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2,451,801

TOY

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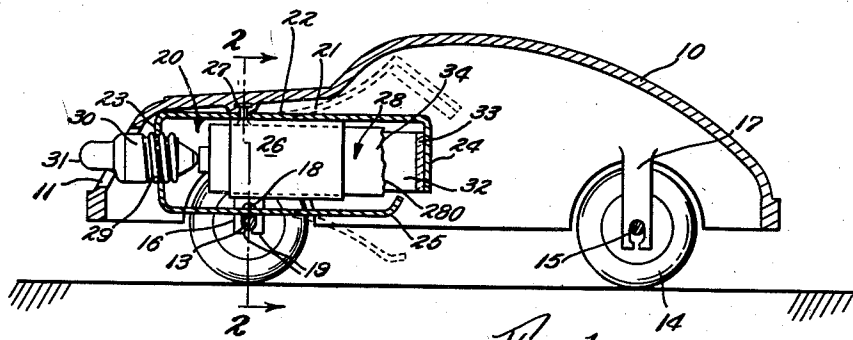


Fig. 1

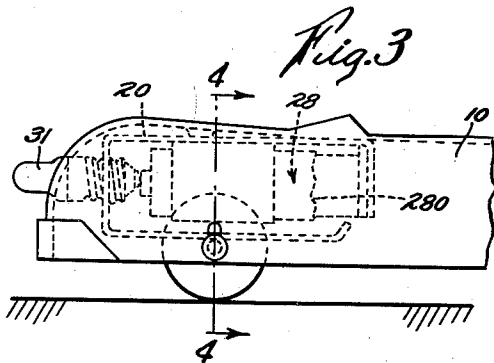


Fig. 3

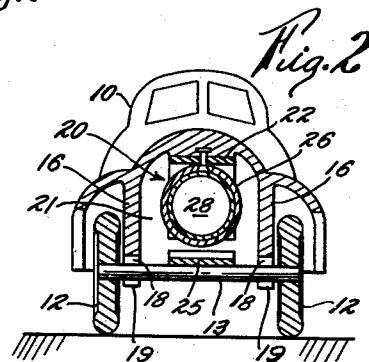


Fig. 2

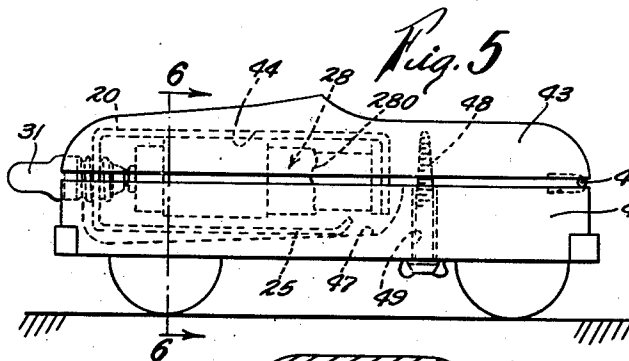


Fig. 5

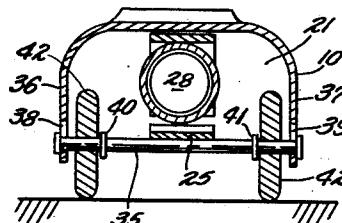


Fig. 4

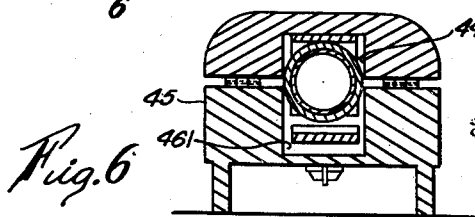


Fig. 6

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This invention relates to toys and is particularly directed to a toy vehicle having an electrical illuminating device associated therewith.

An object of the invention is to provide an electrical illuminating device for a toy which is normally maintained in inoperative condition and is actuated only when pressure is exerted upon the toy at times when it is played with by a child whereby an attractive light action is provided for the toy during play whilst insuring an inoperative condition for the electrically energized means during periods of non-use of the toy when electrical energy may be conserved and replenished.

Another object of the invention is to provide a toy having a relatively movable body member and a running gear portion which are maintained in relative spaced apart positions by a resilient switch arm which acts, upon manual depression of the body member, to close an electrical circuit serving the illuminating device for the toy.

A further object of the invention is to provide in a toy a simplified electric switch for an illuminating device which cooperates with the relatively movable running gear portion and the body member of the toy to provide a flexible mounting for the toy body.

Other objects will be apparent from the following specification and drawings wherein:

Fig. 1 is a vertical section through the longitudinal center of a toy vehicle showing my illuminating device incorporated therein; the conventional battery and lamp being illustrated in elevation.

Fig. 2 is a cross-sectional view taken on line 2-2 of Fig. 1.

Fig. 3 is a fragmental, side elevation of a toy vehicle showing a modification of my invention.

Fig. 4 is a cross-sectional view taken on line 4-4 of Fig. 3.

