

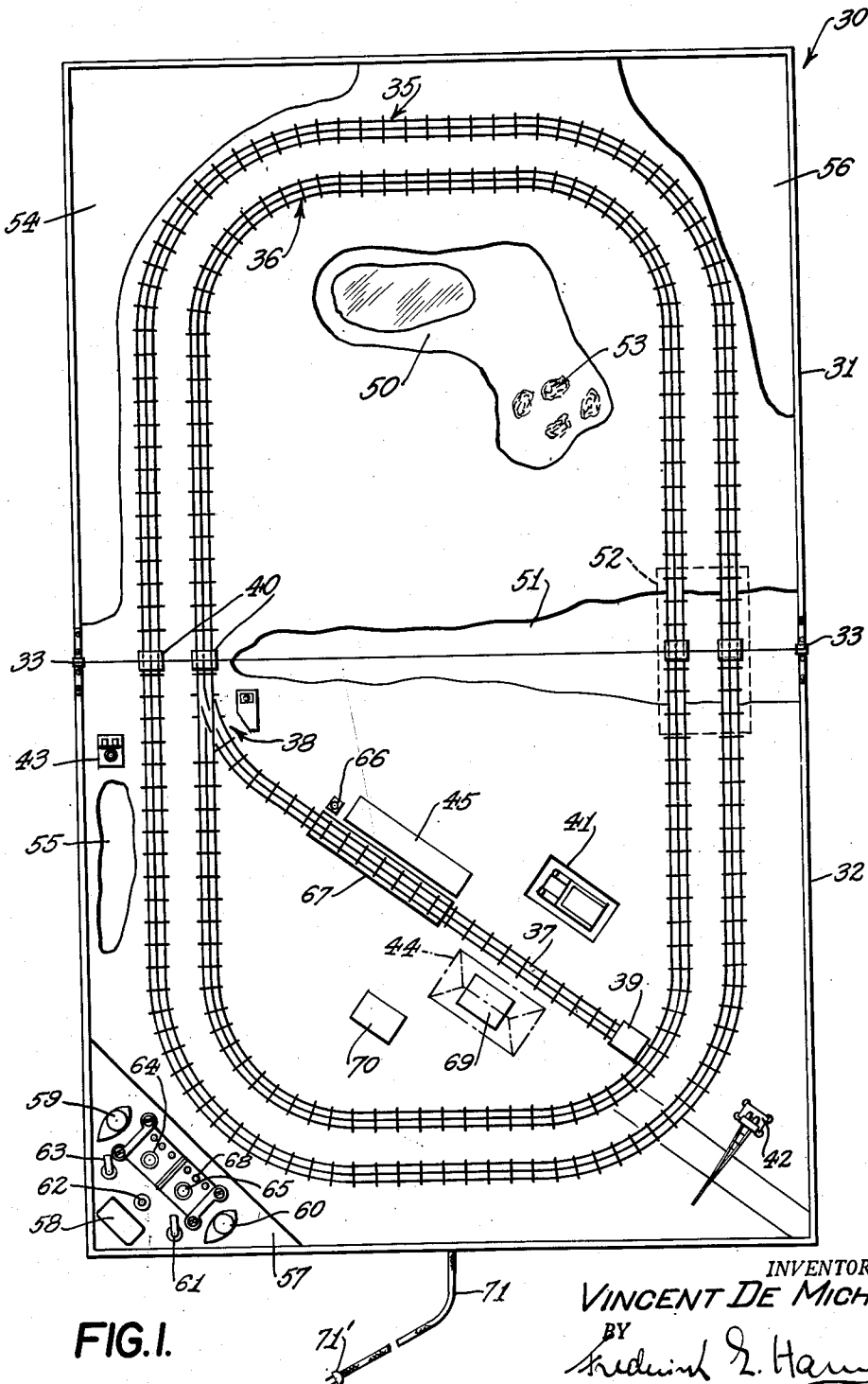
Nov. 4, 1952

V. DE MICHELE
TOY RAILROAD

2,616,630

Filed July 25, 1946

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

FIG. 2.

