

Feb. 21, 1956

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2,735,221

TOY WEAPON CARRIER

Filed Nov. 10, 1954

2 Sheets-Sheet 1

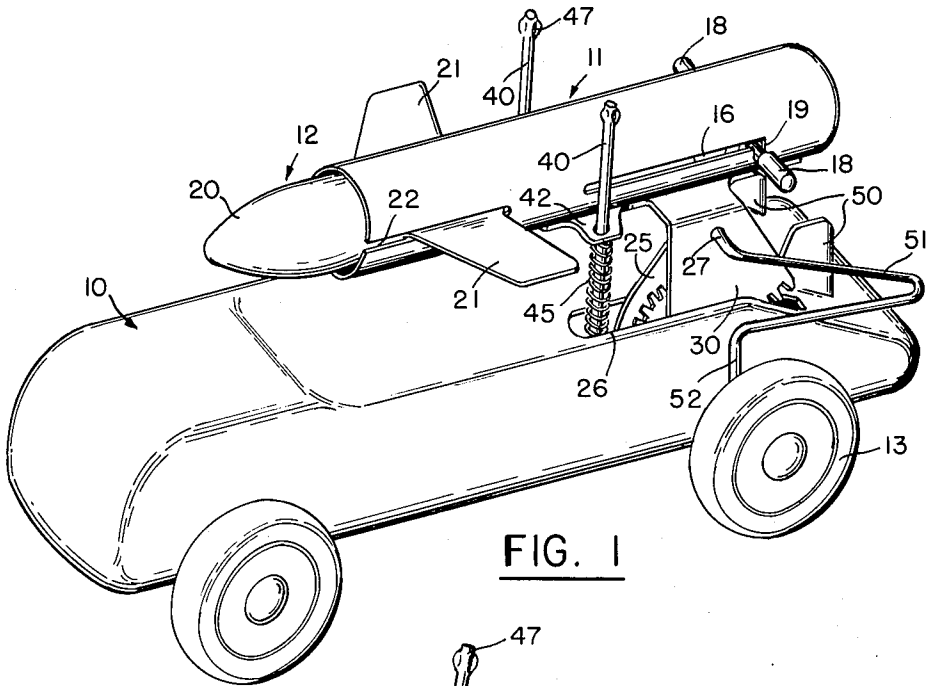


FIG. 1

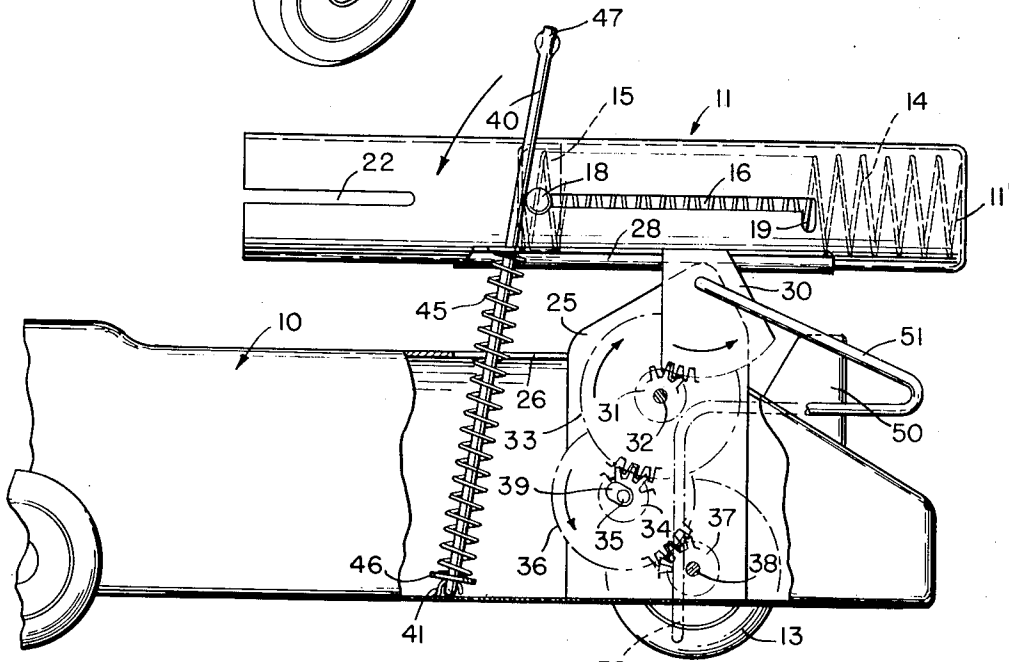


FIG. 2

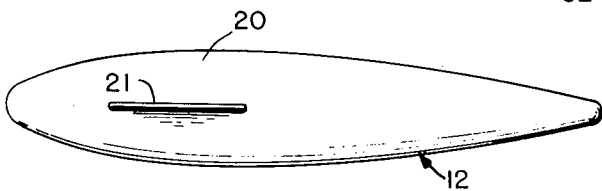


FIG. 3

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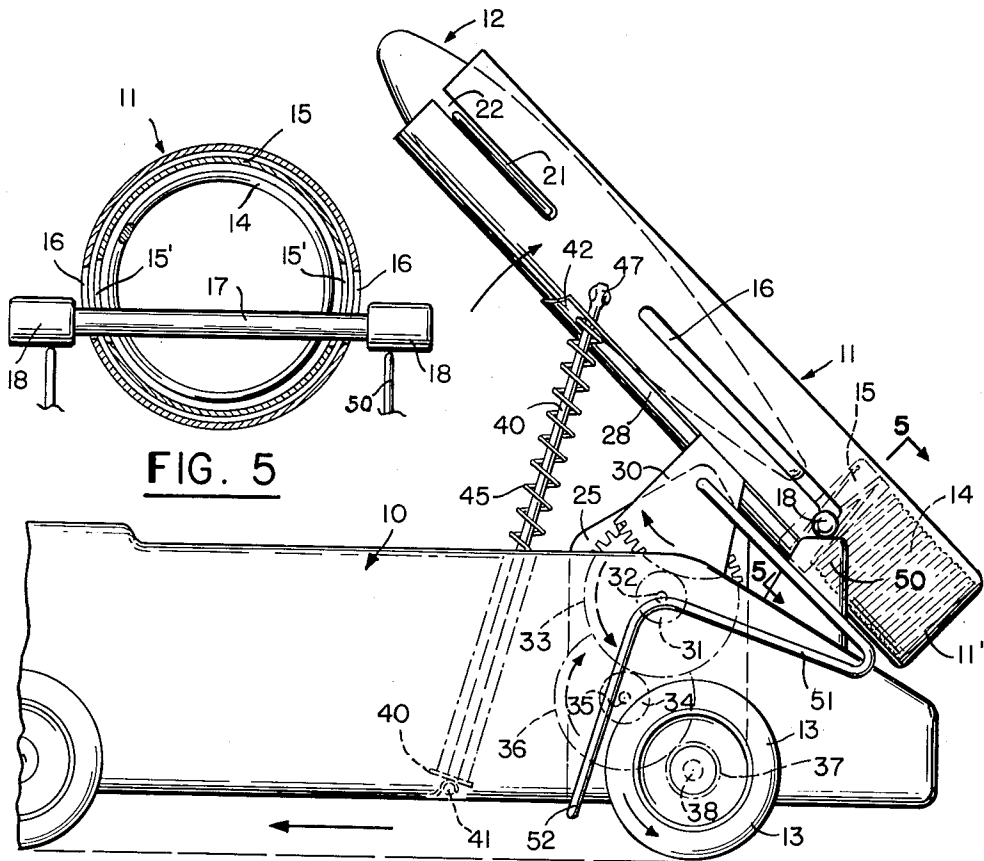


FIG. 5

FIG. 4

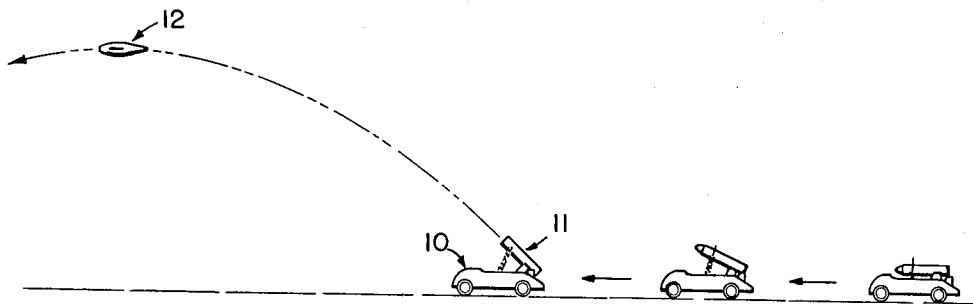


FIG. 6

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TOY WEAPON CARRIER

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11 Claims. (Cl. 46—202)

The present invention relates to a toy weapon carrier, and more particularly to a toy weapon carrier of the class comprising a self-propelled vehicle mounting an ejector simulating a gun barrel or rocket launcher for propelling a toy missile inserted in the same.

