

Aug. 8, 1961

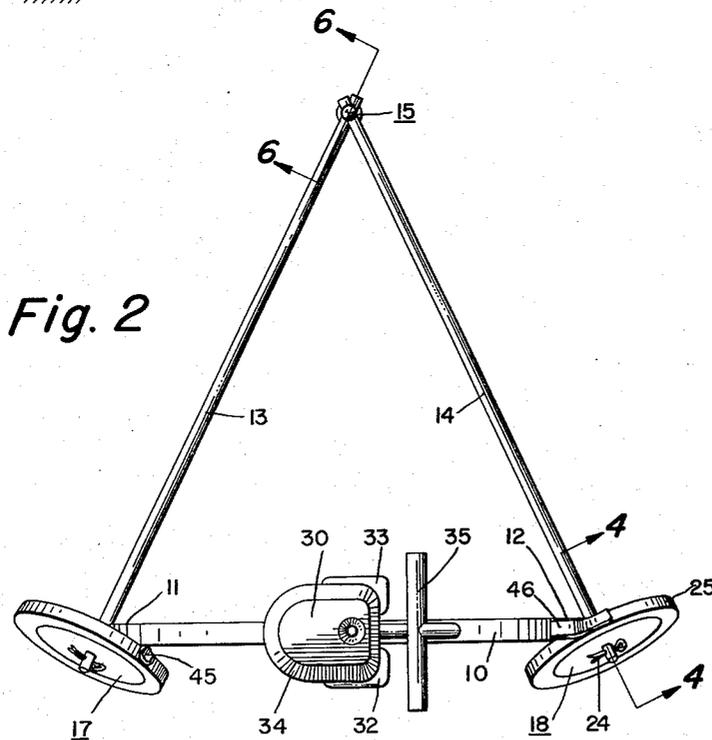
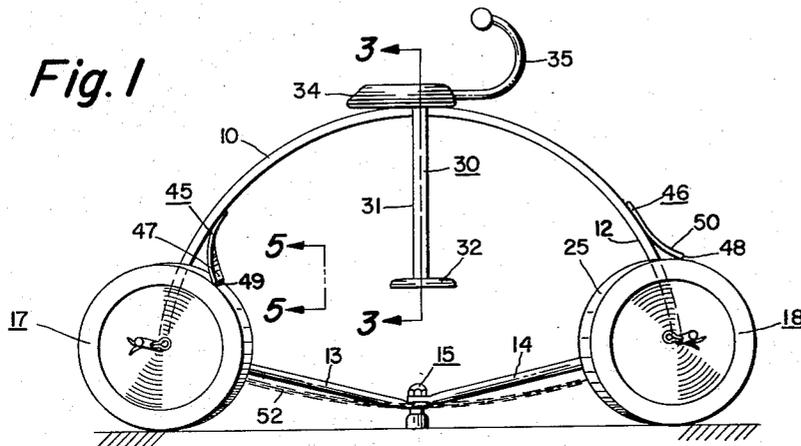
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2,995,368

