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BALL ACTUATED TOY

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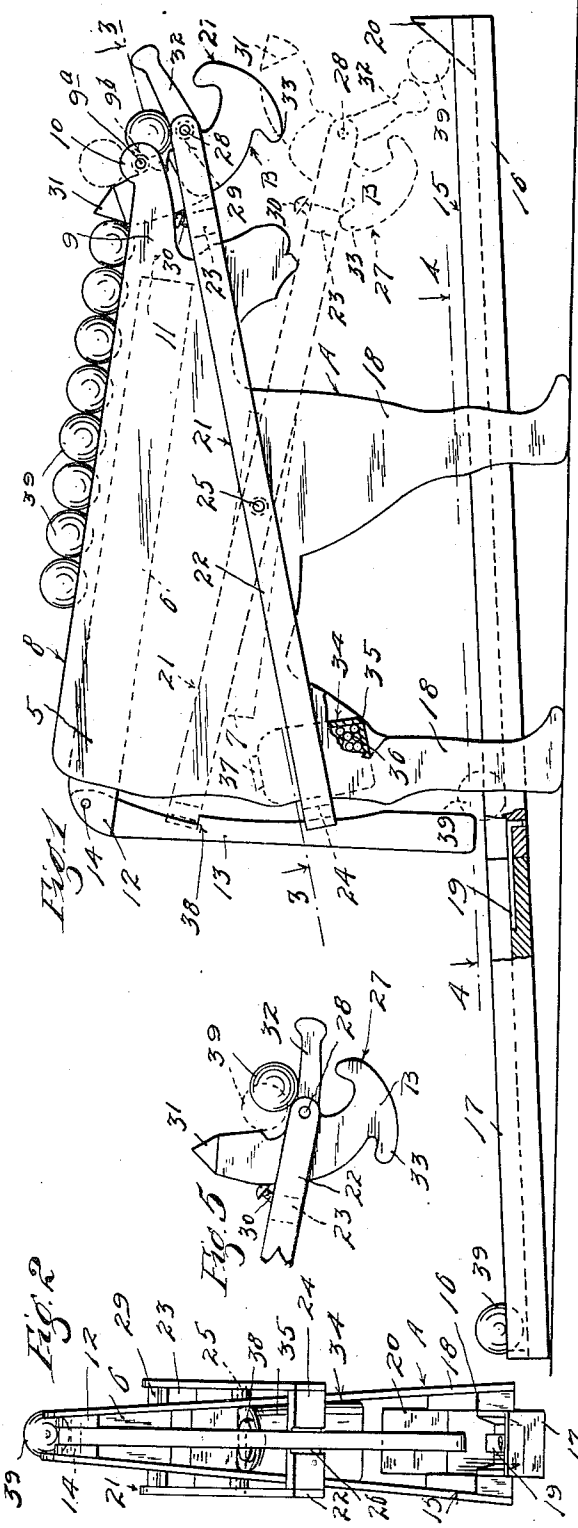

Fig. 1

Fig. 2

Fig. 5

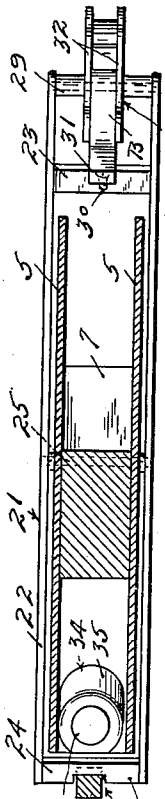

Fig. 3

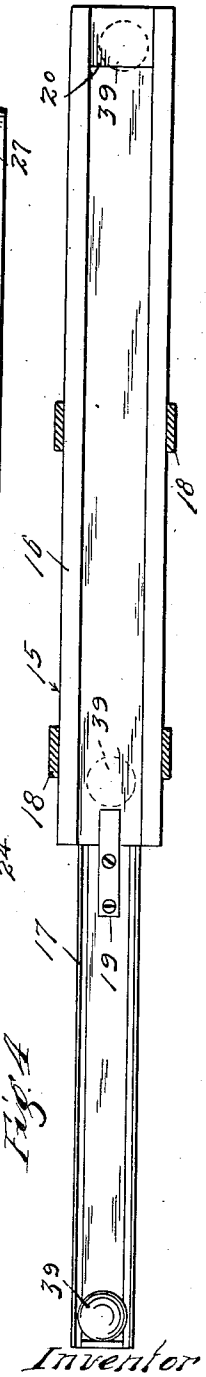

Fig. 4

Inventor
Sidney L. Long
By his Attorney
Harry A. Kilgore

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BALL ACTUATED TOY

Sidney L. Long, Minneapolis, Minn.

