

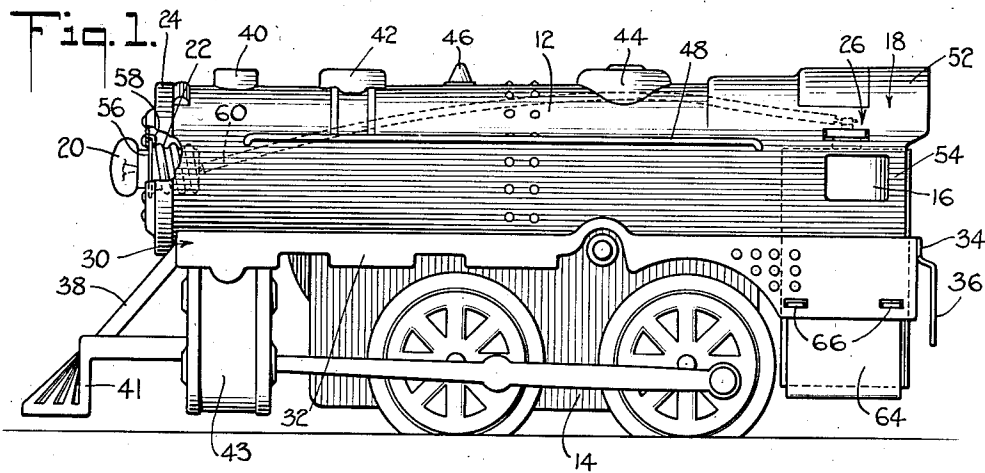
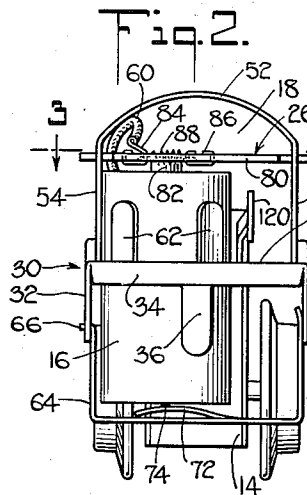
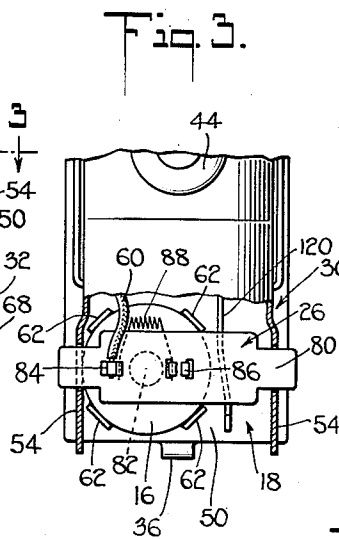
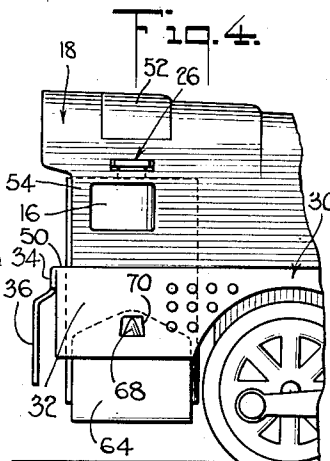
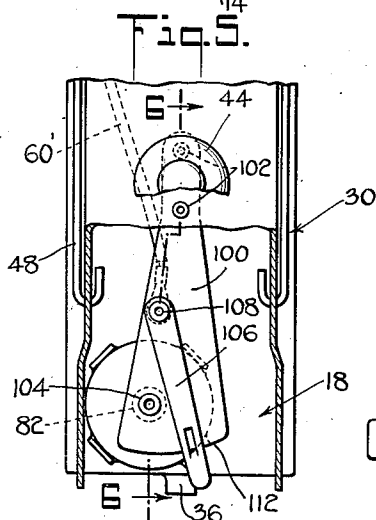
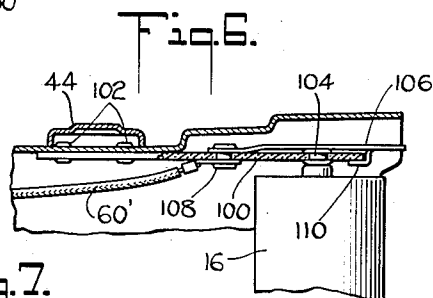
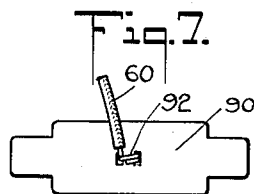
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BATTERY LIGHTED LOCOMOTIVE TOY

