Oct. 29, 1957 R. E. HIRTENSTEIN 2,811,315

MODEL RAILROAD TRACK CONSTRUCTION

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Fig. 1.

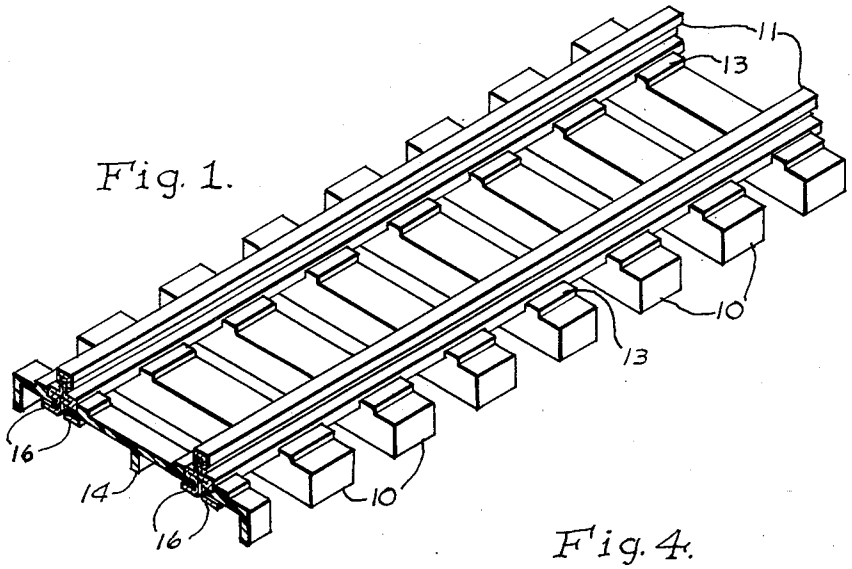


Fig. 2.

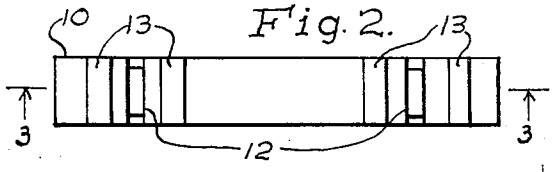


Fig. 3.

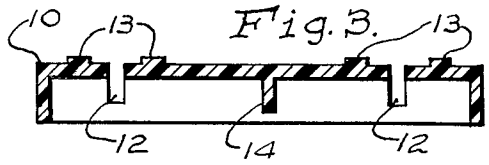


Fig. 4.

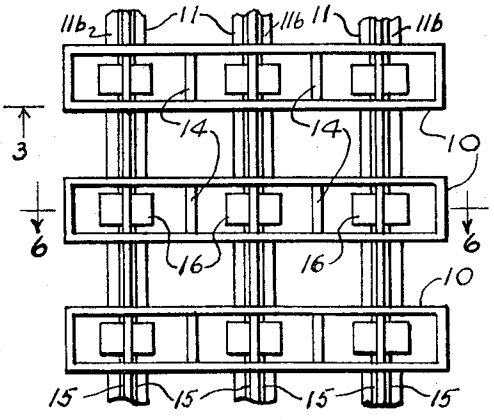


Fig. 5.

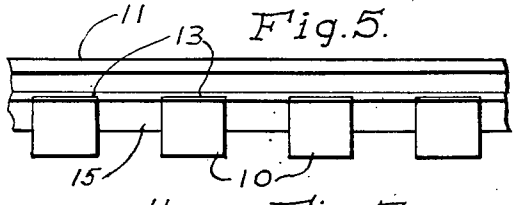


Fig. 6.

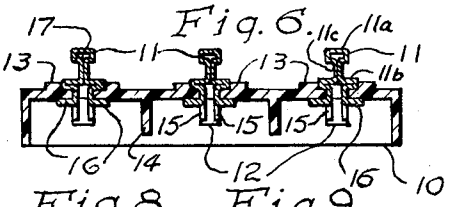


Fig. 7

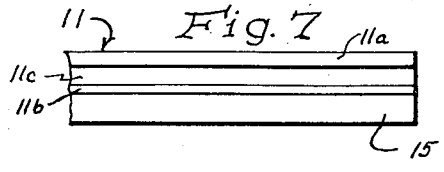
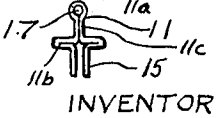


Fig. 8.



