Dec. 19, 1933. M. J. KOPSCO 1,939,989

TOY VEHICLE AND THE LIKE DEVICE

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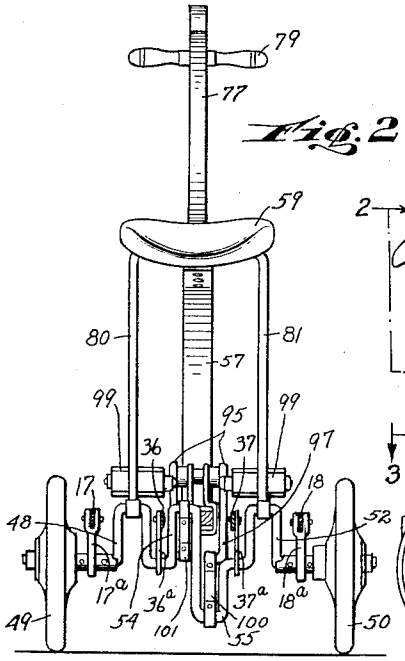


Fig. 2

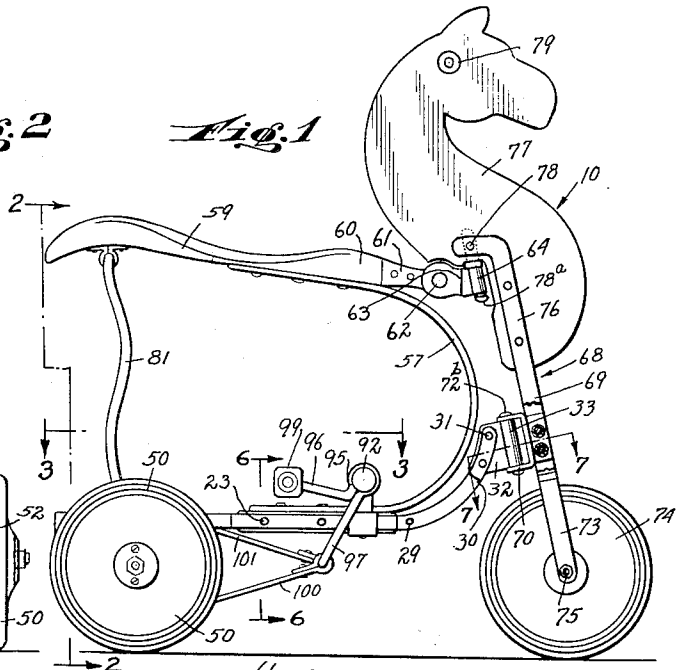


Fig. 1

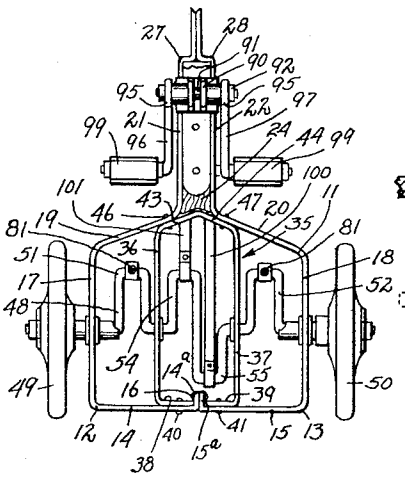


Fig. 3

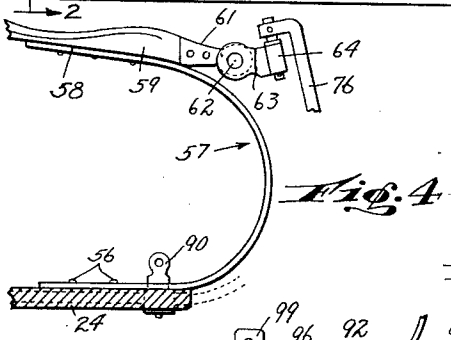


Fig. 4

