March 23, 1954 J. H. BACON 2,673,087

ROTATING TOY

Filed Feb. 12, 1949

2 Sheets-Sheet 1

FIG. 1

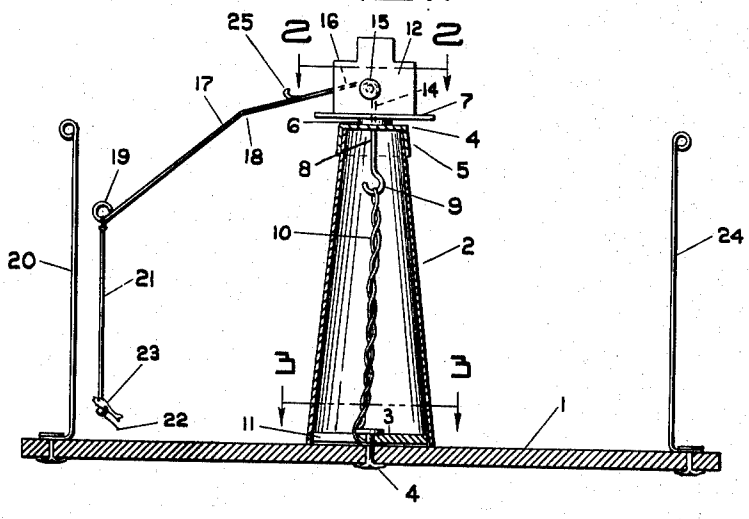


FIG. 2

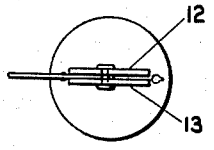


FIG. 3

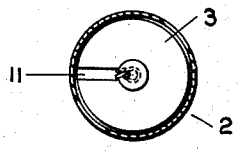


FIG. 4

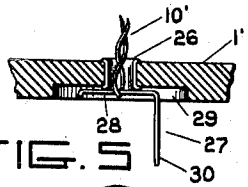


FIG. 5

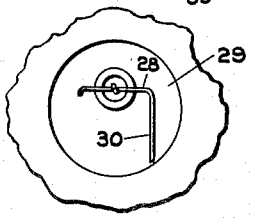
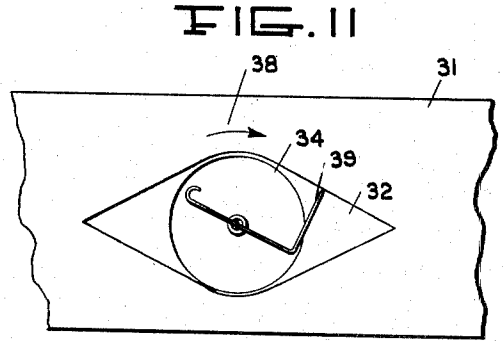


