E. F. JUERGENS.

TOY.

APPLICATION FILED JAN. 7, 1921.

1,421,694. Patented July 4, 1922.

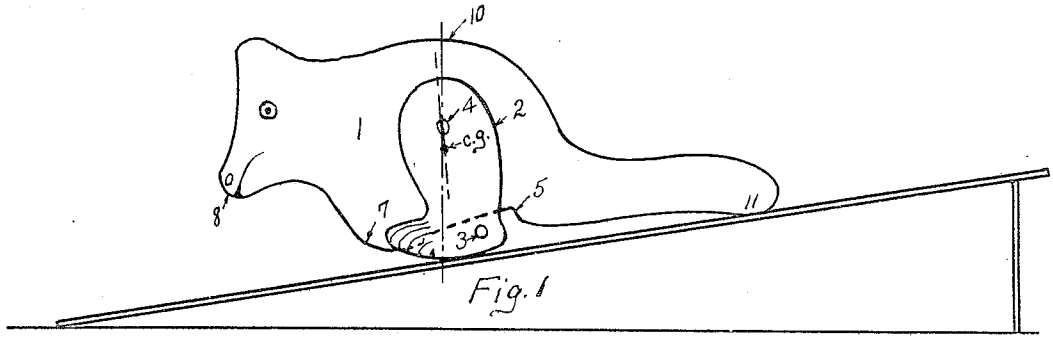


Fig. 1

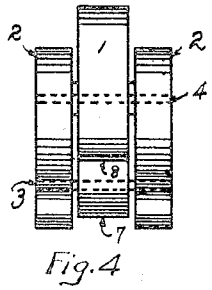


Fig. 4

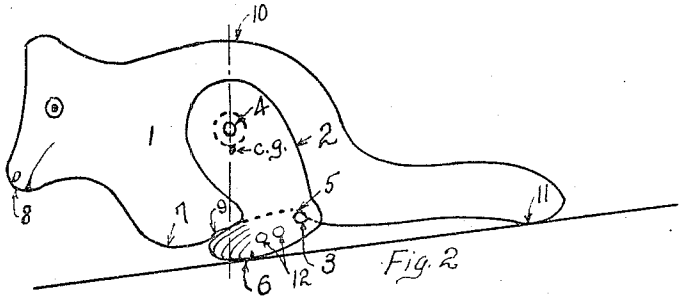


Fig. 2

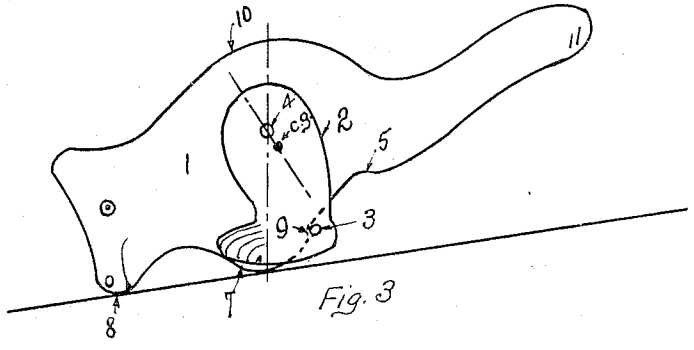


Fig. 3

Edward Frank Juergens Inventor

UNITED STATES PATENT OFFICE.

EDWARD FRANK JUERGENS, OF MIDDLETOWN, OHIO, ASSIGNOR TO JOSEPH H. WILSON, OF WASHINGTON, DISTRICT OF COLUMBIA.

TOY.

1,421,694. Specification of Letters Patent. Patented July 4, 1922.

Application filed January 7, 1921. Serial No. 435,689.

To all whom it may concern:

Be it known that I, EDWARD F. JUERGENS, a citizen of the United States, residing at Middletown, in the county of Butler and the State of Ohio, have invented certain new and useful Improvements in Toys, of which the following is a specification.

The present invention relates to an automatically moving toy which walks or hops down an incline and consists of the combination and arrangement of parts hereinafter described and particularly set forth in the accompanying claims.

