

PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Means for Guiding Toy Vehicles

We, LOUIS ROUSSY, of Swiss nationality, of 6, Avenue du General-France, and RENÉ TRUBERT, of French nationality, of 6, Avenue du General-Gouraud a Viroflay (Seine-et-Oise), France, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to means for guiding and for supplying current to an electrically propelled toy vehicle of the kind having deviating mechanism giving it a constant tendency to turn in one direction whereby it will tend, during its travel, to keep in contact with a raised edge or kerb provided as a guiding means. In a convenient known arrangement a spring acting on the steering gear gives a constant tendency to turn in the desired sense. In a prior proposal of this kind current was supplied to the motor by two conductors insulated from each other and forming the raised guiding kerb, in combination with a pair of rubbing contact brushes carried by a bracket extending to one side of the vehicle.

According to the invention the roadway on which the vehicle runs is formed wholly or in part by a conducting plate which can be connected to one pole of the source of supply and on which rubs a contact brush connected to one terminal of the vehicle motor, a complete track being made up of the roadway and one or preferably a pair of raised edges or kerbs insulated from the conducting plate. The brush connected to the other pole of the motor bears against a second conducting plate insulated from the first and which may lie along the roadway but is preferably the edge of a kerb. In a preferred construction a combined contact brush and guide for bearing against a conducting kerb is in the form of a front buffer while the vehicle carries a rear buffer so inclined to the longitudinal axis as to permit passing of the vehicles when the front buffer of one vehicle meets the inclined rear buffer of another. A further feature of the invention consists in enveloping the vehicle with a conducting

band for transmitting current to a vehicle which is passing another which it has overtaken. It will be understood that the vehicle wheels are insulated.

Yet another feature of the invention is that for bringing a vehicle to rest and allowing it to be passed by another an enlargement of the track may be provided in which the roadway is insulated from the source of supply.

The accompanying drawings illustrate the invention as applied to toy road vehicles and more particularly to those having the form of an actual motor car.

The example to be described is not to be taken as a limitation but is given only in order to make the invention more readily understood.

Of the attached diagrammatic drawings:—

Fig. 1 shows, in side view, a toy electric vehicle constructed according to the invention.

Fig. 2 is a view from underneath the vehicle of Fig. 1.

Fig. 3 shows diagrammatically, in section, the track constructed in accordance with the invention, with a vehicle.

Fig. 4 shows one sector of the track while Fig. 5 represents to a much smaller scale several sectors of the track assembled.

Fig. 6 shows a crossing and Fig. 7 a section along X—X of Fig. 6.

Fig. 8 shows a piece of the track including a part set aside for garaging vehicles.

Fig. 9 shows a track with the roadway made up of two sets of insulated strips.

As can be seen from Figs. 1 and 2 the toy vehicle carries an electric motor 1 which acts on the rear wheels. One terminal of this electric motor is connected to an insulated brush 2 located, in this case, underneath the vehicle, and the other terminal is connected to the framework. The front steering gear of the vehicle is arranged in such a manner as to bring about a slight tendency to turn, for example, through a certain angle to the right and this is obtained, for example, by the aid of a spring 3. The other brush is constituted, for

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example, by a buffer 4 which forms part of the framework of the vehicle. The vehicle has also side conducting strips 13 electrically connected to the framework 5 and is provided with a rear buffer 15 inclined to both the longitudinal and transverse axes—preferably at 45° to each.

Fig. 3 shows in section a track arranged to guide the vehicle constructed according to Figs. 1 and 2. This track consists of a conducting plate 5 and of two kerbs 6 and 7 in the form of conducting plates insulated at 8 from the plate 5. On a source of current being connected to the plate 5 and to the kerbs 6 and 7 it is only necessary, in order to cause travel of the vehicle, to place the latter on the track with the front buffer 4 in contact with the kerb 7. The brush 2 making contact with the plate 5 will send current to the motor 1 and complete a circuit by the framework, the buffer 4 and the kerb 7 to the source of current. The motor will begin to rotate and advance the vehicle. As a result of the deviating tendency of the front wheels of the latter, the brush or buffer 4 connected to the framework of the vehicle will be continuously pressed against the kerb 7. The turning tendency should at all times be such that once the vehicle has touched the edge of the track its steering gear adjusts itself so that the vehicle can run along the edge without being pressed too strongly against the latter. Thus the vehicle, while retaining its independent nature, will be able to run along the track however long it may be.

Fig. 5 shows how such a track can be made up of sectors of which one is represented in Fig. 4. A form of bolt 9 permits the sectors to be assembled together.

