March 3, 1931. J. BUTTIGIEG 1,795,271

SPRING MOTOR FOR TOYS

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Fig. 1.

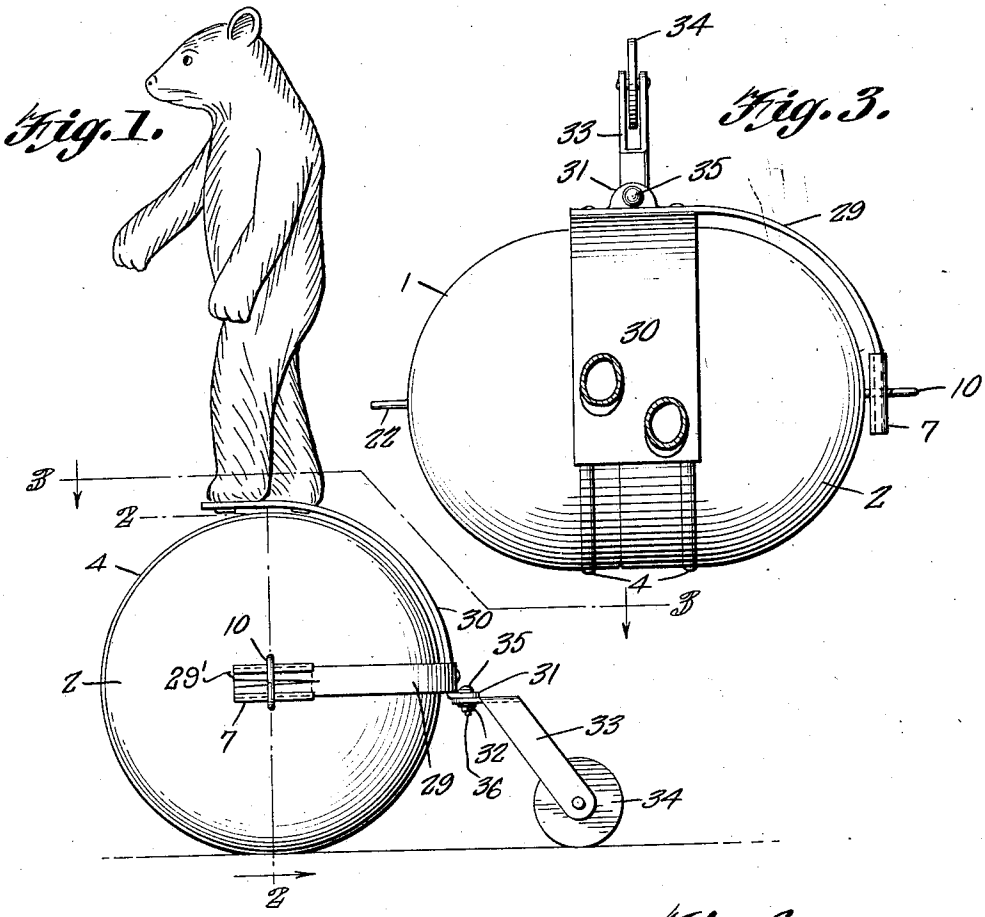



Fig. 3.




Fig. 4.

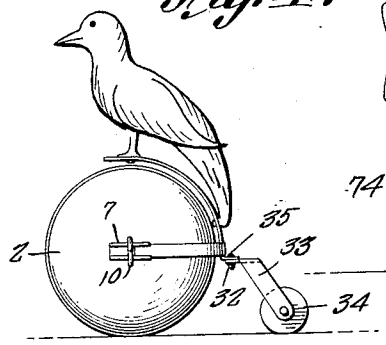
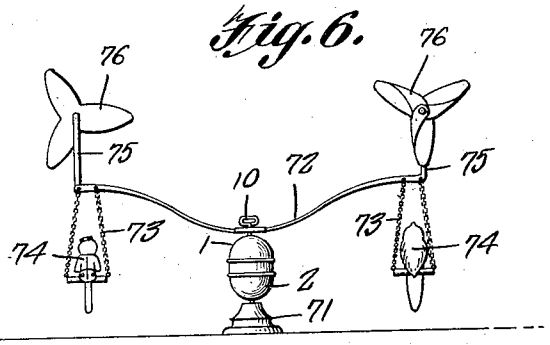



Fig. 6.




