Sept. 8, 1953 R. E. THOREN 2,651,527

RIDER PROPELLED TOY VEHICLE

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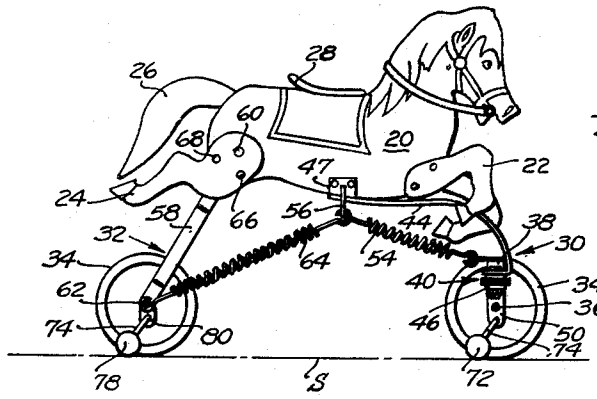


Fig. 1

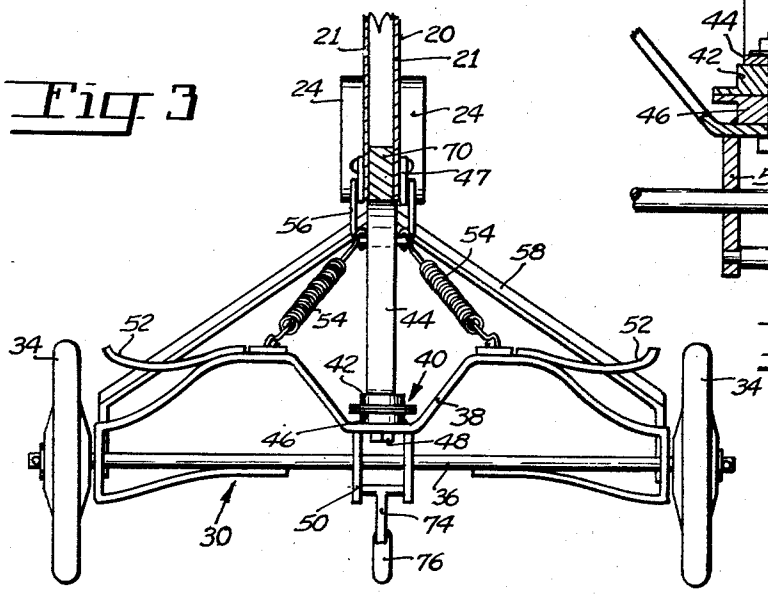


Fig. 3

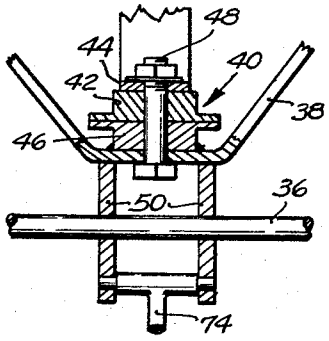


Fig. 4

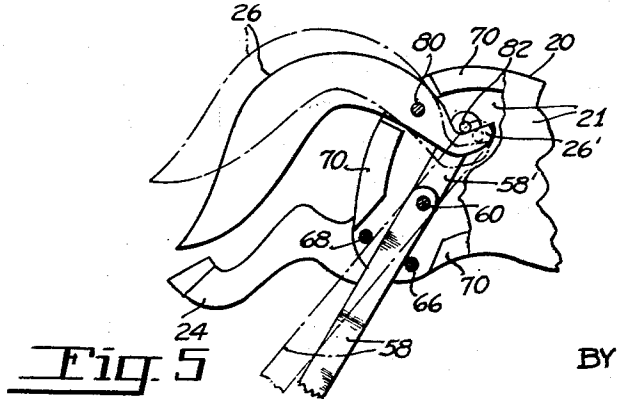


Fig. 5

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RIDER PROPELLED TOY VEHICLE

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Fig. 2

