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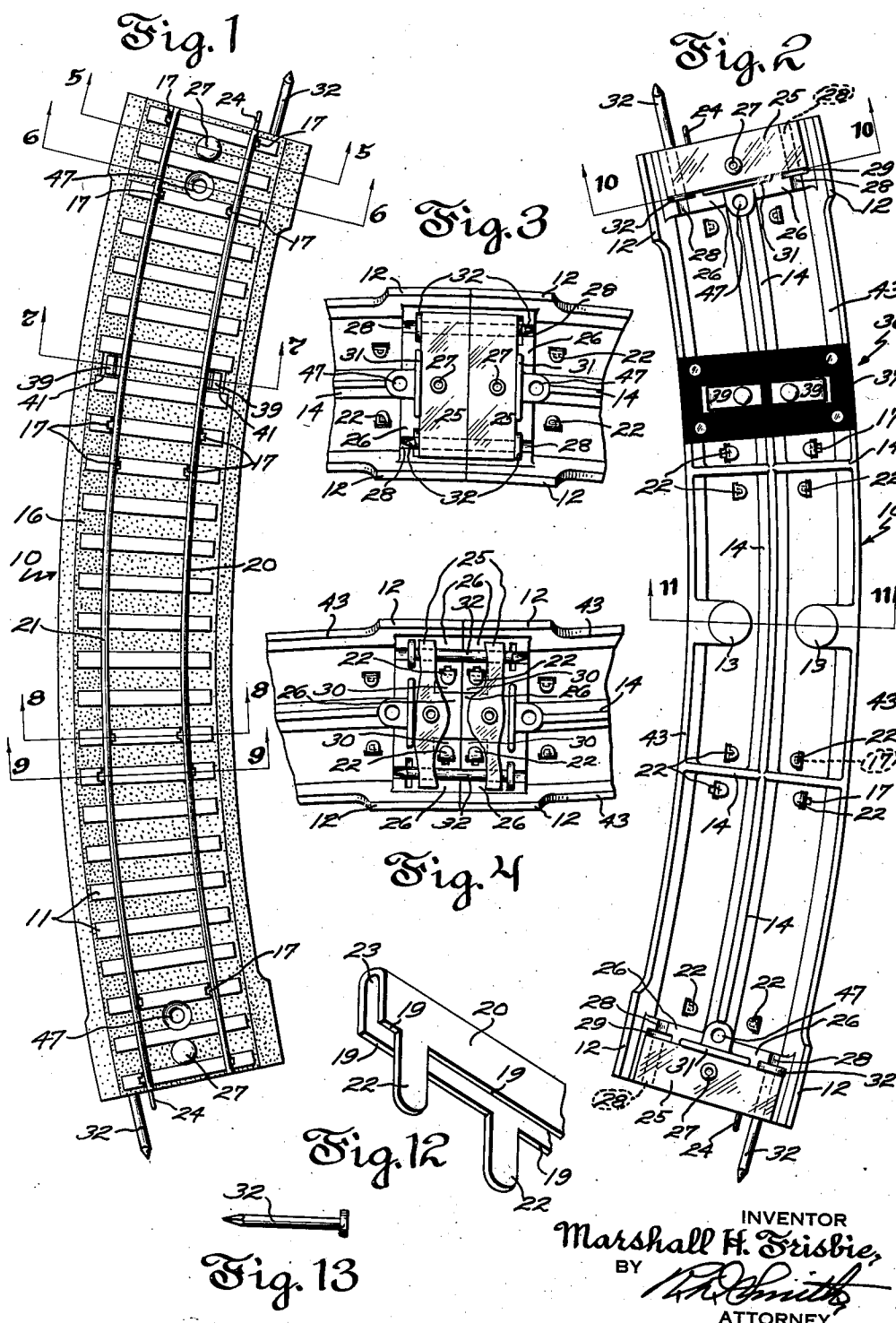
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2,265,965