FIG. 11



INVENTOR.
John H. Bacon
BY Ezekiel Wolf
his Attorney

March 23, 1954 J. H. BACON 2,673,087

ROTATING TOY

Filed Feb. 12, 1949 2 Sheets-Sheet 2

FIG. 6

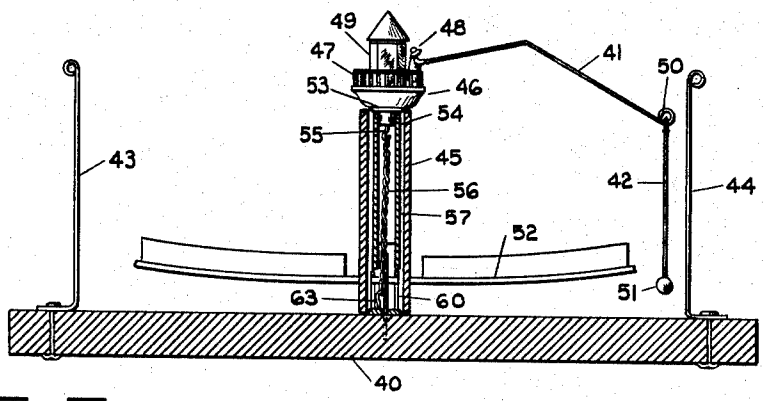


FIG. 7

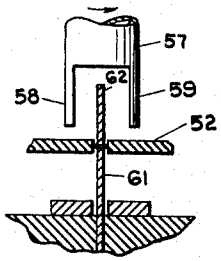


FIG. 8

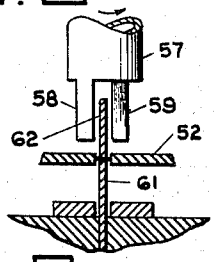


FIG. 9

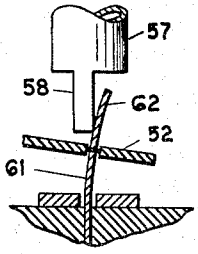


FIG. 10

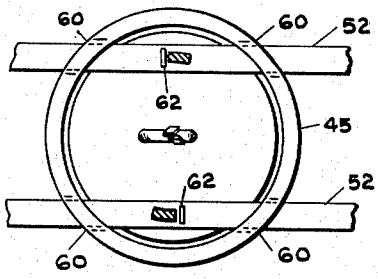


FIG. 12

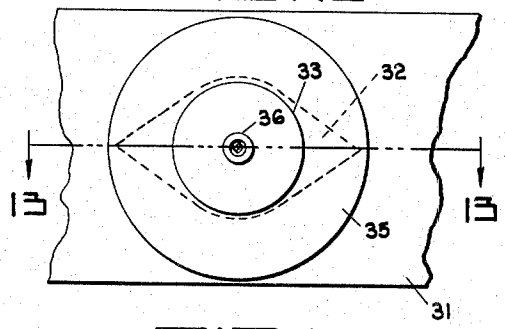
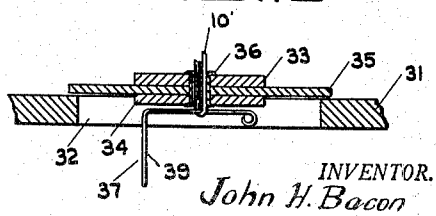


FIG. 13



INVENTOR.
John H. Bacon
BY Ezekiel Wolf
his Attorney

Patented Mar. 23, 1954

2,673,087

UNITED STATES PATENT OFFICE

2,673,087

ROTATING TOY

John H. Bacon, Wellesley, Mass.

Application February 12, 1949, Serial No. 76,015

5 Claims. (Cl. 272—31)

1

The present invention relates to a toy or amusement device is which animation or motion is provided by simple means in such a way that the toy has a particular attractiveness. A remarkable feature of the toy is that it requires a very little amount of energy to keep it going for a comparatively long period of time. A simple twisted rubber band can easily keep the toy in operation for a period of more than an hour. In the form in which the toy is contemplated for use, it may represent in caricature a person fishing, or other animated actions may be operated with the same principle.

The present invention does not contemplate the use of the toy for a game. However, it may be used for this purpose if the structure and animation are applied with that purpose in view. The toy of the present invention is intended to be amusing and also to illustrate principles of mechanical motion which are interesting to observers and to a great extent educational from the point of view of mechanics and mechanism.

Such features of interest will be particularly pointed out in the description of the invention contained in the specification annexed hereto when taken with the drawings illustrating the invention in its embodiment and modifications thereof as will appear in connection with the drawings in which Figure 1 shows an elevation of the invention in one form. Figure 2 is a section taken on the line 2—2 of Figure 1. Figure 3 is a section taken substantially on the line 3—3 of Figure 1. Figure 4 shows in section a modified form of the winding means of Figure 1. Figure 5 shows a plan view of the detail shown in Figure 4, as viewed from the bottom. Figure 6 shows a further modification of the view shown in Figure 1 with additional means of animation. Figure 7 shows a detailed section taken through the lower tower portion of Figure 6. Figure 8 shows the same section as Figure 7 but with the elements in a different position. Figure 9 shows the same section as Figure 7 with the elements in a still further position. Figure 10 is a horizontal sectional view through the base of the tower just above the horizontal bar member indicated therein. Figure 11 shows a modified detail of the detail shown in Figure 5. Figure 12 shows a plan view of the detail of Figure 11 as viewed from the top of the base. Figure 13 shows a section taken substantially on a line 13—13 of Figure 12.

