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(12) # EUROPEAN PATENT APPLICATION

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(54) **Toy vehicles.**

(57) A toy vehicle adapted to show a sign which appears to flash, comprising a sprung body, a lower frame or chassis mounting at least one wheel axle in sprung manner, the sprung wheel axle carries a driving pinion, actuating means comprises a driven pinion normally disengaged from the driving pinion but engageable on pushing the body down against the spring, and a member which moves cyclically on rotation of the actuating means to simulate flashing of a sign supported on the body.

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Description

TOY VEHICLES

This invention relates to toy vehicles.

The main object of the invention is to enable a toy vehicle to simulate a flashing light sign, for example, a HALT sign of the kind commonly fixed to the rear of police vehicles for road traffic control.

The invention provides a toy vehicle adapted to show a sign which appears to flash, comprising a sprung body, actuating means to be rotated when the body is pushed down and moved, a member which moves cyclically on rotation of the actuating means to simulate flashing of a sign support on the body. Preferably the vehicle comprises a lower frame or chassis mounting at least one wheel axle in sprung manner, the sprung wheel axle carries a driving pinion, and the actuating means comprises a driven pinion normally disengaged from the driving pinion but engageable on pushing the body down against the spring.

The actuating means may comprise a cam moving with the driven pinion and actuating a cam follower to oscillate said member.

The simulated flashing can be achieved by oscillating a reflective surface behind a translucent screen which can carry a message such as HALT. Alternatively a shield can be reciprocated in front of and away from a luminous or reflective sign.

The invention will be further described with reference to the accompanying drawings which illustrate by way of example, two preferred embodiments. In the drawings:-

Figures 1 and 2 are respectively longitudinal and transverse sections of a model police car having a rear flashing light sign and forming the first preferred embodiment of the invention:

Figure 3 is an "exploded" view showing the various parts of the car in perspective:

Figures 4 and 5 are respectively longitudinal and transverse sections of a police van carrying flashing light signs and forming the second preferred embodiment of the invention, and

Figure 6 is an "exploded" view of the van showing the parts in perspective.

Referring first to Figures 1 to 3 of the drawings the model police car there shown comprises a lower frame or chassis designated generally 2 and carrying a pair of axles 3, 4 in slots 5, 6 on either side of the frame. A leaf spring 7 fixed to a central stud 8 on the lower frame 2 extends over the axles 3, 4 to hold them in the slots. However, hand pressure on the body, as will be described, can depress the lower frame so that the axles 3, 4 ride up in the slots, to simulate vehicle springing.

The car comprises also an inner frame designated generally 10 and simulating seating 11 and other interior parts of the car, and a body designated generally 12 which fits over the whole. The body 12 snaps over a forward stud 13 on the lower frame or chassis 2, and also engages under projection 14 at the rear of the frame 2. Such assembly methods, which depend on the resilience of the materials, are well known in the art and will need no further description.

The inner frame 10 includes at the rear depending side flanges 20, 21 (Fig 3) and an intermediate flange 22. An integral assembly 24 comprising a driven pinion 24a and cam 24b has stub shafts 25 which snap into corresponding holes 26 in the flanges 21, 22, so as to mount the assembly for rotation. A follower assembly 28 has stub shafts 29 which snap into holes 30 in the flanges 21, 22 so that the follower is mounted for oscillating movement as the cam of the assembly 24 rotates against the follower surface 32. The cam follower has an arm 33 with a pin 34 at the end.

The inner frame 10 includes at the rear a pair of upstanding side flanges 40, 41 notched at 42 to receive stubs 43 on a flap 45, so as to mount it for swinging movement. The pin 34 on the cam follower 28 engages in a slot 48 formed at the side of the flap 45. Thus rotation of the cam and pinion assembly 24 oscillates the follower 28 and this in turn moves the flap 45 between the vertical and horizontal positions respectively shown in Figure 3 and Figure 1. A housing 50 is retained on the rear of the body 12 by interengaging surfaces and a window 51 is mounted at the rear of the housing and may carry a legend such as STOP. Housing and window enclose the flap 45 and actuating mechanism.

The car further includes conventional items such as window moulding 55 and gril 56.

The rear axle of the toy car carries a pinion 58 which in the normal condition of a spring 7 is just clear of the pinion 24. Pressing the body 12 down on the lower frame or chassis 2 engages pinion 58 with pinion 24 so that as the car is pushed along the flap 45 oscillates and in so doing makes it appear that the STOP sign constituted by window 51 is flashing. The flap preferably has a bright reflective surface and the screen or window is transparent on the area of the word HALT. When the flap is away from the screen, the screen is blank, and when it is up against the screen, an intense image, HALT, is visible.

