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F. L. LINDSTROM

2,024,590

TOY

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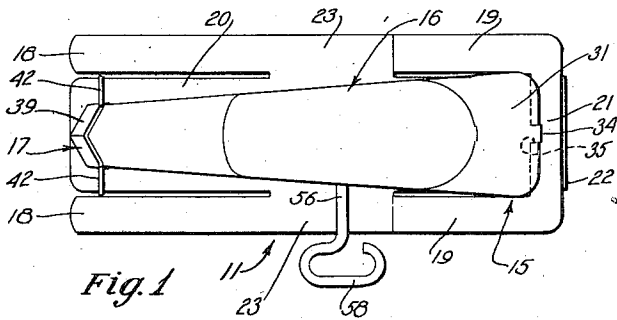


Fig. 1

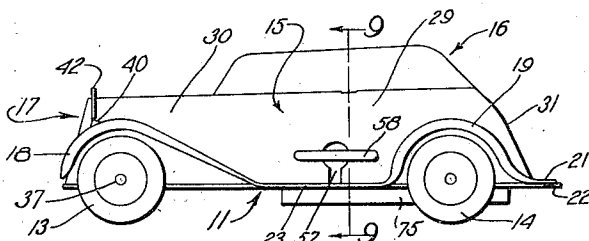


Fig. 2

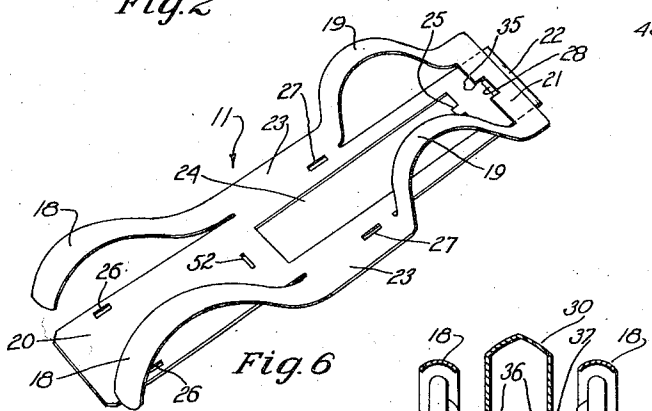


Fig. 3

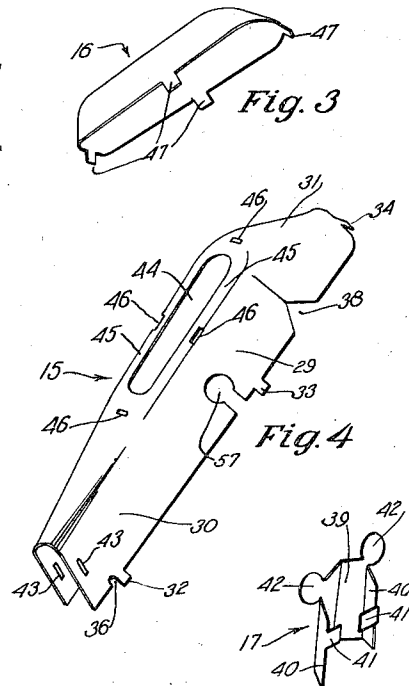


Fig. 4

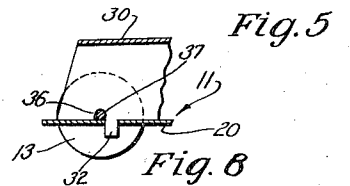


Fig. 5

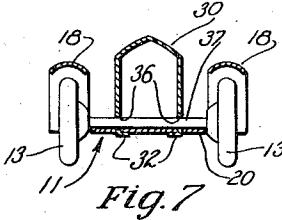


Fig. 6

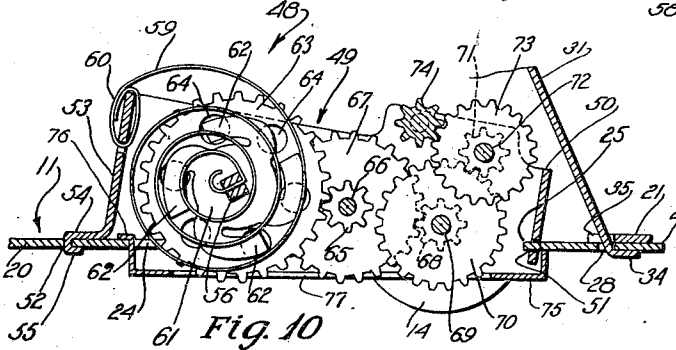


Fig. 7

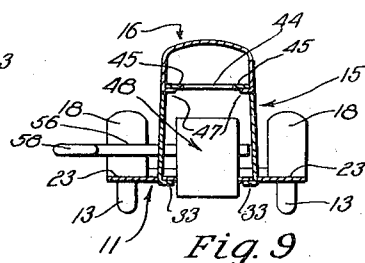


Fig. 8

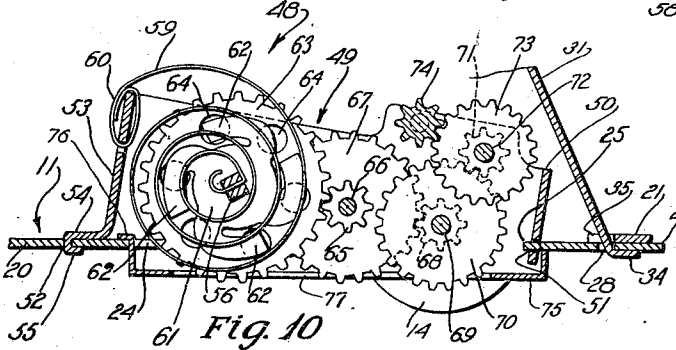


Fig. 9

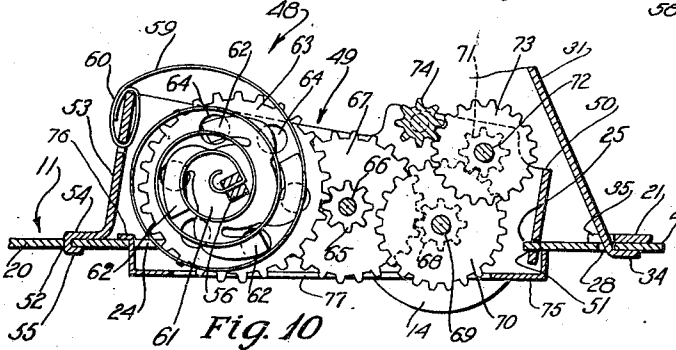


Fig. 10

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2,024,590

TOY

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Application December 29, 1934, Serial No. 759,746

5 Claims. (Cl. 46—201)

This invention relates to new and useful improvements in toys and has particular relation to small toy vehicles such as automobiles.

An object of the invention is to provide a very small motor driven toy vehicle which is of neat and attractive appearance and which may be manufactured at low cost.

Other objects and advantages will become apparent from a consideration of the following detailed description taken in connection with the accompanying drawing wherein a satisfactory embodiment of the invention is shown. However, it will be understood that the invention is not limited to the details disclosed but includes all such variations and modifications as fall within the spirit of the invention and the scope of the appended claims.

In the drawing:

- Fig. 1 is a top plan view of the complete toy;
Fig. 2 is a side elevational view of the same;
Fig. 3 is a perspective view of the top of the toy;
Fig. 4 is a similar view of the body of the toy;
Fig. 5 is a perspective view of the radiator and headlight portion of the toy;
Fig. 6 is a perspective view of the chassis frame;
