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L. MARX

ROUNDABOUT TOY

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Fig. 1.

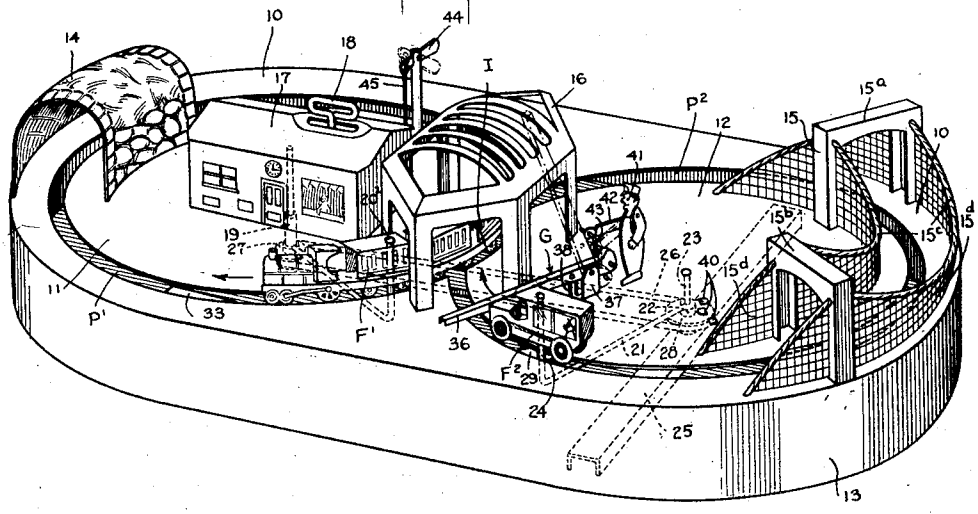


Fig. 2.

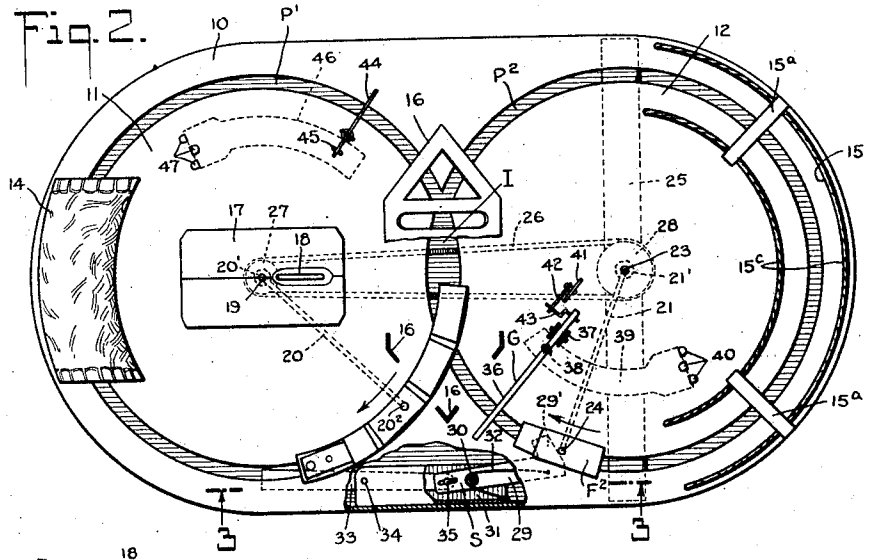
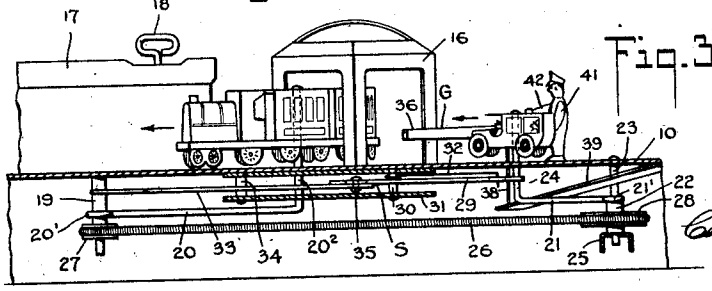


Fig. 3.



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ROUNDABOUT TOY.