The second preferred embodiment of the invention illustrated in Figures 4 to 6 takes the form of a van generally similar in construction and operation to the car just described, but with additional features. Parts which are generally similar to those of Figures 1 to 3 will be given the same reference numerals and will require no further description. It will be understood that the parts will be somewhat different in position and dimension. In particular, it is to be noted that the flashing sign shows at the rear window of the van rather than in a box on the boot, as with the car described above.

The van, in addition to showing a flashing sign at the rear window shows another flashing sign in a display box designated generally 100 which is mounted on the roof 101 of the van by means of studs 102 which snap into the holes 103 in the roof. The display box consists of an outer housing 105 mounting windows 106, 107 fore and aft on side members 108 which carry a central vertical plate 110

with the words HALT, POLICE or the like on it.

The follower designated 28a differs from the follower 28 of the first embodiment, though it has in common the stub shafts 29 and pin 34. The follower 28a is constructed as a frame, with forward arms 112 as well as the rear arm 113 which correspond to the arm 33 in Figure 3. The arms 112 terminate in arcuate fingers 114 engaged in slots 115 in a shield member 116. The shield member has two opaque plates 118 which engage on either side of the sign plate 110 in the display box 100.

The van of Figures 4 to 6 operates in the same general manner as the car of the earlier figures. The pinion 58 on the rear axle 4 is clear of the pinion 24a in the normal condition of the spring 7. However when the body 12 is pushed down, pinions 24 and 58 engage and the follower 28a consequently oscillates. This not only oscillates the flap 45 at the rear window of the van, but also moves the shield 116 up and down so that the sign plate 110 in the display box 105 is intermittently seen. As a result the signs in the rear window and display box appear to flash.

Claims

1. A toy vehicle adapted to show a sign which appears to flash, comprising a sprung body, actuating means to be rotated when the body is pushed down and moved, a member which moves cyclically on rotation of the actuating means to simulate flashing of a sign supported on the body.

2. A toy vehicle as claimed in Claim 1, wherein the vehicle comprises a lower frame or chassis mounting at least one wheel axle in sprung manner, the sprung wheel axle carries a driving pinion, and the actuating means comprises a driven pinion normally disengaged from the driving pinion but engageable on pushing the body down against the spring.

3. A toy vehicle as claimed in Claim 2, wherein the actuating means further comprises a cam moving with the driven pinion and actuating a cam follower to oscillate said member.

4. A toy vehicle as claimed in Claim 3, wherein the pinion cam and follower are mounted in an intermediate moulding secured between the lower frame and body.

5. A toy vehicle as claimed in any of the preceding claims, wherein said member in one position reflects light through a window.

6. A toy vehicle as claimed in any of the preceding claims, wherein said member in one position blocks the view of said sign.

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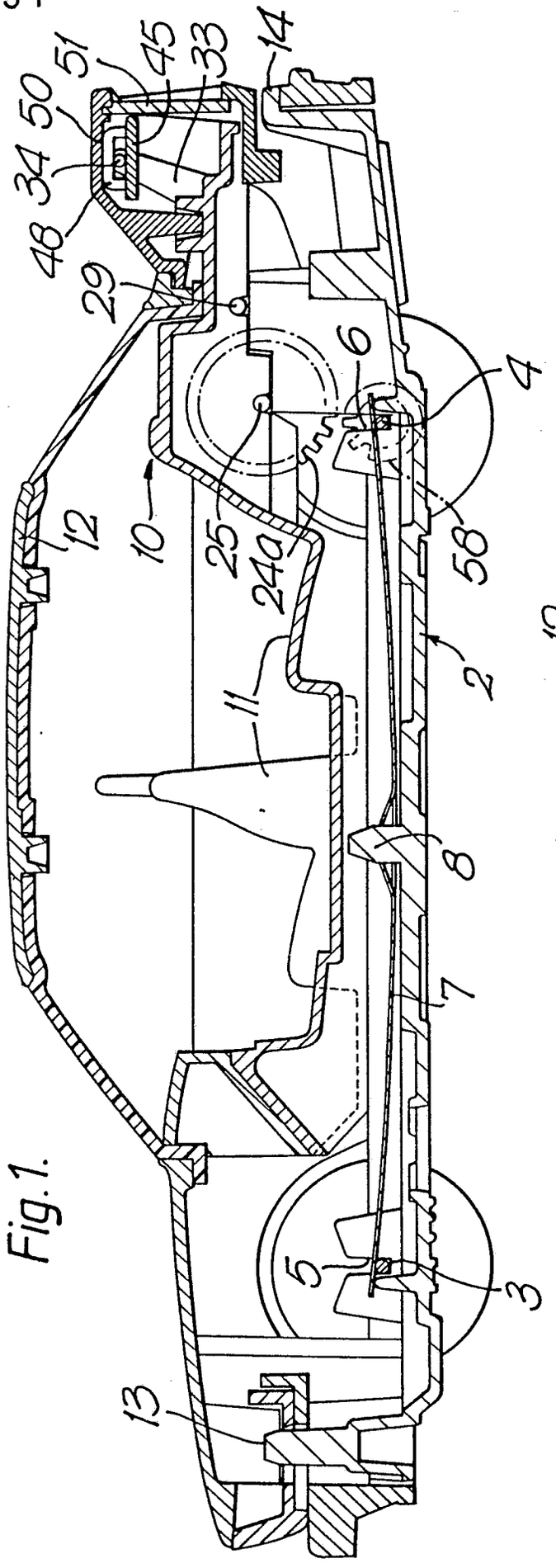