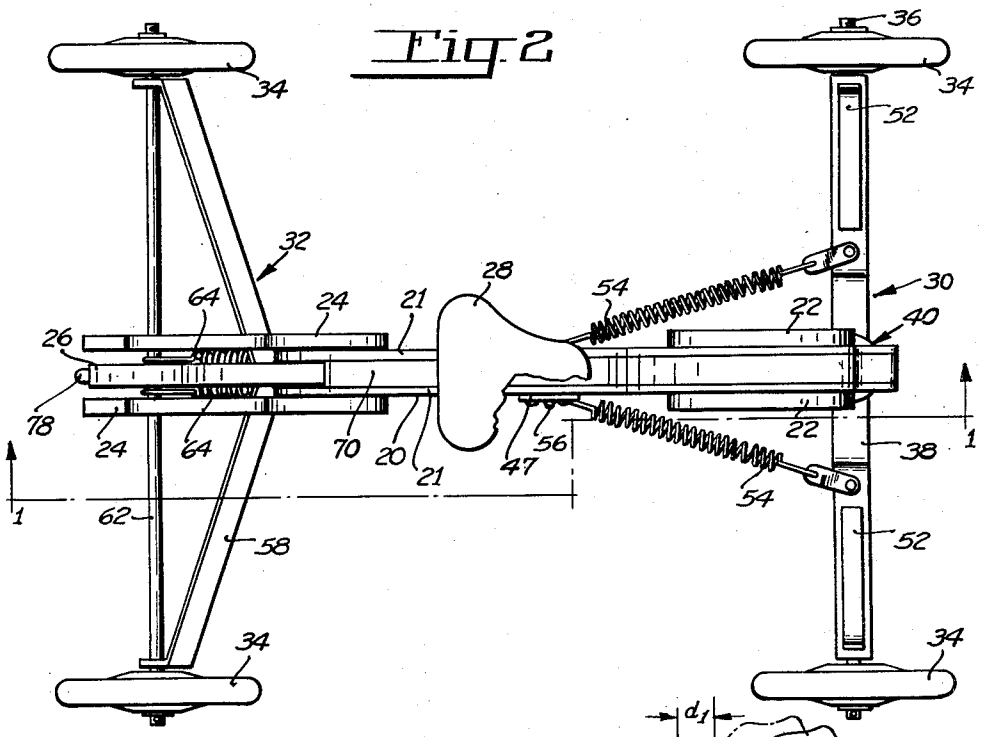
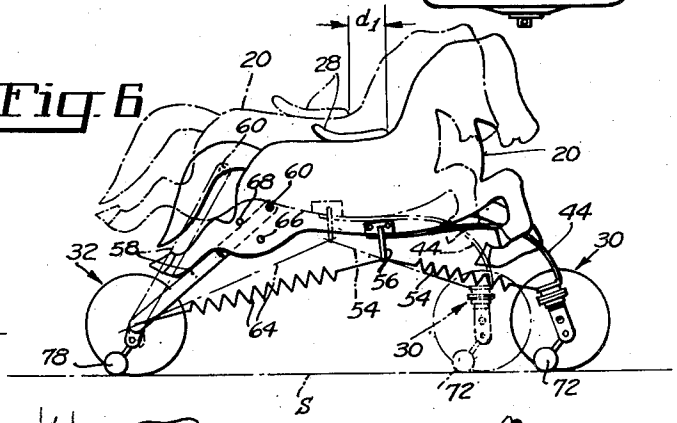


Fig. 6



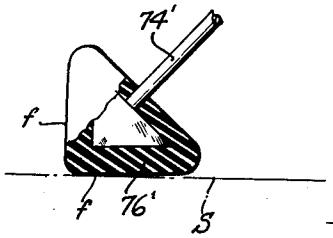


Fig. 14

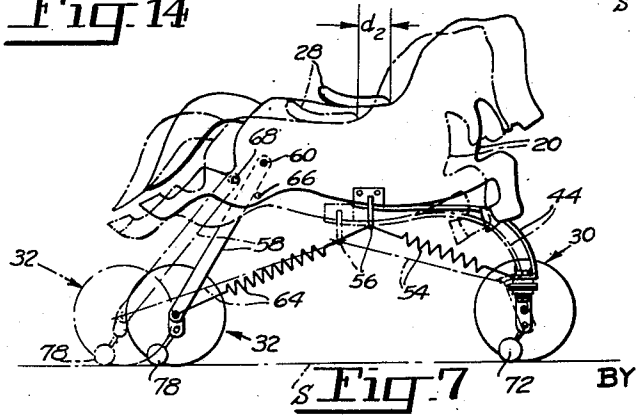


Fig. 7

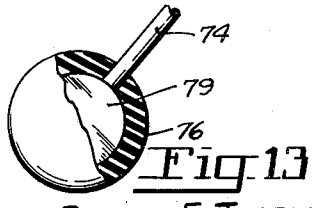


Fig. 13

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RIDER PROPELLED TOY VEHICLE

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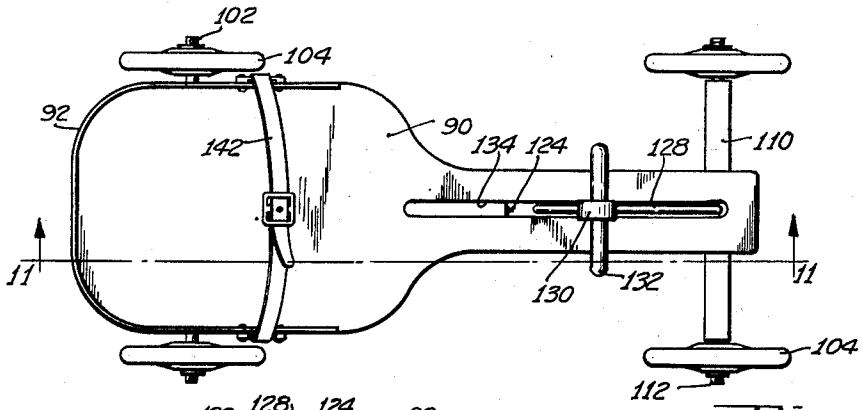


