United States Patent

Winston

[15] **3,668,804**

[45] **June 13, 1972**

[54] ELASTIC BAND LOADED TOY

[72] Inventor: **Emanuel A. Winston,** 2925 West Touhy Avenue, Chicago, Ill. 60645

[22] Filed: **Jan. 27, 1970**

[21] Appl. No.: **6,118**

[52] **U.S. Cl.** **46/17**
[51] **Int. Cl.** **A63h 33/06**
[58] **Field of Search** 46/17, 146; 124/21, 22, 41

[56] **References Cited**

UNITED STATES PATENTS

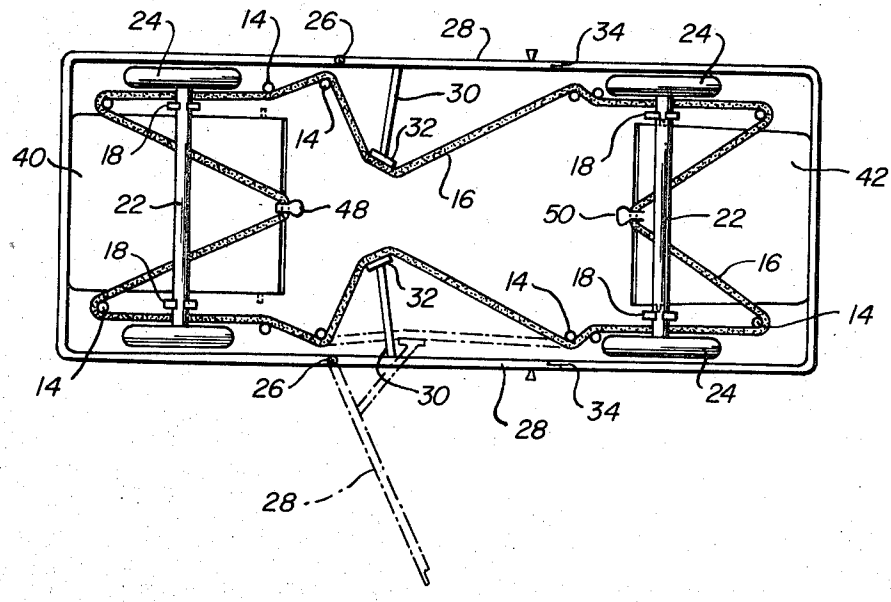
2,308,524	1/1943	Longnecker	46/17
2,749,660	6/1956	Zimentstark	46/17 X
3,121,294	2/1964	Balthazor	46/17 X
3,176,429	4/1965	Brown et al	46/17

Primary Examiner—Robert Peshock
Attorney—Stefan M. Stein

[57] **ABSTRACT**

A toy structure having an elastic band spanned in the interior of its body to power the opening of its elements, or to project elements, upon actuation or impact.