SECTIONAL TOY RAILWAY TRACK

Filed Aug. 7, 1939

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 5

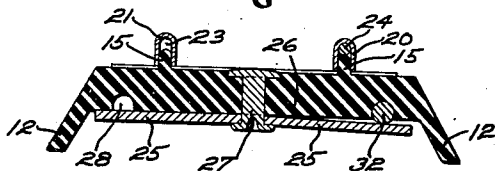


Fig. 10

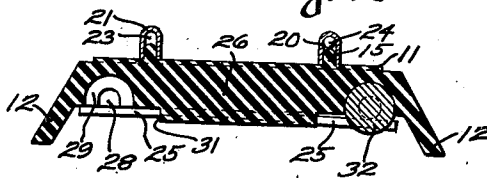


Fig. 6

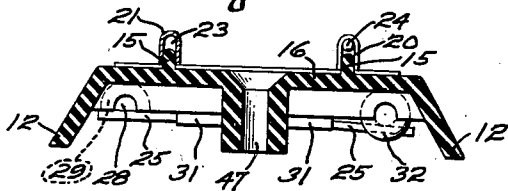


Fig. 11

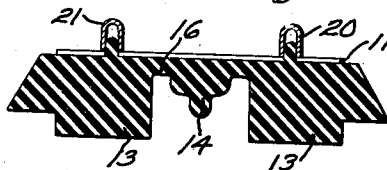


Fig. 7

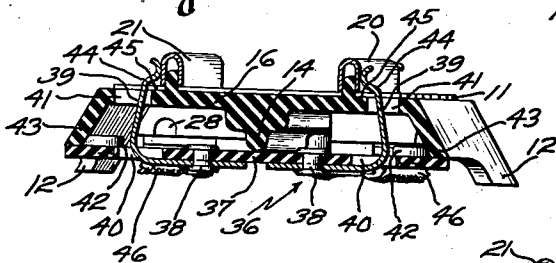


Fig. 8

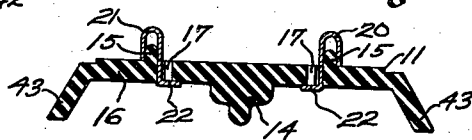
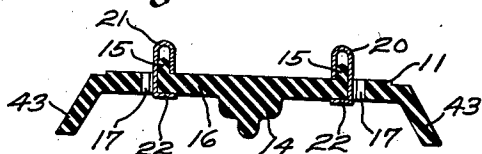


Fig. 9



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SECTIONAL TOY RAILWAY TRACK

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10 Claims. (Cl. 238—10)

This invention relates to toy railroad track and particularly to electrified sectional track structure.

One object of the invention is to simplify and render more rugged the means employed for detachably coupling the track sections together end to end in a diversity of relationships.

Another object is to provide coupling devices for this purpose which are universal in that either end of a track section may be coupled interchangeably with any other end of an adjoining track section.

Another object is to provide coupling devices which shall hold together the ends of the track sections with unusual strength, rigidity and accuracy of alignment.

A further object is to lower the cost of coupling devices for this purpose by using as one of the coupling elements a member like an ordinary carpenter's nail.

A further object is to provide for coupling toy track sections together a combination of molded plastic parts and simple metallic parts secured thereto by a single eyelet, hollow rivet or the like.

A further object is firmly to fasten metallic track rails upon the top surface of an imitative roadbed structure cast or molded from electrical insulative material in such manner that no metallic or other means for holding the rails to the roadbed shall be easily discernible.

A still further object is to provide a readily detachable appliance for feeding electric current to one or more of the track rails and preferably located beneath the roadbed structure and thereby, for the most part, rendered invisible.

The foregoing and related objectives of the present improvements will appear in greater particular from the following description in which reference is had to the accompanying drawings wherein:

Fig. 1 is a top plan view showing in suitable actual size a single toy track section embodying the improvements.

Fig. 2 is a bottom plan view of the same track section.

Fig. 3 is a bottom plan view of the adjacent ends of two track sections coupled together by devices embodying the invention.

Fig. 4 is a bottom plan view showing coupling devices like those in Fig. 3 with portions of the parts broken away, the track sections being held together thereby in a different relationship.

Fig. 5 is a view drawn on an enlarged scale taken in section on the plane 5—5 in Fig. 1.

Fig. 6 is a similarly enlarged view taken in sec-

tion on the plane 6—6 in Fig. 1 looking in a similar direction.

Fig. 7 is a similarly enlarged view taken in section on the plane 7—7 in Fig. 1 looking in a similar direction.

Fig. 8 is a similarly enlarged view taken in section on the plane 8—8 in Fig. 1 looking in a similar direction.