Fig. 10

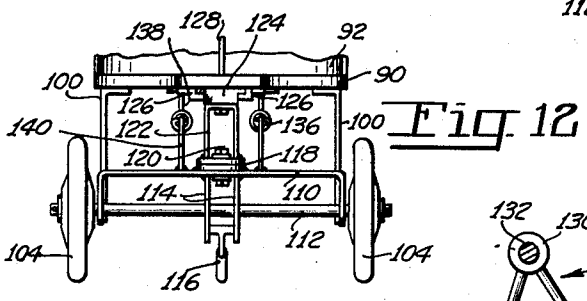


Fig. 12

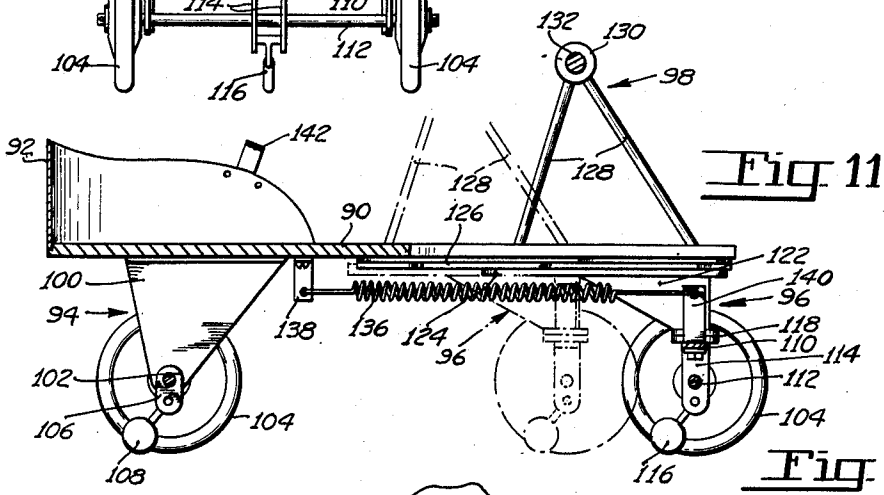


Fig. 11

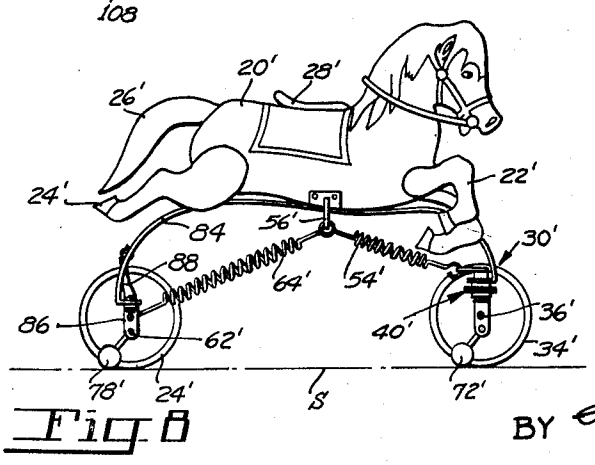


Fig. 8

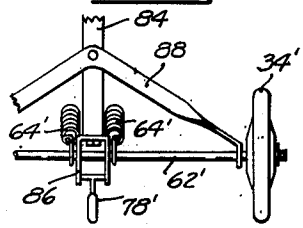


Fig. 9

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UNITED STATES PATENT OFFICE

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RIDER PROPELLED TOY VEHICLE

Robert Edward Thoren, Moses Lake, Wash.

Application June 6, 1949, Serial No. 97,431

10 Claims. (Cl. 280—218)

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This invention relates to improved vehicular exercising toys, and more particularly to those of a type having propelling mechanism actuated, for example, by shifting of the operator's weight back and forth, as in one herein illustrated form of the invention, or, in an alternative illustrated form thereof, by reciprocation of a control part manually without necessity for weight shifting. A general object of the invention is to devise a vehicular exercising toy which will afford a minimum degree of pleasure and healthful exercise to children, and one of a construction lending itself to inexpensive, sturdy and durable manufactured forms.

In more specific terms, the type of toy referred to is propelled by causing the front and rear carriage sections thereof to spread and contract relatively in alternate sequence. During spreading of the carriage sections one is automatically stopped or held against absolute travel in the direction away from the other, while the second carriage section is not then so held but is free to move in the direction away from the former carriage section. As a result the toy then advances by an increment in the direction of movement of the second carriage section during relative spreading of the two sections. Thereupon during the succeeding operation of relatively contracting the carriage sections, the holding or stopping action applied to the two carriage sections is reversed, so that the first-mentioned carriage section is now free to move in the absolute sense in a direction toward the second carriage section, while the latter at the same time is held stationary or against retrograde movement toward the first-mentioned section. Consequently, the toy also advances by a further increment during the contraction phase of the operating cycle. If the operator continues to effect relative spreading and contraction of the carriage sections the toy moves progressively by increments in one direction or another, determined by the position or setting of its automatic stop means, as will be explained hereinafter.