One of the objects of the present invention is to provide a toy weapon carrier of the general class above referred to, which affords an amusing and surprising play value by automatically performing a sequence of operations when released for travel along a base.

Another object of the invention is to provide a novel and improved toy weapon carrier which automatically discharges its missile after having travelled a certain distance.

Still another object of the present invention is to provide a novel and improved toy weapon carrier which while travelling automatically trains its barrel upon an imaginary target, prior to the discharge of the missile.

A further object of the invention is to provide a novel and improved toy weapon carrier, the vehicle of which is equipped with a spring movement wound by depression of the barrel from a steeply elevated position into a depressed position, return of the barrel into its elevated position causing unwinding of the spring movement thereby propelling the vehicle.

A still further object of the invention is to provide a novel and improved toy weapon carrier, the missile ejecting means of which are loaded by tensioning a spring fitted in the barrel and are released in response to the barrel reaching a predetermined elevated position by the action of said spring movement.

Yet another object of the invention is to provide a novel and improved toy weapon carrier automatically performing the aforescribed sequence of operations which is very simple in design, inexpensive to manufacture and does not present any danger to a playing child.

Other and further objects, features and advantages of the invention will be pointed out hereinafter and set forth in the appended claims forming part of the application.

In the accompanying drawing a preferred embodiment of the invention is shown by way of illustration and not by way of limitation.

In the drawing:

Fig. 1 is an isometric view of a toy weapon carrier according to the invention, the toy being shown ready for operation.

Fig. 2 is an elevational sectional view of the weapon carrier substantially in the same position and condition as Fig. 1 but without the missile.

Fig. 3 is a side view of the missile to be fired by the weapon carrier.

Fig. 4 is an elevational sectional view showing the weapon carrier just ready for firing of the missile.

Fig. 5 is a section taken on line 5—5 of Fig. 4 on an enlarged scale, and

Fig. 6 shows diametric views of the weapon carrier showing the same in several stages of operation.

Referring now to the figures in detail, the exemplified

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weapon carrier according to the invention comprises a wheeled vehicle 10 and a missile ejector shown in the form of a barrel 11 for launching a missile 12. The body of the vehicle, which is generally made of sheet metal, may take any shape that is suitable for a toy of the kind of which the vehicle forms a part. The vehicle body houses and partly conceals a spring motor which serves to drive the rear wheels 13 of the vehicle and to elevate barrel 11 as will be more fully explained hereinafter.

The barrel is equipped with ejecting means which serve to supply the propelling force for the missile. These ejecting or propelling means are shown as comprising a coil spring 14 abutting with one end against the bottom 11' of barrel 11. The forward end of the spring is preferably capped by means of a cap 15 to provide a suitable support or abutment for missile 12. For the purpose of loading spring 14, one or preferably two diametrically opposite longitudinal slots 16 are provided in the wall of barrel 11. A bar 17 is extended through these slots and corresponding openings 15' in cap 15. The ends of bar 17 protruding from barrel 11 are preferably provided with enlarged tips 18 the purpose of which will be more fully explained hereinafter.

As is apparent from the previous description, displacement of bar 17 in slots 16 will tension spring 14.

Fig. 2 shows the spring in its relaxed position and Figs. 1 and 4 show the spring in its tensioned position. In order to retain the spring in the latter position, slots 16 are continued in a short circumferential retention slot 19 engageable by bar 17. Figs. 1 and 4 show the bar inserted in retention slots 19.

The missile 12 may have a shape simulating any missile suitable for a toy of the class here involved. The missile is shown in the form of a guided missile having a slender elongated fuselage 20 and wing stubs 21. The muzzle end of the barrel has two diametrically opposite longitudinal slots 22 accommodating the wing stubs when the missile is inserted in the barrel. The length of the fuselage, slots 22 and the barrel are so correlated that the rear end of the missile rests against cap 15 when spring 14 is retained in its tensioned position as shown for instance in Fig. 1.

The barrel is pivotally mounted on the rear part of the vehicle by means of two brackets 25, preferably secured to the bottom plate of the vehicle body and extending therefrom through longitudinal slots 26 in the top wall of the vehicle body. Brackets 25 form a bearing for a pivot shaft 27. The barrel proper rests on a cradle 28 secured thereto by any suitable means such as soldering. From this cradle protrude two brackets through which shaft 27 is extended. The bracket visible in the figures is in the form of a toothed segment 30 which constitutes the input component of the spring motor or movement of the vehicle. This movement is mounted within the vehicle body, brackets 25 forming platens for mounting the shafts and gears of the movement. The teeth of segment 30 are in mesh with a pinion gear 31 seated on a shaft 32 which also seats a large gear 33. Gear 33 is engageable with a pinion gear 34 seated on a shaft 35 on which is also fixedly mounted a gear 36. Gear 36 is engageable with a pinion gear 37 seated on a shaft 38 which constitutes the drive shaft for the rear wheels 13 of the vehicle. Shaft 35 is seated in elongated openings 39 through brackets 25 thereby providing a limited play for gears 34 and 36. As a result, these gears act as loose gears which will transmit motion between gears 33 and 37 in one rotational direction only. The purpose of this arrangement is to permit winding of the spring movement without rotating wheels 13 as will become more fully apparent from the subsequent description.

