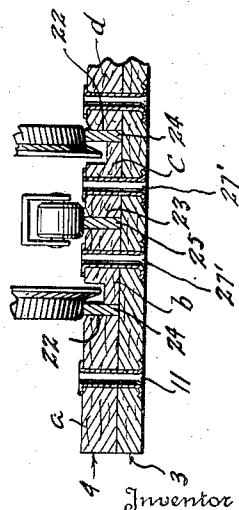
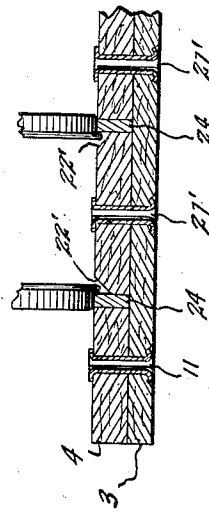
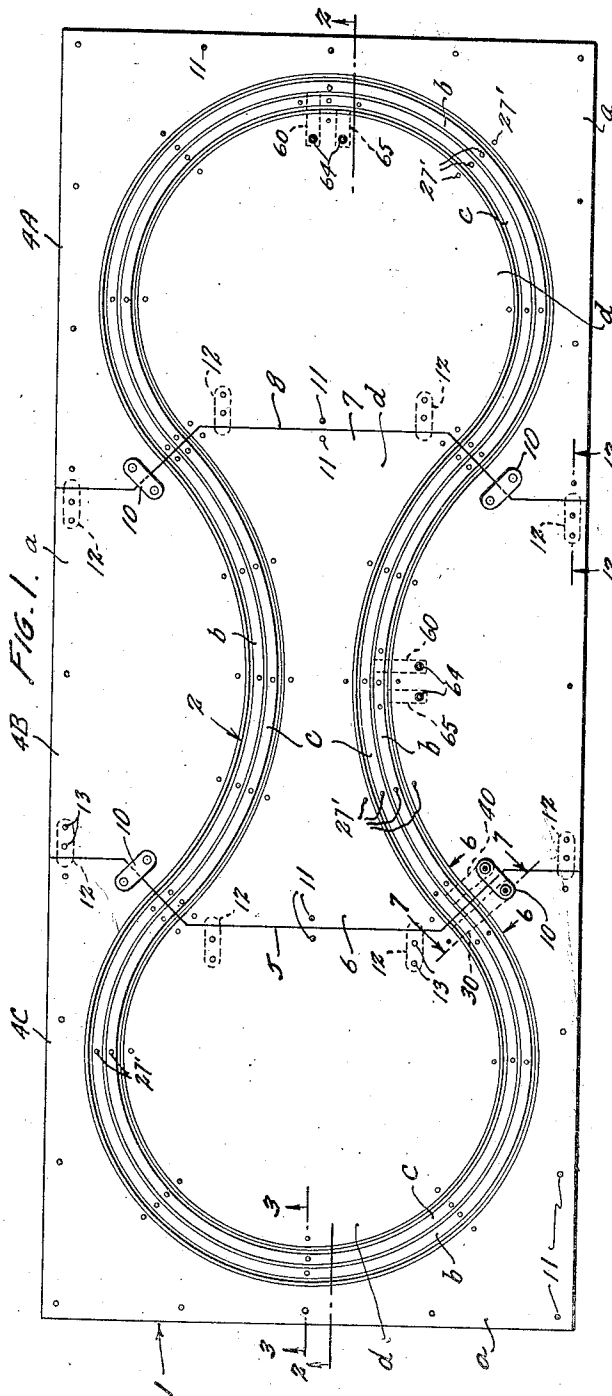


June 4, 1946.