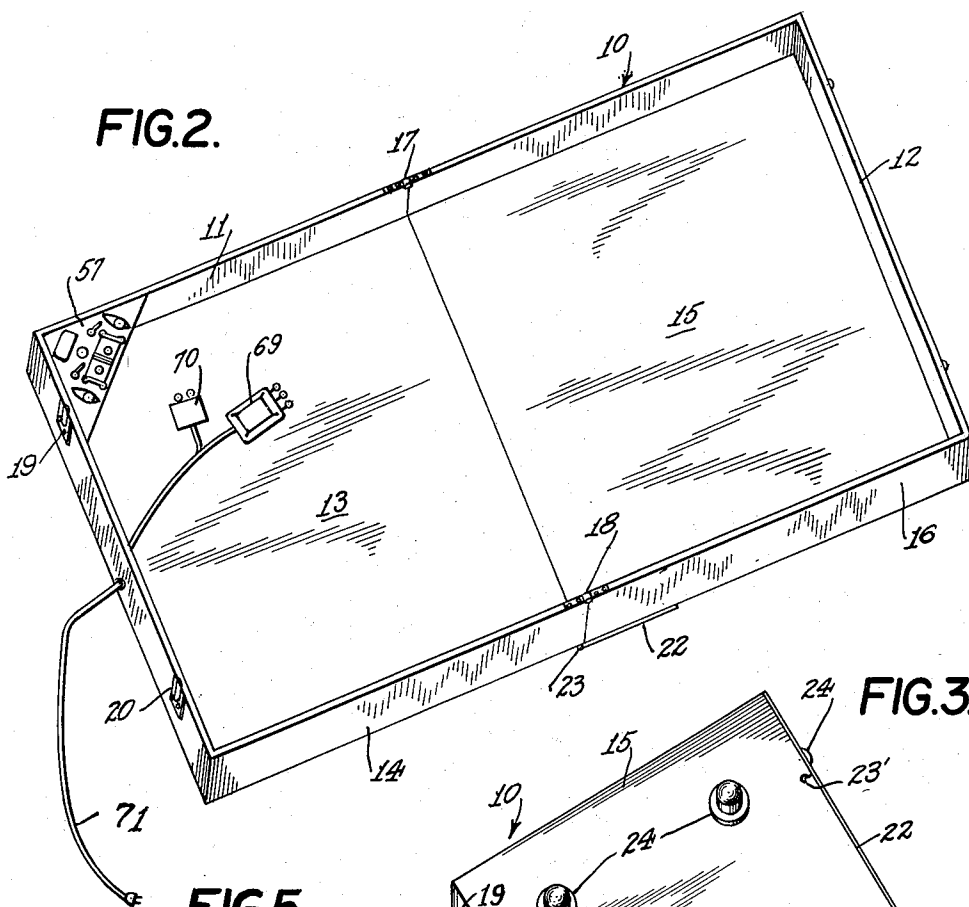


FIG. 3.

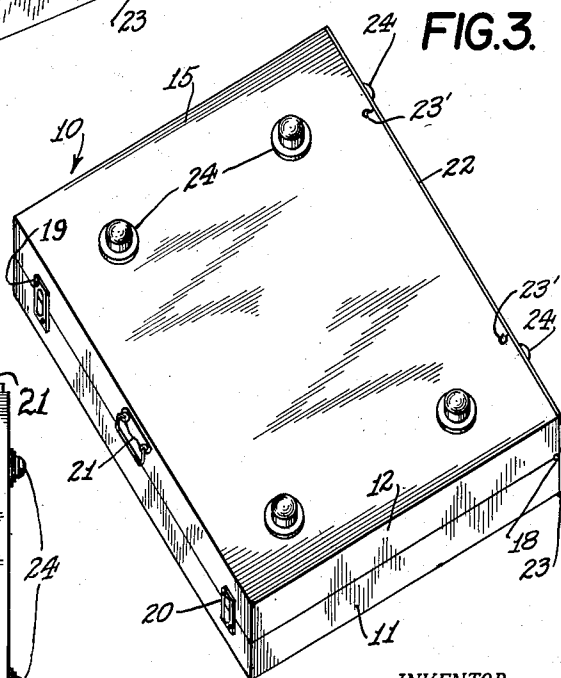


FIG. 5.