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This invention relates to a toy or amusement device, and more particularly to a mechanically operated toy; and has special reference to the provision of a toy designed and constructed to simulate traffic movements.

The prime desideratum of my present invention resides in the provision of a mechanically operated amusement device or toy in which the movement of a plurality of figures such as simulated vehicles or the like is automatically controlled in accordance with simulated traffic conditions.

More specifically, the prime objects of the present invention center about the provision of a traffic simulating toy wherein a plurality of figures movable in intersecting paths or tracks are automatically operated and controlled to produce non-interfering movements of said figures past the intersecting area of said paths; the further provision of a traffic simulating toy in which one of the figures, which may be made to simulate a train of cars, is movable in its path or track uninterruptedly while another of said figures, which may be made to simulate a motor vehicle figure, is movable intermittently so as to prevent any colliding movement of the vehicle fixtures past the intersection; the still further provision of a traffic controlled toy of this character in which a common motor means is employed for operating the movable figures through the intersecting paths and for operating one of the figures continuously or without interruption and the other of said figures intermittently as required; the still further provision of a traffic controlled toy in which the movement of one of the figures such as the simulated motor vehicle is automatically controlled by the position or movement of the other of the figures such as the simulated train of cars.

Further prime objects of my present invention center about the provision of a mechanically operated toy constructed and designed to simulate the opening and closing of gateway devices at railroad crossings or intersections; the more specific provision of a toy of this character in which a gateway device is automatically operated in response to the position or movement of a figure representing a train of cars; and in the preferred construction, the further provision of a toy of the character referred to in which the gateway device is made to appear to control the movement of a motor vehicle or like figure moving in a path or road intersecting the path of the simulated train of cars.

Correlated and other important objects of the invention reside in the production of a toy or amusement device in which the foregoing actions are accomplished by means of comparatively simple mechanism which may be manufactured and sold at a low figure and in which the parts are inter-related in a manner to permit durable use of the toy by the child.

To the accomplishment of the foregoing and such other objects as will hereinafter appear, my invention consists in the elements and their relation one to the other as hereinafter more particularly described and sought to be defined in the claims; reference being had to the accompanying drawings which show the preferred embodiment of my invention, and in which:

Fig. 1 is a perspective view of the toy embodying the principles of my present invention,

Fig. 2 is a top plan view thereof shown on a reduced scale with parts broken away and other parts shown in section, and

Fig. 3 is a fragmentary view of the toy shown on substantially the same scale as that shown in Fig. 1 and taken in cross-section in the plane of the line 3—3, Fig. 2.

Referring now more in detail to the drawings, I show one of the preferred ways in which the principles of my present invention are carried out in practice by means of comparatively simple and inexpensive mechanism. In this preferred form of the invention, I provide a plurality of movable figures generally designated as F′ and F² movable in the directions indicated by the arrows in the figures in defined or predetermined paths such as the two annular paths or tracks P′ and P², which paths or tracks cross or intersect at a region generally designated as I. In accordance with the present invention, the figures F′ and F² are operated so that the figure F², which may represent a motor vehicle, will be automatically prevented from passing the intersection I while the figure F′ representing a train of cars is passing the said intersection, and so that the said motor vehicle F² will be permitted to pass the said intersection I after the simulated train F′ has moved past such intersection. Associated with the controlled motor vehicle F², there is provided a gateway de-

vice generally designated as G which is operated in imitation of the traffic controlling movements imposed upon the motor vehicle figure F^2 in natural semblance of traffic conditions and regulations at railroad or like intersections.

For supporting the parts of the toy and for defining the predetermined and preferably annular paths or tracks P′ and P^2 through which the vehicles F′ and F^2 are movable, I preferably provide a support which comprises a platform having an outer section 10 and spaced inner disk sections 11 and 12 supported on the outer section 10 in a manner to be described presently, the said outer section being elevatingly supported by a surrounding skirt section 13, all of said sections defining a casing for the operating parts of the toy. The platform disk sections 11 and 12 are spaced from the outer platform section 10 to provide the annular channels which define the paths or tracks P′ and P^2 and the said disk platform sections 11 and 12 are cut or contoured to provide the intersecting area I of such paths. These platform disk sections 11 and 12 are supported on the outer platform section 10 by means of bridge or arch devices which are provided both for useful and ornamental purposes, such devices comprising a tunnel-shaped structure 14 supporting one side of the disk 11 on one end of the platform section 10, a suspension bridge-shaped structure 15 supporting one end of the disk 12 on the other end of the platform section 10, and an intermediate archway structure 16 which is attached to and connects adjacent disk sections 11 and 12 of the platform and which supports the same at a central or intermediate portion of the outer platform section 10, as is clearly shown in Figs. 1 to 3 of the drawings.

