

March 10, 1953

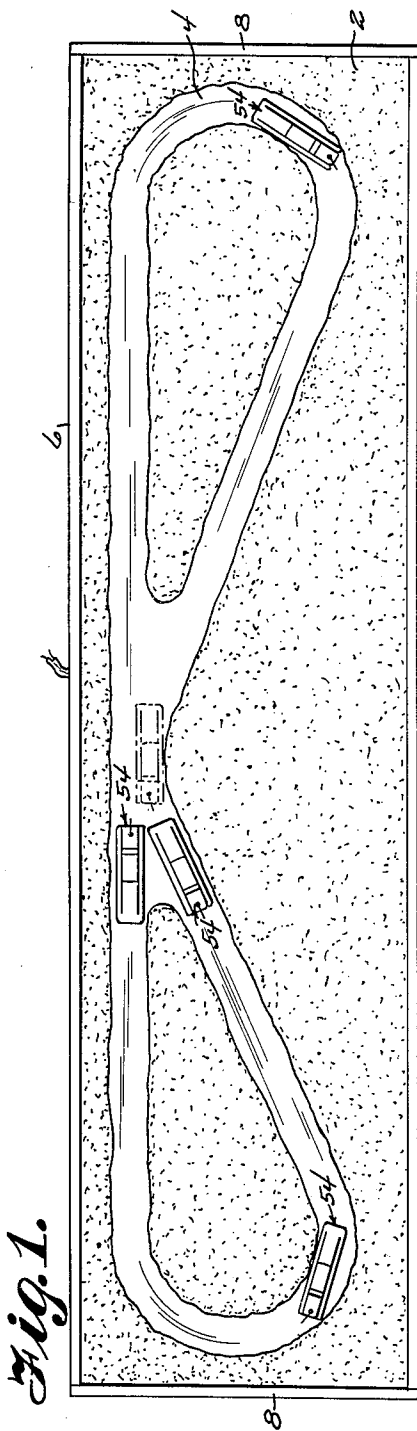
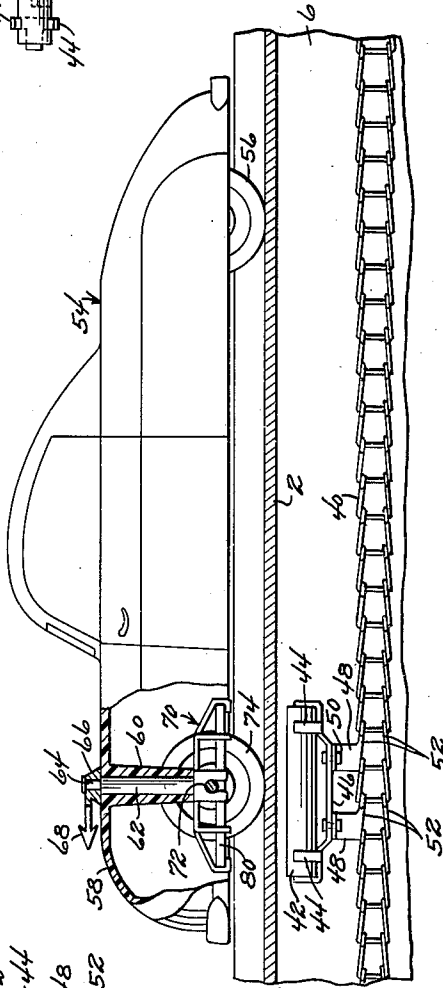
J. E. SMALL

2,630,765

MAGNETIC TOY VEHICLE

Filed March 29, 1949

2 SHEETS—SHEET 1



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2 SHEETS—SHEET 2

Fig. 2.

