

May 12, 1931.

H. S. BECKER

1,804,491

EQUIPMENT CONTROLLING UNIT

Filed Oct. 8, 1930

2 Sheets-Sheet 1

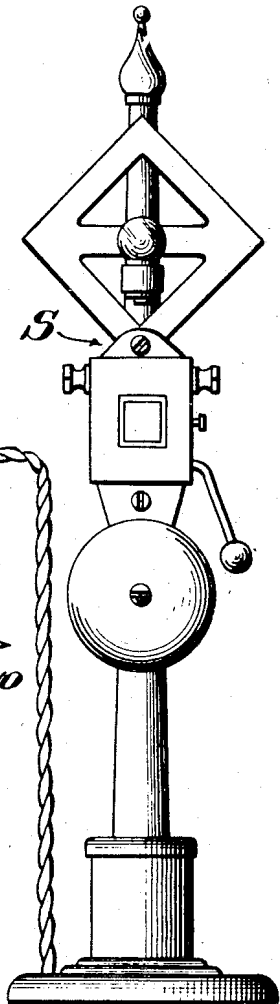


Fig. 1.

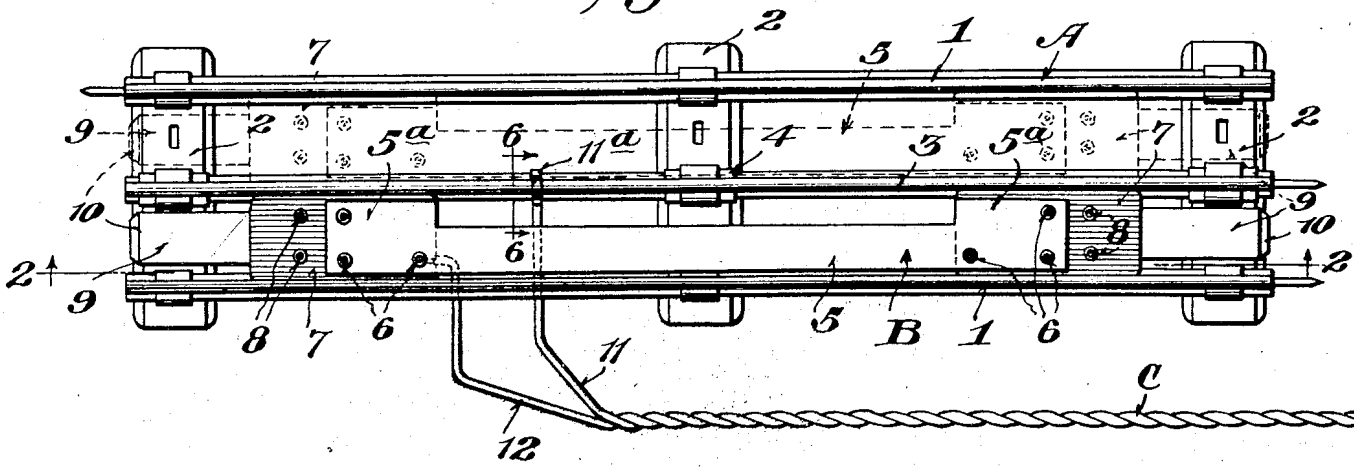


Fig. 2.

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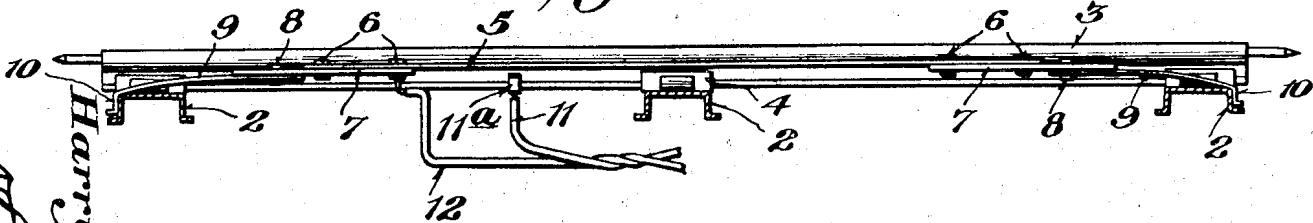


Fig. 6.



Fig. 8.