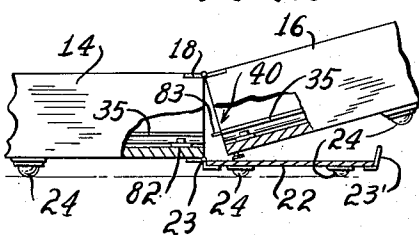
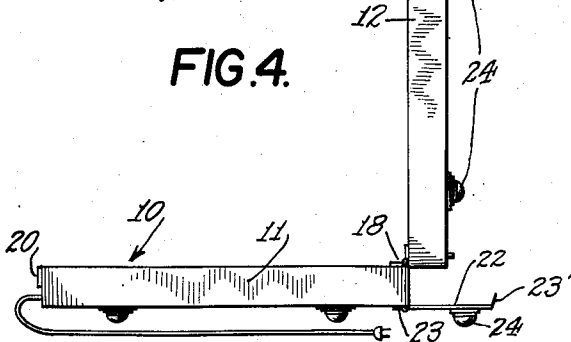


FIG. 4.



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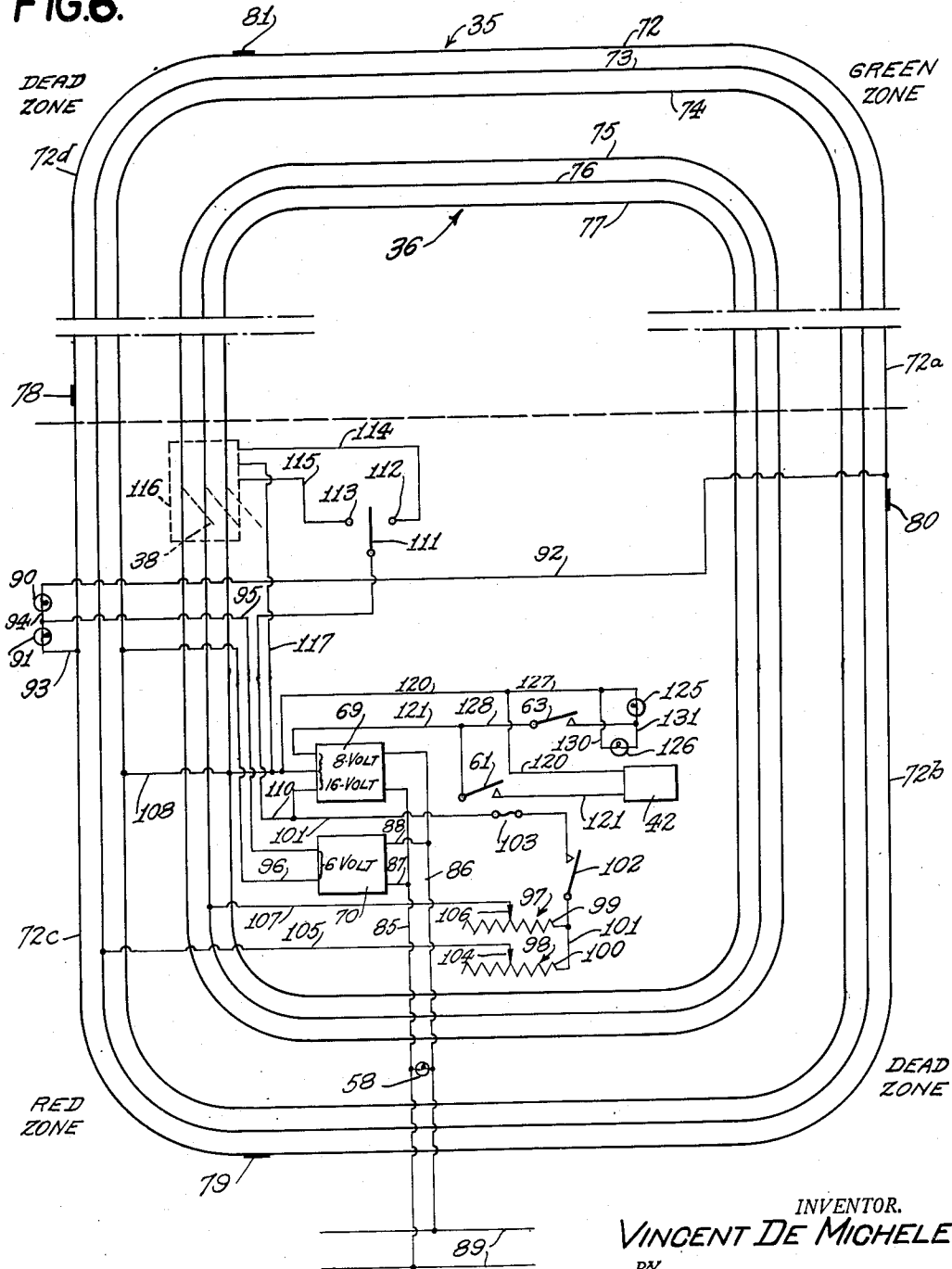
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Filed July 25, 1946

3 Sheets-Sheet 3

FIG. 6.



