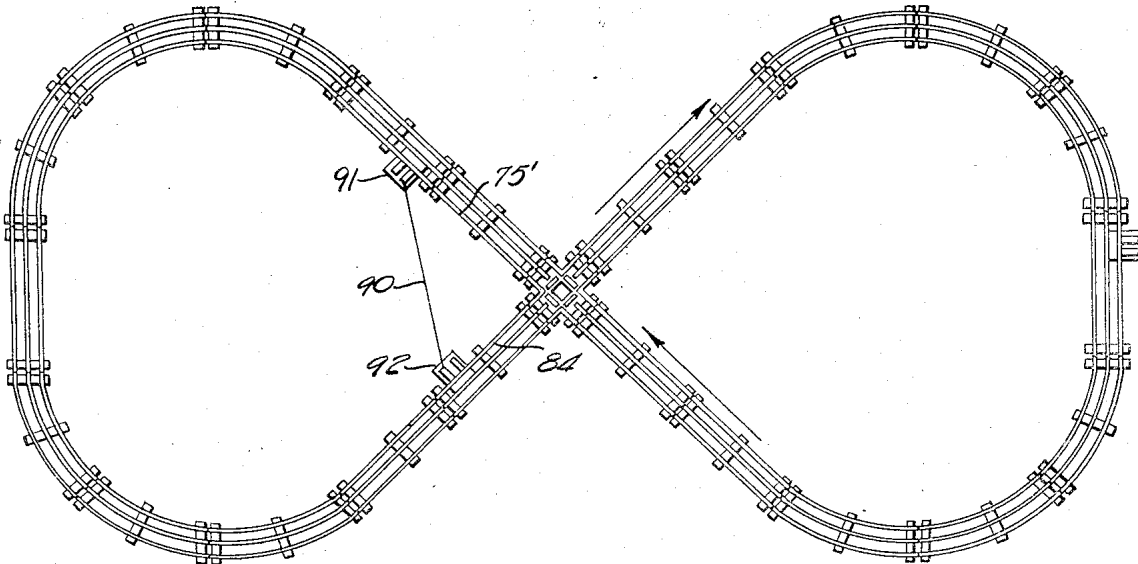


FIG. 6.



INVENTOR
LOUIS CARUSO
BY
Joseph Shivanan
ATTORNEY

May 29, 1928.