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BATTERY LIGHTED LOCOMOTIVE TOY

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6 Claims. (Cl. 46—203)

This invention relates to battery operated electrically lighted toys and more particularly to a battery lighted locomotive toy.

The primary object of my invention is to generally improve battery operated electrically lighted toys. A more particular object of my invention resides in the provision of a battery operated electric lighting system for a toy locomotive of the mechanically operated or spring drive type.

Further objects of my invention are to provide room for the battery cell while permitting the motor mechanism to project upwardly into the boiler shell; to help balance the weight of the locomotive about the driving wheels, and to increase the weight and improve traction of the locomotive; to dispense with the necessity of connecting and disconnecting conductors between the locomotive and the tender or other attached cars; to make the lighting system operative when the locomotive is off the track so that it may be displayed on the counter of a store, or used when running the toy on the floor instead of on a track; to improve the appearance of the locomotive by filling in the under-carriage structure; to provide a battery support affording ready removal and replacement of the battery cell, and effective and dependable electrical contact with the battery cell; to devise a simple wiring system necessitating only a single short conductor and dispensing with soldering; and to combine with the lighting system a switch providing either bright, dim or no energization of the headlight as may be desired.

To the accomplishment of the foregoing and such other objects as will hereinafter appear, my invention resides in the toy locomotive and battery lighting elements and their relation one to the other, as hereinafter are more particularly described in the specification and sought to be defined in the claims. The specification is accompanied by a drawing, in which:

Fig. 1 is a side elevation of a locomotive toy embodying features of my invention;

Fig. 2 is a rear elevation thereof;

Fig. 3 is a partially sectioned plan view sectioned in the plane of the line 3—3 of Fig. 2;

Fig. 4 is a side elevation of the locomotive cab looking from the side opposite that shown in Fig. 1;

Fig. 5 is a partially sectioned plan view showing a modified form of switch mechanism;

Fig. 6 is a vertical section taken in the plane of line 6—6 of Fig. 5; and

Fig. 7 is a modified switch element for use in the structure of Figs. 1 through 4.

Referring to the drawing and more particularly to Figs. 1 through 4 thereof, the toy locomotive may be conventional in comprising a boiler shell 12 beneath which there is mounted spring driven locomotive works 14, the upper portion projecting into the hollow boiler shell 12. Because of the resulting compact and crowded construction, it is not convenient to mount a battery cell in the boiler shell, and in accordance with the present invention, a battery cell 16 is mounted in an upright position in the cab 18 of the locomotive. The locomotive is provided with a headlight 20, preferably of the flashlight battery type, received in a socket 22 mounted on the front header 24 of the boiler shell. The energization of headlight 20 is controlled by appropriate switch mechanism 26 located in the cab of the locomotive and preferably contacting directly with the battery cell 16.

Considering the structure in greater detail, the locomotive body is made up of a pressed sheet metal chassis member 30, the side edges of which are bent downwardly to form side flanges 32, the rear edge of which is bent downwardly to form a rear flange 34 and a coupler 36, and the front portion of which is bent downwardly to form the bumper supports 38. The bumper 41 and pistons 43 may be formed separately and are mounted on the chassis by conventional tongue and slot connections. The boiler shell 12 may be formed out of a single piece of sheet metal bent to an inverted trough-shape and having its lower side edges secured to the top surface of chassis 30 by tongue and slot connections. The boiler shell may, if desired, be surmounted with pressed sheet metal elements simulating a smoke stack 40, steam domes 42 and 44 and a bell 46. Hand rails 48 may also be provided.

