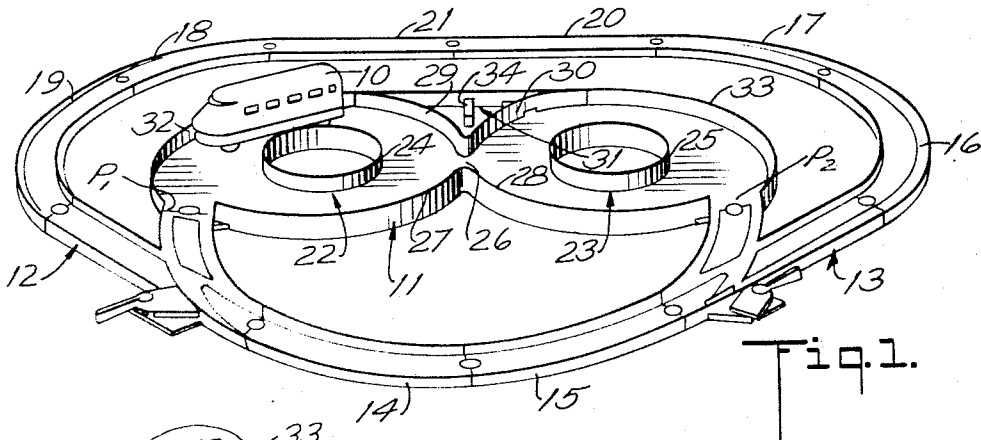
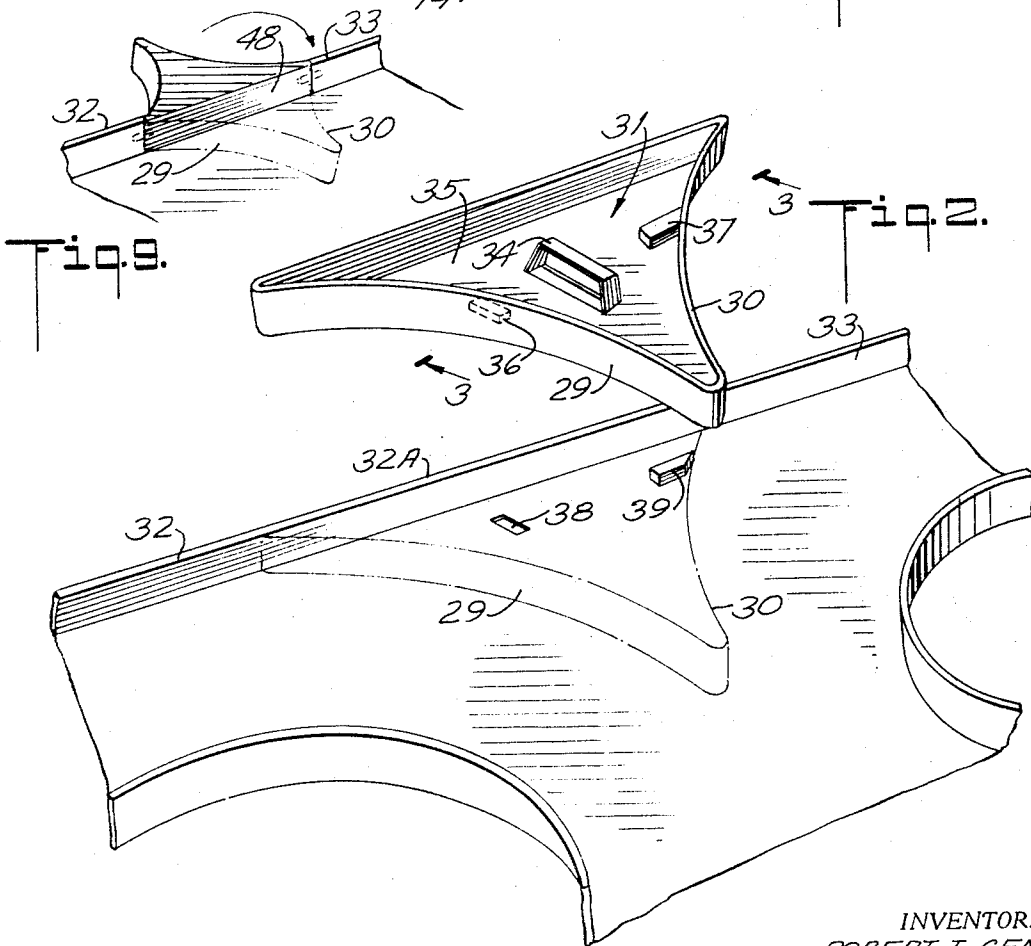