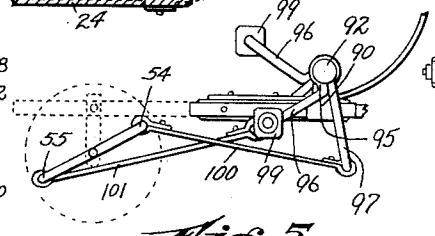


Fig. 5

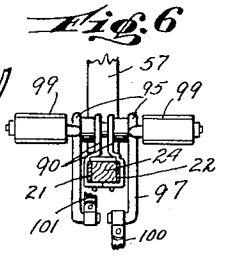


Fig. 6

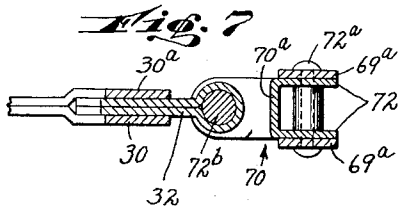


Fig. 7

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Fig. 8

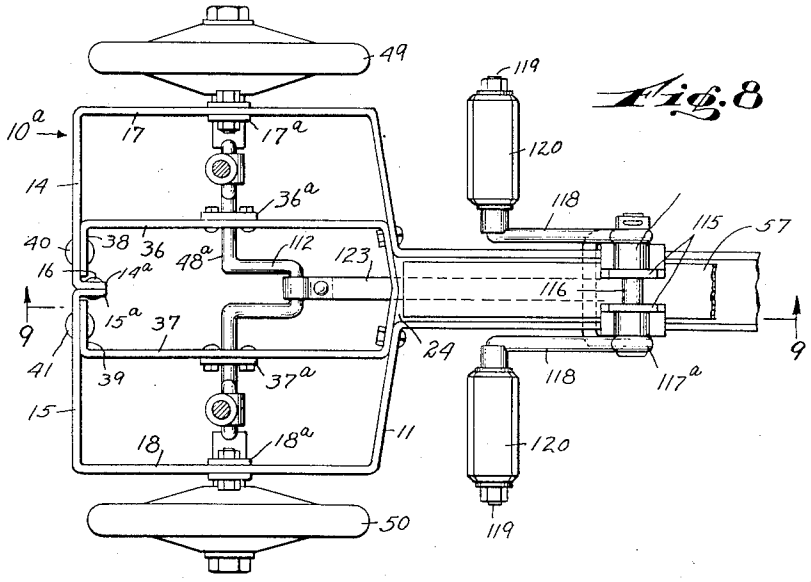



Fig. 9

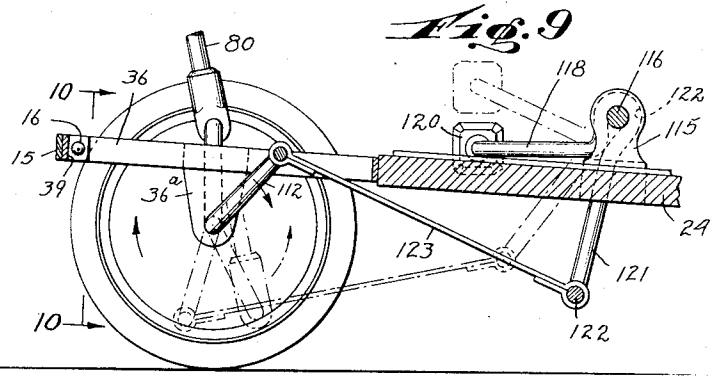
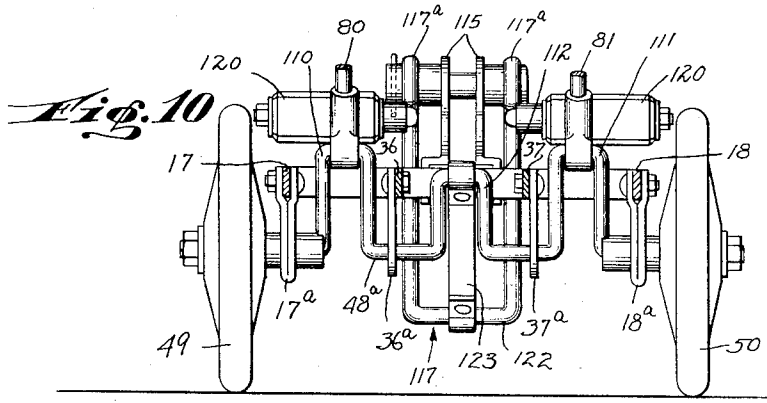



