Aug. 19, 1930. P. S. WESTCOTT 1,773,560

TOY RAILWAY TRACK

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Fig. 1

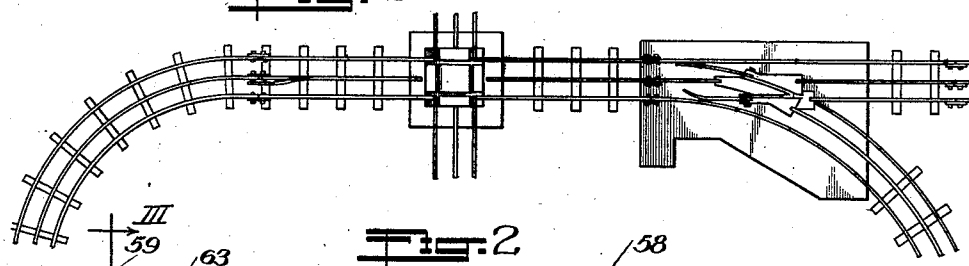


Fig. 2

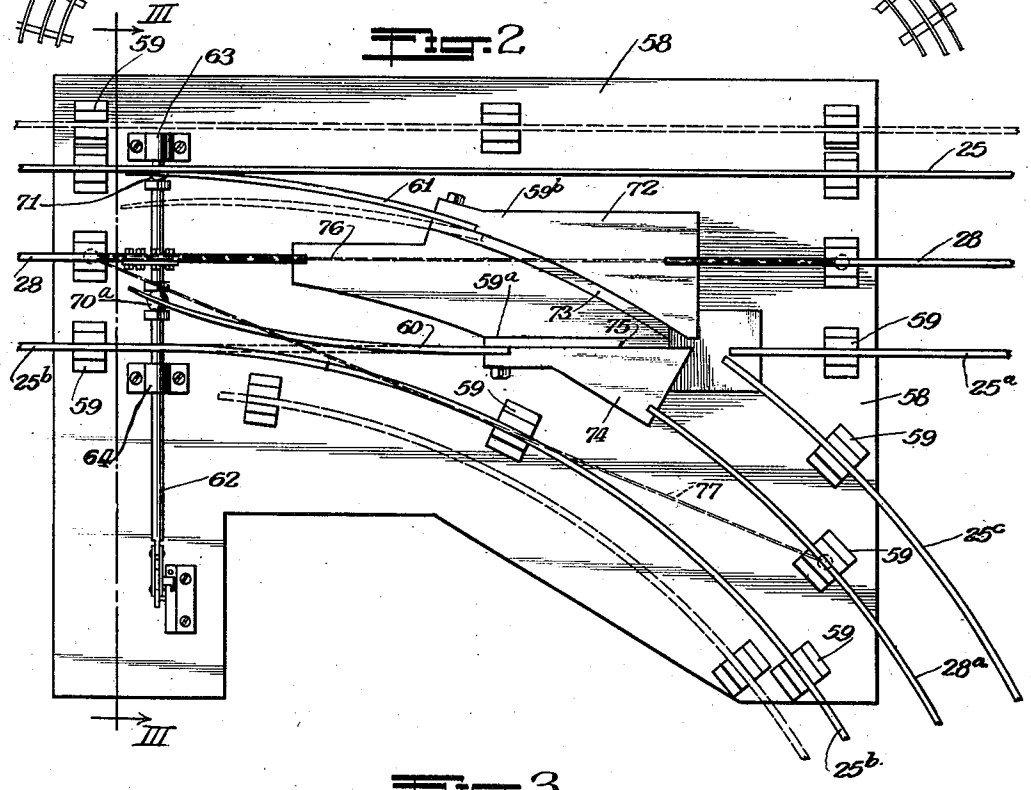
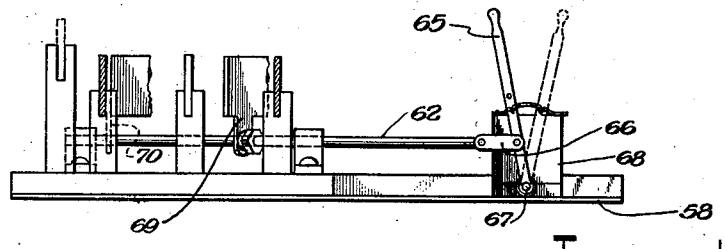