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TOY RAILROAD TRACK ASSEMBLY

Sheet 1 of 3



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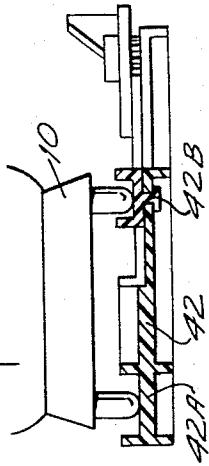
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TOY RAILROAD TRACK ASSEMBLY

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Sheet 2 of 3



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1

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## TOY RAILROAD TRACK ASSEMBLY

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6 Claims

## ABSTRACT OF THE DISCLOSURE

A toy railroad track assembly including a figure-of-eight section formed by a pair of symmetrically-arranged annular guide channels which communicate with each other through an isthmus, one bank of which is formed by a cusp-shaped, removable sub-section whose converging guide walls are common to said annular guide channels, such that when said sub-section is withdrawn, the annular guide channels are converted into a single, flow-through channel acting to interconnect associated track sections coupled to the end ports in the figure-of-eight section.

My invention relates generally to toy railroads, and more particularly to a trackway assembly for a toy railroad which includes a figure-of-eight section having a removable sub-section adapted to cause a train traveling within the section to reverse its direction.

In the typical toy railroad, the trackway assembly is constituted by interlocking track sections which are in various configurations, some being straight and others being curved. By joining different sections together, one may produce various track layouts, each having a distinct travel pattern. By the use of track switches, it is also possible to vary the direction of travel within a given layout.

With conventional trackway assemblies of inexpensive design, only a small number of track sections is provided, with very limited possibilities for varying the travel pattern. Thus a child playing with a railroad of this type quickly tires of the toy, for there is little he can do to add interest to the operation under his control. On the other hand, if the child is supplied with a greater number of track sections, this not only adds to the cost, but it also increases the space requirements for the toy.

Accordingly, the main object of this invention is to provide a toy railroad with a trackway assembly having a relatively small number of track sections which may be of conventional design and which intercouple with a figure-of-eight section to produce a track layout wherein the train may be caused to travel in many and varied directions under the control of the player.

A salient feature of the invention is that while the trackway assembly is constituted by a small number of sections and produces layouts occupying relatively little space, it nevertheless is capable of highly imaginative and enjoyable travel patterns which maintain the interest of the player.

More specifically, it is an object of the invention to provide an assembly of the above type wherein the figure-of-eight track section includes a removable, reversing subsection which when inserted, acts to change the direction of train travel, the nature of the change depending on the moment of insertion, so that the same sub-section is adapted to introduce several changes in direction.

Also an object of the invention is to provide a trackway which is of simple, sturdy and low-cost design, and is capable of withstanding rough handling, the figure-of-eight section being readily combined with straight and curved sections to form diversified layouts.

Briefly stated, these objects are accomplished in a track-

2

way assembly in accordance with the invention, which includes a figure-of-eight section formed by a pair of symmetrically-arranged annular guide channels which communicate with each other through an isthmus, one bank of which is formed by a cusp-shaped, removable sub-section whose converging guide walls are common to said annular guide channels, such that when said sub-section is withdrawn, the annular guide channels are converted into a single, flow-through channel acting to interconnect associated track sections coupled to the end ports in the figure-of-eight section.

