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[54] SIMULATED HIGH PERFORMANCE MINIATURE TOY VEHICLE

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[58] Field of Search **46/201, 202, 243 M, 243 MV**

[56] References Cited

UNITED STATES PATENTS

2,691,244 10/1954 Steinke **46/201 X**

2,141,267 12/1938 Dillon **180/77 TC**
3,462,879 8/1969 Fahrendorff **46/223 X**

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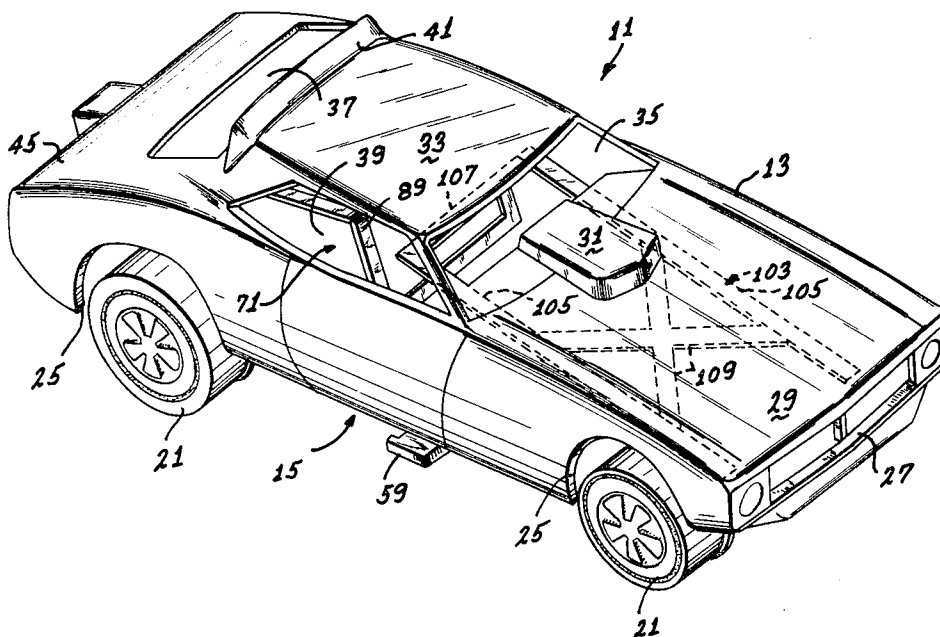
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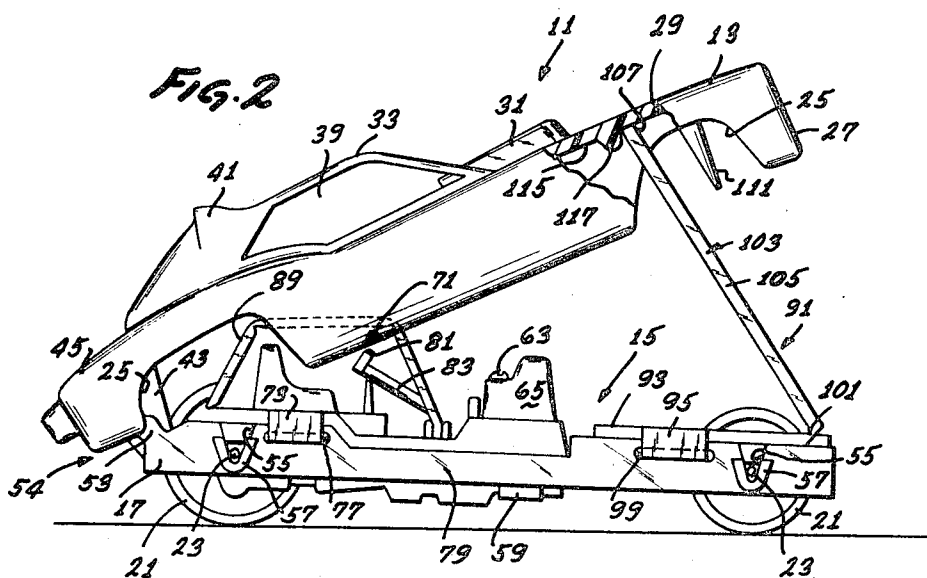
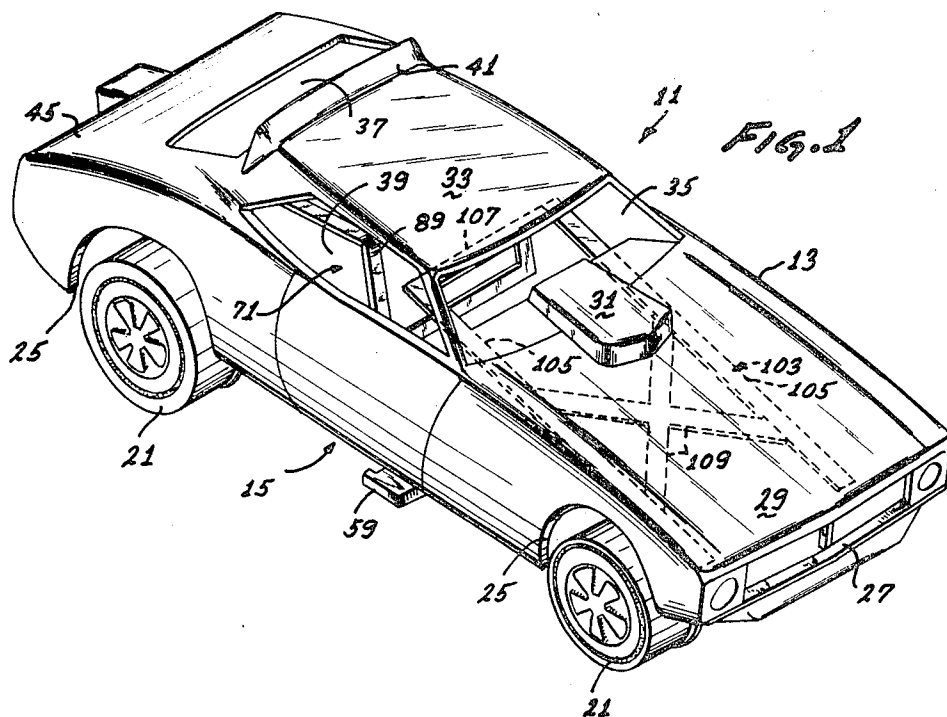
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[57] ABSTRACT