Fig. 3



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TOY RAILWAY TRACK

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Fig. 4

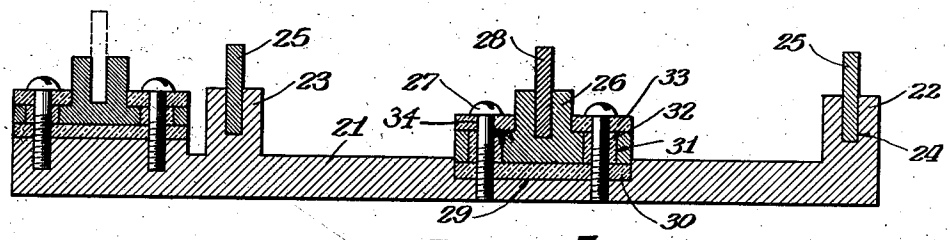


Fig. 5

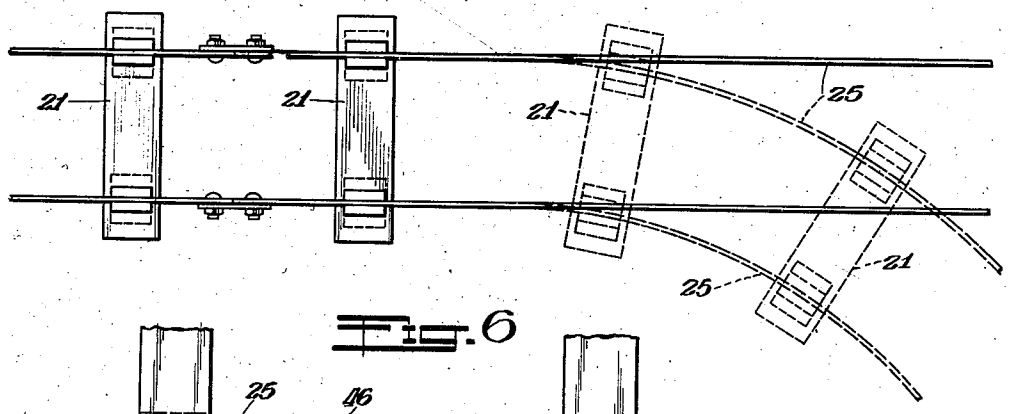


Fig. 6

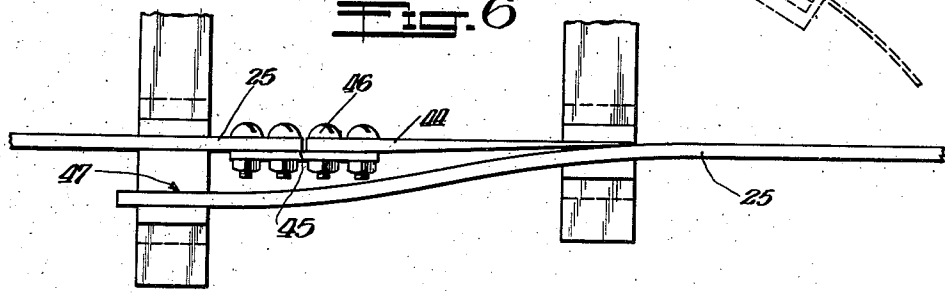


Fig. 7

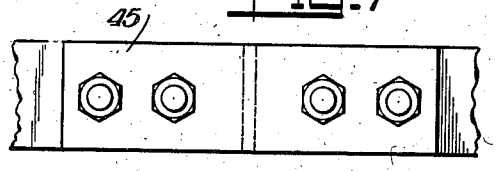


Fig. 8

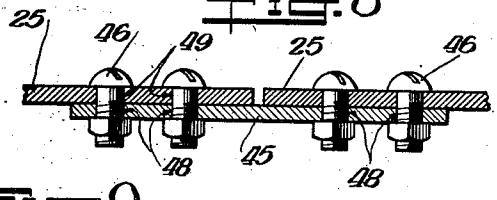
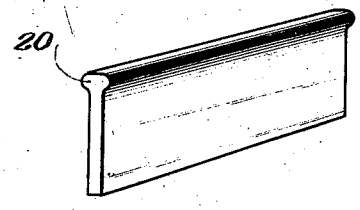


