July 22, 1941. S. I. BERGER 2,250,215

AERIAL EFFECT TOY

Filed Oct. 25, 1940

Fig. 1

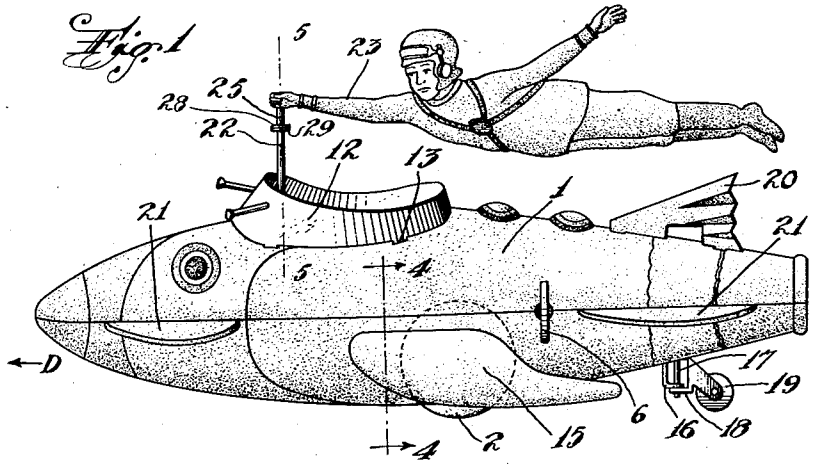


Fig. 2

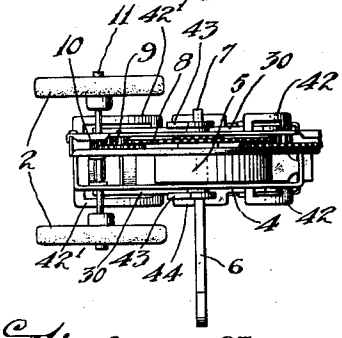


Fig. 3

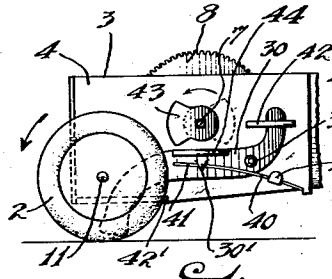


Fig. 4

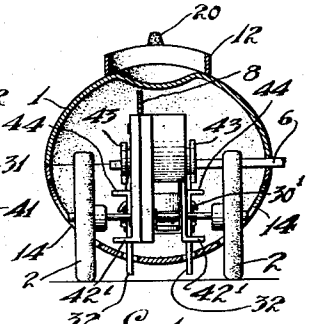


Fig. 5

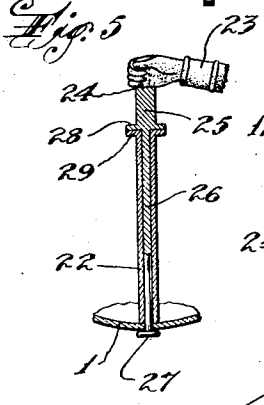


Fig. 6

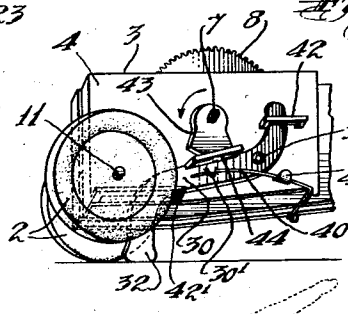
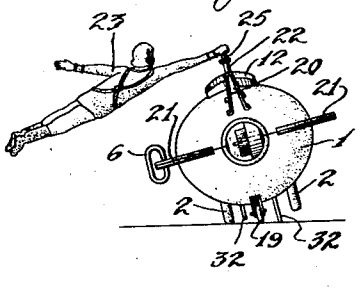


Fig. 7



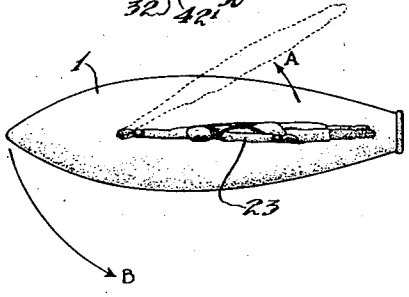


Fig. 8

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AERIAL EFFECT TOY

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Application October 25, 1940, Serial No. 362,736

8 Claims. (Cl. 46—107)

This invention relates to improvements in toys and toy vehicles and more particularly is directed toward the provision of a toy representing a figure secured thereto in a manner to provide for the free rotation of the figure in a horizontal circle or arcs thereof in a plane horizontal to the toy.

