

Oct. 6, 1931.

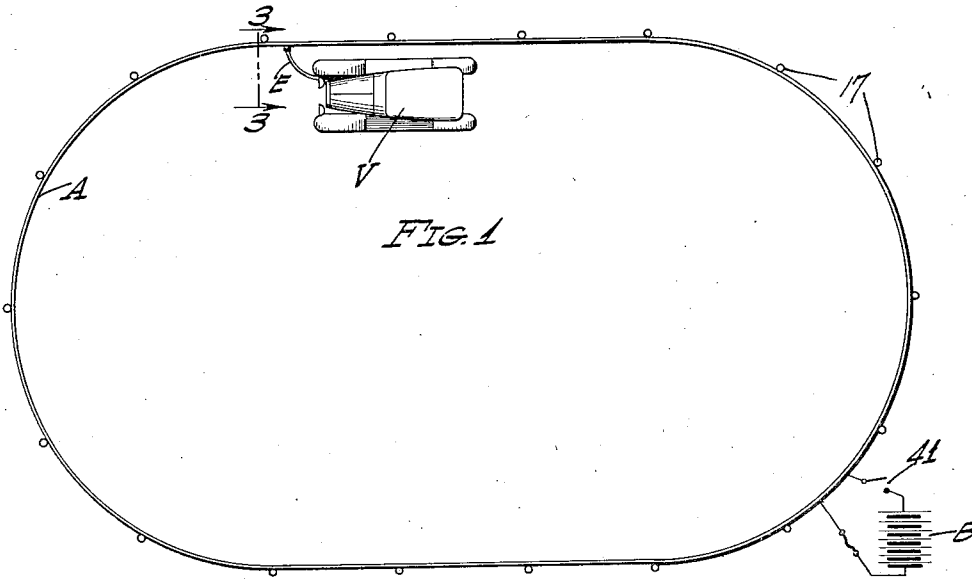
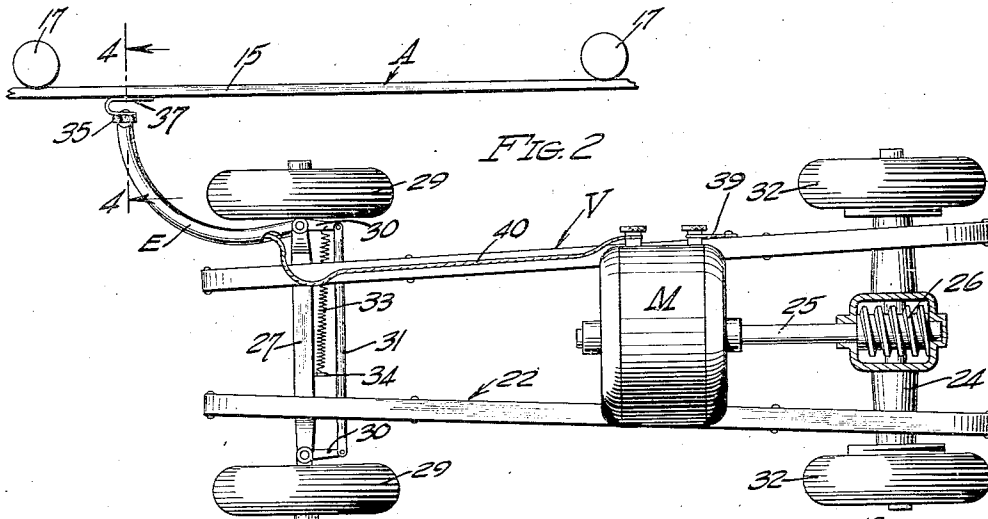
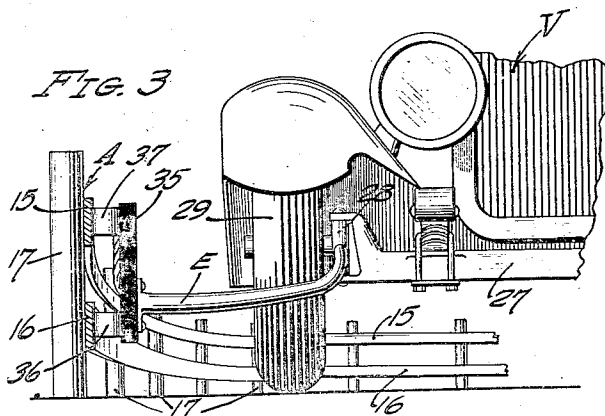
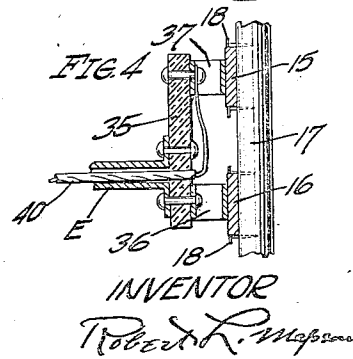
R. L. MAPSON