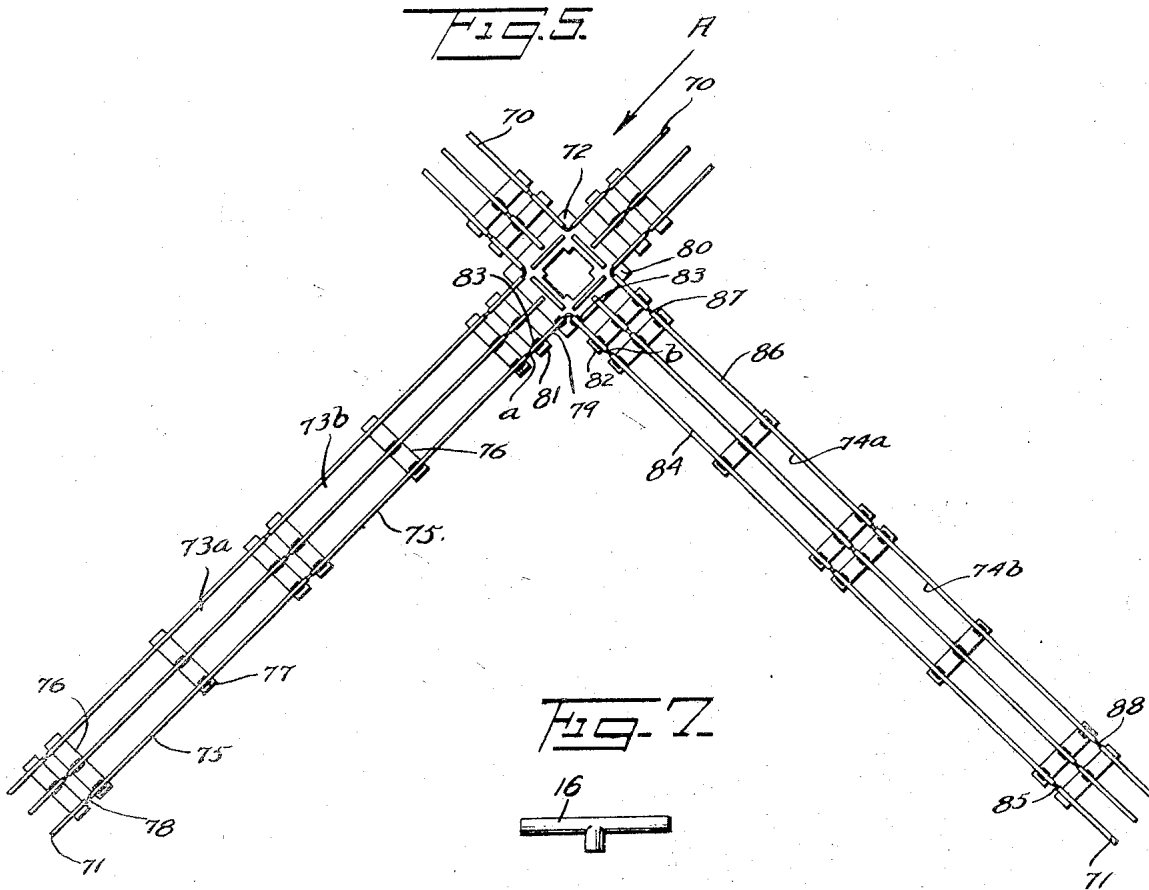
1,671,227

L. CARUSO

TOY RAILROAD

Filed Oct. 27, 1925

3 Sheets-Sheet 3



INVENTOR
Louis Caruso
BY
Jacob Liberman
his ATTORNEY

Patented May 29, 1928.

1,671,227

UNITED STATES PATENT OFFICE.

LOUIS CARUSO, OF IRVINGTON, NEW JERSEY, ASSIGNOR TO THE LIONEL CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

TOY RAILROAD.

Application filed October 27, 1925. Serial No. 65,104.

The present invention relates to toy railroads, and is more particularly directed toward the provision of a toy electric railroad in which two trains may be operated so that one train is stalled until another train enters upon or crosses a predetermined section of track.

headed in one direction, is held until a through train, going in the same direction, passes over the main line track;

Figure 4 is a diagrammatic showing of a pair of loops interconnected by a crossing;

Figure 5 is an enlarged view of a portion of the trackage of Figure 4, illustrating the special track, so arranged that a stalled train headed for the crossing is started as soon as another train has crossed the other side of the crossing;

Figure 6 illustrates a modified arrangement of the showing of Figure 4, and

Figure 7 illustrates a form of insulating pin suitable for insulating the rails of adjacent track sections.

In Figures 1, 2, and 3, only a portion of a track system is shown, it being understood that the track shown forms a part of a system of tracks commonly used for operating toy trains. This track system may be made up of any convenient arrangement of straight and curved track sections, switches, crossings, etc., as is well known. The commercial units of tracks for toy electric railroads are made up out of sheet steel rails and cross ties, the central or third rail being insulated from the ties and other rails. The power source is connected to the third rail and to the track rails and cross ties. According to the present invention these standard parts are utilized as much as possible, a few special parts being interposed and suitably insulated.

According to the showing in Figure 1, a number of sections of standard insulated third rail track 10 are placed at the right hand end of the tangent. After the train passes over these ordinary sections, it passes onto a number of sections of track such as those shown at 11^a, 11^b, 11^c, etc. These track sections are structurally interchangeable with standard track sections, and may be substituted for them in a track layout. In these sections one of the track rails 12^a, 12^b, 12^c, etc., is insulated from the cross ties 13 by insulations 14, similar to those used for the third rail. They are connected together by the usual steel connecting pins. The insulated track rail 12^a is also insulated from the corresponding track rail 15 of standard section 10 by an insulating pin 16, such as shown in Figure 7. This pin is removably secured in the hollow ends of the sheet metal rails. The oncoming train proceeds over

The present invention contemplates a toy electric railroad made up from a number of separable sections having one or both of the track rails of certain sections insulated from one another and from the adjacent track sections in such a manner that a dead section of track is provided on which a train will stall when run onto it, this dead section being associated with another section so that a train in said other section of track will ground one of the rails in the stalling section and permit the stalled train to start.

An object of the invention is to provide a number of track sections, normally interchangeable with other track sections, but whereon one, or both, of the track rails are insulated, and to interconnect these sections and insulate them from the adjacent track so that the operation above set forth may be accomplished.

Another object of the invention is to include in the track layout a piece of special track such as a turnout, switch, or crossing which permits trains to operate in different paths over the same point, whereby a predetermined sequence of operation of trains over switches, turnouts, loops, and crossings may be maintained.