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2 Sheets-Sheet 2

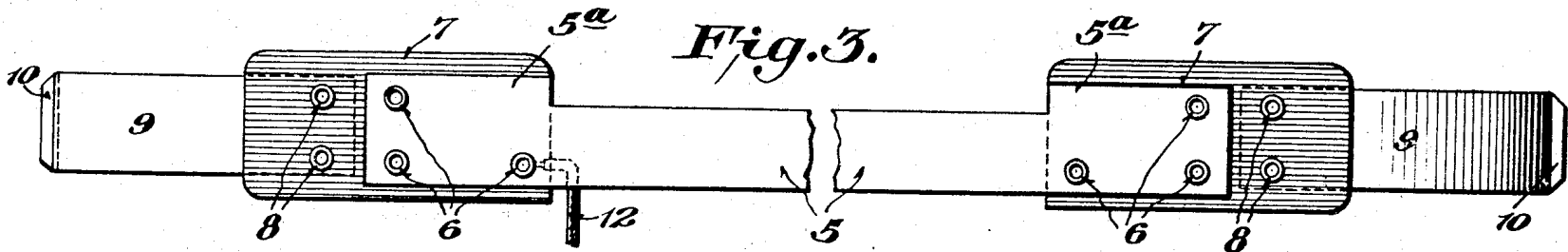


Fig. 3.

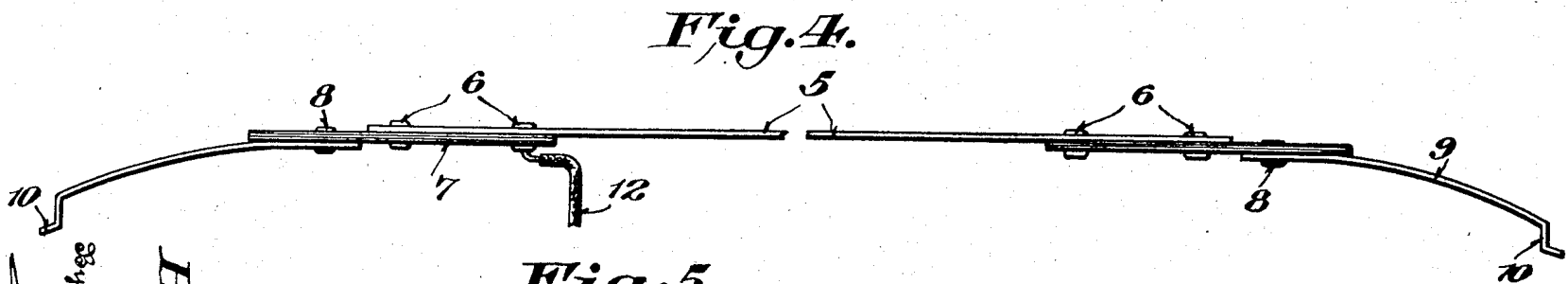


Fig. 4.

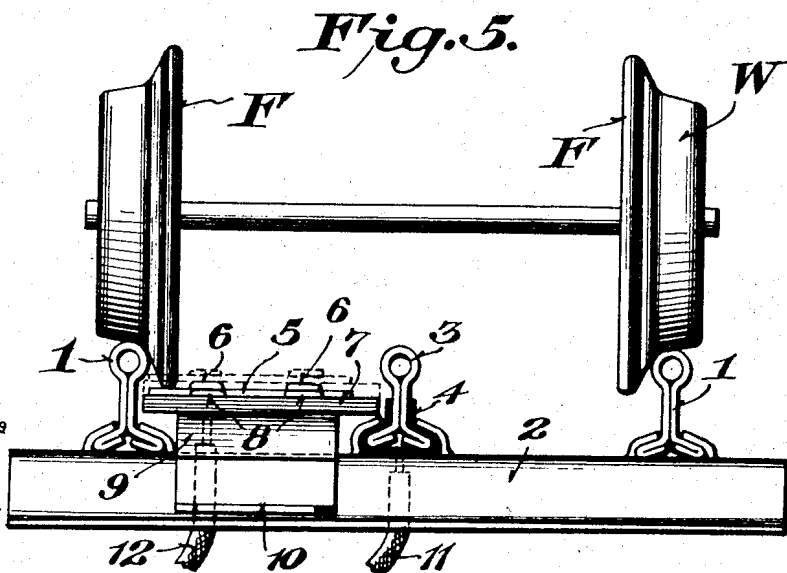


Fig. 5.