A toy vehicle body simulating a high performance vehicle is hingedly attached to a toy vehicle chassis and a body support member is hingedly attached to the toy vehicle chassis to support the toy vehicle body above the toy vehicle chassis to allow the exposure of the toy vehicle's engine and interior assembly, when desired.

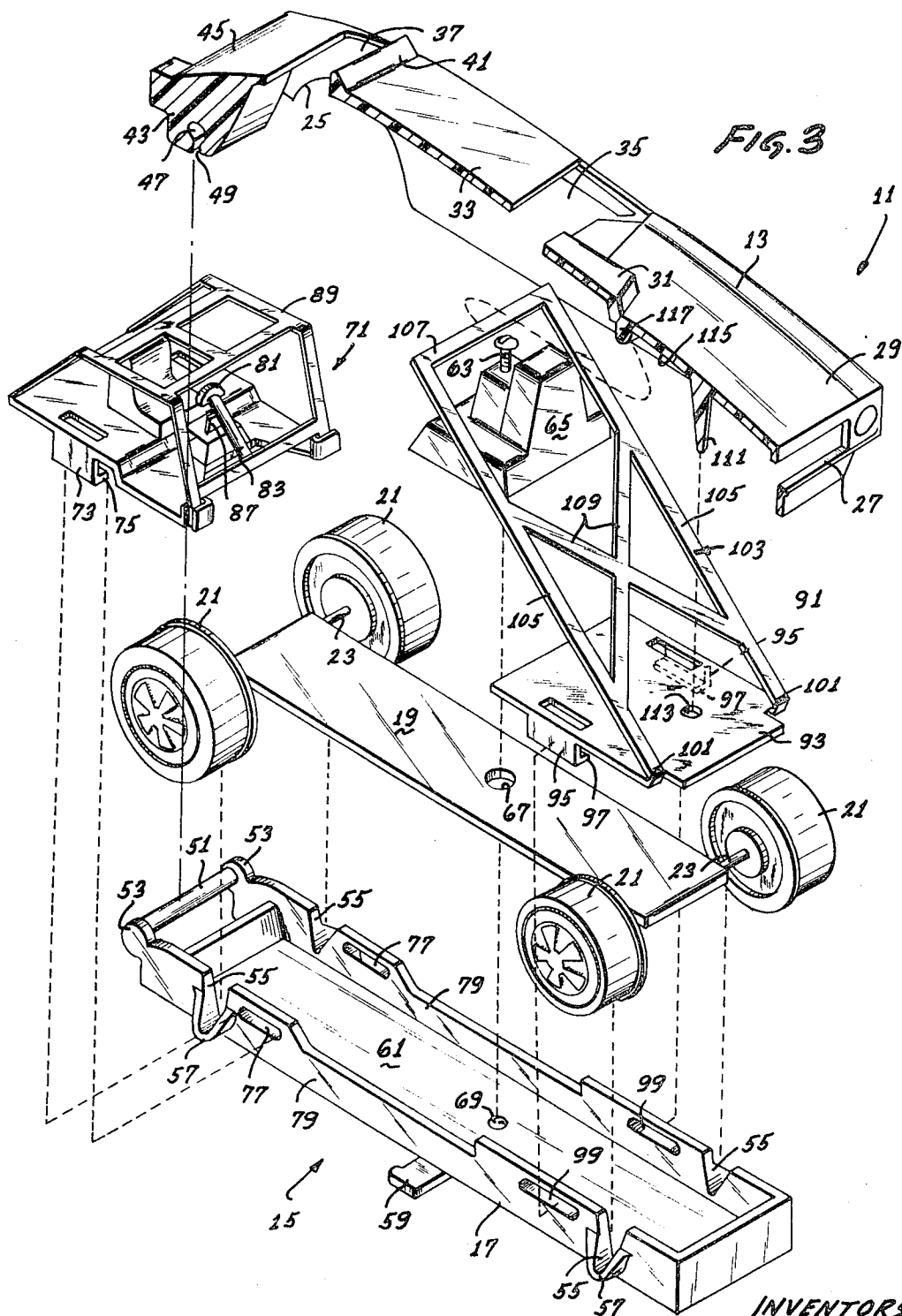
13 Claims, 3 Drawing Figures





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SIMULATED HIGH PERFORMANCE MINIATURE TOY VEHICLE

BACKGROUND OF THE INVENTION

The background of the invention will be set forth in two parts.

1. Field of the Invention

The present invention pertains generally to the field of toy vehicles and more particularly to a miniature toy vehicle simulating a high performance vehicle capable of raising and supporting a pivoted body above a chassis to expose the vehicle's simulated interior and engine assemblies.

2. Description of the Prior Art

It is well known in the toy industry that toys which are realistic counterparts of actual devices, vehicles, objects, animals or human beings, hold much more attention and provide more entertainment for children and adults than toys which are not. Accordingly, it is generally found that the more closely a doll can be made to resemble a human child, adolescent or adult, the more demand there will be for the doll. So it is with other fields of toy making. For example, toy automobiles and airplanes are generally manufactured to be scale replicas of actual vehicles.