T. L. DUFFY
SUPPORTING SURFACE FOR TOY RAILROAD SYSTEMS
AND SIMILAR AMUSEMENT DEVICES
Filed Aug. 28, 1942

2,401,468

3 Sheets-Sheet 1



Inventor
THOMAS L. DUFFY

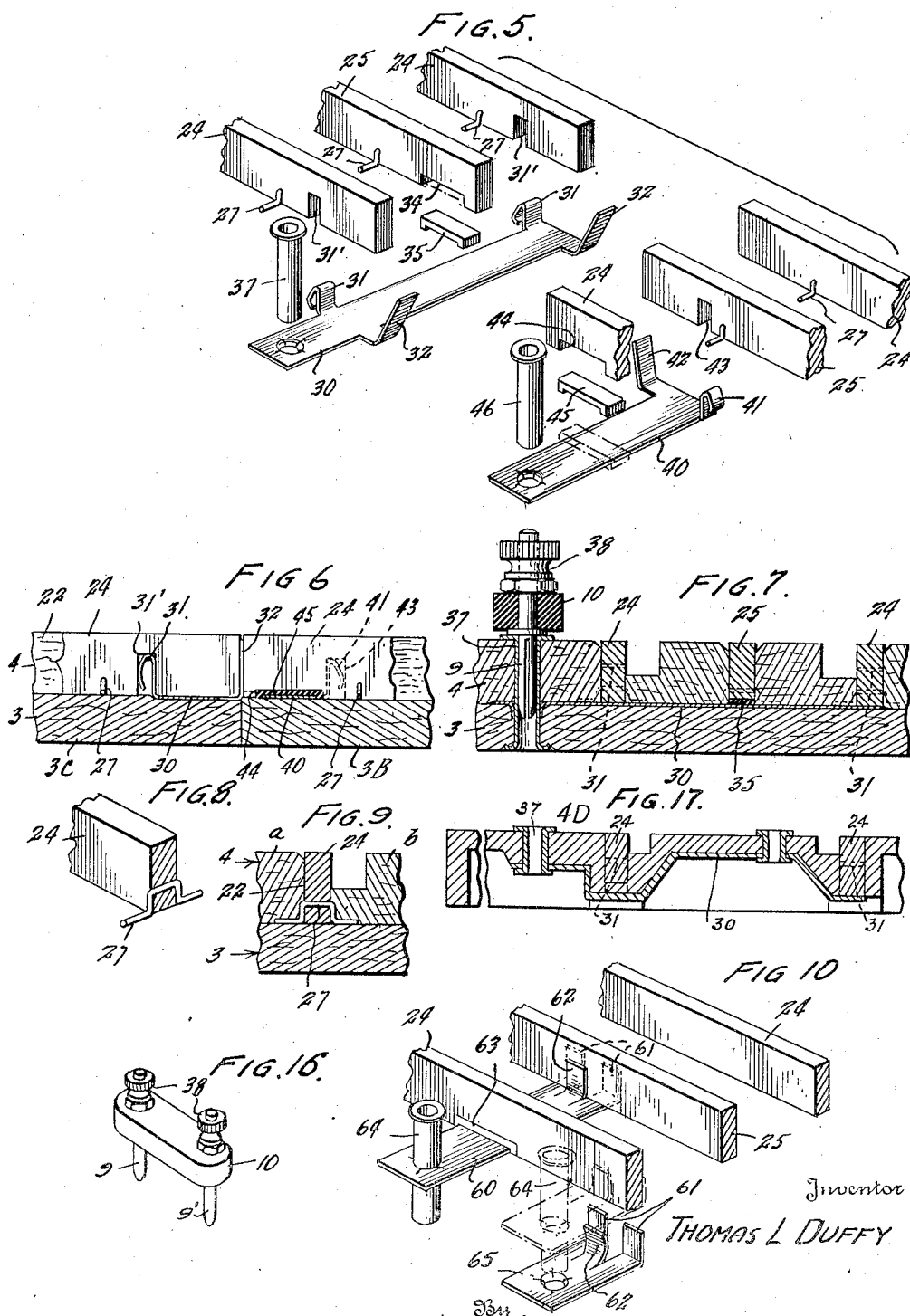
By *Sammes, Keegan, Beale & Sammes*
Attorneys

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3 Sheets-Sheet 2



Inventor

THOMAS L. DUFFY

Semmes, Keegan, Beale & Semmes Attorneys

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FIG. 11.