Fig. 9.



INVENTOR

ROBERT E. HIRTENSTEIN

by Rummler Rummler & Snow

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MODEL RAILROAD TRACK CONSTRUCTION

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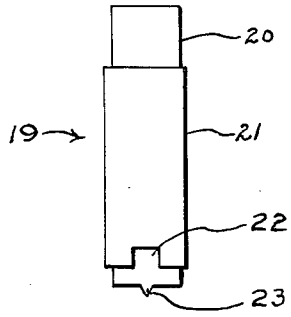


Fig. 10.

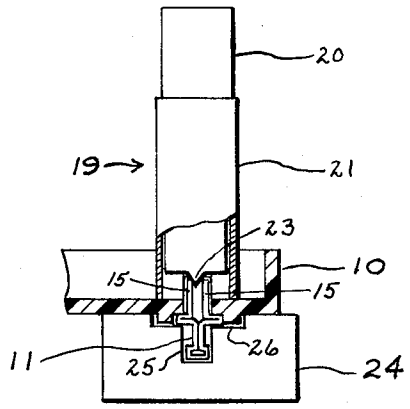


Fig. 11.

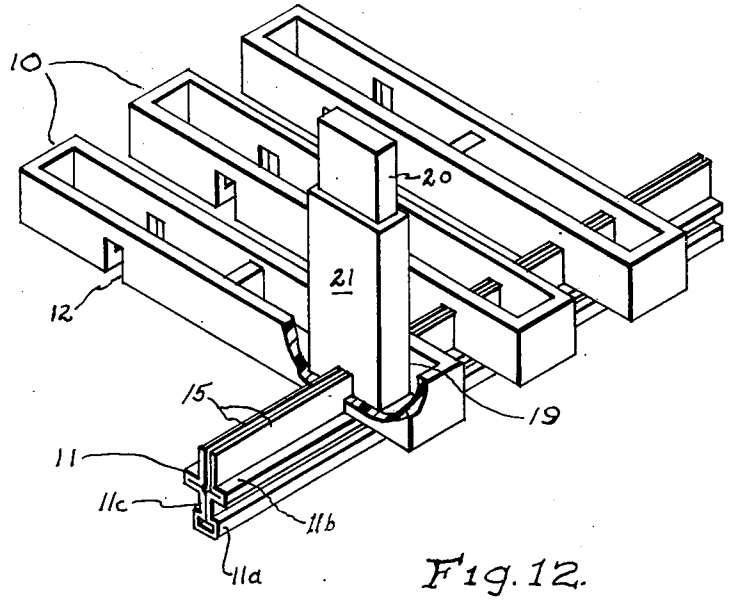


Fig. 12.

INVENTOR.
ROBERT E. HIRTENSTEIN
BY
Kenmuler, Kenmuler & Snow

United States Patent Office

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MODEL RAILROAD TRACK CONSTRUCTION

Robert E. Hirtenstein, Chicago, Ill.

Application August 12, 1954, Serial No. 449,485

3 Claims. (Cl. 238—10)

This invention relates to improvements in sectional track constructions for toy trains and model railroads, and particularly to improvements in the form and construction of the track sections and of the components of such tracks, whereby track sections can be more readily assembled or built by the user and whereby the tie spacing may be varied as desired, especially in the case of long straight runs and various curves.

The main objects of this invention are to provide a realistic looking toy train track section consisting of a plurality of track ties, and two or more rails firmly attached to the ties in such a manner as to simulate conventional railroad tracks; to provide an improved rail structure of such form as to make possible the joining of the ties to the rails, at any place along the length thereof, by a simple and inexpensive procedure; to provide an improved means of attaching the ties to the rails so that once attached a predetermined fixed distance may be maintained between the ties without the need of any particular roadbed formation; and to provide an improved model train track rail, rolled or otherwise formed of sheet metal or other electrical conductor material, in which the upper portion of the rail appears above the tie in the conventional inverted T section shape, and in which the securing means is entirely hidden from view within the tie.

