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2,590,515

WHEELED TOY

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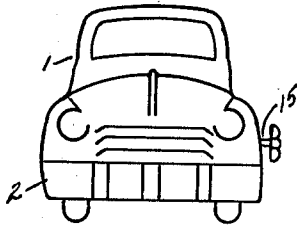


FIG. 2

FIG. 1

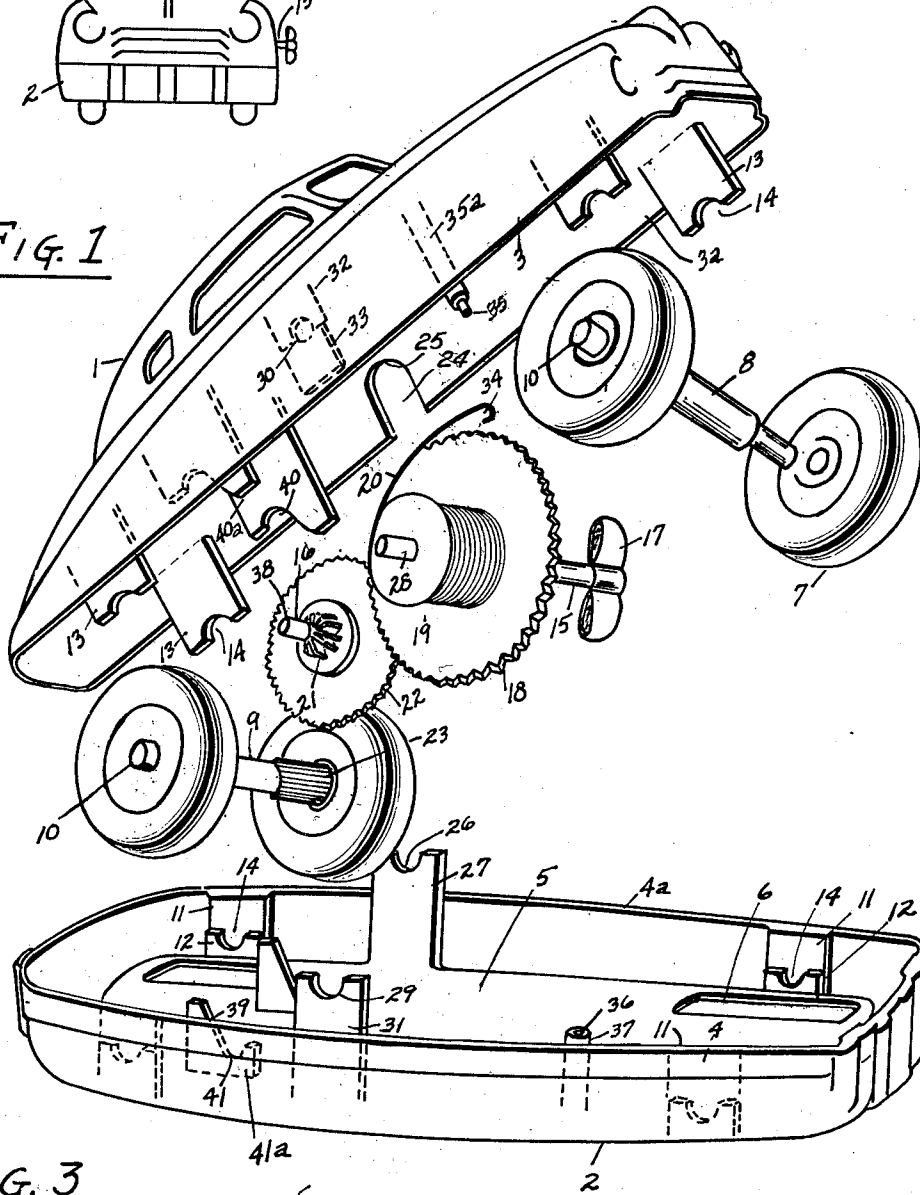
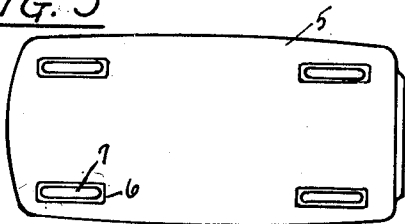


FIG. 3



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WHEELED TOY

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1

This invention is intended to simplify the manufacture and assembly of toys. Features include a longitudinally split body with mating portions forming axle bearings and the use of the body as a frame for the parts of a spring motor. Further objects and advantages appear in the specification and claims.