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Fig. 2.

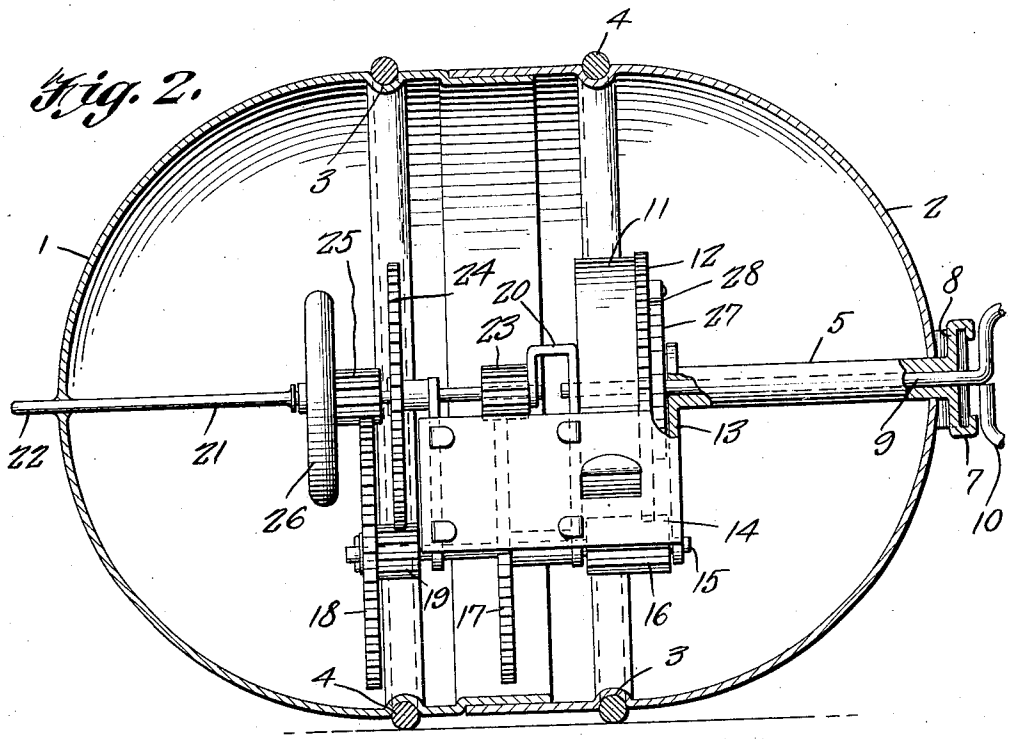
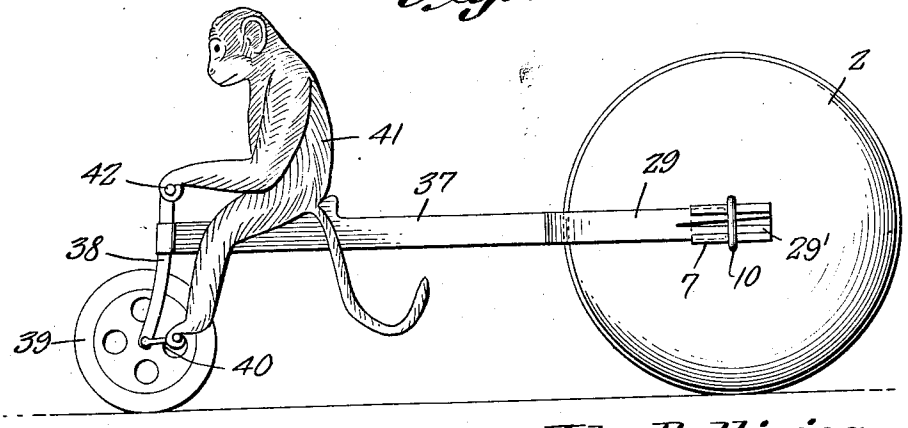



Fig. 5.