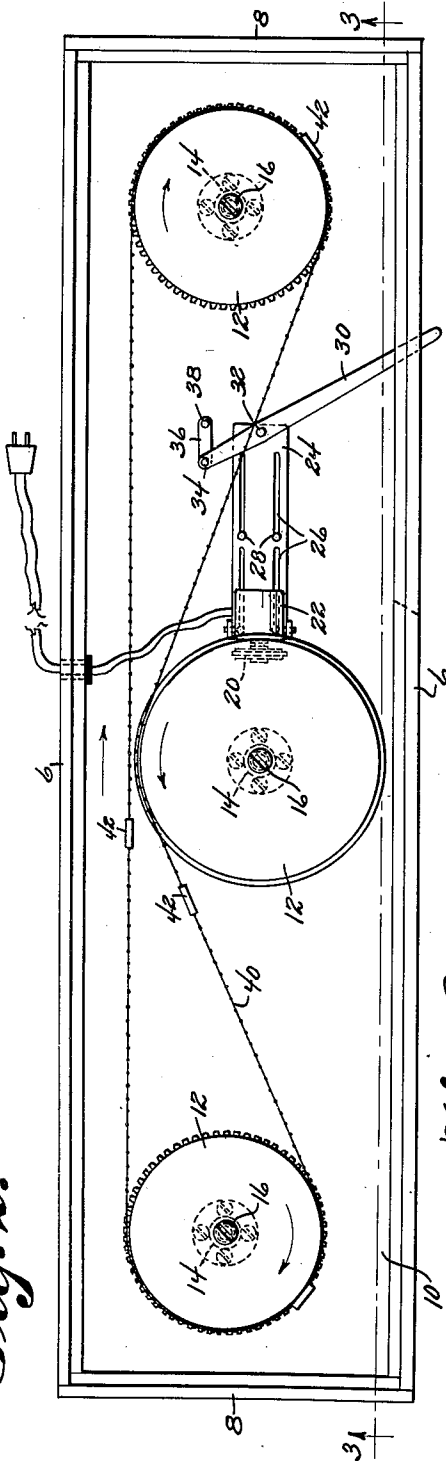


Fig. 3.

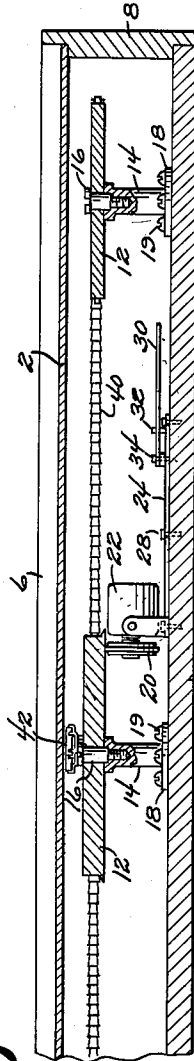
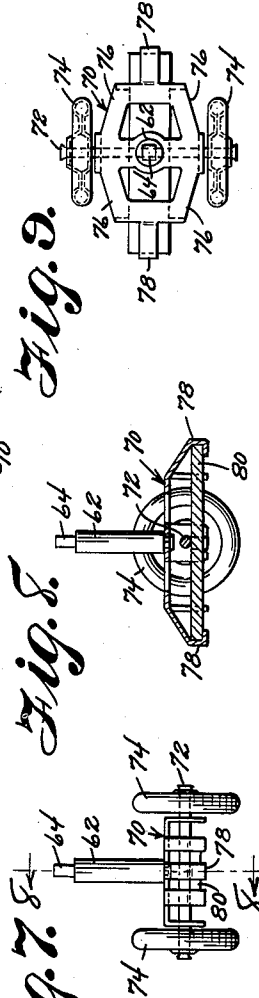


Fig. 7.

Fig. 8.

Fig. 9.



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UNITED STATES PATENT OFFICE

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MAGNETIC TOY VEHICLE

John Edgar Small, Connellsville, Pa.

Application March 29, 1949, Serial No. 84,200

1 Claim. (Cl. 104-148)

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My present invention relates to an improved magnetic toy vehicle of the type adapted for use as an amusement or display device wherein one or more vehicles are made to travel at varying speeds about a roadway by fully hidden operating means and wherein the actuating mechanism for the vehicle also steers the vehicle causing it to follow a definite course without aid of any kind from curbs, walls or surface guiding means.

In the accompanying drawings I have illustrated one complete example of the physical embodiment of my invention according to the best mode I have thus far devised, but it will be understood that various changes and alterations may be made in the exemplified structure within the scope of the appended claim.

In the drawings:

Fig. 1 is a top plan view of the simulated roadway platform showing the vehicle in operating position.

Fig. 2 is a horizontal sectional view through the housing below the platform.

Fig. 3 is a sectional view at line 3-3 of Fig. 2.

Fig. 4 is an enlarged sectional view showing the operating and steering mechanism.