The arrangement is such that a train entering the figure-of-eight section through one of the end ports will travel cyclically in a figure-of-eight pattern within said figure-of-eight section, if the sub-section is in place therein, but will go through the resultant flow-through channel and out through the other end port in the event the subsection is not then in place. However, should the train enter one of the annular channels, with the sub-section in place, and pass into the second annular channel, after which the subsection is removed, the train will then traverse the resultant flow-through channel and exit from the same port through which it entered the figure-of-eight section, thereby undergoing a reversal in direction.

In this way, a train entering either port in the "8" section may be caused selectively to travel cyclically in a figure-of-eight pattern within this section, or to exit from the other port or to exit from the same port. By associating the figure-of-eight section with other track sections provided with track switches, the player is able to control the train so that it can be caused to enter either one of the two ports. Thus the player has available to him not only the range of travel patterns created by the figure-of-eight section, but also those produced by the associated sections, as a consequence of which, elaborate and interesting travel patterns may be produced with a relatively limited number of sections.

For a better understanding of the invention, as well as other objects and further features thereof, reference is made to the following detailed description to be read in conjunction with the accompanying drawings, wherein:

FIG. 1 is a perspective view of a toy railroad including a trackway assembly in accordance with the invention, in one of many possible layouts;

FIG. 2 is an enlarged view of the removable-reversing subsection, with the sub-section raised above the figure-of-eight section;

FIG. 3 is a sectional view taken through the plane indicated by line 3-3 in FIG. 2, showing the sub-section in place, with a train abutting a guide wall thereof;

FIG. 4 is a plan view of the track switch section in the trackway assembly, the switch being in the straight-line mode;

FIG. 5 is an elevational view of the track switch assembly;

FIG. 6 is a plan view of the track switch section, the switch being in the alternative offset mode;

FIG. 7 is a sectional view taken in the plane indicated by line 7-7 in FIG. 6;

FIG. 8 is a sectional view taken in the plane indicated by line 8-8 in FIG. 4; and

FIG. 9 shows a modified form of reversing subsection.

## STRUCTURE OF ASSEMBLY

Referring now to the drawings, and more particularly to FIG. 1, there is shown a toy railroad including a motorized train 10, which runs along a trackway assembly constituted by a figure-of-eight section, generally designated by numeral 11, which is associated with switch sections 12 and 13, curved track sections 14, 15, 16, 17, 18 and 19, and straight track sections 20 and 21. The track layout shown is only one of many possible in association

with the figure-of-eight section. In practice, the layout may be much more elaborate and include switching turntable sections, as well as a greater number of curved and straight sections, or the layout may be elementary in form, involving only curved sections intercoupling the ports of the figure-of-eight section.

Train 10 may have a spring-wound or electrically-operated motor, and is provided with a suitable switch, which when actuated, causes the train to run continuously on the trackway. The train may be regarded as a runaway train, for once put into operation, it cannot be halted but only caused to travel in different directions and in different travel patterns on the trackway.

The figure-of-eight section is constituted by two annular guide channels 22 and 23, channel 22 having a circular inner guide wall 24, and channel 23 a similar inner wall 25. The two annular channels are symmetrically arranged and communicate with each other through an isthmus 26, one cusp-shaped bank of which is defined by converging portions of the outer guide walls 27 and 28 of annular channels 22 and 23.

The complementary cusp-shaped bank of isthmus 26 is defined by the converging guide walls 29 and 30 of a removable sub-section 31, these walls having a radius of curvature matching those of the curved outer guide wall portions 32 and 33 of the two annular channels.

Sub-section 31 includes a handle 34 attached to its floor 35, a lug 36 projecting below the floor and a small socket 37 indented in the floor. The lug and socket serve to maintain the sub-section in place on the figure-of-eight section, lug 36 being received in a slot 38 on this section, and socket 37 accommodating a locating finger 39 attached to the section, as shown in FIG. 2. Thus the sub-section is easily put into its proper position or withdrawn.

