July 22, 1969 J. COOPER 3,456,596

WATER HAZARD ACCESSORY TRACK UNIT

Filed Sept. 13, 1967

FIG. 1

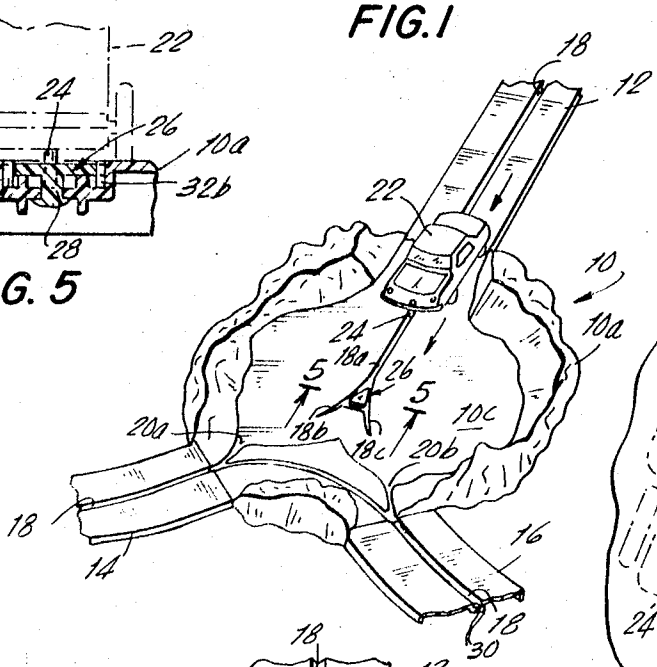


FIG. 5

FIG. 3

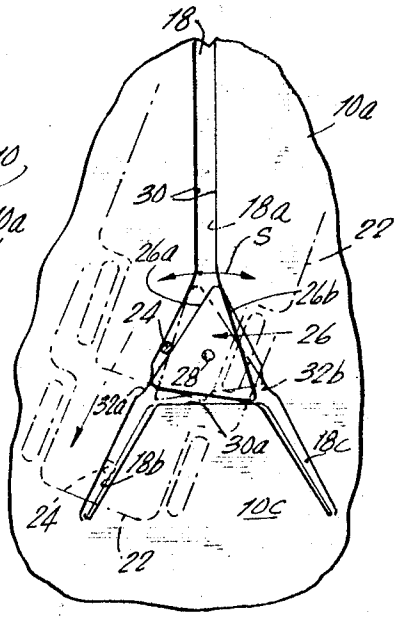


FIG. 2

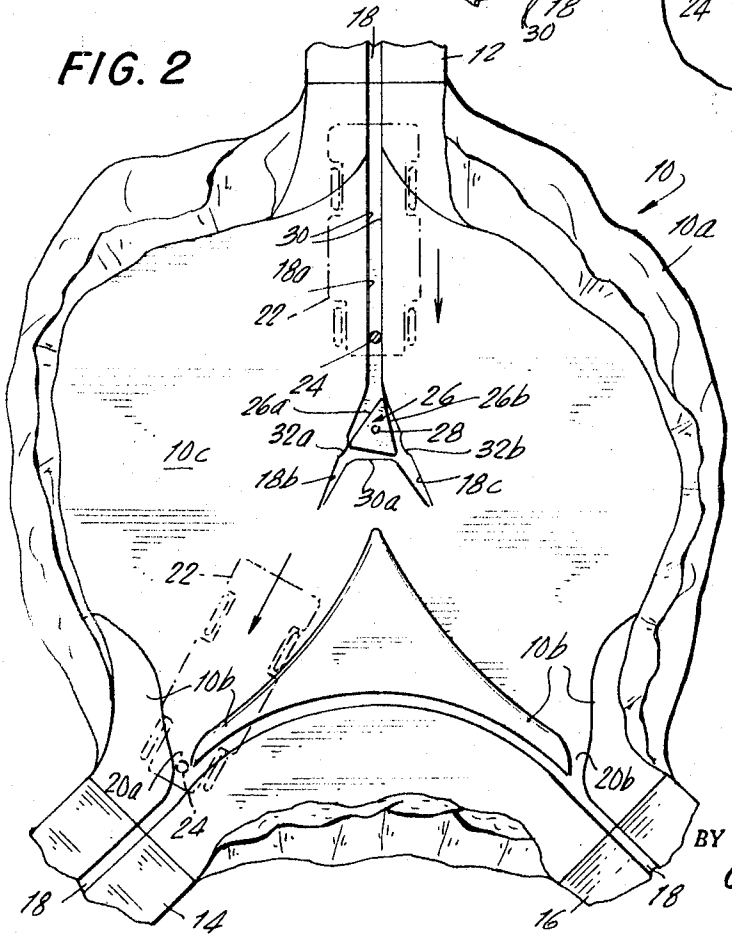
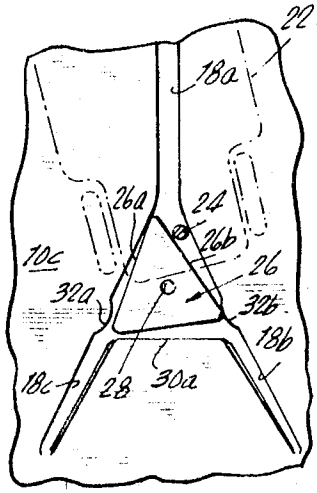