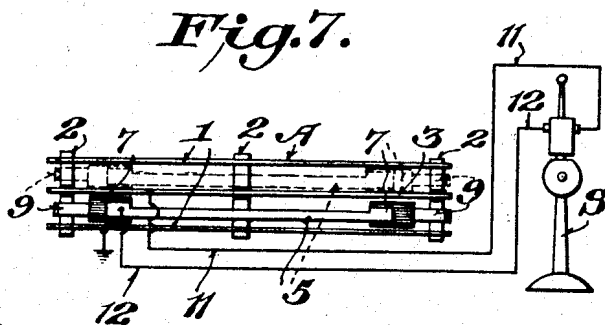


Fig. 7.

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# UNITED STATES PATENT OFFICE

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## EQUIPMENT CONTROLLING UNIT

Application filed October 8, 1930. Serial No. 487,355.

This invention relates to toy railways and more particularly to a novel means for controlling an electrical circuit to a signalling device or other toy railway equipment.

To that end the invention has as a general object a novel device in the form of a track attachment which may be fitted to any of the standard track sections generally used in connection with miniature track layouts, and which is controlled automatically by the passing of the wheels of the cars or train thereon to produce the novel use desired.

A primary object of the invention is to provide a universal attachment for standard toy electric track sections which may be used to operate either of the two types of signalling devices now generally known in the art. That is to say, the present attachment is adapted for use in connection with signals of the semaphore or crossing gate type, or visual or audible signals which require an intermittent supply of current. Heretofore, it has been necessary to provide a preconstructed unit involving a signal and a special track section equipped either to operate a signal by current supplied while the train is passing through the entire length of the special track section, or on the other hand where an intermittent type of current has been necessary, it has been the practice to place a device adjacent the track which would be intermittently struck by the wheels of the passing train to provide an intermittent source of current. With the present invention, however, the single attachment may be used to perform two dual functions of devices heretofore employed, while at the same time effecting considerable economy in the matter of manufacture and also giving a wider range of use to a single device than heretofore known since the present attachment can be applied to any standard track section by the user without the necessity of utilizing any special insulated track sections whatever.

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 is a plan view of a track section having the present improvement applied thereto and connected to a toy signalling device.

Figure 2 is a longitudinal sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a top plan view of the circuit controlling attachment.

Figure 4 is a side elevation of the attachment.

Figure 5 is an enlarged vertical cross sectional view illustrating the manner in which the wheels of the passing train close the circuit.

Figure 6 is a detail sectional view taken on the line 6—6 of Figure 1.

Figure 7 is a detail diagrammatic view illustrating the circuits involved.

Figure 8 is a detail diagrammatic view illustrating the manner in which the present attachment is applied to a signalling device, and showing that it is independent of any track section.

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

Heretofore it has been the general practice to use a special track section with one or more of the wheel bearing rails insulated from the ties and from connecting rails by means of fiber pins and the like, the said special track section having wires connected thereto leading to the signal or other piece of equipment to be controlled. When a train passed over the insulated rails of this special track section the signal or other device was actuated through the closing of the circuit. Such practice necessitated the removal of a standard track section and its replacement with a special insulated track section. The present invention aims to eliminate the necessity of a special track section by providing an attachment which may be readily and easily connected to any standard track sections as will be apparent from the following description.

Referring to the drawings, A designates a

standard track section including the wheel bearing rails 1—1 in metallic contact with the ties 2, and a third rail or current carrying rail 3 insulated from the ties as indicated at 4.

The present novel attachment is designated generally as B and is shown as connected by the wire cord C with a signal or equivalent device S. A distinctive feature of the attachment B is that it is not applied to the wheel bearing rails of the standard track section A, but is supported by engagement with the cross ties or sleepers thereof. Heretofore, where attachments have been used it has been customary to support them on the wheel bearing rails but the present invention connects the attachment to the ties, and at the same time makes it possible to disassociate the signal and its attachment from the track section in such a way that the attachment can be applied to any standard track section which includes the metallic wheel bearing rails in contact with a metallic tie and a third rail insulated from the metallic tie. The attachment B is universal or duplex in its fundamental characteristics since as it will be later observed the construction is such that when the attachment is applied as shown in full lines of Figure 1, the part 5 thereof will be engaged with the wheels of the train for an unbroken or continuous period of greater length than when the attachment is shown in the dotted line position of Figure 1 wherein only the spaced offset ends 5<sup>a</sup> of the member 5 are adapted for wheel engagement thereby providing spaced circuit closers which provide for an intermittent flow of current to the signal S.