A more specific object relating to such toys is to provide in them simple and inexpensive automatic stop or holding means of a type which will be more effective or reliable in controlling movement of the individual carriage sections selectively. Moreover, quick reversibility of the operative position of such stop means cooperating with each carriage section is attained, enabling the toy to be readily adjusted for traveling forwardly or in reverse, as may be desired.

Such stop means is of the ground-engaging

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type and is so constituted that an increase in impelling force to be resisted by the stop means causes an increase in the pressure of contact and, therefore, the frictional resistance, of the ground-engaging element of such stop means. A further advantage of the novel unidirectional stop means is its adaptability to operate effectively on ground which is somewhat uneven, or as well indoors on a rug or polished floor, for example.

A very important object of the invention is to provide a toy of this type capable of being steered by turning of one of the carriage sections, the stop means for such carriage section being so constituted and so located thereon as to impose negligible resistance to such turning. Previously toys of this general type were not readily steerable, and many were not steerable at all, because of limitations imposed by the chock or ratchet wheel control mechanisms incorporated therein.

A principal feature of my invention in toys of the type described is the combination of relatively movable front and rear carriage sections, to each of which is pivotally connected ground-engaging stop means swingable between alternate, forwardly or rearwardly inclined, ground-engaging positions to stop movement of the respective carriage sections in one direction or the other. These stops are readily reversed for reversal of travel of the toy. Preferably one carriage section is mounted for turning about an upright axis, and its ground-engaging stop means connected thereto at a location for engaging the traveled surface in the vicinity of the turning axis, rather than having, as in prior devices, two separate brake or lock elements directly engaging with the wheels or other support elements of the steerable carriage section.

Other features or advantages reside in the provision of ground-engaging stop means actuated without use of springs, drive mechanism which operates silently and without appreciable wear, and generally an inexpensive toy of the type described having a minimum number of parts.

The foregoing and other features, objects and advantages of the invention, including certain details of construction of preferred forms thereof herein illustrated, will be made apparent from the following detailed description based upon the accompanying drawings.

Figure 1 is a longitudinal vertical sectional view of one form of the toy taken on line 1—1 in Figure 2.

Figure 2 is a plan view of the same with part

of the seat broken away to show a spring connection.

Figure 3 is a front view of the same form with its upper portion broken away.

Figure 4 is a detail rear view of the central portion of the front carriage section of the toy appearing in Figure 3 drawn to a larger scale and with parts broken away.

Figure 5 is a side view of a fragmentary rear portion of a modified form of toy with parts broken away.

Figures 6 and 7 are operational views of the form of toy illustrated in Figures 1 to 4, inclusive, showing relative positioning of its functional parts in different stages of its operating cycle.

Figure 8 is a vertical sectional view of a modified form of toy, the view being taken on a longitudinal cutting plane corresponding in location to line 8—8 in Figure 2 of the first-described form.

Figure 9 is a rear view of a fragmentary portion of the rear carriage section of the type illustrated in Figure 8.

Figure 10 is a plan view of a different form of toy illustrating the invention.

Figure 11 is a longitudinal vertical sectional view of the same form taken on line 11—11 in Figure 10.

Figure 12 is a front view of the same with an upper portion thereof broken away.

Figure 13 is a fragmentary side view of a preferred form of ground-engaging friction stop employed in all three illustrated forms of the toy, with parts of such stop broken away, and Figure 14 is a corresponding view of a variation in the form of the friction stop used.

In its form shown in Figures 1 to 7, inclusive, the improved vehicular exercising toy has a body portion **20** resembling, for example, a horse or any other toy body form. Such body portion is provided with fixed front and rear legs **22** and **24**, respectively, and a tail **26**. The operator's seat **28** mounted thereon may be of the bicycle type, as shown.

Preferably the toy body portion **20** is of parallel plate construction comprising spaced parallel side plates **21** suitably interconnected at their marginal edges by spacer strips **70**, shown in Figure 5. Such body portion is supported from wheeled front and rear carriage sections **30** and **32**, respectively. Front axle **36**, carrying wheels **34**, is mounted anti-rotationally, as by any suitable non-rotative connection, in a frame member **38**, as seen in Figure 4. This frame member is connected to the lower element **46** of a pivot bearing **40** for turning about an upright axis to enable steering the toy. Two apertured parallel lugs **50** project downwardly from the crotch portion of the frame member **38** at either side of the bearing axis to receive the front axle and brace it centrally from such frame member.

As detailed in Figure 4, the upper or stationary part **42** of bearing **40** is connected to, and supports, the lower end of an upwardly bowed carriage spring **44**, which at its upper or opposite end directly carries the toy body portion **20** to which it is connected at a generally intermediate location along the latter's lower edge. The lower or rotatable part **46** of the bearing **40**, its cooperating upper fixed part **42**, the carriage support spring **44**, and the central crotch portion of the turnable front carriage section frame member **38** are all interconnected by a central pivot pin or bolt **48**.