Figs. 7 and 8 are detail views showing the mounting of the front axle;
Fig. 9 is a sectional view taken substantially along the plane of the line 9—9 of Fig. 2; and
Fig. 10 is an enlarged sectional view through the clock-work or motor and showing the mounting thereof;

The present invention relates particularly to the providing of very small wheeled toys or toy vehicles of inexpensive construction with spring motors whereby the toys may be wound by hand and then when placed on the floor or a table or the like will propel themselves. The toy vehicles of the present invention are for the most part of the actual size shown in Figs. 1 through 9 in the drawing and the present invention deals particularly with such small toys motorized and constructed to sell at a very low price preferably in the neighborhood of ten cents each.

Referring in detail to the drawing, the toy vehicle is made up substantially entirely of sheet metal and includes a chassis frame 11 mounted on front and rear pairs of wheels 13 and 14 respectively. On such frame is a one piece sheet metal body and hood member 15 having secured thereto a one piece sheet metal top 16 and a one piece sheet metal radiator and headlight part 17. The chassis frame 11 is made up from a single

piece of sheet metal lanced and bent or formed to provide the front fenders 18, the rear fenders 19, an intermediate body supporting portion 20 and a cross bar 21 connecting the rear fenders and disposed on the rear end portion 22 of the intermediate portion 20. Before a piece of sheet metal is blanked out to provide the chassis frame 11 the cross bar 21 comprises one end portion of said piece of sheet metal and a portion thereof inwardly of said end portion is removed and when the rear fenders 19 are bent up the cross bar 21 is drawn inwardly and disposed over the portion 22 of the body supporting portion 20 of the frame 11.