Fig.1.

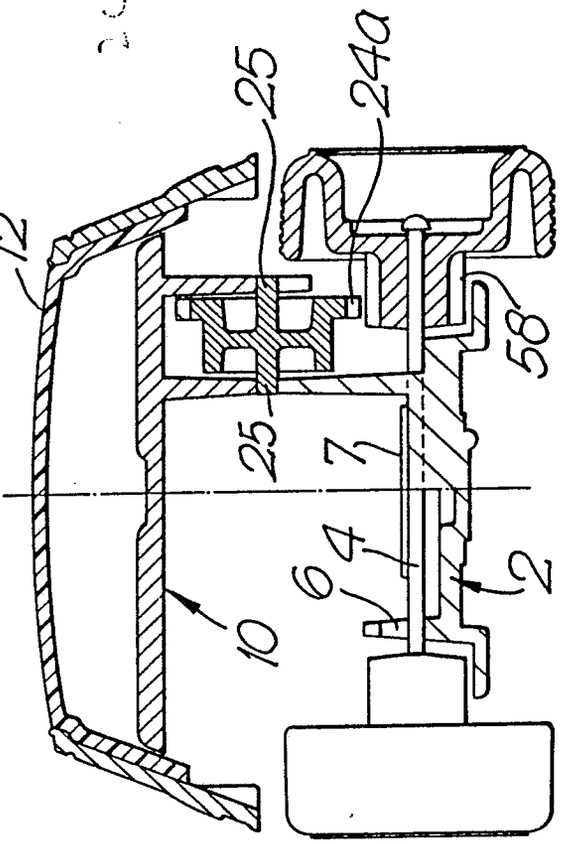
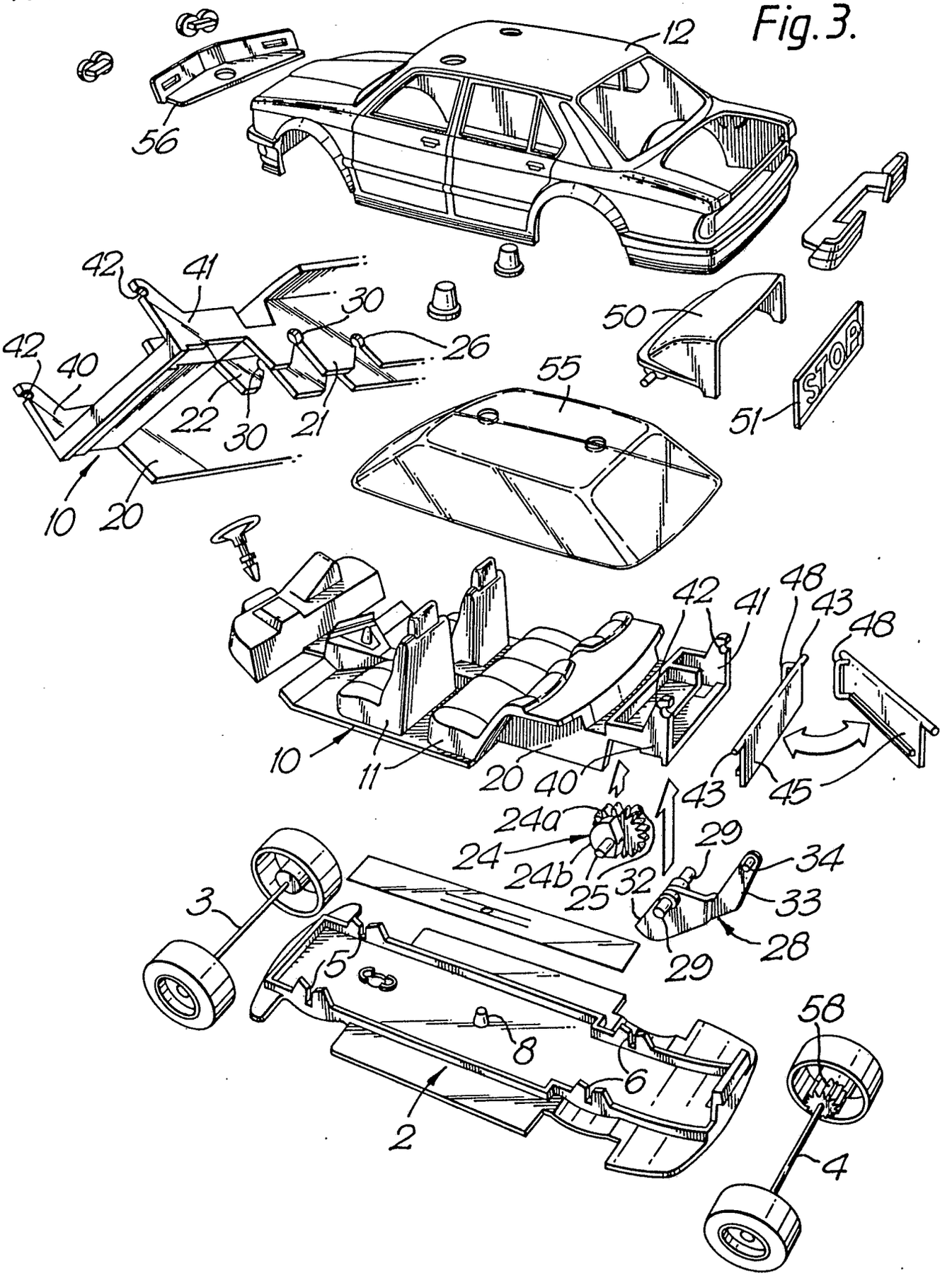


