

Aug. 4, 1953

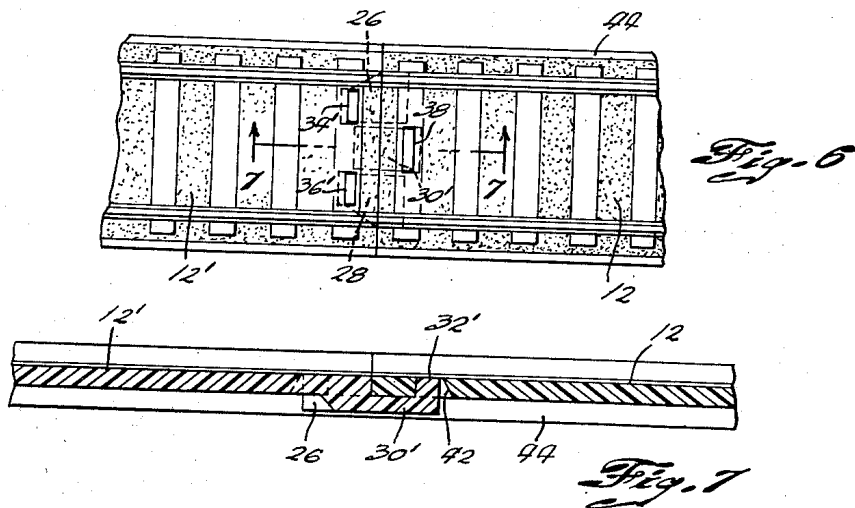
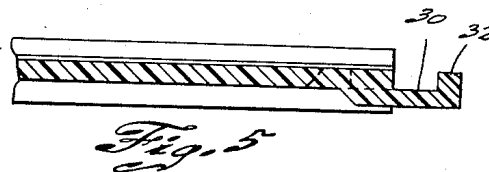
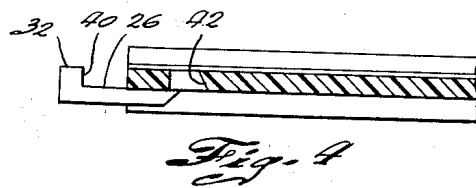
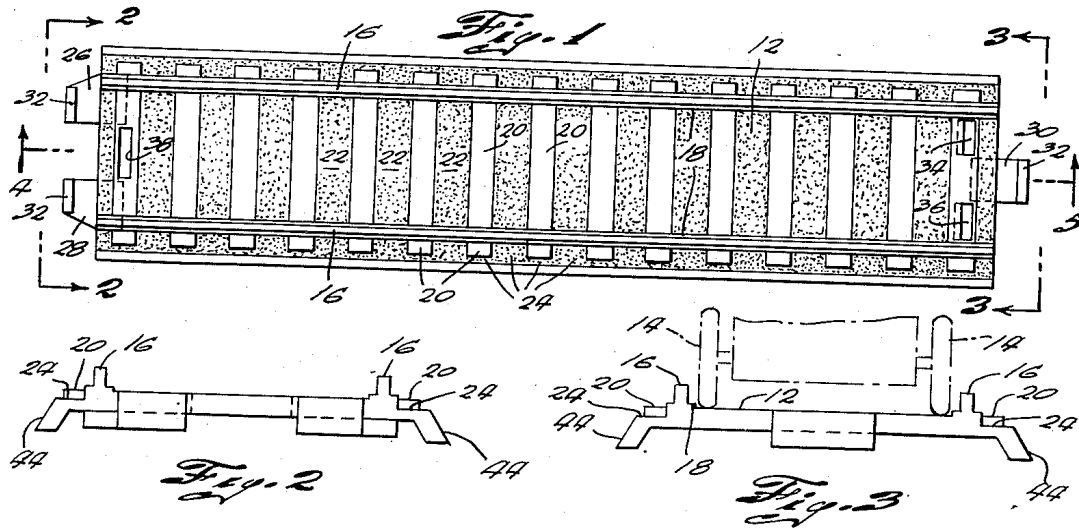
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2,647,693