The pivotal up and down movement of the barrel rela-

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five to the vehicle is guided by two bars 40. Each of these bars is pivoted at 41 to the bottom plate of the vehicle body and slidably extended through an ear 42 laterally protruding from cradle 28. The length of these bars is such that they permit pivotal movement of the barrel from its depressed position shown in Figs. 1 and 2 as a horizontal position into its elevated position. Fig. 4 shows the barrel just short of its fully elevated position.

Bars 40 also serve as guides and supports for the spring means of the spring movement. These spring means are shown as two coil springs 45 each encompassing one of the bars. The lower end of each spring abuts against the respective pivot connection 41, or more specifically against an interposed washer 46 and the upper end against ears 42. To restrict the elevational movement of the barrel against the action of the springs, bars 40 end in an enlarged head 47 formed for instance by flattening the bar ends.

As previously mentioned, spring 14 is retained in its tensioned position by the engagement of bar 17 with retention slots 19. To release the spring when desired, release means are provided on the vehicle. These release means are shown as two arms or lugs 50 each engageable with bar tips 18. The height and position of these lugs are such that they come into engagement with the bar tips at a selected elevational position of the barrel short of the fully elevated position thereof. Fig. 4 shows the position of the barrel in which tips 18 are just engaged by lugs 50. As a result, lugs 50 will force tips 18 and with them bar 17 out of slots 19 and into slot 16 when the barrel continues its elevation thereby releasing spring 14. Obviously, the release means may be modified in various respects. It is only essential that they release the barrel spring when the barrel reaches a predetermined elevational position.

The vehicle is further preferably equipped with brake means. These means are shown as an extension of pivot shaft 27 which is bent to form an operating arm 51 and a brake arm 52. The brake arm may be turned by means of arm 51, either into the position of Figs. 1 and 2 in which it frictionally engages the inner wall of the driven wheels 13 or directly the drive shaft 38 thereby braking these wheels or into the position of Fig. 4 in which brake arm 52 is released from wheels 13 thereby permitting rotation of the same. The provision of the rearwardly extending operating arm 51 permits a convenient manipulation of the brake when the weapon carrier is placed upon a suitable running surface.

The operation of the toy weapon carrier as hereinbefore described in conjunction with the drawing, is as follows:

To prepare the toy for operation, the barrel is depressed from its elevated position into the fully depressed position of Fig. 2. As a result, springs 45 are compressed, or in other words, the spring motor is wound. It is retained in the wound position by applying the brake or holding rear wheels 13 by hand. The loose mounting of shaft 35 permits such winding of the motor as the gears 34 and 36 situated on shaft 35 will move out of engagement with gears 33 and 37 respectively.

The barrel spring 14 is loaded by retracting bar 17 in slots 16 and fitting the bar in retention slots 19. Finally, missile 12 is inserted in the barrel.

Fig. 1 shows the weapon carrier ready for operation.

As is evident from the previous description, the aforedescribed sequence of the motor winding and barrel loading operations may also be reversed.

When the weapon carrier is released, springs 45 will begin to elevate barrel 11. The elevational movement of the barrel is transmitted by toothed segment 30 and the gear train associated therewith to wheels 13 so that the vehicle will be propelled along the surface upon which it is placed. Due to and during the gradual elevation of the barrel, bar tips 18 approach release lugs 50 and engage the same when the barrel reaches its nearly fully

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elevated position of Fig. 4. When now the barrel continues its elevation until it is stopped by engagement of the enlarged bar ends 47 with ears 42, lugs 50 force bar 17 into slots 16. As a result, the barrel spring is released and the missile is discharged. Simultaneously therewith or immediately thereafter, the vehicle motor and with it the forward movement of the vehicle come to a stop.

In Fig. 6, the right hand vehicle shows the weapon carrier at the beginning of its run, the middle vehicle shows the barrel partly elevated and the left hand vehicle shows the barrel elevated for the discharge of the missile and the trajectory thereof.

