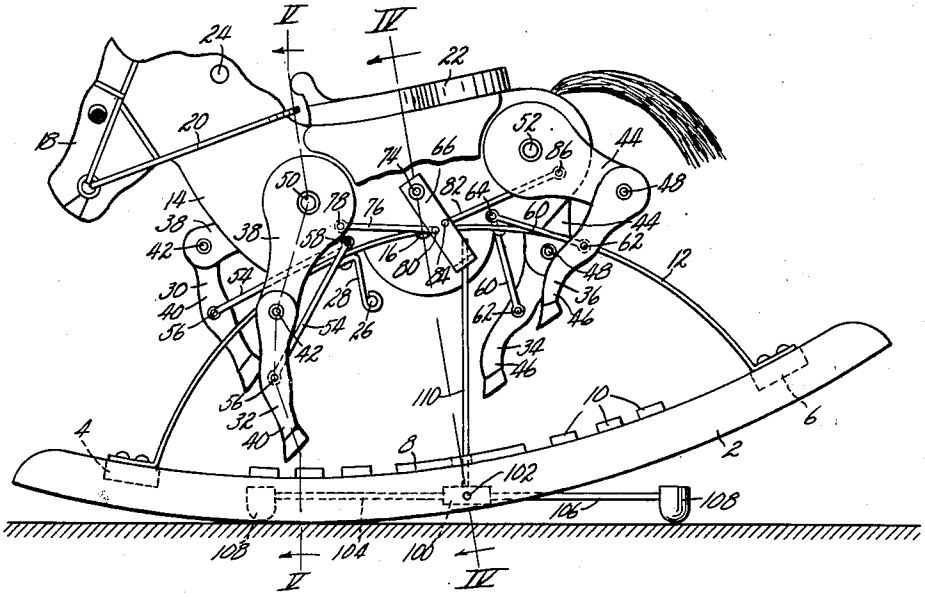
June 1, 1954 W. P. DWYER 2,680,020

ANIMATED ROCKING HOBBYHORSE

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Fig. 1



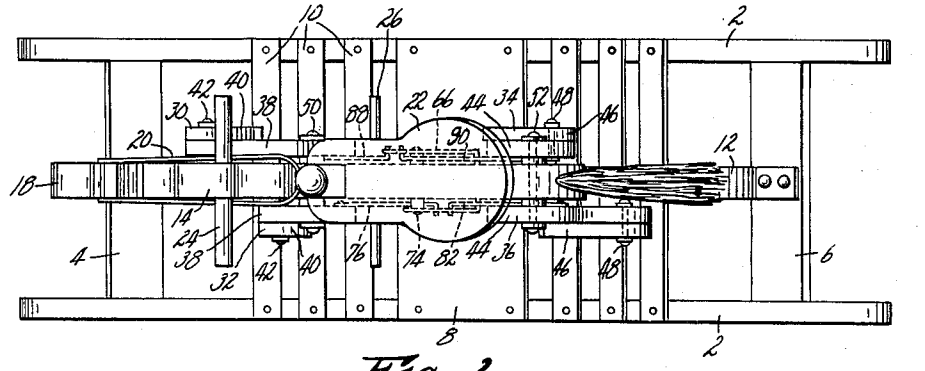


Fig. 2