All of the parts are preferably made of metal cut or fashioned to the desired configuration and embellished to produce an accurate simulation of the structures imitated and such structures are connected to the platform sections in any preferred or approved manner, such for example as by brazing the parts together at the joints. The tunnel structure 14 is made preferably of sheet metal, the archway structure 16 is also made of sheet metal suitably reticulated as shown, while the suspension bridge structure is made by connecting the sheet metal posts 15^a and 15^b by means of braided wire 15^c connected to the platform sections by mesh screen 15^d. The movable figures F′ and F^2 are also suitably made out of sheet metal, as is well known to those skilled in the art.

The figures F′ and F^2 are moved in their paths P′ and P^2 respectively by means of motor mechanism, and in the preferred construction a common motor means is employed for operating both of the figures, such motor means comprising any conventional spring motor housed in a motor casing 17 preferably carried by the disk platform section 11, the said motor means (not shown) being wound by the usual winding key 18 and being connected to a driven shaft 19 which projects through the platform disk section 11 extending below the same for connection to the operated parts of the toy.

For moving the simulated train F′ in the direction indicated by the arrows, I provide a means connecting the figure F′ with the driven shaft 19, such means preferably comprising a connecting rod 20, one end 20′ of which is fixedly attached to the driven shaft 19 and the other end of which comprises an upwardly bent portion 20^2 extending upwardly through the annular channel P′ and connected to the figure F′ to support the same in slightly spaced relation to the platform sections so that rotation of the motor shaft 19 will rotate the radial connecting means 20 and will move the train figure F′ cyclically in its path P′.

Similar means is provided for operating the simulated motor vehicle figure F^2, such means comprising a radial connecting arm 21, one end 21′ of which is fixed to a sleeve 22 movable on a spindle 23, the other end of the radial arm 21 being provided with an upturned portion 24 extending through the channel P^2 and fixedly attached to the vehicle figure F^2 so as to move the same cyclically in the path P^2 slightly spaced above the platform sections. The spindle 23 is suitably supported at spaced points in the platform section 12 and in a cross brace 25.

Preferably as aforestated, both of the movable figures F′ and F^2 are operated by common motor means, although as will be seen hereinafter, the figure F′ is moved uninterruptedly while the figure F^2 is moved intermittently, the latter figure being started and stopped in accordance with the movement or position of the figure F′. To accomplish this desired end, and to prevent the figures from moving out of synchronism or timed relation, I prefer to provide a resilient or yieldable connecting means in the form of a belt 26 made of coiled spring, which resilient belt is trained over a sheave 27 fixed to the motor shaft 19 and a second sheave 28 fixed to the sleeve 22, the construction being such that the vehicle F^2 may be stopped while the vehicle F′ continues its motion, the yieldable action of the connecting belt 26 permitting relative motion of the figures, the construction being, moreover, such as to permit the maintenance of timed movement between the figures, since the stopping of the figure F^2 places the connecting belt under tension without changing the relation of movement of the figures. In

the preferred construction the sheave 28 is made larger than the sheave 27 so that the vehicle figure F^2 may be moved at half the speed of the train figure F'. However, it will be apparent that any ratio of gearing may be employed.