Fig. 10




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Fig. 12

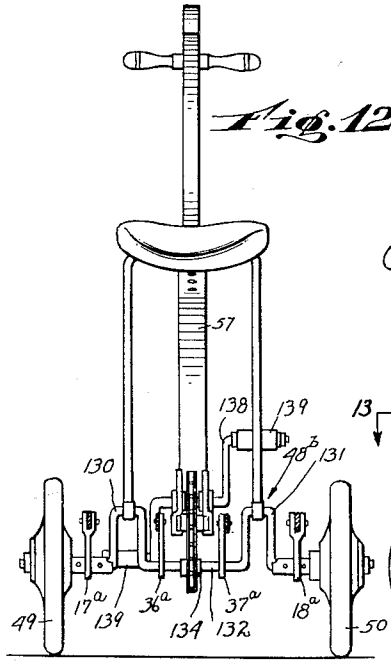
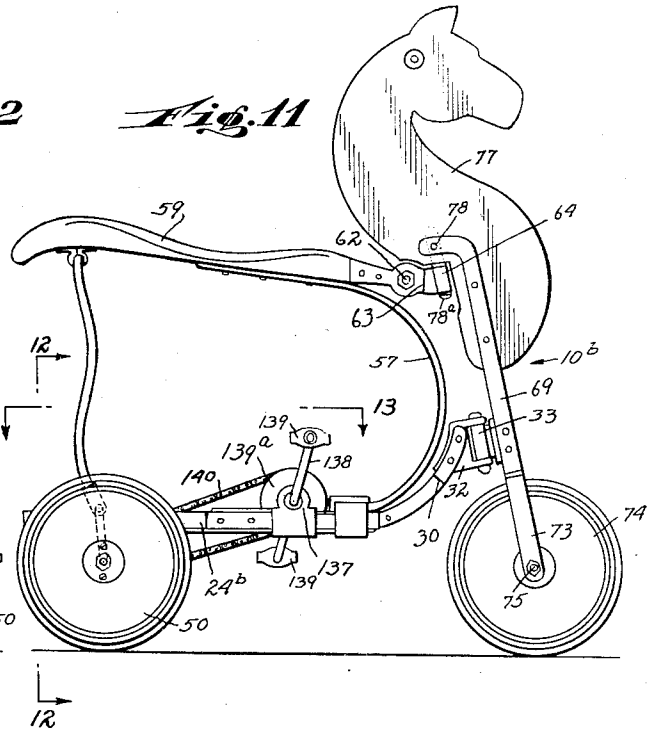



Fig. 11



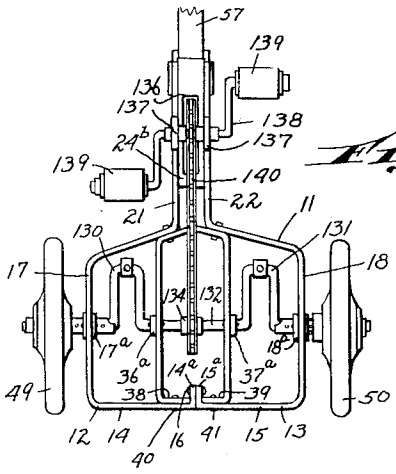
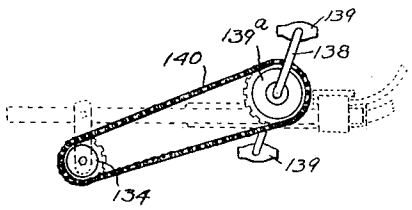




Fig. 13

Fig. 14




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# UNITED STATES PATENT OFFICE

1,939,989

## TOY VEHICLE AND THE LIKE DEVICE

Michael James Kopsco, Brooklyn, N. Y.

Application January 25, 1932. Serial No. 588,585

7 Claims. (Cl. 208—33)

This invention relates to toy vehicles and the like devices. It is particularly directed to a tricycle for children.

An object of this invention is to provide a device of the character described having means for supporting a person thereon, and permitting up and down movement of his body in imitation of horseback riding, the construction being such that said movement of the body causes forward or rearward movement or travel of the device.

A further object of this invention is to provide a strong, rugged and attractive device of the character described, which shall comprise comparatively few and simple parts, which shall be easy to operate even by children, amusing and beneficial to health, comparatively inexpensive to manufacture, and yet practical and efficient to a high degree.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of application will be indicated in the following claims.

