May 12, 1959 B. SMITH, JR 2,885,823

ANIMATED WHEELED FIGURE TOY

Filed Jan. 14, 1957 3 Sheets-Sheet 1

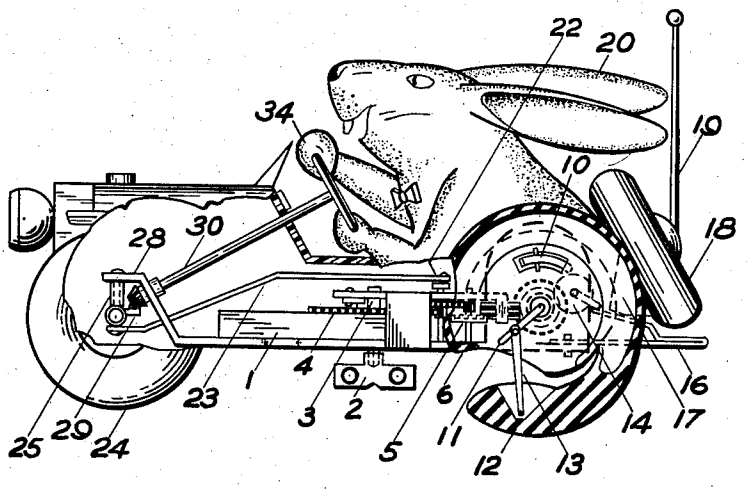


FIG. 1

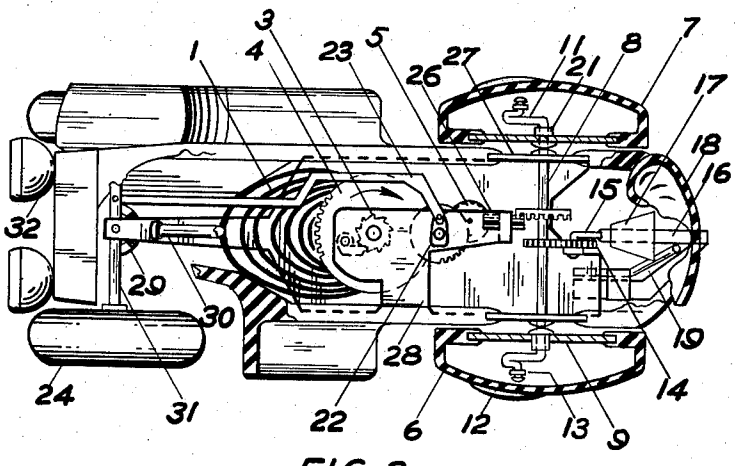


FIG. 2

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ANIMATED WHEELED FIGURE TOY

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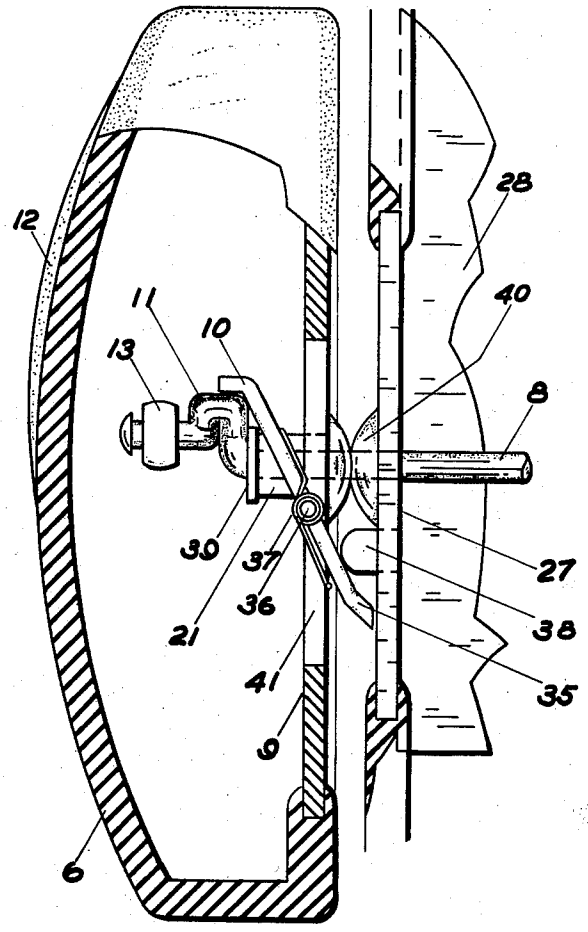


