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PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Improvements in or Connected with Toy Electric Railway Systems

We, **TRIX LIMITED**, of 141, Old Burlington Street, London, W.1, a British Company, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to toy electric railways and has for its object to provide a system and means whereby the power to a section of the track can be reduced when a signal, point or other object is against the passing of the train.

According to this invention, a toy electric railway in which signals, points and other devices are controlled by known remote change-over switches, is provided with a stop section switch which incorporates a resistance and switching means, insulating a section of the conductor rail or one of the conductor rails of the track from the rest of the conductor rail and connecting the main portion of the said conductor rail and insulated section of the conductor rail with the stop section switch, the operating member of the stop section switch being coupled with the operating members of the known change-over switches controlling the signals, points and other devices so that when the signal, points or other devices are at danger the stop section switch is set for the resistance to be in circuit to reduce the current to the insulated section to stop the train, and when the known change-over switches are moved to all clear the stop section switch is also moved to cut out the resistance.

The invention will be clearly understood from the following description aided by the accompanying drawings, in which:—

Figure 1 is a side sectional elevation of the stop section switch. Figure 2 is a section on the line II—II of Figure 1. Figure 3 is a side sectional view of one of the known change-over switches. Figure 4 is a plan of same. Figure 5 is a view of a bank of switches, and Figure 6 is a layout of the wiring.

[Price 3s. 0d.]

In the example shown in the accompanying drawings for use with change-over switches for controlling a signal and points of known construction, i.e. the switch A (figure 3) for controlling the points incorporates a metal case 1 having a circular top in which is a gate or slot 2. In this case 1 and on an insulated material plate 3 are two upstanding spring contacts 4, 5 at a distance apart, each connected to a terminal 6 and 7 for connecting in circuit. In the case is a coiled spring 8 secured to and electrically connected to the bottom of the metal case 1 and carrying at its upper end a contact post 9 which projects through the slot 2 in the top of the case 1. The contact post 9 is located between the spring contacts 4, 5 and normally engages in a notch 10 in the slot 2 so that the post 9 is held centrally and out of contact with the spring contacts 4, 5 but can be moved on the spring 8 to one or the other ends of the slot 2 and engaged in a gate to hold the post 9 in contact with one or the other of the spring contacts 4, 5 to close the circuit.

The other switch B for the signals and for giving impulses of current is of similar construction to the point switch A except that the upper ends of the spring contacts 4, 5 are wider apart so that the contact post 9 can be held in one or the other of the slot portions 12, 13 out of contact with the spring contacts 4, 5, the impulses being given by moving the post 9 to the appropriate end of the slot 2 to make contact with the spring contact 4 or 5 and on release the post 9 returns to non-contact position.

The change-over switches are formed with holes 14, 15 passing through the wall of the case 1, one end being screw-threaded and the other plain. Plugs 16, 17 are secured in the screw-threaded ends for engaging in the holes in an adjacent switch to electrically connect the casings of the switches together and to enable the switches to be removably secured together side by side. A plug from a source

of electric supply is plugged into one of the holes in the outer switch.

A stop section switch C (Figures 1 and 2) according to one example consists of a metal case 1 having two compartments 18, 19, one compartment 18 having a circular top with a gate slot 20 and the other compartment 19 an angled front face with a window 21. In the first compartment 18 is secured one end of a coiled spring 22 and to the other end of the spring 22 is connected a post 23 which projects up through the slot 20. The post 23 is partly covered with a rubber tube 24 or other form of insulation.

In the forward compartment 19 is a plate 25 of insulating material having a screw bulb holder 26 for receiving a small electric bulb 27 for resistance. The holder 26 is connected by a contact strip 28 to one terminal 29 in the wall of the case 1 and to a spring contact 3 projecting into the other compartment 18. A contact strip 31 for the centre pole of the bulb 27 is connected to another terminal 32 and to another spring contact 33 projecting into the other compartment 18.

The ends of the spring contacts 30, 33 projects into the compartment 18 and have their ends bent outwards and normally contact with each other to close the circuit, the post 23 being so arranged that when in one gate portion it is free of the spring contacts 30, 33 but when moved to the other gate portion its insulated portion 24 engages between the ends of the spring contacts 30, 33 to open the same and break the circuit.

The casing is provided with holes 14, 15 through the wall for receiving plugs 16, 17 as above described. The casing of the switch C does not form an electrical part of the switch although it serves to connect electrically the casings of the switches A and B.