The invention may of course, be applied to various complex arrangements of track, only a few of which will be disclosed herein in detail. Several of these forms or embodiments of the invention are shown, for purposes of illustration, in the accompanying drawings, in which:

Figure 1 illustrates a tangent provided with a track arrangement on which a stalled train is started when another train comes up from the rear;

Figure 2 illustrates a main line track and siding provided with a track arrangement on which a train stalled on the siding and headed in one direction, is held until a through train, going in the other direction, passes over the main line track;

Figure 3 illustrates a main line track and siding provided with a track arrangement on which a train stalled on the siding and

these sections 11^a, 11^b, and 11^c in the usual manner, the running gear of the locomotive being grounded through the uninsulated track rails 17, 17^a, 17^b, and 17^c.

5 The momentum of the train will carry it along the track and onto sections 18^a, 18^b, etc. These sections have track rails 19^a, 19^b, etc., which are insulated from the cross ties 20 by insulations 21 in the same manner as
10 the track rails 12^a, 12^b, 12^c, etc., and are conductively connected to them by the usual metallic pins. The other track rails 22^a, 22^b, etc., in the sections 18^a, 18^b, etc., are also similarly insulated from the cross ties 20 by
15 insulations 23. It will thus be seen that the sections 18^a, 18^b, etc., have all three rails insulated from one another. The last section of this three-rail insulated track is insulated from the track rails of the adjacent
20 standard section 10^a by insulating pins 24 and 25, while the track rail 22^a in the first section of this track is insulated from the uninsulated track rails 17^a, 17^b, 17^c, etc., by an insulating pin 26.

25 When the train proceeds from the sections 11^a, 11^b, 11^c, etc., to the sections 18^a, 18^b, etc., the wheels pass from the grounded rail 17^c onto the insulated rails 11^a, 22^b, etc. As both sides of the running gear of the
30 train are on these insulated track rails, the motor stops, and the train is stalled.

Now when a second train comes from the rear and enters onto the section of track composed of the special two-rail insulated
35 track sections, and marked 11^a, 11^b, 11^c, etc., the running gear, which is grounded by uninsulated rails 17^a, 17^b, 17^c, etc., will ground the other track rails 12^a, 12^b, 12^c, etc.—19^a, 19^b, etc. This grounds the running gear of
40 the stalled locomotive, and the stalled train proceeds out of the section, formerly "dead", and goes over the standard track 10^a. The rear train runs onto the dead section and stalls as above described.

45 No attempt is made in the drawings to show the actual number of special sections to be used in a particular layout. The number will vary according to the length of the commercial sections used, the speed, acceleration, and coasting ability of the trains,
50 their length, and the grades and curves in the track. For this reason the reference characters for these special sections are given subscripts *a*, *b*, *c*, etc.

55 Figure 2 shows an arrangement wherein a train going to the left is held on a siding until a train goes to the right through the main line track. The train comes from the left over standard track sections 30 and
60 passes through the switch 31 onto the siding 32. This siding may have a section of standard track as shown at 33, if desired, and it is provided with a plurality of special three-track insulated sections 34—34, similar
65 to the sections 18^a, 18^b, etc. Pins 35 and

36 insulate the track rails of the sections 34 from the corresponding rails of section 33. As here shown, a section of special two-rail insulated track 37 is arranged to the left of
70 sections 34. The grounded rail 38 of section 37 is insulated from the adjacent rail of section 34 by a pin 39. Another switch 40 is arranged beyond the section 38 so that a train may pass through the siding and back
75 onto the main line track at 41. The insulated rail of section 37 is connected with the corresponding rail of section 34 and with the inside, V-shaped rail 42 of the switch 40, this rail being insulated from the cross ties of
80 the switch, as shown at 43.

The main line track between the switches 31 and 40 may be made up of a number of track sections. As here shown, a standard track section 44, having two grounded track
85 rails, is placed adjacent the switch 31. The remaining sections of track, numbered 45, are provided with two insulated rails similar to those in section 11^a. These sections 45 have an insulated track rail 46 so placed
90 that it is connected with the V-shaped rail 43 of the switch 40. An insulating pin 47 is placed between the insulated rail 46 and the corresponding rail of standard section 44.