Frame member **38** carries at each side thereof footrests **52**, seen best in Figure 3. By resting his feet on these footrests the operator is enabled to turn the front carriage section about its pivot axis, defined by pin **48**. Preferably the front carriage mechanism additionally includes a pair of helical tension springs **54**, the lower ends of which are connected to member **38** at spaced locations respectively adjoining the footrests **52**. These springs incline upwardly, rearwardly and convergently to their upper ends fastened to the fixed U-shaped anchor element **56**, which in turn is secured to the mounting bracket **47** bolted to the lower mid-portion of the toy body **20**.

The springs **54** are balanced or of equal stiffness and resilience, and act oppositely on turnable frame member **38**, normally maintaining the axle **36** positioned at right angles to the longitudinal plane of the toy, so that the toy is normally set for rectilinear travel. However, the springs yield readily to the foot pressure of a child operator so that he can easily turn the front carriage section for steering the toy, whether it is moving or at rest.

It will be evident that, for instance, upon an increase in the application of weight to the toy's seat, the resulting deflection of bow spring **44** will cause an increasing length off it to lie or press against the lower forward edge or chest portion of the toy body, a reaction which reduces the free length of and thereby stiffens the carriage bow spring progressively. The weight received by the front carriage section **30** is carried by this curved support spring. However, a downward force applied to the body **20** causes some straightening of the spring and an accompanying forward shifting of the front carriage section relative to the body portion. This shifting stretches or is resisted by the helical springs **54**.

The main support of rear carriage section **32** comprises a fork member **58** formed by bars or strips, the upper ends of which lie closely parallel and are pivoted for conjointly swinging in a vertical plane on a transverse pin **60** which passes through the rear lower quarter of the toy body portion. These strips diverge downwardly from their pivoted upper ends and terminate in parallel spaced relationship to provide apertured supports for rear axle **62** carrying wheels **34**, as shown best in Figure 2. Because the rear carriage section fork **58** inclines upwardly and forwardly from axle **62** to its pivot support **60**, it follows that descent of the toy body is accompanied by or causes the upper end of the rear carriage section fork to swing downwardly about the rear axle. Such swinging of the fork is resisted increasingly over its range of swing by a pair of helical tension springs **64** interconnecting the rear axle **62** and the central U-shaped anchor element **56**. Swinging of the rear fork **58** is limited by front and rear stop pins **66** and **68**, respectively, which pass through the body side plates **21** and hind legs **24**, as shown in detail in Figure 5.

By rocking on the toy, or by shifting his weight between the footrests and seat periodically, the operator causes the toy body portion **20** to oscillate up and down resiliently, accompanied by relative spreading and contraction of the front and rear carriage sections. This oscillation is converted by the novel front and rear unidirectional ground-engaging stop means **72** and **78**, respectively, into absolute longitudinal movement of the toy. The respective stops are pivotally

connected to front and rear carriage sections, 30 and 32.

The front friction stop 72 comprises a T-shaped arm member 74 (Figures 3 and 4) having a transverse element or cross-bar pivoted in apertures formed in the lugs 50 at a location below the front axle 36. The arm member carries at its swinging lower end a ground-engaging friction element or shoe 76 preferably of rubber, or other material of high coefficient of friction, molded around a metal core 79 rigidly secured to the swinging lower end of the arm 4 (Figure 13). The rear friction stop 78 is similarly constructed and pivotally connected to the rear carriage section, as by means of a pair of spaced parallel lugs 80 carried by the rear axle 62.

The swinging length of each friction stop causes it, when lowered of its own weight into contact with surfaces S, to define an acute angle relative to such surface. Preferably this angle is in the vicinity of between 50 and 70 degrees, although it is not especially critical in the operation of the toy. As a child swings on the toy, causing relative spreading and contraction of the carriage sections, if the stops are both inclined in the same direction the toy will be set into motion, traveling an increment during relative spreading and a further increment during relative contraction of the two carriage sections. The direction of travel resulting is always such that the stops occupy a trailing position. Their operative position, hence the direction of travel of the toy, is easily reversed by swinging the entire toy on the stops as pivots.

The shift in Figure 6 from the broken-line to the solid-line position by descent of the toy body and accompanying relative spreading of the two carriage sectons causes the toy to advance bodily by an effective increment d_1. In Figure 7 re-elevation of the toy body and relative contraction of the carriage sections, from the broken-line to the solid-line position, effected by spring reaction, causes a further incremental bodily advanced d_2 in the same direction.