Annular channel 23 is provided with an access port P<sub>1</sub>, while channel 24 is provided with an access port P<sub>2</sub>, through which ports the train 10 may enter or exit. Train 10 includes a rounded front bumper 10A which, as best seen in FIG. 3, engages a vertical guide wall in the "8" section and deflects the moving train, thereby causing it to flank the guide wall and to be guided therealong. In FIG. 1, for example, the train moves along outer guide wall 32 of annular channel 23 and is guided thereby into port P<sub>1</sub>, where it exits into the switch track section 12.

When sub-section 31 is removed, the guide walls 29 and 30 thereof are effectively replaced by an outer guide wall portion 32A which, as best seen in FIG. 2, joins outer guide wall portion 32 in a straight line to outer guide wall portion 33, thereby forming a single follow-through channel between ports P<sub>1</sub> and P<sub>2</sub>. Thus one cusp-shaped bank of isthmus 26 is erased when sub-section 31 is withdrawn and the figure-of-eight path is supplanted by a direct path.

Switch track section 13 is illustrated in greater detail in FIGS. 4 to 8, and is constituted by a straight-line zone 40 and an offset zone 41, which merge with a switching zone 42. The various track sections associated with the "8" section, as exemplified in FIG. 8, are composed of a pair of spaced double-wall rails 42A and 42B forming grooves in which the wheels of the train ride. Rail 42B includes a pivoted piece 42B' secured to a gear segment 43 which intermeshes with a pinion 44, turned manually by a handle 45 to shift the position of rail piece 42B' alternatively into registration with rail 40B of the straight line zone 40 or the rail 41B of the switching zone. Rail 42A at a fork in the track section joins both rail 40A of the straight line zone and rail 41A of the offset zone.

The switch section 13 as well as all other sections are each formed at one end with a snaplock tongue 46, and at the other end with a complementary recess 47 to facilitate the joining together of track sections in any desired layout. Thus, switch track section 13 has its offset zone locked to the figure-of-eight track section at port

P<sub>2</sub>, while its straight-line zone is coupled to track section 16, and its switching zone is coupled to track section 15.

In the operative switch position shown in FIG. 4, which is called the "straight-line mode," a train moving from left to right on the track section 15 will travel across switching zone 42 into straight-line zone 40 and from there to the track section 16. In the alternative operative position shown in FIG. 6, called the "offset mode," the same train will be directed through offset zone 41 into port P<sub>2</sub> of the figure-of-eight track section. The switching section 12 is of similar design, its offset zone being coupled to port P<sub>1</sub> of the figure-of-eight section, its straight-line zone being coupled to track section 12, and its switching zone to track section 14.

In FIG. 9, there is shown an alternative form of sub-section wherein the converging walls 29 and 30 are combined with a rear wall 48 which is pivotally connected to guide wall portions 32 and 33. Thus, to remove the sub-section, one has merely to flip it over, in which event rear wall 48 becomes effective to provide a follow-through passage.

#### OPERATION OF TRACKWAY

Referring again to FIG. 1, it will be seen that in the layout shown, the trackway is composed of two continuous loops having certain sections in common. The larger outer loop is effective when track switches 12 and 13 are both in the straight-line mode, and the train will then travel in an endless path formed successively by sections 12, 19, 18, 21, 20, 17, 16, 13, 15 and 14. The inner loop is effective when track switches 12 and 13 are both in the offset mode, and the train will then travel in an endless path formed successively by sections 12, 11, 13, 15 and 14, but in this instance, only when the sub-section 31 is removed from the figure-of-eight section to provide a direct follow-through passage.

Let us now consider some of the many possibilities which exist in this layout for varying the travel pattern of train 10.

##### Pattern 1

We shall start with the switches 12 and 13 in the straight-line mode, in which case, the train will travel clockwise or counterclockwise along the outer loop, and continue to do so cyclically until the player changes the switching mode. Whether the train travels clockwise or counterclockwise depends on how the player places the train on the outer loop.

