

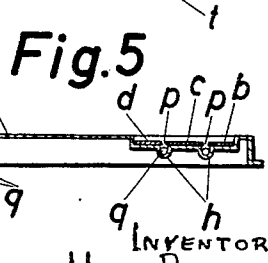
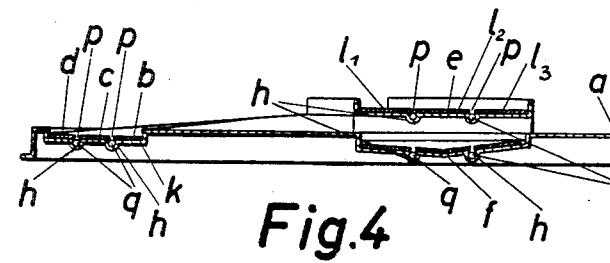
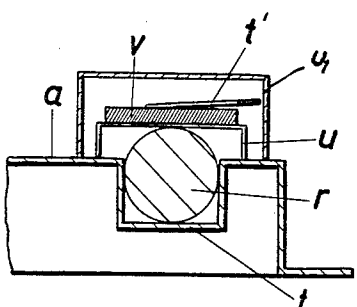
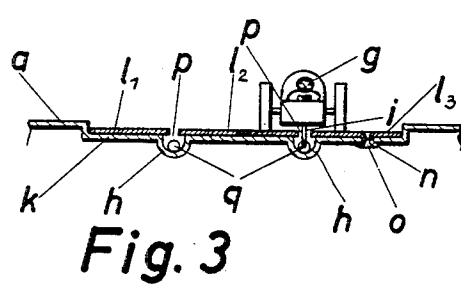
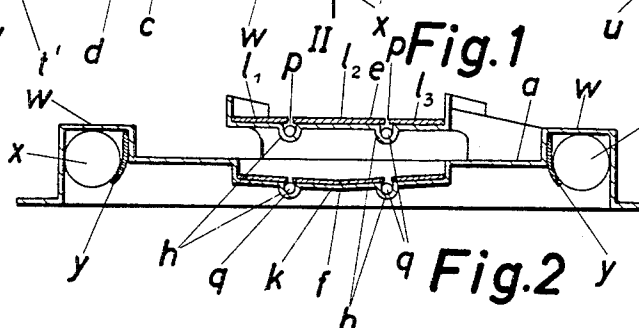
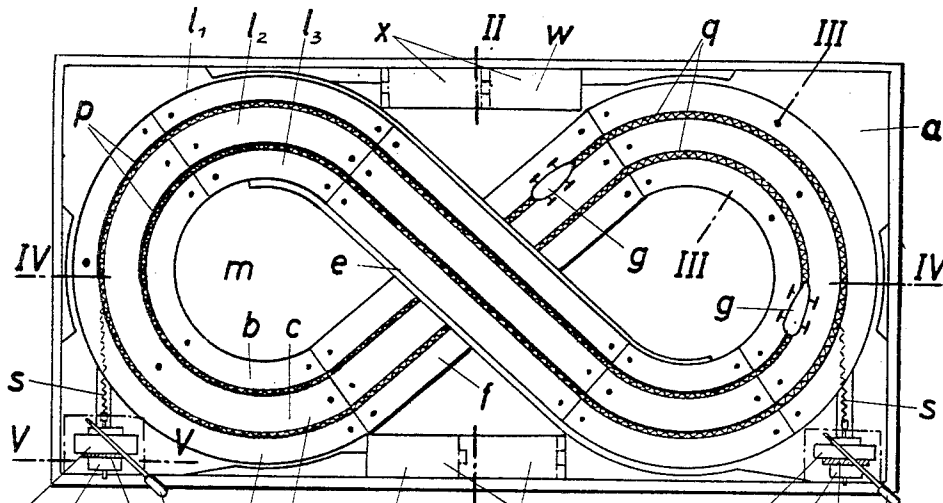
Oct. 21, 1969

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3,473,805

ENDLESS COIL SPRING OPERATED RACING GAME

Filed Oct. 27, 1965



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3,473,805  
ENDLESS COIL SPRING OPERATED  
RACING GAME

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Filed Oct. 27, 1965, Ser. No. 505,367  
Claims priority, application Germany, Feb. 4, 1965,  
B 60,584  
Int. Cl. A63f 9/14

U.S. Cl. 273-86

8 Claims

ABSTRACT OF THE DISCLOSURE

There is disclosed a toy car race track game for competitively racing two toy cars. Two side-by-side, co-extensive endless tracks are formed by two endless curved grooves in a plastic base plate. The grooves and the adjacent plate areas adjacent thereto are overlaid by sheet metal strips, each two adjacent ones of said strips define therebetween an endless slot in registry with one of the grooves. An endless coil spring is rotatably fitted in each of the grooves and retained therein by overhanging portions of the strips. The two springs are rotatable by independently controllable speed variable drive means. The downwardly depending driving lug of a toy race car is extended through the respective slot between adjacent turns of each coil for propelling the cars in the same direction along the tracks by rotating the springs at a speed controlled by the selected speeds of the drive means.