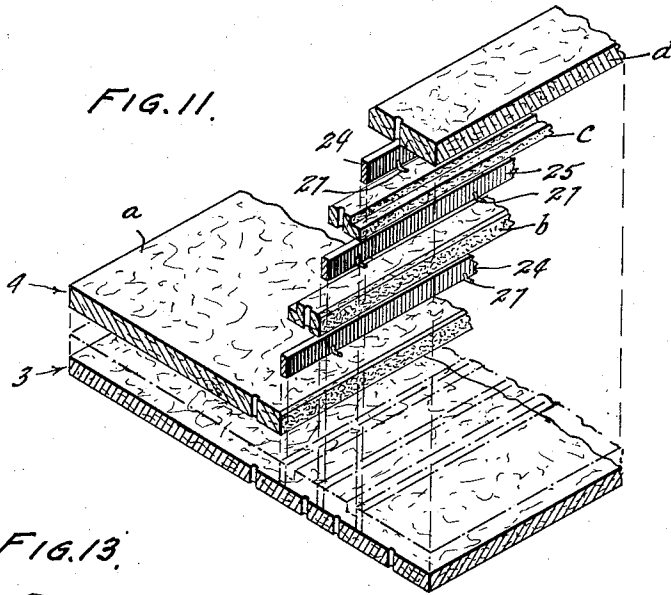


FIG. 13.

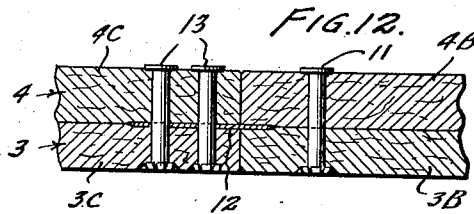
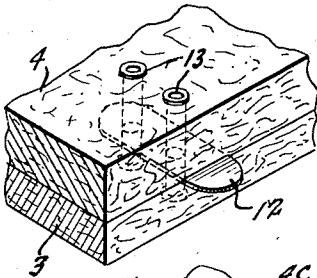


FIG. 15.

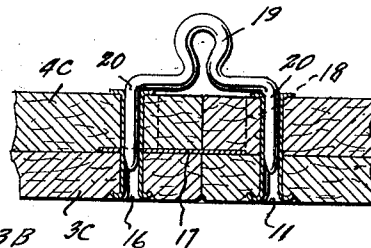
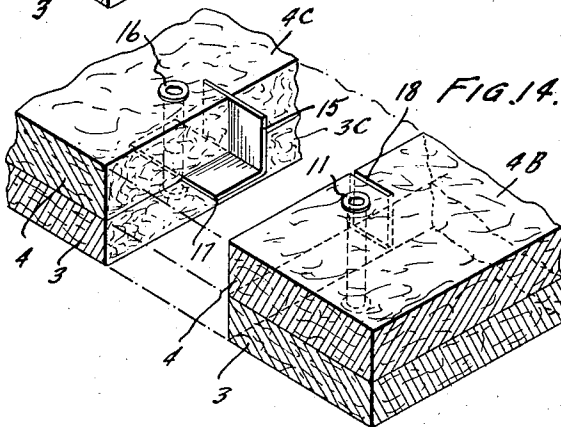


FIG. 14.



Inventor
THOMAS L. DUFFY

By Lemme, Keegan, Beale & Lemme
Attorneys

UNITED STATES PATENT OFFICE

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SUPPORTING SURFACE FOR TOY RAILROAD
SYSTEMS AND SIMILAR AMUSEMENT DE-
VICES

Thomas L. Duffy, Kearny, N. J.