The invention has for its purpose to provide a simple, inexpensive and amusing toy of attractive appearance which operates automatically if placed on an incline and consisting of so few and such durable parts that there is little to become disarranged. A further object is to do away with springs, rubber bands or intricate mechanism eliminating the necessity of frequent repairs. It is made of wood or other suitable material.

The invention and its method of operation is illustrated in the accompanying drawing wherein:

Figures 1, 2, and 3 are side views of the toy in its different positions and Figure 4 is a front view.

Referring to the construction and operation and wherein like reference characters indicate corresponding parts in the views shown, 1 designates the body which represents an animal or other creature supported on a pair of legs 2.

The legs are rigidly fastened together by a metal bar 3 through the heels and a shaft 4 at the axis on which the legs are to swing. The shaft 4 turns freely in a hole through the body at right angles to its sides and located on a vertical center line a short distance above its center of gravity (c. g.)

To operate, the toy must be placed on an inclined plane. The cycle through which it passes is best understood by referring to the drawing.

Figure 1 shows the toy in its central position, in the act of rolling down the incline as if upon a pair of wheels. To that end the soles of the feet are circular in shape the diameter of said circle being equal to the distance from the center of the shaft 4 to the sole of the foot and really represent a segment of a circle or of a wheel.

The body is supported on the shaft 4 and the center of gravity being under the bar the body assumes a horizontal position except as affected by subsequent events.

When the toy has rolled along so that the supporting point or point of contact with the inclined plane is approaching the toes as in Figure 3 the bar 3 strikes the bottom of the body which is provided with a stop 5 which is so located as to act in conjunction with the bar 3 to arrest the swing of the legs at the proper time.

Body and legs now being held rigidly together by the force of gravity the entire combination revolves about the point 6, Figure 2 located at the toes. The point of contact 6, Figure 2 being located to the right of a vertical line through the center of gravity the forward portion is the heavier and is pulled down by the force of gravity with sufficient force so that when the body strikes the incline on the specially shaped and located breast 7 it has gained sufficient momentum to cause it to roll on the curved surface 7 until its action is arrested by the specially located nose 8. The body is provided with a high back 10 so as to insure the necessary momentum or rolling motion on the breast. It will be seen that in this position the feet are lifted clear of the incline due to the fact that the breast 7 is so prominent as to have a greater distance from point 7 to the shaft 4 than the distance from the soles of the feet to the shaft 4.

The feet being clear of the incline and of sufficiently heavy material swing forward pendulum like until the bar 3 strikes the stop 9. This stops the swing of the legs when they are in the proper position for beginning the next event. This position is illustrated by Figure 3.

The center of gravity now being located to the right of the supporting point the rear end descends until the hump 11 on the tail strikes the incline. The tail is properly shaped to act as a balance for the head and forward part of the body and so located as to strike the incline just after the heels are carried down and again bear on the incline. The momentum gained during the downward travel of the tail now causes the tail in conjunction with the pivot at 4 to lift the breast clear of the incline and rolling on the feet the toy proceeds down the incline completing the cycle.

The toy can be made to take long strides

or short accordingly as the stops 5 and 9 are located or they can be placed at a maximum distance apart and a second bar 12 shown only in Figure 2 can be slipped in holes in the legs arresting the swing of the legs as desired.

It is obvious that those skilled in the arts may vary the details of design, construction and arrangement of parts without departing from the spirit of the invention and therefore I do not wish to be limited to such features except as may be required by my claims.

Having thus described my invention what I claim as new and desire to protect by United States Letters Patent is:

1. A toy adapted to walk down an incline comprising in combination a body portion, a leg device pivoted to said body at a point adjacent the center of gravity of said body and having a curved foot surface outside the contour of the body, a fulcrum surface on the body adapted to alternate with the device in supporting the body, said device adapted to swing forwardly to a point where a portion of the curved foot surface is in advance of said fulcrum and means to limit the extent of the swinging movement of said device.

2. A toy adapted to walk down an incline comprising in combination a body portion, a leg device pivoted to said body at a point adjacent the center of gravity of said body and having a curved foot surface outside the contour of the body, a fulcrum surface on the body adapted to alternate with the device in supporting the body, and a stop on the foot device adapted to strike the body at the ends of its swinging movement to limit the extent of such movements.