During the relative spreading phase (Figure 6) the rear carriage section is stopped by rear stop 78 against rearward movement, while the front carriage section is free to advance, whereas in the relative retraction phase (Figure 7) the front carriage section is stopped by stop 72 against rearward movement and the rear section is then free to advance. In exerting a holding force unidirectionally on its carriage section each stop frictionally engages the traveled surface S by a contact force or pressure which increases with the impelling force resisted. That result obtains from the proper selection of the length of the stop, determining its angle of inclination relative to the surface S when in contact therewith. While, as previously mentioned, this angle selected is not especially critical, it should be noted that an angle which is too small results in an insufficient downward component of force pressing the stop against surface S, so that the stop tends to slide instead of gaining a firm purchase thereon and holding. On the other hand, if the angle selected is too great, while the stops will not tend to slide, they nevertheless will be ineffective to hold the respective carriage section against travel because such carriage sections will then swing too readily about the stops as pivots, reversing the latter's position when appreciable impelling force is applied to the carriage sections.

An alternate form of stop is shown in Figure 14, in which the disk-like friction element of the

first-described form (Figure 13) is replaced by a generally triangular element 76' designed for increased area of contact with the surface traveled, hence greater frictional resistance. This form of friction stop likewise comprises a metallic core covered by rubber or similar material having a high coefficient of friction. The arm 74' is constructed and mounted in a manner similar to the arm 74 in the earlier-described form. The element 76' has two flat relatively inclined frictional surfaces *f* alternately engageable with the traveled surface S in the alternate operative positions of the friction stop. The angle formed between these faces *f* is substantially equal to the supplement of the angle defined between the forwardly and rearwardly inclined operative positions of arm 74', so that the area of contact between the traveled surface and a face *f* of the friction element 76' will be maximum. Because of the greater area of contact of this form of stop with surface S than with the earlier-described form of stop, greater frictional resistance is obtainable and more effective holding action on smooth floors, for instance. Still other types of friction shoes or other ground-engaging stop devices might be used in lieu of stops 74 or 74'.

Of particular importance to the steerability of the toy is the feature of employing a single ground-engaging stop means pivotally connected to the front or turnable carriage section 30 at a location generally midway between its wheels, viz. substantially at the location of its turning axis. The utility of this arrangement is best appreciated by observing the effect on steerability in prior art devices having two chocks or brakes mounted on a carriage section sought to be steered, one engaging each of the opposite wheels thereon. In those cases any attempt to turn the carriage section would be resisted by one or the other of the wheel locks, depending upon the direction of attempted turning. If the toy were stopped, for example, it would be necessary, in order to turn a pivoted carriage section, to move the entire toy in the process because of a locked wheel. In the present invention, by having the stop means so located that its ground-engaging element 76 contacts the traveled surface S in the immediate vicinity of the vertical turning axis of the frame 38, it offers negligible resistance to turning. The reason is that the wheels are both free to rotate in either direction.

An additional feature that may be incorporated in the general form of vehicular exercising toy illustrated in Figures 1 to 7, inclusive, is the novel mechanism shown particularly in Figure 5 for swinging up and down the tail of the horse toy body during oscillations of such body. This is accomplished by pivoting the tail's root on a horizontal pivot pin 80 and providing it with a cam extension 26' having an upper cam edge slidably engaged by a transverse pin 82 carried at the upper end of an upward extension 58' of the swinging fork 58. Swinging of the extension 58' by the fork in the clockwise direction about the axis of pivot pin 60, as viewed in Figure 5, deflects the tail 26 upward, whereas reverse swinging causes the tail to descend of its own weight. Continued oscillation of the toy is, therefore, accompanied by swinging of the tail, a feature attractive to children.

A variation of the vehicular toy form previously described appears in Figures 8 and 9, wherein the rear carriage fork construction is replaced by a bow spring support similar to that supported by the front carriage section. Pref-

erably this modified construction involves the use of a single, continuous, upwardly-bowed or convex carriage spring 84 extending between front and rear carriage sections and fastened to the belly portion of the toy body 20' generally intermediately between the downwardly curved ends of such spring. The rearward end of the spring 84 is bent at a sharp angle, and bolted to a U-shaped support element 86. Such element has parallel flanges apertured to pass and support the rear axle 62' and extends below such axle to provide a pivotal support for the rear ground-engaging frictional stop 78'. An inverted V-shaped twisted bracing strip 88 is fastened centrally to the spring 84 at a location near the latter's down-curved rearward end and extends oppositely to spaced points of connection to the axle 62' near the wheels 34' to brace such axle. In all other respects the toy of this modified form operates and is constructed in a manner similar to the form previously described herein. Parts thereof which correspond to those employed in the first-described form are designated by the same numerals primed.

A third form of vehicular exercising toy embodying my present invention is illustrated in Figures 10 to 12, inclusive. In this case motivation of the toy is achieved not by weight-shifting or swinging up and down upon its seat, but by reciprocation of drive means by the hands or feet. In this case the toy assumes generally the form of a wagon, comprising a seating platform 90 wide over approximately the rear half of its length and relatively narrow over the front half thereof, a curved upright member 92 forming sides and back, a rear carriage section 94 supporting the seating platform at the rear end thereof, a front carriage section 96 supporting it at the front end and guided thereon for longitudinal sliding movement relative to such platform, and a handle frame 98 connected to the front carriage section to enable effecting such relative longitudinal movement by hand.