Fig. 5 is an end elevational view of the driving magnet.

Fig. 6 is a top plan view thereof.

Fig. 7 is an end elevational view of the steering and driven assembly.

Fig. 8 is a sectional view at line 3-8 of Fig. 7.

Fig. 9 is a top plan view thereof.

Referring now to the drawings wherein I have shown the present preferred embodiment of my invention, I use a platform 2 of suitable non-conducting material having a roadway 4 suitably shown thereon.

The platform is supported by side walls 6 and end walls 8 on the base 10.

Gear wheels 12 are rotatably supported on posts 14 by screws 16 and the flanges 18 of the posts 14 are attached to the base 10 by screws 19.

A drive wheel 20 engages the under side of the center gear wheel or driven wheel and is rotated by motor 22 secured on plate 24 which has pairs of slots 26 for pins 28 on the base and lever 30 pivoted to the plate at 32 is pivotally secured at 34 to link 36 also pivotally secured at 38 on the base.

Movement of the lever 30 will move the drive wheel to or away from the center of the center gear wheel to vary the speed of rotation of the gear wheel.

A ladder chain 40 encompasses the outer gear wheel and one side of the chain bears upon the

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center gear wheel whereby the chain is driven by the center wheel and supported by the outer wheels.

At spaced intervals along the chain I employ a series of elongated magnets 42 secured by ears 44 on base or bar 46 which has arms 48 secured by rivets 50 which arms are formed with fingers 52 which replace one link of the chain.

Adapted to operate on the roadway of the platform I employ a series of wheeled vehicles each comprising a body 54 and rear wheels 56. The hood 58 has an integral hollow post 60 depending therefrom and a pin 62 rotatable in the post has a reduced end 64 for cap 66 which has a pointer 68.

A yoke 70 secured to the pin 62 supports axle 72 for front wheels 74 and a frame consisting of pairs of converging arms 76 and extending ears 78 support an elongated bar magnet 80 of approximately the same area and shape as the magnet 42.

This bar magnet is spaced slightly above the roadway and of course is attracted by the magnet. Clearly as the chain moves about the gear wheels and the magnets follow the simulated roadway thereabove, the bar magnet will move along with the magnet carrying the vehicle therewith.

Due to the elongated shape of the magnet and bar magnet the shifting movement of the magnet will cause a similar movement of the bar magnet and inasmuch as the bar magnet is fixed to the pivotal front wheel frame, axle and wheels the front wheel assembly will turn to steer the vehicle. The pointer will show the position of the wheels and is especially valuable in placing the vehicles in position on the roadway.

From the above it will be apparent that the vehicles will follow the roadway which is aligned with the course of movement of the magnets, and without any apparent or visible means of operation, the vehicle will move and steer to follow the roadway.

Thus the device of my invention will provide a source of mystery and pleasure as a toy and will also prove to be an attraction as a display.

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

In a magnetic toy assembly, a horizontally disposed platform of non-conducting material provided with a roadway thereon, a horizontally disposed base arranged in spaced parallel relation below said platform, vertically disposed side and end walls extending between said base and plat-

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form, a pair of spaced parallel vertically disposed posts extending upwardly from said base and each having a lower flange secured to said base, a gear wheel rotatably supported on each of said posts, a driven wheel interposed between said pair of gear wheels, a drive wheel positioned in engagement with the underside of said driven wheel, a plate arranged contiguous to said base and provided with slots therein, pins extending through said slots and into said base, a manually operable lever pivotally connected to said plate and to said base for shifting said plate, a motor connected to said plate and to said drive wheel, a chain trained around said pair of gear wheels, a portion of said chain being straight and a portion engaging said driven wheel to provide a V-shape in the chain, a plurality of elongated magnets arranged in spaced relation on said chain, a pair of arms extending upwardly from said chain, a bar secured to said arms and having ears arranged in engagement with said magnets,

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a plurality of wheeled vehicles mounted for travel along said roadway and each including a body and a fixed rear axle, a vertically disposed hollow post arranged in said body, a pin rotatably arranged in said post, a pointer connected to the upper end of said last named pin, a yoke secured to the lower end of said pin, an axle supported by said yoke, wheels mounted on said last named axle, and a bar magnet supported by said yoke.

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The following references are of record in the file of this patent:

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