6 Claims, 11 Drawing Figures



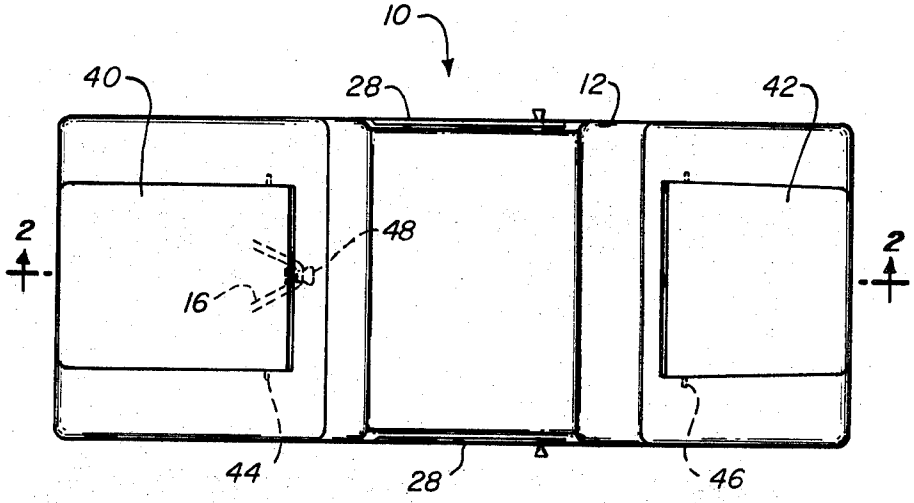


FIG. 1

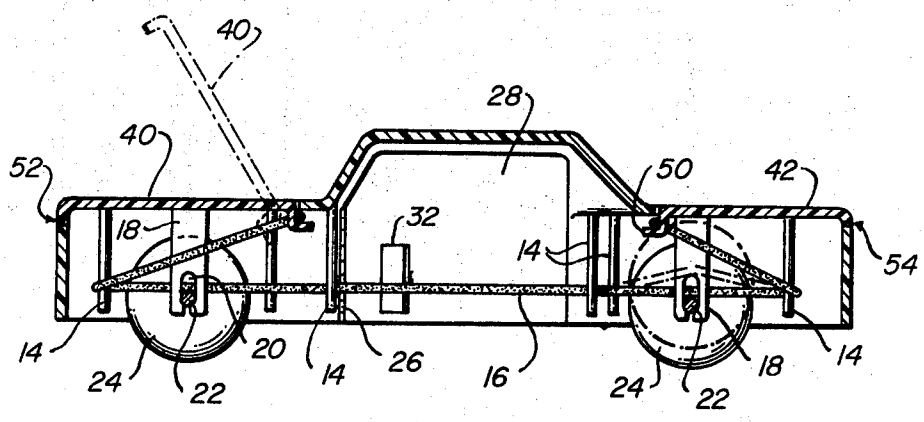


FIG. 2

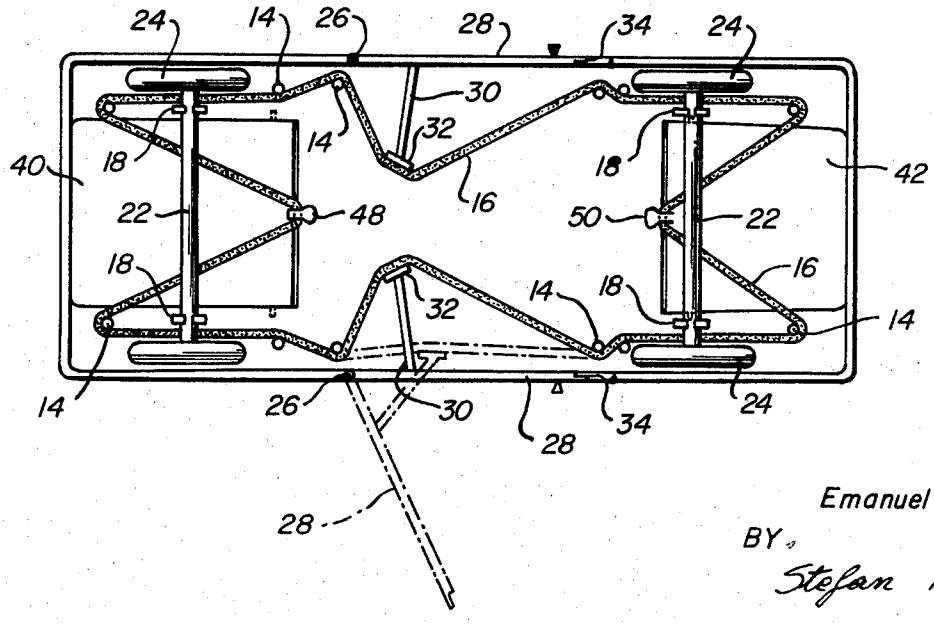


FIG. 3

INVENTOR
Emanuel A. Winston
BY
Stefan M. Stein
ATTY.