In the drawing, Fig. 1 is an exploded view of a spring motor driven toy; Fig. 2 is a front view, and Fig. 3 is a bottom view.

In the drawing is shown a toy automobile having a body of molded plastic longitudinally split into upper and lower sections 1 and 2. The upper section, which has the body contour corresponding to the desired type of vehicle, has depending side walls 3, 3a which upon assembly abut and are cemented to upwardly extending side walls 4, 4a on the lower body section. The lower section has a bottom wall 5 which completely encloses the underside of the vehicle except for slots 6 through which wheels 7 project. Both sections are adapted to molding from plastic. If desired, a two toned effect can be obtained by using different color plastic for the upper and lower sections.

The wheels 7 are carried on front and rear axles 8 and 9 each having stub shafts or journals 10 which in the assembled position bear against or are confined between bosses 11 on the side walls 4, 4a. On the inner surface of the bosses 11 are projections 12 abutting projections 13 depending from the walls 3, 3a. The abutting edges of the projections 12 and 13 have mating semicircular bearings 14 for the journals 10. In assembly, the journals 10 are positioned in the bearings 14 in the projections 13 on either the upper or lower body section and as the sections are secured together, the wheel axles are both located and journaled in the body. The assembly is facilitated by the fact that the outer surfaces of the projections 13 bear against and are guided on the inner surface of the bosses 11.

The toy may be driven by a spring motor comprising a key shaft 15 and an idler shaft 16. The key shaft has a key 17, a gear 18, and an arbor 19 to which is suitably anchored one end of a coil spring 20. The idler shaft has a pinion 21 meshing with the gear 18 and a gear 22 meshing with a pinion 23 on the axle 9.

The key end of the key shaft 15 projects through a slot 24 in wall 3a of the upper body section and is journaled in a semicircular bearing surface 25 at the bottom of the slot and a semicircular bearing surface 26 in the upper edge of a projection 27 on the lower body section. In

2

the assembled position, the projection 27 overlaps the inner edges of the slot 24. At the opposite end of the key shaft is a journal 28 received in mating bearing surfaces 29, 30, respectively in the edges of a projection 31 on the lower body section and on a projection 32 on a boss 33 on the inner surface of wall 3 of the upper body section. The outer surface of the projection 29 is guided on the inner surface of the boss 33 during assembly.

The free end 34 of the spring 20 is hooked over a pin 35 integral with a projection 35a depending from the upper body section. Upon assembly, the pin is received in a hole 36 in a projection 37 extending up from the lower body section. After assembly of the body sections, the free end of the spring 20 is securely anchored to the body.

The idler shaft 16 has at its ends journals 38 received in inclined slots 39 formed by mating notches 40, 41 in projections 40a and 41a projecting from the upper and lower body sections. The spring tension urges the idler shaft to the upper ends of the slots 39 in which position the idler gear 22 meshes with the rear wheel axle pinion 23. When the spring tension is relieved, either by a winding force on the key 17 or by running down, the idler shaft drops by gravity to the lower end of the slots 39 in which position the idler gear 22 is clear of the axle pinion 23. This permits over-run or free wheeling of the toy and also eliminates the need for a ratchet in the motor gear train. In the assembled position, the slots 39 are not visible and the idler axle is both journaled and confined between the vehicle body side walls.