In a case where a vehicle has to go over a crossing, slits or crevices 10 are provided which can be disposed as shown in Figs. 6 and 7. The brush or buffer 4 carries an insulated spur 11 which normally rests on the plate 5 and is kept in contact therewith by the weight of the buffer 4. When the vehicle comes into the crossing the spur 11 can drop into that slit 10 which lies along the direction of travel of the vehicle, which is thereby guided along the direction of the slit until it has by its momentum reached the conducting kerb beyond the crossing and can continue its course in the normal manner.

Referring to Fig. 8, there can be provided in a widening 12 a space electrically insulated from the main roadway. The edges of the kerbs 6 and 7 are conductive throughout, but a vehicle which enters this enlargement 12, as shown in

Fig. 8, will come to rest, since the motor circuit established by the contact of the brush 2 with the metallic roadway of the track will be broken, the framework of the vehicle and the strip 13 remaining "live".

Suppose now that another vehicle arrives after the first; it will follow the kerb 7, will slide along the rear inclined buffer 15 of the stationary vehicle (the brush of the latter being always in contact with the "dead" part of the track) then along the "live" conducting strip 13 and, by re-making contact with the kerb 7, will continue its course. Thus is solved the problem of the passing of vehicles, even those which are stationary on an insulated space. In the case where vehicles of different speeds are made to travel along the track, the faster vehicles can pass the others in the manner described above. It is to be noted that the vehicles should have sufficient momentum to carry them over gaps in the "live" conducting plates 6 and 7 or between these and a strip 13 along the side of a stationary vehicle.

It will be readily understood that when a vehicle has broken down on the track, passing can take place in similar fashion.

When the front buffer is not used as a contact brush the track can include bands 19, 20, 21 insulated from one another (Fig. 9) and lying flat, the strips 19 and 21 being connected to the same pole of the source of current. The vehicle will then be furnished with two brushes 2 and 4 disposed on the chassis and running along these bands, which are of course furnished with kerbs 6 and 7.

Having now particularly described and ascertained the nature of our said invention, and in what manner the same is to be performed, we declare that what we claim is:—

1. Means for guiding and for supplying current to an electrically propelled toy vehicle including, in combination, a conducting plate forming the roadway or part of the roadway of a track on which the vehicle runs, a contact brush on the vehicle which bears on the said plate and is connected to one terminal of the propelling motor, one or preferably a pair of raised edges or kerbs on the track insulated from the said plate, deviating mechanism (known per se) mounted on the vehicle urging it towards and so tending to maintain it continuously in contact with one of the said kerbs while it is in motion, a second conducting plate on the track and a brush connected to the other pole of the motor and bearing on said second plate.

2. Means according to Claim 1 includ-13

ing, on the vehicle, a front buffer which can also serve as a rubbing member bearing against one of the said kerbs.

3. Means according to Claim 2 in combination with a rear buffer on the vehicle inclined relatively to the longitudinal axis which when engaged by the front buffer of an overtaking vehicle can so guide the latter as to enable it to pass the vehicle in front.

4. Means according to Claim 2 or Claim 3 in which the kerb or kerbs and the front buffer are electrically conducting and serve as the said second conducting plate and contact brush.

5. Means according to Claim 4 including a conducting band around the vehicle for guiding and supplying current to another vehicle which is passing by.

6. Means according to Claim 5 with the said conducting band electrically connected to the framework of the vehicle to which is also connected one pole of the motor.

7. Means according to Claim 1 or Claim 2 in which the second conducting

plate is formed by another part of the roadway of the track electrically insulated from the first conducting plate.

8. Means according to any one of the Claims 1—6 characterised in that for bringing a vehicle to rest in a position in which it may be passed by others the track is widened to provide an insulated siding.

9. Means according to any one of the preceding claims in combination with means for guiding the vehicle over a crossing comprising a slot or crevice in the roadway of the track and a spur on the vehicle adapted to enter said crevice for guiding the vehicle when it leaves the kerb.

10. Means for guiding and supplying current to an electrically propelled toy vehicle substantially as described with reference to the accompanying drawings.

Dated this 23rd day of January, 1936.

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[This Drawing is a reproduction of the Original on a reduced scale.]

