A race track for toy vehicles includes a plurality of sections of track and a plurality of elastic members that connect the sections of track and bias them from a storage position to an in use position.
TRACK SYSTEM FOR TOY VEHICLES

BACKGROUND OF THE INVENTION

[0001] The present invention relates to a track system for toy vehicles.

[0002] Toy vehicle track sets typically include one or more toy vehicles and a length of guiding track. The vehicles may be either free-wheeling or electrically powered by batteries or current from a utility. When free-wheeling vehicles are utilized, some form of energy transfer, such as spring launchers, manual propulsion or gravity, is required. If the vehicles are propelled by batteries, the batteries may be located in the vehicles. If the vehicles are powered by utility current, the track typically includes electrical conductors embedded therein to provide a current to the vehicles through contacts located on the vehicles.

[0003] Tracks are available in a variety of configurations, such as closed loop circles, ovals and figure eights. Toy race tracks often consist of individual segments or pieces that are connected together to form a track, such as disclosed in U.S. Pat. No. 3,860,237 to Cooper et al. The sections of track are often connected to one another by a set of interlocking structures, such as a lip and groove connection.

[0004] Another type of connection that is typical for toy race tracks is disclosed in U.S. Pat. No. 4,479,650 to Neuhierl. The sections of track in Neuhierl include pin elements and mating receiving elements.

[0005] When race tracks of this type are not in use and it is desired to store them, the sections can be disconnected and placed in a box or other container. To reassemble the track, the user must find the desired pieces and connect them to form the desired configuration. Furthermore, the loose sections of track may be lost or misplaced.

SUMMARY OF THE INVENTION

[0006] In one embodiment of the present invention, a race track for toy vehicles includes a plurality of track sections and a plurality of elastic connectors that join the track sections in a first, stored configuration and automatically arrange the track sections in a second in use configuration. The elastic connectors are under tension when the track sections are in the stored configuration and at least one elastic connector is under less tension when the track sections are in the use configuration.

[0007] In one embodiment, the track sections include projections and the elastic connectors are elastic bands positioned around the projections. The track sections may also include retaining members for retaining the elastic bands on the projections. The track sections may also include interlocking tabs and channels.

[0008] In another embodiment, each track section has a first side and a second side and a plurality of fasteners attach the elastic connectors to the sides of the track sections.

[0009] In yet another embodiment, each track section includes a first end and a second end and the elastic connectors are located between the ends of adjacent track sections. The track sections further include an upper surface and at least a portion of the elastic connectors are coplanar with the upper surfaces of the track sections. The track sections and connectors may include a guide and may have substantially identical cross sections.

[0010] In another embodiment of the invention, the track sections include substantially tubular members and each elastic connector is located at least partially within one of the tubular members.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] The above-mentioned and other features of this invention and the manner of obtaining them will become more apparent and the invention itself will be better understood by reference to the following description of embodiments of the present invention taken in conjunction with the accompanying drawings, wherein:

[0012] FIG. 1 is a plan view a track system according to one embodiment of the present invention in an open or in use position;

[0013] FIG. 2 is a perspective view of the track system of FIG. 1 in a partially folded position;

[0014] FIG. 3 is a plan view of the track system of FIG. 1 in a storage position;

[0015] FIG. 4 is a top perspective view of two adjoining sections of track from the track system of FIG. 1 in an open or in use position;

[0016] FIG. 5 is a side view of the two sections of track in FIG. 4 in an open or in use position;

[0017] FIG. 6 is a bottom perspective view of the two sections of track in FIG. 4 in an open or in use position;

[0018] FIG. 7 is a top perspective view of the two sections of track in FIG. 4 in a partially folded position;

[0019] FIG. 8 is a perspective view of the two sections of track in FIG. 4 in a folded position;

[0020] FIG. 9 is a side view of the two sections of track in FIG. 4 in a folded position;

[0021] FIG. 10 is a bottom perspective view of two adjoining sections of track according to another embodiment of the present invention in an open or in use position;

[0022] FIG. 11 is a top perspective view of the two sections of track of FIG. 10 in a partially folded position;

[0023] FIG. 12 is a top perspective view of two adjoining sections of track according to another embodiment of the present invention in an open or in use position;

[0024] FIG. 13 is a perspective view of the two sections of track from FIG. 12 in a partially folded position;

[0025] FIG. 14 is a top perspective view of two adjoining sections of track according to another embodiment of the present invention in an open or in use position;

[0026] FIG. 15 is a side view of the two sections of track of FIG. 14 in a folded position; and

[0027] FIG. 16 is a top perspective view of two adjoining sections of track according to a third embodiment or the present invention in an open or in use position.