FIG. 4

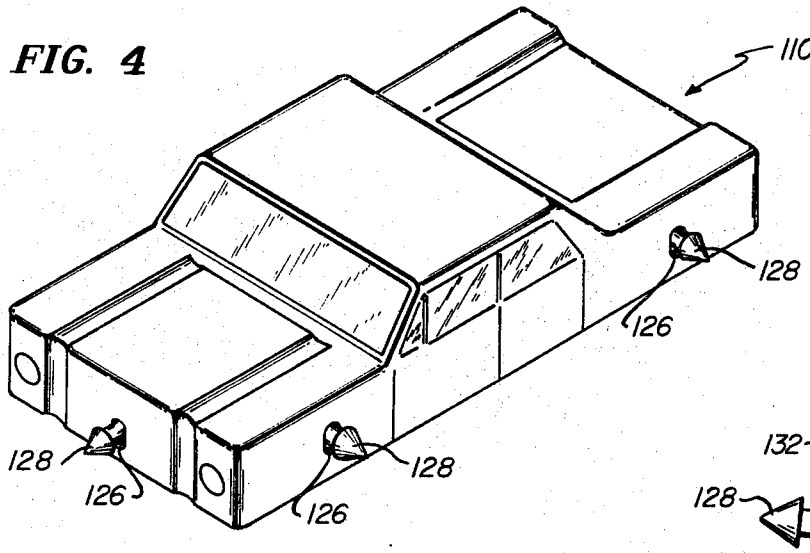


FIG. 6

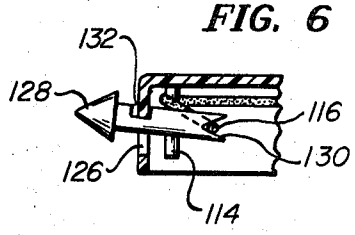
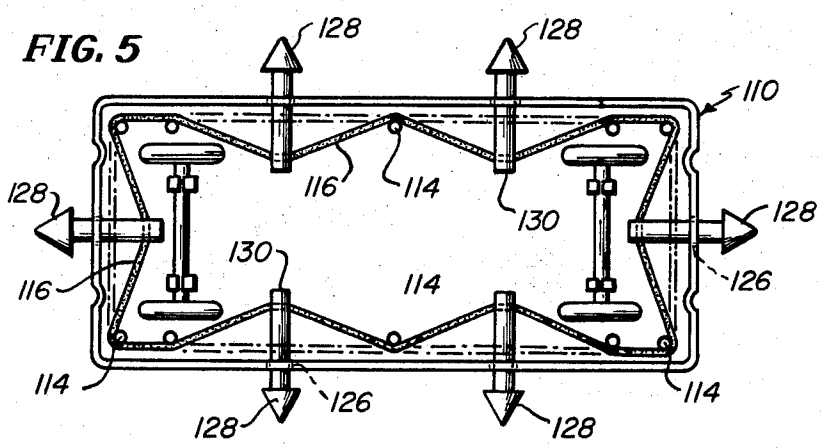


FIG. 5



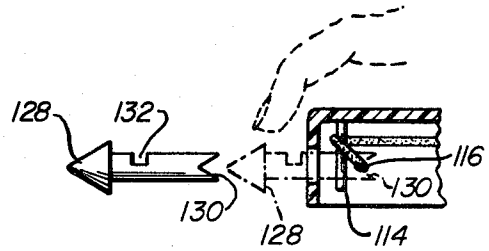
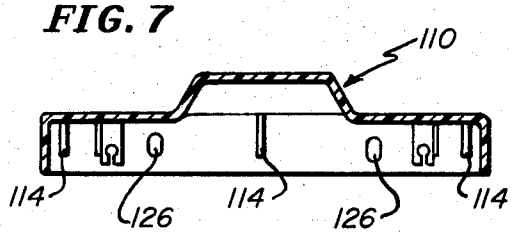