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2,616,630

TOY RAILROAD

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Application July 25, 1946, Serial No. 686,138

3 Claims. (Cl. 238—10)

1

This invention relates to children's toys, particularly to toy railroad systems.

As is well known, the assembly and dis-assembly of conventional railroad systems require considerable time and also a certain amount of skill frequently beyond the ability of a small child. The track system must be assembled by combining individual rails, the accessories must be installed and various electrical contacts must be established. Adults have frequently not the time or inclination to accept such task. As a result, a child can enjoy an expensive and educational toy, such as a railroad, only at rare intervals.

Accordingly, one of the objects of the invention is to provide a novel and improved toy railroad which is ready for use without requiring time consuming and tedious assembly of dis-assembly work.

Another object of the invention is a novel and improved toy railroad the track system and accessories of which are permanently mounted so that the toy can be made ready for use by simply placing the train or trains on the tracks.

Another object of the invention is a novel and improved toy railroad which is ready for use and enjoyment by simply opening a box and which can be equally conveniently stored by closing the said box.

Another object of the invention is a novel and improved toy railroad in which all electrical control devices employed for operation of a train and accessories are also permanently mounted on or within the box so that it is merely necessary to connect a single wire to an outlet to make the control devices operative.

Another object of the invention is a toy railroad including various novel features, such as automatic control of green and red signals by a moving train.

Another object of the invention is a novel and improved toy railroad the track system of which is more attractive and interesting for the child by landscaping the right of way of the track system and permanently mount various accessories closely to the track system, said landscaping and accessories being also used to conceal the electrical control devices and wire connections.

Other and further objects, features and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

In the accompanying drawings a now preferred embodiment of the invention is shown by way of illustration and not by way of limitation.

In the drawings:

Fig. 1 is a plan view of a base plate supporting

2

a toy railroad system according to the invention in position ready for use.

Fig. 2 is an isometric view of a box, as is used according to the invention to mount permanently the base plate with the railroad system, the box being shown in an open position.

Fig. 3 shows an isometric view of the box in its closed position.

Fig. 4 shows a side view of the box partly closed.

Fig. 5 is a fragmentary sectional view of Fig. 4 on an enlarged scale, the box being shown in a nearly unfolded position, and

Fig. 6 is a diagrammatic circuit system of an electric toy railroad according to the invention.

As previously explained, one of the principal objects of the invention is to provide a novel and improved toy railroad the track system and electrical control devices (in the event, the invention is applied to an electrical toy railroad) are permanently assembled and mounted in a box which, when opened, constitutes a base for the track system and which can be closed without requiring a dis-assembly of any parts of the track system or the control devices. The box, when closed, completely covers all parts of the toy railroad so that the entire toy is well protected against damage and can be easily moved or stored.

Referring now to the figures in detail:

Fig. 2 shows a box generally designated 10 made of any suitable material such as wood, metal or plastic. Box 10 consists of two symmetrical portions 11 and 12. Portion 11 comprises a base 13 and side walls 14, and portion 12 comprises a base 15 and side walls 16. The two portions 11 and 12 are joined by hinges 17 and 18 respectively fastened at the upper outer edges of the side walls 14 and 16, as can best be seen on Fig. 2. As a result, bases 13 and 15 form a continuous base plate when the box is in its open position. The box can be locked in its closed position by any suitable means such as snap locks 19 and 20 respectively. A handle 21 is provided to facilitate transportation of the box. As will be apparent, the side of the box opposite the front wall will be open when the box is closed, for no partition wall between box portions 11 and 12 is provided. In order to close this rear wall of the box when the same is open, a flap 22 is hinged by means of hinges 23 to the lower edge of box portion 11. This flap rests against the bottom side of base 15 when the box is open, as can best be seen on Fig. 2 and is turned upwardly to abut against the edges at the open side of the box when the same is closed, as can best be seen on Fig. 3. Hooks 23' are provided to secure flap 22 in its

position closing the rear wall of box 10. In order to facilitate movement of the box, either when open or closed, ball casters or coasters 24 or similar gliders are provided. These coasters permit to move a box either closed or open, by simply pushing slightly against the same.

