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(54) **Toy track modularly composable**

(57) A toy track modularly composable on a flat surface comprises one or more foldable modules, each composed by the same number of panels aligned along at least a first direction and hinged to one another at opposing sides of two adjacent panels, a plurality of the

modules unfolded on the flat surface and juxtaposed side by side for enlarging the area of the toy track in a direction orthogonal to the first direction, being lockable in position by fastening means engaging the end faces of the two end panels of two adjacent foldable modules.

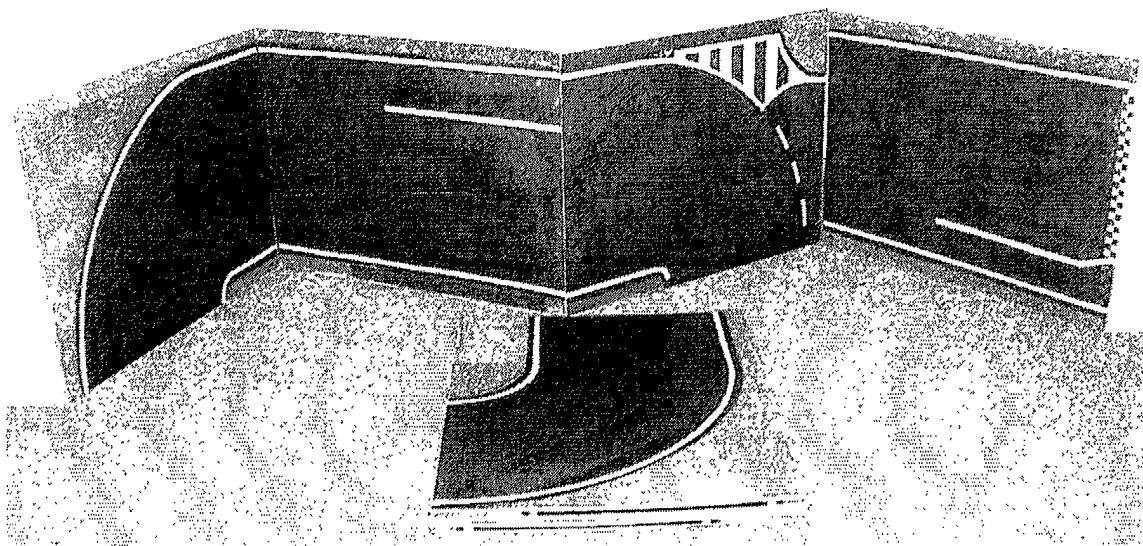


FIG. 9

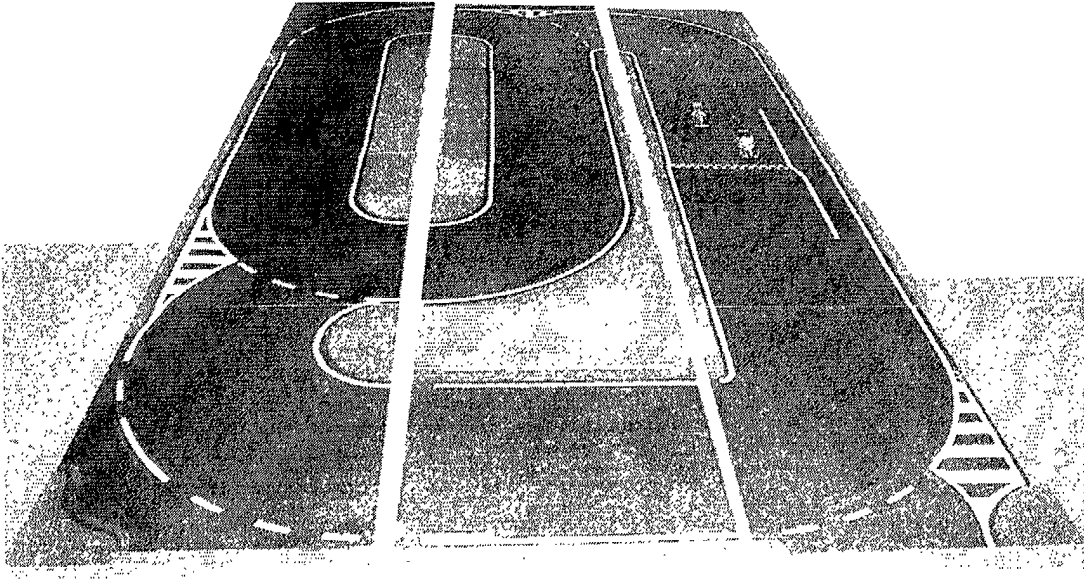


FIG. 10

Description

[0001] The present invention relates to toy tracks and more particularly to tracks for playing with remote controlled, self propelled toy cars.