The three switches A,B,C are coupled together by the plugs 16, 17 and the outer ends of the three posts 9, 23 are connected together by a U-shaped member 34 engaging the ends of the three posts 9, 23 so that the three posts move in unison.

A section 35 of the centre rail of the track which is a three rail track, is insulated from the rest of the centre rail and a continuation feeder 36 is connected between the centre rail outside the insulated section 35, this continuation feeder 36 being connected to one terminal 32 of the stop section switch C. The centre rail 35 of the insulated section is connected to the other terminal 29 of the stop section switch C.

The casing of the points switch A, the stop section switch C and the signal switch B are mechanically and electrically connected together by the plugs 16, 17 and the casing of the signal switch B is connected to one terminal of the usual transformer 37, the other terminal of the transformer 37 being connected through a switch 38 with one terminal

of the signal 39. The switch 38 is for switching on and off the lights of the signal. The terminals of the signal 39 are connected to the terminals of the signal switch B.

The terminals of the points switch A are connected to the points actuating mechanism 40.

The transformer 37 is also connected through the usual controllers 41, 42 with the track.

When the switches A,B,C are moved so that the signal 39 is at danger and the points in the wrong position, the stop section switch C is also positioned so that the post 23 is in between the contact plates 30, 33 to open same and the circuit passes through the electric bulb 27 which acts as a resistance and reduces the power to be insulated section 35 and causes the train to stop when it enters the section. The lamp 27 can be seen through the window 21 indicating that the section is stopped.

On moving over the switches A,B,C by the member 34 to change the signal to all clear and the points to proper position, the contact post 23 of the stop section switch C is also moved free of the contact plates 30, 33 which close and cut out the bulb 27 and the train can move forwards.

The signal 39 may be the home signal and leads 43 for connection to a distant signal. The leads 44 are for connection to auxiliary rails.

What we claim is:—

1. In a toy electric railway in which signals, points and other devices are controlled from known remote change-over switches, providing a stop section switch which incorporates a resistance and switching means, insulating a section of the conductor rail or one of the conductor rails of the track from the rest of the conductor rail and connecting the main portion of the said conductor rail and the insulated section of the conductor rail with the stop section switch, the operating member of the stop section switch being coupled with the operating members of the known change-over switches for controlling the signals, points and other devices so that when the signal points or other devices are at danger the stop section switch is set for the resistance to be in circuit to reduce the current to the insulated section to stop the train, and when the change-over switches are moved to all clear the stop section switch is also moved to cut out the resistance.

2. A toy electric railway as claimed in Claim 1, wherein the stop section switch comprises a case having two compartments, one having a circular top wall provided with a gate slot and the other compartment with a window, a spring supported post projecting up through the gate slot and having an insulated portion, two spring contacts supported in the second compartment and projecting into the

first compartment, the said spring contacts being connected to terminals and a holder for a bulb or resistance bridging the contacts, so that when the post is in one position the spring contacts contact with each other to close the circuit and when the post is in the other position the spring contacts are open to cause the current to pass through the bulb

or resistance.

3. A toy electric railway and stop section switch constructed substantially as described with reference to the accompanying drawings.

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PROVISIONAL SPECIFICATION

Improvements in or Connected with Toy Electric Railway Systems

We, **TRIX LIMITED**, of 11, Old Burlington Street, London, W.1, a British Company, do hereby declare this invention to be described in the following statement:—

This invention relates to toy electric railways and has for its object to provide a system and means whereby the power to a section of the track can be cut off when a signal, points or other object is against the passing of the train.

According to this invention in a toy electric railway in which signals, points and other devices are controlled by remote switches, providing a stop section switch which incorporates a resistance and switching means, insulating a section of the centre rail of the track and connecting the main portion of the centre rail and insulated section of the centre rail with the switch, the stop section switch being interconnected with the known switch or switches for controlling the signals, points, and other devices so arranged that when the signal, points or other devices are at danger the stop section switch is arranged for the resistance to be in circuit to cut off or reduce the current to the insulated section to stop the train, and when the switches are moved to all clear the stop section switch is also moved to cut out the resistance.