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ANIMATED ROCKING HOBBYHORSE

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Fig. 3

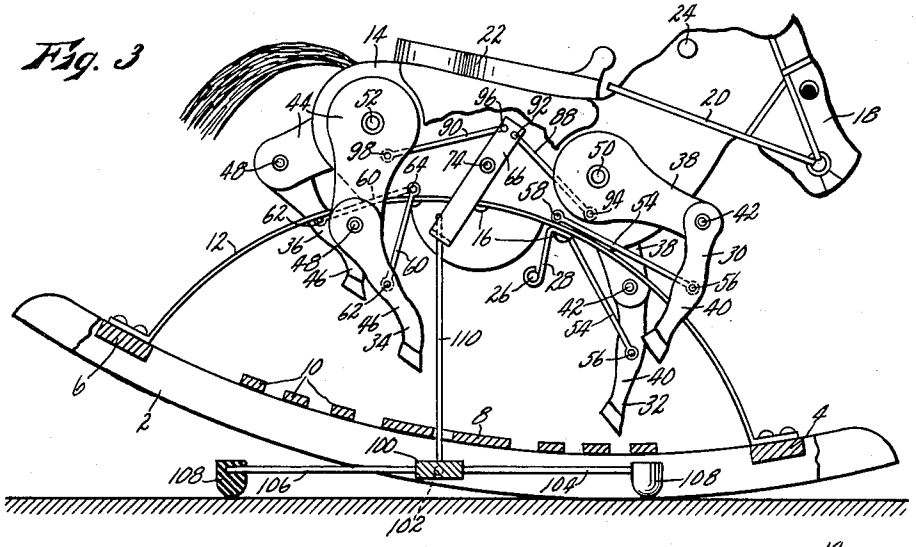


Fig. 4

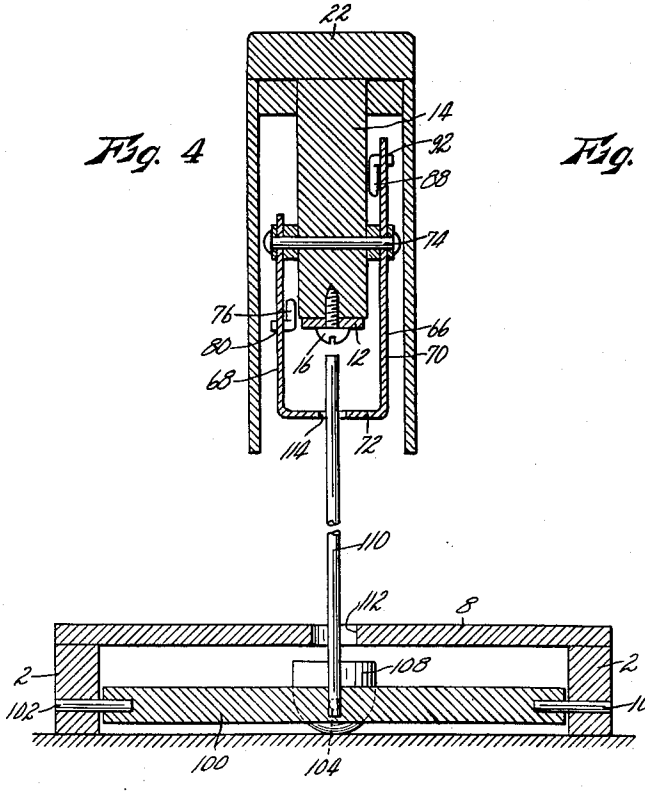
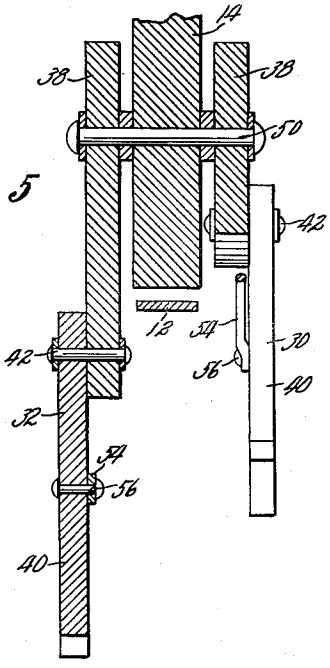