[0002] There are innumerable toy models of vehicles having self-propulsion systems remotely controlled. They are often made in a very small scale, or in a scale compatible with the use of these models even in small spaces such as in a room. Typically, these toys are run on the floor and in many occasions on inappropriate surfaces.

[0003] Differently, known toy tracks are usually composed of interlocked linear and curvilinear elements realizing a certain layout of a track, by joining the elements "end to end" in one or in alternative ways to compose a continuous race loop. Electric conductors for powering electric propulsion motors of the vehicles destined specifically to run on the toy track, are commonly fitted inside appropriate race rails.

[0004] The remotely controlled toy vehicles equipped with their own propulsion system, whether a battery powered motor or an internal-combustion engine and on-board fuel tank do not require race rails with electrical conductors. Even if they may be run on any open and cleared floor surface this does not mean that they should not be driven along a track defined on the floor surface. This in fact makes the game of remotely controlling the toy cars far more exciting, by organizing races against the time or in parallel with other players practically transforming a game and a true competition of driving ability of a remotely controlled vehicle.

[0005] It has been found and is the object of the present invention a toy track that is modularly composable on any flat surface such as a floor or even a table, that gives the possibility of testing its own driving ability of the remotely controlled (radio controlled) toy vehicle and of making possible competitive matches with other players.

[0006] The toy track of the present invention is extremely practical because it may be stowed and/or carried along in a practical folded form and may be unfolded on a flat surface with simple operations.

[0007] Substantially, the toy track of the invention is composed of a plurality of foldable modules, each composed of the same number of panels aligned at least along a first direction and hinged along opposite sides of two adjacent panels. A certain number of said modules juxtaposed on a flat surface side by side to define the area of the track at least in the direction orthogonal to said first direction, may be fastened to one another by rabbit joints arranged at the corners of end faces of the two end panels of each of said foldable modules. The plurality of said panels defines a track along which running self-propelled remotely controlled vehicles.

[0008] The panels that compose said foldable modules may be hinged to one another by compass hinges, leaf hinges, pin hinges and the like.

[0009] Preferably, the panels that constitute the foldable modules are hinged to one another by "invisible" hinges embedded on the opposing end faces of two adjacent panels.

[0010] Any foldable module, after having been unfolded on a flat surface and juxtaposed side by side to a previously laid out module, is fastened thereto by bridge pegs, the pins of which are forced in receiving holes (sockets) respectively present on the terminal face of the end panels of the two unfolded modules juxtaposed side by side.

[0011] The different aspects and advantages of the toy track of the invention will appear even more evident through the following description of several preferred embodiments and by referring to the attached drawings, wherein:

Figure 1 is a layout of the modular structure of the toy track of the invention;

Figure 2 is a detail view showing the hinging of two adjacent panels with a compass hinge;

Figure 3 is a detail view showing a common leaf hinge joining two adjacent panels of a foldable module;

Figure 4 shows "invisible" socket hinges joining two adjacent panels of a foldable module;

Figure 5 is a photograph of a commercially available invisible socket hinge that may be used to join in an articulated manner the panels that compose a foldable module;

Figure 6 is a detail plan view showing bridge pegs used for fastening together two unfolded multi-panel modules after having juxtaposed side by side the two adjacent modules on a flat surface;

Figure 7 shows a way of enlarging the toy track of the invention in a direction orthogonal to the direction of alignment of the panels constituting a foldable module;

Figures 8, 9, 10 and 11 are photographs showing the features of a toy track of the present invention;

Figure 12 is the layout of an alternative embodiment of the toy track of the present invention.

[0012] According to a preferred embodiment, a toy track of the present invention has a modular structure, composable on a flat surface, as schematically shown in figure 1. In the depicted example the track is contained in a rectangular area composed of three modules: M1, M2 and M3, each composed of four panels disposed along the horizontal direction and joined to one another by pairs of hinges AA that permit a mutual rotation of 180° for overturning a panel over another panel adjacent thereto.