In the arrangement shown in Figures 1, 2, and 3, the toy is provided with a base 1 which may be a rectangular piece of cardboard, plastic, wood, metal composition or other material in laminated

2

or integral sheet, and while preferably a rectangular shape is employed, other shapes or forms may be used if desired.

At the center point of operation of the board 1, there is positioned a tower 2. This tower 2 is preferably hollow on the inside and stands over a disk 3 which is held to the base 1 by a pin or rivet 4. The disk 3 fits snugly within the bottom end of the tower 2 which may be tapered as indicated in Figure 1 and which at the top is capped by a cap 4 which is provided with downwardly extending flanges 5 forming a reasonably snug fit about the upper end of the tower so that the cap will not readily come off. Resting on top of the cap is a washer 6 and on top of this washer is a platform 7 which will be presently explained. A thin rod or shaft 8 is held firmly in the platform assembly and this rod extends down through the washer and the cap into the top of the hollow cone where it is terminated in a hook 9. An elastic rubber band 10 is hooked over the hook 9 at the top end and at the bottom end it is passed through the slot 11 in the disk 3 and looped around the neck of the rivet 4 between the disk 3 and the base 1. The rubber band is sufficiently taut to hold the rod or shaft 8 in place in a vertical direction. The washer 6 may be of such a type as to minimize the friction between the platform 7 and the cap 4 so that the platform 7 may be readily rotated both in the winding and in the unwinding of the rubber band 10 which acts as the motor or driving device in the present toy. The platform 7 has centrally mounted on it two upright members 12 and 13 which may be provided with lithographed prints or other decorative covering sheets if desired. The upright sheets 12 and 13 may be set in the platform 7 or they may have outwardly extending flanges by which they are held to the platform. Any suitable method of attachment that would make the uprights fairly secure is satisfactory. In fact, the uprights may be secured by means of the wire 8 which passes between the two upright sheets or plates as indicated at 14 by the dotted line over the neck of the rivet 15 and out through the end edge as indicated by the dotted line 16 from which it extends as a pole 17 outwardly inclined and downwardly as shown in a curve or with a bend as indicated at the point of flexure 18. This pole or rod 17 is preferably not of rigid material although a rigid pole may be used. The pole or rod 17 is sloped downwardly and its normal inoperative position terminates in an eyelet 19 which lies within the radius of the flexible or rigid pole or stem 20 when the rod is at rest.

Normally, if the pole 17 is rotated extremely slowly, it will not come in contact with the upright 20. The pole 17 carries or supports a line 21 of thin silk or other similar material at the end of which is a little weight 22 and a little disk 23 positioned on the line just above the weight, which disk may simulate the form of a small fish. The centrifugal force in the rotation of the pole about the conical tower which may of course be of the nature of a lighthouse, throws the suspended weight 22, line 21, and flexible rod outward, and at normal rotating velocity provides sufficient centrifugal force so that the eyelet 19 will be forced outward and come in contact with the upright rod 20. Since the little weight 22 under these conditions is still proceeding in a tangential direction with reference to the circle described by the end of the cord, it will wind up about the upright pole or rod 20 until the cord 21 is entirely wound about the pole. When this has occurred, the little weight 22 will tend to drop on the pole 20 which has little friction and begin to unwind, completely unwinding and permitting the eyelet therefore, which is now not subject to centrifugal force, to assume the position shown in Figure 1 at which instance the motor 10 takes over and again begins to rotate the pole to the position of the opposite upright 24 and the same cycle of operation just described begins over again.

In the arrangement just described, the cycle of operation as far as time is concerned remains quite uniform and if the rubber band is given about 100 twists by rotating the pole in one direction, it will take about one hour's time for it to unwind in the other direction.

In the embodiment of the invention shown in Figure 1, the winding is done by hanging the line 21 over the pole 17 so that it is out of the way and rotating the pole about the central axis by driving it with the finger. For this purpose, a small hook 25 may be mounted on the upper end of the pole in which the line 21 may temporarily be held while the motor is wound. The motor 10, however, may be wound through the base and such a system is shown in Figures 4, 5, 13, 14, and 15.