There have been, however, found to be problems in manufacturing and selling realistic scale toys. Such is the case with toys which are realistic replicas of full-size high performance vehicles. This is due to the fact that all parameters of these full-size vehicles cannot practically be scaled down, as can its dimensions. For example, because of the different materials used, the weight-to-volume ratio cannot be scaled and so it is with the strength-to-volume and strength-to-weight ratios. Also, where the toys are very small and the part of the vehicle to be duplicated is of small dimensions to start with, the scaling of this part would be impossible and/or too costly.

There is also another important factor to consider. This is the well known propensity of children to lose detachable portions of toys. It should therefore be obvious that if separate, detachable support poles were used in a toy to duplicate the poles used to hold up an actual hinged high performance vehicle body, they would soon be lost and the enjoyment factor of the toy greatly diminished. This, coupled with the previously noted scaling problems, would lead, in the case of replicas of high performance vehicles, to a toy having the disadvantages of being extremely fragile and difficult to fabricate and prone to soon being discarded because of loss of the support poles, for example.

SUMMARY OF THE INVENTION

In view of the foregoing factors and conditions characteristic of miniature toy vehicles simulating actual high performance vehicles, it is a primary object of the present invention to provide a new and improved miniature toy vehicle construction that is not subject to the disadvantages enumerated above and thereby to advance the toy art.

Another object of the present invention is to provide an economical to fabricate miniature toy vehicle that does not incorporate intricate and extremely fragile parts and components.

Still another object of the present invention is to provide a miniature toy vehicle simulating a high performance vehicle and which has no detachable parts subject to becoming lost in the normal course of use.

It is still another object of the present invention to provide a miniature toy vehicle which uses a permanently mounted hinged body support structure which is hidden from view when the hinged body of the vehicle is in its closed position and which support structure pivots upward to engage and support the hinged body when it is in its open position for viewing of the vehicle's interior and engine assemblies.

According to the present invention, a miniature toy vehicle is provided which simulates a high performance vehicle and which includes a toy vehicle chassis with suspension and wheel assemblies, and a toy vehicle body hingedly attached to the

toy vehicle chassis. Also included is a body support member hingedly attached to the toy vehicle chassis so as to support the toy vehicle body above the toy vehicle chassis.

The hinging portions of the toy vehicle body and support member may be disposed adjacent opposite ends of the toy vehicle chassis, and the support member may be a unitary construction having a plate portion attached to the vehicle chassis and an integral hinge positioned between the plate portion and the raisable and generally elongated rectangular open frame support structure.

The features of the present invention which are believed to be novel are set forth with particularity in the appended claims.

The present invention, both as to its organization and manner of operation, together with further objects and advantages thereof, may best be understood by reference to the following description, taken in connection with the accompanying drawings in which like reference characters refer to like elements in the several views.

DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view of a miniature toy vehicle simulating a high performance vehicle, which toy has been constructed in accordance with the present invention;

FIG. 2 is an elevational view of a side of the toy of FIG. 1, the toy being shown with its hinged body supported above its chassis; and

FIG. 3 is an exploded view of the toy vehicle illustrated in FIG. 1.

Referring now to the drawings and more particularly to FIGS. 1 and 2, there is shown a miniature toy vehicle 11 having body 13 fabricated of a suitable metal or plastic material using any conventional fabrication process and in the form of an actual full-size high performance vehicle. The vehicle 11 also includes a vehicle chassis assembly 15 with a lower shallow box-like chassis member 17 (see FIG. 3) and a suspension plate 19 carrying wheel assemblies comprising ground wheels 21 rotatably mounted adjacent the ends of the axles 23.

The vehicle body 13 includes indented fender areas 25 adjacent each of the wheels 21 and is provided with a simulated grill and front bumper arrangement 27, a sloping hood 29 with a ram-air scoop 31, a passenger compartment enclosure or top 33 with simulated front, rear and side windshields 35, 37 and 39 and a simulated spoiler 41.

Referring also to FIG. 3, the vehicle body 13 further includes a hinge sleeve support 43 depending from a rear portion 45 of the body 13, which support includes an elongated hinge sleeve portion 47 having a parallel elongated slot 49 therein.

