

June 10, 1924.

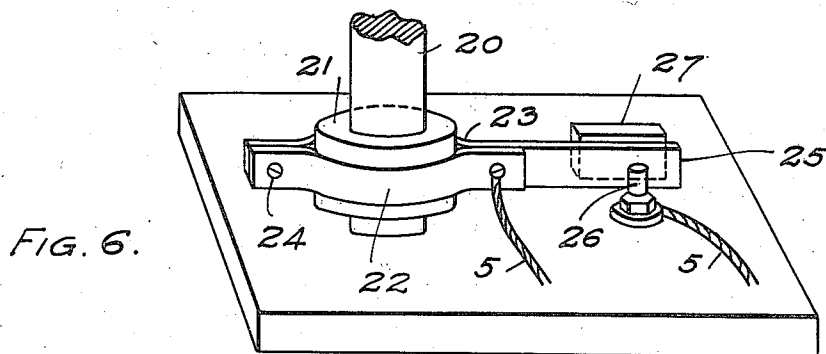
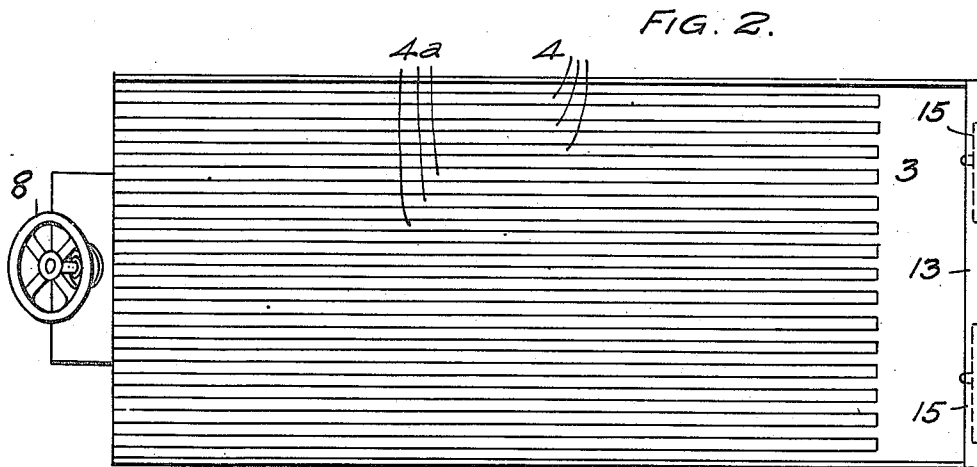
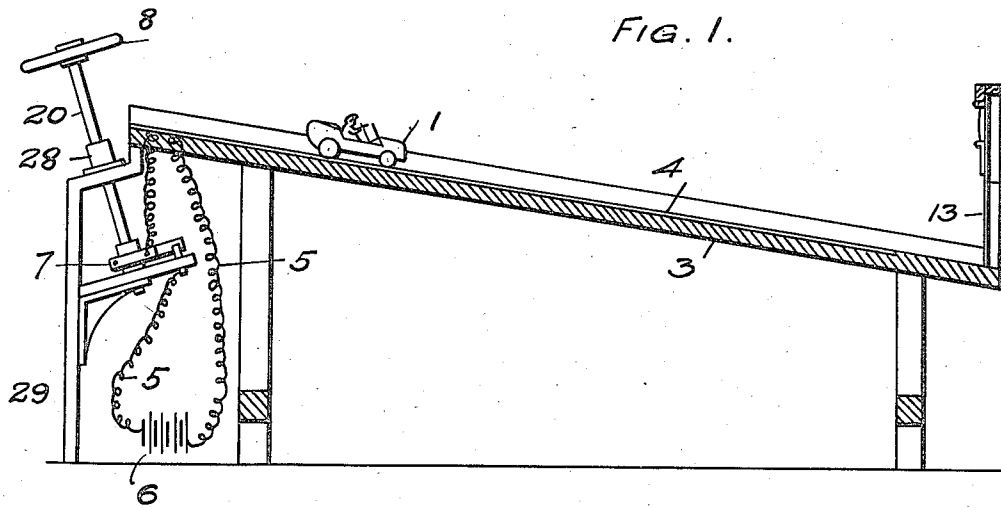
1,497,382

C. A. ROLLASON

MAGNETIC TOY

Filed Jan. 15, 1923

2 Sheets-Sheet 1



Inventor C. A. Rollason
By his Attorney A. J. Davies

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2 Sheets-Sheet 2

FIG. 3.