FIG. 3

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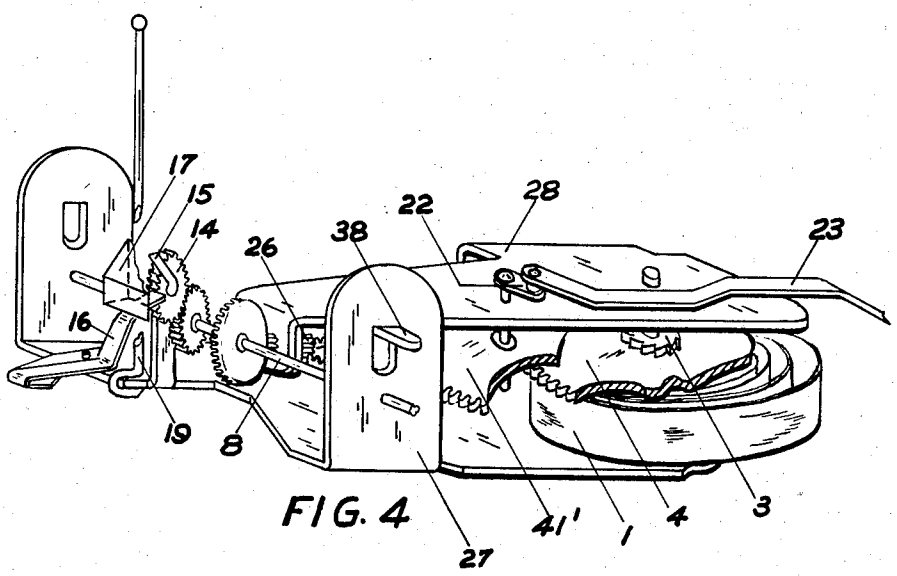


FIG. 4

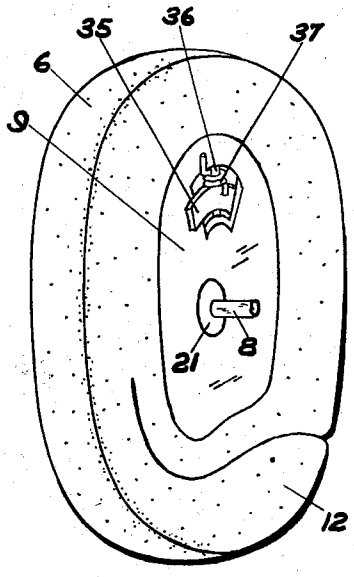


FIG. 5

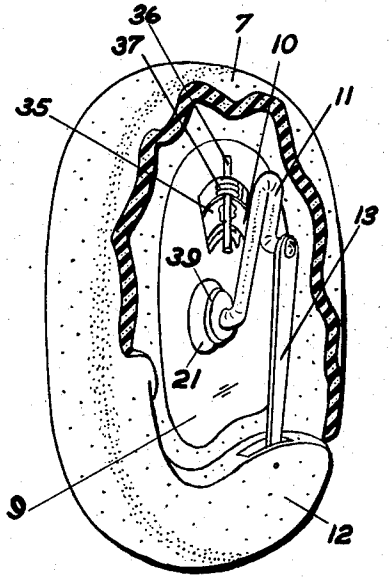


FIG. 6

INVENTOR, Benn Smith Jr.

United States Patent Office 2,885,823
Patented May 12, 1959

2,885,823

ANIMATED WHEELED FIGURE TOY

Bonnie Smith, Jr., Philadelphia, Pa.

Application January 14, 1957, Serial No. 634,122

3 Claims. (Cl. 46—107)

This invention relates to an animated wheeled figure toy comprising a simulated combination vehicle and jumping figure, wherein the figure receives motions representing the actions of a trained live animal.

One form of the toy contemplated by the present invention goes through a repeated cycle of multiple actions during the course of its travel, all motions of the toy being obtained through the use of one main spring in association with simple gear and crank transmission means.

Several of the motions which this toy goes through during the course of travel are believed to be new to the field of toys. The means or mechanisms by which these motions are produced are also believed to be novel. If so desired, embodiments having fewer coordinated actions can easily be built by the omission of one or more of the action producing portions of the mechanism.

In the preferred form, the figure portion of the toy comprises a representation of a rabbit molded from soft flexible material such as sponge rubber. The body of the automobile portion may also be molded from rubber or from other materials such as plastic or metal. The animating mechanism is somewhat basic and may be used in other rolling-jumping toys.

It is one object of the invention to combine simulations of a jumping rabbit and an automotive vehicle.

