

## PATENT SPECIFICATION

Convention Date (Germany): Nov. 28, 1934.

465,168

Application Date (in United Kingdom): Oct. 31, 1935. No. 30095/35.

Complete Specification Accepted: April 30, 1937.



## COMPLETE SPECIFICATION

## Electrical Railway Toy

We, VEREINIGTE SPIELWARENFABRIKEN ANDREAS FÖRTNER & J. HÄFFNER'S NACHFOLGER GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG, of 15, Kobergerstrasse, Nuremberg, Germany, a Company registered under the Laws of Germany, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to an electric toy in which two trains on one track are controllable from a distance.

It has been proposed to enable two or more trains to run at the same time on a track independently of each other and under separate control. In this case, in addition to the ordinary non-insulated wheels and running rails, a plurality of "third" rails insulated from each other and the running rails were provided, the "third" rails being in separate electric circuits with the running rails, and the engine had an adjustable shoe for contact with a selected one of the "third" rails. Alternatively, two non-adjustable shoes could be employed in contact with two "third" rails, the shoes being electrically connected with a switch in the engine which could be set for operating the train from one or the other "third" rail.

In the above case it was necessary in order to operate two engines to employ two "third" rails with two circuits, and the object of the present invention is to provide an improved electric toy railway in which only one "third" rail is necessary for the operation of two engines.

With this object the invention is characterised in that, the two circuits are provided in a track composed of two running rails and a "third" rail that are all insulated from each other, one of the running rails and the "third" rail being included in one circuit; and the other running rail and the "third" rail included in the other circuit; and that the wheels on one side of the vehicles are insulated from the wheels on the other side.

As a typical example of the method of

carrying out the invention, the drawing shows a rear view of a locomotive on the track, and in partial section, with a diagrammatic representation of the circuit arrangements.

The track is composed of three rails 1, 2, 3 insulated from each other by the base-plate 4, of insulating material, or mounted on suitable sleepers. Connected to the one outer or running rail 1 is a conductor wire 5, and to the central or "third" rail 3 is a conductor wire 6. Both these wires belong to the circuit I. To the outer or running rail 2 is attached a wire conductor 7 and to the central rail 3 another wire conductor 8. Both these wires belong to the circuit II. The wheels on one side of the vehicle are insulated from those on its other side.

The track is equipped with two locomotives of identical construction, one of which is shown in the drawing. On its one side, the locomotive 9 is in electrical connection with the rail 1 through its wheels 10; and on the other side with the rail 2 through its wheels 11. Each wheel axle is composed of two separate members 12<sup>a</sup> and 12<sup>b</sup>, held together by a socket member 13 of insulating material. The locomotive axles, formed by the combination of the members 12<sup>a</sup>, 12<sup>b</sup>, 13, are mounted in cheek plates 14, 15 attached to the boiler 16 by means of insulating strips 17. In addition, the shoe 19, which makes contact with the central rail 3, is mounted on the locomotive by means of an interposed insulating plate 18. The arrangement of the electromotor 20 and the transmission of its power to the engine wheels are of the usual kind.

The engine driver's cab 9 is fitted with a reversing switch 21, provided with contacts I, O, II, by means of which the locomotive can be connected with the circuit I or the circuit II. When the switch 21 is set to the contact O, the locomotive is switched off, being thus disconnected from both the circuits I and II. In the position shown, the switch 21 is set on the contact I. It is thus connected with the circuit I, and the current takes the following path: conductor wire 5 (leading from the device for the remote

55

60

65

70

75

80

85

90

95

100

105

control of circuit I) rail 1, wheels 10, stub axles 12<sup>a</sup>, bearing plate 14, conductor 22, contact I, reversing switch 21, wire 24, electromotor 20, wire 25, shoe 19, rail 3 and wire 6, back to the remote control device of circuit I.

When one of the locomotives on the track is connected up with the circuit I, the other locomotive is connected—  
 10 enable it to be controlled independently of the first—to the circuit II, by setting its switch 21 on the contact II. In this locomotive, the current then takes the following path: wire 7 (leading from the  
 15 remote-control device of circuit II), rail 2, wheels 11, stub axles 12<sup>b</sup>, bearing plate 15, wire 23, contact II, switch 21, wire 24, electromotor 20, wire 25, shoe 19, rail 3 and wire 8, back to the remote-  
 20 control device of circuit II.

Having now particularly described and ascertained the nature of our said invention, and in what manner the same is to be performed, we declare that what we  
 25 claim is:—

1. Electrical railway toy in which two trains on one track are independently controllable in two circuits from a distance, characterised in that, the two circuits are provided in a track composed of 30 two running rails and a "third" rail that are all insulated from each other, one of the running rails and the "third" rail being included in one circuit; and the other running rail and the "third" 35 rail included in the other circuit; and that the wheels on one side of the vehicles are insulated from the wheels on the other side.

2. The electrical railway toy constructed substantially as described with reference to the accompanying drawings. 40

Dated this 31st day of October, 1935.

H. GARDNER & SON,  
 Chartered Patent Agents,  
 173—4—5, Fleet Street, London, E.C.4.  
 Agents for the Applicants.

