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2,461,672

MOTOR PROPELLED TOY VEHICLE

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FIG. 1.

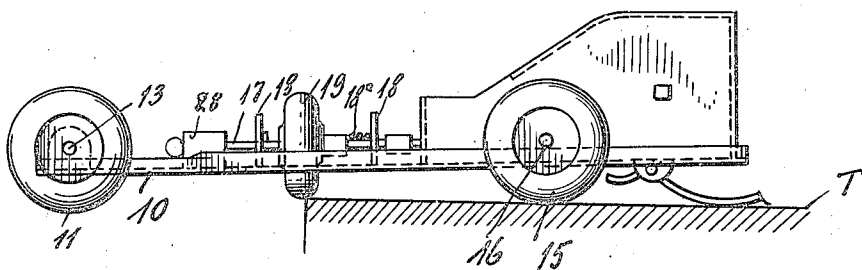


FIG. 2.

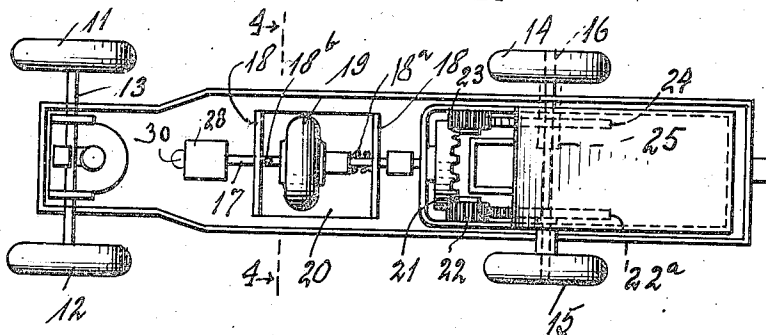


FIG. 3.

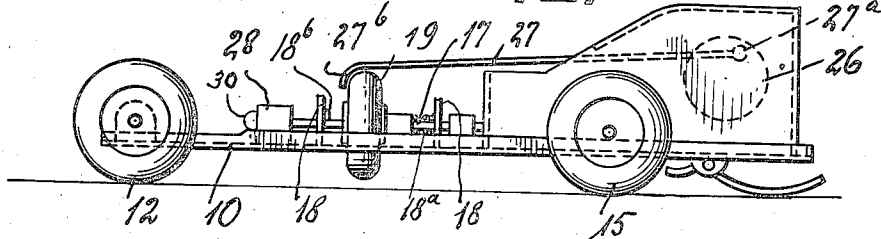


FIG. 4.

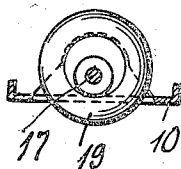
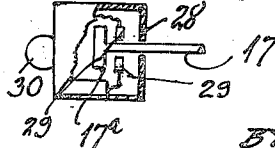


FIG. 5.



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MOTOR PROPELLED TOY VEHICLE

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3 Claims. (Cl. 46-211)

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This invention relates to mechanical toys, specifically to motor propelled toys, its main object is to provide an improvement whereby when, on the toy reaching an edge of the travel surface, its front part will drop off said edge, it will be automatically lifted back to the travel surface and the vehicle caused to simultaneously change its direction of travel.

Another object is to provide means whereby the toy vehicle automatically will be caused to intermittently change its direction of movement while traveling on an even surface and on, striking a wall or by employing a blow switch of any well known construction.

And still another object is to provide means which automatically will turn on a sound or light signal every time the vehicle changes its course.

Toys having a round wheel, mounted centrically in front of rear wheels on a shaft extending transversely to the axis of the wheels are known. However, such a wheel is incapable of lifting the front part of the vehicle above the level of the travel surface, nor cause the toy to turn when traveling on an even surface or reaching a wall.

With these and other objects in view that will be apparent from the detailed description of my invention, the latter consists in the novel construction, combination and arrangement of parts as will be hereinafter specified and defined in the appended claims.

In the accompanying drawing which constitutes part of this specification and in which similar reference characters denote corresponding parts:

Fig. 1 is a side elevation of my toy vehicle, Fig. 2 is a top plan view thereof,

Fig. 3 is a side elevation of a modified construction,

Fig. 4 is a cross section on line 4-4 of Fig. 2, and

Fig. 5 is an enlarged sectional view of a detail.

