

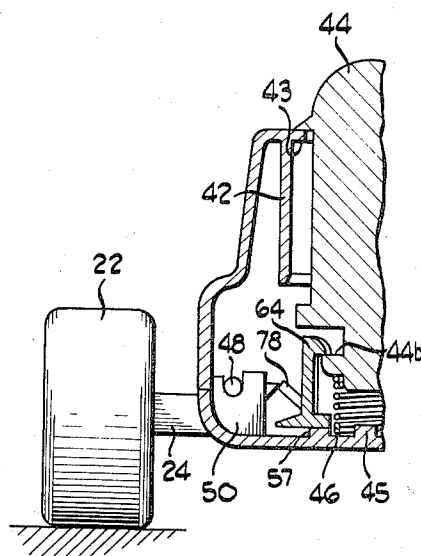
- [54] **TOY VEHICLE HAVING MEANS FOR CANTING WHEELS ON COLLISION**  
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**280/1.1 R, 1.1 A, 1.11 R; 273/102.1 C**

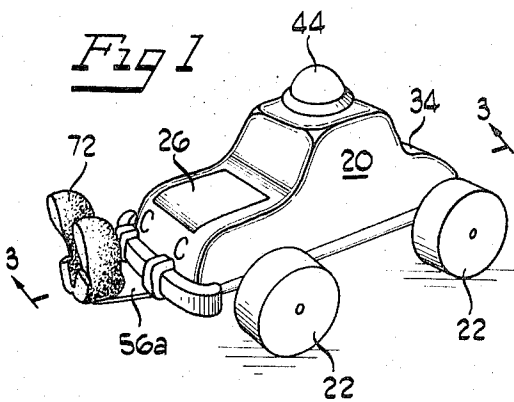
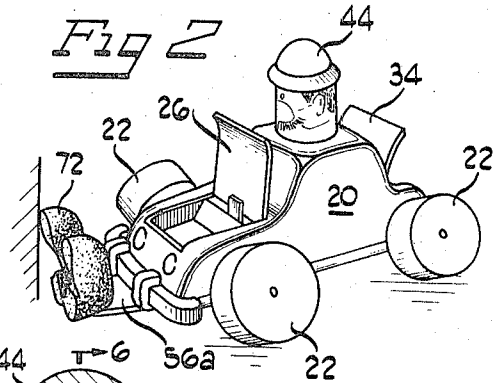
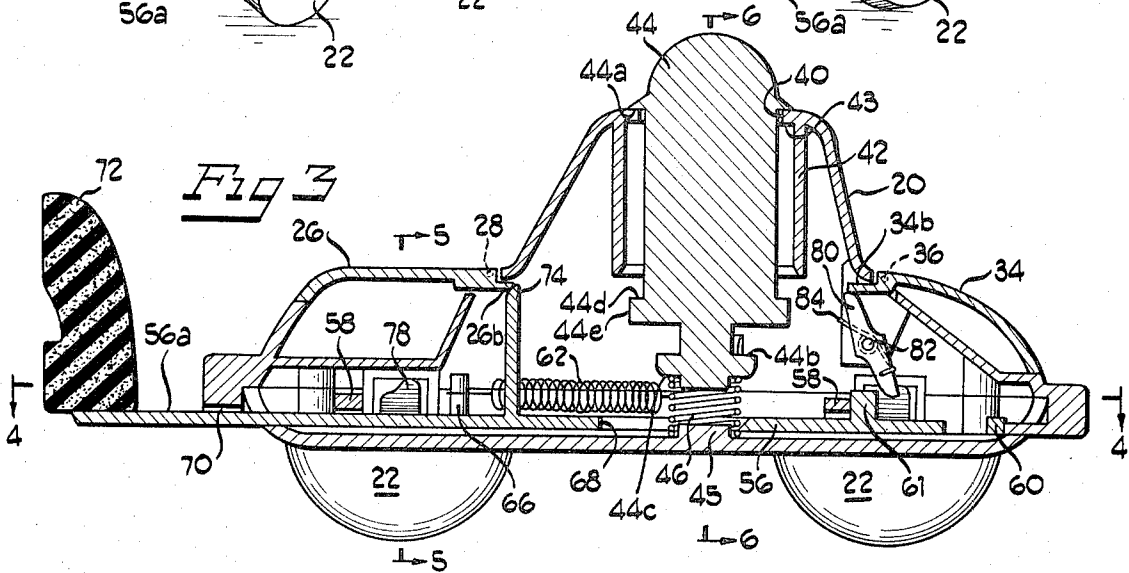
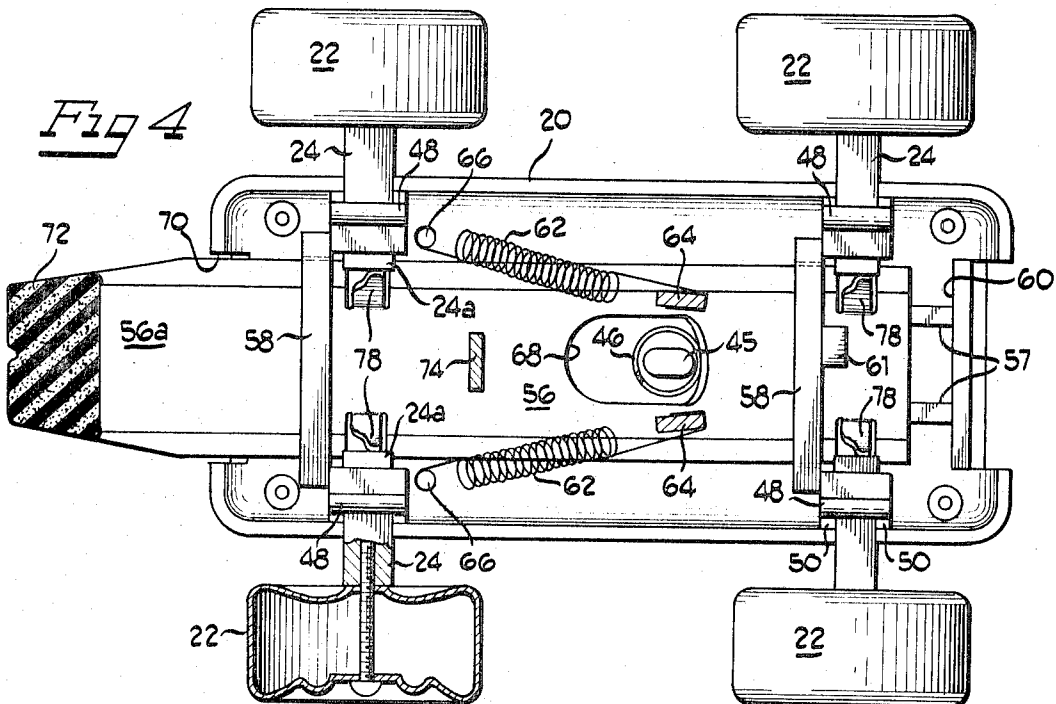
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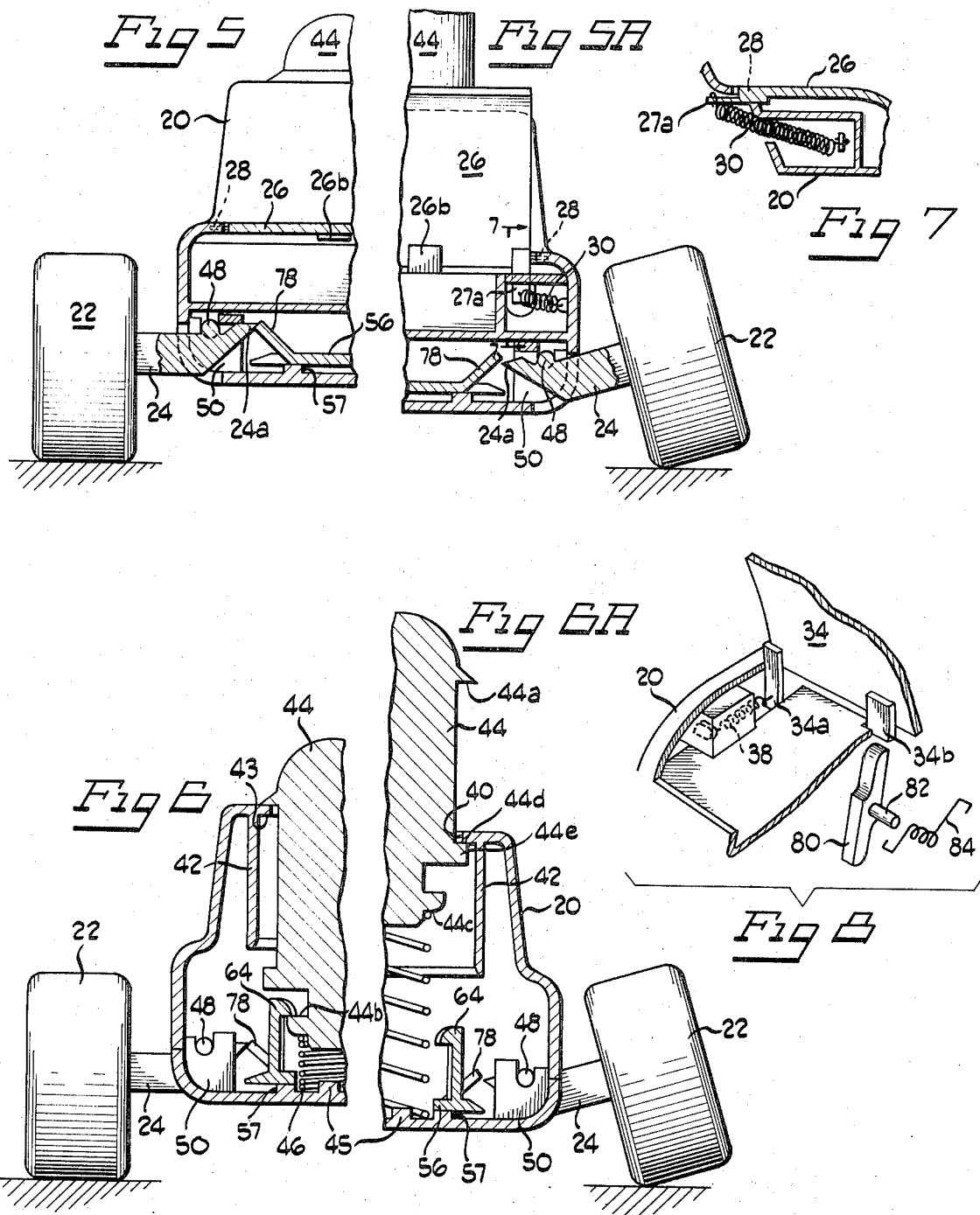
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[57] **ABSTRACT**  
A child's entertainment or amusement toy in the form of a wheeled vehicle having dislocatable parts providing a simultaneous set of events involving dislocation of the parts triggered by collision impact of the vehicle. After impact and dislocation of the various parts of the vehicle, the parts remain connected to the vehicle chassis. The vehicle includes a body containing a singular actuator mounted for sliding movement within the body between a normal protruding position and a retracted dislocate position. The actuator is spring loaded for automatic return to its normal protruding position. The actuator extends to the exterior of the automobile body at the front thereof and acts as a bumper having simulated human feet with shoes. Impact of the bumper moves the slide member to its retracted dislocate position by collision of the automobile. Such movement of the slide member causes the front and rear hoods to pop open, a simulated driver's head to pop out of the top of the vehicle, and the vehicle wheels to move to a canted position simulating collapse of the axles and wheels. The slide actuator returns to its normal position whereby the head, wheels and front and rear hoods can be manually returned to their proper located positions where they are held for the next collision.

