

[54] TOY VEHICLE AND PLAYING BOARD

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[51] Int. Cl.A63h 33/00
[58] Field of Search....46/202, 1 K, 216, 221; 273/86

[56] References Cited

UNITED STATES PATENTS

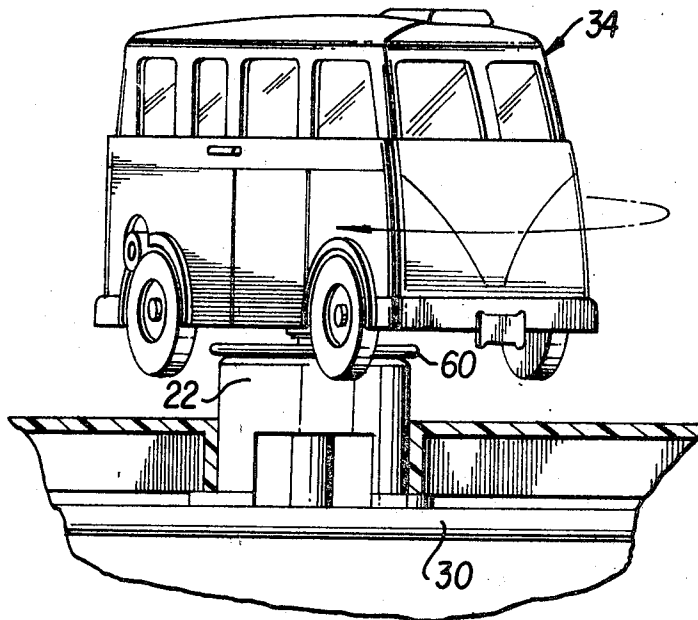
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[57] ABSTRACT

An amusement device for small children featuring a playing board resembling a town having building structures and intersecting streets, openings provided in the surface of the board at the intersections of the streets, buttons mounted within the openings for upward movement and a toy vehicle featuring powered wheels permitting travel along the streets and a disk mounted for rotation in a plane below the vehicle and above the streets such that as the vehicle enters the intersection of two streets and the button is pushed upwardly the engagement of the button against the rotating disk causes the vehicle to rotate and change direction while lowering of the button at a selected time permits the vehicle to continue its travel along the selected street.