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Fig. 7.

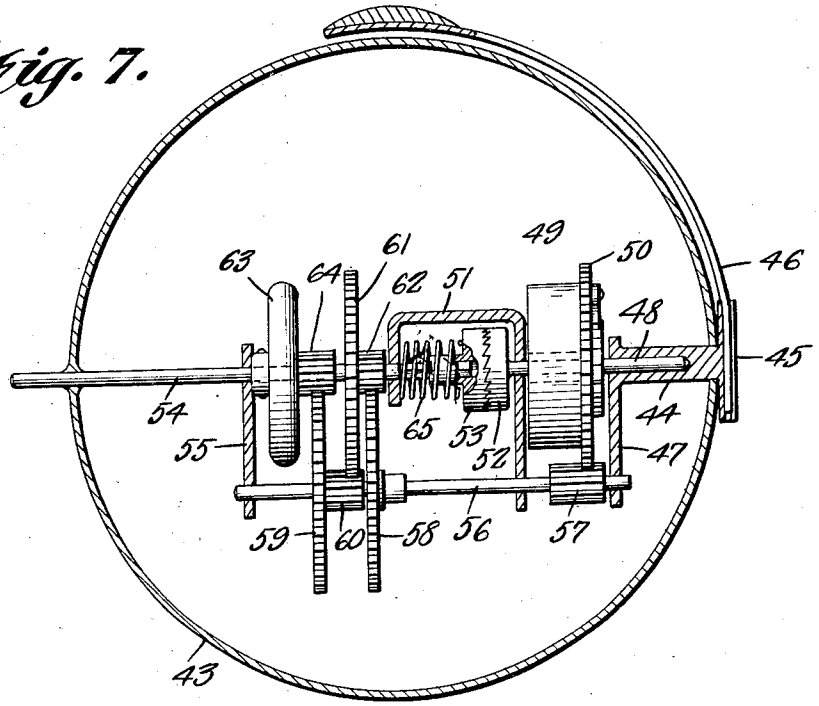
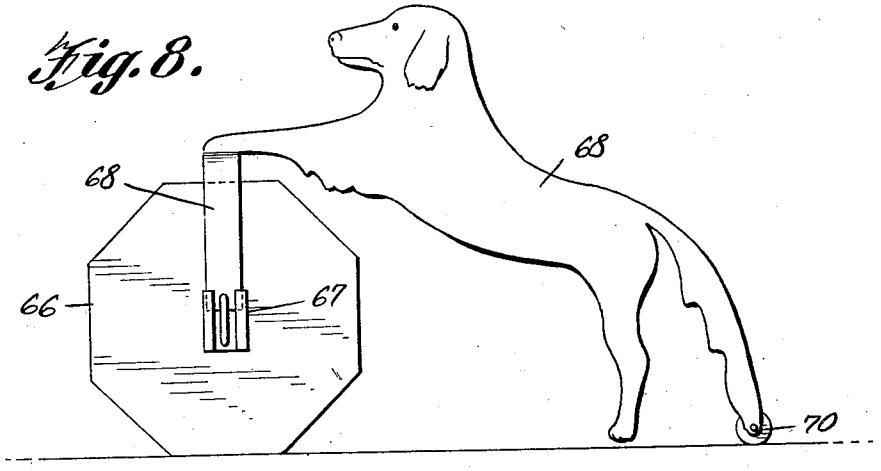



Fig. 8.




