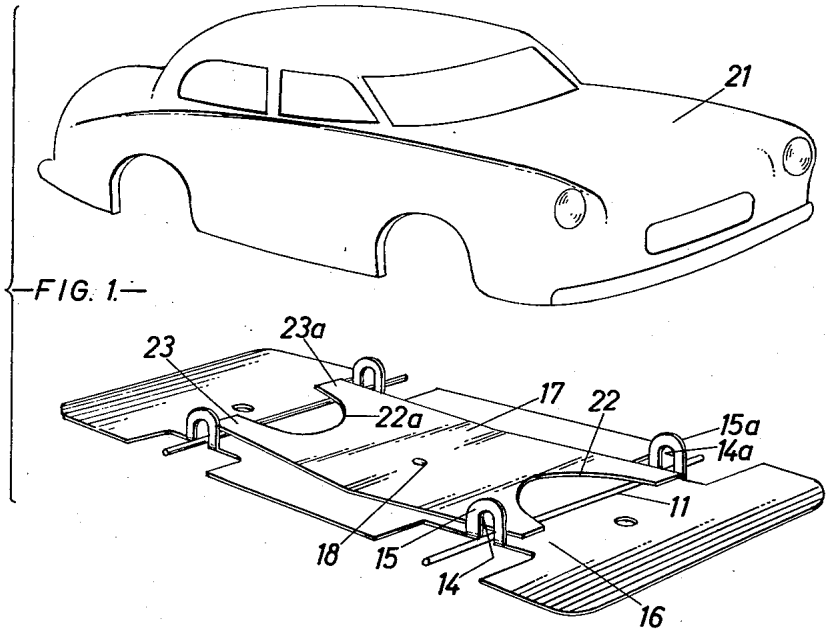
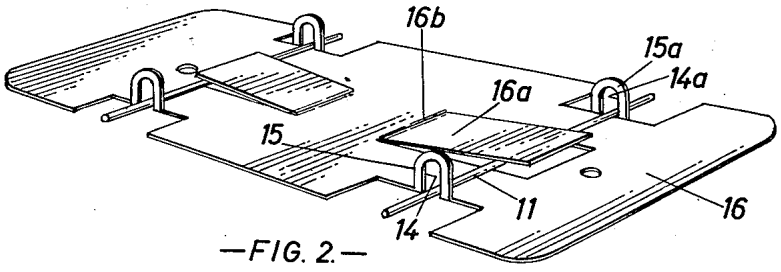
Nov. 21, 1961 D. C. DAVIS 3,009,287

TOY VEHICLE BODY CONSTRUCTION

Filed Aug. 20, 1959 2 Sheets-Sheet 1



—FIG. 1.—



—FIG. 2.—

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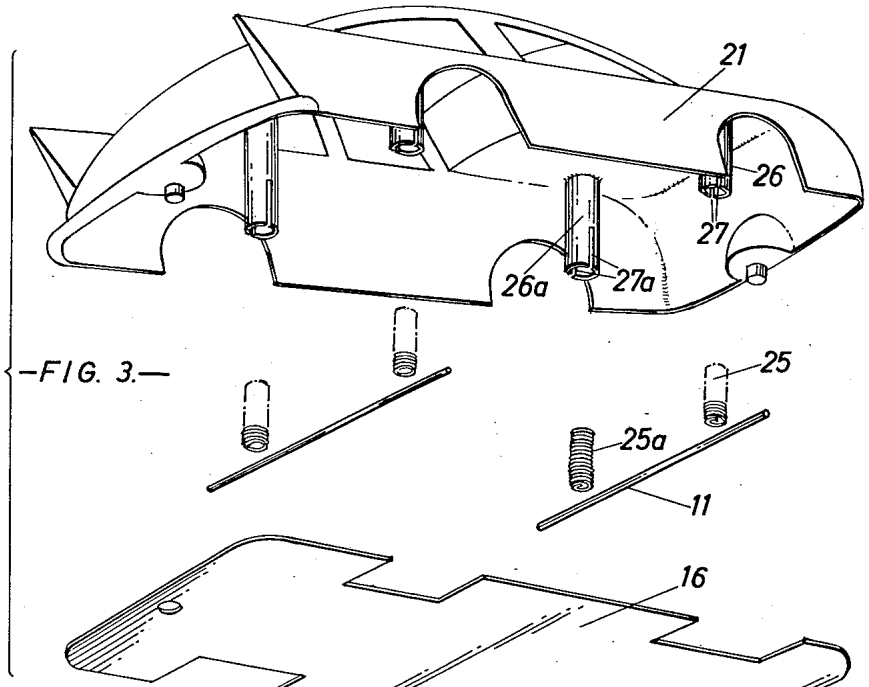
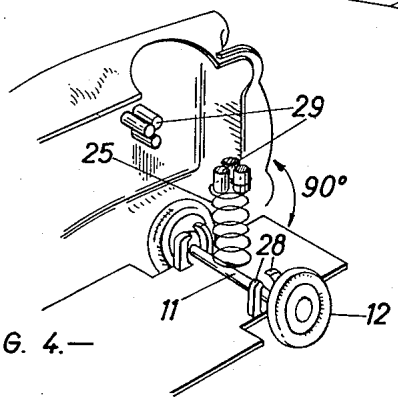


—FIG. 3.—



—FIG. 4.—

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United States Patent Office 3,009,287 Patented Nov. 21, 1961

3,009,287

TOY VEHICLE BODY CONSTRUCTION

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Filed Aug. 20, 1959, Ser. No. 835,052
Claims priority, application Great Britain Jan. 12, 1959
1 Claim. (Cl. 46—222)

The present invention concerns toy vehicles.