In the accompanying drawings, in which is shown one of the various possible illustrative embodiments of this invention,

Fig. 1 is a side elevational view of a toy vehicle embodying the invention;

Fig. 2 is a rear cross-sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a cross-sectional view taken on line 3—3 of Fig. 1;

Fig. 4 is a fragmentary detail elevational view of a portion of the device shown in Fig. 1 with parts in cross-section;

Fig. 5 is a side elevational view of the foot pedals in another position thereof;

Fig. 6 is a cross-sectional view taken on line 6—6 of Fig. 1;

Fig. 7 is a cross-sectional view taken on line 7—7 of Fig. 1;

Fig. 8 is a top plan view of a portion of a device embodying my invention and illustrating a modified construction;

Fig. 9 is a cross-sectional view taken on line 9—9 of Fig. 8;

Fig. 10 is a cross-sectional view taken on line 10—10 of Fig. 9;

Fig. 11 is a side elevational view of the device embodying the invention and illustrating a further modified construction;

Fig. 12 is a rear cross-sectional view taken on line 12—12 of Fig. 11;

Fig. 13 is a top cross-sectional view taken on line 13—13 of Fig. 11; and

Fig. 14 is a side elevational view of the chain drive.

Referring now in detail to the drawings, 10 designates a vehicle embodying the invention, here shown for the purpose of illustration, in the form of a toy tricycle for children. The vehicle 10 comprises a horizontal frame 11 preferably made of elongated strips of metal properly bent and shaped as described hereinafter. More specifically, the frame 11 comprises a pair of strips 12 and 13 having aligned portions 14 and 15 respectively, from the inner ends of which extend contacting portions 14*a* and 15*a* secured together by a rivet 16. Extending forwardly from said portions 14 and 15 are parallel portions 17 and 18 having inwardly and forwardly bent oblique portions 19 and 20 respectively. Extending from said portions 19 and 20 are parallel portions 21 and 22 respectively, and disposed between said portions 21 and 22 and attached thereto by means of rivets 23 or in any other suitable manner, is a member 24 made of wood or any other suitable material. The portions 21 and 22 are disposed at the side edges of said interposed member 24 and are bent around the front edge of said member 24 as at 27 and 28 into contact with one another, the contacting portions being riveted together as at 29 and being curved upwardly and forwardly and spread apart as at 30, 31*a*. Interposed between and riveted to said upwardly curved end portions 30, 31*a*, as at 31, is a bent plate member 32 having a tubular portion 33 forming a bearing inclined somewhat upwardly and rearwardly for the purpose hereinafter appearing.

The frame 11 further comprises a member 35 made of an elongated strip of metal having parallel portions 36 and 37 disposed parallel to said portions 17 and 18, portions 38 and 39 contacting the inner ends of the portions 14 and 15 and riveted thereto as at 40 and 41, and portions 43 and 44 contacting the portions 19 and 20 and riveted thereto as at 46 and 47. Fixed to the parallel portions 17, 18, 36 and 37 of the frame 11 are downwardly extending strap portions 17*a*, 18*a*, 36*a* and 37*a* respectively, formed with aligned bearing openings rotatably supporting a crank shaft 48. Said shaft is provided with portions extending through said bearing openings and end portions extending beyond the portions 17 and 18 of the frame, on which

are fixed for rotation, the wheels 49 and 50. The crank shaft 48 further comprises aligned U-shaped arms 51 and 52 extending between the frame portions 17 and 36, and 37 and 18 respectively. Said crank shaft further comprises diametrically disposed U-shaped arms 54 and 55 extending between the frame portions 36 and 37. It will now be understood that as the crank shaft 48 is rotated, the wheels 49, 50 will be rotated therewith.

Fixed to the upper surface of said member 24 as at 56 is a U-shaped plate spring 57 curved forwardly upwardly and then rearwardly and having a rearwardly extending end portion 58. The spring 57 may be made of an elongated strip or plate of spring metal or the like material. Fixed to the end portion 58 of said spring 57 is a seat 59 made of wood or the like material and suitably shaped to permit a person to sit thereon with the legs of said person straddling said seat. The seat 59 is provided with a portion 60 extending forwardly therefrom, to which there is attached a socket member 61 having a horizontal transverse pin 62 either fixed or pivoted thereto. Pivoted to said pin 62 is a member 63 having a tubular portion 64 forming a bearing coaxial with said bearing 33.