1,825,968

MOTOR VEHICLE TOY APPARATUS

Filed March 24, 1928

2 Sheets-Sheet 1



INVENTOR
Robert L. Mapson

Oct. 6, 1931.

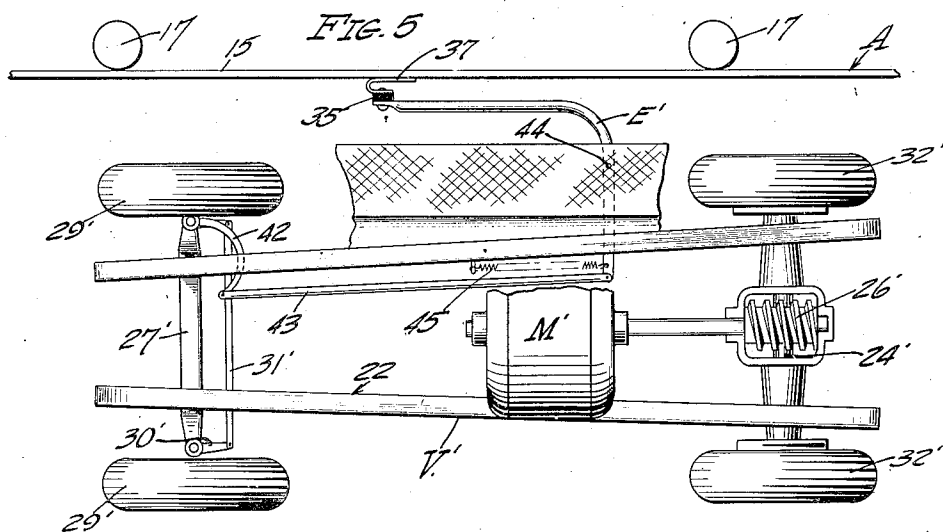
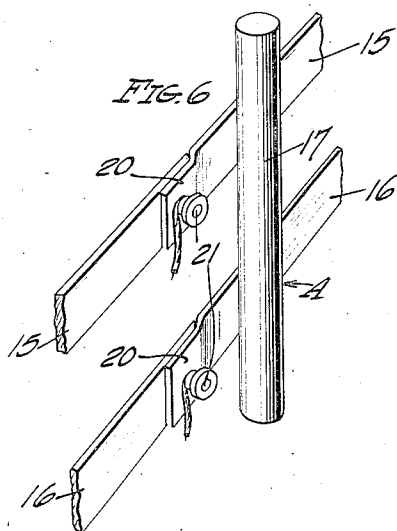
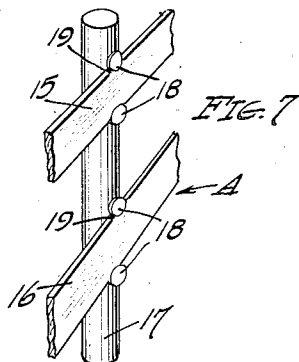
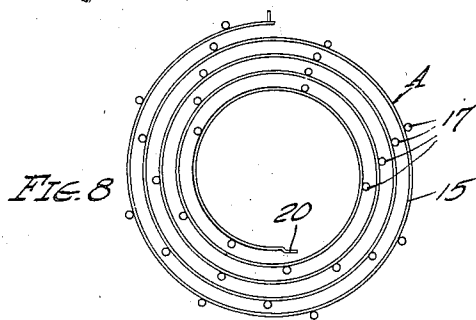
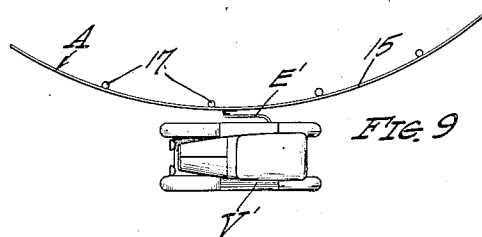
R. L. MAPSON