Where the hinge sleeve 45 is of a resilient material, it is snapped onto and pivots about a horizontal hinge pivot post 51 held transversely with respect to the longitudinal dimension of the vehicle by post support arms 53 extending from the rear of the chassis member 17. In the event that the body is metal, for example, the sleeve 45 may take the form of a pair of U-shaped forks which are staked over about the post 51. Thus, there has been provided a body hinging arrangement 54. The chassis member 17 is also provided with axle clearance notches 55 having laterally extending lips 57 and a sidewardly extending simulated exhaust pipes 59.

The suspension plate 19 includes axle holding arms (not shown) and is held against the inner surface 61 of the chassis member 17 by means of a threaded bolt 63 passing through a simulated engine assembly 65, an aperture 67 in the suspension plate 19, and into an appropriately threaded hole 69 in the chassis member 17. Of course, the bolt 63 may be replaced by a rivet, or the hole 69 may be large enough to pass the bolt 63 and a nut used to secure the desired result. Still another technique is to use a rivet which is a part of and extends below the engine assembly 65 whereby the engine, suspension and chassis are all held together.

In order to facilitate the using of various simulated interiors with the same chassis member 17 in the assembly of different high performance toy replicas, interiors such as the simulated interior assembly 71 is provided with depending L-brackets 73 having inwardly extending lips 75 which snap into appropriately positioned slots 77 in upstanding side rails 79 of the chassis member 17. Thus in this manner, different combinations of interiors and bodies may easily be manufactured utilizing common chassis, suspension and wheel assemblies. The particular interior 71 that is illustrated includes a semicircular steering wheel 81 mounted on a steering column 83, a bucket seat 85, a stick shift lever 87, and a simulated protective roll bar frame 89.

Also mounted on the chassis member 17 is a unitary hinged body support structure generally identified by reference character 91. The structure 91 has a horizontal base plate portion 93 with L-brackets 95 having inwardly extending lips 97 for snapping into slots 99 in the side rails 79, in a manner similar to that of the interior assembly L-brackets 73.

The body support structure 91 also includes a pair of what are commonly known as integral or living hinge portions 101 pivotally connecting the plate portion 93 to a generally elongated open rectangular frame 103 having side members 105, an end member 107, and an X-shaped brace 109 between the side members 105.

The frame 103 is thus able to be folded down adjacent the base plate portion 93 and the suspension plate 19. The body 13 may then be pivoted about its rearwardly disposed body hinging arrangement 54 to come down over and enclose the folded frame 103, the body 13 being movably held in this "closed" position by the action of a post 111 having a tapered cross section and which is jammed into an appropriately positioned aperture 113 in the base plate portion 93 of the structure 91 for a frictional grip. The post 111 need not be tapered where the aperture 113 is slightly smaller than the post diameter and the base plate portion 93 is of a resilient material such as plastic, for example.

By applying an upward force on the body 13, the post 111 will be released from the aperture 113 and the body may then be lifted upwardly, pivoting about the hinging arrangement 54. In order to maintain this "open" body relationship with the chassis assembly 15, the frame 103 is pivoted upwardly so that its end member 107 rests against a body inner wall 115 whereat it is prevented from slipping by the depending post 111. This "open" body position duplicates the operation and appearance of actual full-size high performance vehicles to facilitate the required access to the driving portions and to the motive power sections by the driver and mechanics. Also, such vehicles are often placed on public display with their bodies supported above their chassis to enable the viewing of the vehicle's interior and engine assemblies. Additionally, a relatively short depending member 117 is positioned in the body inner wall 115 to contact and press down the frame 103 when the body is closed so that it cannot be seen in the passenger compartment.

The materials used in fabricating the invention are not critical and any material generally considered to be suitable for this purpose, such as moldable plastics and metals, may be utilized.