FIG. 4



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WATER HAZARD ACCESSORY TRACK UNIT

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U.S. Cl. 104—60 5 Claims

ABSTRACT OF THE DISCLOSURE

An accessory track unit for interconnected track units forming a track having a closed main guide groove therein and used with pattern-operated vehicles of the type having a depending guide which engages the groove to steer the vehicles above the track, wherein the accessory track unit in a preferred embodiment functions as a water hazard, receiving vehicles from the track and alternately returning them at different spaced points for continued movement along the track, the vehicles, during return to the track, giving the illusion of fording the water hazard.

The present invention relates generally to toy tracks for battery-operated vehicles, and more particularly to an accessory track unit which simulates a water hazard and effectively also exerts control over vehicle movement on the track to thereby increase the play value of the product.

The track hereof is of the type comprised of interconnected units defining therealong a continuous main guide groove and used with battery-operated vehicles having guide pins extending into and engaging the guide groove to steer the vehicles along the track. This type track is a very important product because of its popularity. It does require, however, auxiliary or accessory units, otherwise the repetitious running of the vehicles along the track can become monotonous. Thus, there is a constant need for these accessory units, particularly such units that have an automatic mode of operation initiated, preferably by the vehicles themselves, are easily incorporated in the overall track system, and are capable of being economically mass produced.

Broadly, it is an object of the present invention to provide an improved accessory track unit meeting the foregoing and other desirable commercial requirements and effectively increasing the play value of the track. Specifically, it is an object to provide a track unit which simulates a water hazard and the fording thereof by the vehicles, each vehicle being set in the right direction, but not actually guided by a guide groove, during crossing of the hazard to thereby more realistically simulate the fording of the water hazard.

An accessory unit demonstrating objects and advantages of the present invention includes a body appropriately finished to resemble a water hazard and having formed therein, as a continuation of the main guide groove, an entrance guide groove, two exit guide grooves for returning vehicles to the main guide groove, and a switching member operatively arranged to channel a vehicle first into one exit guide groove and then into the other exit guide groove. Each exit guide groove is not connected to a cooperating entrance opening back into the main guide groove, but merely sets the vehicle along the proper course to enter such opening, the vehicle, during this movement to an opening, giving the illusion of fording the water hazard.

