July 30, 1957 A. M. ZALKIND 2,800,745

PUSH TOY

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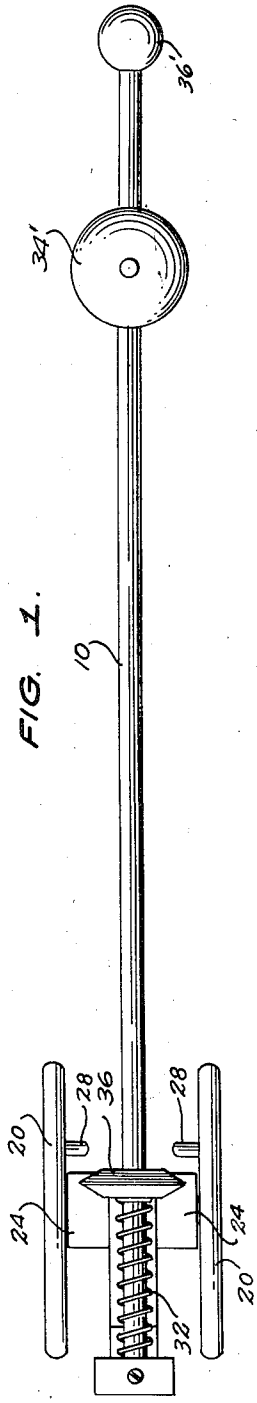


FIG. 1.

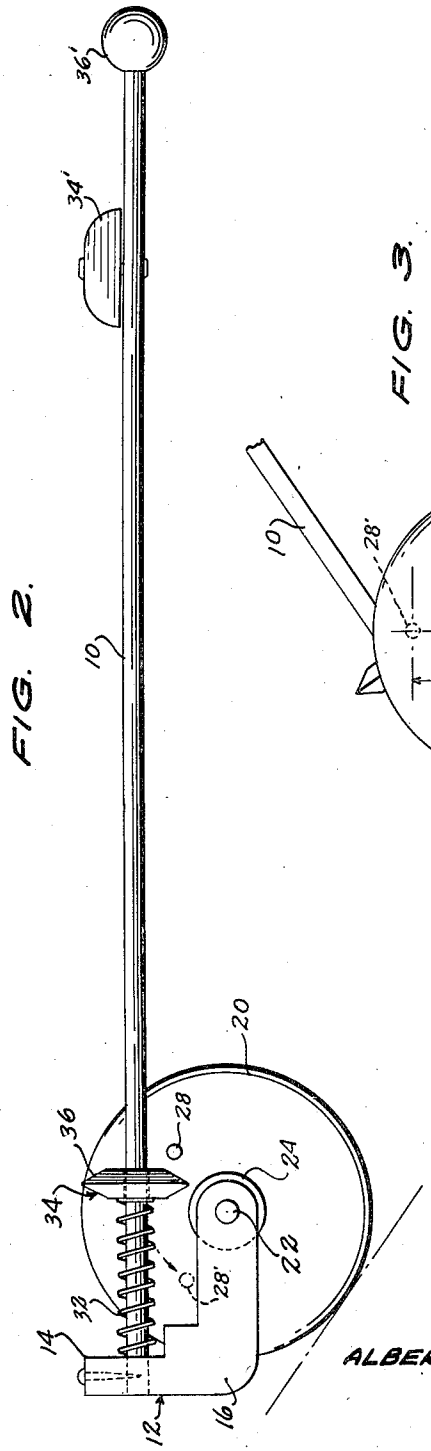


FIG. 2.

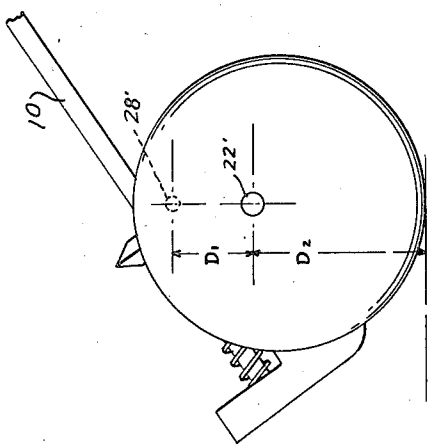


FIG. 3.

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PUSH TOY

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6 Claims. (Cl. 46—114)

This invention relates to toys and more particularly to push toys.