Fig. 9 is a similarly enlarged view taken in section on the plane 9—9 in Fig. 1 looking in a similar direction.

Fig. 10 is a similarly enlarged view taken in section on the plane 10—10 in Fig. 2 looking in the direction of the arrows.

Fig. 11 is a similarly enlarged view taken in section on the plane 11—11 in Fig. 2 looking in a similar direction.

Fig. 12 is a fragmentary perspective view of a portion of a detached rail drawn on an enlarged scale.

Fig. 13 is a view of a coupling member detached.

The imitative roadbed structure 10 of the improved toy track section may consist of a body of molded plastic material which for the purpose of electrical toy trains will be electrically non-conductive. In the top surface of this material are molded representations of sleepers 11 slightly raised from the surrounding surface of the molded plastic which latter may be given a pebbled effect for increasing its resemblance to the roadbed of an actual railroad track. The body 10 is for the most part hollow and is provided with six points of support comprising four flange-like end feet 12 and two median pad-like feet 13. These feet together with the top horizontal, or roadbed, wall 16 of the molded structure 10 are amply reinforced by suitable ribbing 14 preferably molded or cast integrally therewith. Also integral with the molded body of the track section are the up-standing rail holding ridges 15 extending continuously lengthwise of the track section and closely beside which the roadbed wall 16 contains a series of apertures 17. If made T-shape to afford strength in the tool, these apertures may successfully be produced by piercing the wall 16 by punch and die.

The rails 20 and 21 comprise continuous strips of thin sheet metal bent to a cross section of inverted U-shape fitting down over the ridge 15 having the adjacent edges 19, 19 in part presented for abutment against the surface of the molded roadbed 10 and in part extended to form bendable fastening tongues 22 projecting downwardly through the apertures 17, respectively, so

that these tongues may be bent over, twisted or otherwise flexed to hook under the bottom surface of wall 16 as best shown in Figs. 2, 4, 8 and 9 thereby to hold the rails in place as shown. The hollow metallic rails are thus fixedly mounted yet removably held on the molded roadbed without the use of any fastening expedients apart from the tongues 22 which preferably, but not necessarily, are integral with the metal of the rail itself. A space 23 is left between the top of ridge 15 and the top of the metallic rail strip which permits the insertion therein of an end dowel, a part of whose length is left to project from only one relative opposite end of each of opposite rails as shown in Fig. 1, such dowel being a tight fit within the rail end by which it is carried but being freely and slidably receivable into the empty rail end of a mating track section.

Because the rail dowels 24 in themselves are not capable of providing sufficient rigidity to hold the track sections together, additional and stronger coupling means are employed to serve this purpose but in former modes of construction such means have lacked the simplicity and ruggedness which characterize the coupling construction of these improvements. Moreover, former coupling devices have failed conspicuously to hold together the ends of molded plastic track sections with sufficient rigidity to insure the maintenance of accurate alignment of the section ends when a length of track composed of a plurality of sections is fastened down on a floor or table surface, or lifted about in the process of building up or taking apart a track system. These improved coupling means make use of but two preferably metallic parts of rugged character carried by and held against the molded plastic body of the track section at each end thereof. One of these parts is a thin flat retaining plate 25 held against the under surface of a thickened portion 26 of the roadbed wall 16 by means of a hollow rivet 27. Plate 25 possesses enough resilience to permit its being sprung slightly away from the plastic material against which it is fastened without permanent distortion as shown in Figs. 5, 6 and 10. Beneath spring plate 25 the thickened wall portion 26 is provided with two grooves 28, each of which is interrupted by a half round, thin recess 29 that is wider and deeper than groove 28. Fig. 4 shows that the wall portion 26 is further cut away in limited areas 30 to provide pocket-like recesses 30 receiving, and affording room for bending over, certain of the rail tongues 22. At these pockets 30 the thickened wall portion 26 is reduced to the less thickness of the regular roadbed wall 16. A ridge 31 formed from the molded plastic material slightly upstands therefrom to engage with one edge of each spring plate 25 thereby to prevent the latter from swivelling about its holding rivet 27. It will also be noted that the said edge of the spring plate falls flush with one edge of each recess 29.