The above brief description, as well as further objects features and advantages of the present invention, will be more fully appreciated by reference to the following detailed description of a presently preferred, but nonetheless illustrative, embodiment in accordance with the present invention, when taken in conjunction with the accompanying drawings, wherein:

FIG. 1 is a top perspective view of the accessory track hereof illustrated in its operative position connected to other track units with which it forms a track for battery-operated vehicles;

FIG. 2 is an enlarged plan view of the accessory track unit, a battery-operated vehicle being illustrated in phantom perspective thereon;

FIG. 3 is a partial plan view of the switching member of the track unit, the positions of movement of which are indicated in full line and phantom line perspective;

FIG. 4 is a partial plan vew similar to FIG. 3 illustrating how the switching member alternately channels the vehicle to one and then to another of two exit guide grooves of the unit; and

FIG. 5 is an elevational view, in section taken on line 5—5 of FIG. 1, illustrating further structural details of the switching member.

Reference is now made to the drawings, and in particular to FIG. 1, illustrating an accessory track unit, generally designated **10**, of the present invention. The track unit **10** is illustrated in an assembled condition with additional track units **12**, **14** and **16** connected to it; all units cooperating to form a continuous track system having a closed track guide groove **18**. As best shown in FIG. 2, there is an initially encountered or entrance portion **18***a* of the track guide groove **18** formed in the body **10***a* of the accessory track unit **10** through which vehicles are directed onto the unit, and first and second exit guide groove length portions **18***b* and **18***c*, respectively, for directing the vehicles back into the track guide groove **18**. To this end, the two exit guide grooves **18***b* and **18***c* are oriented at an angle towards openings **20***a* and **20***b* which lead into the track guide groove **18**. Thus, in practice, one or more battery-operated vehicles, such as the vehicle **22**, operate on the track and each has a depending guide **24** mounted on its front end which engages with the track guide groove **18** to steer the vehicle about the track. The accessory track unit **10** hereof increases the play value of the track by controlling the movement of each vehicle **22** such that after entering upon the track **10** in the entrance guide groove **18***a*, the vehicle is alternately channeled first to one exit guide groove **18***b* and then to the other exit guide groove **18***c*; this in turn, resulting in the vehicle being alternately directed towards the openings **20***a* and **20***b* at either of which point it resumes its travel along the track guide groove **18**. This control over the travel of the vehicles operating over the track unit **10** increases the play value of the entire track system.

To achieve alternate channeling of the vehicle **22**, the track unit **10** includes a switch member **26** pivotally mounted, as at **28**, to the body **10***a* such that the member **26** is rotatively movable about the axis of the pivot **28**, as is perhaps best illustrated in FIG. 3, through a switching stroke S between positions in which it is effective to direct the vehicle to the exit guide grooves **18***b* and **18***c*. Specifically, the entrance guide groove **18***a* is bounded by a pair of facing walls **30** which at the juncture with the switch member **26** are oriented in outwardly diverging directions such that each wall ultimately forms the outer wall of the two walls bounding the exit guide grooves **18***b* and **18***c*. Thus, the wall **30** together with a horizontally oriented wall **30***a* bounds a generally triangularly shaped recess in the surface of the body **10***a* in which the switch member **36** is pivotally movable. Member **26**, as clearly illustrated, is triangularly shaped and, as such, presents two outwardly diverging walls **26***a* and **26***b* which cooperate with the length portions of the walls **30** connected between the entrance guide grooves **18***a* and exit guide

grooves 18*b*, 18*c* to form a guiding passageway which is engaged by the depending guide 24 of the vehicle; this engagement resulting in movement of the vehicle 22 to one or to the other of the exit guide grooves 18*b*, 18*c*. Additionally, while forming a guiding passageway to one exit guide groove, the surfaces 26*a*, 26*b* effectively block off the other exit guide groove. This condition is illustrated in FIGS. 3 and 4: FIG. 3 illustrating the vehicle guide 24 being shunted by the switch member 26 from the entrance guide groove 18*a* into the exit guide groove 18*b*; and FIG. 4 illustrating the alternative condition wherein the switch member 26 is in the position in which the depending guide 24 is shunted from the entrance guide groove 18*a* into the other exit guide groove 18*c*.