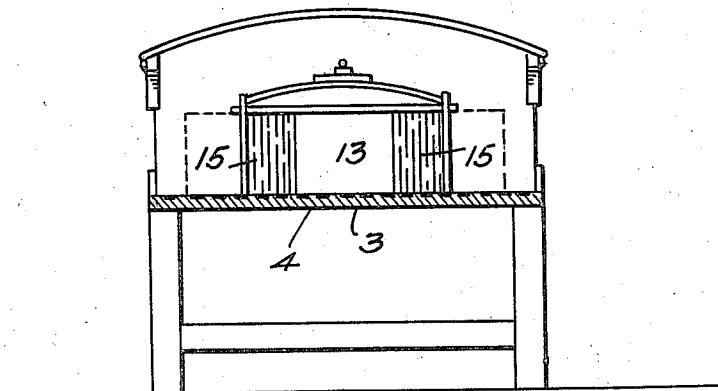


FIG. 4.

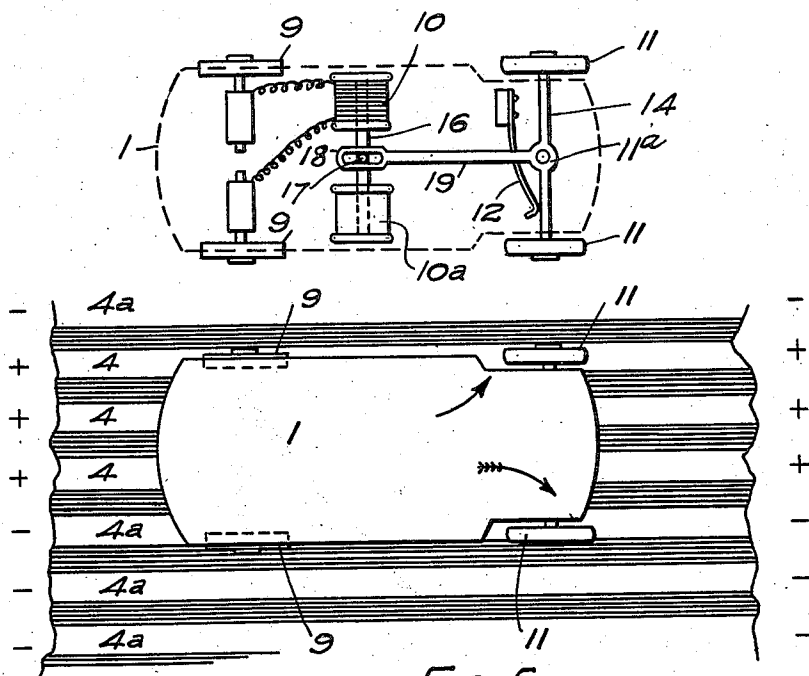


FIG. 5.

Inventor. C. A. Rollason
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Patented June 10, 1924.

1,497,382

UNITED STATES PATENT OFFICE.

CHARLES ARTHUR ROLLASON, OF SOUTHPORT, ENGLAND.

MAGNETIC TOY.

Application filed January 15, 1923. Serial No. 612,788.

To all whom it may concern:

Be it known that I, CHARLES ARTHUR ROLLASON, a subject of the King of Great Britain, and resident of Southport, England, have invented certain new and useful Improvements in Magnetic Toys, of which the following is a specification.

This invention relates to an improved type of amusement apparatus or toy which takes the form of a game, the skill of the operator controlling electro-magnetically the movement of a model so that it may be steered to some suitable goal by the operator or player.

According to this invention, the apparatus comprises a flat, inclined, circular, or undulating track or platform over which a toy consisting of a model motor car, sledge, boat, figure or other device is adapted to run on rollers, wheels or the like and be driven by mechanical means or to run or slide by gravity, the steering of the device being controlled electro-magnetically by the operator.