[0013] Once the modules are unfolded and juxtaposed side by side to enlarge the area of the toy track in the vertical direction, they are blocked in position by four bridge pegs labeled with a B in figure 1.

[0014] The pair of hinges AA connecting two adjacent

panels of a foldable module may be common compass hinge, as shown in detail in figure 2.

[0015] As an alternative, the hinges AA may be common leaf hinges, as shown in detail in figure 3.

[0016] More preferably, the hinges for joining in an articulated manner adjacent panels constituting a foldable module are so-called "invisible" hinges, as shown in detail in figure 4.

[0017] Figure 5 is a photograph of a commercially available invisible socket hinge permitting a rotation of 180°.

[0018] The detail view of figure 6 shows the way two foldable modules, after having been unfolded on the flat surface and juxtaposed side by side, are locked together in position by a pair of bridge pegs B, the pins of which b1 and b2 are forced into socket holes present at the corners of the end faces of the two end panels of each module.

[0019] Figure 7 shows the manner in which the area of the toy track is expanded in a direction orthogonal to the direction of alignment of the panels that constitute each foldable module.

[0020] Figures 8, 9, 10 and 11 are photographs of a toy track of the invention. Figure 8 shows the pile of folded modules as it appears in a "save-space" transportation and/or stowage configuration.

[0021] Figure 9 shows a partially unfolded module and a still folded module.

[0022] Figure 10 shows three completely unfolded multipanel modules being juxtaposed side by side to compose the area of the toy track.

[0023] Figure 11 depicts the modularly composed toy track ready for use.

[0024] In case of tracks of small dimensions, it is even possible to realize the toy track according to an alternative embodiment, schematically depicted in figure 12. The whole toy track consists of a single foldable module, the panels of which are hingedly joined along a first direction by pairs of hinges AA that allow to overturn the two panels on the right on the two panels on the left through a rotation of 180 degrees, while the two hinges AA joining together the two left panels along their opposing horizontal sides allow to fold through a rotation of 180 degrees the two parts of the module, such to obtain a footprint of the completely folded module corresponding to that of a single panel.

[0025] The surface characteristics of the race track that is defined within the modularly composable toy track are may be specifically designed to provide for an appropriate morphology suitable for the tires and suspensions of the remotely controlled toy cars, such to reproduce in scale roughness and grip characteristics comparable to that of a real asphalted race track, while other areas may have a surface aspect and morphology inappropriate for running the toy cars on it and such to penalize eventual off-tracks.

[0026] Moreover, the esthetical result produced by the modularly composable toy track of this invention may

be very pleasant because of the substantial continuity and uniformity of the raceway and the presence of zones representing grass, sand, box area, stands, etc. giving a representation with scenic realism of a typical environment of car races.

[0027] Preferably the material used to make the panels is polyethylene or polypropylene. The panels may be realized even in a laminated multi-layer form, commonly composed of a base layer, for example of a plastic material such as polyethylene or polypropylene, with or without a wooden core, such as "balsa" wood, on a face of which it is possible to laminate the carriageway and the areas reproducing the environment of the race track, preferably of different materials and/or with different morphological characteristics.

[0028] The toy track of the present invention is outstandingly compact to stow and transport and may be unfolded on any flat surface in a quick and easy manner. Both the operations of unfolding and folding the whole track in a compact pile of panels may be performed in few instants with very easy operations.

[0029] The toy track of the invention offers means of insuperable value to improve by exercise one's skill in remotely controlling self-propelled vehicles run on a properly scaled race track, as well as an attractive race track for organizing competitions and actual multiraces with several participants.

Claims

1. A toy track modularly composable on a flat surface **characterized in that** it comprises one or more foldable modules, each composed by the same number of panels aligned along at least a first direction and hinged to one another at opposing sides of two adjacent panels, a plurality of said modules unfolded on the flat surface and juxtaposed side by side for enlarging the area of the toy track in a direction orthogonal to said first direction, being lockable in position by fastening means engaging the end faces of the two end panels of two adjacent foldable modules.
2. The toy track according to claim 1, **characterized in that** on the area modularly composed of the upper faces of said panels is defined a closed-loop race track on which to run remotely controlled self-propulsion vehicles.
3. The toy track according to claim 1, **characterized in that** said panels constituting said foldable modules are connected by hinges belonging to the group composed of compass hinges and leaf hinges.
4. The toy track according to claim 1, **characterized in that** said panels composing said foldable mod-

ules are connected by invisible socket hinges set in recesses of opposing faces of two adjacent panels.