[0028] FIG. 17 is a perspective view of a race track toy assembly according to one embodiment of the present invention in the storage position.

[0029] FIG. 18 is a perspective view of the race track toy assembly of FIG. 17 in an in use or open position.

[0030] Corresponding reference characters indicate corresponding parts throughout the several views. Although the drawings represent embodiments of the present invention, the drawings are not necessarily to scale and certain features may be exaggerated in order to better illustrate and explain the present invention. The exemplification set out herein illus-
trates embodiments of the invention, and such exemplifications are not to be construed as limiting the scope of the invention in any manner.

DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

[0031] For the purposes of promoting an understanding of the principles of the invention, reference will now be made to the embodiments illustrated in the drawings, which are described below. It will nevertheless be understood that no limitation of the scope of the invention is thereby intended. The invention includes any alterations and further modifications in the illustrated devices and described methods and further applications of the principles of the invention, which would normally occur to one skilled in the art to which the invention relates.

[0032] Referring now to FIGS. 1-3, a race track for use with toy vehicles is shown, generally indicated as 10. Race track 10 includes an upper or racing surface, generally indicated as 12, and a lower surface, generally indicated as 14 (FIG. 2). Race track 10 has a generally oval configuration when in an open or in use position as shown in FIG. 1. Race track 10 includes a plurality of straight sections 20 and curved sections 22.

[0033] FIGS. 4-6, show enlarged views of two sections 20 and/or 22 of track 10 in the open position. Track sections 20 and 22 include a guide, generally indicated as 30, on upper surface 12, a pair of ribs, generally indicated as 32a and 32b, on lower surface 14 (FIG. 6), and opposing sides 34a and 34b. In the embodiment shown, guide 30 includes a pair of raised parallel ridges 30a and 30b running longitudinally along the center of track sections 20 and 22. Sides 34a and 34b extend above upper surface 12 and below lower surface 14, respectively. It should be appreciated that guide 30 and sides 34a and 34b are configured to assist in guiding toy vehicles along race track 10 and to prevent the vehicles from leaving the track.

[0034] Track sections 20 and 22 also include a plurality of projections or knobs 36 extending outwardly from and generally perpendicular to sides 34a and 34b, and a number of hook-like retainer members 38a and 38b. Track sections 20 and 22 also include an interlocking tab 40 extending from one end and a receiving channel 42 at the opposing end (FIGS. 6-9).

[0035] Race track 10 also includes a plurality of elastic connectors 50, which in the embodiment shown, consist of elastic bands. As shown throughout FIGS. 4-9, connectors 50 are mounted on the outermost knob or projection 36 at each end of sections 20 and 22 and looped under retainer members 38a and 38b and mounted on the outermost knob 36 of the adjacent or adjoining section 20 or 22. Note, however, that connectors 50 can be looped around any desired projection 36.

[0036] Track sections 20 and 22 may be made from any suitable material including, but not limited to, injection-molded plastic. In addition, although an oval loop is shown in FIG. 1, it should be appreciated that the present invention may be utilized with straight and/or curved lengths of track not arranged in a loop and that other loop configurations, such as a figure eight, may be employed.

[0037] To assemble the track, the sections are laid out in the desired configuration, for example, as shown in FIG. 1. The sections are arranged such that interlocking tabs 42 are located in the receiving channels 44 on the adjacent sections 20 or 22, as shown in FIG. 6. Connectors 50 are placed around one of the projections 36 on a track section, threaded through retainer members 38a and 38b and then placed around a projection 36 on the adjacent track section as shown in FIG. 4. It should be appreciated that elastic connectors 50 are stretched and under tension when the track is in the open, in use position in order to bias or pull adjacent track sections 20 and/or 22 together, as shown in FIG. 4. In operation, toy vehicles may be placed on track 10, and played with in the conventional manner. As previously discussed, guides 30 and ridges 34a and 34b help guide the toy vehicles along the track. The wheels of the vehicle may straddle ridges 30a and 30b of guide 30.

[0038] When track 10 is to be stored, elastic connectors 50 permit the track sections to be folded upon one another while still maintaining the connection between adjacent sections. FIG. 2 demonstrates initial folding of the track. The sections of the track may continue to be folded into a storage configuration, such as shown in FIG. 3. The sections can be maintained in this configuration with a rubber band, string or other securing means.