Fig. 5 is a side elevational view of a further modified form of my invention.

Fig. 6 is a cross-sectional view taken on line 6-6 of Fig. 5.

The embodiment of my invention is illustrated in connection with toy vehicles and as illustrated in Figs. 1 and 2 of the toy may have a hollow body member 10 preferably made of molded plastic material and having an opening 11 formed in its front portion. A simulated running gear is provided for supporting said body upon any suitable surface and comprises a pair of front wheels 12-12 on a common axle 13, and a similar pair of rear wheels as 14 secured to a common axle 15. The front axle is mounted

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beneath the body by a pair of depending struts 16-16 integrally molded to the interior of the body, while the rear axle 15 is supported by similar struts as 17. The front axle 13 is mounted by the struts to the body member for limited vertical movement relative to the body by means of vertical, open-ended slots 18-18 formed transversely through the lower ends of the struts 16-16 and through which the ends of the axle 13 freely pass. The lower ends of the slots may be restricted or closed by inwardly extending lugs 19 formed by application of heat and pressure on the divided strut ends at the mouths of the slots, after insertion of the axle therein.

A battery holder 20 is disposed in a forward cavity 21 of the body member and is preferably constructed from a strip of spring metal bent in a generally rectangular form so that it has an upper portion 22 connected to a front portion 23 and a rear portion 24, the lower end of said front portion being connected to a horizontally disposed circuit carrying switch arm portion 25. A battery receiving tubular section 26 is secured beneath the upper portion 22 of the strip material by soldering, or the like and said upper portion and the tubular section are secured to the body member of the toy by a rivet which passes through aligned openings formed therein and which, has a headed end 27 sunk in the material of the molded body. The resilient strip is sprung outwardly out of rectangular shape during manufacture so that when the holder is mounted within the toy body the arm 25 thereof will exert sufficient downward pressure upon the axle 13 to maintain the axle in the lowermost portion of the vertical slots 18. In this position (Fig. 1) the free end of the switch arm 25 will normally be out of contact with a conventional dry cell battery 28 held in the tubular section 26 of the holder.

The forward portion 23 of the strip is provided with an aperture 29 into which the base 30 of a suitable lamp 31 is threaded so that the central terminal of the lamp is in contact with the central terminal of the battery 28. As illustrated in Fig. 1 the front end of the lamp projects through the opening 11 in the body member which provides a cooperative means in the automobile body for securing illumination from the lamp that will be visible exteriorly of said body. The bottom of the cup-shaped terminal 32 of the battery is electrically insulated from the rear portion 24 of the holder by a fiber strip 33 which is glued or otherwise fastened to the interior surface of said rear portion. An end of the usual

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insulating sleeve 34 of the battery is torn away at 280 so that the free end of the switch arm 25 may, when pressed upwardly by manual depression of the automobile body, come in contact with the cooperating terminal 32 of the battery thus closing an electrical circuit to the lamp.

It will therefore be noted that the switch arm 25 will bias the running gear and the body member of the toy vehicle to the normal spaced apart positions illustrated in Fig. 1 wherein the switch arm 25 will be out of contact with the cup-shaped battery terminal to render the lamp inoperative whilst maintaining the running gear axle 13 in a resilient position at the lowermost points in the vertical slots 18 of the body struts. When manipulating pressure is exerted downwardly upon the body member 10, its force overcomes the bias exerted by the arm 25 upon the running gear, whereby the running gear is moved in the slots toward the body and the free end of the switch then comes in contact with the casing terminal 32 of the battery to close the electric circuit to the lamp 31, said circuit consisting of battery 28, central battery terminal, central lamp terminal, lamp 31, threaded lamp cup, forward portion 23 of holder 20, switch arm 25, and cup-shaped battery terminal. As illustrated in dotted lines in Fig. 1 the resilient arm 25 and the resilient upper portion 21 of the battery holder may be moved outwardly so that the battery 28 may be slid from the tubular section for replacement. It will also be noted that lamp 31 may be turned against the battery so that the latter will be firmly secured between the insulated end portion 24 of the holder and said lamp.

A modified form of my invention is illustrated in Figs. 3 and 4 of the drawing wherein there is shown a hollow body member 10 of a toy vehicle having a battery holder 20 mounted in its front cavity 21. The running gear for supporting the body 10 comprises an axle 35 which extends between the side walls 36 and 37 of the body and passes through closed, vertically extending slots 38 and 39 formed in the said side walls 36 and 37, respectively. The ends of the axle are provided with shoulders to preclude sidewise movement of each of a pair of spaced wheels 42-42 mounted on said axle. As in the case of the preferred form the resilient arm 25 of the battery holder exerts a downward force on the axle to maintain the axle in the lower portions of the slots 38 and 39. Also downward pressure on the body will overcome the resistance of spring arm 25 and permit its contact with the battery 28 to close the circuit to lamp 31.