The box has been shown as having a rectangular shape, when closed, but it should be understood that any other suitable shape of the box may be provided.

The entire track system and all accessories are mounted on a base plate, generally designated 30, constituted by two portions 31 and 32 joined by hinges 33. Each of portions 31 and 32 has the same size as bases 13 and 14 so that the position of hinge 33 corresponds to the positions of hinges 17 and 18 when base plate 30 is fitted into box 10. The base plate is removably mounted within the box, spaced from the bases 13 and 15 thereof and also from the top edges of the box. Any suitable means may be provided to fasten the base plate within the box such as screws, hooks, guiding noses and grooves. Re-inforcing and supporting ribs extending either from the base plate or the bases of the box may be provided between the base plate and the bottom of the box, as formed by bases 13 and 15. As the mounting of a plate in a box is well known in the art, it need not be described here in detail.

In the embodiment of the invention, as shown on Fig. 1, two independent endless track systems, generally designated 35 and 36 respectively, are provided. The track system 36 has a branch 37 joined to the main track by a switch 38 and ending in a block 39. However, it should be noted in this connection that the scope of the invention is not and shall not be limited to the illustrated track systems but that various layouts of track systems may be employed. As the track systems are intended for the operation of electric trains, each track system may comprise three rails. In the event, mechanical trains are employed, two rails will of course be sufficient for each track system. The rails of the track system may consist of individual rails joined together or of a continuous, correspondingly bent rod. They are fastened to base plate 30, which may be made of wood, plastic or metal, by any suitable means, insulated from each other. If desired, ties may be provided to join the rails of each of the track systems. Each rail of both track systems is provided with joints 40 at the folding line of base plate 30 to permit a folding of the base plate when box 10 is closed. These joints may be constituted by conventional pins 83 at one rail end engaging a corresponding opening of the opposite rail end, as is conventional for the joining of toy rails. As can best be seen on Fig. 5, the connecting rail ends are supported on ties 82. This figure also shows that the pins 83 of the rails meet the receiving sockets of the rails on a flat arc rather than on a straight line but the pins will engage the rail sockets nevertheless by reason of the slight play which in practice is always present and permits a smooth engagement of the rail ends.

Base plate 30 further serves to support any desired variety of accessories, such as a car or truck 41, a gate 42, red and green signal lamps 43, a station house 44, sidings 45, etc. As the design of these accessories is not essential for the understanding of the invention, they are not shown in detail.

The accessories can be fastened directly to the base plate or by means of small bases removably

secured in cut outs provided in the base plate, as is indicated on Fig. 1 by rectangles. Generally, it is preferable to fasten the accessories removably so that they can be removed, either for repair or for replacement.

In order to make the appearance of the track system more realistic, a dummy lake 50 made of painted glass or other suitable material placed in a cut out of base plate 30 may be provided. The arrangement further shows a cut out 51 simulating a valley, bridged by the tracks by means of a bridge 52. The free space of the base plate may be covered with colored gravel to simulate rocks and vegetation. Trees 53 may also be provided. Additional valleys 54, 55 and 56 are indicated at the edges of the base plate. At the left lower corner of the base plate and removably fastened to the side walls of box section 11, there is provided a panel board 57 on which the various switches and knobs are assembled that are required to operate trains placed on the track systems and the various accessories, above referred to. The panel board shows a pilot light 58 to indicate whether the system is under current, two rheostat knobs 59 and 60 to control the speed of the trains, a switch 61 to operate gate 42, a switch 62 to control track switch 38, a switch 63 to turn off and on lights in station house 44 and of car 41. Furthermore, two buttons 64 and 65 may be provided to operate different whistles. These whistles may be mounted on the base plate by means of a plate 66.