**8 Claims, 10 Drawing Figures**







# TOY VEHICLE HAVING MEANS FOR CANTING WHEELS ON COLLISION

## BACKGROUND OF THE INVENTION

### 1. Field of the Invention

This invention relates to toys which are dislocatable under the action of impact or shock and especially wheeled toy vehicles having parts thereof which dislocate when the vehicle is rolled and impacted against another object.

### 2. Brief Description of the Prior Art

The dislocatable toy vehicles disclosed in the prior art mostly are of the type which actually collapse, fall apart or explode on collision impact. The individual parts of these vehicles actually become separated or dislodged from the main body of the vehicle and the vehicle must be reassembled to return it to its normal condition. The individual dislodged parts tend to become lost during play by a child usually resulting in complete non-use of the toy.

Vehicles have been proposed which retain their parts connected in some way to each other or to a main body after a dislocating impact action. These vehicles either depend on happenstance release mechanisms which are triggered only upon particular types of impact, or else they involve overly complicated triggering mechanisms requiring considerable manual resetting.

## SUMMARY OF THE INVENTION

The present invention provides a dislocatable toy in the form of a wheeled vehicle which has one or more dislocating parts non-removably secured to each other or to a main body. A common actuator member is mounted in the toy for movement in response to forward collision impact of the vehicle, between a normal extended position and a retracted dislocate position for actuating each of the dislocating parts. The actuator is provided with means for automatically returning it to its normal position after it has moved to its dislocate position under collision impact. In the exemplary form of the device, the movable actuator is adapted to interengage with the dislocated parts on movement when the actuator is in its normal position.