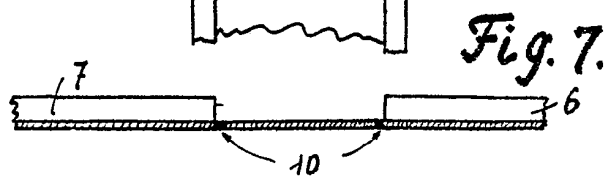
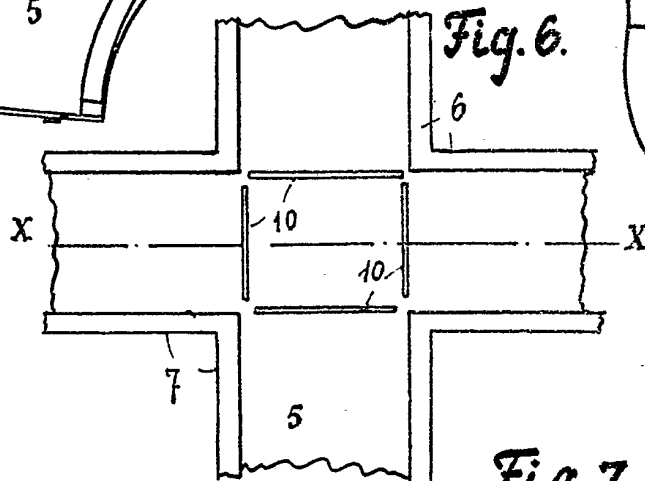
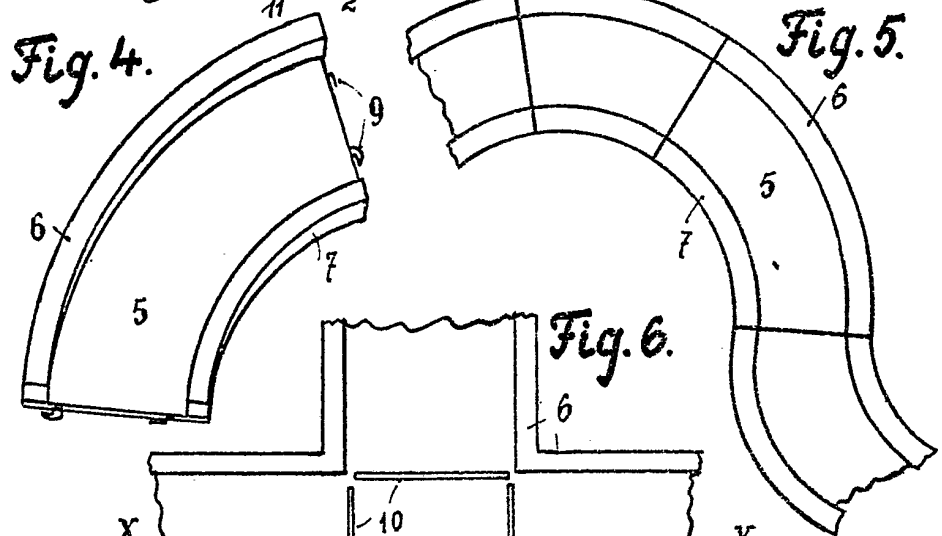
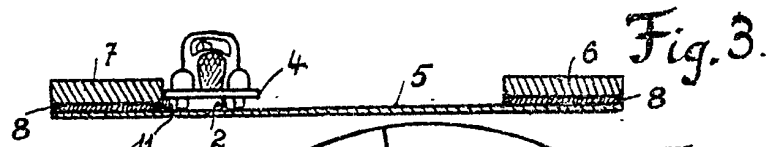
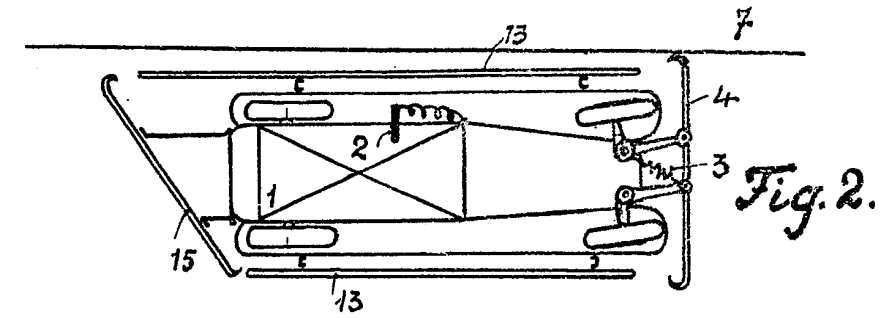
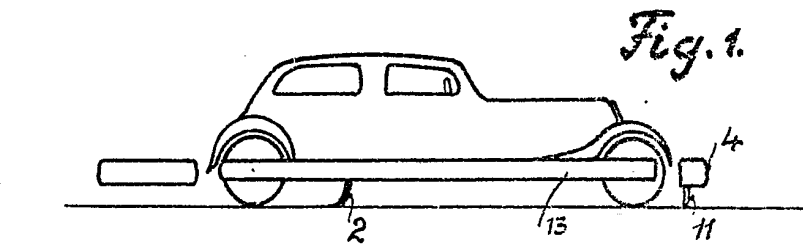


Fig. 8.