As one example of carrying the invention into effect for use with switches for controlling a signal and points of known construction, i.e. the switch for controlling the signal incorporates a metal case having a circular top in which is a gate slot. In the case and on an insulated material plate are two upstanding spring contact plates at a distance apart, each connected to a terminal for connecting in circuit. In the case is a coiled spring secured to the bottom of the metal case and carrying at its upper end a post contact which projects through the slot in the top of the case. The contact post is located between the spring contacts and normally engaged in a notch in the slot so that the post is held centrally and out of contact with the spring contacts but can be moved on the spring to one or the other ends of the slot and engaged in a gate to hold the post in contact with one or the other of the spring contacts to close

the circuit. The other switch for the points and for giving impulses of current is of similar construction to the signal switch except that the slot is formed with two gates at a distance apart so that the contact post can be held in one or the other of the gates out of contact with the spring contacts, the impulses being given by moving the post contact to the appropriate end of the slot to make contact with the spring contact and on release the post contact returns to non-contact position.

The switches are formed with holes passing through the wall of the case, one end being screw threaded and the other plain. Plugs are secured in the screw threaded ends for engaging in the holes in an adjacent switch, plugs from a source of supply being plugged into outer switch.

The stop section switch according to one example consists of a metal case having two compartments or sections, one having a circular top with a gate slot and the other an angled front face with a window. In the first compartment is secured one end of a coiled spring and to the other end of the spring is connected a post which projects up through the slot. The post is partly covered with a rubber tube or other form of insulation.

In the rear compartment is a plate of insulating material having a screw bulb holder for receiving a small electric bulb or resistance. The holder is connected to one terminal in the wall of the case and to a spring contact projecting into the other compartment. The contact for the centre pole of the bulb is connected to another terminal and to another spring contact projecting into the other compartment.

The ends of the spring contacts project into the first compartment and have their ends bent outwards and normally contact with each other to close the circuit, the post being so arranged that when held in one gate it is free of the spring contacts but when moved to the other gate its insulated portion engages between the ends of the spring contacts to open same and break the circuit.

The casing is provided with holes through the wall for receiving plugs as above described. For controlling the signal, points and section

cut out, the three switches are connected together by the plugs and the outer ends of the posts connected together by a U-shaped member engaging the ends of the posts so that the posts move in unison.

5 The centre rail of a section of the track which is a three rail track is insulated from the rest of the track and a continuation feeder is connected between the centre rails outside the insulated section, this continuation feeder being connected to one terminal of the stop section switch. The centre rail of the insulated section is connected to the other terminal of the stop section switch.

10 15 The points switch, the stop section switch and the signal switch are connected together by the plugs and one plug of the signal switch is connected to one terminal of the usual transformer, the other terminal of the transformer being connected through a switch with one terminal of the signal. The other terminals of the signal are connected to the terminals of the signal switch.

20 The terminals of the points switch are con-

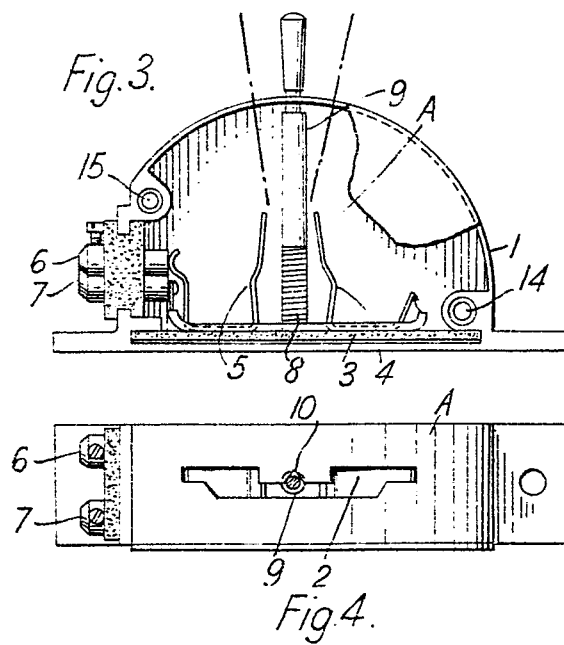
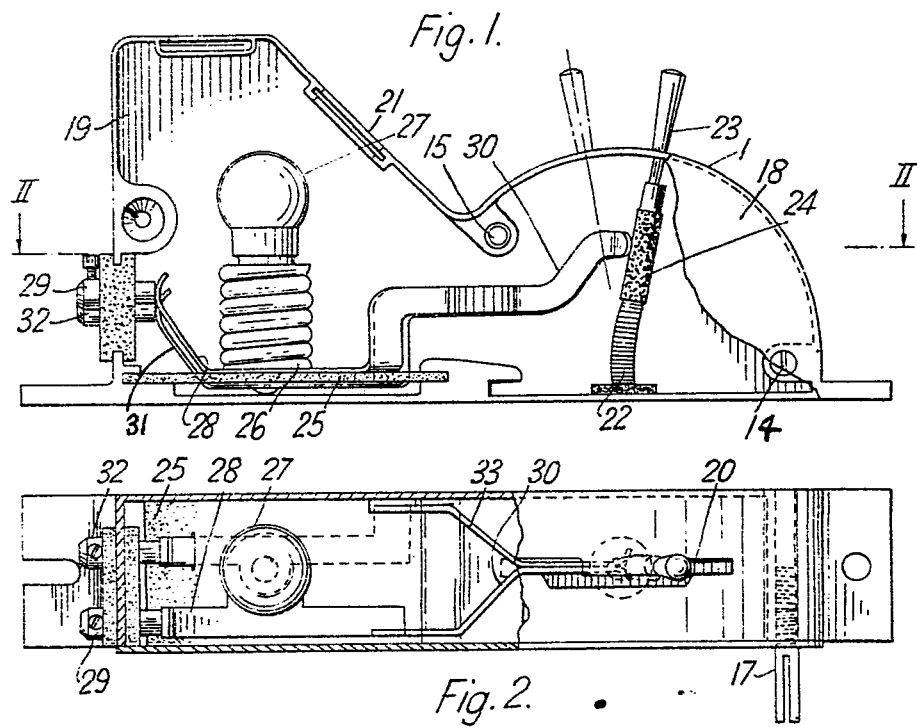
nected to the points actuating mechanism. 25