Application August 28, 1942, Serial No. 456,566

11 Claims. (Cl. 238—10)

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The present invention in general relates to a supporting structure for toy railroad systems or the like and in its more limited application, it pertains to a panel or base for the running rails of toy trains which will also serve to permit the simulation of various scenic effects such as, for instance, rivers, mountains, highways, etc.

I am, of course, aware that attempts have been made in the past to provide a supporting surface or panel for toy railroad systems. However, these panels have not been completely successful in view of the fact that it has been quite difficult to achieve the desired scenic effects by reason of the fact that the running rails have projected a substantial distance above the plane upper face of the panel. Furthermore, it has been necessary to make these panels of a plurality of sections which when in assembled form, provide a continuous supporting surface. This is due to the fact that unless a knock-down construction is employed, the supporting surface would be relatively large, making it too bulky for efficient use. To the best of my knowledge, no means has been provided to assemble a plurality of sections in such a manner that the sections will have no lateral or transverse movement with respect to each other. The disadvantage of permitting free lateral movement is that the rails will become disconnected at their various points of juncture, which destroys the intended purpose of panels of this nature.

The only feasible manner in which to assemble these supporting structures is to use a plurality of superposed members. However, unless some means is provided to tie in these superposed members to prevent vertical displacement, the units, for all practical purposes, are worthless. To the best of my knowledge, no structure has been provided to prevent this vertical displacement.

Accordingly, an important object of the present invention is to provide a supporting base or panel for the running rails of toy railroad system which will overcome the above and other disadvantageous characteristics present in the art.

Another object of the present invention is to provide a panel or base for an amusement device of the character described which comprises a plurality of sections which, when in assembled form, so interlock as to prevent any lateral movement of each section with respect to the adjacent section.

Yet a further object of the present invention is to provide an amusement device having a base or panel comprising a plurality of laminated sections which are adapted to interlock in such a way that lateral and vertical displacement of each section with regard to its adjacent section is positively prevented.

Still a further object of the present invention is to provide a panel or supporting base of the char-

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acter herein described which supports a novel means to supply electrical energy to the running rails.

Yet a further object in the present invention is to provide a panel for toy railroad systems having mounted therein the running rails in such a manner that the upper face or ball surfaces of the rails are substantially flush with the upper plane surface of the panel.

And another object of the present invention is to provide a novel structure whereby the running rails are locked in position on the supporting base or panel.

It is also an object of this invention to form the base of the roadbed of molded plastics with the rails embedded therein.

To accomplish the above and other important objects, the invention in brief comprises a supporting panel which consists of a plurality of laminated individual sections, each section being adapted to interlock with the adjoining section in such a way that lateral displacement of the respective sections is prevented. Adjacent to the line of juncture of each section and positioned between the vertical faces of the sections are disposed elements which will prevent any disalignment of the sections in the vertical plane.

The upper lamination of the panel is composed of a plurality of sections which correspond to the particular type of track layout that is desired, and are arranged in spaced parallel relation to each other to provide grooves into which the running rails are disposed and secured.

The grooves are of such depth that the upper face or ball of the rail is substantially flush with the upper plane surface of the base or panel.

In addition, means are provided to supply electrical energy to the rail and to tap the source of energy to permit various attachments such as semaphores, lights or the like to be operated.

In the drawings in which the same reference characters designate the same or similar parts. Figure 1 is a top plan view of a base or panel construction made according to my inventive concept.

Figure 2 is a longitudinal sectional view taken along the line 2—2 of Figure 1 looking in the direction of the arrows.

Figure 3 is a transverse sectional view taken along the line 3—3 of Figure 1 looking in the direction of the arrows.

Figure 4 is a view generally similar to Figure 3 illustrating the use of a pair of running rails, the third rail being omitted.

Figure 5 is an exploded view in perspective showing the manner in which electrical energy is supplied to the running rails.

Figure 6 is a longitudinal view taken along the line 6—6 of Figure 1 looking in the direction of the arrows.

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Figure 7 is a transverse sectional view taken along the line 7—7 of Figure 1 looking in the direction of the arrows.