A further object of my invention is to provide a toy having a figure secured thereto in a manner simulating the floating of the toy figure freely through the air, maintaining a hold on the toy vehicle, the figure appearing to float through the air uncontrolled by the direction of movement of the toy vehicle and apparently independently thereof.

A further object of my invention is to provide a toy having a pair of propelling wheels and a third and swivel wheel spaced from said propelling wheels, the toy being further provided with a spring motor for actuating said propelling wheels and having means likewise actuated by the spring motor for alternately and intermittently elevating each of said propelling wheels to cause the toy vehicle to swivel and rotate and thereby abruptly alter its direction of movement.

A further object of my invention is to provide a toy of the character described having means for rotatably securing the toy figure to the vehicle body adjacent the upper surface thereof and at a point spaced from said propelling wheels and opposite the swivel wheel.

In the accompanying drawing, in which is shown one of the various possible embodiments of the several features of the invention, and wherein like reference numerals indicate like parts:

Fig. 1 is a side elevational view of a toy embodying my invention,

Fig. 2 is a top plan view of the spring motor mechanism used in said toy, and the parts carried by the spring motor mechanism casing,

Fig. 3 is a side elevational view of the mechanism shown in Fig. 2, with the spring motor key broken away for the sake of clarity,

Fig. 4 is a transverse sectional view taken on line 4—4 of Fig. 1 in the direction of the arrows,

Fig. 5 is a fragmentary, partly sectional view taken on line 5—5 of Fig. 1.

Fig. 6 is a side elevational view similar to Fig. 3 showing the position of the parts upon elevation of one of the propelling wheels pursuant to my invention,

Fig. 7 is an end elevational view of the toy with the motor mechanism parts at the position indicated in Fig. 6, and

Fig. 8 is a diagrammatic top plan view of the toy vehicle and figure in the normal, straight-line movement of the vehicle and indicating by the arrows the respective directions of movement of the vehicle and figure upon the swivelling of the toy vehicle pursuant to my invention.

The toy of my invention comprises the vehicle body 1, which is provided with a pair of propelling wheels 2 actuated by a motor mechanism 3 carried by casing 4, said motor mechanism preferably comprising a main spring 5 adapted to be wound by a key 6 in a conventional manner, the key shaft 7 having keyed thereto a gear 8 in mesh with a gear train 9, the latter meshing with a pinion 10 keyed to the shaft 11 to which the wheels 2 are fixed, so that, on the unwinding of the main spring 5 the wheels 2 will be rotated in the direction indicated by the arrow in Fig. 3 to propel the vehicle 1 in the direction indicated by the arrow D in Fig. 1. The spring motor casing 4 is secured to the interior of the vehicle body 1 in any desired or convenient manner as for example by providing the casing with lugs passing through and clinched over the corresponding openings in the vehicle body 1, in the same manner as the representation of a turret 12 is provided with lugs 13 passing through and clinched over corresponding openings in the vehicle body 1.

The vehicle body 1 is provided at its undersurface with openings 14 through which the wheels 2 freely pass as indicated in Fig. 4, and the vehicle body is preferably provided with simulated wing portions 15 to cover all but the lowermost protruding portion of the wheel 2 as shown in Fig. 1. A bracket 16 is secured to the vehicle body 1 at the undersurface thereof spaced rearwardly of the wheels 2, said bracket supporting a pin 17 on which the bracket 18 of a swivel wheel 19 is swivelly arranged.

