Feb. 21, 1956 M. I. GLASS 2,735,222

SPRING WOUND TOYS

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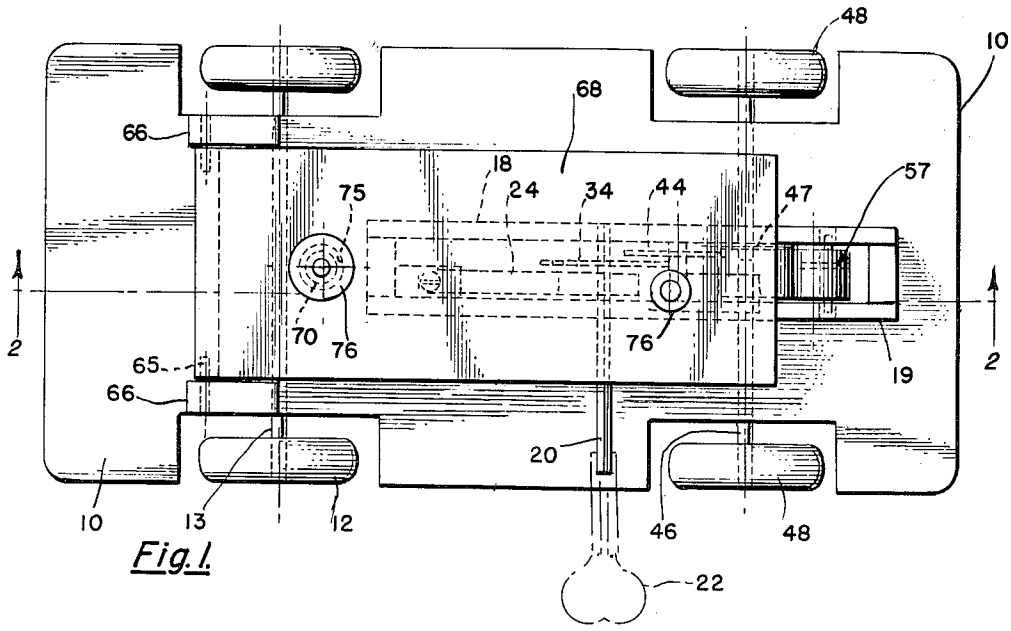


Fig. 1.

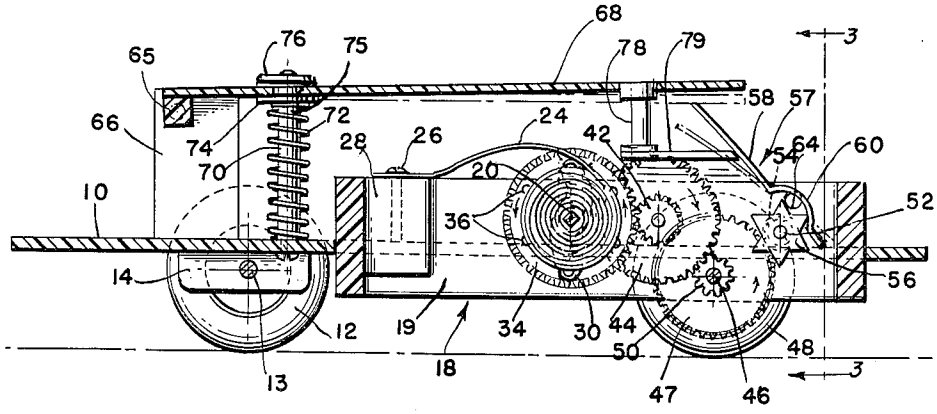


Fig. 2.

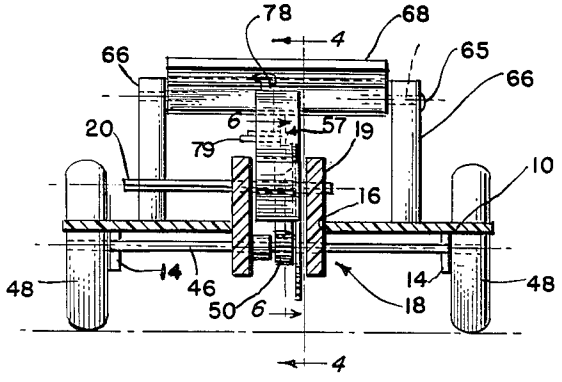


Fig. 3.