In Figure 4, the rubber band 10' is threaded through a hollow rivet 26 in the base 1' and is looped about the right angle crank 27, one side of which 28 lies flat against a recess 29 in the bottom of the base 1. The arm 28 is positioned diametrically across the hollow rivet 26 and serves to prevent the rubber band from pulling back through the rivet and also serves as a winding means. The crank arm 30 may be turned downward as indicated in Figure 4 and held in the fingers to wind the motor. When not in use, the crank arm 30 is turned downward as shown in Figure 5 and will resist unwinding by engaging the side wall of the recess 29, since the hollow rivet is not stationed in the center of the recess 29, but is placed eccentric with respect to it so as to prevent the motor from unwinding.

In the arrangement indicated in Figures 11, 12, and 13, a slight modification of this structure is shown. In the construction shown in these figures, the base 31 corresponding to the base 1 is punched out with a hole 32 which is generally oval or diamond in shape. Symmetrically centered in this hole is a base disk 34 over which is placed a very much larger disk 35 covering the entire hole 32 and on top of this, centered with the disk 34, is the disk 33 corresponding to the disk 3 of Figure 1. These three flat disks or plates are riveted together with a hollow rivet 36

through which the rubber band 10' is passed. The rubber band loops over the right angle crank 37 which has one arm diametrically positioned across the hollow rivet and the other arm at right angles thereto. As indicated in Figure 11, the motor is wound in the direction of the arrow 38 so that the tendency for the crank to unwind will bring the handle 39 of the crank when laid down flat in the hole against the wall of the recess 32 as indicated in Figure 13. The disk 35 which covers the hole 32 may be cemented to the base 31 around its edges which will hold the whole assembly in proper position. The disk 34 lies well within the lower surface of the base 31 and so also the crank arm 39 when laid over on the side.

A modification of the arrangement described in Figure 1 is shown in Figures 6, 7, 8, 9, and 10. In Figure 6, the base 40 corresponds to the base 1 in Figure 1. The pole 41, the line 42, the uprights 43 and 44 all correspond to the same named elements described in Figure 1. The lighthouse in this case is shown as a cylindrical tube 45, but the same shape as employed in Figure 1 may be used. The top of the lighthouse in Figure 6 is shown as finished off with a cup-shaped platform 46 provided with an upright railing 47 in which stands a fisherman, figure 48, on the outside of the housing 49 which may simulate a lighthouse, and in fact, if desired, may contain a battery and light shining through transparent or open walls in the housing 49. The pole 41 extends from the fisherman in the top of the lighthouse and similarly as described in Figure 1 in a position at rest the eyelet 50 lies within the radius of the upright poles 43 and 44. When, however, centrifugal action of motion throws the pole or weight 51 outward, the eyelet 50 will hit the pole 44 or may even lie beyond it.

The chief distinction between the modification of Figure 6 and that of Figure 1 lies in the additional animation provided by the bar 52 supported in a horizontal position above the base 40. This rod or bar 52 may be straight or slightly curved as shown and is made to oscillate somewhat like a seesaw as will be presently described.

The top cup platform 46 of the lighthouse is the member which is rotated. This is supported on the end of the stationary cylinder 45 over the end surface of which the base of the platform 46 turns or spins. The platform is provided with a shoulder 53 at its base from which a cylindrical boss, short neck, or plug 54 extends from which the hook 55 is suspended carrying the top end of a rubber band 56. The band 56 is positioned in the axis of the plug or neck 54 and is surrounded by a hollow cylindrical tube 57 which is concentrically positioned with respect to the outer cylinder 45 and which is firmly attached to the plug 54 so that the cylinder 57 turns with the turning of the platform 46. The lower end of the cylinder 57 terminates at a point above the bar 52. At the end of the cylinder 57 there is formed two projecting prongs 58 and 59 positioned diametrically opposite one another. The bar or rod 52 passes through the wall of the cylinder 45 in the wall slots 60. As indicated in Figure 10, the assembly may have two bars, one passing through each side of the cylinder 45. These bars 52 are suspended by a spring member 61 indicated in Figures 7 to 10 inclusive, which spring member has a portion 62 extending above the bars and positioned to engage the downwardly extending prongs 58 and 59 as the hollow tube 57 is rotated.