##### Pattern 2

With the train set in travel clockwise (Pattern 1), the player switches sections 12 and 13 into the offset mode, so that the next time the train enters section 12, it is directed thereby into port P<sub>1</sub> of the figure-of-eight section 11. Assuming that the sub-section 31 is removed, the train will guide along the outer guide walls 32, 32A and 33 of this section and exit through port P<sub>2</sub>, and then continue to travel cyclically along the inner loop until the player makes other changes.

##### Pattern 3

With the train traveling clockwise in the inner loop (Pattern 2), before the train reaches the vacant sub-section area in the figure-of-eight section, the player drops sub-section 31 into place. As a consequence, the train will now travel in a figure-of-eight pattern and go back and forth from the annular channel 22 into annular channel 23, this pattern being repeated as long as sub-section 31 remains in place. Thus in this travel pattern, the runaway train remains within the confines of the figure-of-eight section.

It is to be noted that the reason the train in this pattern never leaves the section, is that in order to do so, it must approach port P<sub>1</sub> or port P<sub>2</sub> by gliding along guide wall 32 or 33, whereas in the figure-of-eight pattern, it is

5

compelled to approach these ports along guide walls 27 and 28, which walls direct the train to guide walls 32 and 33, respectively, thereby by-passing the ports.

#### Pattern 4

When the train is describing a figure-of-eight travel pattern (Pattern 3), and is moving in annular guide channel 23, the player withdraws sub-section 31 before the train reaches it, thereby erasing one bank of isthmus 26 to create a flow-through channel causing the train to glide along guide wall portions 33, 32A and 32 into port P<sub>1</sub>. It will be observed that since the train had initially entered the figure-of-eight section through port P<sub>1</sub>, in leaving this section through the same port, it has reversed direction.

#### Pattern 5

In Pattern 4, the train entering the figure-of-eight section in the clockwise direction, had been caused to depart therefrom in the counterclockwise direction. Switches 12 and 13 may now be operated in the straight-line mode to cause the train to travel in the outer loop in the counterclockwise direction.

The above patterns represent some of the travel patterns which can be obtained by reason of the versatile switching action afforded by the layout shown. It must be recognized that the outer loop defines the over-all area occupied by the toy, and that within these relatively small confines a great variety of travel patterns are obtainable, depending on the imagination of the player and without the need to extend the dimensions of the layout.

What I claim is:

1. A toy railroad comprising:

(A) a motorized train, and

(B) a track assembly for said train, said assembly including,

(a) a figure-of-eight section formed by a pair of annular guide channels which communicate with each other through an isthmus, one bank of which is formed by a cusp-shaped removable sub-section, whose converging guide walls are common to said annular channels, such that when said sub-section is

6

removed the annular guide channels are converted into a flow-through channel, said section having an access port in each annular channel, and

(b) additional track sections associated with said figure-of-eight section and coupled thereto through said ports to permit the entry and exit of said train, whereby a train entering either port will remain in said figure-of-eight section if the subsection is in place and will exit from one of said ports when said subsection is removed.

2. A toy railroad as set forth in claim 1, wherein said figure-of-eight section has vertical guide walls, and said train has a curved front bumper deflecting said train and causing it to glide against the guide wall.

3. A toy railroad as set forth in claim 1, wherein said channels each have a circular inner guide wall and a circular outer guide wall a portion of which is common to said sub-section.

4. A toy railroad as set forth in claim 1, wherein said sub-section includes means to locate the sub-section on the figure-of-eight section.

5. A toy railroad, as set forth in claim 1, wherein said sub-section is pivotally mounted on the figure-of-eight section to facilitate withdrawal thereof.

6. A toy railroad as set forth in claim 1, wherein the additional track sections coupled to each of said ports are switch sections which alternatively direct a train into the associated port or into an other track section.

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