5 Claims, 9 Drawing Figures



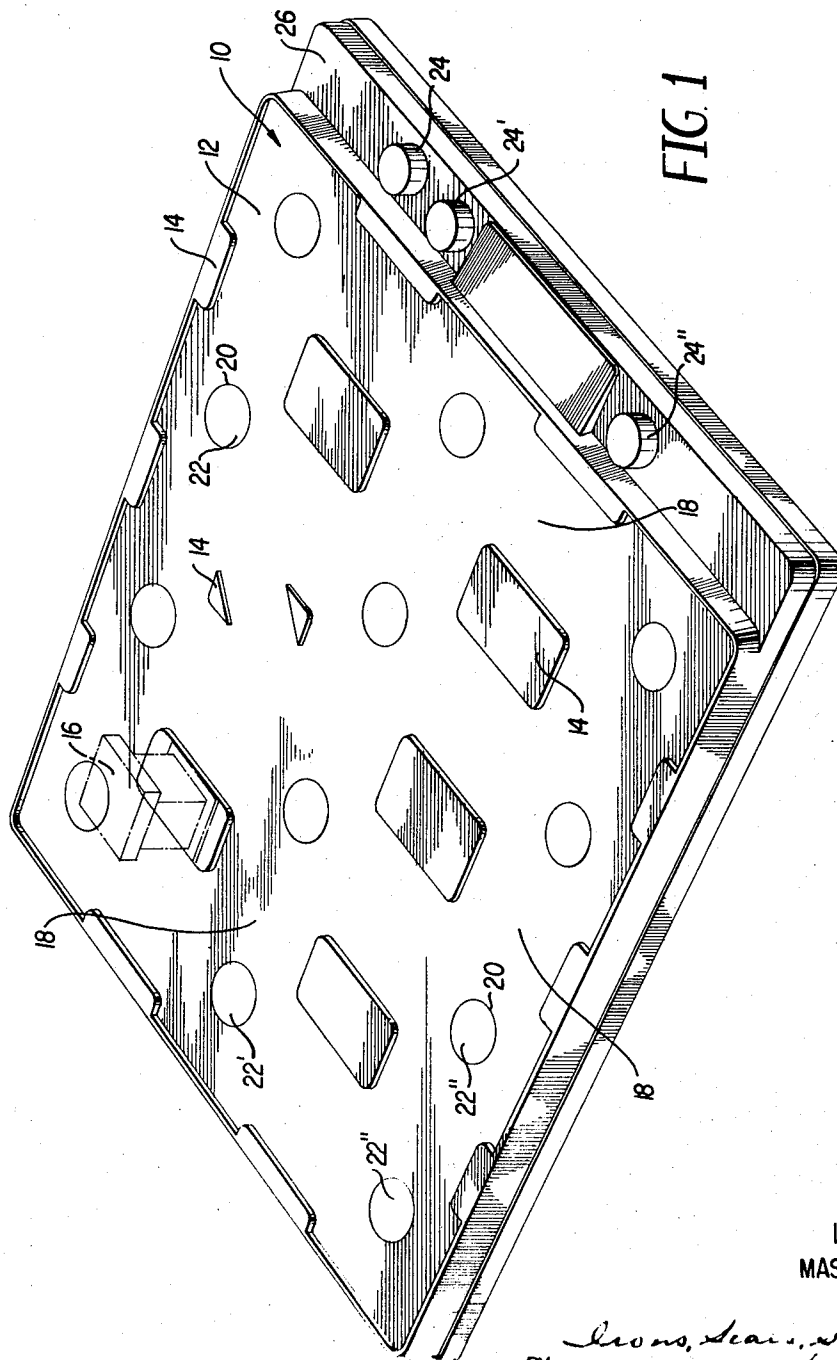


FIG. 1

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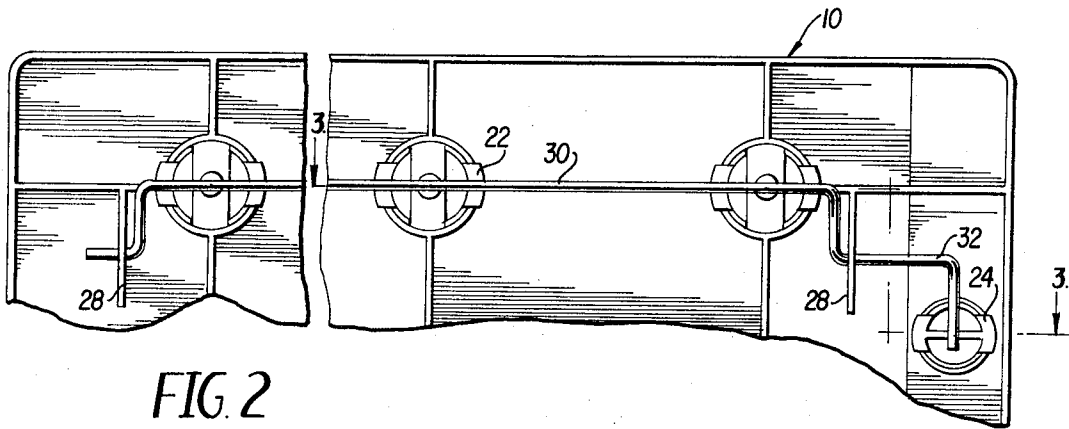