Fig.2.

Fig.3.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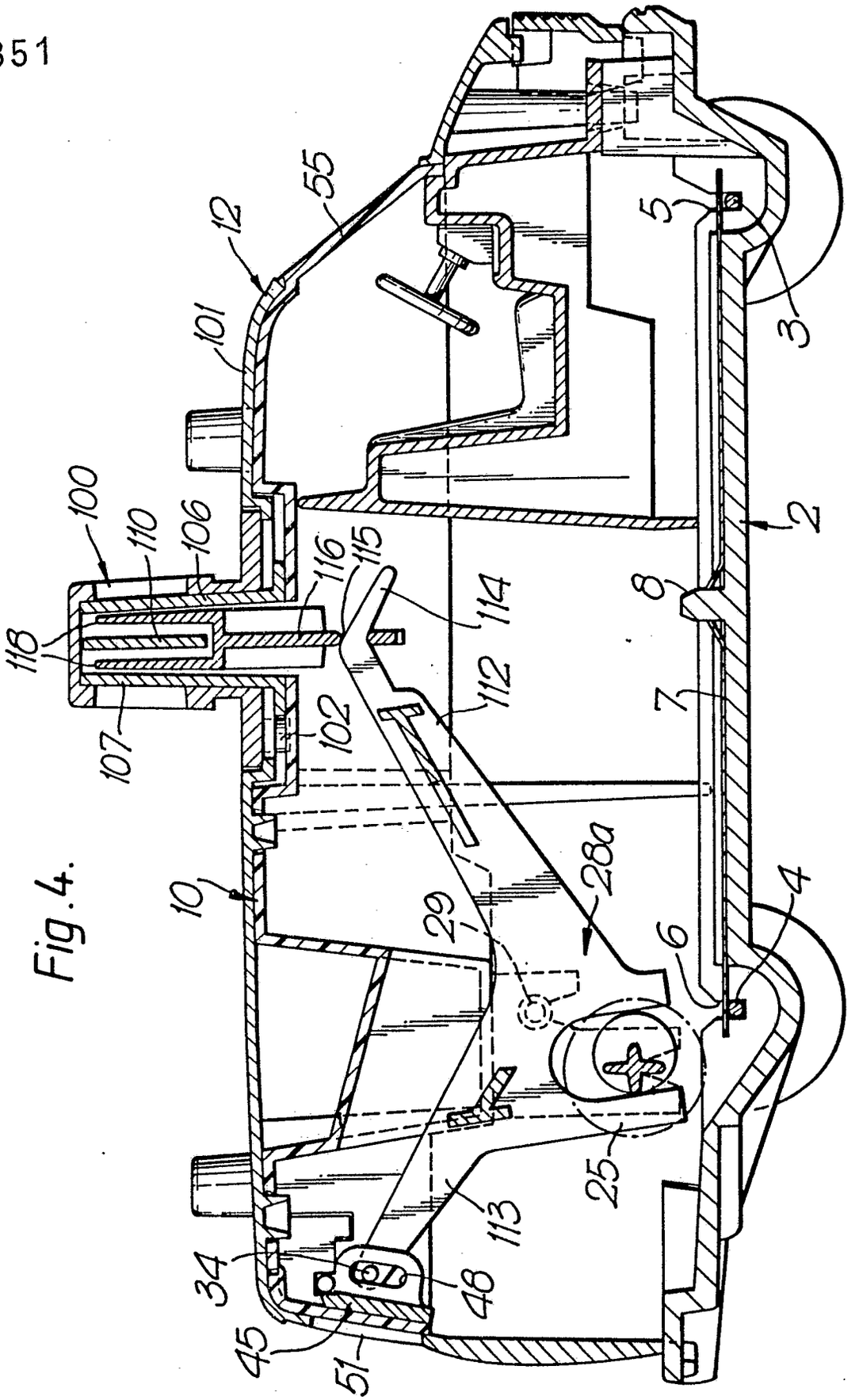
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Fig. 4.