For preventing colliding movement of the figures F' and F^2 at the intersecting area I and for automatically producing a starting and stopping operation of the figure F^2 in accordance with simulated traffic regulations, I provide a stop mechanism generally designated as S which comprises a stop element 29 pivotally mounted on the fulcrum pin 30 fixed in a U-shaped bracket 31 attached to the front wall of the platform skirt section 13 as shown in Fig. 2 of the drawings, the said stop element 29 being moved to normally assume the position shown in Fig. 2 of the drawings by means of a leaf spring 32 having a loop surrounding the pin 30, one end of which spring bears against the side wall of the U bracket 31 and the other end of which is fixed to the stop element 29, as clearly shown in Figs. 2 and 3 of the drawings, so that a projecting tooth portion 29' of said stop element is moved in the path P^2 to interceptingly engage the element 24 and to stop the vehicle F^2, as clearly shown in Figs. 2 and 3 of the drawings. To release the stop element 29 and permit another cycle of movement of the figure F^2, there is provided a lever 33 fulcrumed as at 34 in the U bracket 31, which lever is connected by means of a pin-and-slot means 35 to an adjacent end of the stop element 29. The lever 33 is normally in the path of movement of the train figure F' as clearly shown in Fig. 2 of the drawings, and is held in such position by the action of the leaf spring 32.

With this recited construction it will now be seen that the stop mechanism S will intercept the movement of the figure F^2 to permit the train figure F' to cross the intersection I and that after the figure F' passes the intersection, the portion 20^2 of the connecting arm 20 will engage the outward end of the lever 33 and move the same to release the stop element 29, the projecting tooth portion 29' of which is withdrawn from the position shown in Fig. 2 of the drawings to permit the onward movement of the figure F^2 now under driving tension of the yieldable connecting belt 26. This operation is repeated at each cycle of movement of the figure F^2.

The gateway device G is associated with the figure F^2 so as to be lowered in position when the movement of the figure F^2 is stopped and so as to be elevated in position when traffic conditions permit the releasing movement for the figure F^2. This gateway device G comprises a lever 36 fulcrumed on a support 37, which lever is provided with an operating element 38 extending downwardly through the platform disk 12 and engaged by an arcuate-shaped arm 39 pivoted as at 40 on the platform disk 12. The arm 39 is arranged to be engaged by the radial operating arm 21 as clearly shown in Figs. 2 and 3 of the drawings, the engagement being such that when the figure F^2 is stopped, the gate lever 36 is in the lowered position and when the figure F^2 is released, onward movement of the same causes the pivoted arm 39 to be elevated and to operate the gate-operating element 38 to correspondingly elevate the gate lever 36. This gate lever is elevated just as the vehicle figure F^2 passes into the intersecting area I, after which the gate lever moves by gravity of the parts to the lowered or descended position. To simulate a manual operation of the gate lever, the same is connected to a figure or manikin 41 stationarily mounted on the platform disk 12 and provided with a movable arm 42 connected by a crank 43 to the gate lever 36. Manifestly as the gate lever is elevated, the arm 42 of the manikin will be moved by the crank 43 to simulate a manual operation of the traffic gate.

If desired, other operated elements may be provided for enhancing the appearance of the toy, such as the operating semaphore signal device 44 which is operated by means of connecting element 45 projecting through the disk 11 and which is engaged by an arm 46 pivoted as at 47 to the platform disk 11 and which is operated by the movement of the figure F' in a manner similar to the operation of the pivoted arm 39 by the movement of the figure F^2.

The manner of making and using the toy or amusement device of my present invention and the many advantages thereof will in the main be fully apparent from the above detailed description thereof. It will be apparent that a single motor mechanism M is employed for operating the two figures F' and F^2, the first figure being moved continuously and the second figure being moved intermittently by the same motor mechanism, the movement of the vehicle figure F^2 being controlled by the position or movement of the train figure F' so as to prevent colliding action of the two figures at the intersection I of the paths or tracks P' and P^2. The stop mechanism S is normally actuated to intercept the vehicle figure F^2 and the said stop mechanism is moved to figure releasing position by the movement of the train figure F' past the intersecting area I. This operation takes place cyclically, and in the construction exemplified, the train figure F' makes two revolutions for each revolution of the vehicle figure F^2. The means connecting the figures to the motor mechanism M is so constructed that although one of the figures is continuously operated while the other figure is intermittently operated,

the timed relation or synchronism between the movement of both figures is not altered or disturbed, this being accomplished, moreover, with the use of very simple apparatus. The gate G is operated by the movement of the figures, and normally is in lowered condition so as to simulate the production of a stop signal, the said gate device G being moved to the elevated position when the traffic conditions are "clear", this gate device being operated to the elevated position by movement of the motor figure F^2.