From an inspection of the drawings it will be obvious that the rails 37, 40, and 46
95 are completely insulated. When a train going to the left passes on to the siding 32, it will run onto the dead section 34 and stop. A train coming from the left will pass through switch 40 and remain on the main
100 line track. As soon as the running gear of the locomotive touches the rail 43, this rail becomes grounded and thereby connects rail 37 to the grounded side of the system. This energizes the motor of the stalled train and
105 permits it to start. This motor will have power supplied to it as long as the train remains on the two-rail insulated track sections 45. It will thus be seen that the through train passes over the main line section
110 without stopping and that the stalled train is allowed to start as soon as the through train strikes the switch. In making up a particular layout it will of course be understood that the design will provide
115 for stalling the train far enough back of the switch 40 so that the through train will clear the switch before the stalled train can reach it.

Figure 3 shows a track layout arranged
120 for operating trains from left to right. A train may be passed by the switch 50 onto the siding 51, or it may be passed directly through the switch along the main line track
125 52. Standard track sections 53 may be used ahead of the switch which may be standard. The first sections of the siding may, if desired, be made up of standard third-rail track as indicated at 54. Other sections of track in the siding are, as here shown, made
130

up of special three-rail insulated track, as indicated at 55. The inner insulated rail 56 of these sections is insulated from the corresponding rails of adjacent sections 54 and 57 by insulating pins 58 and 59. The other rail 60 is insulated from the corresponding rail of section 54 by pin 61. The sections of track between the special three-rail insulated sections and the switch 62, as well as this switch, are made with one rail insulated, as shown at 63 and 64. One or more of the track sections to the right of the switch 62 is composed of special two-rail insulated track, as indicated at 65. The insulated rail 66 of these track sections is conductively connected with the rail 60 of sections 55 and is insulated from the sections 67 by pin 68. The sections of track in the main line 52 of this layout are made up of standard third rail track.

The arrangement shown in Figure 3 operates as follows: When a train is switched onto the side by the switch 50 it runs onto the sections 55, whose track rails are insulated, and then stalls. When another train is sent through the main line track, it runs past the switch 62 and grounds the rails 64—66 by its running gear. This connects the motor in the stalled train on the siding and permits it to operate.

Figure 4 shows an arrangement of track permitting the train to pass around two loops in the form of a Figure 8. As here shown, the right hand loop is composed of a plurality of standard one-rail insulated track sections 70. A left hand loop is composed of a number of similar sections 71 and a number of special sections shown more in detail in Figure 5. These loops are connected by a crossing 72.

In Figure 5 a number of special two-rail insulated track sections 73^a, 73^b, etc., are shown at one side of the crossing and a number of special three-rail insulated sections 74^a, 74^b, etc., are shown at the other side of the crossing. In both cases these special sections are included in the left hand loop. The inside track rail 75 of the sections 73^a, 73^b, etc., is insulated from the cross ties 76 by insulations 77. The rail 75 is also insulated from the adjacent rail of section 71 by an insulating pin 78. The other end of the rail 75 is conductively connected with the corresponding rail 79 of the crossing 72. This track rail is V-shaped and connects with the other side of the crossing. It is insulated from the central supporting member 80 of the crossing and the adjacent cross ties 81 and 82 by insulations 83. The inner insulated rail 84 of sections 74^a, 74^b, etc., is conductively connected with the rail 79 at one end and is insulated from the corresponding track rail of section 71 by a pin 85. The other track rail 86 of the sections 74^a, 74^b, etc., is insulated from the crossing

rail of standard track by the insulations 87 and 88.

When a train going in the direction of the arrow A passes over the crossing 72 it proceeds through the sections 74^a, 74^b, etc., and around the standard track sections 71 on the left side of the loop in the ordinary manner. When it runs onto the special three-track insulated sections 74^a, 74^b, etc., it stalls because the running gear is standing on insulated track rails. When the next train proceeds over the crossing in the same direction and runs onto the insulated rail 79—75 the running gear grounds this track and therefore grounds track rail 84 in the three-rail insulated track sections. This permits the power to be applied to the stalled motor and the train proceeds. In the layout here shown the train runs around the right hand side of the loop and comes onto the special two-rail insulated track so as to start the other train which had been stalled on the three-rail track.

The layout shown in Figure 6 is similar to that shown in Figures 4 and 5. The insulated rails 75' and 84' corresponding to the rails 75 and 84 of Figure 5 are connected by a wire 90. Insulating pins are placed at the points marked *a* and *b* in Figure 5 and the insulation of the V-shaped track element of the crossing is omitted. The wire 90 may be connected to the rails by the usual devices 91 and 92 such as are ordinarily provided for connecting wires to toy railroad track.