Figure 8 is a view in perspective showing the means whereby the rail is secured in the panel.

Figure 9 is a fragmental transverse sectional view showing the manner in which one of the running rails is secured in the panel.

Figure 10 is an exploded view in perspective illustrating the manner in which the rails can be tapped for supplying electrical energy to operate various accessories.

Figure 11 is an exploded view in perspective illustrating the way in which the metal tongue prevents vertical displacement.

Figure 12 is a fragmental transverse sectional view showing the manner in which the metal tongue prevents vertical displacement.

Figure 13 is a fragmental view in perspective showing a metal tongue interposed between two superposed members for preventing vertical displacement of the members.

Figure 14 is a view in perspective showing a modified type of tongue which is employed to prevent vertical displacement of the supporting base.

Figure 15 is a fragmental transverse sectional view of the construction shown in Figure 14 showing a novel pin for securing the sections together, and

Figure 16 is a view in perspective of a locking unit for the sections.

Figure 17 is a fragmental sectional view generally similar to Figure 7, showing a molded plastic base and the manner of supplying electricity to the rails.

In Figure 1 there is shown a supporting base or panel 1 having inset, flush with the upper plane surface thereof, a track 2 for a toy railroad or the like. The panel 1 comprises a subbase 3 which in this particular embodiment consists of sections 3A, 3B, and 3C. A surface member 4 is mounted on the upper face of the base 3 and likewise is formed of sections 4A, 4B and 4C which correspond to the dimensions of sections 3A, 3B and 3C respectively.

It will be noted that one of the edges of the section 4C is provided with a cut out portion 5 into which fits a tongue 6 formed on one of the edges of the adjoining section 4B. The opposite edge of the section 4B is also formed with a tongue 7 which fits within a cut out portion 8 provided in one edge of the section 4A. The sections 3A, 3B and 3C are interlocked in a similar manner.

To maintain the sections in their assembled form and to prevent any movement thereof, I provide the following locking devices. In Figure 16 it will be observed that a pair of prongs 9 and 9' supported in a horizontal tie strip 10 are adapted to fit into hollow rivets 11 which are formed in the subbase 3 and the surface member 4 at intervals disposed along the line of juncture of the various sections, which is fully illustrated in Figure 1. When these locking units are in position it is thought apparent that the sections are interlocked positively against any lateral displacement, the advantage of which is thought to be clear.

In addition to providing means to prevent lateral displacement of the sections, it is essential that vertical displacement between the subbase 3 and the surface member 4 also be obviated. The preferred means for achieving this result is depicted in Figures 12 and 13. In this embodi-

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ment an elongated metal tongue 12 is secured between the subbase 3 and the surface member 4 adjacent to the point of juncture of each section. A small portion of the tongue 12 projects beyond the end of the section and this portion fits between the subbase 3 and the surface member 4 of the adjoining section when the panel is assembled, as shown in Figures 1 and 12. Hollow rivets 13 extend through the surface member, the tongue 12, base and subbase 3 thereby securing the tongue in the correct position. The spacing of the metal tongues is shown in dotted lines in Figure 1. A modified form of the device is illustrated in Figures 14 and 15 and it will be noted that I employ a substantially L-shaped member 15 which is secured between the subbase 3 and the surface member 4 adjacent to the end of each panel section. A grommet 16 fixes the L-shaped member 15 in the desired position between the subbase and the surface member. The L-shaped member 15 also has a portion 17 which extends beyond the end of the individual sections and the vertical portion thereof fits in a vertical slot 18 provided in the edge of the adjoining section. Of course, the horizontal portion fits between the subbase 3 and the surface member 4 when the sections are assembled. A securing device 19 which is formed with a pair of prongs 20 is adapted to have the prongs fitted within the grommets 16 and as a consequence the sections are held against displacement.

By reason of the foregoing structural details, it will be fully appreciated that I have provided a panel or supporting base for toy railroad systems that is composed of a plurality of laminated or molded plastic interlocking sections which are not subject to either vertical or lateral displacement.