One form of the invention is illustrated in the accompanying drawings in which Fig. 1 shows a vertical section of an apparatus consisting of an inclined table down which a model motor car runs by gravity under the electro-magnetic control of the operator, Fig. 2 being a plan of Fig. 1 and Fig. 3 an end view in section. Fig. 4 is an inverted plan view showing the controlling mechanism of the motor car to a larger scale and Fig. 5 is a plan view showing the disposition of the collector wheels relatively to the metallic conductor strips. Fig. 6 is an enlarged perspective view showing the construction of the switch mechanism.

In the preferred form the device shown takes the form of a model motor car 1 running on wheels. Let in to the inclined table 3 or platform is a series of metallic conductor strips 4, 4^a, connected in alternate sets or groups, say of threes, to the positive and negative leads 5 of an electric circuit, the current for which may be supplied from any suitable source 6 and either passed through a controlling resistance or otherwise. At one end of the platform is a switch 7, which is operated preferably by a steering wheel 8 similar to that of a motor car, the switch 7 being arranged to control the supply of current to the strips 4. The rear wheels 9, preferably, of the model motor car or other device are arranged to make contact across adjoining groups of the strips

4, 4^a, see Fig. 5, and so act as collectors to pick up the current from the strips, the wheels or collectors being connected to a solenoid 10 on the model car. In this way when the switch wheel 8 is turned in the required direction the solenoid becomes energized. The front wheels 11 of the car are pivotally mounted at 11^a on an axle 14 and are, preferably, normally so controlled by a spring 12 that they tend to swerve the car always in one direction, indicated by the tailed arrow Fig. 5, which would cause the car to pass to the right side of the platform 3, the solenoid 10 when energized turning the wheels in the opposite direction shown by the tailless arrow. At the lower end of the inclined platform 3 is a goal which may take the form of a garage door 13, the width of which may be controlled by means of two slidable panels 15.

The object of the player is so to control the movement of the car or like device in running down the incline that it shall enter the goal, such as the garage door 13, and this is effected by the operator through his steering wheel 8. For instance, as the car under its continual spring control 12 tends to swerve say to the right the player turns the steering wheel 8 in the direction to close the switch and in so doing energizes the solenoid 10 which acts on an armature or core 16 having a pin 17 engaging a slot 18 in a lever 19 connected to the front axle of the car, pulling the front axle about its pivot 11^a and causing the car to swerve to the left. The car would continue to the left side of the platform unless the player switches off the current, the spring control then again asserting itself and turning the car to the right. In this way by suitably controlling the toy device it may, by careful steering, be caused to enter the garage door 13 or other goal.

The metallic strips may be grouped in sets of three 4 and 4^a alternately connected to the positive and negative leads of the circuit, and the pitch apart of the rear or back wheels 9 is made such that they just bridge across alternate sets or groups of the metallic strips. Preferably, the switch device 7 is such that it opens or closes the circuit immediately the control wheel 8 is turned to the right or left from any angular position of the wheel. This may be effected by fitting at the base of the steering wheel column 20 a collar 21 Fig. 6 of some insulat-

ing material and having an annular groove in its periphery. Disposed round the collar in the annular groove is a metallic yoke piece made up of two half-circular straps 22, 23, which are connected together about the collar by grip screws 24, the yoke piece being thus caused frictionally to grip the collar to any desired extent. One of the yoke pieces 23 is extended to form an arm 25 and near the end of this arm is mounted a contact terminal 26, a fibre or other insulating stop 27 being mounted on the opposite side of the arm. The arm itself is connected to one lead 5 of the circuit and the contact terminal to the other lead, consequently, owing to the frictional binding of the contact arm, as the wheel is turned in one or other direction so is the contact arm brought against the terminal 26 or the stop 27 and the switch closed or opened.

The steering wheel column 20 is housed in suitable guides 28 and enclosed by an end casing 29. By varying the opening 13 by the adjustment of the sliding panels 15 the intricacy of the game is increased. The core 16 may be guided in a dummy solenoid 10^a.

Instead of a model motor car, other model devices may be employed and the track may be curved and undulating, and the model arranged to roll down an inclined straight, curved, plane, or undulating track, or instead of the model being actuated by gravity it may be positively driven, say by clock-work, in which case the track could be flat, the same method of controlling the steering being applicable.