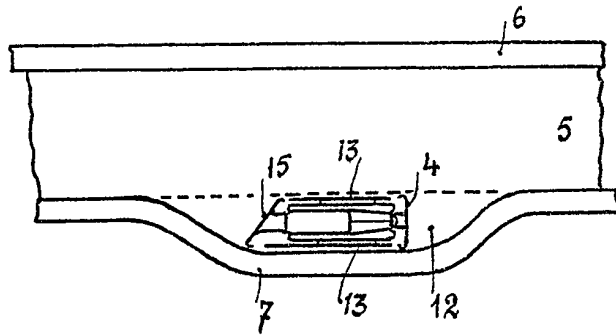


Fig. 2.

Fig. 3.

Fig. 5.

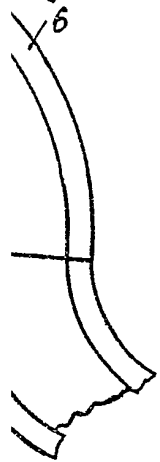


Fig. 9.

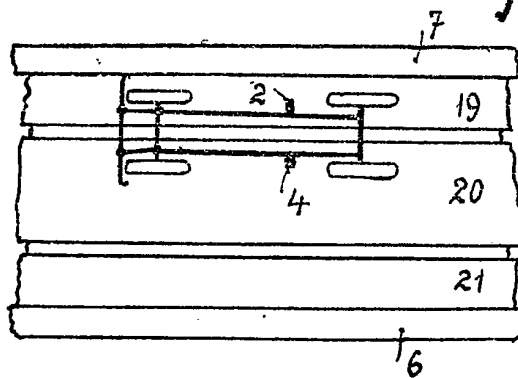


Fig. 1.

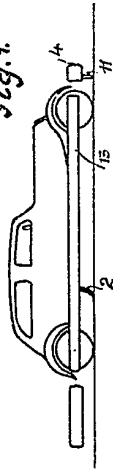


Fig. 2.

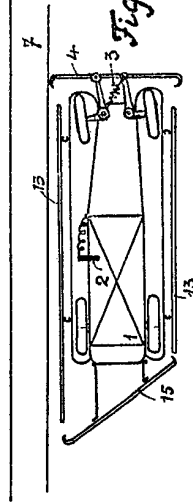


Fig. 3.



Fig. 5.

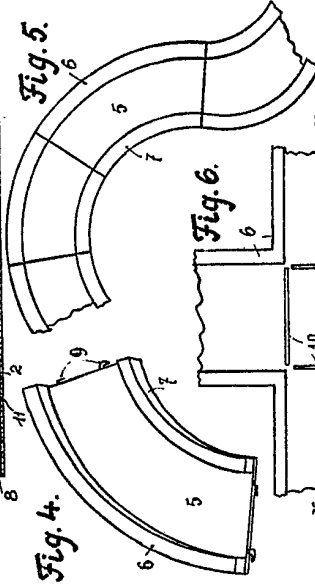


Fig. 4.

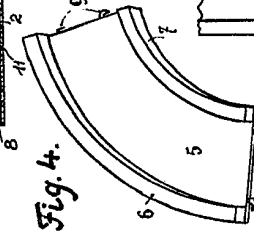


Fig. 6.

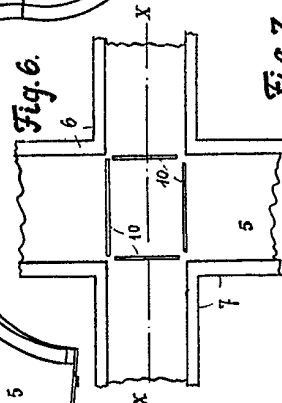


Fig. 7.

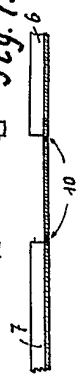


Fig. 8.

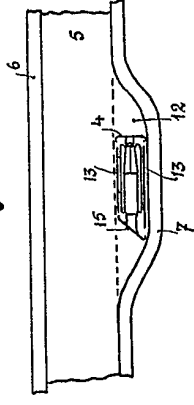
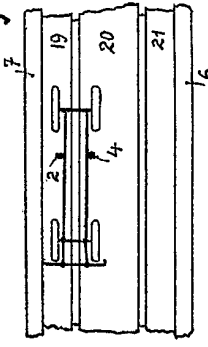


Fig. 9.



[This Drawing is a reproduction of the Original on a reduced scale.]