John Buttigieg, INVENTOR

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WITNESS:

Patented Mar. 3, 1931 1,795,271

# UNITED STATES PATENT OFFICE

JOHN BUTTIGIEG, OF ELGIN, ILLINOIS

## SPRING MOTOR FOR TOYS

Application filed May 22, 1929. Serial No. 365,124.

My present invention has reference to a mechanical toy of the type in which a ball or other rotating body contains internal mechanism which acts to rotate the ball or body and in which the ball or body supports and has balanced thereon or attached thereto a figure or other amusing device.

The primary object is to provide a toy of a simple construction in which the ball or rotating body is propelled or rotated by clock mechanism that is arranged therein, the latter being of a novel construction, and wherein there may be removably attached to the rotating body the end of a frame that supports thereon a figure or other amusing device.

A still further object is the provision of a toy for this purpose in which the rotating body may be provided with tires and may be constructed of sections so that the interior parts thereof are rendered accessible.

A still further object is to simplify and improve the construction upon which I obtained U. S. Letters Patent 1,632,693 granted me on June 14, 1927.

To the attainment of the foregoing the invention consists in the improvement hereinafter described and definitely claimed.

In the drawings:

Figure 1 is a side elevation of a toy in accordance with this invention.

Figure 2 is a sectional view approximately on the line 2—2 of Figure 1.

Figure 3 is a sectional view approximately on the line 3—3 of Figure 1.

Figure 4 is a side elevation illustrating a figure different from that disclosed by Figure 1 supported on the rotating body.

Figure 5 is a side elevation to illustrate a different figure which is supported on and caused to operate by the rotating body.

Figure 6 is an elevation illustrating the manner in which the improvement may be employed as a toy merry-go-round.

Figure 7 is a transverse sectional view through a rotating body having a different type of clockwork therein in which the spring may be wound by holding the frame and rotating the body.

Figure 8 is a side elevation illustrating a further modification.

The hollow rotatable body of my improvement may be constructed of any suitable material and may be of any desired shape which will permit of the same traveling in either a straight direction or angularly and which will impart a vertical or up and down movement to the figure supported on the body. In Figures 1, 2 and 3 of the drawings the body is in the nature of a sphere which has round ends and a straight central portion. The body is constructed of two sections 1 and 2, respectively, and the ends of these sections are telescopically received one in the other, whereby the said sections may be separated to permit of access being obtained to the mechanism in the body.

The flat central portion of the body may be formed with outwardly extending spaced ribs, or as in the showing of the drawings, may be provided with spaced continuous depressions 3 in which there are received rubber or like treads 4. Suitable means, of course, is provided for holding the sections 1 and 2 associated.

Entering the section 1, and arranged in a line with the axial center thereof, there is an elongated tubular member in the nature of a hub 5. The portion of the hub that extends outwardly through the section 2 is widened and flattened and has its ends bent to provide guides 7. The flattened end of the hub provides what I will term a head and for distinction is indicated by the numeral 8. The hub receives therethrough a shaft 9 whose outer end is formed with a handle 10, and this shaft is secured to and is designed to wind the spring operating motor 11 of the device. The motor operates a gear 12 which is held from turning in one direction through the medium of a suitable pawl and ratchet. The inner end of the hub 5 is formed with a downwardly extending portion 13 that may provide one end of a frame 14, and one end of the spring of the motor 11 is fixed to the frame. The frame has journaled longitudinally therethrough a shaft 15 having thereon a pinion 16 that is in mesh with the gear 12. Gears 17 and 18 are fixed on the shaft 15. On one face of the gear 18 there is fixed a pinion 19.

The frame includes an upstanding yoke-like portion 20 through which one end of the shaft 9 is journaled, and the second depending portion of the yoke-like element 20 has journaled therethrough a shaft 21 that is arranged in axial alinement with the shaft 9, the said shaft 21, however, being fixed to the axial center of the section 1 of the body and projects a suitable distance outwardly from said section 1. The projecting portion of the shaft is indicated for distinction by the numeral 22 and is square in cross section.