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MOTOR VEHICLE TOY APPARATUS

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2 Sheets-Sheet 2



INVENTOR

Robert L. Mapson.

UNITED STATES PATENT OFFICE

ROBERT L. MAPSON, OF LOS ANGELES, CALIFORNIA, ASSIGNOR OF ONE-HALF TO ROBERT
L. GREER, OF SAN DIEGO, CALIFORNIA

MOTOR VEHICLE TOY APPARATUS

Application filed March 24, 1928. Serial No. 264,509.

My invention relates to motor vehicles and it has for its broad purpose the provision of an apparatus by which a motor vehicle can be caused to travel in a predetermined path without the employment of a track and without manually steering the vehicle.

Specifically, my invention has for its purpose the provision of a motor vehicle toy apparatus by which a toy vehicle propelled by a spring or electric motor when placed on a floor, table or other horizontal surface may be definitely guided in its movements by any suitable abutment along side of which it is placed, the apparatus including means yieldably urging the steering mechanism of the vehicle so that it constantly tends to steer the vehicle toward the abutment, and means counteracting the steering tendency of the vehicle in a manner to cause the vehicle to travel in a path substantially paralleling the abutment.

It is also a purpose of my invention to provide a toy vehicle apparatus of the character described in which is embodied a toy vehicle having an electric propelling motor, and a guiding abutment capable of being readily set up on a floor or table and including current conducting rails with which a current collecting arm contacts for supplying current to the motor and thus propelling the vehicle, the arm also actuating the steering mechanism so as to cause the vehicle to travel in a path paralleling the abutment, and the abutment preferably defining an endless path to cause the vehicle to describe a circuitous course.

I will describe only two forms of motor vehicle toy apparatus embodying my invention and will then point out the novel features in claims.

In the accompanying drawings:

Fig. 1 is a view showing in top plan one form of motor vehicle toy apparatus embodying my invention;

Fig. 2 is an enlarged plan view of the ve-

hicle shown in Fig. 1 with the body thereof removed and the vehicle in applied position to the guiding abutment;

Fig. 3 is a fragmentary view showing in front elevation the vehicle and the guiding abutment with the latter in section;

Fig. 4 is a vertical sectional view taken on the line 4—4 of Fig. 2;

Fig. 5 is a view similar to Fig. 2 showing another form of motor vehicle embodying my invention;

Figs. 6 and 7 are fragmentary perspective views of the guiding abutment shown in the preceding views, Fig. 6 showing the connection between the ends of the conducting rails; and Fig. 7 illustrating one means of connecting the rails to the posts;

Fig. 8 is a plan view of the guiding abutment in folded position for storage or shipment; and

Fig. 9 is a fragmentary plan view showing another mode of applying the vehicle to the guiding abutment.