Fig. 9



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TOY RAILWAY TRACK

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Fig. 10

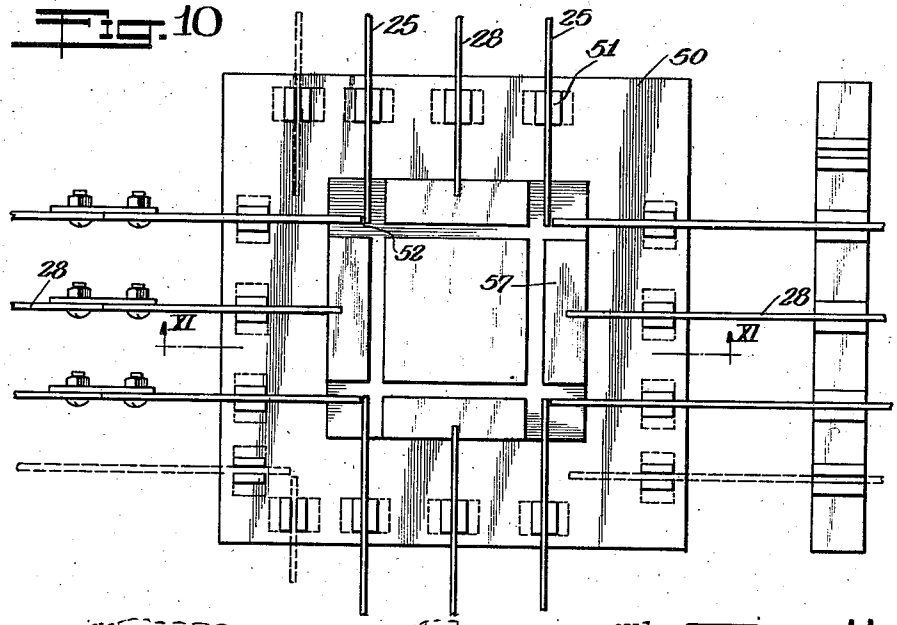


Fig. 11

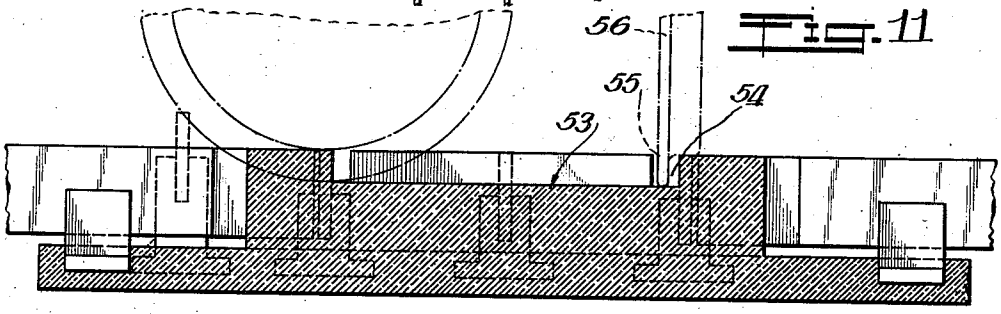
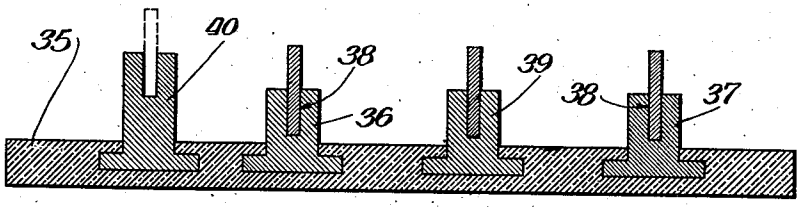


