Aug. 1, 1950 R. N. CARVER 2,517,084

CATAPULT PROPELLED VEHICLE TOY

Filed May 5, 1945

Fig. 1.

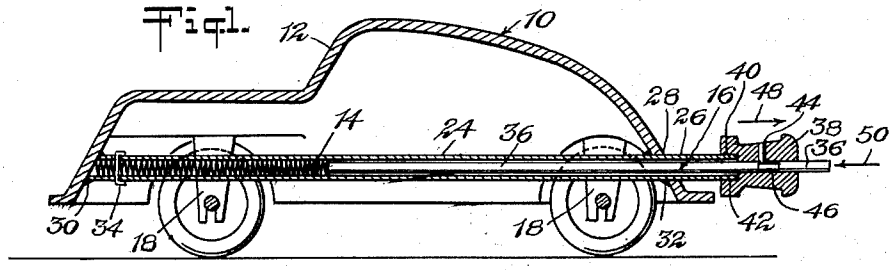


Fig. 2.

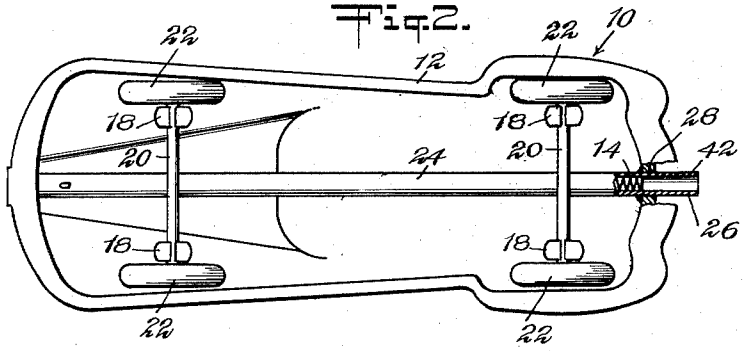


Fig. 3.

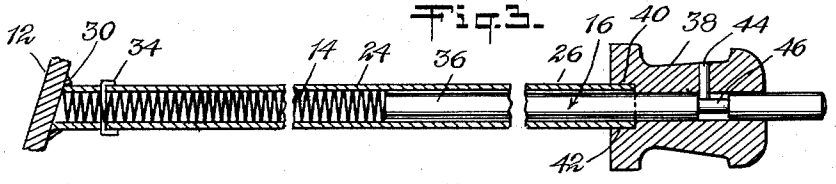


Fig. 4.

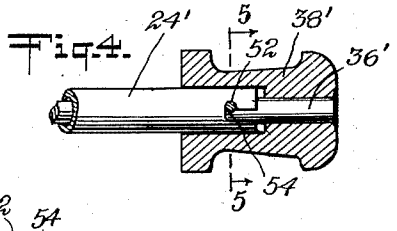
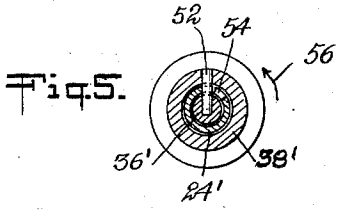


Fig. 5.



INVENTOR.
Richard N. Carver
By James & Franklin
Attorneys

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CATAPULT PROPELLED VEHICLE TOY

Richard N. Carver, Erie, Pa., assignor to Louis Marx & Company, Inc., New York, N. Y., a corporation of New York

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5 Claims. (Cl. 46—206)

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This invention relates to a catapult propelled vehicle toy.

The prime object of the invention pertains to the provision of a novel spring actuated vehicle toy which is propelled with a sudden impulse or catapult action.

In the common type of spring actuated vehicle toys, a spring motor is employed which has to be wound to be energized and this spring motor is gear connected to the wheels of the vehicle toy; unwinding or deenergization of the spring causes a gradual movement or propulsion of the vehicle toy. The spring operated vehicle toy of the present invention is contrastingly characterized by the provision of a spring motor which requires no winding but which is energized by a simple movement of an actuating member, which spring motor is not connected to the wheels of the toy, the spring motor being capable of being suddenly deenergized for producing an impulse or catapult propulsion of the vehicle toy. A vehicle toy is thereby produced which, although spring propelled, is exceedingly simplified in construction, is capable of being instantly energized and propelled, and which produces a novel action.