5. The toy track according to claim 1, **characterized in that** said fastening means are bridge pegs, the pins of which are forced in sockets present on the end face of the two end panels of two adjacent unfolded modules.

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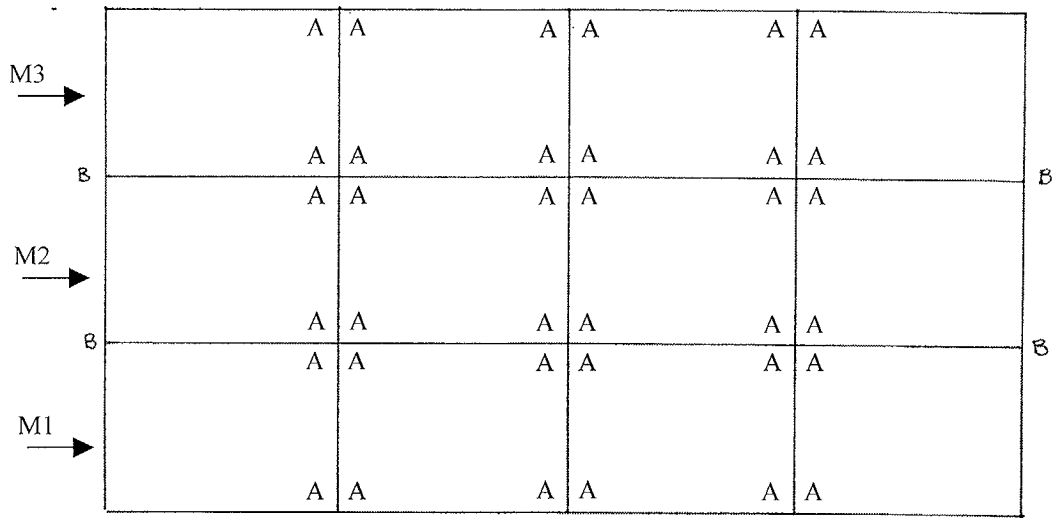


