April 20, 1965 N. L. CASE ETAL 3,179,063

RAILWAY AND ROAD TOY

Filed Nov. 9, 1961 4 Sheets-Sheet 1

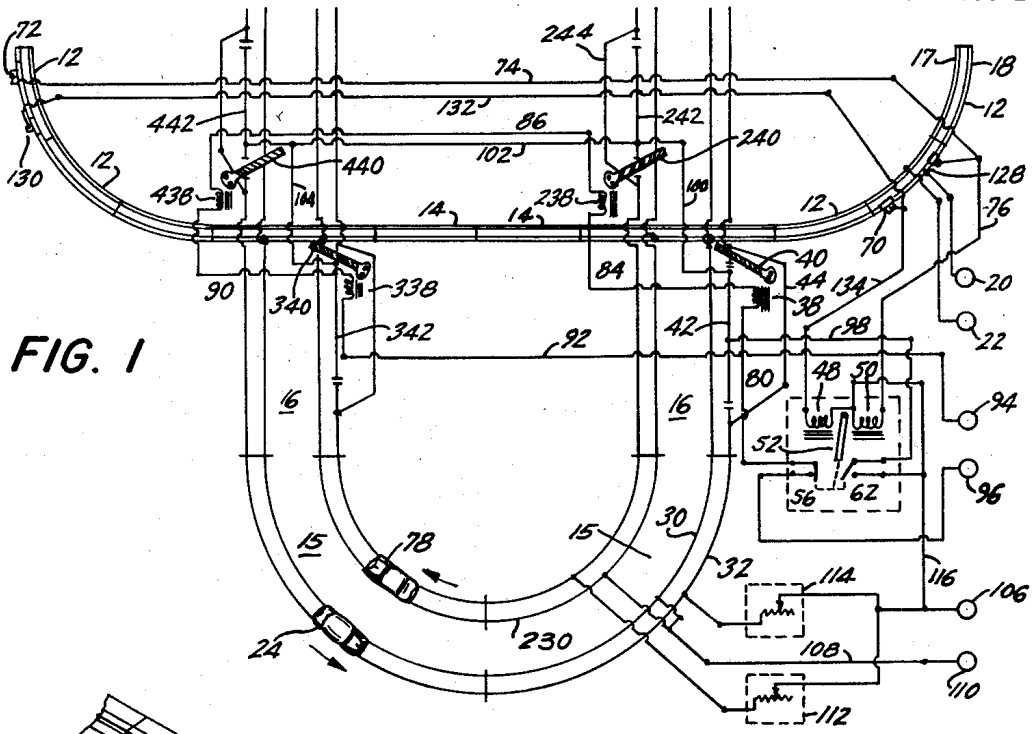


FIG. 1

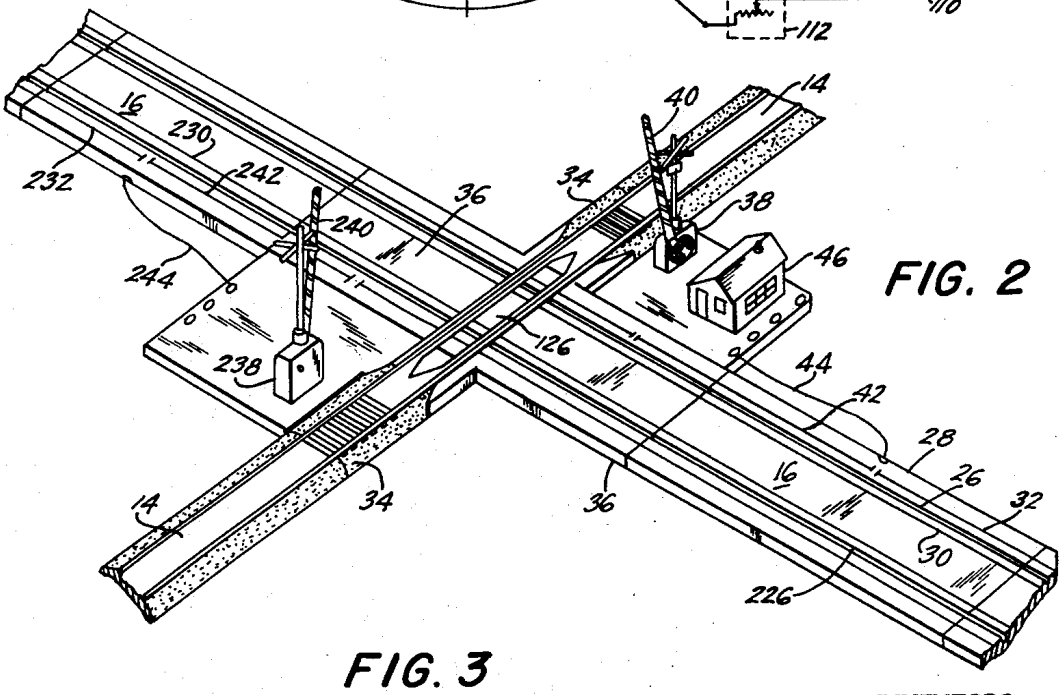
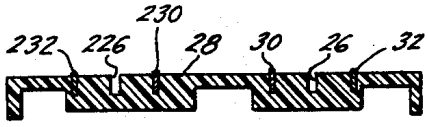


FIG. 2

FIG. 3



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RAILWAY AND ROAD TOY

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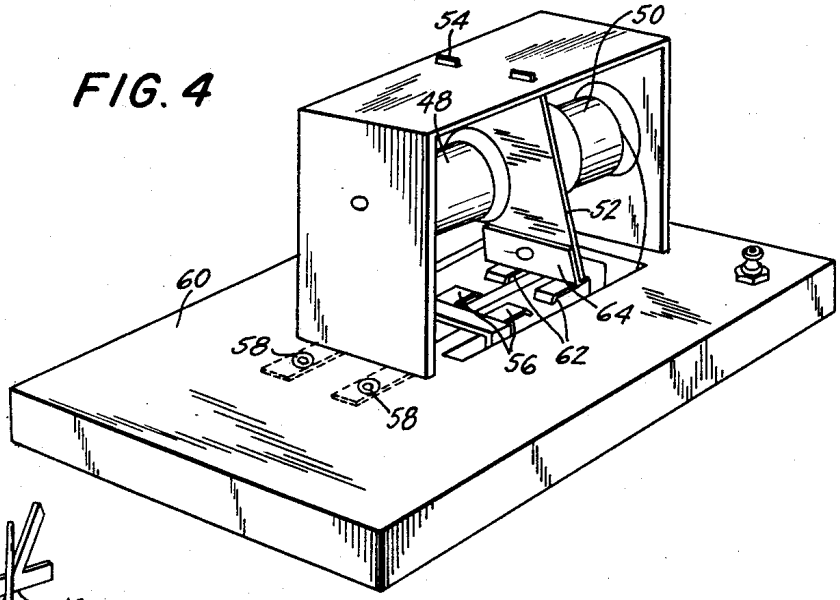
FIG. 4