VELOCIPEDE

Filed March 3, 1958

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

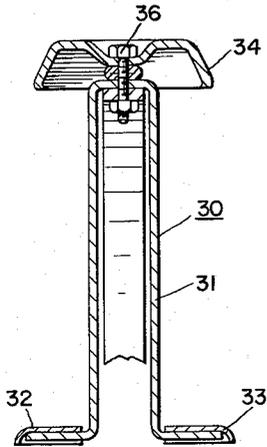


Fig. 3

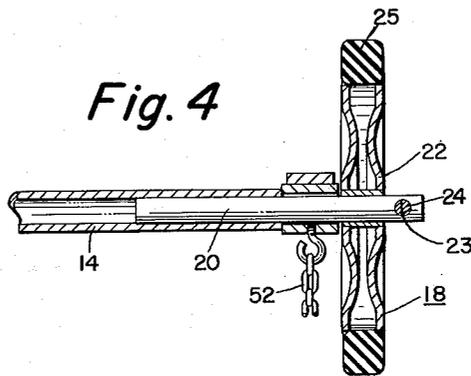


Fig. 4

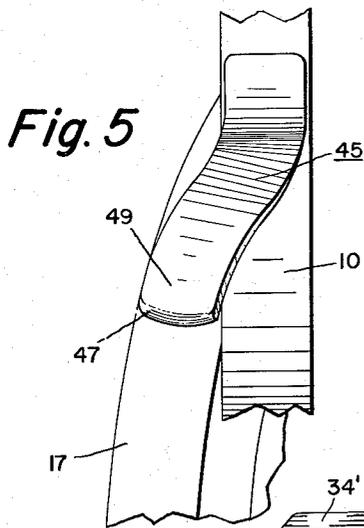


Fig. 5

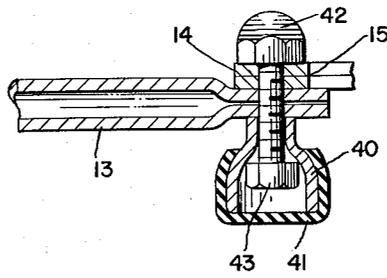


Fig. 6

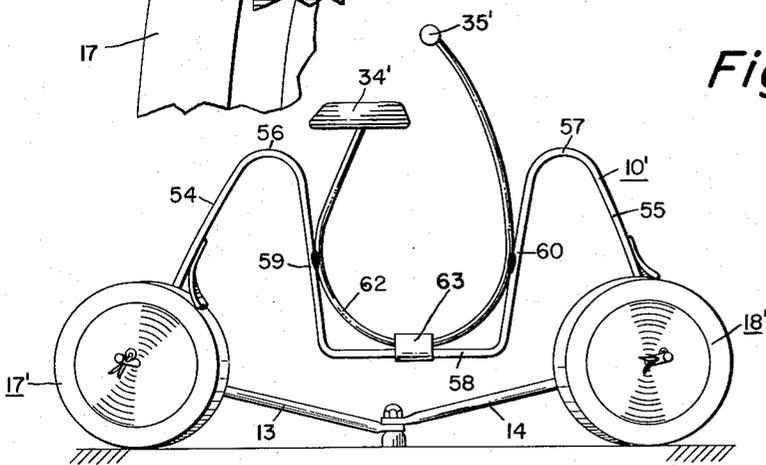


Fig. 7

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VELOCIPEDE

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6 Claims. (Cl. 272-33)

This invention pertains to toys, and more particularly, to a velocipede which may be ridden by a small child.

Small children enjoy toys which bounce, such as hobby-horses. They also enjoy toys which may be ridden and moved.

One of the principal objects of this invention is to provide a toy which may be ridden by a small child along a preselected path and in which movement is caused by the child bouncing on a seat to combine both the features of a bouncing toy and a moving toy.

Moving toys such as velocipedes often create problems for parents or guardians. When riding such a vehicle indoors small children are apt to damage furniture by bumping into it, and when riding a velocipede in the out-of-doors they are apt to travel into the path of moving vehicles.

Accordingly, another object of this invention is to provide a velocipede type toy which travels over a preselected circular path to prevent any possible injury to furniture or the child riding the toy.

A further object of this invention is to provide a simple rugged tripod suspension for a toy made in accordance with the foregoing objects, to provide a toy having good stability which will remain in an upright position and not turn over when it is ridden by a child.

Another object of the invention is to provide a velocipede type toy which has greater stability than a tricycle, but which has the simplicity, ruggedness and mobility of a bicycle.

An additional object of the invention is to provide a toy having a pivot, a frame joined to the pivot by joining means so that movement of the frame is in a circular path about the pivot, and first and second spaced wheels supporting the frame and joining means with the axes of the wheel located radially with respect to the pivot to aid in causing the device to move in a circular path.

Still another and more specific object of the invention is to provide novel and improved means to limit the wheels to unidirectional rotation, the means being in the form of snubbers which frictionally engage the peripheries of the wheels to prevent reverse rotation of the wheels.

A still further object of the invention is to provide a novel and improved velocipede device in which a spring is provided to serve a dual function of frame and carriage for a seat or other support for the child and urging means to translate the bouncing movement of the child into forward movement of the wheels and therefore the frame and other parts of the velocipede.

Yet another object of the invention is to provide a novel unitary seat, handle, and stirrup assembly which can be connected to the frame as a unit.