Fig. 5



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ANIMATED ROCKING HOBBYHORSE

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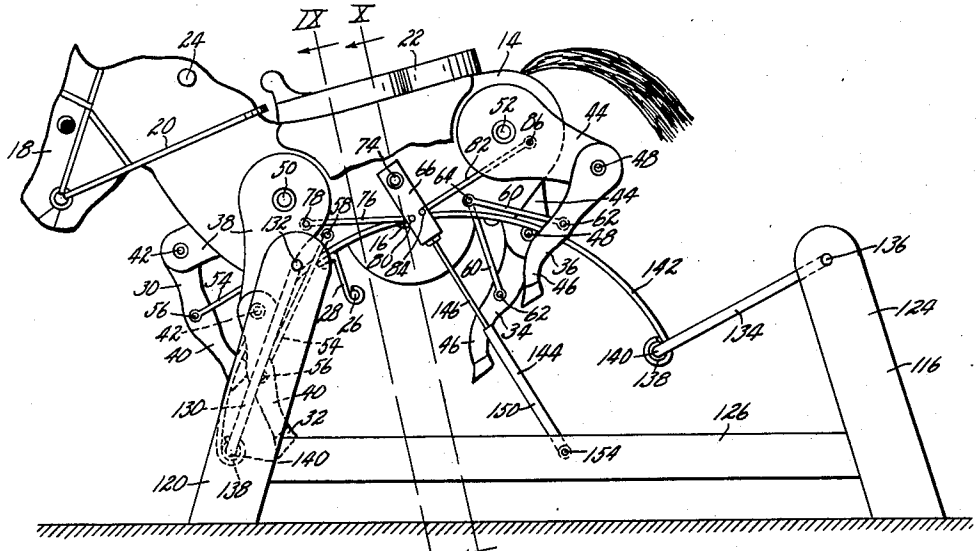


Fig. 6

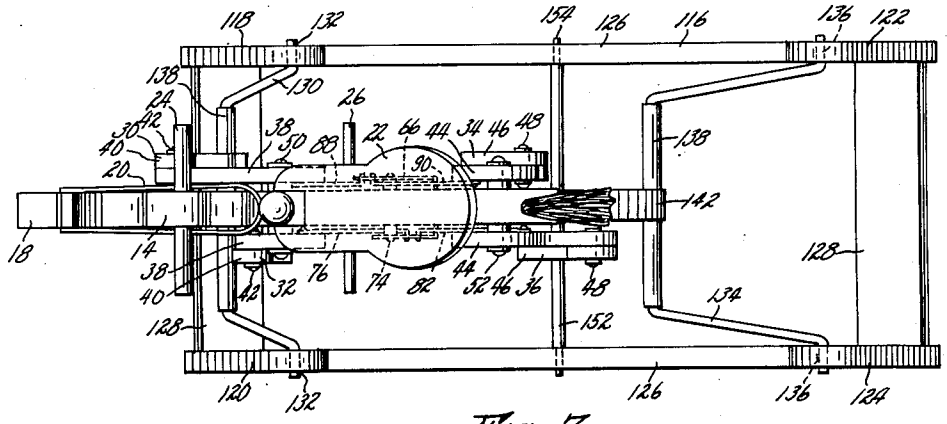


Fig. 7

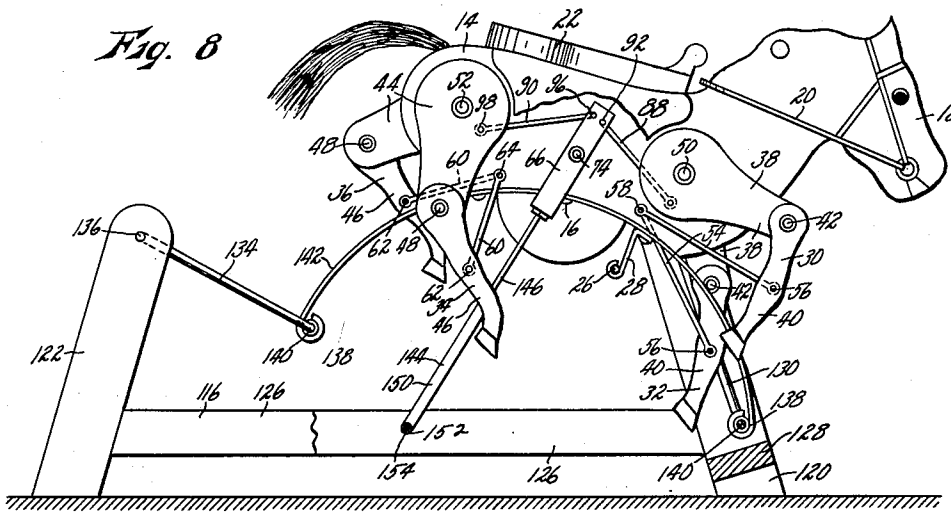
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June 1, 1954 W. P. DWYER 2,680,020

