



# UNITED STATES PATENT OFFICE.

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ELECTRICAL CONNECTER FOR TOY RAILWAY TRACKS.

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The present invention relates to electric connectors for toy railway track and is more particularly directed toward a connector suitable for use with three rail toy electric railroad tracks in which two or three of the rails are insulated from one another.

The present invention relates to a connector similar to that shown in my former Patent No. 1,542,337, granted June 19, 1925. This former patent shows a connector more particularly designed for use where only one of the rails is insulated. Certain signal systems, suitable for toy railroads, require the insulating of one of the track rails as well as the central rail, while other systems for operating toy railroad cars require that all three be insulated from one another. It therefore becomes necessary to provide electrical connections for each of the rails.

An object of the present invention is to provide a unitary connector capable of being detachably connected to a section of toy track so as to provide independent leads for each of the three rails of the toy track.

Another object of the invention is to provide such a connector which may be easily locked onto the track or detached therefrom, and preferably one in which wire receiving clips are made integral with the straps used in mounting the connector in place and for conducting the current to the rails.

The accompanying drawing shows, for purposes of illustration, one of the many possible embodiments in which the present invention may take form, it being understood that the drawing is illustrative of the invention rather than limiting the same.

In these drawings:

Figure 1 is a top plan view of a section of toy railroad track showing the connector disposed in the position occupied when it is connected to the track, portions of the track being broken away;

Figures 2, 3 and 4 are sections on broken lines 2-2, 3-3, and 4-4, respectively of Figure 1, it being assumed that the connector has been locked onto the track; and

Figure 5 is a perspective view of a convenient form of wire receiving terminal.

In the drawings, a portion of a section of toy railroad track is shown. The three rails 10, 11, and 12 are mounted on the cross ties or sleepers 13 and 14 in the usual manner. As here shown, all three of the rails are insulated from the cross ties or sleepers by the

insulations 14'. These sections are used in the toy track lay-out in any desired manner, and as far as the present invention is concerned, it is unnecessary to have track in which both of the track rails are insulated from the cross ties.

A block or heavy rigid sheet of insulation 15 carries the contacts and wire receiving terminals of the connector. As shown a comparatively long flat strip 16 of sheet metal is fastened to the insulating block near one end, and a shorter strip 17 is fastened to the insulating block near the other end. The strip 16 is adapted to pass underneath the rails 10, 11 and 12 and is provided with a hooked end 18 to engage the base 19 of rail 10. At a short distance from the hooked end of the strap, it is bent down as indicated at 20 so as to place the same some distance below the flanges 22 and 21 of rails 11 and 12. The strip 16 after passing underneath these rails is bent upwardly, as indicated at 23, to bring it against the lower surface 24 of the insulating block 15. It is then carried along this surface for a short distance, and is then bent upwardly as shown at 25, so as to pass through the block. The strip then extends along the top of the block, as indicated at 26, and is bent to form a loop 27. The free end of the loop is passed through insulating block 15 and bent against the lower side of the block, as indicated at 28. The side walls of the loop 27 are apertured at 29, and a spring 30 is fastened to the strap by being passed underneath a raised portion 31 and caught over an up-struck projection 32. The spring 30 may be bent downwardly toward the plate so as to receive the connecting wires in the usual manner. In order that the strip 16 may be insulated from the rails 11 and 12, a strip 33 of insulating sheet material is mounted as indicated. This strip has a hole 34 through which the shoulder 20 of the conducting strip 16 passes. The lower end of the insulating strip is cut back as shown at 35 to engage the shoulder 23. The ends 36 of the insulating strip extend alongside the conducting strip 16 so as to hold the insulating strip in place.

The conducting strip 17 at the other end of the insulating block 15 is similar to the strip 15 except that it is shorter. It is provided with a hooked end 37 to engage with the central insulated or power rail 12 and

a shorter piece 38 of insulating material is used to insulate it from the lower track rail 11. This conducting strip is provided with a wire receiving terminal 39 similar to the one previously described in detail.

The third conducting strip 40 is, as here shown, placed in the middle of the insulating block 15. A hollow rivet 41 is passed through the block 15, conducting strip 40 and a locking lever 42 so as to fasten the conducting strip onto the insulating block and pivotally support the locking lever. The lower end of the conducting strip 40, as illustrated in the drawing, is provided with a terminal 43 similar to the one described in detail. The upper end of the conducting strip 40 is bent downwardly as indicated at 44, and extends a short distance beyond the upper edge of the insulating block so as to come underneath the flange 22 of the lower track rail 11. The end of the locking lever 45 adjacent this track rail is bent upwardly as indicated so as to pass over the upper side of the flange. The locking lever is bent upwardly and provides an operating end 46 which clears the wiring receiving terminal 43 so that it may be swung from the full line position to the dot and dash line position where it is brought against a stop 47.