MOLDED TRACK FOR VEHICLE TOYS

Filed April 14, 1949

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

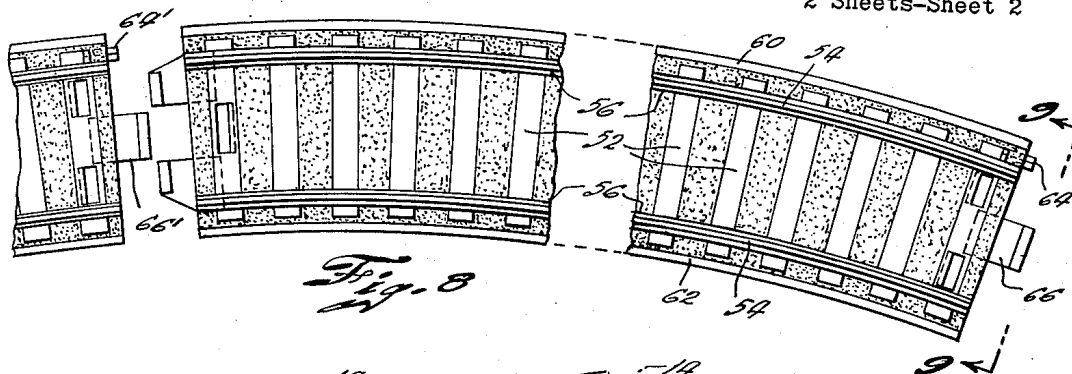


Fig. 8

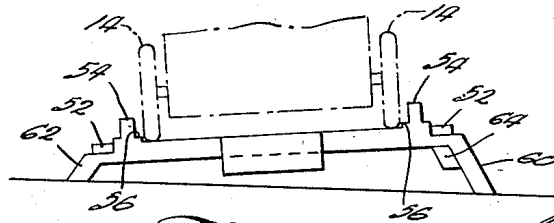


Fig. 9

Fig. 10

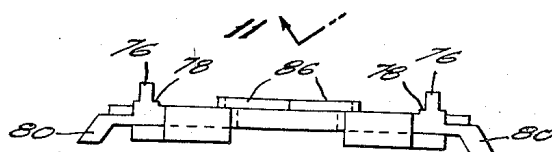
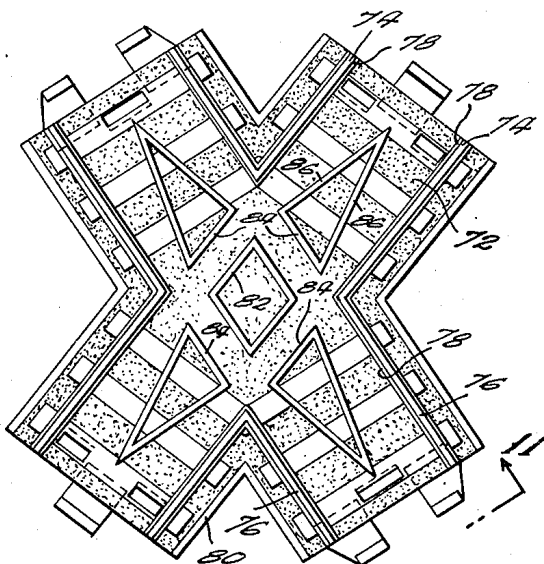


Fig. 11

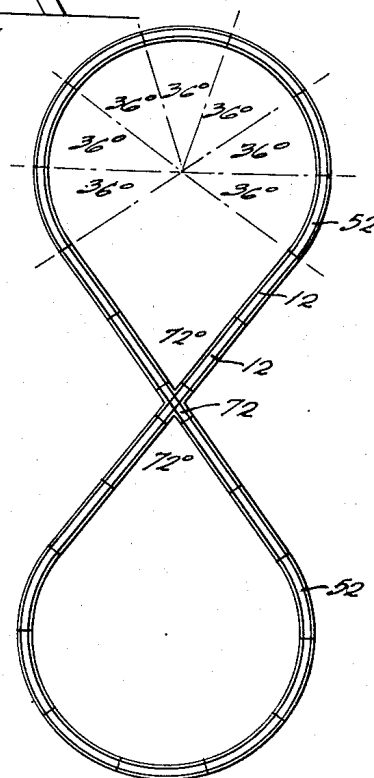


Fig. 12

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UNITED STATES PATENT OFFICE

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MOLDED TRACK FOR VEHICLE TOYS

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8 Claims. (Cl. 238—10)

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This invention relates to vehicle toys, and more particularly to vehicle track sections adapted to be molded out of known plastics.