Further objects are to provide an improved model train track tie, which has preformed transverse slots for receiving the rails, so as to space the rails at a predetermined width or gage; to provide an improved track tie that can be made of a resilient electrical insulating material, which will absorb vibration and has a sound dampening effect, so as to thus eliminate some of the objectionable noises commonly associated with the operation of toy or model trains; to provide such a track tie that has preformed rail-locating cleats on its upper surface that simulate railroad tie plates; to provide an improved toy train track in which all rails are insulated from each other and can therefore be easily used for signaling and special electric circuits without the necessity of special roadbed formation; and to provide an improved and inexpensive, realistic, model train track which can be easily constructed by the user and with any desired spacing relation of the ties lengthwise of the track.

A specific embodiment of this invention is shown in the accompanying drawings, in which:

Figure 1 is a perspective view partly in section, showing an assembly of the improved track in two-rail form.

Fig. 2 is a top plan view of a two-rail tie for use in constructing the track assembly shown in Fig. 1.

Fig. 3 is a longitudinal, sectional view of the same as taken on the lines 3—3 of Fig. 2.

Fig. 4 is a bottom plan view of a portion of my improved track construction showing a three-rail track assembly.

Fig. 5 is a side, elevational view of the track shown in Figs. 1 and 4.

Fig. 6 is a transverse sectional view of the three-rail track assembly as taken on the lines 6—6 of Fig. 4.

Fig. 7 is a side elevtional view of my improved rail member for the track assembly.

Fig. 8 is an end view of the rail shown in Fig. 7, the rail being made with a flat top.

Fig. 9 is a similar view of the improved rail made with a conventional round top surface.

Fig. 10 is a side elevational view of an improved tool or punch for assembling the rails with the ties.

Fig. 11 is a partially sectioned, elevational view, showing the method by which the tool shown in Fig. 10 is used to secure a tie and rail together, and

Fig. 12 is a perspective view illustrating the manner in which the tool is used to construct a tie and rail assembly.

As shown in the drawings, it will be seen that the improved track construction consists of a series of ties **10**, and plurality of running rails **11**, the running rails **11** being mounted on the ties **10** in parallel relation with each other and the ties **10** being disposed transversely of the rails, and in spaced relation lengthwise thereof. The ties **10** are all of equal size and are individually secured to each of the several rails so that an assembly of track section will be a self-sustaining, substantially rigid unit.

As shown in Figs. 2 and 3 each tie member **10** is an inverted box-like unit of elongated rectangular form having a top wall and depending side and end walls which are perpendicular to the top wall and of equal height. Laterally spaced slots **12** are formed transversely in the top wall of each tie member and extend downwardly into each side wall as shown in Fig. 3 for the reception of depending flanges or legs of the rail members **11**, as will be hereafter described. The slots **12** are spaced apart according to the gage of track assembly and preferably the slots are equidistant from the ends of the tie for the sake of uniform appearance in the track assembly. Preferably the ties **10** are molded from rubber or other suitable plastic dielectric material, and as shown a relatively wide rib **13** is formed on the top surface of the tie on each side of each slot **12**, the ribs **13** extending transversely across the tie and providing a shallow upwardly opening rectangular channel between them in which the base flanges of the rail may set, as shown in Figs. 1 and 6. Thus the ribs **13** function as, and have the appearance of, the usual tie plates used in ordinary full size railroad track constructions, the ribs having a height, above the main tie surface, slightly less than the rail base flange thickness. Also, as indicated in Figs. 3 and 6, a downwardly extending transverse rib **14** may be provided on the under side of the top wall of the tie for additional strength, the rib or flange **14** extending from side wall to side wall of the tie as indicated in Fig. 4.