Another object of the invention is to provide a soft type, spring driven toy which is of simple construction having built-in means of multiple animation.

Another object of the invention is to provide a toy having wheels and associated mechanism therein, whereby said wheels may kick open and close as thrusting legs once during each rotation.

Another object of the invention is to provide a combination vehiculatory-animal type toy wherein realism in the simulation of steering wheel action, arm action and turning motion of the toy is produced by simple means.

Still another object of the invention is to provide a soft washable jumping and rolling toy having animated members.

Another object of the invention is to provide a soft rolling-jumping toy, most of which can be molded in one piece, having a chassis and actuating mechanism inserted from beneath.

The present invention distinguishes over known jumping toys in providing rotating members of unique design and construction for effecting a jumping motion by having outwardly moving portions serving as thrusting leg or foot members.

Still further objects and advantages of this invention will be understood by those skilled in the field of toys.

The preferred design, mechanism and structure of a toy incorporating the present invention will be understood from a description of the accompanying drawings, in which:

Fig. 1 is a side elevational view with broken away portions showing the internal chassis and mechanism of the toy;

Fig. 2 is a plan view of the toy, partially in section, showing portions of the internal chassis and operating mechanism;

Fig. 3 is an enlarged and detailed view, partially in section, of one of the rotating members used to effect jumping action;

Fig. 4 is an enlarged perspective view of the animating gear train chassis with broken away portions showing details of the action producing mechanism;

Fig. 5 is an enlarged perspective view showing the left rear rotating member in its closed wheel-like position; and

Fig. 6 is an enlarged perspective view, partially in section, of the right rear rotating member showing details of its mechanism.

Referring to Figs. 1, 2 and 4 of the drawings, it will be clear that a power drive gear **4** is driven by a main spring **1**, constituting a motor, which is wound by means of a key **2** through a ratchet assembly **3**. Power from this main spring serves four purposes, namely: it causes a pair of driving members **6** and **7** to rotate in their closed positions (depicted in Figs. 5 and 6) as rear wheels giving the toy forward motion; it supplies the jumping thrusting power applied to the leg members **12** intermittently, once during each rotation of members **6** and **7** (depicted in Fig. 1); it applies shifting or steering power to the front wheels **24** through the front wheel axle **31**, causing the toy to change its course of travel, a gear arrangement **29** causing steering wheel shaft **30** to move back and forth through a predetermined angle of rotation, thereby shifting the position of steering wheel and hand members **34** of the figure; and, it imparts motion to a portion of the vehicle, such as a spare wheel **18** at the moment that the toy jumps, causing the wheel **18** to move upwardly on a rod **19** to strike the flexible ears **20** of the figure to move them upwardly momentarily.

Power from main spring **1** is fed through a transmission assembly **5** to a rear drive axle or crank shaft **8** which is connected to the rotating members **6** and **7** by means of pivoted and spring engaged lever catches **10**, depicted in Figs. 1, 3 and 6, which are mounted on wheel disks **9** of each of the rear mounted rotating members **6** and **7**. While the lever catches **10** hold the cranks from movement with respect to the rotating members **6** and **7**, the leg members **12** constituting portions of these rotating members remain in their closed positions and the members **6** and **7**, under these conditions, rotate as rear wheels causing the toy to move forward. Once during each revolution of the members **6** and **7** while the leg members **12** are in contact with the floor, the lever catches **10** are tripped as they rotate past stationary lever trip lugs **38**, the lever catches **10** then releasing the shaft cranks **11** and the drive power from main spring **1** causing the crank shafts **8** to make one complete revolution independently of the rear members **6** and **7** which assume the non-rotating condition at this time with the flexible leg members **12** thrusting outwardly and then closing again as the cranks **11** complete one revolution and are stopped by the spring tensioned lever catches **10**. Momentary and independent rotation of the shaft **8** with respect to the wheel disks **9** transfers thrusting energy through the cranks **11** which are connected to the leg members **12** through a pair of thrust rods **13**. The release mechanism in each rotating member **6** and **7** is so designed that one thrust of these legs occurs during each revolution of the rotating members **6** and **7**. Immediately before and after this thrusting or jumping motion, the leg members **12** assume their retracted positions whereupon the members **6** and **7** are rotating as rear wheels.

Energy from the drive transmission **5** is fed through a gear arrangement **14** as shown in Figs. 1 and 4, causing a rotating lever **15** to depress and release a trip spring **16**

which sends a carriage 17 and the spare wheel 18 up the vertical shaft 19. Since the ear members 20 are made of flexible material, they flex upwardly when struck by the spare wheel 18. The motions of these ears and of the spare wheel are adjusted to occur at the time the toy jumps, by correctly positioning the trip lever 15 with respect to the cranks 11 during construction of the mechanism.