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6 Claims. (Cl. 46—43)

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My present invention relates to toys and, more particularly, to a toy in which a plurality of actions successively take place during each cycle of operation of the toy, and in which the cycles are successively and automatically repeated a predetermined number of times.

The principal object of this invention is to provide upper and lower ball runways and for successively and automatically transferring a plurality of balls on the upper runway to the lower runway.

Other objects of this invention will be apparent from the following description, reference being had to the drawings.

To the above end, generally stated, the invention consists of the novel devices and combination of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:

Fig. 1 is a side elevation of the invention, some parts being broken away and sectioned and other parts shown in different positions by means of broken lines;

Fig. 2 is a rear end elevation;

Figs. 3 and 4 are views partly in plan and partly in section taken on the lines 3—3 and 4—4 of Fig. 1, respectively; and

Fig. 5 is a fragmentary view showing the frame in its lowermost position, with the inanimate figure in the same relative position as shown in Fig. 1.

The improved toy includes two laterally spaced duplicate side members 5 having the delineation of an ox A. These side members 5 are rigidly connected in the body of the ox A by upper and lower horizontally disposed bars 6 and 7, respectively. The upper edges of the side members 5 are forwardly and downwardly inclined to afford an upper ball runway 8. The horns 9 of the ox A project forwardly and form continuation of the runway 8. Said horns 9, at their outer ends, are upwardly curved to form a ball barrier 10 at the low end of the runway 8. The horns 9 at their outer end portions are connected by a pin 9^a and a spacing sleeve 9^b. It is important to note that the bar 6 terminates short of the horns 9 to leave a passageway 11 between said horns.

The rear end portion of the bar 6 extends rearwardly of the ox A and is bifurcated to afford a pair of prongs 12. The tail 13 of the ox A extends between the prongs 12 and is pivoted thereto at 14.

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A lower inclined ball runway 15, comprising a front section 16 and a rear section 17, extends longitudinally of the ox A in the same vertical plane as the runway 8. The front runway section 16 is straddled by the ox A and rigidly secured to the legs 18 of said ox and supported thereby. The runway sections 16 and 17 are detachably connected by a coupling 19. The runway 15 is reversely inclined relative to the runway 8. It will be noted that the runway section 17 is narrower than the section 16 and can be stored or packed therein. In the front end of the runway section 16 is a ball-deflecting block 20 and the rear end of the section 17 is closed.

A horizontally disposed rectangular frame 21 is fulcrumed on the ox A for oscillatory movement in a vertical plane. This frame 21, in which the ox A stands, comprises a pair of long bars 22 rigidly connected by a front block 23 and a rear block 24. The bars 22 are intermediately pivoted on the outer end portions of a pin 25 that extends transversely through the side members 5 and the bar 7.

In the outer face of the rear block 24 is a guide notch 26 in which the tail 13 extends. Said tail 13 is yieldingly held against the block 24 by the force of gravity.

A member 27, simulating a man B, is supported between and on the bars 22, forward of the front block 23, by a pin 28 for pivotal movement. Spacing sleeves 29 on the pin 28 keep the man B centered between the bars 22. The pivotal connection between the man B and the bars 22 and the preponderance of the weight of said man is such as to tend to tilt the man B backwardly against an adjustable stop 30. This stop 30, as shown, is a screw in the front block 23.

On the head of the man B is a cap 31 in the form of an inverted wedge, the edge of which extends transversely of the runway 8. The arms 32 of the man B are out-stretched for carrying a ball, as will presently appear. When the frame 21, with the man B engaging the stop 30, is in its lowermost position, the upper edges of his arms 32 are slightly outwardly and downwardly inclined. Heels 33 on the man B engage the block 23, when said man is positioned as shown by broken lines in Fig. 1, by a ball on his arms 32, and limit his forward pivotal movement.

