

May 21, 1963

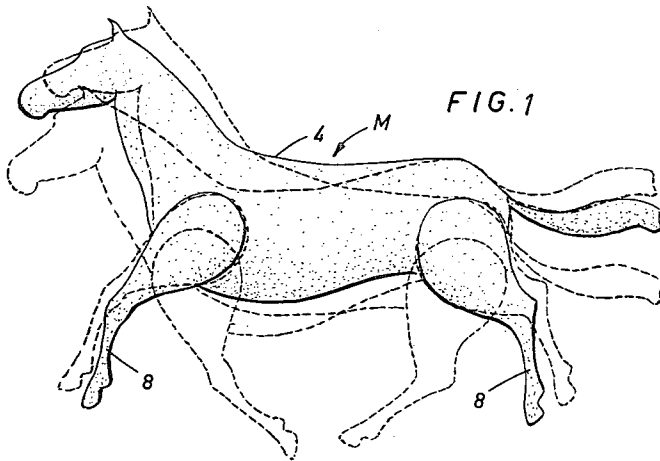
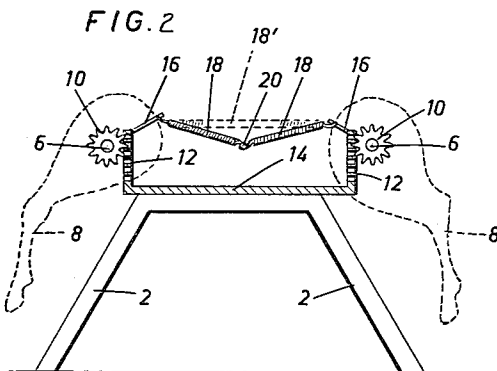
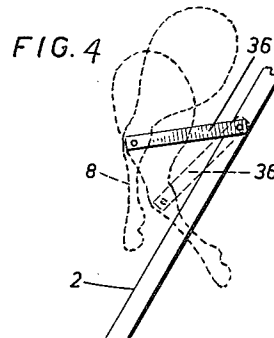
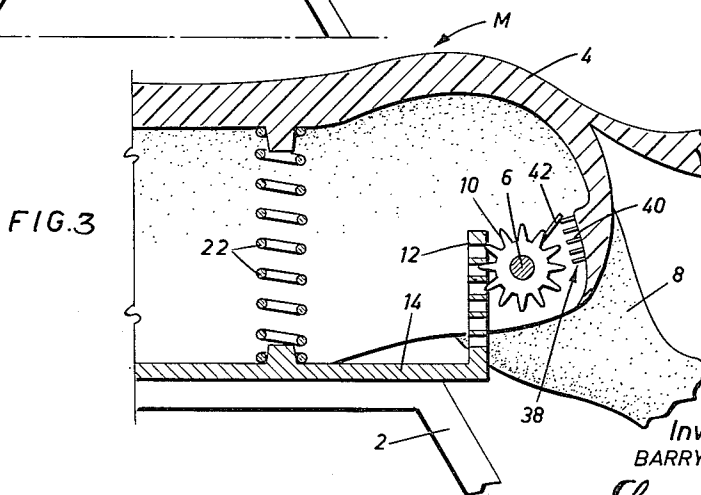
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3,090,618