The rear carriage section comprises the opposite parallel supports 100 in the lower ends of which the axle 102 is mounted to carry the rear wheels 104. A pair of lugs 106 are secured antirotationally to the central portion of the axle and depend therefrom to provide a pivotal support for the rear ground-engaging frictional stop 108, similar to that employed in the two earlier-described forms herein.

The front carriage section includes the frame member 110, whose opposite ends are downturned to provide supports for the front axle 112. Parallel lugs or strips 114 project downward from the central portion of the frame member 110 to interconnect the axle and such member, and to provide a pivotal support for the front frictional stop 116, similar to the rear stop 108. This assembly is mounted on a bearing 118 for turning about a vertical axis defined by the pivot pin or bolt 120 interconnecting the upper and lower relatively rotatable elements of such bearing. The upper element of the bearing carries and is connected to the opposite flanges of a central U-shaped support member 122 bolted to the lower side of a slider 124. The latter is retained and guided for longitudinal movement between the parallel guides 126 mounted on the bottom side of seating platform 90, as shown.

Front and rear handle frame members 128 are anchored at longitudinal spaced locations to the upper side of the slider 124, and converge together upwardly, extending through a longitudinal slot 134 in the seating platform 90. At their upper ends these frame members carry a collar 130 receiving a transverse handle 132 (Figure 10). The guides 126 and the longitudinal slot 134 extend over a substantial fraction, such as approximately the front one-half, of the length of the seating platform, to permit substantial longitudinal movement of the front carriage section and handle support 128 thereon relative to the toy body or seating platform.

Preferably this form of toy also includes a pair of helical tension springs 136 interconnecting stationary brackets 138 on the seating platform and parallel brackets 140 projecting upward from the top of the frame member 110, for the purpose of applying longitudinal force to the front carriage section tending to draw it rearward to its stop position relative to the seating platform, determined by engagement between the rear handle frame member 128 and the rearward end of the slot 134. However, when the toy is in use the front carriage section can be pushed forwardly by pressure from the hands and feet of the operator against the tension of springs 136 progressively until the forward handle frame member 128 contacts the forward end of the slot 134. The movable front carriage assembly including the handle frame members 128 is shown in its rearward position by broken lines and in its forward position by solid lines in Figure 11. The length of the toy seating platform should be such that a child seated upon the rear portion thereof over the rear carriage section, with his back against the seat back 92, will be able to rest his feet upon the frame member 110 of the front carriage in a forward position thereof.

In operation of this form of toy, as in the earlier-described forms, translatory bodily motion is achieved by effecting relative spreading and contraction of the front and rear carriage sections accompanied by automatic stopping action of the ground-engaging unidirectional friction stops 108 and 116. With the stops positioned as shown in Figure 11, for example, the operator pushes forward on the front carriage section with hands and feet, or either, to displace the same forwardly against resistance of springs 136. During such displacement the first friction stop 116 imposes no resistance against forward movement of the front carriage section, while the rear carriage section is held by stop 108 against rearward movement. Thereafter by relaxing the forwardly directed force applied to the front carriage section the operator thereby allows the springs 136 to pull forward the seating platform and rear carriage section, the front carriage section then being held by stop 116 against reverse movement. The toy thus advances by an increment once each cycle of relative spreading and contraction of front and rear carriage sections.

It will be seen that follow-up movement of the rear carriage section may be accomplished without the aid of the springs 136 to contract front and rear carriage sections following relative spreading thereof. Thus the operator himself may accomplish that result by drawing his body forward with the aid of the handle 132 and dragging with it the rear portion of the toy. To further that end a strap 142 may be connected between the opposite sides of the curved back member 92, so that as the child draws his body forward, the rear portion of the toy is pulled forward positively with him by engaging the strap with his body.

In this modification, as in the preceding forms

herein described, the toy is steered preferably with the feet, by turning the front carriage section about its central axis defined, in this case, by the pivot pin 120. As before, the front friction stop 116 is pivotally connected to the turntable front carriage section at a central location and contacts the ground in the vicinity of the turn axis, so that it does not noticeably interfere with steering of the toy.

I claim as my invention:

1. A vehicular exercising toy comprising a body portion to be ridden upon, front and rear carriage sections carrying said body portion and connected thereto for relative movement of said sections toward and away from each other, each of said carriage sections including wheels spaced apart a substantial distance, means guiding one of said carriage sections for turning about an upright axis for steering the toy, ground-engaging unidirectional stop means carried by said turnable carriage section at a generally central location thereon and disposed to engage the ground only in the vicinity of such upright turning axis, and ground-engaging unidirectional stop means carried by the other carriage section, said two unidirectional stop means being operable, by engagement with the ground, to restrain movement of their respective carriage sections in one direction along the ground while permitting such movement in the opposite direction and permitting unrestrained turning of said turnable carriage section about such axis unaccompanied by forward movement of said body portion.