It will thus be noted that I have provided a toy vehicle comprising a body 1 which may be of any desired configuration, preferably being designed in simulation of a fictional aerial vehicle, and for this purpose being provided with fin member 20 and similar vane members 21. It will further be noted that, from the description thus far given, the toy vehicle has a three point contact with the surface over which the same is being propelled and will normally tend to travel in a straight line in the direction indicated by the arrow D of Fig. 1. The vehicle may be provided with any desired or convenient

speed governing device operating on the spring motor mechanism. The vehicle body is provided with an elongated tubular member 22 fixed to the upper surface thereof adjacent the end of the vehicle body which is opposite that end of the vehicle body adjacent the lower portion of which the swivel 19 is secured.

A toy figure 23 preferably formed in simulation of a fictional aerial character is fixed at one end 24 thereof to an elongated rod 25 having a stem 26 passing through and freely rotatable in the tubular member 22, the lower end of said stem 26 being preferably provided with a head 27 abutting the body portion 1 adjacent the point at which the tubular member 22 is fixed thereto, to prevent displacement of the rod 25 from the tube 22. It will be obvious that, if desired, the head 27 may be dispensed with. The rod 25 and the tubular member 22 are preferably provided with complementary peripheral flanges 28, 29 respectively, to enable the free rotation of the rod and its affixed figure 23 in a horizontal circle of which the rod 25 is the axis.

From the foregoing it will be clear that the figure 23, being pendantly and rotatably secured to the toy vehicle 1 will tend to swing freely in a horizontal plane and that, upon the vehicle body altering its direction of travel or being tilted, the figure 23 will promptly react thereto by swing on its aforesaid axis and in a horizontal plane and apparently independently of the vehicle body and uncontrolled by the direction of movement thereof, thereby presenting a novel and entertaining aerial effect.

The motor casing 4 is provided with a pair of lever members 30 pivoted at an offset position 31 to opposite sides of the casing, the lower, downwardly directed ends 32 of the lever 30 being adapted, when lowered below the wheels 2 as in Fig. 6, to tilt the vehicle body as indicated in Fig. 7, leaving the adjacent wheel 2 suspended and therefore of no tractive value, while the opposite wheel 2, continuing to rotate will cause the vehicle body to turn in the direction (arrow B Fig. 8) of the elevated wheel, the lever 32 which elevated the wheel 2 acting as the pivot, and the swivel 19 facilitating the rotation of the toy, with the result that as shown in Fig. 7 and again in Fig. 8, the figure 23 will tend to swing in the opposite direction (A of Fig. 8). A wire spring 40 is fixed at one end to the casing 4 by any suitable means as for example by studs struck out from the casing 4 and clinched over the spring 40, the free ends 41 of said spring being secured to lugs 30′ on levers 30 to normally urge the same upwardly and to the position shown in Fig. 3 at which the said levers are held in abutment with slotted guide members 42 as in Fig. 3. The casing may further be provided with another pair of guide members 42′ through which the lower ends 32 of levers 30 may pass when the levers are rotated downwardly as presently explained. The motor key shaft 7 has keyed thereto adjacent the opposite sides of the casing 4 cam members 43 the cam surfaces of which are adapted, on the unwinding of the main spring 5 and therefore the rotation of the motor key shaft 7 in the direction indicated by the arrows adjacent said cam in Figs. 3 and 6, to bear against flanges 44 of the levers 30 to lower said levers for the purpose previously explained. The cams 43 are oppositely disposed on the motor key shaft 7, that is, one cam 43 is fixed on the shaft on the position in Fig. 6, while the cam at the opposite side of the shaft is fixed thereto with its cam surface oppositely disposed and oppositely facing as indicated by the dotted lines in Fig. 3.