The cab 18 includes a floor or bottom wall 50 formed by the chassis member 30 and a roof 52 and side walls 54 formed by a rearward continuation or extension of the boiler shell 12. The locomotive works 14 may be of conventional type and need not be described in detail. It may be mentioned, however, that the bottom of the chassis member 30 is cut away to receive the upper portion of the locomotive works, the latter passing upwardly into the hollow boiler shell 12.

The lamp socket 20 may be of any desired type and in the present case comprises a threaded sleeve having an outwardly flanged forward edge

56 held in place by lugs 58 bent inwardly from the front wall of the boiler header or closure 24. The socket is thus grounded directly on the body of the toy. The rear end of the socket is provided with an insulation disc having a center contact, not shown, through which center contact there is connected a conductor 60.

Battery cell 16 is of the conventional flashlight type and is pushed upwardly into the cab through a mating aperture cut in the floor 50 of the cab. A part of the cut away material is preferably bent upwardly to form the support lugs 62, best shown in Figs. 2 and 3. These support lugs may, if desired, be so positioned as to bear inwardly against the cardboard wrapper surrounding the zinc casing of the cell and thus help to position the cell fixedly in place.

The cell is additionally supported by a U-shaped battery support or strap 64 which is preferably detachably secured to the depending side flanges 32 of the locomotive chassis. In the present case, one of the side walls is provided with a pair of outwardly bent lugs 66 which pass through mating slots in one of the side flanges 32, as is best shown in Figs. 1 and 2. The other side wall is preferably provided with an outwardly struck tab 68 cooperating with a mating slot or window 70 as is best shown in Figs. 2 and 4. The bottom wall of the battery support is preferably struck upwardly to form a resilient contact finger 72, having an upward dot or teat 74 for contacting in a dependable manner with the exposed bottom of the battery cell. It will be understood that to change the battery cell, it would be a simple matter to press the side walls of the support together enough to release the latch or tab 68. While open, the support may be swung downwardly about the lugs 66 and freed entirely from the locomotive. The cell is then removed and replaced by a new one, after which the lugs 66 of the support may be engaged in the mating slots and the opposite side of the support then pressed upwardly until latch 68 snaps into position in the slot 70.

The switch mechanism 26 is embodied in the present case by a single strip of insulation 80 which, as is best shown in Fig. 3, is narrowed at the ends thereof. The insulation strip passes slidably through mating slots in the side walls 54 of the cab. In effect, a slide is provided which may be moved from one side to the other by pressing upon the outwardly projecting ends, and the motion of which is limited by the shoulders formed within the reduced ends of the slide. This insulation slide is so located as to bear against the positive pole 82 of battery cell 16. The slide 80 is provided with spaced contacts 84 and 86 which pass through slots in the slide and are clinched in place. These contacts are interconnected by a small bare wire resistor 88, the ends of the resistor being pinched by the contacts and thus held without soldering. One of the lugs, in this case the lug 84, is also connected to the end of conductor 60 which extends to the headlight.

It will be readily appreciated that by leaving the slide in mid-position, as shown in Figs. 2 and 3, the battery circuit is opened and the light extinguished. By moving the slide so as to bring contact 84 against pole 82, the headlight is energized with the full potential of the battery cell, resulting in bright illumination. If the switch is moved in the opposite direction, bringing the contact 86 against the pole 82, the light is ener-

gized through resistor 88, resulting in dim illumination.

A generally similar switch construction may, if desired, be used in simplified form when no choice of bright and dim illumination is to be provided. For this purpose, only a single contact is needed and the resistor may be omitted. Such a construction is shown in Fig. 7, in which the switch includes the insulation strip 90 and a single contact 92 formed by coiling the end of wire 60 around through slots in slide 90.