It will be further apparent that while I have shown and described my invention in the preferred form, that many changes and modifications may be made in the structure disclosed without departing from the spirit of the invention, defined in the following claims.

I claim:

1. In an amusement device, a plurality of figures movable cyclically in pre-determined paths having a given intersection, means for moving said figures and means controlled by the movement of one of said figures for automatically preventing the other of said figures from passing the said intersection while the said first figure is passing the intersection.

2. In an amusement device, a plurality of figures movable cyclically in pre-determined paths having a given intersection, means for moving said figures and means controlled by the movement of one of said figures for automatically preventing the other of said figures from passing the said intersection while the said first figure is passing the intersection, and for permitting the said other of said figures to pass the intersection after the said first figure has passed said intersection.

3. In an amusement device, a plurality of figures movable in two annular paths having a given intersection, and means for moving said figures and means controlled by the movement of one of said figures for automatically preventing the other of said figures from passing the said intersection while the said first figure is passing the intersection.

4. In an amusement device, a plurality of figures movably cyclically in pre-determined paths having a given intersection, means for moving said figures, one figure representing a train of cars and the other figure representing a motor vehicle, and means controlled by the movement of the train figure for automatically preventing the motor vehicle figure from passing the said intersection while the said train figure is passing the intersection.

5. In an amusement device, a plurality of figures movable in pre-determined paths having a given intersection, a common motor means for said figures, and means controlled by the movement of one of said figures for automatically preventing the other of said figures from passing the said intersection while the said first figure is passing the intersection.

6. In an amusement device, a plurality of figures movable in pre-determined paths having a given intersection, a common motor means for said figures, and means controlled by the movement of one of said figures for automatically preventing the other of said figures from passing the said intersection while the said first figure is passing the intersection, and for permitting the said other of said figures to pass the intersection after the said first figure has passed the said intersection.

7. In an amusement device, a plurality of figures movable cyclically in pre-determined paths having a given intersection, means for moving said figures, a stop device for one of said figures to prevent the same from passing said intersection, and means controlled by the movement of the other of said figures for releasing said stop device to permit said first figure to pass the intersection.

8. In an amusement device, a plurality of figures movable in pre-determined paths having a given intersection, a common motor means for said figures, a stop device for one of said figures to prevent the same from passing said intersection, and means controlled by the movement of the other of said figures for releasing said stop device to permit said first figure to pass the intersection.

9. In an amusement device, a plurality of figures movable in pre-determined paths having a given intersection, a stop device for one of said figures to prevent the same from passing said intersection, means controlled by the movement of the other of said figures for releasing said stop device to permit said first figure to pass the intersection, a motor means connected to drive said other of said figures and a yieldable driving connection between said motor means and said first figure constructed to permit the stopping and starting of said first figure during continuous motion of the other figure.

10. In an amusement device, a plurality of figures movable in pre-determined paths, a common motor means for driving the plurality of figures, means connecting one of said figures to said motor means to drive the figure continuously, and a yieldable connecting means connecting the other of said figures to said motor means constructed to permit intermittent motion of the other of said figures during continuous motion of said first figure.

11. In an amusement device, a plurality of figures movable in pre-determined paths, a common motor means for driving the plurality of figures, means connecting the first of said figures to said motor means to drive

the said first figure without interruption, means controlled by the movement of the first figure for starting and stopping the second of said figures, and a connecting means connecting the second of said figures to said motor means constructed to permit the intermittent motion of the second of said figures during uninterrupted motion of said first figure.

12. In an amusement device, a plurality of figures movable in pre-determined intersecting paths, a common motor means for driving the plurality of figures, means connecting one of said figures to said motor means to drive the figure without interruption, and a connecting means connecting the other of said figures to said motor means constructed to permit intermittent motion of the other of said figures during uninterrupted motion of said first figure.

13. In an amusement device, a plurality of figures movable in intersecting paths, a common motor means for driving the plurality of figures, means connecting one of said figures to said motor means to drive the figure without interruption, a connecting means connecting the other of said figures to said motor means constructed to permit intermittent motion of the other of said figures during uninterrupted motion of said first figure, and means controlled by the movement of said first of said figures to start and stop the other of said figures to prevent colliding movement of said figures at the intersection of said paths.