Pivoted to said bearings 64 and 33 is a steering device 68 comprising a frame 69 preferably formed of a pair of spaced symmetrical elongated strips 69*a* receiving therebetween a bracket 70. Said bracket 70 comprises a portion 70*a* having parallel ears 72 extending forwardly and contacting the inner surfaces of said strip 69*a* and connected to said strips by a pair of rivets 72*a*. Extending rearwardly from said portion 70*a* are a pair of substantially horizontal ears 70*b* to which there is fixed a pin 72*b* journaled within the bearing 33. The lower portions 73 of frame 69 support an axle 75 on which is rotatably mounted a front wheel 74 received between said portions of said frame.

Received between the upper portions 76 of said frame members 69*a* is a member 77 preferably made of a flat piece of wood and shaped in the form of the neck and head of a horse or in any other suitable manner. Fixed to the upper ends of said portions 76 is a transverse pin 78 to which there is attached in any suitable manner, a downwardly extending pin 78*a* journaled in said bearing 64, and terminating in a head supporting said bearing.

Attached to the upper portion of the horse head, are a pair of outwardly extending handle portions 79, for steering the vehicle, the steering operation being effected by movement of the member 68 about the axial bearings 33 and 64.

To cause pivotal movement of the seat 59 about the pin 62 during forward or rearward movement of the vehicle, there is provided a pair of links 80 and 81 interconnecting the rear of the seat 59 with the crank shaft arms 51 and 52.

It will now be understood that as the crank shaft is rotated, the rotational movement of the aligned crank arms 51 and 52 will cause the links 80 and 81 to move up and down for pivotally moving the seat about the pin 62. Reversely, an up and down movement of the person sitting on the seat 59 will cause rotation of the crank shaft which in turn will cause movement of the vehicle forwardly or rearwardly, depending upon the direction of rotation of said crank shaft. Thus, if the crank shaft 48 is given a start in one direction, continued up and down movement of the seat 59 will cause continued rotation of the crank shaft in that direction. The seat may be oscillated by moving the body down and then permitting the spring 57 to raise the seat.

Means is provided for starting rotation of the crank shaft in either direction. To this end there is attached to said member 24 a pair of upwardly extending arms 90 to the upper end of which there is attached a transverse pin 91 having enlarged heads 92 at the outer ends thereof. Rotatably mounted on said pin 90 and contacting each of the heads 92 are a pair of similar bell cranks 95 each having angular arms 96 and 97. At the outer end of each of the arms 96 there is attached a foot pedal 99. Interconnecting the outer end of the arm 97 of one of said bell cranks 95 with the outer end of the arm 55 of the crank shaft is a link or strap 100, and interconnecting the outer end of the other arm 97 with the outer end of the arm 54 of the crank shaft is an interconnecting link or strap 101.

When the arms of the crank shaft are in vertical position and the rear of the seat 59 is in the uppermost position thereof, the bell cranks 95 are in alignment as shown in Fig. 1 of the drawings. Pressure of the foot on the left pedal 99 downwardly will cause a pull on the arm of the bell crank for rotating the crank shaft in a clockwise direction (looking at Fig. 1). This motion will cause the seat 59 to move downwardly. The spring 57 being tensioned will thereafter lift the seat to continue rotation of the shaft. Thereafter a continued up and down movement of the body will cause continuous rotation of the crank shaft in a clockwise direction, looking at Fig. 1, to cause the vehicle to travel forwardly. However, should the pedal 99 on the right of the vehicle be pressed downwardly by the foot of the person sitting on the vehicle, the strap 100 will pull the crank shaft portion 55 forwardly for starting rotation of the said crank shaft in a counterclockwise direction. Continued up and down movement of the body will cause continued rotation of the crank shaft, in the same direction for causing rearward travel of the vehicle.

