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AUTOMATIC SAFETY CUT-OUT FOR TOY RAILWAYS AND THE LIKE

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Fig. 1.

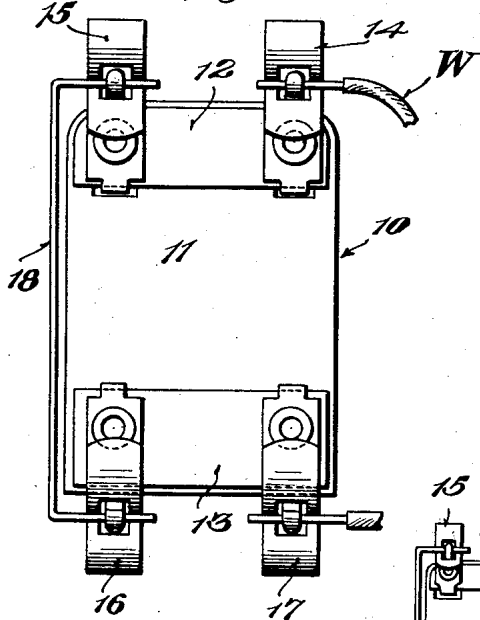


Fig. 2.

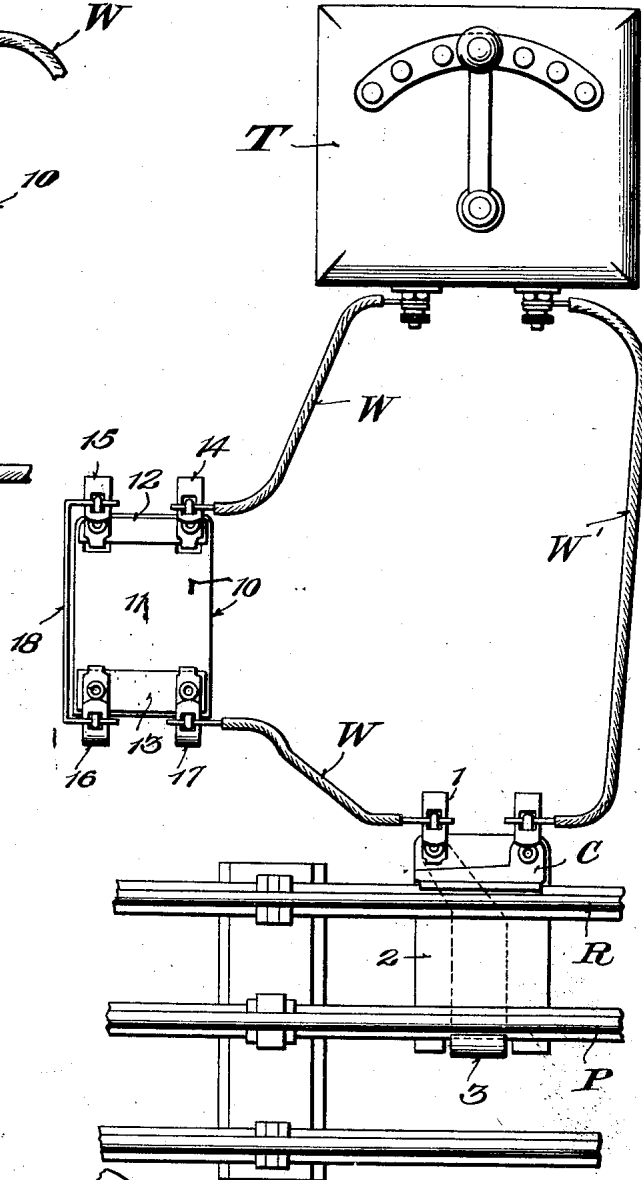
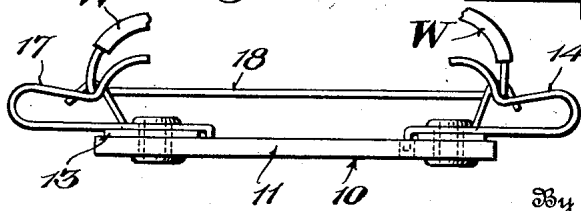


Fig. 3.



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# UNITED STATES PATENT OFFICE

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## AUTOMATIC SAFETY CUT-OUT FOR TOY RAILWAYS AND THE LIKE

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This invention relates to automatic safety cutouts for toy railways and the like.

Toys of this character now in general use employ a direct wire connection from the transformer to the toy requiring a certain voltage to cause it to perform its special duty. That is to say, electric trains and the like usually operate on a reduced voltage say from 5 to 14 volts, stepped down from an A. C. house line by a transformer, and while all parts of the system are operating properly they are protected against damage. But, if for any reason the toy should develop a short circuit for any length of time, with the electric current flowing into the transformer both the transformer and the toy would be seriously damaged if not completely demolished.