As shown herein, the wheeled vehicle is in the form of a simulated automobile, and the actuator is a common or unitary slide member mounted within the automobile body for sliding between a forward, extended normal position and a rearward, retracted dislocate position. The front end of the actuator extends through the front of the automobile body as a bumper, and has simulated human feet and shoes on the front thereof. Resilient means biases the slide member to its forward or normal position so that when it is moved to its dislocate position it automatically returns to normal position.

The dislocatable parts of the vehicle are released by disengaging blocking surfaces or latches during movement of the slide member to dislocate position. In this manner, front and rear hoods of the automobile are caused to pop up, a simulated driver's head is caused to pop up through the automobile roof, and the wheels of the automobile are caused to move to canted positions. Sufficient resiliency is provided between the blocking surfaces and latches and the dislocatable parts so that the parts can be manually relocated to their normal positions, usually by a snap fit when the actuator has been returned to its normal position.

While this invention is susceptible of embodiment in many different forms, there is shown in the drawings and will herein be described in detail a specific embodiment thereof, with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the invention to the embodiment illustrated.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a wheeled vehicle embodying the present invention, with all of the parts thereof in their normal or non-dislocated positions;

FIG. 2 is a perspective view of the vehicle, with all of the parts shown in their dislocated positions;

FIG. 3 is an enlarged section taken generally along line 3—3 of FIG. 1;

FIG. 4 is a partial section taken generally along line 4—4 of FIG. 3;

FIG. 5 is a fragmentary section taken generally along line 5—5 of FIG. 3;

FIG. 5a is a fragmentary section, similar to FIG. 5, but showing the vehicle parts moved to their dislocated positions;

FIG. 6 is a fragmentary section taken generally along line 6—6 of FIG. 3;

FIG. 6a is a fragmentary section, similar to FIG. 6, but showing the vehicle parts in their dislocated positions;

FIG. 7 is a partial section taken generally along line 7—7 of FIG. 5; and

FIG. 8 is a fragmentary exploded perspective view from the rear of the automobile of FIGS. 1—6, with the rear hood open and showing the rear hood actuating and moving means.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings in greater detail, a toy vehicle of the present invention is illustrated in the form of an automobile shown in its normal running condition in FIG. 1 and in its dislocated collapsed condition in FIG. 2. The automobile includes a body or chassis 20 having four wheels 22 mounted for rotation on separate axles 24 (FIGS. 4—6A) which are non-removably attached to the body 20.

The automobile also includes a front deck or hood 26 mounted for pivotal movement between open and closed positions by pivot pins 28 (FIGS. 3, 5, 5a and 7). The front hood 26 is biased toward open position by a tension spring 30 (FIGS. 5a and 7) which is anchored between an extension 27a of hood 26 and the chassis 20. A leverage blocking element 26b extends rearwardly beyond the pivotal axis of front hood 26 and is engageable from below (as hereinafter described) for preventing movement of the hood 26 to open position.

The automobile also is provided with a rear deck 34 mounted to body 20 by pivot pins 36 (FIG. 3) for movement between a closed position, as in FIG. 1, and an open position, as in FIG. 2. A tension spring 38 (FIG. 8) is fixed to an extension 34a of rear deck 34 and the chassis 20 for biasing rear deck 34 to open position. A leverage blocking element 34b extends beyond the pivotal axis of rear deck 34 and is engageable at its lower surface (as hereinafter described) for preventing movement of rear deck 34 to open position.

Body 20 also is provided with a circular roof port 40 surrounded on the inside by a concentric tubular guide

member 42 which defines an abutment surface 43 (FIG. 3) between the upper end of guide tube 42 and the roof port 40. A simulated cylindrical human-form head 44 is slidably received in roof port 40 and has a cap portion defining a lower stop surface 44a which rests on the car roof with head 44 in its normal position retracted within body 20. The lower end of head 44 is provided with a flange defining an upper latch receiving surface 44b and a lower spring seating surface 44c. A compression coil spring 46 is positioned about a boss 45 on the floor portion of chassis 20, and engages the surface 44c for urging head 44 to a raised or dislocated position, as shown in FIGS. 2 and 6a. Head 44 is provided with a second annular flange defining a stop surface 44d for engaging stop surface 44a (with the simulated head 44 in its raised or extended position) to block the head 44 against complete removal through port 40. A guide surface 44e is provided for guiding the head 44 in the tubular guide member 42 during movement of head 44 to the extended position (Also see FIG. 6a).