By the coupling constructions described, there is provided at each side of each end portion of the track section a means optionally capable of positively holding or frictionally clutching an ordinary carpenter's nail 32. When such nail is to be positively held, its head is placed in the recess 29 while its shank occupies the groove 28 and its tang projects beyond and clear of the end of the track section. This tang thus becomes receivable within the empty groove 28 of a mating track section and is frictionally clutched by

the spring plate 25 thereof, in as much as the diameter of the nail shank is slightly greater than the depth of groove 28 under plate 25 thus causing the free end of the latter to be sprung away from the wall portion 26 as shown in Figs. 5, 6 and 10. Thus groove 28 and spring plate 25 together form in effect a spring socket receiving and clinging to the unheaded end of the spurless tang with a firm but grabless fit.

A binding post or lead wire terminal appliance designated as a whole by 36 is shown in Figs. 1, 2 and 7 placed in position for providing conductively separate electrical connection to each of the rails 21. It consists of a stiff plate of insulative material 37 extending transversely of the track section and to which is secured by rivets 38 two spring contact fingers 39 each of which is bent to pass through an aperture 40 in plate 37 and thence upwardly through an additional aperture 41 in the roadbed wall 16 and thus into electrically conductive engagement with the side wall of one of the track rails 21. This engagement is dependably maintained by the tendency of the free ends of contact finger 39 to spring toward each other and also by the expedient of the curved terminal portion 44 of each finger overlying the top edge or shoulder 45 bordering the aperture 41. Lugs for preventing movement of plate 36 crosswise of the track section may be provided by the heads of studs 42 fixed in the plate 37 in position to abut against the inner surface of the side wall 43 of the track section. Lugs or locating stops for this purpose may be provided by any other suitable means. It will be noted in Fig. 7 that the plate 37 itself is long enough to underlie the bottom edges of the side walls 43.

In coupling and uncoupling the track sections by means embodying these improvements, it is not necessary to overcome the resistance of snap action detents nor to subject the parts to any buckling performance as the coupled sections may be pulled straight apart endwise and thereby separated against merely the smooth clinging resistance exerted by the frictional pressure of spring plate 25 against the tang of nail 32. The nail groove 28 together with the spring plate 25 forms a socket for the removable tang of one nail as well as for the head end portion of the permanently held nail, the spring plate forming in effect a yielding wall of such socket capable of clamping the head end portion of the nail very firmly and securely against the bottom of its groove. As such detent means are free from abrupt grabbing effects requiring strong jerking action for separating the track sections, I may refer to them as "catchless" detent means in contrast to the various hook-like expedients which have been employed in this connection heretofore. Other disadvantages of hook-like catches and detents reside in the looseness that results from the lost motion or "backlash" that is inherent between parts which hook together, and in the greater fragility possessed by tangs when of resilient nature to permit springing together of the parts. The present improvements provide strong clinging resistance which smoothly opposes separation of the track sections with uniform force throughout the entire range of their coupled proximity.

Any track sections equipped with these improvements may be joined together end to end by a mere reversal of the above described mode of manipulation for pulling them apart, the two

tangs carried respectively by the mating track sections entering simultaneously into their respective sockets smoothly and firmly in a manner to produce a quite rigidly maintained alignment of the rail ends and of the ends of the bed structure. In this putting together operation, the connectors 32 need not themselves be directly touched nor manipulated by the hand of the user since the total prevention of longitudinal displacement of each connector relative to its own single track section which is effected by recesses 29 enables the bed structure of each track section to serve as a handle for maneuvering and inserting its carried connector into the socket on the mating track section. The rail dowels 24 serve to insure good electrical contact between the end to end rail sections but in this improved construction are depended upon very little, if any, for assistance in the mechanical holding of the track sections in accurate end to end alignment.