Fig. 12



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TOY RAILWAY TRACK

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Fig. 13

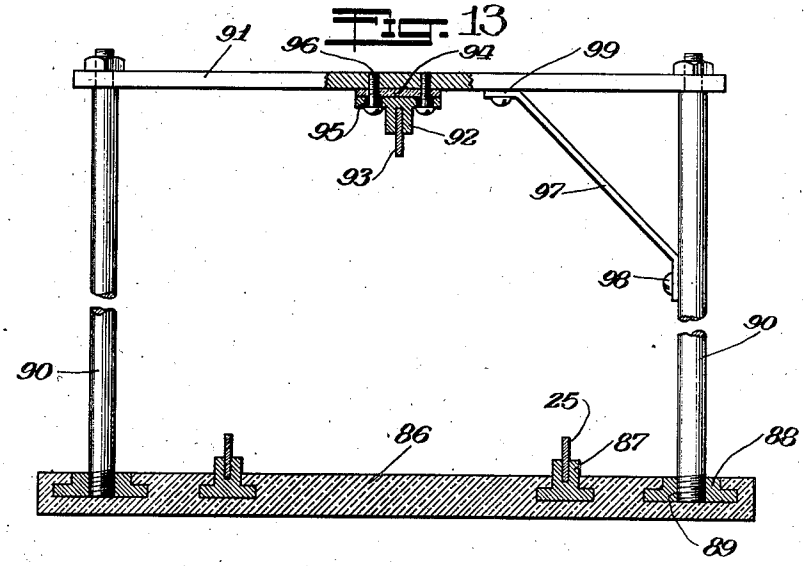


Fig. 14

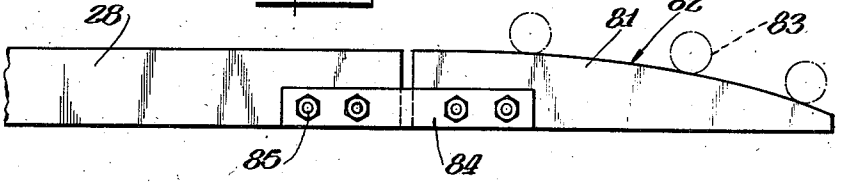


Fig. 15

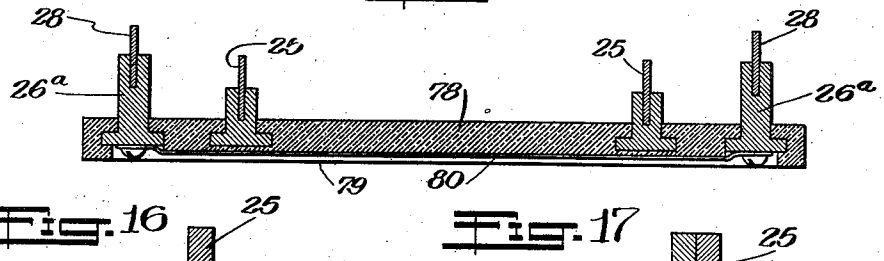


Fig. 16

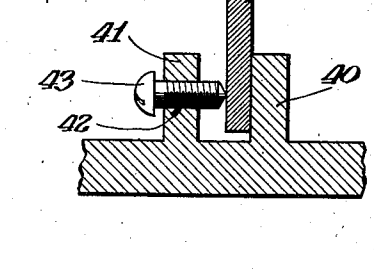
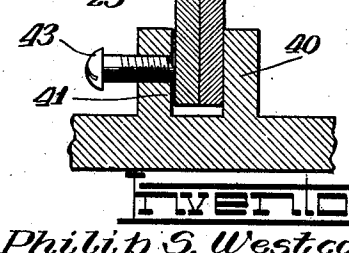


Fig. 17



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Patented Aug. 19, 1930

1,773,560

UNITED STATES PATENT OFFICE

PHILIP S. WESTCOTT, OF OAK PARK, ILLINOIS

TOY RAILWAY TRACK

Application filed July 14, 1928. Serial No. 292,784.

This invention relates to a toy railway track for use with mechanical or electrical toy trains, preferably the latter, and has particular reference to a track which may be built up of separate parts into any desired layout or arrangement, including tangents, curves, switches, crossovers, and the like.

The tracks now on the market for toy trains and especially the electric trains, are made of very light material so that when stepped on or accidentally struck, parts of the track become broken and damaged beyond further use.

Furthermore, the present tracks are made of sections of definite lengths in straights as well as in curves, so that the ingenuity of the youth building a track need not be developed to any considerable extent as the youth is limited in the arrangement of the tracks, curves, switches, and the like, because of the fixed curvature of the curved sections and also by the fact that all of the sections are of the same length, so that when any unusual track arrangement is desired, it is impossible to carry out the same without rearranging and sometimes damaging certain sections of the track.

My invention contemplates a railway track which is made up of separate rail sections and ties which are removably secured together, with the rail sections of substantially the same length. The rail sections are made of flexible spring metal so that these may be bent to form curves. The rail sections are fastened together by fish plates or splice bars and bolts and also secured to the ties so that a completed track structure or system is substantially permanent until intentionally disassembled and one which may be moved bodily when completed. Further, it is strong and rigid and may be walked on without damage to any of the parts.

The parts being disassembled develop the ingenuity of the youth in putting these together in any arrangement of trackage that he sees fit. The switches and crossovers may be built up by the youth or under some circumstances, the manufacturer may supply the complete switches and crossovers.

An object of my invention is to provide a toy railway track which is supplied in disassembled condition and which may be built to provide a layout of any desired arrangement.

Another object of the invention is to provide a toy railway track which may be used with mechanical locomotives or used with electric locomotives operating from a third rail or trolley.

A further object of the invention is to provide a toy railway track which may be built in substantially the same manner and with any desired layout as a full sized track system for electric railways.

A still further object is to provide a toy railway track system of separate parts which may be put together in any desired arrangement and so fastened as to be permanent until intentionally disassembled.

Another object is to provide a toy railway track in which curves may be formed as desired from straight sections and in which the various parts may be arranged in any desirable manner.

A still further object is to provide a toy railway track which when assembled will be strong and rigid and which will not come apart or break when stepped on or accidentally hit.

The above, further and other objects will be apparent from the following description, drawings and appended claims.

The accompanying drawings illustrate one form of the invention and the views thereof are as follows:

Figure 1 is a plan view of a portion of track embodying the invention.

Figure 2 is an enlarged top plan view of a switch.

Figure 3 is a section on line III—III of Figure 2.

Figure 4 is an enlarged longitudinal section through a metal tie.

Figure 5 is a top plan view somewhat diagrammatic in form of a portion of a track, showing how curves are made from the straight rail sections.

Figure 6 is an enlarged fragmental top plan view of an insert or spacer used in compensating for the variation in length between

the inner and outer rails which occurs when a curve is constructed.