Instead of controlling the pivoted front axle by a spring, a weight may be used for this purpose and adjusting screws may be provided to limit the amount by which the front axle may be deflected. Also, instead of the solenoid acting upon a core slidable transversely to the length of the car, a solenoid may be disposed with its axle longitudinally and be located under the bonnet, the solenoid either acting directly on the front axle or on an additional axle mounted above the wheel axle proper and connected thereto.

Various obstructions may be fitted in the track so as to increase the difficulty of steering the device past such obstructions to the goal.

I claim:

1. An amusement apparatus, comprising, a track, metallic conductors in the track, a device for running on the track, steering wheels on said device, electro-magnetic means for controlling the steering wheels, current collectors on the device, adapted to pick up current from the conductors, a source of electric energy supplying current to the track conductors, and a switch mechanism for controlling the current supply to

the conductors whereby the device is steered along the track.

2. An amusement apparatus, comprising, a track, strip conductors arranged lengthwise of the track, said conductors being in two sets alternating one with the other, one set connected to the positive and the other set to the negative lead of an electric circuit, a device for running on the track, steering wheels on said device, electro-magnetic means for controlling the steering wheels, current collectors on the device adapted to bridge across the conductor sets, a source of electric energy supplying current to the track conductors, and a switch mechanism for controlling the current supply to the conductors whereby the device is steered along the track.

3. An amusement apparatus, comprising, an inclined track, metallic conductors in the track, a device adapted to run down the track by gravity, steering wheels on said device, electro-magnetic means for controlling the steering wheels, current collectors on the device, a source of electric energy supplying current to the track conductors, and a switch mechanism for controlling the current supply to the conductors whereby the device is steered along the track.

4. An amusement apparatus, comprising, a track, metallic conductors in the track, a device for running on the track, steering wheels on said device, means normally tending to deflect the wheels in one direction, electro-magnetic means for controlling the steering wheels in the opposite direction, current collectors on the device, a source of electric energy supplying current to the track conductors, and a switch mechanism for controlling the current supply to the conductors whereby the device is steered along the track.

5. An amusement apparatus, comprising, a track, metallic conductors in the track, a device for running on the track, an axle pivoted on the device, steering wheels mounted on the pivoted axle, means tending to deflect the axle always in one direction, an arm on the axle, an armature coupled to the arm, a solenoid controlling the armature and deflecting the axle in an opposite direction, current collectors on the device, a source of electric energy supplying current to the track conductors, and a switch mechanism for controlling the current supply to the conductors whereby the device is steered along the track.

6. An amusement apparatus, comprising, a track, metallic conductors in the track, a device for running on the track, steering wheels on said device, electro-magnetic means for controlling the steering wheels, wheels on the device forming current collectors, and adapted to pick up current from the conductors, a source of electric energy

supplying current to the track conductors, and a switch mechanism for controlling the current supply to the conductors whereby the device is steered along the track.

- 5 7. An amusement apparatus, comprising, a track, metallic conductors in the track, a device for running on the track, steering wheels on said device, electro-magnetic means for controlling the steering wheels, 10 current collectors on the device adapted to pick up current from the conductors, a source of electric energy supplying current to the track conductors, and a switch mechanism for controlling the current supply to 15 the conductors whereby the device is steered along the track, said switch consisting of an insulating collar, yoke straps frictionally engaging the collar, and an arm on the straps adapted as the collar rotates to make 20 or break contact with a terminal.

8. An amusement apparatus, comprising, a track, metallic conductors in the track, a device for running on the track, steering wheels on said device, electro-magnetic means for controlling the steering wheels, 25 current collectors on the device adapted to pick up current from the conductors, a source of electric energy supplying current to the track conductors, a switch mechanism for controlling the current supply to 30 the conductors whereby the device is steered along the track, and an adjustable goal at the end of the track into which the device is to be steered.

In testimony whereof I affix my signature 35 in presence of two witnesses.

CHARLES ARTHUR ROLLASON.

Witnesses:

HENRY ANSON,
WILFRED TEAGUE.