As is apparent, the moment at which the missile is discharged during the run of the vehicle and the trajectory of the missile can be conveniently varied by the simple expedient of altering the height of lugs 50.

It is further apparent that the coil springs 45 wound by the depression of the barrel can be replaced by a conventional spiral spring wound by means of a key. However, the illustrated exemplification of the invention is preferred as it affords an extremely simple and inexpensive design.

While the invention has been described in detail with respect to a certain now preferred example and embodiment of the invention it will be understood by those skilled in the art after understanding the invention, that various changes and modifications may be made without departing from the spirit and scope of the invention and it is intended, therefore, to cover all such changes and modifications in the appended claims.

What is claimed as new and desired to be secured by Letters Patent is:

1. A toy weapon carrier comprising a self-propelled toy vehicle having a spring movement, a barrel for a missile pivotally mounted on said vehicle, yieldable ejection means disposed in the barrel, retention means movable with the barrel for releasably retaining the yieldable means in tensioned condition, said retention means comprising a nose connected with the yieldable means and insertable in an open retention slot formed in the wall of said barrel, release of said yieldable means ejecting a missile inserted in the barrel, release means on the vehicle releasing said retention means in a predetermined elevational position of the barrel, said release means comprising a lug extending from the vehicle and engageable with said nose in said predetermined elevational position of the barrel for pushing the nose out of said slot thereby releasing said yieldable means, and transmission means coupled with the spring movement and the barrel for elevating the latter to said predetermined elevational position by unwinding of the spring movement.

2. A weapon carrier according to claim 1, wherein the said yieldable means comprise a coil spring abutting with its inner end against the rear end of the barrel, the outer end of the spring forming a support for a missile inserted in the barrel, the said barrel having in its wall a longitudinal slot continued at its inner end in a circumferential slot, said circumferential slot constituting said retention slot, and wherein a pin is extended through said longitudinal slot into the barrel and secured to the outer end of said spring, the pin part outwardly protruding from the slot constituting said nose whereby displacement of the pin along the longitudinal slot and insertion thereof in the circumferential slot loads said spring and retains the same in its tensioned position.

3. A toy weapon carrier comprising a wheeled vehicle adapted for travel on a base, a barrel for receiving a missile pivotally mounted near its rear end on said vehicle, a missile for insertion in said barrel, spring means disposed within the barrel, retention means movable with the barrel for releasably retaining the spring means in tensioned condition, release of said spring means ejecting a missile inserted in the barrel, release means on the vehicle engageable with said retention means in a predetermined elevational position of the barrel for releasing

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said retention means, and a spring movement for propelling the vehicle on a base upon which it is placed and elevating the barrel, said spring movement including at least one bar pivoted to the vehicle and slidably linked to the barrel to provide for pivotal movement of the later between a depressed limit position and an elevated limit position, a coil spring encompassing said bar and abutting against the vehicle and the barrel respectively, depression of the barrel compressing the spring and re-expansion of the spring urging the barrel into its elevated position, and motion transmission means coupling the barrel with a wheel of the vehicle for rotating said wheel by the elevation movement of the barrel.

4. A toy weapon carrier according to claim 3, wherein the said transmission means comprise a gear train including a loose gear transmitting motion in the elevational direction of the barrel movement only.

5. A toy weapon carrier according to claim 4, wherein the said transmission means further comprise a toothed segment fixed to the barrel and in mesh with the input gear of said gear train, the arc of said segment substantially corresponding to the pivot angle of the barrel.

6. A toy weapon carrier according to claim 3, wherein a bearing ear is secured to the barrel laterally extending therefrom, the respective end of said bar being slidably extended through said bearing and the respective end of the coil spring abutting against said bearing ear.

7. A toy weapon carrier according to claim 6, wherein two brackets protrude upwardly from the vehicle, and a shaft is extended through said brackets pivotally sup-

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porting the barrel and the toothed segment secured thereto.

8. A toy weapon carrier according to claim 7 and further comprising a brake means for releasably retaining the barrel in its depressed position, said brake means including a continuation of said pivot shaft shaped for selective movement into a brake position frictionally engaging the driven wheel of the vehicle and a release position disengaged from said wheel.

9. A toy weapon carrier according to claim 3, wherein the said release means comprise a lug upwardly extending from the vehicle and engageable with said retention means when the barrel occupies its said predetermined elevational position.

10. A toy weapon carrier according to claim 7, wherein the said missile has a configuration simulating a guided missile having an elongated fuselage and wing stubs extending therefrom.

11. A toy weapon carrier according to claim 10, wherein the muzzle end of the barrel has two diametrically opposite longitudinal slots for receiving said wing stubs.

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