The transformer is also connected through the usual controllers with the track.

When the switches are moved so that the signal is at danger and the points in the wrong position, the stop section switch is also positioned so that the post is in between the contact plates to open same and the circuit passes through the electric bulb which acts as a resistance and reduces the power to the insulated section and causes the train to stop when it enters the section. The lamp can be seen through the window indicating that the section is stopped. 30 35

On moving over the switches to change the signal to all clear and the points to proper position the contact post of the stop section switch is also moved free of the contact plates which close and cut out the bulb and the train can move forwards. 40

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737,214 COMPLETE SPECIFICATION

2 SHEETS

This drawing is a reproduction of
the Original on a reduced scale.

SHEETS 1 & 2

Fig. 5.

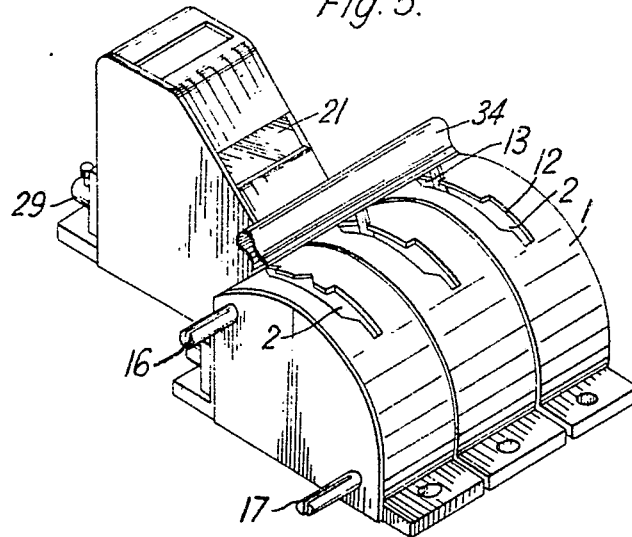


Fig. 6.