When the fenders 18 and 19 are bent up steps 15 or running board portions 23 may be provided. In its rear portion, portion 20 is provided with an elongated opening 24 extending longitudinally of the chassis frame and having its rear edge provided with an inwardly extending lug 25. Adjacent its side edges and toward its forward end portion 20 of the chassis frame is provided with a pair of perforations or slots 26 and intermediate the ends of the frame there are perforations or slots 27 and the rear end portion of the frame is provided with a slot 28.

The body member 15 includes a rear or body portion per se designated 29 and a forwardly projecting hood portion 30. This body member may be closed at its rear as at 31 but is open at its under side and at its front end as more particularly shown in Fig. 4. At its lower edges adjacent its front end the body member 15 carries a pair of lugs 32 to pass through the openings 26 in the chassis frame, when the body member is assembled on the chassis, and then clinched as shown best in Fig. 7. Intermediate its ends the body member is provided with lugs 33 to be passed through and clinched at the under sides of the openings 27 of the frame 11 and at its rear end the body member carries a lug 34 to be passed through the opening 28 in the rear end portion of the chassis frame and then turned or clinched as most clearly shown in Fig. 10. When the body member is on the frame 11 the lower rear edge 45 of the body member overlies the cross bar 21 as shown best in Figs. 1 and 10 and the lug 34 of the body member passes through a notch or opening 35 in said cross bar and it will therefore be apparent that when the lug 34 is clinched or bent into place as in Fig. 10 the lower edge of the rear portion of the body member will be clamped against the cross bar and the latter will be clamped against the rear end portion 22 of the frame 11.

Closely adjacent the lugs 32 the body member 15, in its lower edges, is provided with aligned slots 36 and when mounting the body member on the chassis frame the axle 37 of the front wheels 13 is disposed on the upper side of and adjacent the forward end of the intermediate body supporting portion 20 of the chassis frame and extends across the same to dispose the wheels 13 under the fenders 18. As the body member is applied to the frame 11 the front axle 37 is accommodated in the notches 36 in the lower edges of the body and as such edges of the body are drawn against the upper surface of the chassis frame portion 20 it will be apparent that the axle is confined by the notches 36 and cannot become separated from the rest of the vehicle. In its lower edges adjacent its rear end the member 15 may be notched as at 38 and these notches are of such size as to clear the axle for the rear wheels 14 but it is noted that such axle forms a shaft of a spring motor later to be described and need not be confined by the body.

The radiator part 17 is formed in one piece of sheet metal and includes a forward or front portion 39 carrying rearwardly extending sides 40 each of which is equipped with a lug 41. Also, the front portion 39 may carry disc-like lugs 42 representing headlights. In its sides adjacent its forward end the hood portion 30 of the member 15 is provided with openings or slots 43 and the part 17 is assembled on said hood portion in such manner that the sides 40 embrace the sides of the hood and the lugs 41 are passed through the slots or perforations 43 and then bent over or clinched to secure the part in place.

Body member 15 is open at its upper side as at 44 but about said opening is provided with an inwardly directed flange 45. In its upper side the body is provided with openings or perforations 46 spaced apart as may be desired and the top 16 for the body comprises a shallow sheet metal member open at its under side and provided with lugs 47 extending from its lower edges. When the top is assembled on the body the lugs 47 are passed through the openings 46 and are then bent or clinched against the flat inner surface of the flange 45 securely attaching the top to the body and drawing the lower edges of the top against the upper surface of the flange 45.

A motor 48 is provided to propel the toy and such motor includes a frame 49 in which the motor parts are mounted and the motor frame is mounted by the chassis frame 11. In its rear wall 50 the motor frame is provided with an opening 51 and to mount the motor its frame is introduced partly into the elongated opening 24 in the chassis frame with the opening 51 in the rear wall of the motor frame receiving the forwardly projecting lug 25 of the chassis frame. Forwardly of the elongated opening 24 the chassis frame is provided with a slot or perforation 52 and the forward wall 53 of the motor frame is provided with a forwardly extending portion 54 resting on the upper surface of chassis frame portion 20 to the rear of the slot 52 and this forwardly extending portion 54 carries a lug 55 passed through the slot 52 and clinched as in Fig. 10. With this construction it will be apparent that the motor frame is prevented from moving forwardly to disengage itself from the lug 25 and that the motor is therefore securely mounted. Additionally, the motor frame laterally may fit reasonably snug in the elongated opening 24 of the chassis frame whereby any tendency of the motor frame to rock is prevented.