Referring specifically to the drawings in which similar reference characters refer to similar parts in each of the several views, my invention in the embodiment shown in Fig. 1 comprises a motor vehicle V and a continuous guiding abutment A within and against which the vehicle is adapted to move. This guiding abutment consists of two strips 15 and 16 of flexible metal which constitute a pair of current conducting rails and which are secured in spaced parallel relation by means of posts 17 formed of wood or other suitable insulating material and secured at intervals along the length of the rails by means of nails 18 or other suitable fastening members driven into the posts at the opposite edges of the strips and having portions of their heads seated in stepped or shouldered recesses or pockets 19 as clearly illustrated in Figs. 4 and 7. In this manner the nail heads lie flush with the outer surfaces of the rails

so as not to interfere with movement of contacts thereover.

To make the rails 15 and 16 continuous and to maintain the guiding abutment in the ovate form shown in Fig. 1, their ends are arranged in overlapped relation as illustrated in Fig. 6 with one end of each rail offset as indicated at 20 to receive the opposite end in such manner that in effect a continuous surface for the contacts is presented over which they may slide without impediment. Screws 21 are threaded in the overlapped ends to detachably secure them in joining relation, and these screws serve as binding posts for a pair of conducting wires connected to a source of current such as a battery B (Fig. 1).

I do not wish to be restricted or limited to the construction or form of guiding abutment described as it may be constructed in various ways and it may assume linear or undulated form to cause the accompanying vehicle to describe any path desired, continuous or otherwise.

The motor vehicle V is shown in detail in Fig. 2 as comprising a conventional chassis 22 having a rear axle 24 driven by the shaft 25 of an electric motor M through a suitable gear connection 26. The front axle 27 is provided with the usual steering knuckles 28 having wheels 29 on the spindles thereof, and the knuckle arms 30 connected by a drag rod 31. The wheels 32 on the rear axle as well as the wheels 29 are all rubber-tired in simulation of the conventional automobile wheels.

Preferably formed integral with and projecting forwardly from one of the knuckles 28 is a lever or arm E curved outwardly so that its free end is disposed at one side of the vehicle. This arm E is adapted to have sliding or rolling contact with the guiding abutment A, and by yieldably urging the steering mechanism of the vehicle so that its front wheels constantly tend to turn toward the abutment, the arm functions to actuate the steering mechanism in a manner to steer the vehicle in a path substantially paralleling the abutment. The steering mechanism is yieldably urged as described by means of a spring 33 connected at one end to a projection 34 of the front axle 27 and at the other to the knuckle arm 30 of that knuckle to which the steering arm E is connected, all as clearly shown in Fig. 1. The arm E also serves to collect current from the rails 15 and 16 for supply to the motor M, and to this end the arm is made tubular with a strip of insulating material 35 secured to the outer end of the arm and a pair of spring contacts 36 and 37 secured to the strip. These contacts 36 and 37 are adapted for sliding engagement with the rails 15 and 16, respectively, and the contact 36 is electrically connected to the arm by one of the rivets for securing the insulating strip to the arm as clearly shown in Fig. 4. As the arm E is formed of conducting material,

as well as the parts of the steering mechanism, it will be clear that by connecting one terminal of the motor M to the chassis of the vehicle by a conducting strip 39 as shown in Fig. 2, that the contact 36 is electrically connected to the motor. The other terminal of the motor is connected to the other contact 37 by a conducting wire 40 which is extended through the tubular arm E and connected to the contact 37 as shown in Fig. 4. Thus, with the contacts 36 and 37 engaging the conducting rails 15 and 16 current from the battery B is supplied to the motor M to propel the vehicle V.