The carriage 17 assumes the form of a spacer which rests on top of the trip spring 16 and is connected to the spare wheel 18 so as to impart the energy from trip spring 16 to spare wheel 18 thereby kicking the wheel 18 upwardly when the spring 16 is released after being depressed by virtue of the rotation of the lever 15. The lever 15, acting as a crank arm, engages the end of spring 16 and depresses it, and then suddenly releases it during further rotation.

Suitable bearings 21 allow the rotating members 6 and 7 to rotate freely on the shaft 8 before the thrust rods 13 are put into place. A pinion drive gear assembly 26 is used to connect gears rotating about a horizontal axis in the main gear train with those rotating about a vertical shaft or axis. The axle 8 is mounted in, and extends through a pair of vertical walls or plates 27 which are extensions of the main chassis 28.

The assembly and operation of the catch release mechanism inside the rotating members 6 and 7 will be readily understood from the showing of Figs. 3 and 6. After the drive axle shaft 8 receives suitable spacers 40, the bearings 21 and disks 9 to which the bearings are secured will be applied, washers 39 are positioned and then the ends of said shaft 8 are bent to form cranks 11 or, alternatively, the cranks may be separately formed and secured to the shaft by any suitable means. As shown in Figs. 1 and 3 of the drawings, the thrust rods 13 ride on the crank arms 11, connecting them to the leg members 12. The cranks 11 being under spring tension from the main spring 1, are held just past the vertical position by the catch-release lever hooks 10 which move through an angle of approximately thirty degrees about a pivot 36. Catch-release lever hooks 10 are constantly under the tension of springs 37 and can release the cranks 11 only once during each revolution of the members 6 and 7 with respect to chassis 28 and its vertical walls 27. As shown in drawing Fig. 3, the trip arm 35, of the lever arm hook 10, extends through a slot 41 formed in the wheel disk 9. The lever trip lug 38 is firmly connected to the vertical plate 27 of the chassis 28 and located in a position so as to release the crank 11 through the trip arm 35, once during each revolution of the member 6 with respect to chassis 28 and the vertical plate 27. Since the washers 39 are intended to act as separators between the cranks 11 and the bearings 21, it is preferable that the washers 39 be connected to the cranks 11 by means of solder or the like.

As has been illustrated in Figs. 1, 2 and 4, the front wheels 24 are made to shift, thereby changing the path of travel of the toy. A crank 22 receives its rotating energy from a second power gear 41' included in the transmission assembly 5. This crank 22, by virtue of its rotation, transmits reciprocating motion to the front wheel axle 31 through a thrust rod 23. Referring to Figs. 1 and 2 of the drawings, it will be seen that the front axle 31 is centrally connected to the chassis 28 by means of a vertical swivel pin with a stand-off bushing 25. Accordingly, the front wheel axle oscillates in a horizontal plane during motion of the thrust rod 23. As best shown in Figs. 1, 5 and 6, the leg-foot members 12 are located on the outer rims of the rotating members 6 and 7 and are flexibly attached thereto. These flexibly connected members 12 are tripped to extend outwardly as thrusting feet once during each revolution of the rear rotating combination leg and wheel members 6 and 7.

While only one form of the invention has been illustrated and described, it will be obvious that those skilled in the art may vary the details of construction without departing from the spirit of the invention, and therefore this disclosure should not be taken as limiting beyond the scope of the appended claims.

What is claimed as new and desired to be secured by Letters Patent is:

1. A wheeled figure toy comprising a vehicle having a body provided with front and rear wheels adapted to engage a supporting surface, a motor carried by said body, a figure supported by said body, at least one of said wheels having a portion radially outwardly movable relative to the remainder thereof, transmission means interconnecting said motor and at least one of said wheels for driving said vehicle, and means driven by said motor intermittently moving said wheel portion outwardly while engaging said surface to produce a lifting motion of said toy.

2. A toy according to claim 1 wherein an axle is pivoted to said body, transmission means interconnects said motor and axle to impart steering motion to said toy, and a simulated steering member coupled to said axle is secured to a movable portion of said figure.

3. A toy according to claim 1 wherein a portion of said vehicle carried by said body is movable in a path occupied by a portion of said figure, and means intermittently actuated by said motor is provided for forcing said portion of the vehicle into engagement with said portion of said figure for imparting motion thereto.

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