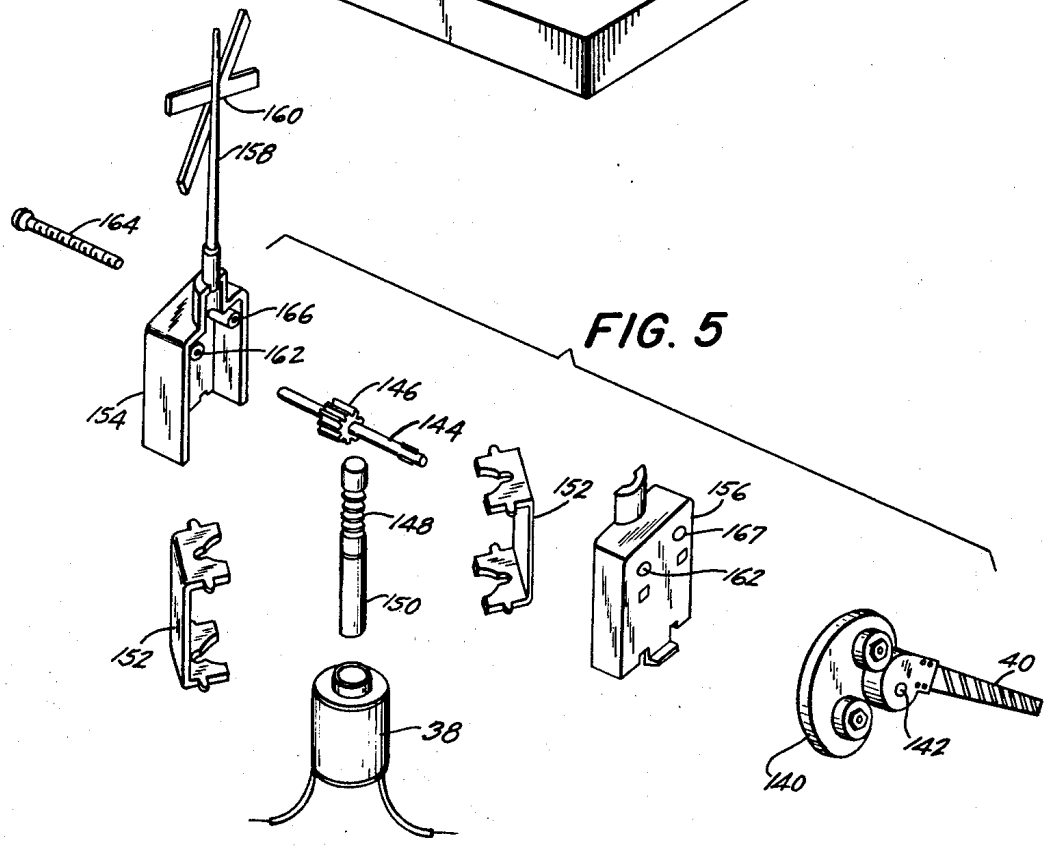


FIG. 5

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RAILWAY AND ROAD TOY

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FIG. 6

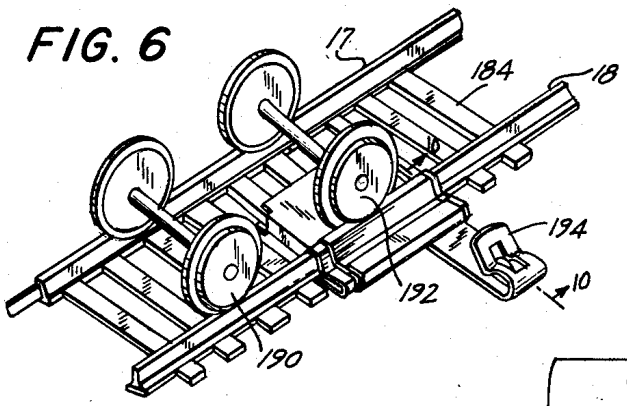


FIG. 7

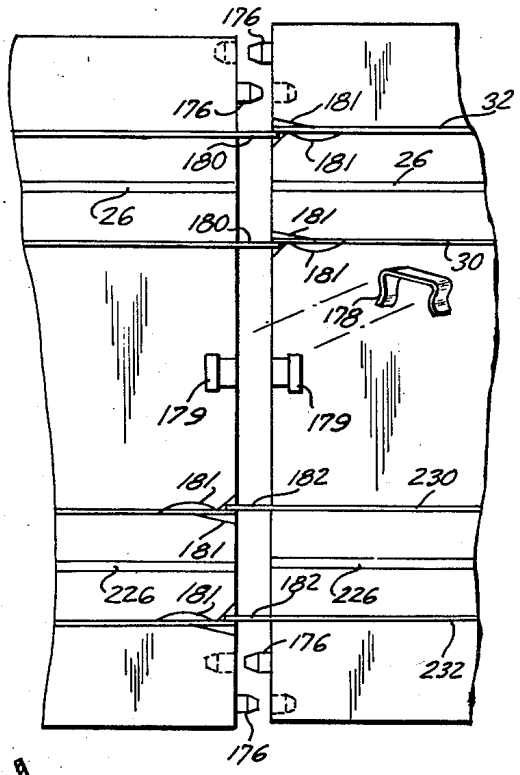
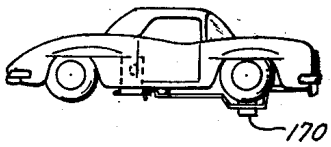