To the accomplishment of this object and such other objects as may hereinafter appear, my invention relates to the catapult propelled vehicle toy sought to be defined in the appended claims and described in the following specification taken together with the accompanying drawings in which:

Fig. 1 is a vertical medial cross-sectional view of a wheeled type of vehicle toy embodying the principles of my present invention;

Fig. 2 is a bottom plan view thereof with a part in cross-section;

Fig. 3 is an enlarged view of the catapult propelling means for the toy, taken in longitudinal cross-section;

Fig. 4 is a fragmentary view corresponding to Fig. 3, but showing a modification; and

Fig. 5 is a view of the modification of Fig. 4 taken in cross-section in the plane of the line 5—5 of Fig. 4.

Referring now more in detail to the drawings and having reference first to Figs. 1 and 2 thereof, the vehicle toy of the present invention comprises a vehicle toy generally designated as 10, comprising a vehicle body 12, a spring 14 carried by said body, and a manually holdable actuating member 16 separate from the vehicle body 12, said actuating member being forcibly insertable into the body to engage and compress said spring 14 to energize the same as best shown in Fig. 1 of the

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drawings, the construction being such that sudden release of the vehicle body 12 from said manually held actuating member 16 causes the vehicle body to be catapult propelled from the manually held actuating member.

The vehicle toy 10 when made in the form of a wheeled vehicle comprises the vehicle body 12 mounted on wheels, the vehicle body being for this purpose formed with the depending journals 18, 18 for supporting the axles 20, 20, the latter carrying the wheels 22, 22. The body 12 may be made of any light weight material and in the form of the invention shown in the drawings the vehicle body 12 consists of a hollow chassis molded from a suitable plastic material. The axles 20, 20 and the wheels 22, 22 may also be made out of a suitable plastic material where simplicity and a light weight structure is desired.

The spring 14 which preferably is in the form of a compression spring is preferably housed in a tubular housing or casing 24 extending or disposed longitudinally of the vehicle body, the rear end 26 of the said spring housing preferably extending from the rear of the vehicle body. The tubular casing 24 may also be made of a plastic material preferably transparent, and the same is supported in the vehicle body 12 at the walls of the orifice 28 through which the spring housing projects, and the tubular casing may also be secured in this position by being adhesively attached as at 30 and 32 frontally and rearwardly to the interior walls of the vehicle body 12. The compression spring 14 may be anchored at its front end to the spring casing 24 by means of the rivet or staple 34. The rearward projection of the spring housing from the vehicle body is made to simulate an exhaust pipe of a gas motor propelled vehicle.

The manually held actuating member 16 comprises in the form of the invention exemplified in the drawings, a plunger or rod member 36 provided at its rear end with a finger knob 38 for manually holding the same. The plunger member 36 is forcibly insertable into the spring housing 24 from its rear open end into engagement with the spring 14 for compressing and energizing the same, as is clearly shown in Figs. 1 and 3 of the drawings. With the parts held as in Fig. 1 of the drawings, sudden release of the vehicle body 12 from the manually held plunger member 36, the knob 38 of which is held by the fingers of the operator, causes the vehicle body 10 to be suddenly propelled with a catapult action from the plunger member with the latter

remaining held by the user or operator. When the vehicle body is thus suddenly released and propelled forwardly, the compression spring 14 expands to fill substantially the full length of the spring housing 24, as is best indicated in Fig. 2 of the drawings.

Preferably there is provided interengaging means on a part of the vehicle body and a part of the actuating member for holding the vehicle body to the actuating member when the spring is energized. In the form of the invention shown in Figs. 1 to 3 of the drawings, this interengaging means comprises the dovetailing of the finger knob 38 with the rear end of the spring housing 24. To this end the knob 38 is axially recessed as at 40 and this recess frictionally receives the outer end 42 of the spring housing 24. The knob 38 has a limited axial movement with respect to the plunger or rod 36 and for this purpose the knob is provided with a pin 44 extending radially through the knob, the lower end of which moves between abutments on the plunger 36 formed by the reduced section 46 of the plunger. When the knob 38 is forced into interengagement with the spring housing 24, the parts assume the position shown in Figs. 1 and 3 of the drawings. The vehicle body may then be placed on a support as shown in Fig. 1 and the operator may then merely hold the toy by engaging the finger knob 38. With the finger knob between the forefinger and the middle finger, the operator's thumb may then be placed against the end of the plunger 36 and by movement of the fingers, as indicated by the arrows 48 and 50 in Fig. 1, the knob 38 may be moved rearwardly relative to the plunger 36 for disengaging the interengaging means 40 and 42 thereby effecting the sudden release of the vehicle body from the actuating member.