BOUNCING HOBBY HORSE WITH LEG ACTION

Filed May 21, 1959

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

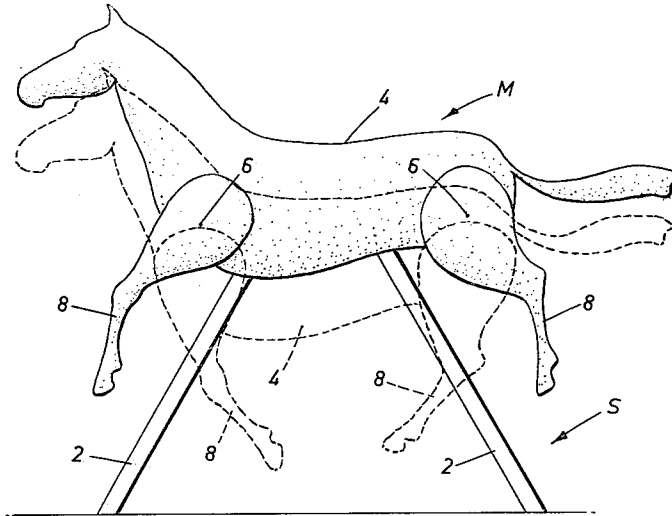


FIG. 5

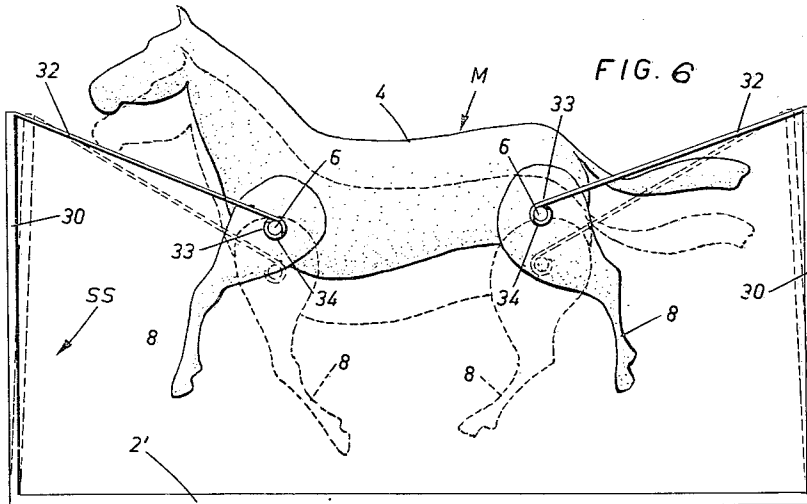


FIG. 6

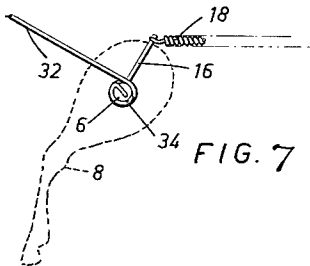


FIG. 7

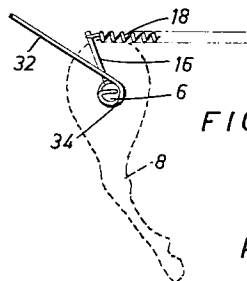


FIG. 8

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BOUNCING HOBBY HORSE WITH LEG ACTION
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2 Claims. (Cl. 272-53.2)

The present invention relates to hobby horses of the type in which the mount or hobby horse per se is supported for up and down movement between upper and lower elevations above ground; said hobby horse having legs which are oscillable back and forth in emulation of the gait or movements of an animal and an action synchronizing the back and forth oscillations of the legs with the up and down motion of the mount.

The present hobby horse is distinguishable from the known prior art in many respects, an important one of which being the motion of its legs is procured only by up and down motions of the mount and not by any incidental lateral or rocking motion. Conversely, in hobby horses of the prior art with oscillable legs, the leg motion was a primary result of horizontal or rocking motion of the mount and not of any vertical movement, such movement not being exhibited to any effective degree by hobby horses of the prior art.

Another important difference between the invention and the prior art derives from the fact that the present mount is resiliently carried or "floats" on the structure by which it is supported; being thereby enabled to be made to bounce, buck, rear and so forth at the will of the rider, with the leg action of the mount responding only to and being procured by the vertical component in such movements.

A principal object of the invention is therefore to provide a hobby horse having a mount resiliently supported for predominantly up and down motion at an elevation above ground, with oscillable legs, and an action responsive to such up and down motion for oscillating the said legs.

A further important object of the invention is to provide a hobby horse with a mount movable at the will of its rider relative to a fixed support in a variety of movements; each having a vertical component by which oscillable legs carried by said mount are movable in emulation of the gait of an animal.

A more specific object of the invention is the provision of a hobby horse having a mount with legs at opposite ends of the mount, supported so that one end may be rocked substantially about the other end thereof; the vertical component of such rocking motion procuring corresponding movement of the legs.

A still further object of the invention is to provide a hobby horse structure as hereinbefore described which is economical to make, as well as efficient, safe and practical in its operation.

The foregoing and other objects which will appear from the following description of an embodiment of the invention are achieved by providing a bouncing hobby horse comprising a mount having legs which are oscillable thereon between back and forth positions in emulation of the gait of an animal; structure supporting said mount at an elevation for movement relative thereto of which the principal component is an up and down motion; drive structure operating between said legs and said supporting structure synchronizing the back and forth oscillations of the legs with the up and down motion of the mount, and biasing means urging said mount upwardly and said legs towards one of their two positions aforesaid and being yieldable permitting said mount to be thrust downwardly.

A preferred form of the invention will now be described, by way of example only, with reference to the following drawings, in which like reference devices refer

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to like parts thereof throughout the various views and diagrams and in which

FIG. 1 shows the instant hobby horse in its upper position with two possible lower positions shown in ghost form, corresponding broadly to bucking and rearing movements.

FIG. 2 is a side elevation of the interior of the hobby horse of FIG. 5 showing one form of support and drive structures, with legs shown in ghost form corresponding to the upper position of the horse.