FIG. 8

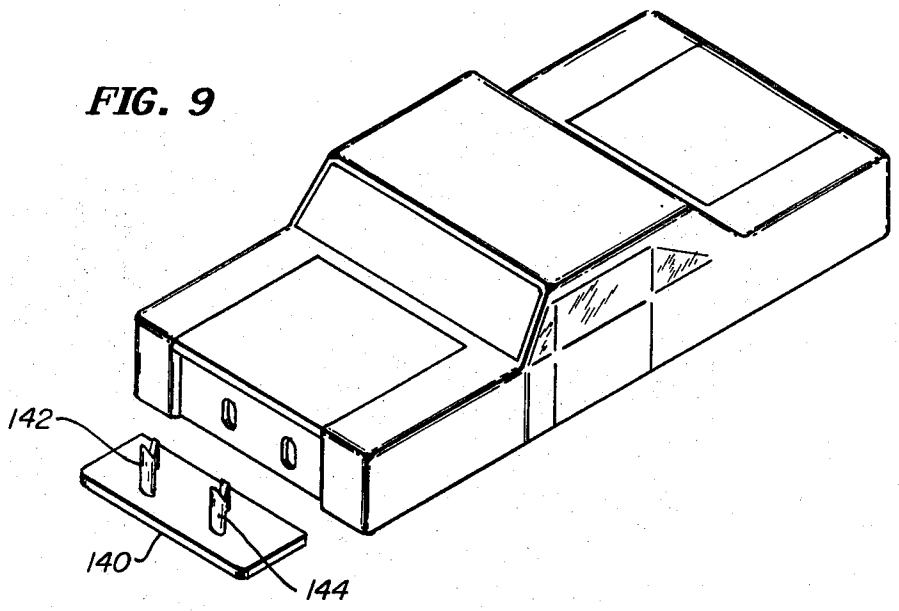
FIG. 7



INVENTOR
Emanuel A. Winston

BY Stefan M. Stein
ATTY.

FIG. 9



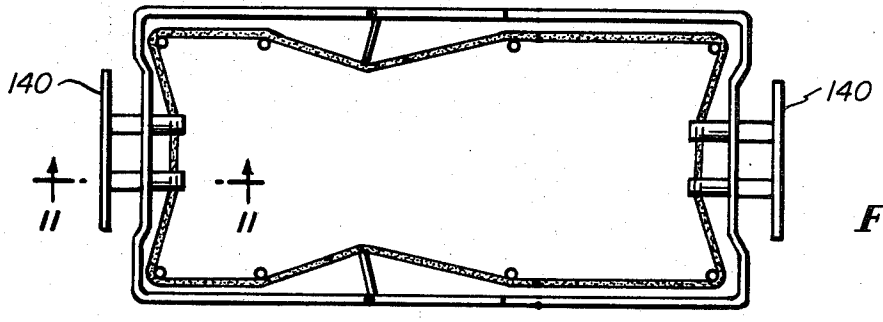


FIG. 10

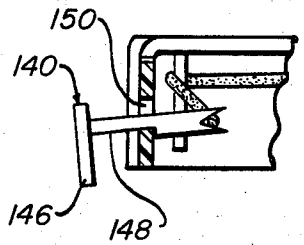


FIG. 11

INVENTOR
Emanuel A. Winston
BY
Stefan M. Stein
ATTY.

ELASTIC BAND LOADED TOY

This invention relates to a toy and more particularly to a toy which has means therein for operation or projection of one or more of its elements or for disassociating its elements upon actuation or impact. Customary elements such as the doors or the trunk lid or the hood of a toy vehicle such as a car, a bus, a train, a ship or an airplane or windows, doors, roofs of a house or a garage may open or "fly apart" or cause dissociation thereof upon actuation or impact.

Children are enchanted with toys which have operable elements for they are constantly desirous of simulating real life. For example, a toy vehicle with doors, or a trunk lid or a hood that automatically opens upon actuation comes very close to real life.

In the past, toy manufactures have attempted to build such openable automatic mechanisms into their products but the cost thereof as well as the detail involved was not the most optimum. For example, use of a spring-loaded hinges for a vehicle hood necessitated additional manufacturing steps to incorporate the hinge to a stamped or molded separate hood element, followed by affixation to the toy vehicle. Worse, in use the inquisitive youngster was frequently prone to raising the hood beyond its limits so that undue strain and even breakage of the hinge necessarily resulted. Since the hinge was not easily replaceable, the toy was left broken and its attractiveness to the youngsters immediately dissipated.

When the above problem and others, dependent upon the toy involved, present themselves for toys which must be manufactured at extreme low cost, such as encountered in the manufacture of premium items and giveaways in cereals, soaps, etc., the problem becomes insurmountable and premium makers have shied away from toys which are operable although they would be highly attractive to children.

It is therefore an object of this invention to provide a toy which has movable parts therein.

Another object is to provide a toy which has a simple easily installed and thereafter easily replaceable power means to operate said movable parts.