A variable weight 34 on the rear end portion of the frame 21 yieldingly holds said frame positioned, as shown by full lines in Fig. 1. In this position of the frame 21, the upper portion of the man B is in the passageway 11 and his cap 31 projects above the runway 8. This weight 34,

as shown, comprises a receptacle 35 having therein shot or other heavy pellets 36. A cork 37 affords a closure for the receptacle 35. The receptacle 35 is secured between the bars 22 close to the block 24.

When a ball is deposited on the arms 32 of the man B, the preponderance of weight is shifted on the frame 21 and thereby oscillates said frame, which lowers the man B and raises the rear end portion of the frame 21, as shown by broken lines in Fig. 1. In this position of the frame 21, the same is automatically held by a tooth 38 on the tail 13 and which tooth projects under the block 24. This prevents return movement of the frame 21 under the action of the weight 34 when the ball rolls from the arms 32 of the man B.

For operating the toy, a plurality of balls 39, preferably but not necessarily colored glass marbles, are placed on the runway 8 with the foremost held by the barrier 10. At this time the frame 21 is being held by the tooth 38, as shown by broken lines in Fig. 1, and the man B is in engagement with the stop 30. To start operation of the toy, the tail 13 is manually moved to withdraw the tooth 38 from under the block 24. The weight 34 then oscillates the frame 21 which lifts the man B and projects the upper portion of his body through the passageway 11. As the man B moves upwardly in the passageway 11, his wedge-shaped cap 31 enters between the two foremost balls 39 and lifts the foremost ball 39 over the barrier 10 when it drops onto the arms 32. It is highly important to note that the ball 39 on the arms 32 is back of dead center relative to a vertical line passing through the axis of the pin 9a. The ball 39 on the arms 32 is held from rolling by said arms which are upwardly inclined and the body of the man B. As the ball 39 drops on the arms 32, it overcomes the action of the weight 34, oscillates the frame 21 which, in turn, lowers the man B. When the frame 21 reaches its lowermost position, the ball 39 rolls outwardly on the arms 32, as shown in Fig. 5 from a position back of dead center to a position forwardly thereof. This movement of the ball 39 on the arms 32 shifts the preponderance of weight which rocks the man B forwardly into a position in which his arms 32 are downwardly inclined at a sharp angle, and said ball rolls therefrom and drops onto the deflecting block 20. From the block 20, the ball 39 rolls into a runway 15 and downwardly therein. During the rolling of the ball 39 in the runway 15, it strikes the lower end of the tail 13 and swings the same outwardly. This movement of the tail 13 withdraws the tooth 38 from under the block 24 and again releases the frame 21 to repeat the first cycle of the operation of the toy just described.

At the time the ball 39 rolls from the arms 32, the preponderance of weight is again shifted and the man 27 rocks backwardly into normal position in which he engages the stop 30, as shown in Fig. 5, and of course, with the ball 39. It will thus be seen that from the time the ball 39 rolls from the arms 32 and the man 27 resumes his normal position, there is no action in the toy, until the rolling ball 32 trips the tail 13 which releases the frame 21 and starts the next cycle of operation.

The cycle of operation of the toy is successively and automatically repeated until all of the balls 39 have been removed from the upper runway 7 and deposited in the lower runway 15. The balls 39, as they are stopped in the lower end of the runway 15, may be manually replaced on the runway 8 so that the toy may be automatically operated as long as desired.

Obviously, from the time a ball 39 is deposited in the runway 15 until it reaches the tail 13 and trips the same, there is no action in the toy whatsoever.

From what has been said, it will be understood that the toy described is capable of modifications as to details of construction and arrangement within the scope of the invention herein disclosed and claimed.

What I claim is:

1. In a toy of the class described, upper and lower inclined runways, balls on the upper runway, said upper runway having at its low end a ball barrier, a carrier, means mounting the carrier for oscillatory movement between the low end of the upper runway and the high end of the lower runway, and a variable weight for operating said means to lift the carrier, said carrier being constructed and arranged to lift the foremost ball on the upper runway over the barrier during its upward movement, and catch and hold said ball, the weight of the ball held by the carrier being sufficient to operate said means and lower the carrier, said carrier being constructed and arranged to release the held ball and deliver the same to the lower runway at the time said carrier reaches its lowermost position.