The movement of the switch member 26 through a switching stroke S and thus between positions steering the vehicle 18 into one and then the other of the exit guide grooves 18*b*, 18*c* is facilitated by lateral projections 32*a*, 32*b* respectively provided on the connecting walls 30, preferably at the junction of these walls with the opening into the exit guide grooves 18*b*, 18*c*. Each projection 32*a*, 32*b* forces the depending guide 24 inwardly against the trailing edge of the surfaces 26*a*, 26*b* so that the momentum of the moving vehicle 22 actuates the member 26 through switching stroke movements S. In this way the accessory track unit 10 functions automatically to provide control over the movement of the vehicles operating on the track.

To further increase the play value of the accessory track unit 10, a preferred form is that illustrated herein in which the exit guide grooves 18*b*, 18*c* are not directly connected to the openings 20*a* and 20*b* into the track guide groove 18. The vehicles operating on the track, as exemplified by vehicle 22, are thus merely directed from an exit guide groove 18*b*, 18*c* toward the particular opening 20*a*, 20*b* cooperating therewith which, in an obvious manner, adds to the excitement in using the track 10. To insure that the vehicle depending guide 24 enters an opening 20*a*, 20*b*, the track unit body 10*a* includes built-up or raised portions 10*b* which can easily be surmounted by the vehicle and which effectively serve to funnel the vehicle depending guide 24 into an opening 20*a*, 20*b* of the track guide groove 18. Also, as already noted, the exit guide grooves 18*b*, 18*c* are oriented in the appropriate direction to set the vehicle 22 in the proper direction towards the openings 20*a*, 20*b*. Still further, in the illustrated embodiment of the accessory track unit 10, it is preferred to finish the surface 10*c* in an appropriate manner to simulate water so that the unit functions as a water hazard for the track.

A latitude of modification, change and substitution is intended in the foregoing disclosure and in some instances some features of the invention will be employed without a corresponding use of other features.

What is claimed is:

1. In combination, a track defining therealong a continuous track guide groove for operating a toy vehicle thereon, said vehicle being the type having a depending guide adapted to engage with said track guide groove to steer said vehicle along said track, and an accessory track unit connected in said track comprising a body having formed therein an entrance guide groove operatively connected to form a continuation of said track guide groove for directing said vehicle onto said accessory track unit and first and second exit guide grooves operatively associated at separate points with said track guide groove for returning said vehicle back to said track guide groove, and a switch on said body located between said entrance and said first and second exit guide grooves for alternatively channeling said vehicle during said return thereof to one and then to the other of said first and second exit guide grooves, said body having a first wall and a second wall respectively connected from each of the two walls bounding said entrance guide groove to each outer wall of the two walls bounding said first and second exit guide grooves, and said switch including a pivotally mounted member presenting a pair of outwardly diverging guide surfaces and pivotally movable through switching stroke between operative positions in which said guide surfaces alternately cooperate with said first and second walls to guide said vehicle into one said exit guide groove while simultaneously blocking entry into said other exit guide groove.

2. An accessory track unit as defined in claim 1 wherein said body first and second walls each have a lateral projection thereon adjacent the juncture of each with said outer wall of said first and second exit guide grooves effective to guide said vehicle against said pivotally mounted member of said switch, whereby said member is actuated by said vehicle through said switching stroke.

3. An accessory track unit as defined in claim 2 wherein said first and second guide grooves are each spaced from its said cooperating opening into said track guide groove and are each oriented so as to direct said vehicle moving therethrough towards said opening when causing said return of said vehicle to said track guide groove.

4. The combination according to claim 1 wherein said pivotally mounted member is adapted so that said depending guide strikes one of said outwardly diverging guide surfaces as said toy vehicle passes through said switch to drive said pivotally mounted member through said switching stroke.

5. The combination according to claim 1 wherein said diverging guide surfaces come together at a forward point on said pivotally mounted member and each outwardly diverging guide surface includes a rear section remote from said forward point, said pivotally mounted member being positioned so that as said toy vehicle passes over said switch said depending guide engages one of said diverging guide surfaces adjacent said forward point and diverts said vehicle adjacent one of said first and second walls and into the corresponding one of said first and second exit guide grooves, said depending guide engaging one said rear section before it passes into said exit guide groove to drive said switch through said switching stroke.

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