Still another abject is to provide a toy which is durable even though it has powered movable parts.

A further object is to provide a toy which can be so inexpensively manufactured that it may be used as a premium or giveaway item to promote the sale of another product. Another object is to provide a structure for a toy which us variable as to its ability to power one or more different movable parts of said toy.

Still another abject is to provide a structure for a toy which is simple yet capable of receiving a power means for operable elements of said toy, said power means being a simple elastic band easily installed and easily replaced in said structure.

Another object is to provide an articulated, collapsible toy vehicle of simple and inexpensive structure which may be disassociated upon impact with another vehicle or object such as a projectile.

Another object is to provide a toy which may fire toy projectiles upon actuation.

Another object is to provide an inexpensive toy which will increase a child' manual dexterity through manipulation of the elements of the toy in its reassembly.

Another abject is to provide a toy which has real-life operable parts, such as operable doors, windows, trunk lids, hoods and the like.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

In accord with the above objectives, a toy structure, such as a toy car, has now been devised which has a plurality of elastic band stays within its interior, at least one elastic band stretched around said stays and abutting against structural elements of said toy as power means to cause movement of said elements upon release of the holding means therefor. More particularly, and with specific attention to a toy car, the invention involves a plurality of elastic band stays which extend inwardly within the interior of said car, at least one elastic band spanned, in stretched condition around said stays in an appropriate manner to effect an outward force on pads which abut against said band and are affixed to pivotable doors, the hood, the trunk lid, the top, etc., or on projectiles which project from the car. The elastic band may also be positioned over the axles of the car to effect a suspension-like action thereto. With such structure, an extremely inexpensive and highly desirable movable part toy car can be produced, making the item most attractive to low cost premium use.

The invention accordingly comprises the features of construction, combination of elements, and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the invention will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawing in which;

FIG. 1 is a top view of a toy vehicle in which one embodiment of this invention has been incorporated.

FIG. 2 is a side cross-section view through line 2—2 of FIG. 1.

FIG. 3 is a bottom view of the toy.

FIG. 4 is a prospective view of an alternative embodiment of the invention incorporated into a toy vehicle.

FIG. 5 is a bottom view showing the projectiles of the toy of FIG. 4 in the cocked position.

FIG. 6 is a partial cross-sectional view through line 6—6 of FIG. 5.

FIG. 7 is a partial cross-sectional view through line 7—7 of FIG. 5.

FIG. 8 shows the projectile of FIG. 6 being fired.

FIG. 9 is still another alternative embodiment.

FIG. 10 is a bottom view of the toy of FIG. 9.

FIG. 11 is a cross sectional view through line 11—11 of FIG. 10.

Similar reference characters refer to similar parts throughout the several views of the drawing.

Referring now to the drawings in detail. The invention, on one of its preferred embodiments, comprises a toy passenger car indicated generally in FIG. 1 by the numeral 10. Car 10 consists of a body 12 of unitary construction, molded of plastic in the customary manner well known to toy manufacturers. On the under carriage of body 12, as best seen in FIGS. 2 and 3, are a plurality of elastic band stays 14 which are molded integral with the interior of body 12 and protrude vertically therein. These stays 14 are of sufficient strength to support stretched elastic band 16 intertwined thereabout.

Also depending from, and integral with, the interior of body 12 are four axle supports 18. At the end of each axle support 18 are axle slots 20 to receive axles 22. Axles 22 rotate freely within axle slots 20 above each axle 22. In this manner, a "-suspension" ride, simulating a real vehicle, is obtained.

Wheels 24 are fixedly attached to the end of each axle. They are made of plastic or hard rubber and simulate real wheels and tires on real-life vehicles.

Attached to body 12, at hinge 26, is door 28. The hinge is preferably of the integrally molded variety to enable an economical structure. Door push rod 30 is integral with the interior of door 26. Each door push rod 30 is provided on its inner end with elastic band pad 32 to more easily receive and retain elastic band 16 thereon.

Door 28 is held in a closed position by a friction catch 34 between the outer edge of door 28 and the door jamb portion of body 12. Other latches such as magnetic catch, may also be used.