A related object of the invention is to provide a novel and improved simple pivot construction which is inexpensive, rugged and which permits the velocipede to "lean in" on the pivot to increase the stability of the device.

Other objects and a fuller understanding of the invention may be had by referring to the following description and claims taken in conjunction with the accompanying drawings, in which:

FIGURE 1 is a side elevational view of the preferred embodiment of this invention;

FIGURE 2 is a top plan view of the device of FIGURE 1;

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FIGURE 3 is an enlarged sectional view of the occupant supporting assembly as seen from the plane indicated by the line 3-3 of FIGURE 1;

FIGURE 4 is a sectional view of the wheel attachment structure as seen from the plane indicated by the line 4-4 of FIGURE 2;

FIGURE 5 is a fragmentary plan view of an enlarged scale of the novel snubbing means as viewed from the direction indicated by the line 5-5 of FIGURE 1;

FIGURE 6 is an enlarged sectional view of the pivot as seen from the plane indicated by the lines 6-6 of FIGURE 1; and

FIGURE 7 is a side elevational view of a modified form of the invention.

In the drawings, and in FIGURES 1 and 2 in particular, a preferred embodiment of the new and novel velocipede is shown. The term velocipede has come to mean a tricycle. However, its original meaning, and the meaning in which it is used in connection with this invention, is in the sense of any of various bicycles or tricycles. In fact, it is used in the sense of a wheeled toy vehicle which may be ridden by a child.

The velocipede in its preferred embodiment of FIGURES 1 and 2 has a spring frame 10 of generally circular configuration. As can best be seen in FIGURE 1, the spring frame 10 is substantially semicircular in its preferred form. The spring frame 10 has first and second ends 11, 12 which are fixed to first and second pivot bars 13, 14 respectively. The pivot bars or arms 13, 14 have ends which are pivotally connected to a pivot shown generally at 15. First and second wheels 17, 18 are rotatably connected to the frame 10 and pivot bars 13, 14 in a matter which will subsequently be described in more detail.

The wheels 17, 18 are preferably canted inwardly somewhat at the top with their axes being substantially extensions of the axes of the pivot bars 13, 14 and radial with respect to the pivot 15. It will be seen that as the device is advanced and the wheels 17, 18 rotate, they follow a circular path about the pivot 15.

In FIGURE 4 the connection of the wheel 18 to the pivot bar 14 is shown on an enlarged scale. References to FIGURE 4 will show that the pivot bar 14 is a tubular member. An axle bar 20 projects into the tube 14. The axle bar 20 is fixed to the tube 14. The wheel 18 is journaled on the axle bar 20 with a bearing forming part of the center portion 22 of the wheel 18 in rotatable contact with the axle 20. A hole 23 is formed in the end of the axle bar 20 and a cotter key 24 is disposed in the hole 23 to hold the wheel 18 on the axle. The wheel 18 has a rubber rim 25 to limit noise when the device is in operation and to prevent undue wear of the surface upon which the velocipede is being operated. It will be recognized that the wheel 17 corresponds in mounting and construction to the wheel 18.

A child, or operator, support assembly is shown generally at 30 in FIGURES 1, 2 and 3. The assembly 30 has a stirrup bar, or pressure transmission bar 31 which straddles the frame 10 and provides first and second foot supports 32, 33. A seat 34 and a handle bar 35 are also provided and form a part of the operator support assembly 30. The seat and handle bar 34, 35 are preferably of unit construction which unit together with the stirrup bar 31 is joined to the frame 10 by a single bolt 36.

In FIGURE 6 the details of a simple and novel pivot 15 are shown. A pivot support 40 is provided. A rubber cup 41 is telescoped over the base of the pivot support to provide friction to hold the pivot in place and protection for the surface on which the device is used. A bolt 42 is passed through apertures in the pivot bars

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13, 14 and into the pivot base 40. A nut 43 is threaded onto the bolt 42 to hold the pivot bars 13, 14 and the pivot base 40 together in a pivotal connection.