Toys have already been made in which a vehicle having unflanged wheels runs between the guide rails of a road or track. In the present case the vehicle simulates a train which ordinarily has flanged wheels, but for simplicity and economy the wheels are unflanged and run between, rather than on, the guide rails. Nevertheless, in order to heighten the realism of the toy the road bed preferably simulates a regular railroad bed rather than a highway. One general object of the present invention is to generally improve the road bed or track sections for such a toy. All parts of the track section, both functional and ornamental, are provided in the course of a single molding operation.

A more specific object of the invention is to minimize friction on the wheels without sacrificing safety against derailment. With this object in view I provide low fillets or slightly raised steps at the base inside the rails, the said fillets being so low as to cause no appreciable friction on the wheels, but serving normally to center the wheels between, and to space the same from, the rails. The rails themselves are of substantial height and effectively prevent escape of the vehicle from the track in the event that the wheels move over the fillet, as, for example, in rounding a curve at high speed.

A further object of the invention is to improve the appearance of the track in order to more realistically simulate a railroad track. For this purpose the base portion is molded with smooth areas to simulate ties, and with slightly embossed or roughened areas between the ties to simulate the ballast of the road bed. The embossing between the rails is substantially flat, and is in the same plane as the tops of the ties, in order to permit free operation of the wheels on the base. However, the portions of the base outside the rails are modified, the embossed road bed portions being depressed substantially below the top surface of the simulated ties, much as is the case in a real railroad. Although the simulated ties are in bold relief at only their ends outside the rails, there is nevertheless an optical illusion which, on superficial inspection, creates the impression of ties projecting above road bed ballast of gravel, cinders, or the like. Of course, the wheels could not run between the rails on such a surface, but with the present construction some of the realistic appearance of projecting ties is obtained, while

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at the same time retaining between the rails a flat surface on which the wheels can run smoothly.

Other objects of the invention center about the mode of detachably connecting the sections in end-to-end relation. In accordance with the present invention each section is provided with two spaced tongues which project at one end, and a single tongue projecting at the other end. Each of the tongues has a lug. The base portion of the track is provided with two lug holes at the end with a single tongue, and with a single lug hole at the end with the two spaced tongues. The tongues, lugs, and holes are so related that the two sections may be locked together with their ends abutting tightly, the single tongue being disposed between the spaced tongues, and the lugs being received in the lug holes.

To accomplish the foregoing general objects, and other more specific objects which will hereinafter appear, my invention resides in the molded track sections, and their relation one to another as are hereinafter more particularly described in the following specification. The specification is accompanied by drawings in which:

Fig. 1 is a plan view of a straight track section embodying features of my invention;

Fig. 2 is an end elevation of the same looking in the direction of the arrows 2—2, and drawn to larger scale;

Fig. 3 is an end elevation of the same looking in the direction of the arrows 3—3;

Fig. 4 is a fragmentary longitudinal section taken in the plane of the line 4 of Fig. 1;

Fig. 5 is a fragmentary longitudinal section taken in the plane of the line 5 of Fig. 1;

Fig. 6 is a fragmentary plan view showing the adjacent ends of two track sections secured in abutting relation;

Fig. 7 is a section taken in the plane of the line 7—7 of Fig. 6, and drawn to larger scale;

Fig. 8 is a plan view showing the invention applied to curved track sections;

Fig. 9 is an end view drawn to larger scale, looking in the direction of the arrows 9—9, and showing the banking of the curved sections;

Fig. 10 is a plan view of a crossover embodying features of my invention;

Fig. 11 is an end view looking in the direction of the arrows 11—11 of Fig. 10; and

Fig. 12 is a plan view of a figure-8 track which may be built up out of the straight, curved, and crossover track sections previously referred to. Referring to the drawing, and more particu-

larly to Figs. 1 through 7, the track section there shown comprises a base portion 12 on which the vehicle wheels run, as is indicated by the wheels 14 in Fig. 3. There are spaced rails 16 which project upward from the base portion 12, and between which the wheels 14 run. In addition there are low fillets or stepped portions 18 formed in the corners between the base 12 and the rails 16. These fillets are so low that they cause no appreciable friction on the wheels 14. Nevertheless they serve to normally center the wheels between the rails 16. The friction is minimized because the wheels do not run against the relatively high rails 16. However, in the event that the vehicle tends to leave the track and climbs the low fillet 18, it is held safely on the track by the adjacent rail 16.

The fillet may, if desired, be a diagonal fillet, but I prefer the stepped fillet shown. It should be understood, however, that the step is a very low step, although somewhat exaggerated in the drawing for clarity. In one particular construction in which the rails are spaced apart with 1" clearance therebetween, and in which the height of the rail is $\frac{3}{8}$ ", the height of the fillet is only 0.02".