In the modified structure shown in Figs. 4 and 5 of the drawings, a different form of interengaging means is employed. In this form the knob 38' is fixedly attached to the end of the plunger 36', and the latter is provided with a bayonet pin 52 which engages a bayonet slot 54 formed in the end of the spring housing 24'. The toy as before may now be placed on a support in the manner shown in Fig. 1, and the knob 38' may then be rotated in the direction shown by the arrow 56 in Fig. 5 to disengage the pin 52 from the bayonet slot 54, thereby causing the disengagement of the holding means which in turn acts to effect the sudden release and propulsion of the vehicle body from the manually held actuating member.

The structure and functioning of the catapult propelled toy of the present invention and the many advantages thereof as a novel acting toy will, it is believed, be fully apparent from the above detailed description thereof. For a spring actuated toy the construction is extremely simple. The toy may be energized by a small child, contrasting with the difficulty of winding up the usual spring motor for a vehicle toy. When operated, the toy is forcibly propelled with a suddenness which characterizes jet operated or catapult actuated devices. The momentum acquired by the toy particularly when it is made of a light weight construction, devoid, as it is, of gearing and large spring motor parts, carries the toy over substantially long propulsion distances.

It will be apparent that many changes may be made in the construction described without departing from the principle of the invention as defined in the following claims.

I claim:

1. A catapult-propelled vehicle toy comprising a vehicle body, a spring carried by said body, a separate actuating member, said actuating member being removably receivable by said body and being forcibly insertable into said body to engage and energize said spring, interengaging means consisting of an element on said vehicle body and an element on said actuating member for locking the vehicle body to the actuating member when the spring is energized, the disengagement of said elements acting under the influence of said energized spring to effect the sudden release and a catapult propulsion of the vehicle body from the actuating member, and means for effecting the disengagement of said elements consisting of a movable part mounted solely on said actuating member connected to one of said interengaging elements and manually movable to free said one of the interengaging elements from the other.

2. A catapult-propelled vehicle toy comprising a vehicle body, a spring housing disposed longitudinally of said body and open at an end thereof, a spring in said housing, a separate actuating member, said actuating member being removably receivable by said housing and being forcibly insertable into said housing to engage and energize said spring, interengaging means consisting of an element on said housing and an element on said actuating member for locking the vehicle body to the actuating member when the spring is energized, the disengagement of said elements acting under the influence of said energized spring to effect the sudden release and a catapult propulsion of the vehicle body from the actuating member, and means for effecting the disengagement of said elements consisting of a movable part mounted solely on said actuating member connected to one of said interengaging elements and manually movable to free said one of the interengaging elements from the other.

3. A catapult-propelled vehicle toy comprising a vehicle body, a tubular spring housing disposed longitudinally of said body and open at an end thereof, a compression spring carried in said housing, a separate rod-shaped actuating member, said actuating member being removably receivable by said spring housing and being forcibly insertable into said housing to compress and energize said spring, interengaging means consisting of an element on said spring housing and an element on said actuating member for locking the vehicle body to the actuating member when the spring is energized, the disengagement of said elements acting under the influence of said energized spring to effect the sudden release and a catapult propulsion of the vehicle body from the actuating member, and means for effecting the disengagement of said elements consisting of a movable part mounted solely on said actuating member connected to one of said interengaging elements and manually movable to free one of the interengaging elements from the other.

4. A catapult-propelled vehicle toy comprising a vehicle body, a tubular spring housing disposed longitudinally of said body and open at an end thereof, a spring carried in said housing, a separate rod-shaped actuating member, said actuating member being removably receivable by said spring housing and being forcibly insertable into said housing to engage and energize said spring, a finger knob on said rod-shaped actuating member, interengaging means consisting of an element on said spring housing and an element on

said finger knob for locking the vehicle body to the actuating member when the spring is energized, the disengagement of said elements acting under the influence of said energized spring to effect the sudden release and a catapult propulsion of the vehicle body from the actuating member, and the said knob being mounted on said rod-shaped actuating member for relative axial movement, the relative axial movement between the knob and the rod-shaped actuating member in one direction serving to disengage the said interengaging elements.

5. A catapult-propelled vehicle toy comprising a vehicle body, a tubular spring housing disposed longitudinally of said body and open at an end thereof, a spring carried in said housing, a separate rod-shaped actuating member, said actuating member being removably receivable by said spring housing and being forcibly insertable into said housing to engage and energize said spring, a finger knob fixed to said rod-shaped actuating member, interengaging means consisting of an element on said spring housing and an element on said rod-shaped actuating member for locking the vehicle body to the actuating member

when the spring is energized, the disengagement of said elements acting under the influence of said energized spring to effect the sudden release and a catapult propulsion of the vehicle body from the actuating member, and the said actuating member being rotatively movable relative to said spring housing, the relative rotation movement of said actuating member in one direction serving to disengage the said interengaging elements.

RICHARD N. CARVER.

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