FIG 2

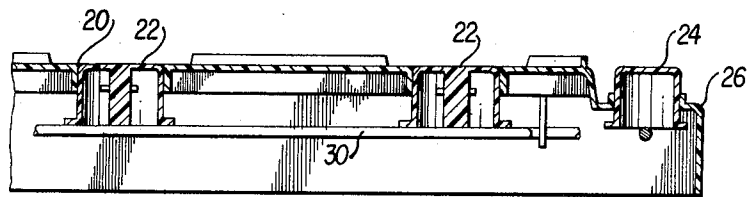


FIG 3

FIG 7

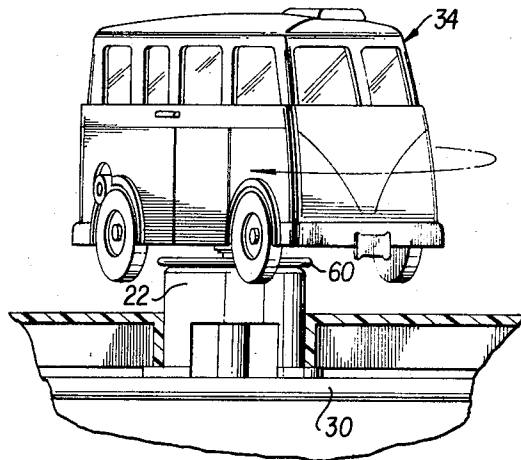
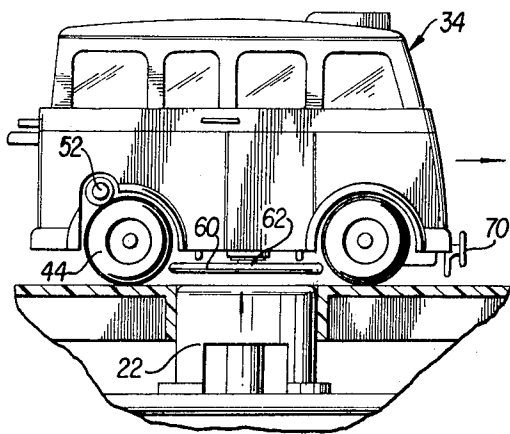


FIG 8

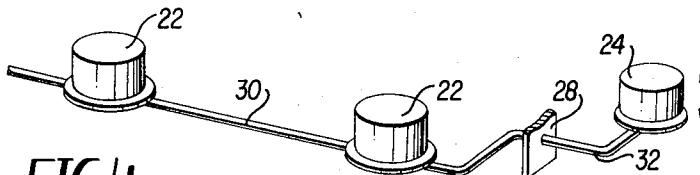


FIG 4

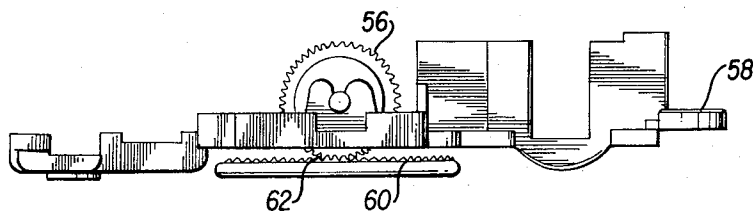
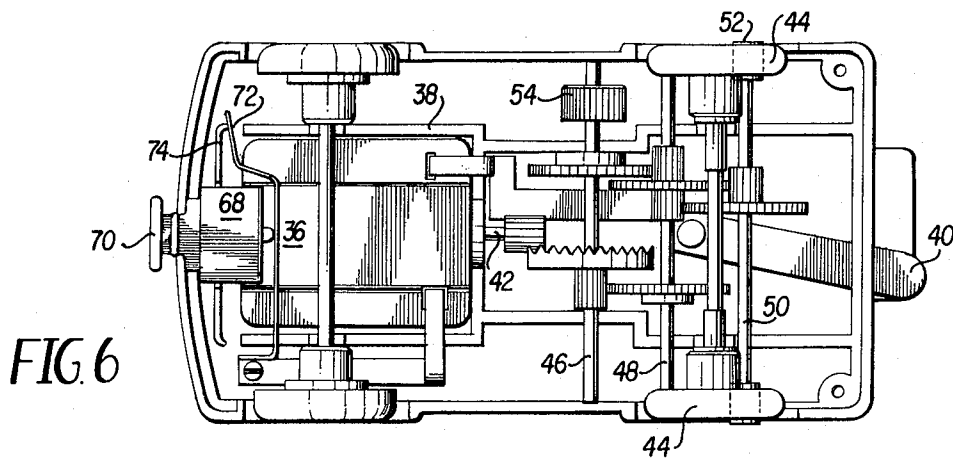
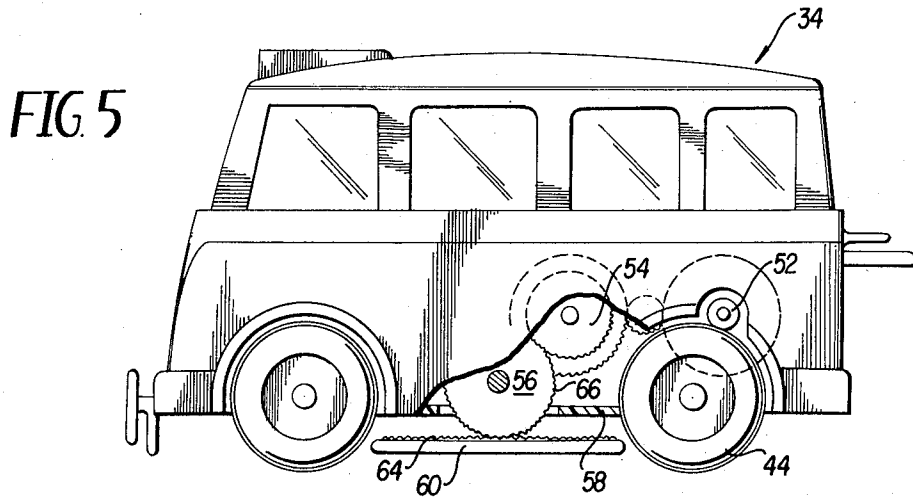