To increase the realism of the toy the base portion 12 is provided with smooth areas 20 which simulate wooden ties, and with embossed or roughened areas 22 between the ties to simulate a gravel or cinder road bed. The embossing of the areas 22 is substantially flat, and the plane of the areas 22 coincides with the plane of the tops 20 of the simulated ties, thereby permitting free operation of the vehicle wheels on the base surface 12 despite the embossing. However, outside the rails 16 the embossed or roughened portions 24 are depressed substantially below the tops 20 of the ties. This difference is clearly shown at 24 in Figs. 2 and 3 of the drawing. The effect is gratifying, for although the ties really are in bold relief at only the ends outside the rails, the overall appearance of the road bed is improved almost as though the ties were similarly in relief between the rails.

The sections are rigidly joined end-to-end in tightly abutting relation in a manner best shown in Figs. 6 and 7. Reverting to Fig. 1, it will be seen that the track section has two spaced tongues 26 and 28 projecting at one end, and a single tongue 30 projecting at the other end. Each tongue terminates in a lug 32. The base portion 12 of the track section has two lug holes 34 and 36 at the end with the single tongue 30, and has a single lug hole 38 at the end with the spaced tongues 26 and 28. Now the tongues, lugs and holes are so dimensioned and located that two sections may be locked together as shown in Figs. 6 and 7, with the lugs of tongues 26 and 28 received in lug holes 34' and 36' of an adjacent section, and with the lug of tongue 30' of the adjacent section received in lug hole 38. It will be understood that the primed numerals are employed for parts of another whole track section 12', which has been added to the track section 12.

In the drawing it will be seen that the tongues 26, 28 and 30 are all preferably located at a level beneath the base portion of the track section, and that the single tongue is dimensioned to be received between the spaced tongues of the next section when the sections are joined together. The distance between the inner face 40 of lug 32 and the end of the track section is made very slightly less than the spacing of the lug hole from the end of the track section, so that the

parts are fitted together with a tight fit, that is, the main ends of the two adjacent sections are held in tightly abutting relation. The lug holes preferably expand downwardly at one side, as is indicated at 42 in Fig. 7. This facilitates assembly and disassembly of the track sections, for they may be rocked or pivoted during assembly or disassembly.

The track section preferably includes side walls 44. These may slope, as is best shown in Figs. 2 and 3, thereby simulating the banking of the ballast of a typical road bed outside the ends of the ties. The side walls 44 serve to stiffen the track section against bending or warping, and also elevate the base portion 12 somewhat above the floor or table surface on which the track is placed. From another viewpoint it may be said that the track section is given adequate height to realistically simulate a road bed without, however, requiring an excessive amount of molding material, for the section is hollowed on bottom. Moreover, the elevation of the base portion makes it possible to locate the connecting tongues 26, 28 and 30 beneath the base portion, as was previously described.

The track section may be made inexpensively because it is molded in a single molding operation of conventional character, preferably by injection molding. Thus the base portion 12, the rails 16, the side walls 44, the fillets 18, the simulated ties 20, the simulated road bed 22, 24, the tongues 26, 28 and 30, and the lugs 32 are all an integral molded body of plastic. The plastic may be polystyrene, as one example.

The track preferably includes curved sections as well as straight sections, and a curved section is illustrated in Figs. 8 and 9. In this particular case the sections are 36° of arc, that is, it would take ten sections to complete a circle. The curved section resembles the straight section in having a main base portion 52 on which the wheels run, and rails 54 of substantial height between which the wheels run. Moreover, fillets 56 are provided which guide the wheels with minimum friction. As before, the base portion 52 has smooth areas which simulate ties, and has embossed areas therebetween which simulate the ballast of the road bed. Between the rails the embossed areas are comparatively smooth, and lie in the same plane as the tops of the ties. Outside the rails the embossed areas are substantially depressed, so that the ties stand out in relief, all as was previously described. Moreover, the arrangement of tongues, lugs and lug holes at the ends of the sections is the same as previously described. This, of course, has the important advantage that straight sections may be connected to curved sections, and vice versa.

However, the curved section differs from the straight section in one important respect. The side wall 60 (Fig. 9) on the outside of the curved section is substantially higher than the side wall 62 on the inside. Thus the curved section is banked, which adds to the realism of the track and which aids in holding the vehicle in centered position between the rails. If, however, the toy operates at excessive speed and climbs the fillet, it is held safely on the track by the main rail 54.