Figure 7 is an enlarged side elevation of one form of fish plate or splice bar.

Figure 8 is a longitudinal section through Figure 7.

Figure 9 is a perspective view of a portion of rail having a bead or head.

Figure 10 is a top plan view of a 90 degree cross-over.

Figure 11 is an enlarged section on line XI—XI of Figure 10.

Figure 12 is an enlarged longitudinal section through a tie made of composition material such as bakelite.

Figure 13 is an elevational view of one form of trolley support.

Figure 14 is a side elevation showing the end construction of a third rail.

Figure 15 is a longitudinal section through a composition tie, showing the electrical connection between spaced third rails.

Figure 16 is a fragmental cross section through a tie showing one means for securing a rail in position.

Figure 17 is a view similar to Figure 16, showing two rectangular rails fastened in a tie.

The preferred rail section is that shown in Figure 9, that is a section having a head, but for convenience in making the drawings, the rails are shown as being rectangular in cross section. However, any track section suitable for use with ties may be used.

The rails, such as shown in Figure 9 and in the other figures of the drawings, are made of flat spring metal, preferably of some material which is rustless, such as bronze, stainless steel, or the like. The rails may be rectangular in cross section or may have one margin upset to provide a head 20 similar to the heads of standard railroad rails.

I have found that the rails may be made of material which is substantially $\frac{1}{16}$th of an inch in thickness. There are no flanges on the rails of this invention, the rails being preferably flat spring metal flexible straight strips.

Figure 4 shows a tie 21 made of cast metal. Rail supports 22 and 23 are cast integral with the tie and extend above the body of the same. Each support has a slot 24 formed therein for reception of a track rail 25.

This tie shown in Figure 4 shows two supports for the current conductor which in this instance comprises a third rail. One position is midway between the track rails 25, which is the usual construction in toy electric trains as made at the present time and a support outwardly of one of the rails which is the construction in standard electric railways.

The conductor support for the intermediate position comprises a metallic block 26 slotted at 27 to receive a third rail 28.

The rails of my invention may be used interchangeably as track rails and current conductors, and in the latter instance as third rails or trolleys.

The tie 21 is provided with a depression 29 midway of the distance between the track supports 22 and 23 in which is placed an insulating block 30 on which rests the current conductor block 26. Apertures 31 are provided in the metallic block 26 for the reception of insulating collars 32. Insulating strips 33 apertured at 34 are placed over the lateral projections of the block 26 and bolts 27 pass through these apertures, insulating collars 32, aligned apertures in the insulating locks 29 and are threaded into the tie 21. The third rail or current conductor 28 is applied to the slot 27 in the block 26.

The construction of the third rail support where the third rail is placed outwardly of one of the track rails as shown at the left in Figure 4, is substantially the same as that just described.

The top of the third rail 28 when the same is placed between the rails is substantially even with the tops or heads of the track rails 25, whereas it is slightly above the track rails 25 when placed outwardly of one of these rails.

The vertical position of the third rail may be accommodated to the shoes or current collectors on the toy locomotive in any apparent manner.

Figure 12 shows a tie 35 made of composition material such as bakelite, formica, fibre, or any suitable insulating material and is molded in manufacture.

Track supports 36 and 37 having vertical slots 38 are previously made and are molded with the tie 35. This is true also of the third rail supports 39 and 40.

When the ties are made of insulating material, it is of course unnecessary to provide insulation for the third rail supports as the tie is of itself an insulator.

The rails, when the parts are assembled into a track, are inserted in the slots of the tie supports and may be held therein by friction, the parts being made so as to secure a good frictional connection in this respect.

Should it be desired to provide other means for securing the rails in place in the ties, then cams, springs, set screws, or other means may be readily employed.

Figures 16 and 17 show enlarged rail receiving slots in a tie. The slots in these figures are wide enough to receive two rectangular rails in side engagement. The slots comprise upstanding ears 40 and 41, with the latter having a threaded horizontally disposed aperture 42 for receiving a set screw 43 for securing the track 25 in the tie.

The arrangement shown in Figure 17 occurs when one rail overlaps another as it does when a curve is made from some of the

straight sections of the track. In this figure the set screw 43 is fastening two rails 25 in position between the ears 40 and 41.

The lengths of the rail sections are made substantially the same. This is for economy in manufacture and also for ready application of the rails to the ties for assembly into a railway system. When the rails are assembled to form a tangent, the ties as shown in Figure 4 are parallel.

A curve is formed from the spring like straight sections by arranging the ties of the curve section as shown in dotted lines in Figure 5 in angular position one to another to thus bend the rails 25 and make any degree of curve which is practical. The flexibility of the rail sections is such as to prevent the bending of the same into too sharp a curve as to cause derailment of an electric train.

The curve being made from rail sections of the same length, will result in the end of the inner rail of the curve projecting beyond the end of the outer rail of the same, this projection depending of course on the degree of curvature.