10 denotes the chassis of the toy vehicle provided with front wheels 11, 12, mounted on a shaft 13 and rear wheels 14, 15, of which one wheel, say 14, is idle, being fixed on a sleeve 25 rotatively mounted on the motor driven shaft 16 and the other wheel 15 is fixed to said shaft. Extending longitudinally of the chassis and at a right angle to the shafts 13, 16, is a shaft 17, slideably and rotatively mounted in bearings 18. 19 denotes a wheel, disc or like member, which is shaped as shown in Fig. 4, and fixed on shaft 17 and projects downwardly through a recess

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20 and adapted normally, i.e., while the vehicle is with all four wheels on the travel surface, to be out of contact with the latter, but to come into contact with it as soon as the front of the vehicle drops off the edge of said travel surface. A spring 18^a tends to hold the shaft 17 normally in a forwardly projected position against a stop 18^b. The shaft 17 at its rear end carries a gear 21 which normally is out of mesh with a gear 22 driven by a suitable motor of which gear 22^a is part. This gear 21 normally is also out of mesh with a gear 23 which meshes with a gear 24 fixed on said sleeve 25. Any other suitable coupling means may be provided between the rear end of shaft 17, the motor and the idle wheel.

The mode of operation is as follows:

Let T denote the travel surface, such as a table, board or the like, on which the toy vehicle is to travel. When the vehicle while traveling, drops with its front part off an edge of said travel surface T, the front part of the vehicle is lowered, as shown in Fig. 1, as a result of which the member 19 comes to bear on said travel surface. Due to friction exerted between said member and said surface, movement of the vehicle in the same direction will cease, while due to inertia and against the tension of its spring 18^a said member will be pushed rearwardly, causing the gear 21 to engage the motor driven gear 22 and at the same time the gear 23 to engage the gear 24 of the idle wheel 14. This has the effect that the member 19 will be set into rotation and due to its shape or its eccentric mounting, will lift the front part of the vehicle above the level of the travel surface T, and at the same time change the course of the vehicle. This change of direction of travel is facilitated by the rotation of the idle wheel 14 in the direction opposite to that of the driven wheel 15, which rotation is imparted to it by the engagement of gear 23 with gear 24.

In the modification shown in Fig. 3, means are provided whereby the vehicle automatically may be caused to change its direction of travel intermittently.

In the present example, these means comprise a rotary wheel, disc or member 26 which is suitably impelled by the motor. This member 26 has pivoted to it eccentrically as at 27^a a rod 27 extending forwardly and longitudinally of the chassis. The front end of said rod 27 is provided with suitable means, such as a hook shaped part 27^b capable of engaging the member 19, so that, during the rotation of the member 26, said rod will reciprocate and intermittently pull the

member 19 rearwardly, as a result of which the vehicle will be caused to change its direction of travel, as already explained.

In the constructions heretofore described, wheel 19 is provided with means by which it will be moved rearwardly so that its shaft 17 will be coupled to the motor 22^a. Such coupling, however, may be dispensed with. In such case, the locking action of wheel 19 will cause the driven rear wheel to swing the toy around the idle wheel, and after the wheel 19 has made one turn and the front part of the toy is turned back to the travel surface, spring 18^a will bring wheel 19 in contact with the locking stop 18^b thus permitting the toy to travel in the new direction.

Each change of the course of travel may be signalled either visually or by sound. To this end, I provide a suitable device 28, using an electric bulb 30, bell or the like. The electric circuit actuating said device may be controlled by a switch 29 to be operated by the forward end 17^a of the shaft 17, so that every time the shaft 17 is moved rearwardly it will close or open the electric circuit.

While I have described my toy in connection with a vehicle, it is obvious that the construction may be modified in various ways without departing from the principle of my invention, so as to be also applicable to figures simulating humans or animals. I, therefore, do not wish to restrict myself to any details of construction described and shown herein.

What I claim is:

1. In a self propelled toy, having a motor and frame with a pair of rear and front wheels in which at least one of the rear wheels is motor driven and the other rear wheel idle, a spring influenced eccentric member slideably and rotatively supported on said frame intermediate its ends, and adapted normally to be out of contact with the travel surface, but to contact the latter

when the front part of said toy drops off an edge of said travel surface, means for bringing said member into operative engagement with the motor, whereby said member will receive a rotary motion and due to its eccentricity, cause the lifting of the front part of the vehicle above the level of the said travel surface, and simultaneously cause the toy to change its direction of travel.

2. A motor propelled toy, according to claim 1, in which motor driven reciprocatory means are provided which are adapted to intermittently pull said eccentric member rearwardly into operating connection with the motor so as to cause the vehicle to intermittently change its course.

3. A motor propelled toy, according to claim 1, in which are provided a motor rotated element, a rod eccentrically pivoted at one end to said element and extending forwardly from said element, and means on the opposite end thereof capable of engaging said eccentric member and, when reciprocated by the rotation of said element, to intermittently pull said member rearwardly into operative engagement with said motor and thereby automatically cause the toy to intermittently change its course of travel.

ALOJZY ADAMCZYK.

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