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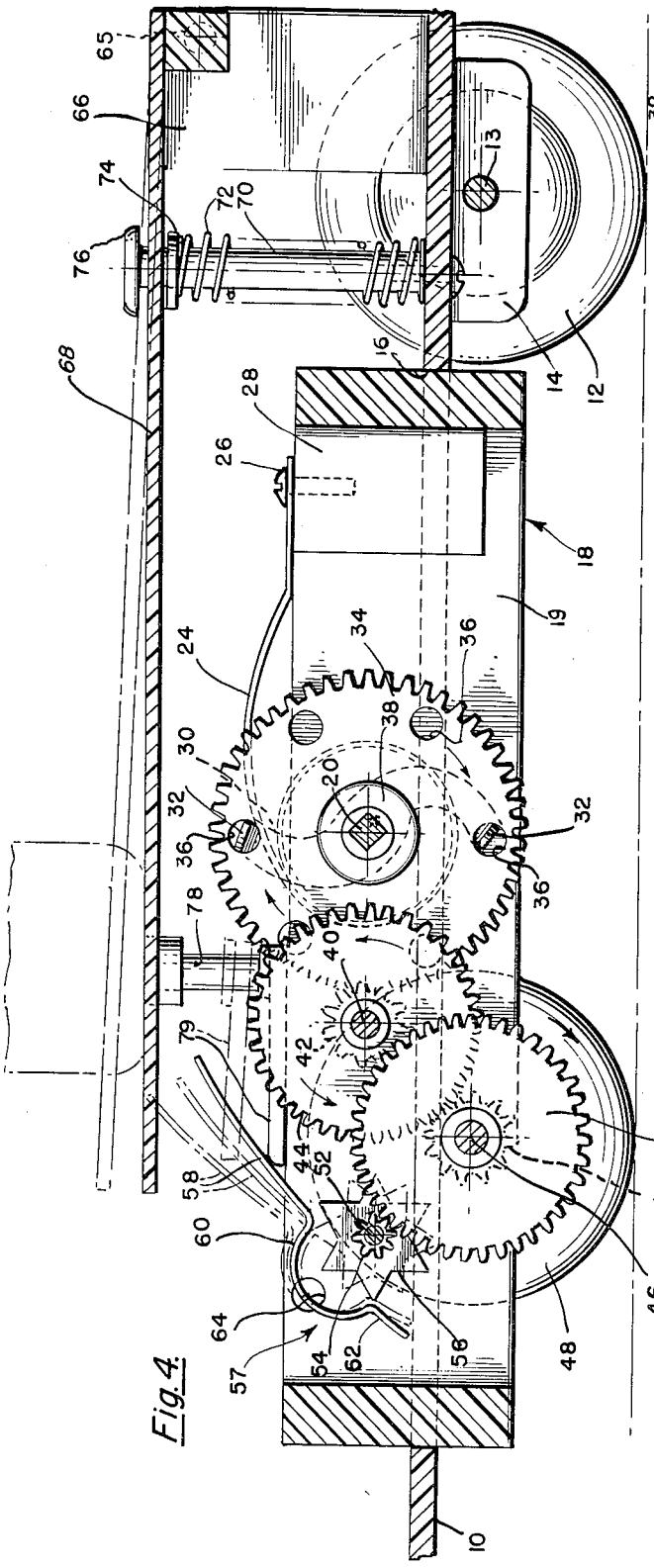


Fig. 4

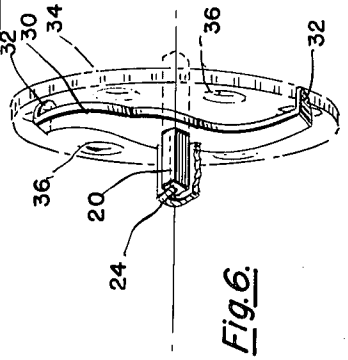


Fig. 6.

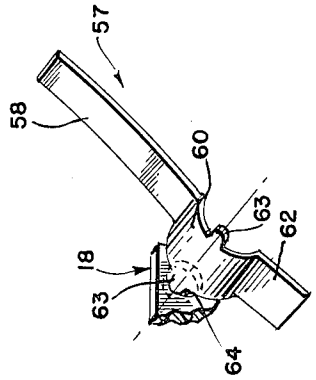


Fig. 5.