Fig.5.

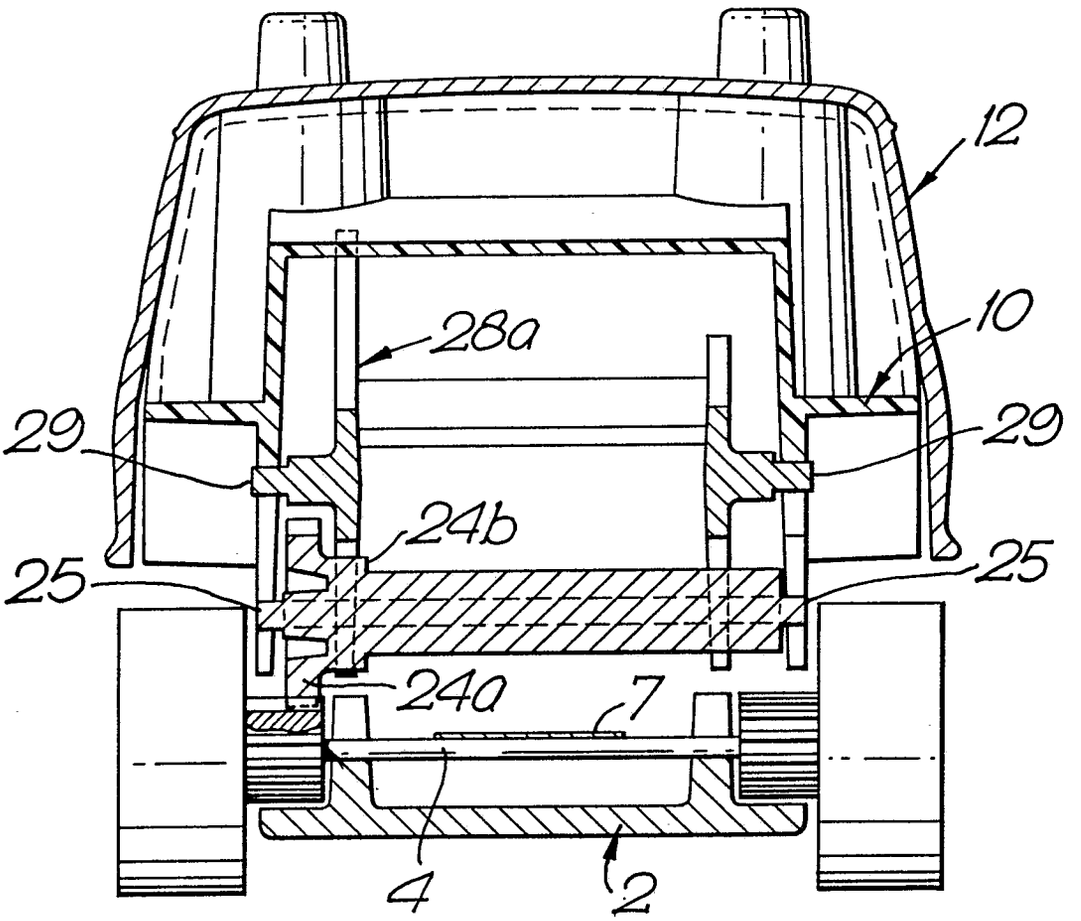
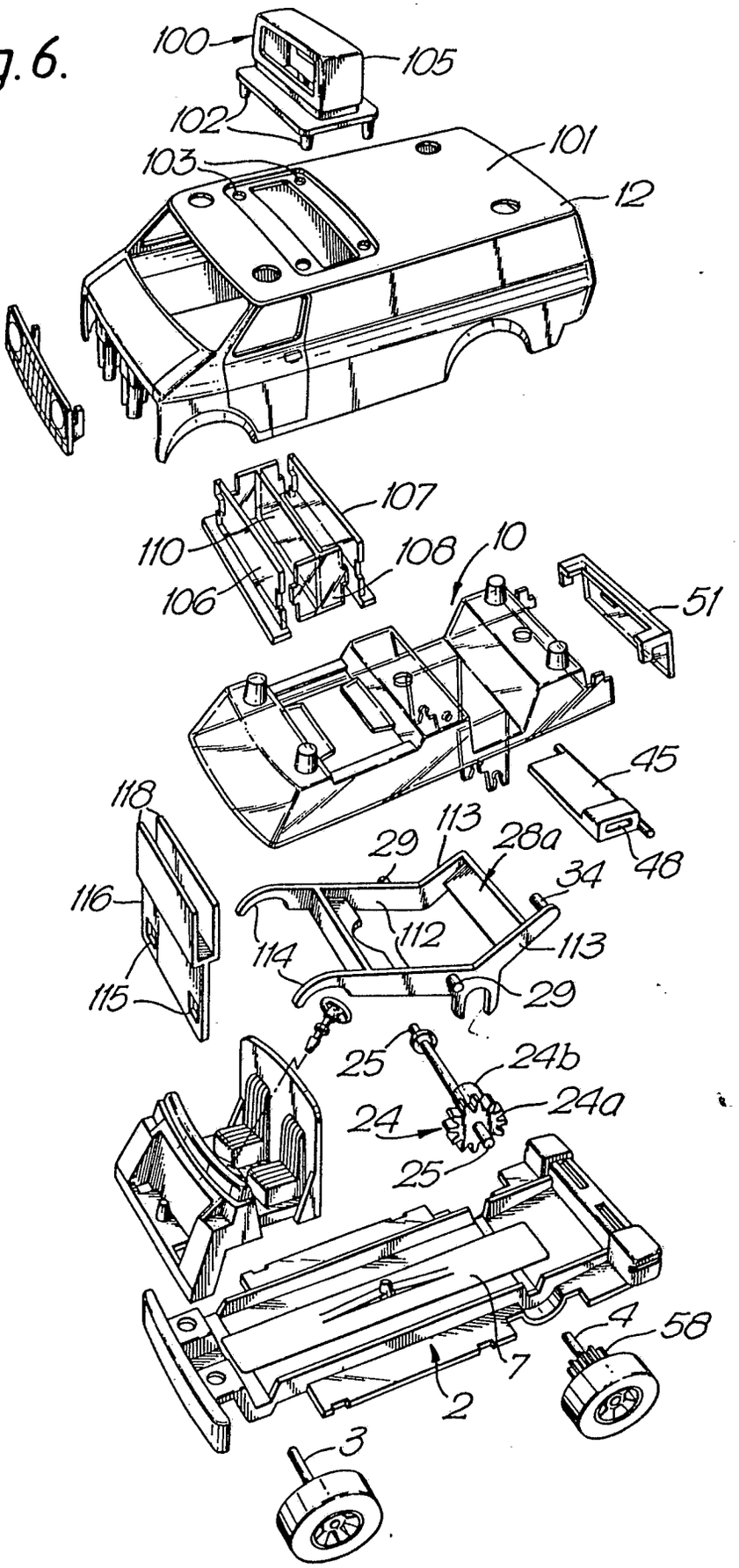


Fig.6.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