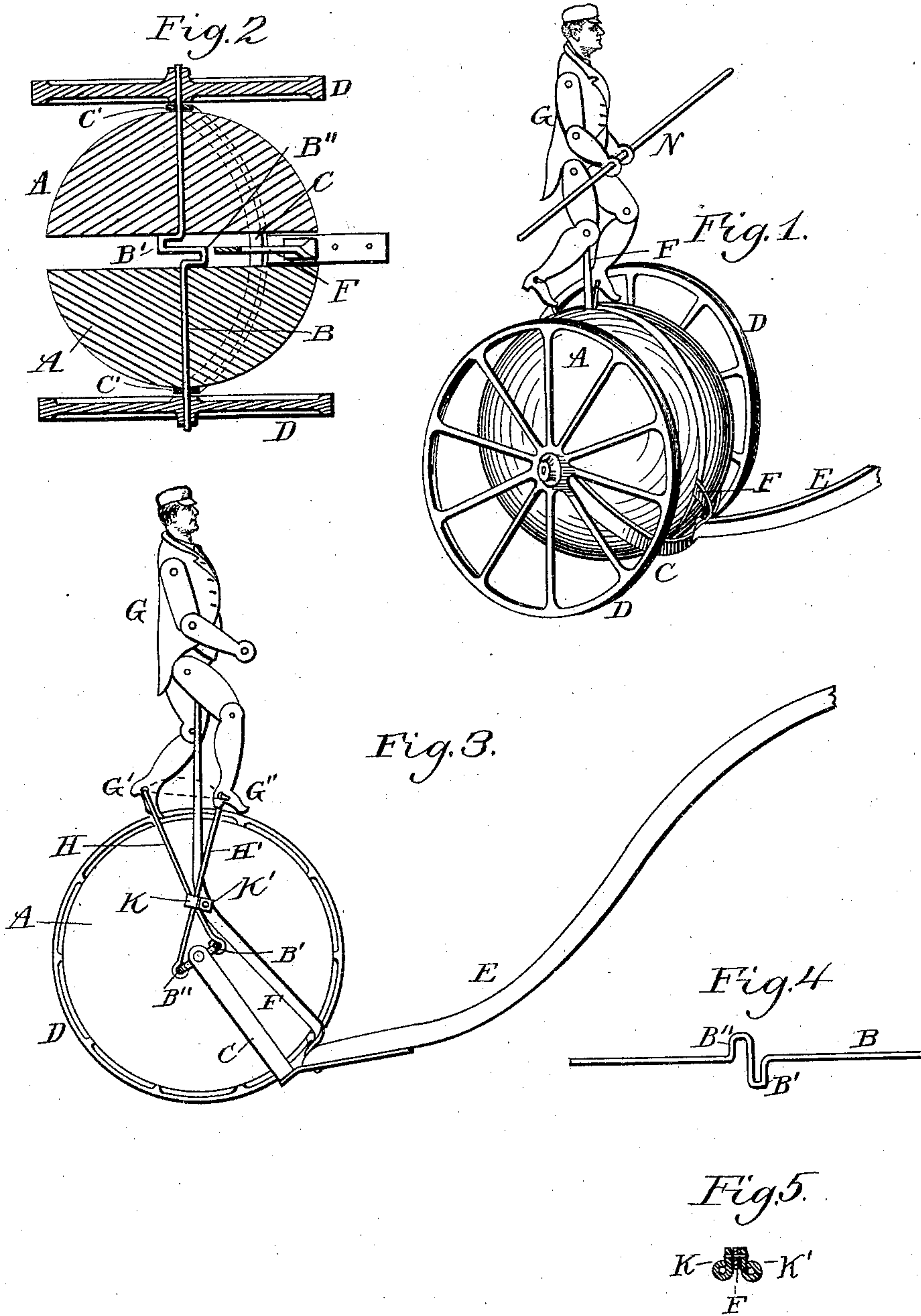


(No Model.)

O. E. WOODBURY.
MECHANICAL TOY.

No. 432,810.

Patented July 22, 1890.



Witnesses
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UNITED STATES PATENT OFFICE.

ORSON E. WOODBURY, OF MADISON, WISCONSIN, ASSIGNOR OF THREE-FOURTHS TO JOHN M. CLIFFORD, OF SAME PLACE.

MECHANICAL TOY.

SPECIFICATION forming part of Letters Patent No. 432,810, dated July 22, 1890.

Application filed August 14, 1889. Serial No. 320,783. (No model.)

To all whom it may concern:

Be it known that I, ORSON E. WOODBURY, a citizen of the United States, residing at Madison, in the county of Dane and State of Wisconsin, have invented a new and useful Improvement in Mechanical Toys, of which the following is a specification.

My invention relates to that class of toys which are mechanical in their operation, its object being to provide a toy that is attractive in its appearance, and one that affords amusement because of its unique mechanical movement.

My invention consists of a jointed image mounted above a toy cart and a certain mechanism between the cart and image, by which the image is made to appear to be walking upon a rolling body, the construction and operation being fully described and set forth hereinafter.

In the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts, Figure 1 is a view in perspective of a device embodying my invention; Fig. 2, a horizontal sectional view on a line with the axle; Fig. 3, a side elevation with one wheel and one hemisphere removed, showing the positions of the several parts of the operating mechanism; Fig. 4, a view of the axle detached from the cart, showing the cranks at its middle; and Fig. 5, a cross-section through the oscillating guides and standard, showing the pivotal attachment of the guides to the standard.