The difference between the ends of the inner and outer rails in a curve is compensated by overlapping one of the rails with the next rail in a tangent section and fastening these two together flatwise as shown in Figure 17. Fastening these two rails together flatwise with a rail which is not over $\frac{1}{16}$th of an inch in thickness, will not derail a toy train.

When the headed rail, such as that shown in Figure 9, is used, then I attach a spacer or overlap splice bar 44 to the end of the inner rail section 25 of the curve by a splice bar 45. The spacer 44 is in plan wedge-shaped so that at its end where it rests against the first rail 25 of the tangent, there will be practically no projection beyond the inner surface of the rail 25. The overlapping end of the rail 25 at this point is bent outwardly as shown in Figure 6 and may rest against the bolts 46 which fasten the splice bar to the rail 25 and the spacer 44 or it may be held outwardly by engagement with a slot 47 formed on an adjacent tie. The tie carrying the slot 47 would in such case be different from the other ties 21 or 35.

Figures 7 and 8 show one form of splice bar which consists of an elongated metal bar 45 having bolt holes 48 therefor for the reception of the attaching bolts 46. There are shown two such bolts fastened through apertures 49 in each of the contiguous ends of the rail sections 25. Likewise, the rails are joined by the splice bars intermediate the ties.

Figure 10 shows a 90 degree crossover and the construction thereof applies to any crossover, no matter what the angularity is of the rails at the crossing.

The crossover comprises a base plate 50 which preferably is of insulating material such as bakelite, fibre, or the like, and is made with its marginal portions carrying slotted projections 51 for receiving the track rails 25 and the third rails 28. Sufficient of the supports 51 are provided so that the third rail may be placed intermediate the track rails 25 as shown in full lines in said figure or outwardly of one of the track rails as shown in dotted lines.

The ends of the track rails extend inwardly to a point where the same meet at 52, which is usual construction in crossovers.

The central portion 53 of the plate 50 is raised above the marginal portions and the top of this central portion is provided with grooves 54, the depth of which is equal to the height of the flange 55 on a locomotive wheel 56 so that as the wheels pass over the crossover, the flanges of the wheels will ride on the bottom of the grooves where the tires pass over a gap occasioned by the groove for the flanges of the wheels of the rails extending across the first mentioned rails.

The parts are so arranged that the spaced ends of the third rails 28 in either direction is such that the space may be easily bridged by the shoes or current collectors on a locomotive.

Figure 11 shows the flanges 55 riding on the bottom of the grooves 54 as the tire of the wheel is bridging a gap.

The groove adjacent the track rails may be of any width, but preferably just sufficient to permit passage of the wheel flanges 55, allowing of course for side play.

Figure 2 shows a switch which may be used in the railway system of my invention. The switch comprises a base plate 58 made of bakelite or other insulating material and of course is of proper size and shape.

The tangent track rails 25 are carried in supports 59 which are slotted in the same manner as the tie slots, with one of the track rails 25 extending across the plate 58 and another rail 25^a terminating a slight distance inwardly from the margin of the plate 58. A track rail 25^b is supported at the left of the plate 58 in a slotted support 59 and is curved, leaving the plate as shown in this figure at the lower right hand corner of the same. This rail is supported at this end by a similar slotted support 59 and also an intermediate support 59 is used.

A slotted support 59^a is secured to the plate centrally thereof and carries an end of a switch point 60, which point tapers towards its free end to increase the flexibility of the same.

A similar support 59^b is secured to the plate 58 and in like manner carries another switch point 61 constructed similarly to the point 60 but curved in the opposite direction.

The switch points 60 and 61 are arranged to be sprung into and out of engagement with

the rails 25[b] and 25 respectively as the switch is operated.

A rod 62 is carried in suitable bearings 63 and 64 and is reciprocable in said bearings by means of a lever 65 connected through a link 66 to the rod 62, with the lower end of the lever pivoted at 67 to a standard 68 fastened to the plate 58.

The free ends of the switch points 60 and 61 are provided with downwardly extending tongues 69 and 70 for engagement by the rod 62. A ball 70[a] is secured to the rod 62 in a manner to have oscillatory motion thereon, which ball in turn is fastened to the free end of the switch point 60 while a similar ball 71 is fastened to the switch point 61.

Figure 2 shows the switch points 60 and 61 in position when a train is to be switched onto or off of the tangent track in which the switch is inserted. The position of the parts is shown in full lines in Figure 2 and also in Figure 3.

The dotted position of the lever 65 in Figure 3 is that occupied when the switch is thrown in the opposite direction and the free end of switch point 60 is against track 25[b] and the switch point 61 moved into dotted line position of Figure 2.