In Figs. 5 and 6 I have shown, a further modification of my toy vehicle wherein the numeral 43 indicates a body member having a cavity 44 formed therein for receiving the identical battery holder 20 of the devices illustrated in Figs. 1-4. A simulated running gear 45 supports the body member and is secured thereto by a hinge 46 located at the rear of the vehicle which provides relative swinging movement between the running gear 45 and the body member 43. A slot 461 is routed out of the running gear to receive the lowermost portion of the battery holder, the bottom 47 of the slot being normally in contact with the lower surface of the switch arm 25. Relative outward movement of the body member and the running gear is limited by a set screw 48 which freely passes through a vertical bore 49 formed through the running gear section and which has its upper end threaded in the body member 43.

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The resilient arm 25 is sufficient to maintain the running gear section of the body member in the normal spaced apart positions illustrated in Fig. 5 wherein the arm is out of contact with the battery 28. Downward pressure upon the body member 43 will overcome the pressure exerted by the spring arm 25 causing the sections to move together and closing the circuit to the lamp 31.

What is claimed is:

1. In a toy the combination of a body member having a cavity formed therein, a simulated running gear for supporting said body member, an electric circuit carrying battery holder disposed in the cavity, a lamp secured to the holder and projecting exteriorly of the body member, a switch arm on the holder disposed between the body member and the running gear, said arm being adapted to normally hold said body member and running gear in resilient spaced apart positions and upon depression of the body member adapted to close said electric circuit to the lamp.

2. In a toy the combination of a body member having a cavity formed therein, a simulated running gear mounted beneath the member for limited vertical movement relative thereto, an electrical circuit carrying battery holder disposed in the cavity, a lamp secured to the holder and projecting therefrom to position exteriorly of the body member, a resilient switch arm on the holder and in surface contact with the running gear and adapted to normally maintain the body member and running gear in resilient spaced apart relationship and to close said electric circuit to the lamp upon downward pressure upon the body member.

3. In a toy the combination of a body member having a cavity formed therein, a simulated running gear mounted beneath the member for limited vertical movement relative thereto, an electrical circuit carrying holder disposed in the cavity, a battery in the holder, a lamp secured in the holder in electrical contact with the battery, said body having an opening therein for securing illumination from the lamp exteriorly of the body member, a pressure responsive switch arm secured on the holder beneath the battery, said arm being in contact with the running gear and adapted to bias said gear in a vertical direction away from the body member, whereby upon downward pressure on the body member the arm contacts the battery and closes said electric circuit to the lamp.

4. In a toy the combination of a body member having a cavity formed therein, a running gear beneath the body member, means for mounting the gear to the body to provide limited, vertical movement therebetween, an electrical circuit carrying holder disposed in the cavity, a battery in the holder, a lamp secured to the holder in electrical contact with the battery, said body having an opening therein for securing illumination from the lamp exteriorly of the body member, and pressure responsive switch element on the holder and interposed between the battery and the running gear and adapted to bias said running gear in a direction away from the body member.

5. In a toy the combination of a body member having a cavity formed therein, a simulated running gear for supporting said body member, means for loosely mounting said gear to the body for providing limited movement therebetween, a battery held in the body cavity, an illuminating means in electrical contact with the battery, and a resilient switch element interposed between the

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body member and the running gear and adapted to complete an electric circuit between the illumination means and the battery when the member and gear are pressed together against the bias of the switch element.

6. In a toy vehicle the combination of a body member having a cavity formed therein, a running gear beneath the body member, means for loosely mounting said gear to the body for providing limited movement therebetween, a holder mounted within the cavity, a battery in the holder, a lamp secured in the holder with one terminal thereof in electric contact with a terminal of the battery, said body having an opening therein for securing illumination from the lamp exteriorly of the said member, and a resilient switch element mounted on the holder and interposed between the holder and the running gear and adapted to bias said gear in a direction away from the body member and to complete an electric circuit between the lamp and the battery when the body member is pressed downwardly upon the gear and against the bias of the switch element.

7. A toy vehicle having a hollow body member, a simulated running gear loosely mounted on the body member for vertical shiftable movement relative thereto, a holder retained within

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the said body member, a resilient switch arm on the holder and yieldingly urging the body vertically upwardly of said running gear, a battery in said holder, a lamp in said holder, one terminal of said lamp and one pole of said battery being electrically connected, said switch arm arranged and adapted to effect electric connection between the remaining terminal of said lamp and remaining pole of said battery as the running gear and body are pressed together against the yielding resistance of the switch arm.

8. In a toy vehicle, a body having a cavity, a holder disposed in said cavity, a battery and a lamp supported in the holder with one terminal of the lamp in electric communication with one pole of the battery, a resilient switch arm on said holder arranged and adapted for movement to establish electric connection between the remaining terminal of the lamp and the remaining pole of the battery, and a vertically shiftable, simulated running gear for supporting the vehicle body, said resilient switch arm being biased to open the circuit and serving to normally support the body in yieldably spaced relation to the running gear.

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No references cited.