ANIMATED ROCKING HOBBYHORSE

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Fig. 8



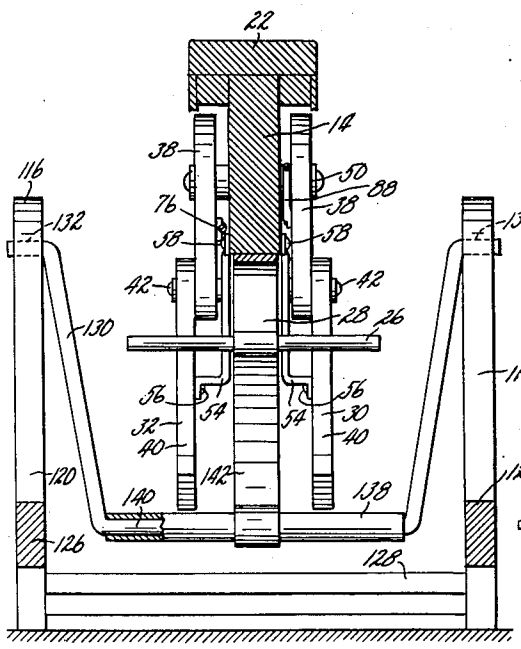


Fig. 9

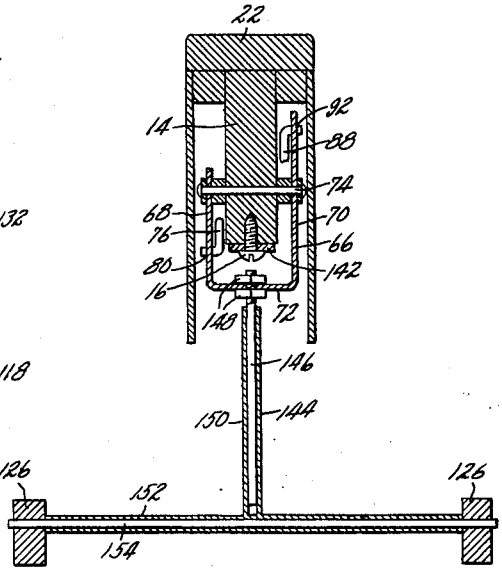


Fig. 10

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UNITED STATES PATENT OFFICE

2,680,020

ANIMATED ROCKING HOBBYHORSE

William P. Dwyer, Kansas City, Mo.

Application May 29, 1950, Serial No. 164,869

3 Claims. (Cl. 272—53.2)

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This invention relates to new and useful improvements in mechanical hobbyhorses, and relates particularly to improvements over the device shown in my United States Letters Patent No. 2,478,091, issued August 2, 1949.

The principal object of the present invention is the provision of a hobbyhorse of the rocking or swinging types, having movable legs adapted to be operated by the rocking or swinging of the hobbyhorse to simulate a trotting movement.

Another object is the provision of a hobbyhorse movably associated with a substantially stationary base, and operating means connecting said base to said horse whereby movement of said horse relative to said base causes the legs of the horse to move in a trotting motion, said operating means being yieldable whereby excessive motion of said horse relative to said base will not cause damage to the operating parts of said horse.

Other objects are simplicity and economy of construction, ease and efficiency of operation, durability, and safety.

With these objects in view, as well as other objects which will appear in the course of the specification, reference will be had to the drawing wherein:

Fig. 1 is a left side elevation of a mechanical hobbyhorse embodying the present invention, partially broken away, showing the horse rocked forwardly.