From the foregoing, it should be evident that there has been described a very unique and advantageous miniature toy vehicle which very closely simulates actual full-size high performance vehicles. Although this invention has been described in its presently preferred embodiment, it is clear that it is susceptible to numerous modifications and embodiments within the ability of one skilled in the art and without the exercise of the inventive faculty.

Accordingly, it is intended that the foregoing disclosure and drawings shall be considered only as illustrations of the principles of this invention and are not to be construed in a limiting sense.

What is claimed is:

1. A miniature toy vehicle comprising:

a toy vehicle chassis including two ends and a pair of parallel disposed axel having a space therebetween, each axle connected to a set of wheels;

a toy vehicle body pivotably connected to said chassis at one of said ends; and

a body support member pivotably connected to said chassis at the other of said ends wherein said body and said support member are movable between open and closed positions.

2. A toy vehicle as claimed in claim 1 wherein neither of said ends is disposed within the space between the pair of parallel axles.

3. A miniature toy vehicle having a body and a chassis, said chassis including a plate connected to two parallel disposed axles, and a box member for receiving said plate, said box member having means to which said body may be hinged for allowing said body to pivot relative to said box member.

4. A toy vehicle as claimed in claim 3 including:

a body support structure having a base portion for attaching to said box member and having a frame portion pivotable relative said base portion from a position generally parallel to said box member to a position at an acute angle from said box member.

5. A miniature toy vehicle comprising:

a toy vehicle chassis having two ends;

a toy vehicle body pivotably connected to said chassis at one of said ends and movable from a position generally parallel to said chassis to a position generally oblique to said chassis; and

a flat body support structure having first and second ends pivotably connected to the other end of said chassis with said support structure first end and where said second end abuts said body when said body is oblique to said chassis and is disengaged from said body when said body is parallel to said chassis.

6. A toy vehicle as claimed in claim 5 wherein said support structure is integral with said chassis.

7. A miniature toy vehicle simulating a high performance vehicle comprising:

a toy vehicle chassis including suspension and wheel assemblies;

a toy vehicle body hingedly attached to said toy vehicle chassis; and

a body support member hingedly attached to said toy vehicle to support said toy vehicle body above said toy vehicle chassis, wherein said toy vehicle body and said body support member are hinged at opposite positions on said toy vehicle chassis.

8. A miniature toy vehicle according to claim 7, wherein said hinging portion of said body support member is an integral hinge.

9. A miniature toy vehicle according to claim 7, wherein said toy vehicle chassis carries a simulated vehicle interior and engine assembly.

10. A miniature toy vehicle according to claim 7, wherein said toy vehicle body is hingedly attached adjacent the rear end of said toy vehicle chassis and said body support member is hingedly attached adjacent the front end of said toy vehicle chassis.

11. A miniature toy vehicle according to claim 7, wherein said body support member is dimensioned and positioned with respect to said toy vehicle chassis and to said toy vehicle body to be enclosed therebetween in a folded condition when said toy vehicle body is positioned on said toy vehicle chassis.

12. A miniature toy vehicle simulating a high performance vehicle comprising:

a toy vehicle chassis including suspension and wheel assemblies;

a toy vehicle body hingedly attached to said toy vehicle chassis; and

a body support member hingedly attached to said toy vehicle chassis to support said toy vehicle body above said toy vehicle chassis wherein

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said toy vehicle body and said body support member are hinged at opposite positions on said toy vehicle chassis; the axis of rotation of the hinging portions of said toy vehicle body and said body support member are parallel to each other and transverse to the longitudinal dimension of said toy vehicle chassis; that hinging portion of said body support member is an integral hinge; and said body support member is a unitary construction in-

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cluding a movable support portion pivotably connected by said integral hinge to a base plate portion attached to said toy vehicle chassis.

13. A miniature toy vehicle according to claim 12, wherein said movable support portion is an open elongated rectangular frame configuration including an X-shaped brace disposed between the opposite elongated side members of said frame configuration.

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