The curved track section has a projection 64 at the end with the single tongue 66. When the curved sections are assembled the projection 64 of one section comes beneath the end of the adjacent section, as will be seen at the left portion of Fig. 8, in which two curved sections are being brought together. The projection 64 is of some

help when joining a curved section to a curved section, but is of even greater help when joining a straight section to a curved section. It will be recalled that the straight sections have side walls of equal height, as is shown at 44 in Fig. 2. The outer side wall 50 of the curved section is higher than the side wall 44 of the straight section. When a run of straight sections is joined to a run of curved sections, the straight section nearest the curved sections must change from a relatively unbanked condition at one end to a banked condition at the other end. The projection 54 engages and helps support the elevated corner of that straight section which provides the transition from unbanked to banked track.

As so far described the track sections may be used to form an ellipse or a circle. It is also possible to form a "figure 8," as shown in Fig. 12 of the drawing, by providing a crossover in addition to the straight and curved sections. Such a crossover is shown in Figs. 10 and 11. It is preferably molded out of a single piece of molding material, and much of the description previously given is applicable to the crossover, for it comprises a base portion 72 with spaced rails 74 and 76. As before, the inside corners of the rails are preferably provided with fillets 78. The base portion preferably has smooth areas simulating ties, and embossed areas simulating the ballast between the ties. Between the rails 74 the embossed and smooth areas are in a common plane, and the embossing is comparatively flat in order to in no way impede free movement of the wheels. Outside the rails the embossed areas are preferably depressed so that the simulated ties stand out in bold relief.

Two of the four arms of the crossover are each provided with a single tongue with an upwardly directed lug, while the other two arms are each provided with two spaced tongues with upwardly directed lugs, all as previously described. Similarly, the ends having a single tongue have two lug holes, and the ends having two tongues have a single lug hole, so that the regular track sections may be connected to the crossover, as indicated in Fig. 12. Moreover, the side edges of the crossover are provided with side walls, best shown at 80 in Fig. 11, the said walls corresponding to the side walls 44 of the straight track sections.

The crossover differs from the regular track sections in having a raised parallelogram 82 at the center to help guide the vehicle safely across the intersection. Additional ridges may be provided at 84 for the same purpose. The ridges 84 may, if desired, form a side of a triangle, the other two sides 86 of which converge to an apex in the crossover arm. Thus the wheels are guided by the sloping ridges 86, and at the intersection are guided by the parallel ridges 82 and 84, all in addition to the main rails 74 and 76 previously mentioned.

It is believed that the construction and method of assembly and use of my improved track sections, as well as the advantages thereof, will be apparent from the foregoing detailed description. It will also be apparent that while I have shown and described the track sections of my invention in a preferred form, changes may be made in the structures disclosed, without departing from the scope of the invention, as sought to be defined in the following claims.

I claim:

1. A molded plastic track section for a vehicle toy, said track section comprising a base por-

tion and a pair of spaced rails projecting upwardly therefrom, the base portion being molded with smooth areas between and extending outside said rails to simulate ties and with embossed areas between and extending outside said rails to simulate road bed ballast between the ties, the embossing between the rails being substantially flat and in the plane of the ties, the embossed road bed portions outside the rails being depressed substantially below the top surface of the simulated ties.

2. A molded plastic track section for a vehicle toy, said track section comprising a flat continuous base portion on which the vehicle wheels run and a pair of spaced rails projecting upwardly therefrom between which the vehicle wheels run, the base portion being molded with smooth areas between and extending outside said rails to simulate ties and with embossed areas between and extending outside said rails to simulate road bed ballast between the ties, the embossing between the rails being substantially flat and in the plane of the ties in order to permit free operation of the vehicle wheels on the base surface between the rails, the embossed road bed portions outside the rails being depressed substantially below the top surface of the simulated ties.

3. A molded plastic track section for a vehicle toy, said track section comprising a flat continuous base portion on which the vehicle wheels run and a pair of spaced rails projecting upwardly therefrom between which the vehicle wheels run, the base portion being molded with smooth areas between and extending outside said rails to simulate ties and with embossed areas between and extending outside said rails to simulate road bed ballast between the ties, the embossing between the rails being substantially flat and in the plane of the ties in order to permit free operation of the vehicle wheels on the base surface between the rails, the embossed road bed portions outside the rails being depressed substantially below the top surface of the simulated ties, said track section including side walls which stiffen and elevate the base portion somewhat, and said base, rails, simulated ties and ballast, and side walls, all being an integral molded piece.