Another important feature of the panel construction is that the ends or edges of adjoining panels are cut in such a way that the cut or line of juncture is perpendicular to the track 2. This is particularly efficacious in that the rails forming the track will always be assured of proper alignment. For example, if this cut was not perpendicular to the rails, it would mean that the rails would have to be cut at an angle which, of course, makes it very difficult to align the rails and in addition it requires the expenditure of a considerable amount of time in assembling the supporting structure.

The surface element 4 and hence each section 4A, 4B and 4C is formed with outer grooves 22 and an inner groove 23. Outer running rails 24 and an inner rail 25 are positioned in the grooves 22 and 23 respectively. As perhaps best shown in Figure 3, the outer grooves 22 are of such depth that the upper face or ball of each outer rail 24 is substantially flush with the upper face of the surface member 4. In addition, each groove 22 is stepped so as to enable the flange of the toy train wheel to fit easily therein (Figure 3). The inner groove 23 is of the same depth as the outer grooves and hence the ball of the rail 25 is also approximately flush with the upper surface of the surface member 4. In view of the fact that it is not necessary to provide sufficient clearance for the wheel flange, it will be observed that the inner groove 23 is merely provided with a slight bevel at its upper end.

The method of assembling the surface member to provide the structure just described is clearly shown in Figure 11. It will be noted that each section of the surface member is cut into segments *a*, *b*, *c* and *d*. The segment *a* is disposed

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upon the subbase 3 and one of the outer rails 24, having suitably supported thereby an omega-shaped locking pin 27 (Figures 8 and 9) is positioned against the edge of the segment *a*. Segment *b* is then disposed against the free edge of the rail and consequently the rail is held in proper alignment in the outer groove 22. Inner rail 25 is then disposed against the free edge of the segment *b* in a manner similar to the outer rail 24 and segment *c* is next disposed against the edge of the rail 25. This rail is then fixed in its proper position with respect to one of the outer rails 24. The other outer rail 24 is then disposed against the edge of the segment *c* and the segment *d* is then positioned against the exposed edge of the rail which means, of course, that this rail is held in its correct position in the surface member 4. To maintain the various segments in their correct position, it will be noted that a plurality of hollow rivets 27' extend through the upper surface member 4 and the subbase 3 at spaced intervals and reference should be made to Figures 1 and 3.

In Figure 4 I have shown a somewhat modified form of running rail construction which it will be noted omits the middle or third rail. This form is employed in connection with wheels which are not provided with a flange of the type shown in Figure 3 and hence the upper end of each rail groove is not cut away as shown in Figure 3. The upper end is merely provided with a bevel 22' which is sufficient to provide the necessary clearance for the flange. The upper surface member 4, however, is assembled in substantially the same manner as that shown and described in connection with Figure 3.

Electrical energy is supplied to the running rails in the following manner. In Figure 5 it can be seen that a spring metal jumper 30 is provided with spring arms 31 along one longitudinal edge and upstanding resilient fingers 32, laterally opposed to the spring arms 31, along the other longitudinal edge. The jumper 30 is installed at the point of juncture of the adjoining sections and each spring arm 31 fits within a vertical slot 31' provided adjacent to the end of each outer rail 24. The middle or inner rail 25 is slotted as shown at 34 and an insulator 35 is disposed within the slot 34. It will be appreciated therefore that the middle rail of this particular section is insulated from the jumper 30 by reason of the insulator and electrical contact is made between the outer rails 24 and the jumper by virtue of the spring arms 31. When the panel is assembled a hollow rivet 37 extends through aligned apertures in the surface member 4, spring jumper 30 and subbase 3. An electrical connector 38, such as shown in Figure 16 is fitted into the rivet 37 for supplying electrical energy to the spring jumper. In the adjoining section a metallic jumper 40 is provided with a single spring arm 41 and an opposed spring finger 42. The spring arm 41 fits in a vertical slot 43 formed in the middle or inner rail 25 and one outer rail 24 is slotted as shown at 45 and an insulator 46 is fitted into the slotted portion whereby the rail 24 which crosses the jumper 40 is insulated from the spring jumper 40. Hollow rivets 46 extend through aligned apertures in the surface member 4, metallic jumper 40 and the subbase 3 in order that energy may be supplied to the middle rail 25.