Although the drawings show curved sections of track joined together in Fig. 3 to form a continuous curve and joined together in Fig. 4 to form a reverse curve, it will be understood that the improved coupling devices operate as well and with all of the advantages described on strictly straight sections of track and enable any straight section of track to be coupled if desired to any curved section of track interchangeably as to the ends thereof which may be coupled together. It will be clear from Figs. 3 and 4 that the straight elongated connectors 32 as well as their straight elongated seating concavities 28 lie in straight and tangentially disposed relation to the direction of curvature of the rails 20 at the end of each track section. Otherwise such connectors and concavities could not possess a sufficient length to afford practical rigidity for holding the track sections in proper alinement and yet fit together and enable the ends of the bed structures to abut evenly in both of the differently curved relationships of the track sections shown respectively in Figs. 3 and 4. It would therefore be unfeasible to depend upon rail held elements, such as the dowel pins 24, to serve the purpose of alining curved sections of track whose rails may curve either similarly or reversely at the junction of the sections. Likewise it would be unfeasible to introduce any straight portion in the curved rail itself for this would interrupt the smooth travel of a toy train around the curve and occasion objectionable noise as the wheels of the toy rolling stock passed over such straightened interruption to an otherwise smoothly and continuously curving rail. Holes 47 accommodate screws for holding the track section down against a table surface.

By seizing the appliance plate 37 between thumb and finger and pulling it off from the track section, as permitted by the ability of spring arms 39 to spread apart when they encounter the shoulders 45, the wire terminal appliance 36 as a whole is removable from any one section of track and may be installed at will under any other section of track having apertures such as 40. The current supply lead wires 46 may be secured by soldering or if preferred detachably clamped to any suitable binding post carried by plate 37.

Obvious changes may be made in the shapes and arrangements of the parts herein disclosed without departing from the principles of the invention and the following claims are intended by their terms to cover and embrace all substitutes

and equivalents for the disclosed embodiments coming fairly within the broadest scope of their definitions.

I claim:

1. Coupling devices for detachably holding a first section of toy railroad track firmly to and in alignment with a mating section of track, including in combination with separable track bed structures underlying the rails of said track sections each of said bed structures including a body of electrical insulating material elongated in the direction of the track rails and wider than the gauge of the track thereby to be grasped in any portion of its length as a handle for maneuvering the end portion of its length, track section connectors including a rigid spurless tang arranged in fixed position on and projecting straight and lengthwise from at least one of said end portions of each of said bodies, and a straight elongated spring socket arranged in fixed position on the said end portion of each of said bodies formed by a groove contained in said bed structure cooperatively with a member secured to said bed structure resiliently positioned to cover said groove, said socket on each bed structure being spaced from the tang on the same bed structure and constructed and arranged to receive and frictionally cling to the tang on the other bed structure with a firm but grabless fit whereby both tangs may be maneuvered and inserted in and withdrawn from said sockets respectively by grasping and using as a handle some portion of the length of at least one of said bodies of insulating material.

2. Coupling devices for detachably holding a first section of toy railroad track firmly to a mating section of track, including in combination with separable track bed structures each underlying and forming an integral support base for the rails of a different one of said track sections, a track section connector including a rigid spurless tang fixedly placed on and projecting straight and lengthwise from an end portion of one of said bed structures, at least one seating concavity dimensioned to fit said tang and more shallow than the cross sectional size thereof carried on the end portion of the other bed structure whereby a portion of said tang protrudes from said cavity for receiving lateral thrust, and resilient detent means constructed and arranged to thrust said tang laterally against said concavity in a manner to cause the former to cling frictionally to the latter thereby to resist both relative separation and relative disalignment of said track sections.

3. Coupling devices for detachably holding a first section of toy railroad track firmly to a mating section of track, including in combination with separable track bed structures each underlying and forming an integral support base for the rails of a different one of said track sections, a track section connector including a rigid spurless tang fixedly placed on and projecting straight and lengthwise from an end portion of one of said bed structures, at least one seating concavity dimensioned to fit said tang and more shallow than the cross sectional size thereof carried on the end portion of the other bed structure whereby a portion of said tang protrudes from said cavity for receiving lateral thrust, and resilient detent means constructed and arranged to thrust said tang laterally against said concavity in a manner to cause the former to cling frictionally to the latter thereby to resist both relative separation and relative disalignment of said track sections, said detent means including a resiliently

positioned substantially flat pressor member overlying the said seating concavity.