A modified form of switch arrangement is shown in Figs. 5 and 6. In this construction, a slab or strip of insulation 100 is stationarily mounted at the top of the cab, as by riveting the forward end of the insulation to the top of the boiler shell by means of rivets 102 located within the steam dome 44. The insulation member 100 is provided with a contact eyelet 104, the lower side of which bears against the pole 82 of the battery cell and the upper side of which acts as a switch contact cooperating with a metallic switch lever 106. The forward end of switch lever 106 is pivoted on the insulation base 100 by means of an eyelet 108 to which eyelet the conductor 60' is connected. It will be evident that upon moving the switch lever 106 from the "off" position shown in Fig. 5 to the position above eyelet 104, the battery circuit will be closed and the headlight energized. To insure a firm contact between the switch lever and contact 104, a finger 110 may be struck downwardly from the movable end of the switch lever and positioned for sliding engagement with the bottom of the insulation base 100, as is best shown in Fig. 6. The end 112 of the insulation base is, of course, shaped on an arc having pivot 108 as a center.

The battery cell 16 is shown located at one side of the cab in order to provide ample clearance for control lever 120 which locks or releases the motor of the locomotive. If no such lever is provided, or if the lever is located at the side wall of the cab, the battery cell may, of course, be located centrally in the cab and the switch mechanism modified to properly coact with the battery cell in its new location.

It is believed that the mode of constructing and using, as well as the many advantages of my improved lighting system will be apparent from the foregoing detailed description thereof. Ample clearance is retained in the boiler shell for the locomotive works, the battery being located in the cab. The battery increases the weight and traction of the locomotive and its location in the cab is particularly advantageous because it helps balance the weight of the locomotive about the wheels. The lighting system being complete and self-contained in the locomotive, no complication is introduced when coupling or uncoupling the locomotive from the tender or remaining cars of the train. The light may be energized even when the locomotive is off the track, this being of value when displaying the toy in a store, and also because it permits a child to play with the toy upon the floor without setting up a track system. The switch mechanism is conveniently operable, is located in the cab, and is extremely simple and inexpensive. With but slight change in construction, a choice of either bright or dim illumination is made available. The battery support here employed improves the appearance of the locomotive because it fills in the sides of the locomotive at the under-carriage. The battery

is conveniently replaceable. Dependable contact is provided at the bottom and top of the battery without close manufacturing tolerance. Only a single wire is needed and this may be secured in place if desired without necessitating soldering. The battery is held securely in place and is substantially completely concealed by the cab and underslung battery support.

It will therefore be apparent that while I have shown and described my invention in preferred forms, many changes and modifications may be made in the structures disclosed without departing from the spirit of the invention, defined in the following claims.

I claim:

1. A battery lighted mechanically operated vehicle toy comprising a toy body, a grounded socket and a lamp of the flashlight battery type mounted on the toy body, the floor of the toy body being cut away to receive a flashlight battery cell in an upright position, a generally U-shaped battery support detachably mounted beneath the toy body between the side walls thereof, and provided with a spring contact bearing against and grounding the lower end of the cell, switch mechanism in the toy body contacting with the upper end of the cell, said switch mechanism including a strip of insulation passing through slots in the side walls of the toy body and slidable transversely of the toy, said slidable strip being provided with spaced contacts interconnected by a small resistor, and a single conductor extending from one of said contacts to the ungrounded contact of the lamp socket, whereby bright, dim, or no energization of the lamp may be provided by reciprocation of the strip.

2. A battery-lighted mechanically operated toy locomotive of small size, comprising a sheet metal chassis member having downwardly turned side flanges, a boiler shell surmounting said chassis member, motor works mounted beneath said boiler shell and extending upwardly into the boiler shell, a grounded socket and lamp of the flashlight battery type mounted on the boiler shell, a cab having roof and side walls formed at the rear end of the boiler shell, said chassis member acting as the floor of said cab, said floor being apertured to receive a flashlight battery cell in an upright position, fingers struck upright at said aperture for bearing against the cylindrical side wall of said cell, a bottom contact member secured to a chassis flange and having a part bearing against and grounding the lower end of the cell, said contact member being movable away from beneath the bottom end of the cell for insertion or removal of the cell, switch mechanism in the cab contacting with the upper end of the cell including a strip of insulation extending across the cab and slidable therein, said slide carrying a contact movable into and out of engagement with the top of the cell, and a conductor extending from said contact to the ungrounded terminal of the lamp socket.