When the sections are assembled, it will be noted that the spring fingers 32 of the jumper 30 are positioned between the ends of the adjoining

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or abutting outer rails 24 and that the spring arm 42 of the jumper 40 is positioned between the abutting ends of the inner rail 25 as shown in Figure 6.

Inasmuch as one of the objects of the instant invention is to provide some means whereby it is possible to tap the electrical energy from the rails to effect various types of auxiliary operations, attention is directed to Figure 10. In this figure, it will be noted that a spring arm 60 is formed at its inner end with a pair of upstanding members 61 which contact one of the faces of the inner rail 25 and with a third upstanding member 62 which is positioned intermediate the members 61 and which engages the other face of the rail 25. The outer rail 24 is insulated from the spring arm 60 as shown at 63. A hollow rivet extends through the surface member, the sub-base member and through the spring arm 60 as shown clearly in Figure 10. A second spring arm 65 is in contact with the outer rail and is similar in construction to the arm 60. A connector such as shown in Figure 16 is adapted to have its prongs 9 and 9' fitted into the hollow rivets 64 and by connecting leads to the binding posts carried by the tie strip, it is apparent that auxiliary units such as signals, lights or the like can be operated from the current supplied to the rails.

In making the base for the road bed of molded plastics, the base may be constructed of upper and lower sections shaped and secured together as herein described and shown in the drawings. For this purpose any of the available plastics or synthetic resins may be used.

Instead of utilizing the composite laminated construction herein described, a single thickness of molded plastic 4D may be employed as shown more particularly in Figure 17. In this instance the metal rails 24 may be embedded in the molded base and provided with electrical connections similar to those illustrated in Figure 5. The principal difference will reside in the use of a single layer of molded plastic and the molding of said plastic about the rails and connections and in the omission of the means fastening the two layers or laminations together.

The means for fastening the various sections together will be the same as illustrated in the drawings previously described.

By virtue of the foregoing description it is thought apparent that I have provided a base for toy train systems which is so formed that there can be no danger of the running rails getting out of alignment. In addition, I provide a base which is formed of a plurality of laminated sections, the sections of which are interlocked so that lateral and vertical displacement of each section with respect to its adjacent section is prevented. Furthermore, the rails are supported by the base in such a way that the upper ends of the rails are approximately flush with the upper plane surface of the base which means, of course, that various scenic effects can be effected. Moreover, this particular arrangement of the rails will enable various types of wheeled vehicles to be employed.

While I have shown and described the preferred embodiment of my invention, I wish it to be understood that I do not confine myself to the precise details of construction herein set forth by way of illustration, as it is apparent that many changes and variations may be made herein, by those skilled in the art, without de-

parting from the spirit of the invention, or exceeding the scope of the appended claims.

I claim:

1. In a supporting surface for toy railroad systems, a plurality of panel like base sections adapted to abut one another to form a base for the system, each of said sections comprising a plurality of superposed plies, means adjacent the line of abutment of the sections to prevent lateral displacement thereof and additional means adjacent the line of abutment and including tongue members carried by one section and projecting between adjacent plies of the abutting section to prevent vertical displacement of said sections, and removable locking means interengaging abutting sections to prevent separation of said sections.

2. In a supporting surface for toy railroad systems, a plurality of sectional members adapted to abut one another to form a panel like base for the system, each of said sectional members comprising a plurality of superposed plies, trapezoidal interlocking means adjacent the line of abutment of the members to prevent lateral displacement thereof, and additional means adjacent the line of abutment and including tongue members carried by one section and projecting between adjacent plies of the abutting section to prevent vertical displacement of said members.