4. Coupling devices for detachably holding a first section of toy railroad track firmly to a mating section of track, including in combination with separable track bed structures underlying the rails of said track sections, track section connectors including a rigid spurless tang round in cross section fixedly positioned on and projecting straight and lengthwise from an end portion of each of said bed structures, and a straight elongated spring socket carried by the said end portion of each of said bed structures spaced from the tang on the same bed structure and constructed and arranged to receive and frictionally cling to the tang on the other bed structure with a firm but grabless fit, said socket being formed cooperatively by a straight groove in the said bed structure of less depth than the diameter of the last said tang, and by a retaining member secured to said bed structure and resiliently positioned to bear upon said tang in a manner to press the latter against the bottom of said groove thereby to provide a clinging fit between said tang and socket.

5. Coupling devices for detachably holding a first section of toy railroad track firmly to a mating section of track, including in combination with separable track bed structures underlying the rails of said track sections, track section connectors including a rigid spurless tang fixedly positioned on and projecting straight and lengthwise from an end portion of each of said bed structure one of said connectors comprising a rigid member having an enlarged head integral with said tang, and a straight elongated spring socket carried by the said end portion of each of said bed structures spaced from the tang on the same bed structure and constructed and arranged to receive and frictionally cling to the tang on the other bed structure with a firm but grabless fit, said socket being formed cooperatively by a straight groove in the said bed structure of less depth than the diameter of the last said tang and by a retaining member secured to said bed structure and resiliently positioned to bear upon said tang in a manner to press the latter against the bottom of said groove thereby to provide a clinging fit between said tang and socket, together with a recess formed in one of said bed structures and shaped snugly to fit both said head and the adjacent portion of said tang.

6. Coupling devices for detachably holding a first section of toy railroad track firmly to a mating section of track, including in combination with separable track bed structures underlying the rails of said track sections, track section connectors including a rigid spurless tang fixedly positioned on and projecting straight and lengthwise from an end portion of each of said bed structures one of said connectors comprising a rigid integral member shaped like a carpenter's nail, and a straight elongated spring socket carried by the said end portion of each of said bed structures spaced from the tang on the same bed structure and constructed and arranged to receive and frictionally cling to the tang on the other bed structure with a firm but grabless fit, said socket being formed cooperatively by a straight groove in the said bed structure of less depth than the diameter of the last said tang

and by a retaining member secured to said bed structure and resiliently positioned to bear upon said tang in a manner to press the latter against the bottom of said groove thereby to provide a clinging fit between said tang and socket, together with a recess formed in one of the said bed structures and shaped snugly to fit the head-end portion of said member.

7. In toy railroad track structure, a track section comprising a hollow body of insulative material molded to simulate a roadbed, the end portion of said body being thickened and recessed to form laterally spaced grooves each shaped to receive and fit the shank of a carpenter's nail, at least one of said grooves being interrupted by a narrow recess deeper and wider than said groove shaped to fit the head of said nail thereby to hold the latter against movement lengthwise of said groove.

8. In toy railroad track structure, a track section as defined in claim 7, together with a thin plate of resilient material secured against the said thickened end portion of the said body at a point between said grooves and extending in opposite directions therefrom and overlying both of said grooves in a manner to imprison carpenter's nails respectively therewithin.

9. Coupling devices for detachably holding a first section of toy railroad track firmly to a mating section of track, including in combination with separable track bed structures each including a body of insulating material underlying and forming an integral support base for the rails of a different one of said track sections, a track section connector including a rigid spurless tang fixedly placed on and projecting straight and lengthwise from an end portion of one of said bed structures, means providing a seating concavity on the end portion of the other bed structure dimensioned to fit said tang, and a resilient detent device attached to said bed structure at a point apart from said concavity including means constructed and arranged to press said tang laterally against said concavity in a manner to cause the former to cling frictionally to the latter thereby to resist both relative separation and relative disalignment of said track sections.

10. Coupling devices for detachably holding a first section of toy railroad track firmly to a mating section of track, including in combination with separable track bed structures each including a body of insulating material underlying and forming an integral support base for the rails of a different one of said track sections, a track section connector including a straight rigid spurless tang fixedly placed on and projecting straight and lengthwise from an end portion of one of said bed structures, means providing an elongated rectilinear seating concavity carried on the end portion of the other bed structure dimensioned lengthwise in conformity with said tang, and a resilient detent device attached to said other bed structure at a point apart from said concavity affording means constructed and arranged to press said tang laterally against said concavity in a manner to cause the former to cling frictionally to the latter thereby to resist lengthwise withdrawal of said tang from said seating concavity.

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