3. A toy adapted to walk down an incline comprising in combination a body portion, a leg device pivoted to said body at a point adjacent the center of gravity of said body and having a curved foot surface outside the contour of the body, a fulcrum surface on the body adapted to alternate with the device in supporting the body, and an adjustable stop on the foot device adapted to strike the body at the ends of its swinging movement to limit the extent of such movement.

4. A toy adapted to walk down an incline comprising in combination a body portion, a leg device pivoted to said body at a point adjacent the center of gravity of said body and having a curved foot surface outside the contour of the body, a fulcrum surface on the body adapted to alternate with the device in supporting the body, means to limit the extent of the swinging movement of said device, and a stop on the body adapted to strike the incline and limit the forward rocking of the body about said fulcrum.

5. A toy adapted to walk down an incline comprising in combination a body porton, a leg device pivoted to said body at a point adjacent the center of gravity of said body and having a curved foot surface outside the contour of the body, a fulcrum surface on the body adapted to alternate with the device in supporting the body, means to limit the extent of the swinging movement of said device, and a stop on the body adapted to strike the incline and limit the rearward rocking of the body about said fulcrum.

6. A toy adapted to walk down an incline comprising in combination a body portion, a leg device pivoted to said body at a point adjacent the center of gravity of said body and having a curved foot surface outside the contour of the body, a fulcrum surface on the body adapted to alternate with the device in supporting the body, means to limit the extent of the swinging movement of said device and stops on said body adapted to strike the incline and limit the forward and rearward rocking of said body.

7. A toy adapted to walk down an incline including in combination, a body portion, a leg member pivoted to said portion to oscillate about an axis vertically above the center of gravity of said body and extending across said center of gravity to a point below the bottom edge of the body, the outer periphery of said member being curved, said body having a fulcrum point in advance of the center of gravity of said body and slightly farther from said axis than said periphery, and a stop on said member adapted to strike the body at the ends of the swinging movement of said member to limit the extent of the same.

8. A toy adapted to walk down an incline comprising in combination a body portion, a leg device pivoted to said body at a point adjacent the center of gravity of said body and having a curved foot surface outside the contour of the body, a fulcrum surface on the body adapted to alternate with the device in supporting the body, said device adapted to swing forwardly to a point where the foot surface overlaps said fulcrum, and adjustable means to limit the extent of the swinging movement of said device.

9. A toy adapted to walk down an incline comprising in combination, a body portion, a pair of legs disposed on opposite sides of the body for swinging movement about an axis adjacent the center of gravity of the body, said legs having circular foot surfaces curved about said axis as a center, and outside the contour of said body said body having a fulcrum point adapted to alternate with said legs in supporting the body, said legs adapted to swing forwardly to a point overlapping said fulcrum and means to limit the extent of the swinging movement of said legs.

10. A toy adapted to walk down an incline

including in combination, a body portion, a pair of legs disposed on opposite sides of said body for swinging movement about an axis adjacent the center of gravity of said body, said legs having curved foot surfaces, said body having a fulcrum point adapted to alternate with said legs in supporting the body, said legs adapted to swing forwardly to a point where said foot surfaces overlap the fulcrum and a transverse bar connecting said legs adjacent said foot surfaces adapted to cooperate with the body at the ends of the swinging movement of said legs to limit the extent thereof.

11. A toy adapted to walk down an incline comprising in combination, a body portion, a pair of legs disposed on opposite sides of the body for swinging movement about an axis adjacent the center of gravity of the body, said legs having circular foot surfaces curved about said axis as a center, said body having a fulcrum point adapted to alternate with said legs in supporting the body, said legs adapted to swing forwardly to a point where the foot surfaces overlap the fulcrum, means to limit the extent of the swinging movement of said legs and stops adapted to strike the incline to limit the forward and rearward tilting of the body.

In testimony whereof I affix my signature in the presence of two witnesses.

EDWARD FRANK JUERGENS.

Witnesses:
B. F. HAWERTZ,
E. H. DELL.