In order to couple and uncouple cars, coupling means 67 are associated with branch line 37 and controlled by buttons 68 mounted on panel board 57. In as much as such coupling means are well known in the art of toy railroads and accessories therefor, they are not described here in detail, but it suffices to show the general location of these coupling means and their control means. Two transformers, 69 and 70, indicated by rectangles on Fig. 1, are mounted either on base plate 30 or in the space between the base plate and the bottom of the box. In case, the transformers are mounted on base plate 30, they are preferably concealed by station house 44 or a simulated rock formation.

The foundations of the various accessories, the valleys and the shores of the lake can be advantageously covered with colored plaster of Paris to make these parts of the arrangement to appear more natural.

Current is connected with the control devices through a single cable 71 connected to a socket 71' which can be plugged into a conventional outlet.

The circuits essential for the understanding of the invention shall now be described in connection with Fig. 6.

According to Fig. 6, track system 35 comprises three rails 72, 73 and 74. Track system 36 comprises three rails 75, 76, 77. Rail 72 is divided in four sections 72a, 72b, 72c and 72d by insulators 78, 79, 80 and 81 separating the rail sections. All electric control devices and accessories of the railroad system are energized by means of the two step-down transformers 69 and 70. The transformers are connected by leads 85, 86 and leads 87 and 88 respectively to the power line 89 which may be a standard 110-volt power supply. Transformer 69 has several taps such as taps for 8-volt and 16-volt, and transformer 70 has 6-volt taps. It should of course be understood that the transformers can be tapped for any other suitable voltage.

There are provided a green signal lamp 90 and a red signal lamp 91. Signal lamp 90 is connected by a lead 92 to section 72a of rail 72. Red lamp 91 is connected by a lead 93 to section 72c of rail 72. The two lamps are interconnected by a lead 94 which is connected by a lead 95 to one tap of transformer 70. The other tap of this transformer is connected by a lead 96 to rail 74.

Let it now be assumed that a train is passing over tracks 35. This train will electrically connect rails 72 and 74. As a result, a circuit will be closed for green lamp 90 when the train is travelling over track section 72a. This circuit may be traced from transformer 70 through leads 95, 94, lamp 90, lead 92, rail section 72a, the train, rail 74, and lead 96 back to the transformer. Similarly, a circuit is closed for red lamp 91 when the train is travelling over rail section 72c. This circuit may be traced from transformer 70 through lead 96, rail 74, the train, rail section 72c, lead 93, lamp 91, leads 94 and 95 back to the transformer. When a train is travelling over sections 72b or 72d, both lamp circuits are interrupted. As a result, a green lamp zone, a red lamp zone and two dead zones appear when a train is travelling over tracks 35.

The speed of trains travelling over tracks 35 and 36 respectively is controlled by means of rheostats, designated 97 and 98 respectively. Resistance elements 99 and 100 of the rheostats are connected by a lead 101 including a switch 102 and a safety fuse 103 to a 16-volt tap of transformer 69. The slider contact 104 of rheostat 97, the position of which is controlled by knob 59, is connected by a lead 105 to rail 73. Similarly, slider contact 106 of rheostat 98, the position of which is controlled by knob 60, is connected by a lead 107 to rail 76. The other 16-volt tap of transformer 69 is connected by a lead 108 to rails 74 and 77 respectively.

As a result, an energizing circuit is closed by an engine placed on tracks 35 which may be traced as follows: from transformer 69 through lead 108, the engine, lead 105, slider contact 104, resistance element 100, lead 101, closed switch 102, fuse 103, back to transformer 69. As a result, the energy supplied to the engine and hence the speed of the engine can be controlled by adjustment of slider contact 104. A similar circuit may be traced for an engine placed on tracks 36.

The circuit for the operation of track switch 38 may be traced as follows: from one 16-volt tap of transformer 69 through leads 101 and 110, the contact arm 111 of a double-throw switch having stationary contacts 112 and 113, and lead 114 or lead 115 to the control device 116 of track switch 38 and back through leads 117 and 108 to the other 16-volt tap of transformer 69. As will be apparent, an energizing circuit is closed either through lead 114 or lead 115 when contact arm 111 is placed in engagement with either of contact 112 or 113. The control device 116 is so arranged that the position of track switch 38 will be controlled by the position of contact arm 11. If this contact arm is placed in its neutral position (as shown), the track switch will remain in the position in which it was last placed.