FIG. 9

TOY VEHICLE AND PLAYING BOARD

BACKGROUND OF THE INVENTION

The present invention relates to an amusement device wherein a toy vehicle is permitted to navigate through a simulated town along a series of intersecting streets. Automatic operation of the vehicle is possible by one or more players with a simple, inexpensive mechanism not previously known in the prior art.

SUMMARY OF THE INVENTION

The toy vehicle is permitted to turn at street intersections through the interaction of raising a button through an opening in the playing surface at the intersection of two streets and a rotating disk positioned immediately beneath the bottom of the toy vehicle. In such manner, as the vehicle enters the intersection of two streets and the player desires that the vehicle change direction to travel along a different street a button is pressed on the control panel in turn causing a button located at the intersection of the two streets to rise. The vehicle is caused to turn as the rising button contacts the rotating disk located beneath the body of the vehicle.

BRIEF DESCRIPTION OF THE FIGURES

FIG. 1 is a perspective view illustrating the playing board so configured as to define a section of a town or city through which a maze of intersecting streets run;

FIG. 2 is a partial bottom view of the playing board illustrating the mechanism for raising a series of buttons located at selected street intersections along the surface of the playing board by depressing a corresponding button on the control panel;

FIG. 3 is a cross-sectional view taken along line 3—3 of FIG. 2 further illustrating the operation of the buttons;

FIG. 4 is a perspective view illustrating the lever mechanism permitting raising the playing board buttons by depressing the corresponding control panel button;

FIG. 5 is a side view of the toy vehicle broken in section to illustrate the rotating disk which acts with the protruding buttons causing the vehicle to rotate;

FIG. 6 is a bottom view of the toy vehicle exposing the inner drive mechanism thereof;

FIG. 7 is a side view of the toy vehicle moving along the intersection of two streets with the playing board illustrated in section;

FIG. 8 is a side view of the toy vehicle rotating at the intersection of two streets by the action of raising the button into contact with the rotating disk; and

FIG. 9 is a side elevational view of the bottom frame of the vehicle removed to illustrate how the disk is mounted for rotation.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The playing board designated generally by reference numeral 10 is designed to simulate a typical section of a city. The playing surface 12 includes raised areas 14 on which may be located building structures 16 defining therebetween multiple streets 18. At each intersection of the streets 18 are located openings 20 through which buttons 22 are mounted for upward movement by the

action of depressing corresponding buttons 24 on the control panel 26 as illustrated in FIGS. 2—4 and now described in detail.

The cross-sectional shape of each button 22 is illustrated in FIG. 3. The bottom of the playing board, as seen in FIG. 2, is provided with a series of supports 28 mounting rods 30 for movement. Each rod 30 functions as a lever, as seen in FIG. 4, in such manner that as the button 24 on the control panel 26 is depressed, the end 32 of the rod 30 is pushed downwardly rotating the remainder of the rod upwardly raising the buttons 22 into the position illustrated in FIG. 8. As will be apparent from FIG. 1, there are three separate rows of buttons 22, 22' and 22'' controlled as groups by three single buttons 24, 24' and 24'' on the control panel. For purposes of aiding the child, the buttons in one row, for example 22, are painted one color and the mating control button, for example 24, painted the same color. This enables the child to quickly decide which control panel button should be operated.