Figures 7, 8, and 9 show successive positions of the hollow cylinder 57 in its rotation. First the prong 58 engages one of the springs 61 and the prong 59 the other, and then in the next rotation of 180° the downwardly extending prongs each engage the other springs. As indicated in Figure 9, the bar 52 will be tilted or oscillated through an arc about the spring 61 as a point of suspension. On one side this oscillation will tip the bar initially in one direction of rotation while the opposite bar will be initially tipped in the other direction of rotation. As the prongs 58 and 59 leave the spring projection 62, the rods will oscillate back and forth in a seesaw fashion for a considerable period depending upon the damping of the system. The engagement of the prongs with the spring is made at the time of maximum velocity of rotation of the cylinder 57 which is in a position substantially at right angles to the line through the axis of the cylinder and the poles 43 and 44.

The bar 52 may carry light scenery such as waves for instance so that the animation or motion provided by the oscillation of the bar will give the effect of a moving ocean while the fisherman is fishing. As in the construction indicated in Figure 1, the rubber band 56 is attached to a hook 63 which corresponds in general to the rivets or means for holding the lower end of the rubber band indicated in the other figures.

The device in accordance with the Figures 6 to 10 inclusive operates quite similarly with the additions which have already been described to that of the device of Figure 1.

Various other modifications and arrangement of parts may be obtained and while it is of considerable advantage for simplicity of operation, cheapness of manufacture to use a rubber band as a source of prime mover, it is nevertheless possible to use electrical power to provide longer or continuous operation or mechanical power in the form of watch springs or other similar devices.

Having described my invention, I now claim:

1. In a toy of the type described, a base member having a generally centrally located tower, a platform mounted for rotation on the tower about the vertical axis thereof, means contained within the tower for rotating said platform, comprising spring means extending through said base connected to the platform for rotating the same, a crank positioned in a diamond shaped recess in the bottom of said base and coupled to said spring means for winding the same, said crank having an angular shape and adapted in the winding position to have the handle thereof projecting outwardly from said base and in the position of rest to have the end of the crank engage the wall of said recess whereby the crank when wound will not unwind when placed in a position of rest.

2. In a toy of the type described, a base member having a generally centrally located hollow tower, a platform mounted for rotation on the tower, means concentrically positioned within the tower rotatable with said platform, a bar member passing through slots in the tower near the base, a spring support positioned within the tower for holding said bar member, engagement means having one part coupled with said spring support and bar and the other coupled with the means concentrically positioned within the tower for oscillating the spring support and bar on engagement when said platform is rotated.

3. A toy of the type described comprising a base member having a generally centrally located hollow tower, a platform mounted for rotation on said tower, a tube concentrically positioned within said tower attached to said platform having diametrically projecting prongs extending from the bottom end thereof, a bar member passing through slots in the base of the tower and having a spring supporting mounting with a projecting arm extending therefrom positioned and adapted to engage said prongs when said tube is rotated, and means for rotating said platform and tube whereby said spring and bar member are oscillated.

4. A toy of the type described comprising a base member having a generally centrally located hollow tower, a platform mounted for rotation on said tower, a tube concentrically positioned within said tower attached to said platform having diametrically projecting prongs extending from the bottom end thereof, a pair of parallel bar members passing through slots in the base of the tower and each having spring supporting mountings with projecting arms extending therefrom positioned and adapted to engage said prongs when said tube is rotated, and means for rotating said platform and tube whereby said springs and bar members are oscillated simultaneously in opposite directions.

5. A toy of the type described comprising a base member having a generally centrally located hollow tower, a platform mounted for rotation on said tower, a tube concentrically positioned within said tower attached to said platform having diametrically projecting prongs extending from the bottom end thereof, a pair of parallel bar members passing through slots in the base of the tower and each having spring supporting mountings with projecting arms extending therefrom positioned and adapted to engage said prongs when said tube is rotated, and means for rotating said platform and tube whereby said springs and bar members are oscillated simultaneously in opposite directions, and scenery means carried by said bars adapted to be oscillated in opposite directions.

JOHN H. BACON.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
656,202	Moorefield	Aug. 21 ,1900
1,355,613	Maier	Oct. 12, 1920
1,438,796	Tunley	Dec. 12, 1922
1,605,465	Reeves	Nov. 2, 1926
1,652,137	Arden	Dec. 6, 1927
1,681,310	Reiner	Aug. 21, 1928