The motor includes a winding shaft 56 extending through a wall of the motor frame and through an opening 57 in the side wall of the body member 15 and at its outer end this shaft may be bent to provide a winding key 58. A spring 59 has its inner end secured to the winding shaft 56 and has its outer end secured to the motor frame as at 60. On the winding shaft and turnable therewith is a pawl member 61 including spring arms 62 and also on the shaft but 10 turnable relative thereto is a relatively large gear 63 having a number of spaced openings 64 there-through. With the construction described and shown in Fig. 10 it will be apparent that the shaft and the pawl 61 may be turned in a clockwise direction to wind the spring 59 without imparting turning movement to the gear 63. However, when the spring has been wound up and starts to unwind it will turn the shaft 56 in a counter-clockwise direction and one or more of the spring 20 arms 62 of the pawl 61 will engage in one or more of the openings or holes 64 in the gear 63 so that said gear will move with the pawl and will be driven by the spring.

The gear 63 meshes with and drives a small gear 65 on a shaft 66 and on such shaft is a large gear 67 meshing with and driving a small gear 68 on the shaft 69 which shaft is also the axle to which the rear wheels 14 are secured. On the axle 69 is a large gear 70 driving a small gear 71 on a shaft 72 with a large gear 73 and which large gear 73 is in mesh with a small gear or pinion 74. It will be apparent that the spring is geared down to the axle and that the reduction gearing beyond the axle is to slow the latter 35 down so that when the motor has been wound and the vehicle is placed upon a surface the rear wheels will be driven at a slow speed so that the vehicle will be propelled along such surface.

The motor may be easily and quickly mounted 40 and its mounting is inexpensive. Because of the particular motor mounting used some of the gears extend below the lower surface of the frame 11 and to partly cover such gears a shallow tray or pan 75 is disposed at the under side of 45 the chassis frame in position covering the opening 24 therethrough and enclosing the lower portion of the motor. This tray may be secured in place in any suitable manner as by means of lugs 76 and the tray may be provided with an opening 77 through which the tip ends of the teeth of the larger gears may extend. With this construction the tray may be kept shallow and yet perform the desired functions. The reduction gearing following and driven by the rear or 55 driving axle of the vehicle functions as a governing or braking means.

With the described construction toy vehicles as automobiles may be made very attractive in appearance and at low cost. The various parts may 60 be made from lithograph sheet metal so that no painting is required after the parts are formed or after the complete device is assembled. Further, the different parts may be of different colors or the same part may have differently colored portions and if desired the front or radiator part may be plated. The toy made as disclosed is of neat and attractive appearance and will not easily become deranged and so will have long life.

Having thus set forth the nature of my invention, what I claim is:

1. A chassis frame for a toy vehicle comprising a one piece sheet metal member including an intermediate body mounting portion, front and rear fenders integral with said portion, a cross 75

bar integral with and extending between the outer ends of said rear fenders, and said cross bar disposed against the rear portion of said intermediate portion and bracing the same and said rear fenders.

2. In a toy vehicle, a chassis frame comprising a one piece sheet metal member including an intermediate body mounting portion, front and rear fenders integral with said portion, a cross bar integral with and extending between the outer ends of said rear fenders, said cross bar disposed against the rear portion of said intermediate portion and bracing the same and said rear fenders, wheels mounting said frame, a body on said intermediate portion of the frame and including a portion overlying and against said cross bar, and a lug passing through the rear portion of said intermediate portion and clinched and clamping the body portion against the cross bar and clamping the latter against the intermediate portion.

3. In a toy vehicle, a chassis, a hollow sheet metal body on said chassis, said chassis including a frame comprising a flat sheet metal member having an elongated opening adjacent the rear axle and extending longitudinally of the frame, a lug extending inwardly from the rear edge of said opening, a spring motor of which one shaft is the rear axle of said chassis, said motor including a frame partially entering said elongated opening and having a perforation receiving said lug and having its rear wall against the rear edge of said elongated opening, a perforation in said chassis frame forwardly of said

elongated opening, and said motor frame including a lug passed through said last perforation and clinched.

4. In a toy vehicle, a chassis, a hollow sheet metal body on said chassis, said chassis including a frame comprising a flat sheet metal member having an elongated opening adjacent the rear axle and extending longitudinally of the frame, a lug extending inwardly from the rear edge of said opening, a spring motor of which one shaft is the rear axle of said chassis, said motor including a frame partially entering said elongated opening and having a perforation receiving said lug and having its rear wall against the rear edge of said elongated opening, a perforation in said chassis frame forwardly of said elongated opening, said motor frame including a lug passed through said last perforation and clinched, and a shallow tray disposed at the under side of said chassis frame and secured thereto and spanning said elongated opening.

5. In a toy vehicle, a chassis having an upper surface portion, a body having aligned notches through its lower edges, means securing said body to the chassis with the lower edges of the body against said surface portion of the chassis whereby the latter closes the lower edges of said notches, and an axle extending across and disposed on said surface portion and extending through said notches whereby the axle is held against downward movement out of said notches by the chassis and is held against upward movement away from the chassis by the body.

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