It will thus be seen that the person using the vehicle need merely place himself thereon, grasp the handles 79 and depress either one or the other of the pedals 99 to start the vehicle depending upon whether the person desires to propel the vehicle forwardly or rearwardly. The up and down movement of the body imitates the movement of the body when riding on horse-back. During travel of the vehicle the bell cranks 95 oscillate and movement of the vehicle may be aided by using the foot pedals to help rotate the crank shaft.

In Figs. 8, 9 and 10 there is shown a modified construction. In this embodiment, the vehicle 10*a* likewise comprises a frame 11 attached to a member 24 as shown in Fig. 1. Attached to the portions 17, 18, 36 and 37 of said frame 11 are downwardly extending strap portions 17*a* and 18*a*, 36*a* and 37*a*, formed with aligned bearing openings rotatably supporting a crank shaft 48*a*. Said crank shaft 48*a* comprises aligned U-shaped arms 110 and 111 and a central U-shaped arm 112 extending between the strap portions 36*a* and 37*a*. The arm 112 may be somewhat at an angle to the arms 110 and 111 of the crank shaft. Mounted on said member 24 are a pair of bearing members 115 formed with aligned bearing openings rotatably supporting a transverse pin 116; and fixed to the outer ends of said pin 116 is a member 117 comprising a pair of aligned bell cranks 117*a* each having an arm 118 formed with

an outwardly extending portion 119 on which is mounted a foot pedal 120. The bell cranks 117*a* are further each provided with a downwardly extending arm 121, said arms being interconnected by a portion 122. Interconnecting said portion 122 with the arm 112 of the crank shaft is a link or strap 123. The links 80 and 81 are connected at the lower ends thereof to the arms 110 and 111 of the crank shaft.

It will now be understood that the member 117 may be moved by simultaneously depressing the foot pedals 120. With the parts in the position shown in full lines in Figs. 9 and 10, and the seat 59 is in the uppermost position thereof, a depressing movement on the foot pedals will cause the strap 123 to pull the portion 112 of the crank shaft forwardly for rotating said crank shaft in a clockwise direction, looking at Fig. 9. Continued movement of the body up and down on the seat will cause the crank shaft to be turned by the links 80 and 81 in the same direction for moving the vehicle forwardly. If it is desired to propel the vehicle rearwardly, the seat is first depressed to bring the arms 110 and 111 to the position shown in dot-dash lines in Fig. 9. In this position it will be noted that the arms 110 and 111 of the crank shaft are substantially 180° from the full line position thereof. The foot pedals 120 as shown in Fig. 9 will be close to the first position thereof. Downward pressure on the foot pedals however, will cause the link 123 to pull the arms 110 and 111 of the crank shaft forwardly for rotating said crank shaft in a counterclockwise direction. During this motion, the seat will be moved upwardly for raising the body. Continued movement of the body downwardly and upwardly will cause continued movement of the crank shaft in a counterclockwise direction for moving the vehicle rearwardly. Thus, the vehicle may be moved forwardly or rearwardly by movement of the body, it being merely necessary to start rotation of the crank by means of the foot pedals. During travel of the vehicle, the member 117 is oscillated and movement of the vehicle may be aided by periodically pressing down with the feet on the foot pedals in harmony with the body as the body moves up and down with the seat. Obviously the vehicle may be moved solely by actuation of the foot pedals.

In Figs. 11, 12, 13 and 14 of the drawings, there is shown a still further modified form of the invention. In accordance with said modified form, the vehicle 10*b* is likewise provided with a frame 11 and downwardly extending strap portions 17*a*, 18*a*, 36*a* and 37*a*, formed with aligned bearing openings rotatably receiving a crank shaft 48*b*. The crank shaft 48*b* is formed with aligned U-shaped arms 130 and 131 extending between the strap portions 17*a*, 36*a* and 37*a*, 18*a* respectively. Fixedly mounted on the central axial portion 132 of the crank shaft is a sprocket wheel 134. The vehicle 10*b* is provided with a member 24*b* attached to and interposed between the portions 21 and 22 of the frame 11. Said member 24 is provided with a central slot 136 and with a pair of aligned bearing members 137 for the purpose hereinafter appearing. Journaled on said bearings 137 is a rotary foot crank 138 carrying foot pedals 139. Mounted on the portion of the foot crank 138 extending between the bearing portions 137 is a sprocket wheel 139 and interconnecting said sprocket wheels 134 and 139 is a sprocket chain 140.