Fig. 2 is a plan view of the hobbyhorse shown in Fig. 1.

Fig. 3 is a right side elevation of the device as shown in Fig. 1, with parts broken away.

Fig. 4 is an enlarged, foreshortened section taken on line IV—IV of Fig. 1, with the device in its normal or rest position.

Fig. 5 is an enlarged fragmentary section taken in line V—V of Fig. 1.

Fig. 6 is a left side elevation of a modified form of the hobbyhorse with the horse swung forwardly, partially broken away.

Fig. 7 is a plan view of the device shown in Fig. 6.

Fig. 8 is a right side elevation of the device shown in Fig. 6, partially broken away.

Fig. 9 is an enlarged section taken on line IX—IX of Fig. 6, with the horse in its normal or rest position.

Fig. 10 is an enlarged section taken on line X—X of Fig. 6, with the horse in its normal or rest position.

Like reference numerals apply to similar parts throughout the several views, and the numeral 2 applies to a pair of parallel arcuate rockers made of wood or other suitable material, and

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rigidly joined together by a crossbar 4 adjacent their forward ends, a crossbar 6 adjacent their rearward ends, a centrally disposed transverse board 8, and a plurality of intermediate boards 10. Boards 8 and 10 form a floor on which a child may stand while preparing to mount the horse. A support member 12 formed of strap metal has its end portions rigidly attached respectively to crossbars 4 and 6, and curves arcuately upwardly therebetween. The body member 14 of the horse is mounted on the central portion of said support member. Said body member has the form of a flat plank cut to the outline of a horse's body, though it is to be understood that other figures could be used without departing from the spirit of the invention. The belly portion of said body member is rigidly attached to support member 12 by means of screws 16 or other suitable means.

The body is provided with a head 18 to which is attached reins 20 which extend rearwardly over the top of the body member adjacent the forward end of seat or saddle member 22, which is mounted on the upper edge of the body member. A hand bar 24 is inserted transversely through the neck of the horse, and may be grasped by a child sitting on the saddle 22. The child may of course hold the reins 20 if he desires. A footrest bar 26 extends transversely beneath the body member, being mounted in a bracket 28 rigidly fixed to support member 12.

The body member is provided with front legs 30 and 32 and rear legs 34 and 36. Each of the front legs comprises an upper or forearm portion 38 and a lower or shank portion 40 pivotally attached to the lower end of said forearm by a pivot pin 42. Each of the rear legs comprises an upper or gaskin portion 44 and a lower or shank portion 46 pivotally attached to the lower end of said gaskin portion by a pivot pin 48. Forearms 38 are disposed on opposite sides of body member 14, and are mounted adjacent their upper ends on a pivot pin 50 extending transversely through said body member. The rear legs are similarly attached to said body member by means of pivot pin 52. To the central portion of each shank 40 a link 54 is pivotally connected at their rearward ends to opposite sides of body member 14, as at 58. Similar links 60 are pivotally connected to shanks 46 of the rear legs at 62 and extend forwardly and upwardly, being pivotally connected at their forward ends to body member 14 at 64. Thus it is apparent that as the upper portions of the legs are oscillatably pivoted about pins 50 and 52, links 54 and 60 will cause the legs to flex in a realistic manner.