FIG. 8



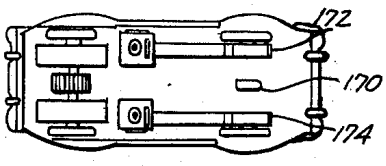


FIG. 9

FIG. 10

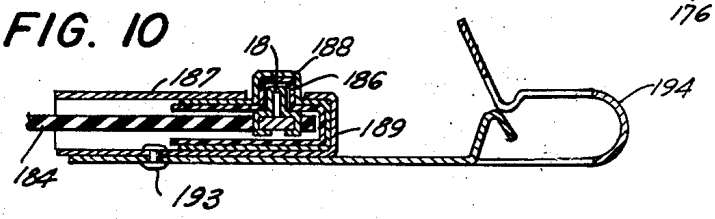


FIG. 11 FIG. 12 FIG. 13

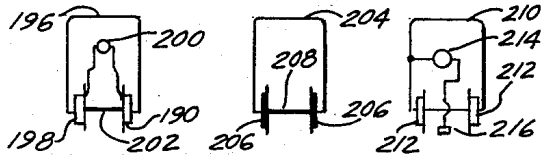


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FIG. 14

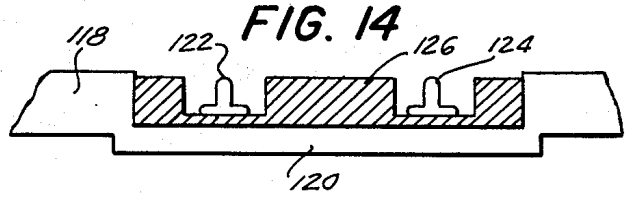


FIG. 15

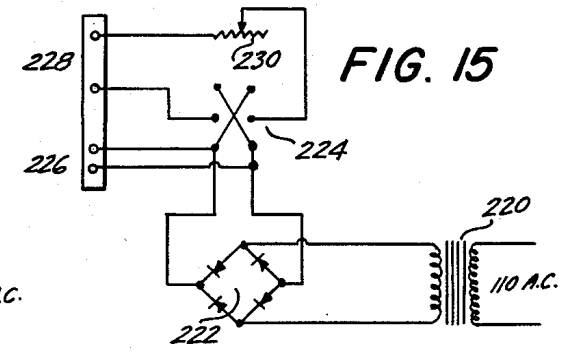


FIG. 16

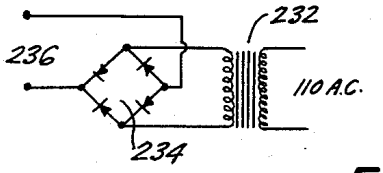


FIG. 17

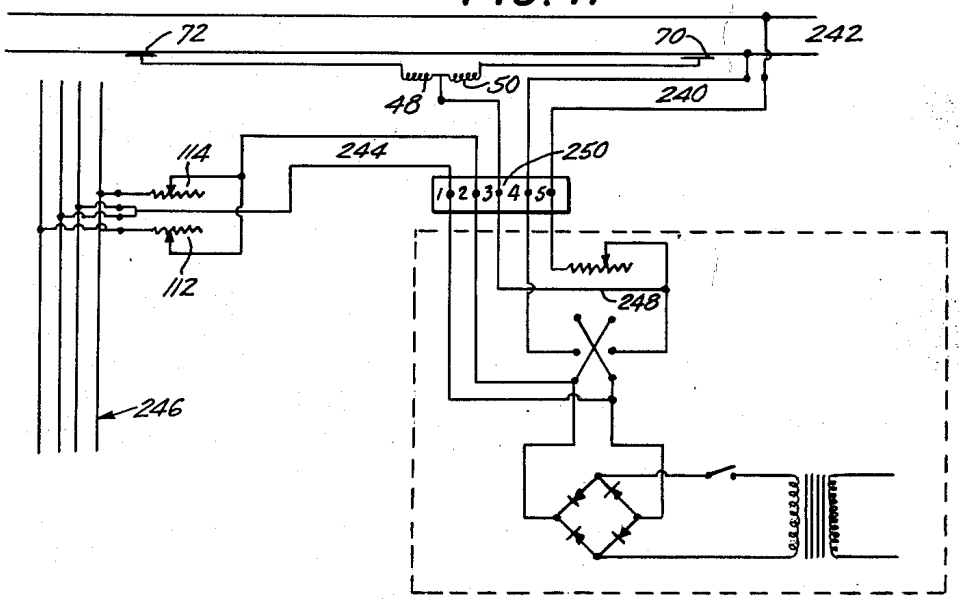
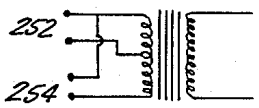


FIG. 18



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United States Patent Office 3,179,063 Patented Apr. 20, 1965

3,179,063

RAILWAY AND ROAD TOY

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Filed Nov. 9, 1961, Ser. No. 151,392
20 Claims. (Cl. 104—149)

This invention relates to traffic toys, and more particularly to such a toy which combines a railway and a road toy.

The general object of the present invention is to provide a traffic toy which combines rail and road traffic. Both the rail and road traffic are electrically operated and may be controlled independently of one another by conventional speed regulating devices. The railway portion of the toy may be of standard type, preferably the HO gage, but the invention may also make use of O gage trains.

A more particular object is to enhance the realism and excitement obtained from operation of the toy, and for this purpose the toy is provided with grade crossings and crossing gates. A further object is to provide automatic closing of the crossing gates and stopping of the road vehicle at the gate. For convenience the road vehicle is referred to as an auto, but it will be understood that it may simulate a truck or bus or other such vehicle.

In accordance with further features and objects of the invention, the auto approaches the crossover at high speed so that it seems to race the train to the crossing. If too late, it is stopped abruptly, just ahead of the gate. If not too late, it crosses the track at maximum speed. This has the additional advantage that the crossover may be devoid of power strips at the railway track, thereby simplifying the structure of the crossover, and in addition keeping the railway track clear for depending coupler mechanism of conventional type on the railway cars.

Still another object of the invention is to make it possible for the train to run in either direction without spoiling the automatic control of the crossing gates and autos. Still another object is to provide a two-lane road or highway with autos running in opposite directions, and with appropriate gates on both sides of the railway for control of both autos. Still another object of the invention is to provide a loop of road which is crossed by the railway, there then being two crossovers and four crossing gates when using two lane road sections, and to appropriately control all of the crossing gates without additional complication of the control mechanism required.