The electrical connector composed of the insulating support and conducting strips forms a unitary article which may be attached to or detached from the tracks readily. The longer conductors are passed underneath the track and the hooked ends 18 and 37 engaged about the flanges of the remote rails, and then the locking member 40 is swung into the full line position. By using this device one may readily connect wires and other devices to any one of the rails or to any pair of rails selected.

It is obvious that the invention may be embodied in many forms and constructions, and I wish it to be understood that the particular form shown is but one of the many forms. Various modifications and changes being possible, I do not limit myself in any way with respect thereto.

I claim:

1. A detachable connector for conducting current to the three rails of toy railroad track, comprising, an insulating block adapted to be carried alongside one of the track rails, three conductors of different lengths attached to the insulating block and extending laterally therefrom, the two longer conductors having hook shaped ends to engage the central rail and the opposite track rail, and the shorter conductor having a locking device engageable with the nearer track rail to lock the connector in place, and wire receiving terminals carried by the insulating block, and connected with each conductor.

2. A detachable connector for conducting

current to the three rails of toy railroad track, comprising, an insulating block adapted to be carried alongside one of the track rails, three conductors of different lengths attached to the insulating block and extending laterally therefrom, the two longer conductors having hook shaped ends to engage the central rail and the opposite track rail, the shorter conductor being placed between the longer conductors and having a locking device engageable with the nearer track rail to lock the connector in place, and wire receiving terminals carried by the insulating block and connected with each conductor.

3. A detachable connector for conducting current to the three rails of toy railroad track, comprising, an insulating block adapted to be carried alongside one of the track rails, three conductors of different lengths attached to the insulating block and extending laterally therefrom, the two longer conductors having hook shaped ends to engage the central rail and the opposite track rail, and the shorter conductor having a locking device engageable with the nearer track rail to lock the connector in place, wire receiving terminals carried by the insulating block and connected with each conductor, and insulating strips carried by the longer conductors to separate them from the rails.

4. An electrical connector for three rail toy electric railroad track comprising an insulating plate carrying three contacts of different lengths, the longest contact being so disposed that it may pass under the three rails and having a hook to engage the rail remote from the plate, the shortest contact being engageable with the nearest rail and the other contact having a hook engageable with the middle rail.

5. An electrical connector for three rail toy electric railroad track comprising an insulating plate carrying three contacts of different lengths, the longest contact being so disposed that it may pass under the three rails and having a hook to engage the rail remote from the plate, the shortest contact being engageable with the nearest rail and the other contact having a hook engageable with the middle rail, and means associated with the shortest contact for locking the connector in place.

6. In electrical connectors for toy electric railroad track, an insulating plate having a conducting strip carried thereby, said strip having a portion disposed on the upper side of the plate, the strip passing through the plate and having a second portion disposed on the opposite side of the plate and extending beyond the edge of the plate, the first portion having a wire receiving terminal and the second portion having a hooked end adapted to engage the base of the rail of the toy railroad track.

7. In electrical connectors for toy electric  
railroad track, an insulating plate having a  
conducting strip carried thereby, said strip  
having a portion disposed on the upper side  
5 of the plate, the strip passing through the  
plate and having a second portion disposed  
on the opposite side of the plate and extend-  
ing beyond the edge of the plate, the first  
portion having a wire receiving terminal and  
10 the second portion having a hooked end  
adapted to engage the base of the rail of the  
toy railroad track, and an insulating strip  
covering the upper side of the second por-  
tion of the conducting strip.

15 8. In combination, a section of toy rail-  
road track having at least two rails insulated  
from one another and from the supporting  
cross ties, a unitary device detachable from

the track section and having three independ-  
ent wire receiving terminals insulated from 20  
one another and connected with conducting  
strips of different lengths, each strip being  
shaped to connect a terminal with a selected  
rail so that all three rails may be connected  
to the terminals. 25

9. An electrical connector for three rail  
toy railroad track, having three conducting  
strips each cooperable with one of the rails  
only, an insulating support for all three  
strips, and means for detachably locking the 30  
connector in place.

Signed at Irvington, in the county of  
Essex, and State of New Jersey, this 6th day  
of April, 1926.

LOUIS CARUSO.