The legs are operated by the following mech-

anism. A U-shaped lever 66 is disposed to encompass the lower edge portion of body member 14 approximately midway between the front and rear legs, the parallel arms 68 and 70 of said lever extending upwardly at opposite sides of said body member, and the central portion 72 of said lever extending transversely beneath said body member, as best shown in Fig. 4. Said lever is pivotally attached to the body member by pivot pin 74, which extends transversely through said body member and through lever arms 68 and 70. At the left side of the horse, as shown in Fig. 1, a link 76 is pivotally attached at 78 to forearm 38 of leg 32, said pivot being in radially spaced relation to pivot pin 50. Said lever extends rearwardly, and is pivotally connected at its rearward end to arm 68 of lever 66 at 80, pivot 80 being spaced below pivot 74 of the lever. A similar link 82 is pivoted at one end to lever arm 68 at 84 and at its opposite to gaskin 44 of rear leg 36 at 86. At the right side of the horse, as shown in Fig. 3, a pair of links 88 and 90 are provided similar in function to links 76 and 82. Link 88 is pivoted at one end to lever arm 70 at 92, and at its opposite end to forearm 38 of leg 30 at 94. Link 90 is pivoted at one end to lever arm 70 at 96, and at its opposite end to gaskin 44 of rear leg 34 at 98. It will be noted however, that the pivotal connections of links 88 and 90 to lever arm 70 are above pivot 74, while the connections of links 76 and 82 to lever arm 68 are below pivot 74. Thus as lever 66 is oscillated forwardly and rearwardly relative to the body member, it will actuate links 76, 82, 88, and 90 to operate the legs as previously described, and since the connections of said links to lever 66 are respectively above and below pivot 74 at opposite sides of the horse, the legs will be caused to move in a trotting gait.

A bar 100 extends transversely between the midpoints of rockers 2, being supported for axial oscillation by a pair of stub shafts 102 which extend axially from the ends thereof and are journalled in said rockers. Spring steel rods 104 and 106 are fixed to the bar 100 at the midpoint thereof, and extend forwardly and rearwardly therefrom. Mounted on the free end of each of rods 104 and 106 is a yieldable rubber foot 108, which engages the floor between the rockers. Said feet support the ends of said rods at a distance above the floor greater than the distance of shafts 102 above the lower edge of the rockers, for a purpose described below. A spring steel rod 110 is fixed at its lower end in bar 100, and extends upwardly therefrom through an enlarged hole 112 formed in board 8. At its upper end, said rod extends slidably and tiltably through a hole 114 formed in the central portion 72 of lever 66, as shown in Fig. 4.

In operation, the child sits on saddle 22 and rocks forwardly and rearwardly in the usual manner. At the same time the engagement of feet 108 with the floor prevents bar 100 from turning with the rockers, and retains it substantially horizontal. Thus rod 110 remains substantially vertical and fixed, causing lever 66 to be oscillated relative to body 14 as said body oscillates over the upper end of rod 110. Of course, since bar 100 is mounted in rockers 2, it cannot remain entirely stationary, but will move slightly upwardly and downwardly, and forwardly and rearwardly, as the horse rocks. The forward and rearward movement is allowed either by the sliding of feet 108 along the floor, or the yieldability of the feet themselves. The vertical movement of bar 100 is

allowed to take place without lifting either of feet 108 from the floor by the flexibility of rods 104 and 106. As the rockers move to their central position, bar 100 will be forced downwardly, flexing rods 104 and 106. As the rockers tilt forwardly or rearwardly, bar 100 will be raised, allowing rods 104 and 106 to straighten. This provides also a means for limiting the movement of the horses legs. For example Fig. 1, in which the rods 104 and 106 are shown straight, represents the extreme movement of the legs. Should the horse be rocked still farther forwardly, the rearward foot 108 will be elevated above the floor, and rod 104 will be downwardly bowed. Thereafter rod 110 will remain substantially fixed relative to the body, and no further movement of the legs will occur. This prevents damage to the leg mechanism.