3. A supporting surface for toy railroad systems comprising a molded plastic base and track forming rails embedded therein so that the upper faces of the rails are substantially flush with the upper face of the base, the upper face of the base adjacent the inner edge of the track forming rails being depressed and constituting flangeways for flanged wheels running on said rails.

4. A support for toy electric railroad rails comprising a base, a plurality of individual sections superposed on the base and spaced from each other to provide rail receiving grooves sufficiently wide to receive a rail and the flange of a wheel running thereon, means for securing the segments to the base rails within the grooves, and means projecting laterally adjacent the lower edge of the rails and adapted to be positioned between the base and the said superposed sections for positively securing the rails in the grooves.

5. A support for toy electric railroad rails comprising a base, a plurality of individual sections superposed on the base and spaced from each other to provide grooves sufficiently wide to receive a rail and the flange of a wheel running thereon, and rails secured within the grooves, said sections having a height substantially the thickness of the rail whereby the upper face of the rail, when secured in the grooves is substantially flush with the upper face of said sections.

6. In a toy railroad system a base consisting of individual sections, rails embedded in said sections and having their upper faces substantially flush with the upper surface of the sections, wheel flange receiving grooves adjacent the inner side of said rails means for securing the individual sections together in aligned abutting relation, electrical conducting means embedded in the base and having an electrical contact with certain of said rails, additional conducting means embedded in the base and having electrical contact with other of the rails, means for insulating

the rails contacted by one of said conducting means from the other of the conducting means, hollow rivet means for securing the conducting means in place and removable terminal members adapted to be inserted in said hollow rivet means for supplying current to said rails.

7. In a supporting surface for toy railroad systems, a panel like base coextensive with the system, running rails imbedded therein so that the upper faces of the rails are substantially flush with the upper face of the base, the upper face of said base being depressed adjacent the inner edges of the running rails and constituting flangeways for wheel flanges of a toy train.

8. In a supporting surface for toy railroad systems, a panel like base coextensive with the system, grooves in the base, running rails fitted within the grooves, said grooves having a depth and width sufficient to permit the upper faces of the rails to lie substantially flush with the upper face of the base and to also accommodate wheel flanges of a toy train, and anchor means carried by the rails and extending laterally therefrom and engaging the base securing the rails within said grooves.

9. In a supporting surface for toy railroad systems, a panel like base comprising a plurality of individual panel like sections, one of said sections having a tongue of trapezoidal configuration, another of said sections having a cut-out portion into which said tongue fits, running rails carried by each of said sections, the rails carried by one section adapted to form a continuation of the rails carried by the adjacent section when said sections are adjoined, the adjoining angular faces of said cutout portion and tongue being perpendicular to said rails and means to lock the tongue of one section into the cut-out portion of an adjacent section to prevent relative displacement of said sections.

10. In a supporting surface for toy railroad systems, a panel like base coextensive with the system, grooves in the base, running rails fitted within the grooves, said grooves having a depth and width sufficient to permit the upper faces of the rails to lie substantially flush with the upper face of the base and to also accommodate wheel flanges of a toy train, means to supply electric current to certain of said rails, and additional means to insulate the rails to which the electric current is not supplied.

11. In a supporting surface for toy railroad systems, a panel like base comprising a plurality of individual panel like sections, one of said sections having a tongue of trapezoidal configuration, another of said sections having a cut-out portion into which said tongue fits, means to lock the tongue of one section into the cut-out portion of an adjacent section to prevent relative displacement of said sections, grooves in the base, each of said grooves having a width sufficient to accommodate a running rail and the flange of a toy train wheel running thereon, running rails fitted within the grooves so that the upper faces of the rails are substantially flush with the upper face of the base, means to supply electrical current to certain of said rails adjacent the point of juncture of the individual sections, and further means to insulate the rails to which the current is not supplied.

THOMAS L. DUFFY.