Accordingly, the present invention has in view the provision of an automatic safety cutout so constructed and mounted as to reduce the possibility of short circuiting to a minimum and which includes a fusible connector which, should a short circuit occur, will quickly fuse thereby breaking the circuit and prevent damage to the transformer as well as of other electrical units included in the circuit.

Another object of the invention is to provide an automatic fusible wire cutout mounted on an insulated base having one connection only whereby if a short circuit occurs the fusible wire will quickly become heated and melt thereby breaking the circuit and preventing damage to the transformer or the toy.

A further object of the invention is to provide a simple practical and reliable construction that is economical to make, easy to apply, and which also facilitates the replacement of the fusible unit.

With the above and other objects in view which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

A preferred and practical embodiment of the invention is shown in the accompanying drawings, in which:

Figure 1 represents a top plan view of the device constituting this invention.

Fig. 2 is a similar view showing a transformer electrically connected with the third rail of the toy railway with the cutout constituting this invention embodied in said connection; and

Fig. 3 is an end elevation of the device constituting the invention.

Similar reference characters designate corresponding parts throughout the several figures of the drawings.

A distinctive feature of the present invention is to provide a cutout unit including an insulating member which carries fuse and line-wire terminal elements which permit of the ready insertion of the unit in one of the leads between the transformer and the consuming electrical unit. To that end it is proposed to mount the terminals on a suitable base in a manner to prevent the possibility of short circuiting between the metallic parts.

In the embodiment illustrated, the present invention is used in conjunction with an electric circuit including a transformer T and a third rail track which comprises a power rail P, track rails R, and main feed wires or leads W and W', the wire W constituting the live wire while the wire W' is the ground wire. In this instance, the ground wire is shown connected at one end with the transformer T and at its other end with one of the track rails R through the metallic contact C of the detachable track clip.

The safety cutout unit is designated generally as 10 and is shown interposed in the wire W which connects the transformer with the power rail P through a metallic contact finger 1 carried by the insulated base 2 of the device and engaged at 3 with the power rail P.

The unit 10 comprises a base member 11 of suitable insulating material having spaced metal plates 12 and 13 mounted thereon preferably at opposite ends thereof and which connect the binding posts or terminals 14 and 15 and 16 and 17. The plate 12 connects terminals 14 and 15 while plate 13 connects terminals 16 and 17. It will thus be seen that the said terminals at one end of the plate are

completely insulated from those at the other end, and are connected only by a fusible connector here shown in the form of a wire 18 of a material which melts at a predetermined temperature and which connects the posts or terminals 15 and 16. Post 14 is connected with the section of the conductor wire W which is attached to the transformer T while post 17 is connected with the other member of the wire W which is connected with the clip or binding post 1 whereby current is conveyed to the power rail P and from said rail passes to the toy to be electrified and which is not shown as it constitutes no part of this invention.

It will thus be seen that the current enters through the transformer T and flows through the wire W to the post 14, then through the metal connector 12 to post 15 and from post 15 through the fusible wire 18 to post 16, then through metal connector 13 to the post 17, through the lower section of wire W to the clip 1 which is electrically connected with the power rail P. The wire W' which connects the transformer T with the track rail R constitutes the ground wire.

The present cutout device therefore includes an insulated member carrying spaced metallic terminal plates 12 and 13 each having a wire terminal clip and a fuse terminal clip secured thereto so as to facilitate the attachment of the fuse wires as well as the fusible element. The plates 12 and 13 may be riveted or otherwise secured to the insulated base thereby providing a strong and practical device.

From the foregoing it will be apparent that the present invention provides an automatic safety cutout wherein all the parts are so mounted as to protect the toy and the transformer in case of short circuiting and yet at the same time provides for the secure holding of all the live wires to the clip body 11.

Without further description it is thought that the features and advantages of the invention will be readily apparent to those skilled in the art, and it will of course be understood that changes in the form, proportion and minor details of construction may be resorted to, without departing from the spirit of the invention and scope of the appended claims.

I claim:

1. An automatic safety cutout unit for electrical toys comprising an insulating base, conductor strips secured at opposite edges of said base, a pair of wire terminal clamping clips electrically connected to each strip, and a fusible member adapted to be detachably and positively connected to opposite clips of each pair.

2. A fuse holder for electrical toy circuits comprising an insulated base, spaced plate members at opposite sides of said insulated base, a pair of spring terminal clamps for

each plate, fastening means common to each clip and plate for securing both the clips and the plate to the insulated base.

3. An automatic safety cutout for electrical toys comprising an insulating base, metallic strips arranged at opposite edges of the base, a pair of spring terminal clips in contact with each of said strips, fastenings passing through each pair of clips and the strip connecting them to secure both the clips and the strips to the base, locking prongs on said clips for further locking the same to said base, and a fusible member adapted to be placed between opposite clips of each pair.

In testimony whereof I hereunto affix my signature.

HARRY S. BECKER.

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