A rail section 25[c] is fastened to the plate 58 by one of the slotted supports 59 and the end of this section terminates adjacent the inner end of this rail section 25[a]. The rail section 25[c] forms the other rail of the track of which rail section 25[b] forms a part.

Figure 2 shows the third rails 28 as arranged between the track rails and in dotted lines shows a third rail arranged outwardly of the rail section 25.

Third rail 28[a] is secured by a slotted support 59 to the plate 58. This is the third rail for the switch comprising the rail sections 25[b] and 25[c].

A metal plate 72 is suitably secured to the base plate 58 and has an arcuate edge 73 of the same curvature as rail section 25[c] and forms a continuation of the curve established by said rail section, with a gap between it and the end of said rail section. This plate serves as a tread for the tire of the wheel as the same rolls along track section 25[c] and switch point 61.

Another metal plate 74 is secured to the base plate 58 with a straight edge 75 in alignment with rail section 25[a] and the fixed end of the switch point 60 and serves as a track for the tire of the wheel when rolling along track section 25[a] and onto switch point 60 or vice versa.

A conductor 76 joins the supported third rail sections 28 through suitable connections with the same, which conductor preferably passes through a recess in the underside of the plate 58 or it may be molded at the time the plate 58 is molded if desired.

Another conductor 77 connects the third rail 28 at the left of the plate with the third rail 28[a] and is arranged in the plate 58 in the same manner as is conductor 76.

Figure 15 shows a tie 28 of molded material, with track rails 25, a third rail 28 at one end of the tie and another third rail 28 at the other end of the tie, both of these being outwardly of the track rails 25. A recess 79 is formed in the bottom of the tie and a conductor 80 connected to the metallic third rails. Supports 26[a] lie in the recess so as to connect in circuit the third rails when the construction of the track is such that it is necessary to change the engagement between a third rail and the conductor shoe on the locomotive from one side of the track to the other. The conductor 80 instead of being inserted in a recess in the tie 78 might of course be molded at the time the tie 78 is molded.

Figure 14 shows an end of a third rail 28 having an end portion 81, the upper surface 82 of which is curved downwardly to make a smooth engagement of the shoes or current collectors 83 on the locomotive. The end 81 is attached to the third rail 28 by a splice bar 84 secured by bolts 85 to the third rail 28 and the end member 81. The splice bar 84 is of less height than that shown in Figure 7 and is the splice bar which is preferably in use with the rails of my trackway. The splice bar being of narrow width, removes the bolts below a point where the same might possibly engage the flanges of the train wheels and thus derail the train.

Figure 13 shows one manner of supporting the current conductor as a trolley and consists of a tie 86 of bakelite or similar material, having the tracks 25 supported by slotted members 87.

Near the ends of the tie 86 are cast thimbles 88 having threaded apertures 89 for receiving the threaded ends of posts 90. The posts 90 are sufficiently tall so that a cross bar 91 connected to the tops thereof will carry the trolley above the train.

The cross member 91 may be of metal or of insulation material. The bar 91 in Figure 13 is shown as made of metal and it supports a slotted member 92 carrying track sections as trolleys 93. A suitable insulation strip 94 is inserted between the member 92 and the cross bar 91, while insulating thimbles 95 surround the bolts 96, thus effectively insulating the trolley 93 from the metal portions of the structure.

It might be possible to eliminate one of the posts 90, in which event a diagonal brace 97 would be secured to the post 90 at 98 and to the cross bar 91 at 99.

It will be observed that my invention contemplates a toy railway track which may be used without the third rails or trolleys for a mechanical train, or with a third rail or trolley for an electric train. Furthermore, it will be observed that the parts all being separate,

will tend to create an inventive spirit in the mind of the youth playing with such a track and will instruct him in the manner of assembling in operative relation the various elements and units entering into the track.

The youth will also be enabled to make a track system of any arrangement and style and with any number of curves, crossovers and switches as he wishes.

The rail sections, as before stated, are made of relatively thin spring metal and may be provided with heads or may be plain. I do not wish to be limited to rail sections of these two cross sections, as other sections might be used to provide a railway system such as that heretofore described.

When a locomotive is provided with a pantograph for engaging the trolley, and the system is arranged for trolley and third rail conductors then the ends of the trolley conductors would have wedge like ends inverted as to position, so as to depress the pantograph to running position. The inclination of such end pieces would be such as not to stop the locomotive when engaging same.

While I have described more or less precisely the details of construction of my invention, yet I do not wish to be understood as limiting myself thereto as I am aware that changes may be made in the arrangement and proportion of parts and that equivalents may be substituted, all without departing from the spirit and scope of my invention.