The rails **11** are rolled or otherwise formed from sheet metal, or other suitable electrically conductive material, and are preferably made in continuous lengths equivalent to the desired length of the track assembly. As shown in Figs. 6 to 9 inclusive, each rail is formed to the usual inverted T shaped section, and includes a tread portion **11***a* at the top on which the wheels of the train will ride, tie engaging base flanges **11***b* at the bottom which have a combined width of about twice the width of the tread portion, and a vertical intermediate connecting web **11***c*, so that in section the upper part of the rail will have substantially the appearance of the usual railway rail. As shown, the tread portion **11***a* of the rail is generally tubular, being formed by the central bend of the strip of metal from which the rail is formed, and when completed one side of the rail is the complement of the other to constitute the vertical tread connecting web **11***c* and tie engaging base flanges **11***b* aforesaid.

The free edges of stock strip, however, are continued downwardly from the tie engaging flanges 11*b* in spaced, parallel relation as shown in Figs. 8 and 9, thus forming legs 15 projecting downwardly from the bottom side of the tie engaging flange portions of the rail, and extending parallel with the length thereof. The lateral spacing of the legs 15 and the depth thereof is such that they will be snugly received in the tie slot 12 and projected well into the interior of the tie when the tie engaging flanges of the rail are seated in the channel formed between the respective tie-plate ribs 13. The clamping lugs 16 which secure the ties and rails together are formed from the portions of the legs 15 which project into the interior of the ties, as shown in Fig. 6.

The tubular passage 17 formed by the fold of the metal during the formation of the track tread serves as a passage into which a piece of metal wire can be inserted for connecting one length of rail to another, thus providing both mechanical and electrical connections between successive rails. If desired, the connecting wire can be clinched in place in one rail after being inserted in the respective opening 17, so that the wire connecting piece will be permanently attached and thus not liable to be lost.

In assembling the improved ties and rail sections, the rails 11 are set onto the ties 10 with the rail leg portions 15 extending into the respective slots 12, and with the tie engaging rail flanges 11*b* firmly seated in the channels between the ribs 13, as shown in Fig. 6, these channels being of the same width as the combined width of the flanges 11*b*. The rails are then attached to the ties by bending portions 16 of the legs 15 laterally outward and against the inside surface of the top wall of the tie. These bent portions 16 of the legs 15 thus serve as clamping lugs which hold the rail firmly to the tie. The clamping lugs 16 are preferably sheared out of the vertical legs 15 and, since they are turned outwardly against the inner surface of the top of the tie, they are engageable with the side walls of the tie and thereby limit any possible sliding movement of the tie lengthwise of the rail.

The fastening of the rails to the ties is accomplished by means of a tool 19, shown in detail in Figs. 10 and 11, which tool comprises a rectangular punch 20, slidably fitted in a rectangular guide sleeve 21, which is made with a width to fit snugly into the interior of an inverted tie, the tool sleeve 21 being provided with a transverse channel 22 formed to fit over the legs 15, which project into the tie, when the end of the tool is seated squarely against the inner surface of the top wall of the tie. As shown, the punch 20 has a triangular spreading point 23, which extends transversely across the end of the punch to engage between the legs 15, as shown in Fig. 11. Thus a sharp blow on the upper end of the punch 20 will drive the spreading point 23 between the legs 15 of the rail and through coaction with the side walls of the sleeve 21 cause the lugs 16 to be sheared or struck out of the legs 15 and spread laterally to a clinched position flat against the inner surface of the top wall of the tie 10. This is preferably done while the rail and the tie are supported in inverted position on an anvil 24 which is provided with a suitable channel 25 to receive the rail, and support the tie engaging flanges 11*b* thereof by its shoulders 26 during the clinching or securing operation.

Fig. 12 illustrates the manner in which the tie securing operation is ordinarily carried out, namely, the rail 11 being in inverted position with the ties 10 set onto the legs 15, and in the desired spaced relation lengthwise of the rail. This assembly is then set onto an anvil such as that shown in Fig. 11, and the punch is moved from tie to tie along the rail, and in each position is given a sharp blow which shears out the securing lugs 16 from the rail legs 15 and firmly clinches the lugs against the inner surface of the tie. The finished assembly then appears as shown in Figs. 4 and 6.