On the fixed shaft 21 there is a pinion 23 that meshes with the gear 17, a gear 24 that meshes with the pinion 19, and a pinion 25 that meshes with the gear 18. Fixed on the outer face of the pinion 25 there is a fly wheel 26. In lieu of the fly wheel 26 a fan may be employed. All of the gears and all of the pinions are of the same size and have the same number of teeth and the pinion and gear 18 and 19 as well as the fan or fly wheel 26 and its pinion 25 are loose on their respective shafts, which, of course, is also true with respect to the drive gear 12, but the ratchet wheel 27 engaged by the pawl 28 on the said gear 12 is fixed on the shaft 9.

The spring may be wound by turning the handle 10 and the frame 14 and the elements carried thereby will by the weight thereof be sustained in pendent position. It will be apparent that when the body is rotated the hub 5 will remain stationary.

Received in the guides 7 of the head 8 there is the straight end of an arched bar or plate 29. The end of the said member 29 is preferably slotted to receive the shaft 9 therethrough and this slot forms the said end with two spring arms 29′ which preferably exert an outward pressure with respect to each other, so that the end of the member 29 is frictionally held in the guide 7. The member 29 is arranged longitudinally with respect to the guide and as disclosed by Figures 1 and 2 the outer end of the curved or arched plate 29 has fixed thereto an upwardly extending arched or curved plate 30 which is spaced from but extends over the top of the body and has secured thereto a figure to represent a bear as disclosed by Figure 1 or a bird as disclosed by Figure 4. The end of the arched plate 29 is formed on its lower edge with an outwardly projecting horizontally disposed ear 31 designed to be underlapped by a plate or ear 32 that is formed on the inner end of a fork 33, and the arms of the fork having journaled therebetween a ground engaging wheel 34. A pivot such as a bolt 35, which is engaged by a nut 36, passes through openings in the ear 31 and in the part 22 of the yoke, and it will be obvious that by adjusting the nut upon the bolt the yoke may be swung to desired angles with respect to the hollow rotating body so that the said body will be thus caused to travel in circular or angular directions.

The curved plate 29 may have its end formed with a bar extension 37 on whose outer end there is journaled the fork 38 of a ground wheel 39. The shaft for the ground wheel may be provided with pedals 40 and engaged by the feet of a figure 41 which is seated on the bar 37. The straight end of the fork which is journaled through the bar 37 has lateral extensions in the nature of handle bars 42 which are engaged by the hands of the figure 41. The figure has its leg portions jointed as indicated by the dotted lines in the said Figure 5, so that the said legs will move upwardly and downwardly by the action of the pedals 40 upon the turning of the ground wheel 39.

In Figure 7 a hollow spherical rotating body 43 has arranged therein a motor which may be wound without the employment of a key. In this showing there is passed freely through one end of the body in a line with the axial center thereof, a hub 44 that has its outer end provided with a head formed with guides 45 for the end of an arched figure supporting plate 46. The inner end of the hub is formed with a depending portion 47, and the hub has a round bore for the end of a cross sectionally round shaft 48 for the spring motor 49. The spring motor 49 rotates a gear 50 that is held from turning in one direction by a pawl fixed on the wheel and a ratchet wheel fixed on the shaft. The shaft 48 passes through one of the depending arms of a yoke 51 and the inner end of the shaft is provided with a clutch head 52. This clutch head is designed to be engaged by a second clutch head 53 that has a squared bore to receive therein the squared end of a fixed shaft 54, the latter passing through the second depending arm of the yoke 51. The frame also includes a depending arm 55 that may be secured to the fixed shaft 54. Through the lower members of the frame that comprises the elements 47, 51 and 55, there is journaled a shaft 56 on which there is a pinion 57 that is in mesh with a gear 50, as well as a fixed gear 58 and a loose gear 59 which latter carries a pinion 60. On the fixed shaft 54 there is a secured gear 61 that carries a pinion 62. The gear 61 is in mesh with the pinion 60 and the pinion 62 is in mesh with the gear 58. Loosely mounted upon the fixed shaft 54 there is a fly wheel 63 that has fixed on one of its ends a pinion 64 which is in mesh with the gear 59. Between the inner depending arm of the yoke 51 and the clutch member or head 53 there is a light coil spring 65 which normally influences the clutch members into clutching engagement. The weight of the frame and the elements associated therewith hold the said frame in depending or pendent position. The forward movement of the body when influenced by the spring motor