To accomplish the foregoing general objects, and other more specific objects which will hereinafter appear, the invention resides in the road and rail toy elements and their relation one to another, as are hereinafter more particularly described in the following specification. The specification is accompanied by drawings in which:

FIG. 1 is a schematic plan view and wiring diagram explanatory of the invention;

FIG. 2 is a perspective view showing a crossover with two road lanes and crossing gates;

FIG. 3 is a sectional view explanatory of the construction of the road sections;

FIG. 4 is a perspective view showing a relay which forms a part of the invention;

FIG. 5 is an exploded perspective view explanatory of the construction of a crossing gate;

FIG. 6 is a perspective view explanatory of the operation of a sleeve type ramp used on the railway to control the crossing gate;

FIG. 7 is a fragmentary plan view explanatory of the construction of the road sections;

FIGS. 8 and 9 are side and bottom views of an auto

which may be used on road sections like that shown in FIGS. 2, 3, and 7;

FIG. 10 is a fragmentary transverse section through one rail of the railway at a sleeve type ramp;

FIG. 11 shows schematically how the metal wheels of the locomotive are used for connection to the locomotive motor in a two rail system;

FIG. 12 is a similar view showing the use of insulation wheels for the railway cars following the locomotive;

FIG. 13 is a similar view showing how a special contact shoe and the wheels are used for connection to the motor of an O gage locomotive operating on three rail track;

FIG. 14 is a sectional view explanatory of a detail of the construction of the crossover;

FIG. 15 is a wiring diagram explanatory of the power supply for the railway track part of the toy;

FIG. 16 is a wiring diagram explanatory of the power supply for the roadway part of the toy;

FIG. 17 is a wiring diagram showing both parts supplied from a single power supply source; and

FIG. 18 is a wiring diagram for an AC power supply for an O gage railway.

Referring to the drawings, and more particularly to FIG. 1, the traffic toy comprises toy railway track sections indicated at **12** and **14**. Some may be curved as at **12**, and some straight as at **14**, to effectuate any desired track layout. The track sections include metal rails **17** and **18** for power supply, here indicated to be connected to the terminals **20** and **22**. An electrically driven locomotive with metal wheels is assumed to be running on the railway, and as usual is followed by a train of cars coupled to the locomotive. For simplicity, these are not shown in FIG. 1. The metal locomotive wheels on one side are insulated from those on the other side, and the car wheels are made of insulation material.

The toy further comprises highway or road sections indicated at **15** and **16**. The curved sections **15** and straight sections **16** make up a closed loop of road only part of which is shown in the drawing. The upper end of the road loop, not shown, is smaller than and is located within the railway loop.

There is an electrically driven auto **24** running on the road sections, and the latter include both guide means and metal power supply strips. In FIGS. 2 and 3 the guide means consists of a groove **26**, and the power supply strips are metal strips disposed edgewise and embedded in a plastics body or section **28**, as shown at **30** and **32**. These strips preferably are embedded deeply so that the top edges project only slightly from the insulation material **28**.

The toy further comprises a special crossover section best shown in FIG. 2. This matches the track sections **14** in one direction, as shown at **34**, and it matches the road sections **16** in the other direction, as shown at **36**. There is also an electrically operated crossing gate generally designated **38** at the crossover, this including a gate arm **40** which may be lowered to a closed position across the road, or may be raised to an open position as shown.

A control section of one of the metal power supply strips, in this case the strip **32**, is isolated from the remainder, as indicated at **42**, for control purposes, it being bypassed by a conductor **44**, and it being separately energized through a control relay which is housed within and concealed by a simulated gateman's shanty **46**.

Referring now to FIG. 4, the relay has a first coil **48** and a second coil **50** for moving a ferrous armature **52** which is pivoted at **54**. The relay has a pair of spring contacts **56** eyeletted at **58** to an insulation base **60**. These may be called "gate" contacts because they close a power supply circuit to the crossing gate in order to

lower the same. The relay has another pair of spring contacts 62 which may be called "go" contacts because they supply power to the control section of the road to propel the auto over the crossing. The armature 52 carries a conductive piece 64 which engages and bridges either the contacts 56 or the contacts 62, but not both. With this relay construction the relay has a "stick" action, that is, even if deenergized it remains in the position it last occupied until the opposite relay coil is energized.

Referring now to FIG. 1, the railway has a ramp 70 ahead of the crossing, this being electrically connected to the first relay coil 48 for closing the gate contacts 56 and thereby lowering or closing the crossing gate 40, and at the same time opening the go contacts 62 and thereby de-energizing the control strip 42 as a locomotive approaches the crossing from the right. There is also a ramp 72 beyond the crossing an amount at least equal to the length of the train, and the ramp 72 is connected by wires 74 and 76 to the other relay coil 50 for opening the gate contacts 56 and closing the go contacts 62, thereby opening the crossing gate 40 and energizing the control strip 42.

The road sections preferably simulate a two lane highway so that autos can run simultaneously in opposite directions, as indicated in FIG. 1 by the autos 24 and 78. FIGS. 2 and 3 show how each road section has a guide groove 226 and power supply strips 230 and 232, in addition to the groove 26 and strips 30 and 32. FIG. 2 shows further how the special crossover section has two crossing gates on opposite sides of the track, there being a gate 238, 240, in addition to the gate 38, 40. These gates are alike but preferably are disposed on opposite sides of the road and point in opposite directions, so that gate 40 serves primarily for the auto approaching its side, and gate 240 primarily for the auto approaching its side. However, if desired, the arms may be disposed close to the road and/or lengthened so that they cross both lanes.

In FIG. 2 it will be seen that there is an isolated control section 242 of power strip 232, this being bypassed by a conductor 244. The control strip 242 is on the approach side, that is, on the side of the railway opposite to the control strip 42. It serves the same purpose as strip 42, but for an auto coming in opposite direction. It is controlled by the same relay housed at 46.

Reverting to FIG. 1, the road sections preferably form a closed loop which is crossed or intersected by the track sections 14. In consequence there are two of the grade crossings previously described, with four crossing gates, one on each side of the railway track at each of the two crossovers. The additional crossing gates are marked 340 and 440. There are also four control strips, one for each highway lane on the appropriate approach side of the railway track, and the additional control strips are marked 342 and 442.