14. In an amusement device, a support including the platform having sections spaced to define two intersecting annular channels, a figure movable cyclically in each of said channels and means for automatically stopping the movement of one of said figures while the other of said figures is passing through the common intersecting region of said channel paths.

15. In an amusement device, a support including the platform having sections spaced to define two intersecting annular channels, a figure movable cyclically in each of said channels, means for automatically stopping the movement of one of said figures while the other of said figures is passing through the common intersecting region of said channel paths, and a common motor means for both of said figures.

16. In an amusement device, a support including the platform having an outer section and inner disk sections all spaced to define two intersecting annular channels, means supporting the disk sections on the said outer section, a figure movable cyclically in each of said channels and means for automatically stopping the movement of one of said figures while the other of said figures is passing through the common intersecting region of said channel paths.

17. In an amusement device, a figure movable in a predetermined path, means defining a second path intersecting the said pre-determined path, a second figure movable in said second path, means for moving both of said figures, a gateway device movable across the second path in simulation of a traffic stopping operation and means for governing the operation of the gateway device controlled by movement of said second figure.

18. In an amusement device, a figure movable in an endless pre-determined path, means defining a second endless predetermined path intersecting the said first pre-determined path, a second figure movable in said second path, means for moving both of said figures, a gateway device movable across the second path in simulation of a traffic stopping operation, and means controlled by movement of said second figure for elevating the gateway device.

19. In an amusement device, a figure movable in an annular pre-determined path, means defining a second annular path intersecting the said pre-determined path, a second figure movable in said second path, means for moving both of said figures, a gateway device movable across the second path in simulation of a traffic stopping operation, and means for governing the operation of the gateway device controlled by movement of said second figure.

20. In an amusement device, a figure movable in a pre-determined path, means defining a second path intersecting the said predetermined path, a second figure movable in said second path, a gateway device movable across the second path in simulation of a traffic stopping operation, and means for governing the operation of the gateway device and the movement of said second figure controlled by movement of said first figure.

21. In an amusement device, a figure movable in a pre-determined path, means defining a second path intersecting the said predetermined path, a second figure movable in said second path, a gateway device movable across the second path in simulation of a traffic stopping operation, means for governing the movement of said second figure controlled by movement of said first figure, and means controlled by the movement of said second figure for operating the gateway device.

22. In an amusement device, a figure movable in a predetermined path, means defining a second path intersecting the said predetermined path, a second figure movable in said second path, a gateway device movable across the second path in simulation of a traffic stopping operation, means for governing the movement of said second figure controlled by movement of said first figure, and

means controlled by the movement of said second figure for operating the gateway device, and a common motor means for both of said figures.

23. In an amusement device, a figure movable in an annular path, means defining a second annular path intersecting the said first annular path, a second figure movable in said second path, a gateway device movable across the second path in simulation of a traffic stopping operation, a stop for the second figure, means for releasing the stop controlled by movement of said first figure and means for elevating the gateway device controlled by movement of said second figure.

24. In an amusement device, a plurality of figures movable in predetermined paths having a given intersection, means for moving said figures and means controlled by the movement of one of said figures for automatically stopping the other of said figures to positively prevent the same from passing the said intersection while the said first figure is passing the intersection.

25. In an amusement device, a plurality of figures movable in predetermined paths having a given intersection, means for moving said figures, and means controlled by the movement of one of said figures for automatically and positively stopping the other of said figures to prevent the same from passing the said intersection while the said first figure is passing the intersection, and for releasing the said other of said figures to permit the same to pass the intersection after the said first figure has passed the intersection.

26. In an amusement device, a plurality of figures movable in two annular paths having a given intersection, means for moving said figures, and means controlled by the movement of one of said figures for automatically and positively stopping the other of said figures to prevent the same from passing the said intersection while the said first figure is passing the intersection.

27. In an amusement device, a plurality of figures moving in predetermined paths having a given intersection, means for moving said figures, one figure representing a train of cars and the other figure representing a motor vehicle, and means controlled by movement of the train figure for automatically and positively stopping the motor vehicle figure to prevent the same from passing the said intersection while the said train figure is passing the intersection.

Signed at New York city, in the county of New York and State of New York, this 29th day of November, A. D. 1926.

LOUIS MARX.