An object of the invention is to provide a construction of toy vehicles which will give a realistic spring suspension approximating in action to independent springing of the wheels.

Another object of the present invention is to provide a toy vehicle which includes a horizontally extending base plate, at least one transversely extending axle bar mounted in guide-slots for displacement towards or away from the base plate carrying wheels at its opposite ends, and at least one spring urging the axle bar in a downward direction relative to the base plate.

The axle bar may be guided in slotted lugs fixed relative to the vehicle body. The said slotted lugs may be fixed to or formed integral with the base plate in the form of upturned tabs disposed at opposite side edges of the base plate or may be fixed to or formed integral with the body.

The vehicle may be conveniently provided with a plate spring; this spring may have a U-shaped cut-out at the end region thereby providing two separate spring portions adapted to act substantially independently upon the axle bar.

The plate spring may alternatively be formed from the body of the base plate in the manner of a rectangular flap one side of which flap is integral with the body of the base plate.

The toy vehicle may be fitted with at least one pillar formed integral with or riveted to the body and attached to the base plate, said pillar passing through an aperture in the plate spring.

In another embodiment of the invention one or more coil springs are housed in vertically extending cylindrical tubular lugs depending from the body of the vehicle.

In a further embodiment a single coil spring has its upper end fixedly connected with one or more stubs depending from the upper interior surface of the vehicle body and exerts a downward pressure upon the axle bar which is springably movable in a vertical direction between complementarily opposed guide members.

The foregoing and other objects and advantages will appear from the following detailed description, taken in connection with the accompanying drawings, in which:

FIG. 1 is an exploded perspective view of one embodiment of the invention, wherein a plate spring is employed;

FIG. 2 is a perspective view of an alternative base plate construction wherein the spring is formed from the base plate itself;

FIG. 3 is an exploded perspective view of an alternative embodiment of the invention wherein coil springs are utilised; and

FIG. 4 is a fragmentary exploded perspective view of the front portion only of yet another embodiment of the invention wherein only one coil spring is utilised.

In the embodiments illustrated in the drawings a toy vehicle comprises a body portion **21**, a base plate **16** and a front and a rear wheel axle **11** in the form of a bar. Each axle bar **11** passes through a central bore in one

of the wheels **12**, the bore being of a sufficient size to permit the wheel **12** to rotate freely on the axle bar **11**.

As shown in FIGS. 1 and 2, the axle bar **11** immediately adjacent to the wheel passes through a guide slot **14**, **14***a* in a lug **15**, **15***a* which is bent upwardly at 90° from the body of the base plate **16**.

In the embodiment shown in FIG. 1, a plate spring **17** is riveted in a central position at **18** to the base plate **16**. The plate spring **17** has U-shaped cut-outs **22**, **22***a* providing two separate spring portions **23**, **23***a* which exert a substantially independent downward pressure on the axle bar **11**.

In the embodiment shown in FIG. 2, the springing action is provided by a flap **16***a* cut into the body of the base plate **16** and integrally joined to said base plate **16** at **16***b*.

FIG. 3 illustrates an embodiment using coil springing. Cylindrical tubular lugs **26**, **26***a* secured to the inside of the vehicle body have vertical slots **27**, **27***a* arranged to permit the vertical movement of the axle bar **11** inserted therein. The axle bar **11** is subjected to a downward pressure by coil springs **25**, **25***a* housed within the tubular lugs **26**, **26***a* and positioned above the axle bar **11**. The axle bar **11** is retained within the slots **27**, **27***a* by the upward pressure of the base plate **16**.

FIG. 4 illustrates an embodiment in which a single coil spring **25** has its upper end fixedly connected to three closely grouped stubs **29** depending from the upper inner surface of the vehicle body and exerts a downward pressure upon the centre region of the axle bar **11** which axle bar **11** is movable in a vertical direction between complementarily opposed guide members **28** secured to the base **16**.

The foregoing and other changes may be made without departing from the scope and spirit of the present invention. Accordingly, it is to be understood that the detailed description presented herein is merely illustrative of the invention and is not to be construed as limiting the scope thereof.

I claim:

A toy vehicle comprising a body, a substantially flat base plate formed to mate with the lower portion of said body, securement means to attach said base plate to said body, said base plate being formed with two wheel cut-outs on each side of said base plate, four guide lugs integrally formed with said base plate and substantially perpendicular thereto adjacent said wheel cut-outs, said lugs being formed with vertically oriented axle-receiving guide slots, a pair of axles received within said guide slots, each of said axles overlying the upper surface of said base plate and normally resting flush thereagainst with the ends of each axle projecting outwardly through the lower ends of said guide slots into the respective wheel cut-outs, a pair of wheels rotatably mounted on the ends of each of said axles within said wheel cut-outs, and a plate spring secured to said base plate intermediate said axles and having opposed free ends which extend over said axles and engage said axles between said lugs, said free ends of the plate spring providing a downwardly directed bias force on said axles urging said axles flush against said base plate and opposing movement of said axles upwardly within said guide slots to provide a spring suspension for said toy vehicle.

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