It will thus be seen that the ties can be secured to the rails with any desired tie spacing and that the attachment when once made is permanent. It will also be seen that the mounting operation is so simple that it can be accomplished by substantially anyone thereby making it possible for toy or model railroad enthusiasts to quickly and easily construct their own track sections in accordance with their own specifications. It will be understood, of course, that the rail may be rolled or formed into curves and that the ties can be attached in a similar manner to these curves as well as to a straight section of track.

The main advantages of this invention reside in simplicity of the components from which the track assembly or sections are made, and in the simple and fast means of attachment whereby track sections can be constructed from standard components quickly and easily and without the need for expensive tools or equipment. Still further advantages reside in the fact that no special fastening means or insulating material is required to construct the track section assemblies; and in the fact that the improved track assembly can be made at a much lower cost than has been heretofore experienced.

Although but one specific embodiment of this invention is herein shown and described, it will be understood that details of the invention shown, may be altered or omitted without departing from the spirit of this invention as defined by the following claims.

I claim:

1. In a rail and crosstie construction for miniature railroad track comprising a hollow crosstie having a top wall and opposite depending side walls, said top wall having a pair of laterally spaced transverse slots opening to the interior of the crosstie and extending downwardly in each of said side walls, and a pair of rails each having a tread portion, a tie engaging base flange portion, a vertical web connecting said tread portion and said base flange portion, and a pair of continuous vertically flat longitudinally extending leg members projecting downwardly from said base flange portion, said leg members being disposed centrally between the margins of said base flange portion on the underside thereof in parallel side by side relation with each other, and the base flange portion of each of said rails being seated on the top wall of said tie with the said leg members extending vertically into a respective slot, the improvement which consists in forming in situ oppositely extending anchoring lugs sheared and struck outwardly from said rail leg members between the side walls of said crosstie and simultaneously clinching said lugs against the underside surface of said crosstie top wall to clamp the margins of the respective slots between said lugs and the said base flange portion of the rail.

2. A rail and crosstie construction for miniature railroad tracks comprising a hollow crosstie formed of dielectric material and having a top wall and opposite depending side walls, said top wall having a pair of laterally spaced transverse slots opening to the interior of the crosstie and a shallow upwardly opening transverse channel in its upper surface aligned with each slot, and a pair of rails each having a tread portion, a tie engaging base flange portion, a vertical web connecting said tread portion and said base flange portion, and a pair of continuous vertically flat web-like leg members projecting downwardly from said base flange portion, said leg members being disposed centrally between the margins of said base flange portion on the underside thereof in parallel side by side relation with each other, the base flange portions of each of said rails being seated on the top wall of said tie within a respective channel and with the said leg members extending vertically into a respective slot, said leg members having lugs sheared and struck bodily therefrom while in situ and turned oppositely away from each other be-

tween the side walls of said crosstie and engaged against the underside surface of said top wall to clamp the margins of the respective slot against the said base flange portion.

3. A rail and crosstie construction for miniature railroad track comprising a hollow crosstie of dielectric material and having a top wall and opposite depending side walls, said top wall having a pair of laterally spaced transverse slots opening to the interior of the crosstie and extending downwardly into each of said side walls, and a pair of rails each having a tread portion, a tie engaging base flange portion, a vertical web connecting said tread portion and said base flange portion, and a pair of continuous vertically flat longitudinally extending web-like leg members projecting downwardly from said base flange portion, said leg members being disposed centrally between the margins of said base flange portion on the underside thereof in parallel side by side relation with

each other, the base flange portions of said rails being seated on the top wall of said tie with the said leg members extending vertically into a respective slot, and oppositely extending anchoring lugs sheared while in situ from said leg members between the side walls of said crosstie and pressed flat against the underside surface of said top wall to clamp the margins of the respective slot between said lugs and the said base flange portion.

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