One of the outstanding advantages of the invention resides in the novel means of providing unidirectional wheel rotation. A simple mechanism devoid of gears or other intricate parts is provided to permit the vehicle to move forward only. First and second snubbers 45, 46 are fixed to the frame 10. The snubbers 45, 46 which may be formed of spring steel, have end portions 47, 50 which lie in planes other than radial to the wheels 17, 18. The end portions 47, 50 have blunt edges 49, 48 which are urged into peripheral contact with the wheels 17, 18 respectively. The springing action of snubbers 45, 46 urges the blunt ends 49, 48 into frictional contact with the peripheries of the wheels 17, 18 to permit forward rotation of the wheels and prevent reverse rotation of the wheels. It will be seen that the ends 49, 48 may be formed of rubber to increase the frictional resistance between the snubbers and the wheels.

In operation a child sits on the seat 34 with his feet in the stirrups 32, 33. He bounces on the seat to make the velocipede advance along a circular path about the pivot 15. When he comes down on the seat 34, it causes the ends 11, 12 of the spring frame 10 to spread. The spreading of the spring frame 10, causes spreading of the pivot bars 13, 14 and rotation of the connected wheels. Since the snubber 45 prevents reverse rotation of the wheel 17, all the spreading movement is taken up by a front wheel 18 which rotates in a forward direction. As the spring frame 10 returns to its original position and the child rises, the ends 11, 12 of the spring frame 10 and the connected pivot bars 13, 14 are drawn together. As the frame ends 11, 12 are drawn together, the front wheel is prevented from rotating in a reverse direction by the snubbing action of the snubber 46 and therefore all the movement is taken up by the rear wheel 17. The rear wheel 17 thus advances, moving the child further along his circular path. As the child continues to bounce, he continues to advance in a circle with first the front wheel advancing and then the rear wheel advancing.

Stop means may be provided to limit the expansion of the spring frame 10 and prevent damage by too large a child. This stop means may take the form of a chain 52 which is fixed to both of the pivot bars 13, 14.

The overall stability of the device is enhanced by several contributing factors. Locating the wheels 17, 18 so they rotate along axes which are radial with respect to the pivot 15, aids in holding the device so it operates in a fixed circular path. This permits a parent to leave a child riding the toy unattended knowing that he will not strike furniture if the device is being used indoors, and will not advance his toy to a dangerous place such as in the path of vehicles if the toy is being used outdoors.

Another of the factors which contributes to the stability of the device, is the canting of the wheels inwardly as is best seen in FIGURE 2. This is accomplished by the simple expedient of providing a low pivot 15, so that the pivot bars 13, 14 slope downwardly toward the pivot. This keeps the center of gravity of the child and the toy within the tripod defined by the pivot and the wheels 17, 18 and therefore minimizes any possibility that a child operator might upset the device.

In FIGURE 7 an alternate embodiment of the invention is shown which has both the attribute of being stronger than the embodiment of FIGURES 1 and 2 to accommodate a larger child, and the advantage of simulating a girl's bicycle. In this construction the spring frame 10' has first and second end portions 54, 55 which are fixed to the pivot bars 13, 14. Spring portions 56, 57 are provided adjacent the end portions 54, 55. Flexing in this embodiment when the child bounces occurs in the spring portions 56, 57. The spring or yieldable portions 56, 57 are connected to a base portion

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58 by first and second support portions 59, 60 respectively. It will be seen that the spring frame 10' of the embodiment of FIGURE 7 is somewhat M shaped.

In the central region of the M-shaped spring frame 10', a reenforcing brace 62 is provided. The reenforcing brace 62 is somewhat U-shaped and is connected to the base portion 58 and the support portions, 59, 60 to strengthen the spring frame 10'.

A seat 34' and a handle bar 35' are connected to the ends of the brace 62. A foot or stirrup pad 63, which can serve as a pressure transmission bar, is provided. The stirrup pad 63 is located in the vicinity of the connection of the base portion 58 and the brace 62.

While the invention has been described with a great deal of clarity and detail, it is believed that in its simplest form it comprises operator control frame and propulsion means which may be ridden by an operator, wheel means connected to the frame, and a pivot with joining means connecting the frame to the pivot so that the device operates in a circle under urging by the operator.

Although the invention has been described in its preferred form with a certain degree of particularity, it is understood that the present disclosure of the preferred form has been made only by way of example and that numerous changes in the details of construction and the combination and arrangement of parts may be resorted to without departing from the spirit and the scope of the invention as hereinafter claimed.