The toy car 10 may also have a pivotable hood lid 40 and a trunk lid 42. The hood lid pivots at integral hinge 44 and the trunk lid pivots at integral hinge 46, both hinges being of the integrally molded type.

Referring now to fig. 3, hook 48, which is integrally molded to hood lid 40, and hook 50 which is integrally molded to trunk lid 42, are hooked to elastic band 16 in such manner as to urge hood lid 40 and trunk lid 42 open when hood lid fric-

tion catch **52** and trunk lid friction catch **54** are released. The hood and trunk lid friction catches **52** and **54** are the same general design as door friction catch **34** and are adapted to release upon impact.

FIGS. **4** through **9** disclose a second alternative embodiment wherein car body **10** is of similar construction to that depicted in FIG. **1** but with modification to effect a projectile shooting vehicle. The body interior is provided with elastic band stays **114** which are adapted to support elastic band **116**.

Body **110** has a plurality of projectile apertures **126** which receive projectiles **128** as best seen in FIG. **5**.

FIGS. **6** and **8** illustrate how the projectile **128** is cocked and then fired by a simple downward push of the projectile as illustrated. The rear of each projectile **128** is provided with a dove tail **130** which is adapted to receive elastic band **116** and stretch it to a tensioned posture when the projectile is urged, dove tail first, into aperture **126**. Further, the shaft of projectile **128** is provided with a notch **132** which is of sufficient width to allow the lip of the aperture **126** to catch notch **132** and cock the projectile. When the downward force is applied to the projectile, the lip is released from notch **132** and will be projected from the body **112** by the force of elastic band **116**.

FIGS. **9** to **11** illustrate the third embodiment shown wherein basically the structure of FIGS. **4**, **5**, **6** and **8** has been modified to provide for a detachable bumper. As seen in FIG. **9**, the toy vehicle has an explodable bumper **140**, with two pins **142** and **144**, each similar in structure and actuation to projectile **128** of FIG. **6** and **8**. The bumper **140** is extended more downwardly on its lower edge **146**. In cocked position (see FIG. **11**), the upper part protrudes more extensively than the lower part of the bumper, whereby upon colliding with a surface, the entire bumper structure including pins **142** and **144** are raised. Such movement releases notch **148** of each pin from the orifice **150** in which it is contained, and the bumper shoots forwardly.

Other embodiments of this invention should now suggest themselves from the description above. For example, the stay-elastic band-pad structure of this invention could be modified to effect a complete dissociation of separable parts of a toy car upon impact. The doors, hood, lid, etc., could, on impact, be exploded outwardly if no hinge were utilized and, instead, friction catches utilized which are upset upon said impact. Also, the fenders, the top, etc., could be designed to also explode outwardly on such impact. In similar manner, in a static structure, the windows, doors, etc., in a toy building or toy garage could be designed to automatically open upon actuation.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained and, since certain changes may be made in the above construction without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention, which, as a matter of language, might be said to fall therebetween.

Now that the invention has been described:

What is claimed is:

1. A toy vehicle structure comprising a body with a plurality of elastic band stays formed on the interior of said body, at least one elastic band spanned substantially along the inner periphery of said body, in stretched condition, about said stays, at least one movable member having an element arranged in abutting relation against said band so as to be movable into and out of said body and whereby, upon actuation of said member, said member is moved by the force of said stretched elastic band.

2. The toy vehicle structure of claim **8** wherein said movable member is a projectile, an orifice formed in said body through which said projectile extends, said projectile having a locking notch formed therein and engagable with the edge of said orifice to position said projectile in cocked position.

3. The toy vehicle structure of claim **1** wherein the movable member of said body comprises a plurality of hinged doors.

4. The toy vehicle structure of claim **3** wherein the movable member of said vehicle body further comprises a trunk lid and a hood.

5. The toy vehicle structure of claim **1** including axle supports having axle slots therein, said slots arranged to rotatably receive the axles of said vehicle, said stretched elastic bands spanning said slots above each axle and bearing against said axle to simulate a suspension ride.

6. The toy vehicle structure of claim **1** wherein said movable member is a bumper with pins on its back face extending through orifices in said body, said element being the tail of each pin and each pin having a locking notch to cock said bumper.

* * * * *