It will now be understood that as the crank 138 is rotated by the leg motion of the person using the vehicle, the crank shaft 48*b* will be rotated for causing travel of the vehicle and simultaneous pivotal movement of the seat 59 about the pivotal point 62 thereof, thus causing the body of the person using the vehicle to be moved up and down and somewhat like the motion of the body, while riding on horse-back.

Although the invention is described and illustrated herein as a toy vehicle, it will be understood that the invention may be embodied in a large variety of vehicles, for the use of adults as well as children, it being a dominant feature of the invention to obtain a motion like the motion of the body while riding on horse-back, which is beneficial to health and further to incorporate such motion in a vehicle or like device operated by the person using the same.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiments set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. A vehicle of the character described comprising a frame, a crank shaft rotatably mounted thereon, wheels fixed to the ends of said crank shaft, a steering device pivoted to the forward part of said frame, a seat pivoted at the front end thereof to said steering device, a link interconnecting the rear of said seat with an arm of said crank shaft, whereby said seat oscillates during rotation of said crank shaft, and a bell crank pivoted to said frame having a foot pedal on one arm thereof and a link interconnecting the other arm of said bell crank with another arm of said crank shaft.

2. A vehicle comprising a frame, a crank shaft rotatably mounted on said frame, wheels fixed to the outer ends of said crank shaft, a steering device pivoted to the forward end of said frame, a rotatable wheel carried by said steering device, a member pivoted to said steering device on an axis co-axial with said first mentioned pivotal connection, a seat pivoted to said member about a horizontal axis, a U-shaped spring having an arm fixed to said frame, and an arm fixed to said seat, and a link interconnecting a portion of said seat with an arm of said crank shaft.

3. A vehicle comprising a frame, a crank shaft rotatably mounted on said frame, wheels fixed to the outer ends of said crank shaft, a steering device pivoted to the forward end of said frame, a rotatable wheel carried by said steering device, a member pivoted to said steering device on an axis co-axial with said first mentioned pivotal connection, a seat pivoted to said member about a horizontal axis, a U-shaped spring having an arm fixed to said frame, and an arm fixed to said seat, a link interconnecting a portion of said seat with an arm of said crank shaft, a bell crank pivoted to said frame having an arm provided with a foot pedal, and a link interconnecting the other arm of said bell crank with an arm of said crank shaft.

4. A vehicle comprising a frame, a crank shaft rotatably mounted on said frame, a wheel fixed to said crank shaft, a steering device pivoted to the forward end of said frame, a rotatable wheel

carried by said steering device, a seat pivoted to said steering device, a U-shaped spring having an arm fixed to said frame and an arm fixed to said seat, and a link interconnecting a portion of said seat with an arm of said crank shaft.

5. A vehicle comprising a frame, a crank shaft rotatably mounted on said frame, wheels fixed to the outer ends of said crank shaft, a steering device pivoted to the forward end of said frame, a rotatable wheel carried by said steering device, a member pivoted to said steering device on an axis coaxial with said first mentioned pivotal connection, a seat pivoted to said member about an axis substantially perpendicular to said first mentioned axis, a spring interposed between said seat and frame, and a link interconnecting a portion of said seat with an arm of said crank shaft.

6. A vehicle comprising a frame, a crank shaft rotatably mounted on said frame, a wheel fixed to said crank shaft, a steering device pivoted to the forward end of said frame, a rotatable wheel carried by said steering device, a seat pivoted to said steering device, a U-shaped spring having an arm fixed to said frame and an arm fixed to said seat, a link interconnecting a portion of said seat with an arm of said crank shaft, and foot actuated means mounted on said frame for rotating said crank shaft.

7. A vehicle comprising a frame, a crank shaft rotatably mounted on said frame, wheels fixed to the outer ends of said crank shaft, a steering device pivoted to the forward end of said frame, a rotatable wheel carried by said steering device, a member pivoted to said steering device on an axis coaxial with said first mentioned pivotal connection, a seat pivoted to said member about an axis substantially perpendicular to said first mentioned axis, a spring interposed between said seat and frame, a link interconnecting a portion of said seat with an arm of said crank shaft, and foot actuated means on said frame for actuating said crank shaft.

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