2. The vehicular exercising toy defined in claim 1, wherein each unidirectional stop means comprises a ground-engaging element, and arm means carrying said element and pivotally connected to its carriage section for swinging of such ground-engaging element and arm means about a generally horizontal axis transverse to the direction of movement of the carriage section, between alternate operative positions, inclined from its pivot end forwardly and rearwardly, respectively, to restrain movement of the carriage section in one direction or the other in the alternate positions of said ground-engaging element.

3. The vehicular exercising toy defined in claim 2, wherein each ground-engaging element comprises a friction shoe of a material such as rubber having a high coefficient of friction.

4. A vehicular exercising toy comprising a body portion to be ridden upon, front and rear carriage sections, each including wheels spaced apart laterally a substantial distance, means supporting said body portion from said front and rear carriage sections and guiding such sections for relative movement toward and away from each other, means under control of the operator to effect such relative movement of said carriage sections cyclically in alternate sequence, means guiding the front carriage section for turning about an upright axis for steering the toy, and ground-engaging, reversible, unidirectional stop means for each carriage section, comprising a ground-engaging member of slight extent transversely of such relative movement of said sections, and arm means connected pivotally to the center of the carriage section and carrying said ground-engaging member on the lower end thereof for swinging about a horizontal axis transverse to the direction of relative movement of such sections, between a ground-engaging position inclined forwardly and downwardly from its pivot preventing forward travel of the toy upon relative movement of said carriage sections toward or away from each other, resulting in rearward motion of the toy, and a position inclined rearwardly and downwardly from its pivot preventing motion of the toy upon relative movement of said carriage sections toward or away from each other, resulting in forward motion of the toy.

5. The vehicular exercising toy defined in claim 4, wherein the ground-engaging stop means pivotally connected to the front carriage section occupies a location thereon in the vicinity of the turning axis of such carriage section in either of the ground-engaging positions of said stop means to engage the ground in the vicinity of such turning axis, whereby the moment arm of said stop means about such axis is insufficient to resist appreciably turning of the front carriage section.

6. The vehicular exercising toy defined in claim 4, wherein the means supporting the body portion from the front and rear carriage sections, and guiding the latter for relative movement, includes means operable by application of weight to the body portion to effect relative movement of such carriage sections away from each other and simultaneous descent of such body portion, and conversely, by removal of weight from such body portion, to effect relative movement of said carriage sections toward each other and elevation of said body portion, and spring means cooperating with the carriage sections and body portion to resist resiliently descent of the latter and conjoint relative movement of the carriage sections away from each other.

7. A vehicular exercising toy comprising a body portion, front and rear carriage sections, each including wheels spaced apart laterally a substantial distance, means supporting said body portion from said carriage sections for relative movement of said carriage sections toward and away from each other and accompanying up and down movements of said body portion, respectively, spring means resisting downward movement of said body portion and relative movement of said carriage sections away from each other, means guiding said front carriage section for turning about an upright axis for steering the toy, and balanced spring means interconnecting said front carriage section, at corresponding points on opposite sides of its turning axis, with said body portion at a location thereon spaced rearwardly from said carriage section, to resist turning of said carriage section in either direction about said upright axis.

8. The vehicular exercising toy defined in claim 7, and ground-engaging unidirectional stop means pivotally connected to the front carriage section at a location thereon in the vicinity of its turning axis, and operable by ground-engagement of said stop means to resist translatory movement of said carriage section in one direction.

9. A vehicular exercising toy comprising a body portion to be ridden upon, front and rear carriage sections, each including wheels spaced apart laterally a substantial distance, separate means supporting said body portion from said front and rear carriage sections, respectively, means guiding said front support means for longitudinal movement of said front carriage section relative to said body portion and to the rear carriage section, for relative movement of said carriage sections toward and away from each other, means engageable by the operator to effect such relative longitudinal movement of the front carriage section, and ground-engaging unidirectional stop means pivotally connected to the front carriage section and including a ground-engaging ele-

ment and arm means carrying said element for swinging about a generally horizontal transverse axis alternatively between a forwardly swung ground-engaging position, in which said ground-engaging element holds said front carriage section against forward movement while said rear carriage section moves away from said front carriage section to effect rearward movement of said body portion, and rearwardly swung ground-engaging position, in which said ground-engaging element holds said front carriage section against rearward movement while said rear carriage section moves toward said front carriage section to effect forward movement of said body portion.

10. An exercising toy comprising a body portion, front and rear carriage sections, at least one of said carriage sections including wheels spaced apart laterally a substantial distance, and means supporting said body portion from said carriage sections including a leaf spring member curved through at least substantially ninety degrees and having an upright portion anchored to one of said

carriage sections and a substantially horizontal portion beneath and generally centrally between the front and rear ends of said body portion, and means anchoring such generally horizontal portion of said leaf spring to the bottom of said body portion.

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