The modified form of the invention shown in Figs. 6 to 10 shows the invention adapted for use with a hobbyhorse of the swinging type. A base 116 is rectangular in form, comprising upright standards 118 and 120 at the forward corners thereof, upright standards 122 and 124 at the rearward corners thereof, horizontal parallel side rails 126, and transverse crossbars 128 at the forward and rearward ends thereof. A U-shaped crank 130 is supported between front standards 118 and 120, the end portions thereof being coaxial and journalled respectively in said standards adjacent the upper ends thereof at 132. A similar crank 134 is journalled in rearward standards 122 and 124 at 136. A tubular spacer 138 is carried rotatively on the central or offset portion 140 of each of said cranks. A strap metal support member 142 has its end portions formed to clampingly engage spacer tubes 138, and arches upwardly therebetween. It is similar to support member 12 of the preferred form. The horse body member, legs, and leg operating means carried by said support member are identical with those of the preferred form, with the exception of the means for actuating lever 66. Said lever is operated by a telescoping member 144 comprising a rod 146 fixed at its upper end to central portion 72 of lever 66 by nuts 148, and a tube 150 disposed slidably on rod 146 and fixed at its lower end to a spacer sleeve 152 which is in turn oscillatably mounted on a rod 154 extending transversely between and fixed in side rails 126.

Thus as the body member is swung forwardly and rearwardly, telescoping member 144 will oscillate lever 66 to cause the leg movements described above. Also, member 144 provides for limitation of the leg movement. When the horse is swung forwardly, lever 66 will continue to turn as shown until the central portion 140 of crank 134 is moving substantially parallel with telescoping rod 144. Any further forward movement of the horse will merely slide rod 146 in tube 150 without turning lever 66, or will turn said lever very slightly in a reverse direction.

Although I have shown specific embodiments of my invention, it is apparent that many minor changes of construction and operation could be made without departing from the spirit of the invention.

What I claim as new and desire to protect by Letters Patent is:

1. A hobbyhorse comprising a base including a pair of floor engaging rockers, a horse body mounted on said base above said rockers, a plurality of legs each comprising an upper portion pivoted to said body and a lower or shank portion pivoted to said upper portion, a link pivotally in-

terconnecting the intermediate portion of the shank of each of said legs with said body, a lever pivotally carried by said body, a link pivotally interconnecting said lever with the upper portion of each of said legs, an elongated bar extending transversely between the midpoints of said rockers and carried by said rockers for oscillatory movement on a longitudinal axis, a rod fixed at its lower end in said bar and having a sliding and pivotal connection at its upper end with said lever, a pair of rods each having one end fixed in said bar and extending respectively forwardly and rearwardly therefrom, and a floor engaging foot carried at the free end of each of said last named rods.

2. A hobbyhorse comprising a base including a pair of floor engaging rockers, a horse body mounted on said base above said rockers, a plurality of legs each comprising an upper portion pivoted to said body and a lower or shank portion pivoted to said upper portion, a link pivotally interconnecting the intermediate portion of the shank of each of said legs with said body, a lever pivotally carried by said body, a link pivotally interconnecting said lever with the upper portion of each of said legs, an elongated bar extending transversely between the midpoints of said rockers and carried by said rockers for oscillatory movement on a longitudinal axis, a rod fixed at its lower end in said bar and having a sliding and pivotal connection at its upper end with said lever, a pair of resilient rods each having one end fixed in said bar and extending respectively forwardly and rearwardly therefrom, and a floor engaging foot carried at the free end of each of said resilient rods, said feet maintaining the free ends of said rod at an elevation above the floor greater than the minimum elevation of the fixed ends of said rods above the floor.

3. A hobbyhorse comprising a base including a pair of floor engaging rockers, a horse body mounted on said base above said rockers, a plurality of legs each comprising an upper portion pivoted to said body and a lower or shank portion pivoted to said upper portion, a link pivotally interconnecting the intermediate portion of the shank of each of said legs with said body, a lever pivotally carried by said body, a link pivotally interconnecting said lever with the upper portion of each of said legs, an elongated bar extending transversely betwen the midpoints of said rockers and carried by said rockers for oscillatory movement on a longitudinal axis, a rod fixed at its lower end in said bar and having a sliding and pivotal connection at its upper end with said lever, a pair of resilient rods each having one end fixed in said bar and extending respectively forwardly and rearwardly therefrom, and a resiliently yieldable floor engaging foot carried at the free end of each of said resilient rods, said feet maintaining the free ends of said rods at an elevation above the floor greater than the minimum elevation of the fixed ends of said rods above the floor.

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