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SPRING WOUND TOYS

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Application August 20, 1952, Serial No. 305,475

2 Claims. (Cl. 46—208)

This invention relates to improvements in spring wound toys.

One of the objects of this invention is to provide a spring wound toy which is actuated to move only when a figure or object is placed thereon and which stops when same is removed therefrom.

Another object of this invention is to provide an improved spring wound mechanism which may be utilized in toys so that the toy is propelled only when the spring mechanism is released as by the placing of an object or figure on said toy.

Another object of this invention is to provide an improved toy which is simple and economical to manufacture and which has great play value.

At present spring wound toys are actuated to propulsion as soon as either the windup key is released or a catch is manually released. However, with this invention a toy may be provided in which after the spring has been wound the toy will not move until a figure or object is placed thereon and will continue movement until the object or figure is removed therefrom.

In the drawings:

Figure 1 is a top plan view showing the spring mechanism embodied in a skeleton framework of a toy;

Figure 2 is a view taken on lines 2—2 of Figure 1;

Figure 3 is an end view taken on lines 3—3 of Figure 2;

Figure 4 is an enlarged view taken on lines 3—3 of Figure 2 but looking at the opposite side of same;

Figure 5 is a perspective view of the escapement bar; and

Figure 6 is a sectional view taken on lines 6—6 of Figure 3.

The device as shown comprises a base or support 10, to the front of which are secured a pair of wheels 12 mounted on front axle 13 which is rotatably secured to depending members 14 depending from said base. The base has a rectangular-shaped slot 16 in which is secured a housing generally indicated at 18. The housing supports most of the operating parts. The side walls 19 of the housing supports a transverse windup shaft 20, square in cross-section, one end of which extends exteriorly of the side of the support to be engaged by the usual key 22 for winding same.

A clock spring 24 has its inner end secured to said windup shaft 20 and its outer end is anchored as at 26 to a block 28 secured to the housing. Mounted on the shaft 20 adjacent the spring 24 and rotatable with said shaft is a plate 30 having a pair of ears 32. A gear 34 is rotatably supported on the shaft 20 adjacent said plate, said gear 34 having a plurality of circumferentially-spaced openings 36 which are engageable by the ears 32 of the plate 30. A spacing collar 38 loosely mounted on the shaft is positioned between the gear 34 and side wall of the housing.

Mounted in said housing rearwardly of said gear is a rotatable shaft 40 to which is fixedly secured a pinion 42 and a gear 44. The pinion 42 meshes with the gear 34. The rear axle 46, which is rotatably supported in the side walls of the housing, has a pair of wheels 48 fixed to the

outer ends thereof to rotate with said axle. The axle fixedly supports a pinion 50 which meshes with gear 44. Fixedly secured to said axle adjacent said pinion is a gear 47. Mounted in said housing rearwardly and upwardly of the axle 46 is a rotatable shaft 52 which carries a pinion 54. A star wheel 56 is mounted on a portion of said pinion to rotate therewith.

Supported on the side walls of the housing is an escapement bar 57, best shown in Figure 5, which has a flat portion 58, a bowed semi-circular section 60 and an end section 62. The bowed section 60 has a pair of lateral ears 63 which are loosely contained within enlarged openings 64 in the side walls 19 of the housing 18.

Pivotally supported as at 65 on a pair of uprights 66 which are secured at the front of the base, is a platform 68. Slightly rearwardly of said pivotal connection on said base is a vertical post 70, encircled by a coil spring 72, the upper end of which engages a slidable collar 74 which rests against the underside of the platform 68. The upper end of the post extends through an opening 75 in the platform and the upper end of the post supports a stationary collar 76. Thus the pivotal platform is confined between the movable and stationary collars 74 and 76.

The rear end of the platform supports a depending member 78 which extends rearwardly as at 79 to engage the flat portion 58 of the escapement bar 57. The end of the escapement bar extends upwardly at an angle to contact the underside of the platform 68.