Referring to FIGS. 5-6a, axles 24 are mounted by integral pivot pin portions 48 which are pivotally received by brackets 50 on each side of axle 24 for movement between a horizontal position (FIG. 5) maintaining wheel 22 in proper vertical rolling position, and a dislocated position (FIG. 5a) with wheels 22 in a canted "broken down" position. Each axle 24 is also provided with a blocking surface or edge 24a which is engageable (as hereinafter described) to prevent movement of the wheel and axle assemblies from normal positions to canted positions.

A singular slide member 56 is mounted for reciprocal sliding movement lengthwise within body 20 on runners 57 formed on the floor of body 20 and guiding-stop bars 58 which engage the upper surface of slide 56. At the rear of slide member 56 there is provided a stop member 60 which abuts the rear end of slide 56 to define its rearward limit position. Slide 56 is constantly urged to its forward position by a pair of tension springs 62 which extend between the bases of a pair of latches 64 (to be described in detail below) on slide 56 and anchoring lugs 66 on the body 20. A slot 68 (FIGS. 3 and 4) is provided in slide 56 for accommodating head spring 46 during movement of slide 56. A lug 61 is secured to slide 56 and abuts against the rear of the rear-most bar 58 to define the forward limit position of the slide.

Slide 56 extends forwardly to the exterior of body 20 through a front slot 70, at 56a, and a bumper member 72 in the form of simulated human feet, with shoes, is secured to the front end of slide 56 on the outside of the vehicle.

Slide 56 is adapted to effect the simultaneous release of the front hood 26 and rear deck 34, the head member 44, and the four wheels for movement to their dislocated positions as a result of a collision impact against bumper 72. Accordingly, secured to and carried by slide 56 are an upstanding blocking post 74 (FIGS. 3 and 4), the lug 61, the pair of inwardly facing upstanding latch members 64 (FIGS. 4, 6 and 6a), and four wheel blocking ears 78 (FIGS. 4 through 6a). With slide member 56 in its normal or forward position under the urging of springs 62, blocking post 74 engages surface 26b of the front hood 26 and holds the hood closed. As for the rear deck 34, a trigger 80 (FIGS. 3 and 8) is mounted intermediate its ends on

body 20 by a pivot pin 82 and is urged in a clockwise direction as seen in FIG. 3 by a spiral spring 84. The upper arm of trigger 80 abuts the lower surface of extension 34b (See FIG. 3) to block movement of the rear deck 34 to open position. As for the simulated head 44, the latch members 64 engage surface 44b (See FIG. 6) and hold head member 44 against movement to its dislocated position, with the slide member 56 in its forward normal position. The blocking ears 78 abut against surfaces 24a to retain wheels 22 in their normal upright position (See FIGS. 5 and 6).

Upon collision impact against the front of bumper 72, if springs 62 are overcome by the impact force, the slide member 56 will move to its rearward dislocate position against stop member 60. On release from the impact force, slide member 56 returns to its forward normal condition with lug 61 abutting the rearmost frame member 58. However, when slide member 56 is moved to the dislocate position, post 74 is removed from contact with the surface 26b of the front hood 26, lug 61 trips trigger 80 away from surface 34b of the rear deck 34, latches 64 are moved off of surface 44b of the simulated head 44, and the ears 78 are removed from surface 24a of wheel axles 24. As a result springs 30 and 38 pop the front hood 26 and rear deck 34 open, spring 46 drives head member 44 upward until surface 44d is stopped by surface 43, and the wheel and axle assemblies 22, 24 pivot about pins 48 to canted wheel position. All members remain intact on the vehicle.

Usually instantaneously after movement to dislocate position and release of the dislocatable members, slide member 56 is returned to normal position. In order to return the dislocated members to normal positions, the front hood extension at 26b and post 74 have rounded meshing edges and are sufficiently resilient that the extension at 26b can be force-wedged against and onto the upper end of post 74, as the front hood 26 is manually closed. Trigger 80 has returned clockwise and is moved momentarily slightly counterclockwise as deck 34 is manually closed and then moves clockwise under the urging of spring 84 to abut surface 34b. Latches 64 have upper inner camming surfaces and are sufficiently resilient to be displaced laterally (in FIGS. 6 and 6a) by the rounded camming surface at the lower end of head member 44 as head member 44 is depressed manually to normal position. Latches 64 then snap inwardly to re-engage surface 44b and hold head member 44 in its normal position. Ears 78 are sufficiently resilient to bend and snap back into engagement with surfaces 24a as wheels 22 are individually manually returned to their normal positions. The automobile is now ready for a new collision.