What is claimed is:

1. A three rail toy electric railroad, composed of a plurality of track sections each having an insulated third rail, there being a section of tracks both of whose track-rails are insulated, and another section one of whose track-rails is insulated, electrical connections between one track-rail of the first section and an insulated track-rail of the other section whereby a car truck standing on the rails of the second mentioned section will ground the track-rails of the first mentioned section so that a locomotive standing therein may be started.

2. A three rail toy electric railroad, composed of a plurality of track sections each having an insulated third rail, one track section having one track-rail insulated, another track section having both track-rails insulated and an electrical connection between the insulated track rail of the first section and one of the insulated track rails of said other track section.

3. A three rail toy electric railroad composed of a number of track sections each comprising two metallic track-rails and an insulated third rail, the sections being connected together for train operation, one of said track sections having both track-rails insulated and another section having one

track-rail insulated from the other track-rail thereof, and electrically connected with one of the track rails of the other section.

4. In a network of track for a toy railroad, a plurality of separable sections of track each including two track rails and a third rail, all three rails being carried on metallic cross members, the third rails being electrically connected with one another and insulated from the cross members, both track rails of certain sections being insulated from their cross members and from the corresponding rails of an adjacent section, one of said insulated track rails being also insulated from the corresponding rail of the other adjacent section, certain other sections of said track having one track-rail insulated from its cross members and from the corresponding rail of an adjacent section and in electrical connection with one of the rails of the first mentioned section.

5. In a network of track for a toy railroad, a plurality of separable sections of track each including two track-rails and a third rail, all three rails being carried on metallic cross members, the third rails being electrically connected with one another and insulated from the cross members, both track rails of certain sections being insulated from their cross members and from the corresponding rails of an adjacent section, one of said insulated track-rails being also insulated from the corresponding rail of the other adjacent section, certain other sections of said track having one track-rail insulated from its cross members and from the corresponding rail of an adjacent section and in electrical connection with one of the rails of the first mentioned section said network also including a piece of special track having rails to permit train operation in different paths over the same point.

6. In a network of track for a toy railroad, a plurality of separable sections of track each including two track rails and a third rail, all three rails being carried on metallic cross members, the third rails being electrically connected with one another and insulated from the cross members, both track-rails of certain sections being insulated from their cross members and from the corresponding rails of an adjacent section, one of said insulated track rails being also insulated from the corresponding rail of the other adjacent section, certain other sections of said track having one track-rail insulated from its cross members and from the corresponding rail of an adjacent section and in electrical connection with one of the rails of the first mentioned section, said network also including a piece of special track having rails to permit train operation

in different paths over the same point, one of the track rails in said special piece of track being insulated from its support and included in said electrical connection.

7. A toy electric railroad having a pair of loops interconnected by a crossing, and composed of track sections, each having two track rails and an insulated third rail, the third rails being electrically interconnected throughout all the sections, the sections being mechanically interconnected for train operation about the loops, there being insulations for the track-rails of certain sections so arranged that the propulsion motor of a train is electrically disconnected when in certain sections except when a car is on the rails of another predetermined section.

8. In a toy electric railroad, a track layout composed of a plurality of sections of track each having an insulated third rail, the sections including a crossing and being arranged in the form of two loops, one of the loops having a track section adjacent the crossing having one track-rail insulated from the other track-rail and from the corresponding rail of an adjacent section, said loops further having a track section also adjacent the crossing having both track-rails insulated from one another and the corresponding rails of adjacent sections, and electrical connections between the insulated track-rail of the first section and one of the insulated track-rails of the other section.

9. A toy electric railroad comprising a plurality of sections of track and a crossing assembled in the form of two loops, there being a continuous insulated third rail, one of the track-rails in one of the sections adjacent the crossing being insulated from the other track-rail and from the corresponding rail of the adjacent section, both track rails in the other section adjacent the crossing and in the same loop being completely insulated except that one of said track-rails is electrically connected with the insulated track-rail of the other section.

10. A toy electric railroad having a loop made from track sections having a continuous third rail, and certain sections having normally insulated track-rails whereby an electric locomotive will stall when run onto the same, and another section having a track-rail connected with one of the normally insulated track-rails and otherwise insulated, whereby all said track-rails may be grounded when a car truck is on said other section.

Signed at Irvington, in the county of Essex and State of New Jersey, this 20 day of October, 1925.

LOUIS CARUSO.