[0039] It should be appreciated from FIGS. 7-9 that, as the sections of track are folded, elastic bands 50 will stretch even further and be under additional tension. Accordingly, when the track is not held in the folded configuration shown in FIG. 3, the tension in elastic bands 50 will, upon being released, force the track back into the open, in use position shown in FIG. 1. Accordingly, after the sections are assembled in an initial configuration, the track will automatically assume that configuration unless it is held in a storage configuration.

[0040] FIGS. 10 and 11 show two sections of an alternate embodiment of a race track generally indicated as 110. Race track 110 includes a lower surface 114 on straight track sections 120 and/or curved track sections 122. Ribs 132a and 132b are located on in lower surface 114. Sections 120 and 122 also include sides 134a and 134b. Race track sections 120 and 122 also include tubular members 137 on lower surface 114. Elastic connectors 150 are threaded through tubular members 137 on sections 120 and 122 such that the sections can be folded while maintaining a connection therebetween. The ends of elastic connectors 150 may be tied into a knot 151 or an enlarged head may be attached to connectors 150 to prevent them from slipping through tubular members 137. The elastic connectors 150 are under tension when the track is in the open in use position, as shown in FIG. 10, so that the connectors will force or bias the sections 120 and/or 122 together.

[0041] Now referring to FIGS. 12 and 13, a portion of another alternate embodiment of a race track is shown, generally indicated as 210. Race track 210 includes straight and/or curved track sections 220 and 222. Track sections 220 and 222 are substantially similar to track sections 20 and 22, except that retainers 38a and 38b have been eliminated and elastic connectors 250 are used to connect adjoining track sections 220 and/or 222. Elastic connectors 250 are mounted to track sections 220 and 222 using rivets 252 or other fasteners. Race track 210 is used, folded and unfolded in the same manner as track 10.

[0042] Now referring to FIGS. 14 and 15, a portion of another alternate embodiment race track is shown, generally indicated as 310. Race track 310 has an upper surface 312 and straight and/or curved track sections 320/322. Track 310 also includes a guide 330 located on upper surface 312, and sides 334a and 334b.

[0043] Race track 310 also includes an elastic connector 350 extending between adjoining track sections 320 and/or 322. As shown in FIG. 14, elastic connector 350 has a con-
configuration substantially matching track sections 320 and/or 322 including upper surface 312, guides 330 and sides 334a and 334b. In this manner, toy vehicles traveling on track 310 will travel on elastic connector 350 while moving between adjoining track sections. Elastic connector 350 may be attached to track sections 320 and/or 322 using a tongue and groove connection, other known connections in the art, and/or with an adhesive. Race track 310 may be used, folded and unfolded in a manner similar to that of track 10.

[0044] FIG. 16 shows another alternative embodiment of a race track, generally indicated as 410. Race track 410 includes straight and/or curved track sections 420/422 similar to sections 20 and 22 except that the interconnecting tabs and receiving channels on the ends of the sections may be eliminated. Race track 410 includes hinged connectors 450. Connectors 450 are mounted to track sections 420 and 422 and hinged at 454.

[0045] FIG. 17 is a perspective view of a race track toy assembly according to one embodiment for the present invention in a storage or closed position. Assembly 500 includes track sections 520 connected to assembly 500 by hinges 520a. Additional track sections 520 are attached to assembly 500 in a generally parallel relationship and are shown in a folded or stored position in FIG. 17 and an open or in use position in FIG. 18. The assembly further includes a finish line flag assembly 521 that includes a lock/release button 522, two finish line gates 523 and flags 524. The parallel track sections are joined in the center by the assembly 521. These track sections include the same elastic connector arrangement as shown in FIG. 4 above. In order to utilize the assembly 500 in the play position, the segments 520 that are attached by hinges 520a are folded downwardly from assembly 500. Lock/release button 522 on assembly 521 is depressed to release the parallel track sections 520 from the storage position. As the track sections are released, elastic members 50 extend the track into the open or in use position shown in FIG. 18. The user can then position support members 525 below the track sections as shown in FIG. 18.

[0046] While the invention has been taught with specific reference to these embodiments, one skilled in the art will recognize that changes can be made in form and detail without departing from the spirit and scope of the invention. For example, the invention may be used with track sections containing embedded electrical conductors. The electrical connection may be made between track sections 20 and/or 22 by providing mating electrical contacts on tabs 42 and channels 44. In addition to use for attaching elastic connector 50, projections or knobs 36 may be used for other purposes, such as attaching elevating members to raise a portion of the track, attaching a bridge structure, attaching signs, attaching scenery, or for attaching any other structure desired to be incorporated into the race track assembly. The described embodiments are to be considered, therefore, in all respects only as illustrative and not restrictive. As such, the scope of the invention is indicated by the following claims rather than by the description.