Turning now to the toy vehicle designated generally by reference numeral 34 in FIGS. 5 and 6, a battery operated miniature electric motor 36 is positioned appropriately within the chassis 38. Such electric motors are conventional and well known in the art. As the motor 36 is turned on by actuating switch lever 40 the shaft 42 rotates rear wheels 44 through the gear train wherein the shaft 46 rotates counterclockwise, as illustrated in FIG. 6, in turn imparting clockwise rotation to shaft 48 in turn causing counterclockwise rotation to shaft 50, the ends of which are provided with traction members 52 abutting rear wheels 44 causing same to turn in a counterclockwise direction for purposes of propelling the vehicle. On one end of shaft 46 is mounted a pinion wheel 54 engaging a wheel 56 rotatably mounted within the bottom frame 58 of the vehicle. As illustrated in FIGS. 5 and 9, the relatively large circular disk 60 has a shaft 62 rotatably mounted within the bottom frame 58 of the vehicle. A small gap exists between the serrations 64 of the rotating disk 60 and the serrations 66 within the periphery of the wheel 56.

As will now be apparent, as switch 40 is turned on, rear wheels 44 are driven simultaneously with the rotation of wheels 54 and 56. As a slight gap exists between the wheel 56 and disk 60 no rotation of disk 60 normally occurs.

A further switch for the electrical circuit of motor 36 is provided in the form of the bumper mechanism 68 illustrated in FIG. 6 wherein inward movement of the bumper 70 causes electrical spring contact 72 to separate from contact 74 breaking the circuit stopping the vehicle.

The operation of the invention will now be described. The toy vehicle 34 is positioned along any street 18 on the playing board 10. Switch 40 is then turned to the on position and the vehicle begins to travel along the street. Eventually, the vehicle reaches the intersection of two streets, as illustrated in FIG. 7. At this juncture, the child decides whether to change the direction of movement of the vehicle. If such a change is desired, the child pushes down that button 24, 24' or 24'' on the control panel 26 corresponding to the color of the row of buttons 22, 22' or 22'', one of which the vehicle is centered over. This causes the but-

ton, for example 22, under the vehicle to be moved upwardly as illustrated in FIG. 8. The upward movement of the button 22 against disk 60 forces the serrations 64 on the surface of the disk 60 into engagement with the serrations 66 of the rotating wheel 56 thus causing the disk 60 to attempt to rotate about the top of the button 22. Friction holds the surfaces of the disk 60 and button 22 stationary causing the vehicle 34 to rotate about button 22, as seen in FIG. 8. As the vehicle turns it eventually becomes aligned with the intersecting street at which time the button 24 on the control panel is released causing the button 22 on the playing board 10 to retract into the position illustrated in FIG. 7. At this point, the disk 60 ceases to rotate and the vehicle moves forward under the rotation of its rear wheels 44.

As will be apparent, the vehicle 34 may be rotated through 90° to make a righthand turn; through 180° to reverse the direction of the vehicle or other angles to navigate the diagonal streets illustrated in FIG. 1.

Finally, should the vehicle butt up against a fixture or the edges delineating between the streets and the raised areas, the engine is automatically turned off by the operation of the bumper switch 68 previously described.

I claim:

1. An amusement device, comprising:
 a playing board, means defining thereon a plurality of streets crossing at intersections, openings provided in said board at said intersections, buttons mounted within said openings for movement and means forming a part of said board for moving said

buttons upward; and
 a vehicle, means propelling said vehicle along said streets of said playing board; a disk-like member mounted within said vehicle for rotation in a plane above said streets and means rotating said disk-like member such that when one of said buttons is in contact with said disk-like member said vehicle rotates.

2. An amusement device as in claim 1, said means for moving said buttons upward comprising at least one control button, means mounting said control button in said board for downward movement and means linking said buttons with said control button such that as said control button is depressed said buttons are raised.

3. An amusement device as in claim 2, wherein said buttons are arranged in separate rows, each of said rows containing at least two of said buttons, one control button being associated with each of said rows and said means linking said buttons and control button linking each of said buttons in each row with said control button associated therewith.

4. An amusement device as in claim 1, said means rotating said disk-like member comprising mechanical power takeoff means from said means propelling said vehicle.

5. An amusement device as in claim 1, including a bumper mounted at the front of said vehicle and means associated with said bumper for deactivating said means for propelling said vehicle as said bumper is depressed.

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