The hemispheres A A of a ball, which may be made of wood, tin, or any other suitable material, are joined at the centers of their inner planes by means of the axle B, which passes rigidly through them. The axle is bent at its middle, so as to form the set-offs or cranks B' B'', as shown in Fig. 4. The wheels D D are rigidly fixed to the ends of the axle B. The hemispheres are fixed a little distance apart, their inner planes being parallel, as shown in Fig. 2. The ball is embraced by the bracket C, the ends of which C' C' are pivotally adjusted upon the axle B at either end between the wheels and ball. By this construction the axle turns in the bracket C, while the ball revolves with the

wheels. The diameter of the ball is a little less than that of the wheels, so that the former will clear the floor or other object over which the toy may be moving.

The handle E, by which the toy is operated, connects with the bracket C at its middle. To the handle E is attached the standard F, which rises between the hemispheres of the ball and continues until it forms a support above the ball, to which support the image of a man G is fixed, as shown in Fig. 3, the image being jointed at the hips, knees, and shoulders.

The actuating-rods H H' connect at their lower ends with the cranks B' B'', and at their upper ends by a hinged joint with the feet of the image. To either side of the standard F, just above either crank of the axle when at its upward throw, are pivoted the oscillating guides K K', through which the actuating-rods H H' pass freely. The construction of the guides K K' and their attachment to the standard F is clearly shown in Fig. 5.

The rods H H' are inserted loosely in the guides K K', so that they may move freely up and down as their positions are changed by the movements of the cranks B' B'', and the guides K K' are pivoted to the standard F, so that they may oscillate or swing to accommodate the rods H H' as their directions are changed by the relative positions of the cranks B' B'' and the feet G' G''. The oscillating or swinging guides K K' cause the actuating-rods H H' to impart a motion to the image that would not be reached by the ordinary crank-movement, the motion herein obtained being a close imitation of the human step which is accomplished in the moving toy by the shifts effected in the relative positions of the power and fulcrum governing each foot.

When a man is walking there is one foot upon the ground all of the time; hence each foot when in motion moves twice as fast as the body is moving in order to regain the time lost while upon the ground. These motions are closely imitated by my invention. Each of the actuating-rods H H' becomes a lever in moving the foot to which it is at-

tached, the crank being the power and the oscillating or swinging guide the purchase. By reference to Fig. 3 it will be seen that the foot G'', which represents the one just placed upon the ground, will move approximately at the same rate of speed as the crank B'', the purchase being at about the middle of the lever H'. It will also be seen that the foot G', the one about to take the step, will move about twice as fast as the crank B', the purchase being nearer to the crank than to the foot. The cranks being set in opposite direction the feet move simultaneously—that is, while one foot is performing the motion of the one on the ground the other is taking the step. Each foot in moving forward describes an arc equal to about one-third of its circle, and in moving backward describes the chord to that arc, substantially as shown by the dotted lines in Fig. 3.

N represents a balance-pole in the hands of the image, and by making loose and pliable joints at the shoulders, the arms fall of their own weight and bring the pole against the thighs of the shifting legs which impart a slight motion to it.

In the moving toy, which may be moved either forward or backward, the man appears to be walking on a rolling ball, the movements of the pole making it look as if he was using it to keep his balance.

I do not confine myself to the particular construction or combination herein described, as the same operating mechanism may be used with the image of any animal having a step similar to that of a man, and the rolling body may be constructed in the form of a cylinder instead of a ball, in which case the wheels may be dispensed with by dropping the cylinder to the floor to revolve itself.

Having described the construction and operation of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a toy cart having its wheels rigidly fixed to the axle, the axle provided with two cranks at its middle, of a ball rigidly fixed upon the axle and cut into hemispheres on a plane at right angles to the axle, a bracket embracing the ball and connecting with the axle upon either side of the ball, a standard rising between the hemi-

spheres and forming a support above the ball, a jointed image of a man fixed to the standard, oscillating or swinging guides pivoted to the standard, and actuating-rods passing through the guides and connecting the cranks in the axle with the feet of the image, substantially as set forth.

2. The combination, with a toy cart, in which the axle is provided with two opposite cranks at its middle, of a ball fixed to revolve with the axle and cut into hemispheres on a plane at right angles to the axle, an image of a man mounted above the ball and jointed in the manner specified, the actuating-rods connecting the feet of the image with the cranks in the axle, and the oscillating guides K K', through which the actuating-rods pass, whereby the image is made to imitate a man walking upon a rolling ball, substantially as set forth.

3. The combination, with a toy cart having the cranks B' B'' at the middle of its axle, of a ball consisting of the hemispheres A A a short distance apart fixed rigidly upon the axle, the bracket C, embracing the ball and connecting with the axle between the wheels and ball, the jointed image G, the standard F, supporting the image G, the actuating-rods H H', connecting the cranks B' B'' with the feet of the image, and the oscillating guides K K', pivoted to the standard F, the said rods H H' passing through the guides K K', substantially as set forth.

4. In a mechanical toy, the combination, with a spherical or cylindrical body, the body cut in twain centrally and fixed to an axle, the inner planes of the halves being parallel with each other and at right angles to the axle, the axle provided with cranks at its middle, and a jointed image of an animal having a pace similar to that of a man mounted above said body, of the actuating-rods H H', connecting the cranks in the axle with the feet of the image, and the oscillating guides K K' governing rods H H', substantially as shown and set forth.

ORSON E. WOODBURY.

Witnesses:

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