In winding up the clock spring 24 the key 22 rotates the shaft 20 clockwise, which tightens the clock spring and simultaneously rotates the plate 30 clockwise, with the ears 32 thereof slipping past the openings 36 in the gear 34. As soon as the clockwise winding up ceases the ears 32 of the plate will locate themselves in the gear openings 36 and remain therein until the windup shaft is again wound up. Gear 34 is prevented from counterclockwise rotation until the platform 68 is depressed, as will now be explained.

The coil spring 72 normally pivots the platform so that it is elevated to its "up" position, as shown in Figure 2. In its "up" position the extension 79 will engage the escapement bar 57 and push it rearwardly, with the ears 63 of same resting against the rear of the enlarged openings 64. In this position, as shown in full lines in Figure 2, the bowed section 60 engages one of the teeth of the star wheel 56 and prevents its rotation. With the star wheel arrested, the pinion 54, the gear 47, pinion 50, gear 44, pinion 42 and gear 34 are likewise arrested from rotation. As soon as weight or pressure is applied to the platform 68, either manually or by the placing thereon of a removable figure or object, causing it to pivot downwardly as shown in dotted lines in Figure 2 and full lines in Figure 4, the extension 79 moves downwardly, disengaging the escapement bar 57, which causes the escapement bar to move downwardly to the position shown in dotted lines in Figure 2, disengaging it from the star wheel 56 and allowing the star wheel to rotate. As the star wheel rotates clockwise it will continue striking the escapement bar 57 to vibrate it, and since said escapement bar floats freely it will not impede the clockwise rotation of the star wheel. The star wheel and the chain of gears will drive the rear wheels 48 to propel the unit. This will continue until the spring 24 has expended itself or until the weight has been removed from the platform 68, which then will permit the escapement bar 57 to again assume the full line position of Figure 2 to lock the star wheel 56 and arrest the remaining gears and stop rotation of the wheels 48, which brings the car to an immediate stop. The release of the star wheel for rotation permits the remaining gears and pinions to rotate to drive the wheels 48 as follows: Pinion 50, rotating clockwise, rotates gear 47 and pinion 50 counterclockwise, thus driving the wheels 48 for-

wardly. Pinion 50 rotates gear 44 and pinion 42 clockwise. Pinion 42 rotates gear 34 clockwise, which unwinds the clock spring 24.

While the invention herein is shown in a skeleton framework, it will be understood that this invention may be embraced within a toy of any particular shape and that the carriage may be embodied in the form of an automobile or any type of device and that an object or figure may be removably positioned on the carriage as on the platform 68, the weight of the figure causing the star wheel to be released for operation. Thus this invention provides a toy which moves forward only as long as the figure or object is on the carriage and stops when same is removed therefrom.

It will be understood that various changes and modifications may be made from the foregoing without departing from the spirit and scope of the appended claims.

I claim:

1. A toy comprising a carriage having an axle and wheels thereon, a spring wound mechanism supported within said carriage, said mechanism comprising a clock spring, a plurality of gears operated by said clock spring and operatively connected to said axle, other gears driven by said first mentioned gears, said other gears driving a star wheel, an escapement member mounted to move freely with respect to said star wheel, said escapement member having a bowed section, means for normally maintaining said bowed section of said escapement member in a positive locking position with respect to said star wheel to arrest rotation of all of said gears, depressible means for moving said said bowed section of said escapement member to release said star wheel for rotation and simultaneously permit all said gears to rotate to drive said aforementioned axle.

2. A toy comprising a carriage having an axle and wheels thereon, a spring wound mechanism supported within said carriage, said mechanism comprising a clock spring, a plurality of gears operated by said clock spring and operatively connected to said axle, other gears driven by said first mentioned gears, said other gears driving a star wheel, an escapement member mounted to float freely with respect to said star wheel, said escapement member having a bowed section adapted to be engaged by said star wheel, said escapement member being normally held in position so that the bowed section engages said star wheel to arrest rotation of all of said gears, depressible means for moving said escapement member so that the bowed section is disengaged from said star wheel to release said star wheel for rotation and simultaneously permit all said gears to rotate to drive said aforementioned axle.

References Cited in the file of this patent

UNITED STATES PATENTS

728,286	Parker	May 19, 1903
1,858,940	Richter	May 17, 1932

FOREIGN PATENTS

562,401	France	Sept. 1, 1923
670,854	Germany	Jan. 26, 1939