will cause the clutch members to intermittently clutch and declutch or in other words, causing the slidable clutch member to ride over the face of the fixed clutch member 52. By holding the element 46 or the head 45 and turning the ball in a reverse direction to its path of travel, the spring will be wound.

In Figure 8 of the drawings the rotating body is operated by a clock-work similar to that previously disclosed but the said body is of octagon formation and illustrates another of the various shapes in which the body may be constructed. This body is indicated by the numeral 66, and the guide 67 for the hub of the clock work is vertically directed to receive therein an upwardly extending arched member 68 similar to the members 46 and 29. The curved or arched plate 68 supports at the top thereof the four legs of a figure 4 representing a dog 69 and the tail portion of this dog is bifurcated and has journaled therein a ground wheel 70.

In Figure 6 the device is illustrated in the form of a toy merry-go-round. In this figure a base 71 receives the squared end of the fixed shaft in the squared bore. The spring winding shaft of the clockwork has centrally attached thereto a curved plate 72 and the ends of this plate have depending therefrom flexible elements 73 that support seats for figures 74, while the ends of the plate above the figure 74 are provided with arms 75 to which are pivoted wind wheels 76. In this instance the hollow body remains stationary but the spring winding shaft of the clockwork rotates and consequently rotates the member 72 and the elements carried thereby.

The construction and arrangement of parts constituting my toy will, it is thought, be fully understood by those skilled in the art to which such invention relates when the foregoing has been carefully read in connection with the accompanying drawings and the novelty and advantages thereof will be obvious. Therefore, it is not believed that further description will be required although I desire to state that I do not wish to be restricted to the precise details herein set forth and, therefore, hold myself entitled to make such changes therefrom as fairly fall within the scope of what I claim.

Having described the invention, I claim:

1. A mechanism for imparting a rolling motion to a hollow body, including a shaft journaled in the body, a spring motor on the shaft, a pawl and ratchet means between the shaft and motor for preventing the turning of the motor in one direction, a clutch head on one end of the shaft, a second and spring influenced clutch head to engage therewith, a fixed shaft in longitudinal alinement with the motor shaft, a fly wheel freely journaled on the fixed shaft, a depending frame between the motor shaft and the fixed shaft, a train of gears carried by the frame and carried by the fixed shaft, and turned by the motor.

2. Mechanism for imparting a rotary movement to a hollow body, including a hub journaled in and partly extending through the axial center of the body and having a depending portion on its inner end, a shaft journaled on the hub, a spring motor on the shaft, a toothed wheel for the motor, pawl and ratchet means between the shaft and wheel for preventing the turning of the wheel in one direction and for permitting the winding of the motor when the body is raised off of an engaging surface, a yoke through which the second end of the shaft is journaled, a clutch head on said end of the shaft, a second spring influenced clutch head to engage with the first named clutch head, a fixed shaft in longitudinal alinement with the motor shaft passing through the yoke and providing a bearing for the last named clutch head, a fly wheel journaled on the fixed shaft and having a pinion fixed to one side thereof, a gear and a pinion freely mounted on the fixed shaft, a depending arm journaled on the fixed shaft, a shaft journaled in the arm, yoke and depending portion of the hub, a pinion fixed or in mesh with the toothed wheel of the motor and free and loose gears and pinions on the last mentioned shaft in mesh with the gears and pinions on the fixed shaft.

In testimony whereof I affix my signature.

JOHN BUTTIGIEG.