1. A race track for toy vehicles, including:
   a plurality of track sections; and
   a plurality of elastic connectors that join the track sections in a first, stored configuration and automatically arrange the track sections in a second in use configuration.

2. The race track as set forth in claim 1, wherein the elastic connectors are elastic bands.

3. The race track as set forth in claim 2, wherein each track section includes at least one projection and each elastic band is positioned around at least one projection.

4. The race track as set forth in claim 3, wherein at least one elastic band is positioned around at least one projection on two adjacent track segments.

5. The race track as set forth in claim 4, further including at least one member for retaining the elastic band on the projections.

6. The race track as set forth in claim 5, wherein the retaining member is located between the projections on adjacent track sections.

7. The race track as set forth in claim 1, wherein each track section has a first end having a tab and a second end having a channel.

8. The race track as set forth in claim 7, wherein the tab of one track section mates with the channel of an adjacent track section when the sections are in the in use configuration.

9. The race track as set forth in claim 1, wherein the elastic connectors are under tension when the track sections are in the stored configuration and at least one elastic connector is under less tension when the track sections are in the in use configuration.

10. The race track as set forth in claim 1, wherein each track section has a first side and a second side and at least one elastic connector is located on the first side of each track section and at least one elastic connector is located on the second side of each track section.

11. The race track as set forth in claim 1, wherein each track section includes a first end and a second end and the elastic connectors are located between the ends of adjacent track sections.

12. The race track as set forth in claim 11, wherein each track section further includes and upper surface and at least a portion of the elastic connectors are coplanar with the upper surfaces of the track sections.

13. The race track as set forth in claim 12, wherein at least two adjacent track sections and the connector joining them include a guide.

14. The race track as set forth in claim 11, wherein the elastic connectors are under tension when the track sections are in the stored configuration and at least one elastic connector is under less tension when the track sections are in the in use configuration.

15. The race track as set forth in claim 1, wherein the elastic connectors and the track sections have substantially identical cross sections.

16. The race track as set forth in claim 1, wherein each track section has a first side and a second side and a plurality of fasteners attach the elastic connectors to the sides of the track sections.

17. The race track as set forth in claim 16, wherein each track section has a first end having a tab and a second end having a channel.

18. The race track as set forth in claim 17, wherein the tab of one track section mates with the channel of an adjacent track section when the sections are in the in use configuration.

19. The race track as set forth in claim 16, wherein the elastic connectors are under tension when the track sections are in the stored configuration and at least one elastic connector is under less tension when the track sections are in the in use configuration.
20. The race track as set forth in claim 1, wherein the track sections include substantially tubular members and each elastic connector is located at least partially within one of the tubular members.

21. The race track as set forth in claim 20, wherein each track section has a first end having a tab and a second end having a channel.

22. The race track as set forth in claim 21, wherein the tab of one track section mates with the channel of an adjacent track section when the sections are in the in use configuration.

23. The race track as set forth in claim 20, wherein the elastic connectors are under tension when the track sections are in the stored configuration and at least one elastic connector is under less tension when the track sections are in the in use configuration.

24. A race track for toy vehicles, including:
   a plurality of sections of track; and
   means for connecting the sections of track in a storage configuration and for biasing the sections of track into an in use configuration.

25. The race track as set forth in claim 24, wherein the means for connecting and biasing includes at least one elastic member.

26. The race track as set forth in claim 24, wherein the means for connecting and biasing includes at least one elastic band.

27. The race track as set forth in claim 24, wherein each section of track has a first end and a second end and the means for connecting and biasing are located between the first and second ends of adjacent track sections.

28. The race track as set forth in claim 24, wherein each section of track has a first side and a second side and the means for connecting and biasing are located on the sides of the track sections.

29. The race track as set forth in claim 24, wherein each section of track has at least one tubular member and the means for connecting and biasing are located at least partially within the tubular members.

30. A race track for toy vehicles, including:
   a plurality track sections, each track section having a first end, a second end, a first side, a second side, an upper surface and a lower surface;
   a plurality of projections located on the sides of the track sections;
   a plurality of elastic members positioned around the projections;
   a plurality of members located between the projections for retaining the elastic members on the projections;
   a tab located adjacent the first end of each of the track sections; and
   a channel located adjacent the second end of each of the track sections.

31. The race track as set forth in claim 30, wherein the elastic members are under tension when the track sections are in a stored configuration and at least one elastic member is under less tension when the track sections are in an in use configuration.

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