Referring more particularly to the attachment B it will be observed that the same includes a metallic wheel contacting strip or plate 5 having at one side thereof an offset portion 5<sup>a</sup> and on its opposite edge a continuous straight side. Clearly the offset portion 5<sup>a</sup> may be duplicated as often as desired, but as shown, two offsets 5<sup>a</sup> are illustrated. This metallic plate or strip 5 is connected by suitable fastenings 6 at its opposite ends to the insulated strip members or bases 7, and said bases are in turn connected by fastenings 8 with spring attaching clips 9 having the downturned clamping ends 10. These clips 9 are adapted to engage over or with the sleepers or cross ties 2 of the track section. Thus, it will be apparent that the attachment B including the plate 5 may be readily mounted on any standard track section, and likewise detached when desired. It may be placed with the long edge adjacent one of the wheel bearing rails as shown in full lines in Figure 1 or it may be placed with the short edge constituted by the member 5<sup>a</sup> adjacent the other one of the wheel bearing rails as shown in dotted lines in Figure 1.

The signal or other piece of equipment des-

ignated generally as S may be a bell signal as shown, a lamp signal, semaphore, or the like. Whatever type the signal S may be it may be provided with a cord C containing the wires 11 and 12, the wire 11, for example may be provided with a clip 11<sup>a</sup> for detachably connecting the same directly with the charged third rail 3. This clip is preferably a piece of spring metal of substantially U- or channel-shaped formation having the holding flange 11<sup>b</sup> and the offset portion 11<sup>c</sup> for facilitating the removal thereof when desired. The wire 12 may be detachably connected with the plate 5 if desired, but as shown in the drawing it is secured to the plate 5 by one of the fastenings 6 for convenience so that the attachment may be connected with one of the wires of the signalling device leaving only the other wire 11 to be connected by the user to the third rail 3 after the unit B has been placed in a desired position between one of the wheel bearing rails and the current carrying rail.

When the attachment A is applied to the track section as shown in full lines in Figure 1, it will be apparent that the plate 5 is yieldingly mounted due to its being supported by the spring clips 9 so that it normally lies in the path of the flanges F of the wheels W of the car. When the flange or flanges F or a wheel or wheels running on the wheel bearings 1—1 contacts with and depresses the plate 5 it will be apparent that a circuit will be closed to the signal device S. As is well known the wheel bearing rails 1—1 mounted on the metallic ties 2 constitute one part of the electrical circuit while the insulated third rail constitutes the other part of the circuit for supplying propulsion current to the motor or locomotive. Therefore, since the wire 11 is connected to the charged third rail 3, when the flange of a wheel completes the circuit between the plate 5 and one of the wheel bearings 1, the circuit will be completed to the signal S or other piece of equipment.

In this way, the equipment will be actuated as long as the wheels of a passing train maintain the circuit closed between the wheel bearing rail and the plate 5. The length of the straight side of the plate 5 is sufficient to span the distance between the truck bearing the wheels of the cars, and, therefore, a continuous supply of current will be sent to the apparatus S as long as the train is passing over the section equipped with the unit B. If, however, the apparatus S is of a flashing nature and requires an intermittent supply of current, the unit B may be removed from the track section and replaced with its spaced parts 5<sup>a</sup>—5<sup>a</sup> next to the wheel bearing rail as shown in dotted lines in Figure 1. Thus, when the car wheels pass over the unit B the same will make contact only momentarily with the parts 5<sup>a</sup> thereby causing

an intermittent supply of current to the apparatus S. Thus the unit B will be seen to be of a universal nature both for a continuous or intermittent supply of current to an apparatus S.

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 attachment for standard railway track sections including a contact plate, insulated bases for mounting the plate at its ends, and spring clips carried by said insulating bases adapted for engagement with the ties of said track section.

2. In a toy railway, a device, adapted to be attached to a track section having a pair of wheel bearing rails and an insulated third rail, said device including a pair of spring clips adapted to engage the sleepers or cross ties of a track section.

3. In a toy railway, a device adapted to be attached to a track section having a pair of wheel bearing rails and an insulated third rail, said device including spring clips adapted to engage the sleepers or cross ties of a track section, and a wheel bearing plate, said spring means holding said plate adjacent one of the wheel bearing rails.

4. An attachment for three rail track sections, comprising a wheel contacting plate and a pair of bases composed of non-electrical conducting material supporting said plate, and spring tie engaging clips carrying said plate.