The present invention relates to a race track for toy cars, and more particularly to a car race track game.

It is an object of the invention to provide a novel and improved car race track game which permits a playing child to stage car races, such as drag races, and which is entirely safe for the child.

Another object of the invention is to provide a novel and improved car race track game which is so simple in its operation that it can be enjoyed even by a very young child and which can be simultaneously used by several children.

Still another object of the invention is to provide a novel and improved car race track game in which each of two children using the game can control the speed of one car independent of the speed of another car so that there is competition between several cars.

A further object of the invention is to provide a novel and improved car race track game in which the lap length is considerable in relation to the base space required by the toy so that the same can be conveniently set up and stored.

A still further object of the invention is to provide a novel and improved car race track game which can be inexpensively manufactured and the driving mechanism of which is safely held in position so that parts of the game are not likely to be lost and are immediately ready for use.

Other and further objects, features and advantages of the invention will be pointed out hereinafter and set forth in the appended claims constituting part of the application.

In the accompanying drawing, a preferred embodiment of the invention is shown by way of illustration and not by way of limitation.

In the drawing:

FIG. 1 is a plan view of the race track game according to the invention;

FIG. 2 is a section taken on line II—II of FIG. 1;

FIG. 3 is a section taken on line III—III of FIG. 1 on an enlarged scale;

FIG. 4 is a longitudinal section taken on line IV—IV of FIG. 1; and

FIG. 5 is a section taken on line V—V of FIG. 1 on an enlarged scale.

Referring now to the figures in detail, the race track game comprises a base plate *a* which may be made of plastic by any suitable technique used for molding plastic bodies of the kind here involved, such as a vacuum-deep drawing process, but the base plate may also be made of other suitable material, such as sheet metal, by any technique suitable for shaping sheet metal.

A race track for two toy cars *g* is formed on the base plate. The track is shown as an eight-shaped track. To accommodate two competing cars, two parallel and juxtaposed tracks *b,c* and *c,d* are provided. Track *c* is disposed between outer tracks *b* and *d* and is preferably wider than the two outer tracks to provide space for two cars running side by side or overtaking each other. An overpass *e* is provided at intersection *f* as can best be seen in FIGS. 1 and 2.

The cars used with the game are not self-propelled, but the driving force is imparted to the cars by driving means incorporated in the base plate. For this purpose, two grooves or channels *h* are provided in the base plate and a coil spring *q* is rotatably fitted into each of the grooves. Each of the cars *g* has a downwardly extending driving lug *i* (see FIG. 3) which is insertable between two turns of the respective spring. As it is evident, rotation of the springs will move the cars along the tracks at a speed depending upon the rotational speed of the springs.

The grooves are formed directly in the base plate. The portions of the base plate in which the grooves are formed are preferably recessed as it is clearly shown in FIGS. 2, 3 and 4. Lengthwise spaced apart cover strips *l<sub>1</sub>*, *l<sub>2</sub>* and *l<sub>3</sub>* or slotted cover plate overlie the grooved portions. The slots between the cover strips or defined by the cover plates overlie partly the grooves, but are wide enough to permit passage of driving lugs *i*. As a result, springs *q* are safely retained in the grooves. The cover strips or plates may be secured to the base plate in any suitable manner, for instance, by swaged-over rims *n* of punched holes *o* as can best be seen in FIG. 3.

The groove covers are preferably made of sheet metal and constitute the running surface proper for the cars. The use of sheet metal for the running surface, even though the base plate itself be made of plastic, has the advantage that the running surface proper is long-lasting and can be readily given good gripping properties for the wheels of the cars *g*. They can also be printed with any pattern or ornamentation which simulates a real race track. The use of metal covers secured to the base plate has the additional advantage that the race tracks proper are sharply defined and that the recess in the base plate in which the covers are mounted may be shallow which facilitates the molding or other shaping operation used for producing the base plate.

Each of the two driving springs *q* has its own drive means by means of which the rotational speed of the springs and with it the travel speed of the two cars are independently controllable. For this purpose, each spring is drivably coupled with a small electric motor *r*. The coupling between the motor and the respective spring can be effected by any suitable coupling means. There is shown a coupling coil spring *s*, one end of which is secured to the drive shaft of the motor, for instance, by being force-fitted upon a frusto-conical shaft portion and the other is secured to the respective spring *q* so that rotation of the motors will cause a corresponding rotation of the springs.