FIG. 1

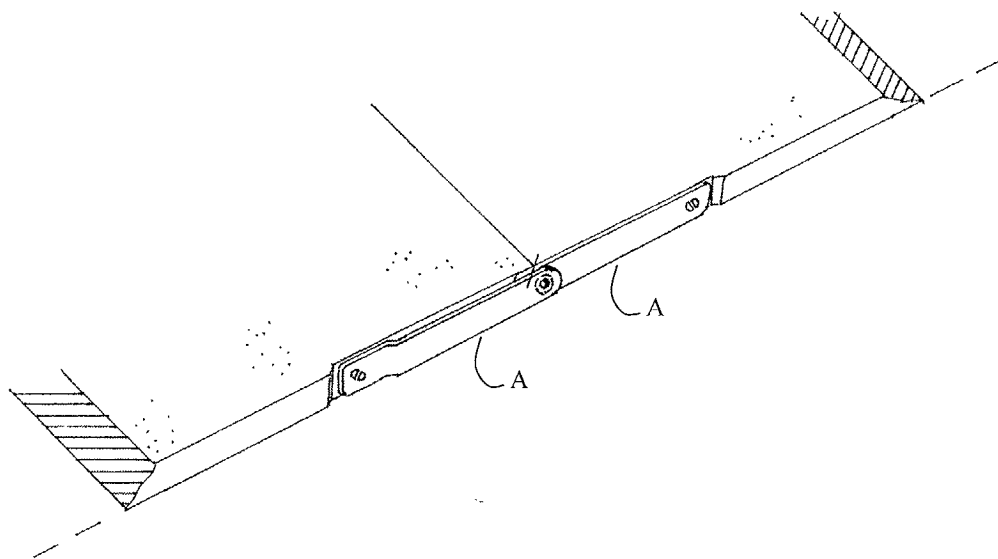


FIG. 2

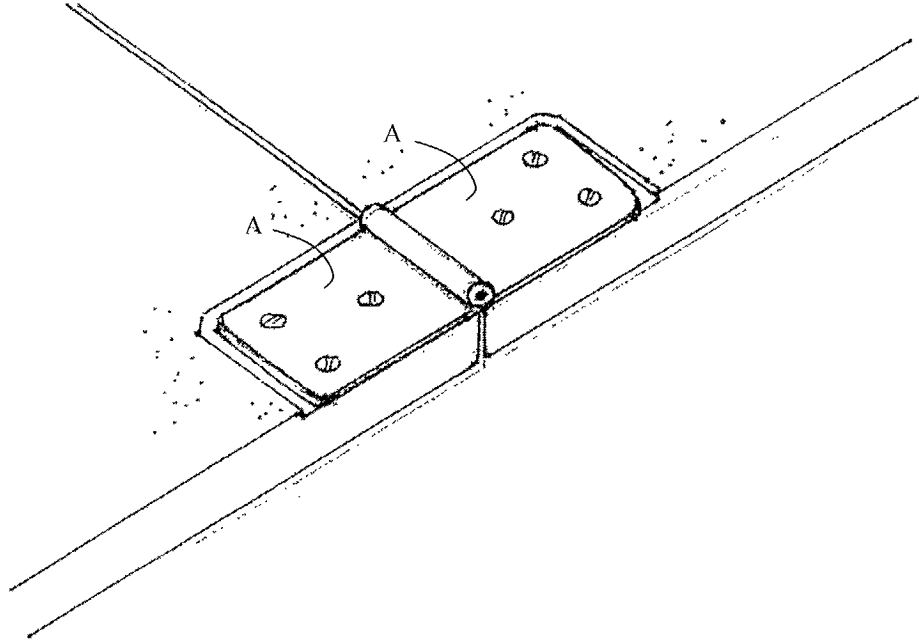


FIG. 3

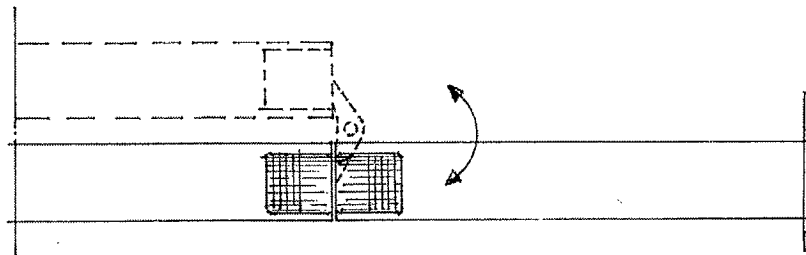


FIG. 4

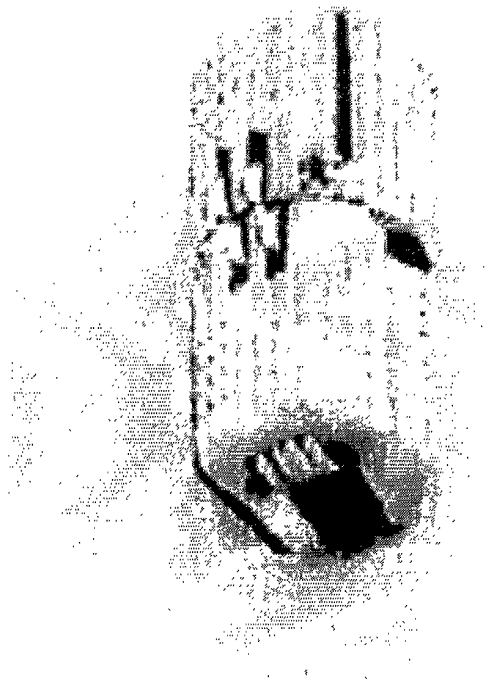


FIG. 5

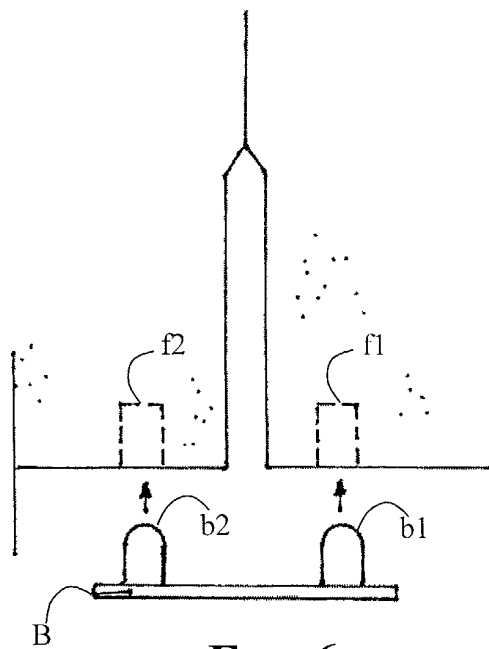


FIG. 6

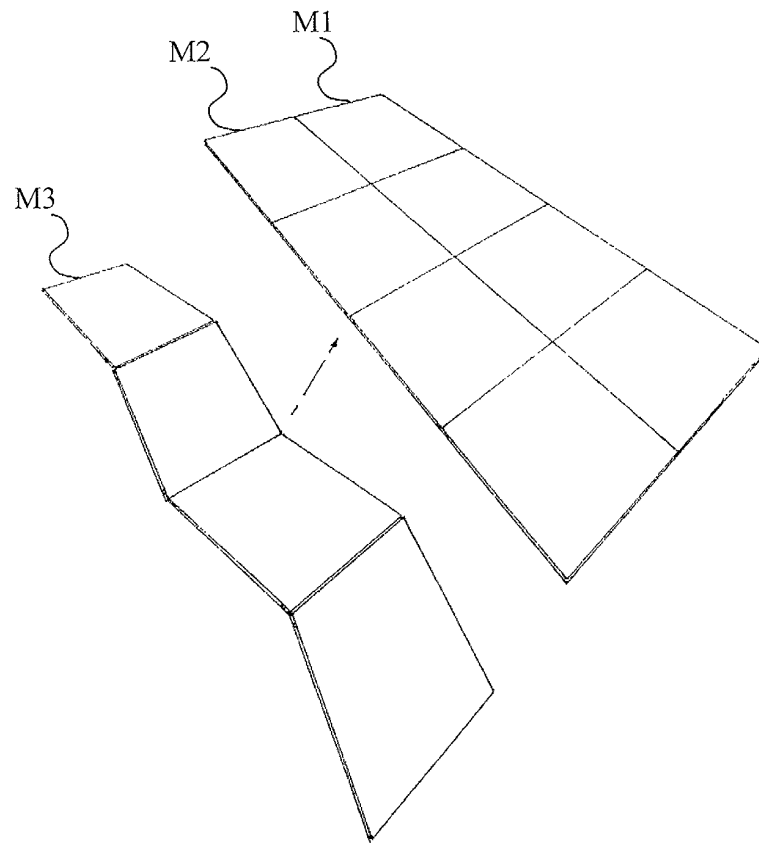


FIG. 7

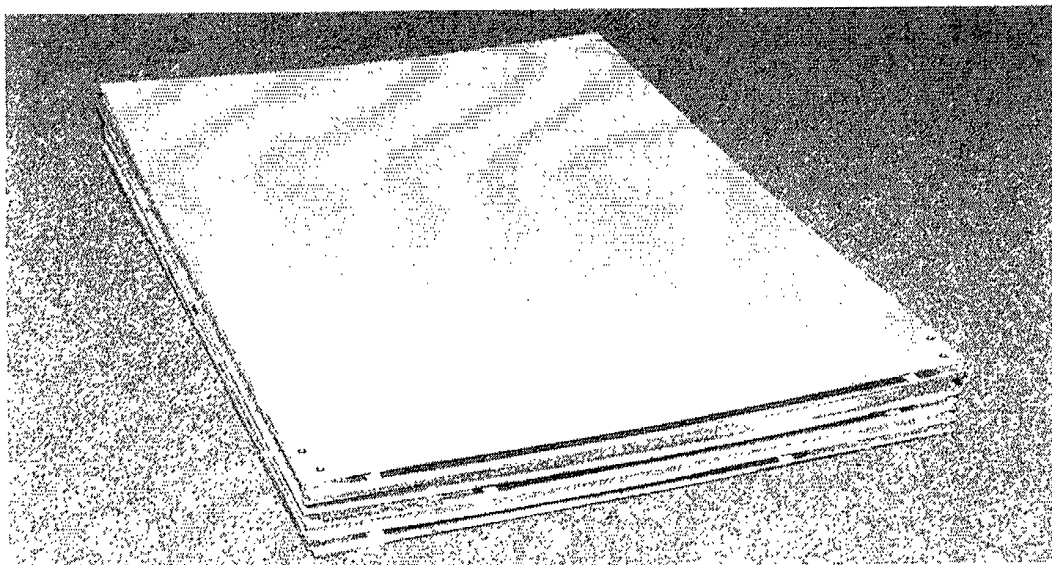


FIG. 8

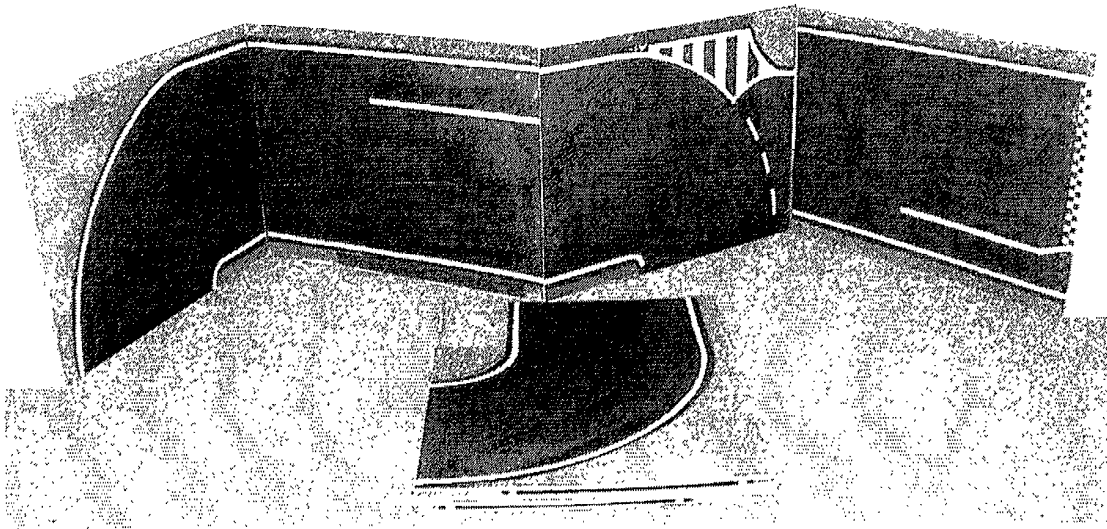


FIG. 9