5. A circuit controlling attachment for toy electrical track sections, comprising a pair of bases of insulating material, said bases adapted to fit between a wheel bearing rail and the insulated third rail of a track section, means for yieldably positioning said bases between the said wheel bearing rail and insulated third rail, a wheel contacting metal plate carried by said insulating bases, and spring clips carried by said bases and adapted to engage sleepers or cross ties of a track section.

6. A circuit closing attachment for signals and the like used in connection with toy electric railway track sections including means adapted to be mounted on and insulated from the ties of the track section and having a circuit closing member for selectively providing a single contact or a plurality of contacts with the wheels of a car or train passing over said attachment.

7. A circuit closing attachment for connecting electric signals or the like to toy electric railway track sections including

means adapted to be supported adjacent one wheel bearing rail for providing a relatively continuous flow of current and adapted to be placed adjacent another wheel bearing rail for providing a relatively intermittent flow of current.

8. A circuit closing attachment for connecting signals or like devices universally to any standard section of toy electric railway track including wheel bearing rails in electrically conducting relation and an insulated third rail, comprising a contact member adapted to be insulated from and supported by the ties of the track section, said contact member having a continuous edge and spaced offset portions at its other edge whereby the same may be selectively placed with its continuous edge adjacent one wheel bearing rail or its edge having spaced contact portions placed adjacent another wheel bearing rail.

9. An article of manufacture adapted for use in connection with standard railway track sections including a pair of electrically connected wheel bearing rails and an insulated third rail comprising a signal or like devices having connected therewith a pair of conductor wires, a track attachment including a contact plate, means for supporting said plate on the ties and insulation between said means and the plate, and said plate being connected with one of said wires, and means for detachably connecting the other of said wires with the third rail.

10. An article of manufacture including a signal device or the like having a pair of circuit wires connected therewith, a track attachment including a contact plate having a continuous edge and an interrupted opposite edge, insulation means for said plate, clips connected with the insulation for mounting the attachment on the cross ties of a track section, means for electrically connecting one of said wires to the plate, and a connector carried by the other of said wires adapted to engage with a current carrying rail of the track section.

11. Means for connecting a signal device or the like in circuit with the electrically connected charged third rail and a wheel bearing rail of a standard track section comprising an attachment including a member adapted to be disposed selectively between one wheel bearing rail and the third rail or the other wheel bearing rail and the third rail, means on said member for supporting the same on the cross ties connecting said rails and insulating the same therefrom, an electrical connection between the member and the signal, and another electrical connection between the signal and the third rail.

12. An attachment for toy electrical railway tracks including a contact member adapted to be supported between a wheel bearing rail and the third rail, said member having a relatively long contact surface at

one side and a shorter contact surface at the other.

13. A duplex circuit closing attachment for toy electrical railway tracks, including a contact member adapted to be interchangeably placed between either of the wheel bearing rails and the third rail, said member having a relatively long wheel-contact edge at one side and a relatively short wheel-contact edge at the other.

14. A circuit closing attachment for signals used in connection with electric toy railway track sections including a member having continuous and interrupted portions adapted to be selectively located adjacent a wheel bearing rail thereby providing a single contact or a plurality of contacts with wheels of a car or train passing over said attachment.

15. An attachment for connecting signals or the like to toy electric railway tracks including a detachably mounted member having continuous and interrupted portions whereby the same may be selectively positioned adjacent one wheel bearing rail or the other to provide a relatively continuous or intermittent flow of current to a signal device of the like.

16. An article of manufacture including a signal device having a pair of circuit wires connected therewith, an attachment having tie engaging and supporting means and including a contact plate insulated from said supporting means and having a relatively continuous wheel contacting edge at one side thereof and an interrupted wheel contacting edge at the other side thereof, said plates being connected with one of said circuit wires, and a detachable connector carried by the other of said wires and adapted to engage with a current carrying rail of said track sections.

17. A circuit closing attachment for signals used in connection with three-rail electric toy railway track sections, including a detachable member supported by the ties having continuous and interrupted portions adapted to be selectively located adjacent one of the said three rails of the track section, thereby providing a single contact or a plurality of contacts for a part of the car or train passing over said attachment.

18. A unitary circuit closing attachment for toy railway track sections comprising a contact plate having insulated tie engaging means, said means adapted to be releasably connected to a cross tie whereby to support said contact plate operatively to the rails of the track section.

In testimony whereof I hereunto affix my signature.

HARRY S. BECKER.