It is an object of the invention to provide a push toy comprising a propelling stick having a moving object thereon such that the object is propelled upwardly along substantially the entire length of the stick to ring a bell as the toy is propelled by means of the stick.

It is another object of the invention to provide a push toy in accordance with the first object having an extremely simple, practical, and cheaply manufactured mechanism for furnishing the described effect.

Other objects and features of the invention will be apparent from the detailed description hereinafter set forth.

In brief, my invention comprises the combination of a stick secured to a push toy body and a pair of wheels carried by the body wherein the wheels have studs or pins for periodically engaging a freely slidably element on the stick and releasing the element. By providing a compression spring at the lower end of the stick, the slidable element is thus forced to compress the spring; when the element is released it slides up the stick almost to the very end to strike a bell mounted near the stick handle. Subsequently the element, which may be a disc or ball of any suitable material, slides down the stick, motivated by gravity, and is once more engaged by the pins to compress the spring for automatic repeat action.

A detailed description of my invention will now be given in conjunction with the appended drawing, in which:

Fig. 1 is a plan view of the push toy.

Fig. 2 is an elevation showing the toy with one wheel removed to disclose details, and

Fig. 3 illustrates a modification.

With reference to the forms shown in Figs. 1 and 2, my toy comprises a stick **10** secured to a wooden body **12** in any suitable manner. The body **12** may be made of one or two pieces, thus a front piece **14** secured to a bottom piece **16**, or the body and stick may be moulded integrally or stamped of sheet metal.

The body carries a pair of wheels **20** keyed to an axle **22** for rotation in unison. Spacer elements such as **24** may be utilized to maintain a proper centering of the wheels with respect to the body.

The wheels carry abutment means such as pins **28** for a purpose to be hereinafter described.

Mounted at the lower end of the stick is a light gauge compression spring **32** of any suitable material such as steel or plastic. A disc **34** having a bevelled surface **36** is freely slidable on the stick and is so disposed that as the toy is propelled the pins **28** will engage the bevelled surface and move the disc in the direction shown by the arrow in Fig. 1. Thus, the disc is forced downwardly to effect compression of spring **32**. After the pins **28** have reached some position such as **28'**, it will be apparent that they will leave the surface of the disc, permitting sudden expansion of spring **32**. This causes the disc to slide up the stick and strike a bell **34'** adjacent the knob handle **36'**. I have found in practice that it is possible with any suitable spring to cause a wooden disc about 2"

in diameter and ½" thick at the hub to slide a distance of some 20" on a ⅜" diameter dowel stick. Accordingly, a very effective spectacle is achieved.

Preferably the pins **28** are axially aligned with each other so as to balance the force on the disc and the length of the spring is such, together with the disposition of the stick, that the pins are at the high point of their arc of travel when the spring is compressed about half way of the total degree of compression to which it will be subjected prior to disengagement of the pins from the disc. Thus, the dotted arc in Fig. 2 illustrates this preferred condition.

Attention is now invited to Fig. 3 showing in elevation a modified form of wheel wherein the wheel is mounted off-center. This, in addition to having a novel effect visually also provides some mechanical advantage to the extent that the distance **D1** from the pin **28'** to the axle **22'** is much smaller than the distance **D2** from the axle to the ground. Thus, a mechanical advantage results which is greater in magnitude than the mechnical advantage achieved by comparing the same distances for a wheel rotated at its center as in the form shown in Fig. 1.

The spring preferably has its lower end secured either to the stick as shown or to the body; however, it could have its upper end secured to the disc so as to move with the disc, or the spring could be unsecured.

My toy may be constructed of any suitable materials such as wood, metal, fiberboard, etc., as will be apparent. Further, the rims of the wheels may be provided with suitable frictional material if required to prevent skidding, depending upon the strength of the spring required for any given weight of the slidable element.

Having described my invention, I am aware that various changes may be made without departing from the spirit thereof and accordingly I do not seek to be limited to the precise illustration herein given, except as set forth in the appended claims.