Gate 42 is connected with the 8-volt taps of transformer 69 by a circuit which may be traced as follows: from one 8-volt tap through a lead 120, the gate mechanism, a lead 121, and switch 61 back to the other 8-volt tap of the transformer.

The gate mechanism and also the track mechanism which are controlled by the above described

circuits are of conventional design. Generally, they operate by means of electro-magnets which, when energized, move the parts to be displaced into one or the other position. As the specific designs of the gate and track switch mechanism are not essential for the understanding of the invention, they need not be described here in detail.

There are further provided several lamps such as 125 and 126 which serve to illuminate car 41 and station house 44 respectively. These lamps are connected to the 8-volt taps of transformer 69 by circuits which may be traced for lamp 125 as follows: from one terminal of lamp 125 through a lead 127, lead 120, 8-volt transformer taps, leads 121 and 128 and switch 63 to the other lamp terminal. Lamp 126 is connected in parallel with lamp 125 by leads 130 and 131.

It should of course be understood that any desired numbers of lamps may be connected in a similar manner, for instance lamps may be provided along the right of way.

As previously mentioned, the toy railroad system according to the invention includes a mechanism 67 for coupling and uncoupling cars placed on branch line 37. This mechanism is of conventional design and connected with the control panel in a similar manner as has been described for the other accessories.

It should be further understood that additional accessories may be permanently mounted on base plate 30 which, when electrically operated, can be connected to control switches placed on the panel board. As will be evident from the previous description, the most essential feature of the invention consists in assembling and permanently mounting the entire railroad system in a portable box which, when opened, presents the toy railroad in a position ready for use and which requires merely the plugging in of the single connection 71'.

While the invention has been described in detail with respect to a certain now preferred example and embodiment of the invention it will be understood by those skilled in the art after understanding the invention, that various changes and modifications may be made without departing from the spirit and scope of the invention and it is intended therefore, to cover all such changes and modifications in the appended claims.

What is claimed as new and desired to be secured by Letters Patent is:

1. A toy railroad arrangement comprising a substantially rectangular rigid box composed of two substantially symmetrical portions, each of said portions including a bottom wall, a base plate substantially coextensive with said bottom wall and supported on the same parallel thereto and spaced apart, two side walls and front wall, the fourth side of each box portion being open, hinge means at each upper side wall corner distal to the respective front wall pivotally joining said box portions for placing said box portions either in a set-up position in which the respective side walls, the bottom walls and the base plates are in alignment thereby forming a complete box open at the top, or in a closed position in which the respective side walls and front walls abut against each other at their upper edges, a track system supported on each base plate, each track system including a rail end portion positioned at said open box portion side and facing one the other, and coupling means telescopically engageable with each other and positioned to engage one the other in the open position of the

7

box portions and to be disengaged in the closed position of the box portions.

2. A toy railroad arrangement comprising a substantially rectangular rigid box composed of two substantially symmetrical portions, each of said portions including a bottom wall, a base plate substantially coextensive with said bottom wall and supported on the same parallel thereto and spaced apart, two side walls and a front wall, the fourth side of each box portion being open, hinge means at each upper side wall corner distal to the respective front wall pivotally joining said box portions for placing said box portions either in a set-up position in which the respective side walls, the bottom walls and the base plates are in alignment thereby forming a complete box open at the top, or in a closed position in which the respective side walls and front walls abut against each other at their upper edges, a track system supported on each base plate, each track system including a rail end portion positioned at said open box portion side and facing one the other, coupling means telescopically engageable with each other and positioned to engage one the other in the open position of the box portions and to be disengaged in the closed position of the box portions, electrical control means for controlling the operation of a train placed upon said track systems fixedly mounted in the space between said base plates and said bottom walls, and train accessories fixedly mounted on said base plates.

8

3. A toy railroad arrangement as described in claim 1, wherein a supplementary wall member corresponding in height approximately to the combined height of the side walls is hinged to one of the bottom walls at the open side edge thereof, said supplementary wall member being placeable in a position substantially parallel to the bottom walls in aligned position or in a position substantially parallel to the front walls when the box portions are in said closed positions thereby completing the walls of said box, and wherein clamping means are provided on said supplementary wall member for releasably holding the latter in said parallel position.

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