Inasmuch as the length of a usual railway train may be comparable to or even exceed the spacing between the sides of the road loop, and inasmuch as either auto running on its road loop travels at such speed that it would have to be stopped by a gate on one side or the other of the loop, the control mechanism is greatly simplified by using a single control relay for simultaneous control of all of the crossing gates and control strips. The crossing gates are electrically operated, in this case by solenoids, and the solenoids for the respective gates are indicated at 38, 238, 338, and 438 respectively. On examination of FIG. 1, it will be seen that the relay contacts 56 (the gate contacts) are connected to all of the solenoids through conductors 80, 84, 86 and 90. In the present case the solenoids are wired in series, and the return circuit is through conductor 92 to terminal 94, with the circuit originating at terminal 96.

Similarly the go contacts 62 serve to energize all of the control strips, and in the present case the current supply is through conductor 98 to strip 42, thence through

conductor 100 to strip 242, thence through conductor 102 to strip 442, and through conductor 104 to strip 342. The propulsion power supply originates at terminal 106, and the return is through the other power supply strip 30 and conductor 108 leading to terminal 110.

The speed of the autos may be regulated independently of one another and of the train. In the present case auto 24 is controlled by a rheostat 114 which also may be moved to an "off" position, thereby stopping the auto. The speed of auto 78 may be regulated by a similar rheostat 112 which also may be turned to an "off" position. It will be noted, however, that the control strips 42, 242, 342 and 442 are supplied from a conductor 116 which is connected to terminal 106 ahead of the rheostats, so that maximum voltage is applied to the control strips.

This is a desirable feature of the invention for several reasons. One is that it makes the autos race the train to the crossing at high speed so that the operation of the toy is exciting to watch. Another is that it eliminates the need for a power strip from one side of the railway track to the other. Thus, in FIG. 14 the power strip 118 is cut away or depressed, as shown at 120, so that it underlies and does not interfere with the railway rails 122 and 124. The auto runs fast enough to cross the track by coasting over the track, and this is true even when the auto has been stopped at the crossing and resumes travel when the gate is raised. The auto is small and accelerates rapidly under the applied maximum voltage.

With this simplified crossover the rails of the track may be and are continuous, and in addition, the crossover may be given a molded contour at 126 (FIG. 2) which largely fills the space between the rails except for clearance for the flanges of the railway wheels. This provides a re-railing action which helps guard against derailing at the crossover.

Still another advantage of interrupting the power strips at the railway track is that there then is no interference with depending coupler mechanism associated with the car couplers. HO gage trains generally employ a standard coupler with depending sensing elements to facilitate remote coupling control. These sensing elements depend to a low point, and with the present construction there is no danger of hitting a power strip.

Reverting to FIG. 1, an additional feature is that the train may be operated in either direction, either by reversing it, as is commonly done under remote control, or by turning the entire train end-for-end to operate in counterclockwise instead of clockwise direction. For this purpose there are two spaced ramps 70 and 128 ahead of the crossovers, and two spaced ramps 72 and 130 beyond the crossovers. The inner or nearer ramps 70 and 130 are connected to one another and to the relay coil 48 by conductors 132 and 134. The outer or further ramps 72 and 128 are connected together and to the relay coil 50 by conductors 74 and 76. A locomotive proceeding clockwise and engaging the ramp 128 causes no change because the armature 52 is already in its right hand position. However, on engaging the ramp 70 the relay shifts, the gates close, and the autos stop. When the locomotive reaches the ramp 130 it causes no change because the armature is already in its left position, but when the locomotive reaches ramp 72, the relay shifts and the gates open and the autos proceed. Thus the ramps 70 and 72 alone are effective, as previously described, and the additional ramps 128 and 130 are idle or superfluous. However, when a locomotive approaches in counterclockwise direction, it is the ramps 130 and 128 which become effective, and the ramps 72 and 70 are idle.

The detailed construction of the crossing gate may vary widely, the only essential being that it be electrically operated. However, the construction of the particular gate here shown may be described with reference to FIG. 5, in which the parts are all separated. The gate arm 40 with

its counterweight **140** are carried, at a hole **142**, on shaft **144**. This is turned by a pinion **146** which meshes with a rack **148**. The rack is made of brass or other non-ferrous metal, and in the present case is a circular rack so that there is no concern over its orientation about its longitudinal axis. The rack is secured end to end with a ferrous plunger **150** vertically slidable in a solenoid coil **38**. The magnetic circuit is preferably completed and made more efficient by ferrous outside frame pieces **152** which are assembled on opposite sides of the coil **38**. These parts are all received within housing sides **154** and **156**, which are preferably molded out of a plastics material. One of the sides may include a mast **158** with a crossover warning **160**. The bearings for shaft **144** are shown at **162**. The parts may be held in assembled relation by a screw **164** passing through holes **166** and **167**, the latter being threaded. The gate arm **40** is supported outside the housing **154**, **156**, as will be clear from inspection of FIG. 2.

The toy vehicle running on the road may simulate a passenger car, truck, bus, racing car, or the like. Such vehicles are already known, and referring to FIGS. 8 and 9, the particular vehicle here shown employs a depending projection or pilot pin **170** which runs freely in the guide groove **26** or **226** shown in FIGS. 2, 3, and 7. It also has a pair of spring contact shoes **172** and **174**, which run on the exposed top edges of the metal power supply strips **30** and **32** (or **230** and **232**). The resilient contact shoes **172** and **174** are preferably disposed adjacent the guide pin **170**, and all are preferably near the forward end of the vehicle, thus giving the rear end some freedom for sideward or skidding movement in rounding turns at high speed. This skidding may be limited by making the projection **170** elongated instead of circular.

The road sections may be assembled in different known ways. In the particular case here shown the sections are aligned by dowels **176** (FIG. 7) and are held together by a spring clip **178** which is received in mating slots. The power strips project horizontally or lengthwise at one lane, as shown at **180**, and these projections are received tightly alongside the non-projecting power strips of the next section to provide continuous electrical contact. The next section similarly has projecting ends on the other lane, as shown at **182**. The plastic material is cut away as shown at **181** to help receive the projecting ends **180** and **182**, that is, to permit sideward flexing of the non-projecting ends.

The ramps shown at **70**, **72**, **128** and **130** in FIG. 1 are shown in greater detail in FIGS. 6 and 10. The track section here is of the HO gage type and comprises an insulation base **184** which simulates the ties of a railway track, and two metal rails **17** and **18**, which are secured to the insulation base. Various constructions have been devised for such track, and the rails may be either solid metal or hollow sheet metal. The ramp consists of a sleeve of very thin insulation **186**, for example "Mylar," and a sleeve of very thin metal **188** around one of the rails, as is best shown in FIG. 10.