FIG. 3 is a cut away view of the interior of the hobby horse of FIG. 5 showing alternative support and drive structure, and also optional noise-producing means.

FIG. 4 is a side view of a detail of a hobby horse according to the invention showing a further alternative drive structure.

FIG. 5 is a side elevation of one form of the instant hobby horse in its upper position, showing its lower position in ghost form.

FIG. 6 is a side elevation of an alternative form of the instant hobby horse in its upper position, showing its lower position in ghost form.

FIG. 7 is a detail of FIG. 6 with the body of the hobby horse cut away to reveal the interior thereof, a leg being shown in ghost form and corresponding to the upper position of the horse.

FIG. 8 shows the structure of FIG. 7 with the leg corresponding to the lower position of the horse.

The hobby horse of the invention comprises a supporting structure S which, in the embodiment of FIG. 5 includes stationary pedestal 2, and a mount M resiliently supported thereon or thereby for up and down motion at an elevation above ground.

Said mount M has an elongated body 4 with axles 6—6 rotatably disposed at its front and rear ends or quarters respectively; each axle 6 carrying legs 8—8 fixed thereto and oscillable therewith back and forth, in this example, between the "apart" position denoted by the full lines of FIG. 5 and the "together" position denoted by the broken lines in the same view, these movements being an arbitrary choice for the purposes of this illustration only.

Disregarding for the moment the element or elements which provide the requisite resilience and which will be discussed later on herein, and still with reference to the embodiment of FIG. 5 the invention contemplates drive structure for oscillating the legs 8—8 which includes, in addition to axles 6—6, a driven element which may be the long-toothed sprocket gear 10 fixed to each axle 6 driven by a driving member such as rack 12 in mesh therewith, projecting upwardly from platform 14 (at the top of pedestal 2) into the interior of body 4 where said gear 10 may also be located.

It will now be seen that when an up and down motion is imparted to the body 4, said gear 10 will ride up and down the rack 12 and thus be rotated, thereby rotating axle 6 to oscillate the legs 8—8 affixed thereto as aforesaid. It is further noteworthy that the upward movement of the body 4 will swing said legs 8—8 towards one of their stated positions whereas a downward movement will swing legs 8—8 to their other position thus synchronizing the back and forth oscillations of legs 8—8 with the up and down motion of the mount.

Obviously, recourse may be had to divers expedients for endowing the structure with the necessary resiliency and, still with reference to the embodiment of FIG. 5, two such expedients are illustrated in FIGS. 2 and 3 of the drawings.

In FIG. 2 for example, each axle 6 is provided with an upstanding crank 16 which may be interconnected by spring 18 with anchorage 20 fixed to body 4; said spring 18 thus applying a rotary force to axle 6 urging gear 10

to climb rack 12 which, in the result, is productive of an upward force upon mount M.

In FIG. 3 such upward force is provided by one or more springs 22 between platform 14 and body 4.

When unoccupied, said mount M will be forced by whatever spring loading is employed to its uppermost position. When in use and occupied, on the contrary, said mount M may be thrust downwardly by the weight of the rider against the bias of the springs to its lowermost position. The occupant or rider may then leap upwardly or "bounce," momentarily relieving the downward thrust on mount M and permitting it to rise, with legs 8—8 oscillating accordingly, after which the weight of the rider may again overcome the spring loading to depress the mount M and procure a reverse movement of the legs 8—8. The operation as herein described will, of course, be influenced by the weight of the rider and if it is inadequate to initially depress the mount M fully, the desirable result of the invention may yet be achieved by bouncing.

It will now also be apparent that by shifting his weight forward or backward on the body 4 the rider may depress the front or rear only of the mount M; thus producing a bucking or rearing action as the case may be when bouncing and differentiating the action of front legs 3—3 from that of rear legs 8—8, as shown in FIG. 1. In such a case the action performed by the mount M will be in the nature of a rocking motion more or less about one or other of its ends, the exact location of the axis about which such rocking may occur being essentially variable in response to the position of the rider.

In any event however such rocking motion will include a vertical component of movement with a resultant leg movement as described.

By the same token, the rider may rock to and fro on the mount M to further vary the action thereof and of its legs 8—8 within the limits of the vertical component in such rocking.

In the modification of FIG. 6, the supporting structure SS also includes a stationary pedestal 2' which may, in this instance, have upright standards 30—30 connected at their bottoms and spaced apart to permit the mount M to be suspended therefrom by tethers 32—32.