3. A battery lighted mechanically operated toy locomotive comprising a boiler shell, motor works mounted therebeneath and extending upwardly into the boiler shell, a grounded socket and a lamp of the flashlight battery type mounted at the forward end of the boiler shell, a cab formed at the rear end of the boiler shell, said cab including a floor, a roof and side walls, the side walls extending below the floor, the floor being cut away to receive a flashlight battery cell in an upright position, a generally U-shaped

battery support separate from the motor works and detachably mounted between the side walls of the cab behind the locomotive works and directly beneath the cab, said support being provided with a spring contact bearing upwardly against and grounding the lower end of the cell, switch mechanism in the cab contacting with the upper end of the cell, and a single conductor extending from the switch mechanism to the ungrounded contact of the lamp socket.

4. A battery lighted mechanically operated toy locomotive of small size comprising a boiler shell, motor works mounted therebeneath and extending upwardly into the boiler shell, a grounded socket and a lamp of the flashlight battery type mounted on the boiler shell, a cab formed at the rear end of the boiler shell, the floor of said cab being cut away to receive a flashlight battery cell in an upright position, a support means directly beneath the cab bearing upwardly against and grounding the lower end of the cell, switch mechanism in the cab contacting with the upper end of the cell, said switch mechanism including a strip of insulation extending across the cab from side to side and slidable in the side walls thereof, said slidable strip carrying a contact movable into or out of engagement with the top of the cell upon reciprocation of the slide, and a single conductor extending from said contact to the ungrounded contact of the lamp socket.

5. A battery lighted mechanically operated toy locomotive comprising a boiler shell, motor works mounted therebeneath and extending upwardly into the boiler shell, a grounded socket and a lamp of the flashlight battery type mounted at the forward end of the boiler shell, a cab formed at the rear end of the boiler shell, said cab including a floor, a roof and side walls, the side walls extending below the floor, the floor being cut away to receive a flashlight battery cell in an upright position, a generally U-shaped battery support detachably mounted between the side walls of the locomotive directly beneath the cab and provided with a spring contact bearing against and grounding the lower end of the cell, switch mechanism in the cab contacting with the upper end of the cell, said switch mechanism including a strip of insulation extending across the cab and reciprocable in slots in the side walls of the cab, said slidable strip carrying a contact movable into or out of engagement with the top of the cell upon movement of the strip, and a single conductor extending from said contact to the ungrounded contact of the lamp socket.

6. A battery-lighted mechanically operated toy locomotive of small size, comprising a sheet metal chassis member having downwardly turned side flanges, a boiler shell surmounting said chassis member, driving wheels, motor works therefor mounted beneath said boiler shell and extending upwardly into the boiler shell, a grounded socket and lamp of the flashlight battery type mounted on the boiler shell, a cab having roof and side walls formed at the rear end of the boiler shell, said chassis member acting as the floor of said cab, said floor being apertured to receive a flashlight battery cell in an upright position, the upper part of the cell being housed in the cab and the lower part of the cell being disposed below the cab and behind the driving wheels and motor works, a bottom contact member separate from the motor works and secured to a chassis flange beneath the cab

and behind the motor works, said contact member having a part bearing upwardly against and grounding the lower end of the cell regardless of whether or not the cell is provided with its usual
5 cardboard jacket, said contact member being movable independently of the motor works to-

ward or away from beneath the bottom end of the cell for removal and replacement of the cell, and a conductor extending from the upper end of the cell to the ungrounded terminal of the lamp socket.

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