The sleeve is so thin that the wheels readily ride over it. The sleeve is short enough so that when one wheel is on the sleeve, as shown in FIG. 6, at least one other wheel is off the sleeve. These are locomotive wheels **190** and **192**, and are therefore made of metal and are electrically connected together on one side, in consequence of which the rail **18** is momentarily connected to the sleeve. A clip **194** for receiving a wire lead forms a part of the assembly, and is connected to the sleeve, and provides a pulse of current through an outside wire to operate the relay. A sleeve of this type may be made as a separate accessory which may be clipped on to the track section at any desired point, or one particular section may be provided permanently with two such ramps.

In FIG. 10 the thin metal **188** is held by additional sheet metal **187** and **189**, and the latter is eyeletted at **193** to clip **194**. The thicknesses and clearances have been exaggerated in the drawing, and it will be understood that in practise the sleeve material fits closely about the rail and base.

The relay coil circuit back to terminal **110** of the power supply is completed because the outer railway rail **18** is connected to the inner strip **30** of the roadway, and thence to terminal **110** by way of wire **108**. This connection is conveniently provided and built in at the crossovers, and while not necessary, there are four such connections to strips **30** and **230**, shown by heavy dots on the drawing at the crossovers.

It will be understood that other ramp systems may be used to provide the closing of a contact or in other ways to supply a pulse of current to operate the relay.

With the sleeve ramps here shown it is assumed that only the locomotive has metal wheels. The cars following the locomotive are assumed to have insulation wheels. This is the normal practise in HO gage trains. Referring to FIG. 11, the locomotive **196** has metal wheels **198** and **190**, in order to pick up current to energize the locomotive motor **200**. The wheels are insulated from one another, as by use of an insulation axle **202**.

Referring to FIG. 12, the motorless car **204** has insulation wheels **206** which may be molded integrally with their axle **208**. This insulates the wheels at one side from the other in order not to short circuit the rails, which carry current of opposite polarity. In the present toy it is only the locomotive that affects the ramps.

In the wiring diagram of FIG. 1 the solenoids of the crossing gates are connected in series. This is not essential and is done merely for economy. The accessory power supply to terminals **94**, **96** may be at say 16 volts, and with the gate coils connected in series, they each may be wound for four volts, resulting in a cheaper construction than would be the case when using four solenoids in parallel, each wound for sixteen volts. However, the latter may be done, if desired. Also the coils could be wound for eight volts each, with two connected in series for one crossover, and two in series at the other crossover, and the two crossovers then connected in parallel with one another.

In FIG. 1 the terminals **20**, **22** are connected to a standard toy railway power supply, and the terminals **106**, **110** are connected to a standard roadway power supply. A typical railway power supply is shown in FIG. 15, in which a step-down transformer **220** is connected to a rectifier **222** which in turn leads to a polarity reversing switch **224**. Terminals **226** are connected ahead of the switch **224** and provide a fixed voltage of unchanged polarity for the operation of accessories. Terminals **228** are connected to the track rails and provide a reversible voltage for reversing the direction of train operation. This is readily accomplished because the miniature motors used in HO gage trains usually have a permanent magnet field. A rheostat **230** serves to vary the track voltage, and also may open the circuit, thus making it possible to vary the speed of the train or to stop it altogether.

The power supply for the road part of the toy is simpler and may be like the first part of FIG. 15. This is shown in FIG. 16, there being a step-down transformer **232** connected to a rectifier **234**, leading to terminals **236**. Separate rheostats are shown in FIG. 1 at **112** and **114** for independent speed control of the two autos. The speed controls could be combined with the power supply, if desired, but usually separate ones are preferred.

Separate power supplies for the railway and road portions of the toy are desirable because of the polarity reversing switch which is wanted for the railroad, but not for the autos. In the present toy the autos are to be run only in forward direction, and it would not do to have them reversed when the train is reversed. There is no manufacturing inconvenience in providing separate power supplies because the standard units already available are used. It is also an operating convenience when

several children play together, for one may operate the train, and another the autos. Indeed, it is for this reason that the separate speed controls **112** and **114** are preferred for the autos, because two children may independently control them.

The terminals **94** and **96** shown in FIG. 1 for the crossing gates have been shown separately because they may be energized from either power source. Indeed, they may be operated by A.C. as well as D.C., and therefore when using an O gage train operated by A.C., the terminals **94**, **96** may be connected to the accessory terminals of the A.C. power supply. The control relay coils are here shown energized from the roadway power supply, and the track contact ramps function as they do because one railway track, in this case the outer track **18** which has the ramps, is connected at either or both crossovers to either or both of the inner roadway strips, in this case the strips **30** and **230**.

If desired, a single power supply may be provided for both the railway and roadway parts of the toy, and such an arrangement is illustrated in FIG. 17 of the drawing. In this case there are five terminals at **250**, the first two of which (marked **1** and **2**) correspond to the terminals **226** in FIG. 15. The last two (marked **4** and **5**) correspond to the terminals **228** in FIG. 15 and are connected by conductors **240** to the railway track **242**. The first two terminals are connected by conductors **244** to the roadway **246**, and therefore correspond to the terminals **106**, **110** in FIG. 1, as well as to the terminals **226** in FIG. 15. The reversing switch affects the railway and not the roadway. An extra conductor **248** leads to a fifth terminal **3** which is connected to the relay coils **48** and **50**, the circuit being completed by track ramps as before, and here symbolized at **70** and **72**. Because of the connection **248** the relay coils receive full voltage, and yet the polarity is reversed when the train polarity is reversed. In this case the railway tracks are not connected to the roadway power supply strips at the crossovers, and any reversal of polarity for the train does not affect the autos.

With a three-rail system, as for O gage trains, the locomotive wheels and car wheels are all grounded. The locomotive is wired as suggested in FIG. 13, in which car **210** is grounded, and has metal grounded wheels **212**. The current supply for propulsion motor **214** is picked up through an insulated contact shoe **216** engaging the middle or third rail.