In addition to their supporting function, tethers 32—32 also form part of the drive structure in this embodiment being connected at junctions 33—33 to the free ends of respective coils 34—34, which constitute the driving elements of this embodiment. The other ends of coils 34—34 are fixed to the ends of axles 6—6 which are the driven elements of this embodiment, and around which coils 34—34 are wound, axles 6—6 being herein shown as protruding for the sake of clarity, so that downward stress on the mount M will introduce traction on said coils 34—34 causing them to unwind, thus rotating axles 6—6 and oscillating legs 8—8 in the manner already described, as shown in FIGS. 7 and 8.

The type of spring loading illustrated in FIG. 2 and already described above is, perhaps, best suited for this embodiment of the invention, this consisting of springs 18 connecting axle cranks 16 to anchorage 20 fixed to body 4.

Where it is considered expedient, and desirable springs 18—18 and anchorage 20 may be replaced by a single spring 18', tensioned between the two cranks 16 as shown in ghost form in FIG. 2.

In the case of the embodiment of FIG. 6 the rotary force thus applied to each axle 6 by the springs 18 or 18' as the case may be will tend to rewind the associated coil 34 when the downward thrust on mount M is relieved by bouncing, thus applying a lifting force to mount M.

In practising the invention it may be found desirable to incorporate some additional resiliency for general shock absorption. In the embodiment of FIG. 6 for example, this may be achieved by utilizing standards 30—30 with some resiliency which will, when and if coils 34—34 are

completely unwound on the downward thrust of the mount M, yield slightly to absorb any incidental shock and also on rebounding thereby augment the upward bounce then following. However, such additional resiliency should then be substantially less than that of springs 18. Further features may be added to the hobby horse, as desired, to be operated by and in synchronism with the up and down motion of the mount M. For example there may be provided noise producing means to simulate the noise of galloping hooves. Such means may include comb 38 fixed to body 4 having teeth 40 which may be struck by raker 42 fixed to and projecting from axle 6, as shown in FIG. 3. When mount M is moved down raker 42 will strike and traverse teeth 40, the up movement of the mount M producing a reverse movement of raker 42. It will of course be observed that the noise so produced is purely symbolic and is not intended to correspond to any particular gait, the same remarks being also true of the leg movements illustrated in these examples.

It will be understood from the foregoing that the present invention broadly comprises the concept of a hobby horse consisting of a mount with oscillable legs, structure elevating and supporting the mount for movement whose principal component is an up and down motion and drive structure keying or synchronizing the up and down motion of the mount with the oscillations of the legs. The embodiments selected to illustrate the inventive idea for the purposes of this specification happen to be the two best of the several that are best known to the inventor at the present time and should not therefore be regarded as restrictive of the scope of the invention.

Otherwise stated, the specific supporting structure disclosed is by no means exhaustive of the structures which will serve the objects of the invention in a corresponding connection which is equally true of the drive structure; the spreader 36 of FIG. 4 which is connected between the pedestal 2 and a leg 8 being an example of an alternative driving element which may also be useful in certain circumstances for the purpose of oscillating leg 8 in synchronism with the up and down motion of body 4 and in a manner which will be readily apparent to those in the art.

It should be explained further, perhaps, that the use of the words "back and forth" in the context of this specification is intended only to indicate the character but not the direction of movement; such direction being, in any event, variable even, perhaps, at the whim of the user of the device.

For example, it will be noted that with respect to the embodiment of FIG. 6, coil 34 may well be constituted by an integral extension of an associated tether 32 which is wound around axle 6. It is resultantly open to the owner of the present hobby horse to rewind this part in an opposite direction around axle 6; thus reversing the direction of movement subject, of course, to further appropriate changes in the orientation of associated spring 18.

The foregoing description is not intended to limit the invention to the embodiments illustrated and the claims are intended to include any alterations or modifications coming within the spirit of my invention.

What I claim is:

1. A bouncing hobby horse comprising a mount having legs which are oscillable thereon between back and forth positions in emulation of the gait of an animal; structure supporting said mount at an elevation for movement relating thereto of which the principal component is an up and down motion; drive structure operating between said legs and said supporting structure synchronizing the back and forth oscillations of the legs with the up and down motion of the mount, and biasing means urging said mount upwardly and said legs towards one of their two positions aforesaid and being yieldable permitting said mount to be thrust downwardly; said drive structure com-

prising at least one rotatable axle engaging and linking at least one pair of legs, a driving element and a driven element operably engaged therewith; one of said elements being carried by said axle and the other being connected to said supporting structure; said driving and driven elements consisting of a rack and a pinion. 5

2. A bouncing hobby horse as set forth in claim 1 wherein the rack is secured to said supporting structure

and the pinion is carried by said axle in mesh with said rack.

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