I claim as my invention:

1. A toy electric railway track system comprising a plurality of straight spring metal flexible metallic rail sections, said rails being interchangeably used as track rails and current conductors, a plurality of ties having slotted projections for removably receiving said rail sections, splice bars for joining the ends of contiguous rail sections, a third rail carried by and insulated from said ties, clamping means entering said slotted projections for engaging against the side surfaces of the rails anywhere along the length of the same for clamping said rails to said ties, said sections being bent to form curves by arranging certain of said ties in an angular position with respect to one another, said curve being formed solely by the angular arrangement of the ties the flexibility of said rail sections being such as to prevent the formation of too sharp a curve, said rails assuming straight form on release from the curve.

2. A switch for a toy electric railway system comprising a block, slotted means on said block for removably receiving a plurality of rail sections in different angular relations, means on said block for receiving third rails corresponding to said rail sections, the switch portion comprising two flexible switch points secured to said block against lateral movement at one end and with the other ends arranged to be flexed into and out of switching position, and a rod connected to the ends of said points for flexing the ends of said switch points.

3. A toy electric railway system comprising a plurality of straight spring flexible metallic rail sections of substantially equal length which may be interchangeably used for track rails and current conductors, a plurality of ties having slotted portions for removably receiving said rail sections to form a track, insulated supports for said current conductors, certain of said rail sections being bent to form curves by arranging the ties of the curve in angular relation one to another, means for continuing the continuity of one rail whereof two rail sections overlap because of such curve, and splice bars for fastening together the abutting ends of said rail sections, said rails assuming straight form on release from said curve.

4. A switch for a toy electric railway system comprising a block, means on said block for receiving a plurality of rail sections in different angular relation, means on said block for receiving third rails corresponding to said rail sections, the switch portion comprising two flexible switch points secured to said block against lateral movement at one end and with the other ends arranged to be flexed into and out of switching position, means for flexing the ends of said switch points comprising a switch bar, said bars supported on said block to reciprocate below said rails and connected near the free extremities of said switch points in a manner to permit relative movement when said bar is reciprocated.

5. A toy electric railway comprising a plurality of flexible metallic rail sections, a plurality of ties having slotted portions for receiving said rail sections, said ties having means thereon for entering said slotted portions and engaging the surfaces of the rail sections for clamping said sections to said ties and constituting means for tying said rail sections and said ties together to form a substantially permanent track structure.

6. A toy railway track system comprising tangents, curves, switches and the like made up of a plurality of flat spring flexible metallic rail sections which may be used for track rails and current conductors and temporarily bent to form curves, splice bars for securing the abutting ends of the rail sections, a plurality of ties for removably supporting the rails, a curve being formed by positioning the ties in the curve portion angularly with respect to one another and to the ties in the tangents, the current conductors being selectively positioned for contact by current collectors on an electric locomotive, the whole structure being tied together in substantially permanent portable position.

7. A toy electric railway comprising sepa-

rate rails of flat spring metal which may be used interchangeably as track rails and current conductors, ties having upwardly extending slotted projections for removably receiving the rails, certain of said projections arranged to support track rails and certain others of said projections arranged to support current conductors, said rails being bendable to form curves by adjusting the ties in relative angular position to form such curves, said rails assuming straight form when released from the ties forming the curves.

8. A toy electric railway track system including a plurality of rail sections of equal length formed of flat spring metal, said rails being interchangeably used as track rails and as current conductors and also for tangents and curves, a plurality of molded ties having slotted projeections for removably receiving said rails in edgewise position, means for locking said rails in said projections, a track beng assembled by arranging the rails and the ties to provide any track arrangement desired, curves of various degrees of curvature being formed by bending certain of said rails and arranging the ties supporting the same in such angular relation as to produce the curvature desired and locking the rails and ties in such position, certain of said rails serving as conductors, and means for selectively supporting said conductors as third rails as well as trolleys, and means for locking said parts together in substantially permanent portable relation.

9. A toy electric railway track including a plurality of flangeless rails of flat spring metal which rails may be interchangeably used as track rails and current conductors, ties for supporting said rails in a track, said ties having slotted projections for removably receiving the webs of said rails, said rails being bendable temporarily to form curves, a curve formed from said rails by bending certain of said rails and supporting said rails in bent position by the ties, other rails also supported by said ties adjacent the track rails for serving as current conductors, the current conductors for the curves being bent temporarily in the same manner as the track rails.

10. A toy electric railway comprising separate rails of flat spring metal which may be used interchangeably as track rails and current conductors, ties having slotted portions for removably receiving the rails, certain of said slotted portions arranged to receive track rails and certain others arranged to receive current conductors, said ties provided with clamping means entering said slotted portions for engaging against the side surfaces of the rails anywheres in the length of the same for clamping said rails to said ties, said rails being bendable to form curves by adjusting the ties in relative angular position to form such curves, said rails assuming straight form when released from the ties forming the curves.

In testimony whereof I have hereunto subscribed my name at Chicago, Cook County, Illinois.

PHILIP S. WESTCOTT.