We claim:

1. A wheeled toy vehicle comprising:

a body having a plurality of movable parts including a plurality of wheels mounted on axles for rotation relative to said body, and transverse pivot means associated with each axle for arcuate movement of the wheels from a normal rolling position to a canted dislocated position;

a unitary slide member, means mounting said slide member on said body for lengthwise sliding movement on impact from a normal position to a dislocated position relative to said body, said slide member including a portion exposed on the exterior of the body in the form of a bumper element for mov-

ing the slide member to its dislocated position upon impact against the bumper element; and blocking means associated with said slide member and said wheels for preventing movement of the wheels to canted position when the slide member is in its normal position, said blocking means being disengageable for permitting movement of the wheels to canted position upon movement of the slide member to its dislocated position.

2. The toy vehicle of claim 1 including resilient means biasing said slide member in a return direction to its normal position and said blocking means being adapted to permit return of said wheels from their dislocated position to their normal position with said slide member already returned to its normal position by said resilient means.

3. The wheeled vehicle of claim 1 wherein said pivot means are so located relative to the body that said wheels move to canted position under the weight of the vehicle.

4. The wheeled vehicle of claim 1, said body comprising a simulated automobile body having a roof, a port in said roof, a simulated human-form head received in said port for movement between a normal retracted position within the body and a dislocated position extended through the roof port, means for urging said head to dislocated position, latch means associated with said slide member and said head to hold the head in normal retracted position with the slide member in normal position, said latch means releasing said head to dislocated position responsive to movement of the slide member to dislocated position.

5. The wheeled vehicle of claim 4 including stop means for preventing complete removal of said head means from said body through the roof port.

6. The wheeled vehicle of claim 4 wherein the bumper element is in the form of simulated human-form feet extending from the front of the vehicle.

7. The wheeled vehicle of claim 4 comprising additional dislocatable parts including front and rear decks mounted on said body for movement between closed or normal and open or dislocated positions, means for preventing movement of said decks from their closed positions and for releasing and moving said decks to open positions responsive to movement of said slide member to the dislocated position.

8. A toy in the form of an automobile which is dislocatable by a collision impact or shock, said automobile having a body with a roof, front and rear decks pivotally mounted for opening and closing and a plurality of separate axles each mounting separate wheels for ro-

tation relative to said body, transverse pivot means on each axle for movement of the wheels from a normal rolling position to a canted dislocated position, a port in said roof, a simulated human-form head received in said port for sliding movement between a normal position within the body and a dislocated position extended through the roof port, a unitary slide member mounted within the automobile body for lengthwise sliding movement from a forward normal position to a rearward dislocate position, said slide member extending through the front of the automobile body to the body exterior as a bumper element for moving said slide member to dislocate position upon impact against the bumper element, means biasing said slide member in the return direction to its normal position, front and rear deck biasing means for biasing said front and rear decks each to open position, front deck blocking means mounted on said slide member for blocking movement of the front deck to open position with said slide member in normal position and unblocking movement of the front deck on movement of said slide member to dislocate position, rear deck blocking means for preventing movement of the rear deck to open position with said slide member in normal position and unblocking movement of the rear deck on movement of said slide member to dislocate position, head biasing means urging said head to its dislocated position, stop means for blocking said head against removal through said roof in dislocated position, latch means secured to said slide member and engaging said head in normal position with said slide member in normal position, said latch means moving with said slide member to disengage from said head with said slide member in dislocate position, axle blocking means on said slide member for blocking each axle and wheel combination from pivoting to dislocated position and moving with said slide member to disengage from said axle and wheel combinations with said slide member in dislocate position, whereby upon movement of said slide member to dislocate position all of said blocking means unblock and said latch means disengage, the front and rear decks pop open, the head pops up through the roof port and the wheels move to canted positions, said front deck blocking means, axle blocking means and head latch means being sufficiently resilient to permit reengagement of the blocking and latch surfaces for closing the front and rear decks, straightening the wheels and returning the head within the body with said slide member returned to normal position.

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