I claim:

1. A push toy having a handle comprising an elongated upwardly inclined push stick for propulsion, wheel means adjacent one end of said stick, abutment means carried directly by said wheel means and protruding therefrom, stressable potential energy means disposed to be periodically stressed and released by said abutment means when said toy is propelled to effect rotation of said wheel means, and an element carried by said stick and movable relative thereto, said element being motivated by said potential energy means upon release by said butment means, wherein said movable element is freely and gravitationally slidable on said stick, and a bell adjacent the other end of said stick disposed to be struck by said element, wherein said element is propelled upwardly on said stick by said potential energy means to strike said bell and subsequently propelled downwardly on said stick by gravity.

2. A push toy having a handle comprising an elongated propelling stick disposable at an angle of at least 20° relative the ground, a body, said stick being secured to said body, a compression spring at the lower end of said stick, a slidable element on said stick movable upwardly along said stick by said spring upon said spring being compressed and permitted to expand, said element being slidable downwardly on said stick by gravity, wheels carried by said body and having abutment means carried directly thereon engageable with said slidable element upon rotation of said wheels as said toy is propelled, said slidable element being disposed to compress said spring upon being forced thereagainst by said abutment means, the arc of travel of said abutment means being such as to disengage said slidable element at a predetermined position during compression of said spring, whereby said spring is suddenly released so as to propel said slidable element upwardly along said stick, said

slidable element being returned by gravity to be reengaged by said abutment means.

3. A push toy comprising an elongated propelling stick disposable at an angle at least 20° relative the ground, a body, said stick being secured to said body, a compression spring at the lower end of said stick, a slidable element on said stick movable upwardly along said stick by said spring, upon said spring being compressed and permitted to expand, said element being slidable downwardly on said stick by gravity, wheels carried by said body and having abutment means carried directly thereon engageable with said slidable element upon rotation of said wheels as said toy is propelled, said slidable element being disposed to compress said spring upon being forced thereagainst by said abutment means, the arc of travel of said abutment means being such as to disengage said slidable element at a predetermined position during compression of said spring whereby said spring is suddenly released so as to propel said slidable element upwardly along said stick, including signal means adjacent the upper end of said stick disposed to be engaged by said slidable element at the upper end of travel thereof, said slidable element being returned by gravity to be reengaged by said abutment means, wherein said spring is coiled about said stick, said slidable element comprising a disc encompassing said stick, said wheels being spaced to accommodate said disc therebetween at the lower end of travel of said disc, and said abutment means comprising a pin on each wheel, said pins being axially aligned with each other.

4. A push toy comprising wheel means, an elongated upwardly inclined element, a gravitationally slidable element on said elongated element, a helical spring encircling said element, abutment means carried by said wheel means for stressing and suddenly releasing said spring effected by rotation of said wheel means, wherein said slidable element is disposed to be motivated upon release of said spring, generally upwardly of said elongated element and subsequently motivated downwardly by gravity in repetitious action as said toy is propelled to effect rotation of said wheel means.

5. A push toy comprising an upwardly inclined push

stick having a handle end, a body member secured at the other end of said stick, wheel means carried by said body member and having abutment means directly secured thereto and rotative therewith, a compression spring encircling the lower end of said stick, a ring-like element encircling said stick and carried thereby and being free to be propelled up said stick by a force exerted by said spring and to slide gravitationally downward to engage said spring, said abutment means being engageable with said ring-like element to force said element against said spring for compression thereof, and to disengage said ring-like element at a predetermined point in the arc of traverse of said wheels, whereby said expansion of said spring serves to propel said ring-like element by momentum upwardly on said stick.

6. A push toy having a handle comprising an elongated upwardly inclined push stick for propulsion, wheel means adjacent one end of said stick, abutment means carried directly by said wheel means and protruding therefrom, stressable potential energy means disposed to be periodically stressed and released by said abutment means when said toy is propelled to effect rotation of said wheel means, and an element carried directly by said stick and movable relative thereto, said element being motivated by said potential energy means upon release by said abutment means, wherein said movable element is freely and gravitationally slidable on said stick, wherein said element is propelled upwardly on said stick by said potential energy means and subsequently slides downwardly on said stick by gravity.

References Cited in the file of this patent

UNITED STATES PATENTS

1,088,600	Logan	Feb. 24, 1914
1,200,021	Price	Oct. 3, 1916
1,416,029	House	May 16, 1922
1,711,096	Knott	Apr. 30, 1929
1,853,900	Johnson	Apr. 12, 1932

FOREIGN PATENTS

454,250	Canada	Jan. 18, 1949