In the claims:

1. A velocipede for operation in a circular path under force provided by an operator comprising, a pivot, first and second pivot arms, each of the pivot arms having a pivot end and a remote end, the arm pivot ends being pivotally connected to the pivot, front and rear wheels rotatably connected to the remote ends of the first and second arms respectively, a spring frame connected to each of said pivot arms and connecting the arms together, unidirectional snubbing means connected to the spring frame and operably connected to the wheels to prevent reverse rotation of the wheels and to permit sequential forward movement of the wheels about the pivot in the same direction, operator support means carried by the spring frame, at least one pressure transmission bar carried by the spring frame intermediate the connections of the spring frame to the said pivot arms, said pressure transmission bar being positioned to apply pressure to the spring frame reciprocally along a path substantially perpendicular to the ground as the sole propulsion power, said spring frame being lengthened by pressure applied in one direction to urge the first pivot arm and the front wheel forwardly while such unidirectional snubbing means prevents reverse rotation of the rear wheel, said spring frame being shortened by the inherent resiliency of the spring frame to urge the rear wheel forwardly while such unidirectional snubbing means prevents reverse rotation of the front wheel whereby to provide a velocipede in which reciprocating pressure applied to the spring frame lengthens the frame and thereafter the inherent resiliency of the frame shortens the frame to sequentially advance the front and rear wheels one at a time.

2. A velocipede for operation in a circular path under force provided by an operator, comprising, a pivot, first and second pivot arms, each of the pivot arms having a pivot end and a remote end, the arm pivot ends being connected to the pivot, front and rear wheels rotatably connected to the remote ends of the first and second arms respectively, a spring frame connected to each of the pivot arms and connecting the arms together, the spring frame having first and second spaced ends movable toward and away from one another from a relaxed position, stop means fixed to the arms to limit movement of the arms when the ends of the spring frame are spread away from one another from the relaxed position, unidirectional snubbing means carried by the spring frame

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and operably connected to the wheels to prevent reverse rotation of the wheels and to permit sequential forward movement of the wheels about a pivot in the same direction, an operator seat carried on said spring frame, and a pair of transmission bars connected to the spring frame adjacent the seat, said bars being disposed on opposite sides of the frame and substantially perpendicular to the ground, said bars each having a foot engaging section carried thereon below said seat to receive frame lengthening pressure, said spring frame being lengthened by pressure applied in one direction to urge the first pivot arm and the front wheel forwardly while such unidirectional snubbing means prevents reverse rotation of the rear wheel, said spring frame being shortened by the inherent resiliency of the spring frame to urge the rear wheel forwardly while such unidirectional snubbing means prevents reverse rotation of the front wheel whereby to provide a velocipede in which reciprocating pressure applied to the spring frame lengthens the frame and thereafter the inherent resiliency of the frame shortens the frame to sequentially advance the front and rear wheels one at a time.

3. The device of claim 1, each of said snubbing means being a resilient strip fixed to the frame at one end of said strip, said strip having a face thereof in peripheral abutment with a wheel, said strip lying in a plane other than radial to the wheel.

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4. The device of claim 1 wherein said spring frame is a leaf spring having the general shape of an inverted U.

5. The device of claim 1 wherein the spring frame has a pair of spaced inverted U-shaped portions and a central connecting portion therebetween and wherein the power transmission bar is connected to said central connecting portion.

6. The device of claim 1 wherein the connection of the arms to the pivot is below the connection of the arms to the wheels such that the spring frame leans inwardly toward the pivot to provide a stable device.

References Cited in the file of this patent

UNITED STATES PATENTS

464,448	Beck	Dec. 1, 1891
543,484	James	July 30, 1895
881,002	Johnson	Mar. 3, 1908
1,353,108	Wood	Sept. 14, 1920
1,457,035	Kotlik	May 29, 1923
2,539,161	Rahning	Jan. 23, 1951
2,621,950	Ricks	Dec. 16, 1952
2,653,838	Danly et al.	Sept. 29, 1953
2,729,464	O'Donnell	Jan. 3, 1956

FOREIGN PATENTS

326,096	Italy	Apr. 29, 1935
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