Separate power supplies may be assumed, as in FIG. 1, and the common connection of the relay coils remains through conductor **116**, as in FIG. 1. The outer leads of the relay coils are connected to ramps mounted on the center rail of power supply third rail of the railway track. This center rail of the railway track is connected at the crossovers to the inner supply strips **30** and **230** of the roadway. The system then functions as previously described for FIG. 1, and the terminals **94** and **96** may be connected to the A.C. accessory terminals of the toy railway transformer.

The latter may be arranged as shown in FIG. 18, in which the terminals **252** provide a variable A.C. supply for the railway track, and the terminals **254** provide a fixed voltage A.C. supply for accessories. The roadway power supply may be a fixed voltage D.C. supply, as shown in FIG. 16, and as previously described.

It is believed that the construction and operation of my improved railway and roadway toy, as well as the advantages thereof, will be apparent from the foregoing detailed description. The autos **24** and **78** (FIG. 1) are driven in opposite directions at any desired speed, as controlled by rheostats **112** and **114**. The train is independently operated, and its speed is controlled by a rheostat (as at **230** in FIG. 15) connected to terminals **20**, **22** in FIG. 1. If the train is moving clockwise, it passes ramp **128** without shifting the relay, but on reaching ramp **70**, the relay changes; the power strips approaching the crossover are de-energized; and the gates are closed. The cars come to a stop as they approach a closed gate.

The cars are very small and light in weight, and they come to a quick stop even though travelling at high speed. When the locomotive reaches the ramp **130** it has no effect, but on reaching the ramp **72** (at which time the last car of the train should have reached or passed the last gate), the relay returns to original position; the gates are opened; and the power strips are energized. Inasmuch as the power strips receive the full voltage, the cars accelerate rapidly, and they easily coast over the railway track portion of the crossover.

It will be understood that while the invention has been shown and described in a preferred form, changes may be made without departing from the scope of the invention, as sought to be defined in the following claims. In the claims the term "auto" has been used for convenience, but it is intended to apply to any road vehicle, and the term "locomotive" has been used for convenience, but is intended to apply to railway rolling stock.

We claim:

1. A traffic toy comprising toy railway track sections including metal rails for power supply, an electrically driven locomotive with a propulsion motor and at least some metal wheels running on said rails, toy road sections including auto guide means and metal power supply strips extending collaterally of the guide means, an electrically driven auto having a propulsion motor and running on said road sections, said rails being incapable of positively receiving said auto and said road sections being incapable of operatively receiving said locomotive, a special crossover section matching said track sections in one direction and matching said road sections in the other direction, an electrically operated crossing gate movable to a position across a road section at said crossover, a control section of power strip approaching the gate being isolated from the main power strip for purpose of control of an auto supplied with power thereby, a relay having first and second coils for moving an armature in one direction or the other to close either gate contacts or go contacts respectively, said gate contacts being in and closing a power supply circuit to the crossing gate to close the same, said go contacts being in a circuit connected to and supplying power to said control section, a ramp on a railway section ahead of the crossing and electrically connected to the first relay coil for closing the gate and deenergizing the control section to stop the auto on approach of the locomotive, and a ramp on a railway section beyond the crossing and electrically connected to the second relay coil for opening the gate and energizing the control section to start the auto on departure of the locomotive.

2. A traffic toy as defined in claim 1 in which there are two spaced ramps on the railway on one side of the crossover, and two spaced ramps on the railway on the other side of the crossover, the inner or nearer ramps being connected to the first relay coil, and the outer or further ramps being connected to the second relay coil, whereby the locomotive may be run on the railway in either direction.

3. A traffic toy as defined in claim 1 in which the road sections have two traffic lanes for simultaneous operation of autos in opposite directions, and in which there are two crossing gates on opposite sides of the railway track, and in which there is a control section of power strip in each lane on the opposite approach sides of the railway track and crossing gates, and in which the gate contacts of the relay are connected to close both gates, and in which the go contacts of the relay are connected to energize both control strips.

4. A traffic toy as defined in claim 1 in which the road sections have two traffic lanes for simultaneous operation of autos in opposite directions, and in which there are two crossing gates on opposite sides of the railway track, and in which there is a control section of power strip in

each lane on the opposite approach sides of the railway track and crossing gates, and in which the gate contacts of the relay are connected to close both gates, and in which the go contacts of the relay are connected to energize both control strips, and in which there are two spaced ramps on the railway on one side of the crossover, and two spaced ramps on the railway on the other side of the crossover, the inner ramps being connected to the first relay coil, and the outer ramps being connected to the second relay coil, whereby the locomotive may be run on the railway in either direction.

5. A traffic toy as defined in claim 1 in which the road sections form a closed loop of road which is intersected by the track sections, and in which there are two crossovers, one for each side of the road loop, and in which there is a crossing gate and a control power strip for each crossover, and in which the approach ramp is ahead of the road loop and both crossovers, and in which the departure ramp is beyond the road loop and both crossovers, and in which the gate contacts are connected to both crossing gates, and the go contacts are connected to both control strips.

6. A traffic toy as defined in claim 1 in which the road sections form a closed loop of road which is intersected by the track sections, and in which there are two crossovers, one for each side of the road loop, and in which there is a crossing gate and a control power strip for each crossover, and in which the gate contacts are connected to both crossing gates, and the go contacts are connected to both control strips, and in which there are two spaced ramps on the railway on one side of the loop and both of the crossovers, and two spaced ramps on the railway on the other side of the loop and both of the crossovers, the inner ramps being connected to the first relay coil, and the outer ramps being connected to the second relay coil, whereby the locomotive may be run on the railway in either direction.

7. A traffic toy as defined in claim 1 in which the road sections have two traffic lanes for simultaneous operation of autos in opposite directions, and in which the road sections form a closed loop which is intersected by the track sections, and in which there are two crossovers, one for each side of the loop, and in which there are four crossing gates, one on each side of the railway track at each crossover, and in which there are four control strips, one for each lane on the appropriate side of the railway track, and in which the gate contacts of the relay are connected to operate all four crossing gates, and in which the go contacts of the relay are connected to energize all four control strips.

8. A traffic toy as defined in claim 1 in which the road sections have two traffic lanes for simultaneous operation of autos in opposite directions, and in which the road sections form a closed loop which is intersected by the track sections, and in which there are two crossovers, one for each side of the loop, and in which there are four crossing gates, one on each side of the railway track at each crossover, and in which there are four control strips, one for each lane on the appropriate approach side of the railway track, and in which the gate contacts of the relay are connected to operate all four crossing gates, and in which the go contacts of the relay are connected to energize all four control strips, and in which there are two spaced ramps on the railway on one side of the loop and both of the crossovers, and two spaced ramps on the railway on the other side of the loop and both of the crossovers, the inner ramps being connected to the first relay coil, and the outer ramps being connected to the second relay coil, whereby the locomotive may be run on the railway in either direction.