From the foregoing it will be noted that the unwinding of the main spring 5 will cause the toy vehicle 1 to move in a straight direction until one of the cams 43 is rotated to the position at which its cam surface engages the flange 44 of one of the levers 30 (necessarily the adjacent lever on that side of the casing) and moves the lever 30 downwardly against the action of the spring 40, causing the toy to tilt and rotate with the toy figure 23 thereby becoming displaced as above set forth. Continuing the rotation of shaft 7 carries the cam 43 past the flange 44, permitting the lever 30 to be returned by spring 40 to its normal position shown in Fig. 3 and permitting the toy to continue in the direction at which it is then moving, and the toy will continue in that direction until the opposite cam 43 is rotated into engagement with its adjacent lever 30, causing a repetition of the process, with the toy alternately moving in a straight and then circular and then straight and then circular direction until the complete unwinding of the main spring 5 with corresponding displacement and swinging of the toy figure 23 creating the novel aerial optical effect and illusion referred to.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A toy comprising a vehicle body adapted to be moved in non-parallel directions, means carried by said body for propelling same, and a toy figure pendantly and rotatably secured to the body and adapted to freely rotate thereon and to respond to the movement of the body in non-parallel directions by swinging on the body in simulation of aerial movement of the figure uncontrolled by the direction of propulsion of the toy vehicle.

2. A toy comprising a vehicle body, means carried by said body for propelling same, in a straight line and for intermittently altering the direction of movement and propulsion of said toy body, and a toy figure pendantly and rotatably secured to the body, whereby upon the altering of the direction of movements and propulsion of said toy body, the figure will respond to such altering by swinging on the body in simulation of aerial movement of the figure uncontrolled by the direction of propulsion of the toy vehicle.

3. A toy comprising a vehicle body, means carried by said body for propelling same in a level plane and for intermittently tilting said body, and a toy figure pendantly and rotatably secured to the body, whereby upon the tilting of said body, the figure will respond to such tilting by swinging on the body in simulation of aerial movement of the figure uncontrolled by the direction of propulsion of the toy vehicle.

4. A toy comprising a vehicle body, means carried by said body for propelling same in a level plane and for intermittently tilting said body, an elongated tubular member fixed to the upper surface of said vehicle body in vertical relation thereto, and a toy figure, and an elongated rod having a stem passing through and freely rotatable in the tubular member, said rod being secured to one end of the toy figure to pendantly and rotatably secure the toy figure to the body and enable the said figure to freely rotate thereon in simulation of aerial movement of the figure, whereby upon the tilting of said body, the figure will respond to such tilting by swinging on the body in simulation of aerial movement of the

figure uncontrolled by the direction of propulsion of the toy vehicle.

5. A toy comprising a vehicle body, means carried by said body for propelling same in a straight line and in a level plane and for intermittently tilting the body and altering the direction of movement thereof and a toy figure pendantly and rotatably secured to said body whereby, upon the tilting of said body and altering its direction of movement the figure will respond by swinging on the body in simulation of aerial movement of the figure uncontrolled by the direction of propulsion of the toy vehicle.

6. A toy comprising a vehicle body, means carried by said body for propelling same in a straight line and for intermittently altering the direction of movement and propulsion of said toy body tangentially and a toy figure pendantly and rotatably secured to the body whereby upon the altering of the direction of movement and propulsion of said toy body, the figure will respond to such altering by swinging on the body in simulation of aerial movement of the figure uncontrolled by the direction of propulsion of the toy vehicle.

7. In a toy vehicle having means for propelling same in non-parallel directions, an elongated tubular member, fixed to said body in vertical relation thereto, a rod rotatably positioned in said tubular member and a toy figure secured at one end to the rod to enable said figure to freely rotate in simulation of aerial movement of the figure whereby upon the actuation of said toy, in non-parallel directions, the figure will respond to such actuation by swinging on the body in simulation of aerial movement of the figure uncontrolled by the direction of propulsion of the toy vehicle.

8. In a toy vehicle having means for propelling same in non-parallel directions, an elongated tubular member, fixed to said body in vertical relation thereto, a rod rotatably positioned in said tubular member, the rod and tubular member being provided with complementary peripheral flanges, and a toy figure secured at one end to the rod to enable said figure to freely rotate in simulation of aerial movement of the figure whereby upon the actuation of said toy, in non-parallel directions, the figure will respond to such actuation by swinging on the body in simulation of aerial movement of the figure uncontrolled by the direction of propulsion of the toy vehicle.

SAMUEL I. BERGER.