The operation of the apparatus is as follows:

By first setting up the guiding abutment A on a horizontal surface and in the continuous form shown in Fig. 1, and then placing the vehicle V at the inner side of the abutment so that contacts 36 and 37 engage the rails, the vehicle is ready for operation. It is important that the vehicle be positioned substantially parallel to the abutment and in such spaced relation that with the steering arm engaging the abutment the front wheels are directly forward and the spring 33 is under sufficient tension to maintain the steering arm in contact and yet not alter the position of the front wheels. Thus, it will be seen that the steering arm will be moved only in accordance with the horizontal curvature of the abutment whereby the vehicle is steered automatically to follow the abutment and in a path substantially paralleling the latter. Thus, when a switch 41 is closed current from the battery B will energize the motor M and thus propel the vehicle around within the abutment, the vehicle at all times adhering to the course defined by the abutment and thereby effecting automatic steering of the vehicle without the employment of tracks.

Referring now to Figs. 5 and 9, I have here shown another form of motor vehicle embodying my invention and another arrangement of track where the conducting rails 15 and 16 are disposed to the outer side of the guiding abutment and the vehicle is adapted to travel at the outer side of the abutment and in a path paralleling the latter.

In this form of my invention the vehicle indicated generally at V' is identical in construction to the vehicle V with the exception of the manner and arrangement of the steering arm for actuating the steering mechanism. As shown in Fig. 5, one of the knuckles 28 is provided with a rearwardly curved and transversely disposed extension 42 to the free end of which is pivotally connected the forward end of a rearwardly extending rod 43. The rear end of the rod is pivotally connected to the inner end of an L-shaped arm or lever E' the latter being

fulcrumed on the running board of the vehicle as at 44 and having a portion disposed at the side of the vehicle and between the front and rear wheels. This arm E' corresponds in function to the arm E in the first form of vehicle, and likewise it is tubular to form a conduit for the conducting wire 40 with a pair of contacts 36 and 37 at the outer end thereof for engagement with the conducting rails of the guiding abutment. By means of a spring 45 connected to the chassis and the arm E' adjacent its point of connection with the rod 43, the front wheels of the vehicle are urged to a forward position when the vehicle is positioned parallel to the abutment with the arm E' engaging the latter so that when the vehicle is under way it will be caused to describe a path at the outer side of the abutment paralleling the latter.

The arrangement of the steering arm E' at the side of the vehicle renders it less conspicuous and maintains the vehicle properly spaced from the abutment particularly when traversing curved portions of the abutment.

By constructing the guiding abutment of flexible metal strips as described, it can be readily rolled into spiral form as illustrated in Fig. 8, thus occupying a minimum space to facilitate packing.

Although I have described only two forms of motor vehicle toy apparatus embodying my invention, it is to be understood that various changes and modifications may be made herein without departing from the spirit of the invention and the spirit and scope of the appended claims.

I claim:

1. In combination, a vehicle, yieldable means for moving the front wheels of the vehicle to one of their extreme steering positions, a horizontally extending abutment rising from a horizontal surface over which said vehicle is adapted to move, and means on the vehicle disposed wholly above the plane of said surface and having movable contact with said abutment to oppose the first means, whereby, the front wheels will be maintained in a position to cause the vehicle to travel in a path paralleling the abutment.

2. In combination, a guiding abutment having current conducting means thereon, a vehicle having an electric motor thereon for propelling the vehicle, means constantly acting to steer the vehicle toward the guiding abutment, means counteracting the first means in a manner to cause the vehicle to travel in a path paralleling the guiding abutment, and means for collecting current from the current-conducting means and conducting it to said motor.

3. A combination as embodied in claim 2 wherein the second means comprises an arm extending laterally from the front end of the vehicle.

4. As an article of manufacture, an elec-

tric motor vehicle having a steering mechanism, yieldable means for urging the steering mechanism to one extreme position, an arm operatively connected to the steering mechanism and having a part extending from the vehicle, and insulated electrical contacts on said part, and electrically connected to the motor of the vehicle.

5. An article of manufacture as embodied in claim 4 wherein said arm is tubular, one of said contacts is grounded through the vehicle chassis to the motor thereof, and the other contact is provided with a conducting wire extended through the tubular arm.