In one method of assembly, the upper body section is inverted; the front and rear wheel axles are dropped into bearings 14 on the projections 13; the idler shaft is dropped in slot forming notches 40 in the projections 40a; the key shaft is dropped in the slot 24 and the bearing 28 on projection 32; and the free end 34 of the spring 20 is hooked over the pin 35 on projection 35a. All of the driving and driven parts are now positioned in the upper body section. The lower body section is now brought into register with the upper body section and suitably secured thereto, for example by cementing the abutting edges. The toy now has all of its operating parts (except the key 17) enclosed within the body.

What I claim as new is:

1. In a vehicle toy, longitudinally split upper and lower body sections having respectively down-

3

wardly and upwardly extending registering side walls, an axle received between the body sections, said axle being short enough to be received within said side walls, whereby said side walls are un-

2. In a vehicle toy, longitudinally split upper and lower body sections having respectively downwardly and upwardly extending registering side walls, an axle received between the body sections, said axle being short enough to be received within said side walls, whereby said side walls are un-

3. In a toy, a lower body section having a bottom wall provided with wheel slots and upwardly extending side walls, an upper body section having a top wall providing the desired appearance and downwardly extending side walls registering with the side walls on the lower section, an axle over said wheel slots and having its ends confined between the side walls, whereby said side walls are un-

4. In a toy, a motor having a spring and gear shafts, a body section having side walls with shaft end receiving notches, a complementary body section having portions cooperating with the shafts to hold the shafts in the notches, a projection on one of the body sections for receiving one end of the spring, and a cooperating projection on the other body section preventing removal of the spring.

5. In a toy, a motor having spring and gear shafts, mating parts split along the axes of the shafts, one of the parts having notches receiving the shafts and a projection receiving one end of the spring, and the other part having portions complementary with the notches and projection cooperating to journal the shafts and to anchor the spring.

6. A toy comprising a molded top section, a molded bottom section, said sections being dimensioned to fit together in mating or registering relation to form a substantially enclosed body, said toy further comprising mechanism including shafts, at least some of said shafts terminating within the side walls of the body whereby said side walls are un-

7. A toy comprising a molded top section, a molded bottom section, said sections being dimensioned to fit together in mating or registering relation to form a substantially enclosed body, said toy further comprising mechanism including motor shafts, step-up gearing, a main spring, and

4

a winding key, said shafts and motor mechanism, except the winding key, terminating within the side walls of the body whereby said side walls are un-

8. A toy comprising a molded top section, a molded bottom section, said sections being dimensioned to fit together in mating or registering relation to form a substantially enclosed body, said bottom section having wheel slots, said toy further comprising wheels and axles, the lower portion of said wheels projecting down through said wheel slots, said axles terminating within the side walls of the body whereby said side walls are un-

9. A vehicle toy comprising a molded plastic upwardly convex top section, a molded plastic downwardly convex bottom section, said sections being dimensioned to fit together in mating or registering relation to form a substantially enclosed body, said toy further comprising wheels, axles, and drive mechanism including motor shafts, step-up gearing, a main spring, and a winding key, said axles, shafts and motor mechanism, except the winding key, terminating within the side walls of the body whereby said side walls are un-

10. A vehicle toy comprising a molded plastic upwardly convex top section, a molded plastic downwardly convex bottom section, said sections being dimensioned to fit together in mating or registering relation to form a substantially enclosed body, said bottom section having wheel slots, said toy further comprising wheels, axles, and drive mechanism including motor shafts, step-up gearing, a main spring, and a winding key, the lower portion of said wheels projecting down through said wheel slots, said axles, shafts and motor mechanism, except the winding key, terminating within the side walls of the body whereby said side walls are un-

5

ings for said axles and shafts, each of said bearings including an upper portion molded integrally with and directed downwardly from the top section, and a lower portion molded integrally with and directed upwardly from the lower section, within the side walls of the body, said upper bearing portions being open at the bottom, and said lower bearing portions being open at the top, whereby said sections with said bearings may be molded in two part molds without requiring retractible cores to form said bearings in said sections.

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