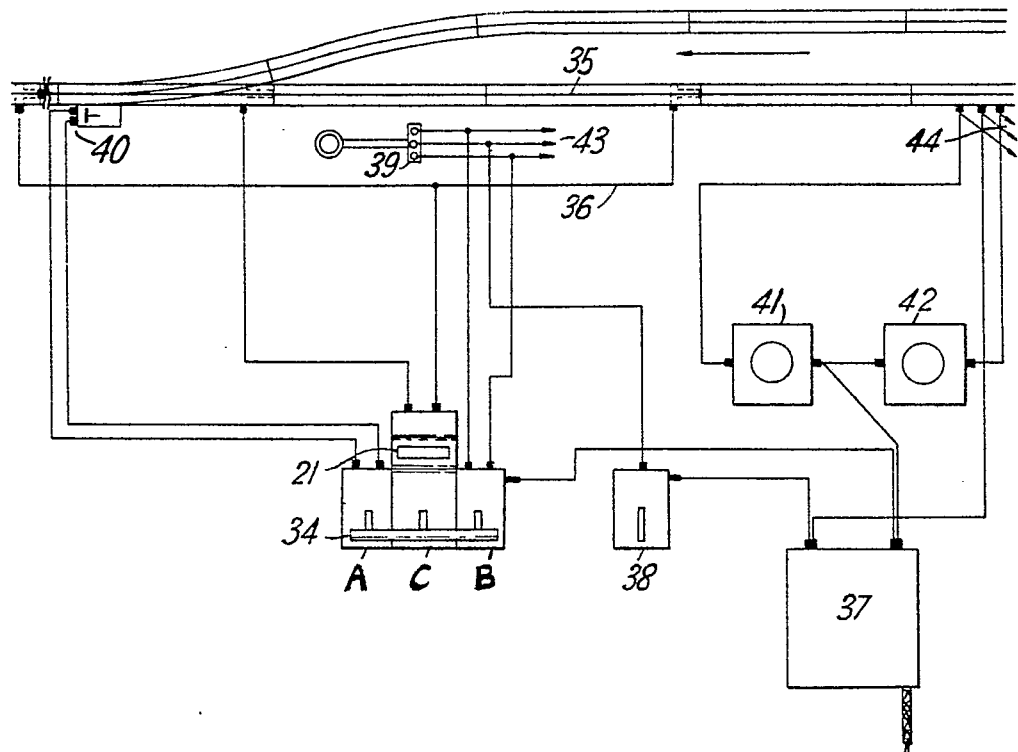


Fig. 5.

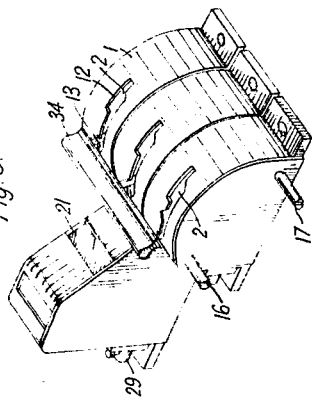


Fig. 6.

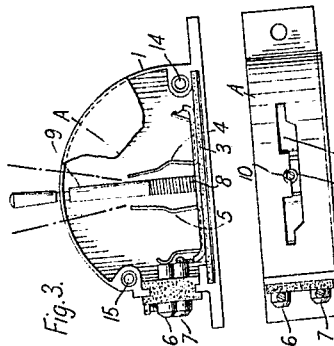
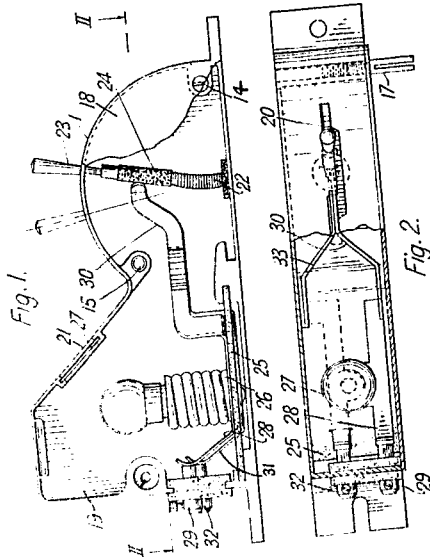
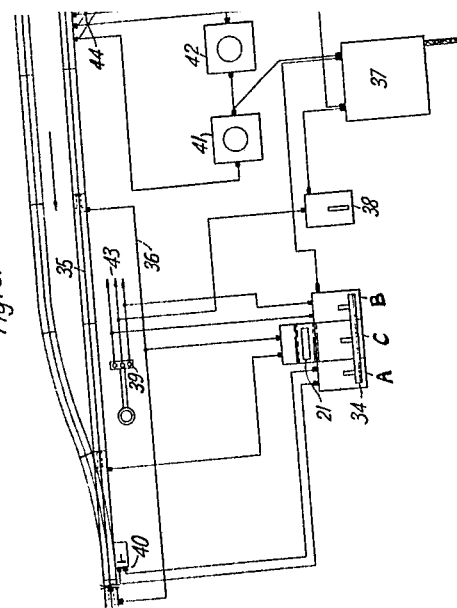


Fig. 4.