9. A traffic toy as defined in claim 1, in which a speed controlling rheostat is connected in series with the power supply to the road sections for the auto, and in which the maximum available voltage is connected directly to the "go" contacts of the relay for maximum power supply to the control section of the power strip.

10. A traffic toy as defined in claim 1, in which a speed controlling rheostat is connected in series with the power supply to the road sections for the auto, and in which the maximum available voltage is connected directly to the "go" contacts of the relay for maximum power supply to the control section of the power strip, and in which the power strip is omitted in the region across and between the rails.

11. A traffic toy comprising toy railway track sections including metal rails for power supply, an electrically driven locomotive with a propulsion motor and at least some metal wheels running on said rails, a variable power supply source connected to said rails, toy road sections including auto guide means and metal power supply strips extending collaterally of the guide means, an electrically driven auto having a propulsion motor and running on said road sections, a variable power supply source connected to said power strips, said rails being incapable of positively receiving said auto and said road sections being incapable of operatively receiving said locomotive, a special crossover section matching said track sections in one direction and matching said road sections in the other direction, an electrically operated crossing gate movable to a position across a road section at said crossover, a control section of power strip approaching the gate being isolated from the main power strip for purpose of control of an auto supplied with power thereby, a relay having first and second coils for moving an armature in one direction or the other to close either gate contacts or go contacts respectively, said gate contacts being in and closing a power supply circuit to the crossing gate to close the same, said go contacts being in a circuit connected to and supplying power to said control section, a conductive short sleeve ramp insulatedly mounted on a railway rail ahead of the crossing and electrically connected to the first relay coil for closing the gate and deenergizing the control section to stop the auto on approach of the locomotive, and a conductive short sleeve ramp insulatedly mounted on a railway rail beyond the crossing and electrically connected to the second relay coil for opening the gate and energizing the control section to start the auto on departure of the locomotive.

12. A traffic toy as defined in claim 11 in which there are two spaced sleeve ramps on a railway rail on one side of the crossover, and two spaced sleeve ramps on the railway rail on the other side of the crossover, the inner or nearer ramps being connected to the first relay coil, and the outer or further ramps being connected to the second relay coil, whereby the locomotive may be run on the railway in either direction.

13. A traffic toy as defined in claim 11 in which the road sections have two traffic lanes for simultaneous operation of autos in opposite directions, and in which there are two crossing gates on opposite sides of the track, and in which there is a control section of power strip in each lane on the opposite approach sides of the railway and crossing gates, and in which the gate contacts of the relay are connected to close both gates, and in which the go contacts of the relay are connected to energize both control strips.

14. A traffic toy as defined in claim 11 in which the road sections have two traffic lanes for simultaneous operation of autos in opposite directions, and in which there are two crossing gates on opposite sides of the track, and in which there is a control section of power strip in each lane on the opposite approach sides of the railway and crossing gates, and in which the gate contacts of the relay are connected to close both gates, and in which the go contacts of the relay are connected to energize both control strips, and in which there are two spaced sleeve ramps on a railway rail on one side of the crossover, and two spaced sleeve ramps on a railway rail on the other side of the crossover, the inner ramps being connected to the first relay coil, and the outer ramps being con-

nected to the second relay coil, whereby the locomotive may be run on the railway in either direction.

15. A traffic toy as defined in claim 11 in which the road sections form a closed loop of road which is intersected by the track sections, and in which there are two crossovers, one for each side of the loop, and in which there is a crossing gate and a control power strip for each crossover, and in which the approach sleeve ramp is ahead of the road loop and both crossovers, and in which the departure sleeve ramp is beyond the road loop and both crossovers, and in which the gate contacts are connected to both crossing gates, and the go contacts are connected to both control strips.

16. A traffic toy as defined in claim 11 in which the road sections form a closed loop of road which is intersected by the track sections, and in which there are two crossovers, one for each side of the loop, and in which there is a crossing gate and a control power strip for each crossover, and in which the gate contacts are connected to both crossing gates, and the go contacts are connected to both control strips, and in which there are two spaced sleeve ramps on a railway rail on one side of the loop and both of the crossovers, and two spaced sleeve ramps on a railway rail on the other side of the loop and both of the crossovers, the inner ramps being connected to the first relay coil, and the outer ramps being connected to the second relay coil, whereby the locomotive may be run on the railway in either direction.

17. A traffic toy as defined in claim 11 in which the road sections have two traffic lanes for simultaneous operation of autos in opposite directions, and in which the road sections form a closed loop which is intersected by the track sections, and in which there are two crossovers, one for each side of the loop, and in which there are four crossing gates, one on each side of the railway track at each crossover, and in which there are four control strips, one for each lane on the appropriate approach side of the railway track, and in which the gate contacts of the relay are connected to operate all four crossing gates, and in which the go contacts of the relay are connected to energize all four control strips.

18. A traffic toy as defined in claim 11 in which the road sections have two traffic lanes for simultaneous operation of autos in opposite directions, and in which the road sections form a closed loop which is intersected by the track sections, and in which there are two crossovers, one for each side of the loop, and in which there are four crossing gates, one on each side of the railway track at each crossover, and in which there are four control strips, one for each lane on the appropriate approach side of the railway track, and in which the gate contacts of the relay are connected to operate all four crossing gates, and in which the go contacts of the relay are connected to energize all four control strips, and in which there are two spaced sleeve ramps on a railway rail on one side of the loop and both of the crossovers, and two spaced sleeve ramps on a railway rail on the other side of the loop and both of the crossovers, the inner ramps being connected to the first relay coil, and the outer ramps being connected to the second relay coil, whereby the locomotive may be run on the railway in either direction.

19. A traffic toy as defined in claim 11 in which the maximum available voltage is connected directly to the "go" contacts of the relay for maximum power supply to the control section of the power strip.

20. A traffic toy as defined in claim 11 in which the maximum available voltage is connected directly to the "go" contacts of the relay for maximum power supply to the control section of the power strip, and in which the power strip is omitted in the region across and between the rails.

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