6. As an article of manufacture, a pair of flexible conducting rails, and supporting uprights of insulating material secured to the rails at intervals along the length of the rails.

7. As an article of manufacture, a pair of flexible conducting rails, supporting uprights of insulating material secured to the rails at intervals along the length of the rails, and means for securing the respective ends of the rails to each other to form continuous rails.

8. In a steering mechanism for motor vehicles, a knuckle, and an arm fixed to the knuckle to actuate the steering mechanism having a part extending to the side of the vehicle, said arm being tubular, and electrical contacts on said part.

9. In combination, a guiding abutment having current conducting means thereon, a vehicle having a steering mechanism carried thereby, an electric motor on the vehicle for propelling the same, means engaging the guiding abutment for controlling the position of the steering mechanism in accordance with the guiding abutment, and means for collecting current from the current conducting means and conducting it to said motor.

10. As an article of manufacture, a portable guiding abutment for toy vehicles comprising a pair of conducting rails, and uprights secured to the rails at intervals along the length of the latter to support the rails horizontally in a position one above the other, at least a part of said uprights being formed of insulating material for insulating the rails from each other.

11. As an article of manufacture, a continuous guiding abutment for toy vehicles, comprising a pair of conducting rails of flexible material to permit the rails to assume different curvatures, and uprights secured to the rails at intervals along the length of the latter to support the rails horizontally in a position one above the other, at least a part of said rails being formed of insulating material for insulating the rails from each other.

12. In an amusement structure of the class described, the combination of a track, a guide wall alongside of said track, a car on said track, an electric motor for driving said car, steering structure on said car, means tending

- to move said steering structure to cause the car to travel toward said wall, a steering arm extending from said structure into engagement with said wall to be guided thereby to counteract such movement and cause the car to travel substantially parallel with said wall, a current supply source, a supply conductor on said wall, a contact on said arm connected with said motor and held in engagement with said supply conductor by said arm, and a return circuit from said motor to said source.
13. In an amusement structure of the class described, the combination of a track, a guide wall alongside of said track, a car on said track, an electric driving motor for said car, steering structure on said car, means tending to cause movement of said steering structure to cause the car to travel toward said wall, an arm extending from said steering structure into engagement with said wall to be guided thereby to control such movement to cause the car to travel substantially parallel with said wall, a current supply source, conductors supported on said wall and connected with said source, and contacts on said arm connected with said motor and held in engagement by said arm with said conductors.
14. In an amusement structure of the class described, the combination of a track, a guide wall alongside of said track, a car on said track, an electric driving motor on said car, steering structure on said car, means tending to cause movement of said steering structure to steer the car toward said wall, an arm extending from said steering structure into engagement with said wall to be guided thereby to control such movement to cause the car to travel substantially parallel with said wall, a current supply source, conductors supported on said wall and connected with said source, and contacts on said car connected with said motor and engaging said conductors.
15. In an amusement structure of the class described, the combination of a track, a guide wall alongside of said track, a car on said track, an electric driving motor on said car, steering structure on said car, means tending to cause movement of said steering structure to steer the car toward said wall, an extension from said steering structure engaging said wall to be guided thereby to control such movement and cause the car to travel substantially parallel with said wall, a current supply source and conductors connected therewith and paralleling said track, and contact structure on said car connected with said motor and engaging said conductors.
16. In an amusement structure of the class described, the combination of a closed course having curves, a car on said course, an electric driving motor on said car, a guide wall paralleling said course, steering structure on said car and an arm extending therefrom into engagement with said wall to be guided thereby to steer the car to hold said course, a current supply source and conductors extending therefrom and paralleling said course, and contacts on said arm connected with said motor and engaging said conductors.
- Signed at Los Angeles in the county of Los Angeles and State of California this 15th day of March, 1928.
- ROBERT L. MAPSON.

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