2. In a toy of the class described, upper and lower inclined runways, balls on the upper runway, said upper runway having at its low end a ball barrier, a carrier, means mounting the carrier for oscillatory movement between the low end of the upper runway and the high end of the lower runway, a weight for operating said means to lift the carrier, said carrier being constructed and arranged to lift the foremost ball on the upper runway over the barrier during its upward movement, and catch and hold said ball, the weight of the ball held by the carrier being sufficient to operate said means and lower the carrier, said carrier being constructed and arranged to release the held ball and deliver the same to the lower runway at the time said carrier reaches its lowermost position, and a catch constructed and arranged to hold said means at the time the carrier reaches its lowermost position and be operated by a ball rolling on the lower runway to release said means.

3. In a toy of the class described, a frame, upper and lower inclined runways on the frame, balls on the upper runway, said upper runway having at its low end a ball barrier, a horizontally disposed bar intermediately pivoted to the frame, a carrier pivotally supported on one end portion of the bar and oscillated thereby between the low end of the upper runway and the high end of the lower runway, means for limiting the pivotal movement of the carrier relative to the bar, a weight on the opposite end of the bar from the carrier for operating said bar to raise the carrier, said carrier being constructed and arranged to lift the foremost ball on the upper runway over the barrier and catch and hold the same back of dead center, the weight of the ball held by the carrier being sufficient to operate the bar and lower the carrier, said carrier being constructed and arranged to move pivotally and release the held ball and deliver the same to the lower runway at the time said carrier reaches its lowermost position, and a catch constructed and arranged to hold the bar at the time the carrier reaches its lowermost position and be operated

by a ball rolling on the lower runway to release said means.

4. In a toy of the class described, a frame having the delineation of an ox, an inclined upper ball runway on the back of the ox, the horns of the ox forming continuations of said runway, the end portions of said horns affording a ball barrier, a lower inclined ball runway straddled by the ox and secured to the legs thereof, a horizontally disposed bar intermediately pivoted to the body of the ox, a member simulating a man with outstretched arms pivoted to the front end portion of the bar and yieldingly held in a rearwardly inclined position, said man having a cap in the form of an inverted wedge, a weight on the opposite end of the bar from the man for operating the bar to lift the man and project the upper portion of said man between said horns and the cap between the two foremost balls and lift the foremost ball over the barrier where it drops onto said arms and is positioned thereby back of a dead center relative to the pivotal support for the man, the added weight of the ball on said arms operates said bar and thereby lowers the man, said arms when the bar is in its lowermost position are slightly downwardly inclined whereby the ball rolls past dead center and thereby tilts the man forward materially increasing the inclination of the arms and rolls therefrom into the lower runway.

5. The structure defined in claim 4 in which the tail of the ox is pivoted and provided with a tooth that holds the bar inactive when the man is in his lowermost position, said tail being operated by a ball rolling on the lower runway to release the bar.

6. A gravity actuated, animated toy having in combination, an upstanding frame, a scale beam fulcrumed in said frame and having a weight

mounted adjacent one end thereof for swinging said beam in one direction, a track at the top of said frame declined somewhat from the horizontal, abutment means at the lower and delivery end of said track and disposed above the non-weighted end of said beam, a series of rolling members adapted to be supported upon said track, a receiver member mounted adjacent the non-weighted end of said beam and having an upwardly extending ejecting element for displacing one of said rolling members from said abutment to discharge the same into said receiver member, said receiver member being mounted for shifting as the non-weighted end of said lever swings downwardly, to discharge the received rolling member, a second track disposed below the lowermost position of said scale beam and declined somewhat from the horizontal for receiving a rolling member discharged by said receiver member and a latch element having a free terminal portion disposed in the path of travel of said rolling elements along said last mentioned track and adapted to retain the weighted end of said scale beam in upraised position and thereafter, when moved by the travel of one of said rolling members along said roller track, to release said beam for gravity action due to said weight.

SIDNEY L. LONG.

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