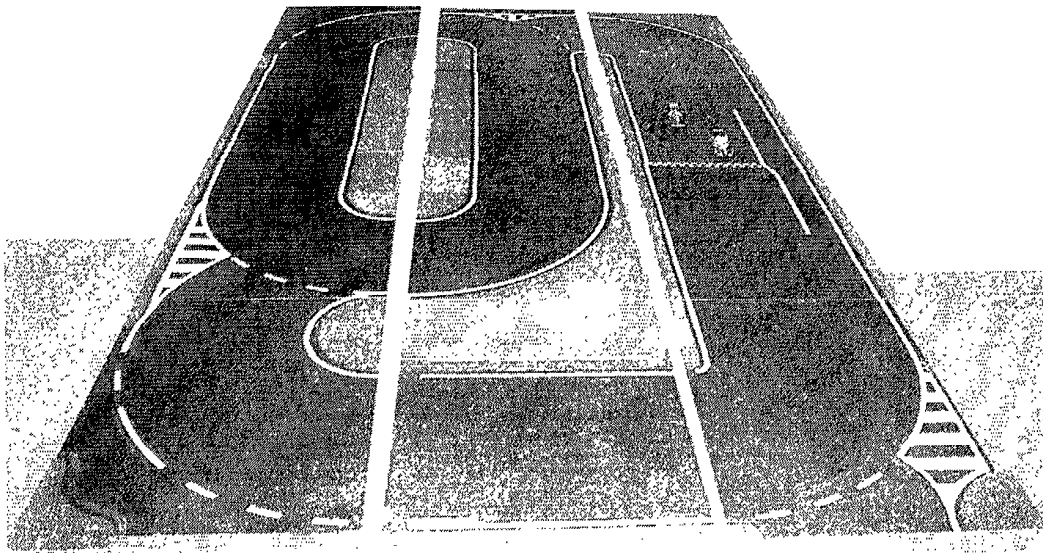


FIG. 10

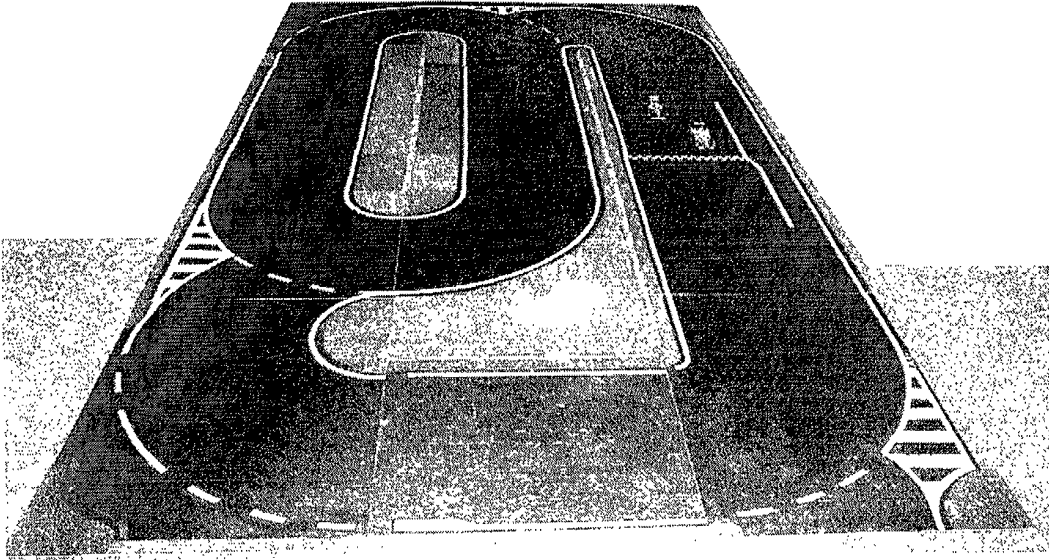


FIG. 11

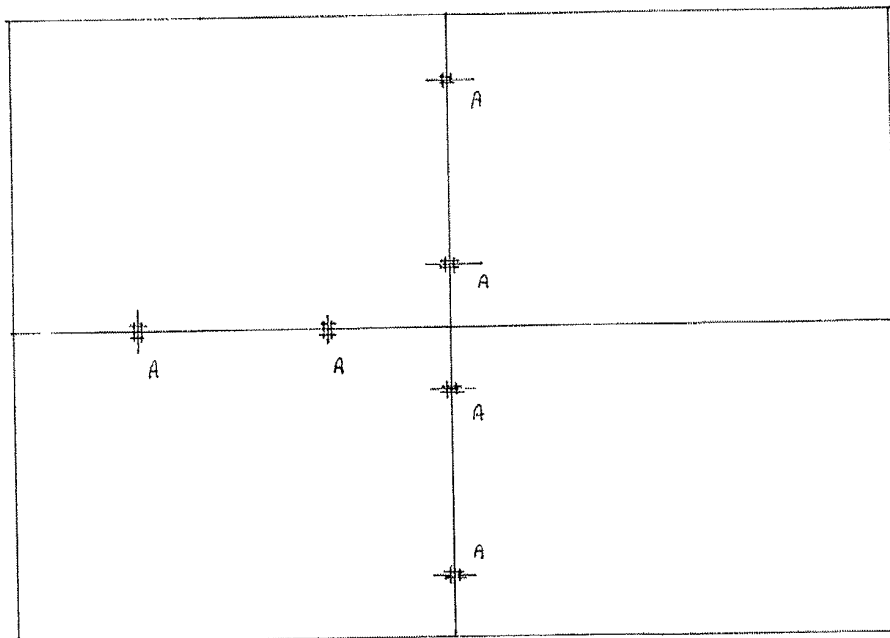


FIG. 12



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EUROPEAN SEARCH REPORT

Application Number
EP 02 42 5202

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 2 618 437 A (MATTHAEIS JR SERAFINO DE) 18 November 1952 (1952-11-18)	1-3	A63H18/02
Y	* column 2, line 42-49 * * column 3, line 6-10; claim 2; figures 1,2,8 *	5	
Y	DE 200 13 898 U (STS RACING GMBH) 7 December 2000 (2000-12-07) * page 1, line 21-29; figures 3,4 *	5	
A	US 5 255 923 A (BENNETT PAUL F) 26 October 1993 (1993-10-26) * column 2, line 57 - column 3, line 5; figure 1 *	1	
A	US 5 813 351 A (CHEN YU-BING) 29 September 1998 (1998-09-29) * column 3, line 33-36; figures 1,2,8 *	1-3	
A	FR 2 624 391 A (LEBORGNE JACQUES) 16 June 1989 (1989-06-16) * figure 2 *	1	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			A63H A63F
Place of search		Date of completion of the search	Examiner
THE HAGUE		30 August 2002	Roche, O
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EPO FORM 1503 03/82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 02 42 5202

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30-08-2002

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