4. Molded plastic toy track sections arranged to be connected end to end, each section having a base portion, two spaced tongues projecting at one end, and a single tongue projecting at the other end, all of said tongues being at a level beneath said base portion each of said tongues having a lug at its end the upper surface of which is no higher than the upper surface of said base portion, the base portion of said track section having two lug holes at the end with a single tongue, and a single lug hole at the end with the two spaced tongues, the tongues, lugs, and holes being so related that two sections may be locked together with their ends abutting tightly, with the single tongue disposed between the spaced tongues, and with the lugs received in the lug holes, said parts all being an integral molded piece.

5. Molded plastic toy track sections arranged to be connected end to end, each section having a base portion, spaced rails projecting upwardly therefrom, side walls which stiffen and elevate the base portion somewhat, two spaced tongues projecting at one end at a level beneath the base portion, and a single tongue similarly projecting at the other end beneath the base portion, each of said tongues having an upwardly directed lug at its end the upper surface of which is no higher

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than the upper surface of said base portion, the base portion of said track section having two lug holes at the end with a single tongue, and a single lug hole at the end with the two spaced tongues, the tongues, lugs and holes being so related that two sections may be locked together with their ends abutting tightly, with the single tongue disposed between the spaced tongues, and with the lugs received in the lug holes.

6. Molded plastic toy track sections arranged to be connected end to end, each section having a base portion, spaced rails projecting upwardly therefrom, side walls which stiffen and elevate the base portion somewhat, two spaced tongues projecting at one end at a level beneath the base portion, and a single tongue similarly projecting at the other end beneath the base portion, each of said tongues having an upwardly directed lug at its end the upper surface of which is no higher than the upper surface of said base portion, the base portion of said track section having two lug holes at the end with a single tongue, and a single lug hole at the end with the two spaced tongues, the tongues, lugs, and holes being so related that the two sections may be locked together with their ends abutting tightly, with the single tongue disposed between the spaced tongues, and with the lugs received in the lug holes, said base, rails, side walls, tongues and lugs of one section all being an integral molded piece.

7. A molded plastic track section for a vehicle toy, said section comprising a base portion on which the vehicle wheels run, spaced rails projecting upwardly therefrom between which the vehicle wheels run, side walls which stiffen and elevate the base portion somewhat, the base portion being molded with smooth areas between and extending outside said rails to simulate ties and with embossed areas between and extending outside said rails to simulate road bed ballast between the ties, the embossing between the rails being substantially flat and in the plane of the ties in order to permit free operation of the vehicle wheels on the base surface between the rails, the portion of the base outside the rails having the embossed road bed portions depressed substantially below the top surface of the simulated ties, each section having a tongue projecting at one end at a level beneath the base portion, said tongue having an upwardly directed lug at its end the upper surface of which is no higher than the upper surface of said base portion, the base portion having a lug hole at the other end, the tongue, lug and hole being so

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molded that two sections may be locked together with their ends abutting tightly, with the lug received in the lug hole, said base, rails, side walls, ties, road bed, tongues and lugs of one section all being an integrally molded piece.

8. A molded plastic track section for a vehicle toy, said section comprising a flat continuous base portion on which the vehicle wheels run, spaced rails projecting upwardly therefrom between which the vehicle wheels run, side walls which stiffen and elevate the base portion somewhat, the base portion being molded with smooth areas between and extending outside said rails to simulate ties and with embossed areas between and extending outside said rails to simulate road bed ballast between the ties, the embossing between the rails being substantially flat and in the plane of the ties in order to permit free operation of the vehicle wheels on the base surface between the rails, the portion of the base outside the rails having the embossed road bed portions depressed substantially below the top surface of the simulated ties, each section having two spaced tongues projecting at one end at a level beneath the base portion and a single tongue similarly projecting beneath the base portion at the other end, each of said tongues having an upwardly directed lug at its end the upper surface of which is no higher than the upper surface of said base portion, the base portion having two lug holes at the end with a single tongue and a single lug hole at the end with the two spaced tongues, the tongues, lugs and holes being so molded that two sections may be locked together with their ends abutting tightly, with the single tongue disposed between the spaced tongues, and with the lugs received in the lug holes, said base, rails, side walls, ties, road bed, tongues and lugs of one section all being an integrally molded piece.

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