The two motors are mounted spaced apart on the base plate, preferably as shown at two opposite corners thereof. Each of the respective corners is recessed at *t* and each recess is bridged by a bracket *u*. The recesses are preferably made simultaneously with the molding or otherwise shaping of the base plate. The motors are mounted in the recesses and suitable speed regulators *v* are supported on brackets *u*. As it is indicated in FIG. 5, each speed regulators may comprise a rheostat the resistance of which is controlled by a slidable or rotatable contact arm *v'*. The motors and the speed regulators therefore may be concealed by a building structure *u'* simulating, for instance, a shed or a service pit.

A source of current for each motor, such as batteries *x* are accommodated in further recesses *w* in which the batteries may be detachably retained by a curved leaf spring *y*. Each recess *w* may be covered by a second building structure such as a structure simulating a grandstand.

The base plate, the building structures, etc. may be suitably ornamented to simulate an actual race track.

While the invention has been described in detail with respect to a certain now preferred example and embodiment of the invention, it will be understood by those skilled in the art, after understanding the invention, that various changes and modifications may be made without departing from the spirit and scope of the invention, and it is intended, therefore, to cover all such changes and modifications in the appended claims.

What is claimed is:

1. A toy car race track game for competitively racing two toy cars, said game comprising in combination:

a base plate made of plastic material, said plate including in one of its sides two coextensive endless curved grooves in side-by-side relationship along their entire lengths, said grooves defining two race tracks of substantially equal layout;

a pair of alike endless coil springs, each of said springs being rotatably fitted in one of said grooves, the mouth of each of said grooves being wider than the diameters of said springs;

three endless, curved sheet metal strips secured to the side of the base plate including the grooves in mutually parallel spaced apart relationship and substantially conforming to the curvatures of said grooves, said strips overlying the grooves and the adjacent areas of the base plate to provide running surfaces for the wheels of toy cars placed upon the same and defining therebetween two slots each in registry with one of the grooves and having a width less than the width of the respective groove;

a speed variable drive means for each of said springs, each of said drive means being drivingly coupled to the respective spring for rotating both said springs in the same direction in the respective groove;

a speed control means for each of said drive means for selectively varying the speed thereof independent of each other; and

two racing cars each having a downwardly depending lug fitted between adjacent turns of said spring means for propelling the cars in the same direction along said tracks by rotating said springs at a speed controlled by the respective control means.

2. A track game according to claim 1 wherein said two tracks are substantially eight-shaped, and an overpass is included in the tracks at the intersection thereof.

3. A toy car race track game for competitively racing two toy cars, said track game comprising in combination:

a base structure made of plastic and having a top wall surface including two endless grooves of substantially equal configuration and length in side-by-side relationship along their entire lengths;

a flat sheet metal strip member secured to said surface and lengthwise overlying said grooves, said strip member including a pair of lengthwise slots of a width less than the width of the mouths of said grooves, each of said slots being in registry with one of said grooves, said slots defining two race tracks and said strip member constituting running surfaces for toy cars to be raced;

an endless coiled spring rotatably fitted into each of said grooves substantially coextensive with the length thereof, the diameters of said springs being greater than the widths of said slots whereby the springs are retained in the grooves;

a variable-speed power drive means for each of said springs, each of said drive means being drivingly coupled to the respective spring so as to rotate both springs in the same direction;

a speed control means for each of said drive means for selectively varying the speed thereof independent of each other; and

two toy racing cars one for each track, each of said cars having a driving lug downwardly extending through the respective slot between adjacent turns of the respective spring for driving the cars along said tracks and in the same direction at a relative speed as controlled by the respective control means.

4. A track game according to claim 3 wherein said flat metal strip member comprises three parallel spaced apart strip elements, each of the outer strip elements overlying the outwardly facing edge of one of said grooves and the intermediate strip element overlying the inwardly facing edges of the grooves.

5. A track game according to claim 3 wherein said two tracks are substantially eight-shaped, and wherein an overpass is included into the tracks at the intersection thereof.

6. A track game according to claim 3 wherein each of said drive means comprises an electric motor, and wherein a coupling spring is secured at one end to the drive shaft of each of said motors for rotating the spring in unison with the shaft and at the other end engages the respective coiled spring for rotating the same by rotation of the coupling spring.

7. A track game according to claim 3 wherein said base structure is a substantially rectangular base structure including a recess at two corners, each of said drive means and the respective speed control means being mounted in one of said corners.

8. A track game according to claim 7 wherein a bracket bridges each of said recesses, each drive means being secured to the respective bracket underneath the same and the respective control means being mounted on top of the bracket.

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U.S. Cl. X.R.

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